

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

Petitioner

v.

CARUCEL INVESTMENTS, L.P.

Patent Owner

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Case No. IPR2019-01102  
U.S. Patent 7,848,701

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**PATENT OWNER'S RESPONSE TO THE PETITION  
PURSUANT TO 37 C.F.R. § 42.120**

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## **PATENT OWNER’S UPDATED EXHIBIT LIST**

<b>Patent Owner’s Response Exhibits</b>	
<b>Exhibit No.</b>	<b>Title/Description</b>
Ex. 2100	Declaration of Mark R. Lanning in Support of Patent Owner’s Response to the Petition (“Lanning Decl.”)
Ex. 2101	Mr. Lanning’s Curriculum Vitae
Ex. 2102	Carucel Investments’ Memorandum of Contentions of Fact and Law (Dkt. No. 184) filed on February 10, 2017 in <i>Carucel Investments L.P. v. Novatel Wireless, Inc. et al.</i> (16-cv-0118-H-KSC)
Ex. 2103	Craig Freudenrich, Ph.D. “How Cordless Telephones Work” (11 December 2000) retrieved from <a href="https://electronics.howstuffworks.com/cordless-telephone.htm">https://electronics.howstuffworks.com/cordless-telephone.htm</a>
Ex. 2104	Newton’s Telecom Dictionary, 11 Edition 1996.
Ex. 2105	<i>Carucel Investments, L.P. v. Novatel Wireless, Inc. et al.</i> , Claim Construction Order, Case No. 16-cv-118-H-KSC, Sept. 16, 2016
Ex. 2106	Order Denying Carucel Investments’ Motion for Judgment as a Matter of Law or, in the Alternative, for a New Trial (Dkt. No. 356) filed on June 13, 2017 in <i>Carucel Investments L.P. v. Novatel Wireless, Inc. et al.</i> (16-cv-0118-H-KSC)
Ex. 2107	Excerpts of the file history for U.S. Patent No. 7,848,701
Ex. 2108	Transcript of Deposition of Scott Denning
Ex. 2109	Samuel C. Yang “CDMA RF System Engineering” (1998)
Ex. 2110	Jhong S. Lee “CDMA Systems Engineering Handbook” (1988)
Ex. 2111	“Radio Repeater Station” retrieved from <a href="http://www2.hawaii.edu/~rtoyama/repeater.html">http://www2.hawaii.edu/~rtoyama/repeater.html</a>

Ex. 2112	U.S. Patent No. 5,257,283 (“Gilhousen”)
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## **I. INTRODUCTION**

Carucel Investments, L.P. (“Patent Owner”) submits this Response to the Petition for *Inter Partes* Review (“Petition,” Paper 2) filed by Volkswagen Group of America, Inc. (“Petitioner”) against Claims 10, 15-18, 31 and 33-35 (the “Challenged Claims”) of U.S. Patent No. 7,848,701 (the “’701 Patent”) (Ex. 1001). This Response is supported by the Declaration of Patent Owner’s Expert, Mark Lanning. (*See* Ex. 2100, hereinafter “Lanning Decl.”).

As set forth in more detail herein, the Petition fails to make a *prima facie* showing of obviousness at several levels, resting instead on conclusory and insufficient allegations of the sort the Board and the Federal Circuit have repeatedly rejected. Accordingly, Patent Owner respectfully requests that the Board find that Petitioner has failed to meet its burden of demonstrating unpatentability of the Challenged Claims. *See* 35 U.S.C. § 316(e).

## **II. OVERVIEW OF THE ’701 INVENTION**

### **A. Overview of Carucel’s History**

Carucel is a small, family-owned, limited partnership, whose sole assets are the eight expired Mobile Communication System with Moving Base Station patents. *See* Ex. 2102 at 11. The Carucel patents concern inventions by the family patriarch, Charles D. Gavrilovich, Sr., who passed away in July, 2015 after founding Carucel in 1999 *Id.* He earned a M.S. in electrical engineering and had 39 years of experience



in the field of telecommunications, working for leading companies, including Bell Labs, Lucent Technology, and Motorola. *Id.*

## **B. Overview of the Carucel Patents**

The Carucel patents were the culmination of Mr. Gavrilovich's life's work. *Id.* at 12. Most importantly to the issues presented here, Mr. Gavrilovich invented a "mobile base station" that significantly improved wireless communications by acting as an intermediary between cell towers and mobile devices. *Id.*

The asserted claims of the '701 Patent cover a movable base station configured to provide important benefits to mobile devices, such as smartphone, tablet and laptop users. *Id.* In 1995, movable base stations like those patented by Mr. Gavrilovich did not exist. *Id.* Figure 4 of the '701 Patent, reproduced below, shows a conceptual diagram of the mobile base station/apparatus that was invented by Mr. Gavrilovich, where an antenna 100 is shown communicating with mobile devices and a second antenna 101 is shown communicating with fixed base stations, i.e., cell towers. (*See* Ex. 1001 at 6:23-26, 5:22-26.)

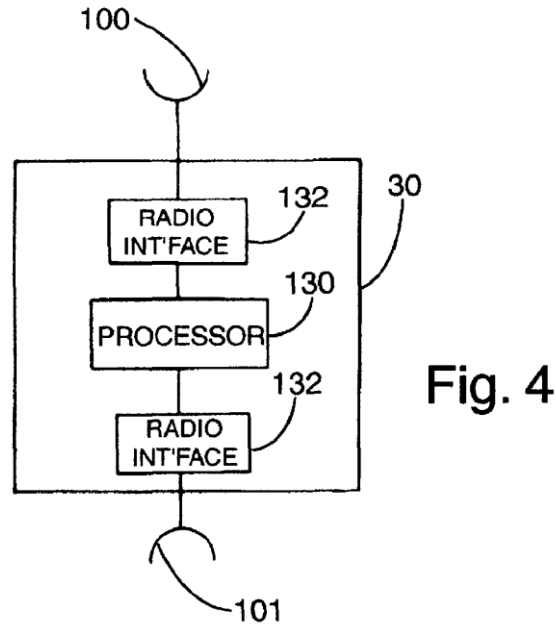


Fig. 4

(Ex. 1001, Fig. 4)

Mr. Gavrilovich's inventive movable base station is a mobile wireless device that acts as an intermediary and provides connectivity between a cellular network and one or more mobile devices. *See* Ex. 2102 at 13. It provides a communication path between the mobile devices and cellular network that increases the available data bandwidth and quality of wireless service, which in turn provides important, tangible benefits to consumers by enabling fewer dropped calls and higher data throughput. *Id.* The inventive technology is now put in automobiles so that passengers of a car can listen to music or news, follow driving directions, watch streaming movies or play networked games (high bandwidth applications) on their tablets or other mobile devices while travelling. *Id.*

Increased bandwidth and service quality are hallmarks of modern cellular communications, allowing for many applications that did not exist at the time of the

invention back in 1995—such as video chat, mobile multimedia, texting of high resolution photos, etc. *Id.* Mr. Gavrilovich’s inventions enable higher bandwidths and service quality by addressing the handoff problems and data bandwidth constraints that would otherwise exist, thereby allowing greater access to these modern day applications. *Id.* at 13-14.

At the time of the invention in 1995, conventional consumer cellular networks generally did not provide high bandwidth to mobile users. *Id.* at 14. A significant technical challenge impeding high bandwidth was the “handoff” processing of connected mobile devices. *Id.* “Handoff” is a term of art that describes the situation that occurs when a mobile device moves geographically from one cell to another within a cellular network. *Id.* As the mobile device moves between cells, its communication link with the network may be dropped or disconnected unless it can be seamlessly “handed-off” from one cell tower base station to another to provide a continuous, uninterrupted call or data link connection. *Id.* Under the conventional scheme, the network and mobile devices are burdened with processing handoffs as the mobile devices move through cells of a cellular network. *Id.* This burden increases and reliability declines with increases in the travel speed of the mobile devices as they move across cells, potentially becoming unmanageable, resulting in dropped connections, interruptions and poor service. *Id.*

Mr. Gavrilovich recognized this significant problem, among others, as described in the specification. *See* Ex. 1001 at 1:54-2:13. His vision led to the patented invention of a movable base station or apparatus interposed between mobile devices and a cellular network. *See* Ex. 2012 at 14.

The claimed invention is directed toward a wireless communication device, such as a wireless router, that is configured to move relative to Earth. Ex. 1001, Claim 10. The wireless communication device includes a plurality of spatially separated antennas, a receiver configured to receive fixed port signals through the plurality of spatially separated antennas, and a transmitter configured to transmit radio frequency signals to a mobile device corresponding to the received fixed port signals. *Id.*

### **C. The '701 Invention Is Not Directed Toward Cordless Phones**

The '701 Patent Specification and Claims are not directed to a Cordless Phone System. *See* Lanning Decl. ¶¶62-66. A cordless phone system is significantly different than the invention disclosed by the '701 Patent. A “cordless telephone” is described as a standard, wired telephone that has only replaced the handset cord with a radio link. *Id.* (relying upon Exs. 2103 & 2104).

Long before cell phones became so cheap that anyone could afford one, cordless phones gave everyone the freedom to walk and talk within the privacy of

their own homes. *Id.* A cordless telephone is basically a combination telephone and radio transmitter/receiver having two major parts: base and handset. *Id.*

The base is attached to the phone jack through a standard phone wire connection, and as far as the phone system is concerned it looks just like a normal phone. *Id.* The base receives the incoming call (as an electrical signal) through the phone line, converts it to an FM radio signal and then broadcasts that signal. *Id.*

A cordless telephone has only replaced the handset cord with a radio link. *Id.* The handset receives the radio signal from the base, converts it to an electrical signal and sends that signal to the speaker, where it is converted into the sound you hear. *Id.* When you talk, the handset broadcasts your voice through a second FM radio signal back to the base. *Id.* The base receives your voice signal, converts it to an electrical signal and sends that signal through the phone line to the other party. *Id.*

The common characteristics of a cordless phone are: (1) the base is connected to a fixed telephone line; (2) the curled cord between the telephone and handset is replaced by a radio link; (3) the handset only includes a basic telephone key pad; (4) the cordless handset is not capable of communicating with a cellular network. *Id.* At **no point** does the handset of a cordless phone (i) register with a cell network; (ii) communicate directly with a cell network; or (iii) move freely between mobile base stations. *Id. at* ¶67-70.

#### **D. “Mobile Devices” in the Context of the Entire ’701 Patent**

The ’701 Patent discloses that the mobile units/mobile devices, also known as cell phones or mobile phones, must be capable of registering with a cellular network to be able to receive calls coming from the cellular network. *Id.* at ¶¶50-61. As set forth in the ’701 Patent, a mobile device:

**“must register** in the manner described earlier, by transmitting its unique address in the new service area. The address will be received by the closest moving base station 30 and transmitted via a fixed radio port and the gateway switch 60 to the telephone network. **This registration procedure is required so that an incoming call for the mobile unit can be appropriately directed.**” (Ex. 1001, 9:50-56 (emphasis added)).

If the mobile unit/mobile device does not register with the cellular network, the network will not be able to deliver calls to the mobile unit/mobile device because the network does not know its location. *See* Lanning Decl. ¶57. A mobile unit/mobile device must be capable of moving from one service area to another service area and it must register once it enters a new service area. *Id.* A POSITA would have understood that the registration process with a cellular network requires a number of significant steps that first and foremost require a mobile unit/mobile device. *Id.*

A mobile unit/mobile device must also be able to directly communicate with both the cellular network and a moving base station according to the invention as set forth in the specification. *Id.* at ¶¶52-56. The ’701 Patent discloses that a mobile

unit/mobile device can either directly communicate with the cellular network via a “fixed port” (conventional base station) or it can communicate with the cellular network indirectly by communicating with a “moving base station” that communicates with the “fixed ports.” *See* Ex. 1001, 10:50-65. The ’701 Patent specification also teaches that a mobile unit/mobile device must be capable of directly communicating with either a fixed cellular base station or a moving base station. *See, e.g.,* Ex. 1001, 4:46-49. Indeed, the mobile unit/mobile device’s capability to be switched back-and-forth between either a direct connection with the fixed base station or a connection with a moving base station is discussed repeatedly throughout the specification.

### **III. LEVEL OF ORDINARY SKILL**

A person of ordinary skill in the art (POSITA) at or near the filing date of the earliest priority application of the ’701 Patent would have had (i) a Bachelor of Science degree in electrical engineering or computer engineering or related field of study; (ii) at least two years of experience with wireless communications systems; and (iii) would also be familiar with cellular communication technology. A lack of experience can be compensated with additional education and a lack of education can be compensated with additional work experience. (*See* Lanning Decl. ¶46).

#### IV. CLAIM CONSTRUCTION

In an IPR filed on or after November 13, 2018, the Board construes claim terms based on their ordinary and customary meaning in accordance with *Phillips v. AWH Corporation*, 415 F.3d 1303 (Fed. Cir. 2005). There is a heavy presumption that claim terms carry their full ordinary and customary meaning. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002); *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). A claim's "ordinary and customary meaning" is derived from the perspective of one of ordinary skill in the pertinent art at the time of filing. *Chamberlain Group, Inc. v. Lear Corp.*, 516 F.3d 1331, 1335 (Fed. Cir. 2008).

Claim terms are interpreted from the point of view of a person of ordinary skill in the art who "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.**" *Id.* A disputed term should be construed by first examining the intrinsic evidence of record from the perspective of one skilled in the relevant art. *Id.* at 1313-14. Within the class of intrinsic evidence, "the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* at 1315, *citing Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). It is "entirely appropriate for a court, when conducting claim construction, to



rely heavily on the written description for guidance as to the meaning of the claims.” *Id.* at 1317. The prosecution history may also be helpful. *Id.* at 1317. However, “it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.*

Any prior claim construction determination concerning a term of the claim in a civil action that is timely made of record in the *inter partes* review proceeding will be considered. 37 C.F.R. § 42.100(b).

Certain claim terms were construed during a prior civil action involving the ‘701 Patent (*see* Ex. 2105). Those terms, as well as two additional terms identified by Patent Owner, are discussed herein.

**A. “fixed port”**

A civil court construed the term “fixed port” as “a stationary device at which signals can enter and exit a communication network.” Patent Owner submits this construction is the plain and ordinary meaning of the term and is the proper construction for “fixed port.”

**B. “configured to”**

A civil court construed the term “configured to” as “constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic.” This construction was affirmed by the Federal Circuit Court of Appeals (“Federal Circuit). Patent Owner submits the claim construction of the term “configured to”

as set forth by the civil court and affirmed by the Federal Circuit regarding the preamble to Claim 10 of the '701 Patent, is “a movable base station constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic.”

The civil court, in determining that the construction of “configured to” as “a movable base station constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic” relied upon language in the specification that described the features of the invention. Specifically, the civil court stated:

“Here, the specification is clearly describing the invention as a whole and not merely a preferred embodiment of the invention. The Federal Circuit has explained: “When 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., 778 F.3d at 1025; accord Regents of Univ. of Minnesota, 717 F.3d at 936.” (Ex. 2105 at 14-15).

The civil court determined, and the Federal Circuit agreed, that the inventor had limited the scope of the invention to a movable base station constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic. The civil court further stated that:

“[g]enerally, a court should not import limitations from the specification into the claims absent a clear indication that the patentee intended that the claims should be so limited. See Dealertrack, 674 F.3d at 1327; Hill-Rom Servs., 755 F.3d at 1372. But, here, the specification is describing the system as a whole according to the invention and not simply a preferred embodiment.” Ex. 2105 at 14.

Accordingly, even though the preamble is not used as antecedent basis for the claim elements, the entire patent must be analyzed to determine if the claims should be limited by the preamble. *See Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1572–73 (Fed. Cir. 1996) (whether the preamble constitutes a limitation “is determined on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history”); *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (“there is no simple test” for understanding the import of the preamble, but “we have set forth some general principles to guide th[e] inquiry”). The preamble may be considered necessary to give life, meaning, and vitality to the claims. *See Kropa v. Robie*, 187 F.2d 150, 152, (1951). “If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is necessary to give life, meaning, and vitality to the claim, then the claim preamble should be construed as if in the balance of the claim.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999). This is what the civil court determined in its analysis. Patent Owner submits the proper claim construction for “configured to” is “constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic.”

**C. “transmit radio frequency signals to a mobile device corresponding to the received fixed port signals”**

A civil court construed the term “transmit radio frequency signals to a mobile device corresponding to the received fixed port signals” as “transmit radio frequency signals to a mobile device, where the radio frequency signals correspond to the received fixed port signals.” Patent Owner submits this construction is the plain and ordinary meaning of the term and is the proper construction for “transmit radio frequency signals to a mobile device corresponding to the received fixed port signals.”

**D. “mobile device”**

Patent Owner requests construction of the term “mobile device” and submits that the plain and ordinary meaning of the term—“a device that must register with and be able to directly communicate with the cellular network”—be applied in this action. *See* Lanning Decl. ¶¶44.

A mobile device is more than just a cordless phone handset. The ’701 Patent specification teaches that a mobile device must be capable of directly communicating with either a fixed cellular base station or a moving base station. *See, e.g.,* Ex. 1001, 4:46-49 (“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.”); Lanning Decl. ¶¶52-56. Indeed, the mobile unit’s capability to be switched back-and-forth

between either a direct connection with the fixed base station or a connection with a moving base station is discussed repeatedly and throughout the specification. *See, e.g., id.* at 10:52-57 (“In congested traffic areas, a mobile unit which is stopped or slowly moving, e.g., less than 30 miles per hour, will 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.”); 11:3-8 (“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.”); 11:8-11 (“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.”); Lanning Decl. ¶¶58-59. A cordless phone can only communicate with its base station; a cordless phone does not have the capability to directly communicate with the cellular network. *See id.* at ¶¶62-66.

Additionally, The ’701 Patent specification teaches that a mobile device must be capable of registering with a cellular network so it is able to receive calls coming from the cellular network. *See id.* at ¶57. As set forth in the ’701 Patent, a mobile device:

“**must register** in the manner described earlier, by transmitting its unique address in the new service area. The address will be received by

the closest moving base station 30 and transmitted via a fixed radio port and the gateway switch 60 to the telephone network. **This registration procedure is required so that an incoming call for the mobile unit can be appropriately directed.**” (Ex. 1001, 9:50-56 (emphasis added)).

As a mobile phone enters a new service area, the mobile phone must register with the network. *See* Lanning Decl. ¶57. In contrast, a cordless phone is only connected to its one base station; a cordless phone does not “register” with the cellular network as required by the specification of the ’701 Patent. *See id.* at ¶¶62-66.

The ’701 Patent specification also teaches that a mobile device must be capable of communicating with multiple moving base stations. The ’701 Patent further provides:

“Data received from the telephone network at the gateway 60 and intended for a registered mobile unit is stored in the memory of the processor 150 in a register particularly associated with the moving base station currently serving the mobile unit.”

“Data received from the telephone network at the gateway 60 and intended for a registered mobile unit is stored in the memory of the processor 150 in **a register particularly associated with the moving base station currently serving the mobile unit.**” (Ex. 1001, 10:21-25. (emphasis added)).

While a cordless phone is tied directly to its one base station, a mobile device can be connected to different moving base stations when needed.

As discussed herein, a disputed term should be construed by first examining the intrinsic evidence of record from the perspective of one skilled in the relevant art. *Phillips*, 415 F.3d at 1313-14. Within the class of intrinsic evidence, “the

specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Id.* at 1315. The description of the mobile device in the specification of ’701 Patent is dispositive; a mobile device must be able to directly communicate with the cellular network, must be able to communicate with the cellular network indirectly by communicating with a moving base station, must be able to register with the telephone network and, must be able to move freely between mobile base stations. Patent Owner submits that “mobile device” should properly be construed as “a device that must register with and be able to directly communicate with the cellular network.”

**E. “automotive vehicle”**

Patent Owner requests construction of the term “automotive vehicle” and submits that the plain and ordinary meaning of the term be applied in this action. The plain and ordinary meaning of this term is “automobile.” *See* Lanning Decl.

¶44. According to the ’701 Patent:

“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.” (Ex. 1001, 4:5-9 (emphasis added)).

An “automotive vehicle” travels along a roadway. The specification is referring to an automobile. Additionally, the ’701 Patent provides that “a mobile

communication system employs moving base stations moving in the direction of **flow of traffic moving along a roadway.**” (Ex. 1001, Abstract (emphasis added)).

An “automotive vehicle” must travel along the roadway as described in the specification of the ’701 Patent. A person of ordinary skill in the art would understand the term “automotive vehicle” to mean an automobile. *See id.*

Additionally, the inventor stated that an “automotive vehicle” is an automobile in the file history of the ’701 Patent. In an appeal brief, the inventor stated as follows:

Further regarding claims 10, 20, 26, 32, 37, and 44, these claims recite that the movable base station is conveyed by a vehicle “wherein the vehicle is an automotive vehicle.” Appellant respectfully submits that neither, Charas nor Gardner, nor a combination of the two, teaches or suggests this feature. Gardner does not disclose moveable base stations. Charas discusses a repeater on a train and does not suggest automobiles.
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(Ex. 2107 at 51).

In discussing the claim elements “wherein the vehicle is an automotive vehicle,” the inventor stated the prior art reference, *Charas*, “does not suggest automobiles.” The inventor, in distinguishing the prior art over the term “automotive vehicle,” stated that the prior art does not “suggest automobiles.” This is a clear statement of intent by the inventor to equate “automotive vehicle” with “automobile.” Patent Owner submits that “automotive vehicle” should properly be construed as “automobile.”



## V. SUMMARY OF PETITIONER'S PRIMARY REFERENCES

### A. Overview of Ito

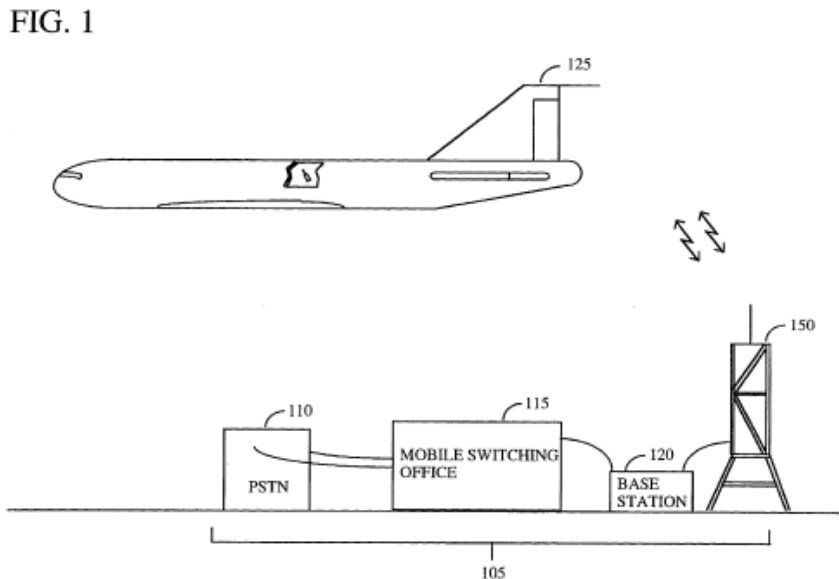
Petitioner's first primary reference, *Ito*, is directed towards improving the convenience of handsets for the automobile telephone system. *See* Ex. 1005 at 1:15-2:12; Lanning Decl. ¶¶71-81. As disclosed by *Ito*, the cellular type automobile telephone system was known in the art as a mobile radio communication system, which included at least a plurality of base stations and a plurality of mobile stations. *Id.* Each of these mobile stations of the automobile telephone system were equipped with an "automobile telephone main unit" that connected to a base station via a radio channel. *Id.*

The invention of *Ito*, however, is not the pre-existing automobile telephone system or its components. *Id.* Instead, the invention of *Ito* is only eliminating (1) the cord between the "automobile telephone unit," located in the trunk of a car and the cradle that holds the handset typically located around the dash of the vehicle; and (2) the curled cord used between the cradle and the handset with *Ito*'s "mobile base device" in conjunction with *Ito*'s "portable device." *See* Ex. 1005 at 1:15-2:12; Lanning Decl. ¶¶71-81.

### B. Overview of Gilhousen865

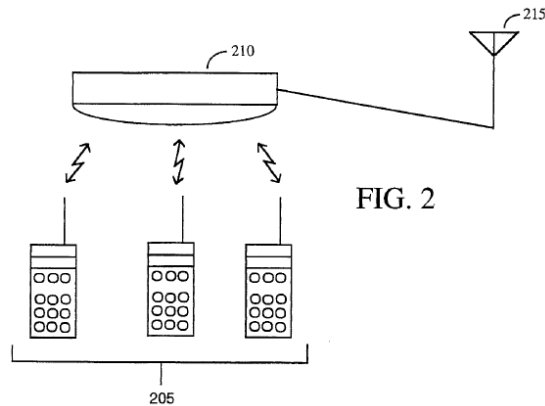
Petitioner's second primary reference, *Gilhousen865*, is directed towards improving the cellular radiotelephone communications between an airplane and a

ground base station. *See id.* at ¶¶ 97. The *Gilhousen865* invention is comprised of two subsystems: the ground based subsystem and the airborne based subsystem. *Id.* As disclosed by *Gilhousen865*, the ground based subsystem included a base station (120), a mobile switching center (115), an antenna (150), and the public switched telephone network (110) as shown in Fig. 1. (*See* Ex. 1009 at 2:8-37, Fig. 1). Notably, *Gilhousen865* fails to disclose the design and circuitry details for the base station. Lanning Decl. ¶¶ 97-104.



Ex. 1009, Figure 1.

As further disclosed by *Gilhousen865*, the airborne based subsystem included a radiotelephone (205), a radiotelephone signal repeater (210) and an antenna (215) that is mounted on the outside of the aircraft as shown in Fig. 2. (*See* Ex. 1009 at 2:44-59, Fig. 2).



Ex. 1009, Figure 2.

As shown in the relevant passages and Figs. 1 and 2, the radiotelephone (205) of *Gilhousen865* can only connect to the ground base station through *Gilhousen865*'s radiotelephone signal repeater 210 and antenna 215:

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 single radiotelephone, as in a small aircraft, or multiple radiotelephones, as in an airline size aircraft. *Id.* 2:53-59.

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. *Id.* 2:60-65.

## **VI. COMPARATIVE RELIABILITY OF THE EXPERT OPINIONS**

Because Petitioner relies on the Declaration of Scott Denning (Ex. 1003), and Patent Owner's expert, Mark Lanning, disagrees with Mr. Denning's Opinions, Patent Owner first addresses the gap between them.

Mark Lanning has over 35 years of engineering experience in all the development life cycle phases for hardware and software products. He has worked with both network operators and product suppliers regarding network architectures and product development and has acquired key insights into their perspectives and requirements as both suppliers and customers.

While working for three different product suppliers, Mark was directly responsible for the design, development, and rollout of new products that have earned combined revenues in excess of one billion dollars for their respective companies. Mark has worked with Motorola, Sprint, Nextel, and British Telecom (BT) to roll out some of the most successful telecom applications and network expansions worldwide. Mark was directly involved in the design of Sprint's Common Channel Signaling System 7 (SS7) network and the design and rollout of its FON (calling card) and 800 number services. Mark was the program manager responsible for the design and rollout of BT's Advanced Cellular Network (ACN) that used AIN functionality. BT's ACN was one of the largest cellular networks in

the world and also includes advanced corporate virtual private network (VPN) and pre-pay validation services.

Mr. Denning, on the other hand, has limited true cellular systems experience. For instance, he has never actually developed a cellular base station (*see* Ex. 2108 at 18:7-9) and his handset experience was “more of a modem.” *Id.* at 18:10-16. Additionally, the only generation of cellular technology he ever had hands on experience with was analog cellular systems. *Id.* at 19:8-13; 20:5-9. Notably, all of this was early in his career. *See* Ex. 1004. The only recent experience has been in the patent litigation support area. *Id.* Mr. Denning’s experience, while broad, lacks any substantial cellular communication system hands-on involvement.

## **VII. THE OPINIONS OF PETITIONER’S EXPERT ARE ENTITLED TO LITTLE OR NO WEIGHT**

### **A. Petitioner’s Expert Declaration is a Near-Verbatim Copy of the Petition**

As an initial matter, the Declaration of Mr. Denning (“Mr. Denning’s Declaration”) is entitled to little or no weight because Mr. Denning’s Declaration is a near-verbatim copy of the conclusory statements set forth in the Petition. (*E.g.*, *compare* Petition at 10-14 *with* Ex. 1003, ¶¶ 31-37; *compare* Petition at 14-16 *with* Ex. 1003, ¶¶ 86-89; *compare* Petition at 18-21 *with* Ex. 1003, ¶¶ 92-95; *compare* Petition at 19 n.4 *with* Ex. 1003, ¶ 94 n.1; *compare* Petition at 21-25 *with* Ex. 1003, ¶¶ 96-102; *compare* Petition at 26-28 *with* Ex. 1003, ¶¶ 105 – 110; *compare* Petition

at 51-55 *with* Ex. 1003, ¶¶ 158, 161 – 162; *compare* Petition at 29-31 *with* Ex. 1003, ¶¶ 113-116; *compare* Petition at 31-34 *with* Ex. 1003, ¶¶ 117-120; *compare* Petition at 38-40 *with* Ex. 1003, ¶¶ 127-134; *compare* Petition at 51-53 *with* Ex. 1003, ¶¶ 155-161). This Board has routinely rejected such expert testimony.<sup>1</sup>

Notably, Mr. Denning and the Petition include the identical typographical errors. *See, e.g., compare* Petition at 22 (incorrectly citing Ex. 1009 at 3:3-10) *with* Ex. 1003 at ¶ 97 (citing same); *compare* Petition at 29 (incorrectly citing Ex. 1005 at 5:62-65) *with* Ex. 1003 at ¶ 117 (citing same); *compare* Petition at 31 (incorrectly citing Ex. 1005 at 5:62-65) *with* Ex. 1003 at ¶ 117 (citing same); *compare* Petition at 32 (incorrectly citing Ex. 1005 at 13:15-18) *with* Ex. 1003 at ¶ 142 (citing same); *compare* Petition at 36 (incorrectly citing Ex. 1005 at 13:15-18) *with* Ex. 1003 at ¶ 145 (citing same); *compare* Petition at 37 (incorrectly citing Ex. 1005 at 6:40-46; 8:62-64) *with* Ex. 1003 at ¶ 124 (citing same); *compare* Petition at 39 (incorrectly citing Ex. 1005 at 13:15-18) *with* Ex. 1003 at ¶ 147 (citing same); *compare* Petition

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<sup>1</sup> *See Propel Orthodontics, LLC v. Orthoaccel Techs., Inc.*, IPR2018-00296, Paper 36 at 22-23 (PTAB June 10, 2019) (“Merely repeating an argument from the Petition in the declaration of a proposed expert does not give that argument enhanced probative value.”); *Amazon, Inc. v. JumpSport, Inc.*, IPR2018-00714, Paper 8 at 29 (PTAB Sept. 6, 2018); *In re Broadcom Ltd. v. Invensas Corp.*, IPR2017-00424, slip op. at 13 (PTAB Jul. 3, 2017) (Paper 7); *InfoBionic, Inc. v. Braemer Mfg., LLC*, IPR2015-01704, Paper 11 at 6, 13 (PTAB Feb. 16, 2016); *Hyundai Motor Company v. Blitzsafe Texas, LLC*, IPR2016-01476, Paper 12 at 21-22 (PTAB Jan. 24, 2017); *Kinetic Techs., Inc. v. Skyworks Solutions, Inc.*, IPR2014-00529, Paper 8 at 15 (PTAB Sept. 23, 2014).

at 54 (incorrectly citing Ex. 1007 at 13:21-22; 13:10-12) *with* Ex. 1003 at ¶ 160 (citing same). The inclusion of the identical typographical errors further demonstrates that Mr. Denning’s Declaration is a near-verbatim copy of the Petition.

It is not surprising, however, that Mr. Denning’s Declaration is a near-verbatim copy of the conclusory statements set forth in the Petition because—as admitted by Mr. Denning—“a paralegal” for Petitioner’s counsel actually prepared Mr. Denning’s Declaration—not Mr. Denning. *See* Ex. 2108, 11:24-13:14. Specifically, Mr. Denning testified that the same repetitive process was used for drafting his declaration in this IPR as well as the related IPR involving the ’023 Patent in IPR2019-01103. *See id.* at 11:24-13:14; 113:19 – 114:5. When asked, “Do you believe a paralegal typed this one as well?” Mr. Denning responded, “Yes, I do believe that.” *Id.* at 113:19 – 114:5. While Mr. Denning asserted he had “quite a few email exchanges” and “weekly calls” with Petitioner’s counsel, he testified that he “*believes* the actual preparation of the declaration happens by a paralegal . . . .” *Id.* at 11:24-13:14. When asked, if he had an assistant or someone “who helps do drafts for you or run research or those kind of things for you, personally?” Mr. Denning responded, “No.” *Id.* at 12:21-25.

Accordingly, Petitioner’s attempt to legitimize near-verbatim attorney arguments found in its Petition by having an alleged expert adopt them in an expert

declaration prepared by “a paralegal” of Petitioner’s counsel should be rejected; and thus, Mr. Denning’s Declaration should be afforded little, if any, weight.

**B. Petitioner’s Expert Declaration Improperly Relies on Unsupported and Conclusory Assertions**

Notwithstanding the foregoing, Mr. Denning’s Declaration further relies on unsupported and conclusory assertions, rather than credible evidence, in support of his opinions. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”). This Board and the Federal Circuit routinely reject such testimony. *See, e.g., Qualcomm Inc. v. Bandspeed, Inc.*, IPR2016-00620, Paper 6 at 23 (PTAB Aug. 24, 2016) (“Petitioner’s arguments lack support or sufficient explanation as to why a person of ordinary skill would have had reason to modify [the prior art] to achieve the recited limitation. Consequently, we find Petitioner’s arguments and [its expert’s] testimony to be conclusory, compromised by impermissible hindsight, and unpersuasive.”).<sup>2</sup>

Here, Mr. Denning’s Declaration repeatedly fails to offer credible evidence, support, or explanations for his conclusions. For example, in Paragraph 127, Mr.

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<sup>2</sup> *See also TQ Delta, LLC*, 942 F.3d at 1358 (“Conclusory expert testimony does not qualify as substantial evidence.”); *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1152 (Fed. Cir. 2004) (“General and conclusory testimony . . . does not suffice as substantial evidence of invalidity.”); *Rohm & Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997).



Denning baldly asserts that “Selection diversity, as opposed to diversity combining, is a well-known technique of **comparing properties** of multiple received signals for the purpose of selecting a preferred one of the signals.” (Ex. 1003, ¶ 127) (emphasis added). However, Mr. Denning’s attempt to inflate his description of “selection diversity” is directly contradicted by Mr. Denning’s own evidentiary support—namely *Gardner* (Ex. 1006) and *Acampora* (Ex. 1010).<sup>3</sup> Although Mr. Denning asserts that selection diversity compares the “**properties** of multiple received signals”, *Gardner*—in stark contrast—discloses that selection diversity merely involves “chos[ing] the antenna that provides **the strongest signal**.” (Ex. 1006, 1:25-27) (emphasis added). Similarly, *Acampora* discloses that “[w]ith selection diversity, the receiver selects for reception the signal from that antenna with **the highest signal power**.” (Ex. 1010 at 13) (emphasis added). Critically, Mr. Denning’s conclusory assertion is critically flawed for at least four reasons: (i) Mr. Denning fails to identify which properties of the multiple received signals are being compared; (ii) Mr. Denning fails to address his own contradictory evidentiary support (*Gardner* and *Acampora*); (iii) Mr. Denning fails to provide any actual

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<sup>3</sup> See Ex. 1003, ¶ 121 (citing Ex. 1006 at 1:28; Ex. 1010 at 13). See also *Gardner*, Ex. 1006, 1:25-27 (disclosing that selection diversity merely involves “cho[osing] the antenna that provides **the strongest signal**.”) (emphasis added); *Acampora*, Ex. 1010 at 13 (disclosing that “[w]ith selection diversity, the receiver selects for reception the signal from that antenna with **the highest signal power**.”) (emphasis added).

evidentiary support; and (iv) Mr. Denning fails to provide any of the underlying facts or data on which his conclusory assertion is based.

Many of Mr. Denning's other assertions and conclusions are similarly unsupported. *See Infobionic, Inc. v. Braemer Manufacturing, LLC.*, IPR2015-01704, Paper 11 at 6 (PTAB Feb. 16, 2016) (citing *Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997) (fact finder not required to give credit to expert testimony without adequate support)). For example, in Paragraph 40, Mr. Denning baldly asserts that "there were no technological barriers to combining these elements to form the claimed invention. Indeed, combining these elements would have yielded predictable results." (Ex. 1003, ¶ 40). Yet, Mr. Denning fails to provide any support for this conclusory assertion, let alone the underlying facts or data on which his conclusory assertion is based. Likewise, in Paragraph 65, Mr. Denning baldly asserts that "A mobile repeater is substantially similar to a movable base station because both devices operate as intermediary systems that facilitate communications between a mobile device and a fixed base station", without providing any factual support for this assertion.<sup>4</sup> (*See* Ex. 1003, ¶ 65). Even where Mr. Denning attempts to cite purported evidentiary support, several of Mr. Denning's citations are incorrect

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<sup>4</sup> In stark contrast, during prosecution of the '701 Patent, the inventor distinguished the invention of the '701 Patent from and overcame a repeater system disclosed in a prior art reference—*Charas*. *See* Ex. 2107 at 43-51. *See* also Lanning Decl. ¶68.

and do not even support Mr. Denning’s conclusory assertions.<sup>5</sup> The Board has routinely declined to conduct its own search through the record for evidence supporting Petitioner’s argument. *See, e.g., Luptin Ltd., et al. v. Pozen, Inc.*, IPR2015-01775 at 33 (PTAB Feb. 28, 2017).

Mr. Denning also frequently fails to explain his conclusions adequately. For instance, in Paragraph 127, Mr. Denning attempts to equate *Gilhousen390*’s disclosure of “strongest signals” to that of the ‘701 Patent’s “best signal” limitation.<sup>6</sup> (*See* Ex. 1003, ¶127). However, Mr. Denning’s conclusory assertion is critically flawed for at least four reasons: (i) Mr. Denning fails to provide any explanation as to how or why a POSITA would equate the two; (ii) Mr. Denning fails to address his own contradictory evidentiary support (*Gardner* and *Acampora*); (iii) Mr. Denning fails to provide any actual evidentiary support; and (iv) Mr. Denning fails to provide any of the underlying facts or data on which his conclusory assertion is based. Worse yet, Mr. Denning’s unsupported and conclusory leap to equate *Gilhousen390*’s disclosure of “strongest signals” to that of the ‘701 Patent’s “best signal” limitation

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<sup>5</sup> *See, e.g.,* Ex. 1003 at ¶ 97 (incorrectly citing Ex. 1009 at 3:3-10); ¶¶ 118, 142, 145, 147 (incorrectly citing Ex. 1005 at 13:15-18); ¶ 117 (incorrectly citing Ex. 1005 at 5:62-65); ¶ 124 (incorrectly citing Ex. 1005 at 6:40-46; 8:62-64); ¶ 160 (incorrectly citing Ex. 1007 at 13:21-22; 13:10-12).

<sup>6</sup> As explained by Mr. Lanning, “best signal” includes an analysis of the signal quality (i.e., error rate) in addition to the signal strength, at a minimum when viewed in the entire context of the ‘701 Patent. *See* Lanning Decl. ¶136.

invites legal error because the Board 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). *See In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016).

For the foregoing additional reasons, the Board should afford Mr. Denning’s Declaration little, if any, weight.

## VIII. LEGAL STANDARDS

A patent is invalid as obvious “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a) (2012).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). This burden of persuasion **never shifts to Patent Owner**. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review) (emphasis added). Furthermore, “[t]o satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner

must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

## **IX. THE PETITION IS FATALY DEFICIENT**

### **A. Grounds 1 and 2 Fail to Address Whether the Proposed Prior Art References Would Have a Reasonable Expectation of Success.**

A proper obviousness combination requires the Petitioner to demonstrate that a person of ordinary skill in the art would have had a reasonable expectation of success in modifying the teachings of the prior art—as Petitioner proposes—by a preponderance of the evidence. *See Regents of University of California v. Board Institute, Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018). *See also Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007) (emphasizing that the “reasonable expectation of success” factor is a subsidiary requirement for obviousness subsumed within the *Graham* factors). Despite this requirement of Federal Circuit precedent, the Petition does not set forth the requisite analysis necessary to prove obviousness at least because (among other deficiencies discussed herein) Grounds 1 and 2 of the Petition fail to even allege that the proposed prior art combinations for each Ground would have a reasonable expectation of success.<sup>7</sup>

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<sup>7</sup> See Petition at 26-28 (Ground 1); 42-45 (Ground 2).

As with other factual questions, the burden of proving a reasonable expectation of success belongs to Petitioner, and that burden does not shift to Patent Owner. *See Magnum Oil*, 829 F.3d at 1375 (holding that burden-shifting “does not apply in the adjudicatory context of an IPR”). However, for the reasons set forth below (*see infra* Section IX.B), there is not a reasonable expectation of success for Petitioner’s proposed prior art combinations for either Ground 1 or Ground 2.

Accordingly, Petitioner’s challenges to Claims 10, 15, 17, and 18 (Ground 1), and Claims 10, 15, 17, and 18 (Ground 2) are fatally deficient because the Petitioner has not met its burden to show that a POSITA would have had a reasonable expectation of success in modifying the prior art combinations as Petitioner proposes for each Ground.

**B. Grounds 1 and 2 Do Not Explain in Sufficient Detail How to Combine the Proposed Prior Art References**

In addition to demonstrating a reasonable expectation of success for the proposed prior art combinations of each Ground, the Petitioner must also “explain how specific references could be combined.” *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012) (emphasis added). Despite this requirement of Federal Circuit precedent, Grounds 1 and 2 also fail to explain in sufficient detail how the prior art would be modified or combined to arrive at the

claimed invention.<sup>8</sup> *See ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012) (requiring a Petitioner “to explain how specific references could be combined”).

Instead of setting forth the required fact-based analysis to support the proposed combinations, Grounds 1 and 2 of the Petition merely contain conclusory assurances that a person of ordinary skill could combine Petitioner’s prior art references, but the Petition never actually articulates how the POSITA could do so.<sup>9</sup> These conclusory statements are nothing more than a recitation of buzzwords from basic tests identified by the Supreme Court in *KSR*. The Board has routinely rejected such conclusory testimony, because it is “not a substitute for a fact-based analysis of the proposed combination of references necessary to support those conclusions.”<sup>10</sup> *Kinetic Tech., Inc. v. Skyworks Solutions, Inc.*, IPR2014-00529, Paper 8 at 15 (PTAB Sept. 23, 2014).

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<sup>8</sup> *See* Petition at 26-28 (Ground 1); 42-45 (Ground 2).

<sup>9</sup> *Id.*

<sup>10</sup> *See, e.g., NJOY, Inc. v. Fontem Holdings I B.V.*, IPR2015-01301, Paper 16 at 11 (PTAB Dec, 8, 2015) (“These conclusory statements are nothing more than a restatement of basic tests identified by the Supreme Court for determining whether an invention would have been obvious. . . . General principles on what may constitute a supporting rationale cannot substitute for specific application of those principles to the facts.”); *Whole Space Indus. Ltd. v. Zipshade Industrial (B.V.I.) Corp.*, IPR2015-00488, Paper 14 at 17 (PTAB July 24, 2015) (“These conclusory labels do not substitute for a fact-based analysis in the Petition establishing what is being modified, and why it would have been obvious to a person of ordinary skill to make the modification.”) (internal citations omitted).

For example, Ground 2 does not explain how a POSITA would combine *Gilhousen390*'s CDMA signal diversity configuration for ground-based vehicles with *Gilhousen865*'s airborne repeater especially, where *Gilhousen865* lacks the necessary design and circuitry details for the airborne repeater. (See Petition at 51-54). More importantly, Defendant's proposed combination would suffer from the same issues that the *Gilhousen865* invention was attempting to overcome—"the aircraft radiotelephone system does not perform hand-offs . . . [and] results in the call from the aircraft radiotelephone being dropped when the aircraft reaches the limit of the cell's coverage." Ex. 1009 at 36-41. As explained in detail by Mr. Lanning, the invention of *Gilhousen390* uses power control for the transmitters in the mobile station and in the base station to combat fading. A substantial cause of fading is the increased speed of the automobile. For example, as the transmitted signal from the mobile station fades at the base station's receiver, the base station sends power control commands to the mobile station to increase its power. Here, the CDMA signal diversity configurations of *Gilhousen390* will not work if employed on *Gilhousen865*'s airborne repeater because *Gilhousen390*'s CDMA signal diversity configuration cannot increase the power of *Gilhousen865*'s airborne repeater fast enough to compensate for the transmitted signal fading that is occurring on the connection with the base station due to the aircraft's high speed of



*Gilhousen865*'s airborne repeater. See Lanning Decl. at ¶¶ 119-124. This results in dropped calls because handovers cannot occur. *Id.*

Critically, neither the Petition nor Mr. Denning's Declaration even acknowledge any functionality issues that would arise when trying to implement *Gilhousen390*'s CDMA signal diversity configuration into *Gilhousen865*'s airborne repeater, much less offer any explanation as to how to resolve these functionality issues, or whether there is a reasonable expectation of success in light of these functionality issues. See Petition at 51-54. In addition, the Petition and Mr. Denning's Declaration also fail to address: (i) the fact that *Gilhousen865* lacks the necessary design and circuitry details for the airborne repeater; (ii) the new circuitry that would be required to implement *Gilhousen390*'s CDMA signal diversity configuration; and (iii) *Gilhousen865*'s failure to teach how to process multiple receive signal input paths received from the separated antennas (i.e., multiple access techniques). See Lanning Decl. ¶¶ 104, 107, 119-127.

Although the Petitioner further alleges that "[a]s shown in *Gilhousen390*'s Fig. 3, *Gilhousen865*'s repeater could be modified with multiple data receivers that are individually configurable to extract different signals received from different base stations and/or with multiple antennas for space diversity, as taught by *Gilhousen390*," the Petitioner fails to provide any actual support for these

conclusory assertions other than the near-verbatim conclusory and unsupported *ipse dixit* of Mr. Denning. *See* Petition at 54 citing Ex. 1003, ¶ 161.

Recognizing this evidentiary gap, Mr. Denning attempts to fill the gap by asserting, *ipse dixit*, that “[t]he receiver part including “DIVERSITY COMBINER & DECODER” disclosed in Gilhousen390’s Fig. 3 can be migrated to Gilhousen865’s, since diversity is not specified in Gilhousen865.” (Ex. 1003, ¶ 161). However, Mr. Denning’s conclusory assertion is critically flawed for at least three reasons: (i) Mr. Denning fails to provide any explanation as to how or why *Gilhousen865*’s repeater could be modified where *Gilhousen865* lacks the necessary design and circuitry details for the airborne repeater; (ii) Mr. Denning fails to provide any actual evidentiary support; and (iii) Mr. Denning fails to provide any of the underlying facts or data on which his conclusory assertion is based. *See* Lanning Decl. ¶107. Accordingly, Mr. Denning’s Declaration fails to cure the Petition’s conclusory assertions, because it also fails to provide any evidentiary support for these conclusory assertions, let alone the underlying facts or data on which his conclusory assertion is based. (*See* Ex. 1003, ¶ 161).

Nonetheless, Ground 1 also suffers from similar deficiencies as Ground 2. For example, Ground 1 fails to explain how a POSITA would modify the receive-side circuitry (e.g., elements 61-65) of *Ito* to match the receiver circuitry illustrated in *Gardner*, as Petitioner proposes. *See* Petition at 26-28.

Accordingly, Grounds 1 and 2 of the Petition are fatally deficient because each Ground does not explain in sufficient detail how to combine Petitioner’s proposed prior art combinations.

**X. THE PETITION FAILS TO DEMONSTRATE A MOTIVATION TO COMBINE THE ASSERTED PRIOR ART REFERENCES**

The prior art references upon which the Petition relies do not disclose every element of the Claims 10, 15, 17, and 18, as set forth in detail, *infra* Section XI. But even if those references did disclose every element, Petitioner fails to satisfy its burden of establishing a POSITA would have been motivated to combine the asserted prior art references.

For obviousness grounds, the Board considers whether a POSITA would have been motivated to combine the prior art to achieve the claimed invention. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). A proper obviousness combination requires an explanation of “the reason why a PHOSITA would have been motivated to” perform the combination. *In re Nuvasive, Inc.*, 842 F.3d 1376 at 1384 (Fed. Cir. Dec. 7, 2016). The Federal Circuit has emphasized the criticality of a reason to combine a proposed obviousness combination, observing that even where the references to be combined “arguably disclose every limitation of the claim,” the claim is not rendered obvious without “a sufficient motivation to combine” the references. *Microsoft v. English*, 662 Fed. Appx. 981, 989-990 (Fed. Cir. Nov. 30, 2016).

**A. Ground 1: A POSITA Would Not Have Been Motivated to Combine *Ito* with *Gardner***

As an initial matter, a POSITA would not have been motivated to combine *Ito* with *Gardner*,<sup>11</sup> because such a combination would not result in an automobile telephone unit that can receive signals from a fixed port. If a POSITA were to simply replace the single antenna of the automobile telephone unit of *Ito* with the spatially separated antennas of *Gardner*, as Petitioner proposes, this would result in an inoperable device, because it would be unable to correctly receive or process any signals from the spatially separated antennas. *Ito* does not disclose the necessary techniques to process multiple receive signal input paths as a result of Petitioner's incorporation of the spatially separated antennas. Therefore, any signals sent to the spatially separated antennas employed in the "automobile telephone unit" will not be received. *See* Lanning Decl. ¶113.

In addition, a POSITA would not have been motivated to combine *Ito* with *Gardner*, because such a combination would have required much new circuitry—not disclosed in either *Ito* or *Gardner*—(i) to control the multiple antennas; (ii) to process multiple receive signal input paths; and (iii) to determine how to use the signal received from these multiple paths. *See* Lanning Decl. ¶114.

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<sup>11</sup> Merely as a practical matter, *Gardner* was not available until it issued in 1996 and thus, would have been unavailable at the 1995 time of the invention to combine with *Ito*.

Finally, a POSITA would not have been motivated to combine *Ito* with *Gardner*, because *Gardner* does not provide any guidance on how its device can be used for the different types of cellular networks (i.e., CDMA, FDMA or TDMA). See Lanning Decl. ¶¶86, 115. Moreover, the *Gardner* invention has different requirements and produce side-effects (interference) to other signals that needs to be carefully considered before they are implemented in any of these different types of cellular networks. *Id.* at ¶ 87. As explained by Mr. Lanning, this is because the *Gardner* invention is based on manipulating a Radio Frequency carrier “by phase shift keyed or frequency modulated digital information modulated on an RF carrier incorporating the present invention.” *Id.* at ¶ 88 citing Ex. 1006 at 2:10-13.

For the foregoing reasons, a POSITA would not be motivated to combine *Ito* with *Gardner*.

**B. Ground 2: A POSITA Would Not Have Been Motivated to Combine *Gilhousen865* with *Gilhousen390***

A POSITA would not have been motivated to combine *Gilhousen390*’s CDMA signal diversity configurations with *Gilhousen865*’s airborne repeater because the combination would suffer from the same issues that the *Gilhousen865* invention was attempting to overcome— “[T]he aircraft radiotelephone system does not perform hand-offs . . . . [and] results in the call from the aircraft radiotelephone being dropped when the aircraft reaches the limit of the cell’s coverage.” Ex. 1009 at 36-41. Critically, *Gilhousen390*’s CDMA signal diversity configurations will not

work if employed on *Gilhousen865*'s high speed aircraft's airborne repeater, because *Gilhousen390*'s CDMA signal diversity configuration cannot increase the power of *Gilhousen865*'s airborne repeater fast enough to compensate for the transmitted signal fading that is occurring on the connection with the base station due to *Gilhousen865*'s high speed aircraft's airborne repeater. See Lanning Decl. at ¶¶ 119-125. Therefore, with this combination, any calls in progress will be dropped because handovers cannot occur. *Id.*

As disclosed in *Gilhousen390*, the rate of signal fading is based on the speed of the vehicle, where this fading "can typically be as fast as one fade per second per mile per hour of vehicle speed" in the 850 MHz cellular radio frequency band and "can be extremely disruptive to signals in the terrestrial channel resulting in poor communication quality." Ex. 1007 3:19-24. Therefore, a cellular phone traveling in a vehicle at 50 miles-per-hour would experience 50 fades per second in stark contrast to a commercial airplane traveling at an average speed of 500 miles-per-hour that would experience 500 fades per second. See Lanning Decl. ¶107.

As Mr. Lanning explains, CDMA systems use power control for the transmitters in a mobile station and a base station to combat signal fading for a moving vehicle. *Id.* at ¶121. Specifically, the base station continuously monitors the signal quality of the transmitted signal from the mobile station to the base station. *Id.* If the transmitted signal begins to fade at the base station's receiver, the base

station sends power control commands to the mobile station to increase its power to compensate for the signal fading between the base station and the mobile station. *Id.* However, due to the high speeds of *Gilhousen865*'s aircraft's airborne repeater, the power control commands will not be able to keep up, especially, if *Gilhousen865*'s airborne repeater is moving away from the base station, the call from the aircraft radiotelephone will eventually be dropped because *Gilhousen865*'s airborne repeater and/or the base station are not transmitting at a high enough power. *Id.*

Mr. Lanning's reasoning is further supported by another CDMA system patent by the same inventor, Klein S. Gilhousen, which discloses that the maximum vehicle speed for power control is 50 MPH when the power control bits are sent at a rate of 1,000 per second, as shown below:

**The power adjustment command is transmitted by the cell-site transmitter at a relatively high rate, typically on the order of about one command every millisecond. The rate of transmission of the power adjustment command must be high enough to permit Rayleigh fading on the inbound link path to be tracked. It is further desirable for the outbound link path Rayleigh fading impressed on the inbound link path signal to be tracked. One command per millisecond is adequate to track the fading processes for vehicle speeds in the range of 25-50 miles per hour for 850 MHz band mobile communications. It is important that the latency in determining the power adjustment command and the transmission thereof be minimized so that channel conditions will not change significantly before the mobile unit receives and responds to the signal.**

Ex. 2112 at 7:7-23. See Lanning Decl. ¶¶ 122-123.

As a result, at 500 MPH, a commercial jet is travelling approximately 10 times faster than the maximum speed than the Gilhousen390 system can support. *Id.* For the foregoing reasons, a POSITA would not be motivated to combine *Gilhousen*895 with *Gilhousen*390.

## **XI. THE PETITION FAILED TO ESTABLISH OBVIOUSNESS OF ANY CHALLENGED CLAIM**

As demonstrated below, Petitioner has not carried its burden of demonstrating unpatentability with respect to Claims 10, 15, 17, and 18 because the Petition fails to demonstrate that the asserted references disclose all of the elements of or render obvious Claims 10, 15, 17, and 18.

### **A. Ground 1: *Ito* Alone or in view of *Gardner* Fails to Render Claims 10, 15, 17, and 18 Unpatentable**

#### **1. *Ito* Does Not Disclose “A Mobile Device” As Required by Independent Claim 10**

Independent Claim 10 of the '701 requires “a transmitter configured to transmit radio frequency signals to a mobile device corresponding to the received fixed port signals.” (Ex. 1001, 11:54-64 (emphasis added)).

Petitioner alleges that *Ito* discloses the mobile device limitation: “According to *Ito*, the mobile base device MSS ‘receive[s] a signal from the base station BSS2 and forward[s] it to the portable device PSS2.’” (Petition at 38). While *Ito* does disclose a portable device (PSS), *Ito* does not disclose a transmitter configured to



transmit radio frequency signals to a portable device that registers with or is capable of directly communicating with the cellular network as required by the limitation of a “mobile device” in the context of the entire ’701 Patent. *See also 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”).

As previously discussed, the limitation of a “mobile device” requires at least three capabilities set forth in the ’701 Patent specification: (i) capable of directly communicating with either a fixed cellular base station or a moving base station;<sup>12</sup> (ii) capable of being switched back and forth between either a direct connection with the fixed base station or a connection with a moving base station;<sup>13</sup> and (iii) capable of registering with a cellular network.<sup>14</sup>

In contrast, *Ito* does not disclose any ability of its portable device to register or directly communicate with a cellular network.<sup>15</sup> *See* Lanning Decl. ¶¶130-132.

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<sup>12</sup> *See* Ex.1001, 4:46-49 and 10:50-57.

<sup>13</sup> *Id.* at 10:50-57; 10:57-62; and 10:62-65.

<sup>14</sup> *Id.* at 9:49-56.

<sup>15</sup> Patent Owner notes that Mr. Denning testified that the portable device of *Ito* (PSS) would not connect to a cellular network if the mobile base device (MSS) was off. *See* Ex. 2108 at 36:4-15.

Rather, *Ito*'s portable device is similar to a cordless phone system. *Id.* See *Ex. 1005* at 3:36-41 (Alternatively in a second possible application that uses a system according to the invention for a cordless telephone system, a mobile base device, may be constituted by a stationary unit of a cordless telephone system while a portable device may correspond to a cordless 40 telephone handset); *Id.* at 3:54-56 (With such an arrangement, a codeless [cordless] telephone handset whose service area is normally limited to the inside of a home or an office can be used in a car); and *Id.* at 16:62-17:3 (While each of the above described embodiments is an automobile telephone system, a system according to the invention may be applied to a cordless telephone system that normally comprises stationary units connected to subscribers' lines of a wire telephone network and cordless telephone sets connected to the respective stationary units by way of radio channels, where the stationary units corresponds to the mobile base devices and the cordless telephone sets correspond to the portable devices of the above embodiments).

Accordingly, the Petition fails to show that *Ito* in view of *Gardner* renders obvious this limitation required by Claim 10.

## **2. Dependent Claims 15, 17, and 18 Are Not Rendered Unpatentable by *Ito* in view of *Gardner***

Claims 15, 17, and 18 of the '701 Patent either depend directly or indirectly from independent Claim 10. As the Petition fails to show that *Ito* in combination with *Gardner* renders obvious all limitations of Claim 10, its challenges to Claims

15, 17, and 18, all of which depend on Claim 10, necessarily fail for the same reasons. *See supra* Section XI.A.1. *See also* Lanning Decl. ¶ 140.

**2. The Additional Limitation of Dependent Claims 15 Is Not Rendered Unpatentable by *Ito* in view of *Gardner***

Claim 15 further requires the element of “a controller configured . . . to select a best signal.” (Ex. 1001, 12:14-17). To satisfy this limitation, the Petition and Mr. Denning rely, incorrectly, on the combination of *Ito* and *Gardner*. (*See* Petition at 38-39). However, neither *Ito* nor *Gardner* disclose “a controller configured . . . to select **a best signal**” as required by Claim 15. (Ex. 1001, 12:14-17 (emphasis added)).

While *Gardner* does disclose the method of “selection diversity” which “cho[oses] the antenna that provides the strongest signal”,<sup>16</sup> *Gardner* does not disclose the required limitation of a controller selecting “a best signal” in the context of the entire ’701 Patent. *See Philips v. A.W.H. Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). In an attempt to satisfy this limitation, Petitioner incorrectly equates *Gardner*’s disclosure of selecting “the strongest signal” to that of the ’701 Patent’s required limitation of selecting “a best signal”—without any actual evidentiary support. (*See* Petition at 38). Instead, the Petition attempts to rely on the near-

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<sup>16</sup> Petition at 38 (*citing* Ex. 1006, 1:28 (emphasis added)).

verbatim conclusory and unsupported *ipse dixit* of Mr. Denning. (See Petition at 38 (citing Ex. 1003, ¶ 127).

Mr. Denning asserts, *ipse dixit*, that “selection diversity, as opposed to diversity combining, is a well-known technique of comparing properties of multiple received signals for the purpose of selecting a preferred one of the signals.” (Ex. 1003, ¶ 127). However, as previously discussed, Mr. Denning’s conclusory assertion is critically flawed for at least four reasons: (i) Mr. Denning improperly mischaracterizes his description of “selection diversity”—without any evidentiary support—to arrive at his own description of “**comparing properties** of multiple received signals for the purpose of selecting a preferred one of the signals” in an attempt to satisfy the limitation of Claim 15; (ii) Mr. Denning fails to address his own contradictory evidentiary support; (iii) Mr. Denning fails to provide any actual evidentiary support; and (iv) Mr. Denning fails to provide any of the underlying facts or data on which his conclusory assertion is based. See Lanning Decl. ¶¶136-138. Critically, Mr. Denning’s own description of “selection diversity” is directly contradicted by Mr. Denning’s own evidentiary support— namely *Gardner* (Ex. 1006) and *Acampora* (Ex. 1010).<sup>17</sup>

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<sup>17</sup> Patent Owner notes that *Gardner* discloses that selection diversity merely involves “cho[osing] the antenna that provides **the strongest signal**.” (Ex. 1006, 1:25-27) (emphasis added). Likewise, *Acampora* discloses that “[w]ith selection diversity, the receiver selects for reception the signal from that antenna with **the highest signal power**.” (Ex. 1010 at 13) (emphasis added). Neither *Gardner* nor *Acampora*

In contrast, the '701 Patent provides that “a best signal” is more than just the strongest signal: “[t]he 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.” Ex. 1001 at 10:57-62. At a minimum, ‘best signal’ includes an analysis of the error rate in addition to the signal strength when viewed in the entire context of the '701 Patent. *See* Lanning Decl. ¶¶136-137.

Nonetheless, Petitioner has not alleged any reason, other than its own expert’s opinion, that a POSITA would equate the two. *Id.* However, Mr. Denning’s leap to equate his description of the “strongest signal” with the '701 Patent’s “best signal” limitation is exactly the type of conclusory, unsupported assertion that the Board has held is “entitled to little or no weight” and is “insufficient to establish a reasonable likelihood of prevailing regarding that claim.” *See Roxane Labs., Inc. v. Novartis AG*, IPR2016-01461, slip op. at 10 (PTAB Feb. 13, 2017) (Paper 9) (“But [petitioner’s expert] cites no evidence to support this association, leaving us only with his bare conclusion. As the Board has stated repeatedly, conclusory expert testimony is entitled to little or no weight. Where, as here, the conclusory testimony

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disclose, let alone discuss, that selection diversity involves “comparing properties” as Mr. Denning proposes. *See* Lanning Decl. ¶137. Therefore, Mr. Denning’s description of “selection diversity” is simply improper.

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.”).

Moreover, the Petitioner and Mr. Denning’s unsupported and conclusory leap invites legal error because the Board 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). *See In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016) (“our cases repeatedly warn that references to “common sense”—whether to supply a motivation to combine or a missing limitation—cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art references specified.”).

For the foregoing reasons, the Petition fails to show that the combination of *Ito* and *Gardner* renders obvious the limitations required by Claim 15.

**B. Ground 2: The Combination of *Gilhousen865* with *Gilhousen390* Does Not Render Claims 10, 15, 17, and 18 Unpatentable**

**1. *Gilhousen865* Does Not Disclose “A Movable Base Station Configured To Move Relative To Earth,” As Required by Independent Claim 10**

Independent Claim 10 of the ’701 Patent requires “a movable base station configured to move relative to Earth.” (Ex. 1001, 11:54-55). Petitioner alleges that

*Gilhousen865* discloses this limitation: “*Gilhousen865* describes a repeater 210 (apparatus) installed in an airplane that functions both to provide outgoing calls from the radiotelephone to the ground base station, and incoming calls originating from the ground subsystem to the airborne radiotelephone. *See* Ex. 1009, 2:53-63. Because the repeater is installed in an airplane, it would have been obvious to a POSITA that the repeater is ‘configured to move relative to Earth.’” Petition at 56. Petitioner has failed to account for the construction of the term “configured to” as set forth by the civil court and supported by the ’701 Patent specification—“constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic.”

*Gilhousen865* discloses an “airborne communication system [that] enables one or more radiotelephones to communicate with a ground based cellular radiotelephone system.” *See* Ex. 1009, Abstract. Petitioner and Mr. Denning state that *Gilhousen865* describes the apparatus of Claim 10 (a repeater) installed in an airplane. Petition at 56; Ex. 1003 ¶166. *Gilhousen865* does not disclose an apparatus constructed to move with the traffic at a rate of speed which is comparable to the speed of the traffic as required by the limitation of a “configured to” in the context of the entire ’701 Patent. *See Philips v. A.W.H. Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). An airplane does not move with traffic as it is not bound to predetermined roads. Lanning Decl. ¶141. Additionally, an airplane can travel at

speeds up to five hundred miles-per-hour and, as such, does not move with the traffic at a rate of speed which is comparable to the traffic. *See id.*

Accordingly, the Petition fails to show that *Gilhousen865* with *Gilhousen390* renders obvious this limitation of required by Claim 10.

**2. *Gilhousen865* Does Not Disclose “A Mobile Device” As Required by Independent Claim 10**

Independent Claim 10 of the '701 Patent requires “a transmitter configured to transmit radio frequency signals to a mobile device corresponding to the received fixed port signals.” (Ex. 1001, 11:54-64 (emphasis added)). Petitioner alleges that *Gilhousen865* discloses this limitation: “*Gilhousen865* explains that the repeater receives signals (*fixed port signals*) from the ground base station (*fixed port*), and then ‘[t]he signals from the ground base stations are received by the external antenna of the airborne subsystem and repeated to the radiotelephones [(*mobile device*)].’ (Petition at 60 citing Ex. 1009 at 3:55-57). While *Gilhousen865* does disclose radiotelephones, *Gilhousen865* does not disclose a transmitter configured to transmit radio frequency signals to a radiotelephone that registers with or is capable of directly communicating with the cellular network as required by the limitation of a “mobile device” in the context of the entire '701 Patent. *See Philips v. A.W.H. Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005).

The '701 Patent specification teaches that this “mobile unit” must be (i) capable of directly communicating with either a fixed cellular base station or a



moving base station; (ii) capable of being switched back-and-forth between either a direct connection with the fixed base station or a connection with a moving base station; and (iii) capable of registering with a cellular network. *See supra* Section II.C – Section II.D. In contrast, *Gilhousen865*’s radiotelephone does not have these capabilities. *See* Lanning Decl. ¶¶143-144.

Accordingly, the Petition fails to show that *Gilhousen865* with *Gilhousen390* renders obvious this limitation of required by Claim 10.

**3. Dependent Claims 15, 17, and 18 Are Not Rendered Unpatentable by *Gilhousen865* with *Gilhousen390***

Claims 15, 17, and 18 of the ’701 Patent either depend directly or indirectly from independent Claim 10 and therefore, incorporate at least the limitations of “a movable base station configured to move relative to Earth” and “a transmitter configured to transmit radio frequency signals to a mobile device corresponding to the received fixed port signals,” which as shown above, are not disclosed by *Gilhousen865* in view of *Gilhousen390*. (*See supra* Section D.1). As the Petition fails to show that *Gilhousen865* in view of *Gilhousen390* renders obvious all limitations of Claim 10, its challenges to Claims 15, 17, and 18 necessarily fail for the same reasons. *See* Lanning Decl. ¶148.

**4. The Additional Limitation of Dependent Claims 18 Is Not  
Rendered Unpatentable by *Gilhousen865* with *Gilhousen390***

Claim 18 further requires the limitation of “wherein the vehicle is an automotive vehicle.” (Ex. 1001, 12:24-25) (emphasis added). To satisfy this limitation, the Petitioner relies on *Gilhousen865*: “*Gilhousen865* discloses that the repeater 210 (apparatus) is mounted in an airplane (automotive vehicle).” (Petition at 64 citing Ex. 1009 at 2:45-49; Ex. 1003, ¶184). Mr. Denning, in support of the petition, stated “[f]or example, according to Webster’s New World Dictionary published in 1993, a vehicle is defined as: ‘any device or contrivance for carrying or conveying persons or objects, esp. over land or in space,’ and even provides ‘spacecraft’ as an example. Meanwhile, the term ‘automotive’ is defined as ‘self-moving’ or ‘moving by means of its own power’. Webster, Ex. 1033, 93, 1479. An airplane, like a car, is self-moving since it is pushed and moved by its own engine. Thus, ‘automotive vehicle’ was clearly understood at the time of the ’701 patent to include airplanes. Ex. 1009, 2:45-49.” Ex. 1003, ¶184. Petitioner has failed to account for the construction of the term “automotive vehicle” as supported by the ’701 Patent specification—“automobile.” *See* Lanning Decl. ¶¶145-146.

Mr. Denning’s analysis of “automotive vehicle” is flawed as his own example demonstrates the confusion he has with Claim 17—“wherein the apparatus is conveyed by a vehicle.” Under Mr. Denning’s analysis, there is no distinction between a “vehicle” and an “automotive vehicle.” Mr. Denning stated that a

“spacecraft” is an example of a vehicle while an automotive vehicle “mov[es] by means of its own power.” There is no difference. A spacecraft certainly moves by means of its own power. The doctrine of claim differentiation provides a presumption that differently worded claims cover different claim scope. *Wi-LAN USA, Inc. v. Apple Inc.*, 830 F.3d 1374, 1391 (Fed. Cir. 2016). As Patent Owner has stated, “automotive vehicle” is automobile. An airplane is a vehicle. To apply Petitioner and Mr. Denning’s interpretation would violate the presumption of claim differentiation.

Accordingly, the Petition fails to show that *Gilhousen*<sup>865</sup> with *Gilhousen*<sup>390</sup> renders obvious this limitation of required by Claim 18.

## **XII. ADJUDICATION OF THE ’701 PATENT VIOLATES THE U.S. CONSTITUTION**

Patent Owner respectfully raises the following argument for purposes of preservation. *See Arthrex v. Smith & Nephew*, 941 F.3d 1320, 1338 (Fed. Cir. 2019) (noting the Board cannot offer relief to certain types of Constitutional challenges). In light of the Supreme Court’s decision in *Lucia v. SEC*,<sup>18</sup> the current structure of the Board violates the Appointments Clause of Article II because Administrative Patent Judges are not appointed by the President and confirmed by the Senate. As a result, Administrative Patent Judges are not empowered to institute *inter partes*

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<sup>18</sup> *Lucia v. SEC*, 138 S. Ct. 2044 (2018).

review or render final written decisions revoking the rights of patent owners. *See Arthrex*, 941 F.3d at 1335.

Following the Federal Circuit’s recent opinion in *Arthrex*, the Federal Circuit also requested supplemental briefing on several questions flowing from the recent Appointments Clause challenge in *Polaris Innovations Ltd. v. Kingston Tech. Co., Inc.*<sup>19</sup> Therefore, *inter partes* review continues to be a violation of the Appointments Clause under the current structure of the Board, thereby rendering the institution decision of the ’701 Patent and any final written decision of the ’701 Patent invalid.

### **XIII. CONCLUSION**

For at least the reasons set forth above, Petitioner has not met its burden to prove that Claims 10, 15, 17, and 18 are unpatentable. Accordingly, Patent Owner respectfully requests that the Board find Claims 10, 15, 17, and 18 patentable over the instituted grounds.

Date: February 7, 2020

Respectfully submitted,

/s/ Charles D. Gavrilovich, Jr.

Charles D. Gavrilovich, Jr.

Reg. No. 41,031

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<sup>19</sup> *See Polaris Innovations Ltd. v. Kingston Tech. Co., Inc.*, No. 2018-1768, Dkt. 90 (Fed. Cir. Nov. 8, 2019) (ordering supplemental briefing).

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

1. Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this Response to Petition complies with the type-volume limitation of 37 C.F.R. § 42.24(b)(2) because it contains fewer than the limit of 14,000 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a)(1).
2. The undersigned certifies that this Response to Petition complies 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: February 7, 2020

Respectfully submitted,

/s/ Charles D. Gavrilovich, Jr.

Charles D. Gavrilovich, Jr.

Reg. No. 41,031

## **CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§ 42.6(e), the undersigned certifies that an electronic copy of the foregoing RESPONSE TO THE PETITION PURSUANT TO 37 C.F.R. § 42.120 was served on the Petitioners by electronic mail on February 7, 2020:

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Respectfully submitted,

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