

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Apple Inc.,
Petitioner,

v.

Varia Holdings LLC,
Patent Owner.
U.S. Patent No. 9,405,947

Inter Partes Review Case No. 2024-01363

PATENT OWNER'S RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Patent Owner's Exhibits
Ex. 2001	U.S. Patent No. 6,771,981 to Zalewski <i>et al.</i>
Ex. 2002	Declaration of Timothy K. Gilman in Support of Motion for Pro Hac Vice Admission
Ex. 2003	Declaration of Natalie D. Lieber in Support of Motion for Pro Hac Vice Admission
Ex. 2004	Declaration of Dr. Michael I. Shamos, Ph.D., dated June 4, 2025
Ex. 2005	Resume of Dr. Michael I. Shamos
Ex. 2006	U.S. Provisional Patent Application No. 60/478,245
Ex. 2007	U.S. Patent Publication No. US2002/0123325 to Cooper
Ex. 2008	Deposition Transcript of Dr. Ding, dated May 22, 2025
Ex. 2009	Excerpts of Prosecution History of '947 Patent

I. Introduction

The Petition challenges claims 1-32 (“Challenged Claims”) of U.S. Patent No. 9,405,947 (“the ’947 patent”) under three Grounds of unpatentability. The Board should find the Petition has failed to meet its burden of demonstrating the unpatentability of Challenged Claims.

The Board should reject the invalidity Grounds proposed in the Petition because they fail to properly construe “RFID signal.” The ’947 patent makes clear that this term refers to an RFID transponder signal *emulated* by a mobile communications device *without a physical RFID transponder*.

This construction is confirmed by the prosecution history of related U.S. Patent No. 8,127,984 (“the ’984 patent”). There, Patent Owner distinguished applied prior art (the Zalewski reference), which outputs RFID signals through a physical RFID transponder, and therefore, failed to disclose an emulated RFID transponder signal. All three Grounds allege obviousness of the Challenged Claims, relying on the Willgert reference that, like Zalewski, discloses a device that does not emulate an RFID signal, but instead outputs RFID signals directly from a physical RFID transponder. Willgert does not disclose emulation of an RFID transponder signal any more than Zalewski did. Willgert’s physical RFID transponder can receive a query signal and reflect the received signal while modulating the signal with a pulse train, but Willgert’s device cannot behave as if it were one or more RFID transponders

without the need for an actual physical transponder.

The Board should also reject the invalidity Grounds proposed in the Petition because they fail to properly construe the term “voice call signal[s].” The ’947 patent claims and specification make clear this term means the transmit and receive signal[s] of a voice call over the network of a wireless network service provider. This construction is confirmed by the prosecution history of the related ’984 patent. There, Patent Owner distinguished applied prior art (the Cooper reference), which output voice data from a Bluetooth headset to a telephone terminal, and therefore, failed to disclose “voice call signals.” Grounds 1A and 2 allege obviousness of the Challenged Claims on this very point distinguished during prosecution, relying on the Willgert-Mooney combination that, like Cooper, does not disclose “voice call signal[s].”

The Petition’s invalidity Grounds therefore fail. As explained below, the Petition has failed to demonstrate that all the limitations of any Challenged Claim are met by the cited references. Patent Owner’s explanations herein are supported by the Declaration of Dr. Michael I. Shamos (Ex. 2004).

II. The ’947 patent

A. The Specification

The ’947 patent is directed to a mobile communication device “equipped with hardware and/or software components to enable the device to output a data in a form

of a radio frequency signal, emulating outputting of the data by either an active or a passive RFID transponder.” Ex. 1001 (abstract). At the time of the invention, it was “not uncommon to find a person having to carry a number of physical keys and access/identification cards/tags to gain access to secured premises, such as one’s home, office, parking garage, and so forth.” Ex. 1001 (col. 1:47-50).

The patent addresses this issue with a mobile communication device equipped “to provide a RFID, emulating a RFID transponder, as well as facilitating user communication.” Ex. 1001 (col. 3:61-63). The “RFID 110 may be any keys and/or identifiers, including but not limited to security keys, such as garage door ‘keys’, exterior or interior door keys, or identifiers, such as, employee numbers, driver’s license numbers, social security numbers, credit card numbers (optionally, including expiration dates), affinity program member identifiers, and so forth.” Ex. 1001 (col. 4:1-6). The mobile communications device includes “RFID Emulation HW/SW Elements 106.” *See* Ex 1001, FIG. 1.

All disclosed embodiments in the specification emulate an RFID transponder signal **without a physical RFID transponder**. For example, in the FIG. 4 transceiver¹ embodiment, “low frequency signal processing 408 . . . performs up and

¹ No physical RFID transponder is included in the FIG. 4 embodiment, nor any other specification embodiment.

down conversions of the transmit and receive signals of the RFID feature.” Ex. 1001 (col. 7:24-26). The “transmit and receive signals of the RFID feature” are “the output signal of a RFID to emulate either an active or passive transponder, and the received probing signal of an RFID reader.” Ex. 1001 (col. 7:24-28) (emphasis added).

“A user may select one of the RFIDs, and instruct device 102 to output the selected RFID in a form of an appropriate radio frequency signal, emulating provision of the RFID by an active RFID transponder, using e.g. a ‘send/call’ key of device 102.” Ex. 1001 (col. 7:52-56). “[A]n access key/identifier (such as employee number), may also be selected/designated as a default RFID, the output of which may be emulated in a passive manner. That is, the selected/designated default RFID will be outputted automatically, whenever device 102 is within the proximal presence, or more specifically, the operational space, of an intended RFID reader 120.” Ex. 1001 (col. 5:4-7).

The “transmit and receive signals of a voice call” are “the primary communication function of mobile communication device.” Ex. 1001 (col. 7:18-21). The mobile communication device is “equipped with hardware and/or software elements 104 to perform its primary function, which is to facilitate a user of device 102 to engage in communication with another user of another communication device.” Ex. 1001 (col. 3:36-39).

“The term ‘wireless mobile phone’ as used herein, including the specification

and the claims, refers to the class of telephony devices equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user's movement around different geographic areas, so long the wireless mobile phone is in contact with a base/service station of a wireless network service provider." Ex. 1001 (col. 4:14-21). The "other user/communication device may be mobile or land line based." Ex. 1001 (col. 4:23-24).

B. Claims of the '947 patent

The '947 patent has 4 independent claims, namely Claims 1, 9, 16, 26. Claim 1 is representative:

A method for operating a mobile communication device comprising:
receiving, by the mobile communication device, a radio frequency identification (RFID) probing signal from an RFID reader external to the mobile communication device;
executing, on processing circuitry in the mobile communication device, instructions stored in a memory in the mobile communication device, the instructions configured to cause the mobile communication device to:

output an RFID signal and output a voice call signal, wherein the RFID signal is output in response to the mobile communication device **determining the mobile communication device is in an operational space** of the RFID reader based upon **receipt of the RFID probing** signal, and wherein the voice call signal is output over a wireless network and within a radio frequency range that

is different than a radio frequency range used to output the RFID signal.

III. Patent Owner's Arguments Distinguishing Zalewski in the '947 patent Prosecution History

The '947 patent granted from an application that claims priority to a provisional application filed in June 2003. Ex. 1001.

In July 2014, the Office rejected all claims as obvious under U.S. Patent No. 6,771,981 ("Zalewski"). Ex. 2009 at 3-10. Zalewski disclosed an "an RFID transponder 110" embedded in a removable cover for a phone or other device "such as an MP3 player." Ex. 2001 at 7:63-8:3.

Patent Owner argued against the prior art rejection. Ex. 2009 at 11-24. Patent Owner argued that Zalewski did not disclose emulating an RFID transponder within a mobile communication device because its physical RFID transponder would respond to a probing signal without first "determining" whether it was in the operational space of a reader:

In contrast to Zalewski, which attaches a passive RFID transponder to a mobile station via a changeable cover, claim 61 is primarily concerned with emulating an RFID transponder by a mobile communication device. In order to emulate the functionality of an RFID transponder, the mobile communication device must determine whether it is in the operational space of an intended RFID reader before communicating therewith.

...

In other words, there is no determination of whether the RFID transponder in Zalewski is in the operational space of an RFID reader (or an interrogating electric field), because the passive nature of the RFID transponder (specifically, the fact that it does not include a power source) ensures that the RFID transponder will not turn on unless it obtains enough energy from a nearby electric field (which coincides with the operational space of an RFID reader). If the RFID transponder receives sufficient energy from a nearby electric field to power on, it will respond absent any determination regarding whether or not the device is within the operational space of a reader.

Ex. 2009 at 20-21 (emphasis added).

In response to a subsequent rejection over Zalewski, Patent Owner again distinguished Zalewski by arguing that its transponder simply turning on in the presence of an RFID reader's field did not disclose "determining" whether the device is within an operational field of the reader:

the passive RFID transponder described in Zalewski will assume that it is within the operational space of an RFID reader any time it is powered on. . . . [T]he mobile terminal described in Zalewski does not determine if it is in the operational space of an RFID reader at all. Instead, it is assumed by the passive RFID transponder described in Zalewski that if there is sufficient energy to power on, that the passive RFID transponder is in the operational space of the RFID reader. Applicant respectfully submits that simply turning on in the presence of a sufficient electric field provided by an RFID reader is not equivalent to

making a determination regarding whether or not a device is within an operational space of an RFID reader

Ex. 2009 at 35.

In these same remarks, Patent Owner emphasized that “determining” is a separate and distinct step from the steps of “receiving” an RFID probing signal, and the step of responding by “outputting” an RFID signal:

Claim 61 requires receiving an RFID probing signal, determining if a mobile communication device is in an operational space of the RFID reader based on the RFID probing signal, and outputting an RFID signal responsive to the RFID probing signal if the mobile communication device is within the operational space of the RFID reader. The Patent Office is essentially arguing that performing first and third of these steps (receiving and outputting) necessarily results in the performance of the second of these steps (determining). However, a device is perfectly capable of receiving and responding to an RFID probing signal without determining if the device is within the operational space of the RFID reader.

...

The Patent Office noted that “if the Applicant wishes to claim that the determination is not merely the response to the interrogation signal being received, that such limitations should be recited in the claims ...” However, Applicant has specifically recited such limitations (namely, the determining) as separate from receiving an RFID probing signal and responding thereto.

Id. at 36 (emphasis added).

These arguments resulted in allowance. The Examiner’s Notice of Allowance stated “[t]he prior art of record fails to teach the limitations of the independent claims above, including at least the outputting of the RFID signal in response to determining of being in the operational space of the RFID reader based on receipt of the probing signal and outputting the RFID signal and voice call signal in the different radio frequency ranges as set forth in the claims.” *Id.* at 52 (emphasis added).

IV. Patent Owner’s Arguments Distinguishing Zalewski in the ’984 patent Prosecution History

During the prosecution of the related ’984 patent, from which the ’947 patent is a continuation, Patent Owner repeatedly and consistently distinguished Zalewski by arguing that it did not disclose an RFID transponder signal emulated by a mobile communication device because it relied on a physical RFID transponder. Patent Owner argued Zalewski does not teach outputting data “in the form of a radio frequency signal, said outputting emulating output of the first data by an RFID transponder of an active type.” Ex. 1008 at 192 (emphasis added). Patent Owner further argued that “Zalewski’s RFID transponder is not a component that emulates an output by an active RFID transponder, being itself an RFID transponder.” Ex. 1008 at 277.

V. Brief Summary of the Petition’s Prior Art

A. Willgert

Willgert describes a “communications unit for identifying objects or persons.” Ex.1004 at Abstract. The “communications unit” includes a “receiver/transmitter” operable with a “Bluetooth communications system,” and a “transponder” operable with an “RFID System.” *Id.* Willgert’s “transponder 2 is of a kind known per se.” Ex. 1004 at [0017]. Willgert’s transponder is “adapted to receive a query signal sent from a suitably known communicator, and therewith reflect the received signal while modulating the signal with a pulse train.” *Id.* “Each transponder will typically have a unique identify that is sent to the communicator.” *Id.*

B. Mooney

Mooney relates to communication of a Bluetooth signal between a mobile phone and an external headset. In particular, Mooney describes a Bluetooth interface that allows a Bluetooth headset to establish an audio connection to a “conventional wireless phone” that “does not have Bluetooth installed.” Ex. 1005 at Abstract. The Bluetooth protocol disclosed by Mooney involves a “secure pairing process in a piconet” which provides “communications over short distances.” *Id.* at [002], [004].

C. Holloway

Holloway relates to a mobile telephone that incorporates “an RFID (radio frequency identity) chip 16 corresponding to the chips found in RFID smart cards,

or combi cards.” Ex. 1006 (4:24-26). A module “comprising an antenna and a chip which is the same as that used in a conventional combi card” is integrated into the mobile telephone. Ex. 1006 (5:6-7). In alternative embodiments where “only telephonic communications are required, the RFID antenna 15 may be omitted, and the information stored in chip 16 may be stored in the memory within the mobile telephone 10.” Ex. 1006 (10:4-6).

In alternative embodiments, “the telephone may incorporate a slot in which it is possible to insert a removable RFID combi card so that pads on the card conductively engage electrical conducts in the slot. The card is thus connected via its pads and internal contacts of the telephone 10 to central processor 11. This arrangement allows an existing RFID combi card to fully replicate all of the features provided by RFID chip 16 and antenna 17.” Ex. 1006 (10:22-27).

D. Pitroda

Pitroda relates to “a system and methods of serving transactions involving electronic transaction devices, such as universal electronic transaction cards (‘UET Cards’), and conventional plastic credit cards.” Ex. 1007 (1:6-9). “UET Cards are one type of electronic transaction device known to store, transmit, and receive personal, account, and transactional information.” Ex. 1007 (1:13-15). “The UET card may also be capable of processing transaction information and communication with central processing units or computers operated by the providers of services,

such as credit card institutions, banks, health care providers retailers, wholesalers or other providers of goods and services.” Ex. 1007 (1: 28-33). Pitroda discloses that “hand held computers may be adapted to be electronic transaction devices with appropriate programming.” Ex. 1007 (1:50-52).

VI. Legal Standards

Petitioner bears the burden to prove invalidity by a preponderance of the evidence. 35 U.S.C. § 316(e).

A claim is obvious when “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103. The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, objective evidence such as commercial success, long-felt but unsolved needs, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966); *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007) (“[T]he [*Graham*] factors continue to define the inquiry that controls.”).

VII. Level of Ordinary Skill in the Art

In the Institution Decision, the Board adopted the definition of a person of ordinary skill in the art (“POSITA”) proposed by Petitioner’s expert. Per the Institution Decision, a POSITA:

[W]ould have been someone knowledgeable in mobile communication devices and components used therein, cellular radio systems, and wireless communications, such as those used for voice calling and radio frequency identification (RFID). That person would have at least a Bachelor’s degree in Electrical Engineering, with a background in radio frequency communications as well as approximately two years of experience working with or researching radio frequency communication systems. Institution Decision, Paper No. 7 at 11.

For the purpose of this proceeding, Patent Owner disputes the narrow range of educational experiences in the Petition’s POSITA definition, but does not otherwise dispute the remaining portion of the Petition’s definition.

The relevant field of the ’947 patent claims is an “emulated radio frequency data input method.” Ex. 1001 (col. 1:22-24). A POSITA at the time of filing of the original application, *i.e.*, June 2003, would have been someone “with at least a Bachelor’s degree in Electrical Engineering, Computer Science, or a related field, with a background in radio frequency communications and software development, as well as approximately two years of experience working with or researching radio frequency communication systems. Lack of work experience can be remedied by

additional education, and vice versa.” Ex. 2004 at ¶34.² Patent Owner’s definition differs from Petitioner’s definition in that Petitioner applies a narrow range of educational experiences. Software training and experience would be needed because the patented “mobile communication device” contains “hardware and/or software” and requires “software implementations” of its functions. *Id.* Ex. 1001, 2:24-28 and 5:23-26; Ex. 2004 at ¶34.

VIII. Claim Construction

In an *inter partes* review, claims are construed using the same claim construction standard that would be used to construe claims in a civil action. *See* 37 C.F.R. § 42.100(b) (2020). Claims are construed in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art

² The ’947 patent is entitled to the priority date of U.S. Provisional App. No. 60/478,245 (“the Provisional Application”) (Ex. 2006) as the drawings of the ’947 patent and Provisional Application are identical, and the specification of the ’947 Patent and the Provisional Patent are virtually identical. Ex. 2004 at ¶36, n.2. Because Petitioner does not concede the ’947 patent is entitled to the claimed Provisional Application’s filing date, Patent Owner’s expert has opined on the viewpoint of a POSITA as of the Patent’s PCT filing date of June 10, 2004. *Id.* at ¶36.

at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-14 (Fed. Cir. 2005) (en banc). In construing claims, the Board must take into account the specification and prosecution history. *Id.* at 1315-17. If the specification or prosecution history “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] ...the inventor’s lexicography governs.” *Id.* at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

Except as set forth below, Patent Owner maintains that all of the terms in the claims should be given their plain and ordinary meaning as they would have been understood by a POSITA at the time of the invention in light of the specification. The following analysis sets forth constructions of several terms pertinent to Patent Owner’s Response.

A. “wireless mobile phone”

Claim Term	Patent Owner’s Proposed Construction
“wireless mobile phone” (claims 8, 15, 25, 32)	“telephony device equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user’s movement around different geographic areas, so long the wireless mobile phone is in contact with a base/service station of a wireless network service provider. The other user/communication device may be mobile or land line based.”

The ’947 patent specification makes clear that a “wireless mobile phone” is

“a telephony device equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user’s movement around different geographic areas, so long as the wireless mobile phone is in contact with a base/services station of a wireless network service provider. The other user/communication device may be mobile or land line based.”

The ’947 patent expressly defines “wireless mobile phone”:

The term “wireless mobile phone” *as used herein*, including the specification and the claims, *refers to* the class of telephony devices equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user's movement around different geographic areas, so long the wireless mobile phone is in contact with a base/service station of a wireless network service provider. The term includes the analog as well as the digital subclasses. Communication may be voice and/or data, audio, textual and/or visual. The other user/communication device may be mobile or land line based. Ex. 1001 (col. 4:14-24) (emphasis added).

As shown, the ’947 patent defines “wireless mobile phone” by stating “as used herein” followed by “refers to”—hallmarks that the patentee was providing a lexicographic definition of the term. *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 679 (Fed. Cir. 2015) (“An applicant’s use of the phrase ‘refers to’ generally indicates an intention to define a term.”) (citing *In Re Imes*, 778 F3d 1250, 1252-53 (Fed. Cir. 2015); *Microsoft Corp. v. Int’l Trade Comm’n*, 731 F.3d

1354, 1360 (Fed. Cir. 2013); *Linear Tech. Corp. v. Int’l Trade Comm’n*, 566 F.3d 1049, 1054 (Fed. Cir. 2009)).

A POSITA reading the claims of the ’947 patent in light of the specification would have understood that “wireless mobile phone” means a “telephony device equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user’s movement around different geographic areas, so long the wireless mobile phone is in contact with a base/service station of a wireless network service provider. The other user/communication device may be mobile or land line based.” Ex. 2004 at ¶43.

In addition, based on the ’947 patent’s lexicography of a “wireless mobile phone”:

- A POSITA would have understood that a “wireless mobile phone” requires communication through a base/service station of a wireless network service provider. Ex. 2004 at ¶44.
- A POSITA would have understood that a “wireless mobile phone” transmits and receives its telephony signals over a network of a wireless network service provider. Ex. 2004 at ¶47.
- In situations where the other user’s device is mobile, a POSITA would have understood that telephony signals would be transmitted over the network of a wireless network service provider. Ex. 2004 at ¶45.

- Where the other user device is land line based, a POSITA would have understood that telephony signals are transmitted in part over the network of a wireless network service provider. Ex. 2004 at ¶45.

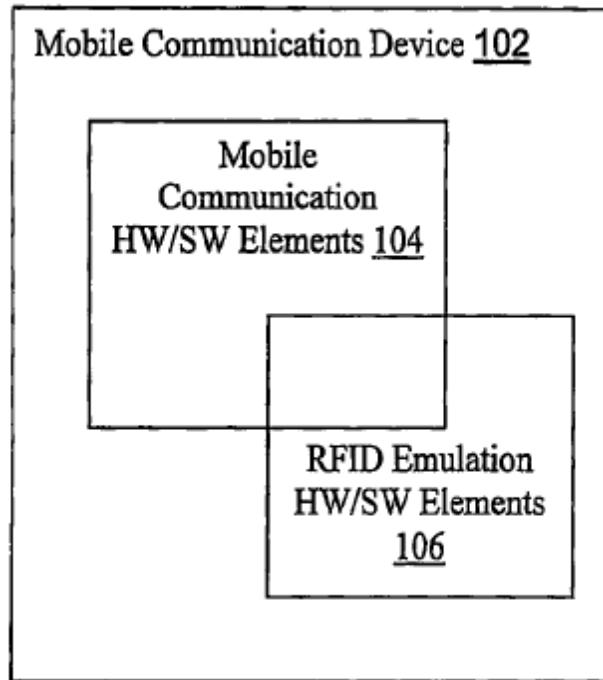
B. “voice call signal[s]”

Claim Term	Patent Owner’s Proposed Construction
“voice call signal[s]” (claims 1, 9, 16, 26)	“transmit and/or receive signal[s] of a voice call over a network of a wireless network service provider”

“Voice call signal[s]” should be construed to mean the “transmit and/or receive signal[s] of a voice call over a network of a wireless network service provider.”

The ’947 patent is directed to a “wireless mobile phone” that can perform telephony and emulate an RFID transponder. The “primary communication function” of the device is to transmit and receive “signals of a voice call,” which “facilitate a user in communicating with another user of another communication device.” Ex. 1001 at 7:17-21, 3:51-57. A POSITA would have understood from the teachings of the ’947 patent and the express definition of “wireless mobile phone” that a “voice call signal” is the type of signal capable of carrying a voice call from one user to the user of another device over the network of a wireless network service provider. Ex. 2004 at ¶46.

This is underscored by the disclosure of Figure 1 of the ’947 patent.



Ex. 1001, Fig. 1. As described in the specification, “blocks 104 and 106 ‘intersect’ with one another . . . represent[ing] the fact that in preferred embodiments of the present invention, substantial portions of the hardware and/or software elements employed to provide a RFID, are the same elements employed to facilitate the primary function of the device 102, i.e. to facilitate a user in communicating with another user of another communication device.” *Id.* at 3:50-57.

Patent Owner’s construction is confirmed by the claims. Each of the independent claims of the ’947 patent require a mobile communication device that outputs/transmits “voice *call signal[s]*.” The ’947 patent consistently uses the term “voice *call signal[s]*” in the sense of a voice phone call between two parties—a user of a mobile communication device and another user of another communication

device (e.g., another mobile phone or a land line phone). A POSITA would have understood that “voice call signal[s],” are the type of signals that carry a voice call from one user to the user of another device. Ex. 2004 at ¶46.

Patent Owner’s construction is also confirmed by the prosecution history of the related ’984 patent. In March 2011, the Office rejected the pending claims of the ’984 patent as obvious under US2002/0123325 (“Cooper”). Ex. 1008 at 65-70. Cooper disclosed “using a Bluetooth-equipped headset to transmit voice data to a telephone terminal.” *Id.* at 38. Patent Owner distinguished the claims from Cooper for a number of reasons, including that Cooper’s disclosure of Bluetooth headset “circuitry to achieve transmission of ... voice data,” did not teach the required “output voice call signals” limitations of the claims. *Id.* at 39.

Petitioner’s expert posits that “the Willgert-Mooney telephone would have provided an audio connection to a Bluetooth headset, enabling it to ‘hear voice and/or tones’ generated from the telephone.” Ex. 1003, ¶65. The expert declaration proceeds to refer to these as “Bluetooth voice communications” and “Bluetooth voice communication signal[s].” *Id.*, ¶¶ 78, 91, 119. However, despite these attempts to match the Bluetooth signals that carry voice data in Willgert-Mooney to the recited “voice call signal[s],” the declaration makes clear that Bluetooth signals are distinct from “voice call signal[s].” *See id.*, ¶129 (“a POSITA would have been motivated to configure control circuit 6 as a common processor for handling

processing for voice call signals as this configuration would have removed the need for redundant circuitry (e.g., the need for different, dedicated processors) for Bluetooth and voice call signals within a mobile telephone.”).

The Petition’s attempt to read “voice call signal[s]” on a Bluetooth headset signal suffers the same defect as Cooper. A POSITA would have understood that a Bluetooth communication signal is not a “voice call signal.” Ex. 2004 at ¶57. A POSITA would have understood that a Bluetooth communication signal is carried over a short range Personal Area Network (PAN). Ex. 2004 at ¶58; see Ex. 1013 at 21-22 (“Bluetooth is a low cost, low power, short range radio technology originally developed as a cable replacement to connect devices such as mobile phones, headsets, PDA’s and portable computers. By enabling a standard way for these accessories to communicate, Bluetooth has created the expression Personal Area Network (PAN). PAN is a close range network that connects your personal electronic equipment.”). A POSITA would have understood that a Bluetooth communication signal is not carried over the network of a wireless network service provider to call a user of another communications device. Ex. 2004 at ¶¶57-58. Bluetooth signals are not communicated to another user at all; rather they are carried between the mobile handset itself and a headset.

Accordingly, a POSITA would have understood that a “voice call signal” is the “transmit and/or receive signal of a voice call over a network of a wireless

network service provider.” Ex. 2004 at ¶48.

C. “RFID Signal”

Claim Term	Patent Owner’s Proposed Construction
“RFID signal” (claims 1, 2, 9, 16, 17, 26, 27)	“RFID transponder signal emulated by a mobile communications device without the use of a physical RFID transponder”

The term “RFID signal” should be construed to mean an “RFID transponder signal emulated by a mobile communications device without the use of a physical RFID transponder.”

The ’947 patent is directed to a mobile communication device “equipped with hardware and/or software components to enable the device to output a data in a form of a radio frequency signal, emulating outputting of the data by either an active or a passive RFID transponder.” Ex. 1001 (abstract). The ’947 patent provides a mobile communication device equipped “to provide a RFID, emulating a RFID transponder, as well as facilitating user communication.” Ex. 1001 (col. 3:61-63). The “RFID 110 may be any keys and/or identifiers, including but not limited to security keys, such as garage door ‘keys’, exterior or interior door keys, or identifiers, such as, employee numbers, driver’s license numbers, social security numbers, credit card numbers (optionally, including expiration dates), affinity program member identifiers, and so forth.” Ex. 1001 (col. 4:1-6). The mobile communications device includes “RFID Emulation HW/SW Elements 106.” *See* Ex. 1001, FIG. 1. All disclosed

embodiments emulate an RFID transponder signal without a physical RFID transponder.

A POSITA reading the claims of the '947 patent in light of the teachings and disclosures in the specification would have understood that the purpose of the invention is to emulate one or more RFID transponders within a mobile communication device, without the need for an actual physical transponder. Ex. 2004 at ¶50. A POSITA would have understood that none of the Challenged Claims read on or otherwise require a physical RFID transponder that outputs a RFID signal. Ex. 2004 at ¶52.

The '947 patent discloses that “the present invention is related to an emulated radio frequency data input method” that “advantageously improved the ease of use for a user to provide data captured in a device to another system, especially for data captured in e.g. a mobile device.” Ex. 1001 (col. 1:21-24, col. 9:15-18) (emphasis added). As demonstrated, the '947 patent defines the “present invention” as including an emulated radio frequency feature—a hallmark that Patent Owner implicitly disavowed embodiments that do not include such an emulated radio frequency feature. *See On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006) (“[W]hen 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.”); *Poly-Am., L.P. v. API*

Indus., Inc., 839 F.3d 1131, 1136 (Fed. Cir. 2016) (“[A]n inventor may [also] disavow claims lacking a particular feature when the specification describes ‘the present invention’ as having that feature.”).

The related ’984 patent prosecution history confirms Patent Owner’s construction. During prosecution, Patent Owner repeatedly and consistently distinguished Zalewski by arguing that it did not disclose an RFID transponder signal emulated by a device because it relied on a physical RFID transponder. Patent Owner argued Zalewski does not teach outputting data “in the form of a radio frequency signal, said outputting emulating output by the first data by an RFID transponder of an active type.” Ex. 1008 at 236. Patent Owner argued “Zalewski’s RFID transponder is not a component that emulates an output by an active RFID transponder, being itself an RFID transponder.” *Id.* at 277.

Accordingly, a POSITA would have understood that an “RFID signal,” as claimed in the ’947 patent, is an RFID transponder signal emulated by a mobile communications device without a physical transponder. Ex. 2004 at ¶53.

IX. Comment on the Petition’s Ground 1B Constructions

In Ground 1B, the Petition purports to “appl[y] claim interpretations advanced by Varia” in the Litigation.³ Pet. at 1, n.1. However, this is incorrect. The Petition

³ *Varia Holdings LLC v. Apple Inc.*, No. 23-cv-7477, (E.D.N.Y.) (“Litigation”).

mischaracterizes Patent Owner's positions by attempting to mix and match sound bites from the Litigation pertaining to other patents, without tying those sound bites to relevant '947 patent claim elements. The Petition does not rely on litigation arguments pertaining to the '947 patent's claimed elements.

In particular, the Petition relies on statements regarding the '984 patent's claimed "transmitter" and "transceiver" limitations to try and inform the meaning of the separate "processing circuitry" limitation in the '947 patent, despite the fact that "transceiver" and "transmitter" are not claimed in the '947 patent. *See* Pet. at 49, n.9 ("While the term 'transceiver' is not recited in the Challenged Claims, Varia's statements are nonetheless relevant"); Pet. at 52-53 (relying on litigation documents pertaining to "transceiver," including litigation briefing (Ex. 1053), to argue that "Varia's position in the Litigation appears to broadly interpret the *processing circuitry* (recited in [1.2]) in the context of [] transmission configuration.").⁴

Regardless of any discrepancies with Litigation positions, the Board still should not apply the constructions the Petition seeks to advance in Ground 1B because they would inject ambiguity into the determination of claim scope and are not necessary to resolve the instant dispute. *Vivid Techs., Inc. v. Am. Sci. & Eng'g*,

⁴ Pet. at 53 excerpts quotes from Ex. 1053 (litigation briefing) regarding "transceiver" and "transmitter."

Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) (“only those terms need [to] be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

X. The Petition Fails to Demonstrate Unpatentability of the Challenged Claims

The Petition advances three grounds of invalidity, as follows:

Ground	Reference(s)	Basis	Claim(s) Challenged
1A	Willgert, Mooney	§ 103	1, 2, 6-9, 13-17, 22, 23, 25, 26, 30-32
1B	Willgert	§ 103	1, 2, 6-8
2	Willgert, Mooney, Holloway, Pitroda	§ 103	2-7, 10-14, 17-24, 27-31

The Board should reject all three Grounds.

A. Ground 1A: Willgert and Mooney Fail to Teach or Suggest Required Elements

1. No teaching or suggestion of “voice call signal[s]”

All Challenged Claims require “voice call signal[s]” carried over the network of a wireless network service provider. Ex. 2004 at ¶55. The Willgert-Mooney combination fails to teach or suggest such signals. *Id.*

The Petition maps “voice call signal[s]” to the Bluetooth communication signals transmitted between Willgert’s phone and a Bluetooth headset paired to that same phone. Pet. at 28 (“The telephone [is] configured to output . . . a Bluetooth voice

communication signal.”); Pet. at 20 (“Mooney’s Bluetooth headset . . . would have predictably improved user convenience while using a telephone”). For the reasons explained below, the Petition’s argument fails because Bluetooth does not carry “voice call signal[s],” as properly construed. Ex. 2004 at ¶54.

First, to the extent that Willgert-Mooney’s Bluetooth communication signal is considered to be carried over a network, it is simply not carried over the right type of network. Willgert-Mooney’s Bluetooth communication signal is carried over a short-range Personal Area Network (PAN), not a network of a wireless network service provider. Ex. 2004 at ¶58. A POSITA would have recognized that a Bluetooth communication signal, such as the one disclosed in Willgert/Mooney, is not a “voice call signal” because it is not carried over the network of a wireless network service provider. Ex. 2004 at ¶¶57-58.

Second, Willgert-Mooney’s Bluetooth communication signal does not enable the “primary communication function of the device,” which is to transmit and receive the “signals of a voice call” to another user of another communication device. Ex. 2004 at ¶61. A POSITA would have recognized that a Bluetooth signal between a user’s headset and the same user’s device is not capable of making or initiating a voice call to another user of another communication device. Ex. 2004 at ¶60. A POSITA would have understood that the “voice call signals” carried over the network of a wireless network service provider to call another user are separate and

distinct from the Bluetooth signals used to hear voice or tones generated separately from the phone. Ex. 2004 at ¶62.

These points do not appear to be in dispute. The Petition acknowledges that “Bluetooth signals” are distinct from “voice call signals.” *See* Pet. at 53 (distinguishing “Bluetooth” signals from “voice call[]” signals). Ex. 2004 at ¶56. The Petition, in effect, also acknowledges that Willgert-Mooney’s Bluetooth signal is not carried between two users (i.e., a calling party initiating a call, and the called party that receives the call), but instead enables a single user to establish an audio connection between the user’s device and the user’s own headset. Pet at 18 (“Bluetooth headset . . . enables a user of the telephone to . . . have provided an audio connection to . . . ‘hear voice and/or tones.’”). And during his deposition, Petitioner’s expert Dr. Ding confirmed that the Willgert mobile phone is not “primarily” used for Bluetooth communication. (“Q. Is Bluetooth the primary communication function of the Willgert device? A. So . . . you have a mobile phone, which is not primarily a Bluetooth communication. We could use other means to communicate.”) (Ex. 2008 at 33:2-14).

The Petition’s argument that “voice call signal[s]” should include Bluetooth because a Bluetooth headset hears “voice and/or tones” from the phone is simply not correct. Dr. Ding, on his part, was unable to provide any definitive answer as to whether his understanding of the term “voice call signal[s]” includes

using a Bluetooth headset to listen to a pre-recorded voicemail message from the phone. Ex. 2008 at 44:15-47:21. Dr. Ding conceded he did not “spend time trying to look into the file history during the prosecution of this patent to see whether or not the applicant understood that their voice call includes such a signal or not.” *Id.* at 47:2-8.

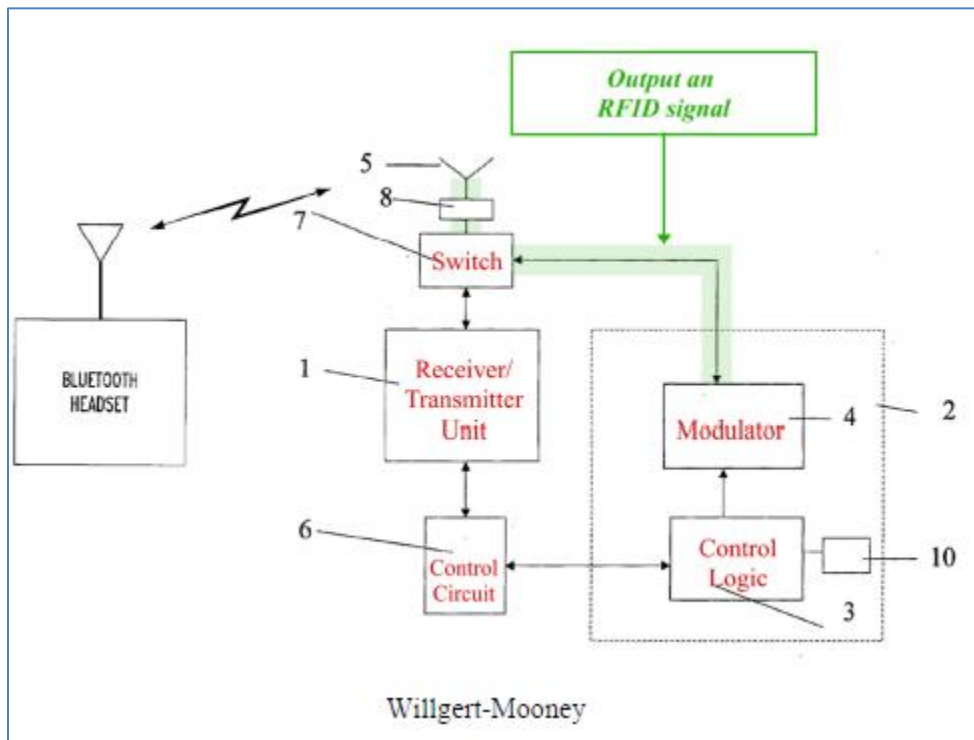
But in fact, the issue of whether Bluetooth headset signals are “voice call signal[s]” arose during prosecution of the related ’984 patent, and was resolved in Patent Owner’s favor. Ex. 2004 at ¶63. The Office had rejected all pending claims as obvious over US2002/0123325 (“Cooper”) (Ex. 2007). Ex. 1008 at 65-70. Cooper disclosed using Bluetooth headsets paired to a “desktop or mobile telephone terminal,” in order to “engage in one end of a telephone conversation.” EX2007 at [0025]. Applicants overcame the reference successfully by pointing out that Cooper “teaches using a Bluetooth-equipped headset to transmit voice data to a telephone terminal,” and does not teach “output[ting] voice call signals.” Ex. 1008 at 38-39.

The Petition is directly contrary to the distinction made in the prosecution history and has failed to show that the Willgert-Mooney combination teaches or suggests “voice call signals” as required by the claims. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

2. No teaching or suggestion of an emulated RFID transponder signal, as claimed

All Challenged claims, as construed, require “RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder.” Willgert, alone or with Mooney, fails to teach or suggest RFID transponder signals emulated by a mobile communication device without the use of a physical RFID transponder. Ex. 2004 at ¶65.

The Petition’s mappings are illustrated below:



Pet. at 29.

The Petition maps the claimed “RFID signal” to the signal output by a physical RFID transponder—Willgert’s RFID transponder 2. See Pet. at 31 (“RFID transponder 2 would [sic] been capable of . . . responding to the query/transponder

signal.”); Pet. at 32 (“RFID transponder 2 may be similarly configured as a passive RFID transponder such that it is activated by a query signal sent by a communicator disclosed in Willgert when the passive RFID transponder is in sufficient proximity to the communicator”); Pet. at 36 (“RFID transponder 2 outputs RFID transponder signals”).

A POSITA would have understood that Willgert, alone or in combination with Mooney, has no ability to emulate an RFID signal without a physical RFID transponder, but instead outputs RFID signals exclusively from RFID transponder 2, a physical transponder. Ex. 2004 at ¶69. In this regards, Willgert suffers the same defect as the Zalewski reference that Patent Owner distinguished during prosecution of the ’984 patent. Patent Owner argued that “Zalewski’s RFID transponder is not a component that emulates an output by an active RFID transponder, being itself an RFID transponder.” Ex. 1008 at 277. Patent Owner argued that Zalewski does not teach outputting data “in the form of a radio frequency signal, said outputting emulating output by the first data by an RFID transponder of an active type.” Ex. 1008 at 236 (emphasis added).

The Petition has failed to show that Willgert, alone or with Mooney, teaches or suggests “RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder” as required by all Challenged Claims. For this reason alone, the Petition has failed to carry its burden of

demonstrating that the relied on references meet the limitations of all Challenged Claims.

3. No teaching or suggesting of “determining”

All Challenged Claims require three distinct steps: that the mobile communication device “output” an RFID signal in response to “determining” the device is in an operational space of the reader based on “receipt” of the RFID probing signal. Notably, the claims expressly require this “determining” step to be separate and distinct from the steps of “receiving” and “outputting.”

There is no disclosure of the required “determining” in Willgert, alone or in combination with Mooney, let alone any disclosure of “determining” that is separate and distinct from the “receiving” and “outputting” steps. Ex. 2004 at ¶73. Rather, Willgert discloses a physical RFID transponder that is “adapted to receive a query signal sent from a suitably known communicator, and therewith reflect the received signal while modulating the signal with a pulse train.” Ex. 1004 at [0017]. A POSITA would have understood that a physical RFID transponder does not “determine” that it is in the operational space of an RFID reader, as required by all Challenged Claims. Ex. 2004 at ¶54.

The Petition maps “outputting” to the output of Willgert’s passive RFID transponder 2. Pet. at 31 (“RFID transponder 2 would . . . respon[d] to the query/transponder signal”); Pet. at 32 (“RFID transponder 2 may be . . . configured

as a passive RFID transponder such that it is activated by a query signal sent by a communicator disclosed in Willgert when the passive RFID transponder is in sufficient proximity to the communicator.”).

A POSITA would have understood that a passive RFID transponder would output its signal whenever it is activated by a radiated signal from a reader, without any “determining.” Ex. 2004 at ¶75. This is clearly demonstrated in the Petition’s own cited reference, Freund, which discloses that a passive RFID chip is “activated by an RF signal sent by the reader” and “hardwired to respond in a particular way.” Ex. 1011 at [0006]. A POSITA would have understood that Willgert does not disclose an active RFID, but even if it did, there is still no teaching or suggestion of “determining” because an active RFID continuously transmits its signal without determining it is within the operational space of a reader. Ex. 2004 at ¶76.

Because the Petition fails to identify “determining,” it also fails to identify any “determining” that is separate and independent from either “receiving” or “outputting.” The Petition attempts to finesse this issue by arguing that simply having Willgert’s physical RFID transponder activate by a radiated signal from the reader satisfied the required “determining.”

RFID transponder 2 . . . is activated by a query signal sent by a communicator . . . when the passive RFID transponder is in sufficient proximity to the communicator.

Pet. at 32 (emphasis added).

[I]n Willgert, a determination . . . of being within a sufficient proximity to a communicator involves the phone being in the operational space of the communicator.

Pet. at 31.

The Petition is incorrect. Patent Owner successfully distinguished Zalewski by pointing out that it did not emulate an RFID transponder within a mobile communication device because its physical RFID transponder would respond to a reader without any “determining.” Ex. 2009 at 20-21 (“In order to emulate the functionality of an RFID transponder, the mobile communication device must determine whether it is in the operational space of an intended RFID reader before communicating therewith.”). In particular, Patent Owner argued that Zalewski’s physical RFID transponder “simply turning on in the presence of a sufficient electric field provided by an RFID reader is not equivalent to making a determination [of] whether or not the device is within an operational space of an RFID reader.” Ex. 2009 at 35. Thus, Zalewski’s disclosure of “the first and third of these steps (receiving and outputting)” did not disclose “performance of the second of these steps (determining)” *Id.* at 36.

In this regard, Willgert suffers the same defect as Zalewski. A POSITA would have understood that Willgert’s passive RFID transponder, though integrated into a mobile device, still does not teach or suggest “determining,” because its physical

transponder would respond to a probing signal without first “determining” whether it was in the operational space of a reader. Ex. 2004 at ¶78.

The Petition has failed to show that Willgert, alone or with Mooney, teaches or suggests “determining the mobile communication device is in an operational space of the RFID reader,” as required by all Challenged Claims. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

4. No teaching or suggestion of “instructions” to be executed on “processing circuitry,” as claimed

All Challenged Claims require “instructions” to be executed on “processing circuitry” to cause the mobile communications device to output an “RFID signal.” As explained above in Section VIII.C, the “RFID signal” must be an “RFID transponder signal emulated by a mobile communications device without the use of a physical RFID transponder.” A POSITA would have understood that all Challenged Claims require instructions executed in processing circuitry capable of processing and emulating an RFID signal. Ex. 2004 at ¶79.

As explained above in Section X.A.2, a POSITA would have understood that Willgert, alone or in combination with Mooney, has no ability to emulate an RFID signal, because it does not emulate signals without the use of a physical RFID transponder, but instead outputs RFID signals exclusively from RFID transponder 2, a physical transponder. Ex. 2004 at ¶80. A POSITA would therefore have

understood that Willgert, alone or in combination with Mooney, fails to teach or suggest instructions executed in processing circuitry capable of emulating an RFID transponder signal. Ex. 2004 at ¶80.

The Petition has failed to show that Willgert, alone or with Mooney, teaches or suggests “processing circuitry,” as claimed. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

5. No teaching or suggestion of selection, as claimed

Challenged Claims 2, 6, 17, 22, and 23, expressly or by dependency, each require a device to “output an RFID signal” where the “signal includes RFID data comprising a selected one of” various data. As explained above in Section VIII.C, the “RFID signal” must be an “RFID transponder signal emulated by a mobile communications device without the use of a physical RFID transponder.” Accordingly, as construed, Challenged Claims 2, 6, 17, 22, and 23, each require selection of RFID data to be transmitted by an emulated RFID transponder signal. A POSITA would have understood that Willgert, alone or in combination with Mooney, fails to disclose a mobile communication device that emulates an RFID signal. Ex. 2004 at ¶81. A POSITA would have understood that Willgert, alone or in combination with Mooney, does not teach or suggest any selection of RFID data to be transmitted by an emulated RFID transponder signal. Ex. 2004 at ¶82.

The Petition has failed to show that Willgert, alone or in combination with Mooney, teaches or suggests “selected” output of data as an “RFID signal,” as claimed. For this reason, the Petition has failed to carry its burden of demonstrating that Willgert, alone or in combination with Mooney, meets all the limitations of Challenged Claims 2, 6, 17, 22, and 23.

B. Ground 1B: Willgert Fails to Teach or Suggest Required Claim Elements

The Board should reject Ground 1B. As explained above in Section IX, the Petition’s Ground 1B proposed constructions would inject ambiguity into the determination of claim scope and are not necessary to resolve the instant dispute, including because they attempting to mix and match sound bites from the Litigation without tying those sound bites to any relevant ’947 patent claim elements. But even if the Board were to adopt the Ground 1B constructions—which it should not—the Petition would still fail to carry its burden of demonstrating that Willgert meets all limitations of the Challenged Claims. Regardless of any applicable constructions for, “transceiver” or “transmitter”—terms that are not in any claims of the ’947 patent—Willgert simply does not disclose or suggest RFID emulation. Consequently, Willgert also does not disclose or suggest “instructions” executed on “processing circuitry” capable of processing an emulating an RFID signal. Ex. 2004 at ¶85. Gound 1B must fail.

1. No teaching or suggestion of an emulated RFID transponder signal, as claimed

All Challenged claims, as construed, require “RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder.” Patent Owner incorporates herein by reference its arguments in Section X.A.2. Because Willgert, alone or with Mooney, fails to teach or suggest RFID transponder signals emulated by a mobile communication device without the use of a physical RFID transponder, then Willgert alone fails to do so. Ex. 2004 at ¶65. For this reason alone, the Petition has failed to carry its burden of demonstrating that Willgert meets the limitations of all Challenged Claims.

2. No teaching or suggesting of “determining”

All Challenged Claims of the '947 patent require that the mobile communication device “output” an RFID signal in response to “determining” the mobile communications device is in an operational space of the reader based on “receipt” of the RFID probing signal. Patent Owner incorporates herein by reference its arguments in Section X.A.3. Because Willgert, alone or with Mooney, fails to teach or suggest the “determining” required by all Challenged Claims, then Willgert alone fails to do so. Ex. 2004 at ¶73. For this reason alone, the Petition has failed to carry its burden of demonstrating that Willgert meets the limitations of all Challenged Claims.

3. No teaching or suggestion of “instructions” to be executed on “processing circuitry,” as claimed

All Challenged Claims require “instructions” to be executed on “processing circuitry” to cause the mobile communications device to output an “RFID signal.” Patent Owner incorporates herein by reference its arguments in Section X.A.4. Because Willgert, alone or in combination with Mooney, fails to teach or suggest instructions executed in processing circuitry capable of emulating an RFID transponder signal, then Willgert alone fails to do so. Ex. 2004 at ¶80. For this reason alone, the Petition has failed to carry its burden of demonstrating that Willgert meets the limitations of all Challenged Claims.

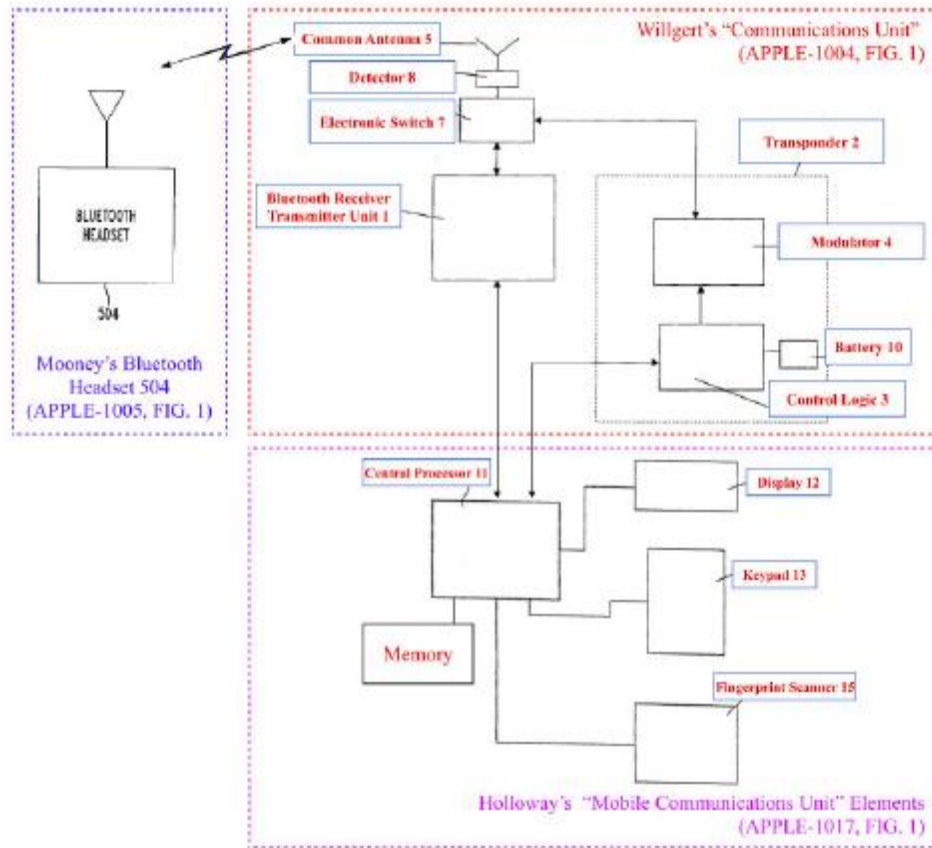
4. No teaching or suggestion of “selected” output of RFID data as an “RFID signal,” as claimed

Challenged Claim 2 requires selection of RFID data to be transmitted by an emulated RFID transponder signal. Patent Owner incorporates herein by reference its arguments in Section X.A.5. Because Willgert, alone or in combination with Mooney, does not teach or suggest any user selection of RFID data to be transmitted by an emulated RFID transponder signal, then Willgert alone fails to do so. Ex. 2004 at ¶82. The Petition has failed to show that Willgert teaches or suggests “selected” output of data as an “RFID signal,” as claimed. For this reason, the Petition has failed to carry its burden of demonstrating that Willgert, alone or in combination with Mooney, meets all the limitations of Challenged Claim 2.

C. Ground 2

The Board should reject Ground 2. In Ground 2, the Petition attempts to mask the prior art's deficiencies by combining no less than four prior art references in attempt to challenge the '947 patent claims. But none the Petition's four prior art references teach or suggest "RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder," as required by all Challenged Claims. Holloway discloses RFID communication, but all RFID transmission and reception is by means of RFID chips, i.e., physical transponders. Therefore, Holloway and Pitroda do not remedy any of the deficiencies of Willgert and Mooney with respect to emulated RFID transponder signals. Ex. 2004 at ¶87.

The Petition's mappings to the Willger-Mooney-Holloway-Pitroda device are illustrated below:



Pet. at 64.

As illustrated above, the Willgert-Mooney-Holloway-Pitroda combination relies upon Willgert's RFID transponder 2 to output RFID. This is made clear by both by the mapping above, as well as the Petition's arguments in favor of the Willgert-Mooney-Holloway-Pitroda combination. The Petition argues that "Holloway and Pitroda further enable Willgert's transponder that already possess the ability to have RFID data 'written into to the transponder memory,' so that information can be read-out from the memory later on." Pet. at 63. The Petition argues that "a POSITA would have implemented the Willgert-Mooney-Holloway-

Pitroda phone to *incorporate an improved RFID transponder.*” *Id.*; *see also id.* at 69 (“the Willgert-Mooney-Holloway-Piroda telephone is configured to output, via an RFID transponder, identification information”).

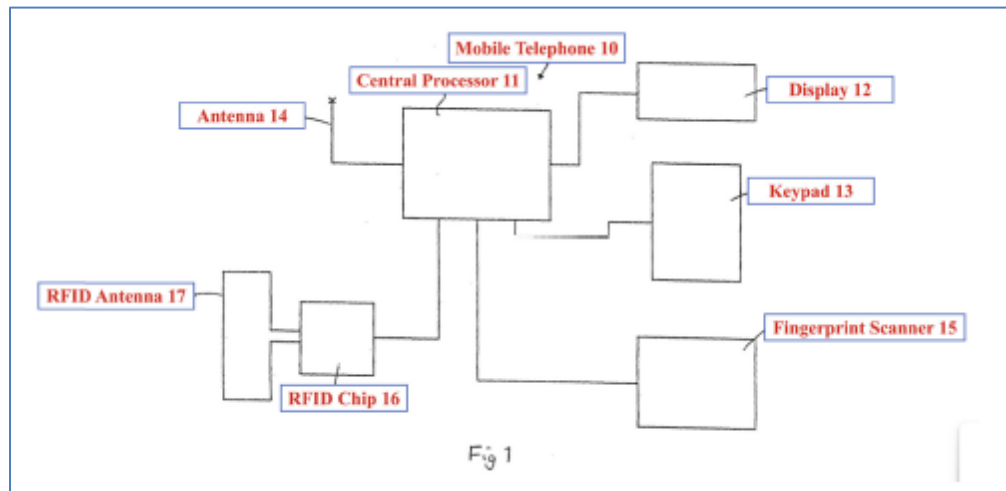
Accordingly, the Petition makes clear that Ground 2 relies upon a physical RFID transponder, not an emulated RFID transponder signal. A POSITA would have understood that a physical RFID transponder outputting its signal, such as Willgert’s physical RFID transponder 2, does not teach or suggest emulating the output of an RFID transponder without a physical transponder, as required by all Challenged Claims. Ex. 2004 at ¶¶65, 68. Accordingly, Ground 2 must fail.

1. No teaching or suggestion of an emulated RFID transponder signal, as claimed

All Challenged claims require “RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder.” But neither Willgert, Mooney, Holloway, or Pitroda, alone or in combination, teach or suggest RFID emulation as required by all Challenged Claims. Ex. 2004 at ¶87. Patent Owner incorporates here by reference its arguments from Section X.A.2 which explain that Willgert, alone or with Mooney, fails to teach or suggest RFID transponder signals emulated by a mobile communication device without the use of a physical RFID transponder, as required by all Challenged Claims.

Holloway is directed to a mobile telephone that includes “an antenna and a chip which is the same as that used in a conventional combi card.” Ex. 1006 at 5:7.

Holloway makes clear that this chip is “an RFID (radio frequency identity) chip 16 corresponding to the chips found in RFID smart cards, or combi cards.” *Id.* at 5:24-26. The Petition illustrates Holloway’s telephone with Petitioner annotations:



Pet. at 60.

A POSITA would have understood that Holloway’s embodiments depend on a physical transponder and Holloway does not disclose any type of RFID emulation.

Ex. 2004 at ¶87.

For example, Holloway discloses:

Another version of the telephone may incorporate a slot in which it is possible to insert a removable RFID combi card so that pads on the card conductively engage electrical conducts in the slot. The card is thus connected via its pads and the internal contacts of the telephone 10 to central processor 11. This arrangement allows an existing RFID combi card fully to replicate all of the features provided by RFID chip 16 and antenna 17.

APPLE-1006 at 10:22-27 (emphasis added). A POSITA would have understood that Holloway does not teach or suggest RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder. Ex. 2004 at ¶87. A POSITA would have understood that Holloway's RFID chip 16 would need to be replaced to output a different RFID signal. Ex. 2004 at ¶91.

The Petition takes many statements from Holloway out of context to try and mask that Holloway does not teach or suggest emulation. As an initial matter, Holloway's RFID signaling capability is optional:

If only telephonic communications are required, *the RFID antenna 15 may be omitted*, and the *information stored in chip 16 may instead be stored in the memory* within the mobile telephone 10. Ex. 1006 at 10:4-6.

Holloway discloses embodiments of "telephonic" credit card transaction that do not rely in any way upon the RFID antenna or chip:

The user may also effect credit/debit processes *completely telephonically*, e.g. ordering and paying for theatre tickets from his home. Normal telephonic communication with the theatre is established, the transaction is arranged verbally or otherwise, *the credit or debit card number is given, preferably automatically by the mobile telephone*, and the transaction is confirmed by the user placing his finger on scanner 15, which supplies appropriate data signals to antenna 14 and thence to the theatre to approve and confirm the transaction. In this type of activity, *the RFID antenna is not required. Id.* at 7:6-12.

Holloway further discloses that for telephonic embodiments, the memory of the phone may be sub-divided to store information for different cards:

The memory within the telephone 10 maybe sub-divided into a number of mutually secure areas partitioned by firewalls. This makes it possible to allocate service providers with individual areas for their particular application. As a consequence it becomes possible to incorporate the functionality of a number of different cards within the one mobile telephone. *Id.* at 11:11-18.

The Petition conflates the telephone and RFID capabilities of Holloway's phone. *See* Pet. at 70 (arguing that Holloway "teaches . . . supporting RFID smart card-based financial transactions" that is allegedly "consistent with Holloway's teach [sic] of telephone 10 as 'incorporat[ing] the functionality of a number of different cards within the one mobile telephone.'").

Contrary to the Petition's argument, there is simply no disclosure in Holloway of selecting one or more RFID smart cards to be used in a financial transaction via the RFID signaling functionality of the telephone. Holloway's embodiments that rely on the RFID signaling functionality of the phone all depend on a single, physical RFID chip that would need to be replaced in order to output a different RFID signal. Ex. 2004 at ¶91. The disclosure in Holloway of "incorporat[ing] the functionality of a number of different cards within the one mobile telephone" refers only to sub-dividing the memory for transactions that do not rely on the RFID chip and antenna,

but instead rely on Holloway's telephone capabilities. *See* Ex.1006 at 2:20-21 ("A positive result of a check may permit the user to undertake certain transactions telephonically, e.g. corresponding to a credit card payment or transferring a cash equivalent to a memory in the unit."); 3:28-30 ("The short-range communication means may include a device with a memory which is connected to receive and/or send data via the telephone communication means. The memory may be divided into a plurality of separate secure areas."); 10:4-6 ("If only telephonic communications are required, the RFID antenna 15 may be omitted, and the information stored in chip 16 may instead be stored in the memory within the mobile telephone 10.")

A POSITA would have understood that Holloway's statements about "incorporate[ing] the functionality of a number of different cards within the one mobile device" did not relate to any RFID signaling capability, but instead related to sub-dividing the memory within Holloway's telephone 10 for transactions that do not rely on the RFID chip and antenna. Ex. 2004 at ¶93. A POSITA would have understood that the cited passage does not suggest emulation. *Id.*

A POSITA would have understood that there is no teaching or suggestion in Holloway of incorporating the functionality of a number of different cards within one mobile device that can be accessed or used via RFID signaling functionality, and in particular, via "RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder," as required

by all Challenged Claims. Ex. 2004 at ¶94.

Pitroda uses the term “select” in only one instance: “the client may select a credit card account on the client's electronic transaction device 12 and transmit the account information to the restaurant server’s electronic transaction device 12.” APPLE-1007, 8:18-29. A POSITA would have understood that Pitroda does not teach or suggest a device with RFID signaling capabilities, let alone any capability to output emulated RFID transponder signals without a physical RFID transponder, or any capability to emulate one or more RFID transponders within a mobile communication device. Ex. 2004 at ¶96.

The Petition has failed to show that Willgert, Mooney, Holloway, or Pitroda, alone or in combination, teach or suggests “RFID transponder signals emulated by a mobile communications device without the use of a physical RFID transponder” as required by the claims. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

2. No teaching or suggesting of “determining”

All Challenged Claims of the '947 patent require that the mobile communication device “output” an RFID signal in response to “determining” the mobile communications device is in an operational space of the reader based on “receipt” of the RFID probing signal. Patent Owner incorporates here by reference

its arguments from Section X.A.3 which explain that Willgert, alone or with Mooney, fails to teach or suggest RFID transponder signals emulated by a mobile communication device without the use of a physical RFID transponder, as required by all Challenged Claims.

In Ground 2, the Petition does not rely upon any arguments other than its Ground 1A arguments to try and satisfy the “determining” limitations of all Challenged Claims. In other words, the Petition does not rely upon any disclosure in Holloway or Pitroda to attempt to satisfy the required “determining” limitations.

For the reasons explained above in Section X.A.3, the Petition has failed to show that the Willgert-Mooney-Holloway-Pitroda combination teaches or suggests “determining the mobile communication device is in an operational space of the RFID reader,” as required by all Challenged Claims. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

3. No teaching or suggestion of “instructions” to be executed on “processing circuitry,” as claimed

All Challenged Claims require “instructions” to be executed on “processing circuitry” to cause the mobile communications device to output an “RFID signal.” In Ground 2, the Petition does not rely upon any arguments other than its Ground 1A arguments to try and satisfy the “instructions” to be executed on “processing circuitry” limitations of all Challenged Claims. In other words, the Petition does not

rely upon any disclosure in Holloway or Pitroda to attempt to satisfy the required “instructions” to be executed on “processing circuitry” limitations.

For the reasons explained above in Section X.A.4, the Petition has failed to show that the Willgert-Mooney-Holloway-Pitroda combination teaches or suggests “instructions” to be executed on “processing circuitry” to cause the mobile communications device to output an “RFID signal,” as required by the claims. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

4. No teaching or suggestion of selection, as claimed

Challenged Claims 2-7, expressly or by dependency, each require a device to “output an RFID signal” where the “signal includes RFID data comprising a selected one of” various data. Challenged Claim 12 requires a device that outputs an RFID signal where the RFID signal includes RFID data that is a selected one of various keys. Challenged Claims 17-24, expressly or by dependency, require a device that outputs an RFID signal where the RFID signal includes RFID data that is “a selected one” of a security key and an identifier. Challenged Claim 29 requires a device that outputs an RFID signal where the RFID signal includes RFID data that is “a selected one” of a key or an identifier.

A POSITA would have understood that all Challenged Claims, as construed, require RFID transponder signals emulated by a mobile communications device

without the use of a physical RFID transponder. Ex. 2004 at ¶101. In addition, Challenged Claims 2-7, 12, 17-24, and 29 each require selection of RFID data to be transmitted by an emulated RFID transponder signal. *Id.*

A POSITA would have understood that because neither Willgert, Mooney, Holloway, or Pitroda teach or suggest emulated RFID transponder signals, they also do not teach or suggest selection of RFID data to be transmitted by an emulated RFID transponder signal. *Id.* The Petition has failed to show that Willgert, Mooney, Holloway, or Pitroda teach or suggests selection of RFID data to be transmitted by an emulated RFID transponder signal, as claimed. For this reason, the Petition has failed to carry its burden of demonstrating that Willgert, Mooney, Holloway, or Pitroda meet all the limitations of Challenged Claims 2-7, 12, 17-24, and 29.

5. No teaching or suggestion of “voice call signals”

All Challenged Claims require “voice call signals” that are carried over the network of a wireless network service provider. Ex. 2004 at ¶102. In Ground 2, the Petition does not rely upon any arguments other than its Ground 1A arguments to try and satisfy the “voice call signals” limitations of all Challenged Claims. In other words, the Petition does not rely upon any disclosure in Holloway or Pitroda to attempt to satisfy the required “voice call signals” limitations.

For the reasons explained above in Section X.A.1, the Petition has failed to show that the Willgert-Mooney-Holloway-Pitroda combination teaches or suggests

“voice call signals” as required by the claims. For this reason alone, the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.

XI. Conclusion

The Petition has failed to carry its burden to demonstrate the unpatentability of the Challenged Claims.

Dated: June 4, 2025

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 CFR § 42.24(d), the undersigned certifies that this brief complies with the type-volume limitations of 37 CFR §§ 42.24(b)(2), 42.24(a)(1)(i). This brief contains 10,970 words as calculated by the “Word Count” feature of Microsoft Word, the word processing program used to create it, which is less than the 14,000 word count limit.

Dated: June 4, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.205(b), the undersigned hereby certifies that on June 4, 2025, a complete and entire copy of the foregoing **Patent Owner's Response** and Exhibit Nos. 2005-2009 were served on Petitioner by filing through the Patent Trial and Appeal Case Tracking System (P-TACTS) and via email to IPR50095-0182IP1@fr.com, as authorized in Petitioner's mandatory notices.

Dated: June 4, 2025

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