IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

DIVX, LLC, Plaintiff, v. AMAZON.COM, INC., and AMAZON WEB SERVICES, INC., Defendants.	Case No. 1:24-cv-02061-CMH-LRV **JURY TRIAL DEMANDED**

AMAZON'S INITIAL INVALIDITY CONTENTIONS

I. INTRODUCTION

Pursuant to the Court's Order regarding the Joint Scheduling Plan (Dkt. 72), defendants Amazon.com, Inc. and Amazon Web Services, Inc. (collectively, "Defendants" or "Amazon") provide the following initial invalidity contentions to plaintiff DivX, LLC ("Plaintiff" or "DivX") regarding the currently asserted claims of U.S. Patent Nos. 9,955,195 (the "195 patent"); 10,412,141 (the "141 patent"); 10,542,303 (the "303 patent"); 10,715,806 (the "806 patent"); 11,245,938 (the "938 patent"); 11,611,785 (the "785 patent"); and 12,184,943 (the "943 patent") (collectively, the "Asserted Patents").

DivX has asserted the following claims of the Asserted Patents against Amazon in this case (individually and collectively, the "Asserted Claims").

Patent	Asserted Claims
195 patent	1
141 patent	20, 21, 26-30
806 patent	1-6, 8, 9

Patent	Asserted Claims
303 patent	1-4, 8, 16
938 patent	1-3, 7-10, 14
785 patent	1, 2, 4, 7
943 patent	1, 2, 7, 8, 11

Amazon is providing its initial invalidity contentions for the above-identified Asserted Claims of the Asserted Patents. To the extent Plaintiff later attempts to assert additional claims against Amazon, Amazon reserves the right to amend its invalidity contentions and contend that any additional claims are also invalid. Amazon's invalidity contentions are not an admission of validity as to any other claims of the Asserted Patents.

Based on Amazon's investigation and knowledge developed to date, Amazon: (a) identifies each currently known item of prior art that anticipates and/or renders obvious the Asserted Claims; (b) states whether each such item of prior art anticipates the Asserted Claims or renders the Asserted Claims obvious (alone or in combination); (c) provides claim charts identifying where specifically in each item of prior art each element of the Asserted Claims is found; and (d) identifies grounds of invalidity of the Asserted Claims under 35 U.S.C. § 112 based on indefiniteness, enablement, and/or written description.

Amazon incorporates by reference all prior art references, exhibits, declarations, charts, theories, and disclosures served on DivX in any prior or pending court action or proceeding before the Patent Trial and Appeal Board, International Trade Commission, or district court action involving any of the Asserted Patents or related patents as though set forth fully herein, including but not limited to: *Amazon.com, Inc. v. DivX, LLC*, IPR2025-01222 (PTAB); *Amazon.com, Inc. v. DivX, LLC*, IPR2025-01223 (PTAB); *Amazon.com, Inc. v. DivX, LLC*, IPR2025-01062 (PTAB); *DivX, LLC v. Hulu, LLC*, Case No. 2-21-cv-01615 (CDCA); *DivX, LLC v. LG Electronics, Inc.*,

Case No. 1-20-cv-01202 (DDE); *DivX, LLC v. TCL Corp.*, 1-20-cv-01203 (DDE); *DivX, LLC v. TCL Tech. Grp. Corp.,* 2-21-cv-00264 (EDTX); *Top Victory Investments Ltd. v. DivX, LLC*, Case No. 1-24-cv-01390 (DDE); *Certain Video Processing Devices, Components Thereof, and Digital Smart Televisions Containing the Same*; Inv. No. 337-TA-1222 (ITC); *Certain Video Processing Devices and Components Thereof*; Inv. No. 337-TA-1343 (ITC).

Amazon's invalidity contentions are based on information reasonably available at this time with respect to the Asserted Claims, and are necessarily preliminary and may require subsequent amendment, modification, and/or supplementation. Amazon reserves the right to amend, modify, and/or supplement these invalidity contentions based on, among other things, amendments, modifications or supplements to DivX's infringement contentions, further investigation, third-party discovery, fact or expert discovery and/or evaluation of the scope and content of the prior art (including, for example, the prior art from any other cases in which DivX asserts one or more of the Asserted Patents), disclosure of the parties' claim constructions, an order construing the Asserted Claims, new developments in the case, or any other basis contemplated by the Federal Rules of Civil Procedure, the Court's Local Rules, and any other applicable order entered by the Court.

Moreover, fact discovery is ongoing, and Amazon has not obtained deposition testimony from any of the named inventors of the Asserted Patents or any third party, including, without limitation, deposition of any third party identified in these invalidity contentions. Amazon anticipates serving third-party subpoenas on parties with information relevant to these invalidity contentions. Amazon expects further discovery will reveal additional prior art, including related disclosures and corresponding evidence for many of the prior art references identified herein. As such, Amazon has not yet completed its investigation, discovery or analysis of matters relating to

the validity or enforceability of the Asserted Claims, including, without limitation, invalidity due to on-sale statutory bars, public use statutory bars, improper inventorship, or unenforceability due to inequitable conduct. The disclosures herein are not and should not be construed as a statement that no other persons have discoverable information, that no other documents, data compilations, and/or tangible things exist that Amazon may use to support its claims or defenses, or that no other legal theories or factual bases will be pursued. Accordingly, Amazon reserves the right to amend, modify and/or supplement these invalidity contentions as additional information is discovered, identified or otherwise appreciated, including testimony about the scope and content of the prior art and the claimed inventions.

These initial invalidity contentions are based on Amazon's present understanding of DivX's infringement contentions as set forth in its Preliminary Infringement Disclosures served on August 1, 2025 pursuant to the Court's Order regarding the Joint Discovery Plan (Dkt. No. 73). Nothing in these initial invalidity contentions should be regarded as conceding that DivX's infringement contentions are legally or factually adequate or as necessarily reflecting the proper interpretation of the claims or an interpretation of the claims that Amazon agrees with or proposes. Amazon disputes DivX's apparent claim interpretations and will identify claim constructions for specific claim terms under the scheduling order governing this case. To the extent additional information regarding DivX's infringement contentions becomes available, Amazon anticipates that it will provide corresponding invalidity contentions correlating DivX's interpretation of the claims with the prior art and Amazon may thus amend its invalidity contentions accordingly as applicable to the claims asserted by DivX.

Nothing in these invalidity contentions shall be treated as an admission that Amazon's accused products meets any limitation of the Asserted Claims. Amazon denies that it infringes

any claim of the Asserted Patents. To the extent that any prior art reference identified by Amazon contains a claim element that is the same as or similar to an element in an accused product, inclusion of that reference in Amazon's invalidity contentions shall not be deemed a waiver of any claim construction or non-infringement position. Any use of these invalidity contentions to support any allegation of infringement would be misleading, false, and wrong as a matter of law and fact.

Unless otherwise specified, the invalidity contentions set forth herein are based on the alleged priority dates of the Asserted Patents asserted by DivX in its infringement contentions. To the extent DivX asserts entitlement to an earlier priority date for prior art purposes, Amazon reserves the right to amend these contentions. Further, nothing in these contentions constitutes an admission concerning the priority dates, conception date, or reduction to practice of the Asserted Claims of the Asserted Patents.

II. IDENTIFICATION OF INVALIDITY GROUNDS AND PRIOR ART

The concepts disclosed and claimed in each of the Asserted Patents are not new, and had been disclosed, and actively practiced by others prior to the claimed invention date. The prior art includes various documents, products, patents, and inventions that separately and together render the Asserted Claims invalid. In addition, as described in more detail below, claims of the Asserted Patents are invalid under 35 U.S.C. §§ 101 and 112.

Amazon asserts that the prior art listed in Exhibits A-G, individually or in combination, invalidate(s) the Asserted Claims. Amazon identifies patents, publications, and the products and systems they describe as prior art under 35 U.S.C. §§102 (a), (b), (e), (g) and §103. With respect to the 195, 141, 806, 785, and 943 patents, which have an earliest filing or priority date before March 16, 2013 and are therefore not subject to the AIA rules relating to what qualifies as prior art, Amazon asserts that as of the date of these invalidity contentions, these products and systems

were: (1) known or used in this country before the alleged invention of the claimed subject matter of the Asserted Claims; (2) in public use and/or on sale in this country more than one year before the filing date of the patent; (3) invented in this country by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim; (4) patented or described in a printed publication in this or a foreign country; before the alleged invention of the claimed subject matter of the Asserted Claims; and/or (5) patented or described in a printed publication in this or a foreign country more than one year prior to the filing date of the patent.

With respect to the 303 and 938 patents, which have an earliest filing or priority date after March 16, 2013 and are therefore subject to the AIA rules relating to what qualifies as prior art, Amazon asserts that as of the date of these invalidity contentions, these products and systems were: (1) patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention; and/or (2) described in a patent issued under 35 U.S.C. § 151, or in an application for patent published or deemed published under 35 U.S.C. § 122(b), in which the patent or application names another inventor and was effectively filed before the effective filing date of the claimed invention. These prior art products and systems and their associated patents and/or printed publications individually anticipate and/or collectively render obvious each of the Asserted Claims.

These prior art references and products disclose each and every element of one or more of the Asserted Claims either explicitly, inherently, or via an obvious combination and may also be relied upon to show the state of the art in the relevant timeframes. The date these prior art items were offered for sale or publicly used or known, is at least as early as the date the related publications were published. Amazon anticipates that the actual dates, circumstances, and

identities of individuals will be the subject of third-party discovery during this lawsuit. Amazon therefore reserves the right to modify, amend, or supplement these invalidity contentions if additional information becomes available during the course of discovery.

A. The 195 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claim of the 195 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 195 patent invalidity charts attached as Exhibit A set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to Plaintiff's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claim of the 195 patent:

Claim No.	Invalidity Grounds[1] [2] under 35 U.S.C. §§ 102 and/or 103[3]
1	HTTP Live Streaming in view of Chung, Ma, Moldovan, Hervouet, Wang, and/or Ozcelebi Moldovan, in view of FFmpeg, Chung, Ma, Hervouet, Wang, and/or Ozcelebi Ma in view of FFmpeg, Chung, Moldovan, Hervouet, Wang, and/or Ozcelebi Chung in view of FFmpeg, Ma, Moldovan, Hervouet, Wang, and/or Ozcelebi

The asserted claim of the 195 patent is invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of the filing of the asserted patents would have been motivated to combine elements of the references identified above, recognizing that the combination would be a predictable use of elements known in the art to solve known problems by using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claim of the 195 patent is invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above

[1] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[2] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[3] Amazon contends that any combination of references identified in this table as a ground invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claim invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render the asserted claim of the 195 patent. The attached claim charts in Exhibits A-1 through A-8 demonstrate where each limitation of the claim is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), or (e).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 195 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
US Patent Publication No: 2009/0310673	USA	June 11, 2009	Dec. 17, 2009	Chung
US Patent No: 8,918,535	USA	Nov. 2, 2012	Dec. 23, 2014	Ma

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claim of the 195 Patent

Title	Date of Publication	Author/Publisher	Short Cite
FFmpeg Documentation	July 26, 2011	FFmpeg.org	FFmpeg
Video Quality Optimization • Multi-rate Video Encoding	July 2010	G. Hervouet	Hervouet
Personalised Multimedia Educational Content for M-learning Environments	September 2010	Arghir-Nicolae Moldovan	Moldovan
HTTP Live Streaming Overview	April 1, 2011	Apple Inc.	HTTP Live Streaming
Delay-Distortion Optimization for Content-Adaptive Video Streaming	June 2007	Tanir Ozcelebi, et al. / IEEE Transactions on Multimedia	Ozcelebi
Towards Optimal Rate Control: A Study of the Impact of Spatial Resolution, Frame Rate, and Quantization on Subjective Video Quality and Bit Rate	2003	Demin Wang, et al.	Wang

c. Additional Prior Art Systems/Services That Anticipate or Render Obvious One or More Asserted Claim of the 195 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
HTTP Live Streaming System	April 1, 2011	Apple Inc.	HTTP Live Streaming

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits A-1 through A-8 demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the asserted claim of the 195 patent invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[4]

General State of the Art. The specification of the 195 patent admits that the basic steps

[4] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id*.

and concepts recited in the asserted claim were well-known, conventional activities. (*See* 195 patent at 1:24-35 (describing "[A]daptive bitrate streaming or adaptive streaming" and explaining that it "involves detecting the present streaming conditions" and "adjusting the quality of the streamed media accordingly"); 1:36-42 (describing typical "adaptive streaming systems" with source media stored "as a top level index file pointing to a number of alternate streams that contain the actual video and audio data" in which "[e]ach stream is typically stored in one or more container files").

An encoding application that receives a selection of a plurality of combinations of a resolution and a frame rate for encoding of video content. As shown in the corresponding invalidity charts attached as Exhibit A, at least the following prior art references disclose receiving a selection of a plurality of combinations of a resolution and a frame rate for encoding of video content: HTTP Live Streaming, Moldovan, Hervouet, and Ozcelebi.

Determining an optimal target maximum bitrate based on video quality criteria: As shown in the corresponding invalidity charts attached as Exhibit A, at least the following prior art references disclose determining an optimal target maximum bitrate: HTTP Live Streaming, Hervouet, Ma, Moldovan, Ozcelebi, Chung, and Wang.

Encode the video content into a plurality of alternative streams: As shown in the corresponding invalidity charts attached as Exhibit A, at least the following prior art references disclose encoding the video content into a plurality of alternative streams at a maximum bitrate from the determined set of maximum bitrates: HTTP Live Streaming, Ma, FFmpeg, Hervouet, Moldovan, Ozcelebi, Chung, and Wang.

Same technological field. Additionally, the prior art references above all concern the same technological field as the 195 patent. Each of the references is directed to the field of encoding and

streaming video content. Because a POSITA would understand these references to all be part of the same field of technology as the 195 patent, they would naturally look to the teachings of these references to find answers to the problems inherent in the respective technologies. These are only a few examples of the references that a POSITA would consider to be part of the same body of work and in the same technical field and are not meant to be limiting.

A POSITA would also have been motivated to combine any of the references disclosing determining optimal target maximum bitrates based on quality criteria (e.g., HTTP Live Streaming, Hervouet, Ma, Moldovan, Ozcelebi, Chung, and Wang) with any of the references disclosing encoding multiple alternative streams at different bitrates and resolutions for adaptive streaming (e.g., HTTP Live Streaming, Ma, FFmpeg, Hervouet, Moldovan, Ozcelebi, Chung, and Wang), as shown in the exemplary combinations and grounds identified above, and would have found it obvious to do so. The benefits and efficiency of optimizing bitrates for different video parameters in a system delivering video streams at different bitrates were well known by a POSITA, who would have naturally looked to then-existing references teaching such techniques, and found it obvious to select and combine features from such references in order to improve the efficiency of streaming and optimize video quality. Such combinations are combinations of prior art elements according to known methods to yield predictable results and simple substitution of one known element for another to obtain predictable results.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 195 patent, read in light of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct.

2120, 2124 (2014). The 195 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 195 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[5]

[5] DivX does not presently assert any dependent claims. Regardless, each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity grounds identified for each independent claim are not repeated for claims depending therefrom.

Claim Element	Patent (Claims)	§ 112 Grounds
"determine an optimal target maximum bitrate for at least one of the received plurality of combinations from the data relating each of the plurality of combinations to maximum bitrates, where an optimal target maximum bitrate is the lowest bitrate at which a highest video quality criterion is satisfied for a specific combination of resolution and frame rate"	Claim 1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.
"determine a set of maximum bitrates from the optimal target maximum bitrates determined from each of the plurality of combinations"	Claim 1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.
encode the video content into a plurality of alternative streams wherein each of the plurality of alternative streams is encoded at a maximum bitrate from the determined set of maximum bitrates and one of the plurality of combinations of resolutions and frame rates that has an optimal target maximum bitrate at the maximum bitrate	Claim 1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.

5. Invalidity Under § 101

In addition to the grounds identified above, Amazon provides notice to DivX that the asserted claims of the 195 patent do not comply with the requirements of 35 U.S.C. § 101.

The claims of the 195 patent are generally directed to an abstract idea, *e.g.*, setting rates for encoding video data at certain resolutions and frame rates. The claims, however, do not recite any specific technological solution for accomplishing this goal, and instead only provide results-focused, functional claims that fail step 1 of the *Alice* test. *See, e.g.*, *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1343 (Fed. Cir. 2018).

The asserted patents do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any

new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and conventional video playback technology, *e.g.*, an encoding application that directs a processor to encode video content in a plurality of streams with maximum bitrates that it determined based on frame rate and resolution combinations. But neither the claims nor the specification provides for any solution for implementing the idea of determining a maximum bitrate for a video stream based on frame rate and resolution combinations and thus cannot provide an inventive solution. *See, e.g.*, *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1262 (Fed. Cir. 2016) (determining an abstract idea is not patentable if it does not provide an inventive solution to a problem in implementing the idea). Accordingly, the asserted patents fail step 2 of the *Alice* test.

B. The 141 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claims of the 141 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 141 patent invalidity charts attached as Exhibit B set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to Plaintiff's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses

including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claims of the 141 patent:

Claim No.	Invalidity Grounds[6][7] under 35 U.S.C. §§ 102 and/or 103[8]
20	Hagai in view of Li Craner in view of Li Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide
21	Hagai in view of Li and Schmitz Craner in view of Li and Schmitz Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide
26	Hagai in view of Li Craner in view of Li Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide
27	Hagai in view of Li

[6] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[7] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[8] Amazon contends that any combination of references identified in this table as a ground invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

Claim No.	Invalidity Grounds[67] under 35 U.S.C. §§ 102 and/or 103[8]
	Craner in view of Li Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide
28	Hagai in view of Li and Park Craner in view of Li and Park Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide
29	Hagai in view of Li Craner in view of Li Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide
30	Hagai in view of Li and Schmitz Craner in view of Li and Schmitz Hagai in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide Craner in view of Li, Park, Schmitz, Mahemoff, Farber, O'Brien, Thompson, Aksu, and/or Apple QuickTime 7 User Guide

The asserted claims of the 141 patent are invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of filing of the asserted patents would have been motivated to combine elements of the references identified above, recognizing that the combination would be a predictable use of elements known in the art to solve known problems by

using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claims of the asserted patents are invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claims invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render obvious one or more of the Asserted Claims are listed in the tables below. The attached claim charts in Exhibits B-1 through B-11 demonstrate where each limitation of the claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), or (e).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 141 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
7,051,110	USA	Dec. 20, 2000	May 23, 2006	Hagai
8,731,369	USA	Dec. 17, 2004	May 20, 2014	Li
Pub. No. 2005/0198681	USA	Mar. 8, 2004	Sep. 8, 2005	Park
5,544,318	USA	Apr. 16, 1993	Aug. 6, 1996	Schmitz
Pub. No. 2004/0034870	USA	Aug. 12, 2003	Feb. 19, 2004	O'Brien
7,962,942	USA	Feb. 28, 2006	June 14, 2011	Craner
Pub. No. 2005/0102371	USA	Nov. 7, 2003	May 12, 2005	Aksu
PCT Pub. No. WO 03/046750	PCT/US	Nov. 27, 2002	June 5, 2003	Thompson

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claims of the 141 Patent

Title	Date of Publication	Author/Publisher	Short Cite
Adaptive progressive download based on the MPEG-4 file format	April 23, 2006	Nikolaus Farber, et al.	Farber
Ajax Design Patterns	June 2006	Michael Mahemoff / O'Reilly Media, Inc.	Mahemoff
Apple QuickTime 7 User's Guide	2005	Apple Computer, Inc.	Apple QuickTime 7 User Guide

c. Additional Prior Art Systems/Services That Anticipate or Render Obvious One or More Asserted Claims of the 141 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
Apple QuickTime 7 User's Guide System	2005	Apple Computer, Inc.	Apple QuickTime 7 User Guide

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits B-1 through B-11 demonstrate that each prior art

reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[9]

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[9] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of

General State of the Art. The specification of the 141 patent admits that the basic steps and concepts recited in the asserted claims were well-known, conventional activities. (*See* 141 patent at 1:32-35 (describing prior art progressive playback systems that could play back content as it was downloaded from a remote server); 2:10-14 (describing known "trick play" functionalities).

Progressive playback and streaming system architectures. As shown in the corresponding invalidity charts attached as Exhibit B, at least the following prior art references disclose player-driven progressive playback systems and architectures, including buffer management techniques: Hagai, Craner, Li, Park, Farber, O'Brien, Thompson, Aksu, QuickTime 7 User's Guide, and Schmitz.

Trick play and index information: As shown in the corresponding invalidity charts attached as Exhibit B, at least the following prior art references disclose implementing trick play operations in video playback using index information: Hagai, Craner, Li, Park, Farber, O'Brien, Thompson, Aksu, QuickTime 7 User's Guide.

Asynchronous requests: As shown in the corresponding invalidity charts attached as Exhibit B, at least the following prior art references disclose requests to enable arbitrary navigation through video content: Schmitz; Mahemoff.

Same technological field. Additionally, the prior art references above all concern the same technological field as the 141 patent, e.g., transmission and processing of multimedia content for playback. Because a POSITA would understand these references to all be part of the same field of technology as the 141 patent, they would naturally look to the teachings of these references to

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prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id*.

find answers to the problems inherent in the respective technologies. These are only a few examples of the references that a POSITA would consider to be part of the same body of work and in the same technical field and are not meant to be limiting.

A POSITA would also have been motivated to combine any of the references disclosing progressive playback and/or streaming architectures enabling trick play operation (e.g., Craner, Hagai, Farber, O'Brien, Aksu, QuickTime) with any of the references disclosing buffer management techniques (e.g., Li), as shown in the exemplary combinations and grounds identified above, and would have found it obvious to do so. The benefits and efficiency of optimizing bitrates for different video parameters in a system delivering video streams at different bitrates were well known by a POSITA, who would have naturally looked to then-existing references teaching such techniques, and found it obvious to select and combine features from such references in order to improve the efficiency of streaming and optimize video quality. Such combinations are combinations of prior art elements according to known methods to yield predictable results and simple substitution of one known element for another to obtain predictable results.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 141 patent, read in light of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124. The 141 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 141 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim

construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[10]

Claim Element	Patent (Claims)	§ 112 Grounds
obtaining information from a remote server system using the playback device, where the obtained information describes at least one video track, multiple audio tracks, and multiple subtitle tracks;	20	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.

[10] Each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity grounds identified for each independent claim are not repeated for claims depending therefrom.

Claim Element	Patent (Claims)	§ 112 Grounds
requesting a header describing the at least one video track using the playback device;	20	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
checking that sufficient data is buffered to commence playback and playing back the buffered audio and video data using the playback device;	20	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.
pausing playback on the playback device;	20	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
determining byte ranges to request from the selected audio and video tracks based upon a new playback location using the index information;	20	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
asynchronously requesting byte ranges from the selected video track and the selected audio track from the remote server using the playback device.	21	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
wherein playing back the buffered video data from the requested byte ranges provides fast forward trick play.	26	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
wherein playing back the buffered video data from the requested byte ranges provides fast rewind trick play.	27	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
discarding audio and video data contained within the buffer in response to a received seek instruction.	28	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.

Claim Element	Patent (Claims)	§ 112 Grounds
superimposing the subtitle text over video during playback using the playback device.	29	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.

5. Invalidity Under § 101

In addition to the grounds identified above, Amazon provides notice to DivX that the asserted claims of the 141 patent do not comply with the requirements of 35 U.S.C. § 101.

The claims of the 141 patent are generally directed to an abstract idea, *e.g.*, using an index to request video data when a viewer jumps to a different part of a video. The claims do not recite any specific technological solution for accomplishing this goal, and instead only provide results-focused, functional claims that fail step 1 of the *Alice* test. *See, e.g.*, *Interval Licensing*, 896 F.3d at 1343.

The asserted patents do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and conventional progressive playback technology behaving in expected ways to implement the abstract idea of, e.g., using index information in a playback device to perform requested operations. *See, e.g., Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1347-48 (Fed. Cir. 2014) (finding that "well-understood, routine, and conventional activities commonly used in industry" cannot provide an inventive concept). Accordingly, the asserted patents fail step 2 of the *Alice* test.

Nor do the asserted claims provide any inventive concept in an ordered combination of functional steps. These claims recite functions in the conventional order in which they would need

to be performed.

Amazon identifies each asserted claim of the 141 patent as stating non-inventive variations of the claimed abstract idea. *See id*.

C. The 806 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claims of the 806 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 806 patent invalidity charts attached as Exhibit C set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to Plaintiff's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claims of the 806 patent:

Claim No.	Invalidity Grounds[11][12] under 35 U.S.C. §§ 102 and/or 103[13]
1	Sambe in view of Vetro Vetro alone or view of Dogan, Sambe, Lao, MacInnis, Sorial, Sun, Ahmad, Ho, Kuhn, Kuhn & Suzuki, van Beek, and/or Yang. Gadepalli alone or view of Dogan, Sambe, Lao, MacInnis, Sorial, Sun, Ahmad, Ho, Kuhn, Kuhn & Suzuki, van Beek, and/or Yang. Masukura alone or view of Dogan, Sambe, Lao, MacInnis, Sorial, Sun, Ahmad, Ho, Kuhn, Kuhn & Suzuki, van Beek and/or Yang.
2	*See* grounds of claim 1
3	*See* grounds of claim 1
4	*See* grounds of claim 1
5	Sambe in view of Vetro and Gu *See also* grounds of claim 1 in combination with Gu, Yu, and/or Sun
6	*See* grounds of claim 6
8	*See* claim 1
9	*See* claim 1

The asserted claims of the 806 patent are invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of filing of the asserted patents would

[11] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[12] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[13] Amazon contends that any combination of references identified in this table as a ground invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

have been motivated to combine elements of the references identified above, recognizing that the combination would be a predictable use of elements known in the art to solve known problems by using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claims of the asserted patents are invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claims invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render obvious one or more of the Asserted Claims are listed in the tables below. The attached claim charts in Exhibits C-1 through C-17 demonstrate where each limitation of the claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the

following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), or (e).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 806 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
6,490,320	USA	Apr. 11, 2000	Dec. 3, 2002	Vetro
Pub. No. 2010/0189183	USA	Jan. 29, 2009	Jul 29, 2010	Gu
Pub. No. 2012/0269258	USA	Apr. 21, 2011	Oct. 25, 2012	Yang
Pub. No. 2003/0001964	USA	Jun. 26, 2002	Jan. 2, 2003	Masukura
9,338,467	USA	Jul. 18, 2011	May 10, 2016	Gadepalli
Pub. No. 2014/0119457	USA	Oct. 30, 2012	May 1, 2014	MacInnis
Pub. No. 2002/0157112	USA	Mar. 13, 2001	Oct. 24, 2002	Kuhn

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claims of the 806 Patent

Title	Date of Publication	Author/Publisher	Short Cite
High-Speed Distributed Transcoding for Multiple Rates and Formats	Aug. 18, 2005	Yasuo Sambe, et al.	Sambe
Video Transcoding: An Overview of Various Techniques and Research Issues	Oct. 2005	Ishfaq Ahmad, et al.	Ahmad
Metadata-Driven Multimedia Access	March 2003	Peter van Beek, et al. / IEEE Signal Processing Magazine	van Beek
Parallelizing Video Transcoding Using Map-Reduce-Based Cloud Computing	August 20, 2012	Feng Lao, et al.	Lao
Building MPEG-7 Transcoding Hints from Intrinsic Characteristics of MPEG Videos	Feb. 2004	Chia-Chiang Ho, et al.	Ho

Title	Date of Publication	Author/Publisher	Short Cite
Review of the current and future technologies for video compression	December 23, 2009	Lu Yu, et al.	Yu
MPEG-7 Metadata for Video Transcoding: Motion and Difficulty Hints	2001	Peter M. Kuhn and Teruhiko Suzuki / Sony Corp. Japan	Kuhn & Suzuki
MPEG-4 Video Transcoder for Mobile Multimedia Traffic Planning	March 2001	S. Dogan, et al.	Dogan
Digital Video Transcoding for Transmission and Storage	2005	Huifan Sun, et al.	Sun
Joint Transcoding of Multiple MPEG Video Bitstreams	1999	Hani Z. Sorial, et al.	Sorial

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits C-1 through C-17 demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon

does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[14]

General State of the Art. The steps and concepts recited in the asserted claims were well-known, conventional transcoding steps and concepts. The specification admits that it was well-known for a transcoder to receive video in one format and convert it to another, with formats including common standards like Motion JPEG, MPEG-2, MPEG-4, H.264, or HEVC, or differing only in bitrate or resolution. (806 patent, 1:23-32.) It further notes that transcoders conventionally decode video to raw data and re-encode it, often by estimating encoding parameters. (*Id.* at 1:33-38.)

Distributed Transcoding Architecture. As shown in the corresponding invalidity charts attached as Exhibit C, at least the following prior art references disclose distributed video transcoding system that divides source video files into segments and transcodes those segments in parallel: Vetro, Dogan, Sambe, Lao, MacInnis, Sorial, Sun.

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[14] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id*.

Metadata Generation. As shown in the corresponding invalidity charts attached as Exhibit C, at least the following prior art references disclose extracting and using metadata describing complexity information to inform the transcoding process: Ahmad, Ho, Kuhn I, Kuhn & Suzuki, van Beek, Yang, Sun.

Fundamental Coding Concepts: As shown in the corresponding invalidity charts attached as Exhibit C, at least the following prior art references disclose fundamental concepts in video coding, e.g., compressing the original video to allow for efficient transmission and storage by using predictive techniques, transforms, quantization, and entropy encoding to reduce spatial and temporal redundancy: Gu, Yu, Sun.

Same Technological Field. Additionally, the prior art references above all concern the same technological field as the 806 patent, e.g., video coding technology, specifically video transcoding. Because a POSITA would understand these references to all be part of the same field of technology as the 806 patent, they would naturally look to the teachings of these references to find answers to the problems inherent in the respective technologies. These are only a few examples of the references that a POSITA would consider to be part of the same body of work and in the same technical field and are not meant to be limiting.

A POSITA would have been motivated to combine the Distributed Transcoding Architecture references with the Metadata Generation references. This combination would take advantage of both the increased transcoding speeds offered by the Distributed Transcoding Architectures, and more consistent and efficient transcoding made possible by generating and using metadata to assist with transcoding. Such combinations are combinations of prior art elements according to known methods to yield predictable results and simple substitution of one known element for another to obtain predictable results.

Likewise, a POSITA would have been motivated to combine the Distributed Transcoding Architecture references with the Metadata Generation references to take advantage of both the increased transcoding speeds offered by the Distributed Transcoding Architectures, and more consistent and efficient transcoding made possible by generating and using metadata to assist with transcoding. A POSITA would also have been motivated to combine the above-described combinations with the fundamental coding steps described by the fundamental coding steps. These steps are common across many different coding standards, including, MPEG-2, Y, Z, which are either directly disclosed or implicitly disclosed by the distributed transcoding architecture and metadata generation references. Thus, a POSITA would have known to look at the fundamental coding step references to clarify these coding steps where appropriate.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 806 patent, read in light of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124. The 141 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 806 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that

do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[15]

Claim Element	Patent (Claims)	§ 112 Grounds
"set of multiple alternate video streams"	1	Lack of written description pursuant to pre-AIA § 112, para. 1.
"scene complexity information"	1	Lack of written description pursuant to pre-AIA § 112, para. 1.
"performing the following at each of the plurality of transcoding devices in parallel"	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.
"encoding the plurality of decoded images of the decoded portion of video into an alternate video stream	1	Lack of written description pursuant to pre-AIA § 112, para. 1;

[15] Each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity grounds identified for each independent claim are not repeated for claims depending therefrom.

Claim Element	Patent (Claims)	§ 112 Grounds
including a second plurality of encoded images based on a target format and the information based on the media metadata, the alternate video stream being one of the set of multiple alternate video streams"		Lack of enablement pursuant to pre-AIA § 112, para. 1.
"wherein a group of the plurality of transcoding devices perform processes in parallel for the same alternate video stream from the set of multiple alternate video streams."	2	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.
"wherein a group of the plurality of transcoding devices perform processes in parallel for different alternate video streams in the set of multiple alternate video streams."	2	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.
"generating a prediction image for each of a plurality of coding units of an image in the plurality of decoded images using the scene change information"	5	Indefinite pursuant to pre-AIA § 112, para. 2.
"performing quantization on the sets of transform coefficients for an image in the plurality of decoded image"	6	Indefinite pursuant to pre-AIA § 112, para. 2.
"performing the following at each of the plurality of transcoding devices in parallel"	6	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1; Indefinite pursuant to pre-AIA § 112, para. 2.

5. Invalidity Under § 101

In addition to the grounds identified above, Amazon provides notice to DivX that the asserted claims of the 806 patent do not comply with the requirements of 35 U.S.C. § 101.

The claims of the 806 patent are generally directed to an abstract idea, *e.g.*, converting video data from one format to another based on metadata. The claims, however, do not recite any specific technological solution for accomplishing this goal, and instead only provide results-focused, functional claims that fail step 1 of the *Alice* test. *See, e.g.*, *Interval Licensing*, 896 F.3d at 1343.

The asserted patents do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and conventional video transcoding technology, *e.g.*, transcoding devices that receive and decode a source vide file based on one format and encode the decoded information into an alternate video stream using metadata. But neither the claims nor the specification provides for any solution for implementing the intended result, and thus cannot provide an inventive solution. *See, e.g.*, *Affinity Labs*, 838 F.3d at 1262 (determining an abstract idea is not patentable if it does not provide an inventive solution to a problem in implementing the idea). Accordingly, the asserted patents fail step 2 of the *Alice* test.

D. The 303 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claims of the 303 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 303 patent invalidity charts attached as Exhibit D set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each

identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to Plaintiff's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claims of the 303 patent:

Claim No.	Invalidity Grounds[16] [17] under 35 U.S.C. §§ 102 and/or 103[18]
1	Yamaguchi in combination with Misra II Yamaguchi in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth I, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre Fuldseth II in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth I, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre Fuldseth I in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van

[16] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[17] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[18] Amazon contends that any combination of references identified in this table as a ground invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

Claim No.	Invalidity Grounds[16] [17] under 35 U.S.C. §§ 102 and/or 103[18]
	Wallandael, Feldmann, Fuldseth II, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre Feldmann et al in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Fuldseth I, Fuldseth II, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre
2	*See* claim 1
3	*See* grounds of claim 1 in combination with Ye
4	*See* claim 1
8	*See* claim 1
16	*See* claim 1

The asserted claims of the 303 patent are invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of the filing of the asserted patents would have been motivated to combine elements of the references identified above, recognizing that the combination would be a predictable use of elements known in the art to solve known problems by using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claims of the asserted patents are invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would

not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claims invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render the asserted claims of the 303 patent obvious. The attached claim charts in Exhibits D-1 through D-22 demonstrate where each limitation of the claim is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 303 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
8,081,755	USA	May 19, 2006	Dec. 20, 2011	Zhu
7,478,238	USA	Jul. 30, 2004	Jan. 13, 2009	Hooper
Pub. No. 2004/0153674	USA	Oct. 17, 2003	Aug. 5, 2004	Hayashi
8,027,470	USA	Feb. 8, 2008	Sep. 27, 2011	Candelore
9,554,133	USA	Sep. 18, 2013	Jan. 24, 2017	Ye
Pub. No. 2011/0188652	USA	Oct. 15, 2008	Aug. 4, 2011	Yamaguchi
8,677,504	USA	Jul. 14, 2005	Mar. 18, 2014	Wingert
9,525,877	USA	May 16, 2014	Dec. 20, 2016	Misra I
11,425,395	USA	Aug. 20, 2013	Aug. 23, 2022	Bultje

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
Pub. No. 2006/0165232	USA	Dec. 12, 2003	Jul. 27, 2006	Burazerovic
9,473,829	USA	Sep. 12, 2012	Oct. 18, 2016	Lefebvre
10,827,178	USA	May 28, 2015	Nov. 3, 2020	Nellore

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claims of the 303 Patent

Title	Date of Publication	Author/Publisher	Short Cite
An Overview of Tiles in HEVC	Dec. 2013	Kiran Misra, et al. / IEEE Journal of Selected Topics in Signal Processing	Misra II
Slice-Level Selective Encryption for Protecting Video Data	2011	Seohyun Jeong, et al. / IEEE	Jeong
H.264 Video Encryption Scheme Adaptive to DRM	2006	Yuanzhi Zou, et al. / IEEE	Zou
Replacing slices with tiles for high level parallelism	Jan. 2011	Arild Fuldseth / Cisco JCTVC	Fuldseth I
Tiles for Managing Computational Complexity of Video Encoding and Decoding	May 2012	Arild Fuldseth, et al. / IEEE	Fuldseth II
The New High-Efficiency Video Coding Standard	May/June 2013	Benjamin Bross, et al.	Bross
Overview of the High Efficiency Video Coding (HEVC) Standard	Dec. 2012	Gary J. Sullivan, et al. / IEEE Trans. on Circuits and Sys. Video Tech.	Sullivan
Encryption for High Efficiency Video Coding with Video Adaptation Capabilities	Aug. 2013	Glenn Van Wallendael, et al. / IEEE Trans. Consumer Elec.	Van Wallendael
Efficient Stream-Reassembling for Video Conferencing Applications using Tiles in HEVC	2013	Christian Feldmann, et al.	Feldmann

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits D-1 through D-22 demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art,

or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[19]

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[19] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and

General State of the Art. The specification of the 303 patent admits that the basic steps and concepts recited in the asserted claims were well-known, conventional activities in field of protecting encoded video streams. Specifically, the specification explains that the Motion Pictures Experts Group (MPEG) produced several standards specifying video compression and decompression algorithms, including the High-Efficiency Video Coding (HEVC) standard. (303 patent, 1:41-48.) The HEVC standard introduced several new "tools" to increase efficiency and permit parallel processing of video content on multi-core processor architectures. (*Id.*, 1:51-61.) The patent further admits that Digital Rights Management (DRM) techniques were known in the art to protect digitally distributed content from piracy, including using various common encryption schemes and techniques. (*Id.*, 1:62-2:22.)

HEVC. The HEVC standard was created in response to a demand for improved compression, higher video quality, and incorporation of new services. It introduced a new method of partitioning a frame known as tiles, which are independent compression units that can be configured to have no dependencies across their borders. The HEVC standard would have been well-known by a POSITA at the time of the alleged priority date of the patents, as shown in the following charts attached as Exhibit D: Fuldseth II, Misra I, Misra II, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth I, Nellore, and Ye.

Partial Encryption. Partial encryption is the encryption and decryption of only a subsection of the compressed video data. Partial encryption has long been a well-known technique for achieving secure transmission of video content while reducing the computational power required for encryption and decryption, as shown in the following charts attached as Exhibit D: Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, and Lefebvre.

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the background knowledge possessed by a person having ordinary skill in the art." *Id*.

Same technological field. Additionally, the prior art references above all concern the same technological field as the 303 patent, e.g., protecting encoded video streams. Because a POSITA would understand these references to all be part of the same field of technology as the 303 patent, they would naturally look to the teachings of these references to find answers to the problems inherent in the respective technologies. These are only a few examples of the references that a POSITA would consider to be part of the same body of work and in the same technical field and are not meant to be limiting.

A POSITA would have been motivated to apply a partial encryption technique to tiles disclosed by the HEVC standard. By partially encrypting tiles, a POSITA would leverage the parallel processing capabilities of tiles while ensuring the secure transmission of video data. End-to-end computational efficiency and security would be achieved by encrypting only portions of the tile's payload while leaving essential syntax and structural information unencrypted to preserve tiles' intrinsic ability to be processed independently.

A POSITA would have been motivated to adopt tiles because they have a more computationally efficient design compared to other methods of partitioning a frame, such as slices. Further, tiles can more efficiently support high-level parallelism under the HEVC standard. A POSITA would have been motivated to encrypt, and subsequently decrypt, only a targeted portion of a tile in order to prevent the unauthorized decryption and reproduction of video data, while significantly reducing overhead compared to full encryption schemes.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 303 patent, read in light of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled

in the art about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124. The 303 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 303 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[20]

[20] Each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity grounds identified for each independent claim are not repeated for claims depending therefrom.

Claim Element	Patent (Claims)	§ 112 Grounds
determining locations of a plurality of tiles within the video bitstream based on information provided by at least one metadata header associated with a frame of video;	1	Lack of written description pursuant to AIA § 112(a); Lack of enablement pursuant to AIA § 112(a); Indefiniteness pursuant to AIA § 112(b).
encrypting a portion of each of a plurality of tiles within the frame of video based on the determined locations	1	Lack of written description pursuant to AIA § 112(a); Lack of enablement pursuant to AIA § 112(a).

5. Invalidity Under § 101

In addition to the grounds identified above, Amazon provides notice to DivX that the asserted claims of the 303 patent do not comply with the requirements of 35 U.S.C. § 101.

The claims of the 303 patent are generally directed to an abstract idea, *e.g.*, using partial frame encryption with tiles. The claims, however, do not recite any specific technological solution for accomplishing this goal, and instead only provide results-focused, functional claims that fail step 1 of the *Alice* test. *See, e.g.*, *Interval Licensing*, 896 F.3d at 1343.

The asserted patents do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and conventional components and concepts from streaming and encryption technology, *e.g.*, a processor that receives a video bitstream comprising frames divided into tiles and encrypting a portion of those tiles within the frames. But neither the claims nor the specification provides for any solution for implementing the intended result, and thus cannot provide an inventive solution. *See, e.g.*, *Affinity Labs*, 838 F.3d at 1262 (determining an abstract idea is not patentable if it does not provide an inventive solution to a problem in

implementing the idea). Accordingly, the asserted patents fail step 2 of the *Alice* test.

E. The 938 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claims of the 938 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 938 patent invalidity charts attached as Exhibit E set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to Plaintiff's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claims of the 938 patent:

Claim No.	Invalidity Grounds[21] [22] under 35 U.S.C. §§ 102 and/or 103[23]
1	Yamaguchi in combination with Misra II

[21] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[22] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[23] Amazon contends that any combination of references identified in this table as a ground

Claim No.	Invalidity Grounds[21] [22] under 35 U.S.C. §§ 102 and/or 103[23]
	Yamaguchi in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth I, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre Fuldseth II in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth I, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre Fuldseth I in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre Feldmann in combination with Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Fuldseth I, Fuldseth II, Nellore, Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, Burazerovic, and/or Lefebvre
2	*See* claim 1
3	*See* grounds of claim 1 in combination with Ye
7	*See* claim 1
8	*See* claim 1
9	*See* claim 1
10	*See* grounds of claim 1 in combination with Ye
14	*See* claim 1

The asserted claims of the 938 patent are invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of the filing of the asserted patents would have been motivated to combine elements of the references identified above, recognizing that the combination would be a predictable use of elements known in the art to solve known

invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

problems by using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claims of the asserted patents are invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claims invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render the asserted claims of the 938 patent obvious. The attached claim charts in Exhibits E-1 through E-22 demonstrate where each limitation of the claim is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 938 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
8,081,755	USA	May 19, 2006	Dec. 20, 2011	Zhu
7,478,238	USA	Jul. 30, 2004	Jan. 13, 2009	Hooper
Pub. No. 2004/0153674	USA	Oct. 17, 2003	Aug. 5, 2004	Hayashi
8,027,470	USA	Feb. 8, 2008	Sep. 27, 2011	Candelore
9,554,133	USA	Sep. 18, 2013	Jan. 24, 2017	Ye
Pub. No. 2011/0188652	USA	Oct. 15, 2008	Aug. 4, 2011	Yamaguchi
8,677,504	USA	Jul. 14, 2005	Mar. 18, 2014	Wingert
9,525,877	USA	May 16, 2014	Dec. 20, 2016	Misra I
11,425,395	USA	Aug. 20, 2013	Aug. 23, 2022	Bultje
Pub. No. 2006/0165232	USA	Dec. 12, 2003	Jul. 27, 2006	Burazerovic
9,473,829	USA	Sep. 12, 2012	Oct. 18, 2016	Lefebvre
10,827,178	USA	May 28, 2015	Nov. 3, 2020	Nellore

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claims of the 938 Patent

Title	Date of Publication	Author/Publisher	Short Cite
An Overview of Tiles in HEVC	Dec. 2013	Kiran Misra, et al. / IEEE Journal of Selected Topics in Signal Processing	Misra
Slice-Level Selective Encryption for Protecting Video Data	2011	Seohyun Jeong, et al. / IEEE	Jeong
H.264 Video Encryption Scheme Adaptive to DRM	2006	Yuanzhi Zou, et al. / IEEE	Zou
Replacing slices with tiles for high level parallelism	Jan. 2011	Arild Fuldseth / Cisco JCTVC	Fuldseth I
Tiles for Managing Computational Complexity of Video Encoding and Decoding	May 2012	Arild Fuldseth et al. / IEEE	Fuldseth II
The New High-Efficiency Video Coding Standard	May/June 2013	Benjamin Bross et al.	Bross
Overview of the High Efficiency Video Coding (HEVC) Standard	Dec. 2012	Gary J. Sullivan et al. / IEEE Trans. on	Sullivan

Title	Date of Publication	Author/Publisher	Short Cite
		Circuits and Sys. Video Tech.	
Encryption for High Efficiency Video Coding with Video Adaptation Capabilities	Aug. 2013	Glenn Van Wallendael et al. / IEEE Trans. Consumer Elec.	Van Wallendael
Efficient Stream-Reassembling for Video Conferencing Applications using Tiles in HEVC	2013	Christian Feldmann et al.	Feldmann

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits E-1 through E-22 demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third

parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[24]

General State of the Art. The specification of the 938 patent admits that the basic steps and concepts recited in the asserted claims were well-known, conventional activities in field of protecting encoded video streams. Specifically, the specification explains that the Motion Pictures Experts Group (MPEG) produced several standards specifying video compression and decompression algorithms, including the High-Efficiency Video Coding (HEVC) standard. (938 patent, 1:36-52.) The HEVC standard introduced several new "tools" to increase efficiency and permit parallel processing of video content on multi-core processor architectures. (*Id.*, 1:52-65.) The patent further admits that Digital Rights Management (DRM) techniques were known in the art to protect digitally distributed content from piracy, including using various common encryption schemes and techniques. (*Id.*, 1:67-2:25.)

HEVC. The HEVC standard was created in response to a demand for improved compression, higher video quality, and incorporation of new services. It introduced a new method of partitioning a frame known as tiles, which are independent compression units that can configured to have no dependencies across their borders. The HEVC standard would have been

[24] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id*.

well-known by a POSITA at the time of the alleged priority date of the patents, as shown in the following charts attached as Exhibit E: Fuldseth II, Misra II, Misra I, Bultje, Bross, Sullivan, Van Wallandael, Feldmann, Fuldseth I, Nellore, Ye.

Partial Encryption. Partial encryption is the encryption and decryption of only a subsection of the compressed video data. Partial encryption has long been a well-known technique for achieving secure transmission of video content while reducing the computational power required for encryption and decryption, as shown in the following charts attached as Exhibit E: Zhu, Hooper, Hayashi, Candelore, Farkash, Yamaguchi, Wingert, Jeong, Zou, and/or Lefebvre.

Same technological field. Additionally, the prior art references above all concern the same technological field as the 938 patent, e.g., protecting encoded video streams. Because a POSITA would understand these references to all be part of the same field of technology as the 938 patent, they would naturally look to the teachings of these references to find answers to the problems inherent in the respective technologies. These are only a few examples of the references that a POSITA would consider to be part of the same body of work and in the same technical field and are not meant to be limiting.

A POSITA would have been motivated to apply a partial encryption technique to tiles disclosed by the HEVC standard. By partially encrypting tiles, a POSITA would leverage the parallel processing capabilities of tiles while ensuring the secure transmission of video data. End-to-end computational efficiency and security would be achieved by encrypting only portions of the tile's payload while leaving essential syntax and structural information unencrypted to preserve tiles' intrinsic ability to be processed independently.

A POSITA would have been motivated to adopt tiles because they have a more computationally efficient design compared to other methods of partitioning a frame, such as slices.

Further, tiles can more efficiently support high-level parallelism under the HEVC standard. A POSITA would have been motivated to encrypt, and subsequently decrypt, only a targeted portion of a tile in order to prevent the unauthorized decryption and reproduction of video data, while significantly reducing overhead compared to full encryption schemes.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 938 patent, read in light of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124. The 938 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 938 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes

the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[25]

Claim Element	Patent (Claims)	§ 112 Grounds
receiving a metadata header identifying the locations of the plurality of independently encoded compression units within the frame;	1	Lack of written description pursuant to AIA § 112(a); Lack of enablement pursuant to AIA § 112(a); Indefiniteness pursuant to AIA § 112(b).
receiving encryption information identifying locations of encrypted portions of the plurality of independently encoded compression units in the frame;	1	Lack of written description pursuant to AIA § 112(a); Lack of enablement pursuant to AIA § 112(a).
decrypting the encrypted portions of each of a plurality of compression units in the frame based on the received metadata header and the received encryption information	1	Lack of written description pursuant to AIA § 112(a); Lack of enablement pursuant to AIA § 112(a).

5. Invalidity Under § 101

In addition to the grounds identified above, Amazon provides notice to DivX that the asserted claims of the 938 patent do not comply with the requirements of 35 U.S.C. § 101.

The claims of the 938 patent are generally directed to an abstract idea, *e.g.*, using partial

[25] Each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity grounds identified for each independent claim are not repeated for claims depending therefrom.

frame encryption with tiles. The claims, however, do not recite any specific technological solution for accomplishing this goal, and instead only provide results-focused, functional claims that fail step 1 of the *Alice* test. *See, e.g.*, *Interval Licensing*, 896 F.3d at 1343.

The asserted patents do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and conventional components and concepts from streaming and encryption technology, *e.g.*, a processor that receives a video bitstream comprising frames divided into tiles and decrypting encrypted portions of those tiles within the frames. But neither the claims nor the specification provides for any solution for implementing the intended result, and thus cannot provide an inventive solution. *See, e.g.*, *Affinity Labs*, 838 F.3d at 1262 (determining an abstract idea is not patentable if it does not provide an inventive solution to a problem in implementing the idea). Accordingly, the asserted patents fail step 2 of the *Alice* test.

F. The 785 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claims of the 785 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 785 patent invalidity charts attached as Exhibit F set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to Plaintiff's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed

to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claims of the 785 patent:

Claim No.	Invalidity Grounds[26] [27] under 35 U.S.C. §§ 102 and/or 103[28]
1	Ha 3GPP 3GPP2 ISO De Cicco Ozer HTTP Live System Smooth Streaming System Move System Telestream System Real System Ha in view of Ozer, Liao, Hervouet, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 3GPP in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, and 3GPP2

[26] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[27] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[28] Amazon contends that any combination of references identified in this table as a ground invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

Claim No.	Invalidity Grounds[26] [27] under 35 U.S.C. §§ 102 and/or 103[28]
	3GPP2 in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, and 3GPP ISO in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, 3GPP, and 3GPP2 De Cicco in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Ozer in view of Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Ronca in view of Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Smooth Streaming I in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, and 3GPP2 HTTP Live System in view of Ozer, Liao, Hervouet, Ha, ISO, 3GPP, and 3GPP2 Smooth Streaming System in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Move System in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Telestream System in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Real System in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Tinsman in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Mehotra in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Brueck in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2 Envivio in view of Ozer, Liao, Hervouet, Ha, HTTP I, Pantos, ISO, 3GPP, and 3GPP2.
2	*See* claim 1
4	*See* claim 1
7	*See* claim 1

The asserted claims of the 785 patent are invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of the filing of the asserted patents would have been motivated to combine elements of the references identified above, recognizing

that the combination would be a predictable use of elements known in the art to solve known problems by using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claims of the asserted patents are invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claims invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render obvious one or more of the asserted claims of the 785 patent. The attached claim charts in Exhibits F-1 through F-21 demonstrate where each limitation of the claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), (e) or (g).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 785 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
2011/0302319	USA	Jun. 6, 2011	Dec. 8, 2011	Ha
2011/0246616	USA	Apr. 2, 2010	Oct. 6, 2011	Ronca
9,832,540	USA	Dec. 15, 2010	Nov. 28, 2017	Liao
2011/0255535	USA	Apr. 18, 2011	Oct. 20, 2011	Tinsman
2009/0282162	USA	May 12, 2008	Nov. 12, 2009	Mehrotra
2008/0195743	USA	Feb. 9, 2007	Aug. 14, 2008	Brueck

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claims of the 785 Patent

Title	Date of Publication	Author/Publisher	Short Cite
Video Compression for Flash, Apple Devices and HTML5	2011	Jan Ozer / Doceo Publishing	Ozer
Feedback Control for Adaptive Live Video Streaming	Feb. 2011	Luca De Dicco, et al.	De Cicco
HTTP Live Streaming draft-pantos-http-live-streaming-04	June 5, 2010	R. Pantos, Ed. and W. May	Pantos
Information technology — MPEG systems technologies — Part 6: Dynamic adaptive streaming over HTTP (DASH)	Feb 15, 2011	ISO/IEC JTC 1	ISO
Video Quality Optimization • Multi-rate Video Encoding	July 2010	G. Hervouet, et al. / Envivio	Hervouet
Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH) (Release 10 v2.0.0)	June 2011	3GPP	3GPP
Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH) (Release 10 v1.0.0)	Sept. 2010	3GPP	3GPP-2
IIS Smooth Streaming Technical Overview	March 2009	Alex Zambelli / Microsoft	Smooth Streaming I
HTTP Live Streaming Overview	April 1, 2011	Apple Inc.	HTTP I

Title	Date of Publication	Author/Publisher	Short Cite
MPEG-4 Multi-Rate Coding and Envivio Implementation	January 2004	Envivio, Inc.	Envivio

c. Additional Prior Art Systems/Services That Anticipate or Render Obvious One or More Asserted Claims of the 785 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
HTTP Live Streaming System[29]	April 1, 2011	Apple Inc.	HTTP Live System
Microsoft IIS Smooth Streaming System[30]	Feb. 2010	Microsoft Corporation	Smooth Streaming System
Telestream[31]	July 3, 2011	Telestream	Telestream System

[29] The relevant features of the HTTP Live System are described in at least the following documents:

1. HTTP Live Streaming Overview (April 1, 2011) ("HTTP I")
2. HTTP Live Streaming draft-pantos-http-live-sttreaming-04 (June 5, 2010) ("Pantos")
3. Archived "HTTP Live Streaming Overview" webpage (archived June 25, 2009 and last updated May 22, 2009) ("HTTP II")
4. Archived "Using HTTP Live Streaming" webpage (archived January 17, 2010 and last updated November 17, 2009) ("HTTP III")
5. Apple HTTP live streaming and Caringo content storage video ("HTTP IV") (available at https://www.youtube.com/watch?v=sJlnUIw0LfI) dated October 20, 2009.

[30] The relevant features of the Smooth Streaming System are described in at least the following documents:

1. Alex Zambelli, IIS Smooth Streaming Technical Overview, Microsoft Corporation (March of 2009) ("Smooth Streaming I")
2. Jit Ghosh, IIS Smooth Streaming – Enhancing Silverlight Video Experiences with Contextual Data, Microsoft Corporation (March 2010) ("Smooth Streaming II")
3. Live and On-Demand Video with Silverlight and IIS Smooth Streaming, Microsoft Corporation (February 2010) ("Smooth Streaming III")
4. Chris Knowlton, Live Streaming with Microsoft Silverlight and Windows Server, Microsoft Corporation (2010) ("Smooth Streaming IV")

[31] The relevant features of the Telestream System are described in at least the following documents:

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
Move[32]	June 24, 2011	Move Networks, Inc.	Move System
Real[33]	June 26, 2010	RealNetworks, Inc.	Real System

1. Encoding Best Practices (archived July 3, 2011 and available at https://web.archive.org/web/20110703155835/https://www.telestream.net/pdfs/technical/encoding-best-practices-q&a.pdf) ("Telestream I")
2. HTTP Live System (as described in the associated documents identified above)
3. Microsoft IIS Smooth Streaming System (as described in the associated documents identified above)

[32] The relevant features of the Move System are described in at least:

1. Brueck
2. Move Networks, Move Networks Awarded Fundamental Patent on Adaptive Video Streaming (Sept. 15, 2010) https://web.archive.org/web/20101009233852/http://movenetworks.com/press/2010-09-15.html (archived by October 9, 2010)
3. Move Networks, History of Move Networks, https://web.archive.org/web/20100328233035/http://movenetworks.com/history.html (archived by March 28, 2010)
4. Move Networks, What is Move?, https://web.archive.org/web/20100328233045/http://www.movenetworks.com/about.html (archived by March 28, 2010)
5. Move Networks, Move Networks is Delivering the Next Generation of Television, https://web.archive.org/web/20100327210059/http://www.movenetworks.com/ (archived by March 27, 2010)

[33] The relevant features of the Real System are described in at least the following documents:

1. HTTP Live System
2. Delivering content to Apple iPhone, iPod Touch and iPad using RealNetworks ("Real I") (dated June 29, 2010 and archived June 26, 2011 at https://web.archive.org/web/20110626111358/http://www.realnetworks.com/uploadedFiles/Helix/Resource-Library/Whitepaper-iPhone.pdf)
3. Helix Server Powerful Multi-Format Streaming Software ("Real II") (archived June 27, 2011 at https://web.archive.org/web/20110627045621/http://www.realnetworks.com/uploadedFiles/helix/resource-library/Datasheet-Helix-Server.pdf)
4. Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH) (Release 10 v2.0.0 June, 2011) ("3GPP")
5. Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH) (Release 10 v1.0.0 September, 2010) ("3GPP2")

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits F-1 through F-21 demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

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6. Microsoft IIS Smooth Streaming System

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[34]

General State of the Art. The specification of the 785 patent admits that the basic steps and concepts recited in the asserted claims were well-known, conventional activities in adaptive bitrate streaming. Specifically, it describes streaming media as delivering content from a server to a playback device over a network, with buffering to prevent interruptions. (785 patent, 1:31-38.) Adaptive streaming is defined as monitoring real-time conditions, such as bandwidth and device capacity, and adjusting stream quality accordingly. (*Id.*, 1:39-42.) The patent further admits that adaptive streaming systems typically use a top-level index file referencing multiple alternative streams, each stored in container files. (*Id.*, 1:43-49.) The use of various index and media containers, including the Matroska container, an open standard based on EBML and widely supported by consumer electronics, is presented as standard industry practice. (*Id.* at 1:49-55.)

Adaptive Streaming. As shown in the corresponding invalidity charts attached as Exhibit F, at least the following prior art references disclose adaptive bitrate streaming systems or methods that allow client devices to dynamically adjust between streams encoded at a higher bitrate and a lower bitrate: Ozer, Ronca, De Cicco, HTTP Live Streaming System, HTTP I, Pantos, Smooth Streaming System, Smooth Streaming I, Tinsman, Ha, ISO, Envivio, Mehotra, Brueck, 3GPP, 3GPP2, Move System, Telestream System, RealSystem.

Quality Evaluation. As shown in the corresponding invalidity charts attached as Exhibit

[34] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id*.

F, at least the following prior art references disclose performing a quality evaluation of video streams at different resolutions and bitrates and making selections based on the evaluation: Ozer, Liao, HTTP I, Pantos, Hervoeut, Ha, ISO, 3GPP, 3GPP2.

Same technological field. Additionally, the prior art references above all concern the same technological field as the 785 patent, e.g., encoding videos for adaptive bitrate streaming. Because a POSITA would understand these references to all be part of the same field of technology as the 785 patent, they would naturally look to the teachings of these references to find answers to the problems inherent in the respective technologies. These are only a few examples of the references that a POSITA would consider to be part of the same body of work and in the same technical field and are not meant to be limiting.

A POSITA would have been motivated to combine the adaptive streaming references with the quality evaluation references. All of the references disclose video streaming and encoding multiple versions of a media program or a source video to facilitate adaptive streaming. The number of versions to encode and the coding parameters with which to encode them (e.g., the resolution and bitrate) is largely a tradeoff between cost and quality, wherein the cost is the increased network resources needed to transmit the stream at a higher bitrate, while the quality is the improved video quality that generally results from having a higher bitrate stream. The quality evaluation references teach a way to optimize this tradeoff by evaluating the quality of encodings at multiple combinations of coding parameters (e.g., resolution and bitrate), and teaching selecting the lowest quality combination that meets a predetermined desired quality criteria or need.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 785 patent, read in light

of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124. The 785 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 785 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[35]

[35] DivX does not presently assert any dependent claims. Regardless, each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity

Claim Element	Patent (Claims)	§ 112 Grounds
A method for encoding source content as a plurality of alternative video streams and adaptively streaming the plurality of alternative video streams, each having a bitrate	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
identifying source video content	1	Lack of written description pursuant to pre-AIA § 112, para. 1;
identifying a plurality of resolutions for encoding of video content;	1	Lack of enablement pursuant to pre-AIA § 112, para. 1.
encoding at least a portion of the source video content multiple times using the particular resolution and multiple different target bitrates for the particular resolution	1	Lack of written description pursuant to pre-AIA § 112, para. 1;
evaluating quality for each of the multiple encodings	1	Lack of enablement pursuant to pre-AIA § 112, para. 1.
selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings;	1	Lack of written description pursuant to pre-AIA § 112, para. 1;
generating entries in a top level index describing at least one of the plurality of alternative streams;	1	Lack of enablement pursuant to pre-AIA § 112, para. 1.
providing the generated top level index from the content distribution system to a one or more playback devices capable of performing adaptive streaming using the encodings of the plurality of sections; and	1	Lack of written description pursuant to pre-AIA § 112, para. 1;
responding to requests from the one or more playback devices, where the requests include requests for specific encodings from the encodings of the plurality of sections.	1	Lack of enablement pursuant to pre-AIA § 112, para. 1.
The method of claim 1 further comprising assembling the encodings of the plurality of sections for a given alternative stream into a video container file.	2	Lack of written description pursuant to pre-AIA § 112, para. 1;
responding to requests from the one or more playback devices, where the requests include requests for specific	4	Lack of enablement pursuant to pre-AIA § 112, para. 1.

grounds identified for each independent claim are not repeated for claims depending therefrom.

Claim Element	Patent (Claims)	§ 112 Grounds
encodings from the encodings of the plurality of sections.		

5. Invalidity Under § 101

In addition to the grounds identified above, Amazon provides notice to DivX that the asserted claims of the 785 patent do not comply with the requirements of 35 U.S.C. § 101.

The claims of the 785 patent are generally directed to an abstract idea, *e.g.*, adaptive bitrate streaming using subjective quality evaluation. The claims do not recite any specific technological solution for accomplishing this goal, and instead only provide results-focused, functional claims that fail step 1 of the *Alice* test. *See, e.g.*, *Interval Licensing LLC*, 896 F.3d at 1343.

The asserted patents do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and/or encoding concepts, *e.g.*, evaluating quality for each of the multiple encodings, selecting a plurality of resolution and target bitrate combinations for a plurality of alternative streams based on the evaluated quality of each of the multiple encodings, uploading encodings of a plurality of sections of the source video content at each of the selected plurality of resolution and target bitrate combinations, generating entries in a top level index. But neither the claims nor the specification provides for any solution for performing or implementing the intended result, and thus cannot provide an inventive solution. *See, e.g.*, *Affinity Labs*, 838 F.3d at 1262 (determining an abstract idea is not patentable if it does not provide an inventive solution to a problem in implementing the idea). Accordingly, the asserted patents fail step 2 of the *Alice* test.

Nor do the asserted claims provide any inventive concept in an ordered combination of functional steps. These claims recite functions in the conventional order in which they would need to be performed.

Amazon identifies each asserted claim of the 785 patent as stating non-inventive variations of the claimed abstract idea. *See id*.

G. The 943 Patent

1. Preliminary Identification of Invalidity Grounds

Based on the reasons identified herein and the accompanying charts and references, a person having ordinary skill in the art would have found the asserted claims of the 943 patent invalid under 35 U.S.C. §§ 102 and/or 103. The 943 patent invalidity charts attached as Exhibit G set forth, for corresponding limitations of an asserted claim, exemplary disclosures from each identified reference in an invalidity ground below where applicable. Amazon reserves the right to amend its invalidity grounds or charts, or provide supplemental grounds or charts, based on any amendments to DivX's infringement contentions, or information or documents that may be obtained as discovery continues including third party discovery. Amazon explicitly reserves the right to further narrow each ground by reducing the number of references in each ground as needed to continue streamlining this case for trial. The below identification of prior art invalidity grounds in no way limits Amazon from relying on additional prior art references to establish the state of the art and knowledge of one of skill in the art, nor does it limit Amazon's other invalidity defenses including under Section 101 or Section 112.

Amazon provides the following identification of preliminary invalidity grounds for the currently asserted claims of the 943 patent:

Claim No.	Invalidity Grounds[36][37] under 35 U.S.C. §§ 102 and/or 103[38]
1	O'Brien in combination with Shamoon, Li, Butt, Lindahl, Shi, Ginter, Hagai, Holliman, Hark Chan, Burns, Mori, Meessen, Strasser, Chou, and Lee. O'Brien in combination with Li, Butt, Shi, Hagai, Ginter, Hark Chan, Burns, Chou, and Mori. Shamoon in combination with O'Brien, Li, Butt, Lindahl, Shi, Ginter, Hagai, Holliman, Hark Chan, Burns, Mori, Meessen, Strasser, Chou, and Lee. Shamoon in combination with Li, Butt, Shi, Hagai, Ginter, Hark Chan, Burns, Chou, and Mori. Li in combination with O'Brien, Shamoon, Butt, Lindahl, Shi, Ginter, Hagai, Holliman, Hark Chan, Burns, Mori, Meessen, Strasser, Chou, and Lee. Li in combination with Shi, Hagai, Butt, Hark Chan, Burns, Mori, and Ginter. Butt in combination with O'Brien, Shamoon, Li, Lindahl, Shi, Ginter, Hagai, Holliman, Hark Chan, Burns, Mori, Meessen, Strasser, Chou, and Lee. Butt in combination with combination with Shi, Hagai, Hark Chan, Burns, Mori, Chou, and Ginter. Lindahl in combination with O'Brien, Li, Butt, Shi, Ginter, Hagai, Holliman, Hark Chan, Burns, Mori, Meessen, Strasser, Chou, and Lee. Lindahl in combination with Li, Butt, Shi, Hagai, Hark Chan, Chou, Burns, Mori, and Ginter. Chou in combination with O'Brien, Shamoon, Li, Butt, Lindahl, Shi, Ginter, Hagai, Holliman, Hark Chan, Burns, Mori, Meessen, Strasser, and Lee. Chou in combination with Li, Butt, Lindahl, Shi, Hagai, Ginter, Hark Chan, Burns, and Mori.

[36] For brevity, each reference in this table is identified by its short cite, which is defined later in subsections below.

[37] To the extent the grounds identified in the below table for a particular asserted claim refer back to the grounds identified for another claim, the grounds disclose the particular asserted claim for the reasons identified in the corresponding claim charts for the particular asserted claim.

[38] Amazon contends that any combination of references identified in this table as a ground invalidates the relevant asserted claim under 35 U.S.C. § 103. In addition, each reference identified by itself as a ground invalidates the relevant asserted claim under 35 U.S.C. § 102 and 103, as "it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under §103, for anticipation is the epitome of obviousness." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (internal citations and quotations omitted) (finding no error in § 103 invalidity determination based on a single reference).

Claim No.	Invalidity Grounds[36][37] under 35 U.S.C. §§ 102 and/or 103[38]
2	*See* Grounds of claim 1 in combination with Strasser, Burns, Mori, Meessen, and Ginter.
7	Grounds of claim 1 in combination with Holliman, Chou, Lindahl, Meessen, and Ginter.
8	Grounds of claim 1 in combination with Ginter.
11	Grounds of claim 1 in combination with Hagai, Chou, and Lee.

The asserted claims of the 943 patent are invalid in view of the grounds identified above. A person having ordinary skill in the art would have naturally consulted each of these references and combined the teachings, for the reasons identified herein and the accompanying charts. Accordingly, a person of ordinary skill in the art at the time of the filing of the asserted patents would have been motivated to combine elements of the references identified above, recognizing that the combination would be a predictable use of elements known in the art to solve known problems by using known techniques, resulting in expected outcomes. One or more expert witnesses may further explain the motivation to combine prior art and why the asserted claims of the asserted patents are invalid for obviousness in accordance with the case schedule.

The invalidity grounds provided above are preliminary. Additional or alternative grounds are possible, including grounds which include fewer references than identified in the above combinations or additional references, and Amazon may rely on such grounds in this litigation. Amazon is unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would not have been known to persons of skill in the art. Additionally, discovery is ongoing. Amazon

is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and third parties that may have information about those systems. Amazon may subpoena third parties for such information. DivX may also be in possession of prior art that Amazon may receive during discovery in this case. Amazon reserves the right to amend and supplement these contentions to identify other prior art, invalidity grounds, and combinations rendering the asserted claims invalid.

2. Identification of Prior Art

The tables below list prior art references that anticipate or render obvious one or more of the Asserted Claims are listed in the tables below. The attached claim charts in Exhibits G-1 through G-19 demonstrate where each limitation of the claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), or (e).

a. Prior Art Patents and Patent Publications That Anticipate or Render Obvious One or More Asserted Claims of the 943 Patent

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
Pub No. 2010/0172630	USA	Jan. 6, 2009	Jul. 8, 2010	Chou
7,627,750	USA	Sept. 2, 2004	Dec. 1, 2009	Chan
Pub. No. 2002/0188570	USA	Mar. 24, 1999	Dec. 12, 2002	Holliman
8,630,419	USA	Jan. 18, 2010	Jan. 14, 2014	Mori
Pub. No. 2006/0036551	USA	Aug. 12, 2005	Feb. 16, 2006	Oliviera
Pub. No. 2007/0083467	USA	Oct. 10, 2005	Apr. 12, 2007	Lindahl
8,731,369	USA	Dec. 17, 2004	May 20, 2014	Li
8,402,280	USA	Oct. 15, 2009	Mar. 19, 2013	Shi
Pub. No. 2002/0164022	USA	Mar. 2, 2001	Nov. 7, 2002	Strasser

Patent Number	Country of Origin	Filing or Priority Date	Date of Issue or Publication	Short Cite
5,982,891	USA	Nov. 4, 1997	Nov. 9, 1999	Ginter
7,051,110	USA	Dec. 20, 2000	May 23, 2006	Hagai
8,472,792	USA	Oct. 24, 2005	Jun. 25, 2013	Butt
Pub. No. 2010/0185854	USA	Jun. 17, 2009	Jul 22, 2010	Burns
Pub. No. 2004/0022391	USA	Jul. 30, 2003	Feb. 5, 2004	O'Brien
8,677,504	USA	Jul. 14, 2005	Mar. 18, 2014	Wingert
7,233,948	USA	Mar. 25, 1999	Jun. 19, 2007	Shamoon
8,755,524	USA	Dec. 8, 2004	Jun. 17, 2014	Shin

b. Additional Prior Art Publications That Anticipate or Render Obvious One or More Asserted Claims of the 943 Patent

Title	Date of Publication	Author/Publisher	Short Cite
The Design of a DRM System Using PKI and a Licensing Agent	2004	K.W. Lee, et al.	Lee
Deliverable D2.1 State-of-the-Art / Multimedia and Video Surveillance Convergence	May 1, 2004	J. Meessen, et al.	Meessen

3. Identification of Invalidity Due to Obviousness

The attached claim charts in Exhibits G-1 through G-19 demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious.

a. Motivation for Combining Prior Art

The combinations of references provided in the accompanying prior art reference charts for each asserted claim of each asserted patent, are examples and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Amazon may rely on such combination(s) in this litigation. Amazon is currently unaware of DivX's

allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Amazon is also unaware of the extent, if any, to which DivX may contend that limitations of the claims at issue are not disclosed in the prior art identified by Amazon as anticipatory, and the extent to which DivX will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Amazon does not yet know how the Court will construe terms in the Asserted Claims. Amazon also will conduct third-party discovery and is continuing its investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third parties that may have information about those systems. Amazon reserves the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.[39]

A person having ordinary skill in the art would have been motivated to combine any of these references related to decrypting and decoding video data because the art describes well-known and conventional activities and components in systems for decrypting and decoding video data. For instance, the specification of the 943 patent admits that the components of a playback device, such as a video decoder process (2:20-37), DRM process (2:10-19), buffer (7:20-26), and a cypher (8:39-43) were well-known and conventional. Additionally, the specification of the 943

[39] In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id*.

patent admits that the activities performed by these conventional components of the playback device were all well known and conventional, such as secure communications between components of the playback device (2:1-3), use of a buffer (7:20-26), ciphering and encryption (2:1-19, 8:39-43), partially encrypted video data (1:38-58), decryption of video data using encryption keys and frame keys (5:54-58, 2:10-19), and decoding encoded digital content (2:20-37). Each of the references identified in the table above further describe what was known in the state of the art.

For example, persons having ordinary skill in the art were aware of the use of a container for a video stream having DRM information for an encoded video frame and partially encrypted video frame data, which includes a frame header, for the encoded video frame. *See, e.g.*, O'Brien, Shamoon, Li, Butt, Lindhal, Ginter, Chou, Holliman, Meessen, Lee, Ginter, Burns, Wingert, Mori, Shin, Chou.

Persons having ordinary skill in the art were also aware of the DRM information having at least cryptographic material for encoded frame of video and offset and length information for the encrypted portion of the video frame data. *See, e.g.*, O'Brien, Shamoon, Li, Butt, Lindahl, Ginter, Burns, Wingert, Shin, Chou, Oliveira, Lee, Holliman.

Persons having ordinary skill in the art were aware also of the use of buffers, allocating space in a buffer for at least DRM information and video frame data, and not securely transmitting the buffer to a video decoder process. *See, e.g.*, O'Brien, Shi, Hagai, Ginter, Holliman, Strasser.

Persons having ordinary skill in the art were also aware of securely providing cryptographic material and the encrypted portion of the video frame data to a DRM process. *See, e.g.*, O'Brien, Shamoon, Hark Chan, Ginter, Chou, Burns, Lindhahl, Shi.

Persons having ordinary skill in the art were also aware of the use of ciphers, including but

not limited to an Advanced Encryption System (AES) cipher, and ciphering cryptographic material to obtain a decryption key. *See, e.g.*, O'Brien, Shamoon, Li, Butt, Lindhahl, Burns, Mori, Meessen, Ginter, Strasser, Chou, Oliveira.

Persons having ordinary skill in the art were also aware of decrypting video frame data using the obtained decryption key. *See, e.g.,* O'Brien, Shamoon, Li, Butt, Lindhahl, Hark Chan, Burns, Shi, Wingert, Strasser, Mori, Shin, Chou, Lee, Holliman, Meessen, Ginter.

Persons having ordinary skill in the art were also aware of decoding encoded video frame data for rendering on a display device and streaming the container file. *See, e.g.,* O'Brien, Shamoon, Li, Butt, Lindhahl, Hark Chan, Burns, Shi, Wingert, Mori, Chou, Lee, Meessen, Ginter.

Persons having ordinary skill in the art were also aware of the use of frame keys and securely providing a frame key to the DRM process. *See, e.g.,* O'Brien, Shamoon, Li, Butt, Hagai, Lee, Ginter, Hark Chan, Burns, Chou.

A POSITA would also have been motivated to combine any of the references disclosing using use of a container for a video stream having DRM information for an encoded video frame and partially encrypted video frame data, which includes a frame header, for the encoded video frame with any of the references disclosing DRM information having at least cryptographic material for encoded frame of video and offset and length information for the encrypted portion of the video frame data, securely providing cryptographic material and the encrypted portion of the video frame data to a DRM process, use of ciphers, including but not limited to an Advanced Encryption System (AES) cipher, ciphering cryptographic material to obtain a decryption key, securely providing a frame key to the DRM process, and decrypting video frame data using the obtained decryption key, and vice versa, and would have found it obvious to do so. The benefits and security of packaging video data with DRM information and securely providing to a DRM

process for decrypting by using a decryption key obtained from a cipher used to protect against illegal copying when streaming and improve streaming efficiency, were well known by a POSITA and would have found it obvious to select and combine features from such references in order to improve the efficiency of streaming. Such combinations are combinations of prior art elements according to known methods to yield predictable results and simple substitution of one known element for another to obtain predictable results.

A POSITA would also have been motivated to combine any of the references disclosing the combinations above in further combination with any of the references disclosing use of buffers, allocating space in a buffer for at least DRM information and video frame data, and decoding encoded video frame data, and vice versa, and would have found it obvious to do so. A POSITA would have understood that using buffers, allocating space in the buffer for at least DRM information and video frame data, and decoding encoded video frame data were well-known and conventional activities in the prior art. A POSITA would have naturally looked to then-existing references for allocating space in a buffer for data intended for transmission to other components of the playback device and decoding encoded frame data in order to display the frame data on a display device, and found it obvious to select and combine features from such references. Such combinations are combinations of prior art elements according to known methods to yield predictable results and simple substitution of one known element for another to obtain predictable results.

A POSITA would also have been motivated to combine any of the references disclosing the combinations above in further combination with any of the references disclosing not securely transmitting the buffer to the video decoder process, and vice versa, and would have found it obvious to do so. A POSITA would have understood that the benefits and efficiency of not securely

transmitting encrypted DRM information and video frame data to the video decoder process would have reduced design complexity and improved system efficiency without sacrificing security. Such combinations are combinations of prior art elements according to known methods to yield predictable results and simple substitution of one known element for another to obtain predictable results.

4. Invalidity Under § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The 943 patent, read in light of the specification and prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus*, 134 S. Ct. at 2124. The 943 patent does not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The 943 patent does not enable one of skill in the art to practice the scope of the inventions set forth in DivX's infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Amazon reserves the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary; and Amazon reserves the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Amazon reserves the right to identify additional claims and claim elements that do not comply

with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes the claims. Furthermore, this identification of claims/claim elements is preliminary and should not be interpreted as reflecting Amazon's position on the proposed construction of any claim/claim element.

At least the following claims are invalid for failing to meet the requirements of 35 U.S.C. § 112:[40]

Claim Element	Patent (Claims)	§ 112 Grounds
"wherein the playback application is capable of causing the set of one or more processors to perform steps of: extracting, from at least a portion of a container file, DRM information for an encoded frame of video and video frame data for the encoded frame of video, where the video frame data is at least partially encrypted and"	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
"[the DRM information comprises:] offset and length information for an encrypted portion of the video frame data;"	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
"wherein the machine readable instructions for the video decoder process are capable of causing the set of one or more processors to perform steps of: unpacking the DRM information and the	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.

[40] Each dependent claim depending from an identified independent claim is invalid under § 112 at least for the same reasons identified for the corresponding independent claim. For the sake of brevity, § 112 invalidity grounds identified for each independent claim are not repeated for claims depending therefrom.

Claim Element	Patent (Claims)	§ 112 Grounds
video frame data from the buffer;"		
"[wherein the machine readable instructions for the video decoder process are capable of causing the set of one or more processors to perform steps of:] locating the encrypted portion of the video frame data with the offset and length information;"	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.
[wherein the machine readable instructions for the video decoder process are capable of causing the set of one or more processors to perform steps of:] securely providing the cryptographic material and the encrypted portion of the video frame data to the DRM process;	1	Lack of written description pursuant to pre-AIA § 112, para. 1; Lack of enablement pursuant to pre-AIA § 112, para. 1.

5. Invalidity Under § 101

The asserted claims of the 943 patent are generally directed to an abstract idea, e.g., a generic playback device comprising a non-descript playback application for decrypting and decoding video data using digital rights management information. The claims do not recite any specific technological solution for accomplishing this goal, and instead only recite conventional components to perform their basic functions that fail step 1 of the Alice test. *See Yu v. Apple*, 1 F.4th 1040, 1043 (Fed. Cir. 2021) (holding that a claim related to a digital camera recites conventional components performing their basic functionalities was "simply a generic environment in which to carry out the abstract idea.")

The asserted claims do not claim any inventive concept necessary to transform their abstract idea into patent-eligible subject matter. Neither the claims nor the specification recites any new computer hardware or software for achieving the aspirational result. Instead, the claims recite admittedly well-understood, routine, generic, and conventional decryption and decoding components behaving in expected ways to implement the abstract idea of, e.g., decrypting and decoding video data using digital rights management information. *See, e.g., Content Extraction*, 776 F.3d at 1347-48 (finding that "well-understood, routine, and conventional activities commonly used in industry" cannot provide an inventive concept). Accordingly, the asserted patents fail step 2 of the Alice test.

Nor do the asserted claims provide any inventive concept in an ordered combination of functional steps. These claims recite functions in the conventional order in which they would need to be performed.

Amazon identifies each asserted claim of the 943 patent as stating non-inventive variations of the claimed abstract idea. *See id.*

III. INVALIDITY CHARTS

Invalidity charts for each item of prior art are attached to these contentions as Exhibits A–G. These invalidity charts identify where specifically in each alleged item of prior art each element of each Asserted Claim is found. While each element of each Asserted Claim is found in the prior art in multiple locations, the attached charts provide examples of citations sufficient to identify at least one such location where each claim limitation is found in each item of prior art. Accordingly, Amazon and its expert(s) may rely on uncited portions of the prior art references as the citations must be interpreted in light of the entire disclosure of each reference.

In addition, because persons of skill in the art generally would appreciate an item of prior art in the context of other publications, literature, products, and understanding, Amazon and its

expert(s) may rely on other publications and expert testimony as aids in understanding and interpreting the cited portions, for providing context to the cited portions, and as additional evidence that the prior art discloses a claimed feature. Amazon may establish what was known to a person having ordinary skill in the art through other publications, products, and/or testimony, and reserve their right to rely on cited and uncited portions of the prior art references, other publications, and/or testimony to establish that a person of skill in the art would have been motivated to combine the references rendering the claims obvious.

Amazon may modify, amend, and/or change its interpretation of the prior art as constructions of the claim limitations may be provided by the Court, based on additional analysis by expert witnesses, and/or based on other circumstances that may affect the meaning or application of the claims.

The references discussed in the claim charts in Exhibits A–G, or elsewhere identified, may disclose the elements of the Asserted Claims explicitly and/or inherently, and/or they may be relied upon to show the state of the art in the relevant timeframe. The suggested obviousness combinations are provided in the alternative to Amazon's anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not itself anticipatory.

IV. ADDITIONAL PRIOR ART

In addition to the prior art references charted, Amazon identified in Exhibit H, which is incorporated here in its entirety, additional prior art references that disclose or describe the general state of the art and knowledge of one skilled in the art at the time of the purported inventions and the filings of the Asserted Patents. These references may be used to show the state of the art and/or may be used as supporting references in an obviousness combination depending on how the Asserted Claims are ultimately construed by the Court.

Amazon also incorporates here by reference, whether or not cited in Exhibit H, all prior art

cited in the Asserted Patents and all prior art cited in the prosecution histories of the Asserted Patents, reexaminations, *inter partes* or covered business method patent review proceedings, and any foreign counterparts.

V. DOCUMENT PRODUCTION

Amazon is concurrently producing a copy of each asserted prior art reference identified herein that is not in the file histories of the Asserted Patents or that has not already been disclosed.

VI. TABLE OF EXHIBITS

Exhibit	Description
A	Invalidity Charts for the 195 Patent
B	Invalidity Charts for the 141 Patent
C	Invalidity Charts for the 806 Patent
D	Invalidity Charts for the 303 Patent
E	Invalidity Charts for the 938 Patent
F	Invalidity Charts for the 785 Patent
G	Invalidity Charts for the 943 Patent
H	Prior Art Reflecting the General State of the Art

Dated: August 15, 2025

Respectfully submitted,

By: /s/ Colby Louis Moore

Courtney R. Forrest
Virginia State Bar No. 76738
cforrest@kaiserlaw.com
Colby Louis Moore
Virginia State Bar No. 97127
cmoore@kaiserlaw.com
KAISER PLLC
1099 14th Street, NW
8th Floor West
Washington, DC 20005
Tel: (202) 640-2850
Fax: (202) 280-1034

Counsel for Defendants
Amazon.com, Inc. and Amazon Web Services, Inc.

Of Counsel:

J. David Hadden, *pro hac vice*
dhadden@fenwick.com
Saina S. Shamilov, *pro hac vice*
sshamilov@fenwick.com
Ravi R. Ranganath, *pro hac vice*
rranganath@fenwick.com
Allen Wang, *pro hac vice*
allen.wang@fenwick.com
Geoffrey R. Miller, *pro hac vice*
gmiller@fenwick.com
Rebecca A.E. Fewkes, *pro hac vice*
rfewkes@fenwick.com
Daniel S. Rabinowitz, *pro hac vice*
DRabinowitz@fenwick.com
Gregory Adams, *pro hac vice*
GAdams@fenwick.com
FENWICK & WEST LLP
801 California Street
Mountain View, CA 94041
Tel: (650) 988-8500
Fax: (650) 938-5200

CERTIFICATE OF SERVICE

I certify that on August 15, 2025, copy of the foregoing document was served via email on all parties of record.

By: */s/ Colby Louis Moore*

Courtney R. Forrest
Virginia State Bar No. 76738
cforrest@kaiserlaw.com
Colby Louis Moore
Virginia State Bar No. 97127
cmoore@kaiserlaw.com
KAISER PLLC
1099 14th Street, NW
8th Floor West
Washington, DC 20005
Tel: (202) 640-2850
Fax: (202) 280-1034