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May 30, 2018

U.S. Patent and Trademark Office (USPTO)
Customer Service Window
Mail Stop Patent Application
401 Dulany Street
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Re: **New Utility Patent Application in U.S.**
Applicant(s): SNAPAID LTD.
**Title**: *REAL TIME ASSESSMENT OF PICTURE QUALITY*
Attorney Docket No.: SIVAN-001-US3

Sir/Madam,

Attached herewith is the above-identified application for Letters Patent including:

1. Applicant asserts small entity status.
2. Application Data Sheet (PTO/AIA/14);
3. Specification (31 pages), Claims 1-21 (3 pages) and Abstract (1 page).
4. 4 (four) sheets of Drawings (Figures 1-4).
5. Declaration

   [ X ] Newly executed [ ] Copy from prior application no. _____
6. Assignment submitted through EPAS

   [ X ] Newly executed [ ] Copy from prior application no. _____
7. Power of Attorney
8. Information Disclosure Statement (PTO/SB/08).
9. Certain documents were previously filed or cited to the USPTO in the prior application 15/582,722, which is relied upon under 35 U.S.C. § 120.

   Applicant(s) identify these documents by attaching an Information Disclosure Statement listing these documents and request that they be considered and made of record in accordance with 37 CFR § 1.98(d). Per Section 1.98(d),

   copies of these documents need not be filed in the application.

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10. Electronic Payment in the amount of US$ 835 is being made by deposit account no. 601835 to cover filing fee calculated as follows:

| **Application as Filed** | | | | **Fee (US$)** |
|---|---|---|---|---|
| Basic filing fee | | | | 75.00 |
| Search Fee | | | | 330.00 |
| Examination Fee | | | | 380.00 |
| **Total Sheets** | **Extra Sheets** | | **Rate** | |
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| **Claims** | **# Filed** | **# Extra** | **Rate** | |
| Total Claims | 1-21 | -- | 50.00 | 50.00 |
| Independent Claims | 1 | -- | 230.00 | -- |
| Multiple Dependent Claim | | | 410.00 | -- |
| **Total Filing Fee** | | | | 835.00 |

11. As in the prior application 15/582,722, please associate the above referenced application with **Customer No. 131926**.
12. The Correspondence Address associated with **Customer No. 131926.**

Submitted by,
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# REAL TIME ASSESSMENT OF PICTURE QUALITY

## RELATED APPLICATIONS

This application is a continuation application of U.S. Application No. 15/582,722 filed on April 30, 2017, which is a continuation application of U.S. Application No. 15/007,253 filed on January 27, 2016 (U.S. Pat. No. 9,661,226, issued May 23, 2017), which is a continuation application of U.S. Application No. 14/437,105 filed on April 20, 2015 (U.S. Pat. No. 9,338,348, issued May 10, 2016), which is a national phase of, and claims priority from, PCT Application No. PCT/IL2013/050856 filed on October 22, 2013, which claims priority from U.S. Provisional Application No. 61/717,216 filed on October 23, 2013 and U.S. Provisional Application No. 61/759,643 filed on February 1, 2013, all of which applications are hereby incorporated by reference as fully set forth herein.

## FIELD

The present invention relates generally to image processing and more particularly to analysis of photographed images.

## BACKGROUND

Cameras today, even those with good "auto mode" functions, still rely on the camera user to assess a picture's quality, either at the time of taking the picture, or at a later stage. Certain software, such as Photoshop, offers tools to enhance a picture to an extent. Many users simply take more than one picture, say 5-6 pictures, so they will be able to choose one good one.

Conventional technology constituting background to certain embodiments of the present invention is described in the following publications inter alia:

a. US 20130155474 in which a user of the mobile device is provided with feedback prior to the capturing of at least one image of a paper document which provides the user with at least one instruction for adjusting at least one measured parameter. Parameter values may be combined into a group threshold or total overall quality score, such that the combination of all of the measured parameter values produces an overall quality score which exceeds a defined threshold value before the

image can be captured by the camera. According to this publication, "The user can be provided detailed information to assist the user in taking a better quality image of the document. For example, the blurriness may have been the result of motion blur caused by the user moving the camera while taking the image. The test result messages can suggest that the user hold the camera steadier when retaking the image."

b. WO 2006040761 / US20070195174 which describe a system in which the interface module further enables to define the scene dynamics of the captured image and attributes of the captured image scene dynamics include image motion speed and motion speed of the subjects and the interface module further enables setting the captured image attributes relative weight for the compution of the total image grade.

c. US20090278958 which describes inter alia that "The scoring of a current base image may be based on scores which have been given to previously captured base images. In such a manner, redundant calculation may be avoided."

d. Other systems such as the following patent documents: US7362354; WO2003069559; US7688379; US20090263028; US20060017820; US20060056835; US8125557; WO2011148212; US7920727; US20130155474; US8040382.

The disclosures of all publications and patent documents mentioned in the specification, and of the publications and patent documents cited therein directly or indirectly, are hereby incorporated by reference. Materiality of such publications and patent documents to patentability is not conceded

## SUMMARY

Certain embodiments seek to utilize camera hardware such as accelerometers, gyros and autofocus lenses, inter alia, to evaluate pictures taken in real time, and actively assist in obtaining the best picture given the circumstances at hand.

Typically, each available sensor, e.g. accelerometers, gyros, sends its raw data to a processing component 400 that outputs a quality indicator e.g. as illustrated in Fig. 1. and Fig 3. Data may also be sent to Device/surrounding objects 4D position computation component 230 for 4D positioning computation. Raw data may be combined with quality indication from other sensors, such as the camera/lens module 200, that can send its own quality indications. For example, some lens modules can

estimate the picture focus quality, as it is a part of their auto focus functionality. Some camera/lens modules may have dual cameras or more for achieving 3D data, sophisticated focusing methods like Lytro light field camera, or their own hardware sensors like Google Glass. All this available data can be sent to component 400 and Device/surrounding objects 4D position computation component 230 for use of their functions. Various quality indicators, depending on device capabilities and implementation, may be employed.

Prior art has used certain independent quality indicators, each giving a quality of one particular aspect of a picture, for a given picture. Some try to quantify the quality by means of a total quality indicator. Typically this is done as follows:

$$QI_{total} = \sum_{i=1}^{n} QI(t)_i$$

Where n is the number of quality indicators (QI), and t is the time of test.

Some implementations use a weight function in computation, but the weight is either constant or can be change by the user manually.

$$QI_{total} = \sum_{i=1}^{n} QI(t)_i * w_i(t)$$

However, in this invention, the weight of one indicator will take into account data from other quality indicator/s e.g. their quality indicator value, weight, confidence level (explained forthwith) in them and their previous value, weight and confidence level. For example, if both device shake quality indicator and/or camera focus quality indicator indicate a poor quality, disregard use of aesthetic quality indicator in total computation, even if user indicated that he would like to give it a high priority. This will prevent the device from taking a picture when the picture is blurry, as is the case in prior art. Once shake is low and focus is optimal, aesthetic QI may be used in total quality computations. One quality indicator's importance or relative weight within the total quality indicator may change over time, if some other quality indicator indicates that the first quality indicator becomes less relevant in quantifying the picture quality.

Furthermore, since each QI algorithm has its own assumptions, and each sensor may have measurement errors, the quality indication (QI) value may therefore not be reliable. Also, a QI value that fluctuates widely may not be reliable, and in

certain cases, re-assessment of the quality indicator may be called for. Thus, a "confidence level" in the QI is obtained. These indicators may be relayed to a processing component that analyses the current relevance of each indicator, and with suitable configuration, provides a "total" quality value.

This total quality indicator and its detailed list of quality indicators can be used to give the user accurate feedback on the picture quality, whether and how it fits user preferences (configured in 151, used in total QI computation), and provide detailed suggestions on how to take a better picture, if possible.

Suggestions may be provided as an oral message, typically pre-recorded, as an icon on a screen, or as text. Suggestions may use the recorded images as a template for the suggestions. This may include marking over exposed areas in red, or marking a problematic element with a circle.

The quality indicators' values and total quality indicator can be shown to the user in real time.

Certain embodiments of the present invention include a method which comprises combining data from multiple sensors and multiple quality indicators, using available GPU and CPU, to compute, in real time, each quality indicator, and to form a combined total indicator to be shown to the user before and after he has pressed the shutter button. The user may get, or choose to get, suggestions from the application on how to improve the next shot, using the quality indicators and their correlation.

Further indication to the user can be made if the image is below a certain total quality indicator threshold.

According to one embodiment, quality indications are used to control the lens module 200. For example, focus distance reported may be below hyper focal distance or very short and accelerometer reports movement in direction perpendicular to focus plan. This can be used to find a way to shorten the shutter speed (increase ISO or change aperture for example). Another example may be to change the focus point and possibly focus distance if the object being tracked has moved.

In another embodiment, when the user presses the "shutter" button to take the picture (component 105), the device will wait for the total quality indicator to reach a minimum value/threshold, before taking a full resolution picture as shown in Fig 1. Ideally, this time will be close to the shutter release time. A timeout mechanism can ensure a full resolution picture will be taken, even if the threshold is not reached in a given time after the shutter is released.

A list of suggestions to the users may be for instance "blurred image due to camera shake", or "blurred subject due to subject movement", or "Image dynamic range is beyond the sensor dynamic abilities –choose area of interest, or take a high dynamic range (HDR) shot".

Embodiments include but are not limited to:

Embodiment 1. A method for computing the photo quality of a captured image in a device image acquisition system, said method comprising:

computing at least one total quality indicator based on at least two quality indicators computed from said captured image and its previous image frames,

to determine whether the photo quality is acceptable; and

providing a corresponding detailed photo quality feedback.

Embodiment 2. A system according to embodiment 1, where automatically activating the capturing apparatus, once a logical criterion based on said quality indicators is met.

Embodiment 3: A system, according to embodiment 1 where

a message provider is operative where at least one appropriate suggestion from a pre-stored table of suggestions on how the digital image can be improved further, where said message is presented as a suggestion to the user.

Embodiment 4: A system, according to embodiment 1 where

pictures are taken and saved at each frame, but only pictures with a said logical criterion are marked as so.

Embodiment 5: A system, according to embodiment 1 where the stream of frames is saved as a video and;

quality indicators, user preferences, confidence level, and quality importance are used to quantify video quality.

Embodiment 6: A system, according to embodiment 5, used to give a user suggestions on improvement of the video.

Embodiment 7: A system, according to embodiment 1, where computed QI and their confidence levels are used to change parameters in the lens/sensor module to achieve better total QI.

Embodiment 8: A system and method as in embodiment 1 used for automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.

Embodiment 9. A system using blur type detection for alerting the user of object

movement in a region.

Embodiment 10. A system using blur type detection for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.

Embodiment 11. A system and method described herein for evaluating video quality.

Embodiment 12. A system with device shake recognition, where a device movement gesture can be used for shutter press indication.

Embodiment 13. A system with device shake recognition, where a device movement gesture can be used for delete picture indication.

Also provided, excluding signals, is a computer program comprising computer program code means for performing any of the methods shown and described herein when said program is run on a computer; and a computer program product, comprising a typically non-transitory computer-usable or -readable medium e.g. non-transitory computer -usable or -readable storage medium, typically tangible, having a computer readable program code embodied therein, said computer readable program code adapted to be executed to implement any or all of the methods shown and described herein. It is appreciated that any or all of the computational steps shown and described herein may be computer-implemented. The operations in accordance with the teachings herein may be performed by a computer specially constructed for the desired purposes or by a general purpose computer specially configured for the desired purpose by a computer program stored in a typically non-transitory computer readable storage medium. The term "non-transitory" is used herein to exclude transitory, propagating signals or waves, but to otherwise include any volatile or non-volatile computer memory technology suitable to the application.

Any suitable processor, display and input means may be used to process, display e.g. on a computer screen or other computer output device, store, and accept information such as information used by or generated by any of the methods and apparatus shown and described herein; the above processor, display and input means including computer programs, in accordance with some or all of the embodiments of the present invention. Any or all functionalities of the invention shown and described herein, such as but not limited to steps of flowcharts, may be performed by a conventional personal computer processor, workstation or other programmable device or computer or electronic computing device or processor, either general-purpose or

specifically constructed, used for processing; a computer display screen and/or printer and/or speaker for displaying; machine-readable memory such as optical disks, CDROMs, DVDs, BluRays, magnetic-optical discs or other discs; RAMs, ROMs, EPROMs, EEPROMs, magnetic or optical or other cards, for storing, and keyboard or mouse for accepting. The term "process" as used above is intended to include any type of computation or manipulation or transformation of data represented as physical, e.g. electronic, phenomena which may occur or reside e.g. within registers and /or memories of a computer or processor. The term processor includes a single processing unit or a plurality of distributed or remote such units.

The above devices may communicate via any conventional wired or wireless digital communication means, e.g. via a wired or cellular telephone network or a computer network such as the Internet.

The apparatus of the present invention may include, according to certain embodiments of the invention, machine readable memory containing or otherwise storing a program of instructions which, when executed by the machine, implements some or all of the apparatus, methods, features and functionalities of the invention shown and described herein. Alternatively or in addition, the apparatus of the present invention may include, according to certain embodiments of the invention, a program as above which may be written in any conventional programming language, and optionally a machine for executing the program such as but not limited to a general purpose computer which may optionally be configured or activated in accordance with the teachings of the present invention. Any of the teachings incorporated herein may whereever suitable operate on signals representative of physical objects or substances.

The embodiments referred to above, and other embodiments, are described in detail in the next section.

Any trademark occurring in the text or drawings is the property of its owner and occurs herein merely to explain or illustrate one example of how an embodiment of the invention may be implemented.

Unless specifically stated otherwise, as apparent from the following discussions, it is appreciated that throughout the specification discussions, utilizing terms such as, "processing", "computing", "estimating", "selecting", "ranking", "grading", "calculating", "determining", "generating", "reassessing", "classifying", "generating", "producing", "stereo-matching", "registering", "detecting", "associating", "superimposing", "obtaining" or the like, refer to the action and/or

processes of a computer or computing system, or processor or similar electronic computing device, that manipulate and/or transform data represented as physical, such as electronic, quantities within the computing system's registers and/or memories, into other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices. The term "computer" should be broadly construed to cover any kind of electronic device with data processing capabilities, including, by way of non-limiting example, personal computers, servers, computing system, communication devices, processors (e.g. digital signal processor (DSP), microcontrollers, field programmable gate array (FPGA), application specific integrated circuit (ASIC), etc.) and other electronic computing devices.

The present invention may be described, merely for clarity, in terms of terminology specific to particular programming languages, operating systems, browsers, system versions, individual products, and the like. It will be appreciated that this terminology is intended to convey general principles of operation clearly and briefly, by way of example, and is not intended to limit the scope of the invention to any particular programming language, operating system, browser, system version, or individual product.

Elements separately listed herein need not be distinct components and alternatively may be the same structure.

Any suitable input device, such as but not limited to a sensor, may be used to generate or otherwise provide information received by the apparatus and methods shown and described herein. Any suitable output device or display may be used to display or output information generated by the apparatus and methods shown and described herein. Any suitable processor may be employed to compute or generate information as described herein e.g. by providing one or more modules in the processor to perform functionalities described herein. Any suitable computerized data storage e.g. computer memory may be used to store information received by or generated by the systems shown and described herein. Functionalities shown and described herein may be divided between a server computer and a plurality of client computers. These or any other computerized components shown and described herein may communicate between themselves via a suitable computer network.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Certain embodiments of the present invention are illustrated in the following drawings:

Fig. 1 is a functional block diagram of a system and method for real time assessment of picture quality produced on a device, e.g. as shown in Fig. 2, having multiple sensors including use of hardware sensor data to generate and utilize picture quality indications.

Fig. 2 illustrates a hardware and operating system (OS) layer which is operative in conjunction with the functional block diagram of Fig. 1.

Figs. 3 and 4 illustrates component 400 in detail and a sample of a quality indicator computation dependence, all according to certain embodiments.

Computational components described and illustrated herein can be implemented in various forms, for example, as hardware circuits such as but not limited to custom VLSI circuits or gate arrays or programmable hardware devices such as but not limited to FPGAs, or as software program code stored on at least one tangible or intangible computer readable medium and executable by at least one processor, or any suitable combination thereof. A specific functional component may be formed by one particular sequence of software code, or by a plurality of such, which collectively act or behave or act as described herein with reference to the functional component in question. For example, the component may be distributed over several code sequences such as but not limited to objects, procedures, functions, routines and programs and may originate from several computer files which typically operate synergistically.

Data can be stored on one or more tangible or intangible computer readable media stored at one or more different locations, different network nodes or different storage devices at a single node or location.

It is appreciated that any computer data storage technology, including any type of storage or memory and any type of computer components and recording media that retain digital data used for computing for an interval of time, and any type of information retention technology, may be used to store the various data provided and employed herein. Suitable computer data storage or information retention apparatus may include apparatus which is primary, secondary, tertiary or off-line; which is of

any type or level or amount or category of volatility, differentiation, mutability, accessibility, addressability, capacity, performance and energy use; and which is based on any suitable technologies such as semiconductor, magnetic, optical, paper and others.

## DETAILED DESCRIPTION OF THE DRAWINGS

Certain embodiments of the present invention include a system and method for real time assessment of picture quality produced on a device having multiple sensors, such as a smartphone. In one embodiment, all of the sensors, such as but not limited to an image sensor, accelerometer or gyroscope, are embedded in one device. It may be that they reside in different devices, but send their data to one device where the total indicators are computed.

Fig. 1 is a functional block diagram of a system and method for real time assessment of picture quality produced on a device, e.g. as shown in Fig. 2, having multiple sensors including use of hardware sensor data to generate and utilize picture quality indications.

Referring now to Fig. 1, a Lens/sensor module 200 such as OmniVision OM8865 may be characterized by and/or generate photographic parameters, including but not limited to some or all of:

**a)** The current image the sensor receives, referred to as a frame or image

**b)** ISO speed (current, min, max)

**c)** Is camera focused (yes/no/estimate if available).

**d)** Aperture

**e)** Focal length

**f)** Shutter speed

**g)** Focus rectangle, or area of interest

**h)** Sensor type and size – for example BSI2 CMOS 1/2.5 inch

**i)** Depth of Field

**j)** Scene mode or user preferences.

These parameters may be used for computing quality indicator values and their confidence level, as indicated in Fig 3.

The module 200 sends continuous video frames of the scene in front of the device lens, and data from other sensors is continuously received and analyzed in real

time.

Typically, a smartphone includes all such sensor and hardware inside the smartphone. However, it is possible that the image may be sent to the device from an external camera via a cable or Wi-Fi. The image sensor sends its data to the device operating system that may send the whole image or a preview of it to the GPU 122 of Fig. 2 at a rate of X frames per second. This image data is passed on to various programmed GPU vertex and fragment shaders. It is then used for fast computation of some of the quality indicators.

Fig. 2 illustrates a hardware and operating system (OS) layer, which is operative in conjunction with the functional block diagram of Fig. 1.

**Errors and probability in quality indicators**

When prior art computes a quality indicator value, it was done without taking into account the possibility of error in the computed QI, as all sensors give out errors.

For example, a user wishes to compute a quality indicator for device shake based on data from accelerometers. Accelerometers have precision errors and drifting errors over time. If the user wishes to compute a speed vector, this will be relevant. The speed may be assumed to be 100 +-3. A GPS can estimate location and speed errors via its location computation. Errors may also occur as a result of blurriness of some sort, or may result from image resolution and many other factors. For example, assuming a device is moving at a constant speed, and $V_i$ is the computed speed in frame i, where $1 \leq i \leq n$, then if value $V_n$ is 2 standard deviation from the average speed measured so far, (and assuming a normal distribution), then probability for this value is 5%, denoted $P_i(t)$. Most of the time the speed may not be constant, but the above technique can nonetheless can be applied, mutatis mutandis, when errors can be estimated. The probability factor P, is closely related to the nature of the quality indicator and hardware used. For example, a GPS device has its own algorithm for that e.g. Kalman Filters. Beyond mere errors, recognition or pattern algorithms have assumptions that can be related to "probability" of the feature been searched. For example in object recognition, if 4 out of 5 features for this object (face, lamp, chair) have been recognized, a probability P of 80% is indicated. Other examples may be comparison to a similar image for same scene recognition, as objects have moved or just look similar. Aesthetic fit algorithms employ "probability" which pertains to this.

**Confidence level of quality indicator**

Thus far, only a current image has been illustrated, but previous data can aid in computation of a better confidence level. This depends on the QI in question and the nature of the errors, but assuming a general case, one way of computing the confidence level of $QI_i$ denoted $C_i(t)$ is

$$C_i(t) = P_i(t_{j2}) * N(P_i(t_{j2}))$$

$$N(x) = e^{\frac{-(x-\mu)^2}{2\sigma^2}}$$

$$\mu_i = \sum_{k=t1}^{t2} \frac{P(t_k)_i}{k2-k1}; \quad \sigma_i = \sqrt{\frac{1}{n}\sum_{k=1}^{n}(P(t_k)_i - \mu_i)^2}$$

$t_{j2}$ is the time of frame j2, the last frame so far.

$t_{j1}$ is the time of minimum frame j1 computation which may be used.

N(x) is a formula for a normal distribution , $\sigma$ the standard deviation and $\mu$ the mean value. The values in the distribution here are $P_i(t)$

In the formula for computing normal distribution and standard deviation, there is a limit on the "looking back" portion of the computation, so when a significant event occurs at frame j1, it may be reset.

This example uses normal distribution, since nothing is known about the QI at hand, but this need not be the only distribution function. For example, if the location is measured by an accelerometer, accelerometer readout errors and drifting errors over time may be used to construct a better distribution function. For example, an accelerometer distribution function may be different for high acceleration and for low acceleration, since in low values the distribution will be more spread out than in high values.

Mean $\mu_i$ and standard deviation $\sigma_i$ are computed from a specific frame j1 until the current time (or just until the previous frame). This way a significant event in j2 can be an indication to reset j1 to j2, so the computations will not use frames before j2.

In another embodiment, one that doesn't use old data N=1, thus

$$C_i(t) = P_i(t_{j2})$$

There may be other methods to compute confidence. For example, GPS location algorithms (such as a Kalman filter) have their own way of computing confidence in the location, especially but not limited to, the mean of error in position.

If current GPS data say location has changed 3 meters in the last 15 milliseconds, but accelerometer data shows no change, and assuming that it is known from past computations that speed is relative zero, then the GPS data may not be trusted, and confidence in the GPS QI for movement, is low.

In another example, it may be that the lens module 200 report image is in focus, however independent focus blur QI 244 image is not in focus. This can affect the confidence of QI in component 248, where lens module QI is computed.

One way to compute the confidence level that is dependent on other values can be expressed as

$$C_i(t) = P_i(t_{j2}) * N(P_i(t_{j2})) * \prod_{k=1}^{n} f_{ik}(t, QI(t)_k)$$

Where n is the number of available quality indicators, and i and k are running indices of the current quality indicator in question. The function $f_{ik}$ denotes a function specific to these quality indicator correlations. If there is no correlation, the function will be regarded as the scalar 1. In the above example, i being QI in component 248, and one some value $1 \leq k \leq n; k \neq i$ where k is the index for QI in component 244, the value of $f_{ik}$ can be 0.5 if $QI(t)_k < 0.7$. (In this example all QI and confidence levels are normalized to 1).

More examples of use and computation of confidence levels are now described, as other components and quality indicators are introduced.

**Quality indicators use of previous frames data**

The QI used in the total quality indicator, $QI\_ForTotal(t)_i$ employs the current value of $QI_i(t)$ but also the confidence level. The confidence level is a function of old values inherited by virtue of distribution formula N(t). So if the QI value is significantly different then expected, the QI value's confidence level may drop thereby bypassing a current QI that may be problematic.

Other ways to bypass or wholly or partially discount a current wayward QI value include, say, recognition of an object or face. The object may have been in the field of view one frame ago, with high confidence, say 1/30 of a second ago. Now the QI say the object is no longer there, perhaps with low $P_i(t)$ value. It is possible however that the object in fact is still there; just the recognition algorithm has misses the object. In this example the method may override the current QI with the previous one, at least for

a frame or two. More generally, old QI may be employed, particularly if its confidence level exceeds newer QI values, to generate an improved current QI value. One embodiment could be an average of the last few frames that had a high confidence level. The availability of old QI, errors in them via $P_i$, and the computation of $C_i$ provide other methods for determining the value of $QI_i(t)$ e.g. for use in the total indicator. Algorithms of deep learning in neural networks, applied to confidence level data inter alia, may be used to better compute a current value of the quality indicator.

The following are examples of quality indicators and computational functionalities therefor, some or all of which may be provided as shown in Fig. 1:

**Blur detection in component 244**

Image blur can be of 2 types: focus or movement. In order to detect blur, quantify it and alert the user, its origin may be determined, so the user will have information on why the picture has inferior quality.

Blur caused by movement can be either due to the imaging device having moved (usually shake) and/or because the object which was photographed, moved. Both movements refer to the time the image is taken, and the shutter speed.

There are many algorithms for testing blur via frequency distribution in k space transformation such as DCT or other Fourier transform variants, for example prior art US20110096180. Other ways may be testing signal-to-noise ratio and searching for peak signal-to-noise ratio (PSNR). These algorithms can be used to create a blur quality indicator in component 244. This may assist in double checking the camera module 200 own focus assessment used in computation of QI in component 248. This is an advantageous step, since many quality indicators function better when they use previous frames, assuming they are all in focus. Retesting lens/camera module 200 own focus assessment may therefore be helpful.

**Device movement indication based on accelerometer**

Camera shake and movement can be quantified using an accelerometer 206 to measure device 3D acceleration, and integrating this over time to determine camera speed. The time of resetting the speed to zero is advantageous, since computation rounding and sensor errors may accumulate over time. This can be done in a few ways, for example: zero speed can be accessed when the device's acceleration

is minimal and back and forth over a long time (meaning device is around some point in space).

**Device movement quality indicator 270**

A person of skill in the field of photography would recognize the rule of thumb of focal length which may be reciprocal to the shutter speed if one wants to avoid camera shake due to hand shake. Component 200 provides these two parameters. Device/surrounding objects 4D position computation component 230 provides a position of the device as a function of time in some degree of confidence. Given an average hand jitter speed, one can set a threshold of the accepted speed of the device. For example, assume that for a shutter speed 1/15 of a second, speed may be less than 2 mm per second. 1 mm per second may provide excellent quality, 2 mm per second good quality and 2 cm per second very poor quality. Also a depth of field of the picture (DOF) can to be computed, using the focus distance, aperture of the lens and so on. If the depth of field is small and subject distance is short (macro photography), then movement of the device in the z axis may have a profound effect on quality but for most pictures and devices this is not the case.

For example, a scene with a baby taken from 50 cm away with a Nikon D300, 50mm focal length lens, aperture of 1.8, means the depth of field may be 2.7 cm. This means that the baby's face may not be fully in focus, and an inferior quality may be indicated. For the same configuration with f/8 aperture, an excellent quality may be indicated.

These computations may aid in determining the importance of movement in the Z exis to the value of the QI. Let a function $I_3(x)$ be the importance of the z axis. In one embodiment $I_3(x)$ may be an exponential function of some sort. The other axes, x and y, each have their own function. They can also have an exponential function, but with a different factor. Given the speed $V_i$ in each direction as given by Device/surrounding objects 4D position computation component 230 the following can be computed:

$$QI_{\text{device motion}} = \frac{\sum_1^3 I_i(x_i) * V_i(t)}{3}$$

This is one possible method for computation of the base QI for device motion which is not intended to be limiting. Other embodiments may for example use confidence levels .

Component 200 may have some kind of image stabilization - sensor shift, lens stabilization or other. In this case the lens or sensor movement speed in these image stabilizations may be incorporated into the speed $V_i(t)$ in the formula above, for the QI to be correct. If this cannot be achieved with sufficient accuracy, the errors may be incorporated into this QI confidence level.

**Object movement component 220**

There are many methods of computing a motion vector. A block matching method may be used, or a gradient method, etc., or if the motion vector information is included in the input image signal in some form, this information may be utilized. The motion of the objects in the image frame is caused by the combination of two factors: real object movement and apparent movement caused by device movement.

When computing object speed in the image frame, one must subtract the device movement as computed in Device/surrounding objects 4D position computation component 230 from the object speed vector computed.

Methods of statistical pattern recognition may be used to fully recognize actual objects, such as a chair, a tree, a face or a car. If either the imaging device or object is moving, the identity of the object may be considered as a factor for the related confidence level; e.g. a car is much more likely to be moving during imaging than is a tree. Objects that are in the focus rectangle or area of interest are more significant to quality. If there is some movement at a far end region (or: at a significant distance), this may not greatly affect the quality indicator.

**Object movement quality indicator 260**

The data from component 220 can be used to create a quality indicator about blur due to subject movement. Normally, no movement would indicate excellent quality, and high-speed movement would indicate low quality.

Some objects are more important than others for a "good" picture. For example, often a face is more important than a chair. In order to compute this subject movement quality indicator, each object may be recognized and its movement vector and significance may be factored into the quality indicator dependent on this object's movement.

This computed data may be used to alert the user of motion of a specific object

that is considered important such as a face located in the center of an image.

One way of computation of this quality indicator, noted $QI_{\text{subject movement}}$, may be:

$$QI_{\text{subject movement}} = \frac{\sum_n A(x_i) * B(x_i) * S(x_i)}{n}$$

where A(x) – binary/multi-value indicator: is object inside or outside of; within, close to or far from, the focus/interest area rectangle

B(x) – importance of object to a picture

S(x) – object speed factor. A desired speed may be assigned a "high" value of 1, and 0 may be assigned for non-desired speed, with possible values in the middle. If the object is not to look blurred, it should be standing still relative to the current shutter speed. In that case a high value may be a slow speed. However, speed of an object may be desirable, e.g. to create the artistic impression of movement in the picture. In such a case, a high value may be assigned to a high speed.

Each factor is normalized to 1 in this example.

In one embodiment, if the motion vector's estimation quality is not sufficient, the camera module may be instructed to take a picture of a different exposure, say a shorter one, to measure the movement more precisely.

**Computing object motion vector via corners detection**

Algorithms such as Harris corner detection or its variants such as Shi Tomas corners detection may be used to determine whether the new image frame has more or less details than the previous frame. This determination may be combine with data from the gyroscope and accelerometer, if provided, to indicate whether or not the device has moved and/or the quality has severely deteriorated or increased.

The total quality indicator can be shown to the user in real time. Also, given a configurable "minimum" quality, an indication to the user can be made if the image total quality indicator is below this minimum.

In each region, the number of corners are counted and their center of gravity is computed. This is done for each region on each frame. The path of each center of gravity may then be followed over each region and a motion vector may thereby be computed. This may be feasible if the speed of the object is slow, since when the speed is quick, the corners may become blurred.

**Image leveled to horizon quality indicator 271**

The device gyroscope 205 and accelerometer 206, both of which may or may not be provided or available, may be used to compute device angle to the horizon, or how the device is leveled. Using this data, a quality indicator for "device leveled according to its orientation", is computed. For example, zero to 3 degrees is "excellent" quality, 3 to 5 degrees is "good" quality and so on. The user may hold the device either horizontally or vertically.

**Camera focus quality indicator 248**

As already mentioned, component 200 may send to component 248 data if component 200 is currently in focus, thereby to form an "excellent" quality indicator level for already-focused and "bad" quality indicator for still-focusing. Some camera modules may provide a focus estimation of their own. In such cases, this may be incorporated into or replace the quality indicator to provide more than a yes/no quality indication.

Furthermore, when the lens focuses, the frames received from the camera module are blurred, so the quality indicators related to the blur or object motion detection may be affected. In one implementation, the frames with low focus quality, may be removed when computing these quality indicators.

The lens/camera module 200 may also report its own focus confidence level.

Ideally, the focus indication sent by component 200 may coincide with component 244 QI. However, if it does not, say 244 indicates out of focus and 200 indicates in focus, this can be used to lower 248 confidence level, as demonstrated in the confidence level section.

**Face detection quality indicator 249**

This quality indicator indicates whether there is a face or faces and whether the face is smiling and/or looking at the camera. These indicators are passed on to a component 249 that analyzes the relevance of each of them, and yields a "total" quality value for this quality indicator.

Furthermore, one may determine if each face is smiling and/or looking at the camera. This data may be used for a quality indicator. For example, a scene in which over 90% of the faces are looking at the camera and 80% are smiling, equals

"excellent" face quality, while a scene in which none are looking and none are smiling indicates "bad" quality. Importance of the smiling/not smiling factor may be configured by the user via component 151.

**Recognized face quality indicator 250**

The device may have a list of configured faces to recognize and for each, pre-stored, their importance, say a user family member or work colleague. The data may also include specific face features. This is denoted as component 212,

Recognition of these faces in component 217 may be used by component 250 to produce a quality indicator based on importance as well as face quality, as before. Face importance may change over time by the user, or automatically, by learning user preferences. Confidence level may be computed similarly to 249. However, since it is a known person, more data may be obtained to enhance face recognition, such as face features from various angles, glasses, etc.

**ISO level and camera hardware exposure data 245**

Data such as ISO level, exposure time, focal length, and aperture and focus area is sent from the lens/camera module 200.

Depending on the device capabilities, such as maximum and minimum ISO, a quality indicator is produced. High ISO gives bad quality vs low ISO that gives a high quality indicator.

An optional exposure time quality indicator may be created, if a minimum exposure time is configured.

**Lens focal length, aperture, focus distance, sensor type and model and depth of field 247**

Depending on the device capabilities to change focal length and aperture, and given a known configured scene, a quality indicator may be provided to indicate how these parameters confront the given scene. For example, if the scene is a portrait and no face is detected by component 216 yields a bad QI.

Another example may be to use the sensor type and model (component 200) to yield a QI related to it – professional quality may yield good quality, when a poor quality, less costly component, yields poor quality.

Another embodiment for this QI is for testing background blurring, which may

sometimes actually be desired. For example, a scene with face recognition in 216 and a very small aperture, say f10 with focus distance in the hyper focal distance of component, 200 yields a bad quality, whereas a wide aperture, say f2.8 on these conditions, yields a good quality.

**Under and overexposed quality indicator 243**

Given configurable under and over thresholds (say 5% from pure white and 3% from pure black) the image frame given to the GPU is processed to compute areas that are underexposed and areas that are overexposed, e.g. similar to the zone system by Ansel Adams known in the field of photography.

The image frame is divided to a configurable number of areas; say 256 areas or 1024 areas. If a configurable number of percentages of pixels in an area (say 95%) are under or over exposed, the area is marked as under or over exposed. If the image sensor or operating system supports scene recognition/ scene mode, or object recognition is present, then the image sensor or operating system may be used in the evaluation of this quality indicator. For example, if the sun or a lamp is the brightest area in the image, they may be ignored. A point of bright light like the sun or a light bulb may be recognized by their pattern and may be ignored.

On another embodiment, the computation may be based on percentage of over and underexposed pixels in the image.

An image in which a large percentage is marked as over or under exposed, say over 40%, may get a bad over/under quality indicator. The same thresholding method may be used for the method of areas described before e.g. if over 40% of 256 areas are considered over exposed.

In another embodiment, pixel or areas inside or outside the focus area of the picture, as given by the lens/camera module 200, may have a different weight e.g. pixels or areas outside the focus area may have a lower affect on the quality indicator value.

This indicator may be used to indicate to the device that an High dynamic range (HDR) shot may be taken, and may be done either automatically or by notifying the user. Depending on the device, this may be done automatically by taking 2 pictures with different exposure settings.

**Histogram quality indicator 241**

The under/over quality indicator is a special case of a more general quality

indicator taking into account not just the histogram extreme, but also its central part, and also taking into account function structure and lens/camera module 200's available dynamic range.

This may be no reference, or a full reference (meaning in computation there is or there is not a reference to a preferred image), e.g. as in "The Design of High-Level Features for Photo Quality Assessment" by Yan Ke, Xiaoou Tang and Feng Jing.

**Obstructing the lens quality indicator 246**

Obstructing the lens may occur as a result of putting the finger partly or fully on the lens. For example, in bright conditions there may be a brown-red area in one corner. In dark conditions there may be no light at all in that location. Confidence in having recognized the situation may be enhanced as more frames are taken and the camera is moved around because if there is no obstruction on the lens, then the size of the area previously believed to be obstructed, would change significantly. There may be other objects causing obstruction that may be recognized. If they are recognized, their name can be used in feedback to the user, instructing him to remove the obstruction.

The amount of area and confidence may be used to give this quality indicator a degree/rating between "excellent" and "bad". For example, a finger blocking the lens may look on the image as a brownish area, probably in a corner of the frame. If the color were green, or it is an isolated area in the middle, the confidence would be low.

For the previous example (finger blocking appearing as a brownish area) the confidence is high.

**Functionality 230 - Measuring distance to objects and creating a 4D environment measurement in real time e.g. by computation of Device/surrounding objects 4D position**

As already described, the speed of the device in each direction may be measured and the distance traveled may be computed.

With the help of a GPS (e.g. based on unit 202 in Fig. 1) and/or step counting hardware (unit 203) accuracy in the range of a few dozen or a dozen or centimetres or even a single centimetre may be computed by a person skilled in the area for the device 3D relative position in time, thereby to yield 4D position.

This could be used by component 270 to yield better QI accuracy. By measuring the boundaries of an object in one location and again in another location, after moving the

device, the distance to the object may be measured (assuming the object is still). e.g. via parallax. Parallax is the apparent displacement of an object because of a change in the observer's point of view. Since cameras today easily achieve 8MP and more, typically, distance can be computed providing parameters such as lens focal length from component 200.

The 3D scene is built according to the input images from the image capturing unit 200 or any other sources. It can be based on multi-view image geometry techniques as introduced in "Multiple View Geometry in Computer Vision" by R. I. Hartley, A. Zisserman, Cambridge University Press (2004). The user may help by moving the device, either by walking a few steps or holding the device at full arm's length and swinging it pointing to the scene in question. However, a full 3D scene reconstruction is not required. A partial reconstruction, including scene change in time, may suffice.

Since the methods used to estimate the distance include integrated estimation, such as the distance is between 2 to 3 meters, a confidence level on each object can be constructed, similar to that described in the confidence level section. Also, since the device position itself may have errors or uncertainties, this also can be used in the confidence level of each object. This confidence level can then be used by quality indicators using this component data, so that they may implement their own confidence level.

**Aesthetic rules quality indicators 240**

In photography, there exist 'golden rules' for fitting of the composition to a section that may give a better aesthetic looking picture. There are heuristics that provide a means of achieving an eye-pleasing composition such as but not limited to: rule of thirds, golden triangle, golden spiral, shapes and lines, amputation avoidance, visual balance, and diagonal dominance.

For example, when taking a picture on a beach, the sea and sky meet on the horizon 'line'. To fit this rule, one must put the line either at one third-height or two-thirds height, thereby fitting the "rule of thirds". Either one is "correct". However, putting the line in the middle creates a composition that is considered less favorable to the viewer.

There are various methods of testing a fit to this rule, for example in "Photographic", *Volume 29 (2010), Number 2* "Optimizing Photo *Composition"* by L. G. Liu, R. J. Chen, L. Wolf, and D. Cohen-Or.

Further types of aesthetic models exist, based on chroma and exposure. Some may only give a non-reference quality indication without suggestion on coordinate change, as in the previous article. For example, a model is described in published US20130188866.

In another embodiment, multiple aesthetic qualities may be used.

This aesthetic QI, can be used for suggestion to the user to move from his current location to another location, together with the other quality indicators like under/over, it may be suggested to the user that he should move from his current location.

For example, a lamp in the street behind a person at night will not be good even if it fits a golden rule. Using data from Device/surrounding objects 4D position computation component 230 , we can assess distance to the person's face, say 2 meters, the distance to a lamp of 4 meters height 4 meters behind him, we can suggest to the user that he should move 2 steps to the right and one forward, tilting the device 20 degrees to the left if he wishes to achieve a better aesthetic QI score and a better total QI .

**Functionality 242: Same scene quality indicator**

One of the problems solved by certain embodiments of the present invention include a processing system to reduce or eliminate any need to take multiple pictures of the same scene, in order to get one good picture. If the proposed system negates this need, it may be helpful to indicate to the user he is taking unnecessary pictures that may only be a burden at a later stage.

This is a heuristic quality indicator, taking into account the time, location of device, angle of device, object movement in the device and other parameters, including but not limited to photographic parameters such as ISO and focal length. It may require these parameters of previous pictures taken in recent time. One possible implementation includes comparing each QI and its confidence data to the QI and associated confidence level of a previously recorded and saved image in the last say 5 seconds (configurable). If the data of each QI is the same, it may be concluded that it is a "bad" same scene quality indicator.

**Functionality 400 and 401: Combining the separate quality indicators to total quality indicators**

As described herein, some quality indicators and their confidence levels may depend on other QI data. For example, aesthetic QI computation 240 may need the data on image leveled to horizon from component 271. If confidence of 271 is very low, it may not use any other data. Some, but not limited to, examples of QI computation components can be seen in Fig 3.

Some quality indicators may be considered mandatory (unless specifically turned off) since they cause unacceptable blurring of the image:

- Focus
- Subject movement
- Device movement

Each device may have different hardware capabilities, thereby may not yield all the possible quality indicators or may not be able to process detail indicators, due to slow hardware. Some indicators may be ignored, if so configured by the user. One is then left with a set of indicators with which to compute.

A QI use in a total indicator may vary depending on situation. For example, "overexposed" quality indicator computation 243 may use data from object recognition in component 220. If the picture shows a sunset, it is likely that there will be over and underexposed areas, so in one embodiment it may be chosen to decrease importance of a sun-lit area and be less sensitive to overexposed QI in total computation. In another example, face exposure check may be increased if the face quality indicator suggests there is a face.

$$QI\_ForTotal(t)_i = QI(t)_i * \prod_{j=1}^{n} f_{ij}(t, QI(t)_j, C_j)$$

As can be seen in this formula, there is a dependency in the confidence level $C_j$ before it is used, so data of QI with low confidence level may not be used. There may be other ways to formulate these connections. This may be employed as a general case.

$$QI_{total} = \sum_{i=1}^{n} QI\_ForTotal(t)_i * w(t, C_i)_i$$

$W(t)_i$ is the weight of each QI in the total and may be used to ignore QI if desired. $W(t)_i$ is dependent on time, since the user may choose to change it. $W(t)_i$ may be dependent on the confidence level. For example, if it is not desired to include below say 10% confidence, and $w_i$ will be zero if $C_i < 0.1$.

There can be more than one type of total QI. For example, when computing total QI,

and only mandatory QI are chosen (QI's considered mandatory by an application or use case), a mandatory total QI may be provided. This QI may be used to decide when to take the picture, e.g. as described below. Another option is to use all the QI to get a sense of the picture quality as a whole. One can choose to formulate other total QI for other needs.

This formula is just one way to achieve a total indicator that is dependent on quality indicators, their confidence levels and their relations. The idea is to enable a general formula as quality indicators are added or removed in some embodiments, or for different implementations with various levels of complexity and interconnections between QI.

**Functionality 502: Taking a picture at the proper time using total quality indicator**

It may be that the picture will not be taken when the shutter is pressed, but only when a minimum threshold on specific QI with specific confidence level is met, when a total QI minimum threshold is met, or timeout occurs.

In such cases, the user may be shown, in real time, the QI values and possible suggestions, as indicated in 501. The data for the suggestions may be in 520, where QI and their confidence level may be used to show suggestions. Suggestions can be shown for QI how a value is no good, and confidence level beyond a threshold, say 0.7.

The QI indication user interface may be a number, and may even be an icon representing the quality. For example 5 smiles may each represent a quality indicator. Smiling face – good, crying face – bad, and so on.

A picture, once taken, may be shown to the user with its quality indicators, together with further suggestions on how to improve (for example "image is underexposed in a large area").

The image may not be saved or may be deleted if total QI or any other predetermined QI is below some quality indicator threshold. After the image is saved, the quality indicators may be saved along with the image (one embodiment may be to use the EXIF convention used in JPEG files) so that they may be used at a later stage, such as when a user wants to see the picture quality days after it was taken.

**Suggestions to the user on how to improve the picture and component 520**

The user may choose to get suggestions from the application on how to improve the next shot. The application may use the quality indicators and their correlation to answer that.

This can be done before a final picture is taken and/or after. The application may use quality indicators, their confidence level, importance and their correlation to respond. This is where the database with user suggestions, component 520, is used. The data in this can be a table of text to be shown for every given QI with a low value. In a more complex embodiment, it can be an SQL table being queried by multiple QI. An example of such a query on the database may be "select * from suggestion_table where QI1 > 0.9 and QI2 < 0.2" In this example QI1 can be module 200 ISO speed and QI2 can be device shake QI. The text retrieved can be "Try to use higher ISO speed to counteract device shake". Another example can be QI1 is QI of 248 and QI2 is of 244. The text retrieved can be "focus may be off. Focus one another subject and try again". There may be more complicated queries and embodiments, as a person in the field of databases can easily construct, given ideas from a person in the field of photography.

Text suggestions may be accompanied by an image explaining them. For example, if there is a low quality indicator of under/over exposure, the implication may be presented to the user via text, and overexposed areas on a picture preview may be painted in red, and underexposed areas may be in blue.

The confidence levels may aid in recognizing the best suggestion to be retrieved from a table of suggestions. For example, one my use a QI with confidence larger than 0.5, and show suggestions in the order of confidence levels. In another example, certain QIs may always have priority over others, even if their confidence levels are lower than others, as long as they are higher than, say 0.7.

**Device movement gestures as indications for shutter press and delete**

In another embodiment the user may not need to indicate he is ready by first pressing the shutter. In such cases, the device may assume that the user is ready at any time, or may wait for the device to be stationary hence pointed at some specific point in space for a certain configured time. For example, the user may pull the device out of his pocket and point it to the desired scene and hold it there for a duration of one second. The device hardware may detect that the device has been in motion for a few seconds,

and then held relatively still in space, pointing at a certain direction for say one second. The system may assume that the user pulls the device out of his pocket in order to take a picture, and thus goes into "take picture" mode, waiting for the quality indicators to be above the threshold, then taking the picture automatically. The user may hear the sound of a picture being taken and return the device to his pocket. A shake gesture (available in mobile OS like iOS) may be an indication to the device to delete the picture and start again. Alternatively, the shake gesture may be recognized via the device shake QI.

**Using the system to evaluate video quality**

A quality ranking system over continuous frames, may be used to evaluate a video comprising said frames. One method would be to compute and average the total quality indicators over frames.

In another embodiment a different set of weight functions $w_i$ may be used e.g. different weights for different frames.

**Further examples of system use are as follows:**

a) If device shake QI is bad or camera focus QI is bad, disregard use of aesthetic QI in total computation, even if user has indicated he would like to give it a high priority. This will prevent the device from taking a picture when the picture is blurry. The suggestion to the user can be "Hold still" or "wait for focus". Once shake is low and focus is optimal, aesthetic QI in total quality computations may be used.

b) Quality reported by lens module 200 showing focus is fine, but independent focus blur QI 244 shows the lens is completely out of focus e.g. due to a poor lens module focus application. Therefore, confidence in the lens focus quality indicator drops and the weight of this indicator in the total quality may be reduced.

c) Device movement QI confidence level computed in 270 is low due to errors in computing location in Device/surrounding objects 4D position computation component 230, or to sub standard accelerometer, but face recognition system 216 with excellent confidence level, insists on a face for 10 frames straight. In this case, use face recognition QI in total QI even if shake in 270 is high, but only at a reduced percentage of, say, 50% of normal face QI.

d) Device movement importance is high if the depth of field of the lens is very small (for instance, in macro photography). For a quality picture, high confidence and low value of device shake QI in 270 are desirable, and their weight in the total QI may be high. User suggestions can be to hold still or use a flash, for example.

e) If previous frames indicated a face in the far left or right of the picture, and now there is no face, it is very possible that the picture has "half a face", amputation, so that may be the feedback to the user. For example, a face has been identified by the face recognizing QI, but attributes low confidence as a result. The system can alert the user of a possible face amputation.

f) A person may want to take a picture of, say, his spouse in a scenic location, or near a historic building. He may choose to give aesthetic QI and recognized person a high priority. This priority may enable to build a total QI with that weight, and to instruct the photographer to move a few meters to the right and left for example, to get an approximated 3D environment in Device/surrounding objects 4D position computation component 230. The device may measure all QI, especially the aesthetic QI, and may instruct the photographer on the best location to stand. This may depend on the place with the best total QI.

The system may if desired be implemented as a web-based system employing software, computers, routers and telecommunications equipment as appropriate.

Any suitable deployment may be employed to provide functionalities e.g. software functionalities shown and described herein. For example, a server may store certain applications, for download to clients, which are executed at the client side, the server side serving only as a storehouse. Some or all functionalities e.g. software functionalities shown and described herein may be deployed in a cloud environment. Clients e.g. mobile communication devices such as smartphones may be operatively associated with but external to the cloud.

It is appreciated that terminology such as "mandatory", "required", "need" and "must" refer to implementation choices made within the context of a particular implementation or application described herewithin for clarity and are not intended to be limiting since in an alternative implantation, the same elements might be defined as not mandatory and not required or might even be eliminated altogether.

It is appreciated that software components of the present invention including programs and data may, if desired, be implemented in ROM (read only memory) form

including CD-ROMs, EPROMs and EEPROMs, or may be stored in any other suitable typically non-transitory computer-readable medium such as but not limited to disks of various kinds, cards of various kinds and RAMs. Components described herein as software may, alternatively, be implemented wholly or partly in hardware and/or firmware, if desired, using conventional techniques. Conversely, components described herein as hardware may, alternatively, be implemented wholly or partly in software, if desired, using conventional techniques.

Included in the scope of the present invention, inter alia, are electromagnetic signals carrying computer-readable instructions for performing any or all of the steps or operations of any of the methods shown and described herein, in any suitable order including simultaneous performance of suitable groups of steps as appropriate; machine-readable instructions for performing any or all of the steps of any of the methods shown and described herein, in any suitable order; program storage devices readable by machine, tangibly embodying a program of instructions executable by the machine to perform any or all of the steps of any of the methods shown and described herein, in any suitable order; a computer program product comprising a computer useable medium having computer readable program code, such as executable code, having embodied therein, and/or including computer readable program code for performing, any or all of the steps of any of the methods shown and described herein, in any suitable order; any technical effects brought about by any or all of the steps of any of the methods shown and described herein, when performed in any suitable order; any suitable apparatus or device or combination of such, programmed to perform, alone or in combination, any or all of the steps of any of the methods shown and described herein, in any suitable order; electronic devices each including a processor and a cooperating input device and/or output device and operative to perform in software any steps shown and described herein; information storage devices or physical records, such as disks or hard drives, causing a computer or other device to be configured so as to carry out any or all of the steps of any of the methods shown and described herein, in any suitable order; a program pre-stored e.g. in memory or on an information network such as the Internet, before or after being downloaded, which embodies any or all of the steps of any of the methods shown and described herein, in any suitable order, and the method of uploading or downloading such, and a system including server/s and/or client/s for using such; a processor configured to perform any combination of the described steps or to execute any combination of the described modules; and hardware

which performs any or all of the steps of any of the methods shown and described herein, in any suitable order, either alone or in conjunction with software. Any computer-readable or machine-readable media described herein is intended to include non-transitory computer- or machine-readable media.

Any computations or other forms of analysis described herein may be performed by a suitable computerized method. Any step described herein may be computer-implemented. The invention shown and described herein may include (a) using a computerized method to identify a solution to any of the problems or for any of the objectives described herein, the solution optionally include at least one of a decision, an action, a product, a service or any other information described herein that impacts, in a positive manner, a problem or objectives described herein; and (b) outputting the solution.

The scope of the present invention is not limited to structures and functions specifically described herein and is also intended to include devices which have the capacity to yield a structure, or perform a function, described herein, such that even though users of the device may not use the capacity, they are if they so desire able to modify the device to obtain the structure or function.

Features of the present invention which are described in the context of separate embodiments may also be provided in combination in a single embodiment.

For example, a system embodiment is intended to include a corresponding process embodiment. Also, each system embodiment is intended to include a server-centered “view” or client centered “view”, or “view” from any other node of the system, of the entire functionality of the system , computer-readable medium, apparatus, including only those functionalities performed at that server or client or node.

Conversely, features of the invention, including method steps, which are described for brevity in the context of a single embodiment or in a certain order may be provided separately or in any suitable subcombination or in a different order. "e.g." is used herein in the sense of a specific example which is not intended to be limiting. Devices, apparatus or systems shown coupled in any of the drawings may in fact be integrated into a single platform in certain embodiments or may be coupled via any appropriate wired or wireless coupling such as but not limited to optical fiber, Ethernet, Wireless LAN, HomePNA, power line communication, cell phone, PDA, Blackberry GPRS, Satellite including GPS, or other mobile delivery. It is appreciated that in the

description and drawings shown and described herein, functionalities described or illustrated as systems and sub-units thereof can also be provided as methods and steps therewithin, and functionalities described or illustrated as methods and steps therewithin can also be provided as systems and sub-units thereof. The scale used to illustrate various elements in the drawings is merely exemplary and/or appropriate for clarity of presentation and is not intended to be limiting.

Claims:

1. A camera device comprising:

a housing;

a camera lens supported by the housing and configured to enable capture of image data and brightness data;

a motion detector configured to ascertain a degree of movement of the camera device;

a processor configured to:

enable the camera device to enter an automatic photo-capturing mode in which photographs are automatically taken at one or more intervals;

ascertain whether one or more conditions associated with motion data and the brightness data are satisfied; and

responsive to the one or more conditions being satisfied, adjust an exposure time of the camera device and take a photograph.

2. The camera device of claim 1, wherein the motion detector comprises an accelerometer to capture the motion data.

3. The camera device of claim 1, wherein the motion detector comprises a gyroscope to capture the motion data.

4. The camera device of claim 1, wherein the motion detector comprises both an accelerometer and a gyroscope to capture the motion data.

5. The camera device of claim 1, wherein the camera device is configured to:

receive an input to capture a photograph;

responsive to receiving the input, capture a cluster of photographs;

ascertain an amount of blur in each photograph; and

select a photograph based on an ascertained amount of blur.

6. The camera device of claim 2, wherein the motion data indicates a high degree of motion and the brightness data indicates that an environment of the camera is bright, the adjustment of the exposure time comprises using a faster exposure time.

7. The camera device of claim 2, wherein the motion data indicates a low degree of motion and the brightness data indicates that an environment of the camera is dark, the adjustment of the exposure time comprises using a slower exposure time.

8. A system comprising:
a camera device; and
a computing device configured to:
receive a captured cluster of photographs from the camera device;
select a photograph, from the captured cluster of photographs, with the least amount of ascertained motion blur in the received cluster of photographs

9. The system of claim 8, wherein the computing device is configured to send the selected photograph to a device.

10. The system of claim 8, wherein the camera device is further configured to:
receive the selected photograph from the computing device; and
store the selected photograph.

11. The system of claim 8, wherein the camera device is configured to capture the cluster of photographs using an automatic photo-capture mode.

12. The system of claim 8, wherein the camera device is configured to capture the cluster of photographs in response to a user input.

13. The system of claim 12, wherein the user input is a movement gesture of the camera device.

14. The system of claim 8, wherein the received captured cluster of photographs is received over a Wi-Fi or a Bluetooth communication link.

15. The system of claim 8, wherein the computing device is a remote server of a cloud-based service and the received captured cluster of photographs is received over the Internet.

16. The system of claim 10, wherein the motion blur is ascertained via a motion detector configured to ascertain a degree of movement of the camera device; where motion detector comprises a gyroscope to capture the motion data.

17. The system of claim 8, where user is notified on the quality of selected photograph; where quality is based on amount of motion blur in the selected photograph.

18. A computer-implemented method comprising:
enabling a camera to enter an automatic photo-capturing mode in which photographs are automatically taken at one or more intervals;
ascertaining whether one or more conditions associated with motion data and brightness data are satisfied; and

responsive to the one or more conditions being satisfied, adjusting an exposure time of the camera and taking a photograph.

19. The method of claim 18, further comprising:
receiving, with the camera, a user input to initiate the entering the automatic photo-capturing mode.

20. The method of claim 19, further comprising:
responsive to receiving the input, capturing a cluster of photographs;
ascertain an amount of blur in each photograph; and
select a photograph based on an ascertained amount of blur.

21. The method of claim 18, wherein the selected photograph has the least amount of ascertained blur.

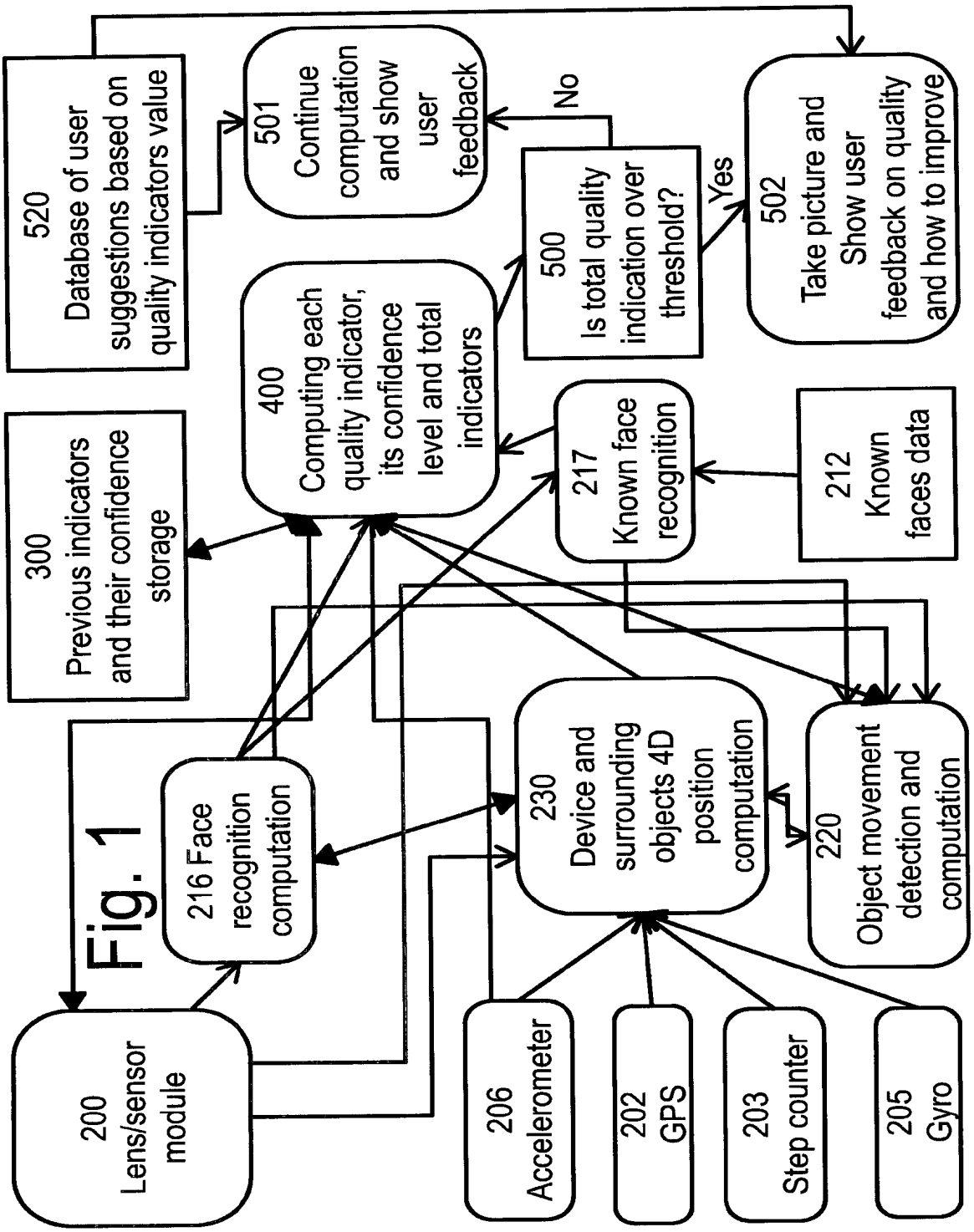

200 Lens/sensor module
206 Accelerometer
202 GPS
203 Step counter
205 Gyro
216 Face recognition computation
230 Device and surrounding objects 4D position computation
220 Object movement detection and computation
300 Previous indicators and their confidence storage
400 Computing each quality indicator, its confidence level and total indicators
217 Known face recognition
212 Known faces data
520 Database of user suggestions based on quality indicators value
501 Continue computation and show user feedback
No
500 Is total quality indication over threshold?
Yes
502 Take picture and Show user feedback on quality and how to improve

Fig. 1

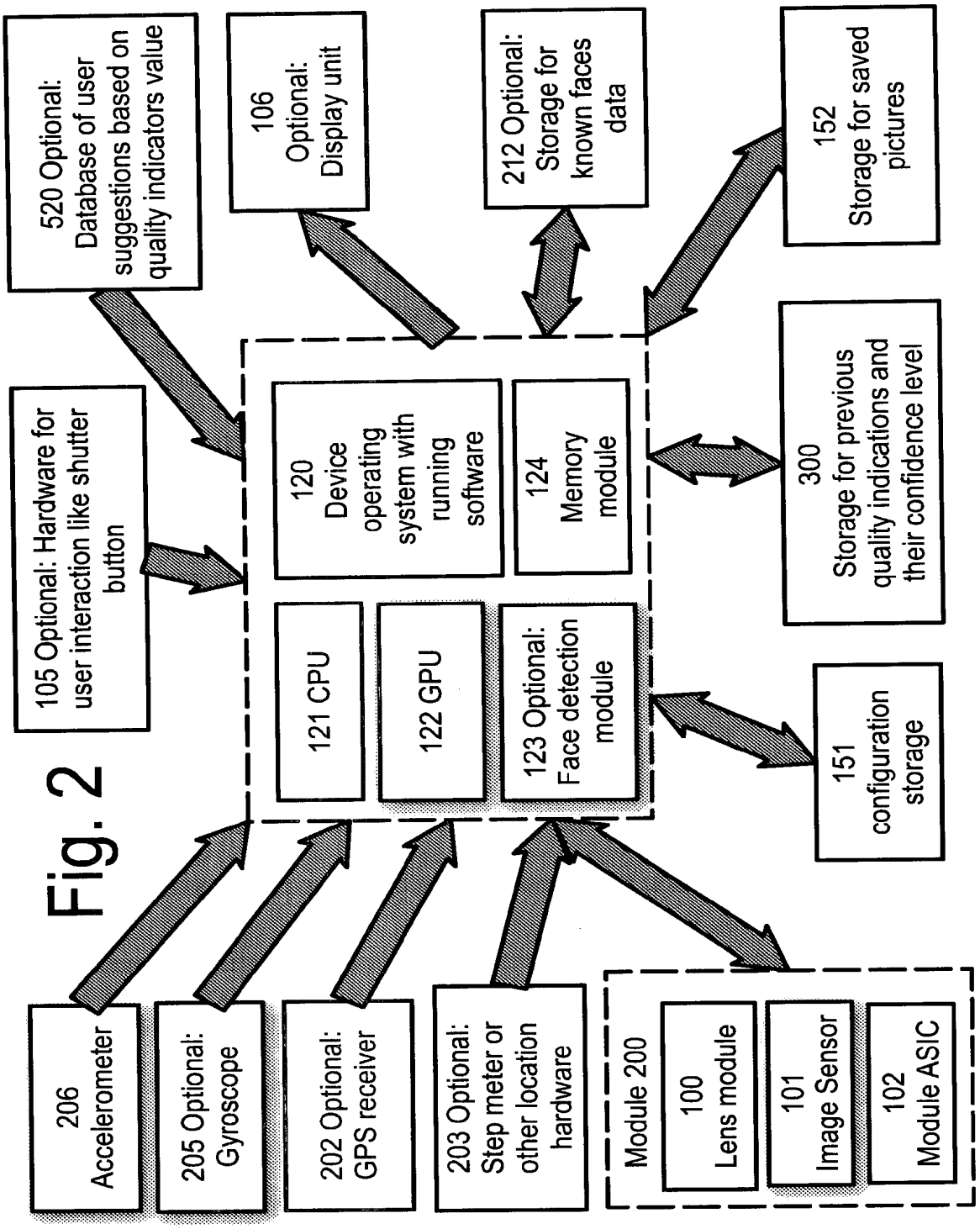

520 Optional: Database of user suggestions based on quality indicators value
106 Optional: Display unit
212 Optional: Storage for known faces data
152 Storage for saved pictures
105 Optional: Hardware for user interaction like shutter button
120 Device operating system with running software
124 Memory module
300 Storage for previous quality indications and their confidence level
121 CPU
122 GPU
123 Optional: Face detection module
151 configuration storage
206 Accelerometer
205 Optional: Gyroscope
202 Optional: GPS receiver
203 Optional: Step meter or other location hardware
Module 200
100 Lens module
101 Image Sensor
102 Module ASIC

Fig. 2

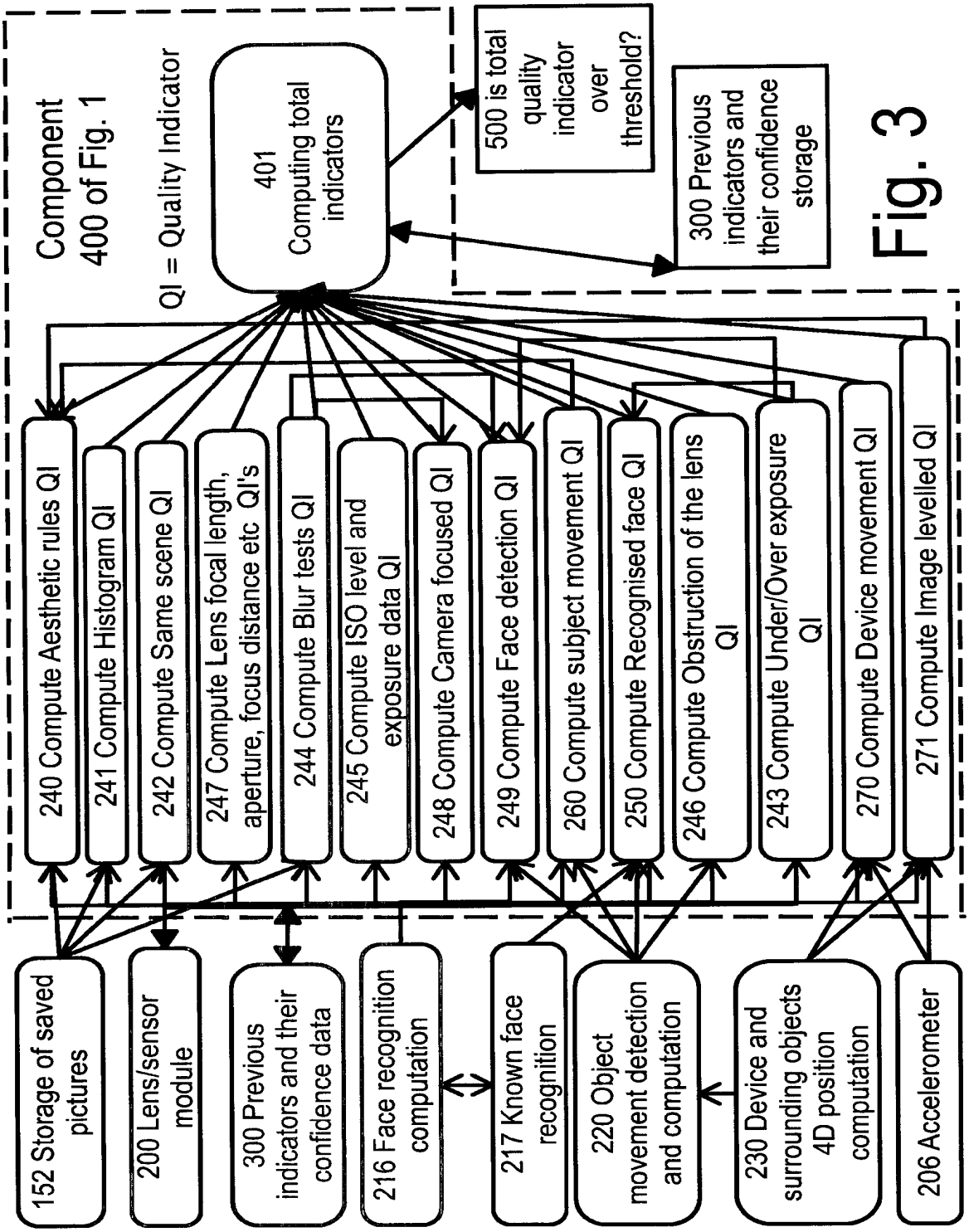
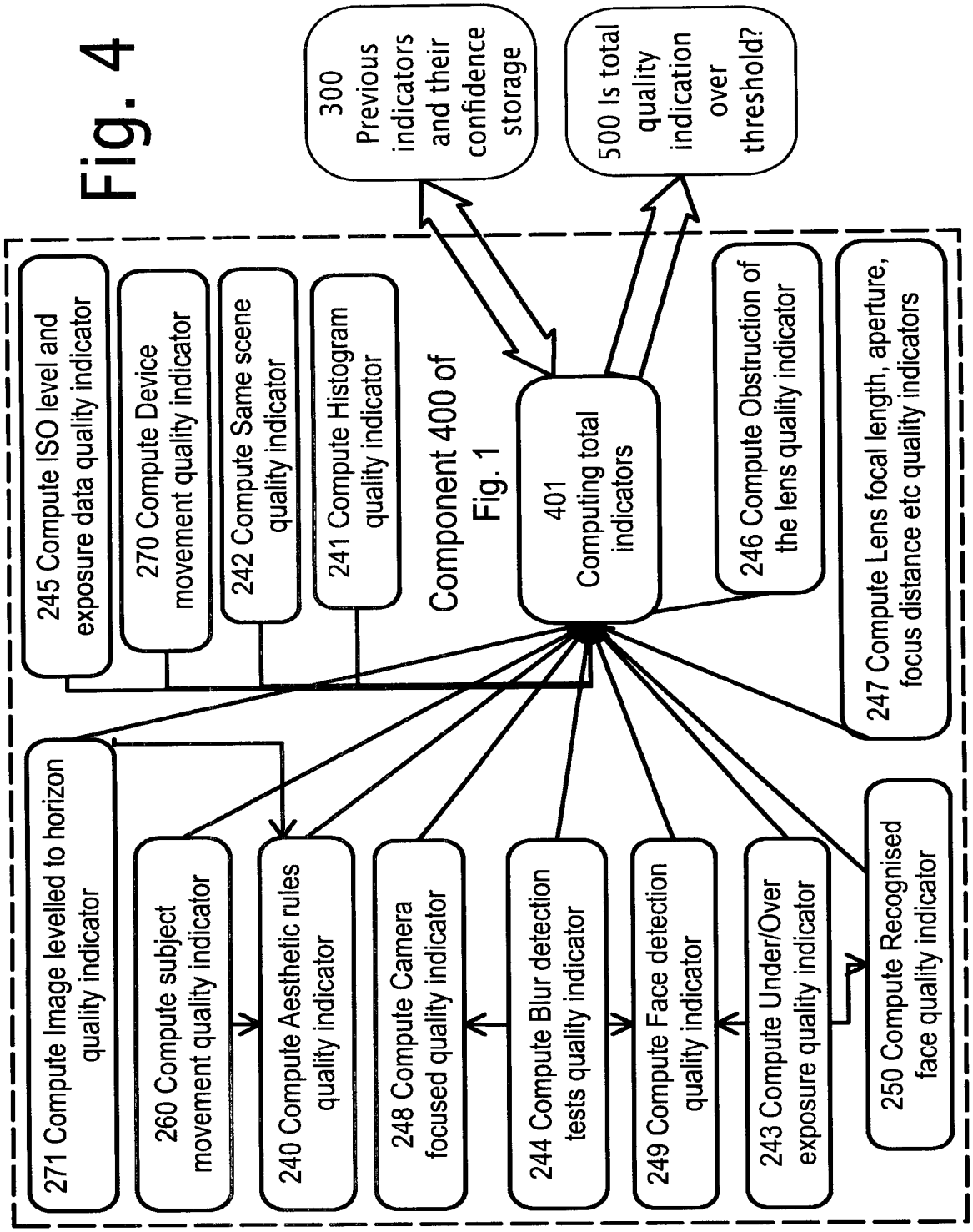

Component 400 of Fig. 1
QI = Quality Indicator
401 Computing total indicators
500 is total quality indicator over threshold?
300 Previous indicators and their confidence storage
240 Compute Aesthetic rules QI
241 Compute Histogram QI
242 Compute Same scene QI
247 Compute Lens focal length, aperture, focus distance etc QI's
244 Compute Blur tests QI
245 Compute ISO level and exposure data QI
248 Compute Camera focused QI
249 Compute Face detection QI
260 Compute subject movement QI
250 Compute Recognised face QI
246 Compute Obstruction of the lens QI
243 Compute Under/Over exposure QI
270 Compute Device movement QI
271 Compute Image levelled QI
152 Storage of saved pictures
200 Lens/sensor module
300 Previous indicators and their confidence data
216 Face recognition computation
217 Known face recognition
220 Object movement detection and computation
230 Device and surrounding objects 4D position computation
206 Accelerometer

Fig. 3

Fig. 4


300 Previous indicators and their confidence storage
500 Is total quality indication over threshold?
Component 400 of Fig. 1
401 Computing total indicators
245 Compute ISO level and exposure data quality indicator
270 Compute Device movement quality indicator
242 Compute Same scene quality indicator
241 Compute Histogram quality indicator
246 Compute Obstruction of the lens quality indicator
247 Compute Lens focal length, aperture, focus distance etc quality indicators
271 Compute Image levelled to horizon quality indicator
260 Compute subject movement quality indicator
240 Compute Aesthetic rules quality indicator
248 Compute Camera focused quality indicator
244 Compute Blur detection tests quality indicator
249 Compute Face detection quality indicator
243 Compute Under/Over exposure quality indicator
250 Compute Recognised face quality indicator

## ABSTRACT

A computerized method for computing the photo quality of a captured image in a device image acquisition system, comprising on-board combining of a plurality of quality indicators computed from said captured image and its previous image frames quality indicators and a confidence level for at least one of said quality indicators,; and using a processor to determine, based on said combining, whether photo quality is acceptable and taking differential action depending on whether quality is or is not acceptable.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | SIVAN-001-US3 |
|---|---|---|
| | Application Number | |
| Title of Invention | REAL TIME ASSESSMENT OF PICTURE QUALITY | |

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

## Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

## Inventor Information:

**Inventor** 1 — Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| Mr. | Ishay | | SIVAN | |

**Residence Information (Select One)** US Residency ● Non US Residency Active US Military Service

| City | Tel Aviv | Country of Residence i | IL |
|---|---|---|---|

**Mailing Address of Inventor:**

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| **City** | Tel Aviv | **State/Province** | |
| **Postal Code** | 6935635 | **Country** i | IL |

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**For further information see 37 CFR 1.33(a).**

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## Application Information:

| | | | |
|---|---|---|---|
| **Title of the Invention** | REAL TIME ASSESSMENT OF PICTURE QUALITY | | |
| **Attorney Docket Number** | SIVAN-001-US3 | **Small Entity Status Claimed** | ☒ |
| **Application Type** | Nonprovisional | | |
| **Subject Matter** | Utility | | |
| **Total Number of Drawing Sheets (if any)** | 4 | **Suggested Figure for Publication (if any)** | 1 |

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | SIVAN-001-US3 |
|---|---|---|
| | Application Number | |
| Title of Invention | REAL TIME ASSESSMENT OF PICTURE QUALITY | |

## Filing By Reference :

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For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

| Application number of the previously filed application | Filing date (YYYY-MM-DD) | Intellectual Property Authority or Country |
|---|---|---|
| | | |

## Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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When referring to the current application, please leave the application number blank.

| Prior Application Status | Pending | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
| | Continuation of | 15/582722 | 2017-04-30 |
| Prior Application Status | Patented | | Remove |

| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
|---|---|---|---|---|---|
| 15/582722 | Continuation of | 15/007253 | 2016-01-27 | 9661226 | 2017-05-23 |

| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | SIVAN-001-US3 |
|---|---|---|
| | Application Number | |
| Title of Invention | REAL TIME ASSESSMENT OF PICTURE QUALITY | |

| Prior Application Status | Patented | | | | Remove |
|---|---|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 15/007253 | Continuation of | 14/437105 | 2015-04-20 | 9338348 | 2016-05-10 |
| Prior Application Status | Expired | | | | Remove |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | | |
| 14/437105 | a 371 of international | PCT/IL2013/050856 | 2013-10-22 | | |
| Prior Application Status | Expired | | | | Remove |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | | |
| PCT/IL2013/050856 | Claims benefit of provisional | 61/717216 | 2012-10-23 | | |
| Prior Application Status | Expired | | | | Remove |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | | |
| PCT/IL2013/050856 | Claims benefit of provisional | 61/759643 | 2013-02-01 | | |

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| Application Number | Country[i] | Filing Date (YYYY-MM-DD) | Access Code[i] (if applicable) |
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| | | | |

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | SIVAN-001-US3 |
|---|---|---|
| | Application Number | |
| Title of Invention | REAL TIME ASSESSMENT OF PICTURE QUALITY | |

## Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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## Applicant Information:

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| ● Assignee | Legal Representative under 35 U.S.C. 117 | Joint Inventor |
|---|---|---|
| Person to whom the inventor is obligated to assign. | Person who shows sufficient proprietary interest | |

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Name of the Deceased or Legally Incapacitated Inventor :

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| Organization Name | SnapAid Ltd. | | |
|---|---|---|---|
| **Mailing Address Information For Applicant:** | | | |
| **Address 1** | Sokolov 103A Street | | |
| Address 2 | | | |
| **City** | Tel Aviv | **State/Province** | |
| **Country** | IL | Postal Code | 6228462 |
| Phone Number | | Fax Number | |
| Email Address | | | |

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| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | SIVAN-001-US3 |
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| Prefix | **Given Name** | Middle Name | **Family Name** | Suffix |
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|---|---|---|---|
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| Address 2 | | | |
| **City** | | **State/Province** | |
| **Country** i | | Postal Code | |
| Phone Number | | Fax Number | |
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## Signature:

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| First Name | Yehuda | Last Name | BINDER | Registration Number | 73612 |

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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| | |
|---|---|
| Application Number | |
| Filing Date | |
| First Named Inventor | Ishay SIVAN |
| Art Unit | |
| Examiner Name | |
| Attorney Docket Number | SIVAN-001-US3 |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | 8285067 | | 2012-10-09 | Steinberg , et al. | |
| | 2 | 8244053 | | 2012-08-14 | Steinberg , et al. | |
| | 3 | 7362354 | | 2008-04-22 | Lin; Qian | |
| | 4 | 7688379 | | 2010-03-30 | Forman , et al. | |
| | 5 | 8125557 | | 2012-02-08 | Chen , et al. | |
| | 6 | 7920727 | | 2011-05-04 | Weng , et al. | |
| | 7 | 8040382 | | 2011-10-18 | Kahn , et al. | |
| | 8 | 7982770 | | 2011-07-19 | Kahn , et al. | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 9 | 8131118 | | 2012-06-03 | Jing , et al. | |
| | 10 | 8330826 | | 2012-11-12 | Cerosaletti; Cathleen D. ; et al. | |
| | 11 | 8081227 | | 2011-20-12 | Kim , et al. | |
| | 12 | 9154692 | | 2015-06-10 | Son , et al. | |

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| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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(45) Date of publication and mention of the grant of the patent:
**14.06.2017 Bulletin 2017/24**

(21) Application number: **14727122.5**

(22) Date of filing: **22.04.2014**

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***H04N 1/21*** *(2006.01)* ***H04N 5/225*** *(2006.01)*
***H04N 5/235*** *(2006.01)* ***H04N 5/232*** *(2006.01)*
***G03B 17/38*** *(2006.01)*

(86) International application number:
**PCT/US2014/034851**

(87) International publication number:
**WO 2014/176184 (30.10.2014 Gazette 2014/44)**

## (54) CAMERA DEVICE COMPRISING A PROCESSOR FOR IMAGE BLUR AVOIDANCE

KAMERA-GERÄT MIT EINEM PROZESSOR FÜR BILDUNSCHARFE VERMEIDUNG

CAMERA COMPRENANT UN PROCESSEUR POUR ÉVITER LE FLOU DANS LES IMAGES

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

(30) Priority: **24.04.2013 US 201313869823**

(43) Date of publication of application:
**13.01.2016 Bulletin 2016/02**

(73) Proprietor: **Microsoft Technology Licensing, LLC**
**Redmond, WA 98052 (US)**

(72) Inventor: **LAMMERS, Michael, J.**
**Redmond, WA 98052-6399 (US)**

(74) Representative: **Driver, Virginia Rozanne**
**Page White & Farrer**
**Bedford House**
**John Street**
**London WC1N 2BF (GB)**

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EP 2 965 140 B1

## Description

### BACKGROUND

**[0001]** Photos can end up being blurry because of a number of reasons including that the photographer is moving at the time that the photos are taken. This is particularly the case with cameras that can be worn by the photographer, e.g., head-mounted or body-mounted cameras.

### SUMMARY

**[0002]** This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter.

**[0003]** Various embodiments provide a camera, such as a wearable or otherwise mountable camera, that is configured to take a cluster of photographs and use image processing techniques to select a photograph with a lesser amount of blur than other photographs in the cluster.

**[0004]** According to an aspect there is provided a camera device comprising: a housing; a camera lens supported by the housing and configured to enable capture of image data; wherein the camera device is configured to: receive input to capture a photograph; responsive to receiving said input, capture a cluster of photographs; transmit the captured cluster of photographs to a remote computing device for ascertaining an amount of blur in each photograph, and selecting a photograph based on an ascertained amount of blur; and receive said selected photograph.

**[0005]** In yet other embodiments, a camera includes one or more of a gyroscope or accelerometer. The gyroscope and/or accelerometer are utilized to ascertain the camera's motion. Motion data associated with the camera's motion is utilized to ascertain when to take an automatic photograph.

Various other embodiments provide a camera that is configured to adjust exposure time, i.e., shutter time, based on input associated with the camera's motion and the level of brightness in the camera's environment. Examples of conventional camera devices are disclosed in US2004/0066981 A1, US2006/0012699 A1, and US2013/0057713 A1.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0006]** The detailed description references the accompanying figures. In the figures, the left-most digit(s) of a reference number identifies the figure in which the reference number first appears. The use of the same reference numbers in different instances in the description and the figures may indicate similar or identical items.

FIG. 1 is an example camera device in accordance with one or more embodiments.

FIG. 2 illustrates an example camera device in accordance with one or more embodiments.

FIG. 3 illustrates an example camera device in accordance with one or more embodiments.

FIG. 4 is a flow diagram that describes steps in a method in accordance with one or more embodiments.

FIG. 5 is a flow diagram that describes steps in a method in accordance with one or more embodiments.

FIG. 6 is a flow diagram that describes steps in a method in accordance with one or more embodiments.

### DETAILED DESCRIPTION

#### Overview

**[0007]** Various embodiments provide a camera, such as a wearable or otherwise mountable camera, that is configured to take a cluster of photographs and use image processing techniques to select a photograph with a lesser amount of blur than other photographs in the cluster. The camera can be worn in any suitable location. For example, the camera can be worn on a user's head such as, a way of example and not limitation, a hat-mounted camera, glasses-mounted camera, headband-mounted camera, helmet-mounted camera, and the like. Alternately or additionally, the camera can be worn on locations other than the user's head. For example, the camera can be configured to be mounted on the user's clothing. Alternately or additionally, the camera can be mounted on various objects, such as objects that move, e.g., vehicles, animals, conveyances and the like.

**[0008]** In yet other embodiments, a camera includes one or more of a gyroscope or accelerometer. The gyroscope and/or accelerometer are utilized to ascertain the camera's motion. Motion data associated with the camera's motion is utilized to ascertain when to take an automatic photograph. For example, a motion threshold may be set and, when the camera is taking pictures in an automatic mode, when the motion threshold is satisfied, the camera may begin taking pictures. Any suitable type of motion threshold can be utilized, as will become apparent below.

**[0009]** Various other embodiments provide a camera that is configured to adjust exposure time, i.e., shutter time, based on input associated with the camera's motion and the level of brightness in the camera's environment. For example, the camera can include one or more of an accelerometer or gyroscope to capture motion data associated with the camera. The motion data, together with information associated with the level of brightness in the camera's environment can be utilized to adjust the camera's shutter speed to achieve a desirable trade-off between motion blur and brightness.

**[0010]** Various other embodiments provide a camera that is mountable on a user's clothing or other objects. The camera is designed to be unobtrusive and user-friendly insofar as being mounted away from the user's face so as not to interfere with their view. In at least some embodiments, the camera includes a housing and a clip mounted to the housing to enable the camera to be clipped onto the user's clothing. The camera is designed to be lightweight with its weight balanced in a manner that is toward the user when clipped to the user's clothing.

**[0011]** In the discussion that follows, a section entitled "Example Environment" describes an example environment in which the various embodiments can be utilized. Following this, a section entitled "Duel Encoding" describes an embodiment in which captured image data can be dual encoded in accordance with one or more embodiments. Next, a section entitled "Photo Log" describes an example photo log in accordance with one or more embodiments. Following this, a section entitled "Taking Photo Clusters and Selecting Images Based on Image Processing" describes various embodiments in which clusters of photos can be taken and selected based on image processing. Next, a section entitled "Using an Accelerometer and/or Gyroscope to Determine Camera Motion" describes various embodiments in which camera motion can be determined and processed. Following this, a section entitled "Using Motion Data and Brightness to Adjust Camera Shutter Time" describes how motion data and brightness can be used to adjust a camera's shutter time in accordance with one or more embodiments.

**[0012]** Consider now an example environment in which various embodiments can be practiced.

## Example Environment

**[0013]** FIG. 1 illustrates a schematic of a camera device 100 in accordance with one or more embodiments. The camera device 100 includes a lens 102 having a focal length that is suitable for covering a scene to be pictured. In one embodiment, a mechanical device may be included with the lens 102 to enable auto or manual focusing of the lens. In another embodiment, the camera device 100 may be a fixed focus device in which no mechanical assembly is included to move the lens 102. A sensor 104 having a sensing surface (not shown) is also included to convert an image formed by the incoming light on the sensing surface of the sensor 104 into a digital format. The sensor 104 may include a charge-coupled device (CCD) or complementary metal oxide semiconductor (CMOS) image sensor for scanning the incoming light and creating a digital picture. Other technologies or devices may be used so long as the used device is capable of converting an image formed by the incoming light on a sensing surface into the digital form. Typically, these image detection devices determine the effects of light on tiny light sensitive devices and record the changes in a digital format.

**[0014]** It should be appreciated that the camera device 100 may include other components such as a battery or power source and other processor components that are required for a processor to operate. However, to avoid obfuscating the teachings, these well-known components are being omitted. In one embodiment, the camera device 100 does not include a view finder or a preview display. In other embodiments, however, a preview display may be provided. The techniques described herein can be used in any type of camera, and are particularly effective in small, highly portable cameras, such as those implemented in mobile telephones and other portable user equipment. Thus, in one embodiment, the camera device 100 includes hardware or software for making and receiving phone calls. Alternately, the camera device 100 can be a dedicated, stand-alone camera.

**[0015]** In at least some embodiments, the camera device 100 further includes a motion detector 108 that can include an accelerometer and/or a gyroscope. The accelerometer is used for determining the direction of gravity and acceleration in any direction. The gyroscope may also be used either in addition to the accelerometer or instead of the accelerometer. The gyroscope can provide information about how the rotational angle of the camera device 100 changes over time. Any other type of sensor may be used to detect the camera's motion. Using the rotational angle, an angle of rotation of the camera device 100 may be calculated, if the camera device 100 is rotated. Further included is an input/output (I/O) port 114 for connecting the camera device 100 to an external device, including a general purpose computer. The I/O port 114 may be used for enabling the external device to configure the camera device 100 or to upload/download data. In one embodiment, the I/O port 114 may also be used for streaming video or pictures from the camera device 100 to the external device. In one embodiment, the I/O port may also be used for powering the camera device 100 or charging a rechargeable battery (not shown) in the camera device 100.

**[0016]** The camera device 100 may also include an antenna 118 that is coupled to a transmitter/receiver (Tx/Rx) module 116. The Tx/Rx module 116 is coupled to a processor 106. The antenna 118 may be fully or partly exposed outside the body of the camera device 100. However, in another embodiment, the antenna 118 may be fully encapsulated within the body of the camera device 100. The Tx/Rx module 116 may be configured for Wi-Fi transmission/reception, Bluetooth transmission/reception or both. In another embodiment, the Tx/Rx module 116 may be configured to use a proprietary protocol for transmission/reception of the radio signals. In yet another embodiment, any radio transmission or data transmission standard may be used so long as the used standard is capable of transmitting/receiving digital data and control signals. In one embodiment, the Tx/Rx module 116 is a low power module with a transmission range of less than ten feet. In another embodiment, the Tx/Rx module 116 is a low power module with a transmission range of less than five feet. In other embodiments, the



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transmission range may be configurable using control signals received by the camera device 100 either via the I/O port 114 or via the antenna 118.

**[0017]** The camera device 100 further includes a processor 106. The processor 106 is coupled to the sensor 104 and the motion detector 108. The processor 106 may also be coupled to storage 110, which, in one embodiment, is external to the processor 106. The storage 110 may be used for storing programming instructions for controlling and operating other components of the camera device 100. The storage 110 may also be used for storing captured media (e.g., pictures and/or videos). In another embodiment, the storage 110 may be a part of the processor 106 itself.

**[0018]** In one embodiment, the processor 106 may include an image processor 112. The image processor 112 may be a hardware component or may also be a software module that is executed by the processor 106. It may be noted that the processor 106 and/or the image processor 112 may reside in different chips. For example, multiple chips may be used to implement the processor 106. In one example, the image processor 112 may be a Digital Signal Processor (DSP). The image processor can be configured as a processing module, that is a computer program executable by a processor. In at least some embodiments, the processor 112 is used to process a raw image received from the sensor 104 based, at least in part, on the input received from the motion detector 108. Other components such as Image Signal Processor (ISP) may be used for image processing. In one or more embodiments, the image processor 112 includes a blur detection module 112a that is configured to detect blurring that may occur in a captured image, such as a photograph, because of movement of the camera and/or subject. Any suitable type of blur detection techniques can be utilized. For example, suitable techniques are described in (1) Tong et al., Blur Detection for Digital Images Using Wavelet Transform, Multimedia and Expo, 2004, IEEE International Conference on June 27-30, 2004, Volume 1, pgs. 17-20; and (2) U.S. Patent No. 7,257,273, to name just a few. The camera is configured, in some embodiments, to take a cluster of photographs and use image processing techniques, such as blur detection, to select a photograph with a lesser amount of blur than other photographs in the cluster.

**[0019]** In one embodiment, the storage 110 is configured to store both raw (unmodified image) and the corresponding modified image.

**[0020]** A processor buffer (not shown) may also be used to store the image data. The pictures can be downloaded to the external device via the I/O port 114 or via the wireless channels using the antenna 118. In one embodiment, both unmodified and modified images are downloaded to the external device when the external device sends a command to download images from the camera device 110. In one embodiment, the camera device 100 may be configured to start capturing a series of images at a selected interval.

**[0021]** In one embodiment, a raw image from the sensor 104 is inputted to an image processor (such as an ISP) for image processing or blur detection. After image processing is applied to the image outputted by the image processor, the modified image is encoded. The image encoding is typically performed to compress the image data.

**[0022]** In an example embodiment, the camera device 100 may not include the components for processing the image captured by the sensor 104. Instead, the camera device 100 may include programming instructions to transmit the raw image after extracting the image from the sensor 104 to a cloud based processing system that is connected to the camera device 100 via the Internet or a local area network. The cloud based system is configured to receive the raw image and process the image or images as described above and below. The encoded image is then either stored in a selected cloud based storage or the image is sent back to the camera device 100 or to any other device according to a user configuration. The use of a cloud based image processing system can reduce a need for incorporating several image processing components in each camera device, thus making a camera device lighter, more energy efficient and cheaper.

**[0023]** In another example embodiment, instead of a cloud based image processing, the camera device 100 may send either a raw image or the image processed through an image processor to another device, e.g., a mobile phone or a computer. The image may be transmitted to the mobile phone (or a computer) for further processing via Wi-Fi, Bluetooth or any other type of networking protocol that is suitable for transmitting digital data from one device to another device. After the mobile device receives the image or images, according to one or more embodiments described herein, the produced image may be saved to local storage on the device, transferred for storage in a cloud based storage system, or transmitted to another device, according to user or system configurations.

**[0024]** In one embodiment, the native image processing system in the camera device 100 may produce images and/or videos in a non-standard format. For example, a 1200x1500 pixel image may be produced. This may be done by cropping, scaling, or using an image sensor with a non-standard resolution. Since methods for transforming images in a selected standard resolution are well-known, there will be no further discussion on this topic.

**[0025]** Various embodiments described above and below can be implemented utilizing a computer-readable storage medium that includes instructions that enable a processing unit to implement one or more aspects of the disclosed methods as well as a system configured to implement one or more aspects of the disclosed methods. By "computer-readable storage medium" is meant all statutory forms of media. Accordingly, non-statutory forms of media such as carrier waves and signals per se



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are not intended to be covered by the term "computer-readable storage medium".

**[0026]** As noted above, camera device 100 can assume any suitable form of camera, such as a wearable or mountable camera. The camera can be worn in any suitable location relative to a user. For example, the camera can be worn on a user's head such as, by a way of example and not limitation, a hat-mounted camera, glasses-mounted camera, headband-mounted camera, helmet-mounted camera, and the like. Alternately or additionally, the camera can be worn on locations other than the user's head. For example, the camera can be configured to be mounted on the user's clothing or other items carried by a user, such as a backpack, purse, briefcase, and the like. Alternately or additionally, the camera can be mounted on various objects, such as objects that move, e.g., vehicles, animals, conveyances and the like.

**[0027]** In the example provided just below, a wearable camera is described in the context of a camera that is mountable on the user's clothing. It is to be appreciated and understood, however, that other types of non-clothing mountable or wearable cameras can be utilized without departing from the spirit and scope of the claimed subject matter.

**[0028]** Moving on to FIGS. 2 and 3, consider the following. FIG. 2 illustrates an example camera device 200 in a front elevational view, while FIG. 3 illustrates the camera device 200 in a side elevational view. The camera device 200 includes a housing 202 that contains the components described in FIG. 1. Also illustrated is a camera lens 204 (FIG. 2) and a fastening device 300 (FIG. 3) in the form of a clip that operates in a manner that is similar to a clothespin. Specifically, the fastening device 300 includes a prong 302 with a body having a thumb-engageable portion 304. The body extends along an axis away from the thumb-engageable portion 304 toward a distal terminus 306. A spring mechanism, formed by the body or separate from and internal relative to the body, enables prong 302 to be opened responsive to pressure being applied to the thumb-engageable portion 304. When opened, a piece of clothing can be inserted into area 308. When the thumb-engageable portion 304 is released, the clothing is clamped in place by the prong 302 thereby securely mounting the camera device on a piece of clothing. For example, the camera device can be mounted, as described above, on a necktie, blouse, shirt, pocket, and the like.

**[0029]** In addition, camera device 200 can include a number of input buttons shown generally at 310. The input buttons can include, by way of example and not limitation, an input button to take a still picture and an input button to initiate a video capture mode. It is to be appreciated and understood that the various input buttons can be located anywhere on the camera device 200.

**[0030]** It may be noted that even though the camera device 200 is shown to have a particular shape, the camera device 100 can be manufactured in any shape shape and size suitable and sufficient to accommodate the above described components of the camera device 100. The housing 202 of the camera device may be made of a metal molding, a synthetic material molding or a combination thereof. In other embodiments, any suitable type of material may be used to provide a durable and strong outer shell for typical portable device use.

**[0031]** In addition, the fastening device 300 can comprise any suitable type of fastening device. For example, the fastening device may be a simple slip-on clip, a crocodile clip, a hook, a Velcro or a magnet or a piece of metal to receive a magnet. The camera device 200 may be affixed permanently or semi-permanently to another object using the fastening device 300.

**[0032]** Generally, any of the functions described herein can be implemented using software, firmware, hardware (e.g., fixed logic circuitry), or a combination of these implementations. The terms "module", "functionality", "component" and "logic" as used herein generally represent software, firmware, hardware, or a combination thereof. In the case of a software implementation, the module, functionality, or logic represents program code that performs specified tasks when executed on a processor (e.g., CPU or CPUs). The program code can be stored in one or more computer readable memory devices. The features of the techniques described below are platform-independent, meaning that the techniques may be implemented on a variety of commercial computing platforms having a variety of processors.

**[0033]** For example, the camera device 200 may include a computer-readable medium that may be configured to maintain instructions that cause the camera's software and associated hardware to perform operations. Thus, the instructions function to configure the camera's software and associated hardware to perform the operations and in this way result in transformation of the software and associated hardware to perform functions. The instructions may be provided by the computer-readable medium to the camera device through a variety of different configurations.

**[0034]** One such configuration of a computer-readable medium is signal bearing medium and thus is configured to transmit the instructions (e.g., as a carrier wave) to the camera device, such as via a network. The computer-readable medium may also be configured as a computer-readable storage medium and thus is not a signal bearing medium. Examples of a computer-readable storage medium include a random-access memory (RAM), read-only memory (ROM), an optical disc, flash memory, hard disk memory, and other memory devices that may use magnetic, optical, and other techniques to store instructions and other data.

## Dual Encoding

**[0035]** In one or more embodiments, the camera device's processor 106 (FIG.1) is configured to encode image data at different levels of resolution. For example, the camera device can encode image data at a low level



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of resolution and at a high level of resolution as well. Any suitable levels of resolution can be utilized. In at least some embodiments, the low level of resolution is Quarter-VGA (e.g., 320 x 240) and the high level of resolution is720p (e.g., 1280 x 720).

**[0036]** Encoding image data at different resolutions levels can enhance the user's experience insofar as giving the user various options to transfer the saved image data. For example, at lower resolution levels, the captured image data can be streamed to a device such as a smart phone. Alternately or additionally, at higher resolution levels, when the user has Wi-Fi accessibility, they can transfer the image data to a network device such as a laptop or desktop computer.

**[0037]** Having considered a dual encoding scenario, consider now aspects of a photo log that can be constructed using the principles described above.

## Photo Log

**[0038]** Photo log refers to a feature that enables a user to log their day in still photos at intervals of their own choosing. So, for example, if the user wishes to photo log their day at every 3 minutes, they can provide input to the camera device so that every 3 minutes the camera automatically takes a still photo and saves it. At the end of the day, the user will have documented their day with a number of different still photos.

**[0039]** Having considered an example photo log feature, consider now how this feature can be used in connection with the camera embodiments described below.

## Taking Photo Clusters and Selecting Images Based on Image Processing

**[0040]** In one or more embodiments, a camera such as the one described above, can capture clusters of photographs. Capturing the clusters of photographs can be performed in different ways.

**[0041]** For example, in at least some embodiments clusters of photographs can be captured automatically in connection with a feature such as the photo log feature described just above. As an example, consider a situation in which the user sets the camera to automatically take a photograph every three minutes. When the time comes to take a photograph, instead of taking just one photograph at the three-minute point, the camera can take a cluster of photographs. Any suitable number of photographs can constitute a cluster, e.g., 5, 10, 15, or more photographs.

**[0042]** Alternately or additionally, instead of capturing a cluster of photographs in connection with an automatic photo-capturing mode, clusters of photographs can be captured when the user physically takes a photograph. For example, the user may point the camera in a certain direction and press a record button to take a photograph. Responsive to this input, the camera may capture a cluster of photographs.

**[0043]** In one or more embodiments, when a cluster of photographs is captured, whether through an automatic photo-capturing mode or in response to a user manually taking the photograph, image processing techniques can be utilized to ascertain an amount of blur in each photograph. Any suitable image processing techniques can be utilized.

**[0044]** For example, blur detection techniques can be utilized that detect blur within digital images using wavelet transform and/or Cepstrum analysis blur detection techniques. These techniques are able to detect motion blur and/or out-of-focus blur. Specifically, using these techniques portions of a photograph or digital image are accessed and processed to determine if the image is blurred based on a wavelet transform blur detection process and/or a Cepstrum analysis blur detection process. Using this approach, the wavelet transform blur detection process includes wavelet transforming at least the portion of the digital image to produce a plurality of corresponding different resolution levels. Each resolution level includes a plurality of bands. The wavelet transform blur detection process also includes generating at least one edge map for each of the resolution levels, and detecting blur in the digital image based on the resulting edge maps.

**[0045]** In certain implementations, for example, the Cepstrum analysis blur detection process includes dividing the image into a plurality of parts and determining a Cepstrum for each of the parts. In certain implementations, the Cepstrum analysis blur detection process also includes blurring at least one boundary within the image and calculating an elongation of each resulting binarized Cepstrum image. The technique may further include determining that the image includes motion blur and/or out-of-focus blur based on the calculated elongations. An example technique for performing this analysis is described in US Patent No. 7,257,273.

**[0046]** Once the blur analysis has been conducted on each of the images or photographs of the cluster, an image or photograph can be selected having the least amount of blur.

**[0047]** It is to be appreciated and understood that the image processing, i.e. blur analysis, can occur on board the camera. Alternately or additionally, the image processing can occur on a computing device remote from the camera, e.g., a user's personal computing device, a remote server, a cloud service, and the like.

**[0048]** The above-described approach can be particularly useful in scenarios where the camera is prone to movement. For example, in the context of a wearable camera, much of the time the user may be moving around. In these instances, the user's movement may not be uniform. For example, the user may be walking, stop for a moment, and then continue walking. If the camera is in automatic photo-capturing mode and one of the instances to take a photograph occurs during this time, taking a cluster of photographs during this nonuniform movement increases the chance that a non-blurred pho-



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tograph will be captured.

**[0049]** FIG. 4 is a flow diagram that describes steps in a method in accordance with one or more embodiments. The method can be performed in connection with any suitable hardware, software, firmware, or combination thereof. In at least some embodiments, aspects of the method can be performed by a suitably-configured camera, such as the one described above. Alternately or additionally, aspects of the method can be performed by a suitably-configured computing device, examples of which are provided above.

**[0050]** Step 700 receives input to capture a photograph. This step can be performed in any suitable way. For example, in at least some embodiments, the input to capture the photograph can be received in connection with an automatic photo-capturing mode. Alternately or additionally, the input received can be generated based on a user's input to physically capture a photograph.

**[0051]** Responsive to receiving the input to capture photograph, step 702 captures a cluster of photographs. Any suitable number of photographs can constitute a cluster of photographs. Once the cluster of photographs has been captured, step 704 ascertains an amount of blur in each photograph. The step can be performed either on the camera or by the camera, or by a computing device that is remote from the camera. An example of a blur detection technique is described above. It is to be appreciated and understood, however, that any suitable blur detection technique can be utilized without departing from the spirit and scope of the claimed subject matter. Once the amount of blur has been ascertained for each photograph, step 706 selects a photograph having the least amount of blur.

**[0052]** Having described embodiments in which clusters of photographs can be taken and images selected based on image processing techniques, consider now embodiments that utilize a gyroscope and/or accelerometer to determine camera motion and whether to take an automatic photo.

## Using an Accelerometer and/or Gyroscope to Determine Camera Motion

**[0053]** As noted above, the photo log feature enables photographs to be taken automatically at periods of time that may or may not be specified by a user. Because a user may be in motion some of the time during the automatic photo-capturing mode, techniques can be employed to ascertain when to take a photograph to reduce the chances of a blurred image.

**[0054]** In at least some embodiments, the camera can include an accelerometer such as that described above. The accelerometer is utilized to detect linear motion. The accelerometer can be utilized to detect whether or not the camera is moving, or the amount of camera movement, during the automatic photo-capturing mode. Based on the motion detected by the accelerometer, a decision can be made whether or not to capture photograph. For example, when in the automatic photo-capturing mode, photos can be captured when the camera is detected to be motionless or when movement is slight.

**[0055]** In at least some embodiments, the camera can include a gyroscope such as that described above. The gyroscope is utilized to detect angular motion. The gyroscope can be utilized to detect whether or not the camera is moving, or the amount of camera movement, during the automatic photo-capturing mode. Based on the motion detected by the gyroscope, a decision can be made whether or not to capture photograph. For example, when in the automatic photo-capturing mode, photos can be captured when the camera is detected to be motionless or when movement is slight.

**[0056]** In at least some other embodiments, the camera can include both an accelerometer and a gyroscope. Input from both the accelerometer and the gyroscope can be utilized to ascertain when to capture a photo. For example, when in the automatic photo-capturing mode, photos can be captured when the camera is detected to be motionless or when movement is slight.

**[0057]** FIG. 5 is a flow diagram that describes steps in a method in accordance with one or more embodiments. The method can be performed in connection with any suitable hardware, software, firmware, or combination thereof. The method can be performed by a suitably-configured camera, such as the one described above.

**[0058]** Step 800 enters, with a camera, an automatic photo-capturing mode. This step can be performed by receiving user input to enter the automatic photo-capturing mode. An example of such a mode is described above. Step 801 waits for a timer to expire, thus providing an input that it is time to take a photograph. Step 802 ascertains a degree of movement of the camera. This step can be performed in any suitable way. For example, camera movement can be ascertained through the use of an accelerometer. Alternately, camera movement can be ascertained through the use of a gyroscope. Alternately, camera movement can be ascertained through the use of both an accelerometer and gyroscope.

**[0059]** Step 804 ascertains whether a movement threshold is met. Any suitable movement threshold can be utilized. For example, movement thresholds may be automatically set to a particular value by the camera. Alternately or additionally, movement thresholds may be set to a particular value by a user. Further, movement thresholds may be set to be relative as between movement data captured for the camera. For example, a time window may be defined and a movement threshold may be set as a percentage of an amount of movement within the time window.

**[0060]** Responsive to the movement threshold not being met, i.e. there being greater camera movement than desired, step 806 does not take a photograph and the method returns to step 802. Responsive to the movement threshold being met, i.e. there being little or no camera movement, step 808 takes a photograph and the method returns to step 801.



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**[0061]** The techniques described just above can mitigate the effects of camera movement on the quality of photographs taken.

**[0062]** Having considered embodiments in which an accelerometer and/or gyroscope are utilized to determine camera motion for purposes of capturing images, consider now embodiments that utilize motion data associated with the camera in connection with the level of brightness in a camera's environment to determine whether and how to adjust the camera's shutter time.

## Using Motion Data and Brightness to Adjust Camera Shutter Time

**[0063]** As will be appreciated by the skilled artisan, one can improve the amount of blur by decreasing the shutter time of the camera. The downside to this approach is that the amount of light that gets absorbed by the photo sensor is reduced so that the photograph is typically darker. In one or more embodiments, movement data associated with the camera's movement and data associated with the ambient brightness relative to the camera can be utilized to adjust the exposure time or shutter speed of the camera. This allows for a trade-off between motion blur and the level of brightness.

**[0064]** As example, consider the following. By ascertaining the camera's motion as described above, and considering the ambient brightness relative to the camera, photographs might be taken in conditions where the camera is moving outside of a desired movement threshold, yet the ambient brightness is high. Any suitable algorithm that considers the camera's motion and ambient brightness can be utilized.

**[0065]** FIG. 6 is a flow diagram that describes steps in a method in accordance with one or more embodiments. The method can be performed in connection with any suitable hardware, software, firmware, or combination thereof. The method can be performed by a suitably-configured camera, such as the one described above.

**[0066]** Step 900 enters, with a camera, an automatic photo-capturing mode. This step can be performed by receiving user input to enter the automatic photo-capturing mode. An example of such a mode as described above. Step 901 waits for a timer to expire, thus providing an input that it is time to take a photograph. Step 902 captures motion data and brightness data associated with the camera. This step can be performed in any suitable way. For example, camera movement can be ascertained through the use of an accelerometer. Alternately, camera movement can be ascertained through the use of a gyroscope. Alternately, camera movement can be ascertained through the use of both an accelerometer and gyroscope. Further, brightness data computed from light captured by the camera's photo sensor or an ambient light sensor.

**[0067]** Step 904 ascertains whether one or more conditions are satisfied. Any suitable conditions can be utilized. For example, an algorithm that is employed to analyze the motion data and brightness data can have tunable parameters that define desirable motion conditions and desirable brightness conditions.

**[0068]** Responsive to the condition(s) not being satisfied, step 906 does not take a photograph and the method returns to step 902. For example, if the environment is ascertained to be dark and there is a high degree of motion, then the photograph may not be taken. Responsive to the condition(s) being satisfied, step 908 adjusts the camera's exposure time and takes a photograph. For example, if the environment is bright and there is a high degree of motion, then a faster exposure time can be used to take the photograph. Likewise, if the environment is dark and there is a low degree of motion, then a slower exposure time can be used to take the photograph. The method then returns to step 902.

**[0069]** The techniques described just above can mitigate the effects of camera movement and light on the quality of photographs taken.

## Conclusion

**[0070]** Various embodiments provide a camera that is configured to take a cluster of photographs and use image processing techniques to select a photograph with a lesser amount of blur than other photographs in the cluster.

**[0071]** In yet other embodiments, a camera includes one or more of a gyroscope or accelerometer. The gyroscope and/or accelerometer is utilized to ascertain the camera's motion. Motion data associated with the camera's motion is utilized to ascertain when to take an automatic photograph.

**[0072]** Various other embodiments provide a camera that is configured to adjust exposure time, i.e., shutter time, based on input associated with the camera's motion and the level of brightness in the camera's environment.

**[0073]** Although the embodiments have been described in language specific to structural features and/or methodological acts, it is to be understood that the various embodiments can be defined within the scope of the appended claims.

## Claims

**1.** A camera device (100; 200) comprising:

a housing (202);

a camera lens (102; 204) supported by the housing and configured to enable capture of image data;

wherein the camera device is configured to:

receive input to capture a photograph (700);



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responsive to receiving said input, capture a cluster of photographs;
transmit the captured cluster of photographs to a remote computing device for ascertaining an amount of blur in each photograph, and selecting a photograph based on an ascertained amount of blur; and

receive said selected photograph.

2. The camera device of claim 1 further comprising a fastening device (300) on the housing (202) and configured to enable the camera device to be worn by a user.

3. The camera device (100; 200) of claim 1, wherein the camera device is configured to: enter an automatic photo-capturing mode (800) in which photos are automatically taken at one or more intervals; ascertain whether a movement threshold is met; and responsive to a movement threshold being met, take a photograph.

4. The camera device (100; 200) of claim 1, comprising:

a motion detector configured to ascertain a degree of movement of the camera device;
a processor configured to:

enable the camera device to enter an automatic photo-capturing mode (900) in which photos are automatically taken at one or more intervals;
ascertain whether one or more conditions associated with motion data and brightness data are satisfied; and

responsive to the one or more conditions being satisfied, adjust an exposure time of the camera device and take a photograph (908).

5. The camera device of claim 4, wherein the motion detector comprises an accelerometer to capture the motion data.

6. The camera device of claim 4, wherein the motion detector comprises a gyroscope to capture the motion data.

7. The camera device of claim 4, wherein the motion detector comprises both an accelerometer and a gyroscope to capture the motion data.

8. The camera device of claim 2, wherein the fastening device is configured to enable the camera device to be mounted on clothing.

9. The camera device of claim 2, wherein the fastening device is configured to enable the user to wear the camera device on their clothing.

**Patentansprüche**

1. Kameravorrichtung (100; 200), die Folgendes umfasst:

ein Gehäuse (202);
eine Kameralinse (102; 204), die von dem Gehäuse getragen wird und dazu konfiguriert ist, das Erfassen von Bilddaten zu ermöglichen;

wobei die Kameravorrichtung zu Folgendem konfiguriert ist:

Empfangen einer Eingabe, um eine Fotografie (700) zu erfassen;
als Reaktion auf das Empfangen der Eingabe Erfassen einer Gruppe von Fotografien;
Übertragen der erfassten Gruppe von Fotografien an eine entfernte Datenverarbeitungsvorrichtung zum Ermitteln eines Umfangs an Unschärfe in jeder Fotografie und Auswählen einer Fotografie auf der Basis eines ermittelten Umfangs an Unschärfe und
Empfangen der ausgewählten Fotografie.

2. Kameravorrichtung (100; 200) nach Anspruch 1, die weiterhin eine Befestigungsvorrichtung (300) auf dem Gehäuse (202) umfasst und dazu konfiguriert ist zu ermöglichen, dass die Kameravorrichtung von einem Benutzer getragen wird.

3. Kameravorrichtung (100; 200) nach Anspruch 1, wobei die Kameravorrichtung zu Folgendem konfiguriert ist: Eintreten in einen automatischen Fotoerfassungsmodus (800), in dem Fotos automatisch in einem oder mehreren Intervallen aufgenommen werden;
Ermitteln, ob eine Bewegungsgrenze erfüllt wird; und
als Reaktion auf ein Erfüllen einer Bewegungsgrenze Aufnehmen einer Fotografie.

4. Kameravorrichtung (100; 200) nach Anspruch 1, die Folgendes umfasst:

einen Bewegungsmelder, der dazu konfiguriert ist, einen Grad der Bewegung der Kameravorrichtung zu ermitteln;
einen Prozessor, der zu Folgendem konfiguriert ist:



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Ermöglichen, dass die Kameravorrichtung in einen automatischen Fotoerfassungsmodus (900) eintritt, in dem Fotos automatisch in einem oder mehreren Intervallen aufgenommen werden;
Ermitteln, ob eine oder mehrere Bedingungen, die mit Bewegungsdaten und Helligkeitsdaten assoziiert sind, erfüllt werden; und
als Reaktion auf ein Erfüllen der einen oder der mehreren Bedingungen Justieren einer Belichtungszeit der Kameravorrichtung und Aufnehmen einer Fotografie (908).

5. Kameravorrichtung nach Anspruch 4, wobei der Bewegungsmelder einen Beschleunigungsmesser umfasst, um die Bewegungsdaten zu erfassen.

6. Kameravorrichtung nach Anspruch 4, wobei der Bewegungsmelder ein Gyroskop umfasst, um die Bewegungsdaten zu erfassen.

7. Kameravorrichtung nach Anspruch 4, wobei der Bewegungsmelder sowohl einen Beschleunigungsmesser als auch ein Gyroskop umfasst, um die Bewegungsdaten zu erfassen.

8. Kameravorrichtung nach Anspruch 2, wobei die Befestigungsvorrichtung dazu konfiguriert ist zu ermöglichen, dass die Kameravorrichtung an Kleidung angebracht wird.

9. Kameravorrichtung nach Anspruch 2, wobei die Befestigungsvorrichtung dazu konfiguriert ist zu ermöglichen, dass der Benutzer die Kameravorrichtung an seiner Kleidung trägt.

## Revendications

1. Un appareil photo (100 ; 200) comprenant :

un boîtier (202) ;
une lentille d'appareil photo (102 ; 204) soutenue par le boîtier et configurée pour permettre la capture de données d'image ;
dans lequel l'appareil photo est configuré pour :

recevoir un signal d'entrée pour capturer une photographie (700) ;
en réponse à la réception dudit signal d'entrée, capturer un groupe de photographies ;
transmettre le groupe de photographies capturées à un dispositif informatique à distance pour déterminer le degré de flou dans chaque photographie et sélectionner une photographie sur la base d'une quantité de flou déterminée ; et
recevoir ladite photographie sélectionnée.

2. L'appareil photo selon la revendication 1 comprenant en outre un dispositif de fixation (300) sur le boîtier (202) et configuré pour que l'appareil photo puisse être porté par un utilisateur.

3. L'appareil photo (100 ; 200) selon la revendication 1, dans lequel l'appareil photo est configuré pour :

entrer dans un mode de capture de photo automatique (800) dans lequel des photos sont prises automatiquement à un ou plusieurs intervalles ;
déterminer si un seuil de mouvement est atteint ; et
en réaction à un seuil de mouvement étant atteint, prendre une photographie.

4. L'appareil photo (100 ; 200) selon la revendication 1, comprenant :

un détecteur de mouvement configuré pour déterminer un degré de mouvement de l'appareil photo ;
un processeur configuré pour :

permettre à l'appareil photo d'entrer dans un mode de capture de photo automatique (900) dans lequel des photos sont prises automatiquement à un ou plusieurs intervalles ;
déterminer si une ou plusieurs conditions associées aux données de mouvement et aux données de luminosité sont satisfaites ; et
en réponse à la ou aux conditions étant satisfaites, ajuster un temps d'exposition de l'appareil photo et prendre une photographie (908).

5. L'appareil photo selon la revendication 4, dans lequel le détecteur de mouvement comprend un accéléromètre pour capturer les données de mouvement.

6. L'appareil photo selon la revendication 4, dans lequel le détecteur de mouvement comprend un gyroscope pour capturer les données de mouvement.

7. L'appareil photo selon la revendication 4, dans lequel le détecteur de mouvement comprend à la fois un accéléromètre et un gyroscope pour capturer les données de mouvement.

8. L'appareil photo selon la revendication 2, dans lequel le dispositif de fixation est configuré pour permettre à l'appareil photo d'être monté sur un vête-



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ment.

**9.** L'appareil photo selon la revendication 2, dans lequel le dispositif de fixation est configuré pour permettre à l'utilisateur de porter l'appareil photo sur son vêtement.



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Page 72

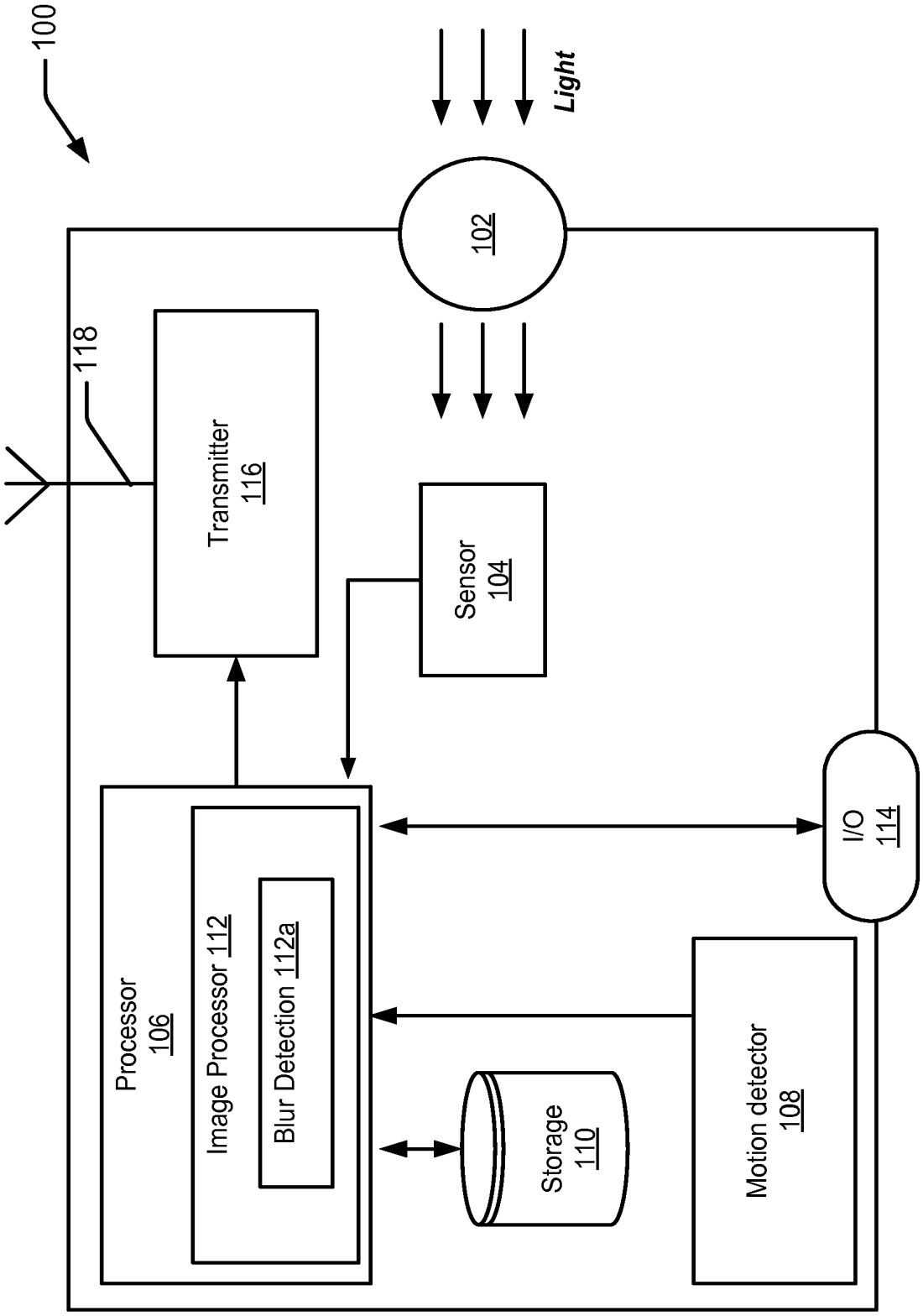

100
Light
102
118
Transmitter
116
Sensor
104
I/O
114
Processor
106
Image Processor 112
Blur Detection 112a
Storage
110
Motion detector
108

Fig. 1

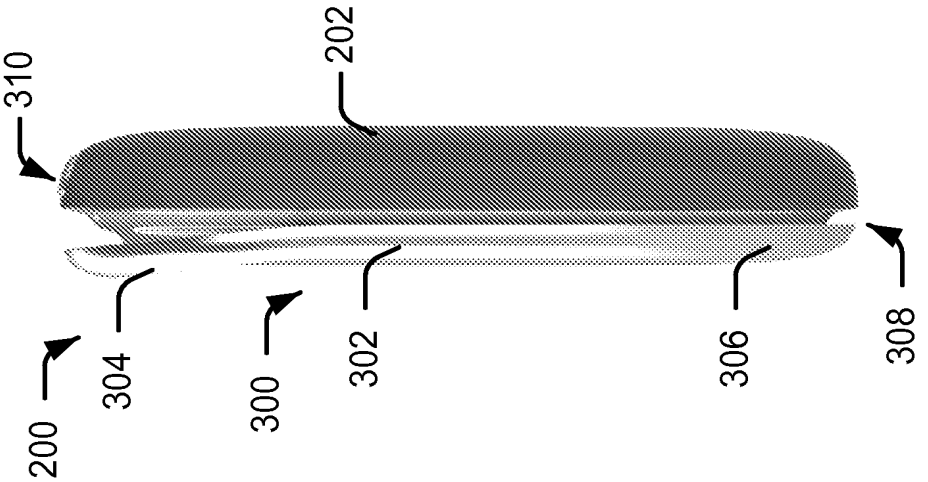



Fig. 3

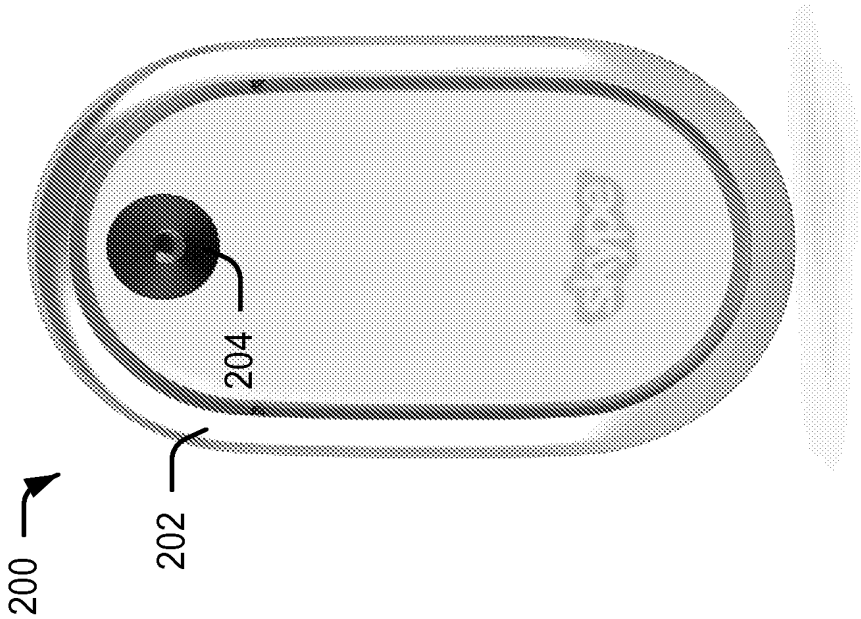



Fig. 2

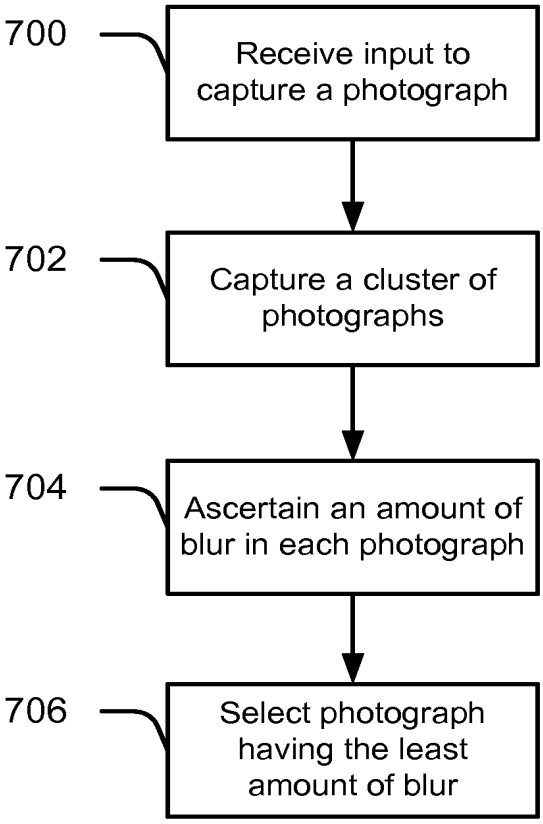

700
Receive input to capture a photograph
702
Capture a cluster of photographs
704
Ascertain an amount of blur in each photograph
706
Select photograph having the least amount of blur

Fig. 4

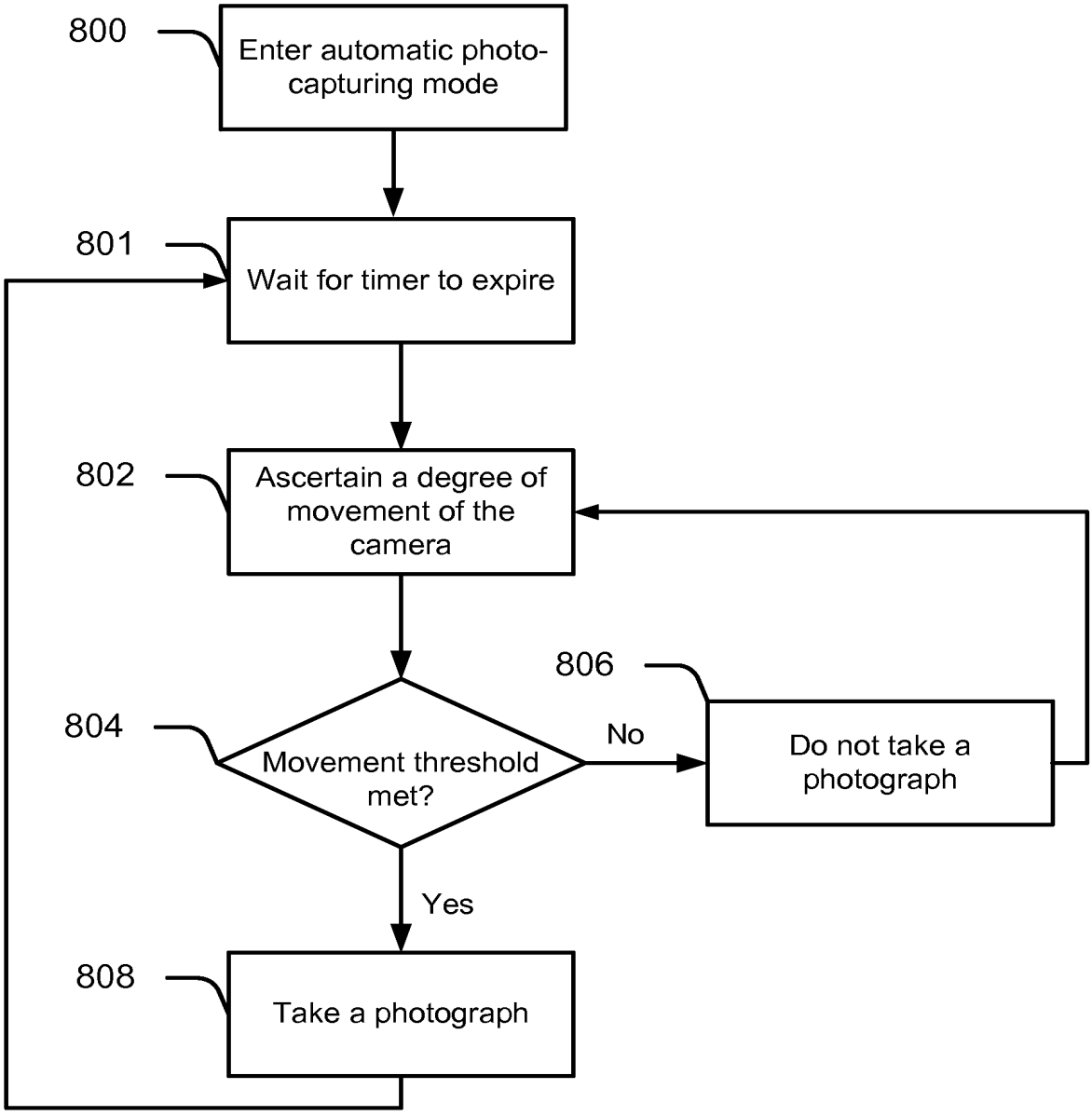

800
Enter automatic photo-capturing mode
801
Wait for timer to expire
802
Ascertain a degree of movement of the camera
804
Movement threshold met?
No
806
Do not take a photograph
Yes
808
Take a photograph

Fig. 5

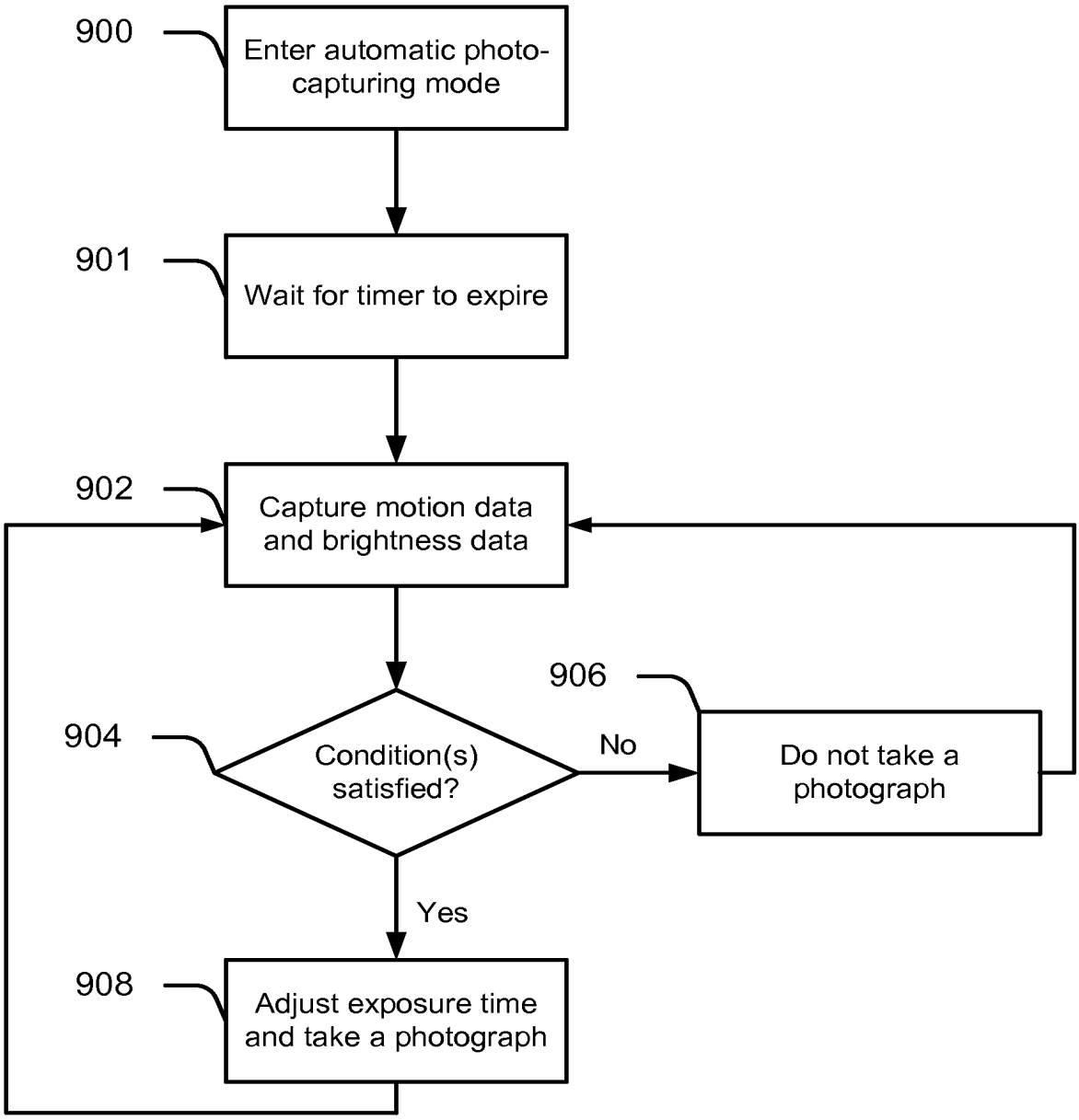

900
Enter automatic photo-capturing mode
901
Wait for timer to expire
902
Capture motion data and brightness data
904
Condition(s) satisfied?
No
906
Do not take a photograph
Yes
908
Adjust exposure time and take a photograph

Fig. 6

## REFERENCES CITED IN THE DESCRIPTION

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

### Patent documents cited in the description


- US 20040066981 A1 **[0005]**
- US 20060012699 A1 **[0005]**
- US 20130057713 A1 **[0005]**
- US 7257273 B **[0018] [0045]**


### Non-patent literature cited in the description


- **TONG et al.** Blur Detection for Digital Images Using Wavelet Transform. *Multimedia and Expo, 2004, IEEE International Conference,* 27 June 2004, vol. 1, 17-20 **[0018]**

PTO/AIA/01 (06-12)
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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| **Title of Invention** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
|---|---|

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

  filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: SIVAN Ishay Date (Optional): May 25, 2018

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant ( *i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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| **Application Number** | |
| **Filing Date** | |
| **First Named Inventor** | SIVAN, Ishay |
| **Title** | REAL TIME ASSESSMENT |
| **Art Unit** | |
| **Examiner Name** | |
| **Attorney Docket Number** | SIVAN-001-US3 |

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

***OR***

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131,926

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***OR***

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
*Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on* _____.

**SIGNATURE of Applicant or Assignee of Record**

| | | | |
|---|---|---|---|
| Signature | | Date | May 26, 2018 |
| Name | Ishay SIVAN | Telephone | -972-54-654-9030 |
| Title and Company | CEO of SNAPAID LTD. | | |

**NOTE**: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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| | |
|---|---|
| **Application Number:** | |
| **Filing Date:** | |
| **Title of Invention:** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
| **First Named Inventor/Applicant Name:** | Ishay SIVAN |
| **Filer:** | Yehuda Binder |
| **Attorney Docket Number:** | SIVAN-001-US3 |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| UTILITY FILING FEE (ELECTRONIC FILING) | 4011 | 1 | 75 | 75 |
| UTILITY SEARCH FEE | 2111 | 1 | 330 | 330 |
| UTILITY EXAMINATION FEE | 2311 | 1 | 380 | 380 |
| **Pages:** | | | | |
| **Claims:** | | | | |
| CLAIMS IN EXCESS OF 20 | 2202 | 1 | 50 | 50 |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |
| **Miscellaneous:** | | | | |
| | | **Total in USD ($)** | | **835** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 32752123 |
| **Application Number:** | 15992217 |
| **International Application Number:** | |
| **Confirmation Number:** | 7826 |
| **Title of Invention:** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
| **First Named Inventor/Applicant Name:** | Ishay SIVAN |
| **Customer Number:** | 131926 |
| **Filer:** | Yehuda Binder |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | SIVAN-001-US3 |
| **Receipt Date:** | 30-MAY-2018 |
| **Filing Date:** | |
| **Time Stamp:** | 06:26:21 |
| **Application Type:** | Utility under 35 USC 111(a) |

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|---|---|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | $835 |
| RAM confirmation Number | 053018INTEFSW00009418601835 |
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| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Transmittal of New Application | Transmittal-letter.pdf | 372617<br>bb869732adb1f60ac4dc1f1c0c18db7e924f0a5b | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Specification | Spec.pdf | 729729<br>1fce45e9a07ebc57ba3f19c409d51e0ace457f30 | no | 31 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Claims | Claims.pdf | 211352<br>60c644c828eead53d072ebed52e75ef4ecd90dc1 | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Drawings-only black and white line drawings | Drawings.pdf | 192792<br>4179743d33288c2415cead6d0646a32a09798e0e | no | 4 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 5 | Abstract | Abstract.pdf | 196801<br>4d0e7d0bab0ae1ef3d80afa46bae7814c7b53c91 | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 6 | Application Data Sheet | aia-ADS.pdf | 1819421<br>bed471c7e6c665205484b9a380e1f6aa0ab96567 | no | 7 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 7 | Information Disclosure Statement (IDS) Form (SB08) | IDS.pdf | 1036406<br>7c24fb919a57e662ec1d6a24e92f1f3c9f9ad662 | no | 7 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 8 | Information Disclosure Statement (IDS) Form (SB08) | IDS1.pdf | 1036013<br>c508b7725391fd0095f9a98f18d71ce2f2c1d442 | no | 5 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 9 | Non Patent Literature | EP2965140.pdf | 300172<br>f03d500c3b7308e83fda65de2a94e457ffe49568 | no | 17 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 10 | Oath or Declaration filed | Signed-Oath-PDF.pdf | 102610<br>91a7acb28f1bee74126b10a6dd25c6221d468392 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 11 | Power of Attorney | Signed-POA-PDF.pdf | 142373<br>4526f6784eb3627d67a15e0ac58a8056bda81bba | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 12 | Fee Worksheet (SB06) | fee-info.pdf | 36350<br>da00971479f07380e99e303e7f904a0914cf4c05 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | | **Total Files Size (in bytes):** | 6176636 | |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

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| APPLICATION NUMBER | FILING or 371(c) DATE | GRP ART UNIT | FIL FEE REC'D | ATTY.DOCKET.NO | TOT CLAIMS | IND CLAIMS |
|---|---|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | 2422 | 835 | SIVAN-001-US3 | 21 | 3 |

**CONFIRMATION NO. 7826**

**FILING RECEIPT**

131926
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

OC000000100373240

Date Mailed: 06/19/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

**Inventor(s)**

Ishay SIVAN, Tel Aviv, ISRAEL;

**Applicant(s)**

SnapAid Ltd., Tel Aviv, ISRAEL;

**Power of Attorney:** The patent practitioners associated with Customer Number 131926

**Domestic Priority data as claimed by applicant**

This application is a CON of 15/582,722 04/30/2017 PAT 10009537
which is a CON of 15/007,253 01/27/2016 PAT 9661226
which is a CON of 14/437,105 04/20/2015 PAT 9338348
which is a 371 of PCT/IL2013/050856 10/22/2013
which claims benefit of 61/717,216 10/23/2012
and claims benefit of 61/759,643 02/01/2013

**Foreign Applications** for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
*Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.*

**Permission to Access Application via Priority Document Exchange:** Yes

**Permission to Access Search Results:** No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

**If Required, Foreign Filing License Granted:** 06/18/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/992,217**

**Projected Publication Date:** 09/27/2018

**Non-Publication Request:** No

**Early Publication Request:** No
**** SMALL ENTITY ****
**Title**

REAL TIME ASSESSMENT OF PICTURE QUALITY

**Preliminary Class**

348

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

## PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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## Title 35, United States Code, Section 184

## Title 37, Code of Federal Regulations, 5.11 & 5.15

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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/992,217 |
|---|---|

## APPLICATION AS FILED - PART I

| | (Column 1) | (Column 2) | SMALL ENTITY | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|---|---|---|
| FOR | NUMBER FILED | NUMBER EXTRA | RATE($) | FEE($) | | RATE($) | FEE($) |
| BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | 75 | | N/A | |
| SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | 330 | | N/A | |
| EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | 380 | | N/A | |
| TOTAL CLAIMS (37 CFR 1.16(i)) | 21 minus 20 = | * 1 | x 50 = | 50 | OR | | |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | 3 minus 3 = | * | x 230 = | 0.00 | | | |
| APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | 0.00 | | | |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | 0.00 | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | 835 | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | SMALL ENTITY | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE($) | ADDITIONAL FEE($) | | RATE($) | ADDITIONAL FEE($) |
| AMENDMENT A | Total (37 CFR 1.16(i)) | * | Minus | ** | = | x = | | OR | x = | |
| | Independent (37 CFR 1.16(h)) | * | Minus | *** | = | x = | | OR | x = | |
| | Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

| | | (Column 1) | | (Column 2) | (Column 3) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE($) | ADDITIONAL FEE($) | | RATE($) | ADDITIONAL FEE($) |
| AMENDMENT B | Total (37 CFR 1.16(i)) | * | Minus | ** | = | x = | | OR | x = | |
| | Independent (37 CFR 1.16(h)) | * | Minus | *** | = | x = | | OR | x = | |
| | Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 |

**CONFIRMATION NO. 7826**

131926
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

**PUBLICATION NOTICE**

*OC000000102644324*

**Title:**REAL TIME ASSESSMENT OF PICTURE QUALITY

**Publication No.**US-2018-0278839-A1
**Publication Date:**09/27/2018

## NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

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Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 | 7826 |

131926 7590 07/29/2019

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

| EXAMINER |
|---|
| HANNETT, JAMES M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2698 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 07/29/2019 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. 15/992,217 | Applicant(s) SIVAN, Ishay | |
|---|---|---|---|
| | Examiner JAMES M HANNETT | Art Unit 2698 | AIA (FITF) Status No |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☑ Responsive to communication(s) filed on 5/30/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims***

5) ☑ Claim(s) 1-21 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-21 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

**Application Papers**

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 5/30/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

**DETAILED ACTION**

***Notice of Pre-AIA or AIA Status***

The present application is being examined under the pre-AIA first to invent provisions.

***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 5/30/2018 were filed in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**1:** Claim(s) 1, 5-14 and 17-21 is/are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by US 2012/0177352 A1 Pillman et al.

2: As for Claim 1, Pillman et al teaches a camera device comprising: a housing (Inherent Paragraph [0005]); a camera lens (4) supported by the housing and configured to enable capture of image data and brightness data (Paragraph [0059]); a motion detector (motion is detected) configured to ascertain a degree of movement of the camera device; a processor configured to: enable the camera device to enter an automatic photo-capturing mode in which photographs are automatically taken at one or more intervals (preview images are captured) (Paragraph [0069]); ascertain whether one or more conditions associated with motion data and the brightness data are satisfied (Paragraph [0100-0102]); and

responsive to the one or more conditions being satisfied, adjust an exposure time of the camera device and take a photograph (Paragraph [0099].

3: As for Claim 5, Pillman et al teaches wherein the camera device is configured to: receive an input to capture a photograph (Paragraph [0073]); responsive to receiving the input, capture a cluster of photographs (Preview images); ascertain an amount of blur in each photograph; and select a photograph based on an ascertained amount of blur (Paragraph [0099]).

4: As for Claim 6, Pillman et al teaches in Paragraph [0097-0102 and 0112] wherein the motion data indicates a high degree of motion and the brightness data indicates that an environment of the camera is bright, the adjustment of the exposure time comprises using a faster exposure time.

5: As for Claim 7, Pillman et al teaches in Paragraph [0097-0102 and 0112] wherein the motion data indicates a low degree of motion and the brightness data indicates that an environment of the camera is dark, the adjustment of the exposure time comprises using a slower exposure time.

6: As for Claim 8, Pillman et al teaches in Paragraph [0059] a system comprising: a camera device (10); and a computing device (20) configured to: receive a captured cluster of photographs (preview images) from the camera device (10) (Paragraph [0069]); select a photograph, from the captured cluster of photographs, with the least amount of ascertained motion blur in the received cluster of photographs (Paragraphs [0100-0102 and 0111]).

7: As for Claim 9, Pillman et al teaches in Paragraphs [0022 and 0079] wherein the computing device (20) is configured to send the selected photograph to a device.

8: As for Claim 10, Pillman et al teaches in Paragraph [0062] wherein the camera device is further configured to: receive the selected photograph from the computing device; and store the selected photograph.

9: As for Claim 11, Pillman et al teaches in Paragraph [0073] wherein the camera device is configured to capture the cluster of photographs (preview images) using an automatic photo-capture mode.

10: As for Claim 12, Pillman et al teaches in Paragraph [0073] wherein the camera device is configured to capture the cluster of photographs (preview images) in response to a user input.

11: As for Claim 13, Pillman et al teaches in Paragraph [0073] wherein the user input is a movement gesture of the camera device (button is pressed).

12: As for Claim 14, Pillman et al teaches in Paragraph [0079] wherein the received captured cluster of photographs is received over a Wi-Fi or a Bluetooth communication link.

13: As for Claim 17, Pillman et al teaches in Paragraph [0073 and 0103] where user is notified on the quality of selected photograph (images are displayed on the display. Therefore, the user can view the images to determine quality); where quality is based on amount of motion blur in the selected photograph.

14: As for Claim 18, Claim 18 is rejected for reasons discussed related to Claim 1.

15: As for Claim 19, Pillman et al teaches in Paragraph [0073] further comprising: receiving, with the camera (10), a user input to initiate the entering the automatic photo-capturing mode.

16: As for Claim 20, Pillman et al teaches in Paragraph [0073 and 0069] further comprising: responsive to receiving the input, capturing a cluster of photographs (preview images); ascertain an amount of blur in each photograph (Paragraphs [0100-0102]); and select a photograph based on an ascertained amount of blur (Paragraph [0111]).

17: As for Claim 21, Pillman et al teaches in Paragraphs [0100-0102] wherein the selected photograph has the least amount of ascertained blur.

***Claim Rejections - 35 USC § 103***

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**18:** Claims 2-4, 15 and 16 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over US 2012/0177352 A1 Pillman et al.

19: As for Claim 2, Pillman et al teaches a camera system that detects motion. However, Pillman et al does not teach wherein the motion detector comprises an accelerometer to capture the motion data.

Pillman et al teaches in Paragraph [0007] in a different prior art embodiment that it was well known in the art to use accelerometers to detect camera motion.

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to use accelerometers as taught by the prior art cameras disclosed in Pillman et al to detect motion in order improve image quality.

20: As for Claim 3, Pillman et al teaches a camera system that detects motion. However, Pillman et al does not teach wherein the motion detector comprises a gyroscope to capture the motion data.

Pillman et al teaches in Paragraph [0007] in a different prior art embodiment that it was well known in the art to use gyroscope to detect camera motion.

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to use a gyroscope as taught by the prior art cameras disclosed in Pillman et al to detect motion in order improve image quality.

21: As for Claim 4, Pillman et al teaches a camera system that detects motion. However, Pillman et al does not teach wherein the motion detector comprises both an accelerometer and a gyroscope to capture the motion data.

Pillman et al teaches in Paragraph [0007] in a different prior art embodiments that it was well known in the art to use gyroscope and accelerometers to detect camera motion.

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to modify the invention of Pillman et al to use a gyroscope and an accelerometer as taught by the prior art cameras disclosed in Pillman et al to detect motion in order improve image quality.

22: As for Claim 15, Pillman et al teaches a camera with a processor that processes a series of preview images. Furthermore, Pillman et al teaches in Paragraph [0079] connecting the camera to a remote photo service provider over the internet to process images. However, Pillman et al doesn't teach wherein the computing device is a remote server of a cloud-based service and the received captured cluster of photographs is received over the Internet.

Official Notice is taken that it was well known in the art at the time the invention was made to allow remote photo service provider over the internet to perform image processing in order to reduce the processing requirements needed within the handheld camera and therefore, reduce the cost of the cameras.

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to form the computing devices a remote server of a cloud-based service and the received captured cluster of photographs is received over the Internet in the invention of Pillman et al in order to reduce the processing requirements needed within the handheld camera and therefore, reduce the cost of the camera.

23: As for Claim 16, Pillman et al teaches a camera system that detects motion. However, Pillman et al does not teach wherein the motion detector comprises a gyroscope to capture the motion data.

Pillman et al teaches in Paragraph [0007] in a different prior art embodiment that it was well known in the art to use gyroscope to detect camera motion.

Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made to use a gyroscope as taught by the prior art cameras disclosed in Pillman et al to detect motion in order improve image quality.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M HANNETT whose telephone number is (571)272-7309. The examiner can normally be reached 8:00 AM-5:00 PM Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Haskins can be reached at 571-272-7406 The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JAMES M HANNETT/
Primary Examiner, Art Unit 2698

JMH
July 25, 2019

| Notice of References Cited | Application/Control No. 15/992,217 | Applicant(s)/Patent Under Reexamination SIVAN, Ishay | |
|---|---|---|---|
| | Examiner JAMES M HANNETT | Art Unit 2698 | Page 1 of 1 |

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| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/992,217 | SIVAN, Ishay |
| | Examiner | Art Unit |
| | JAMES M HANNETT | 2698 |

| CPC - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| H04N 5/2322, 5/23229 and 5/23258 (Combined with text search) | 07/25/2019 | JMH |

| CPC Combination Sets - Searched* | | |
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| Symbol | Date | Examiner |
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| Class | Subclass | Date | Examiner |
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| Search Notes | | |
|---|---|---|
| Search Notes | Date | Examiner |
| East Search | 07/25/2019 | JMH |
| Inventor Name Search | 07/25/2019 | JMH |

| Interference Search | | | |
|---|---|---|---|
| US Class/CPC Symbol | US Subclass/CPC Group | Date | Examiner |
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| | /JAMES M HANNETT/<br>Primary Examiner, Art Unit 2698 |

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| | 15/992,217 | SIVAN, Ishay |
| | Examiner | Art Unit |
| | JAMES M HANNETT | 2698 |

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| = | Allowed | ÷ | Restricted | I | Interference | O | Objected |

**CLAIMS**

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 07/25/2019 | | | | | | | | |
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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | |
| Filing Date | |
| First Named Inventor | Ishay SIVAN |
| Art Unit | |
| Examiner Name | |
| Attorney Docket Number | SIVAN-001-US3 |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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|---|---|---|
| | Application Number | |
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| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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| | 1 | 2965140 | EP | B1 | 2016-01-13 | Microsoft Technology Licensing, LLC | | |

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| Examiner Signature | /JAMES M HANNETT/ | Date Considered | 07/25/2019 |
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|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| Signature | /Yehuda Binder/ | Date (YYYY-MM-DD) | 2018-05-25 |
|---|---|---|---|
| Name/Print | Yehuda BINDER | Registration Number | 73612 |

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**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
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| S5 | 10616 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 08:55 |
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| S9 | 1025 | S8 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 08:56 |
| S10 | 20 | S8 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 08:57 |
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| S13 | 775 | S8 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:00 |
| S14 | 7264 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:00 |
| S15 | 292 | S14 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:00 |

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| S17 | 1 | S15 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:05 |
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| S19 | 84 | S18 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:44 |
| S20 | 1375 | S8 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:44 |
| S21 | 21 | S19 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:44 |
| S22 | 2 | S21 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:44 |
| S23 | 99145 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:46 |
| S24 | 20412 | S23 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2015/10/23 09:46 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S25 | 1205 | S24 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:46 |
| S26 | 468 | S25 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:48 |
| S27 | 28 | S26 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:48 |
| S28 | 2 | S27 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:49 |
| S29 | 9 | S26 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:51 |
| S30 | 6 | S29 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:51 |
| S31 | 33099 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:53 |
| S32 | 102 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:53 |
| S33 | 3104 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2015/10/23 09:54 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S34 | 4219 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:54 |
| S35 | 5045 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:54 |
| S36 | 11935 | S33 or S34 or S35 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:54 |
| S37 | 3 | S36 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:54 |
| S38 | 2483 | S36 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:56 |
| S39 | 50 | S38 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:57 |
| S40 | 1 | S38 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:57 |
| S41 | 86518 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:59 |
| S42 | 11 | (predefined or pre-defined or | US-PGPUB; | OR | OFF | 2015/10/23 |

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|---|---|---|---|---|---|---|
| | | predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 10:00 |
| S43 | 630 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| "20060204054" \| "20060204110" \| "20060257042" \| "20060279639" \| "20060285754" \| "20070009169" \| "20070025714").PN. OR ("20070058073" \| "20070083114" \| "20070086675" \| "20070097221" \| "20070110305" \| "20070133893" \| "20070147820" \| "20070171987" \| "20070177817" \| "20070189748" \| "20070201724" \| "20070234779" \| "20070263995" \| "20070269108" \| "20070296833" \| "20080012969" \| "20080019669" \| "20080030586" \| "20080037827" \| "20080037839" \| "20080037840" \| "20080043121" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2015/10/23 10:01 |

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|---|---|---|---|---|---|---|
| | | "20080064438" \| "20080133526" \| "20080175481" \| "20080211943" \| "20080218611" \| "20080219581" \| "20080219585" \| "20080220750" \| "20080231713" \| "20080231714" \| "20080232711" \| "20080240555" \| "20080292193" \| "20080309769" \| "20080309770" \| "20080316321" \| "20080317358" \| "20090003652" \| "20090009612" \| "20090017880" \| "20090046161" \| "20090067826" \| "20090080713" \| "20090080796" \| "20090080797" \| "20090167893" \| "20090174782" \| "20090179999" \| "20090185041" \| "20090185753" \| "20090190803" \| "20090196466" \| "20090196510" \| "20090263022" \| "20090273685" \| "20090303342" \| "20090303343" \| "20100126831" \| "20100201826" \| "20100201827" \| "20100328472" \| "20110069207" \| "20110193989" \| "2857663" \| "4226932" \| "4238146" \| "4357382" \| "4448853" \| "4532190" \| "4624897" \| "4824008" \| "4862277" \| "5192964" \| "5251019" \| "5374956" \| "5392088" \| "5428723" \| "5430480" \| "5510215" \| "5599766" \| "5686383" \| "5708863" \| "5717611" \| "5747199" \| "5751836" \| "5756239" \| "5756240" \| "5773810" \| "5790490" \| "5802220" \| "5889277" \| "5889554" \| "5909242" \| "5981112" \| "6016354" \| "6028960" \| "6035072" \| "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| | | | |

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|---|---|---|---|---|---|---|
| | | "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S44 | 24 | S43 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:02 |
| S45 | 20 | S44 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:02 |
| S46 | 0 | S45 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:02 |
| S47 | 1 | S45 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:04 |
| S48 | 52 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2015/10/23 10:06 |
| S49 | 34 | S48 and quality with image | US-PGPUB; USPAT; USOCR; | OR | OFF | 2015/10/23 10:07 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S50 | 6 | S49 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:07 |
| S51 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/19 09:43 |
| S52 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2016/11/19 09:47 |
| S53 | 0 | S52 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/19 09:47 |
| S54 | 2 | S52 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/19 09:48 |
| S55 | 1 | S52 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:05 |
| S56 | 0 | S52 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S57 | 0 | S52 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S58 | 0 | S52 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S59 | 2 | S52 and exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S60 | 0 | S59 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:13 |
| S61 | 2 | S59 and focus | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:13 |
| S62 | 1 | S59 and retake | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:18 |
| S63 | 0 | S59 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:18 |
| S64 | 18 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:19 |
| S65 | 682 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:22 |

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|---|---|---|---|---|---|---|
| S66 | 28557 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:22 |
| S67 | 30568 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:22 |
| S68 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:23 |
| S69 | 10 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:23 |
| S70 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S71 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S72 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S73 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S74 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:31 |
| S75 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:31 |
| S76 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2016/11/20 13:55 |
| S77 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2016/11/20 13:55 |
| S78 | 14 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2016/11/20 14:08 |
| S79 | 63 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/21 17:39 |
| S80 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2016/11/21 17:40 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S81 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/22 09:10 |
| S82 | 0 | ("("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S83 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S84 | 9 | S83 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S85 | 5 | S84 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S86 | 12861 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S87 | 5 | S85 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S88 | 4951 | S86 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S89 | 1612 | S88 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S90 | 1225 | S89 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S91 | 24 | S89 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S92 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/02/07 08:59 |
| S93 | 2 | S85 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S94 | 921 | S89 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S95 | 8312 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S96 | 346 | S95 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| S97 | 22 | S96 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S98 | 2 | S96 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S99 | 945 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S100 | 100 | S99 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S101 | 1612 | S89 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S102 | 23 | S100 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S103 | 3 | S102 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S104 | 113435 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S105 | 23691 | S104 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S106 | 1395 | S105 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S107 | 545 | S106 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S108 | 31 | S107 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S109 | 3 | S108 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S110 | 14 | S107 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S111 | 10 | S110 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S112 | 38946 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S113 | 135 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S114 | 5277 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S115 | 7841 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S116 | 6870 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S117 | 19023 | S114 or S115 or S116 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S118 | 9 | S117 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S119 | 3692 | S117 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S120 | 75 | S119 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S121 | 2 | S119 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S122 | 96492 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S123 | 12 | (predefined or pre-defined or | US-PGPUB; | OR | OFF | 2017/02/07 |

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|---|---|---|---|---|---|---|
| | | predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 08:59 |
| S124 | 786 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| "20060204054" \| "20060204110" \| "20060257042" \| "20060279639" \| "20060285754" \| "20070009169" \| "20070025714").PN. OR ("20070058073" \| "20070083114" \| "20070086675" \| "20070097221" \| "20070110305" \| "20070133893" \| "20070147820" \| "20070171987" \| "20070177817" \| "20070189748" \| "20070201724" \| "20070234779" \| "20070263995" \| "20070269108" \| "20070296833" \| "20080012969" \| "20080019669" \| "20080030586" \| "20080037827" \| "20080037839" \| "20080037840" \| "20080043121" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 08:59 |

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| | | "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S125 | 31 | S124 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S126 | 27 | S125 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S127 | 1 | S126 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S128 | 3 | S126 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S129 | 57 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 08:59 |
| S130 | 38 | S129 and quality with image | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S131 | 9 | S130 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S132 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S133 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S134 | 0 | S133 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S135 | 2 | S133 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S136 | 1 | S133 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S137 | 0 | S133 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S138 | 0 | S133 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S139 | 0 | S133 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S140 | 2 | S133 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S141 | 0 | S140 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S142 | 2 | S140 and focus | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S143 | 1 | S140 and retake | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S144 | 0 | S140 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S145 | 20 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S146 | 692 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| S147 | 28750 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S148 | 30831 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S149 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S150 | 10 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S151 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S152 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S153 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S154 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S155 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S156 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S157 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S158 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 08:59 |
| S159 | 15 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 08:59 |
| S160 | 65 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S161 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/02/07 08:59 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S162 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 08:59 |
| S164 | 31683 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 09:32 |
| S165 | 0 | S164 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 09:33 |
| S166 | 9664 | S164 and quality | US-PGPUB; USPAT | OR | OFF | 2017/02/07 09:33 |
| S167 | 668 | S166 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/02/07 09:33 |
| S168 | 366 | S167 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2017/02/07 09:33 |
| S169 | 4 | S168 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2017/02/07 09:34 |
| S170 | 3 | S169 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2017/02/07 09:34 |
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| S173 | 9 | S172 and buffer | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S174 | 5 | S173 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S175 | 12861 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S176 | 5 | S174 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S177 | 4951 | S175 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S178 | 1612 | S177 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S179 | 1225 | S178 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S180 | 24 | S178 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S181 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/02/07 12:23 |
| S182 | 2 | S174 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| S183 | 921 | S178 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S184 | 8312 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S185 | 346 | S184 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S186 | 22 | S185 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S187 | 2 | S185 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S188 | 945 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S189 | 100 | S188 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S190 | 1612 | S178 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S191 | 23 | S189 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S192 | 3 | S191 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S193 | 113435 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S194 | 23691 | S193 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S195 | 1395 | S194 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S196 | 545 | S195 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S197 | 31 | S196 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S198 | 3 | S197 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S199 | 14 | S196 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S200 | 10 | S199 and user .clm. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/02/07 12:23 |

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| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S201 | 38946 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S202 | 135 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S203 | 5277 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S204 | 7841 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S205 | 6870 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S206 | 19023 | S203 or S204 or S205 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S207 | 9 | S206 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S208 | 3692 | S206 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S209 | 75 | S208 and (suggest$4 or | US-PGPUB; | OR | OFF | 2017/02/07 |

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|---|---|---|---|---|---|---|
| | | recommend$4) with quality | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 12:23 |
| S210 | 2 | S208 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S211 | 96492 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S212 | 12 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S213 | 786 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 12:23 |

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"5717611" | "5747199" | "5751836" |
"5756239" | "5756240" | "5773810" |
"5790490" | "5802220" | "5889277" |
"5889554" | "5909242" | "5981112" |
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"6374054" | "6381279" | "6387577" |
"6396883" | "6407777" | "6463173" |
"6470147" | "6486915" | "6535244" |

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|---|---|---|---|---|---|---|
| | | "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S214 | 31 | S213 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S215 | 27 | S214 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S216 | 1 | S215 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S217 | 3 | S215 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S218 | 57 | ("20040075743" \| "20050226499" \| | US-PGPUB; | OR | OFF | 2017/02/07 |

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| | | "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | USPAT; USOCR | | | 12:23 |
| S219 | 38 | S218 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S220 | 9 | S219 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S221 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S222 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S223 | 0 | S222 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S224 | 2 | S222 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S225 | 1 | S222 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S226 | 0 | S222 and exposure same parameters | US-PGPUB; | OR | OFF | 2017/02/07 |

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|---|---|---|---|---|---|---|
| | | | USPAT | | | 12:23 |
| S227 | 0 | S222 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S228 | 0 | S222 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S229 | 2 | S222 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S230 | 0 | S229 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S231 | 2 | S229 and focus | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S232 | 1 | S229 and retake | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S233 | 0 | S229 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S234 | 20 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S235 | 692 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S236 | 28750 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S237 | 30831 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S238 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S239 | 10 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S240 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S241 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S242 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S243 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S244 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S245 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S246 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S247 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | | | | |
| S248 | 15 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 12:23 |
| S249 | 65 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S250 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S251 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S252 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S253 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S254 | 9 | S253 and buffer | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S255 | 5 | S254 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S256 | 12861 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S257 | 5 | S255 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S258 | 4951 | S256 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S259 | 1612 | S258 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S260 | 1225 | S259 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S261 | 24 | S259 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S262 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/02/07 12:23 |
| S263 | 2 | S255 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | | IBM_TDB | | | |
| S264 | 921 | S259 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S265 | 8312 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S266 | 346 | S265 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S267 | 22 | S266 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S268 | 2 | S266 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S269 | 945 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S270 | 100 | S269 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S271 | 1612 | S259 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S272 | 23 | S270 and buffer | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/02/07 12:23 |

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| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S273 | 3 | S272 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S274 | 113435 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S275 | 23691 | S274 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S276 | 1395 | S275 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S277 | 545 | S276 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S278 | 31 | S277 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S279 | 3 | S278 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S280 | 14 | S277 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S281 | 10 | S280 and user .clm. | US-PGPUB; USPAT; | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S282 | 38946 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S283 | 135 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S284 | 5277 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S285 | 7841 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S286 | 6870 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S287 | 19023 | S284 or S285 or S286 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S288 | 9 | S287 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S289 | 3692 | S287 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| S290 | 75 | S289 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S291 | 2 | S289 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S292 | 96492 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S293 | 12 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S294 | 786 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 12:23 |

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"20080175481" | "20080211943" |
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"5756239" | "5756240" | "5773810" |
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"5889554" | "5909242" | "5981112" |
"6016354" | "6028960" | "6035072" |
"6041078" | "6061462" | "6081606" |
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"6124864" | "6134339" | "6269175" |
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"6326108" | "6330029" | "6341179" |
"6360003" | "6363116" | "6365304" |
"6374054" | "6381279" | "6387577" |
"6396883" | "6407777" | "6463173" |

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|---|---|---|---|---|---|---|
| | | "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S295 | 31 | S294 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S296 | 27 | S295 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S297 | 1 | S296 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S298 | 3 | S296 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| S299 | 57 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 12:23 |
| S300 | 38 | S299 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S301 | 9 | S300 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S302 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S303 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S304 | 0 | S303 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S305 | 2 | S303 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S306 | 1 | S303 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| S307 | 0 | S303 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S308 | 0 | S303 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S309 | 0 | S303 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S310 | 2 | S303 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S311 | 0 | S310 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S312 | 2 | S310 and focus | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S313 | 1 | S310 and retake | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S314 | 0 | S310 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S315 | 20 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S316 | 692 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S317 | 28750 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S318 | 30831 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S319 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S320 | 10 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S321 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S322 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S323 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S324 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S325 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S326 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S327 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S328 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |

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|---|---|---|---|---|---|---|
| | | "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | | | | |
| S329 | 15 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/02/07 12:23 |
| S330 | 65 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S331 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S332 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S333 | 31683 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/02/07 12:23 |
| S334 | 0 | S333 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S335 | 9664 | S333 and quality | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S336 | 668 | S335 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S337 | 366 | S336 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S338 | 4 | S337 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S339 | 3 | S338 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2017/02/07 12:23 |
| S340 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |

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|---|---|---|---|---|---|---|
| | | "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | | | | |
| S341 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S342 | 9 | S341 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S343 | 5 | S342 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S344 | 14303 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S345 | 5 | S343 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S346 | 5581 | S344 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S347 | 1746 | S346 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |

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|---|---|---|---|---|---|---|
| S348 | 1331 | S347 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S349 | 25 | S347 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S350 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/12/01 08:15 |
| S351 | 2 | S343 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S352 | 1003 | S347 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S353 | 9003 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S354 | 382 | S353 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S355 | 28 | S354 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S356 | 2 | S354 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S357 | 1032 | sivan .in. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/12/01 08:15 |

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| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S358 | 111 | S357 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S359 | 1746 | S347 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S360 | 25 | S358 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S361 | 3 | S360 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S362 | 123276 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S363 | 25830 | S362 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S364 | 1504 | S363 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S365 | 582 | S364 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S366 | 33 | S365 and buffer .clm. | US-PGPUB; | OR | OFF | 2017/12/01 |

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| | | | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 08:15 |
| S367 | 3 | S366 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S368 | 14 | S365 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S369 | 10 | S368 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S370 | 43130 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S371 | 150 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S372 | 6248 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S373 | 9168 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S374 | 7683 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2017/12/01 08:15 |

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| | | | IBM_TDB | | | |
| S375 | 21942 | S372 or S373 or S374 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S376 | 11 | S375 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S377 | 4318 | S375 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S378 | 86 | S377 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S379 | 2 | S377 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S380 | 103496 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S381 | 13 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S382 | 875 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:15 |

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| S383 | 33 | S382 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2017/12/01 08:15 |

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|---|---|---|---|---|---|---|
| | | | IBM_TDB | | | |
| S384 | 29 | S383 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S385 | 2 | S384 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S386 | 4 | S384 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S387 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:15 |
| S388 | 41 | S387 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S389 | 10 | S388 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S390 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2017/12/01 08:15 |

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| | | | IBM_TDB | | | |
| S391 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:15 |
| S392 | 0 | S391 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S393 | 2 | S391 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:15 |
| S394 | 1 | S391 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S395 | 0 | S391 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S396 | 0 | S391 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S397 | 0 | S391 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S398 | 2 | S391 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S399 | 0 | S398 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S400 | 2 | S398 and focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S401 | 1 | S398 and retake | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S402 | 0 | S398 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S403 | 22 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S404 | 722 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S405 | 29573 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S406 | 31984 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S407 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S408 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S409 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S410 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S411 | 0 | (retake or recapture) with exposure | US-PGPUB; | OR | OFF | 2017/12/01 |

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| | | with shutter with aperture | USPAT | | | 08:16 |
| S412 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S413 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S414 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S415 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S416 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S417 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |
| S418 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S419 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S420 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S421 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2017/12/01 08:16 |

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| S422 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S423 | 9 | S422 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S424 | 5 | S423 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S425 | 14303 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S426 | 5 | S424 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S427 | 5581 | S425 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S428 | 1746 | S427 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2017/12/01 08:16 |

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| | | | IBM_TDB | | | |
| S429 | 1331 | S428 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S430 | 25 | S428 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S431 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/12/01 08:16 |
| S432 | 2 | S424 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S433 | 1003 | S428 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S434 | 9003 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S435 | 382 | S434 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S436 | 28 | S435 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S437 | 2 | S435 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S438 | 1032 | sivan .in. | US-PGPUB; | OR | OFF | 2017/12/01 |

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| | | | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 08:16 |
| S439 | 111 | S438 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S440 | 1746 | S428 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S441 | 25 | S439 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S442 | 3 | S441 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S443 | 123276 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S444 | 25830 | S443 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S445 | 1504 | S444 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S446 | 582 | S445 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | IBM_TDB | | | |
| S447 | 33 | S446 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S448 | 3 | S447 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S449 | 14 | S446 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S450 | 10 | S449 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S451 | 43130 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S452 | 150 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S453 | 6248 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S454 | 9168 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S455 | 7683 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S456 | 21942 | S453 or S454 or S455 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S457 | 11 | S456 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S458 | 4318 | S456 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S459 | 86 | S458 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S460 | 2 | S458 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S461 | 103496 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S462 | 13 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S463 | 875 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |

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"20040218067" | "20040247030" |
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"20050047672" | "20050052553" |
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| S464 | 33 | S463 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S465 | 29 | S464 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S466 | 2 | S465 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S467 | 4 | S465 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S468 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |
| S469 | 41 | S468 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S470 | 10 | S469 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S471 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S472 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S473 | 0 | S472 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S474 | 2 | S472 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S475 | 1 | S472 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S476 | 0 | S472 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S477 | 0 | S472 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S478 | 0 | S472 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S479 | 2 | S472 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S480 | 0 | S479 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S481 | 2 | S479 and focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S482 | 1 | S479 and retake | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S483 | 0 | S479 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S484 | 22 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S485 | 722 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S486 | 29573 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S487 | 31984 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S488 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S489 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S490 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S491 | 0 | (retake or recapture) with automatic with exposure with shutter with | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | aperture | | | | |
| S492 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S493 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S494 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S495 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S496 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S497 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S498 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |
| S499 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S500 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S501 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S502 | 35268 | weight with threshold | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S503 | 0 | S502 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S504 | 10705 | S502 and quality | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S505 | 780 | S504 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S506 | 411 | S505 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S507 | 5 | S506 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S508 | 3 | S507 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S509 | 0 | ("("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S510 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S511 | 9 | S510 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S512 | 5 | S511 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S513 | 14303 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S514 | 5 | S512 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S515 | 5581 | S513 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S516 | 1746 | S515 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S517 | 1331 | S516 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S518 | 25 | S516 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S519 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/12/01 08:16 |
| S520 | 2 | S512 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S521 | 1003 | S516 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S522 | 9003 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| S523 | 382 | S522 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S524 | 28 | S523 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S525 | 2 | S523 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S526 | 1032 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S527 | 111 | S526 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S528 | 1746 | S516 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S529 | 25 | S527 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S530 | 3 | S529 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S531 | 123276 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S532 | 25830 | S531 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S533 | 1504 | S532 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S534 | 582 | S533 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S535 | 33 | S534 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S536 | 3 | S535 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S537 | 14 | S534 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S538 | 10 | S537 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S539 | 43130 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S540 | 150 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S541 | 6248 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S542 | 9168 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S543 | 7683 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S544 | 21942 | S541 or S542 or S543 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S545 | 11 | S544 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S546 | 4318 | S544 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S547 | 86 | S546 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S548 | 2 | S546 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S549 | 103496 | (predefined or pre-defined or | US-PGPUB; | OR | OFF | 2017/12/01 |

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|---|---|---|---|---|---|---|
| | | predetermined or pre-determined) with quality | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 08:16 |
| S550 | 13 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S551 | 875 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| "20060204054" \| "20060204110" \| "20060257042" \| "20060279639" \| "20060285754" \| "20070009169" \| "20070025714").PN. OR ("20070058073" \| "20070083114" \| "20070086675" \| "20070097221" \| "20070110305" \| "20070133893" \| "20070147820" \| "20070171987" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |

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| | | "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S552 | 33 | S551 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S553 | 29 | S552 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S554 | 2 | S553 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S555 | 4 | S553 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S556 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |

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| | | "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | | | | |
| S557 | 41 | S556 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S558 | 10 | S557 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S559 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S560 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S561 | 0 | S560 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S562 | 2 | S560 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S563 | 1 | S560 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S564 | 0 | S560 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S565 | 0 | S560 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S566 | 0 | S560 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S567 | 2 | S560 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S568 | 0 | S567 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S569 | 2 | S567 and focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S570 | 1 | S567 and retake | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| S571 | 0 | S567 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S572 | 22 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S573 | 722 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S574 | 29573 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S575 | 31984 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S576 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S577 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S578 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
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| S580 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S581 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S582 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S583 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
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| S585 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S586 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |
| S587 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S588 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S589 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
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| S592 | 9 | S591 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S593 | 5 | S592 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S594 | 14303 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S595 | 5 | S593 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S596 | 5581 | S594 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S597 | 1746 | S596 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S598 | 1331 | S597 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S599 | 25 | S597 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S600 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2017/12/01 08:16 |
| S601 | 2 | S593 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S602 | 1003 | S597 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S603 | 9003 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| S604 | 382 | S603 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S605 | 28 | S604 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S606 | 2 | S604 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S607 | 1032 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S608 | 111 | S607 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S609 | 1746 | S597 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S610 | 25 | S608 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S611 | 3 | S610 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S612 | 123276 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S613 | 25830 | S612 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S614 | 1504 | S613 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S615 | 582 | S614 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S616 | 33 | S615 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S617 | 3 | S616 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S618 | 14 | S615 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S619 | 10 | S618 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S620 | 43130 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S621 | 150 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S622 | 6248 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S623 | 9168 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S624 | 7683 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S625 | 21942 | S622 or S623 or S624 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S626 | 11 | S625 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S627 | 4318 | S625 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S628 | 86 | S627 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S629 | 2 | S627 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S630 | 103496 | (predefined or pre-defined or | US-PGPUB; | OR | OFF | 2017/12/01 |

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|---|---|---|---|---|---|---|
| | | predetermined or pre-determined) with quality | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 08:16 |
| S631 | 13 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S632 | 875 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| "20060204054" \| "20060204110" \| "20060257042" \| "20060279639" \| "20060285754" \| "20070009169" \| "20070025714").PN. OR ("20070058073" \| "20070083114" \| "20070086675" \| "20070097221" \| "20070110305" \| "20070133893" \| "20070147820" \| "20070171987" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |

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| | | "20070263995" \| "20070269108" \| | | | | | |
| | | "20070296833" \| "20080012969" \| | | | | | |
| | | "20080019669" \| "20080030586" \| | | | | | |
| | | "20080037827" \| "20080037839" \| | | | | | |
| | | "20080037840" \| "20080043121" \| | | | | | |
| | | "20080064438" \| "20080133526" \| | | | | | |
| | | "20080175481" \| "20080211943" \| | | | | | |
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| | | "20080219585" \| "20080220750" \| | | | | | |
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| | | "20090174782" \| "20090179999" \| | | | | | |
| | | "20090185041" \| "20090185753" \| | | | | | |
| | | "20090190803" \| "20090196466" \| | | | | | |
| | | "20090196510" \| "20090263022" \| | | | | | |
| | | "20090273685" \| "20090303342" \| | | | | | |
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| | | "4824008" \| "4862277" \| "5192964" \| | | | | | |
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| | | "5428723" \| "5430480" \| "5510215" \| | | | | | |
| | | "5599766" \| "5686383" \| "5708863" \| | | | | | |
| | | "5717611" \| "5747199" \| "5751836" \| | | | | | |
| | | "5756239" \| "5756240" \| "5773810" \| | | | | | |
| | | "5790490" \| "5802220" \| "5889277" \| | | | | | |
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| | | "6016354" \| "6028960" \| "6035072" \| | | | | | |
| | | "6041078" \| "6061462" \| "6081606" \| | | | | | |
| | | "6114075").PN. OR ("6122017" \| | | | | | |
| | | "6124864" \| "6134339" \| "6269175" \| | | | | | |
| | | "6297071" \| "6297846" \| "6298198" \| | | | | | |
| | | "6326108" \| "6330029" \| "6341179" \| | | | | | |
| | | "6360003" \| "6363116" \| "6365304" \| | | | | | |
| | | "6374054" \| "6381279" \| "6387577" \| | | | | | |
| | | "6396883" \| "6407777" \| "6463173" \| | | | | | |
| | | "6470147" \| "6486915" \| "6535244" \| | | | | | |
| | | "6555278" \| "6567536" \| "6577821" \| | | | | | |
| | | "6599668" \| "6602656" \| "6607873" \| | | | | | |
| | | "6618491" \| "6625396" \| "6628898" \| | | | | | |
| | | "6643387" \| "6741960" \| "6863368" \| | | | | | |
| | | "6892029" \| "6930718" \| "6947609" \| | | | | | |
| | | "6961518" \| "7019331" \| "7027087" \| | | | | | |
| | | "7042509" \| "7072525" \| "7084037" \| | | | | | |
| | | "7160573" \| "7177538" \| "7180238" \| | | | | | |
| | | "7195848" \| "7212230" \| "7269292" \| | | | | | |
| | | "7292270" \| "7315324" \| "7315630" \| | | | | | |
| | | "7315631" \| "7316630" \| "7316631" \| | | | | | |
| | | "7317815" \| "7336821" \| "7369712" \| | | | | | |
| | | "7403643" \| "7453493" \| "7453510" \| | | | | | |
| | | "7460695" \| "7469071" \| "7489341" \| | | | | | |
| | | "7548256" \| "7551755" \| "7565030" \| | | | | | |

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| | | "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S633 | 33 | S632 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S634 | 29 | S633 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S635 | 2 | S634 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S636 | 4 | S634 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S637 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |

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| | | "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | | | | |
| S638 | 41 | S637 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S639 | 10 | S638 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S640 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S641 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S642 | 0 | S641 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S643 | 2 | S641 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S644 | 1 | S641 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S645 | 0 | S641 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S646 | 0 | S641 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S647 | 0 | S641 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S648 | 2 | S641 and exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S649 | 0 | S648 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S650 | 2 | S648 and focus | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S651 | 1 | S648 and retake | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| S652 | 0 | S648 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S653 | 22 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S654 | 722 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S655 | 29573 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S656 | 31984 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S657 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S658 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S659 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S660 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S661 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S662 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S663 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S664 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S665 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S666 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S667 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2017/12/01 08:16 |
| S668 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; | OR | OFF | 2017/12/01 08:16 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S669 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S670 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S671 | 35268 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2017/12/01 08:16 |
| S672 | 0 | S671 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S673 | 10705 | S671 and quality | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S674 | 780 | S673 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S675 | 411 | S674 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S676 | 5 | S675 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S677 | 3 | S676 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2017/12/01 08:16 |
| S678 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S679 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |

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| | | "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | | | | |
| S680 | 9 | S679 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S681 | 5 | S680 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S682 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S683 | 5 | S681 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S684 | 5755 | S682 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S685 | 1783 | S684 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S686 | 1352 | S685 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S687 | 26 | S685 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S688 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:19 |

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|---|---|---|---|---|---|---|
| S689 | 2 | S681 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S690 | 1019 | S685 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S691 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S692 | 388 | S691 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S693 | 30 | S692 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S694 | 2 | S692 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S695 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S696 | 114 | S695 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S697 | 1783 | S685 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/02/21 14:19 |

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| | | | DERWENT; IBM_TDB | | | |
| S698 | 26 | S696 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S699 | 3 | S698 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S700 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S701 | 26394 | S700 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S702 | 1529 | S701 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S703 | 587 | S702 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S704 | 33 | S703 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S705 | 3 | S704 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S706 | 14 | S703 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2018/02/21 14:19 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S707 | 10 | S706 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S708 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S709 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S710 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S711 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S712 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S713 | 23068 | S710 or S711 or S712 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S714 | 11 | S713 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S715 | 4489 | S713 and quality with image | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:19 |
| S716 | 89 | S715 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S717 | 2 | S715 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S718 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S719 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S720 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:19 |

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| | | "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S721 | 33 | S720 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S722 | 29 | S721 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S723 | 2 | S722 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S724 | 4 | S722 and (suggest$4 or | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | recommend$4) with quality | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:19 |
| S725 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:19 |
| S726 | 41 | S725 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S727 | 10 | S726 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S728 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S729 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S730 | 0 | S729 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:19 |
| S731 | 2 | S729 and motion | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:19 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S732 | 1 | S729 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S733 | 0 | S729 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S734 | 0 | S729 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S735 | 0 | S729 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S736 | 2 | S729 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S737 | 0 | S736 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S738 | 2 | S736 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S739 | 1 | S736 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S740 | 0 | S736 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S741 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S742 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S743 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S744 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S745 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S746 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S747 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S748 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S749 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S750 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S751 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S752 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S753 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |
| S754 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:19 |

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| S755 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:19 |
| S756 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S757 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S758 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S759 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S760 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |

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| | | "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | | | | |
| S761 | 9 | S760 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S762 | 5 | S761 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S763 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S764 | 5 | S762 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S765 | 5755 | S763 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S766 | 1783 | S765 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S767 | 1352 | S766 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S768 | 26 | S766 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S769 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 |

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| S770 | 2 | S762 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S771 | 1019 | S766 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S772 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S773 | 388 | S772 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S774 | 30 | S773 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S775 | 2 | S773 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S776 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S777 | 114 | S776 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S778 | 1783 | S766 and buffer | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S779 | 26 | S777 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S780 | 3 | S779 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S781 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S782 | 26394 | S781 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S783 | 1529 | S782 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S784 | 587 | S783 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S785 | 33 | S784 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S786 | 3 | S785 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S787 | 14 | S784 and suggest$4 .clm. | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S788 | 10 | S787 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S789 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S790 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S791 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S792 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S793 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S794 | 23068 | S791 or S792 or S793 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S795 | 11 | S794 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| S796 | 4489 | S794 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S797 | 89 | S796 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S798 | 2 | S796 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S799 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S800 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S801 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:20 |

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"6016354" | "6028960" | "6035072" |

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| | | "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S802 | 33 | S801 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S803 | 29 | S802 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S804 | 2 | S803 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| S805 | 4 | S803 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S806 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:20 |
| S807 | 41 | S806 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S808 | 10 | S807 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S809 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S810 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S811 | 0 | S810 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S812 | 2 | S810 and motion | US-PGPUB; USPAT; USOCR; | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S813 | 1 | S810 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S814 | 0 | S810 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S815 | 0 | S810 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S816 | 0 | S810 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S817 | 2 | S810 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S818 | 0 | S817 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S819 | 2 | S817 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S820 | 1 | S817 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S821 | 0 | S817 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S822 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S823 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S824 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S825 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S826 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S827 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S828 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S829 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S830 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S831 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S832 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S833 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S834 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S835 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| | | "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | | | | |
| S836 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:20 |
| S837 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S838 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S839 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S840 | 36321 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S841 | 0 | S840 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S842 | 10954 | S840 and quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S843 | 804 | S842 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S844 | 421 | S843 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S845 | 5 | S844 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |
| S846 | 3 | S845 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:20 |

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|---|---|---|---|---|---|---|
| S847 | 0 | ("("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S848 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S849 | 9 | S848 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S850 | 5 | S849 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S851 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S852 | 5 | S850 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S853 | 5755 | S851 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S854 | 1783 | S853 and buffer | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:20 |
| S855 | 1352 | S854 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S856 | 26 | S854 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S857 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:20 |
| S858 | 2 | S850 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S859 | 1019 | S854 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:20 |
| S860 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S861 | 388 | S860 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S862 | 30 | S861 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S863 | 2 | S861 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S864 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S865 | 114 | S864 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S866 | 1783 | S854 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S867 | 26 | S865 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S868 | 3 | S867 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S869 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S870 | 26394 | S869 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S871 | 1529 | S870 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S872 | 587 | S871 and quality near4 image .clm. | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S873 | 33 | S872 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S874 | 3 | S873 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S875 | 14 | S872 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S876 | 10 | S875 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S877 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S878 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S879 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S880 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| S881 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S882 | 23068 | S879 or S880 or S881 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S883 | 11 | S882 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S884 | 4489 | S882 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S885 | 89 | S884 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S886 | 2 | S884 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S887 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S888 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S889 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:21 |

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"20040169767" | "20040170330" |
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"20040218067" | "20040247030" |
"20040247179" | "20050010108" |
"20050019000" | "20050031224" |
"20050041121" | "20050041123" |
"20050047672" | "20050052553" |
"20050057687" | "20050068446" |
"20050068452" | "20050078197" |
"20050140801" | "20050157181" |
"20050168587" | "20050201637" |
"20050203430" | "20050219391" |
"20050231603" | "20050231625" |
"20050243178" | "20050248660" |
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"20060098237" | "20060098867" |
"20060098890" | "20060098891" |
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"20060285754" | "20070009169" |
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("20070058073" | "20070083114" |
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"20070147820" | "20070171987" |
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"20080292193" | "20080309769" |
"20080309770" | "20080316321" |
"20080317358" | "20090003652" |
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"20090046161" | "20090067826" |

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|---|---|---|---|---|---|---|
| | | "20090080713" \| "20090080796" \| "20090080797" \| "20090167893" \| "20090174782" \| "20090179999" \| "20090185041" \| "20090185753" \| "20090190803" \| "20090196466" \| "20090196510" \| "20090263022" \| "20090273685" \| "20090303342" \| "20090303343" \| "20100126831" \| "20100201826" \| "20100201827" \| "20100328472" \| "20110069207" \| "20110193989" \| "2857663" \| "4226932" \| "4238146" \| "4357382" \| "4448853" \| "4532190" \| "4624897" \| "4824008" \| "4862277" \| "5192964" \| "5251019" \| "5374956" \| "5392088" \| "5428723" \| "5430480" \| "5510215" \| "5599766" \| "5686383" \| "5708863" \| "5717611" \| "5747199" \| "5751836" \| "5756239" \| "5756240" \| "5773810" \| "5790490" \| "5802220" \| "5889277" \| "5889554" \| "5909242" \| "5981112" \| "6016354" \| "6028960" \| "6035072" \| "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |

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|---|---|---|---|---|---|---|
| S890 | 33 | S889 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S891 | 29 | S890 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S892 | 2 | S891 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S893 | 4 | S891 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S894 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:21 |
| S895 | 41 | S894 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S896 | 10 | S895 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| S897 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S898 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S899 | 0 | S898 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S900 | 2 | S898 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S901 | 1 | S898 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S902 | 0 | S898 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S903 | 0 | S898 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S904 | 0 | S898 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S905 | 2 | S898 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S906 | 0 | S905 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S907 | 2 | S905 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S908 | 1 | S905 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S909 | 0 | S905 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S910 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S911 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S912 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S913 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S914 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S915 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S916 | 0 | (retake or recapture) with automatic with exposure with shutter with | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| | | aperture | | | | |
| S917 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S918 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S919 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S920 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S921 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S922 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S923 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:21 |
| S924 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:21 |
| S925 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S926 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S927 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| S928 | 0 | ("("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S929 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S930 | 9 | S929 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S931 | 5 | S930 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S932 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S933 | 5 | S931 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S934 | 5755 | S932 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S935 | 1783 | S934 and buffer | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:21 |
| S936 | 1352 | S935 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S937 | 26 | S935 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S938 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:21 |
| S939 | 2 | S931 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S940 | 1019 | S935 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S941 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S942 | 388 | S941 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S943 | 30 | S942 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:21 |
| S944 | 2 | S942 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:21 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S945 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S946 | 114 | S945 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S947 | 1783 | S935 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S948 | 26 | S946 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S949 | 3 | S948 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S950 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S951 | 26394 | S950 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S952 | 1529 | S951 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S953 | 587 | S952 and quality near4 image .clm. | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:22 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S954 | 33 | S953 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S955 | 3 | S954 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S956 | 14 | S953 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S957 | 10 | S956 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S958 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S959 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S960 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S961 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |

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|---|---|---|---|---|---|---|
| S962 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S963 | 23068 | S960 or S961 or S962 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S964 | 11 | S963 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S965 | 4489 | S963 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S966 | 89 | S965 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S967 | 2 | S965 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S968 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S969 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S970 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:22 |

"20030068100" | "20030091225" |
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"20040218067" | "20040247030" |
"20040247179" | "20050010108" |
"20050019000" | "20050031224" |
"20050041121" | "20050041123" |
"20050047672" | "20050052553" |
"20050057687" | "20050068446" |
"20050068452" | "20050078197" |
"20050140801" | "20050157181" |
"20050168587" | "20050201637" |
"20050203430" | "20050219391" |
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"20050281477" | "20060006309" |
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"20060098890" | "20060098891" |
"20060119710" | "20060120599" |
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"20060285754" | "20070009169" |
"20070025714").PN. OR
("20070058073" | "20070083114" |
"20070086675" | "20070097221" |
"20070110305" | "20070133893" |
"20070147820" | "20070171987" |
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"20080317358" | "20090003652" |
"20090009612" | "20090017880" |
"20090046161" | "20090067826" |

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|---|---|---|---|---|---|---|
| | | "20090080713" \| "20090080796" \| "20090080797" \| "20090167893" \| "20090174782" \| "20090179999" \| "20090185041" \| "20090185753" \| "20090190803" \| "20090196466" \| "20090196510" \| "20090263022" \| "20090273685" \| "20090303342" \| "20090303343" \| "20100126831" \| "20100201826" \| "20100201827" \| "20100328472" \| "20110069207" \| "20110193989" \| "2857663" \| "4226932" \| "4238146" \| "4357382" \| "4448853" \| "4532190" \| "4624897" \| "4824008" \| "4862277" \| "5192964" \| "5251019" \| "5374956" \| "5392088" \| "5428723" \| "5430480" \| "5510215" \| "5599766" \| "5686383" \| "5708863" \| "5717611" \| "5747199" \| "5751836" \| "5756239" \| "5756240" \| "5773810" \| "5790490" \| "5802220" \| "5889277" \| "5889554" \| "5909242" \| "5981112" \| "6016354" \| "6028960" \| "6035072" \| "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |

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|---|---|---|---|---|---|---|
| S971 | 33 | S970 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S972 | 29 | S971 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S973 | 2 | S972 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S974 | 4 | S972 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S975 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:22 |
| S976 | 41 | S975 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S977 | 10 | S976 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |

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|---|---|---|---|---|---|---|
| S978 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S979 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S980 | 0 | S979 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S981 | 2 | S979 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S982 | 1 | S979 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S983 | 0 | S979 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S984 | 0 | S979 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S985 | 0 | S979 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S986 | 2 | S979 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S987 | 0 | S986 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S988 | 2 | S986 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S989 | 1 | S986 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S990 | 0 | S986 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S991 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S992 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S993 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S994 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S995 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S996 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S997 | 0 | (retake or recapture) with automatic with exposure with shutter with | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |

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|---|---|---|---|---|---|---|
| | | aperture | | | | |
| S998 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S999 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1000 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1001 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1002 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1003 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1004 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1005 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:22 |
| S1006 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1007 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1008 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |

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|---|---|---|---|---|---|---|
| S1009 | 36321 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1010 | 0 | S1009 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1011 | 10954 | S1009 and quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1012 | 804 | S1011 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1013 | 421 | S1012 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1014 | 5 | S1013 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1015 | 3 | S1014 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:22 |
| S1016 | 0 | ("("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1017 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1018 | 9 | S1017 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1019 | 5 | S1018 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1020 | 14704 | image with capture with automatic$4 | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:22 |
| S1021 | 5 | S1019 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1022 | 5755 | S1020 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:22 |
| S1023 | 1783 | S1022 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1024 | 1352 | S1023 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1025 | 26 | S1023 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1026 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:23 |
| S1027 | 2 | S1019 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1028 | 1019 | S1023 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1029 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:23 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S1030 | 388 | S1029 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1031 | 30 | S1030 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1032 | 2 | S1030 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1033 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1034 | 114 | S1033 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1035 | 1783 | S1023 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1036 | 26 | S1034 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1037 | 3 | S1036 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1038 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:23 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1039 | 26394 | S1038 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1040 | 1529 | S1039 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1041 | 587 | S1040 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1042 | 33 | S1041 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1043 | 3 | S1042 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1044 | 14 | S1041 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1045 | 10 | S1044 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1046 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |

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|---|---|---|---|---|---|---|
| S1047 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1048 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1049 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1050 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1051 | 23068 | S1048 or S1049 or S1050 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1052 | 11 | S1051 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1053 | 4489 | S1051 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1054 | 89 | S1053 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1055 | 2 | S1053 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/02/21 14:23 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S1056 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1057 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1058 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| "20060204054" \| "20060204110" \| "20060257042" \| "20060279639" \| "20060285754" \| "20070009169" \| "20070025714").PN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:23 |

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"20070086675" | "20070097221" |
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"20090174782" | "20090179999" |
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"20090303343" | "20100126831" |
"20100201826" | "20100201827" |
"20100328472" | "20110069207" |
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"4226932" | "4238146" | "4357382" |
"4448853" | "4532190" | "4624897" |
"4824008" | "4862277" | "5192964" |
"5251019" | "5374956" | "5392088" |
"5428723" | "5430480" | "5510215" |
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"5717611" | "5747199" | "5751836" |
"5756239" | "5756240" | "5773810" |
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"6016354" | "6028960" | "6035072" |
"6041078" | "6061462" | "6081606" |
"6114075").PN. OR ("6122017" |
"6124864" | "6134339" | "6269175" |
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"7160573" | "7177538" | "7180238" |
"7195848" | "7212230" | "7269292" |
"7292270" | "7315324" | "7315630" |
"7315631" | "7316630" | "7316631" |

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|---|---|---|---|---|---|---|
| | | "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S1059 | 33 | S1058 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1060 | 29 | S1059 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1061 | 2 | S1060 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1062 | 4 | S1060 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1063 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:23 |

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|---|---|---|---|---|---|---|
| | | "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | | | | |
| S1064 | 41 | S1063 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1065 | 10 | S1064 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1066 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1067 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1068 | 0 | S1067 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1069 | 2 | S1067 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:23 |
| S1070 | 1 | S1067 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1071 | 0 | S1067 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1072 | 0 | S1067 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1073 | 0 | S1067 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1074 | 2 | S1067 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1075 | 0 | S1074 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |

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|---|---|---|---|---|---|---|
| S1076 | 2 | S1074 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1077 | 1 | S1074 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1078 | 0 | S1074 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1079 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1080 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1081 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1082 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1083 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1084 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1085 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1086 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1087 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1088 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1089 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1090 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:23 |
| S1091 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1092 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1093 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| | | ("9154692").URPN. | | | | |
| S1094 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1095 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1096 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1097 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1098 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1099 | 9 | S1098 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1100 | 5 | S1099 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| S1101 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1102 | 5 | S1100 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1103 | 5755 | S1101 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1104 | 1783 | S1103 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1105 | 1352 | S1104 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1106 | 26 | S1104 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1107 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:24 |
| S1108 | 2 | S1100 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1109 | 1019 | S1104 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1110 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1111 | 388 | S1110 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1112 | 30 | S1111 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1113 | 2 | S1111 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1114 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1115 | 114 | S1114 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1116 | 1783 | S1104 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1117 | 26 | S1115 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1118 | 3 | S1117 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| S1119 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1120 | 26394 | S1119 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1121 | 1529 | S1120 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1122 | 587 | S1121 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1123 | 33 | S1122 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1124 | 3 | S1123 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1125 | 14 | S1122 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1126 | 10 | S1125 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1127 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S1128 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1129 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1130 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1131 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1132 | 23068 | S1129 or S1130 or S1131 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1133 | 11 | S1132 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1134 | 4489 | S1132 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1135 | 89 | S1134 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1136 | 2 | S1134 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1137 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1138 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1139 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| "20060204054" \| "20060204110" \| "20060257042" \| "20060279639" | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| | | "20060285754" \| "20070009169" \| "20070025714").PN. OR ("20070058073" \| "20070083114" \| "20070086675" \| "20070097221" \| "20070110305" \| "20070133893" \| "20070147820" \| "20070171987" \| "20070177817" \| "20070189748" \| "20070201724" \| "20070234779" \| "20070263995" \| "20070269108" \| "20070296833" \| "20080012969" \| "20080019669" \| "20080030586" \| "20080037827" \| "20080037839" \| "20080037840" \| "20080043121" \| "20080064438" \| "20080133526" \| "20080175481" \| "20080211943" \| "20080218611" \| "20080219581" \| "20080219585" \| "20080220750" \| "20080231713" \| "20080231714" \| "20080232711" \| "20080240555" \| "20080292193" \| "20080309769" \| "20080309770" \| "20080316321" \| "20080317358" \| "20090003652" \| "20090009612" \| "20090017880" \| "20090046161" \| "20090067826" \| "20090080713" \| "20090080796" \| "20090080797" \| "20090167893" \| "20090174782" \| "20090179999" \| "20090185041" \| "20090185753" \| "20090190803" \| "20090196466" \| "20090196510" \| "20090263022" \| "20090273685" \| "20090303342" \| "20090303343" \| "20100126831" \| "20100201826" \| "20100201827" \| "20100328472" \| "20110069207" \| "20110193989" \| "2857663" \| "4226932" \| "4238146" \| "4357382" \| "4448853" \| "4532190" \| "4624897" \| "4824008" \| "4862277" \| "5192964" \| "5251019" \| "5374956" \| "5392088" \| "5428723" \| "5430480" \| "5510215" \| "5599766" \| "5686383" \| "5708863" \| "5717611" \| "5747199" \| "5751836" \| "5756239" \| "5756240" \| "5773810" \| "5790490" \| "5802220" \| "5889277" \| "5889554" \| "5909242" \| "5981112" \| "6016354" \| "6028960" \| "6035072" \| "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| | | | | |

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|---|---|---|---|---|---|---|
| | | "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S1140 | 33 | S1139 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1141 | 29 | S1140 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1142 | 2 | S1141 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1143 | 4 | S1141 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1144 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:24 |

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|---|---|---|---|---|---|---|
| | | "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | | | | |
| S1145 | 41 | S1144 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1146 | 10 | S1145 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1147 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1148 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1149 | 0 | S1148 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1150 | 2 | S1148 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:24 |
| S1151 | 1 | S1148 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1152 | 0 | S1148 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1153 | 0 | S1148 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1154 | 0 | S1148 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1155 | 2 | S1148 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:24 |
| S1156 | 0 | S1155 and auto-focus | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | | USPAT | | | 14:25 |
| S1157 | 2 | S1155 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1158 | 1 | S1155 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1159 | 0 | S1155 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1160 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1161 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1162 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1163 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1164 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1165 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1166 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1167 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1168 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1169 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1170 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1171 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1172 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1173 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1174 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:25 |

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| | | "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | | | | |
| S1175 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1176 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1177 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1178 | 36321 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1179 | 0 | S1178 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1180 | 10954 | S1178 and quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1181 | 804 | S1180 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1182 | 421 | S1181 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1183 | 5 | S1182 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1184 | 3 | S1183 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:25 |
| S1185 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1186 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:25 |

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|---|---|---|---|---|---|---|
| | | "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | EPO; JPO; DERWENT; IBM_TDB | | | |
| S1187 | 9 | S1186 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1188 | 5 | S1187 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1189 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1190 | 5 | S1188 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1191 | 5755 | S1189 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1192 | 1783 | S1191 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1193 | 1352 | S1192 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1194 | 26 | S1192 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; | OR | OFF | 2018/02/21 14:25 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1195 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:25 |
| S1196 | 2 | S1188 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1197 | 1019 | S1192 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1198 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1199 | 388 | S1198 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1200 | 30 | S1199 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1201 | 2 | S1199 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1202 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1203 | 114 | S1202 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2018/02/21 14:25 |

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|---|---|---|---|---|---|---|
| | | | IBM_TDB | | | |
| S1204 | 1783 | S1192 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1205 | 26 | S1203 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1206 | 3 | S1205 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1207 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1208 | 26394 | S1207 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1209 | 1529 | S1208 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1210 | 587 | S1209 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1211 | 33 | S1210 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1212 | 3 | S1211 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:25 |

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|---|---|---|---|---|---|---|
| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S1213 | 14 | S1210 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1214 | 10 | S1213 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1215 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:25 |
| S1216 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1217 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1218 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1219 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1220 | 23068 | S1217 or S1218 or S1219 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1221 | 11 | S1220 and confidence adj level with quality with image | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:26 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1222 | 4489 | S1220 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1223 | 89 | S1222 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1224 | 2 | S1222 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1225 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1226 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1227 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:26 |

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"20050203430" | "20050219391" |
"20050231603" | "20050231625" |
"20050243178" | "20050248660" |
"20050259864" | "20050270381" |
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"20060017820" | "20060017837" |
"20060023099" | "20060029284" |
"20060038891" | "20060039690" |
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"20060119710" | "20060120599" |
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"20080037827" | "20080037839" |
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"20080317358" | "20090003652" |
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| | | "5717611" \| "5747199" \| "5751836" \| "5756239" \| "5756240" \| "5773810" \| "5790490" \| "5802220" \| "5889277" \| "5889554" \| "5909242" \| "5981112" \| "6016354" \| "6028960" \| "6035072" \| "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S1228 | 33 | S1227 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1229 | 29 | S1228 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1230 | 2 | S1229 and confidence adj level with quality with image | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:26 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1231 | 4 | S1229 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1232 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:26 |
| S1233 | 41 | S1232 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1234 | 10 | S1233 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1235 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1236 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1237 | 0 | S1236 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/02/21 14:26 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S1238 | 2 | S1236 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1239 | 1 | S1236 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1240 | 0 | S1236 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1241 | 0 | S1236 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1242 | 0 | S1236 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1243 | 2 | S1236 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1244 | 0 | S1243 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1245 | 2 | S1243 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1246 | 1 | S1243 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1247 | 0 | S1243 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1248 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1249 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1250 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1251 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1252 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1253 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1254 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1255 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1256 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1257 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1258 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1259 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1260 | 5 | ("20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |

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|---|---|---|---|---|---|---|
| | | "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | | | | |
| S1261 | 32 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:26 |
| S1262 | 16 | ("20060061678" \| "20060221223" \| "20070019943" \| "20070076960" \| "20080043108" \| "20090046900" \| "20120013783" \| "7362354" \| "7924326" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:26 |
| S1263 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1264 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1265 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1266 | 0 | (("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1267 | 73 | ("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| | US-PGPUB; USPAT; USOCR; | OR | OFF | 2018/02/21 14:26 |

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|---|---|---|---|---|---|---|
| | | "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN. | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1268 | 9 | S1267 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1269 | 5 | S1268 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1270 | 14704 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:26 |
| S1271 | 5 | S1269 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1272 | 5755 | S1270 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1273 | 1783 | S1272 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1274 | 1352 | S1273 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1275 | 26 | S1273 and quality near4 indicator$4 | US-PGPUB; USPAT; | OR | OFF | 2018/02/21 14:27 |

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|---|---|---|---|---|---|---|
| | | | USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1276 | 0 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2018/02/21 14:27 |
| S1277 | 2 | S1269 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1278 | 1019 | S1273 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1279 | 9212 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1280 | 388 | S1279 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1281 | 30 | S1280 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1282 | 2 | S1280 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1283 | 1065 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1284 | 114 | S1283 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/02/21 14:27 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S1285 | 1783 | S1273 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1286 | 26 | S1284 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1287 | 3 | S1286 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1288 | 125796 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1289 | 26394 | S1288 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1290 | 1529 | S1289 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1291 | 587 | S1290 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1292 | 33 | S1291 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1293 | 3 | S1292 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; | OR | OFF | 2018/02/21 14:27 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1294 | 14 | S1291 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1295 | 10 | S1294 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1296 | 44264 | confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1297 | 155 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1298 | 6612 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1299 | 9674 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1300 | 8002 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1301 | 23068 | S1298 or S1299 or S1300 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1302 | 11 | S1301 and confidence adj level with | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | quality with image | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:27 |
| S1303 | 4489 | S1301 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1304 | 89 | S1303 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1305 | 2 | S1303 and (suggest$4 or recommend$4) with quality with table | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1306 | 105426 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1307 | 14 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1308 | 903 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:27 |

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"20050047672" | "20050052553" |
"20050057687" | "20050068446" |
"20050068452" | "20050078197" |
"20050140801" | "20050157181" |
"20050168587" | "20050201637" |
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"20070110305" | "20070133893" |
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"20070263995" | "20070269108" |
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"20080175481" | "20080211943" |
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"4824008" | "4862277" | "5192964" |
"5251019" | "5374956" | "5392088" |
"5428723" | "5430480" | "5510215" |

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|---|---|---|---|---|---|---|
| | | "5599766" \| "5686383" \| "5708863" \| "5717611" \| "5747199" \| "5751836" \| "5756239" \| "5756240" \| "5773810" \| "5790490" \| "5802220" \| "5889277" \| "5889554" \| "5909242" \| "5981112" \| "6016354" \| "6028960" \| "6035072" \| "6041078" \| "6061462" \| "6081606" \| "6114075").PN. OR ("6122017" \| "6124864" \| "6134339" \| "6269175" \| "6297071" \| "6297846" \| "6298198" \| "6326108" \| "6330029" \| "6341179" \| "6360003" \| "6363116" \| "6365304" \| "6374054" \| "6381279" \| "6387577" \| "6396883" \| "6407777" \| "6463173" \| "6470147" \| "6486915" \| "6535244" \| "6555278" \| "6567536" \| "6577821" \| "6599668" \| "6602656" \| "6607873" \| "6618491" \| "6625396" \| "6628898" \| "6643387" \| "6741960" \| "6863368" \| "6892029" \| "6930718" \| "6947609" \| "6961518" \| "7019331" \| "7027087" \| "7042509" \| "7072525" \| "7084037" \| "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S1309 | 33 | S1308 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1310 | 29 | S1309 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1311 | 2 | S1310 and confidence adj level with | US-PGPUB; | OR | OFF | 2018/02/21 |

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|---|---|---|---|---|---|---|
| | | quality with image | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 14:27 |
| S1312 | 4 | S1310 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1313 | 61 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/02/21 14:27 |
| S1314 | 41 | S1313 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1315 | 10 | S1314 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1316 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1317 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1318 | 0 | S1317 and shake | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/21 14:27 |

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| S1319 | 2 | S1317 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:27 |
| S1320 | 1 | S1317 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1321 | 0 | S1317 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1322 | 0 | S1317 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1323 | 0 | S1317 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1324 | 2 | S1317 and exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1325 | 0 | S1324 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1326 | 2 | S1324 and focus | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1327 | 1 | S1324 and retake | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:27 |
| S1328 | 0 | S1324 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1329 | 23 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1330 | 731 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1331 | 29795 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1332 | 32279 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1333 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1334 | 11 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1335 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1336 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1337 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1338 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1339 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1340 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1341 | 5 | ("20060017820" \| "20070216787" \| | US-PGPUB; | OR | OFF | 2018/02/21 |

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| | | "20090251557" \| "20110292221" \| "20120249837" \| "20060017820" \| "20070216787" \| "20090251557" \| "20110292221" \| "20120249837").PN. | USPAT | | | 14:28 |
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| S1344 | 67 | "9001255" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:28 |
| S1345 | 18 | ("9001255").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:28 |
| S1346 | 5 | (("8655311") or ("8750514")).PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:28 |
| S1347 | 36321 | weight with threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/21 14:28 |
| S1348 | 0 | S1347 and quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1349 | 10954 | S1347 and quality | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1350 | 804 | S1349 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
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| S1351 | 421 | S1350 and weight with motion | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1352 | 5 | S1351 and second adj weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
| S1353 | 3 | S1352 and estimat$4 same weight | US-PGPUB; USPAT | OR | OFF | 2018/02/21 14:28 |
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| S1355 | 42 | ("20020172432" \| "20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20070216787" \| "20090251557" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20110292221" \| "20120086847" \| "20120133816" \| "20120182447" \| "20120249837" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20130188866" \| "20140050367" \| "6091911" \| "6178294" \| "7130463" \| "7136537" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| "9154692").PN. | US-PGPUB; USPAT | OR | OFF | 2018/02/22 08:14 |
| S1356 | 42 | S1354 or S1355 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/22 08:41 |
| S1357 | 24 | S1356 and threshold | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/22 08:41 |
| S1358 | 15 | S1357 and weight$4 | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2018/02/22 08:42 |

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| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S1359 | 0 | S1358 and inertial | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/22 08:42 |
| S1360 | 0 | S1358 and inert$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/22 08:42 |
| S1361 | 0 | S1358 and object near4 recogn$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/22 08:43 |
| S1362 | 0 | S1358 and previous same video | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/02/22 08:43 |
| S1363 | 7 | (US-20110075930-$ or US-20060017820-$ or US-20060250515-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$ or US-7130463-$).did. | US-PGPUB; USPAT | OR | OFF | 2019/07/24 10:29 |
| S1364 | 2 | S1363 and blur | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:30 |
| S1365 | 46 | ("20020172432" \| "20040174434" \| "20060017820" \| "20060056835" \| "20060250515" \| "20070195174" \| "20070216787" \| "20090251557" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110075930" \| "20110096180" \| "20110279700" \| "20110292221" \| "20120086847" \| "20120133816" \| "20120182447" \| "20120249837" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20130188866" \| "20140050367" \| "20140320679" \| "6091911" \| "6178294" \| "7130463" \| "7136537" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8081227" \| "8125557" \| "8131118" \| "8244053" \| "8285067" \| "8330826" \| | US-PGPUB; USPAT | OR | OFF | 2019/07/24 10:33 |

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| | | "9154692" \| "9232137" \| "9538083").PN. | | | | |
| S1366 | 6 | S1363 and brightness | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:34 |
| S1367 | 0 | S1363 and brightness with motion with blur | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:34 |
| S1368 | 0 | S1363 and brightness and motion with blur | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:34 |
| S1369 | 2 | S1363 and blur | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:34 |
| S1370 | 38930 | motion adj detector | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:35 |
| S1371 | 2256 | S1370 and bracket | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:35 |
| S1372 | 0 | S1371 and motion with exposure adj time with brightness | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:35 |
| S1373 | 0 | S1371 and blur with exposure adj time with brightness | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:35 |
| S1374 | 213 | blur with exposure adj time with brightness | US-PGPUB; USPAT; USOCR; | OR | OFF | 2019/07/24 10:36 |

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| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S1375 | 176 | blur with exposure adj time with brightness same motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:36 |
| S1376 | 5 | S1375 and (gyroscope and accelerometer) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:37 |
| S1377 | 16 | ("20020127011" \| "20060082672" \| "20060170784" \| "20070122130" \| "20090219415" \| "20100309355" \| "20110193990" \| "20120007996" \| "20130044230" \| "20130057713" \| "20130076921" \| "20130136364" \| "20130176458" \| "20130235222" \| "20130314511" \| "6816188").PN. | US-PGPUB; USPAT | OR | OFF | 2019/07/24 10:42 |
| S1378 | 81455 | S1377 abd blur | US-PGPUB; USPAT | OR | OFF | 2019/07/24 10:43 |
| S1379 | 4 | S1377 and blur | US-PGPUB; USPAT | OR | OFF | 2019/07/24 10:43 |
| S1380 | 15 | ("2011/0193990").URPN. | USPAT | OR | OFF | 2019/07/24 10:54 |
| S1381 | 4 | S1380 and blur | USPAT | OR | OFF | 2019/07/24 10:55 |
| S1382 | 5 | S1375 and gyroscope | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:58 |
| S1383 | 5 | S1382 and accelerometer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/07/24 10:58 |

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Doc description: Information Disclosure Statement (IDS) Filed

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | |
| Filing Date | |
| First Named Inventor | Ishay SIVAN |
| Art Unit | |
| Examiner Name | |
| Attorney Docket Number | SIVAN-001-US3 |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
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| | 2 | 8244053 | | 2012-08-14 | Steinberg , et al. | |
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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| | 7 | 20120133816 | | 2012-05-31 | Imai; Francisco | |
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.M.H/

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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| | 21 | 20060017820 | | 2006-01-26 | Kim; Su-hyun | |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

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|---|---|---|---|---|---|---|---|---|
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**EXAMINER SIGNATURE**

| Examiner Signature | /JAMES M HANNETT/ | Date Considered | 07/25/2019 |
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|---|---|---|
| | Application Number | |
| | Filing Date | |
| | First Named Inventor | Ishay SIVAN |
| | Art Unit | |
| | Examiner Name | |
| | Attorney Docket Number | SIVAN-001-US3 |

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| Signature | /Yehuda Binder/ | Date (YYYY-MM-DD) | 2018-05-25 |
|---|---|---|---|
| Name/Print | Yehuda BINDER | Registration Number | 73612 |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**



ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.M.H/

# Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.M.H/

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

ATTY.'S DOCKET: SIVAN-001-US3

| | | |
|---|---|---|
| In re Application of: | ) | Confirmation No. 7826 |
| | ) | |
| Ishay SIVAN | ) | Art Unit: 2698 |
| | ) | |
| Appln. No.: 15/992,217 | ) | Examiner: Hannett, James M |
| | ) | |
| Filed: May 30, 2018 | ) | Washington, D.C. |
| | ) | |
| For: REAL TIME ASSESSMENT OF PICTURE QUALITY | ) | December 25, 2019 |
| | ) | |

**AMENDMENT:**

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building, Mail Stop Amendments
401 Dulany Street
Alexandria, VA 22314

Sir:

In response to the Office Action of July 29, 2019:

**Amendments to the Claims** begin on page **2** of this paper,

**Remarks/Arguments** begin on page **10** of this paper.

**Amendments to the Claims.**

This listing of claims replaces all prior versions and listings of claims in the application.

**Listing of Claims:**

1-20 (Canceled).

21. (New) A method for estimating quality of at least one image from a plurality of images, for use with a device that comprises in a single enclosure a digital camera module or functionality that comprises at least one optical lens for focusing received light from a scene and an image sensor coupled to the optical lens for capturing an image of the scene; a motion or location sensor for sensing the device motion; and a processor coupled to at least one image sensor and to the digital camera for receiving data therefrom, the method by the processor comprising use of at least one value and weight;
obtaining a first value (QI1) responsive to the device motion from the motion or location sensor;
estimating a first weight (c1) associated with the first;
obtaining a second value (QI2) associated with the digital camera;
estimating a second weight (c2) associated with the second value;

analyzing the captured image for detecting or recognizing one or more objects in the image and obtaining a third value (QI3) associated with motion of at least one of said objects;

estimating a third weight (c3) associated with the third value;

obtaining a fourth value (QI4) associated with recognition of object characteristics;

estimating a fourth weight (c4) associated with the fourth value;

obtaining a fifth value (QI5) associated with aesthetic quality of image based on composition;

estimating a fifth weight (c5) associated with the fifth value; and

calculating a total quality value according to, or based on values QI1, QI2, QI3 and QI5 and weights c1, c2, c3, c4 and c5.

22. (New) The method according to claim 21, wherein the estimating of the first weight (c1) is responsive to at least one of second, third, fourth or fifth value (QI2, QI3, QI4, QI5); or wherein the estimating of the second weight (c2) is responsive to at least one of the first, third, fourth or fifth value (QI1, QI3, QI4, QI5); or wherein the estimating of the third weight (c3) is responsive to at least one of first, second, fourth or fifth value (QI1, QI2, QI4, QI5); or wherein the estimating of the fourth weight (c4) is responsive to at



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least one of the first, second, third or fifth value (QI1, QI2, QI3, QI5); or wherein the estimating of the fifth weight (c5) is responsive to at least one of the first, second, third or fourth value (QI1, QI2, QI3, QI4)

23. (New) The method according to claim 21, wherein the first weight (c1) is estimated according to, or based on, a precision error, reading resolution, or drift in time, of the motion or location sensor, and wherein the motion or location sensor consists of, or comprises, an accelerometer, a gyroscope, a Global Positioning System (GPS), or a step counter.

24. (New) The method according to claim 21, wherein the third weight (c3) is estimated according to, or based on, the estimated error in the analyzing the captured image for detecting or recognizing objects in the image.

25. (New) The method according to claim 21, wherein the digital camera further comprises an auto-focus functionality, wherein the auto-focus functionality is coupled to the controlled by the processor, and wherein the method further comprising controlling the auto-focus functionality according to, or based on, the second value (QI2) or the total value.

26. (New) The method according to claim 21, wherein object characteristics are at least one of recognized smile, looking at camera, face importance to user or confidence of object recognition.



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27. (New) The method according to claim 21, wherein aesthetic quality of image based on composition includes at least one of: rule of thirds, golden triangle, golden spiral, shapes and lines, amputation avoidance, visual balance, diagonal dominance, non-reference quality indication or relative position of salient regions in the image.

28. (New) The method according to claim 21, further comprising grading the image quality according to, or based on, the total value, and wherein the total value is calculated as a weighted average value according to, or based on, $c1*QI1+c2*QI2+c3*QI3+c4*QI4+c5*QI5$.

29. (New) The method according to claim 21, for use with a probability distribution function using a mean value (μ) and a standard deviation value (σ), wherein the estimating of at least one of the weights (c1, c2, c3, c4, c5) is according to, or based on, the respective probability of the at least of the values (QI1, QI2, QI3, QI4, QI5), according to the probability distribution function.

30. (New) The method according to claim 21, for use with a plurality of former values of the respective QI, further comprising calculating the mean value (μ) and the as the standard deviation value (σ) based on the plurality of former values.



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31. (New) The method according to claim 21, wherein the acting comprises affecting the digital camera in response to the total value.

32. (New) The method according to claim 21, wherein:

the device comprises multiple motion or location sensors for sensing the device motion selected from a group consisting of a gyroscope, accelerometer, Global Positioning System (GPS), 9 Degrees of Freedom (DOF) sensing component, and 10 Degrees of Freedom (DOF) sensing component, wherein the method comprising obtaining a corresponding first value (QI1i) from each of the multiple motion or location sensors responsive to the device motion from the respective motion or location sensor; and estimating or calculating the first value (QI1) based on the multiple first values (QI1i) from the multiple motion or location sensors,

or wherein:

the analyzing of the captured image comprises applying multiple algorithms selected from a group consisting of an aesthetic algorithm, an artificial neural network employing deep learning algorithm, a corner detection algorithm, a blur detecting algorithm, and Peak Signal-to-Noise Ratio (PSNR) calculation, and the method further comprising obtaining a respective third value (QI3i) associated with each of multiple algorithms, and

calculating or estimating the third value (QI3) based on the multiple third values (QI3i) from the multiple algorithms.

33. (New) The method according to claim 21, wherein estimating fourth value (QI4) or forth weight (c4) is based at least partly on a list of configured faces.

34. (New) The method according to claim 21, wherein algorithms of deep learning are used to compute at least one of the values (QI1, QI2, QI3, QI4, QI5).

35. (New) The method according to claim 21, wherein algorithms of deep learning are used to compute the total quality value.

36. (New) The method according to claim 21, wherein the second value is a combination of at least one of digital camera exposure, focus and under or over exposure.

37. (New) A method for estimating quality of at least one image from a stream of images from a video, for use with a device that comprises in a single enclosure a digital camera module or functionality that comprises at least one optical lens for focusing received light from a scene and an image sensor coupled to at least one optical lens for capturing an image of the scene; a motion or location sensor for sensing the device motion; and a processor coupled to the image sensor and to the digital camera for receiving data therefrom, the method by the processor comprising use of at least one value and weight;

obtaining a first value (QI1) responsive to the device motion from the motion or location sensor;

estimating a first weight (c1) associated with the first;

obtaining a second value (QI2) value is a combination of at least one of digital camera exposure, focus and under or over exposure;

estimating a second weight (c2) associated with the second value;

analyzing the captured image via deep learning algorithms for detecting or recognizing one or more objects in, or one or more characteristics of image or at least one of object characteristics to obtain a third value (QI3) associated with the analysis;

calculating a total quality value according to, or based on values QI1, QI2, QI3 and weights c1, c2, c3 and previous values QI1, QI2, QI3 and previous weights c1, c2, c3 in said image stream; and

selecting by said processor at least one image from the plurality of images at least partly on said total quality value.

38. (New) The method according to claim 37, where a first value (QI1) can be a combination of accelerometer data, gyro data and camera/lens module.

39. (New) The method according to claim 37, wherein algorithms of deep learning are used to compute at least one of the values (QI1, QI2, QI3, QI4, QI5).

40. (New) The method according to claim 37, wherein algorithms of deep learning are used to compute the total quality value.



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**REMARKS**

The examiner's action dated July 29, 2019, has been received and its contents carefully noted. In order to differentiate over the cited references, claims 1-20 were canceled and new claims 21-36 were added, claiming a method rather a device claims.

Support for the new claims follows:

21. A method for estimating quality of at least one image from a plurality of images, for use with a device that comprises in a single enclosure a digital camera module or functionality that comprises at least one optical lens for focusing received light from a scene and an image sensor coupled to the optical lens for capturing an image of the scene; a motion or location sensor for sensing the device motion; and a processor coupled to at least one image sensor and to the digital camera for receiving data therefrom, the method by the processor comprising use of at least one value and weight;
obtaining a first value (QI1) responsive to the device motion from the motion or location sensor (part 270, page 15);
estimating a first weight (c1) associated with the first;
obtaining a second value (QI2) associated with the digital camera (part 248, part 245, part 247, part 243, part 241, part 246, page 18-21);

estimating a second weight (c2) associated with the second value;

analyzing the captured image for detecting or recognizing one or more objects in the image and obtaining a third value (QI3) associated with motion of at least one of said objects (part 260, page 16-18);

estimating a third weight (c3) associated with the third value;

obtaining a fourth value (QI4) associated with recognition of object characteristics (part 249, part 250);

estimating a fourth weight (c4) associated with the fourth value;

obtaining a fifth value (QI5) associated with aesthetic quality of image based on composition;

estimating a fifth weight (c5) associated with the fifth value (part 240, part 242, page 22-23); and

calculating a total quality value according to, or based on values QI1, QI2, QI3 and QI5 and weights c1, c2, c3, c4 and c5.

22. The method according to claim 21, wherein the estimating of the first weight (c1) is responsive to at least one of second, third, fourth or fifth value (QI2, QI3, QI4, QI5); or wherein the estimating of the second weight (c2) is responsive to at least one of the first, third, fourth or fifth value (QI1, QI3, QI4, QI5); or wherein the estimating of the third weight (c3) is responsive to at least one of first, second, fourth or fifth

value (QI1, QI2, QI4, QI5); or wherein the estimating of the fourth weight (c4) is responsive to at least one of the first, second, third or fifth value (QI1, QI2, QI3, QI5); or wherein the estimating of the fifth weight (c5) is responsive to at least one of the first, second, third or fourth value (QI1, QI2, QI3, QI4) (page 24, line 9-29 and equations , page 27 items b-d)

23. The method according to claim 21, wherein the first weight (c1) is estimated according to, or based on, a precision error, reading resolution, or drift in time, of the motion or location sensor, and wherein the motion or location sensor consists of, or comprises, an accelerometer, a gyroscope (page 12-13), a Global Positioning System (GPS), or a step counter.

24. The method according to claim 21, wherein the third weight (c3) is estimated according to, or based on, the estimated error in the analyzing the captured image for detecting or recognizing objects in the image.

25. The method according to claim 21, wherein the digital camera further comprises an auto-focus functionality, wherein the auto-focus functionality is coupled to the controlled by the processor, and wherein the method further comprising controlling the auto-focus (page 4 line 21-23) functionality according to, or based on, the second value (QI2) or the total value.

26. The method according to claim 21, wherein object characteristics are at least one of recognized smile, looking at camera (part 249, page 18 last paragraph), face importance to user (page 19, first 3 paragraphs) or confidence of object recognition.

27. The method according to claim 21, wherein aesthetic quality of image based on composition includes at least one of: rule of thirds, golden triangle, golden spiral, shapes and lines, amputation avoidance, visual balance, diagonal dominance (part 240, page 22), non-reference quality indication (page 22, lines 26-34) or relative position of salient regions in the image (Page 22, line 27).

28. The method according to claim 21, further comprising grading the image quality according to, or based on, the total value, and wherein the total value is calculated as a weighted average value according to, or based on, c1*QI1+c2*QI2+c3*QI3+c4*QI4+c5*QI5.

29. The method according to claim 21, for use with a probability distribution function using a mean value (μ) and a standard deviation value (σ), wherein the estimating of at least one of the weights (c1, c2, c3, c4, c5) is according to, or based on, the respective probability of the at least of the values (QI1, QI2, QI3, QI4, QI5), according to the probability distribution function (page 11).



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30. The method according to claim 21, for use with a plurality of former values of the respective QI, further comprising calculating the mean value (μ) and the as the standard deviation value (σ) based on the plurality of former values.

31. The method according to claim 1, wherein the acting comprises affecting the digital camera in response to the total value.

32. The method according to claim 21, wherein:

the device comprises multiple motion or location sensors for sensing the device motion selected from a group consisting of a gyroscope, accelerometer, Global Positioning System (GPS), 9 Degrees of Freedom (DOF) sensing component, and 10 Degrees of Freedom (DOF) sensing component, wherein the method comprising obtaining a corresponding first value (QI1i) from each of the multiple motion or location sensors responsive to the device motion from the respective motion or location sensor; and estimating or calculating the first value (QI1) based on the multiple first values (QI1i) from the multiple motion or location sensors,

or wherein:

the analyzing of the captured image comprises applying multiple algorithms selected from a group consisting of an aesthetic algorithm, an artificial neural network employing deep learning algorithm, a corner detection algorithm, a blur detecting

algorithm, and Peak Signal-to-Noise Ratio (PSNR) calculation, and the method further comprising obtaining a respective third value (QI3i) associated with each of multiple algorithms, and calculating or estimating the third value (QI3) based on the multiple third values (QI3i) from the multiple algorithms.

33. The method according to claim 21, wherein estimating fourth value (QI4) or forth weight (c4) is based at least partly on a list of configured faces (part 250, page 19).

34. The method according to claim 21, wherein algorithms of deep learning (page 14, line 7) are used to compute at least one of the values (QI1, QI2, QI3, QI4, QI5).

35. The method according to claim 21, wherein algorithms of deep learning are used to compute the total quality value (page 14, line 7).

36. The method according to claim 21, wherein the second value is a combination of at least one of digital camera exposure (part 245), focus (part 248) and under or over exposure (part 243).

37. A method for estimating quality of at least one image from a stream of images from a video (page 5, lines 19-27), for use with a device that comprises in a single enclosure a digital camera module or functionality that comprises at least one optical lens for focusing received light from a scene and an image sensor coupled to at least one optical lens for capturing

an image of the scene; a motion or location sensor for sensing the device motion; and a processor coupled to the image sensor and to the digital camera for receiving data therefrom, the method by the processor comprising use of at least one value and weight;

obtaining a first value (QI1) responsive to the device motion from the motion or location sensor (part 270, page 15);

estimating a first weight (c1) associated with the first;

obtaining a second value (QI2) value is a combination of at least one of digital camera exposure (part 245), focus (part 248) and under or over exposure (part 243);

estimating a second weight (c2) associated with the second value;

analyzing the captured image via deep learning algorithms (page 14, line 7-8) for detecting or recognizing one or more objects in, or one or more characteristics of image or at least one of object characteristics to obtain a third value (QI3) associated with the analysis;

calculating a total quality value according to, or based on values QI1, QI2, QI3 and weights c1, c2, c3 and previous values QI1, QI2, QI3 and previous weights c1, c2, c3 in said image stream; and

selecting by said processor at least one image from the plurality of images at least partly on said total quality value (page 5, lines 10-11).

38. The method according to claim 37, where a first value (QI1) can be a combination of accelerometer data, gyro data and camera/lens module.

39. The method according to claim 37, wherein algorithms of deep learning (page 14, line 7) are used to compute at least one of the values (QI1, QI2, QI3, QI4, QI5).

40. The method according to claim 37, wherein algorithms of deep learning are used to compute the total quality value (page 14, line 7).



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The absence of a reply to a specific rejection, issue, or comment, does not signify agreement with that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims that have not been expressed.

Nothing in this reply should be understood as conceding any issue with regard to any claim, except as specifically stated in this reply, and the amendment of any claims does not necessarily signify concession of unpatentability to the claim before its amendment.

In view of the foregoing, it is requested that all of the rejections be reconsidered and withdrawn and that the claims be considered allowable.

If the above arguments should not now place the application in the condition for allowance, the examiner is invited to call undersigned counsel to resolve any remaining issues.

Respectfully submitted,

By /Yehuda Binder/
Yehuda Binder
Registration No. 73,612

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PTO/AIA/22 (03-13)
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# PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): SIVAN-001-US3

Application Number: 15/992,217

Filed: May 30, 2018

For: REAL TIME ASSESSMENT OF PICTURE QUALITY

Art Unit: 2698

Examiner: Hannett, James M

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

| | Fee | Small Entity Fee | Micro Entity Fee | |
|---|---|---|---|---|
| ☐ One month (37 CFR 1.17(a)(1)) | $200 | $100 | $50 | $ |
| ☑ Two months (37 CFR 1.17(a)(2)) | $600 | $300 | $150 | $ 300 |
| ☐ Three months (37 CFR 1.17(a)(3)) | $1,400 | $700 | $350 | $ |
| ☐ Four months (37 CFR 1.17(a)(4)) | $2,200 | $1,100 | $550 | $ |
| ☐ Five months (37 CFR 1.17(a)(5)) | $3,000 | $1,500 | $750 | $ |

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 601835.

☐ Payment made via EFS-Web.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 73612.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Yehuda Binder/ — Signature

12-25-2019 — Date

Yehuda BINDER — Typed or printed name

+972-54-4444577 — Telephone Number

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15992217 |
| **Filing Date:** | 30-May-2018 |
| **Title of Invention:** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
| **First Named Inventor/Applicant Name:** | Ishay SIVAN |
| **Filer:** | Yehuda Binder/Dorit Binder |
| **Attorney Docket Number:** | SIVAN-001-US3 |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 2 months with $0 paid | 2252 | 1 | 300 | 300 |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **300** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 38136218 |
| **Application Number:** | 15992217 |
| **International Application Number:** | |
| **Confirmation Number:** | 7826 |
| **Title of Invention:** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
| **First Named Inventor/Applicant Name:** | Ishay SIVAN |
| **Customer Number:** | 131926 |
| **Filer:** | Yehuda Binder/Dorit Binder |
| **Filer Authorized By:** | Yehuda Binder |
| **Attorney Docket Number:** | SIVAN-001-US3 |
| **Receipt Date:** | 25-DEC-2019 |
| **Filing Date:** | 30-MAY-2018 |
| **Time Stamp:** | 14:38:51 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | $300 |
| RAM confirmation Number | E2019BOE39300267 |
| Deposit Account | |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | Response-to-Non-Final-for-filing.pdf | 70049<br>4c8b7a4f67187a1c78b78af3b62555f5a3dcd103 | yes | 18 |
| | **Multipart Description/PDF files in .zip description** | | | | |
| | **Document Description** | | **Start** | **End** | |
| | Amendment/Req. Reconsideration-After Non-Final Reject | | 1 | 1 | |
| | Claims | | 2 | 9 | |
| | Applicant Arguments/Remarks Made in an Amendment | | 10 | 18 | |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Extension of Time | 0022-Extensions.pdf | 140683<br>b571f1d01b6a6df6a0ec912c9941b400fa2f382f | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Fee Worksheet (SB06) | fee-info.pdf | 30456<br>b4f67f2545894ed3c289403c7b5a0decf4902bdf | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 241188 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/992,217 | Filing Date<br>05/30/2018 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $50 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $230 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 12/25/2019 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 20 | Minus | ** 21 | = 0 | | x $50 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 2 | Minus | *** 3 | = 0 | | x $230 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | LIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /VINCENT S BUTLER/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

# NOTICE OF ALLOWANCE AND FEE(S) DUE

131926 7590 01/14/2020

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

| EXAMINER |
|---|
| HANNETT, JAMES M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2698 | |

DATE MAILED: 01/14/2020

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 | 7826 |

TITLE OF INVENTION: REAL TIME ASSESSMENT OF PICTURE QUALITY

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $500 | $0.00 | $0.00 | $500 | 04/14/2020 |

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

**HOW TO REPLY TO THIS NOTICE:**

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.**

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

131926 7590 01/14/2020
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

| |
|---|
| (Typed or printed name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 | 7826 |

TITLE OF INVENTION: REAL TIME ASSESSMENT OF PICTURE QUALITY

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $500 | $0.00 | $0.00 | $500 | 04/14/2020 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| HANNETT, JAMES M | 2698 | 348-362000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 | 7826 |

131926 7590 01/14/2020

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

| EXAMINER | |
|---|---|
| HANNETT, JAMES M | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2698 | |

DATE MAILED: 01/14/2020

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| Notice of Allowability | Application No. 15/992,217 | Applicant(s) SIVAN, Ishay | |
|---|---|---|---|
| | Examiner JAMES M HANNETT | Art Unit 2698 | AIA (FITF) Status No |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the amendment filed 12/25/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 21-40 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   **Certified copies:**

   a) ☐ All  b) ☐ Some  *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/JAMES M HANNETT/
Primary Examiner, Art Unit 2698

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

The present application is being examined under the pre-AIA first to invent provisions.

### *Allowable Subject Matter*

Claims 21-40 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art does not teach the method by the processor comprising use of at least one value and weight; obtaining a first value (QI1) responsive to the device motion from the motion or location sensor; estimating a first weight (c1) associated with the first; obtaining a second value (QI2) associated with the digital camera; estimating a second weight (c2) associated with the second value; analyzing the captured image for detecting or recognizing one or more objects in the image and obtaining a third value (Q13) associated with motion of at least one of said objects; estimating a third weight (c3) associated with the third value; obtaining a fourth value (Q14) associated with recognition of object characteristics; estimating a fourth weight (c4) associated with the fourth value; obtaining a fifth value (QI5) associated with aesthetic quality of image based on composition; estimating a fifth weight (c5) associated with the fifth value; and calculating a total quality value according to, or based on values QI1, Q12, Q13 and QI5 and weights c1, c2, c3, c4 and c5 when taken in combination with all the limitations of the independent claim. Furthermore, the prior art does not teach the method by the processor comprising use of at least one value and weight; obtaining a first value (QI1) responsive to the device motion from the motion or location sensor; estimating a first weight (c1) associated with the first; obtaining a second value (Q12) value is a combination of at least one of digital camera exposure, focus and under or over exposure; estimating a second weight (c2) associated with the second value; analyzing the captured image via deep learning algorithms for detecting or recognizing one or more objects in, or one or more characteristics of image or at least one of object characteristics to obtain a third value (Q13) associated with the analysis;

calculating a total quality value according to, or based on values QI1, QI2, Q13 and weights c1, c2, c3 and previous values QI1, QI2, Q13 and previous weights c1, c2, c3 in said image stream; and selecting by said processor at least one image from the plurality of images at least partly on said total quality value when taken in combination with all the limitations of the independent claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M HANNETT whose telephone number is (571)272-7309. The examiner can normally be reached 8:00 AM-5:00 PM Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Haskins can be reached at 571-272-7406 The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JAMES M HANNETT/
Primary Examiner, Art Unit 2698

JMH
January 7, 2020

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/992,217 | SIVAN, Ishay |
| | Examiner | Art Unit |
| | JAMES M HANNETT | 2698 |

| CPC - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| H04N 5/2322, 5/23229 and 5/23258 (Combined with text search) | 01/07/2020 | JMH |

| CPC Combination Sets - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| | | |

| US Classification - Searched* | | | |
|---|---|---|---|
| Class | Subclass | Date | Examiner |
| | | | |

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

| Search Notes | | |
|---|---|---|
| Search Notes | Date | Examiner |
| East Search | 01/07/2020 | JMH |
| Inventor Name Search | 01/07/2020 | JMH |

| Interference Search | | | |
|---|---|---|---|
| US Class/CPC Symbol | US Subclass/CPC Group | Date | Examiner |
| | PGPUB text Search | 01/07/2020 | JMH |

| | |
|---|---|
| | /JAMES M HANNETT/<br>Primary Examiner, Art Unit 2698 |

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/992,217 | SIVAN, Ishay |
| | **Examiner** | **Art Unit** |
| | JAMES M HANNETT | 2698 |

| CPC | | | | | | |
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| **Symbol** | | | | | **Type** | **Version** |
| H04N | / | 5 | / | 23222 | F | 2013-01-01 |
| G06T | / | 7 | / | 97 | I | 2017-01-01 |
| H04N | / | 5 | / | 23229 | I | 2013-01-01 |
| H04N | / | 5 | / | 23258 | I | 2013-01-01 |
| G06T | / | 7 | / | 0002 | I | 2013-01-01 |
| G06K | / | 9 | / | 00201 | I | 2013-01-01 |
| H04N | / | 5 | / | 23212 | I | 2013-01-01 |
| H04N | / | 5 | / | 23232 | I | 2013-01-01 |
| H05K | / | 999 | / | 99 | I | 2013-01-01 |
| G06T | / | 2207 | / | 10016 | A | 2013-01-01 |
| G06T | / | 2207 | / | 10032 | A | 2013-01-01 |
| G06T | / | 2207 | / | 30168 | A | 2013-01-01 |

| CPC Combination Sets | | | | | | | |
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| **Symbol** | | | | | **Type** | **Set** | **Ranking** | **Version** |
| | / | | / | | | | | |

| NONE | | Total Claims Allowed: | |
|---|---|---|---|
| (Assistant Examiner) | (Date) | 20 | |
| /JAMES M HANNETT/<br>Primary Examiner, Art Unit 2698 | 07 January 2020 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 1 |

U.S. Patent and Trademark Office

Part of Paper No.: 20200107

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/992,217 | SIVAN, Ishay |
| | **Examiner** | **Art Unit** |
| | JAMES M HANNETT | 2698 |

| INTERNATIONAL CLASSIFICATION | | | | |
|---|---|---|---|---|
| **CLAIMED** | | | | |
| H04N | / | 5 | / | 232 |

| NON-CLAIMED | | | | |
|---|---|---|---|---|
| | / | | / | |

| US ORIGINAL CLASSIFICATION | |
|---|---|
| **CLASS** | **SUBCLASS** |
| | |

| CROSS REFERENCES(S) | | | | | | |
|---|---|---|---|---|---|---|
| **CLASS** | **SUBCLASS (ONE SUBCLASS PER BLOCK)** | | | | | |
| | | | | | | |

| NONE | | Total Claims Allowed: | |
|---|---|---|---|
| (Assistant Examiner) | (Date) | 20 | |
| /JAMES M HANNETT/<br>Primary Examiner, Art Unit 2698 | 07 January 2020 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 1 |

U.S. Patent and Trademark Office

Part of Paper No.: 20200107

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/992,217 | SIVAN, Ishay |
| | **Examiner** | **Art Unit** |
| | JAMES M HANNETT | 2698 |

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

**CLAIMS**

| Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
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| | 3 | | 12 | | 21 | | 30 | | 39 | | | | | | |
| | 4 | | 13 | | 22 | | 31 | | 40 | | | | | | |
| | 5 | | 14 | | 23 | | 32 | | | | | | | | |
| | 6 | | 15 | | 24 | | 33 | | | | | | | | |
| | 7 | | 16 | | 25 | | 34 | | | | | | | | |
| | 8 | | 17 | | 26 | | 35 | | | | | | | | |
| | 9 | | 18 | | 27 | | 36 | | | | | | | | |

| | | | |
|---|---|---|---|
| NONE<br>(Assistant Examiner) | (Date) | **Total Claims Allowed:**<br>20 | |
| /JAMES M HANNETT/<br>Primary Examiner, Art Unit 2698<br>(Primary Examiner) | 07 January 2020<br>(Date) | O.G. Print Claim(s)<br>1 | O.G. Print Figure<br>1 |

U.S. Patent and Trademark Office

Part of Paper No.: 20200107

| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/992,217 | SIVAN, Ishay |
| | Examiner | Art Unit |
| | JAMES M HANNETT | 2698 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ✓ | Rejected | - | Cancelled | N | Non-Elected | A | Appeal |
| = | Allowed | ÷ | Restricted | I | Interference | O | Objected |

**CLAIMS**

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 07/25/2019 | 01/07/2020 | | | | | | | |
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| | 2 | ✓ | - | | | | | | | |
| | 3 | ✓ | - | | | | | | | |
| | 4 | ✓ | - | | | | | | | |
| | 5 | ✓ | - | | | | | | | |
| | 6 | ✓ | - | | | | | | | |
| | 7 | ✓ | - | | | | | | | |
| | 8 | ✓ | - | | | | | | | |
| | 9 | ✓ | - | | | | | | | |
| | 10 | ✓ | - | | | | | | | |
| | 11 | ✓ | - | | | | | | | |
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| | 13 | ✓ | - | | | | | | | |
| | 14 | ✓ | - | | | | | | | |
| | 15 | ✓ | - | | | | | | | |
| | 16 | ✓ | - | | | | | | | |
| | 17 | ✓ | - | | | | | | | |
| | 18 | ✓ | - | | | | | | | |
| | 19 | ✓ | - | | | | | | | |
| | 20 | ✓ | - | | | | | | | |
| | 21 | ✓ | = | | | | | | | |
| | 22 | | = | | | | | | | |
| | 23 | | = | | | | | | | |
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| | 35 | | = | | | | | | | |
| | 36 | | = | | | | | | | |
| | 37 | | = | | | | | | | |
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| | 39 | | = | | | | | | | |
| | 40 | | = | | | | | | | |

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
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| S5 | 10616 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 08:55 |
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| | | | EPO; JPO; DERWENT; IBM_TDB | | | |
| S7 | 3933 | S5 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 08:56 |
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| S9 | 1025 | S8 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 08:56 |
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| S19 | 84 | S18 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:44 |
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| S21 | 21 | S19 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:44 |
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| S24 | 20412 | S23 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2015/10/23 09:46 |

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| S27 | 28 | S26 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:48 |
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| S32 | 102 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 09:53 |
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| S42 | 11 | (predefined or pre-defined or | US-PGPUB; | OR | OFF | 2015/10/23 |

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| S44 | 24 | S43 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:02 |
| S45 | 20 | S44 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:02 |
| S46 | 0 | S45 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:02 |
| S47 | 1 | S45 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:04 |
| S48 | 52 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2015/10/23 10:06 |
| S49 | 34 | S48 and quality with image | US-PGPUB; USPAT; USOCR; | OR | OFF | 2015/10/23 10:07 |

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| S50 | 6 | S49 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2015/10/23 10:07 |
| S51 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/19 09:43 |
| S52 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2016/11/19 09:47 |
| S53 | 0 | S52 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/19 09:47 |
| S54 | 2 | S52 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2016/11/19 09:48 |
| S55 | 1 | S52 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:05 |
| S56 | 0 | S52 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S57 | 0 | S52 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S58 | 0 | S52 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S59 | 2 | S52 and exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:07 |
| S60 | 0 | S59 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:13 |
| S61 | 2 | S59 and focus | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:13 |
| S62 | 1 | S59 and retake | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:18 |
| S63 | 0 | S59 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:18 |
| S64 | 18 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:19 |
| S65 | 682 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:22 |

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|---|---|---|---|---|---|---|
| S66 | 28557 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:22 |
| S67 | 30568 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:22 |
| S68 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:23 |
| S69 | 10 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:23 |
| S70 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S71 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S72 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S73 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:29 |
| S74 | 36 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:31 |
| S75 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2016/11/19 10:31 |
| S76 | 0 | ("("20040174434" \| "20060017820" \| "20060056835" \| "20070195174" \| "20090263028" \| "20090278958" \| "20100026872" \| "20100290673" \| "20110096180" \| "20110279700" \| "20120086847" \| "20120133816" \| "20120182447" \| "20130038771" \| "20130050507" \| "20130058561" \| "20130063538" \| "20130155474" \| "20140050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").PN.").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
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| S78 | 9 | S77 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S79 | 5 | S78 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; | OR | OFF | 2020/01/07 15:24 |

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|---|---|---|---|---|---|---|
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| S80 | 18492 | image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S81 | 5 | S79 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S82 | 7461 | S80 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S83 | 2089 | S82 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S84 | 1547 | S83 and quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S85 | 32 | S83 and quality near4 indicator$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S86 | 4 | ("2015/0288874").URPN. | USPAT | OR | OFF | 2020/01/07 15:24 |
| S87 | 2 | S79 and (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S88 | 1146 | S83 and quality near4 image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |

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|---|---|---|---|---|---|---|
| S89 | 11187 | image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S90 | 502 | S89 and image with capture with automatic$4 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S91 | 59 | S90 and confidence adj level | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S92 | 5 | S90 and confidence adj level with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S93 | 1321 | sivan .in. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S94 | 148 | S93 and (real adj time or realtime or real-time) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S95 | 2089 | S83 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S96 | 32 | S94 and buffer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S97 | 6 | S96 and image$2 with (real adj time or realtime or real-time) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2020/01/07 15:24 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S98 | 150106 | (real adj time or realtime or real-time) .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S99 | 31948 | S98 and imag$2 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S100 | 1815 | S99 and quality .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S101 | 697 | S100 and quality near4 image .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S102 | 34 | S101 and buffer .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S103 | 3 | S102 and image with capture with automatic$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S104 | 14 | S101 and suggest$4 .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S105 | 10 | S104 and user .clm. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S106 | 56309 | confidence adj level | US-PGPUB; USPAT; USOCR; | OR | OFF | 2020/01/07 15:24 |

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| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S107 | 205 | confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S108 | 9664 | h04n5/23222.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S109 | 14988 | h04n5/23229.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S110 | 10718 | h04n5/23258.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S111 | 33507 | S108 or S109 or S110 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S112 | 15 | S111 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S113 | 6252 | S111 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S114 | 134 | S113 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S115 | 2 | S113 and (suggest$4 or recommend$4) | US-PGPUB; | OR | OFF | 2020/01/07 |

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|---|---|---|---|---|---|---|
| | | with quality with table | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 15:24 |
| S116 | 121819 | (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S117 | 18 | (predefined or pre-defined or predetermined or pre-determined) with quality with image with (suggestion$4 or recomend or recommendation) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S118 | 1136 | ("20010036307" \| "20020006163" \| "20020006284" \| "20020054214" \| "20020150302" \| "20020154232" \| "20020191861" \| "20030007687" \| "20030052991" \| "20030058361" \| "20030068100" \| "20030091225" \| "20030103076" \| "20030112361" \| "20030151672" \| "20030151674" \| "20030152271" \| "20030152291" \| "20030169818" \| "20030193699" \| "20030219172" \| "20040047498" \| "20040066981" \| "20040076335" \| "20040081441" \| "20040090532" \| "20040106958" \| "20040120598" \| "20040120698" \| "20040130628" \| "20040135898" \| "20040145659" \| "20040169767" \| "20040170330" \| "20040212699" \| "20040218057" \| "20040218067" \| "20040247030" \| "20040247179" \| "20050010108" \| "20050019000" \| "20050031224" \| "20050041121" \| "20050041123" \| "20050047672" \| "20050052553" \| "20050057687" \| "20050068446" \| "20050068452" \| "20050078197" \| "20050140801" \| "20050157181" \| "20050168587" \| "20050201637" \| "20050203430" \| "20050219391" \| "20050231603" \| "20050231625" \| "20050243178" \| "20050248660" \| "20050259864" \| "20050270381" \| "20050281477" \| "20060006309" \| "20060017820" \| "20060017837" \| "20060023099" \| "20060029284" \| "20060038891" \| "20060039690" \| "20060093212" \| "20060093238" \| "20060098237" \| "20060098867" \| "20060098890" \| "20060098891" \| "20060119710" \| "20060120599" \| "20060125928" \| "20060125938" \| "20060133688" \| "20060140455" \| "20060170786" \| "20060171464" \| "20060187308" \| "20060204034" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/01/07 15:24 |

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| | | "7160573" \| "7177538" \| "7180238" \| "7195848" \| "7212230" \| "7269292" \| "7292270" \| "7315324" \| "7315630" \| "7315631" \| "7316630" \| "7316631" \| "7317815" \| "7336821" \| "7369712" \| "7403643" \| "7453493" \| "7453510" \| "7460695" \| "7469071" \| "7489341" \| "7548256" \| "7551755" \| "7565030" \| "7593144" \| "7623153" \| "7636486" \| "7639888" \| "7639889" \| "7660478" \| "7676108" \| "7689107" \| "7692696" \| "7697778" \| "7705884" \| "7738015").PN. OR ("2004/0174434" \| "2006/0017820" \| "2006/0056835" \| "2007/0195174" \| "2009/0263028" \| "2009/0278958" \| "2010/0026872" \| "2010/0290673" \| "2011/0096180" \| "2011/0279700" \| "2012/0086847" \| "2012/0133816" \| "2012/0182447" \| "2013/0038771" \| "2013/0050507" \| "2013/0058561" \| "2013/0063538" \| "2013/0155474" \| "2014/0050367" \| "5125557" \| "7362354" \| "7688379" \| "7920727" \| "7982770" \| "8040382" \| "8131118" \| "8244053" \| "8285067").URPN. | | | | |
| S119 | 42 | S118 and (predefined or pre-defined or predetermined or pre-determined) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S120 | 36 | S119 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S121 | 3 | S120 and confidence adj level with quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S122 | 5 | S120 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S123 | 74 | ("20040075743" \| "20050226499" \| "20060061678" \| "20060166738" \| "20060221223" \| "20060290804" \| "20070019943" \| "20070076960" \| "20070263092" \| "20080043108" \| "20080278744" \| "20080285860" \| "20090046900" \| "20090179998" \| "20090193082" \| "20090213213" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/01/07 15:24 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | "20100117837" \| "20110029635" \| "20110075917" \| "20110075930" \| "20110307821" \| "20120013783" \| "20120022897" \| "5164831" \| "5694484" \| "5875265" \| "6282317" \| "6516154" \| "6671405" \| "6778699" \| "6801661" \| "6816847" \| "6930718" \| "7362354" \| "7924326" \| "7979369" \| "8081227" \| "8125557" \| "8199208" \| "8830341").PN. OR ("2006/0017820" \| "2011/0075930" \| "8330826" \| "9154692").URPN. | | | | |
| S124 | 53 | S123 and quality with image | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S125 | 11 | S124 and (suggest$4 or recommend$4) with quality | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S126 | 2 | ("20160191801").PN. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S127 | 5 | (US-20110075930-$ or US-20060017820-$).did. or (US-8330826-$ or US-9154692-$ or US-8081227-$).did. | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S128 | 0 | S127 and shake | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S129 | 2 | S127 and motion | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/01/07 15:24 |
| S130 | 1 | S127 and motion adj sensor | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S131 | 0 | S127 and exposure same parameters | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S132 | 0 | S127 and exposure same values | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S133 | 0 | S127 and exposure same settings | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S134 | 2 | S127 and exposure | US-PGPUB; | OR | OFF | 2020/01/07 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | USPAT | | | 15:24 |
| S135 | 0 | S134 and auto-focus | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S136 | 2 | S134 and focus | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S137 | 1 | S134 and retake | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S138 | 0 | S134 and update with exposure | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S139 | 39 | quality with update with exposure | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S140 | 822 | quality with automatic with exposure | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S141 | 31855 | quality with automatic with exposure wit hiso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S142 | 35227 | quality with automatic with exposure wit iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S143 | 0 | quality with automatic with exposure with iso with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S144 | 12 | quality with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S145 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S146 | 0 | (retake or recapture) with automatic with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S147 | 0 | (retake or recapture) with exposure with shutter with aperture | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S148 | 5 | (retake or recapture) with exposure with different | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S149 | 40 | (retake or recapture) same exposure same different | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |
| S150 | 5 | (retake or recapture) same exposure same different same quality | US-PGPUB; USPAT | OR | OFF | 2020/01/07 15:24 |

**1/7/2020 5:23:53 PM**
**C:\Users\jhannett\Documents\EAST\Workspaces\14437105.wsp**

# Bibliographic Data

Application No: 15/992,217

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /JAMES M HANNETT/ Examiner's Signature | Initials

Title: REAL TIME ASSESSMENT OF PICTURE QUALITY

---

| FILING or 371(c) DATE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. |
|---|---|---|---|
| 05/30/2018 | 348 | 2698 | SIVAN-001-US3 |
| RULE | | | |

**APPLICANTS**

SnapAid Ltd., Tel Aviv, ISRAEL

**INVENTORS**

Ishay SIVAN Tel Aviv, ISRAEL

**CONTINUING DATA**

This application is a CON of 15582722 04/30/2017 PAT 10009537

15582722 is a CON of 15007253 01/27/2016 PAT 9661226

15007253 is a CON of 14437105 04/20/2015 PAT 9338348

14437105 is a 371 of PCT/IL2013/050856 10/22/2013

PCT/IL2013/050856 has PRO of 61759643 02/01/2013

PCT/IL2013/050856 has PRO of 61717216 10/23/2012

**FOREIGN APPLICATIONS**

**IF REQUIRED, FOREIGN LICENSE GRANTED****

06/18/2018

** SMALL ENTITY **

**STATE OR COUNTRY**

ISRAEL

**ADDRESS**

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

**FILING FEE RECEIVED**

$835

## PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail** **Mail Stop ISSUE FEE**
**Commissioner for Patents**
**P.O. Box 1450**
**Alexandria, Virginia 22313-1450**
**or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

May Patents Ltd.
c/o Dorit Shem-Tov
P.O.B. 7230
Ramat-Gan 5217102,
Israel

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| (Depositor's name) |
|---|
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 | 7826 |

TITLE OF INVENTION:

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | Small | $500 | $0 | $0 | $500 | 04/14/2020 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| | | |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 May Patents Ltd. c/o Dorit Shem-Tov
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: SNAPAID LTD.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): TEL AVIV, ISRAEL 6935635

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ■ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☑ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 601835 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Yehuda Binder/ Date April 11, 2020

Typed or printed name Yehuda BINDER Registration No. 73,612

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15992217 |
| **Filing Date:** | 30-May-2018 |
| **Title of Invention:** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
| **First Named Inventor/Applicant Name:** | Ishay SIVAN |
| **Filer:** | Yehuda Binder/Dorit Binder |
| **Attorney Docket Number:** | SIVAN-001-US3 |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| UTILITY APPL ISSUE FEE | 2501 | 1 | 500 | 500 |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Extension-of-Time:** | | | | |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **500** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 39132810 |
| **Application Number:** | 15992217 |
| **International Application Number:** | |
| **Confirmation Number:** | 7826 |
| **Title of Invention:** | REAL TIME ASSESSMENT OF PICTURE QUALITY |
| **First Named Inventor/Applicant Name:** | Ishay SIVAN |
| **Customer Number:** | 131926 |
| **Filer:** | Yehuda Binder/Dorit Binder |
| **Filer Authorized By:** | Yehuda Binder |
| **Attorney Docket Number:** | SIVAN-001-US3 |
| **Receipt Date:** | 12-APR-2020 |
| **Filing Date:** | 30-MAY-2018 |
| **Time Stamp:** | 11:34:38 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | $500 |
| RAM confirmation Number | E20204BB35117171 |
| Deposit Account | |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Issue Fee Payment (PTO-85B) | ptol85b.pdf | 75362<br>055a7a8557165e55fd65cfd20973fb0aac338169 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 29975<br>d5a1d1bbbca4a436143184d9fb874384af9f694d | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 105337 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/19/2020 | 10659682 | SIVAN-001-US3 | 7826 |

131926 7590 04/29/2020

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

# ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Ishay SIVAN, Tel Aviv, ISRAEL;
SnapAid Ltd., Tel Aviv, ISRAEL;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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# ELECTRONIC PAYMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| **15/992,217** | **01/13/2025 08:28:14 AM Z ET** | **SIVAN-001-US3** |

## Title of Invention

REAL TIME ASSESSMENT OF PICTURE QUALITY

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | 10659682 |
| CONFIRMATION # | 7826 | FILED BY | Dorit Binder |
| PATENT CENTER # | 68702913 | AUTHORIZED BY | Yehuda Binder |
| CUSTOMER # | 131926 | FILING DATE | 05/30/2018 |
| CORRESPONDENCE ADDRESS | - | FIRST NAMED INVENTOR | Ishay SIVAN |

## Payment Information

| PAYMENT METHOD | PAYMENT TRANSACTION ID | PAYMENT AUTHORIZED BY |
|---|---|---|
| **DA / 601835** | **E20251C928358009** | **Dorit Binder** |

| FEE CODE | DESCRIPTION | ITEM PRICE($) | QUANTITY | ITEM TOTAL($) |
|---|---|---|---|---|
| 2811 | CERTIFICATE OF CORRECTION | 160.00 | 1 | 160.00 |
| | | | **TOTAL AMOUNT:** | **$160.00** |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage

submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

ATTY.'S DOCKET: SIVAN-001-US3

| | | |
|---|---|---|
| In re Application of: | ) | Confirmation No. 7826 |
| US Patent No. 10,659,682 | ) | Art Unit: 2698 |
| Appln. No.: 15/992,217 | ) | Examiner: Hannett, James M |
| Filed: May 30, 2018 | ) | Washington, D.C. |
| For: REAL TIME ASSESSMENT OF PICTURE QUALITY | ) | January 12, 2025 |

**REQUEST FOR CERTIFICATE OF CORRECTION**

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building,
Mail Stop Post Issue
401 Dulany Street
Alexandria, VA 22314

Sir:

The following is a request for a certificate of correction in US Application No. 15/992,217, now US Patent No. 10,659,682 based on ***37 CFR 1.322* – REQUEST FOR CERTIFICATE OF CORRECTION *OF OFFICE MISTAKE*.**

A certificate of correction under 35 USC 255 is respectfully requested in the above identified patent in accordance with the first statutory requirement concerns the nature, i.e. a typographical nature, of the mistake for which a correction is sought.

The exact location where the errors appear in the patent are as follows:

In Column 22, Lines 49-50, Claim 9, "value (p)" should be replaced with – value (μ) –; and "value (a)" should be replaced with – value –, as appears in a response to non-final office action filed on Dec. 25, 2019 as shown below:

"…for use with a probability distribution function using a mean value ~~(p)~~ (μ) and a standard deviation value ~~(a)~~ (σ), wherein …"

Furthermore, the following is a request for a certificate of correction in US Application No. 15/992,217, now US Patent No. 10,659,682 based on ***37 CFR 1.323 REQUEST FOR CERTIFICATE OF CORRECTION OF APPLICANT'S MISTAKE.***

A certificate of correction under 35 USC 255 is respectfully requested in the above identified patent in accordance with the first statutory requirement concerns the nature, i.e. a typographical nature, of the mistake for which a correction is sought.

The exact location where the errors appear in the patent are as follows:

In Column 21, Line 49, Claim 1, the word "value" should be added after the word "first" as shown below:

"…estimating a first weight (c1) associated with the first **value**; …"

In Column 21, Lines 64-65, Claim 1, the word "an" should be added before the word "aesthetic"; and the word "a" should be added before the word "composition" as shown below:

"…obtaining a fifth value (QI5) associated with **an** aesthetic quality of image based on **a** composition;…"

In Column 22, Line 2, Claim 1, the word "QI4" should be added after the word "QI3" as shown below:

"…calculating a total quality value according to, or based on values QI1, QI2, QI3, **QI4** and QI5 and weights c1, c2, c3, c4 and c5."

In Column 22, Line 32, Claim 5, the word "quality" should be added before the word "value" as shown below:

"…wherein the method further comprising controlling the auto-focus functionality according to, or based on, the second value (QI2) or the total **quality** value."



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**Page 353**

In Column 22, Lines 37-38, Claim 7, the word "the" should be added before the word "aesthetic"; and the word "the" should be added before the word "composition" as shown below:
"…The method according to claim 1, wherein **the** aesthetic quality of image based on **the** composition includes…"

In Column 22, Line 45, Claim 8, the word "quality" should be added twice, before the word "value" as shown below:
"…the total **quality** value, and wherein the total **quality** value is calculated…"

In Column 22, Line 57, Claim 10, the words "the as" should be deleted as shown below:
"…further comprising calculating the mean value (μ) and ~~**the as**~~ the standard deviation value (σ) …"

In Column 22, Line 62, Claim 11, the word "quality" should be added after the word "value" as shown below:
"…wherein the acting comprises affecting the digital camera in response to the total **quality** value."

In Column 24, Line 9, Claim 17, the word "value" should be added after the word "first" as shown below:

"…estimating a first weight (c1) associated with the first **value**; …"

In Column 24, Line 20, Claim 17, the sentence "estimating a third weight (c3) associated with the third value;" should be added as shown below:

"…analyzing the captured image via deep learning algorithms for detecting or recognizing one or more objects in, or one or more characteristics of image or at least one of object characteristics to obtain a third value (QI3) associated with the analysis;

**estimating a third weight (c3) associated with the third value;**

calculating a total quality value according to, or based on values QI1, QI2, QI3 and weights c1, c2, c3 and previous values QI1, QI2, QI3 and previous weights c1, c2, c3 in said image stream; and…"

In Column 24, Line 32, Claim 19, the ", QI4, QI5" should be deleted as shown below:

"…wherein algorithms of deep learning are used to compute at least one of the values (QI1, QI2, QI3~~, QI4, QI5~~)."

Electronic Payment in the amount of US$ 160 is being made by deposit account no. 601835 to cover the fee for providing a correction of applicant's mistake, as set forth in 37 CFR 1.20(a).

The requested correction is attached on Form PTO 1050.

Respectfully submitted,

By / Yehuda Binder /
Yehuda Binder
Registration No. 73,612

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PTO/SB/44 (09-07)
Approved for use through 03/31/2026. OMB 0651-0033
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(Also Form PTO-1050)

# UNITED STATES PATENT AND TRADEMARK OFFICE
## CERTIFICATE OF CORRECTION



PATENT NO. : 10,659,682

APPLICATION NO.: 15/992,217

ISSUE DATE : May 19, 2020

INVENTOR(S) : Ishay Sivan

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 21, Line 49, Claim 1, the word "value" should be added after the word "first";
In Column 21, Lines 64-65, Claim 1, the word "an" should be added before the word "aesthetic"; and the word "a" should be added before the word "composition";
In Column 22, Line 2, Claim 1, the word "QI4" should be added after the word "QI3";
In Column 22, Line 32, Claim 5, the word "quality" should be added before the word "value";
In Column 22, Lines 37-38, Claim 7, the word "the" should be added before the word "aesthetic"; and the word "the" should be added before the word "composition";
In Column 22, Line 45, Claim 8, the word "quality" should be added twice, before the word "value";
In Column 22, Lines 49-50, Claim 9, "value (p)" should be replaced with - value (μ) -; and "value (a)" should be replaced with - value -;
In Column 22, Line 57, Claim 10, the words "the as" should be deleted;
In Column 22, Line 62, Claim 11, the word "quality" should be added after the word "value";
In Column 24, Line 9, Claim 17, the word "value" should be added after the word "first";
In Column 24, Line 20, Claim 17, the sentence "estimating a third weight (c3) associated with the third value;" should be added; and
In Column 24, Line 32, Claim 19, the ", QI4, QI5" should be deleted;

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

BINDER Yehuda
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230

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UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

# ELECTRONIC ACKNOWLEDGEMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| **15/992,217** | **01/13/2025 08:28:14 AM Z ET** | **SIVAN-001-US3** |

## Title of Invention

REAL TIME ASSESSMENT OF PICTURE QUALITY

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | 10659682 |
| CONFIRMATION # | 7826 | FILED BY | Dorit Binder |
| PATENT CENTER # | 68702913 | FILING DATE | 05/30/2018 |
| CUSTOMER # | 131926 | FIRST NAMED INVENTOR | Ishay SIVAN |
| CORRESPONDENCE ADDRESS | - | AUTHORIZED BY | Yehuda Binder |

## Documents

**TOTAL DOCUMENTS: 2**

| DOCUMENT | PAGES | DESCRIPTION | SIZE (KB) |
|---|---|---|---|
| Certificate of correction.pdf | 6 | Request for Certificate of Correction | 43 KB |
| sb0044.pdf | 2 | Request for Certificate of Correction | 299 KB |

## Digest

| DOCUMENT | MESSAGE DIGEST(SHA-512) |
|---|---|
| Certificate of correction.pdf | BB5899072B1820C18D7C84F288E41083A26C8C5F74F38A3A7 FD22187D73D6F7ADFCE1B31F8C62A964794CC25CFB7D4A8A AB90050BFFF45817F81B77F7DEE096B |
| sb0044.pdf | 402E11F1785B4F0CA467DEB8DEBBB1398891359A185CA94F7 |

EEE2B26B2CD6C8E06851057A526C9DBF34907528B979D8FC
5966B978C869E173953CE1E79028539

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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

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UNITED STATES PATENT AND TRADEMARK OFFICE

# CERTIFICATE OF CORRECTION



PATENT NO. : 10,659,682 B2
APPLICATION NO. : 15/992217
DATED : May 19, 2020
INVENTOR(S) : Ishay Sivan

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

In Column 21, Line 49, Claim 1, the word "value" should be added after the word "first";
In Column 21, Lines 64-65, Claim 1, the word "an" should be added before the word "aesthetic"; and the word "a" should be added before the word "composition";
In Column 22, Line 2, Claim 1, the word "QI4" should be added after the word "QI3";
In Column 22, Line 32, Claim 5, the word "quality" should be added before the word "value";
In Column 22, Lines 37-38, Claim 7, the word "the" should be added before the word "aesthetic"; and the word "the" should be added before the word "composition";
In Column 22, Line 45, Claim 8, the word "quality" should be added twice, before the word "value";
In Column 22, Lines 49-50, Claim 9, "value (p)" should be replaced with -- value (μ) --; and "value (a)" should be replaced with -- value --;
In Column 22, Line 57, Claim 10, the words "the as" should be deleted;
In Column 22, Line 62, Claim 11, the word "quality" should be added after the word "value";
In Column 24, Line 9, Claim 17, the word "value" should be added after the word "first";
In Column 24, Line 20, Claim 17, the sentence "estimating a third weight (c3) associated with the third value;" should be added; and
In Column 24, Line 32, Claim 19, the ", QI4, QI5" should be deleted.

Signed and Sealed this
Twenty-fifth Day of February, 2025

Coke Morgan Stewart
*Acting Director of the United States Patent and Trademark Office*

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/992,217 | 05/30/2018 | Ishay SIVAN | SIVAN-001-US3 | 7826 |

131926 7590 02/25/2025

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

| EXAMINER |
|---|
| HANNETT, JAMES M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2698 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 02/25/2025 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dorit.shemtov@gmail.com
uspto.may.patents@gmail.com
ybybyb1@gmail.com

| APPLICATION NO. | ISSUE DATE | PATENT NO. |
|---|---|---|
| 15/992,217 | 25-Feb-2025 | 10659682 |

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

# ELECTRONIC CERTIFICATE OF CORRECTION NOTIFICATION

Your electronic certificate of correction is now available, and can be accessed via Patent Center at https://patentcenter.uspto.gov.

The electronic certificate of correction is the official certificate of correction under 35 U.S.C. 254 or 255. For more information, please visit https://www.uspto.gov/electronicgrants.

TO: uspto.may.patents@gmail.com,dorit.shemtov@gmail.com,ybybyb1@gmail.com
FROM: noreply@uspto.gov
CC: patentcenter_eofficeaction@uspto.gov
SUBJECT: USPTO: Patent Electronic System - Correspondence Notification for Customer Number 131926

Tue Feb 25 05:00:40 EST 2025

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Correspondence Address:

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P.O.B 7230
Ramat-Gan,null,5217102
ISRAEL

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| Application | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|
| 15992217 | COCOUT | 02/25/2025 | SIVAN-001-US3 |

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Sincerely,

The Patent Center Team

TO: uspto.may.patents@gmail.com,dorit.shemtov@gmail.com,ybybyb1@gmail.com
FROM: noreply@uspto.gov
CC: patentcenter_eofficeaction@uspto.gov
SUBJECT: USPTO: Patent Electronic System - eGrant Notification for Customer Number 131926

Tue Feb 25 07:14:57 EST 2025

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Correspondence Address:

May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan,null,5217102
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| Application | Patent | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|---|
| 15992217 | 10659682 | ECOFC.NTF | 02/25/2025 | SIVAN-001-US3 |

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Sincerely,

The Patent Center Team