

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

<p>WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,</p> <p>Plaintiff,</p> <p>v.</p> <p>HP INC.</p> <p>Defendant.</p>	<p>Civil Case No. 2:24-cv-00752-JRG [Lead Case]</p>
<p>WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,</p> <p>Plaintiff,</p> <p>v.</p> <p>SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.</p> <p>Defendants.</p>	<p>Civil Case No. 2:24-cv-00746-JRG [Member Case]</p>
<p>WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,</p> <p>Plaintiff,</p> <p>v.</p> <p>HP INC.</p> <p>Defendant.</p>	<p>Civil Case No. 2:24-cv-00764-JRG [Member Case]</p>

<p>WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,</p> <p style="text-align: center;">Plaintiff,</p> <p>v.</p> <p>SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.</p> <p style="text-align: center;">Defendants.</p>	<p>Civil Case No. 2:24-cv-00765-JRG [Member Case]</p>
<p>WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,</p> <p style="text-align: center;">Plaintiff,</p> <p>v.</p> <p>ASKEY COMPUTER CORP., ASKEY INTERNATIONAL CORP.</p> <p style="text-align: center;">Defendants.</p>	<p>Civil Case No. 2:24-cv-00766-JRG [Member Case]</p>
<p>WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,</p> <p style="text-align: center;">Plaintiff,</p> <p>v.</p> <p>ASKEY COMPUTER CORP., ASKEY INTERNATIONAL CORP.</p> <p style="text-align: center;">Defendants.</p>	<p>Civil Case No. 2:24-cv-00753-JRG-RSP [Member Case]</p>

**DEFENDANTS’ P.R. 3-3 AND 3-4 INVALIDITY CONTENTIONS
AND SUBJECT MATTER ELIGIBILITY CONTENTIONS**

Pursuant to Docket Control Order (Dkt. No. 47) and Local Patent Rule 3-3, Defendants Samsung Electronics Co., Ltd. and, Samsung Electronics America, Inc., and HP, Inc. (collectively,

“Defendants”)¹ hereby provide their Invalidity Contentions, which include the accompanying claim charts concerning U.S. Patent Nos. 10,313,077 (“the ’077 patent”); 11,159,210 (“the ’210 patent”); 10,687,281 (“the ’281 patent”); 11,470,595 (“the ’595 patent”), 11,116,035 (“the ’035 patent”), 11,516,879 (“the ’879 patent”), 11,129,163 (“the ’163 patent”), and 11,700,597 (“the ’597 patent”) (collectively, the “Asserted Patents”) to Wilus Institute of Standards and Technology Inc. (“Plaintiff” or “Wilus”). Defendants also respectfully submit their subject matter eligibility contentions for the Asserted Claims of the Asserted Patent in accordance with the July 25, 2019 Standing Order Regarding Subject Matter Eligibility Contentions Applicable to All Patent Infringement Cases Assigned to Chief District Judge Rodney Gilstrap (“Standing Order”).

The citation of prior art herein and the accompanying exhibits are not intended to reflect Defendants’ claim construction contentions, which will be disclosed in due course in accordance with the Docket Control Order and may instead reflect Plaintiff’s apparent (and potentially erroneous) claim constructions based on its Infringement Contentions.

I. Introduction

As disclosed in its P.R. 3-1 Infringement Contentions served on Defendants, Plaintiff asserts the following patents and claims:

Patent	Claims
U.S. Patent No. 10,313,077	1-7, 8-14
U.S. Patent No. 10,687,281	1-6, 8-13
U.S. Patent No. 11,470,595	1-6, 7-12
U.S. Patent No. 11,159,210	1-5, 6-9
U.S. Patent No. 11,129,163	1-8, 9-16
U.S. Patent No. 11,700,597	1-8, 9-16
U.S. Patent No. 11,116,035	1-5, 8-10
U.S. Patent No. 11,516,879	1-5, 8-10

¹ Defendants reserve the right to rely on any contentions served separately by Askey Computer Corp., and Askey International Corp.

'597 Patent Term	Relevant Claim(s)
“wherein the power save operation is an operation for the wireless communication terminal to enter the doze state until an end of a received PPDU which is an Intra-BSS PPDU.”	6, 14
“wherein the processor is configured not to perform a spatial reuse operation when the BSS color indicated by a signaling field of the PPDU is a predetermined value.”	7, 8
“wherein the predetermined value is 0.”	8, 16
“receiving a physical layer convergence procedure (PLCP) Protocol Data Unit (PPDU);”	9-16
“not using a Basic Service Set (BSS) color indicated by the PPDU when signaling information indicates that an operation based on the BSS color is not allowed,”	9-16
“wherein the method further comprises not setting an Intra-BSS Network Allocation Vector (NAV) by using the BSS color indicated by a signaling field of the PPDU when the signaling information indicates that the operation based on the BSS color is not allowed,”	10, 11
“wherein the method further comprises not using the TXOP Duration field for setting the Intra-BSS NAV or the Basic NAV when the wireless communication terminal gets a valid signaling field of the MAC frame.”	11
“wherein the method further comprises signal that the operation based on the BSS color is not allowed when the wireless communication terminal recognizes that a BSS color collision has occurred,”	12, 13
“wherein the signaling that a BSS color collision has occurred comprises determining that BSS color collision has occurred based on address fields of a medium access control (MAC) frame.”	13
“wherein the method further comprises not performing a spatial reuse operation when the BSS color indicated by a signaling field of the PPDU is a predetermined value.”	15, 16

B. U.S. Patent No. 10,313,077

Invalidity claim charts identifying disclosures in the references identified in Tables 1-A, 2-A, and 3-A as to the Asserted Claims of the '077 patent are provided in attached Exhibits A-01 through A-08 and Appendix A.⁶

Table 1-A: Prior Art Patents and Printed Publications for the '077 patent

⁶ Plaintiff reserves its right to rely on patent or patent application publications that are in the same family as the charted references as well as other revisions of the charted IEEE documents.

No.	Patent No. or Title (Primary Inventor/Author)	Date of Issue/ Publication	Filing Date
RA-1	US 2016/0345202 to Bharadwaj (“Bharadwaj 202”)	November 24, 2016	May 19, 2016
RA-2	US 10,142,067 to Cao (“Cao 067”)	November 27, 2018	April 16, 2015
RA-3	IEEE P802.11 802.11-15/0810 “HE PHY Padding and Packet Extension” (“802.11-15/0810”) ⁷	July 2015	N/A
RA-4	US 2016/0286012 to Yu (“Yu 012”)	September 29, 2016	March 25, 2016
RA-5	IEEE 802.11ac ⁸	December 2013	N/A
RA-6	US 2018/0102929 to Lin (“Lin 929”)	November 24, 2016	Dec. 7, 2017
RA-7	US 9,001,929 to Lee (“Lee 929”)	April 7, 2015	January 10, 2012
RA-8	US 10,044,476 to Cao (“Cao 476”)	August 7, 2018	April 16, 2015
RA-9	IEEE 802.11-2012	March 2012	N/A

Further, Defendants are actively searching for information regarding at least the following devices and inventions:

Table 2-A: Prior Art Systems and Inventions for the '077 patent

No.	Name of System or Invention	Date of Sale / Offer for Sale / Public Use
RA-10	Systems implementing IEEE 802.11ac (“Wi-Fi 5”) ⁹	2013
RA-11	HP Spectre 13 (2013 Model)	October 2013
RA-12	HP Envy 17 (2014 Model)	February 2014
RA-13	Samsung Galaxy S4 Smartphone	April 2013
RA-14	Samsung Galaxy Note 3 Smartphone	October 2013
RA-15	Samsung Galaxy Tab Pro	February 2014

⁷ The IEEE references identified as prior art with respect to any Asserted Patents in instant Invalidation Contentions were published by the IEEE (Institute of Electrical and Electronics Engineers) as of the corresponding date of issue/publication at <http://www.ieee802.org> and/or <http://www.ieee.org>.

⁸ IEEE 802.11ac is an amendment to IEEE 802.11-2012, as such IEEE 802.11ac incorporates IEEE 802.11-2012. Therefore, any reference in the instant document to IEEE 802.11ac should be interpreted to include IEEE 802.11-2012.

⁹ The attached invalidity chart over IEEE 802.11ac (RA-5) demonstrates how the systems implementing IEEE 802.11ac, listed in this table, disclose each element of each asserted claim.

No.	Name of System or Invention	Date of Sale / Offer for Sale / Public Use
RA-16	Samsung Galaxy Tab S	July 2014
RA-17	Samsung ATIV Book 9 (2014 Edition)	May 2014
RA-18	Samsung ATIV Book 9 (2015 Edition)	December 2015

For each of the prior art devices identified above, Defendants have listed and produced one or more documents as evidence of the relevant features and functionality. Defendants have obtained or are in the process of obtaining the identified devices and will make them available for inspection. To the extent that one or more documents (*e.g.*, user manual) may be used to describe aspects of a particular device, that device is a single reference for prior art purposes under 35 U.S.C. § 102. Some or all of the corroborating references may also separately qualify as prior art publications under 35 U.S.C. § 102 and may be used as invalidating references under 35 U.S.C. §§ 102 and/or 103.

Discovery is ongoing, and Defendants may serve third parties with document subpoenas. One or more of these devices, along with related documentation, may be invalidating, and Defendants reserve the right to supplement these contentions accordingly.

In addition, Defendants identify, responsive to Plaintiff’s infringement contentions, the following patents, publications, and systems as evidence of the state of the art as it relates to techniques for coexistence among legacy and non-legacy wireless communication terminals including techniques for receiving a non-legacy physical layer frame which includes a legacy signaling field, and determining the number of symbols of data of the non-legacy physical layer frame:¹⁰

- IEEE 802.11n

¹⁰ Plaintiff reserves its right to rely on any unlisted patents, patent application publications, provisional applications that are related to the listed reference.

- WO2016197349
- US12088449B2
- US20230041746A1
- US20220124871A1
- US10951451B2
- US9893790B2
- US20160099796A1
- US20120054587A1
- US20160285526A1
- WO2016197349A1
- US20150304078A1
- WO2016176877A1
- US20150365263A1
- US20150139205A1
- US9641234B2
- US20160242177A1
- US20110116401A1
- WO2016070395A1
- US20050152314A1
- US 9001929B2
- US 11784864B2
- US 8339978B2
- US 20120327871A1
- US 20150139205A1
- US 9088504B2
- US 8339978B2
- US 20100040158A1
- US 20200162190A1
- US 20150117428A1
- US 9853794B2
- US 20150358651A1
- US 9882687B2
- US 9172447B2
- US 7715442B2
- US 20200403740A1
- US 20150071372A1
- US 7782807B2
- US 20160127992A1
- US 7,751,429
- KR 2012-0081040
- US 2015/0163028
- KR 2014-0101740
- US 8,630,367
- US 7,924,764

- EP 1,977,543
- US 8,619,814
- US 8,867,563
- US 8,670,427
- EP 2,534,769
- US 7,885,214
- US8175022B2
- US 7,715,442
- EP 2,681,864
- US 8,811,507
- KR 10-1404372
- US 9,049,155
- US 9,048,994
- US 8,223,857
- US 8,477,805
- US 7,821,976
- US 2014/0153505
- US 8,705,422
- US 2015/0133134
- US 2015/0139115
- US 5,559,804
- US 2008/0031191
- KR 2015-0035569
- US 2016/0198500
- KR 10-1212423
- KR 10-1024926
- US 8,804,609
- JP 5,329,244
- JP 2010-178129
- US 2006/0050661
- US 2008/0310391
- US2012/177144A
- 11-15-0132-02-00ax-spec-framework
- 11-15-0132-07-00ax-spec-framework
- 11-15-0132-09-00ax-spec-framework
- 11-15-0580-01-00ax-11ax-coding-discussion
- 11-15-0887-03-00ax-efficient-padding-for-last-ofdm-symbol
- 11-15-0579-00-00ax-preamble-design-and-autodetection

These references show that such coexistence techniques are not novel, and were well-known in the art for many years. In light of the references discussed herein, the Asserted Claims of the '077 patent cannot be valid.

Defendants' reference to a particular product, device, or software program in these contentions should be interpreted as a reference to the system itself and any corresponding patents, publications, or product literature relating to the cited system. Upon information and belief, the systems were publicly disclosed, used, sold, or offered for sale in the United States before the alleged priority date of the Asserted Claims of the '077 patent. Defendants' investigation of such prior art systems is still ongoing and discovery has not yet been received from third parties who may have information concerning such prior art systems. Accordingly, subsequent discovery may reveal information that affects the disclosures and contentions herein. For example, subsequent discovery may provide additional information regarding whether or not any of the third party prior art systems anticipate or render obvious the Asserted Claims of the '077 patent. As such, Defendants reserve all rights to supplement their invalidity contentions.

Many of the inventive, research, design, and development activities concerning these systems and technologies occurred in the United States before the alleged priority date of the Asserted Claims of the '077 patent. Defendants have obtained, and are in the process of obtaining, additional information regarding the dates by which the cited products and services were publicly disclosed, used, sold, or offered for sale, the circumstances under which the research, design, and development activities were conducted, and the identities of the particular individuals involved in such activities through publicly available patents, publications, and product literature. The actual dates, circumstances, and identities of individuals will be the subject of third party discovery during this lawsuit, which Defendants reserve the right to rely upon to corroborate the prior art status of the prior art identified herein. Defendants reserve the right to modify, amend, or supplement these contentions if additional information becomes

available during the course of this lawsuit. Furthermore, Defendants will make all such devices, software programs, or other products in Defendants’ possession, custody, or control available for inspection by Plaintiff.

Consequently, Defendants reserve the right to amend, modify, or supplement these Invalidity Contentions should additional information become available to them through discovery.

C. U.S. Patent No. 11,159,210

Invalidity claim charts identifying disclosures in the references identified in Tables 1-B, 2-B, and 3-B as to the Asserted Claims of the ’210 patent are provided in attached Exhibits B-01 through B-08 and Appendix B.¹¹

Table 1-B: Prior Art Patents and Printed Publications for the ’210 patent

No.	Patent No. or Title (Primary Inventor/Author)	Date of Issue/ Publication	Filing Date
RB-1	US 2017/0181136 (“Bharadwaj 136”)	June 22, 2017	December 21, 2016
RB-2	US 2018/0176066 (“Lim 066”)	June 21, 2018	December 7, 2017
RB-3	“IEEE P802.11ax/D1.0 Enhancements for High Efficiency WLAN,” (“IEEE P802.11ax/D1.0”)	November 2016	N/A
RB-4	IEEE 802.11-15/0132r15 “Wireless LANs Specification Framework for TGax” (“IEEE 802.11-15/0132r15”)	March 17, 2016	N/A
RB-5	IEEE 802.11ac	December 2013	N/A
RB-6	US 2017/0366310 (“Verma 310”)	December 21, 2017	June 14, 2017
RB-7	US 2016/0285526 (“Hedayat 526”)	September 29, 2016	March 28, 2016
RB-8	US 2017/0064718 to Bharadwaj (“Bharadwaj 718”)	March 2, 2017	August 23, 2016
RB-9	IEEE 802.11-2012	March 2012	N/A
RB-10	IEEE 802.11-2016	December 2016	N/A

¹¹ Plaintiff reserves its right to rely on patent or patent application publications that are in the same family as the charted references as well as other revisions of the charted IEEE documents.

invalidity due to single reference obviousness, to the extent that Plaintiff contends that any limitation is missing.

A. Anticipation

As stated above, Defendants incorporate by reference all other invalidity contentions related to the Asserted Patents served on or otherwise provided to Plaintiff, whether past or future. In accordance with P.R. 3-3(a), prior art references anticipating the Asserted Claims are provided below. The prior art listed below anticipates the Asserted Claims under the proper construction of the claims and/or under Plaintiff's apparent interpretation of the claims as set forth by Plaintiff in its Complaint and Infringement Contentions.

1. U.S. Patent No. 10,313,077

The Asserted Claims of the '077 patent are anticipated and/or rendered obvious by prior art. Pursuant to P.R. 3-3(a), Defendants identify the prior art references that anticipate or render obvious the '077 patent Asserted Claims in the claim charts of Exhibits A-01 through A-08 and Appendix A which are hereby incorporated by reference as if fully set forth herein. The claim charts and Appendix A provide an explanation showing how these prior art references teach or suggest each and every element of the '077 patent Asserted Claims. For each reference or combination of references suggested by each chart, Defendants indicate whether the prior art renders the claim anticipated and/or obvious pursuant to P.R. 3-3(b).

In addition to contending that the '077 patent Asserted Claims are invalid in view of the prior art references cited in the claim charts and Appendix A, Defendants further contend that the '077 patent Asserted Claims are invalid as anticipated and/or obvious under U.S.C. §§ 102 and/or 103 in view of public knowledge and uses and/or offers for sale of products and services related to the subject matter of the cited references. As discovery is ongoing, Defendants continue

to investigate these items and to reserve the right to amend or supplement these contentions to include additional information or documents regarding such products and/or systems.

Defendants' reference to a particular communications device, modem, circuit, software program, device or product in the claim charts and Appendix A should be interpreted as a reference to the product itself and any corresponding patents, publications, or product literature cited in Appendix A that relates to the cited memory module, circuit, software program, device, or product. In addition, Defendants may rely on other documents or things that have not yet been located to support its contentions regarding such prior art communications device(s), modem(s), circuit(s), software program(s), device(s) or product(s) that are referenced in the charts. Furthermore, Defendants' reference to a wireless communications standard, such as for example IEEE 802.11ac, in the claim charts and Appendix A should be interpreted as a reference to the products implementing and/or complying with such standard.

Defendants incorporate by reference, as if set forth fully herein, all prior art cited during the prosecution of the '077 patent, all prior art as described in any future *inter partes* review proceedings of the '077 patent, and all prior art disclosed during previous litigation proceedings involving the '077 patent.

Defendants further identify and hereby incorporate by reference as if set forth fully herein the prior art references and invalidity contentions as described in any Other Wilus Proceedings wherein invalidity contentions have been, or will be, provided regarding the '077 patent, its foreign counterparts, or any parent or child patent of the '077 patent. Defendants reserve the right to use any and all portions of the publication, related publications, commercial embodiments of the publication, and other evidence that is discovered in these lawsuits to demonstrate and/or evidence

the components, functionality, and capabilities of the devices and systems disclosed in the references charted.

Where Defendants identify a particular figure in a prior art reference, the identification should be understood to encompass the caption and description of the figure, as well as any text relating to the figure in addition to the figure itself. Similarly, where an identified portion of text refers to a figure or other material, the identification should be understood to include the referenced figure or other material as well. It should be recognized that a person of ordinary skill in the art would generally read a prior art reference as a whole and in the context of other publications, literature, and general knowledge in the field. To understand and interpret any specific statement or disclosure in a prior art reference, a person of ordinary skill in the art would rely upon other information including other publications and general scientific or engineering knowledge. Defendants therefore reserve the right to rely upon other unidentified portions of the prior art references and on other publications and expert testimony to provide context and to aid understanding and interpretation of the identified portions.

Defendants also reserve the right to rely upon other portions of the prior art references, other publications, and the testimony of experts to establish that the alleged inventions would have been obvious to a person of ordinary skill in the art, including the basis of modifying or combining certain cited references. To the extent any limitation is deemed not to be exactly met by an item of prior art, then 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 knowledge of those skilled in the art. To the extent that an element of an Asserted Claim is not anticipated, the claim is rendered obvious by combination with one or more other prior art references identified in Appendix A.

products, devices, or processes described in the references, existed and/or were invented in the same time period providing further motivation for combination. These disclosures were provided without prejudice to any arguments or objections concerning the relevance of motivation to combine in connection with any invalidity contentions.

Defendants reserve the right to further specify the motivations to combine the prior art in response to positions that Plaintiff may take later in this case and as discovery, including third party discovery, proceeds. Defendants may rely on any and all portions of the prior art, other documents, and 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. Moreover, Defendants reserve the right to rely on later identified sources of information, including but not limited to witness testimony and other discovery, to establish the state of the art in the relevant time frame pertaining to the Asserted Patents.

While Defendants reserve the right to rely on any combination of the references reflected in their charts or incorporated herein by reference, Defendants provide the following exemplary and non-exhaustive references and/or combinations evidencing invalidity of the claims of the Asserted Patents. The combinations of prior art listed below render obvious the Asserted Claims under the proper construction of the claims and/or under Plaintiff's apparent interpretation of the claims as set forth by Plaintiff in its Complaint and Infringement Contentions.

1. U.S. Patent No. 10,313,077

Pursuant to P.R. 3-3(a) and (b), Defendants identify in Appendix A the prior art references that render obvious the Asserted Claims of the '077 patent and include below exemplary combinations showing the obviousness of the '077 patent Asserted Claims in view of the prior art. To the extent Plaintiff contends that an element is not disclosed in any one of the anticipatory references described in Appendix A, the limitation would have been obvious in light of the

disclosures within the reference and the knowledge of one of skill in the art at the time of the '077 patent. Moreover, to the extent Plaintiff contends that an element is not disclosed in any one of the anticipatory references described in Appendix A, such reference may be combined with any other references listed in Appendix A for such element, thereby rendering the claims invalid for obviousness.

To the extent a finder of fact determines that a limitation of any of the '077 patent Asserted Claims is not disclosed by one of the references identified above pursuant to P.R. 3-3(a), the claim is nevertheless unpatentable as obvious because they contain nothing that constitutes a patentable innovation. To the extent a finder of fact determines that a limitation of the '077 patent Asserted Claims is not anticipated, it does not go beyond combining familiar elements according to known methods to achieve predictable results or does more than choose between clear alternatives known to those of ordinary skill in the art.

a) Obviousness Rationale

For at least the reasons described in these contentions, 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 prior art references identified in Appendix A along with the knowledge of one of ordinary skill in the art to meet the limitations of the '077 patent Asserted Claims. Moreover, as mentioned above, Defendants have not yet completed their search or discovery concerning additional prior art. As such, Defendants' inclusion of exemplary combinations does not preclude them from identifying other invalidating combinations as appropriate, and Defendants reserve the right to identify additional specific combinations as well as to detail and explain such combinations.

To the extent not anticipated, the '077 patent Asserted Claims represent no more than the result of ordinary variations of the prior art. Defendants further believe that no showing of a specific motivation to combine prior art is required to combine the references disclosed above and

in the attached charts, as each combination of art would have no unexpected results, and at most would simply represent a known alternative to one of skill in the art. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 415-16 (2007) (rejecting the Federal Circuit's "rigid" application of the teaching, suggestion, or motivation to combine test, instead espousing an "expansive and flexible" approach). Indeed, 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. Nevertheless, in addition to the information contained elsewhere in these contentions, Defendants identify motivation and reason to combine the cited art.

One or more combinations of the prior art references identified in Appendix A would have been obvious because these references would have been combined using: known methods to yield predictable results; known techniques in the same way; a simple substitution of one known, equivalent element for another to obtain predictable results; and/or a teaching, suggestion, or motivation in the prior art generally. In addition, it would have been obvious to try combining the prior art references identified above because there were only a finite number of predictable solutions and/or because known work in one field of endeavor prompted variations based on predictable design incentives and/or market forces either in the same field or a different one. Further, the combinations of the prior art references identified in Appendix A would have been obvious because the combinations represent known potential options with a reasonable expectation of success.

Additional evidence that there would have been a motivation to combine the prior art references identified above includes the interrelated teachings of multiple prior art references; common authorship; 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 '077 patent Asserted Claims; the existence of a known need or problem in the field of the endeavor at the time of the alleged invention(s); and the background knowledge that would have been possessed by a person having ordinary skill in the art.

Thus, the motivation to combine the teachings of the prior art references disclosed in Appendix A is found in the references themselves and also in: (1) the nature of the problem being solved; (2) the express, implied and inherent teachings of the prior art; (3) the knowledge of persons of ordinary skill in the art; (4) the predictable results obtained in combining the different elements of the prior art; (5) the predictable results obtained in simple substitution of one known element for another; (6) the use of a known technique to improve similar devices, methods, or products in the same way; (7) the predictable results obtained in applying a known technique to a known device, method, or product ready for improvement; (8) the finite number of identified predictable solutions that had a reasonable expectation of success; and (9) known work in various technological fields that could be applied to the same or different technological fields based on design incentives or other market forces.

Additionally, it would be obvious to one of skill in the art to consult and/or combine any of the prior art listed in Appendix A because all of these references relate to the same area of technology and/or are analogous art. The '077 patent Asserted Claims are directed to a technique for coexistence among legacy and non-legacy wireless communication terminals, e.g., a terminal and method for receiving a non-legacy physical layer frame which includes a legacy signaling field, and determining the number of symbols of data of the non-legacy physical layer frame. '077 patent at 1:20-25, 2:65-5:35. The prior art references generally relate to IEEE 802.11 wireless local area network technology. The references, like the '077 patent, are also reasonably pertinent

to wireless communication issues related to the use of newer technology with “legacy” communications equipment.

Similarly, it would be obvious to one of skill in the art to consult and/or combine any of the prior art listed in Appendix A because all of these references are works of people in the same technical field. For example, many of the authors of the prior art references are members of the IEEE’s 802.11 working group. Moreover, one of ordinary skill in the art would have recognized that members of the IEEE’s working groups frequently collaborate with, and build on, each other’s work. Thus, one of ordinary skill in the art would have recognized that the works by people that are in the same IEEE working group are likely compatible or otherwise work harmoniously when combined.

The ’077 patent Asserted Claims merely unite old elements, well known in the field, with no change in their respective function or result. Given the interrelated teachings of the prior art, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art, it would have been obvious for one of ordinary skill in the art to combine these familiar elements, disclosed and/or embodied in the prior art listed above to practice the ’077 patent Asserted Claims.

All of the ’077 patent Asserted Claims are directed to a technique for coexistence among legacy and non-legacy wireless communication terminals, e.g., a terminal and method for receiving a non-legacy physical layer frame which includes a legacy signaling field, and determining the number of symbols of data of the non-legacy physical layer frame. ’077 patent at 1:20-25, 2:65-5:35. Such technology, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff’s infringement contentions, was widely known before the alleged priority date of the ’077 Patent, as evidenced by the references in Appendix A. *See, e.g.*, IEEE

802.11ac § 3.1; Yu 012 at [0059]-[0066], Figure 3, [0077]-[0084], [0099], [158-165], Figure 13; 802.11-15/0810 at 9–10, 13, 23; Bharadwaj 202 at [0042]-[0043], Figure 3A, [0046]–[0050], Figure 4A, Figure 4B, [0054]-[0056]; Cao 067 at 2:66-67; 3:23-45, Figure 1, 4:17-5:40, 5:41-6:12, Figure 2, 6:51-7:5, 7:19-47, Figure 3; Lin 929 at [0122]-[0129]; Lee 929 at 3:52-4:15; Cao 476 at 4:61-5:26; *see also* Appendix A.

One of ordinary skill in the art would have been motivated to combine any of the references in Appendix A because at the time of the alleged invention techniques for coexistence among legacy and non-legacy wireless communication terminals were well-known. In particular, techniques for coexistence among legacy and non-legacy wireless communication terminals were known to persons of ordinary skill in the art and incorporating a legacy signaling field into a non-legacy physical layer frame, and determining the number of symbols of data of the non-legacy physical layer frame was a well-known solution to achieve improved performance and coexistence. *See, e.g.*, IEEE 802.11ac at §§ 22.3.21, 22.3.8.2.4, 22.3.1; IEEE 802.11-2012 at §§ 9.23.4, 20.3.11, 9.3.8, 9.23.5.1, Table 20-6; Yu 012 at [0059]-[0066], Figure 3, [0077]-[0084], [0099], [158-165], Figure 13; 802.11-15/0810 at 9–10, 13, 23; Bharadwaj 202 at [0042]-[0043], Figure 3A, [0046]–[0050], Figure 4A, Figure 4B, [0054]-[0056]; Cao 067 at 2:66-67; 3:23-45, Figure 1, 4:17-5:40, 5:41-6:12, Figure 2, 6:51-7:5, 7:19-47, Figure 3; Lin 929 at [0029]-[0030]; Lee 929 at 3:52-4:15; Cao 476 at 3:22-4:14; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, for a processor to be configured to receive a non-legacy physical layer frame by using a transceiver. *See, e.g.*, IEEE 802.11ac at § 22.1.4; Yu 012 at [0059]-[0066], Figure 3, [0077]-[0084]; 802.11-15/0810 at 9–10; Bharadwaj 202 at [0042]-[0043], Figure 3A, [0046]-[0048],

Figure 4A; Cao 067 at 3:23-45, 5:28-40, 5:41-6:12, Figure 2; Lin 929 at [0122]-[0129]; Lee 929 at 3:52-4:15; Cao 476 at 4:61-5:26; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to obtain a legacy signaling field including information decodable by a legacy wireless communication terminal from the non-legacy physical layer frame. *See, e.g.*, IEEE 802.11ac at § 22.3.7.4; IEEE 802.11.12 at § 22.3.7.4; Yu 012 at [0099]; 802.11-15/0810 at 13, 23; Bharadwaj 202 at [0042]-[0043], Figure 3A, [0046]-[0050], Figure 4A, Figure 4B; Cao 067 at 3:23-45, 5:28-40, 5:41-6:12, Figure 2; Lin 929 at [0029]-[0030]; Lee 929 at 3:52-4:15; Cao 476 at 3:22-4:14; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to obtain length information indicating information on a duration of the non-legacy physical layer frame, from the legacy signaling field. *See, e.g.*, IEEE 802.11ac at § 22.3.2; IEEE 802.11-2012 at § 22.3.4.4; Yu 012 at [0158]-[0165], Figure 13; 802.11-15/0810 at 23; Bharadwaj 202 at [0050]-[0051], [0054]-[0056], Figure 3A, [0046]-[0050], Figure 4A, Figure 4B; Cao 067 at 5:41-6:12, Figure 2, 6:51-7:5, 7:19-47, Figure 3; Lin 929 at [0029]-[0030]; Lee 929 at 3:52-4:15; Cao 476 at 15:36-50; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to obtain information other than information on the duration of the non-legacy physical layer frame through a remaining value obtained by dividing the length information by a data size transmittable by a symbol of a legacy physical layer frame, wherein the data size

transmittable by a symbol of the legacy physical layer frame is 3 octets when a data rate of the legacy physical layer frame is 6 Mbps. *See, e.g.*, IEEE 802.11ac at § 22.3.21; IEEE 802.11-2012 at § 9.23.4; Yu 012 at [0232]-[0237], Figure 13; 802.11-15/0810 at 23; Bharadwaj 202 at [0054]-[0056], Figure 3A, [0046]-[0050], Figure 4A, Figure 4B; Cao 067 at 7:19-47; Lin 929 at [0085]-[0092]; Lee 929 at 3:52-4:15; Cao 476 at 15:36-16:16; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to determine a number of symbols of data of the non-legacy physical layer frame according to an equation (such as equations for N_{SYM}). For example, equations for N_{SYM} can be based on, among others, L_LENGTH , an ambiguity or disambiguity field setting, and one or more adjustment values such as "m" (also "M" or "n"). Further, equations for L_LENGTH can also be based on one or more adjustment values such as "m" (also "M" or "n"). The relationships among various equations such as L_LENGTH and N_{SYM} vis-à-vis the one or more adjustment values such as "m" (also "M" or "n") were also well-known (e.g. "-m" in an equation for L_LENGTH has a corresponding "+m" in an equation for N_{SYM} and visa-versa). It also would have been obvious to one of skill in the art to modify the equations of a reference based on the teachings or suggestions of one or more other references for purposes of coexistence, backwards compatibility, fairness, etc. *See, e.g.*, IEEE 802.11ac at § 22.3.8.2.4; IEEE 802.11-2012 at § 9.23.4; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 22-24; Bharadwaj 202 at [0050], [0054]-[0056]; Cao 067 at 16:18-29; Lin 929 at [0059]-[0071]; Lee 929 at 3:52-4:15; Cao 476 at 14:46-15:35; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to use a PE Disambiguity field set based on the duration of a symbol of the data of

the non-legacy physical layer frame and an increment of duration to set a value of the length information based on a duration of a symbol of the legacy physical layer frame. *See, e.g.*, IEEE 802.11ac at § 22.3.1; IEEE 802.11-2012 § 9.3.8; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 22-24; Bharadwaj 202 at [0053]; Cao 067 at 14:47-15:35; Lin 929 at [0085]-[0096]; Lee 929 at 3:52-4:15; Cao 476 at 14:46-15:35; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to obtain a duration of a packet extension which is a padding of the non-legacy physical layer frame, according to an equation (such as equations for T_{PE}). For example, equations for T_{PE} can be based on, among others, L_LENGTH and one or more adjustment values such as "m" (also "M" or "n"). Further, equations for L_LENGTH can also be based on one or more adjustment values such as "m" (also "M" or "n"). The relationships among various equations such as L_LENGTH and T_{PE} vis-à-vis the one or more adjustment values such as "m" (also "M" or "n") were also well-known (e.g. "-m" in an equation for L_LENGTH has a corresponding "+m" in an equation for T_{PE} and visa-versa). It also would have been obvious to one of skill in the art to modify the equations of a reference based on the teachings or suggestions of one or more other references for purposes of coexistence, backwards compatibility, fairness, etc. *See, e.g.*, IEEE 802.11-2012 at § 20.3.20.5A; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 9; Bharadwaj 202 at [0056]; Cao 067 at 16:18-29; Lin 929 at [0085]-[0092]; Lee 929 at 3:52-4:15; Cao 476 at 6:12-21; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, for the increment of duration to be a value obtained by multiplying a difference

between a value obtained by performing a ceiling operation on a value obtained by dividing the duration of the non-legacy physical layer frame after the legacy signaling field by the duration of a symbol of the legacy physical layer frame and the value obtained by dividing the duration of the non-legacy physical layer frame after the legacy signaling field by the duration of a symbol of the legacy physical layer frame by the duration of a symbol of the legacy physical layer frame. *See, e.g.*, Yu 012 at [0232]-[0237]; 802.11-15/0810 at 22-24; Bharadwaj 202 at [0053]-[0054]; Cao 067 at 16:18-29; Lin 929 at [0085]-[0096]; Lee 929 at 3:52-4:15; Cao 476 at 10:12-11:8; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to determine a format of a non-legacy signaling field included in the non-legacy physical layer frame based on the length information. *See, e.g.*, IEEE 802.11-2012 at § 9.23.5.1; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 22-24; Bharadwaj 202 at [0054]; Cao 067 at 5:41-6:12; Lin 929 at [0085]-[0096]; Lee 929 at 3:52-4:15; Cao 476 at 11:66-12:40; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to determine whether the non-legacy physical layer frame comprises a predetermined signaling field based on the length information. *See, e.g.*, IEEE 802.11-2012 at Table 22-1; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 9; Bharadwaj 202 at [0050]; Cao 067 at 5:41-6:12; Lin 929 at [0029]-[0030]; Lee 929 at 3:52-4:15; Cao 476 at 15:67-16:16; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement

contentions, to obtain the information other than the information on the duration of the non-legacy physical layer frame based on the remaining value and a modulation method of a third symbol after the legacy signaling field. *See, e.g.*, IEEE 802.11ac at § 22.3.8.2.4; IEEE 802.11-2012 at § 9.23.4; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 22-24; Bharadwaj 202 at [0050]; Cao 067 at 7:19–47; Lin 929 at [0029]-[0030]; Lee 929 at 3:52-4:15; Cao 476 at 6:22-49; *see also* Appendix A.

It was well-known to one of skill in the art before the time of the '077 patent, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, to use a modulation method such as Binary Phase Shift Keying (BPSK) or Quadrature Binary Phase Shift Keying (QBPSK). *See, e.g.*, IEEE 802.11ac at § 22.1.1; Yu 012 at [0232]-[0237]; 802.11-15/0810 at 16; Bharadwaj 202 at [0032]; Cao 067 at 7:19–47; Lin 929 at [0122]-[0129]; Lee 929 at 3:52-4:15; Cao 476 at 6:22-49; *see also* Appendix A.

In addition, the prior art also provided sets of finite, identified, predictable solutions for known problems that would have been obvious to those of ordinary skill to try with a reasonable expectation of success. For example, it would have been obvious to one of skill in the art at the time that the coexistence among legacy and non-legacy wireless communication terminals could be achieved by including legacy information in a preamble of a frame that allows the frame to be understood at least in part by a legacy wireless communication terminal, while still providing non-legacy content to non-legacy terminals was common practice. Given that including such information in the preamble of the frame was common, it would have been obvious to one of skill in the art to try and modify existing communication frames such that they include such information allowing coexistence between legacy and non-legacy wireless communications terminals, while still providing non-legacy content to non-legacy terminals. Such a modification would have

yielded the predictable result of legacy and non-legacy wireless communication terminals being able to coexist.

The prior art references provide motivations to combine because they describe the field of the Asserted Patents, teach improvements, explain desired features, and even expressly state that one of skill in the art would be able to apply their teachings to related systems or methods. *See, e.g.*, Yu 012 at [0003] (“The described technology relates generally to a method for transmitting and receiving frame. More particularly, the described technology relates generally to a method for transmitting and receiving frame in a wireless local area network (WLAN).”); Cao 067 at 1:30–33 (“The present disclosure relates generally to communication networks and, more particularly, to wireless local area networks that utilize orthogonal frequency division multiplexing (OFDM).”); Lin 929 at [0002] (“The present invention relates to the field of communications technologies, and in particular, to a physical layer protocol data unit transmission method and apparatus.”); Lee 929 at 1:18-20 (“The present invention relates to a wireless communication system, and more particularly, to a method and an apparatus for transmitting a symbol repeatedly.”); Cao 476 at 1:29-33 (“The present disclosure relates generally to communication networks and, more particularly, to wireless local area networks that utilize orthogonal frequency division multiplexing (OFDM).”).

Further, the prior art references provide motivations to combine because they explicitly suggest utilizing the teachings and disclosures of other references. *See, e.g.*, Yu 012 at [0006] (“Recently, a high efficiency (HE) WLAN for enhancing the system throughput in high density scenarios is being developed by the IEEE 802.11ax task group.”); Cao 476 at 2:32-38 (“In yet another embodiment, the MAC processing unit 18 and the PHY processing unit 20 are additionally configured to operate according to the second communication protocol, a third communication

protocol and/or a fourth communication protocol (e.g., the IEEE 802.11a Standard and/or the IEEE 802.11n Standard.”); Lee 929 at 2:35-36 (“The frame may be a 802.11ac standard very high through put (VHT) frame.”); Lin 929 at [0003] (“To improve data transmission efficiency in a WLAN (wireless local area network), a 4x symbol length is introduced into a next - generation WLAN standard 802.11ax , and correspondingly, an 802.11a/n/ac symbol is referred to as a 1x symbol.”).

In accordance with these advances, the prior art could have been combined according to methods known to those of ordinary skill within the field of the '077 patent to yield predictable results. The use of information contained in a field within the frame to process the frame could have been predictably achieved by one of ordinary skill at the time of the alleged invention. One of ordinary skill in the art would have been aware of these various applications, including methods for coexistence of legacy and non-legacy wireless communication terminals. Those of ordinary skill in the art could have employed known techniques to improve similar prior art devices in the same way as claimed in the '077 patent.

In addition, one of ordinary skill in the art would be motivated to combine the prior art references because the elements found in the Asserted Claims of the '077 patent are well known in the art. *See, e.g.*, IEEE 802.11ac § 22.1.4; Yu 012 at [0059]-[0066], Figure 3, [0077]-[0084]; 802.11-15/0810 at 9–10; Bharadwaj 202 at [0042]-[0043], Figure 3A, [0046]-[0048], Figure 4A; Cao 067 at 3:23-45, 5:28-40, 5:41-6:12, Figure 2; Lin 929 at [0085]-[0096]; Lee 929 at 3:52-4:15; Cao 476 at 11:66-12:40; *see also* Appendix A.

Moreover, it would have been obvious to one of ordinary skill in the art at the time to combine the teachings of a document submitted as part of the IEEE 802.11ax standard development process (*e.g.*, working group documents, draft specifications, technical submissions,

working group meeting presentations) with a system implementing an older IEEE standard such as IEEE 802.11ac, IEEE 802.11-2012, or a draft standard. For example, one of ordinary skill in the art would have been motivated to combine the teachings of a document submitted as part of the IEEE 802.11ax standard development process with a real wireless communications hardware/device to yield a working wireless communication system with the improvements and benefits offered by the new standard. In another example, one of ordinary skill in the art would have been motivated to simply substitute an older version of a wireless module implemented on a wireless device/hardware with one implementing a newer version of the standard that addresses the shortcomings of the older standard. In yet another example, one of ordinary skill in the art would have been motivated to apply the known techniques disclosed in the documents submitted as part of the IEEE 802.11ax standard development process to an older wireless communications system implementing IEEE 802.11ax to yield the predictable results of improved wireless communication performance. Further, one of ordinary skill in the art would have been prompted by the teachings in the documents submitted as part of the IEEE 802.11ax standard development process to modify the wireless communications hardware/device to meet market demands for improved wireless performance.

It would have been obvious to one of ordinary skill in the art at the time to combine teachings of a document submitted as part of IEEE 802.11ax standard development process (e.g., working group documents, draft specification, technical submissions, working group meeting presentations) with teachings of a reference pertaining to hardware/devices for wireless communications (e.g., wireless local area network (WLAN)). For instance, a person of ordinary skill would have been motivated to combine the teachings of a document submitted as part of the IEEE 802.11ax standard development process—which generally address narrow technical issues

and solutions—with references disclosing WLAN devices and hardware more broadly (*e.g.*, devices with transceivers and configurable processors) to yield a blueprint for a working device that addresses the technical problem disclosed in the IEEE 802.11ax standard development document. Such a combination amounts to combining known prior art elements according to known methods to yield predictable results. Further, to the extent any prior art WLAN devices/hardware documents disclose deficiencies or technical issues with the state of the art, one of ordinary skill in the art would have been prompted to combine these references with the teachings in documents submitted as part of the IEEE 802.11ax standard development process to meet market demands for improved wireless performance. This disclosure of deficiencies and/or technical issues would provide a teaching, suggestion, or motivation for a person of ordinary skill to modify the prior art reference based on the IEEE 802.11ax standard working documents.

It would have been obvious to one of ordinary skill in the art at the time to combine teachings of a document submitted as part of IEEE 802.11ax standard development process (*e.g.*, working group documents, draft specification, technical submissions, working group meeting presentations) with teachings of another document submitted as part of IEEE 802.11ax standard development process. For instance, considering the common underlying technical subject matter of the IEEE 802.11ax standard development documents, it would be obvious to one of ordinary skill to try combining the teachings of multiple documents. In doing so, a person of ordinary skill would have a reasonable expectation of success. Moreover, given the common goals and design incentives among authors of IEEE 802.11ax standard development documents (*e.g.*, improving WLAN device performance), a person of ordinary skill would find it obvious to combine the technical solutions disclosed in multiple IEEE 802.11ax standard development documents. Further, given the additive nature of the IEEE standard development process, a person of ordinary

skill would have understood that various IEEE 802.11ax standard development documents could be combined to create a cohesive solution. A person of ordinary skill would have a reasonable expectation of success in combining the teachings in these documents.

Any reference or combination of references that anticipates or makes obvious an asserted independent claim also makes obvious any asserted claim dependent on that independent claim, as the element of each dependent '077 patent Asserted Claim was known by a person of ordinary skill at the time of the alleged invention, at least partially based on, but not limited by, the claim constructions implicit in Plaintiff's infringement contentions, and it would have been obvious to combine those known elements with the independent claims at least as a matter of common sense and routine innovation. Accordingly, Defendants contend that each Asserted Claim would have been obvious not only by the combinations described in these contentions, but also by any combination of references that renders obvious an Asserted Claim.

In addition to the specific examples of motivation provided above, Defendants reserve the right to rely on the disclosures of the references listed in Appendix A for additional motivation to combine. The above-identified examples of combinations are given merely to illustrate various motivations to combine and are not intended to provide an exhaustive list of every possible combination to which the motivation may apply. Defendants reserve the right to contend that the above-described motivations to combine apply to other combinations at the appropriate time, i.e., in expert reports regarding invalidity.

For at least the reasons described above, it would have been obvious to one of ordinary skill in the art to combine each prior art reference listed in Appendix A with any other reference or references listed in Appendix A along with the knowledge of one of ordinary skill in the art to arrive at the inventions claims in the '077 patent. For example, and without limitation, the Asserted

Claims of the '077 patent would have been obvious to one of ordinary skill in the art in view of the following combinations:

Patent No. or Title (Primary Inventor/Author)	In Combination with One or More of: (Patent No. or Title (Primary Inventor/Author))
Bharadwaj 202	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Cao 067 • Yu 012 • 802.11-15/0810 • IEEE 802.11-2012 • IEEE 802.11ac • Lin 929 • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill
Cao 067	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Yu 012 • 802.11-15/0810 • IEEE 802.11-2012 • IEEE 802.11ac • Lin 929 • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill
Yu 012	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • 802.11-15/0810 • IEEE 802.11-2012 • IEEE 802.11ac • Lin 929 • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill

Patent No. or Title (Primary Inventor/Author)	In Combination with One or More of: (Patent No. or Title (Primary Inventor/Author))
802.11-15/0810	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • Yu 012 • IEEE 802.11-2012 • IEEE 802.11ac • Lin 929 • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill
IEEE 802.11-2012	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • Yu 012 • 802.11-15/0810 • IEEE 802.11ac • Lin 929 • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill
IEEE 802.11ac	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • Yu 012 • 802.11-15/0810 • IEEE 802.11-2012 • Lin 929 • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill

Patent No. or Title (Primary Inventor/Author)	In Combination with One or More of: (Patent No. or Title (Primary Inventor/Author))
Lin 929	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • Yu 012 • 802.11-15/0810 • IEEE 802.11-2012 • IEEE 802.11ac • Lee 929 • Cao 476 • Knowledge of a person of ordinary skill
Lee 929	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • Yu 012 • 802.11-15/0810 • IEEE 802.11-2012 • IEEE 802.11ac • Lin 929 • Cao 476 • Knowledge of a person of ordinary skill
Cao 476	<ul style="list-style-type: none"> • Asserted Patents Admitted Prior Art (APA) • Bharadwaj 202 • Cao 067 • Yu 012 • 802.11-15/0810 • IEEE 802.11-2012 • IEEE 802.11ac • Lin 929 • Lee 929 • Knowledge of a person of ordinary skill

As mentioned above, Defendants have not yet completed their search or discovery concerning additional prior art. Moreover, the exemplary combinations are provided based on Defendants' current understanding of the Asserted Claims and Plaintiff's apparent view of the scope of those claims as shown, for example, in Plaintiff's Infringement Contentions. Further, a

Markman Order has not yet been issued in this case. As such, Defendants' inclusion of exemplary combinations does not preclude them from identifying other invalidating combinations as appropriate, and Defendants reserve the right to identify additional specific combinations as well as to detail and explain such combinations.

2. U.S. Patent No. 11,159,210

Pursuant to P.R. 3-3(a) and (b), Defendants identify in Appendix B the prior art references that render obvious the Asserted Claims of the '210 patent and include below exemplary combinations showing the obviousness of the '210 patent Asserted Claims in view of the prior art. To the extent Plaintiff contends that an element is not disclosed in any one of the anticipatory references described in Appendix B, the limitation would have been obvious in light of the disclosures within the reference and the knowledge of one of skill in the art at the time of the '210 patent. Moreover, to the extent Plaintiff contends that an element is not disclosed in any one of the anticipatory references described in Appendix B, such reference may be combined with any other references listed in Appendix B for such element, thereby rendering the claims invalid for obviousness.

To the extent a finder of fact determines that a limitation of any of the '210 patent Asserted Claims is not disclosed by one of the references identified above pursuant to P.R. 3-3(a), the claim is nevertheless unpatentable as obvious because they contain nothing that constitutes a patentable innovation. To the extent a finder of fact determines that a limitation of the '210 patent Asserted Claims is not anticipated, it does not go beyond combining familiar elements according to known methods to achieve predictable results or does more than choose between clear alternatives known to those of ordinary skill in the art.

a) Obviousness Rationale

For at least the reasons described in these contentions, it would have been obvious to one

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