

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners,

v.

APEX BEAM TECHNOLOGIES LLC,

Patent Owner.

Patent No. 10,568,113
Filing Date: August 9, 2018
Issue Date: February 18, 2020

Inventor: Xiaobo Zhang
Title: METHOD AND DEVICE IN UE AND BASE STATION
USED FOR WIRELESS COMMUNICATION

PATENT OWNER'S SUR-REPLY

Case No. IPR2023-00602

TABLE OF CONTENTS

	<u>Page(s)</u>
I. INTRODUCTION	1
II. PETITIONER’S FAILURE TO PROPERLY CONSTRUE “TRIGGERING THE TRANSMISSION” IS FATAL TO ITS OBVIOUSNESS ARGUMENTS.....	2
A. Petitioner’s Apparent Ignorance of “Triggering the Transmission” Renders the Term Meaningless and Necessitates Construction	3
B. Petitioner Does Not Dispute Patent Owner’s Expert Testimony.....	4
C. Petitioner’s New Arguments Based on Patent Owner’s Proposed Construction of “Triggering the Transmission” Should Be Rejected	5
D. Petitioner’s New Arguments Based on Patent Owner’s Proposed Construction of “Triggering the Transmission” Is Incorrect.....	6
III. PETITIONER’S FAILURE TO PROPERLY CONSTRUE “FIRST TIME WINDOW,” “SECOND TIME WINDOW, AND “THIRD TIME WINDOW” IS FATAL TO ITS OBVIOUSNESS ARGUMENTS	8
A. Petitioner’s Arguments Related to Patent Owner’s Consistency with Claim Construction in the Related District Court Litigation are Irrelevant.....	9
B. Petitioner’s Reply Highlights Why Constructions are Necessary for the “Time Window” Terms	10
C. Patent Owner’s Correct Construction Stems from Lexicography	11
1. First Time Window	12
2. Third Time Window	12
3. Second Time Window.....	13

D.	Petitioner’s New Arguments Based on Patent Owner’s Proposed Construction Should Be Rejected	15
E.	Petitioner’s New Arguments Based on Patent Owner’s Proposed Constructions of “First Time Window,” “Second Time Window,” and “Third Time Window” Are Incorrect.....	16
IV.	PETITIONER RELIES ON IMPERMISSIBLE HINDSIGHT IN ORDER TO DISCLOSE TRANSMITTING TWO RADIO SIGNALS ON TWO CHANNELS IN LIU	18
V.	THERE IS NO MOTIVATION TO COMBINE LIU WITH JOVER.....	20
VI.	ANY COMBINATION OF LIU AND JOVER DOES NOT RENDER CLAIMS 2-20 OBVIOUS.....	22
VII.	MR. GOMEZ IS QUALIFIED TO OFFER EXPERT TESTIMONY FROM THE PERSPECTIVE OF AN ORDINARILY SKILLED ARTISAN	22
VIII.	CONCLUSION.....	25

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Chef Am., Inc. v. Lamb-Weston, Inc.</i> , 358 F.3d 1371 (Fed. Cir. 2004)	3
<i>In re Fulton</i> , 391 F.3d 1195 (Fed. Cir. 2004)	21
<i>Garrity Power Servs. LLC v. Samsung Elecs. Co.</i> , No. 2:20-cv-00269 (E.D. Tex. Aug. 4, 2021)	9
<i>In re Gurley</i> , 27 F.3d 551 (Fed. Cir. 1994)	21
<i>Intel Corp. v. Qualcomm Inc.</i> , 21 F.4th 801 (Fed. Cir. 2021)	4, 10
<i>Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.</i> , 821 F.3d 1359 (Fed. Cir. 2016)	6, 16
<i>InterDigital Commc'ns, Inc. v. U.S. Int'l Trade Comm'n</i> , 601 F. App'x 972 (Fed. Cir. 2015)	11
<i>KEYnetik, Inc. v. Samsung Elecs. Co.</i> , 837 F. App'x 786 (Fed. Cir. 2020)	11
<i>In re Zletz</i> , 893 F.2d 319 (Fed. Cir. 1989)	2, 8
Other Authorities	
37 C.F.R. § 42.23(b)	5, 15

EXHIBIT LIST

Exhibit No.	Description of Document
2001	Defendants' Patent L.R. 3-3 Invalidity Contentions and Subject Matter Ineligibility Contentions, <i>Apex Beam Technologies LLC v. Samsung Electronics Co., Ltd. et al.</i> , Case No. 2:22-cv-00188-JRG, served March 2, 2023
2002	Docket Control Order, Dkt. 37, <i>Apex Beam Technologies LLC v. Samsung Electronics Co., Ltd., et al.</i> , Case No. 2:22-cv-00188-JRG (E.D. Tex. February 6, 2023)
2003	Order Denying Motion to Stay Pending <i>Inter Partes</i> Review, Dkt. 55, <i>Apex Beam Technologies LLC v. Samsung Electronics Co., Ltd, et al.</i> , Case No. 2:22-cv-00188-JRG (E.D. Tex. June 14, 2023)
2004	Redline Comparison of the Declaration of Harry R. Bims, Jr., Ph.D. (Ex. 1003) to the Petition
2005	Declaration of Miguel Gomez ("Gomez Decl."), dated December 26, 2023 and Exhibit A, Curriculum Vitae of Miguel Gomez.
2006	Deposition of Harry Bims, taken in <i>Samsung Elecs. Co., v. Apex Beam Techs. LLC</i> , IPR2023-00601 and IPR2023-00602, on December 13, 2023. ("Bims Depo.")

I. INTRODUCTION

Petitioner's Reply (Paper No. 18, "Reply") confirms patentability for several reasons.

Petitioner fails to construe "triggering the transmission" properly as "causing the transmission" because Petitioner intentionally ignores the causality between a measurement value received by the user equipment that causes the transmission of two radio signals over two different channels from the user equipment, as required by Claim 1 of the '113 Patent, which Liu does not disclose.

Petitioner fails to construe each of the "first time window," "second time window," and "third time window." Instead, Petitioner focuses on what it considers the plain and ordinary meaning of "time window" as arbitrary "periods of time" which renders each of the three terms meaningless. Petitioner ignores the purpose of each of the three different time windows, as disclosed in the '113 Patent.

Petitioner's new arguments related to applying Patent Owner's proposed constructions should be rejected.

Petitioner fails to articulate a proper motivation to combine Liu and Jover particularly since it admits that Jover does not even mention beam recovery requests and Jover discloses the divergent direction of beam sweeping or nullifying a signal rather than improving the beam strength or maximizing aerial resources, as the '113 Patent describes.

Petitioner cannot exclude the testimony of Patent Owner's expert, Mr. Miguel Gomez, by questioning his ability to testify on the patentability issues presented in this proceeding. Mr. Gomez graduated with a Bachelor of Science Degree from Yale University in Electrical Engineering and has over thirty five years of experience in the design and development of hardware and software technology used in telecommunications, data communications, wireless transmission and related protocols. Recognizing his vast experience, Mr. Gomez has been retained as an expert, including in several cases involving the investigation of VHDL, Verilog, C, and C++ source code that implemented OFDM. Petitioner's questioning of Mr. Gomez's qualifications, while failing to secure contradictory reply expert testimony,¹ demonstrates the weakness of the Petition's ("Pet.") grounds for unpatentability. Patent Owner recognizes the Board's broad discretion to assign weight to expert testimony and submits that Mr. Gomez's expert testimony should be accorded substantial weight.

II. PETITIONER'S FAILURE TO PROPERLY CONSTRUE "TRIGGERING THE TRANSMISSION" IS FATAL TO ITS OBVIOUSNESS ARGUMENTS

The words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed.

¹ Notably, Petitioner chose to forgo taking the deposition of Mr. Gomez for this proceeding.

Cir. 1989); *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372 (Fed. Cir. 2004). As Patent Owner’s Response (Paper 16, “POR,” at 8-10) explained, the plain and ordinary meaning of “triggering the transmission” (as interpreted by Petitioner) as merely connotating “transmission” is inconsistent with the patent specification and the claim language because Petitioner’s apparent “plain and ordinary” construction renders the terms meaningless and reads out claim requirements.

A. Petitioner’s Apparent Ignorance of “Triggering the Transmission” Renders the Term Meaningless and Necessitates Construction

Petitioner’s proposal to construe the claim term “triggering the transmission” as plain and ordinary meaning is deficient because Petitioner’s understanding of the plain and ordinary meaning of “triggering the transmission” as merely “transmission” reads out claim requirements and renders the term meaningless.

Petitioner’s Reply confirms that there is no measurement value used for triggering BFRR transmission in Liu, as the claim requires. Reply at 2-3; (citing Ex. 1007, [0005], [0069], [0076]-[0078], [0084], [0087], [0091], [0114]). Instead, Liu only describes a user equipment measuring channel quality but this channel quality does not trigger Liu’s BFRR signals. Rather, Liu’s channel quality is reported *to the base station* so that the base station “selects the best beam for the user equipment [] from among a plurality of Tx beams”:

[T]he user equipment 110A-110C measures the channel quality of a reference signal (RS) in each transmission

beam and reports the measurements to the base station 202. The station 202 selects the best beam for the user equipment 110A-110C from among a plurality of Tx beams. ...The base station 202 may allocate an appropriate Tx beam to the user equipment 110A-110C. If the user equipment 110A-110C is capable of receiving a plurality of Tx beams from the base station 202 or supporting a plurality of base station Tx-user equipment Rx beam pairs, the base station 202 may select a beam.

Ex. 1007, [0069]. The claim language is clear that “a User Equipment (UE) for wireless communication” “receiv[es] a target radio signal” and “the target measurement value, when higher than a target threshold is used for triggering the transmission of the first radio signal and the second radio signal” without base station input.

As described further below, none of Petitioner’s other examples are availing to show the necessary causality for the claimed “triggering the transmission.” Without any causality, the term “triggering the transmission” merely amounts to “transmission” and renders the term “triggering” meaningless. Such an interpretation should be rejected. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 810 (Fed. Cir. 2021) (citations omitted) (“It is highly disfavored to construe terms in a way that renders them void, *meaningless*, or superfluous.”) (emphasis added).

B. Petitioner Does Not Dispute Patent Owner’s Expert Testimony

Patent Owner relies on the expert testimony of Mr. Gomez (not vice versa as Petitioner claims without evidence) (Reply at 4), who relies on dictionary definitions

that he believed were the same understanding that a person of ordinary skill in the art (“POSITA”) would have had of “triggering the transmission” at the time of the claimed invention. Petitioner does not seem to dispute that the plain and ordinary meaning of “triggering the transmission” is “causing the transmission” but rather that an explicit construction is not necessary because the plain and ordinary meaning is evident. If this is the case, Patent Owner requests the Board to consider that the plain and ordinary meaning of “triggering the transmission” is “causing the transmission.”

C. Petitioner’s New Arguments Based on Patent Owner’s Proposed Construction of “Triggering the Transmission” Should Be Rejected

Petitioner blatantly circumvents the Board’s Trial Practice Guide that states that a reply “may only respond to arguments raised in the preceding brief,” which means that it does not “proceed in a new direction with a new approach as compared to the positions taken in a prior filing” “in the context of 37 C.F.R. § 42.23(b).” Patent Trial and Appeal Board Consolidated Trial Practice Guide (“Trial Practice Guide”) (Nov. 2019), at 74, available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>. However, that is exactly what Petitioner does in its Reply. Reply at 4-8 (“*Liu* Discloses the ‘Triggering’ Limitation, Regardless of Whether Apex’s Construction is Applied.”). Instead of merely arguing against Patent Owner’s proposed claim construction,

Petitioner improperly applies Patent Owner’s proposed construction to formulate a new approach and rationale for obviousness. *Id.*; Trial Practice Guide, at 74 (“[A] reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.”).

Mapping Liu/Jover to Patent Owner’s proposed construction of “triggering the transmission” rises to the level of a “newly raised rationale to combine the prior art references that was not expressed in the petition” that is barred by the Board. *See id.* (citing *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369–70 (Fed. Cir. 2016)). As a result, Petitioner’s new argument applying Patent Owner’s claim construction should be rejected.

D. Petitioner’s New Arguments Based on Patent Owner’s Proposed Construction of “Triggering the Transmission” Is Incorrect

Petitioner’s mapping to Liu alone or in combination with Jover, is incorrect.

As noted above, Petitioner merely pays lip service to the “triggering the transmission” claim limitation because Liu only describes a user equipment measuring channel quality but this channel quality does not trigger Liu’s transmission of BFRR signals from the user equipment. *See supra* Section II.A.

Petitioner’s alleged “numerous examples” of causal triggering conditions in Liu for transmitting the claimed first and second radio signals are similarly irrelevant or do not exist. For example, Liu’s disclosure only describes “sending a beam failure

recovery request (BFRR) to the base station upon detection of a beam failure between the base station and the user equipment” and “the user equipment 404 may transmit multiple BFRRs.” *See* Reply at 5-6 (citing to Ex. 1007, [0005], [0084], [0099], [0114], claims 1, 5, 7, FIG. 6A). Liu is otherwise silent on a measurement value, if any, is “used for triggering the transmission of the first radio signal and the second radio signal” (i.e., a measurement value causing the transmission of the first radio signal and the second radio signal) as the claimed limitation requires. Making the logical leap from a transmission subsequent to a beam failure to two BFRR transmissions ***caused by*** a target measurement value is improper and only informed by hindsight.

Petitioner ignores the totality of the claim limitation: “the target measurement value, when higher than a target threshold is used for triggering the transmission of the first radio signal and the second radio signal.” Sending a BFRR in response to beam failure does not disclose a “***target measurement value...used for triggering the transmission...***” because beam failure on its own is not a “target measurement value.” And as described above, Liu’s channel quality is not used as such a target measurement value because Liu’s channel quality is reported ***to the base station*** so that the base station “selects the best beam for the user equipment [] from among a plurality of Tx beams.” *See supra* Section II.A (citing Ex. 1007, [0069]).

Petitioner then admits that Jover has nothing to do with disclosing “triggering

a transmission of the first and second radio signal” because, allegedly, “Liu already discloses these features.” Reply at 7. Petitioner further admits that Jover only teaches “a [specific] triggering condition” completely divorced from the claimed “transmission of the first and second radio signal.” *Id.*

Therefore, Liu alone or in combination with Jover does not disclose the required use of a measurement value to cause the transmission of the first and second radio signal.

III. PETITIONER’S FAILURE TO PROPERLY CONSTRUE “FIRST TIME WINDOW,” “SECOND TIME WINDOW, AND “THIRD TIME WINDOW” IS FATAL TO ITS OBVIOUSNESS ARGUMENTS

The words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d at 321. As Patent Owner’s Response (POR at 10-14) explained, (i) the plain and ordinary meaning of “triggering the transmission” (as interpreted by Petitioner) as merely connotating “transmission” and (ii) the plain and ordinary meaning of each of “first time window,” “second time window,” and “third time window” as merely “periods of time” are inconsistent with the patent specification and the claim language because Petitioner’s apparent “plain and ordinary” construction renders the terms meaningless and reads out claim requirements.

A. Petitioner's Arguments Related to Patent Owner's Consistency with Claim Construction in the Related District Court Litigation are Irrelevant

Petitioner's arguments regarding consistency with the related district court litigation should be rejected as irrelevant.

As a preliminary matter, the full claim construction record was never fully established in the related district court litigation because the case was stayed prior to the Markman Hearing. Ex. 2003.

Additionally, it is commonly accepted practice to have different claim constructions between district court litigation and the PTAB particularly as the record for both infringement and invalidity develops. For example, litigants before the Eastern District of Texas (the jurisdiction of the related district court litigation) have previously argued that the record before the PTAB shows that their opponent has taken inconsistent positions. In *Garrity Power Servs. LLC v. Samsung Elecs. Co.*, the plaintiff argued that the defendant was barred from proposing a construction for a claim term in district court because the defendant did not propose a construction for that claim term in its IPR petition. No. 2:20-cv-00269, Dkt. 102 (E.D. Tex. Aug. 4, 2021). The district court disagreed, reasoning that the PTAB construes claim terms only where necessary to resolve the disputes in the IPR, in the limited context of reviewing validity. *Id.* The district court thus did not find the defendant's decision not to propose a construction before the PTAB to preclude the defendant from

proposing a construction in district court, where claim construction may be necessary for other reasons (*e.g.*, to resolve questions of infringement). *Id.*

B. Petitioner’s Reply Highlights Why Constructions are Necessary for the “Time Window” Terms

Petitioner’s Reply explicitly provides an incorrect construction of the three different “time window” terms when it states that “the same claim terms should be construed in the same manner.” Reply at 9-10. The three terms are not the “same claim terms.” In fact, Patent Owner’s proposed constructions provide the same definition of the shared words “time window” as “period of time,” which Petitioner agrees with.

However, it is Petitioner that flouts the law in not giving meaning to the other words in each of the claim terms: “*first* time window,” “*second* time window,” and “*third* time window.” Specifically, Petitioner’s proposal to construe each of the “time window” terms as plain and ordinary meaning is deficient because Petitioner’s understanding of the plain meaning of each of the “first time window,” “second time window,” and “third time window” as arbitrary “periods of time” reads out claim requirements and renders the terms meaningless especially since radio signals must be transmitted and received during a period of time. Since Petitioner’s apparent construction of the time window terms as arbitrary periods of time renders the time window terms meaningless, it should therefore be rejected. *Intel Corp.*, 21 F.4th at

810 (citations omitted) (“It is highly disfavored to construe terms in a way that renders them void, *meaningless*, or superfluous.”) (emphasis added).

Petitioner’s cited case law, allegedly describing how reading purpose into a construction is improper, is inapposite. Reply at 10. In fact, the purpose of a claim term may be used to construe that term where the preferred embodiment is the only embodiment tied to the purpose of the invention. *InterDigital Commc’ns, Inc. v. U.S. Int’l Trade Comm’n*, 601 F. App’x 972, 978 (Fed. Cir. 2015); *KEYnetik, Inc. v. Samsung Elecs. Co.*, 837 F. App’x 786, 792 (Fed. Cir. 2020) (“the described invention’s purpose informs the proper construction of claim terms”) (citations omitted).

Petitioner’s subsequent argument that Patent Owner’s proposed construction is redundant in view of the explicit claim language (Reply at 11 (“repeating other parts of the claim”)) falls flat when it just argued that Patent Owner reads in additional “purpose” into the proposed construction. It is unclear whether Petitioner is alleging that Patent Owner has a redundant construction or unnecessary purpose.

C. Patent Owner’s Correct Construction Stems from Lexicography

As noted above, Petitioner’s faulty apparent constructions stem from viewing the claimed first time window, second time window, and third time window as three arbitrary periods of time, which does not provide any meaning to a POSITA.

1. First Time Window

Petitioner is incorrect that the '113 Patent's FIG. 6 does not support Patent Owner's proposed construction of "first time window." And its argument is unclear. As Petitioner admits, "the 'first time window' starts a period of time after the 'first radio signal' and extends a period of time beyond the 'third radio signal.'" Reply at 13-14. That only corroborates Patent Owner's construction because the first time window is a period of time allocated to monitor the reception of a third radio signal. In other words, a third radio signal may or may not be received within the first time window. If a third radio signal is received within the first time window, it follows that the end of the first time window "extends a period of time beyond the [reception of the] 'third radio signal,'" as Petitioner admits. Reply at 13. Petitioner fails to cite any case law or statute that prevents a construction from including the function of the claim term, which is what Patent Owner's proposed construction does in order to clarify the term beyond Petitioner's arbitrary periods of time.

2. Third Time Window

Petitioner's Reply only exemplifies why a construction for the "third time window" is necessary because it simply reads a third time window to be a period of time from the second radio signal to the end of the first time window. Reply at 14. However, any period of time (*e.g.*, a first time window under Petitioner's construction) constitutes smaller periods of time within it. Thus, under Petitioner's

apparent construction, the third time window term is meaningless beyond the start and end time without any discernible purpose or function for the time window. As with the first time window, FIG. 6 only corroborates Patent Owner's proposed construction because the third time window is a period of time allocated to monitor the reception of a third radio signal after the second radio signal. In other words, a third radio signal may or may not be received within the third time window. If a third radio signal is received within the third time window, it follows that the end of the third time window "extends a period of time beyond the [reception of the] 'third radio signal,'" as Petitioner admits. Reply at 14.

3. Second Time Window

The "second time window" is the most egregious example of Petitioner's rendering a term meaningless. Petitioner's Reply exemplifies that its apparent construction of the term is an arbitrary period of time that happens to occur "after the 'first radio signal' and extends a period of time beyond the 'second radio signal.'" Reply at 14-15. In fact, Petitioner's Reply fails to articulate any purpose or function for the claimed second time window outside of Patent Owner's proposed construction.

Claim 1 of the '113 Patent requires "the target measurement value, when higher than a target threshold is used for triggering the transmission of the first radio signal and the second radio signal." It follows that *both* the first radio signal and

second radio signal need to be transmitted regardless of if and when a third radio signal is received. Therefore, since the first and third time window are directed towards monitoring reception of the third radio signal, the purpose or function of the second time window must be different. As Patent Owner indicates, '113 Patent, 22:53-54 indicates that “the second radio signal is [transmitted] within the second time window” because that is the purpose of the second time window to ensure that the claim limitation of “triggering the transmission of the first radio signal and the second radio signal” is met. Petitioner feigns ignorance of the purpose of the second time window and whether '113 Patent, 22:53-54 is indicative of such a purpose while entirely avoiding suggesting a different function or purpose of the second time window.

Petitioner’s argument against Patent Owner’s citation to '113 Patent, 22:56-60 (“The UE conducts monitoring of the third radio signal in a time interval between the start time of the first time window and the time domain resource occupied by the second radio signal”) misses the point. The second time window is the “time interval between the start time of the first time window and the time domain resource occupied by the second radio signal” and this section indicates that the third radio signal may not be detected in that time period, which shows that the function or purpose of the second time window is not related to reception of the third radio signal. Petitioner does not seem to dispute this. Reply at 14-15.

Patent Owner’s proposed construction is further supported by FIG. 6 of the ’113 Patent because the second time window is a period of time allocated to monitor the transmission of a second radio signal after the first radio signal. If a second radio signal is transmitted within the second time window, it follows that the end of the second time window “extends a period of time beyond the [transmission of the] ‘second radio signal,’” as Petitioner admits. Reply at 15.

D. Petitioner’s New Arguments Based on Patent Owner’s Proposed Construction Should Be Rejected

Petitioner blatantly circumvents the Board’s Trial Practice Guide that states that a reply “may only respond to arguments raised in the preceding brief,” which means that it does not “proceed in a new direction with a new approach as compared to the positions taken in a prior filing” “in the context of 37 C.F.R. § 42.23(b).” Patent Trial and Appeal Board Consolidated Trial Practice Guide (“Trial Practice Guide”) (Nov. 2019), at 74, available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>. However, that is exactly what Petitioner does in its Reply. Reply at 16-23 (“*Liu* Discloses the ‘Time Window’ Limitations, Regardless of Whether Apex’s Constructions Are Applied”). Instead of merely arguing against Patent Owner’s proposed claim construction, Petitioner improperly applies Patent Owner’s proposed construction to formulate a new approach and rationale for obviousness. *Id.*; Trial Practice Guide, at 74 (“While replies and sur-replies can help crystalize issues for decision, a reply or sur-reply

that raises a new issue or belatedly presents evidence may not be considered.”).

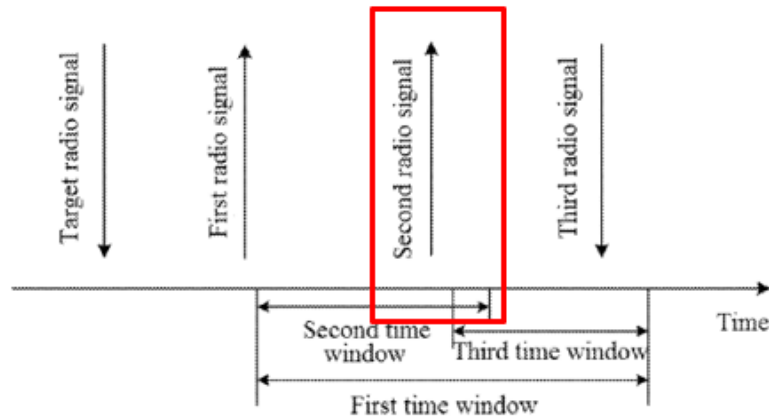
Mapping Liu/Jover to Patent Owner’s proposed construction of “first time window,” “second time window,” and “third time window” rises to the level of a “newly raised rationale to combine the prior art references that was not expressed in the petition” that is barred by the Board. *See id.* (citing *Intelligent Bio-Sys., Inc.*, 821 F.3d at 1369–70). As a result, Petitioner’s new argument applying Patent Owner’s claim constructions should be rejected.

E. Petitioner’s New Arguments Based on Patent Owner’s Proposed Constructions of “First Time Window,” “Second Time Window,” and “Third Time Window” Are Incorrect

Petitioner’s mapping to Liu is incorrect.² Petitioner all but admits that Liu does not disclose the claimed “second time window” because it notes that the “second time window” is just an arbitrary period of time. *See Reply* at 16. Although Petitioner states that Liu nonetheless discloses the “second time window” according to Patent Owner’s proposed construction, it does not because the mere presence of a “time offset” between the transmission of a first BFRR and its corresponding BFRR Response has nothing to do with the second BFRR, and therefore is not the required “a period of time from the first radio signal in which to transmit the second radio signal.” *Id.* at 21. Rather, Liu’s time offset from the transmission of the BFRR to the

² Petitioner’s Reply confirms that it does not rely on the combination of Liu and Jover for the “second time window” claim limitation. *Reply* at 16-18.

corresponding BFRR Response exists regardless of whether a second BFRR is transmitted in some separate time window. This can be contrasted with Petitioner’s own admission that the end of the second time window, as shown in FIG. 6 of the ’113 Patent, “extends a period of time *beyond the [transmission of the] ‘second radio signal.’*”.



’113 Patent, FIG. 6 (annotated); Reply at 15 (emphasis added). In FIG. 5B of Liu, there is no separate time window in which to transmit the second radio signal triggered by the target measurement value after transmitting the first radio signal, as required by Claim 1:

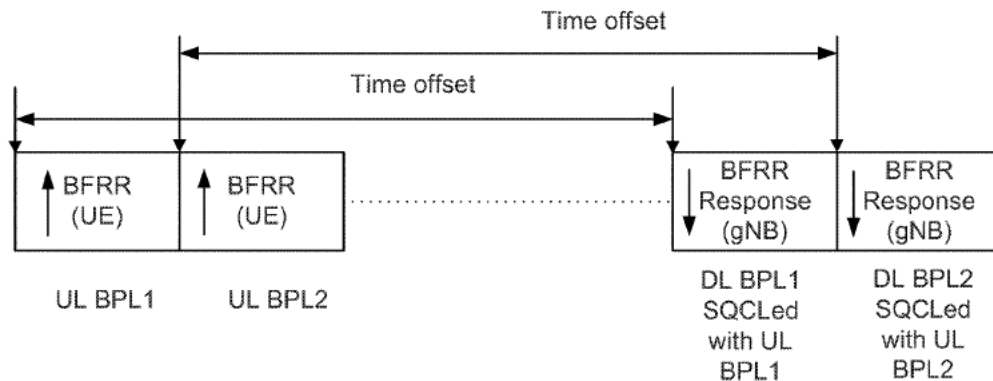


FIG. 5B

Ex. 1007, FIG. 5B). Therefore, Liu does not disclose a second time window.

IV. PETITIONER RELIES ON IMPERMISSIBLE HINDSIGHT IN ORDER TO DISCLOSE TRANSMITTING TWO RADIO SIGNALS ON TWO CHANNELS IN LIU

Petitioner only uses impermissible hindsight to suggest that “*Liu* also specifically contemplates transmitting one BFRR signal on the PUCCH and another BFRR signal on the PRACH” (Reply at 19) since Liu, at best, shows transmitting two BFRR signals on the same channel. Even Petitioner’s leading example explicitly states that one embodiment of Liu transmits the BFRR on the PUCCH and the other embodiment transmits the BFRR on the PRACH. *Id.* (citing Ex. 1007, [0084]). There is no singular embodiment of Liu where two BFRRs are sent on each of PRACH and PUCCH respectively, and Petitioner does not (and cannot) argue that such an embodiment exists in Liu. *See* Ex. 1007 at [0009]-[0011], [0085], [0103]-[0104], Claims 5-7.

Petitioner’s attempt to misrepresent the Board’s Institution Decision should be rejected. Reply at 20. While the Board acknowledged that Liu discloses sending multiple BFRRs over one channel and the existence of different channels (each channel in different embodiments), the Board correctly noted that “it is unclear on this record whether it can be read to explicitly teach transmitting BFRR signals on two different channels. Elsewhere, as Patent Owner notes, *Liu appears to describe using the PUCCH and PRACH as alternatives.*” Paper No. 11, at 18-19 (emphasis

added). At the Institution stage, without the benefit of Patent Owner's expert testimony, the Board had only Petitioner's expert testimony to rely on that a modification from transmitting two BFRs on one channel to two BFRs each on different channels would have been straightforward. However, Petitioner's expert failed to indicate that the modification would be straightforward or that such a modification would have a reasonable expectation of success.

Ironically, Petitioner's own citations highlight the failure of Dr. Bims to elucidate "hardware and software changes that would allow the system in Liu to transmit its two BFRs on two different channels." Reply at 21. For example, Petitioner argues that Dr. Bims' testimony that "what would be required is a modification to the source code that would send the information on the PUCCH to instead designate the information be sent on the PRACH," is a function (it is not). Reply at 21 (citing Ex. 2006, 69:22-70:9). On its face, this argument should be rejected because all Dr. Bims is saying is that source code can be modified to switch between channels. Even if this were a technical modification, switching between channels does not meet the claimed limitation of "the target measurement value, when higher than a target threshold is used for triggering the transmission of the first radio signal *and* the second radio signal." '113 Patent, Claim 1. Both channels simultaneously need to be available for transmissions triggered by a target measurement value. A switch would not suffice. Dr. Bims' other vague

modifications, such as adding logic gates (*i.e.*, switches) that redirect messages, also do not render obvious the challenged claims. Reply at 21-22.

Petitioner fails to address that conventional systems at the time of the '113 Patent's invention, like Liu, utilized one channel at a time, which had drawbacks resolved by the '113 Patent disclosing two channels for each beam recovery request. *See* '113 Patent, at 1:43-54 ("The inventor finds through researches that: if a UE, after using one channel to transmit a beam recovery request, cannot transmit the beam recovery request again during the time window of waiting a response."). Petitioner's argument that "the use of different channels for the first and second BFRRs would 'ensure greater reliability of the base station's response'" (Reply at 23) is due to impermissible hindsight and should be rejected.

V. THERE IS NO MOTIVATION TO COMBINE LIU WITH JOVER

The Board should reject Petitioner's attempt to bypass the law regarding motivation to combine. Specifically, Petitioner seems to articulate that as long as Liu and Jover are "directed to communication failure" generally and Jover does not "explicitly teach[] away from the use of beam recovery requests," a POSITA would be motivated to combine Liu with Jover. Reply at 23-24. Aside from opening up the universe of obvious combinable references to any reference related to telecommunications, Petitioner performs the wrong inquiry to determine a motivation to combine.

Petitioner's cited case law underscores that if "a person of ordinary skill, upon reading the reference . . . would be led in a direction divergent from the path that was taken by the applicant," there is teaching away. Reply at 23 (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)). The divergence is apparent on its face since Petitioner admits that "Jover does not mention beam recovery requests." Reply at 24. As Patent Owner explained, Jover provides no attempt to improve the beam strength or maximize aerial resources, as the '113 Patent explains (i.e., "the path that was taken by the applicant"), but rather ignores it through beam sweeping or nullify it (i.e., "a direction divergent"). *See* POR, 23-24.

Petitioner's attempt to characterize the disclosure of Jover as "express[ing] a general preference for an alternative invention" is unavailing since Petitioner fails to articulate what preference or alternative is disclosed by Jover other than its only disclosure of "beam steering and null generation." Reply at 24 (citing *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)); POR, 31 (citing Ex. 1005, [0003], [0033]).

To the extent any trigger condition using a threshold is disclosed by Jover, it would be divergent to the purpose of the '113 Patent and not obvious to combine with Liu. Thus, Petitioner's argument suggesting that Patent Owner requires Jover to be bodily incorporated into Liu is a red herring and should be rejected. Reply at 24.

Since Jover is directed to the opposite objective of the '113 Patent, Petitioner

cannot prove that the Challenged Claims are rendered obvious by Petitioner's Ground 2.

VI. ANY COMBINATION OF LIU AND JOVER DOES NOT RENDER CLAIMS 2-20 OBVIOUS

Any combination of Liu and Jover fails to obviate Claims 2-20 for at least the same reasons as for Claim 1, as Petitioner indicates. Reply at 24-25.

VII. MR. GOMEZ IS QUALIFIED TO OFFER EXPERT TESTIMONY FROM THE PERSPECTIVE OF AN ORDINARILY SKILLED ARTISAN

Even after the Board noted that "Petitioner's last sentence regarding additional relevant work experience compensating for less education and *vice versa*, [] is vague" (Inst. at 11), Petitioner's Reply provides no further clarification or rebuttal of Patent Owner's proposed "additional relevant work experience" outside of stating that the technological experience should be limited to MIMO instead of telecommunications even though MIMO is a small subset of telecommunications. Reply at 25-26. Since Patent Owner provided the only definition of a POSITA with a clear scope, Patent Owner's definition should be adopted. Mr. Gomez satisfies both parties' proposed definitions. In addition to a Bachelor of Science Degree from Yale University in Electrical Engineering, Mr. Gomez has over "thirty five years of experience in the design and development of hardware and software technology used in telecommunications, data communications, wireless transmission and related protocols." *See* Ex. 2005, Exhibit A, at 1, 3. Mr. Gomez has considerable experience

designing products that utilize the underlining technologies of Spread Spectrum (802.11a,b,g,n), LTE, OFDM, RF Transmission and reception, which are in turn utilized by LTE and by 5G NR. *Id.* at 2. Specifically, the following work experiences listed in Mr. Gomez’s CV are highly pertinent to the field of “telecommunications systems,” which Petitioner agrees is the relevant field. Pet. at 13.

Mr. Gomez’s work experience began in 1983 at ROLM Corporation where he designed transmission protocols for business telephone equipment. Ex. 2005, Exhibit A, at 6. Later, in 1985, Mr. Gomez was a founding member of Stratacom, Inc. where he designed long haul voice and data routing equipment, and developed compression algorithms for voice communications. *Id.* Mr. Gomez’s work at Stratacom also included designing methods to include data on the voice transmission paths that later became known as Frame Relay. *Id.* In 1990, as a consultant, Mr. Gomez worked on circuit design in “computing, telephony and data systems.” *Id.* at 5. At ActSolar, from August 2006 to March 2009, Mr. Gomez was Vice President and tasked with implementing both power conversion circuitry, as well as a radio system, to convey the health status of the solar array to a web server. *Id.* at 3. Petitioner’s allegations that Mr. Gomez is not a POSITA in the field of wireless communications are therefore meritless and should be rejected.

Moreover, Petitioner’s arguments attacking Mr. Gomez’s qualifications are based on an incorrect heightened standard that “[t]he Board should give no weight

to the testimony of Mr. Gomez because he does not qualify as a POSITA.” Reply at 25. The Board explicitly states that “[a] person may not need to be a person of ordinary skill in the art in order to testify as an expert under Rule 702, but rather must be ‘qualified in the pertinent art’” and that there is “no requirement of a perfect match between the expert’s experience and the relevant field.” Trial Practice Guide, 34 (citations omitted).

As described above, Mr. Gomez provides sufficient qualification in the field of wireless networking and meets the parties’ agreed upon definition of a POSITA. Mr. Gomez has previously been recognized as having sufficient qualifications in the field of wireless communications. For example, as an expert, between September 2012 and August 2013, in the case of WiLAN Inc. v. HTC Corp. (2:11-CV-68-JRG), Mr. Gomez supported WiLAN investigating VHDL, Verilog, C, and C++ source code that implemented OFDM and SC-OFDMA. Ex. 2005, Ex. A at 13-14 (emphasis added). Between May 2009 and March 2011, Mr. Gomez also investigated OFDM implementations used in 802.11a,b,g,n in the case of WiLAN v. Acer (2:07-CV-473). *Id.* at 18-19. In that case, Mr. Gomez also supported WiLAN investigating Verilog, C, and C++ source code that implemented OFDM. *Id.*

Mr. Gomez also responded to every question posed by Petitioner’s counsel at his depositions, and Petitioner cannot point to an instance where Mr. Gomez could not respond for lack of relevant technical experience. *See generally* Ex. 1025.

The Board has broad discretion to assign weight to be accorded to expert testimony. Trial Practice Guide at 35 (citations omitted). Such broad discretion certainly extends here, where an expert, like Mr. Gomez, provides “testimony that is helpful to the Board” and is qualified in the pertinent art of wireless communications. *Id.* at 34.

VIII. CONCLUSION

For at least the foregoing reasons, the Board should issue a Final Written Decision finding the Challenged Claims not unpatentable.

Respectfully submitted,

Dated: April 30, 2024

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S SUR-REPLY specified in 37 C.F.R. § 42.24 has 5,577 words in compliance with the 5,600 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

Respectfully submitted,

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