

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VOLKSWAGEN GROUP OF AMERICA, INC.

Petitioner

v.

CARUCEL INVESTMENTS, L.P.

Patent Owner

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Case No. IPR2019-01102

U.S. Patent No. 7,848,701

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**PATENT OWNER'S SUR-REPLY TO  
PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE**

## **TABLE OF CONTENTS**

I.	INTRODUCTION .....	1
II.	THE REPLY’S CLAIM CONSTRUCTION ANALYSIS INVITES LEGAL ERROR .....	1
A.	“Mobile Device” .....	1
B.	“Automotive Vehicle” .....	8
III.	THE REPLY CONFIRMS THAT THE PETITION DOES NOT SUFFICIENTLY EXPLAIN HOW TO COMBINE THE ASSERTED PRIOR ART REFERENCES .....	12
IV.	THE REPLY DOES NOT CURE THE SHORTCOMINGS OF PETITIONER’S MOTIVATION TO COMBINE FOR GROUNDS 1-2 .....	13
A.	Ground 1: <i>Ito</i> with <i>Gardner</i> .....	13
B.	Ground 2: <i>Gilhousen865</i> and <i>Gilhousen390</i> .....	14
V.	PETITIONER HAS FAILED TO DEMONSTRATE THAT ANY GROUND RENDERS THE CHALLENGED CLAIMS INVALID .....	17
A.	Ground 1 .....	17
1.	<i>Ito</i> Fails to Disclose “A Mobile Device” .....	17
2.	<i>Gardner</i> Fails to Disclose “A Controller Configured . . . To Select a Best Signal” .....	23
B.	Ground 2 .....	27
1.	<i>Gilhousen865</i> Fails to Disclose “Configured To” .....	27
2.	<i>Gilhousen865</i> Fails to Disclose “A Mobile Device” .....	28
3.	<i>Gilhousen865</i> Fails to Disclose “Automotive Vehicle” .....	33
VI.	MR. LANNING’S TESTIMONY DOES NOT LACK EVIDENTIARY SUPPORT .....	34
VII.	CONCLUSION .....	34

## **TABLE OF AUTHORITIES**

### **Cases**

<i>Abbott Labs. v. Novopharm Ltd.</i> , 323 F.3d 1324, 1327 (Fed. Cir. 2003) .....	19
<i>K/S HIMPP v. Hear-Wear Techs., LLC</i> , 751 F.3d 1362 (Fed. Cir. 2014) .....	14
<i>Kartri Sales Co., Inc. et al. v. Zahner Design Group, Ltd.</i> , IPR2016-01327, Paper 10 (PTAB Jan. 3, 2017) .....	13
<i>Lexion Med., LLC v. Northgate Techs., Inc.</i> , 641 F.3d 1352 (Fed. Cir. 2011) .....	1, 2
<i>McGinley v. Franklin Sports, Inc.</i> , 262 F.3d 1339 (Fed. Cir. 2001) .....	11
<i>On Demand Mach. Corp. v. Ingram Indus.</i> , 442 F.3d 1331 (Fed. Cir. 2006) .....	6
<i>Pacing Techs., LLC v. Garmin Int’l, Inc.</i> , 778 F.3d 1021 (Fed. Cir. 2015) .....	3
<i>Personalized Media Communications, LLC v. Apple Inc.</i> , 952 F.3d 1336 (Fed. Cir. Mar. 13, 2020).....	5
<i>Phillips v. A.W.H. Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) .....	2, 9
<i>PPC Broadband, Inc. v. Corning Optical Comm’ns RF, LLC</i> , 815 F.3d 734 (Fed. Cir. 2016) .....	2
<i>Roxane Labs., Inc. v. Novartis AG</i> , IPR2016-01461 (PTAB Feb. 13, 2017).....	14
<i>Trustees of Columbia Univ. v. Symantec</i> , 811 F.3d 1359 (Fed. Cir. 2016) .....	6

### **Rules**

37 C.F.R. § 42.104(b)(4).....	17
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## **I. INTRODUCTION**

For the reasons set forth herein and those set forth in the Patent Owner's Response (Paper No. 12, "POR"), the Petitioner has failed to meet its burden of proving unpatentability of the challenged claims by a preponderance of the evidence.

## **II. THE REPLY'S CLAIM CONSTRUCTION ANALYSIS INVITES LEGAL ERROR**

### **A. "Mobile Device"**

Contrary to Petitioner's assertion, Patent Owner's submission of the plain and ordinary meaning of the term "mobile device"<sup>1</sup> was not one of "gamesmanship"; instead, it was a direct result of and in response to Petitioner's flawed proposed construction within its Petition. *See* Reply at 6. Although Petitioner did not submit any explicit construction of the term "mobile device" within its Petition, Petitioner improperly interpreted the "plain and ordinary meaning" of "mobile device" in a manner similar to a broadest reasonable interpretation analysis—by construing the meaning of "mobile device" in the abstract. This is improper under the current *Phillips* standard. Instead, a claim term must be interpreted according to "its meaning to the ordinary artisan after reading the entire patent." *Phillips v. A.W.H. Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005).<sup>2</sup> Despite this requirement of the *Phillips* standard,

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<sup>1</sup> "A device that must register with and be able to directly communicate with the cellular network." *See* POR at 13-16.

<sup>2</sup> *See also* *PPC Broadband, Inc. v. Corning Optical Comm'ns RF, LLC*, 815 F.3d 734, 740-42 (Fed. Cir. 2016); *Lexion Med., LLC v. Northgate Techs., Inc.*, 641 F.3d

Petitioner’s analysis attempts to (i) broadly construe the term “mobile device” in a vacuum to include any “movable device capable of receiving and transmitting radio signals” while ignoring the intrinsic evidence;<sup>3</sup> and (ii) disregard the ’701 Patent specification’s criteria for the term “mobile device.”<sup>4</sup>

Petitioner’s analysis is flawed for several reasons. First, Petitioner’s claim construction analysis is premised on incorrect legal standards. For example, Federal Circuit precedent forbids an overly broad interpretation of the claims “[w]hen a patentee describes the features of the present invention as a whole, he alerts the reader that this description limits the scope of the invention.” *Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1025 (Fed. Cir. 2015). In a prior civil action involving the ’701 Patent, the district court concluded that the specification of the related ’904 Patent<sup>5</sup> was “describing the system as a whole according to the invention and not simply a preferred embodiment.” Ex. 2105 at 14-15. Similarly, the ’701 Patent specification also describes the invention as a whole and should be limited as such. Specifically, the ’701 Patent relates to and describes as a whole

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1352, 1356 (Fed. Cir. 2011) (“The customary meaning of a claim term is not determined in a vacuum and should be harmonized, to the extent possible, with the intrinsic record, as understood within the technological field of the invention.”).

<sup>3</sup> Reply at 4-9.

<sup>4</sup> *Id.*

<sup>5</sup> The ’701 Patent is a continuation of the U.S. Patent No. 7,221,904 (’904 Patent).

improving the wireless connections of **mobile devices within cellular telephone systems** via a moving base station—which is consistent with Patent Owner’s construction of the term “mobile device”—as demonstrated by the examples below:

- “[T]he mobile unit **must register** in the manner described earlier, by transmitting its unique address in the new service area . . . . This registration procedure is required so that an incoming call for the mobile unit can be appropriately directed.”<sup>6</sup> Ex. 1001, 9:49-56.
- “The moving base station preferably handles telecommunications with **mobile units** which travel at a rate of not more than 30 miles per hour faster or slower than the moving base station. For example, the moving base stations 30, 40 may be traveling at the rate of 60 miles per hour to accommodate traffic moving in the range of 30 to 90 miles per hour. In the arrangement of FIG. 1, fixed base stations 70 would accommodate communications with **mobile units** traveling at a speed of less than 30 miles per hour including pedestrian traffic and stationary units.” Ex. 1001, 4:40-49.
- “The operation of the fixed base stations 70 is essentially the same as that of a standard cellular fixed base station. In congested traffic areas, a **mobile unit** which is stopped or slowly moving, e.g., less than 30 miles per hour, will

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<sup>6</sup> Unless otherwise indicated, all emphasis in either quotations or exhibit figures is added by Patent Owner.

preferably be serviced by one of the fixed base stations 70. As the speed of travel of the mobile unit 20 increases, a handoff will occur between the fixed base station and a moving base station . . . . Thus, when a call involving a mobile unit is initiated or when it is determined that a handoff should occur, the mobile unit may be handed from a moving station to a fixed station, or vice versa.” Ex. 1001, 10:50-65.

Accordingly, the plain and ordinary meaning of the term “mobile unit” should be harmonized with the intrinsic evidence above.

Second, the Reply fails to acknowledge the recent Federal Circuit precedent that cautions against Petitioner’s flawed standard of effectively requiring statements in the intrinsic record to rise to the level of a disclaimer in order to inform the meaning of the disputed claim term. *See Personalized Media Communications, LLC v. Apple Inc.*, 952 F.3d 1336, 1345-46 (Fed. Cir. Mar. 13, 2020) (“even if those statements do not rise to the level of a disclaimer.”); *Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1268-69, 1271 (Fed. Cir. 2001) (“[T]he written description can provide guidance as to the meaning of the claims . . . even if the guidance is not provided in explicit definitional format.”).

Third, it is well established that “when the scope of the invention is clearly stated in the specification, and is described as the advantage and distinction of the invention, it is not necessary to disavow explicitly a different scope.” *On Demand*

*Mach. Corp. v. Ingram Indus.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006). For example, in *On Demand*, the Federal Circuit construed the claim term “customer” as the “retail customer” based on the specification explaining the advantages that the system provided to this type of customer, “repeatedly reinforc[ing]” its usage of the term “customer” as the retail customer. *On Demand*, 442 F.3d at 1334, 1340. The Federal Circuit’s analysis in *On Demand* is similar to the Patent Owner’s claim construction. Here, the ’701 Patent is neither directed towards nor relates to improving the wireless connections of any “movable device capable of receiving and transmitting radio signals”, as Petitioner proposes. In stark contrast, the ’701 Patent explicitly and exclusively relates to improving the wireless connections of **mobile devices within “cellular telephone systems.”** This fact further evidences that the term “mobile device” is more than just any “movable device capable of receiving and transmitting radio signals”, as demonstrated below:

- “The invention relates to **cellular telephone systems** in which a mobile unit communicates by wireless communication to a base station connected to the wire telephone network and more particularly to **cellular telephone systems** adapted for use with fast-moving mobile units.” Ex. 1001, 1:17-21.
- “Modern **cellular systems** use what is known as code division multiple access (CDMA) spread-spectrum communications.” Ex. 1001, 2:14-16.



- “In a typical **cellular telephone system**, an area is divided into a plurality of cells with each cell having a centrally located cell site. A mobile unit moving in such a **cellular network** communicates by radio with a nearest cell site . . . . A problem with existing mobile telephone systems is the considerable time required in handoffs . . . . A basic principle of **cellular telephone systems** is the concept of frequency reuse . . . . These and other problems of the prior art are overcome in accordance with this invention by means of a moving base station which is interposed between a moving mobile telephone unit and a fixed base station.” Ex. 1001, 1:27-3:2.
- “In the typical **cellular telephone system**, the base station, also referred to as a cell site, forms an interface between the mobile unit and the gateway office.” Ex. 1001, 4:61-63.
- “To avoid interrupting communications with a mobile unit traveling along the roadway in the area where two adjacent loops end, any existing calls are handed off from the moving base station near the terminating end of its loop to a moving base station of the next loop . . . . This procedure is equivalent to a handoff between cell sites of different cells in the **existing cellular network** in a manner which is well known in the art.” Ex. 1001, 8:63-9:6.

Finally, Petitioner’s additional argument that the prosecution history of the related ’904 Patent “does not support PO’s construction for ‘mobile device’” is

incorrect.<sup>7</sup> First, the cherry-picked terms “telephones, radio modems, or other types of radios” were taken from the “summary of the invention” portion of the appellant’s appeal brief—in which the appellant described a summary of the invention, not a definition for the term “mobile device.” More importantly, these cherry-picked terms are not inconsistent with Patent Owner’s proposed construction or the specification of the ’701 Patent. For example, cellular phones, cellular modems, and hybrid cellular telephone that included both analog voice and digital data capability (“other types of radios”) all meet the definition of “mobile device” as set forth by the ’701 Patent. Nothing in the “summary of the invention” portion of the appellant’s appeal brief modified the definition of the term “mobile device.”

Finally, Patent Owner’s construction of the term “mobile device” seeks nothing more than “the construction that most accurately delineates the scope of the claimed invention.” *PPC Broadband, Inc.*, 815 F.3d 734 at 740-42. Petitioner’s contention—that the claims should be broadly construed to encompass any “movable device capable of receiving and transmitting radio signals”—accomplishes no such feat since it is without any actual evidentiary support and directly contradicted by the ’701 Patent. Accordingly, the Board should avoid Petitioner’s error, especially where only one party has provided substantial evidence that consistently and fully assesses the term “mobile device” that is “most

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<sup>7</sup> See Reply at 7-8.

accurately” consistent with the specification of the ’701 Patent. *PPC Broadband*, 815 F.3d at 740-742. *See Philips v. A.W.H. Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (“the person of skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification”).

### **B. “Automotive Vehicle”**

Patent Owner seeks nothing more than the construction of “automotive vehicle” that “most accurately” delineates the scope of the claimed invention,<sup>8</sup> which is supported by (i) the ’701 Patent specification;<sup>9</sup> (ii) the file history of the related U.S. Patent No. 7,848,701 (the “’701 Patent”);<sup>10</sup> and, even, (iii) Petitioner’s extrinsic evidence.

In an attempt to disregard Patent Owner’s supporting intrinsic evidence,<sup>11</sup> Petitioner once again relies on incorrect legal standards—requiring statements in the intrinsic record to rise to the level of a “clear disclaimer” or “clear disavowal of claim scope” in order to inform the meaning of the disputed claim term. Reply at 9-10. As previously discussed, recent Federal Circuit precedent cautions against the

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<sup>8</sup> “Automobile.” *See* POR at 16-17.

<sup>9</sup> *See* Ex. 1001, Abstract, 4:6-10.

<sup>10</sup> *See* Ex. 2107 at 51.

<sup>11</sup> *See* POR at 16-17.

same error being urged by Petitioner here. *See Personalized Media Communications*, 952 F.3d at 1345-46; *Kaken Pharmaceutical Co. v. Iancu*, 952 F.3d 1346, 1353-54 (Fed. Cir. Mar. 13, 2020) (Reiterating that the “prosecution history can inform the meaning of the claim language by demonstrating how the inventor understood the invention”).

Additionally, Petitioner’s “permissive” language argument is premised on a mischaracterization of the ’701 Patent specification and should be rejected. *See* Reply at 10. For example, the ’701 Patent does not disclose that an “automotive vehicle” may travel on the roadway, as Petitioner proposes. *Id.* In fact, the specification explicitly provides that one example of the “other suitable conveying device” for moving the mobile base station is an “automotive vehicle traveling on the roadway”, as demonstrated below:

base station. The moving base stations 30 may be moved by means of a rail 35, or other suitable conveying device which may include an automotive vehicle traveling on the roadway, in the same direction as the traffic flow on the roadway 10, as indicated by the arrow 12. In a similar fashion, a plurality of

Ex. 1001, 4:5-9.

Furthermore, Patent Owner’s proposed construction is consistent with the black-letter law that “[i]t is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.” *Wasica Finance GmbH v. Continental*

*Automotive Sys., Inc.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017). In stark contrast, Petitioner’s proposed construction—“a vehicle moving by means of its own power”—would render the term “automotive vehicle” of Claim 18 void, meaningless, and superfluous.

Notably, the ’701 Patent provides an example of a vehicle (“**by means of rail**”) while also providing an example of an “automotive vehicle” (“**automotive vehicle traveling on the roadway**”), as demonstrated above. Under Petitioner’s proposed construction,<sup>12</sup> there is no longer a distinction between the claim terms “vehicle” (Claim 17) or “automotive vehicle” (Claim 18) when considering the examples set forth in the specification—namely, traveling by means of rail and an automobile—because both examples are “vehicles” and certainly move by “means of [their] own power.”<sup>13</sup> Even adding *Gilhousen*’s airplane into this analysis—as Petitioner proposes—would further render the term “automotive vehicle” superfluous for the same reasons. Therefore, Petitioner’s proposed construction cannot be the correct construction.

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<sup>12</sup> Petitioner proposes that “automotive vehicle” should be interpreted as a vehicle that “mov[es] by means of its own power.” Reply at 8-11.

<sup>13</sup> The doctrine of claim differentiation provides a presumption that differently worded claims cover different claim scope. *See Wi-LAN USA, Inc. v. Apple Inc.*, 830 F.3d 1374, 1391 (Fed. Cir. 2016).

The Reply now seeks to make its case by baldly asserting that “non-automotive vehicles” such as “wagons, strollers, trailers, bicycles” “would satisfy Claim 17 without satisfying Claim 18.”<sup>14</sup> However, Petitioner’s argument is misguided because it fails to account for Claim 10 of which Claim 17 depends that requires the limitation of “configured to.” As an initial matter, “wagons, strollers, trailers, and bicycles”—alone—“do[] not move with traffic” and “do[] not move with the traffic at a rate of speed which is comparable to the traffic”, such as at the exemplary speed of 60mph set forth in the ’701 Patent:

In operation, the moving base stations 30 may move in the direction of the flow of the traffic at a rate of, for example, 60 miles per hour, which may be faster than some traffic and slower than other traffic. The moving base station preferably

Ex. 1001, 4:37-40.

Even Petitioner’s additional “pedestrian traffic” argument<sup>15</sup> is a non-sequitur because the ’701 Patent discloses that “slower moving traffic . . . communicate via the fixed base stations” and not via moving base stations, as demonstrated below:

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<sup>14</sup> Reply at 22.

<sup>15</sup> Reply at 17.

In one particular embodiment, a number of fixed base stations are provided in addition to moving base stations allowing slower moving traffic, such as pedestrian traffic or rush hour mobile traffic to communicate via the fixed base stations.

Ex. 1001, 3:15-19.

Therefore, slower moving traffic (even “wagon” traffic, “stroller” traffic, etc.) would be serviced by a fixed port and not any moving base station employed on a wagon, bicycle or stroller. Accordingly, “non-automotive” vehicles such as “wagons, strollers, trailers, and bicycles” do not satisfy Claim 17.

Accordingly, Petitioner’s arguments (including its proposed construction) should be disregarded because they are contrary to not only established Federal Circuit precedent; but also, the intrinsic record of the ’701 Patent.

### **III. THE REPLY CONFIRMS THAT THE PETITION DOES NOT SUFFICIENTLY EXPLAIN HOW TO COMBINE THE ASSERTED PRIOR ART REFERENCES**

Patent Owner demonstrated that Grounds 1–2 of the Petition fail to explain in sufficient detail how the prior art would be modified or combined to arrive at the claimed invention, and the Reply did not overcome these deficiencies. *See* POR at 31-36. Critically, Petitioner makes no attempt to distinguish *ActiveVideo* in its Reply, let alone contend that the Petition satisfies *ActiveVideo*’s requirement to “to explain how specific references could be combined.” 694 F.3d at 1327-28. Instead

of substantively addressing Patent Owner’s arguments, Petitioner mischaracterizes Patent Owner’s argument as one of requiring the Petitioner “to combine references like perfectly fitting puzzle pieces”<sup>16</sup> and otherwise ignores the significant incompatibilities with its proposed combinations. *See* POR at 31-36. Petitioner thus confirms that no such explanation exists; and therefore has failed to meet its burden of proof.

#### **IV. THE REPLY DOES NOT CURE THE SHORTCOMINGS OF PETITIONER’S MOTIVATION TO COMBINE FOR GROUNDS 1-2**

##### **A. Ground 1: *Ito* with *Gardner***

A POSITA would not have been motivated to combine *Ito* with *Gardner* because such a combination would result in an inoperable device. *See* POR at 37-38. Notably, Federal Circuit precedent has emphasized that if references taken in combination would produce a “seemingly inoperative device,” such references teach away from the combination and thus cannot serve as predicates for a *prima facie* case of obviousness. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001).

It was Petitioner’s burden to address this shortcoming in the Petition so as to sufficiently explain why a POSITA, without Petitioner’s hindsight, would have selected the specific modification assumed in the Petition. *See Blackberry Corp. v.*

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<sup>16</sup> Reply at 23.



*Facebook, Inc.*, IPR2019-01596, Paper 7, 18 (PTAB Mar. 5, 2020). However, neither the Petition nor the Reply addressed this incompatibility and, instead, only considered its unsupported assumptions “in a vacuum” by relying on the “modular nature” of *Gardner’s* receiver<sup>17</sup> and the simplicity of the modification.<sup>18</sup> *See also Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1363 (Fed. Cir. 2017) (“Evidence suggesting reasons to combine cannot be viewed in a vacuum apart from evidence suggesting reasons not to combine.”). Accordingly, Petitioner has failed to meet its burden of proof for Ground 1.

**B. Ground 2: *Gilhousen865* and *Gilhousen390***

In an attempt to overcome the compatibility issues set forth in the POR,<sup>19</sup> Petitioner improperly alleges that the presumed rate of speed set forth in the POR “is significantly exaggerated.”<sup>20</sup> However, Petitioner’s contention is flawed for several reasons.

First, the referenced “Cessna 152” went out of production in 1985—which is nine years before the filing date of *Gilhousen865*. Therefore, a POSITA would not

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<sup>17</sup> *See ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012) (holding that conclusory statements that that a person of ordinary skill in the art would have known how to combine references, based on the ‘modular’ nature of the claimed components, is insufficient and fraught with hindsight bias”).

<sup>18</sup> *See Mintz v. Dietz and Watson*, 679 F.3d 1372, 1378-79 (Fed. Cir. 2012).

<sup>19</sup> *See* POR at 38-41.

<sup>20</sup> Reply at 24.

consider the Cessna 152 as an “exemplary” airplane contemplated by *Gilhousen*<sup>865</sup>—as Petitioner proposes.

Second, Petitioner’s contention that the Cessna 152 “was capable of far lower speeds (e.g., ‘31 knots’ ((~36 MPH)) than suggested by PO” is misleading.<sup>21</sup> Patent Owner does not dispute that the Cessna 152 was capable of lower speeds (i.e., 31-44 knots) when the **power** of the Cessna 152 is **OFF** (i.e., no engine power)—as provided by Petitioner’s cited exhibit.<sup>22</sup> Conveniently, Petitioner disregarded the “CONDITIONS: Power Off” at the top corner of the information manual pertaining to “stall speeds”<sup>23</sup> from which Petitioner retrieved its speed of “31 knots”, as demonstrated below:

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<sup>21</sup> Reply at 24.

<sup>22</sup> A POSITA would understand that a Cessna 152 with the power **off** would not remain airborne much longer.

<sup>23</sup> A POSITA would also understand that “stall speeds” are not an equivalent nor a replacement for “cruising speeds.”

SECTION 5  
PERFORMANCE

CESSNA  
MODEL 152

**STALL SPEEDS**

**CONDITIONS:**  
Power Off

**NOTES:**

1. Altitude loss during a stall recovery may be as much as 160 feet.
2. KIAS values are approximate and are based on airspeed calibration data with power off.

**MOST REARWARD CENTER OF GRAVITY**

WEIGHT LBS	FLAP DEFLECTION	ANGLE OF BANK							
		0°		30°		45°		60°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
1670	UP	36	46	39	49	43	55	51	65
	10°	36	43	39	46	43	51	51	61
	30°	31	41	33	44	37	49	44	58

Ex. 1037 at 69.

Even if a POSITA would consider a Cessna 152 as an exemplary airplane (which it would not), the power of the Cessna 152 would have to be **off** in order for its airspeed **to be less than the maximum speed** that the *Gilhousen390* system can support (i.e., 50 MPH). See POR at 38-41. Notably, the information manual provides

that the Cessna 152’s cruising speed is “107 knots” (~123mph)<sup>24</sup>—which is nearly 2.5 times faster than the maximum speed than the *Gilhausen390* system can support. Accordingly, Petitioner has failed to meet its burden of proof for Ground 2.

## **V. PETITIONER HAS FAILED TO DEMONSTRATE THAT ANY GROUND RENDERS THE CHALLENGED CLAIMS INVALID**

### **A. Ground 1**

#### **1. *Ito* Fails to Disclose “A Mobile Device”**

As an initial matter, Petitioner’s attempt to limit Patent Owner’s POR description of *Ito*’s portable device (PSS)—comparing *Ito*’s PSS to a cordless phone system—to solely *Ito*’s alternate embodiment is unavailing.<sup>25</sup> Petitioner’s contention disregards Patent Owner’s description<sup>26</sup> and Mr. Lanning’s description<sup>27</sup> of *Ito*’s portable device (PSS), which relates to **all of *Ito*’s disclosed embodiments**.

Contrary to Petitioner’s assertion, Patent Owner does not “overlook key teachings in *Ito*.” Reply at 13. In contrast, Petitioner’s reliance on cherry-picked disclosures from *Ito*’s first embodiment—in an attempt to cure *Ito*’s failure to disclose the “mobile device” limitation required by Claim 10—is unavailing. *See* Reply at 13-14. Specifically, Petitioner purports that “*Ito* discloses that ‘radio

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<sup>24</sup> *See* Ex. 1037 at 4. *See also* Ex. 1037 at 53.

<sup>25</sup> *See* Reply at 12-13.

<sup>26</sup> *See* POR at 41-43.

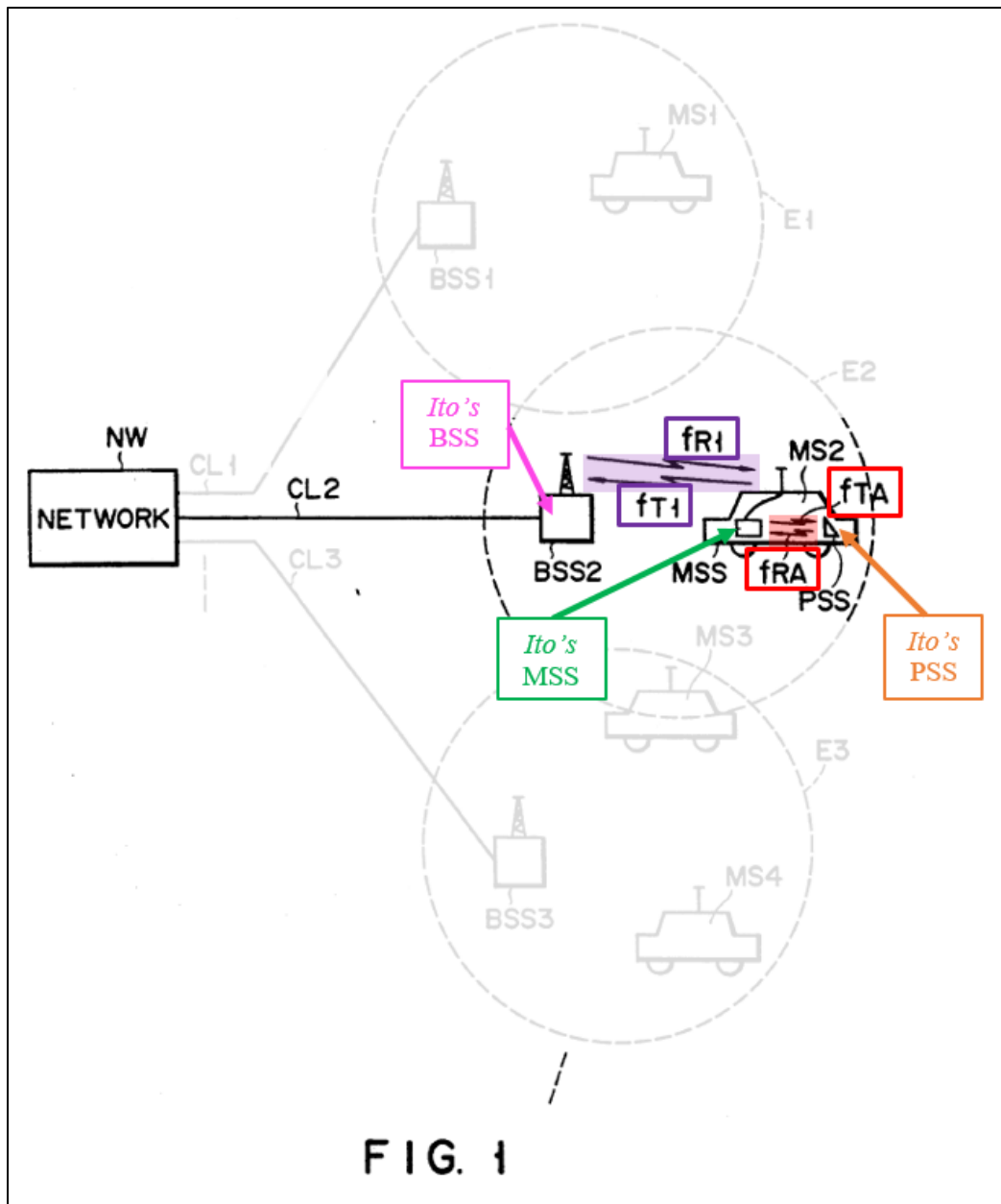
<sup>27</sup> *See* Ex. 2100, ¶¶79-81.

transmission signals coming from said power amplifier 16 are forwarded to the **antenna 18 [of the PSS ('mobile device')]**, which sends them out to a corresponding base station BSS”;<sup>28</sup> however, this cherry-picked disclosure ignores the overall disclosure of the **first embodiment**—including the order of operation between *Ito*’s BSS, MSS and PSS. When viewed in the proper context, this cited communication link is, at best, an indirect communication link via *Ito*’s mobile base device (MSS). This statement is in direct contradiction to what is shown in the drawings (Figures 1, 2, and 3) as shown below. In contrast, Figures 1, 2, and 3 demonstrate that this disclosure—from *Ito*’s first embodiment—is an indirect communication link via *Ito*’s mobile base device (MSS).

As *Ito* explains, Figure 1 “shows a schematic view of a **first embodiment** of the mobile radio communication system of the invention.” Notably, Figure 1 labels the signals between *Ito*’s BSS and *Ito*’s MSS as “fR1” and “Ft1” (purple); and, in contrast, labels the signals between *Ito*’s MSS to *Ito*’s PSS as “fRA” and “FtA” (red), as demonstrated below:

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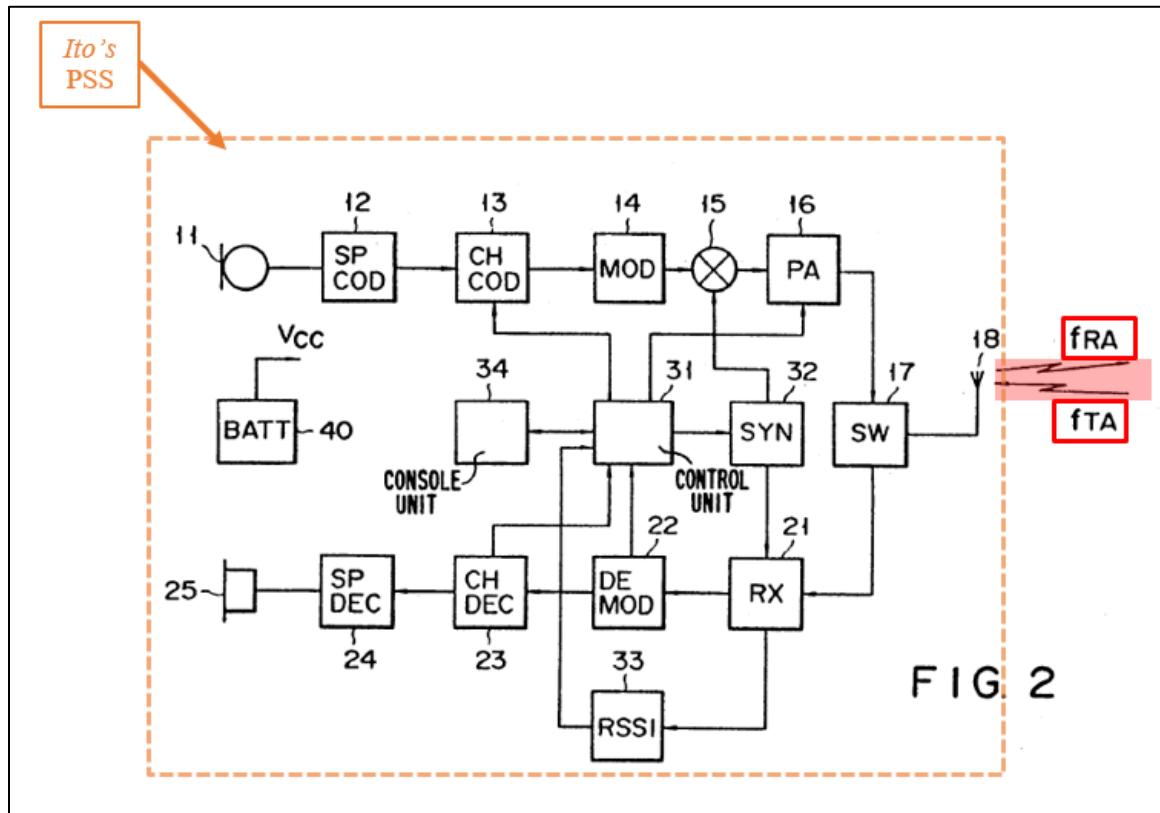
<sup>28</sup> Reply at 12.



Ex. 1005, Figure 1.

Figure 1 does not disclose any direct communication between *Ito's* BSS and *Ito's* PSS. This is further supported by Figure 2 which “is a block diagram showing

the configuration of a portable device of the [first] embodiment of FIG. 1”,<sup>29</sup> in which the signals transmitted by and/or received at antenna (18) of Ito’s PSS are labeled as “fRA” and “fTA”—which are identified in Figure 1 as the signals between Ito’s MSS and Ito’s PSS—as demonstrated below:

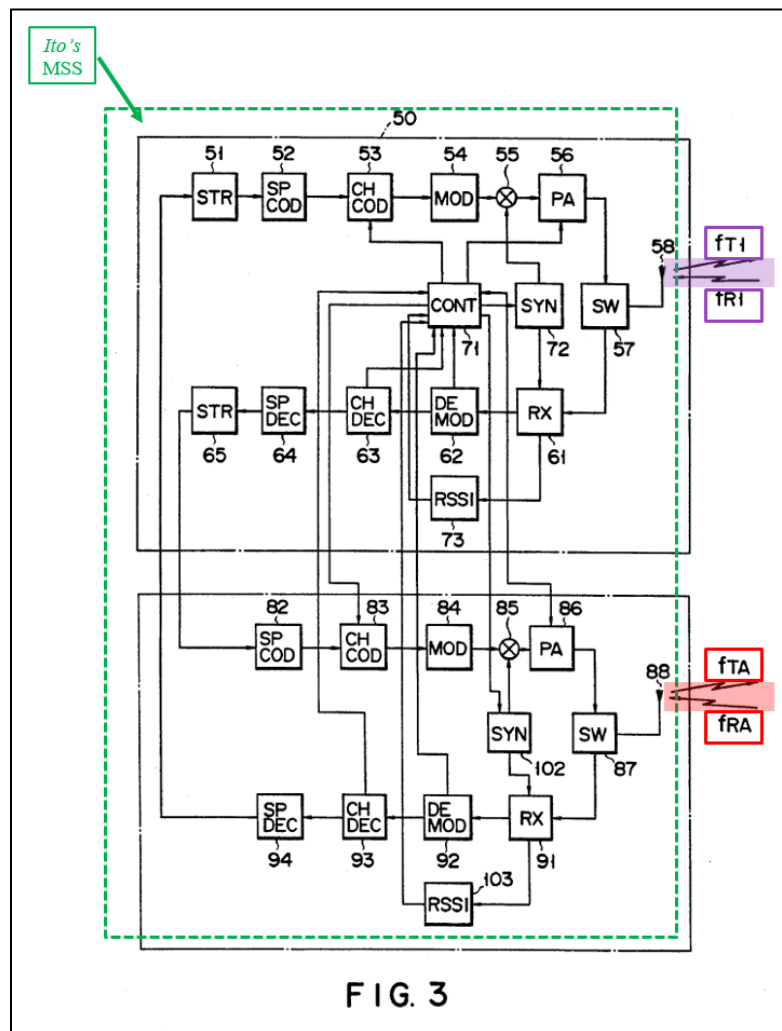


Ex. 1005, Figure 2.

Figure 2 also does not disclose any direct communication between Ito’s BSS and Ito’s PSS. This is also further supported by Figure 3 which “is a block diagram showing the configuration of a mobile base device of the [first] embodiment of

<sup>29</sup> Ex. 1005, 5:8-9.

**FIG. 1**",<sup>30</sup> in which (i) the signals transmitted by and/or received at antenna (58) of *Ito's* MSS are labeled as "fR1" and "fT1"—which are identified in Figure 1 as the signals between *Ito's* BSS and *Ito's* MSS—and (ii) the signals transmitted by and/or received at antenna (88) of *Ito's* MSS are labeled as "fRA" and "fTA"—which are identified in Figure 1 as the signals between *Ito's* MSS and *Ito's* PSS—as demonstrated below:



<sup>30</sup> Ex. 1005, 5:10-11.



Ex. 1005, Figure 3.

Figure 3 also does not disclose any direct communication between *Ito*'s BSS and *Ito*'s PSS. Accordingly, Petitioner's cherry-picked disclosure from *Ito*'s first embodiment is, at best, an indirect communication link via *Ito*'s mobile base device (MSS) when viewed in the proper context.

Recognizing these shortcomings of *Ito*, Petitioner attempts to rely on the unsupported and conclusory testimony of Mr. Denning. *See* Reply at 14 (citing Ex. 1034, ¶ 38) (“Even if *Ito* does not explicitly disclose that its PSS can directly communicate and register with a cellular network, a POSA would have recognized *Ito* as implying this functionality.”). But Petitioner cannot salvage its obviousness argument by supplementing *Ito* with unsupported and conclusory expert testimony.<sup>31</sup> *See Roxane Labs., Inc. v. Novartis AG*, IPR2016-01461, slip op. at 10 (PTAB Feb. 13, 2017) (Paper 9). (“Where, as here, the conclusory testimony is the sole basis for establishing that a claim limitation is taught or suggested by the prior art, we find it insufficient to establish a reasonable likelihood of prevailing regarding that claim.”). As the Federal Circuit explained in *Scripps Clinic & Research Foundation v. Genentech, Inc.*, “[t]he role of extrinsic evidence is to educate the decision-maker to

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<sup>31</sup> Petitioner is inviting legal error because the Patent Office cannot rely on “general conclusions” as a “replacement for documentary evidence for core factual findings in a determination of patentability.” *K/S HIMPP v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1366 (Fed. Cir. 2014).

what the reference meant to persons of ordinary skill in the field of the invention, not to fill gaps in the reference.” 927 F.2d 1565, 1576 (Fed. Cir. 1991). Petitioner’s flawed reliance on *Ito* assumes too much—without any evidentiary support—and does not satisfy Petitioner’s burden under §316(e).

Accordingly, the Reply does not cure *Ito*’s failure to disclose the “mobile device” limitation required by at least Claim 10 of the Challenged Claims.

## **2. Gardner Fails to Disclose “A Controller Configured . . . To Select a Best Signal”**

Although Petitioner did not submit any express construction of the phrase “to select a best signal”, Petitioner attempts to broadly interpret this phrase in a vacuum—without any basis—to mean “[selecting the] strongest signal” while disregarding the plain language of the ’701 Patent.

Patent Owner seeks nothing more than the construction that “most accurately” delineates the scope of the claimed invention. *PPC Broadband*, 815 F.3d at 740-742. The additional limitation “to select a best [fixed port] signal” of Claim 16 is properly interpreted to include an analysis of the signal quality (i.e., error rate) in addition to the signal strength when viewed in the entire context of the ’701 Patent. *See* POR at 44-47. Specifically, the ’701 Patent discloses that:

- “The **signal quality indication** is a figure of merit preferably computed as a function of **signal strength and signal-to-noise ratio**.” Ex. 1001, 9:67-10:2.

- “The **best data**, i.e., associated with the **best signal quality indication** is transferred from the gateway 60 to the telephone network.” Ex. 1001, 10:19-21.
- “The procedures for determining whether a mobile unit is to be served by a fixed base station or a moving base station are the same procedures as described earlier herein in determining which moving base station is selected to serve a mobile unit, **i.e., based on signal strength and error rate**. Thus, when a call involving a mobile unit is initiated or when it is determined that a handoff should occur, the mobile unit may be handed from a moving station to a fixed station, or vice versa. Each mobile unit monitors pilot signals from fixed and moving base stations **and synchronizes to the base station providing the best signal**.” Ex. 1001, 10:57-67.

This construction is also supported by Mr. Lanning’s deposition testimony related to a similar claim (Claim 16) of the ’023 Patent<sup>32</sup> regarding “select[ing] a best signal”:

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<sup>32</sup> U.S. Patent No. 7,979,023 (the “’023 Patent) is a continuation of the ’701 Patent.

15           A     In Claim 16, it's the moveable base  
16     station that's determining the best signal. From  
17     11, it's the mobile unit that is determining the  
18     best signal. But independent of which device is  
19     making the determination, the '023 patent is clear  
20     that signal strength and error rate is what's used  
21     to determine best signal.

Ex. 1040, 422:15-21.

Consequently, a POSITA would understand that “to select a best signal” recited by Claim 15 should be construed as an analysis of the signal quality (i.e., error rate) in addition to the signal strength when viewed in the entire context of the ’701 Patent. In contrast, *Gardner’s* disclosure of “selection diversity” fails to disclose “a controller configured . . . to select a best signal” as required by Claim 16. *See* POR at 44-47.

Even Mr. Denning’s own description of “selection diversity” was directly contradicted by Mr. Denning’s own evidentiary support— namely *Gardner* (Ex. 1006) and *Acampora* (Ex. 1010). *See* POR at 45 n.17. Rather than address this crucial issue, the Reply points to a new disclosure buried in *Gardner*—“signal voltage to noise power ratio”. However, Petitioner cannot remedy these deficiencies and evidentiary gaps in a reply brief by submitting “new evidence or argument . . . that it could have presented earlier, e.g. to make out a *prima facie* case of

unpatentability.” Trial Practice Guide Update (August 2018) at p. 14. As emphasized by the Federal Circuit, a Petitioner’s *prima facie* case of invalidity must be made in the Petition. *See Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.* 821 F.3d 1359, 1369 (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’”). Accordingly, Petitioner’s attempt to introduce a new obviousness argument in its Reply is improper at this late stage and should be rejected.

Nonetheless, Petitioner’s new obviousness contention—that “signal voltage to noise power ratio” is “extremely similar to error rate”<sup>33</sup>—is also incorrect. “Error rate” is defined as the number of errors counted over a period in time in the received signal due to noise, interference, distortion or bit synchronization errors. In contrast, “signal voltage to noise power ratio” is merely the ratio of the amplitude of the received signal over the amplitude of received noise. Critically, the “signal voltage to noise power ratio”—alone—does not provide any indication to the receiver of how accurate the data is or will be.

Unsupported conclusions of Mr. Denning, however, are not a “replacement for documentary evidence for core factual findings in a determination of patentability.” *K/S HIMPP*, 751 F.3d at 1366.

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<sup>33</sup> Reply at 16.

Accordingly, the Reply does not cure *Gardner's* failure to disclose this additional limitation required by Claim 15.

## B. Ground 2

## 1. *Gilhousen865* Fails to Disclose “Configured To”

In order to overcome the fact that *Gilhousen865*'s airplane "does not move with traffic", Petitioner alleges that "Gilhousen865's system is not unique to an airplane" and, therefore, "is equally applicable to other vehicles, including automobiles." Reply at 17-18. Petitioner's contention is directly contradicted by *Gilhousen865*, as demonstrated below:

[57]

## ABSTRACT

The airborne communication system enables one or more radiotelephones to communicate with a ground based cellular radiotelephone system. In the preferred embodiment,

Ex. 1009, Abstract.

## 1. Field of the Invention

The present invention relates to the field of communications. More particularly, the present invention relates to cellular radiotelephone communications between an airplane and a ground based station.

Ex. 1009, 1:7-10.

the aircraft reaches the limit of the cell's coverage. There is a resulting need for an airborne radiotelephone system that is compatible with the ground based cellular radiotelephone system. In other words, an airborne radiotelephone system is needed that enables ground initiated telephone calls to be received by the airborne radiotelephone in addition to the call from the airborne radiotelephone being handed off to the next cell as it reaches the edge of the cell's coverage.

Ex. 1009, 1:41-48.

Accordingly, the Reply does not cure *Gilhousen865*'s failure to disclose the limitation of "configured to" required by at least Claim 10 of the Challenged Claims.

## **2. *Gilhousen865* Fails to Disclose "A Mobile Device"**

Contrary to Petitioner's assertion, Patent Owner does not "overlook key disclosures in *Gilhousen865*." Reply at 19. In fact, the specification explicitly discloses that either the "airborne repeater" or the "airborne base station" register the radiotelephone with a base station for both of *Gilhousen865*'s disclosed embodiments, as demonstrated below:

The process begins by the airborne repeater registering the radiotelephone with the nearest cell site (301). This is accomplished in the same manner as a terrestrial radiotelephone registers with the ground based radiotelephone system; the repeater searches for the strongest pilot signal and registers with that cell.

Ex. 1009, 3:15-19.

radiotelephone to contact an airborne radiotelephone. Since the repeater has registered the airborne radiotelephone with the proper ground base station, the mobile switching center knows to which base station the call is to be routed. Once the

Ex. 1009, 3:43-46.

In an alternate embodiment, the radiotelephone signal repeater is replaced by an airborne base station that has the ability to register the radiotelephones on the aircraft. The airborne base station then registers the radiotelephone with the ground based subsystem.

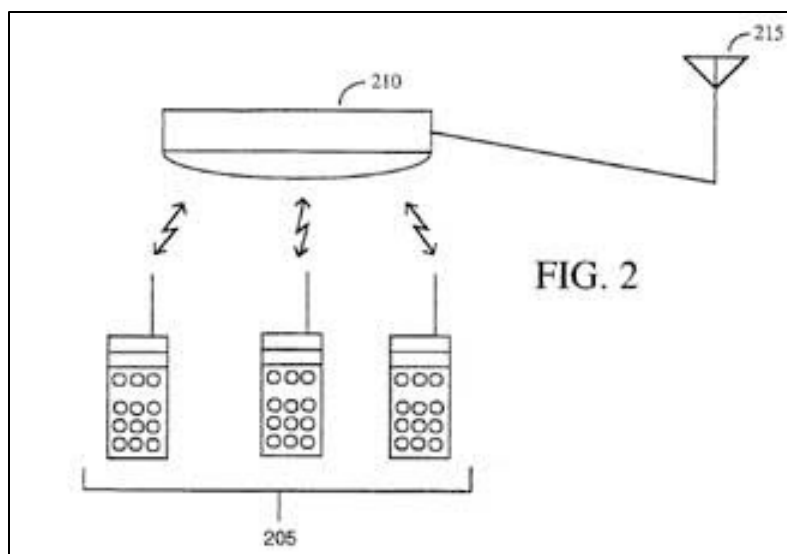
Ex. 1009, 3:3-7.

In addition, *Gilhousen*<sup>865</sup> does **not** disclose that its radiotelephone is capable of directly communicating with a base station, as Petitioner proposes,<sup>34</sup> as demonstrated below:

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<sup>34</sup> See Reply at 19.





Ex. 1009, Figure 2.

The repeater (210) receives the signals from the individual radiotelephones (205) within the aircraft and relays them to an antenna (215) mounted on the outside of the aircraft. The outside antenna (215) relays the signals to the base station on the ground. This subsystem may have a

Ex. 1009, 2:53-57.

The airborne subsystem also operates in the reverse direction. Telephone calls from the PSTN to the base station on the ground are transmitted to the outside antenna (215) that relays them to the repeater (210) mounted in the aircraft. The repeater's antenna communicates the signal to the proper radiotelephone (205) in the aircraft. The radiotele-

Ex. 1009, 2:60-65.

In an attempt to overcome these shortcomings of *Gilhousen865*, Petitioner distorts the deposition testimony of Patent Owner's expert to allege that Mr. Lanning "confirms" that *Gilhousen865*'s "radiotelephone registers with a base station." Reply at 19. This is incorrect. When viewed in its entirety, Mr. Lanning's deposition testimony actually **confirms** that *Gilhousen865*'s radiotelephone **does not directly register** with any base station, as demonstrated below:

12           A     I would say as far as the network is  
13           concerned, the network is concerned the  
14           radiotelephone is registered with the network;  
15           however, as I just explained, the Gilhousen  
16           reference also explains that the repeater is being  
17           a proxy for the radiotelephone. So the  
18           radiotelephone itself is not registering with the  
19           network. And so -- and why I'm making that

Ex. 1040, 334:12-19 (red underline omitted by Petitioner).

15           Q     Correct. And so the end result is the  
16 radiotelephone becoming registered with the ground  
17 base station, correct?

18           A     No. The end result is that the  
19 airborne repeater registers the radiotelephone on  
20 the radiotelephone's behalf with the network and  
21 so the airborne repeater is the one registering  
22 with the terrestrial radio network.

Ex. 1040, 333:15-22.

Mr. Lanning plainly stated that Gilhousen865's radiotelephone does not directly register with any base station.

Next, Petitioner relies on a cherry-picked excerpt from *Gilhousen865's* specification related to the IS-95 standard in an attempt to allege that *Gilhousen865's* radiotelephone is capable of registering with and directly communicating with the cellular network. *See* Reply at 20. However, Petitioner's reliance is misplaced because this cited excerpt relates entirely to *Gilhousen865's* radiotelephone determining which signal to decode **from the airborne repeater**, as demonstrated below:

The airborne subsystem also operates in the reverse direction. Telephone calls from the PSTN to the base station on the ground are transmitted to the outside antenna (215) that relays them to the repeater (210) mounted in the aircraft. The repeater's antenna communicates the signal to the proper radiotelephone (205) in the aircraft. The radiotelephones (205) determine which signal is to be decoded by the process described in Gilhousen et al. and in the Telecommunications Industries Association/Electronic Industries Association Interim Standard 95 (TIA/EIA/IS-95).

Ex. 1009, 2:60-3:2.

As demonstrated above, the cited excerpt of *Gilhousen865* does not relate to, let alone imply, that its radiotelephone is capable of either registering with or directly communicating with the cellular network. Petitioner—without any evidentiary support—does not satisfy Petitioner's burden under §316(e).

Accordingly, the Reply does not cure *Gilhousen865*'s failure to disclose the “mobile device” limitation required by at least Claim 10 of the Challenged Claims.

### **3. *Gilhousen865* Fails to Disclose “Automotive Vehicle”**

For the reasons set forth above in Section II.B, the Reply does not cure *Gilhousen865*'s failure to disclose the “automotive vehicle” limitation required by Claim 18.

## **VI. MR. LANNING’S TESTIMONY DOES NOT LACK EVIDENTIARY SUPPORT**

Petitioner distorts Mr. Lanning’s deposition testimony from one specific instance regarding one opinion in his expert declaration—where Mr. Lanning based his testimony solely on “[his] own experience” as a POSITA—to improperly allege that Mr. Lanning’s entire declaration (Ex. 2100) employs merely a “take-it-or-leave-it approach” and “often lacks any evidentiary support.” *See* Reply at 24-25. A cursory review of Mr. Lanning’s declaration (Ex. 2100) demonstrates that Petitioner’s contention is, a mischaracterization and should be rejected.

## **VII. CONCLUSION**

For at least the reasons set forth above, Petitioner has not met its burden to prove that Claims 10, 15-18, 31 and 33-35 are unpatentable. Accordingly, Patent Owner respectfully requests that the Board find Claims 10, 15-18, 31 and 33-35 patentable over the Instituted Grounds.

Date: July 27, 2020

Respectfully submitted,

/s/ R. Scott Rhoades

R. Scott Rhoades

Reg. No. 44,300

**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME  
LIMITATION, TYPEFACE REQUIREMENTS,  
AND TYPE STYLE REQUIREMENTS**

1. Under the provisions of 37 C.F.R. §42.24(d), the undersigned certifies that this Sur-Reply complies with the stipulated type-volume limitation because it contains fewer than the 5,600 words allowed under C.F.R. §42.24(b)(2), excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a)(1).
2. The undersigned further certifies that this Sur-Reply with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft Word 2013 in 14 point Times New Roman.

Date: July 27, 2020

Respectfully submitted,

/s/ R. Scott Rhoades

R. Scott Rhoades

Reg. No. 44,300

## **CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§ 42.6(e), the undersigned certifies that an electronic copy of the foregoing PATENT OWNER'S SUR-REPLY was served on the Petitioners by electronic mail on July 27, 2020:

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