

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

VARIA HOLDINGS LLC,
Patent Owner

Case IPR2024-01363
U.S. Patent No. 9,405,947

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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APPLE-1003	Declaration and Curriculum Vitae of Dr. Zhi Ding
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APPLE-1005	U.S. Patent Publication No. 2003/0045235 (“Mooney”)
APPLE-1006	International Pub. No. WO 02/49322 (“Holloway”)
APPLE-1007	U.S. Patent No. 7,308,426 (“Pitroda”)
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APPLE-1010	U.S. Patent No. 5,943,624 (“Fox”)
APPLE-1011	U.S. Patent Publication No. 2003/0187787 (“Freund”)
APPLE-1012	International Pub. No. WO 98/43366 (“Schlang”)
APPLE-1013	Hallberg & Nilsson, “Positioning with Bluetooth, irDA and RFID,” Master’s Thesis, 2002:125 (Jan. 2002) (“Hallberg”)
APPLE-1014	Takikawa, Kumiko, et al., “RF circuits technique of dual-band transceiver IC for GSM and DCS1800 applications.” Proceedings of the 25th European Solid-State Circuits Conference. IEEE, 1999 (“Takikawa”)

APPLE-1015	Razavi, Behzad, “A 900-MHz/1.8-GHz CMOS Transmitter for Dual Band Applications,” IEEE Journal of Solid-State Circuits, Vol. 34, No. 5, May 1999 (“Razavi”)
APPLE-1016	“Cell Phone Use on the Roads in 2002,” Technical Report DOT HS 809 580, National Highway Traffic Safety Administration (Dec. 2004)
APPLE-1017	Scheidernan, “Bluetooth’s slow dawn,” 2000 IEEE 61-65 (“Scheidernan”)
APPLE-1018	Tapley, Byron D., “Eshbach’s Handbook of Engineering Fundamentals,” Wiley-Interscience (Edition 4), 1990, ISBN 10: 0471890847 (“Tapley”)
APPLE-1019	Smart Card Alliance, “Contactless Technology for Secure Physical Access: Technology and Standards Choices” (October 2002)
APPLE-1020	U.S. Patent No. 5,748,737 (“Daggar”)
APPLE-1021	Arfwedson & Sneddon, “Ericsson’s Bluetooth modules,” Ericsson Review No. 4, 1999 (“Arfwedson”)
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APPLE-1063	Supplemental Declaration of Zhi Ding
APPLE-1064	Deposition Transcript of Michael Shamos (August 14, 2025)
APPLE-1065	Newton, Harry, Newton's Telecom Dictionary. 18th Ed., CMP Books, Mar. 2002

APPLE-1066 Mississippi Department of Information Technology Services.
Telecommunications Coordinator Handbook, July 2015,
Mississippi Department of Information Technology Services,
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I. INTRODUCTION

In its Patent Owner Response (“POR”), Varia attempts to distinguish prior art only by advancing express claim constructions of three elements: (1) “RFID signal,” (2) “voice call signal[s],” and (3) “wireless mobile phone.” *See* POR, 14-24. These constructions seek to limit claim scope to specific embodiments described in the specification. But the law is clear that such narrowing is only appropriate when there is evidence of clear and unambiguous disclaimer, disavowal or redefinition. *Avid Tech., Inc. v. Harmonic, Inc.*, 812 F.3d 1040 (Fed. Cir. 2016); *Thorner v. Sony Computer Ent. America LLC*, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012); *see Cupp Computing AS v Trend Micro Inc.*, 53 F.4th 1376, 1383 (Fed. Cir. 2022) (“[T]he Board is not required to accept a patent owner’s arguments as disclaimer when deciding the merits of those arguments.”). The POR fails to identify such evidence, and for at least that reason, Varia’s constructions fail as a matter of law.

The constructions are also not new—Varia already pursued them in its Preliminary Response (“POPR”). The Panel addressed Varia’s constructions at institution and found them, albeit preliminarily, too narrow based on the language used in the claims, and further in view of both the specification (APPLE-1001) and the ’947 patent prosecution history. *See* Dec., 21-23 (citing APPLE-1001, 3:55-57, 5:3-14; APPLE-1002, 94-95). Varia’s post-institution evidence—testimony from

its expert, Dr. Michael Shamos—is extrinsic to the specification and therefore cannot cure the lack of a clear, unambiguous disclaimer.

Varia also has no rebuttal to the Petition’s prior art grounds under the claims’ plain meaning if the Panel declines to adopt its constructions. In that regard, Dr. Shamos notably confirmed that he did not evaluate patentability under the claims’ plain meaning. *See* APPLE-1064, 67:20-68:3, 69:9-70:11, 71:15-72:4. The Petition’s grounds therefore stand unrebutted, and the Challenged Claims should be found unpatentable.

II. CLAIM CONSTRUCTION

Despite both the Petition’s articulation that no formal constructions are required in this proceeding (Pet., 6), and the Board’s preliminary rejection of constructions advanced in the POPR (Dec., 21-23), the POR again attempts to advance similar constructions:¹

¹ For simplicity, this Reply references limitations reciting each of the claim elements/terms identified in the POR as requiring construction, including limitations reciting “RFID signal” (“RFID” limitations) and limitations reciting “voice call signal[s]” (“voice call signal” limitations).

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"

POR, 22.

Claim Term	Patent Owner's Proposed Construction
"voice call signal[s]" (claims 1, 8, 12)	"transmit and receive signal[s] of a voice call over a network of a wireless network service provider"

POR, 16.

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."

POR, 15.

Varia fails to show that "wireless mobile phone" warrants construction. The POR fails to argue that the term is non-obvious over the applied prior art, even under the POR's attempted redefinition. *See* POR, 27-51. Under *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.* ("*Nidec*"), "claim terms need only be construed to the extent necessary to resolve [a] controversy." 868 F.3d 1013, 1017 (Fed. Cir. 2017); *see* Dec., 12 (citing *Nidec*). The POR fails to identify any

“controversy” because it concedes the alleged redefinition does not change the prior art analysis. The prior art nonetheless satisfies the alleged redefinition because Willgert describes a “mobile telephone” (APPLE-1004, [0030]-[0032]), and expert testimony confirms that a “mobile telephone” would have been understood to include the device attributes specified by the redefinition. *See* APPLE-1064, 39:22-40:6, 40:15-22, 43:18-44:10.

Varia’s remaining constructions rely on purported prosecution history disclaimer. But the intrinsic record lacks the clear and unambiguous statements to support the type of narrowing Varia seeks. In any event, the authority cited in the POR is factually distinguishable. *See* §II.B, *infra*. The constructions also unjustifiably attempt, based solely on newly introduced extrinsic evidence, to sidestep the Panel’s preliminary Institution Decision findings, which were based on the intrinsic record. *See* Dec., 21-22.

The Panel should therefore reject Varia’s repeated attempt to construe the claims, at least because Varia’s newly advanced extrinsic evidence does not justify deviation from the plain meanings indicated by the intrinsic record.

A. Varia’s Constructions Lack Intrinsic Record Support

1. “RFID” Limitations

a) Plain Meaning

As Dr. Ding explains, the plain meaning of “signal” encompasses “a

potential, for example, voltage or light, ‘used to convey information’ from one point to another.” APPLE-1063, ¶¶19-20 (citing APPLE-1065); *see* APPLE-1064, 25:3-9, 27:8-9. And the plain meaning of “RFID” (or “radio frequency identification”) encompasses “a generic term for all technologies that use radio waves to achieve automatic identification of objects and people.” APPLE-1063, ¶¶19-20. Thus, under plain meaning, an “RFID signal” encompasses “a potential ‘used to convey information’ using radio waves to achieve automatic identification of objects and people from one point to another.” *Id.*, ¶¶20-21.

This plain meaning is not limited by the hardware that produces the radio-frequency potential. APPLE-1063, ¶¶21-22. Specifically, “any applicable transmitter (e.g., inductive LF coil, 13.56 MHz reader antenna, UHF patch, or active tag’s power amplifier) may be used to generate an RFID signal (under plain meaning) so long as the signal includes an RF waveform that carries the identification data.” *Id.* When the plain meaning is applied, the “RFID” limitations encompass “signals generated or radiated by any suitable transmitting element, without restricting the technology, architecture, or component implementation used to emit them.” *Id.*; *see also* APPLE-1063, ¶¶29-41.

b) No Justification to Depart from Plain Meaning

Plain meaning applies for the “RFID” limitations because the intrinsic record does not include statements that clearly or unambiguously demonstrate (a)

redefinition of key words used in the claims (e.g., “RFID,” “signal”) or (b) disclaimer of claim scope. In construing the “RFID” limitations, Varia therefore necessarily departs from plain meaning. This departure is reflected in two distinct requirements: (1) that RFID signals/data be “emulated” and (2) that the RFID signals/data be generated “without the use of a physical RFID transponder.”² Both requirements lack support in the intrinsic record.

(1) *No Disclaimer in the Specification Regarding RFID Signal Emulation*

None of the independent claims (claims 1, 9, 16, 26) use the term “emulate.” This reflects the applicant’s desire for broader scope for the “RFID signal” recited in claim 1, i.e., output broader than emulating output. Had narrower scope been desired, the claims would have referenced emulation.

Also notable is the fact that none of the output limitations of the independent claims (e.g., limitations [1.3], [9.2], [9.4], [16.7], [26.6]) use language suggesting any type of emulation. Consistent with this fact, the Panel preliminarily found that there is “no reason why the fact that the Willgert transponder responds to the query

² This second requirement amounts to a negative limitation because it forces the exclusion of signals/data generated by what Varia purports to be a “physical RFID transponder.”

signal of a RFID reader in proximity to the transponder does not satisfy the requirement of a mobile communications device determining that it is in the operational space of an RFID reader.” Dec., 22.

Varia also mischaracterizes the specification in demanding that “[a]ll disclosed embodiments in the specification emulate an RFID transponder signal without a physical RFID transponder.” POR, 3. This assertion stems from Varia’s attempt to avoid well-known communication elements with dual signaling capabilities (as taught in Willgert). Consistent with that approach, Varia further contends that the claims “require[] ‘emulating output’ of ‘RFID transponder data.’” *Id.*, 5-6.

Even if appropriate (it is not), Varia never addresses what “emulating” means under plain meaning, and testimony from both experts confirms that the asserted prior art demonstrates emulation even under Varia’s narrow construction. *See* APPLE-1063, ¶¶29-41 (citing to APPLE-1006 as describing functional emulation); *see also* APPLE-1064, 63:4-65:2 (deposition testimony regarding Holloway’s disclosure of emulation).

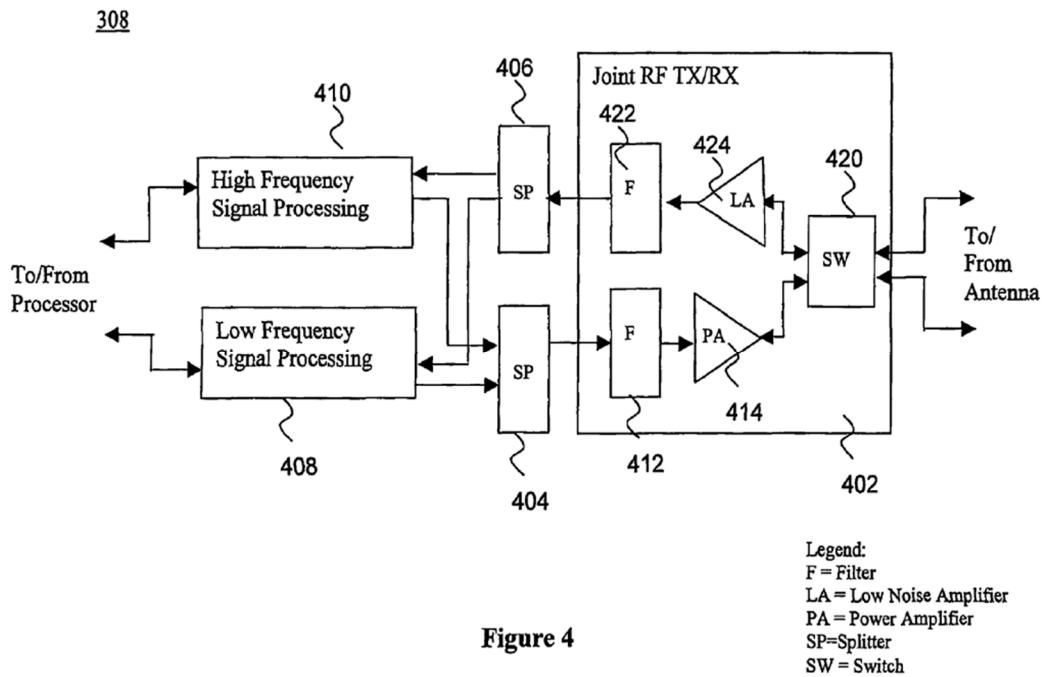
(2) *No Disclaimer in the Specification Regarding Physical RFID Transponders*

The second requirement of Varia’s construction imposes a negative limitation—that the “RFID signal” be output “without the use of a physical RFID

transponder.” But there is no language, either in the claims or in the specification, suggesting this negative limitation. For instance, [1.3] recites “the instructions configured to cause the mobile communication device to: output an RFID signal and output a voice call signal.” *Omega Engineering, Inc v. Raytek Corp.*, 334 F.3d 1314, 1333 (Fed. Cir. 2003) (rejecting a construction because “neither the plain text of the claims, the specification, nor the file wrapper justifies the imposition of this negative limitation”).

For Varia’s negative limitation to limit scope, the component that generates the “RFID signal” would necessarily need to be interpreted to exclude a “physical RFID transponder.” But the POR fails to advance any analysis regarding transmitting elements. *See* Dec., 24.

Varia’s reticence is unsurprising since the specification does not unambiguously teach a transceiver that lacks components of a physical RFID transponder. Instead, Figure 4 (below) reflects a generic architecture of components without specification as to the physical implementation.



APPLE-1001, FIG. 4; *see id.*, 6:60-7:35.

Because the disclosure is silent, there is nothing that forecloses implementation of the transmitting elements being implemented to include a physical RFID transponder. APPLE-1063, ¶¶29-41. The Federal Circuit has also made clear that it is inappropriate to limit claim scope without such disclosure. *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1333 (Fed. Cir. 2013) (“...we will not narrow a claim term beyond its plain and ordinary meaning unless there is support for the limitation in the words of the claim, the specification, or the prosecution history.”).

More problematic, Varia’s construction assumes that the only way to generate “emulated” RFID data/signals is to exclude use of a physical RFID

transponder, implying that such exclusion is *inherent* to emulation. *See Persion Pharmaceuticals v. Alvogen Malta Oper.*, 945 F. 3d 1184, 1191 (“[i]nherency...is a ‘high standard,’ that is ‘care-fully circumscribed in the context of obviousness[.]’” and “‘may not be established by probabilities or possibilities,...’”); *see* APPLE-1063, ¶¶29-41.

But this overlooks well-known aspects of “functional emulation” available as one option to implement the emulation described in the specification. As Dr. Ding explains, “functional emulation” refers to “the capability of a transmitting device (e.g., mobile device) to make an external RFID reader perceive a transmission of an ordinary RFID signal as if it were transmitted from an originating device of a different device type...” APPLE-1063, ¶36. This may be implemented by “re-using or sharing at least one RF front-end component that the transmitting device already employs for another radio service[,],” such as “its main communications antenna.” *Id.*, ¶37. Such implementation is consistent with Figure 4 of the specification, which includes a “joint RF TX/RX section 402” that connects “processing sections 408 and 410” to an antenna. APPLE-1001, FIG. 4. It is also consistent with the specification’s broader teachings of “advantageously leverag[ing] []existing elements of mobile communication device 102” in providing emulation capabilities. *Id.*, 3:58-63. One type of “existing element” is an antenna used for another radio service, as depicted in Figure 4. APPLE-1063,

¶¶37, 40-41.

Moreover, a POSITA would have recognized that the specification contemplates functional emulation because “Figure 4 depicts architectural details not directly limited to physical hardware.” APPLE-1063, ¶¶38; APPLE-1001, 6:60-7:35. Indeed, the specification “contemplates a mobile device’s transceiver being configured to generate RFID signals without being limited in hardware.” APPLE-1063, ¶39. That is, emulation reflects the functional outcome of an RFID reader perceiving an ordinary RFID signal as being transmitted from an originating device of a different device type than the actual transmitting device. *Id.*

Record evidence also confirms “functional emulation” was known to be achievable through use of a physical RFID transponder. APPLE-1063, ¶¶29-41. For example, Holloway (APPLE-1006) describes a mobile device that “function[s] as an RFID smart card” (*id.*, 9:4-15), which Dr. Ding explains “emulate[es] a stand-alone transponder without any separate tag” through on-board, integrated RFID circuitry. *Id.* Its disclosure supports this interpretation because “an RFID chip 16 corresponding to the chips found in RFID smart cards” is embedded together with an antenna 17. APPLE-1006, 4:21-28. After loading monetary data into the chip, the user “is able to operate [the telephone] for any payment application, just like with an RFID smart card” by presenting the phone to a reader. *Id.*, 6:22-26. A POSITA therefore would not have understood “emulation” to

exclude use of a physical RFID transponder. APPLE-1063, ¶¶34-35; APPLE-1064, 63:4-65:2.

(3) *No Disclaimer in the Prosecution Histories*

Varia’s disclaimer theory relies primarily on a single statement in the prosecution history of the ’984 patent that “Zalewski’s RFID transponder is not a component that emulates an output by an active RFID transponder, **being itself an RFID transponder.**” POR, 31 (citing APPLE-1008, 277) (emphasis added). This statement fails to factually support Varia’s disclaimer theory because it makes no reference to “a ***physical*** RFID transponder,” and thus, does not support the negative limitation imposed by Varia’s construction.

Beyond this statement, nowhere in the prosecution history of the ’984 patent is any applicant statement redefining “***physical*** RFID transponder.” And yet, Varia’s construction purports to exclude it from claim scope. Varia therefore fails to satisfy its burden to support its construction. *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1063-64 (Fed. Cir. 2016) (“The party seeking to invoke prosecution history disclaimer bears the burden of proving the existence of a ‘clear and unmistakable’ disclaimer that would have been evident to one skilled in the art.”).

The prosecution history statements also make the same assumption as the POR—that RFID signal emulation can ***only*** be achieved without use of a RFID transponder. This statement, alone, does not result in prosecution history

disclaimer, at least because it was not the basis for allowance. Indeed, in allowing the claims of the '984 patent over Zalewski, the Examiner made no reference to emulation or the use of a physical RFID transponder within Zalewski. APPLE-1008, 18. The Examiner instead identified the following features as having resulted in allowance:

3. The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach the limitations of the transmitter/transceiver configured to output/transmit voice calls in a first state and RFID transponder signals in a second state wherein the transceiver/transmitter switches states, and outputs the RFID transponder signal/data in the RFID reader compatible format.

4. The Examiner notes the art of 20040069852 20040171373 teaches voice and RFID functionality, but the RFID functionality is of an RFID reader, and not a tag/transponder, and therefore does not teach the outputting of transponder tag data/signal in a format accepted/compatible with an RFID reader (or as recited in the claims), since the references teach RFID reader functionality and therefore not RFID tag/transponder functionality via outputting of RFID tag data/signals and also does not support the detection/monitoring/sensing for RFID readers and outputting the data in response thereto. Additionally, US 20070030124 teach

APPLE-1008, 18.

2. *"Voice Call Signal" Limitations*

a) Plain Meaning

As Dr. Ding explains, the plain meaning of "voice call" encompasses "a telephone call established for the purpose of transmitting voice rather than data communications." APPLE-1063, ¶¶23-26 (citing APPLE-1066). Thus, under

plain meaning, the “voice call signal” limitations encompass “a potential ‘used to convey information’ relating to a telephone call established for the purpose of transmitting voice rather than data communications.” *Id.*; APPLE-1063, ¶42.

b) No Justification to Depart from Plain Meaning

Plain meaning applies for the “voice call signal” limitations because the intrinsic record does not sufficiently demonstrate (a) redefinition of key words (e.g., “voice,” “call,” “signal”) or (b) disclaimer of claim scope. In construing “voice call signal[s],” Varia therefore necessarily departs from plain meaning. This departure is reflected in Varia’s mandate that a “voice call signal” only represent signals that are “carried over the network of a wireless network service provider to call a user of another communications device.” POR, 21.

(1) *No Disclaimer in the Specification*

None of the claims recite “a network of a wireless network service provider” or describe the medium through which a voice call signal is transmitted. Nor do they include any language suggesting that the recited “voice call signal” is somehow limited to direct communications with a base station associated with a network service provider. Had the applicant desired narrower scope, the claims would have included such language.

As previously noted, the specification also does not redefine “signal” in a

manner that suggests direct communications. Varia tacitly concedes this point as it fails to demonstrate any redefinition for the “voice call signal[s]” term.³ See POR, 18-22. The specification uses the phrase ordinarily, and without restricting it to any specific protocol, frequency band, or network architecture (e.g., “[c]ommunication may be voice and/or data, audio, textual and/or visual”). APPLE-1001, 4:14-24; *see also id.*, 7:17-23.

(2) *No Disclaimer in the Prosecution Histories*

While Varia purports disclaimer based on arguments distinguishing Cooper (Ex-2007) within the '984 patent file history, its reliance blatantly misrepresents the nature of arguments presented during examination. POR, 20-21, 29. There, the applicant distinguished Cooper was because its disclosure “uses the **same hardware to transmit both Bluetooth and RFID data.**” APPLE-1008, 39 (emphasis added). This distinction was not that Cooper’s Bluetooth

³ Tellingly, to support its narrowing construction for “voice call signal[s],” Varia is forced to argue redefinition for a different term—“wireless mobile phone.” But Varia does not otherwise contend that the asserted prior art fails to satisfy its proposed construction of “wireless mobile phone.” See §II.A. Varia attempts to use redefinition for “wireless mobile phone” to superficially support its construction for “voice call signal[s].”

communication signals did not represent the claimed “voice call signal[.]” *See* POR, 20.

Moreover, in examining the claim language, the Examiner noted that they “interpreted the first state as a voice state” and further observed that “[Cooper’s] Bluetooth could be the first state...” *Id.*, 66. Contrary to Varia’s allegations, the ’984 patent file history therefore confirms the plain meaning of “voice call signal” as encompassing Bluetooth voice communication signals. *See* APPLE-1063, ¶¶23-26; *see* APPLE-1064, 43:3-16.

B. Varia’s Cited Authority does not Demonstrate Disclaimer is Appropriate in this Proceeding

Varia’s constructions also fail because authority cited in the POR is distinguishable. Varia contends that by describing an embodiment that “emulat[es]” an RFID signal, it has disclaimed the full scope of “RFID transponder signal.” POR, 23-24. In doing so, Varia relies on *Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131 (Fed. Cir. 2016) (“*Poly-Am*”) and *On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331 (Fed. Cir. 2006) (“*On Demand*”). But these decisions specify an exacting standard for disclaimer that requires far more than the mere description of a preferred embodiment—a standard the POR fails to meet.

1. Varia Fails to Meet the High Bar for Disavowal set by On Demand and Poly-Am

Evidence of disclaimer in *On Demand* and *Poly-Am* was unambiguous and

left no doubt as to claim scope. In contrast, the specification lacks such clarity, offering only descriptions of optional embodiments.

More specifically, in *Poly-Am*, the court found disavowal where the intrinsic evidence provided “clear and unequivocal statements” limiting the invention to trash bags with “inwardly extended short seals.” *Poly-Am*, at 1132. This consistent emphasis on a single feature as the core of the “present invention” constituted a clear disavowal. *Id.*, at 1136-37.

The specification has no comparable disclosure. Varia points to the use of the word “emulating” and descriptions of emulation in the specification. POR, 22-24. But this merely reflects disclosure of exemplary embodiments, not “clear and unambiguous” statements limiting invention scope.

Unlike in *Poly-Am*, the specification does not repeatedly define the “present invention” as being exclusively limited to emulation. Rather, the specification describes that the “[t]he present invention relates to the fields of security, communication, and data processing.” APPLE-1001, 1:21-24. In the following sentence, the specification states “[m]ore specifically, the present invention is **related to** an emulated radio frequency data input method.” *Id.*

Elsewhere, the specification notes that “**[e]mbodiments of the present invention** includes an emulated RFID method” (*id.*, 2:24-28) and that “**in preferred embodiments**, mobile communication device 102 is equipped to

provide RFID, emulating an active and/or a passive RFID transponder” (*id.*, 3:64-67). Unlike the specification at-issue in *Poly-Am*, the specification’s usage of the phrase “present invention” clearly tied to “[e]mbodiments of the present invention,” thereby indicating that the invention’s claimed scope is not limited to emulation.

Varia’s reliance on *On Demand* is also misplaced. There, the court found disavowal where the specification “clearly stated” the scope of the invention and described a particular feature as the “advantage and distinction of the invention.” 442 F.3d, at 1340.

Here, the specification makes no such definitive statement. Instead, where the specification does acknowledge advantages, it describes that “**illustrative embodiments of the present invention** advantageously leverage on existing elements of mobile communication device 102, and supplement them, to enable mobile communication device 102 to be able to provide a RFID, emulating a RFID transponder, as well as facilitating user communication.” APPLE-1001, 3:58-63. Further, “[t]he present invention 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.” *Id.*, 9:13-18. That is, aspects attributed to being advantageous are use of “existing elements of mobile communication device 102,” not specifically emulation (or a specific form of emulation that does not involve

use of a physical RFID transponder).

III. THE ASSERTED PRIOR ART RENDERS THE CHALLENGED CLAIMS UNPATENTABLE

As explained in §II.A, *supra*, properly understood under plain meaning, the Petition demonstrated satisfaction of the key claim limitations. Specifically, based on the specification, the “RFID” limitations are rendered obvious by the RFID signal capabilities of the “communications unit” of Willgert-Mooney. *See* Pet., 25-28. The “voice call signal” limitations are rendered obvious by Bluetooth voice communication signal capabilities of the “communications unit.” *Id.*, 28-30. The “selecting” limitations are rendered obvious by signal output selection (*see id.*, 36-37) or user selection (*see id.*, 71-73).

The POR relies entirely on express constructions in attempting to distinguish the “RFID” and “voice call signal” limitations. But as discussed in §§II.A.1-2, *supra*, these constructions depart from plain meaning and are unsupported by the intrinsic record (which fails to demonstrate disclaimer or disavowal of claim scope to justify such departure). And, because the POR fails to contend patentability theory not based on these constructions, Varia concedes unpatentability if the Panel declines to adopt its constructions.

Varia thereby fails to articulate any basis for patentability that does not rely on its constructions. The Challenged Claims should therefore be found

unpatentable if the Panel declines to adopt Varia's constructions.

A. The Asserted Prior Art Satisfies the “RFID” Limitations and the “Selecting” Limitations

1. Under Plain Meaning, the “RFID” Limitations are at Least Broad Enough to Encompass Willgert-Mooney’s RFID Data Output

Under plain meaning, the “RFID” limitations encompass “a potential ‘used to convey information’ using radio waves to achieve automatic identification of objects and people from one point to another.” §II.A.1, *supra*. A responsive RFID signal output by the communications unit of Willgert-Mooney is an example of the plain meaning because it includes “identity information” and enables the communicator to determine the identity associated with a mobile device. Pet., 71; *see* APPLE-1003, ¶141. This is true because “the system operates by modulating information (the identity pulse train) onto an electromagnetic carrier that propagates wirelessly from the tag to the reader.” APPLE-1063, ¶¶44-47. Thus, in Willgert-Mooney, the RFID signals communicated to an RFID reader are “further processed by the RFID reader (e.g., by identifying information specified in the RF waveform) to identify a unique identity associated with the transmitting mobile device.” *Id.*, ¶45.

2. Varia Fails to Advance a Distinct Theory for the “Processing”/“Instruction” Limitations and the “Selecting” Limitations

While the POR separately addresses the “selecting” and the “processing”/“instructions” limitations, the corresponding sections add nothing beyond the same claim construction premise it advances for the “RFID” limitations. *See* POR, 35-37, 39, 49.

More specifically, Varia concludes “Willgert, alone or in combination with Mooney, fails to teach or suggest instructions executed in processing circuitry capable of emulating an RFID transponder signal” because the combination “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.” *Id.*, 31 (emphasis added). This confirms that Varia’s only basis for purportedly distinguishing the “processing”/“instructions” limitations is premised on reading the claims to exclude use of a physical RFID transponder.

Indeed, nothing in the POR identifies any technical gap in how Willgert-Mooney (Ground 1A) fails to provide processing circuitry under its plain meaning. The POR also does not address the Petition’s contentions and evidence regarding the combination providing “software-based signal processor” configured to “implement communication functionality of a multi-modal receiver/transmitter unit” (Pet., 27; APPLE-1003, ¶89). Varia’s positions for the “processing”/“instructions” limitations thereby merely echo its flawed construction theory and offers no independent reason to find the asserted prior art deficient. *See*

APPLE-1003, ¶85; APPLE-1063, ¶¶51-52.

Varia’s arguments for the “selecting” limitations are no better—they add nothing beyond the same claim construction premise advanced for the “RFID” limitations. *See* POR, 34-38, 39-40, 48-50. More specifically, Varia asserts that the asserted prior art does not disclose or suggest “any selection to make the device send an emulated RFID signal **without the physical presence of a transponder.**” *Id.*, 37-38 (emphasis added). This confirms that Varia’s only basis for purportedly distinguishing the “selecting” limitations is premised on the claims being read to exclude use of a physical RFID transponder.

Indeed, nothing in the POR identifies any technical gap in how Willgert-Mooney-Holloway-Pitroda (Ground 2) manages selection of multiple different RFID data. The POR also does not address the Petition’s contentions regarding the combination providing “multiple RFID smart cards and the selection of those RFID smart cards in Holloway and Pitroda...” (Pet., 63; APPLE-1003, ¶70). Varia’s positions for the “selecting” limitations thereby merely echo its flawed construction theory and offers no independent reason to find the asserted prior art deficient.

B. The Asserted Prior Art Satisfies the “Determining” Limitations

1. *Willgert-Mooney’s Communications Unit Would Have Been Configured to Determine a Mobile Telephone is in an Operational Space of an RFID Reader*

Varia seeks to narrow the “determining” function (relating to “operational space”) by citing applicant statements from the prosecution history. POR, 6-9 (citing Ex-2009, 20-21, 35-36). But Varia does not ask the Panel to construe either the “determining” function or “operational space,”⁴ confirming that the cited statements do not rise to prosecution history disclaimer. Varia’s omission confirms plain meaning governs. The specification also correlates “operational space” with “proximal presence” (APPLE-1001, 5:1-7) and further explains that a device “monitors for probing signals ... to determine whether [it] is within the operational space” and then outputs the RFID when that condition is met (id., 5:8-13). This disclosure is consistent with the plain meaning of “operational space.” APPLE-1063, ¶¶49-50.

More, by characterizing the “determining” function as “separate from receiving an RFID probing signal,” Varia tries to smuggle in extra processing not described in the claim language or specification. POR, 8-9 (citing Ex-2009, 36).

⁴ As noted in the Petition, “Apple does not concede that this term satisfies the requirements of 35 U.S.C. §112, but applies prior art under plain and ordinary meaning...” Pet., 41 (fn 8). Willgert discloses the “proximal presence” and “operational space” elements under their plain and ordinary meanings. *See* Pet., 40-42 (addressing [9.3]).

But the claim language does not support this purported distinction. For example, [1.4] merely recites “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.**” *See* [9.3], [16.5], [26.5]. In context, “determining” function is satisfied by “receipt of the RFID probing signal” without further processing. *See* APPLE-1001, FIG. 2 (block 205, where a RFID reader is detected). The Panel also read the “determining” function in the same way, noting that “a communications device, such as that of Willgert, that simply outputs the RFID signal when it detects a sufficiently nearby RFID reader satisfies the claim requirement at issue.” Dec, 24.

To the extent that Varia’s position is that passive RFID transponders are excluded from the “determining” function, this is undercut but its choice to not express construe either the “determining” function or “operational space.” Because it chose not to construe these elements, Varia tacitly admits that prosecution statements cited in pages 6 to 9 of the POR do not rise to disclaimer. And because the cited statements relate to passive RFID transponders, Varia seems acknowledges it would be improper to rewrite the claims to exclude passive RFID transponders.

The Panel observed the same, noting that “[c]ertainly the fact that the Willgert RFID transponder is ‘passive’ does not distinguish it from the claims...”

Dec., 23. Further, “the only support in the ’947 specification” for the “determining” function (*id.*, 24) is disclosure referencing “emulating a *passive* RFID transponder” (*id.* (citing APPLE-1001, 5:3-14)) (emphasis added). Thus, Varia’s implicit construction contradicts with the specification because it reads out “the only support” for the claimed “determining” function without clear and unambiguous disclaimer. *Id.*

Varia’s implicit construction is also inconsistent with the prior art of record. As explained in the Petition, “a determination by the Willgert-Mooney phone of being within a sufficient proximity to a communicator involves the phone being in both the *proximal presence* and the *operational space* of the communicator.” Pet., 31; *see* APPLE-1003, ¶¶92-98. As Dr. Ding explains, this demonstrates satisfaction of the “determining” function because Willgert’s RFID communications only occur “with the ‘communicator at a given short distance,’ e.g., ‘five meters.’” APPLE-1003, ¶93 (citing APPLE-1004, [0005]); APPLE-1063, ¶48. The Panel also noted that the Willgert system is “designed so that the RFID signal only responds when it receives a query signal,” which “does not occur until” until about 5 meters, i.e., “the ‘operational space’ is the area within five meters.” Dec., 23 (citing APPLE-1004, [0005]). Varia therefore overreaches in asserting that “the Petition has failed to carry its burden of demonstrating that the relied on references meet the limitations of all Challenged Claims.” POR, 35.

C. The Asserted Prior Art Satisfies the “Voice Call Signal” Limitations

1. Willgert-Mooney’s Bluetooth Voice Communication Signals Are Examples Of The “Voice Call Signal” Limitations Under Plain Meaning

Under plain meaning, the “voice call signal limitations encompass “a telephone call established for the purpose of transmitting voice rather than data communications.” §II.A.2, *supra*.

A Bluetooth voice communication signal output by the communications unit of Willgert-Mooney is an example of the plain meaning because it “processes for answering phone calls using a Bluetooth headset.” Pet., 16 (citing APPLE-1005, [0033], [0047]-[0060]); *see* APPLE-1003, ¶¶54-55. This is true because “a Bluetooth voice communication signal involves an audio stream that a handset transmits to (or receives from) a Bluetooth-enabled phone during an active cellular call.” APPLE-1063, ¶¶53-54. Thus, in Willgert-Mooney, wireless communication of signals between the phone and the headset over Bluetooth is “for the purposes of enabling a voice call, as opposed to, for instance, transmitting non-voice data, such as sending a text message or transferring a file.” *Id.*

Varia also concedes that Willgert alone teaches the recited “voice call signal” and “wireless mobile phone” under its plain meaning and its purported construction. The Petition explained that a POSITA would have found it obvious that Willgert teaches “processing wireless signals of a telephone, including

transmissions (*output/s*) related to voice call signals (*voice call signals*) of the telephone.” Pet., 55 (citing APPLE-1004, [0024], [0030]); *see* APPLE-1003, ¶131. Thus, Ground 1B demonstrated satisfaction of the *voice call signals* and *wireless mobile phone* elements based on Willgert’s teachings in at least paragraphs [0024] and [0030].

Varia further concedes Willgert’s disclosure applied in Ground 1B otherwise satisfies its constructions. In addressing the Petition, the POR only contends Grounds 1A and 2 as purportedly not satisfying its improperly narrow construction. *See* POR, 26-29, 50-51.

Varia’s reticence is not surprising since Willgert expressly teaches a “mobile telephone.” APPLE-1004, [0030]-[0032]. And, as Dr. Shamos admitted during deposition, the primary purpose of a “mobile telephone” is to act as a telephone, e.g., by enabling voice calls. APPLE-1064, 50:17-52:4. He also admitted that a “mobile telephone” satisfies the device attributes of Varia’s construction of “wireless mobile phone.” *Id.*, 39:22-40:3, 40:15-22, 44:1-10, 47:9-17.

D. Varia Concedes its Purported Prior Art Distinctions are Premised on Claim Constructions

Varia’s patentability narrative rises or falls with its narrow constructions. *See* POR, §§ VIII.B-C; X.A-C. Every purported prior art deficiency is premised on those constructions.

E. Varia Fails to Address its Contradicting Litigation and IPR Positions For “Transceiver”/“Transmitter”

The POR casts Ground 1B as “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.” POR, 25. To be clear, any “ambiguity” associated with Ground 1B is created by Varia’s contradictory positions in prosecution and in litigation with respect to the same claim terms. *See* Pet., 48-50; *compare* APPLE-1050 (statements in complaint), 25-26, *and* APPLE-1008, 39-40 (statements in prosecution).

Varia also mischaracterizes the Petition, which unambiguously stated that the purpose of Ground 1B in applying “interpretations advanced by Varia and thereby demonstrates satisfaction in a manner consistent with Varia’s infringement allegations.” Pet., 1-2 (fn 1) (citing APPLE-1052). Those allegations relate to “transceiver,” which Varia contends as “encompassing circuitry of different components within a mobile device *collectively* enable transmission/reception functionality of the mobile device.” Pet., 50-51 (emphasis in original).

Varia tacitly concedes the tension between its interpretation of *transceiver* across forums since the POR fails to address its interpretation entirely. This was not one of the terms identified for express construction. Nor does the POR reconcile the overt discrepancy in how Varia interpreted this term in prosecution of the ’984 patent and in the litigation. In prosecution of the ’984 patent, Varia

argued “[o]ne of ordinary skill in the art would not reasonably interpret a ‘transceiver’ so broadly as to incorporate an entire mobile device’s circuitry, and in particular to be read on by two separate transmitters.” APPLE-1008, 39-40 (cited in Pet., 49 (fn 9)). Yet, in litigation, Varia argued for infringement of the claimed “transceiver” based on “circuitry of different components within a mobile device that *collectively* enable transmission/reception functionality of the mobile device.” *Id.*, 50 (citing APPLE-1050, 26).

Varia’s theories contradict because Varia’s interpretation “lacks physical or logical constraints.” APPLE-1003, ¶125. Thus, any “ambiguity” implicated in Ground 1B is rooted in Varia’s contradictory positions, and the POR’s failure to offer clarity on claim scope further exacerbates it. The POR’s characterizations of Ground 1B are purely a distraction. POR, 24-26.

IV. CONCLUSION

For the foregoing reasons, Apple respectfully requests a final written decision finding the Challenged Claims unpatentable.

Respectfully submitted,

Date: August 27, 2025

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply to Patent Owner's Response totals 5,519 words, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(1).

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(1) and 42.6(e)(4)(iii), the undersigned certifies that on August 27, 2025, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response and its supporting exhibits were provided via email to the Patent Owner by serving the email correspondence addresses of record as follows:

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