IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

LIGHT GUIDE INNOVATIONS LLC, *Plaintiff*, v. WALMART, INC., *Defendants*.	Civil Action No.: 2:25-cv-00312-RWS-RSP (LEAD CASE)
LIGHT GUIDE INNOVATIONS LLC, *Plaintiff*, v. TCL MOBILE INTERNATIONAL LIMITED, ET AL., *Defendants*.	Civil Action No.: 2:25-cv-00646-RWS-RSP (MEMBER CASE)
LIGHT GUIDE INNOVATIONS LLC, *Plaintiff*, v. HISENSE COMPANY LTD., HISENSE VISUAL TECHNOLOGY CO. LTD. F/K/A QINGDAO HISENSE ELECTRIC CO. LTD., HISENSE INTERNATIONAL CO. LTD., HISENSE INTERNATIONAL (HONG KONG) AMERICA INVESTMENTS CO. LTD., and HISENSE INTERNATIONAL (HK) CO. LTD., *Defendants*.	Civil Action No.: 2:25-cv-00051-RWS-RSP (MEMBER CASE)

HISENSE DEFENDANTS' INVALIDITY AND SUBJECT MATTER ELIGIBILITY CONTENTIONS

Pursuant to Patent Local Rules 3-3 and 3-4, the Docket Control Order (Dkt. No. 31), and the Standing Order Regarding Subject-Matter Eligibility Contentions, Defendants Hisense Company Ltd., Hisense Visual Technology Co. Ltd. f/k/a Qingdao Hisense Electric Co. Ltd., Hisense International Co. Ltd., Hisense International (Hong Kong) America Investments Co. Ltd., and Hisense International (HK) Co. Ltd. (collectively, "Defendants" or "Hisense") respectfully submit these invalidity and subject-matter eligibility contentions and an accompanying document production with respect to the claims identified by Plaintiff Light Guide Innovations LLC ("Plaintiff" or "LGI") in their Patent Local Rule 3-1 Disclosure of Asserted Claims and Infringement Contentions ("Infringement Contentions"). The Asserted Claims, as reflected in the Infringement Contentions, are set forth below:

- U.S. Patent No. 7,922,380 (the "'380 Patent"), Claims 1 and 5-11;
- U.S. Patent No. 7,936,415 (the "'415 Patent"), Claims 1-11 and 16-18;
- U.S. Patent No. 8,052,307 (the "'307 Patent"), Claims 1-17 and 19-21;
- U.S. Patent No. 8,213,093 (the "'093 Patent"), Claims 1-5;
- U.S. Patent No. 8,237,352 (the "'352 Patent"), Claims 1-19;
- U.S. Patent No. 8,395,183 (the "'183 Patent"), Claims 1-17;
- U.S. Patent No. 8,506,122 (the "'122 Patent"), Claims 1-18 and 20;
- U.S. Patent No. 8,562,200 (the "'200 Patent"), Claims 1-3 and 5-6;
- U.S. Patent No. 8,616,729 (the "'729 Patent"), Claims 1-20;
- U.S. Patent No. 8,723,411 (the "'411 Patent"), Claims 1-19;
- U.S. Patent No. 8,823,048 (the "'048 Patent"), Claims 1-19;
- U.S. Patent No. 9,534,744 (the "'744 Patent"), Claims 1-21;
- U.S. Patent No. 9,638,378 (the "'378 Patent"), Claims 1-20;

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- U.S. Patent No. 8,408,778 (the "'778 Patent), Claims 1, 4, and 13-15;
- U.S. Patent No. 10,030,823 (the ""823 Patent), Claims 1-20; and
- U.S. Patent No. 8,267,537 (the ""537 Patent), Claims 1-2, 5-9, 11, 13-15, and 18-20.

The '380, '415, '307, '093, '352, '183, '122, '200, '729, '411, '048, '744, '378, '778, '823, and '537 patents are together referenced herein as the "Asserted Patents."

I. RESERVATION OF RIGHTS

These invalidity and subject-matter eligibility contentions are preliminary in nature and do not address claim construction or noninfringement. Hisense reserves all rights with respect to such issues, including its position that claims of the Asserted Patents should be construed in a particular manner and/or are not infringed. These invalidity and subject-matter eligibility contentions are based on Hisense's current knowledge, understanding, and belief of the Asserted Patents and prior art, of Plaintiff's infringement theories (as disclosed in the Infringement Contentions), and of the facts and other information available as of the date of these invalidity and subject-matter eligibility contentions. Hisense's investigation, discovery, and analysis of information related to this action is ongoing. Additional discovery and/or orders of the Court may require Hisense to amend or supplement these invalidity and subject-matter eligibility contentions, and Hisense expressly reserves the right to do so as the case proceeds. These contentions represent Hisense's good-faith effort to provide a comprehensive identification of prior art relevant to this case, but Hisense reserves the right to modify or supplement its prior art list and invalidity and subject-matter eligibility contentions at a later time with, or based upon, pertinent information that may be subsequently discovered.

A. No Waiver

Nothing in these invalidity and subject-matter eligibility contentions is intended, nor should be construed, as a waiver of any claim construction argument, noninfringement position,

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or argument under 35 U.S.C. § 112. Hisense's statements herein (including the accompanying claim charts) reflect Hisense's present understanding of the purported scope of the claims as alleged by Plaintiff in its Infringement Contentions. For the avoidance of doubt, these contentions are not intended to present or argue in favor of any construction of the Asserted Claims, and Defendants expressly reserve the right to present constructions that differ from any construction that may be alleged to underlie these contentions. The Court established joint deadlines for the parties' proposed claim constructions, and Hisense will disclose its proposed constructions accordingly. These invalidity and subject-matter eligibility contentions do not constitute an acquiescence to Plaintiff's interpretation of any claims to the extent they depart from the plain meaning of the Asserted Claims and from the proper scope of the claims as may be subsequently construed by the Court. Hisense disagrees with Plaintiff's positions as to the purported scope of the Asserted Claims to the extent they seek to expand the scope of the Asserted Claims beyond their proper construction.

The Asserted Claims have not yet been construed by the Court in this case and, thus, Hisense has not yet had the opportunity to compare the Asserted Claims of the Asserted Patent (as construed by the Court) with the prior art. Hisense reserves the right to amend, supplement, or materially modify its invalidity and subject-matter eligibility contentions after the claims have been construed by the Court in this case. Hisense also reserves the right to amend, supplement, or materially modify its invalidity and subject-matter eligibility contentions in response to any claim construction positions that Plaintiff may take. Hisense also reserves the right to assert that a claim is indefinite, not enabled, or fails to meet the written description requirement of 35 U.S.C. § 112 based on any claim construction position Plaintiff may take in this case or based on any claim construction the Court may adopt in this case.

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In addition, prior art not included in this disclosure may become relevant. Hisense is currently unaware of the extent, if any, to which Plaintiff will contend that limitations of the Asserted Claims are not disclosed in the prior art identified by Hisense. Hisense reserves the right to identify other references that would have made the addition of the allegedly missing limitation to the disclosed device or method obvious or show that the allegedly missing limitation would have been known or readily apparent to one of ordinary skill in the art at the time of the invention in light of the disclosure of the prior art at issue.

Hisense also reserves the right to challenge the patentability of the Asserted Claims under 35 U.S.C. § 102(f) in the event that Hisense obtains evidence that the named inventors of the Asserted Patents did not invent the subject matter claimed in the Asserted Patents. Should Hisense obtain such evidence, it will provide the name of the person(s) from whom and the circumstances under which the invention or any part of it was derived. Hisense further reserves the right to assert that the Asserted Patents are unenforceable due to inequitable conduct.

Hisense provides these invalidity and subject-matter eligibility contentions only for the claims asserted by Plaintiff but reserves the right to seek invalidation of all claims in the Asserted Patent.

B. No Admission

Nothing disclosed herein is an admission or acknowledgement that any product accused of infringement by Plaintiff in their Infringement Contentions (the "Accused Products"), or any of Hisense's other products or services, infringes any of the Asserted Claims.

Hisense further notes that Plaintiff appears to rely upon overly broad constructions of the Asserted Claims. At the same time, Plaintiff's Infringement Contentions are in most places too general and vague to discern Plaintiff's infringement theories and how exactly Plaintiff contends each Accused Product meets or practices each element of the Asserted Claims. As a result, Hisense

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has been prejudiced in its ability to prepare these invalidity and subject-matter eligibility contentions. In addition, Plaintiff's Infringement Contentions, in many cases, fail to put Hisense on notice of Plaintiff's interpretation of the Asserted Claims, further prejudicing Hisense's ability to identify relevant prior art. In addition, Plaintiff has only vaguely represented that the Asserted Claims are infringed under the doctrine of equivalents. Any attempt by Plaintiff to present an untimely doctrine of equivalents argument would be severely prejudicial to Hisense. To the extent that Plaintiff is later permitted by the Court to amend its contentions to cure the deficiencies of its current contentions or to pursue any currently undisclosed doctrine of equivalents theories, Hisense expressly reserves the right to supplement or amend these invalidity and subject-matter eligibility contentions to account for such amendments.

In those instances where Hisense asserts that the Asserted Claims are invalid under 35 U.S.C. § 112 (*e.g.*, no written description, not enabled, and/or indefinite), Hisense has applied the prior art in accordance with its assumption that Plaintiff contends such Asserted Claims (1) are definite, (2) have written description support, and (3) are enabled, as evidenced by Plaintiff's Infringement Contentions. As such, Hisense's invalidity and subject-matter eligibility contentions do not represent its agreement or view as to the meaning, definiteness, written description support for, or enablement of any asserted claim.

To the extent that any of the prior art references disclose the same functionality or feature of any of the Accused Products, Hisense reserves the right to argue that said feature or functionality does not practice any element of any of the Asserted Claims, and to argue, in the alternative, that if said feature or functionality is found to practice any element of any of the Asserted Claims, then the prior art reference demonstrates that the element is not novel, is obvious, and/or is otherwise not patentable.

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Attached hereto are representative claim charts that demonstrate how the Asserted Claims of the Asserted Patent are invalid in view of certain prior art. The references cited in the attached claim charts may disclose the limitations of the Asserted Claims expressly and/or inherently. The suggested obviousness combinations may be presented in conjunction with or in the alternative to Hisense's contentions regarding anticipation. These obviousness combinations should not be construed to suggest that any reference included in any combination is not anticipatory in their own right.

C. Ongoing Investigation

Hisense's investigation is ongoing, and Hisense expressly reserves the right to amend its disclosures and document production to account for evidence uncovered as its investigation continues. Such amendments include identifying and relying on additional references that may result from Hisense's further search and analysis. Hisense reserves the right to supplement these contentions in light of any additional prior art of which Plaintiff is aware and did not disclose to Hisense in discovery, or that might be subsequently disclosed by Plaintiff in response to Hisense's discovery requests. Hisense anticipates issuing subpoenas to third parties believed to have knowledge, documentation and/or corroborating evidence concerning some of the prior art listed herein and/or additional prior art. These third parties include, but are not limited to, the authors, employers of authors, inventors, assignees, or former or current employees of assignees, of the references and systems identified in these invalidity and subject-matter eligibility contentions. Hisense reserves the right to supplement these contentions in light of any newly discovered information produced by these or other companies from which Hisense may seek discovery.

D. Exemplary Citations and Knowledge of a Person of Ordinary Skill in the Art

Hisense's claim charts cite to particular teachings and disclosures of the prior art as applied to features of the Asserted Claims. Persons of ordinary skill in the art ("POSA"), however, may

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view an item of prior art in the context of other publications, literature, products, and understanding. As such, the cited portions are only exemplary, and Hisense reserves the right to rely on uncited portions of the prior art references and on other publications and expert testimony as aids in understanding and interpreting the cited portions, as providing context thereto, and as additional evidence that the prior art discloses a claim limitation. Hisense further reserves the right to rely on uncited portions of the prior art references, other publications, and testimony to establish bases for combinations of certain cited references that render the Asserted Claims obvious. Further, for any combination, Hisense reserves the right to rely additionally on information generally known to those skilled in the art or common sense.

The references discussed in the claim charts may disclose the elements of the Asserted Claims explicitly or inherently, or they may be relied upon to show the state of the art in the relevant time frame. The suggested obviousness combinations are provided in the alternative to Hisense's anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not by itself anticipatory.

Additional information regarding the understanding of a POSA may be presented in Hisense's forthcoming expert reports. Therefore, to the extent that materials are not identified in the charts attached hereto, Hisense expressly reserves the ability to rely on such materials to show the knowledge of a POSA as of the time of the alleged invention and the analysis presented herein and in the attached charge should be understood to be made with reference to such knowledge.

II. INCORPORATION BY REFERENCE

Hisense incorporates by reference and relies upon as if fully reproduced herein:

(1) the invalidity contentions served by the Defendant in *Light Guide Innovations LLC v. Walmart, Inc.*, No. 2:25-cv-00312-RWS-RSP (E.D. Tex.);

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(2) the invalidity contentions served by the Defendants in *Light Guide Innovations LLC v. TCL Mobile International Limited et al*., No. 2:25-cv-00646-RWS-RSP (E.D. Tex.);

(3) the invalidity arguments set forth in each of the petitions for *inter partes* review ("IPR") filed regarding any of the Asserted Patents, including *Hisense USA Corporation v. Light Guide Innovations LLC*, IPR2025-01526, *Hisense USA Corporation v. Light Guide Innovations LLC*, IPR2025-01537, and *Hisense USA Corporation v. Light Guide Innovcations LLC*, IPR2025-01538.

III. PATENT LOCAL RULE 3-3(A): IDENTIFICATION OF PRIOR ART

Pursuant to P. R. 3-3(a), and subject to Hisense's reservation of rights, Hisense identifies each item of prior art that anticipate and/or render obvious one or more of the Asserted Claims. To the extent Plaintiff alleges that any prior art relied on in these invalidity and subject-matter eligibility contentions does not qualify as prior art to the Asserted Patent, Hisense reserves the right to rebut those allegations (*e.g.*, by demonstrating an earlier critical date for the challenged prior art and/or a later priority date for the Asserted Patent and/or Asserted Claim).

A. Prior Art Tables

In the following tables, Hisense identifies each prior art patent or patent application publication by its number, country of origin, and date of issue, each non-patent prior art publication by, where possible, its title, date of publication, and author and/or publisher, and each prior art system currently known to Hisense by, where possible, its name and date of sale, use, or knowledge. The identification of any patent or patent publication shall be deemed to include any counterpart patent or application filed, published, or issued anywhere in the world. The citation to any specifications published by standard-setting organizations shall be deemed to include any product that implements such specifications and that would qualify as prior art under 35 U.S.C. § 102, *e.g.*, under Sections 102(a), 102(b), or 102(g)(2).

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Table A-1: Prior Art Patents and Patent Applications to the '415 Patent

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
JP2006134992A	Ikuo Hiyama et al.	11/4/2004	5/25/2006	Hiyama
KR1020060080215 B1	Park Jun-Seok	8/24/2006	2/28/2008	Park215
KR1020060086177 A	Ki-Cheol Kim et al.	1/26/2005	7/31/2006	Kim177
KR200407006Y1	Daewoon Hong	11/16/2005	1/24/2006	Hong
TWM296447U	Chi Shiung	3/3/2006	8/21/2006	Shiung
US 2001-0024368A1	Dieter Henrici; Hans Wedding	3/16/2000	9/27/2001	Henrici
US 2002-0047516A1	Tadanobu Iwasa; Shinji Takano	10/24/2000	4/25/2002	Iwasa
US 2003-0071581A1	George W. Panagotacos; David G. Pelka	10/16/2001	4/17/2003	Panagotacos
US 2003-0193789A1	Robert Karlicek	4/16/2002	10/16/2003	Karlicek789
US 2005-0151708A1	Ronald E. Farmer; Christiaan Coenraad Joubert Smit	1/12/2004	7/14/2005	Farmer
US 2005-0243576A1	Jung Kyu Park; Chang Wook Kim; Young Sam Park	3/5/2004	11/3/2005	Park576
US 2005-0265051A1	Tsunenori Yamamoto; Ikuo Hiyama; Akitoyo Konno; Daisuke Kajita	5/25/2004	12/1/2005	Yamamoto051
US 2006-0001622A1	Yang-Wan Kim	6/30/2004	1/5/2006	Kim622
US 2006-0091406A1	Hiroki Kaneko; Ikuo Hiyama; Toshiaki Tanaka; Masaya Adachi; Tsunenori Yamamoto	11/4/2004	5/4/2006	Kaneko406
US 2006-0187660A1	Pang-Hsuan Liu	2/18/2005	8/24/2006	Liu660
US 2006-0215405A1	Il-yong Jung; Tae-hee Cho; Jong-min Wang; Ji-whan Noh; Su-gun Kim; Ki-burn Seong	3/23/2005	9/28/2006	Jung

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2006-0221592A1	Naoji Nada; Yoshihiro Oshima; Toshitaka Kawashima; Satoshi Tomioka; Junichi Osako	3/31/2005	10/5/2006	Nada
US 2006-0221608 A1	Masahiro Ishizuka; Katsuyuki Okimura; Yoshinori Ueji; Ryuichiro Morinaka; Naoki Tatsumi; Tomoyuki Fukuda	2/10/2005	10/5/2006	Ishizuka
US 2006-0289201A1	Gi-Cherl Kim; Joo-Woan Cho; Sang-Gil Lee; Don-Chan Cho; Sang-Yu Lee	2/22/2005	12/28/2006	Kim201
US 2007-0007539A1	Gi-Cherl Kim; Sang-Yu Lee; Byung-Choon Yang; Chun-Ho Song; Don-Chan Cho	7/8/2005	1/11/2007	Kim539
US 2007-0115671A1	John Roberts; Paul Sims; Chenhua You	11/18/2005	5/24/2007	Roberts671
US 2007-0115682A1	John K. Roberts; Paul E. Sims	11/18/2005	5/24/2007	Roberts682
US 2007-0247414A1	John Roberts	4/21/2006	10/25/2007	Roberts414
US 4851862A	David A. Newman; William R. Laubengayer; William B. Scott, Jr.	8/5/1988	7/25/1989	Newman
US 6074074A	Armin Marcus	7/11/1996	6/13/2000	Marcus
US 6851831B2	Robert F. Karlicek, Jr.	4/16/2002	2/8/2005	Karlicek831
US 7178951B1	Meng-Jia Hsiao; Shen-Hong Chou	12/8/2005	2/20/2007	Hsiao951
WO2006018996A1	Kazutoshi Mahama; Masato Hatanaka	8/5/2005	2/23/2006	Mahama
WO2006028073A1	Takanori Nishida; Satoshi Isoda; Ryouji Sugiara; Masayuki Sakurai	9/6/2005	3/16/2006	Nishida
WO2006033344A1	Yukihiro Murakami	9/21/2005	3/30/2006	Murakami
WO2006055165A2	John Michael Lengyel; Jonathan Frank Holmes	10/20/2005	5/26/2006	Lengyel

Each of the references above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

Table A-2: Non-Patent Prior Art Publications to the '415 Patent

Author or Publisher	Reference Title	Publication / Use Date	Short Name
John K. Roberts	2.54mm Pitch Miniature Connector for Flexible Board Specification	11/18/2005	Roberts Spec

Each of the references described above is prior art at least under 35 U.S.C. §102(a) and (b).

Table B-1: Prior Art Patents and Patent Applications to the '380 Patent

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
CN101017278A	Youzhuan Lin	3/9/2007	8/15/2007	Lin278
EP1768470A1	Yukinobu Mikado; Katsumi Sagisaka; Katsuo Kawaguchi; Tetsuya Muraki	6/9/2005	3/28/2007	Mikado
JP2004279262A	Kazumasa Kurokawa; Yoshimi Kondo	3/17/2003	10/7/2004	Kurokawa
JP2004342371A	Takashi Miura; Masakazu Kotani	5/13/2003	12/2/2004	Miura
JP2005283852A	Shoji Narita; Shigenori Ota	3/29/2004	10/13/2005	Narita
JP2007212931A	Kazuo Tanaka	2/13/2006	8/23/2007	Tanaka931
KR1020070053517A	Ik-Su Lee	11/21/2005	8/23/2011	Lee517
KR1020070074383A	Young Joo Nam	1/9/2006	7/12/2007	Nam
US 2004-0004424A1	Shinji Sakurai	4/4/2002	1/8/2004	Sakurai
US 2005-0141244A1	Tetsuya Hamada; Toshihiro Suzuki	12/26/2003	6/30/2005	Hamada244
US 2005-0185394A1	Takuya Sakamoto; Seiji Sakai; Toshiyuki Yoneda	2/24/2004	8/25/2005	Sakamoto
US 2006-0152944A1	Hirokazu Nakayoshi; Kazuo Hashimoto; Isamu Noguchi	1/7/2003	6/13/2006	Nakayoshi
US 2006-0232999A1	Cheng-Fan Chang; Kuan-Sheng Chen	4/13/2006	10/19/2006	Chang999
US 2006-0279216A1	Sung Ki Kim; Won-nyun Kim	6/13/2005	12/14/2006	Kim216

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Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2007-0091639A1	Tae Kun Yoo	10/26/2005	4/26/2007	Yoo639
US 2007-0133221A1	Cheng-Hung Liu	12/8/2005	6/14/2007	Liu221
US 2007-0133222A1	Saburo Watanabe; Hiroshi Tokuyama	12/12/2005	6/14/2007	Watanabe222
US 2007-0147074A1	Seiji Sakai; Akihiro Mori	12/28/2005	6/28/2007	Sakai074
US 2007-0153548A1	Tetsuya Hamada; Toshihiro Suzuki; Masaru Ishiwa	3/21/2004	7/5/2007	Hamada548
US 2007-0189042A1	Wei-Ming Pai; Wen-Chin Lan; Wen-Tsung Lin	2/8/2006	8/16/2007	Pai
US 2008-0024694A1	Hisao Kondo; Katsumi Tsuchida; Hisashi Narita; Shigenori Oota	7/25/2006	1/31/2008	Kondo
US 2008-0031010A1	Jeung Soo Kim; Young Bee Chu; Ik Soo Lee; Kyu Seok Kim; Tae Joon Kim; Jeong Seok Oh; Sung Min Kim; Young Hee Park	8/7/2006	2/7/2008	Kim010
US 2008-0094536A1	Dae Seop Kim	10/20/2006	4/24/2008	Kim536
US7044628B2	Jin-seung Choi; Hwan-young Choi; Jee-hong Min; Su-mi Lee; Jin-hwan Kim; Moon-gyu Lee	1/7/2003	5/16/2006	Choi628
US7553059B2	Kenjiro Kuroda; Mitsuru Endo; Natsuka Sakai; Godai Fukunaga; Tomohiro Nakagome; Yoshiaki Shiina; Luis Manuel Murillo-Mora	1/31/2005	6/30/2009	Kuroda
WO2006080201A1	Motoji Egawa; Hiroshi Johmen	1/27/2005	8/3/2006	Egawa

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

Table C-1: Prior Art Patents and Patent Applications to the ’200 Patent

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
JP2004206906A	Haniyu, et al	12/2/2002	7/22/2004	Haniyu ’906
JP2005019065A	Matsumoto	6/24/2003	1/20/2005	Matsumoto ’065
JP2005108776A	Fujimi, et al	10/1/2003	3/24/2010	Fujimi ’776
US20050225960A1	Tsai	4/1/2004	10/13/2005	Tsai ’960
US20050281050A1	Chou	6/18/2004	12/22/2005	Chou ’050
US7036956B1	Chou	6/17/2005	5/2/2006	Chou ’956
US20070047225A1	Sudo	8/30/2005	3/1/2007	Sudo ’225
US20070064448A1	Yu, et al.	9/5/2005	3/22/2007	Yu ’448
US7407318B2	Shao-Han Chang	10/21/2005	8/5/2008	Chang’318
JP2007157450A	Takeguchi, et al.	12/2/2005	6/21/2007	Takeguchi ’450
US20070165418A1	Chen, et al.	1/17/2006	7/19/2007	Chen ’418
US20080043463A1	Park, et al.	2/3/2006	2/21/2008	Park ’463
US7407318	Chang	4/20/2006	10/21/2005	Chang ’318
US20070279944A1	Sakai	6/5/2006	12/6/2007	Sakai ’944
KR1020080021370 A	Jun Hyung Kim et al.	9/4/2006	10/29/2013	Kim ’370
CN101144932A	Hong Han et al.	9/15/2006	3/19/2008	Han ’932
US 2008-0088763A1	Yoshio Toriyama; Norihisa Fukayama; Saburo Watanabe	10/2/2006	4/17/2008	Toriyama ’763
JP2008091275A	Arihara	10/4/2006	4/17/2008	Arihara ‘275
TW200837446A	Thung-Ho Chang	3/14/2007	9/16/2008	Chang ’446
US20080088763	Toriyama, et al.	10/2/2007	4/17/2008	Toriyama ’763
KR1020090047105 A	Shin Woo Yang	11/7/2007	5/12/2009	Yang105
US20090040769A1	Parkyn, et al.	5/23/2008	2/12/2009	Parkyn ’769
US20110096569A1	Hamada	7/10/2008	4/28/2011	Hamada ’569
US20110134629A1	Kim	7/29/2008	6/9/2011	Kim ’629
US20100061084A1	Lee, et al.	9/10/2008	3/11/2010	Lee ’084
TW200825538A	Chen	12/13/2006	6/16/2008	Cheng ’538
TW200837446A	Chang	3/4/2007	9/16/2008	Chang ’446
CN100353231	Guo, et al.	3/4/2005	12/5/2007	Guo ’231

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

Table C-2: Prior Art Systems to the ’200 Patent

System Name	Date (no later than)	Entity	Short Name
Sharp LE700UN Product	10/19/2009	Sharp	Sharp LE 700UN

Each of the prior are systems described above is prior art at least under 35 U.S.C. §102(a) and (b).

Table D-1: Prior Art Patents and Patent Applications to the ’122, ’307, ’729, and ’093 Patents

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
CN1822365A	Miki Tomohide; Takine Kenji; Yamashita Ryohei	2/20/2006	8/23/2006	Tomohide
CN101335322A	Toshihide Maeda; Yoshikazu Oshio; Katsuaki Iwama; Hiromi Kitahara; Tadaaki Ikeda; Hidenori Kamei; Yasuyuki Hanada; Megumi Sagami	9/3/2002	12/31/2008	Maeda
CN101398144A	Deying Xiao et al.	9/26/2007	4/1/2009	Xiao
CN101430063A	Masao Yamaguchi	11/5/2008	5/13/2009	Yamaguchi063
CN101452987A	Sheng Liu; Kai Wang; Xiaobing Luo; Zongyuan Liu; Fei Chen; Mingxiang Chen; Zhiyin Gan; Chunxiao Jin	12/31/2008	6/10/2009	Liu987
CN101556021A	Yuxi Hou et al.	1/16/2009	10/14/2009	Hou
CN201281290Y	Yanwei He	10/7/2008	7/29/2009	He
CN201335319Y	Zhiwei Luo et al.	12/25/2008	10/28/2009	Luo
DE102008007723A1	Monika Dipl.-Phys. Rose; Katrin Dipl.-Ing. Schroll; Hartmut Dr. Billy; Julius Augustin Muschaweck	2/6/2008	8/20/2009	Rose
JP2001177158A	Kobayashi	12/16/1999	6/29/2001	Kobayashi

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Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
JP2004343059A	Kazuhiro Kamata	3/5/2004	12/2/2004	Kamata
JP2006286997A	Tatsuhiko Yamada; Toshio Shimada; Toshimichi Nakamura; Seiichi Takahashi; Akihiro Kato; Masaharu Wakatsuki	4/1/2005	10/19/2006	Yamada997
JP2007049019A	Kazuo Aoki; Yukio Yoshikawa	8/11/2005	2/22/2007	Aoki
JP2008010691A	Hironori Kaneko; Toshiaki Tanaka; Yutaka Akiba	6/30/2006	1/17/2008	Kaneko691
JP2008130836A	Nobuhiro Nishiyama	11/21/2006	6/5/2008	Nishiyama
JP2009087595A	Yuko Ichikawa; Masahito Yamamoto; Osamu Ueda	9/28/2007	4/23/2009	Ichikawa
JP2009211990A	Masao Yamaguchi	3/5/2008	9/17/2009	Yamaguchi990
JP2009230984A	Mitsuhiro Yoshikubo	3/21/2008	10/8/2009	Yoshikubo
KR100789835B1	Moon-goo Choi et al.	7/6/2006	1/2/2008	Choi835
KR1020060036937A	Hyunmin Kim	10/26/2004	5/3/2006	Kim937
KR1020060040502A	Yong Suk Kim et al.	11/6/2004	5/10/2006	Kim502
US 2004-0207999A1	Yoshinobu Suehiro; Kideaki Kato; Mitsuhiro Inoue	3/14/2003	10/21/2004	Suehiro999
US 2004-0223315A1	Yoshinobu Suehiro; Mistuhiro Inoue; Hideaki Kato	3/3/2003	11/11/2004	Suehiro315
US 2006-0012993A1	Shingo Ohkawa	7/16/2004	1/19/2006	Ohkawa993
US 2006-0066218A1	Masao Yamaguchi; Shingo Ohkawa	9/27/2004	3/30/2006	Yamaguchi218
US 2006-0083000A1	Ju-Young Yoon; Gi-Cherl Kim; Jong-Seo Lee; Chun-Ho Song; Se-Ki Park; Sang-Gil Lee	10/18/2004	4/20/2006	Yoon000
US 2006-0105484A1	Girogoriy Basin; Robert West; Paul Martin	11/15/2004	5/18/2006	Basin

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2006-0138437A1	Tien-Fu Huang; Che-Wei Su; Kuo-Chang Hu	12/29/2004	6/29/2006	Huang437
US 2006-0238884A1	Jun Ho Jang; Jung Hoon Seo	4/26/2005	10/26/2006	Jang884
US 2006-0284209A1	Hyung-kun Kim; Yu-sik Kim	6/17/2005	12/21/2006	Kim209
US 2007-0024990A1	Jung-Wook Paek; Jin-Soo Kim; Eun-Jeong Kang; Jin-Sung Choi; Sang-Hoon Lee; Si-Joon Song	7/26/2005	2/1/2007	Paek990
US 2007-0070530A1	Jung Hoon Seo; Jun Ho Jang	9/27/2005	3/29/2007	Seo
US 2007-0109779A1	Yoshifumi Sekiguchi; Ikuo Hiyama; Tsunenori Yamamoto; Hiroki Kaneko; Toshiaki Tanaka	11/11/2005	5/17/2007	Sekiguchi
US 2007-0159060A1	Yoshinori Shimizu; Kensho Sakano; Yasunobu Noguchi; Toshio Moriguchi	7/29/1996	7/12/2007	Shimizu
US 2007-0194691A1	Ho Sung Choo; Youn Gon Park; Hai Sung Lee; Myung Whun Chang; Jong Myeon Lee	2/21/2006	8/23/2007	Choo
US 2007-0195534A1	Duk Sik Ha; Bu Gon Shin; Min Ho Choi; Jong Hoon Kang; Min A. Yu; Jae Seung Lee	8/19/2005	8/23/2007	Ha
US 2007-0205425A1	Mitsunori Harada	9/8/2005	9/6/2007	Harada
US 2007-0278512A1	Ban P. Loh; Nicholas W. Medendorp; Bernd Keller	5/31/2006	12/6/2007	Loh
US 2008-0002100A1	Hiroki Kaneko; Toshiaki Tanaka; Yutaka Akiba	6/30/2006	1/3/2008	Kaneko100
US 2008-0007966A1	Shingo Ohkawa	1/24/2006	1/10/2008	Ohkawa966

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2008-0100773A1	Seong Yong Hwang; Se Ki Park; Jin Sung Choi; Jin Soo Kim	10/31/2006	5/1/2008	Hwang773
US 2008-0297020A1	Mario Wanninger; Alexander Wilm	9/30/2005	12/4/2008	Wanninger
US 2009-0040627A1	Jung-Wook Paek; Jin-Soo Kim; Eun-Jeong Kang; Jin-Sung Choi; Sang-Hoon Lee; Si-Joon Song	7/26/2005	2/12/2009	Paek627
US 2009-0052192A1	Fumio Kokubo; Masao Yamaguchi	8/9/2007	2/26/2009	Kokubo192
US 2009-0116245A1	Masao Yamaguchi	11/7/2007	5/7/2009	Yamaguchi245
US 2009-0225550A1	Masao Yamaguchi	3/5/2008	9/10/2009	Yamaguchi550
US 2009-0296405A1	Ariyoshi Tetsuo	5/29/2008	12/3/2009	Tetsuo405
US 2011-0051427A1	Hai-Wei Zhang	9/3/2009	3/3/2011	Zhang
US 2011-0110083A1	Monkika Pahlke; Katrin Schroll; Hartmut Billy; Julius Augustin Muschaweck	2/6/2008	5/12/2011	Pahlke
US7602559B2	Jun Ho Jang; Jung Hoo Seo	4/26/2005	10/13/2009	Jang559
US7618162B1	William A. Parkyn; David G. Pelka	11/12/2004	11/17/2009	Parkyn
US7866844B2	Masao Yamaguchi	3/5/2008	1/11/2011	Yamaguchi844
US8052307B2	Gyu Hyeong Bak; Sang Won Lee	11/19/2009	11/8/2011	Bak ’307
WO2008096714A1	Shunji Watanabe; Masayuki Shijo; Kaori Ezura; Yoshinobu Ezura	2/4/2008	8/14/2008	Watanabe714
WO2008122941A1	Louis Montagne	4/4/2008	10/16/2008	Montagne

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

Table D-2: Prior Art Systems to the ’122, ’307, ’729, and ’093 Patents

System Name	Date (no later than)	Entity	Short Name
Sharp LE700UN Product	10/19/2009	Sharp	Sharp LE 700UN

Each of the prior are systems described above is prior art at least under 35 U.S.C. §102(a) and (b).

Table H-1: Prior Art Patents and Patent Applications to the ’744, ’183, ’378, ’823, and ’048 Patents

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US20100195335A1	Allen, et al.	2/3/2009	8/5/2010	Allen ’335
US 2008-0144323A1	Shao-Han Chang	12/15/2006	6/19/2008	Chang ’323
US 2007-0194691A1	Ho Sung Choo; Youn Gon Park; Hai Sung Lee; Myung Whun Chang; Jong Myeon Lee	2/21/2006	8/23/2007	Choo ’469
US 2007-0195534A1	Duk Sik Ha; Bu Gon Shin; Min Ho Choi; Jong Hoon Kang; Min A. Yu; Jae Seung Lee	8/19/2005	8/23/2007	Ha ’534
US 20070205425A1	Mitsunori Harada	9/8/2005	9/6/2007	Harada ’425
US 20100073937A1	Yen-Wei Ho	9/19/2008	3/25/2010	Ho ’937
US20100238669A1	Holder, et al.	5/21/2007	5/19/2008	Holder ’669
CN101556021A	Yuxi Hou et al.	1/16/2009	10/14/2009	Hou ’021
CN101382251A	Xiaobing Hu	9/7/2007	3/11/2009	Hu ’251
US20060138437A1	Huang, et al.	8/4/2005	6/29/2006	Huang ’437
US7582913B2	Tien-Fu Huang; Che-Wei Su; Kuo-Chang Hu	12/29/2004	9/1/2009	Huang ’913
US7602559	Jang, et al.	4/26/2006	10/13/2009	Jang ’559
KR1020060040502A	Yong Suk Kim et al.	11/6/2004	5/10/2006	Kim ’502
KR1020090112279	Gyu Hyeong Bak	11/19/2009	10/8/2010	Bak ’279
US20070284993A1	Kim, et al.	10/7/2004	12/13/2007	Kim ’993
US 20100135028A1	Fumio Kokubo	8/9/2007	6/3/2010	Kokubo ’028
US20090052192A1	Kokubo, et al.	10/9/2007	2/26/2009	Kokubo ’192

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Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
CN101452987A	Liu	12/31/2008	6/10/2009	Liu ’987
CN201335319Y	Zhiwei Luo et al.	12/25/2008	10/28/2009	Luo ’319
US9683715	Min	10/15/2009	10/14/2010	Min ’715
US 20060198144A1	Hiroshi Miyairi; Kazunori Watanabe	3/7/2005	9/7/2006	Miyairi ’144
US 2008-0013322A1	Shingo Ohkawa	4/24/2006	1/17/2008	Ohkawa ’322
US20080007966A1	Ohkawa	1/24/2006	1/10/2008	Ohkawa ’966
JP2004266168A	Atsushi Okuno; Noritaka Oyama; Yoshiteru Miyawaki	3/3/2003	9/24/2004	Okuno ’168
US20090040627A	Paek et al.	7/26/2005	2/12/2009	Paek ’627
US20110110083A1	Pahlke et al.	2/6/2008	10/2/2008	Pahlke ’083
US7618162B1	Parkyn, et al.	11/12/2004	11/17/2009	Parkyn ’162
US20090040769A1	Parkyn et al.	8/11/2007	2/12/2009	Parkyn ’769
JP2009152142A	Minoru Sakauchi; Takashi Osugi	12/21/2007	7/9/2009	Sakauchi ’142
US5998925	Shimizu et al.	7/29/1997	12/7/1999	Shimizu ‘925
US20040223315A1	Suehiro et al.	3/3/2004	11/11/2004	Suehiro ’315
US20090296405A1	Tetsuo	5/29/2008	8/21/2008	Tetsuo ’405
US 20080297020A1	Mario Wanninger; Alexander Wilm	9/30/2005	12/4/2008	Wanninger ’020
WO2008096714A1	Shunji Watanabe; Masayuki Shijo; Kaori Ezura; Yoshinobu Ezura	2/4/2008	8/14/2008	Watanabe ’714
JP2006286997A	Tatsuhiko Yamada; Toshio Shimada; Toshimichi Nakamura; Seiichi Takahashi; Akihiro Kato; Masaharu Wakatsuki	4/1/2005	10/19/2006	Yamada ’997
US2010044053A1	Yamaguchi, et al.	8/24/2009	8/23/2011	Yamaguchi ’053
US20060066218A	Yamaguchi, et al.	9/27/2004	9/27/2005	Yamaguchi ’218
US20090116245A1	Yamaguchi, et al.	11/7/2007	5/7/2009	Yamaguchi ’245
US20090225550A1	Yamaguchi, et al.	3/5/2008	9/10/2009	Yamaguchi ’550
US20100270907A1	Yamaguchi, et al.	4/27/2009	10/28/2010	Yamaguchi ’907
US 2004-0119086A1	Tadashi Yano; Masanori Shimizu; Nobuyuki Matsui; Tatsumi Setomoto; Testushi Tamura	11/25/2002	6/24/2004	Yano ’086

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
JP2005100800A	Tadashi Yano; Masanori Shimizu; Noboyuki Matsui	9/25/2003	4/14/2005	Yano ’800
JP2009155530	Yokoda	6/30/2009	6/8/2010	Yokoda ’530
US20060083000A1	Yoon, et al.	10/18/2004	4/20/2006	Yoon ’000
US 2011-0051427A1	Hai-Wei Zhang	9/3/2009	3/3/2011	Zhang ’427

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

Table H-2: Prior Art Systems to the ’744, ’183, ’378, ’823, and ’048 Patents

System Name	Date (no later than)	Entity	Short Name
Sharp LE700UN Product	10/19/2009	Sharp	Sharp LE 700UN

Each of the prior are systems described above is prior art at least under 35 U.S.C. §102(a) and (b).

Table L-1: Prior Art Patents and Patent Applications to the ’411 and ’352 Patents

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
CN2513187Y	Lu Chaoyang; Yao Zengshuo; Shao Xinhong	7/31/2001	9/25/2002	Chaoyang
EP0269110A2	Kaori Tamura; Terumi Matsuda; Shupeita Torii	4/9/1985	7/26/1995	Tamura110
EP0581232A1	Yohzow Nishiguchi; Kiju Mori; Youichiro Akanuma; Toshimasa Matsumoto; Sumihisa Furufuji	7/26/1993	2/2/1994	Nishiguchi
EP1198016A2	Christopher H. Lowery	10/13/2000	4/17/2002	Lowery
JP1998269819A	Onishi Yutaka	3/25/1997	10/9/1998	Yutaka
JP1999044798A	Takeshi Takahara et al.	7/28/1997	2/16/1999	Takahara798
JP2000238168A	Masahiro Hasegawa	2/19/1999	9/5/2000	Hasegawa

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
JP2002303699A	Nakano Kuniaki; Satoru Honda; Takehiko Shoji	4/4/2001	10/18/2002	Kuniaki
JP2002311139A	Tomoyuki Tamura; Kazumi Nagano	4/11/2001	10/23/2002	Tamura139
JP2002323613A	Keimei Teraoka	4/24/2001	11/8/2002	Teraoka
JP2003066196A	Katsuro Takenaka; Satoshi Okada; Yoshihiro Ogawa	8/30/2001	3/5/2003	Takenaka
JP2003204082A	Atsushi Okuno; Yoshiteru Miyawaki; Noritaka Oyama	10/31/2002	7/18/2003	Okuno082
JP2004083809A	Kenji Takahashi	8/28/2002	3/18/2004	Takahashi
JP2005037737A	Yuzo Akata; Tadaaki Harada	7/16/2003	2/10/2005	Akata
JP2005127851A	Osamu Morikawa; Takehiko Shoji; Satoru Honda	10/23/2003	5/19/2005	Morikawa
JP2005243801A	Hironori Iwanaga; Masaro Amano; Yukio Takahagi	2/25/2004	9/8/2005	Iwanaga801
JP2006012506A	Takashi Akiyama	6/24/2004	1/12/2006	Akiyama
JP2006045324A	Takahiro Sakai; Kaori Yoshimitsu	8/3/2004	2/16/2006	Sakai324
JP2006052986A	Shinichi Takeda; Yoshihiro Ogawa; Masato Inoue; Satoshi Okada; Tomoyuki Tamura; Kazumi Nagano	8/10/2004	2/23/2006	Takeda
JPH01131496A	Yoshitaka Morita; Takayuki Kato	11/17/1987	5/24/1989	Morita
JPH08273474A	Mikio Kiyozawa; Noboru Nakato	3/29/1995	10/18/1996	Kiyozawa
JPH11241052A	Yuriko Yamada; Takahiro Sakai; Kazuo Nate	2/26/1998	9/7/1999	Yamada052
JP3336859B2	Tetsuhiro Yamamoto	5/29/1996	10/21/2002	Yamamoto859
KR100449159B1	Won Ju Hwang; Myeong Jin Kim; Yong Hyeon Kim; Yeong Gil Ma	11/14/2001	9/16/2004	Hwang159

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
KR100507844B1	Jungman Lee	1/19/2005	8/17/2005	Lee 844
KR100539832B1	Namgung Jongkwon et al.	11/22/2004	12/28/2005	Jongkwon
KR100590518B1	Mun Hwan Kim; Seok Ki Kim; Keung Sueb No	9/17/2004	6/19/2006	Kim518
KR1020030031061	Kim; Oh; Kim	3/22/2003	4/18/2003	Kim061
KR200393961Y1	Jeong-hwan Kim; Ho-jin Park; Yu-gyeom Kim; Sang-mook Son; Seung-heon Kang	5/26/2005	8/31/2005	Kim691
RU40052U1	K.B. Demidov; O.I. Zinova; A.Ya. Kiselev; K.M. Moiseyev; T.V. Sokolova	4/13/2004	8/27/2004	Demidov
US 2002-0006505A1	Chiharu Nishizawa; Kenji Kouno	6/9/2000	1/17/2002	Nishizawa
US 2002-0066868A1	Takehiko Shoji; Satoshi Honda	10/18/2000	6/6/2002	Shoji868
US 2002-0067125A1	Kenji Nogaki; Terukatsu Uchida; Yoshiyasu Ishiyama	12/2/2000	6/6/2002	Nogaki
US 2003-0080341A1	Kensho Sakano; Kazuhiko Sakai; Yuji Okada; Toshihiko Umezu	1/24/2001	5/1/2003	Sakano
US 2004-0018382A1	Patrick J. Kinlen	7/29/2002	1/29/2004	Kinlen
US 2004-0116033A1	Andrew J. Ouderkirk; Michael F. Weber; John A. Wheatley	1/27/2003	6/17/2004	Ouderkirk
US 2004-0227997A1	Osei A. Owusu	5/15/2003	11/18/2004	Owusu
US 2004-0257797A1	Yoshinobu Suehiro; Ryoichi Tohmon; Hideaki Kato; Satoshi Wada	6/18/2003	12/23/2004	Suehiro797
US 2005-0001225A1	Naoki Yoshimura; Yoshinobu Suehiro; Yuji Takahashi; Koichi Ota; Mamoru Mitomo; Tadashi Endo; Masakazu Komatsu	11/29/2002	11/28/2003	Yoshimura

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2005-0046334A1	Shinsuke Fujiware	8/27/2003	3/5/2005	Fujiware
US 2005-0057145A1	Sung-Yueh Shieh; Dein-Run Fung; Chi-Ming Chang; Ming-Fa Yang	9/17/2003	3/17/2005	Shieh
US 2005-0087698A1	Takehiko Shoji; Satoshi Honda; Osamu Morikawa	10/23/2003	4/28/2005	Shoji698
US 2005-0142371A1	Stuart D. Swain; Wayne Kronebusch; Nathan Bergler; Bill Minogue	5/31/2002	6/30/2005	Swain
US 2005-0200269A1	Kee-Yean Ng; Heng Yow Cheng; Chee Wai Chia	3/11/2004	9/15/2005	Ng269
US 2005-0263776A1	Min-Hsun Hsieh; Chia-Fen Tsai	7/15/2002	12/1/2005	Hsieh
US 2005-0274916A1	Takehiko Shoji; Osamu Morikawa; Shinji Hudo	6/10/2004	12/15/2005	Shoji916
US 2006-0214578A1	Hiroki Iwanaga; Akio Amano; Kenji Shimomura; Kazuaki Otsuka	3/28/2005	9/28/2006	Iwanaga578
US 2006-0268537A1	Makoto Kurihara; Norihiro Dejima	5/31/2005	11/30/2006	Kurihara537
US 2007-0001182A1	Craig R. Schardt; David Scott Thompson; Larry A. Meixner	6/30/2005	1/4/2007	Schardt
US 2007-0013291A1	Ronald S. Cok; Lee W. Tutt	7/12/2005	1/18/2007	Cok
US 2007-0018573A1	Kousuke Shioi	2/18/2004	1/25/2007	Shioi
US 2007-0031685A1	Youngwook Ko; Jun Ho Song	8/3/2005	2/8/2007	Ko
US4238793A	Paul Hochstrate	3/29/1979	12/9/1980	Hochstrate
US4297584A	Robert A. Buchanan; Grant T. Maple; Alden F. Sklensky	4/11/1977	10/27/1981	Buchanan

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US5003182A	Chiyuki Umemoto; Yasuo Iwabuchi; Takashi Nakamura; Kenji Takahashi; Yuichi Hosoi	10/18/1988	3/26/1991	Umemoto
US5415911A	Daniel E. Zampa; Alex A. Szopinski	1/16/1992	5/16/1995	Zampa
US5698301A	Takayuki Yonetami	9/30/1994	12/16/1997	Yonetami
US6339224B1	Takeshi Takahara; Akihisa Saito; Eiji Oyaizu	5/6/1997	1/15/2002	Takahara224
US6613247B1	Klaus Hohn; Alexandra Debray; Peter Schlotter; Ralf Schmidt; Jurgen Schneider	9/20/1996	9/2/2003	Hohn
US6635363B1	Steven Jude Duclos; Jon Jansma; Jacob C. Bortscheller; Robert J. Wojnarowski	8/21/2000	10/21/2003	Duclos
US6737801B2	Larry Ragle	6/26/2001	5/18/2004	Ragle
US6943380B2	Koichi Ota; Atsuo Hirano; Akihito Ota; Stefan Tasch; Peter Pachler; Gundula Roth; Walter Tews; Wolfgang Kempfert; Detlef Starick	12/28/2000	9/13/2005	Ota
US6972147B1	Guang-Xue Wei; Drew J. Buoni; Kimberly A. Dockus	11/9/2000	12/6/2005	Wei
US7036946B1	Donald E. Mosier	9/13/2002	5/2/2006	Mosier
US7105830B2	Kazumi Nagano; Tomoyuki Tamura; Satoshi Okada; Katsuro Takenaka	3/12/2003	9/12/2006	Nagano
US7202598B2	Thomas Juestel; Cornelis Reinder Ronda; Walter Mayr; Peter Schmidt; Volker Urich Weiler	10/17/2000	10/4/2007	Juestel598

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US7265488B2	Kee Yean Ng; Kheng Leng Tan; Tajul Arosh Baroky; Janet Bee Yin; Kok Chin Pan	9/30/2004	9/4/2007	Ng488
US7498734B2	Yoshinobu Suehiro; Ryoichi Tohmon; Hideaki Kato; Satoshi Wada	6/18/2003	3/3/2009	Suehiro734
US7850356B2	Jong-Sun Yoon; Min-Seok Seo; Jin-Uk Heo	9/13/2004	12/14/2010	Yoon356
WO2004099664A1	Thomas Juestel; Augustinus Gregorius Henricus Meijers; Dietrich Bertram; Hans-Helmut Bechtel; Herbert Friedrich Boerner	5/3/2004	11/18/2004	Juestel664
WO2005100016A2	Gerhard Staufert	4/15/2005	10/27/2005	Staufert

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

In its Infringement Contentions, Plaintiff provided the following priority date for the ’352 and ’411 patents:

- “U.S. Patent No. 8,237,352 (the “’352 Patent”), is entitled to the filing priority date of Korean Patent Application No. 10-2006-0023832, filed March 15, 2006.”
- “U.S. Patent No. 8,723,411 (the “’411 Patent”), is entitled to the filing priority date of Korean Patent Application No. 10-2006-0023832, filed March 15, 2006.”

Based on Defendants’ current understanding, Defendants do not believe that the ’352 and ’411 patents are entitled to a priority date earlier than at least October 26, 2006.

While the ’352 and ’411 patents state on their faces that each claims priority to Korean Patent Application No. 10-2006-0023832, filed March 15, 2006 (the “’832 application”), the Asserted Claims are drawn to subject matter that was not adequately described in the ’832

application in accordance with the written description and enablement requirements of 35 U.S.C. § 112, ¶ 1.

For example, at least the following claim limitations from the ’352 patent are not supported by the ’832 application:

- all limitations reciting a “resin which is not curable by light”;
- all limitations reciting a “material which is not curable by light”;
- all limitations reciting “wherein ends of the matrix layer and the second layer are aligned with each other”;
- all limitations reciting “material which is not an adhesive”; and
- all limitations reciting “substantially parallel.”

For example, at least the following claim limitations from the ’411 patent are not supported by the ’832 application:

- all limitations reciting “wherein the first protective film and the second protective film comprise at least one same material.”;
- all limitations reciting “wherein ends of the matrix layer and the second layer are aligned with each other”; and
- all limitations reciting “substantially parallel.”

The Asserted Claims are not, therefore, entitled to the priority date claimed by Plaintiff.

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Table L-2: Non-Patent Prior Art Publications to the '411 and '352 Patents

Author or Publisher	Reference Title	Publication / Use Date	Short Name
M. Nakazawa; O. Morikawa; M. Nitta; A. Tsuchino; F. Shimada	Effect of Protective Layer on Resolution Properties of Photostimulable Phosphor Detector for Digital Radiographic System	07/1990	Nakazawa
Chanaka D. Munasinghe	Optimization of Rare Earth	4/15/2005	Munasinghe

Each of the prior are references described above is prior art at least under 35 U.S.C. §102(a) and (b).

Table O-1: Prior Art Patents and Patent Applications to the '778 Patent

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
EP0890996B1	Masutsugu Tasaki; Akira Ichikawa; Tstutomu Odaki; Kazuhisa Takagi	7/7/1998	10/25/2006	Tasaki
JP2001021885A	Tadashi Asano	7/8/1999	1/26/2001	Asano
JP2003222861A	Daisaku Okuwai	1/29/2002	8/8/2003	Okuwai
JP2005332963A	Eiichi Asada; Tadashi Endo; Kazuo Nagashima; Masami Nakamura	5/19/2004	12/2/2005	Asada
JP2006202533A	Norihiro Dejima; Tomoyoshi Fukuda; Shin Kurihara	1/18/2005	8/3/2006	Dejima533
JP2006338901A	Shin Kurihara	5/31/2005	12/14/2006	Kurihara901
JP2007171891A	Yoshito Tanaka; Yoshito Ando	2/2/2006	7/5/2007	Tanaka891
JP2008059786A	Takafumi Morihara; Masafumi Ono; Norihiro Dejima; Shin Kurihara	8/29/2006	3/13/2008	Morihara
JP2008117879A	Junichi Kinoshita	11/2/2006	5/22/2008	Kinoshita
JP2009016289A	Hirokazu Ishikawa; Hiroshi Takino; Minoru Michiura	7/9/2007	1/22/2009	Ishikawa

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
JP3549087B2	Shingo Okawa	2/12/1998	8/4/2004	Okawa
KR100664982B1	Cho Dong-hyeon; Koike Masayoshi; Ham Heon-ju	5/3/2004	1/9/2007	Cho982
KR100730565B1	Jung Hwan Kim et al.	5/26/2005	6/21/2007	Kim565
KR1020080063986A	Mi Jeong Yun	1/3/2007	7/8/2008	Yun
TWM341857U	Chun-Chung Hsiao; Yi-Sing Peng; Sung-Po Chen; Hsin-Tao Huang	3/27/2008	10/1/2008	Hsiao857
US 2002-0163525A1	Shih-Pei Liao; Ying-Hui Liang; Chiung Fen Lin; Shu-Ru Liu	3/7/2001	11/7/2002	Liao
US 2006-0039152A1	Tomoyuki Ito	8/17/2004	2/23/2006	Ito
US 2006-0255711A1	Norihiro Dejima; Majoto Kurihara; Tomoki Fukuda	4/12/2005	11/16/2006	Dejima711
US 2006-0268537A1	Makoto Kurihara; Norihiro Dejima	5/31/2005	11/30/2006	Kurihara537
US 2006-0284532A1	Makoto Kurihara; Norihiro Dejima; Katsuyuki Igarashi	6/15/2005	12/21/2006	Kurihara532
US 2007-0103931A1	Kun-Chui Lee; Tzu-Chi Cheng	11/9/2005	5/10/2007	Lee931
US 2007-0147081A1	Jong-Hyun Choi	12/26/2005	6/28/2007	Choi081
US 2007-0221865A1	Choong-Yong Sohn; Young-Wook Ko	3/10/2006	9/27/2007	Sohn
US 2007-0229736A1	Po Hsien Wang; Hsuan Yang Chen	4/4/2006	10/4/2007	Wang736
US 2007-0291196A1	Chih-Yuan Wang; Hui-Yu Chang; Mei-Ju Huang	6/12/2006	12/20/2007	Wang196
US 2008-0030994A1	Shao-Han Chang	8/4/2006	2/7/2008	Chang994
US 2008-0145960A1	Boris Kolodin; Ivan Eliashevich; Chen-Lun Hsing Chen; Stanton E. Weaver	12/15/2006	6/19/2008	Kolodin
US 2008-0158907A1	Kai-Chi Lin; Tsung-Jen Lin	12/27/2006	7/3/2008	Lin907

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2008-0258112A1	Takashi Tamura; Tomokazu Hino; Tsuneo Kusonoki; Takahiro Igarashi	10/30/2006	10/23/2008	Tamura112
US 2008-0285308A1	Donald Burris Clary; Solomon L. Katrikh	3/23/2004	11/20/2008	Clary
US6864626	Shimon Weiss; Michael C. Schlamp; A. Paul Alivisatos	6/2/1999	3/8/2005	Weiss
US6893136B2	Kei Hsiung Yang	7/26/2002	5/17/2005	Yang136
US7248310B2	Regina Mueller-Mach; Gerd O. Mueller	4/4/2001	7/24/2007	Mueller-Mach
US7350937B2	Tsunenori Yamamoto; Ikuo Hiyama; Akitoyo Konno; Daisuke Kajita	5/25/2004	4/1/2008	Yamamoto937
WO2007055509A1	Myong Rock Oh	11/8/2006	5/18/2007	Oh

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

Table O-2: Non-Patent Prior Art Publications to the '778 Patent

Author or Publisher	Reference Title	Publication / Use Date	Short Name
Ian T. Ferguson; Nadarajah Narendran; Tsunemasa Taguchi; Ian E. Ashdown	Binning and Filtering: The Six-Color Solution	8/14/2006	Ashdown
American National Standard Lighting Group	Specifications for the Chromaticity of Solid State Lighting Products	1/9/2008	ANS

Each of the prior are references described above is prior art at least under 35 U.S.C. §102(a) and (b).

Table P-1: Prior Art Patents and Patent Applications to the '537 Patent

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
CN1721938A	Masuru Ishiwa et al.	1/20/2005	1/18/2006	Ishiwa
EP1070220B1	David G. Pelka; John M. Popovich; Thomas W. Dowland, Jr.	4/7/1999	11/10/2004	Pelka
JP2005353498A	Takato Habuka	6/11/2004	12/22/2005	Habuka
JP3126166U	Katou Tetsuo	6/13/2006	10/19/2006	Tetsuo166
JP3128244U	Kei Fai Kure et al.	10/20/2006	12/28/2006	Kure
KR100540053B1	Young-Ho Yoo	9/7/2005	1/11/2006	Yoo053
KR1020050105823A	Dong Hyun Cho et al.	5/3/2004	11/8/2005	Cho823
KR1020060036226A	Nam Hun Kim et al.	10/25/2004	4/28/2006	Kim226
KR20060078866A	Moon Chol Park	12/30/2004	7/5/2006	Park866
TWI248538B	Pang-Hsuan Liu	7/13/2004	2/1/2006	Liu538
TWI262342B	Pang-Hsuan Liu	2/18/2005	9/21/2006	Liu342
TWM298720U	Chun-Fu Kao; Guan-Jr Liau	4/17/2006	10/1/2006	Kao
US 2005-0088586A1	Akihiro Mori; Takuya Sakamoto	10/28/2003	4/28/2005	Mori
US 2005-0243576A1	Jung Kyu Park; Chang Wook Kim; Young Sam Park	5/3/2004	11/3/2005	Park576
US 2006-0103776A1	Hee-Jeong Park	11/16/2004	5/18/2006	Park776
US 2006-0104080A1	Won-nyun Kim; You-sub Lee; Ji-whan Noh	11/17/2004	5/18/2006	Kim080
US 2006-0221260A1	Toshiyuki Fujine; Seiji Kohashikawa; Michiyuki Sugino; Ryuichi Niyama	3/30/2005	10/5/2006	Fujine
US 2006-0268537A1	Makoto Kurihara; Norihiro Dejima	5/31/2005	11/30/2006	Kurihara537
US 2006-0279946A1	Mun-Soo Park; Min-Gyu Kim	6/8/2005	12/14/2006	Park946
US 2007-0002590A1	Myong-Gi Jang; Hak-Mo Hwang	6/30/2005	1/4/2007	Jang590
US 2007-0053165A1	Ming-Fu Hsu	9/2/2005	3/8/2007	Hsu
US 2007-0189032A1	Shao-Han Chang	2/10/2006	8/16/2007	Chang032

Patent	Inventor(s)	Filing / Priority Date	Published / Issue Date	Short Name
US 2007-0253219A1	Hyung Dong Kim; Wook Jeon	4/28/2006	11/1/2007	Kim219
US 2007-0274051A1	Alex Horng; Masaharu Miyahara; Te-Chen Liu	5/23/2006	11/29/2007	Horng051
US 2008-0068807A1	Alex Horng; Liu Te-Chen	9/20/2006	3/20/2008	Horng807
US 2009-0066877A1	Kazutoshi Abe; Naoya Imamura; Satoshi Kuramoto	5/30/2005	3/12/2009	Abe
WO2005045943A1	Jean-Louis Lescourret	11/4/2004	5/19/2005	Lescourret
WO2005114045A1	Tetsuya Hamada; Toshihiro Suzuki; Masaru Ishiwa	3/29/2005	12/1/2005	Hamada045

Each of the patents above is prior art at least under 35 U.S.C. §§102(a), (b), and/or (e).

B. Plaintiff's Foreign Priority Claim is Improper For The '744, '183, '378, '823, and '048 Patents

Plaintiff contends that the asserted claims of the '744, '183, '378, '823, and '048 patents are entitled to a priority date of November 20, 2009, which is the filing date of Korean Patent Application No. 10-20-09-0112479 (collectively, the "KR '479 family patents"). Defendants contend that, because the Patentee failed to claim priority to the first filed foreign application, the '744, '183, '378, '823, and '048 patents are only entitled to the U.S. filing date of the '183 patent, namely November 19, 2010.

1. Plaintiff Asserts That The '744, '183, '378, '823, and '048 Patents Claim the Benefit of a Korean Application KR '479

The '183 patent application no. 12/949,915 was filed in the United States on November 19, 2010. The '183 patent application claims priority to Korean Foreign Priority Application KR 10-2009-0112479 ("the KR '479 application") filed on November 20, 2009. *See* '183 patent at (30). The '048 patent application no. 13/759,564 was filed in the United States on February 5, 2013, and is a continuation of the '183 patent application no. 12/949,915. *See* '048 patent at (22), (63).

The ’048 patent also claims priority to the KR ’479 application. *See id*. at (30). The ’744 patent application (14/855,640) was filed on September 16, 2015, and is a continuation of application no. 14/338,812, filed on July 23, 2014, which is a continuation of application ’048 patent application no. 13/759,564, which is which is a continuation of the ’183 patent application no. 12/949,915. *See* ’744 patent at (22), 63). The ’744 patent also claims priority to the KR ’479 application. *See id*. at (30). The ’378 patent application no. 14/855,658 was filed on September 16, 2015, and is continuation of application No. 14/338,812, filed on July 23, 2014, which is a continuation of the ’048 patent application no. 13/759,564, which is a continuation of the ’183 patent application no. 12/949,915. *See* ’378 patent at (22), 63). The ’378 patent also claims priority to the KR ’479 application. *See id*. at (30). The ’823 patent application no. 15/855,058 was filed on December 27, 2017, and is a continuation of application no. 14/338,812, filed on July 23, 2014, which is a continuation of the ’048 patent application No. 13/759,564, which is a continuation of the ’183 patent application no. 12/949,915. The ’823 patent also claims priority to the KR ’479 application. *See id*. at (30). Accordingly, all the KR ’479 family patents purportedly claim priority through the ’183 patent application to the KR ’479 application filed on November 20, 2009. Plaintiff confirmed its contention that the KR ’479 family patents claim priority claim to the KR ’479 application in its August 8, 2025, Infringement Contentions. *See* Infringement Contentions at 7-8.

2. Foreign Priority Requirements

a. Claim of Priority Must be to the First Filed Foreign Application Unless it is Withdrawn or Abandoned with No outstanding Rights Remaining.

Pre-AIA 35 U.S.C. § 119(a) permitted a patent application filed in the United States to claim the benefit of an earlier filed foreign application provided it was based on the *first filed* application in the foreign country, and the corresponding U.S. application was filed within 12

months of the foreign application filing date.[1] The requirement that the U.S. application be based on the *first filed* foreign application was known as "convention priority" and incorporated the first application requirement of the Articles 4A and 4C of the Paris Convention.[2] *Application of Hilmer*, 359 F.2d 859, 873 (C.C.P.A. 1966).

Paris Convention Article 4C provides in part that "a subsequent application concerning the same subject as a previous first application within the meaning of Article 4A(2), filed in the same country of the Union, shall be considered the first application, of which the filing date shall be the starting point of the priority period, if at the time of filing the subsequent application, the said previous application has been withdrawn, abandoned, or refused, without having been laid open to public inspection and without leaving any rights outstanding, and if it has not yet served as a basis for claiming a right of priority. The previous application may not thereafter serve as a basis for claiming a right of priority." Paris Convention, Article 4(c)(4)

Thus, the Paris Convention required that applicants must claim foreign priority benefit claims to the first filed foreign application for the invention unless that the first filed foreign

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[1] "An application for patent for an invention filed in this country by any person who has, or whose legal representatives or assigns have, previously regularly filed an application for a patent for the same invention in a foreign country which affords similar privileges in the case of applications filed in the United States or to citizens of the United States, or in a WTO member country, shall have the same effect as the same application would have if filed in this country on the date on which the application for patent for the same invention was first filed in such foreign country, if the application in this country is filed within twelve months from the earliest date on which such foreign application was filed; but no patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country more than one year prior to such filing." Pre-AIA 35 U.S.C. § 119(a).

[2] The United States adhered to the Paris Convention in 1887, four years after it was first signed. The U.S. has remained a contracting party through all subsequent revisions (Washington, Hague, London, Lisbon, and Stockholm Acts).

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application has been withdrawn, abandoned, or otherwise disposed of without being made public and without leaving any rights outstanding. In such instances, priority could be claimed to a "subsequent application concerning the same subject as a previous first application." *Id*. Although pre-AIA 35 U.S.C. § 119(a) did not explicitly incorporate the withdrawal provisions of first filed foreign application, it did require any claim of foreign priority be based on the first filed application filed on the same subject matter.[3]

The provisions governing the priority date for pre-America Invents Act (pre-AIA) patent applications clarify that a U.S. patent application claiming foreign priority under 35 U.S.C. §119 must be filed within twelve months of the earliest foreign filing date to benefit from that priority. The effective filing date is tied to the first foreign application that discloses the invention. Priority cannot stem from subsequently filed foreign applications that are not the first to describe the invention. *Vogel v. Jones*, 486 F.2d 1068, 1072 (C.C.P.A. 1973); *Application of Hilmer*, 359 F.2d 859, 873 (C.C.P.A. 1966). Thus, the right of priority must be based on the earliest valid foreign filing that sufficiently describes the invention, and later foreign applications filed after that first application do not affect or extend this priority date.

b. Impact of Non-Compliance with Priority Requirements

If the earlier foreign application has not been properly withdrawn or abandoned, or if it has been made public or leaves rights outstanding, the U.S. application cannot claim the priority date

[3] Subsequently, the America Invents Act specifically amended 35 U.S.C. § 119 to include the Paris Convention language allowing a U.S. application to claim priority to a subsequent foreign application instead of the first-filed foreign application, provided that the earlier foreign application has been withdrawn, abandoned, or otherwise disposed of without being made public and without leaving any rights outstanding. The statute states that the earlier foreign application must not have served, nor thereafter serve, as a basis for claiming a right of priority. This ensures that the priority claim is based on the first valid foreign application that meets the statutory requirements.

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of the subsequent foreign application. In such cases, the priority date will default to the filing date of the U.S. application. *See Medtronic CoreValve, LLC v. Edwards Lifesciences Corp*., 741 F.3d 1359 (2014)) where the court emphasized that all intermediate applications in a priority chain must contain a specific reference to the earlier-filed foreign application to maintain the priority claim.

3. The KR '479 Family Patents Are Not Entitled to the Benefit of the KR '479 Foreign Filing Date

a. KR '479 Application is Not the First Filed Application on the Same Subject

The KR '479 patent application is not the first filed application on the subject matter contained in the KR '479 Family patents. Rather, Korean patent application KR10-2009-0112279A ("KR '279 application") filed one day earlier on November 19, 2009, discloses the subject matter of each and every claim limitation in the KR '479 Family patents. For example, as show in Exhibits Q-1 to Q-5, KR '279 provides a complete disclosure and written description of each claim limitation including the package body, encapsulation material, fully integrated LED device structure and specific lens body dimensions. Because KR '279 fully discloses the claims of the KR '479 Family patents, KR '279 application is the first filed foreign application concerning the same subject matter.

b. KR '279 Application Has Not Been Withdrawn, Abandoned, or Otherwise Disposed of Without Being Made Public and Without Leaving Any Rights Outstanding

As discussed above, the Paris Convention and Pre-AIA §119(a) govern Plaintiff's claim of foreign priority and provides that a valid claim of priority to KR '479 would only be possible *if* the KR '279 application had been withdrawn, abandoned, or otherwise disposed of without being made public and without leaving any rights outstanding. However, KR '279 application serves as the foreign priority application for U.S. Patent No. 8,052,307, U.S. Patent No 8,213,093, U.S. Patent No 8,506,122, and U.S. Patent No 8,616,729 (collectively "the KR '279 family patents")

also asserted in this action. Indeed, the Infringement Contentions confirm that Plaintiff takes the position that these patents "are entitled to the filing priority date of Korean Patent Application No. 10-2009-0112279, filed on November 19, 2009." *See* August 8, 2025, Infringement Contentions at 7. Rather than being withdrawn, abandoned, or otherwise disposed of without being made public and without leaving any rights outstanding, Plaintiff is specifically making a claim of priority to the KR '279 application. Thus, the KR '279 application is the first filed foreign application on the subject matter of the KR '479 family patents.

4. The KR '479 Family Patents Are Only Entitled to the Filing Date of the '183 Patent Application

Because the foreign priority claim does not comply with the strictures of 35 U.S.C. §119(a), the priority date of KR '479 family patents will default to the filing date of the '183 patent application no. 12/949,915 filed in the United States on November 19, 2010. Accordingly, any art with an effective prior art date before November 19, 2010, is applicable to the KR '479 family patents.

IV. PATENT LOCAL RULE 3-3(B-C) DISCLOSURES

A. The Asserted Patents Are Invalid In View Of The Prior Art

In accordance with P. R. 3-3(b) and (c), prior art references anticipating or rendering obvious some or all of the Asserted Claims are listed below.

A full citation to each reference is in the Tables above, along with the "Short Name" used to identify each reference throughout this disclosure. The following tables list (i) each anticipating prior art reference, (ii) the Asserted Claims anticipated by each anticipating reference, (iii) for each anticipating reference, the chart identifying where specifically in that reference each element of each asserted claim is found.

The art cited in the claim charts is illustrative and not exhaustive. Further, these claim charts provide illustrative citations to where each element may be found in the prior art references. The cited references may contain other disclosures of each claim element as well, and Defendants reserve the right to argue that any claim elements of the Asserted Claims are disclosed in non-cited portions of these references. Similarly, where Defendants cite to a patent figure in the charts, these citations incorporate the accompanying specification text describing that figure and vice versa.

1. The ’415 Patent

The Asserted Claims of the ’415 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	**Prior Art**
A-1	Roberts ’414
A-2	Kim ’201
A-0	Ishizuka ’608, Kim ’539, Murakami ’344, Karlicek ’789, Kim ’177, Lengyel ’165, Henrici ’368, Newman ’862, Liu ’660, Hsiao ’951, and Nishida ’073

2. The ’380 Patent

The Asserted Claims of the ’380 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	**Prior Art**
B-1	Nakayoshi ’944
B-2	Sakamoto ’394
B-0	Choi ’628, Egawa ’201, Hamada ’244, Hamada ’548, Kim ’216, Kondo ’694, Kurokawa ’262, Lee ’517, Lin ’278, Liu ’221, Pai ’042, Sakai ’074, Watanabe ’222, Tanaka ’931, Narita ’852, Mikado ’470, Kuroda ’059

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3. The ’200 Patent

The Asserted Claims of the ’200 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
C-1	Chou956
C-2	Kim629
C-3	Lee ’084
C-4	Park ’463
C-5	Parkyn ’769
C-6	Tsai ’960
C-7	Sharp LE 700UN

4. The ’122 Patent

The Asserted Claims of the ’122 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
D-1	Ohkawa ’966
D-2	Yamaguchi ’245
D-3	Sharp LE700UN
D-0	Paek ’627, Yamaguchi ’550, Pahlke ’083, Yamaguchi ’218, Yoon ’000, Holder ’669, Jang ’559, Huang ’437, and Kokubo ’192

5. The ’307 Patent

The Asserted Claims of the ’307 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

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Claim Chart	Prior Art
E-1	Ohkawa ’966
E-2	Yamaguchi ’245
E-3	Sharp LE700UN
E-0	Paek ’627, Yamaguchi ’550, Pahlke ’083, Yamaguchi ’218, Yoon ’000, Holder ’669, Jang ’559, Huang ’437, and Kokubo ’192

6. The ’729 Patent

The Asserted Claims of the ’729 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
F-1	Ohkawa ’966
F-2	Yamaguchi ’245
F-3	Yamaguchi ’550
F-4	Sharp LE700UN
F-0	Paek ’627, Pahlke ’083, Yamaguchi ’218, Yoon ’000, Holder ’669, Jang ’559, Huang ’437, and Kokubo ’192

7. The ’093 Patent

The Asserted Claims of the ’093 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Anticipating Prior Art
G-1	Ohkawa ’966
G-2	Yamaguchi ’245
G-3	Yamaguchi ’550

Claim Chart	Anticipating Prior Art
G-4	Sharp LE700UN
G-0	Paek ’627, Yoon ’000, Yamaguchi ’218, Pahlke ’083, Jang ’559, Huang ’437, Kokubo ’192, and Holder ’669

8. The ’744 Patent

The Asserted Claims of the ’744 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
H-1	Min ’715
H-2	Ohkawa ’966
H-3	Pahlke ’083
H-4	Yamaguchi ’053
H-5	Yamaguchi ’218
H-6	Yamaguchi ’245
H-7	Yamaguchi ’550
H-8	Yamaguchi ’907
H-9	Yokota ’530
H-10	Sharp LE700UN
H-11	Holder ’669, Huang ’437, Jang ’559, Kokubo ’192, Paek ’627, and Yoon ’000

9. The ’048 Patent

The Asserted Claims of the ’048 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

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Claim Chart	Prior Art
I-1	Min ’715
I-2	Ohkawa ’966
I-3	Pahlke ’083
I-4	Yamaguchi ’053
I-5	Yamaguchi ’218
I-6	Yamaguchi ’245
I-7	Yamaguchi ’550
I-8	Yamaguchi ’907
I-9	Yokota ’530
I-10	Sharp LE700UN
I-11	Holder ’669, Huang ’437, Jang ’559, Kokubo ’192, Paek ’627, and Yoon ’000

10. The ’183 Patent

The Asserted Claims of the ’183 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
J-1	Min ’715
J-2	Ohkawa ’966
J-3	Pahlke ’083
J-4	Yamaguchi ’053
J-5	Yamaguchi ’218
J-6	Yamaguchi ’245
J-7	Yamaguchi ’550

Claim Chart	Prior Art
J-8	Yamaguchi ’907
J-9	Yokota ’530
J-10	Sharp LE700UN
J-11	Holder ’669, Huang ’437, Jang ’559, Kokubo ’192, Paek ’627, and Yoon ’000

11. The ’378 Patent

The Asserted Claims of the ’378 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
K-1	Min ’715
K-2	Ohkawa ’966
K-3	Pahlke ’083
K-4	Yamaguchi ’053
K-5	Yamaguchi ’218
K-6	Yamaguchi ’245
K-7	Yamaguchi ’550
K-8	Yamaguchi ’907
K-9	Yokota ’530
K-10	Sharp LE700UN
K-11	Holder ’669, Huang ’437, Jang ’559, Kokubo ’192, Paek ’627, and Yoon ’000

12. The ’823 Patent

The Asserted Claims of the ’823 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
N-1	Min ’715
N-2	Ohkawa ’966
N-3	Pahlke ’083
N-4	Yamaguchi ’053
N-5	Yamaguchi ’218
N-6	Yamaguchi ’245
N-7	Yamaguchi ’550
N-8	Yamaguchi ’907
N-9	Yokota ’530
N-10	Sharp LE700UN
N-11	Holder ’669, Huang ’437, Jang ’559, Kokubo ’192, Paek ’627, and Yoon ’000

13. The ’411 Patent

The Asserted Claims of the ’411 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
L-1	Ko ’685
L-2	Kurihara ’537
L-3	Ouderkirk ’033
L-4	Schardt ’182
L-5	Staufert ’016
L-6	Tamura ’139
L-7	Lee ’844

Claim Chart	Prior Art
L-0	Tamura ’110, Namgung ’832, Shoji ’868, Duclos ’363, Takahashi ’809, Teraoka ’613, Sturley ’897, and Nishizawa ’505

14. The ’352 Patent

The Asserted Claims of the ’352 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
M-1	Ko ’685
M-2	Kurihara ’537
M-3	Ouderkirk ’033
M-4	Schardt ’182
M-5	Staufert ’016
M-6	Tamura ’139
M-7	Lee ’844
M-0	Tamura ’110, Namgung ’832, Shoji ’868, Duclos ’363, Takahashi ’809, Teraoka ’613, Sturley ’897, and Nishizawa ’505

15. The ’778 Patent

The Asserted Claims of the ’778 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
O-1	Asada ’963
O-2	Cho ’982
O-3	Kinoshita ’879

Claim Chart	Prior Art
O-4	Kurihara ’532
O-0	Kurihara ’537, Oh ’509, Lin ’907, Tasaki ’996, Clary ’308, Clary ’308, Yamamoto ’937, Ashdown 2006, and Liao ’525

16. The ’537 Patent

The Asserted Claims of the ’537 patent are anticipated and/or rendered obvious in view of the prior art references identified above and as explained herein and in the attached claim charts:

Claim Chart	Prior Art
P-1	Kim ’219
P-2	Liu ’538
P-3	Mori ’586
P-4	Park ’946
P-0	Abe ’877, Yuu ’938, Park ’776, Roberts ’414, and Liu ’660

B. Motivation to Combine

To the extent that prior art identified above by Defendants is found not to anticipate, the prior art establishes that the claimed subject matter was obvious to a person of ordinary skill in the art at the time of the alleged invention.

First, even if a particular claim element is not expressly found in one of the charted references above, those charted references render the relevant Asserted Claims obvious without the need to combine with any other references, having in mind the information generally known to those skilled in the art, common sense, and/or routine innovation. Accordingly, Defendants

disclose each of the references cited above as rendering obvious the Asserted Claims as shown in the charts referenced above.

Second, each charted reference in combination with one or more of the other charted references render obvious the Asserted Claims. As explained herein and/or in the accompanying charts, it would have been obvious to a person of skill in the art at the time of the alleged invention of the Asserted Claims to combine the various references cited herein so as to practice the Asserted Claims. In addition to the specific combinations of prior art and the specific combinations of groups of prior art disclosed herein, Defendants reserve the right to rely on any other combination of any prior art references disclosed herein. Defendants further reserve the right to rely upon combinations disclosed within the prosecution history of the references cited herein. These obviousness combinations reflect Defendants' present understanding of the potential scope of the claims that Plaintiff appears to be advocating and should not be construed as Defendants' acquiescence to Plaintiff's interpretation of the patent claims.

Third, Defendants incorporates by reference prior art from the prosecution histories and background sections of the Asserted Patents. Defendant expects to rely on the testimony of one or more expert witnesses and documents referenced by those expert witnesses in support of these contentions and incorporate those forthcoming expert reports as if fully set forth herein.

Additional evidence that there would have been a motivation to combine the prior art references identified above pursuant to P. R. 3-3(a) includes the interrelated teachings of multiple prior art references; the effects of demands known to the design community or present in the marketplace; the existence of a known problem for which there was an obvious solution encompassed by the Asserted Claims; the existence of a known need or problem in the field of the

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endeavor at the time of the invention(s); and the background knowledge that would have been possessed by a person having ordinary skill in the art.

In KSR, the Supreme Court emphasized that an idea that is the result of ordinary innovation, ordinary skill, or common sense should not be patentable. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). The Supreme Court held that a person of ordinary skill in the art is "a person of ordinary creativity, not an automaton" and "in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 420–21. Although a patent challenger is not required to show that one of ordinary skill in the art would have had a specific motivation to combine prior art references, such a showing may be helpful to the obviousness analysis. *Id.* at 418; see also *id.* at 402.

One of skill in the art would have been motivated to combine the references identified herein because, for example, the identified combinations fall into one or more of the following categories:

- A combination of elements known in the prior art according to known methods to yield a predictable result;
- A combination that is a simple substitution of one or more known elements for another to obtain a predictable result;
- A combination that involves using a known technique to improve a similar device or method in the same way;
- A combination that involves applying a known technique to a known device or method ready for improvement to yield a predictable result;
- A combination that results from a finite number of identified, predictable solutions with a reasonable expectation of success, such that the solution was one which was "obvious to try";
- A combination that results from known work in one field of endeavor prompting variations of it for use either in the same field or a different field based on design incentives or other market forces in which the variations were predictable to one of ordinary skill in the art; and

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- A teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine the teachings of various prior art references to arrive at the claimed invention.

Further, the Federal Circuit has held that a motivation to combine references may be implicit for patents claiming an "improvement":

> [A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the "improvement" is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient. Because the desire to enhance commercial opportunities by improving a product or process is universal—and even commonsensical—we have held that there exists in these situations a motivation to combine prior art references even absent any hint of suggestion in the references themselves. In such situations, the proper question is whether the ordinary artisan possesses knowledge and skills rendering him capable of combining the prior art references.

DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 1368 (Fed. Cir. 2006). The prior art references identified herein explicitly or implicitly refer to other prior art references, share common authors or inventors, were published in the same journals, presented at the same conferences, were presented as proposals to standards working groups, and/or were developed at common companies, schools, or organizations, all of which would motivate one of skill in the art to combine them. These references are also within the field of the Asserted Patents and are directed to similar subject matter within that field. Additionally, any products, devices, or processes described in the references existed and/or were invented before or during the period in which the claimed inventions were developed, providing further motivation to combine them.

For example, the Sony Qualia were made, used, offered for sale, sold, and imported into the United States and in public use prior to at least March 15, 2006 (before the claimed priority date of each of the Asserted Patents). Other products, such as the Sharp LE 700UN, were made, used, offered for sale, sold, and imported into the United States and in public use prior to the priority date of most of the Asserted Patents. Product literature describing these products, including

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for example user guides, service manuals, brochures and trade magazines, are prior art as printed publications that anticipate or render obvious the Asserted Claims of the Asserted Patents. Fact discovery is in its early stages; third party discovery has not yet begun; and Defendants reserve all rights to supplement these contentions with additional prior art commercial products as the case proceeds, including based on any change in alleged priority date.

Numerous prior art references, including those identified above pursuant to P. R. 3-3(a) and in the claim charts, reflect common knowledge and the state of the prior art prior to the priority date of the Asserted Patents. As it would be unduly burdensome to create detailed claim charts for the thousands of invalidating combinations, Defendants have provided illustrative examples of such invalidating combinations below and in the charts attached hereto. For at least the reasons described above and below in the examples provided as well as in the attached claim charts, it would have been obvious to one of ordinary skill in the art to combine any of a number of prior art references, including any combination of those identified in the attached claim charts, to meet the limitations of the Asserted Claims. As such, Defendants' inclusion of exemplary combinations does not preclude Defendants from identifying other invalidating combinations as appropriate.

To the extent Plaintiff challenges a combination of prior art with respect to a particular element, Defendants reserve all rights to supplement these contentions to further specify the motivation to combine the prior art. Defendants may rely on cited or uncited portions of the prior art, other documents, and/or expert testimony to establish that a person of ordinary skill in the art would have been motivated to modify or combine the prior art so as to render the claims invalid as obvious.

Additionally, Defendants contend that there are no secondary considerations of non-obviousness evidencing the validity of any of the asserted claims. Secondary considerations of

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non-obviousness, also referred to as objective indicia of non-obviousness, "can include copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, awards or other industry praise for the invention, and skepticism of skilled artisans before the invention." *Power Integrations, Inc. v. Fairchild Semiconductor Int'l*, Inc., 711 F.3d 1348, 1368 (Fed. Cir. 2013). "A nexus between the merits of the claimed invention and evidence of secondary considerations is required in order for the evidence to be given substantial weight in an obviousness decision." *Ruiz v. A.B. Chance Co*., 234 F.3d 654, 668 (Fed. Cir. 2000). Moreover, even if a nexus exists, secondary considerations of non-obviousness "simply cannot overcome [a] strong prima facie showing of obviousness." *Sundance, Inc. v. DeMonte Fabricating Ltd*., 550 F.3d 1356, 1368 (Fed. Cir. 2008). Plaintiff has not established the existence of any objective indicia of non-obviousness or secondary considerations. Defendant reserves the right to supplement their contentions to respond to any such evidence should Plaintiff identify any. While discovery in this case is ongoing, and Defendant's investigation continues (which will include expert discovery), to the extent Plaintiff contends that one or more asserted claims is not obvious based on secondary considerations recognized by relevant authority Defendant contends such allegations are without merit. For example, Plaintiff has provided no evidence of copying of the purported inventions of the asserted claims. Similarly, Plaintiff has provided no evidence of any failure of others to realize any purported inventions of the asserted claims, or any evidence of any long felt but unsolved need solved by the purported inventions of the asserted claims. *Id*. To the contrary, the relative novelty and widespread availability backlighting systems for display devices, including LCD television products, is contrary evidence of any long-felt need for the purported inventions of the asserted claims.

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Plaintiff also has not identified any evidence that the purported inventions of the asserted claims have enjoyed any commercial success. To the extent that Plaintiff claims that sales of any accused products constitute commercial success, Plaintiff has not identified any evidence of any nexus between the claimed invention and such alleged commercial success. Moreover, any commercial success of the accused products may be due to factors other than the merits of the asserted claims, including non-patented features or functionalities, marketing efforts or other financial or economic incentives related to the sale or distribution of the accused products. Plaintiff also has provided no evidence of unexpected results or unexpected properties in the purported inventions of the asserted claims. *Id*. Additionally, there is no evidence of any licenses showing industry respect for the purported inventions of the asserted claims, and also no evidence of any awards or other industry praise for any purported inventions of the asserted claims. Finally, Plaintiff has provided no evidence of any skepticism of skilled artisans prior to purported inventions of the asserted claims; to the contrary, the prior art identified herein establishes not only a lack of skepticism but an appreciation that the purported inventions of the asserted claims were known to those of skill in the art.

1. Motivation to Combine: ’415 Patent

A POSA would have been motivated to combine the references identified in Exhibits A-1 and A-2 with each other and with the references disclosed herein and in Exhibit A-0 for the reasons described herein and in those exhibits. The identified combinations involve analogous references that are each directed to light source apparatuses and liquid crystal displays. Further, a POSA would have been motivated to combine these references and would have had a reasonable expectation of success in combining the references because the claim limitations in the Asserted Claims of the ’415 patent recite no more than well-known, conventional components and configurations routinely implemented for light source apparatuses and liquid crystal displays. For

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example, it was known since at least the early 2000s that solid state lighting panels may include arrays of solid state lighting devices and "have been used as direct illumination sources, for example, in architectural and/or accent lighting." *See* e.g., US2007/0247414, at [002], [003], [007], [008]. It was also known since at least the early 2000s that "[s]olid state lighting panels are commonly used as backlights for small liquid crystal display (LCD) display screens, such as LCD display screens used in portable electronic devices." *Id.* at [003].

Indeed, the references identified in Exhibits A-0 to A-2 demonstrate that each limitation recited in the Asserted Claims was known in the art. To the extent a particular reference does not expressly disclose one of these or the other conventional limitations recited in the Asserted Claims, it would have been obvious to a POSA to implement such features.

As set forth in Exhibits A-0 to A-2, the other limitations of the Asserted Claims similarly recite no more than well-known, conventional components and configurations routinely implemented for light source apparatuses and liquid crystal displays and a POSA would have been motivated to combine the references for the reasons set forth in Exhibits A-0 to A-2 as well as general considerations including (1) well-known prior art light source apparatuses and liquid crystal displays, (2) ways to optimize mechanical and electrical strength between the module substrates for the LED, and (3) market demands, such as improved mechanical connection structures and electrical connection structures of a module substrate of an LED.

For example, to the extent Kim '201 is found not to disclose element [1c], it would have been obvious to combine Kim '201 with Roberts '414's disclosure of [1c] because both references describe modular backlighting systems for LED TVs and mechanisms for connecting the modular components. Using the modular component-connecting mechanism from Roberts '414 in the context of Kim '201 would have been a simple substitution of known elements that would have

achieved the predictable result of connecting the modular backlighting components shown in Kim using the modular component-connecting mechanism from Roberts ’414. Similarly, and for the same reason, it would have been obvious to combine Kim ’201 with Ishizuka ’608, Kim ’539, Murakami ’344, Karlicek ’789, Kim ’177, Lengyel ’165, Henrici ’368, Newman ’862, Liu ’660, Hsiao ’951, and/or Nishida ’073’s disclosure of [1c] because each of these references describe modular backlighting systems for LED TVs and mechanisms for connecting the modular components.

As another example, to the extent Kim ’201 is found not to disclose element [1d], it would have been obvious to combine Kim ’201 with Roberts ’414’s disclosure of [1c] because both references describe modular backlighting systems for LED TVs and mechanisms for connecting the modular components. Using the terminal component-connecting mechanism from Roberts ’414 in the context of Kim ’201 would have been a simple substitution of known elements that would have achieved the predictable result of connecting the modular backlighting components shown in Kim using the terminal component-connecting mechanism from Roberts ’414. This would have been advantageous because as shown by Roberts ’414, using a terminal component-connecting mechanism reduces the number of electrical connections need to the backlighting unit and improves manufacturability and cost considerations. Similarly, and for the same reason, it would have been obvious to combine Kim ’201 with Ishizuka ’608, Kim ’539, Murakami ’344, Karlicek ’789, Kim ’177, Lengyel ’165, Henrici ’368, Newman ’862, Liu ’660, Hsiao ’951, and/or Nishida ’073’s disclosure of [1c] because each of these references describe modular backlighting systems for LED TVs and mechanisms for the terminal-component connections of the modular backlighting systems.

2. Motivation to Combine: ’380 Patent

A POSA would have been motivated to combine the references identified in Exhibits B-1 and B-2 with each other and or with the references disclosed in Exhibit B-0 for the reasons described herein and in those exhibits. The identified combinations involve analogous references that are each directed to light units and display devices, such as Nakayoshi ’944 and Sakamoto ’394. Further, a POSA would have been motivated to combine these references and would have had a reasonable expectation of success in combining the references because the claim limitations in the Asserted Claims of the ’380 patent recite no more than well-known, conventional components and configurations routinely implemented for light units and display devices. Indeed, the references identified in Exhibits B-1 and B-2 demonstrate that each limitation recited in the Asserted Claims was known in the art. To the extent a particular reference does not expressly disclose one of these or the other conventional limitations recited in the Asserted Claims, it would have been obvious to a POSA to implement such features.

As set forth in Exhibits B-1 - B-2, the other limitations of the Asserted Claims similarly recite no more than well-known, conventional components and configurations routinely implemented for light units and display devices and a POSA would have been motivated to combine the references for the reasons set forth in Exhibits B-1 - B-2 as well as general considerations including (1) well-known prior art light units and display devices, (2) ways to optimize light emission, extraction, and conversion, and (3) market demands, such as improved and cost-efficient light units and display devices. Additional rationales and motivations are provided in the claim chart Exhibits.

3. Motivation to Combine: ’200 Patent

The specification of the ’200 patent shows that a person of ordinary skill was familiar with liquid crystal displays and the need for backlighting units. The background section of the ’200

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patent notes that that LCDs in the prior require backlight units because they are not self-emissive and that prior lighting modules. Col. 1:38-47. What one skilled in the art would have known before May 12, 2010 is shown by the prior art identified herein or in the other invalidity contentions incorporated herein by reference, or on the face of the '200 patent. *In re GPAC, Inc.*, 57 F.3d 1573, 1577-1579 (Fed. Cir. 1995). This includes prior-art LED televisions, such as the Sharp LE 700UN. The specification of the '200 patent also shows that a person of ordinary skill was familiar with LCD lighting requirements and the need for stable backlighting units.

To the extent any of the prior art references described in the claim charts is deemed not to disclose, explicitly or inherently, any limitation of an asserted claim of the '200 patent, any purported differences are such that the claimed subject matter as a whole would have been obvious to one skilled in the art at the time of the alleged invention, in view of the state of the art and the common sense and other knowledge of those skilled in the art.

Each of the prior art references described in the claim charts renders the asserted claims invalid as obvious under 35 U.S.C. § 103. It would have been obvious to combine any of the prior art in claim charts because all these references are analogous and relate to devices and methods for back light units (BLU) for use in conjunction with light guide plates. For example, a person of ordinary skill in May 2009 would be aware of a direct-type backlight unit with a plurality of light sources (e.g. LEDs) arranged under a light guide plate (LGP) to provide uniform illumination to an LCD panel where guide protrusions were used to support the LGP and diffuse the light. For example, multi-part partitions are used to reflect the light generated by the LEDs were known in the art as taught by Chou '956, Kim '629, Lee '084, Park '463 Tsai '960. Similarly, Chou '956, Kim '629, Lee '084, Tsai '960 disclose that an edge-type BLU using LED light sources positioned on the side of a light guide plate and mounting structures and alignment guides were used to position LEDs relative to the LGP, improving coupling efficiency and reducing assembly

tolerances were within the knowledge of one of skill in the art. *See e.g.,* Lee'084 at [[0027]-[0033]). Thus, it was also well known to those of skill in the art that guide protrusions positioned between LEDs on the substrate that contact and press the lateral edge of the optical sheet were used to prevent displacement caused by thermal expansion or external shock. *See e.g.,* Kim '629 at [0034]-[0038], [0046]-[0048]). The skilled artisan would consider the lighting requirements of the problem faced. These parameters would drive lighting decisions such choosing the luminance and quantity of LEDs, placement of light emitting elements, designing for thermal considerations, and power consumption. Each piece of prior art represents a state of the art in the toolkit of the skilled artisan. For example, the prior art clearly discloses that light emitting elements can be place in such a way that the pin structure of the light guide protrusion has a height less than a height of the light emitting diode elements. For example, under Plaintiff's theory of infringement, a light guide protrusion purportedly reads on a lens where the light emitting elements are located within a recess within the bottom surface of the lens. This allows the light emitting element to before higher than the purported pins of the claimed light guide protrusion (lens). This type of LED positioning with a bottom recess was well in the art. For example, Parkyn '769 depicts this second recess structure where the legs of the lens are lower than the LED element. *See e.g*., Parkyn '769 at Fig. 18.; see also Section XI (discussing for example, Ohkawa '966 Pahlke '083 and Yamaguchi '245.)

The Asserted Claims represent nothing more than an arrangement of well-known concepts and features and add nothing to the state of the art at the time of the alleged invention. For each of the concepts represented by the claims, it would have been inherently obvious to add to the teachings of any number of known concepts and features as shown in the prior art references.

Defendant's obviousness contentions are contained in Exhibits C-1 to C-6 and the combination of references is set forth below.

Claim	Combination of References and/or knowledge of POSITA
1	Obvious over Lee '084 in view of knowledge of POSITA Obvious over Lee '084 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Chou '956 in view of knowledge of POSITA Obvious over Chou '956 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Kim '629 in view of knowledge of POSITA Obvious over Kim '629 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Tsai '960 in view of knowledge of POSITA Obvious over Tsai '960 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Park '463 in view of knowledge of POSITA Obvious over Park in view of Parkyn '769 in further view knowledge of POSITA Obvious over Parkyn '769 in view of knowledge of POSITA
2	Obvious over Lee '084 in view of knowledge of POSITA Obvious over Lee '084 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Chou '956 in view of knowledge of POSITA Obvious over Chou '956 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Kim '629 in view of knowledge of POSITA Obvious over Kim '629 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Tsai '960 in view of knowledge of POSITA Obvious over Tsai '960 in view of Parkyn '769 in further view knowledge of POSITA Obvious over Park '463 in view of knowledge of POSITA Obvious over Park in view of Parkyn '769 in further view knowledge of POSITA Obvious over Parkyn '769 in view of knowledge of POSITA
3	Obvious over Lee '084 in view of Chou '956 or Kim '629 in further view of knowledge of POSITA Obvious over Lee '084 in view of' Tsai '906 or Kim '629 in further view of knowledge of POSITA Obvious over Cho '629 in view of Tsai '906 or Kim '629 in further view of knowledge of POSITA Obvious over Kim '629 in view of Chou '956 in further view of knowledge of POSITA Obvious over Park '463 in view of Tsai '906 or Kim '629 in further view of knowledge of POSITA Obvious over Park '463 in view of Chou '956 or Kim '629 in further view of knowledge of POSITA Obvious over Parkyn '769 in view of Kim '629 in further view of knowledge of POSITA Obvious over Lee '084 in view of Chou '956 or Kim '629 in further view of Parkyn '769 in further view of the knowledge of POSITA Obvious over Lee '084 in view of' Tsai '906 or Kim '629 in further view of Parkyn '769 in further view of the knowledge of POSITa Obvious over Cho '629 in view of Tsai '906 or Kim '629 in further view of Parkyn '769 in further view of the knowledge of POSITA

	Obvious over Kim ’629 in view of Chou ’956 in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Park ’463 in view of Tsai ’906 or Kim in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Park ’463 in view of Chou ’956 or Kim ’629 in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Parkyn ’769 in view of Kim ’629 in further view of knowledge of POSITA
5	Obvious over Lee ’084 in view of Chou ’956 or Kim ’629 in further view of knowledge of POSITA Obvious over Lee ’084 in view of’ Tsai ’906 or Kim ’629 in further view of knowledge of POSITA Obvious over Cho ’629 in view of Tsai ’906 or Kim ’629 in further view of knowledge of POSITA Obvious over Kim ’629 in view of Chou ’956 in further view of knowledge of POSITA Obvious over Park ’463 in view of Tsai ’906 or Kim ’629 in further view of knowledge of POSITA Obvious over Park ’463 in view of Chou ’956 or Kim ’629 in further view of knowledge of POSITA Obvious over Parkyn ’769 in view of Kim ’629 in further view of knowledge of POSITA Obvious over Lee ’084 in view of Chou ’956 or Kim ’629 in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Lee ’084 in view of’ Tsai ’906 or Kim ’629 in further view of Parkyn ’769 in further view of the knowledge of POSITa Obvious over Cho ’629 in view of Tsai ’906 or Kim ’629 in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Kim ’629 in view of Chou ’956 in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Park ’463 in view of Tsai ’906 or Kim in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Park ’463 in view of Chou ’956 or Kim ’629 in further view of Parkyn ’769 in further view of the knowledge of POSITA Obvious over Parkyn ’769 in view of Kim ’629 in further view of knowledge of POSITA
6	Obvious over Lee ’084 in view of knowledge of POSITA Obvious over Lee ’084 in view of Parkyn ‘769 in further view knowledge of POSITA Obvious over Chou ’956 in view of knowledge of POSITA Obvious over Chou ’956 in view of Parkyn ‘769 in further view knowledge of POSITA Obvious over Kim ’629 in view of knowledge of POSITA Obvious over Kim ’629 in view of Parkyn ‘769 in further view knowledge of POSITA Obvious over Tsai ’960 in view of knowledge of POSITA Obvious over Tsai ’960 in view of Parkyn ‘769 in further view knowledge of POSITA Obvious over Park ’463 in view of knowledge of POSITA Obvious over Park in view of Parkyn ‘769 in further view knowledge of POSITA Obvious over Parkyn ’769 in view of knowledge of POSITA

4. Motivation to Combine: ’122, ’307, ’729, and ’093 Patents

A POSA would have been motivated to combine the references identified in Exhibits D-1 to D-3, E-1 to E-3, F-1 to F-4, and G-1 to G-4 with each other and or with the references disclosed in Exhibits D-0, E-0, F-0, and G-0 because the identified combinations involve analogous references that are each directed to a lens and a light emitting apparatus including the lens, such as Min ’715, Yamaguchi ’550, Yamaguchi ’245, and Ohkawa ’966. Further, a POSA would have been motivated to combine these references and would have had a reasonable expectation of success in combining the references because the claim limitations in the Asserted Claims of the ’122, ’307, ’729, and ’093 patents recite no more than well-known, conventional components and configurations routinely implemented for a lens and a light emitting apparatus including the lens. Indeed, the references identified in Exhibits D-1 to D-3, E-1 to E-3, F-1 to F-4, and G-1 to G-4 demonstrate that each limitation recited in the Asserted Claims was known in the art. To the extent a particular reference does not expressly disclose one of these or the other conventional limitations recited in the Asserted Claims, it would have been obvious to a POSA to implement such features.

As set forth in Exhibits D-1 to D-3, E-1 to E-3, F-1 to F-4, and G-1 to G-4, the other limitations of the Asserted Claims similarly recite no more than well-known, conventional components and configurations routinely implemented for a lens and a light emitting apparatus including the lens and a POSA would have been motivated to combine the references for the reasons set forth in Exhibits D-1 to D-3, E-1 to E-3, F-1 to F-4, and G-1 to G-4 as well as general considerations including (1) well-known prior art light emitting devices and lenses, (2) ways to optimize lens design, including ratios of lens height, width, and thickness, and (3) market demands, such as improved extraction efficiency, power consumption, and distribution characteristics. Additional rationales and motivations are provided in the claim chart Exhibits.

5. Motivation to Combine: ’744, ’183, ’378, ’823, and ’048 Patents

The specification of the ’744, ’183, ’378, ’823, and ’048 patents show that a person of ordinary skill was familiar with light emitting devices such as light emitting diodes (LEDs), and with the use of LEDs as backlighting for televisions. *See, e.g.* ’183 patent at 1:13-17. One of skill knew that LEDs “have advantages of low power consumption, a long usable life cycle, and environmentally friendly.” *Id*. at 13-15. It was well known, according to the specifications that “the light emitting devices could be used as backlight units for electronic equipment, electronic displays, and lighting equipment.” *Id*.at 15-17. It was further well known that “an encapsulant resin layer is formed in various lens shapes to surround the light emitting device, thereby adjusting a distribution characteristic of light emitted from the light emitting device.” *Id*. at 19-22. Thus, the ’744, ’183, ’378, ’823, and ’048 patents admit that those of ordinary skill knew that an encapsulant resin could be used as a lens and shaped to control the distribution of light from a LED, and that this could and should be done in the specific context of backlight units for televisions.

To the extent any of the prior art references described in the claim charts for the ’744, ’183, ’378, ’823, and ’048 Patents is deemed not to disclose, explicitly or inherently, any limitation of an asserted claim of those patents, any purported differences are such that the claimed subject matter as a whole would have been obvious to one skilled in the art at the time of the alleged invention, in view of the state of the art and the common sense and other knowledge of those skilled in the art.

Thus, each of the prior art references described in the claim charts renders the asserted claims invalid as obvious under 35 U.S.C. § 103. It would have been obvious to combine any of the prior art in claim charts because all of these references are analogous and relate to lighting devices and methods for using lighting devices in display devices, including as backlight units for

use in LCD display devices. As these prior art references demonstrate, at least the following were well known in the art: (1) LED packages that incorporated phosphor or fluorescent layers and encapsulant resin layers; (2) lens bodies with overlapping recesses on the top and bottom surfaces and side or peripheral edges designed to enable wide angle emission characteristics that had numerical dimensions similar to those disclosed in the asserted claims; and (3) lens bodies with lens supporters or legs.

It was well known in the art that lighting devices could use LEDs mounted on a substrate, which could be a printed circuit board. *See e.g.*, Yoon ’000 at [0104]; Palhke ’083 at [0070]; Paek ’627 at [0070]; Min ’715 at 1:53-67; Yokota ’530 at [0033]-[0034]. For example, Yoon ’000 discloses a light source for a backlight that included LEDs mounted on a printed circuit board. Yoon ’000 at [0104].

It was further known to use LEDs that would emit white light, which could be achieved by using an LED that emits blue light that was provided with a phosphor or fluorescent layer to produce white light. *See e.g.*, Palhke ’083 at [0080]; Min ’715 at 2:6-23; Yokota ’530 at [0034]. Palhke ’083 explicitly teaches a light source that emits white light using “LEDs which emit blue light and are provided with a phosphor and in which the phosphor wavelength-converts part of the blue light emitted by the LED into yellow light, as a result of which a white mixed light is produced overall. Of course, the concept of using a blue light LED with a yellow phosphor to emit white light was taught in U.S. Patent No. 5,998,925 to Shimizu et al. (Shimizu ’925), issued in 1999. Shimizu ’925 at Fig. 2, 8:31-67.

Persons of skill in the art were aware of LED packages with a resin or encapsulant layer, including such a layer that would surround the phosphor or fluorescent layer. *See e.g.*, Shimizu

’925 at 8:31-67; Min ’715 at 17:44-49; Yokota ’530 at [0034]. Skilled artisans would have been aware such an LED package structure as least as early as 1999. Shimizu ’925 at Fig. 2, 8:31-67

The prior art is replete with lighting devices having lens bodies that include a recess on the center top surface and a recess on the center bottom surface, with the top recess being wider and less deep than the bottom recess. *See e.g.,* Yamaguchi ’245 at Figs. 3, 8; Yamaguchi ’550 at Figs. 4b, 24a; Kokubo ’192 at Fig. 18; Ohkawa ’966 at Fig. 22; Yokota ’530 at Fig. 6; Min ’715 at Figs. 15-18. Likewise, these prior art lens bodies possessing the foregoing double recess structure also incorporated peripheral sides edges that were perpendicular to the bottom surface and had a height that was less than the height of the recess on the center bottom surface. *See e.g.,* Yamaguchi ’245 at Figs. 3, 8; Kokubo ’192 at Fig. 18; Ohkawa ’966 at Fig. 22; Yokota ’530 at Fig. 6; Min ’715 at Figs. 15-18. Yamaguchi ’245 discloses an identically shaped lens body with overlapping top and bottom recesses and identical peripheral side surfaces. Yamaguchi ’245 at Figs. 3, 8. In fact, such a lens body was incorporated in LED backlight-LED televisions that were in use in the United States no later than October 2009. See Ex. J-10 Sharp LE700UN Product.

Lens bodies with dimensions within the ranges of the dimensions set forth in the Asserted Claims existed in the art. *See e.g.*, Yamaguchi ’245 at Figs. 2-4c, [0170]–[0184]; Yamaguchi ’550 at Figs. 3-4c, [219]; Pahlke ’083 at [0073]; Min ’715 at Fig. 17, 19:20-38. Yamaguchi ’245 provides an express disclosure of a lens body with a diameter, thickness and bottom recess that falls within or close to the ranges of dimensions in the asserted claims. Yamaguchi ’245 at Figs. 2-4c, [0170]–[0184]. To the extent that any specific numerical limitation of the claims is not explicitly disclosed by any of the references, this claim element would have been obvious in light of the reference itself and the knowledge of one of ordinary skill in the art. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or

workable ranges by routine experimentation." *In re Applied Materials, Inc*., 692 F.3d 1289, 1295 (Fed. Cir. 2012)(quoting *In re Aller*, 220 F.2d 454, 456 (CCPA 1955)). The "general conditions" of a claim are disclosed when the claimed ranges are inherently disclosed in the prior art, overlapped by the ranges disclosed in the prior art, or even outside the ranges disclosed in the prior art. For example, the Federal Circuit in *K-Swiss Inc. v. Glide N Lock GmbH*, 567 Fed.Appx. 906, 913 (Fed. Cir. 2014), determined that prior art references that provided no variable range disclosed the claimed range inherently. The Federal Circuit has further found that a claimed range that is outside the range disclosed in the prior art is within the knowledge of one of skill. *In re Huang*, 100 F.3d 135, 136-37, 139 (Fed. Cir. 1996). "[I]t is not inventive to discover the optimum or workable ranges by routine examination." *K-Swiss Inc.*, 567 Fed. Appx. at 913. Where Min '715 discloses ranges that overlap the claimed ranges, those claimed ranges are deemed to be within the ordinary skill in the art. I*n re Applied Materials*, 692 F.3d at 1293-1294.

Finally, lighting devices with lens bodies that incorporated lens supports, or legs, existed in the art. *See e.g.*, Yamaguchi '245 at Figs. 4a, 5, [0094]–[0095]; Yamaguchi '550 at Figs. 7, 24a, [0121]–[0123]; Yokota '530 at Fig. 6; Min '715 at Figs. 16-18, 18:28-45. Yamaguchi '550 discloses a lens body that incorporates three legs spaced apart on the bottom of the lens body to mount the lens body to the substrate. Yamaguchi '550 at Figs. 7, 24a, [0121]–[0123]. A lens body with legs was incorporated in LED backlight-LED televisions that were in use in the United States no later than October 2009. See Ex. J-10 Sharp LE700UN Product.

Thus, each of the prior art references described in the claim charts renders the asserted claims invalid as obvious under 35 U.S.C. § 103. Additionally, it would have been obvious to combine any of the prior art in claim charts because all of these references relate to devices and methods. The Asserted Claims represent nothing more than an arrangement of well-known

concepts and features and add nothing to the state of the art at the time of the alleged invention. For each of the concepts represented by the claims, it would have been inherently obvious to add to the teachings of any number of known concepts and features as shown in the prior art references.

Defendant's obviousness contentions are contained in Exhibits J-1 to J-11, to I-1 to I-11, H-1 to H-11, K-1 to K-11, and N-1 to N-11 and the combination of references is set forth below.

a. The '183 patent

Claim	Combination of References and/or knowledge of POSITA
1	Obvious over Min '715 in view of knowledge of POSITA Obvious over Yamaguchi '053 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 or in view of knowledge of POSITA Obvious over Yamaguchi '550 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in further view of knowledge of POSITA Obvious over Yokota '530 in view of knowledge of POSITA Obvious over Ohkawa '966 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in view further knowledge of POSITA Obvious over Pahlke '083 in view of knowledge of POSITA Obvious over Yamaguchi '218 in view of Ohkawa '966 or Pahlke '083 or Min '715 or Yamaguchi '245 or Yamaguchi '907 or Yokota '530 or Jang '559 in further view of Paek '627 in further view of knowledge of POSITA Obvious over Yamaguchi '245 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in further view of knowledge of POSITA Obvious over Yamaguchi '907 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
2	Obvious over Min '715 in view of knowledge of POSITA Obvious over Yamaguchi '053 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 or in view of knowledge of POSITA Obvious over Yamaguchi '550 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in further view of knowledge of POSITA Obvious over Yokota '530 in view of knowledge of POSITA Obvious over Ohkawa '966 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in view further knowledge of POSITA Obvious over Pahlke '083 in view of knowledge of POSITA Obvious over Yamaguchi '218 in view of Ohkawa '966 or Pahlke '083 or Min '715 or Yamaguchi '245 or Yamaguchi '907 or Yokota '530 or Jang '559 in further view of Paek '627 in further view of knowledge of POSITA Obvious over Yamaguchi '245 in view of Pahlke '083 or Min '715 or Paek '627 or Yokota '530 in further view of knowledge of POSITA

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	Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
3	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
4	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
5	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA

	Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
6	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
7	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ‘627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA

	Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
8	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Kukubo ’192 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
9	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
10	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA

	Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
11	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
12	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA

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	Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
13	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
14	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
15	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA

	Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
16	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
17	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 or in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in view further knowledge of POSITA Obvious over Pahlke ’083 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Ohkawa ’966 or Pahlke ’083 or Min ’715 or Yamaguchi ’245 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA

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	Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA

b. The ’048 patent

Claim	Combination of References and/or knowledge of POSITA
1	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
2	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
3	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA

	Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
4	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
5	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
6	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA

	Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
7	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
8	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of POSITA

	Obvious over Sharp LE 700UN in view of knowledge of POSITA
9	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA in view of knowledge of POSITA of knowledge of Obvious over Yamaguchi ’907 in view knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
10	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of POSITA Obvious over Yamaguchi ’218 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
11	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view knowledge of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
12	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA

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	Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Yokota ’530 or Pahlke ’083 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of Pahlke ’083 or Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
13	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Yokota ’530 or Pahlke ’083 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of Pahlke ’083 or Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 of Pahlke ’083 or Min ’715 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
14	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 orJang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
15	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 orJang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
16	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 orJang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

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	Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
17	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 orJang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
18	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
19	Obvious over Min ’715 in view of knowledge of POSITA

	Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA

c. The ’744 patent

Claim	Combination of References and/or knowledge of POSITA
1	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 o Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSI Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
2	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
3	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
4	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

	Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
5	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
6	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
7	Obvious over Min ’715 in view of knowledge of POSITA

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	Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
8	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
9	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
10	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
11	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

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	Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
12	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
13	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
14	Obvious over Min ’715 in view of knowledge of POSITA

	Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Pael ‘627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Min ‘715 or Pahlke ’083 or Yokota’530 or Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Min ‘715 or Pahlke ’083 or Yokota’530 or Paek ’627 in further view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
15	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
16	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
17	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
18	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA

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	Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
19	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
20	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
21	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA

	Obvious over Yamaguchi ’550 in view or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of in further view or Min ’715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA

d. The ’378 patent

Claim	Combination of References and/or knowledge of POSITA
1	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
2	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA

	Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
3	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
4	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

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	Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
5	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
6	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
7	Obvious over Min ’715 in further view of knowledge of POSITA

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	Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
8	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
9	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
10	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
11	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

	Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
12	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
13	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
14	Obvious over Min ’715 in further view of knowledge of POSITA

	Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
15	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
16	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
17	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
18	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view Paek ’627 of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Min ’715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view of Min ’715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Pahlke ’083 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

	Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Min ’715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Min ’715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
19	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA
20	Obvious over Min ’715 in further view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in further view of knowledge of POSITA Obvious over Yokota ’530 in further view of knowledge of POSITA Obvious over Ohkawa ’966 in view further of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in further view knowledge of POSITA Obvious over Sharp LE 700UN in further view of knowledge of POSITA

e. The ’823 patent

Claim	Combination of References and/or knowledge of POSITA
1	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
2	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
3	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA

	Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
4	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
5	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

	Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
6	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
7	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
8	Obvious over Min ’715 in view of knowledge of POSITA

	Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
9	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
10	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA

	Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
11	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
12	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA

	Obvious over Sharp LE 700UN in view of knowledge of POSITA
13	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of Min ‘715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yokota ’530 Obvious over Ohkawa ’966 in view of Min ‘715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Pahlke ’083 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in view further view of Paek ’627 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of Paek ’627 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of Min ‘715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of Min ‘715 or Pahlke ’083 or Paek ’627 or Yokota ’530 in further view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
14	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
15	Obvious over Min ’715 in view of knowledge of POSITA

	Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
16	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
17	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA

	Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
18	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
19	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA

	Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA
20	Obvious over Min ’715 in view of knowledge of POSITA Obvious over Yamaguchi ’053 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in further view of knowledge of POSITA Obvious over Yamaguchi ’550 in view of knowledge of POSITA Obvious over Yokota ’530 in view of knowledge of POSITA Obvious over Ohkawa ’966 in view of knowledge of POSITA Obvious over Kukubo ’192 in view of Min ’715 or Ohkawa ’966 or Pahlke ’083 Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Pahlke ’083 in view of Min ’715 or Ohkawa ’966 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 in view of knowledge of POSITA Obvious over Yamaguchi ’218 in view of Min ‘715 or Ohkawa ‘966 or Pahlke ’083 or Yamaguchi ’245 or Yamaguchi ’550 or Yamaguchi ’907 or Yokota ’530 or Jang ’559 in further view of knowledge of POSITA Obvious over Yamaguchi ’245 in view of knowledge of POSITA Obvious over Yamaguchi ’907 in view of knowledge of POSITA Obvious over Sharp LE 700UN in view of knowledge of POSITA

6. Motivation to Combine: ’411 and ’352 Patents

A POSA would have been motivated to combine the references identified in Exhibits L-1 to L-7 and M-1 to M-7 with each other and or with the references disclosed in Exhibits L-0 or M-0 because the identified combinations involve analogous references that are each directed to photoluminescent sheets, including photoluminescent sheets for backlight systems. Further, a POSA would have been motivated to combine these references and would have had a reasonable expectation of success in combining the references because the claim limitations in the Asserted Claims of the ’411 and ’352 patents recite no more than well-known, conventional components

and configurations routinely implemented for photoluminescent sheets. For example, it was known since at least the 1980s that phosphor layers in photoluminescent sheets should have protective layers and both sides "to protect the phosphor layer from physical and chemical deterioration." *See, e.g.,* EP0269110A2, at 1:42-53, 4:29-38. It was also known since at least the 1980s that such a protective layer could comprise polyethylene terephthalate (PET), a well-known, synthetic, transparent, thermoplastic polymer resin . *Id.*, at 6:5-15, 6:42-50. The 352 and 411 patents admit that the components of the sheet are well-known, including silicon resin, curing agents, phosphors, and dispersing agents, by providing examples of well-known, publicly available products:

- "Such silicone resin is commercially available, for example, the silicone resin system of LS4326 (silicone resin)—LS4326A (curing agent)—LS4326C (curing accelerator)—toluene or xylene (70%, viscosity controller or solvent), or the silicone resin system of CF5010 (silicone resin)—SO400 (curing agent)—silicone oil (viscosity controller or solvent), etc., from Dow Corning Corporation." ('352 patent, at 4:51-57);

- "In an embodiment of the invention, (Y, Gd, Ce)3(Al, Ga)5O12 from Daejoo Electronic Materials Co. Ltd., and Y3Al5O12:Ce from Phosphor Technology, Ltd., were used. … For improved luminance, a SrS:Eu based phosphor of wavelengths around 620 nm from Phosphor Technology, Ltd., is used. Also, a typical inorganic phosphor for emitting green light is SrGa2S4:Eu2+. This green inorganic phosphor absorbs light of 500 nm or lower, and emits radiation having a main wavelength of 535 nm. Also, a typical inorganic phosphor for emitting blue light is BaMg2Al16O27:Eu2+. This blue inorganic phosphor absorbs light of 430 nm or lower, and emits radiation having a main wavelength of 450 nm." (*Id.*, 5:13-39);

- "A curing agent cures liquid-phase silicone. While various types of curing agents may be used, the CF5010, CD7657, DC9800, LS4326, and DC2013 products from Dow Corning Corporation are generally used." (*Id.*, 6:39-42);

- "Also, one or more solutions selected from a dispersing agent for dispersing the phosphor 1 within the liquid silicone, a surface-defect-preventing agent, and a fluidity-enhancing additive may be used as additives. When such additives are not used, the phosphor 1 lumps together, to decrease the efficiency of the photoluminescent sheet 10. Products from BYK Gmbh of Germany (BYK-333, BYK-306, BYK-310, BYK-w940, BYK-110, BYK-2001, BYK-410) are mainly used for the additives. Of course, any of a variety of products and substances may be used for the above curing agent and additives according to usage." (*Id.*, 6:43-53).

Indeed, the references identified in Exhibits L and M 1-7 demonstrate that each limitation recited in the Asserted Claims was known in the art. To the extent a particular reference does not expressly disclose one of these or the other conventional limitations recited in the Asserted Claims, it would have been obvious to a POSA to implement such features.

As set forth in Exhibits L and M 1-7, the other limitations of the Asserted Claims similarly recite no more than well-known, conventional components and configurations routinely implemented for photoluminescent sheets, including for LED backlight systems and a POSA would have been motivated to combine the references for the reasons set forth in Exhibits L and M 1-7 as well as general considerations including (1) well-known prior art backlight systems, (2) ways to optimize photoluminescent sheets, and (3) market demands, such as improved color, clarity, and durability for backlight systems. Additional rationales and motivations are provided in the claim chart Exhibits.

7. Motivation to Combine: ’778 Patent

A POSA would have been motivated to combine the references identified in Exhibits O-1 to O-4 with each other and with the references disclosed herein and in Exhibit O-0 because the identified combinations involve analogous references that are each directed to lighting modules, backlight unites, and display devices, such as Kurihara ’532, Cho ’982, Asada ’963, and Kinoshita ’879. Further, a POSA would have been motivated to combine these references and would have had a reasonable expectation of success in combining the references because the claim limitations in the Asserted Claims of the ’778 patent recite no more than well-known, conventional components and configurations routinely implemented for lighting modules, backlight unites, and display devices. Indeed, the references identified in Exhibits O-1 to O-4 demonstrate that each limitation recited in the Asserted Claims was known in the art. To the extent a particular reference

does not expressly disclose one of these or the other conventional limitations recited in the Asserted Claims, it would have been obvious to a POSA to implement such features.

As set forth in Exhibits O-1 to O-4, the other limitations of the Asserted Claims similarly recite no more than well-known, conventional components and configurations routinely implemented for lighting modules, backlight unites, and display devices and a POSA would have been motivated to combine the references for the reasons set forth in Exhibits O-1 to O-4 as well as general considerations including (1) well-known prior art lighting modules, backlight units, and display devices, (2) ways to optimize light emission, extraction, and conversion, and (3) market demands, such as improved and cost-efficient light units and display devices. Additional rationales and motivations are provided in the claim chart Exhibits.

8. Motivation to Combine: ’537 Patent

A POSA would have been motivated to combine the references identified in Exhibits P-1 to P-4 with each other and with the references disclosed herein and in Exhibit P-0 because the identified combinations involve analogous references that are each directed to backlight units and display devices. Further, a POSA would have been motivated to combine these references and would have had a reasonable expectation of success in combining the references because the claim limitations in the Asserted Claims of the ’537 patent recite no more than well-known, conventional components and configurations routinely implemented for backlight units and display devices. For example, it was known since the early 2000s that light source assembly structure of a backlight model may include “at least one light-emitting device and one board,” wherein, “[t]he backboard has at least one protrusion part,” and “[t]he board is detachably installed on the backboard and is tightly held by the backboard and the protrusion part.” *See, e.g.*, TW1248538B, at 3. It was also known since at least the early 2000s that “the entire display industry is moving towards high

brightness and efficiency in order to make more commercially valuable display products." *Id.* at 5.

Indeed, the references identified in Exhibits P-1 to P-4 demonstrate that each limitation recited in the Asserted Claims was known in the art. To the extent a particular reference does not expressly disclose one of these or the other conventional limitations recited in the Asserted Claims, it would have been obvious to a POSA to implement such features.

As set forth in Exhibits P-1 to P-4, the other limitations of the Asserted Claims similarly recite no more than well-known, conventional components and configurations routinely implemented for backlight units and display devices and a POSA would have been motivated to combine the references for the reasons set forth in Exhibits P-1 to P-4 as well as general considerations including (1) well-known prior art backlight units and display devices, (2) ways to optimize backlight units and display devices, in which parts can be easily replaced with new ones, and (3) market demands, such as improved backlight units in which the LED module can be easily separated from the case and replaced with new ones. Additional rationales and motivations are provided in the claim chart Exhibits.

C. There is No Evidence of Any Indicia of Nonobviousness

There is no evidence of any indicia of nonobviousness, including any long-felt but unsolved need; copying; failure of others; commercial success due to the patented invention; no industry praise; no unexpected results; no industry skepticism and no licensing. Each is address in turn below:

No long felt but unsolved need. There was no long-felt but unsolved need that the Asserted Claims solve. The concepts described in the Asserted Patents were all well known before the alleged invention dates of the Asserted Patents as evidenced by the patents themselves, their file histories and references cited therein, and the prior art identified herein, including those

identified in the above-referenced Exhibits. In addition, there was no long felt but unsolved need because there is nothing particularly compelling about the claimed methods, systems, and apparatus.

No copying. Plaintiff has provided no credible evidence that the alleged inventions of the Asserted Patents were copied, or more specifically, that any functionality that practices the Asserted Patents was copied. Copying "requires evidence of efforts to replicate a specific product." *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010). Here, Plaintiff has not, and cannot, show that Defendants copied any product that embodies the Asserted Patents. Further, evidence of copying is "not sufficient to demonstrate nonobviousness of the claimed invention" where, as here, there is a "substantial question of validity raised by the prior art references" cited by Defendants. *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1366 (Fed. Cir. 2001). As explained in detail in these contentions, the Asserted Patents are rendered obvious by the prior art. Thus, Plaintiff cannot show any nexus between any alleged copying and the merits of the claimed inventions of the Asserted Patents.

No failure of others. Although "[n]onobviousness is suggested by the failure of others to find a solution to the problem which the patents in question purport to solve," *Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991), this is not such a case. As explained in detail in these contentions, image correction technology was well known in the art. A person of ordinary skill would have been motivated to apply the teachings of prior art references regarding LEDs and lighting systems. Furthermore, a person of ordinary skill in the art would have found combining such teachings to be straightforward, predictable, and a matter of routine optimization.

No commercial success. Plaintiff has not provided any evidence that any alleged success of its products or any other products is due to the alleged inventions claimed in the Asserted

Patents. A patentee bears the burden of demonstrating that the relevant commercial success is attributable to the claimed invention "as opposed to other economic and commercial factors unrelated to the technical quality of the patented subject matter." *Cable Elec. Prods, Inc. v. Genmark, Inc.*, 770 F. 2d 1015, 1027 (Fed. Cir. 1985). Here, Plaintiff has not shown and cannot show that Defendants' success is due to the alleged invention of the Asserted Patents. The commercial success of the accused products are unrelated to the purported inventions of the Asserted Patents. Furthermore, if any commercial success is due to any of the concepts disclosed in the Asserted Patents, those concepts are also present in the prior art and thus are irrelevant to the question of obviousness. *See Tokai Corp. v. Easton Enterprises, Inc.*, 632 F.3d 1358, 1369-70 (Fed. Cir. 2011) ("If commercial success is due to an element in the prior art, no nexus exists."); *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) ("Where the offered secondary consideration actually results from something other than what is both claimed and novel in the claim, there is no nexus to the merits of the claimed invention."); *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006) ("[I]f the feature that creates the commercial success was known in the prior art, the success is not pertinent.").

No industry praise. Plaintiff has presented no evidence of industry praise for the alleged inventions of the Asserted Patents or any functionality that allegedly practices the Asserted Patents. To the extent any praise is related to any functionality that allegedly practices the Asserted Patents, that praise is not due to the allegedly novel features of the Asserted Patents, but instead only to features present in the prior art, which is not a sufficient nexus to be relevant to the question of industry praise for purposes of obviousness. *See Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1328 (Fed. Cir. 2008).

No unexpected results. There is no evidence of any unexpected results when the elements

of the Asserted Claims were combined. Instead, as discussed above, the concepts claimed in the Asserted Patents were already combined or would have been obvious to combine in the same manner as the Asserted Claims. These prior art systems and products, as described in these contentions, disclosed the same combinations of elements, and the same results of such combinations, that are recited in the Asserted Claims of the Asserted Patents. Thus, there were no unexpected results that arose from combining the well-known elements in the Asserted Claims of the Asserted Patents.

No industry skepticism. Plaintiff has presented no evidence that others were skeptical before the alleged invention date of the Asserted Patents, nor can it. In fact, there was no industry skepticism concerning the claimed concepts that predates the Asserted Patents. Instead, many companies and individuals were already using the concepts claimed in the Asserted Patents as demonstrated by the attached Exhibits. Thus, there was no industry skepticism that using or combining these well-known prior art concepts would be viable; others in the field were already combining them in the same manner as arranged in the Asserted Claims.

Simultaneous Invention. Individuals working independently of the Asserted Patents' named inventor simultaneously or near-simultaneously invented the alleged invention of the Asserted Claims of the Asserted Patents. Such evidence supports a finding that the Asserted Claims would have been obvious to a person of ordinary skill in the art at the time of the invention. *See Geo. M. Martin Co. v. Alliance Mach. Sys.*, 618 F.3d 1294, 1305 (Fed. Cir. 2010) ("Independently made, simultaneous invention, made within a comparatively short space of time, are persuasive evidence that the claimed apparatus was the product only of ordinary mechanical or engineering skill.") (citing *Concrete Appliances Co. v. Gomery*, 269 U.S. 177, 184 (1925)) (internal quotations omitted); *see also Ecolochem, Inc. v. So. Cal. Edison Co.*, 227 F.3d 1361,

1379 (Fed. Cir. 2000). For example, the Sony Qualia and Sharp LE 700UN, along with the other prior art cited above and in the attached charts, are evidence of simultaneous invention.

V. INVALIDITY OF THE ASSERTED PATENTS BASED ON 35 U.S.C. § 112, ¶¶ 1-2

Hisense reserves the right to argue that the following asserted claim terms are indefinite under Section 112 ¶ 2 and/or unsupported by the written description under Section 112 ¶ 1. *See* P.R. 3-3(d).

35 U.S.C. § 112, ¶ 1 requires that the specification contain a written description of the invention. "[T]he hallmark of written description is disclosure." *Boston Scientific Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1361–62 (Fed. Cir. 2011) (citation omitted). The test for whether a specification adequately describes an invention is "whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date. . . . [T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. . . . [It] is a question of fact." *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*); *Boston Scientific*, 647 F.3d at 1362.

Claims are indefinite under 35 U.S.C. § 112, ¶ 2 when they "fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). To the extent an asserted apparatus claim includes both apparatus and method limitations, that claim is invalid for indefiniteness under § 112, ¶ 2 because it fails to identify or notify the public of what constitutes direct infringement. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005).

Paragraph 2 of 35 U.S.C. § 112 also requires that the claimed subject matter be what "the inventor or a joint inventor regards as the invention." "Where it would be apparent to one of skill

in the art, based on the specification, that the invention set forth in a claim is not what the patentee regarded as his invention, we must hold that claim invalid under § 112, paragraph 2." *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002).

A. The '415 Patent

a) "wherein the connecting substrate comprises a termination connecting substrate, which allows a connecting terminal provided at one end of a final module substrate of the module substrates to be feedback in a form of a closed loop." (claim 12)—indefinite

B. The '380 Patent

a) "white LED" (claim 6)—indefinite

b) "comprising at least one of a white LED, a green LED, a blue LED, and a red LED" (claim 6)—indefinite

c) "comprising at least one of a prism sheet, a diffusion sheet, and a brightness enhancement sheet" (claim 7)—indefinite

C. The '200 Patent

a) "pin" (claims 1, 3, 6)—indefinite

b) "cap" (claims 1, 5)—indefinite

c) "guide protrusion" (claims 1, 2)—indefinite

D. The '122 Patent

a) "spaced apart" (claim 1)—indefinite

b) "about" (claims 2, 3, 4, and 5)—indefinite

c) "wherein the lens body is flat at a circumference of a top surface thereof" (claim 10)—indefinite

d) “a concave-convex part or roughness is disposed on the bottom surface of the lens body except for a portion where the second recess is formed” (claim 12)—indefinite

e) “flush” (claims 15, 16, 17)—indefinite

f) “wherein the phosphor layer has a top surface curved according to an arrangement of the light emitting device” (claim 20)—indefinite

E. The ’307 Patent

a) “spaced apart” (claim 1)—indefinite

b) “about” (claims 2, 3, 4, 5)—indefinite

c) “wherein the lens body is flat at a circumference of a top surface thereof” (claim 10)—indefinite

d) “a concave-convex part or roughness is disposed on the bottom surface of the lens body except for a portion where the second recess is formed” (claim 12)—indefinite

e) “flush” (claims 14, 15, 16)—indefinite

F. The ’729 Patent

a) “about” (claims 1-7, 11-17, 19-20)—indefinite

b) “a convex top surface comprising a first recessed part at a central portion thereof and a flat surface at a circumference thereof” (claims 1, 11, 19)—indefinite

G. The ’093 Patent

a) “spaced apart” (claim 3)—indefinite

b) “about” (claim 1)—indefinite

c) “a convex top surface comprising a first recessed part at a central portion thereof and a flat surface at a circumference thereof” (claim 1)—indefinite

d) "wherein a concave-convex part or roughness is disposed on the bottom surface of the lens body except for a portion where the second recessed part is formed" (claim 5)—indefinite

H. The '744 Patent

a) "about" (claims 1-9, 13, 16-20)—indefinite

b) "the fluorescent layer to surround the fluorescent layer" (claim 21)—indefinite

c) "the convex top surface including a first recessed part at a central portion thereof and a flat top surface at a circumference of the top surface of the lens body" (claims 1, 13, 20)—indefinite

I. The '183 Patent

a) "spaced apart" (claims 1, 6)—indefinite

b) "about" (claims 1-4 and 12-15)—indefinite

c) "wherein a peripheral portion of the top surface of the lens body is flat" (claim 8)—indefinite

J. The '378 Patent

a) "about" (claims 1-12, 15-17, 20)—indefinite

b) "the convex top surface including a first recessed part at a central portion thereof and a flat top surface at a circumference of the top surface of the lens body" (claims 1, 15, 20)—indefinite

K. The '048 Patent

a) "spaced apart" (claims 6, 13, 16)—indefinite

b) "about" (claim 18)—indefinite

c) "substantially perpendicular" (claim 4)—indefinite

d) "a first top surface" (claim 10)—indefinite

e) "wherein the second top surface of the peripheral portion has a continuing surface between the first bottom surface and the lens supporter, and the second top surface includes a minimum surface and a maximum surface having different distances from the second bottom surface of the peripheral portion" (claim 19) —lacks written description

L. The '411 Patent

a) "wherein the first protective film and the second protective film comprise at least one same material" (claims 1, 14, 17)—written description

b) "wherein ends of the matrix layer and the second layer are aligned with each other" (claims 14, 17)—indefinite/written description

c) "substantially parallel" (claims 14, 17)—indefinite/written description

M. The '352 Patent

a) "resin which is not curable by light" (claim 1)—written description

b) "material which is not curable by light" (claim 17)—written description

c) "wherein ends of the matrix layer and the second layer are aligned with each other" (claims 14, 17)—indefinite/written description

d) "trans went synthetic resin" (claim 1)—indefinite/written description

e) "substantially parallel" (claims 14, 17)—indefinite/written description

f) "substantially flat" (claims 14, 17)—indefinite/written description

g) "material which is not an adhesive" (claims 14, 17)—written description

N. The '823 Patent

a) "about" (1, 10-12, 18-20)—indefinite

b) "the fluorescent layer to surround the fluorescent layer" (claim 13)—indefinite

O. The '778 Patent

a) "wherein the optical sheet is disposed on the light guide plate and the conversion sheet such that the conversion sheet converts the color of the light passing through the diffusion sheet and the prism sheet." (claim 1)—indefinite

b) "size" (claim 14)—indefinite

c) "substantially equal" (claim 14)—indefinite

d) "approximately" (claim 12)—indefinite

P. The '537 Patent

a) "substantially" (claim 3)—indefinite

Hisense expressly reserves the right to modify this listing of indefinite and unsupported claim terms in view of any amendments to LGI's infringement contentions.

VI. INVALIDITY OF THE ASSERTED PATENTS BASED ON 35 U.S.C. § 101

Section 101 of the Patent Act defines the type of subject matter that is patent-eligible. 35 U.S.C. § 101. The Supreme Court has long interpreted § 101 to hold that "laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014). These basic principles are excluded from patent eligibility because they are the very "building blocks of human ingenuity," *id.* at 2354, and should be "free to all men and reserved exclusively to none." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012).

The Supreme Court's *Alice* test sets forth a two-part standard for assessing subject-matter eligibility. In the first step, the court must determine whether the claims are "directed to" patent-ineligible subject matter, such as an abstract idea. *Alice,* 134 S. Ct. at 2355. In deciding whether a claim is "directed to" an abstract idea, the court must look at the "focus of the claimed advance over the prior art to determine if the claim's character as a whole is directed to excluded subject matter." *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (internal quotation marks omitted). Limiting the claims directed to an abstract idea to a particular

"technological environment" or "field of use" does "not render the claims any less abstract." *Alice*, 134 S. Ct. at 2358 ("the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment") (internal quotation marks and citation omitted); *Smart Sys. Innovations, LLC v. Chicago Transit Auth*., 873 F.3d 1364, 1373 (Fed. Cir. 2017) (citing *Affinity Labs,* 838 F.3d at 1259 (Fed. Cir. 2016)) (holding that claims applying abstract idea to particular field of use, namely mass transit, were not patent eligible); *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 768 (Fed. Cir. 2019), *cert. denied*, 140 S. Ct. 983 (2020) (limiting abstract idea of "communication over a network for interacting with a device" to electric vehicle charging stations did not make claims patent eligible).

Under *Alice* step two, the court must determine whether the patent claims include an "inventive concept" that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [abstract idea] itself." *Alice*, 134 S. Ct. at 2355 (internal quotation marks omitted). The inventive concept must be truly inventive; it is not sufficient to include "well-understood, routine, conventional" features. *Mayo*, 566 U.S. at 79–80. For example, merely reciting conventional computer elements "cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *Alice*, 134 S. Ct. at 2358; *see also Content Extraction and Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1348 (Fed. Cir. 2014) ("use of a generic scanner and computer to perform well-understood, routine, and conventional activities commonly used in industry" did not make claim patent eligible). Moreover, use of "generic functional language" to achieve purported solutions to technical problems, without "any requirements for *how* the desired result is achieved" will not suffice for an inventive concept. *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (internal quotation marks and citation omitted).

A. ’415 Patent

The claim limitations in the Asserted Claims of the ’415 patent recite no more than well-known, conventional components and configurations routinely implemented for light source apparatuses and liquid crystal displays.

For example, the specification of the ’415 patent shows that a person of ordinary skill was familiar with light source apparatuses and liquid crystal displays using a light emitting diode (LED) as the light source. *See* ’415 patent at 1:26-34. One of skill knew that “module substrates for the LED are connected through the connecting scheme, so that an additional module substrate for the LED is not necessary.” *Id.* at 64-66. It was well known that “electrical reliability is enhanced and the mechanical strength is enhanced between module substrates for the LED” when connecting substrates are used. *Id.* at 2:1-5. It was further well known that “the reflection efficiency of the LED module substrate” could be improved. *Id.* at 6-7. It was also well known that the heat emission efficiency of the LED module substrate could be enhanced. *Id.* at 8-9. Thus, the ’415 patent admits that those of ordinary skill knew that a light source apparatus and liquid crystal display could be improved through the use of connecting LEDs.

The claim charts for the ’415 patent that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute to any inventive concept either alone or in combination with the other elements. For example, it was known since at least the early 2000s that solid state lighting panels may include arrays of solid state lighting devices and “have been used as direct illumination sources, for example, in architectural and/or accent lighting.” *See* e.g., US2007/0247414, at [002], [003], [007], [008]. It was also known since at least the early 2000s that “[s]olid state lighting panels are

commonly used as backlights for small liquid crystal display (LCD) display screens, such as LCD display screens used in portable electronic devices." *Id.* at [003].

The prior art references show that it was routine, conventional, and well known for a module substrate to have connecting terminals at both ends. *See* Roberts '414 at Fig. 5B; Kim '201 at Fig. 1A.

The prior art references show that it was routine, conventional, and well known for a module substrate to have a light emitting diode on the module substrate. *See* Roberts '414 at Fig. 1; Kim '201 at Figs. 1A, 2, and 7.

The prior art references show that it was routine, conventional, and well known for a plurality of connecting terminals to be connected to the terminals of the module substrate. *See* Kim '201 at Figs. 1A, 2, and 7.

The prior art references show that it was routine, conventional, and well known for a the connecting substrates to be connected in a closed loop circuit. *See* Roberts '414 at [0020], [0134]. Roberts '414 discloses a "current supply circuit [that] may include a closed loop variable voltage boost converter current source." *Id.* at [0020]. Further, Roberts '414 discloses that "some embodiments of the invention provide a closed loop digital control system for a lighting panel, such as an

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses "conventional ordering of steps . . . with conventional technology to achieve [their] desired result." *Two-Way Media v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims do not result in an inventive concept because "the claims do not recite particular features to yield" the advantages of any purported combination. *See Intell. Ventures I LLC v.*

Capital One Fin. Corp., 850 F.3d 1332, 1342 (Fed. Cir. 2017). "[T]he claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it." *Id*.

B. '380 Patent

The claim limitations in the Asserted Claims of the '380 patent recite no more than well-known, conventional components and configurations routinely implemented for backlight units in display devices. For example, the specification of the '380 patent admits at 1:13-27 that backlight units for LCD displays are well known. Additionally, during prosecution, the applicant acknowledged and acquiesced that it was previously known in the prior art (including Lee) to use side-lit backlight units that included a light guide member and reflection sheet to distribute light from LEDs arranged along a side of the light guide member. *See e.g.* 11-29-2010 Amendment, 12-27-2010 Amendment. The applicant further acknowledged and acquiesced that it was already known in the prior art to mount the LEDs in such an arrangement on a printed circuit board. *Id.*

Additionally, the claim charts for the '380 Patent that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute any inventive concept either alone or in combination with the other elements. The prior art references and claim charts, as well as the intrinsic evidence described above, demonstrate that at least the following were conventional and well known in the art: (1) backlight units of a display device such as a television that used LED-based light emitting modules and a case or housing including a metal plate; (2) side-lit backlight units that included a light guide member and reflection sheet to distribute light from LEDs arranged along a side of the light guide member, (3) mounting the LEDs in such an arrangement on a flexible printed circuit board such that part of the

board is between the reflection sheet and the housing, and part of the board is between the case/plate and the light guide member.

Additionally, the claim charts for the ’380 Patent that are included with these contentions demonstrate that at least the following were conventional and well known in the art: (1) backlight units of a display device such as a television that used LED-based light emitting modules; (2) side-lit backlight units that use light guide plates to spread the light from an LED light source(s) arranged along one or more side edges of the display/backlight unit.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses “conventional ordering of steps . . . with conventional technology to achieve [their] desired result.” *Two-Way Media v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims of the ’122, ’307, ’729, and ’093 patents do not result in an inventive concept because “the claims do not recite particular features to yield” the advantages of any purported combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017).

C. ’200 Patent

The claim limitations in the Asserted Claims of the ’200 patent recite no more than well-known, conventional components and configurations routinely implemented for backlight units in display devices. For example, the specification of the ’200 patent admits at 1:19-20 that “[a] lighting module, a backlight unit, and a display device are known.”

The claim charts for the ’200 Patent that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute any inventive concept either alone or in combination with the other elements. The prior

art references and claim charts, as well as the intrinsic evidence described above, demonstrate that at least the following were conventional and well known in the art: (1) backlight units of a display device such as a television that used LED-based light emitting modules; (2) cases supporting those LED-based light emitting modules, (3) screws for attaching those modules to the case; and (4) case-mounted guide that is shaped/bent so that one side of the LED module can slide into place.

Additionally, the claim charts for the ’200 Patent that are included with these contentions demonstrate that at least the following were conventional and well known in the art: (1) backlight units of a display device such as a television that used LED-based light emitting modules; (2) side-lit backlight units that use light guide plates to spread the light from an LED light source(s) arranged along one or more side edges of the display/backlight unit.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses “conventional ordering of steps . . . with conventional technology to achieve [their] desired result.” *Two-Way Media v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims of the ’122, ’307, ’729, and ’093 patents do not result in an inventive concept because “the claims do not recite particular features to yield” the advantages of any purported combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017).

D. ’122, ’307, ’729, and ’093 Patents

The claim limitations in the Asserted Claims of ’122, ’307, ’729, and ’093 patents recite no more than well-known, conventional components and configurations routinely implemented for lenses adapted for use with an LED or set of LEDs as backlighting unit in an LED TV.

For example, the specification of the ’122, ’307, ’729, and ’093 patents shows that a person of ordinary skill was familiar with light emitting devices such as light emitting diodes (LEDs), and

with the use of LEDs as backlighting for televisions. *See, e.g.* '122 patent at 1:21-26. One of skill knew that LEDs "have advantages of low power consumption, a long usable life cycle, and environmentally friendly." *Id*. at 1:21-23. It was well known, according to the specifications that "the light emitting devices could be used as backlight units for electronic equipment, electronic displays, and lighting equipment." *Id*. at 1:23-26. It was further well known that "a sealing resin layer is formed in various lens shapes to surround a light emitting device, thereby to adjust a distribution characteristic of light emitted from the light emitting device." *Id*. at 1:27-30. Thus, the '122, '307, '729, and '093 patents admit that it was well known to those of ordinary skill to shape a lens to control the distribution of light from a LED, and that this could and should be done in the specific context of backlight units for televisions.

The claim charts for the '122, '307, '729, and '093 Patents that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute any inventive concept either alone or in combination with the other elements. The prior art references and claim charts demonstrate that at least the following were well known in the art: (1) LED packages that incorporated phosphor or fluorescent layers and encapsulant resin layers; (2) lens bodies with overlapping recesses on the top and bottom surfaces and side or peripheral edges designed to enable wide angle emission characteristics that had numerical dimensions similar to those disclosed in the asserted claims; and (3) lens bodies with lens supporters or legs.

The prior art references and claim charts show that it was routine, conventional, and well known for lighting devices to use LEDs mounted on a substrate such as a printed circuit board. *See e.g.*, Yoon '000 at [0104]; Palhke '083 at [0070]; Paek '627 at [0070]; Min '715 at 1:53-67;

Yokota ’530 at [0033]-[0034]. For example, Yoon ’000 discloses a light source for a backlight that included LEDs mounted on a printed circuit board. Yoon ’000 at [0104].

The prior art references and claim charts show that it was routine, conventional, and well known to use LEDs to generate white light, for example by using an LED that emits blue light that was provided with a phosphor or fluorescent layer to produce white light. *See e.g.*, Palhke ’083 at [0080]; Yokota ’530 at [0034]. Palhke ’083 describes a light source that emits white light using “LEDs which emit blue light and are provided with a phosphor and in which the phosphor wavelength-converts part of the blue light emitted by the LED into yellow light, as a result of which a white mixed light is produced overall. The concept of using a blue light LED with a yellow phosphor to emit white light was taught earlier in U.S. Patent No. 5,998,925 to Shimizu et al. (Shimizu ’925), issued in 1999. Shimizu ’925 at Fig. 2, 8:31-67.

The prior art references and claim charts show that it was routine, conventional, and well known that LED packages used a resin or encapsulant layer, including such a layer that would surround the phosphor or fluorescent layer. *See e.g.*, Shimizu ’925 at 8:31-67; Min ’715 at 17:44-49; Yokota ’530 at [0034]. Skilled artisans would have been aware such an LED package structure as least as early as 1999. Shimizu ’925 at Fig. 2, 8:31-67

The prior art references and claim charts show that it was routine, conventional, and well known to use lens bodies that include a recess on the center top surface and a recess on the center bottom surface, with the top recess being wider and less deep than the bottom recess. *See e.g.,* Yamaguchi ’245 at Figs. 3, 8; Yamaguchi ’550 at Figs. 4b, 24a; Kokubo ’192 at Fig. 18; Ohkawa ’966 at Fig. 22. Likewise, these prior art lens bodies possessing the foregoing double recess structure also incorporated peripheral sides edges that were perpendicular to the bottom surface and had a height that was less than the height of the recess on the center bottom surface. *See e.g.,*

Yamaguchi ’245 at Figs. 3, 8; Kokubo ’192 at Fig. 18; Ohkawa ’966 at Fig. 22. Yamaguchi ’245 discloses an identically shaped lens body with overlapping top and bottom recesses and identical peripheral side surfaces. Yamaguchi ’245 at Figs. 3, 8. In fact, such a lens body was incorporated in LED backlight-LED televisions that were in use in the United States no later than October 2009. See Ex. J-10 Sharp LE700UN Product.

The prior art references and claim charts show that it was routine, conventional, and well known to use lens bodies with dimensions within the ranges of the dimensions set forth in the Asserted Claims of the ’744, ’183, ’378, ’823, and ’048 patents. *See e.g.*, Yamaguchi ’245 at Figs. 2-4c, [0170]–[0184]; Yamaguchi ’550 at Figs. 3-4c, [219]; Pahlke ’083 at [0073]. Yamaguchi ’245 provides an express disclosure of a lens body with a diameter, thickness and bottom recess that falls within or close to the ranges of dimensions in the asserted claims. Yamaguchi ’245 at Figs. 2-4c, [0170]–[0184].

The prior art references and claim charts show that it was routine, conventional, and well known to use lighting devices with lens bodies that incorporated lens supports, or legs. *See e.g.*, Yamaguchi ’245 at Figs. 4a, 5, [0094]–[0095]; Yamaguchi ’550 at Figs. 7, 24a, [0121]–[0123]. Yamaguchi ’550 discloses a lens body that incorporates three legs spaced apart on the bottom of the lens body to mount the lens body to the substrate. Yamaguchi ’550 at Figs. 7, 24a, [0121]–[0123]. A lens body with legs was incorporated in LED backlight-LED televisions that were in use in the United States no later than October 2009. See Ex. J-10 Sharp LE700UN Product.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses “conventional ordering of steps . . . with conventional technology to achieve [their] desired result.” *Two-Way Media v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the

Asserted Claims of the ’122, ’307, ’729, and ’093 patents do not result in an inventive concept because “the claims do not recite particular features to yield” the advantages of any purported combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017).

E. ’744, ’183, ’048, ’378, and ’823 Patents

The claim limitations in the Asserted Claims of ’744, ’183, ’378, ’823, and ’048 patents recite no more than well-known, conventional components and configurations routinely implemented for lenses adapted for use with an LED or set of LEDs as backlighting unit in an LED TV.

For example, the specification of the ’744, ’183, ’378, ’823, and ’048 patents show that a person of ordinary skill was familiar with light emitting devices such as light emitting diodes (LEDs), and with the use of LEDs as backlighting for televisions. *See, e.g.* ’183 patent at 1:13-17. One of skill knew that LEDs “have advantages of low power consumption, a long usable life cycle, and environmentally friendly.” *Id*. at 13-15. It was well known, according to the specifications that “the light emitting devices could be used as backlight units for electronic equipment, electronic displays, and lighting equipment.” *Id*.at 15-17. It was further well known that “an encapsulant resin layer is formed in various lens shapes to surround the light emitting device, thereby adjusting a distribution characteristic of light emitted from the light emitting device.” *Id*. at 19-22. Thus, the ’744, ’183, ’378, ’823, and ’048 patents admit that those of ordinary skill knew that an encapsulant resin could be used as a lens and shaped to control the distribution of light from a LED, and that this could and should be done in the specific context of backlight units for televisions.

The claim charts for the ’744, ’183, ’378, ’823, and ’048 Patents that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted

claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute any inventive concept either alone or in combination with the other elements. The prior art references and claim charts demonstrate that at least the following were well known in the art: (1) LED packages that incorporated phosphor or fluorescent layers and encapsulant resin layers; (2) lens bodies with overlapping recesses on the top and bottom surfaces and side or peripheral edges designed to enable wide angle emission characteristics that had numerical dimensions similar to those disclosed in the asserted claims; and (3) lens bodies with lens supporters or legs.

The prior art references and claim charts show that it was routine, conventional, and well known that lighting devices could use LEDs mounted on a substrate, which could be a printed circuit board. *See e.g.*, Yoon ’000 at [0104]; Palhke ’083 at [0070]; Paek ’627 at [0070]; Min ’715 at 1:53-67; Yokota ’530 at [0033]-[0034]. For example, Yoon ’000 discloses a light source for a backlight that included LEDs mounted on a printed circuit board. Yoon ’000 at [0104].

The prior art references and claim charts show that it was routine, conventional, and well known that LEDs that could be used to generate white light, for example by using an LED that emits blue light that was provided with a phosphor or fluorescent layer to produce white light. *See e.g.*, Palhke ’083 at [0080]; Min ’715 at 2:6-23; Yokota ’530 at [0034]. Palhke ’083 explicitly teaches a light source that emits white light using “LEDs which emit blue light and are provided with a phosphor and in which the phosphor wavelength-converts part of the blue light emitted by the LED into yellow light, as a result of which a white mixed light is produced overall. Of course, the concept of using a blue light LED with a yellow phosphor to emit white light was taught in U.S. Patent No. 5,998,925 to Shimizu et al. (Shimizu ’925), issued in 1999. Shimizu ’925 at Fig. 2, 8:31-67.

The prior art references and claim charts show that it was routine, conventional, and well known that LED packages used a resin or encapsulant layer, including such a layer that would surround the phosphor or fluorescent layer. *See e.g.*, Shimizu ’925 at 8:31-67; Min ’715 at 17:44-49; Yokota ’530 at [0034]. Skilled artisans would have been aware such an LED package structure as least as early as 1999. Shimizu ’925 at Fig. 2, 8:31-67

The prior art references and claim charts show that it was routine, conventional, and well known to use lens bodies that include a recess on the center top surface and a recess on the center bottom surface, with the top recess being wider and less deep than the bottom recess. *See e.g.,* Yamaguchi ’245 at Figs. 3, 8; Yamaguchi ’550 at Figs. 4b, 24a; Kokubo ’192 at Fig. 18; Ohkawa ’966 at Fig. 22; Yokota ’530 at Fig. 6; Min ’715 at Figs. 15-18. Likewise, these prior art lens bodies possessing the foregoing double recess structure also incorporated peripheral sides edges that were perpendicular to the bottom surface and had a height that was less than the height of the recess on the center bottom surface. *See e.g.,* Yamaguchi ’245 at Figs. 3, 8; Kokubo ’192 at Fig. 18; Ohkawa ’966 at Fig. 22; Yokota ’530 at Fig. 6; Min ’715 at Figs. 15-18. Yamaguchi ’245 discloses an identically shaped lens body with overlapping top and bottom recesses and identical peripheral side surfaces. Yamaguchi ’245 at Figs. 3, 8. In fact, such a lens body was incorporated in LED backlight-LED televisions that were in use in the United States no later than October 2009. See Ex. J-10 Sharp LE700UN Product.

The prior art references and claim charts show that it was routine, conventional, and well known to use lens bodies with dimensions within the ranges of the dimensions set forth in the Asserted Claims of the ’744, ’183, ’378, ’823, and ’048 patents. *See e.g.*, Yamaguchi ’245 at Figs. 2-4c, [0170]–[0184]; Yamaguchi ’550 at Figs. 3-4c, [219]; Pahlke ’083 at [0073]; Min ’715 at Fig. 17, 19:20-38. Yamaguchi ’245 provides an express disclosure of a lens body with a diameter,

thickness and bottom recess that falls within or close to the ranges of dimensions in the asserted claims. Yamaguchi ’245 at Figs. 2-4c, [0170]–[0184].

The prior art references and claim charts show that it was routine, conventional, and well known to use lighting devices with lens bodies that incorporated lens supports, or legs. *See e.g.*, Yamaguchi ’245 at Figs. 4a, 5, [0094]–[0095]; Yamaguchi ’550 at Figs. 7, 24a, [0121]–[0123]; Yokota ’530 at Fig. 6; Min ’715 at Figs. 16-18, 18:28-45. Yamaguchi ’550 discloses a lens body that incorporates three legs spaced apart on the bottom of the lens body to mount the lens body to the substrate. Yamaguchi ’550 at Figs. 7, 24a, [0121]–[0123]. A lens body with legs was incorporated in LED backlight-LED televisions that were in use in the United States no later than October 2009. See Ex. J-10 Sharp LE700UN Product.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses “conventional ordering of steps . . . with conventional technology to achieve [their] desired result.” *Two-Way Media v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims do not result in an inventive concept because “the claims do not recite particular features to yield” the advantages of any purported combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017). “[T]he claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it.” *Id*.

F. ’411 and ’352 Patents

The claim limitations in the Asserted Claims of the ’411 and ’352 patents recite no more than well-known, conventional components and configurations routinely implemented for photoluminescent sheets. For example, it was known since at least the 1980s that phosphor layers in photoluminescent sheets should have protective layers and both sides “to protect the phosphor

layer from physical and chemical deterioration." *See, e.g.,* EP0269110A2, at 1:42-53, 4:29-38. It was also known since at least the 1980s that such a protective layer could comprise polyethylene terephthalate (PET), a well-known, synthetic, transparent, thermoplastic polymer resin . *Id.*, at 6:5-15, 6:42-50. The '352 and '411 patents admit that the components of the sheet are well-known, including silicon resin, curing agents, phosphors, and dispersing agents, by providing examples of well-known, publicly available products:

- "Such silicone resin is commercially available, for example, the silicone resin system of LS4326 (silicone resin)—LS4326A (curing agent)—LS4326C (curing accelerator)—toluene or xylene (70%, viscosity controller or solvent), or the silicone resin system of CF5010 (silicone resin)—SO400 (curing agent)—silicone oil (viscosity controller or solvent), etc., from Dow Corning Corporation." ('352 patent, at 4:51-57);

- "In an embodiment of the invention, (Y, Gd, Ce)3(Al, Ga)5O12 from Daejoo Electronic Materials Co. Ltd., and Y3Al5O12:Ce from Phosphor Technology, Ltd., were used. … For improved luminance, a SrS:Eu based phosphor of wavelengths around 620 nm from Phosphor Technology, Ltd., is used. Also, a typical inorganic phosphor for emitting green light is SrGa2S4:Eu2+. This green inorganic phosphor absorbs light of 500 nm or lower, and emits radiation having a main wavelength of 535 nm. Also, a typical inorganic phosphor for emitting blue light is BaMg2Al16O27:Eu2+. This blue inorganic phosphor absorbs light of 430 nm or lower, and emits radiation having a main wavelength of 450 nm." (*Id.*, 5:13-39);

- "A curing agent cures liquid-phase silicone. While various types of curing agents may be used, the CF5010, CD7657, DC9800, LS4326, and DC2013 products from Dow Corning Corporation are generally used." (*Id.*, 6:39-42);

- "Also, one or more solutions selected from a dispersing agent for dispersing the phosphor 1 within the liquid silicone, a surface-defect-preventing agent, and a fluidity-enhancing additive may be used as additives. When such additives are not used, the phosphor 1 lumps together, to decrease the efficiency of the photoluminescent sheet 10. Products from BYK Gmbh of Germany (BYK-333, BYK-306, BYK-310, BYK-w940, BYK-110, BYK-2001, BYK-410) are mainly used for the additives. Of course, any of a variety of products and substances may be used for the above curing agent and additives according to usage." (*Id.*, 6:43-53).

Indeed, the references identified in Exhibits L-1-7 and M-1-7 demonstrate that each limitation recited in the Asserted Claims was known in the art.

Claim 1 of the ’352 and ’411 patents are representative of the other Asserted Claims for purposes of the eligibility inquiry. Se*e, e.g., Phoenix Licensing, L.L.C. v. Consumer Cellular, Inc*., No. 2:16-cv-152-JRG-RSP, 2017 WL 1065938, at *8–9 (E.D. Tex. Mar. 8, 2017); *Content Extraction and Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1349 (Fed. Cir. 2014). The other claims of the ’352 and ’411 patents patent are substantially and substantively similar to claim 1, and they are therefore not patent eligible for the same reasons. The asserted dependent claims are also largely irrelevant to the scope of the claims, as they simply define limitations using conventional photoluminescent sheets structures and components. *Mayo Collaborative Servs. v. Prometheus Labs., Inc*., 132 S. Ct. 1289, 1297–98, 1300–01 (2012); *Bilski v. Kappos*, 561 U.S. 593, 610 (2010); *see also Clear with Computers, LLC v. Dick’s Sporting Goods, Inc*., 21 F. Supp. 3d 758, 763 (E.D. Tex. 2014) (noting limitations must “do more than recite pre- or post-solution activity, they [must be] central to the solution itself” to be meaningful) (quotations omitted); *PPS Data, LLC v. Jack Henry & Assocs., Inc*., No. 2:18-cv-00007-JRG, 2019 WL 1317286, at *5 (E.D. Tex. Mar. 21, 2019) (articulating that defendants first bear the burden of demonstrating a claim is representative, which then shifts to the plaintiff to identify a difference material to the § 101 analysis); *see also Content Extraction*, 776 F.3d at 1348.

Claim 1 of both the ’352 and ’411 patents is directed to an apparatus capable of executing a process, *i.e*., converting a wavelength of light using phosphor and including protective films over the phosphor to prevent its chemical/physical degradation. The claims simply describes the concept of converting light using phosphor and protecting the phosphor layer. This is not directed to a judicial exception.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses “conventional ordering of steps . . . with

conventional technology to achieve [their] desired result." *Two-Way Media v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims do not result in an inventive concept because "the claims do not recite particular features to yield" the advantages of any purported combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017). "[T]he claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it." *Id*.

G. '778 Patent

The claim limitations in the Asserted Claims of the '778 patent recite no more than well-known, conventional components and configurations routinely implemented for the backlight units of a display device such as a television. For example, the specification of the '778 patent admits at 1:20-24 that backlight units for LCD panels were well known. Additionally, during prosecution, the applicant acknowledged and acquiesced that it was already known in the prior art (including both Lin and Kurihara) to use backlight units that included LED-based light emitting modules with optical sheets above them, where the optical sheets included diffusion sheet, a prism sheet, and a conversion sheet. Thus, the intrinsic evidence of the '778 patent admits that it was conventional to use backlight units that included LED-based light emitting modules with optical sheets above them, and that it was conventional for the optical sheets to include a diffusion sheet, a prism sheet, and a conversion sheet.

Additionally, the claim charts for the '778 Patent that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute any inventive concept either alone or in combination with the other elements. The prior art references and claim charts, as well as the intrinsic evidence described above, demonstrate that

at least the following were conventional and well known in the art: (1) backlight units of a display device such as a television that used LED-based light emitting modules; (2) optical sheets for such backlight unit that include a diffusion sheet, a prism sheet, and a conversion sheet such as a phosphor film; (3) side-lit backlight units that use light guide plates to spread the light from an LED light source(s) arranged along one or more side edges of the display/backlight unit; (4) reflective plates in both direct-lit backlighting units and side-lit backlighting units.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses "conventional ordering of steps . . . with conventional technology to achieve [their] desired result." *Two-Way Media v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims of the '122, '307, '729, and '093 patents do not result in an inventive concept because "the claims do not recite particular features to yield" the advantages of any purported combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017).

H. '537 Patent

The claim limitations in the Asserted Claims of the '537 patent recite no more than well-known, conventional components and configurations routinely implemented for backlight units in display devices. For example, the specification of the '537 patent admits at 1:11-44 and in FIGs. 1-2 that "a conventional backlight unit" for LCD panel included LED modules mounted on printed circuit boards, lenses ("mold part 25") on the LEDs and a reflective sheet that reflects light emitted from the LEDs upward. The specification also admits that it was conventional in such backlight units to attach the LED modules to the backlight case with screws. '537 Patent at 1:24-26.

The alleged improvement claimed in the ’537 patent is the routine, conventional, and well known idea of replacing some of the screws with a case-mounted guide that is shaped/bent so that one side of the LED module can slide into place. For example, even a non-POSA who has assembled IKEA furniture is familiar with the conventional concept of attaching two parts together by sliding one part into a shaped/bent guide that is fixed in place on the other part. The asserted claims merely describe modifying an admittedly conventional backlight unit by replacing a screw with a bent part that guides and fixes an LED module. This is not directed to a judicial exception.

Additionally, the claim charts for the ’537 Patent that are included with these contentions demonstrate on an element-by-element basis why each element of each asserted claim was routine, conventional, and well-known to those of skill in the art, showing that each such element does not contribute any inventive concept either alone or in combination with the other elements. The prior art references and claim charts, as well as the intrinsic evidence described above, demonstrate that at least the following were conventional and well known in the art: (1) backlight units of a display device such as a television that used LED-based light emitting modules; (2) cases supporting those LED-based light emitting modules, (3) screws for attaching those modules to the case; and (4) case-mounted guide that is shaped/bent so that one side of the LED module can slide into place.

The ordered combinations of limitations does not shelter the claims from ineligibility because each of the asserted claims simply uses “conventional ordering of steps . . . with conventional technology to achieve [their] desired result.” *Two-Way Media v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). The combination of elements in the Asserted Claims of the ’122, ’307, ’729, and ’093 patents do not result in an inventive concept because “the claims do not recite particular features to yield” the advantages of any purported

combination. *See Intell. Ventures I LLC v. Capital One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017).

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Respectfully submitted,

By: */s/ Nicholas A. Brown*

Scott J. Bornstein
Scott.Bornstein@gtlaw.com
Joshua L. Raskin
Josh.Raskin@gtlaw.com
Jeffrey R. Colin
colinj@gtlaw.com
Wen Xue
XueW@gtlaw.com
Kathryn E. Albanese
Katie.Albanese@gtlaw.com
Emma F. Cohen (*pro hac vice*)
Emma.Cohen@gtlaw.com
Greenberg Traurig, LLP
One Vanderbilt Avenue
New York, NY 10017
Tel.: 212.801.9200
Facsimile: 212.801.6400

Nicholas A. Brown
Nicholas.Brown@gtlaw.com
Greenberg Traurig, LLP
101 2nd Street, Suite 2200
San Francisco, CA 94105
Tel.: 415.655.1271
Facsimile: 415.707.2010

Attorneys for Defendants Hisense Company Ltd., Hisense Visual Technology Co. Ltd. f/k/a Qingdao Hisense Electric Co. Ltd., Hisense International Co. Ltd., Hisense International (Hong Kong) America Investments Co. Ltd., and Hisense International (HK) Co. Ltd.

CERTIFICATE OF SERVICE

I hereby certify that on September 22, 2025, a true and correct copy of the foregoing was served on all counsel of record who are deemed to have consented to electronic service via electronic mail.

By: */s/ Jeffrey R. Colin*