

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zatloukal, et al.
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Issue Date: February 26, 2013
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Title: EMULATED RADIO FREQUENCY IDENTIFICATION

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES

PATENT NO. 8,381,974 PURSUANT TO 35 U.S.C. §§ 311–319,

37 C.F.R. § 42

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APPLE-1001	U.S. Patent No. 8,381,974 to Zatloukal, et al. (“the ’974 Patent”)
APPLE-1002	Excerpts from the Prosecution History of the ’974 Patent (“the Prosecution History”)
APPLE-1003	Declaration and Curriculum Vitae of Dr. Zhi Ding
APPLE-1004	U.S. Patent Publication No. 2005/0083177 (“Willgert”)
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-1009	Excerpts from the Prosecution History of U.S. Patent No. 9,405,947 (“the ’947 Patent Prosecution History”)
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	Scheiderman, “Bluetooth’s slow dawn,” 2000 IEEE 61-65 (“Scheiderman”)
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”)
APPLE-1022- APPLE-1049	RESERVED
APPLE-1050	Complaint, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (filed October 5, 2023)
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APPLE-1052	Appendix B: Claim Chart for U.S. Patent No. 8,381,974, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (February 26, 2024)

APPLE-1053	Memorandum of Law in Support of Plaintiff's Opposition to Defendant's Motion to Dismiss the Complaint, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (February 14, 2024)
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APPLE-1055	Transcript of Video Deposition of Jacob Sharony, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (March 6, 2024)
APPLE-1056	Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022) ("Director's Guidance")
APPLE-1057	District Court Trial Statistics (12-Month Period Ending June 30, 2023)
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APPLE-1059	Varia Holdings LLC and Apple Inc.'s Joint Disputed Claim Terms Chart, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (May 9, 2024)
APPLE-1060	Varia Holdings LLC's Opening Claim Construction Brief, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (June 11, 2024)
APPLE-1061	Apple Inc.'s Responsive Claim Construction Brief, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (July 30, 2024)
APPLE-1062	Varia Holding LLC's Reply Brief Regarding Claim Construction, <i>Varia Holdings LLC v. Apple Inc.</i> , 23-cv-7477, E.D.N.Y (August 21, 2024)

LISTING OF CHALLENGED CLAIMS

Claim 1	
[1.pre]	A method for providing a radio frequency identification (RFID) from a switchable mobile communications device capable of RFID communication and voice call communication, the method comprising:
[1.1]	receiving, by the mobile communications device, an instruction to transmit first RFID transponder data;
[1.2]	switching a transceiver of the mobile communications device from a first state to a second state upon reception of said instruction, the transceiver configured to output voice call signals in the first state and to output RFID transponder signals in the second state; and
[1.3]	outputting the first RFID transponder data, by the transceiver as an RFID transponder signal.
Claim 2	
[2.1]	The method of claim 1, wherein said transceiver comprises a first signal processing unit configured to process voice call signals and a second signal processing unit configured to process RFID signals,

[2.2]	said switching comprising coupling the second signal processing unit to a transmission path of the transceiver.
Claim 3	
[3]	The method of claim 1, wherein said first RFID transponder data comprises a selected one of a security key and an identifier.
Claim 4	
[4]	The method of claim 1, wherein the method further comprises facilitating the user in selecting the first RFID transponder data from a plurality of RFID transponder data using the mobile communication device.
Claim 5	
[5]	The method of claim 1, wherein the method comprises facilitating provision of the first RFID transponder data to the mobile communication device by facilitating provision of at least a signaling attribute associated with the outputting of the RFID transponder data in the format compatible with said RFID reader.

Claim 6	
[6.1]	The method of claim 1, wherein the method further comprises: monitoring for proximal presence of the RFID reader by the mobile communication device; and
[6.2]	on detection of the RFID reader by the mobile communication device, outputting, by the transceiver, second RFID transponder data as a second radio frequency signal, the outputting emulating output of the second RFID transponder data by an RFID transponder of a passive type.
Claim 7	
[7]	The method of claim 6, wherein said monitoring comprises sensing for a probing radio frequency signal of the RFID reader by the mobile communication device.
Claim 8	
[8.pre]	A method for providing a radio frequency identifier (RFID), from a switchable mobile communications device capable of RFID communication and voice call communication, the method comprising:

[8.1]	monitoring, by the mobile communication device, for proximal presence of a proximal RFID reader,
[8.2a]	the mobile communication device having a transceiver configured, to output, in a first state, RFID transponder data to be received by the proximal RFID reader upon the mobile communications device determining proximal presence of one or more RFID readers,
[8.2b]	the transceiver being also configured to output, in a second state, a voice call signal for transmission at least in part over a wireless network; and
[8.3]	on detection of the RFID reader, outputting, by the transceiver, the RFID transponder data as a radio frequency signal.
Claim 9	
[9]	The method of claim 8, wherein said monitoring comprises sensing for one or more probing radio frequency signals of the one or more RFID readers by the mobile communication device.
Claim 10	
[10]	The method of claim 8, wherein said data comprises a security key.

Claim 11	
[11]	The method of claim 8, wherein the method further comprises facilitating provision of the RFID transponder data to the mobile communication device by facilitating provision of at least a signaling attribute associated with the outputting of the RFID transponder data in the format employed by the RFID reader.
Claim 12	
[12.pre]	A switchable mobile communication device capable of RFID communication and voice call communication, the mobile communication device comprising:
[12.1]	a transmitter configured to transmit a radio frequency signal, the transmitter comprising a first signal processing section and a second signal processing section,
[12.2]	the first signal processing section configured to output voice call signals in a first radio frequency range and
[12.3]	the second signal processing section configured to output RFID transponder signals in a second radio frequency range;
[12.4]	a storage medium to store a first data and instructions to: monitor for proximal presence of one or more RFID readers; and

[12.5]	[the storage medium to] operate the transmitter to switch between the first and second signal processing sections to selectively: (a) output first RFID transponder data as said RFID transponder signals in response to detection by the mobile communication device of the proximal RFID reader, and (b) output a voice call signal for transmission over a wireless network; and
[12.6]	a processor coupled to the transmitter and the storage to execute the instructions.
Claim 13	
[13]	The device of claim 12, wherein said first RFID transponder data comprises a selected one of a security key and an identifier.
Claim 14	
[14]	The device of claim 13, wherein said first RFID transponder data comprises a security key, and said security key comprises a door key.
Claim 15	
[15]	The device of claim 12, wherein the instructions are further designed to facilitate the user in selecting the first RFID transponder data from a plurality of RFID transponder data, and instructing said output.

Claim 16	
[16]	The device of claim 12, wherein the instructions are further designed to facilitate provision of the first RFID transponder data to the mobile communication device.
Claim 17	
[17]	The device of claim 16, wherein the instructions are further designed to include, with said facilitating, provisioning of at least a signaling attribute associated with the outputting of the first RFID transponder data in the form of a radio frequency signal.
Claim 18	
[18]	The device of claim 12, wherein the instructions are further designed to sense for a probing radio frequency signal of the RFID reader.
Claim 19	
[19]	The device of claim 12, wherein the mobile communication device is a selected one of a wireless mobile phone and a personal digital assistant equipped with communication capability.

Apple Inc. (“Petitioner,” “Apple”) petitions for *Inter Partes* Review (“IPR”) of claims 1-19 (“Challenged Claims”) of U.S. Patent No. 8,381,974 (“the ’974 patent”). Compelling evidence presented in this Petition demonstrates at least a reasonable likelihood that Apple will prevail with respect to at least one of the Challenged Claims.

I. REQUIREMENTS

A. Standing

Apple certifies that the ’974 patent is available for IPR. This petition is being filed within one year of service of a complaint against Apple. APPLE-1050. Apple is not barred or estopped from requesting review of the Challenged Claims on the below-identified grounds.

B. Challenge

Apple requests an IPR of the Challenged Claims based on supporting testimony from Dr. Zhi Ding. APPLE-1003, ¶¶18-32.

Ground	Claims	35 U.S.C. § 103
1A	1-3, 5-9, 11-13, 16-18, 19	Willgert, Mooney
1B ¹	1, 3, 5-9, 11	Willgert

¹ Ground 1B applies claim interpretations advanced by Varia and thereby demonstrates satisfaction in a manner consistent with Varia’s infringement

Ground	Claims	35 U.S.C. § 103
2	3-6, 10, 11, 13-17	Willgert, Mooney, Holloway, Pitroda

The '974 patent claims priority to U.S. Provisional App. No. 60/478,245, filed 6/13/2003 ("Critical Date"). APPLE-1001, Cover. Apple does not concede that the '974 patent is entitled to the claimed priority date. The references below qualify as prior art. APPLE-1003, ¶¶18-32.

Reference	Filing Date	Publication Date
Willgert	11/6/2002	4/21/2005
Mooney	9/5/2001	3/6/2003
Holloway	12/11/2001	6/20/2002

allegations. *See* APPLE-1052. Ground 1B is not an endorsement of Varia's constructions since "37 C.F.R. §104(b)(3) does not require Petitioner to express its subjective agreement regarding correctness of its proffered claim constructions or to take ownership of those constructions." IPR2018-00084 Pap. 14, 10-11 (PTAB April 25, 2018); *see* IPR2020-00086 Pap. 8, 18 (PTAB Apr. 27, 2020) ("an explicit statement of reliance on a PO's litigation constructions 'suffices to identify claim constructions Petitioner is adopting for purposes of the requested review in compliance with § 104(b)(3)'").

Reference	Filing Date	Publication Date
Pitroda	8/11/1999	12/11/2007

II. THE '974 PATENT

A. Specification

The '974 patent describes a “mobile communication device” that is “equipped with hardware and/or software to enable the device to output [] data in a form of a radio frequency signal” using “either an active or a passive RFID transponder.” APPLE-1001, Abstract; 2:23-38; APPLE-1003, ¶37.

Figure 1 shows an example of a system:

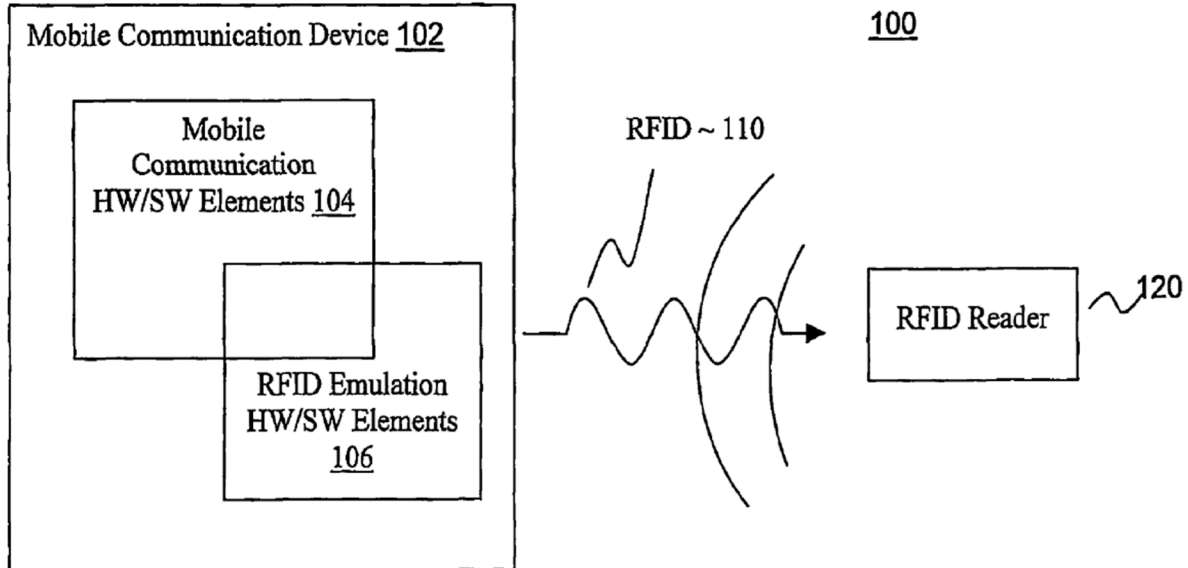


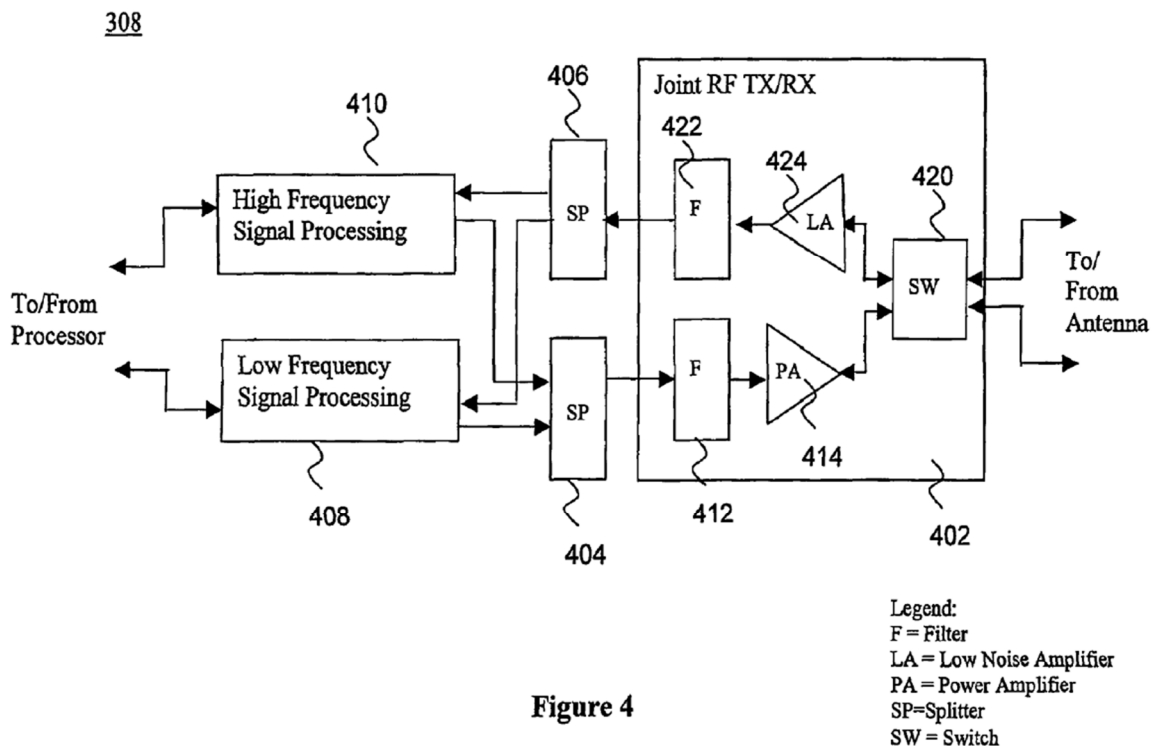
Figure 1

APPLE-1001, FIG. 1

The “primary function” of device 102 to allow a user to “engage in communication with another user of another communication device.” APPLE-1001, 3:30-47.

Further, “in preferred embodiments,” “substantial portions of the hardware and/or software elements to provide a RFID, are the same elements employed to facilitate the primary function of device 102, i.e., to facilitate a user in communicating with another user...” *Id.*, 3:48-55. This “advantageously leverag[es] existing elements of mobile communication device 102” to “provide a RFID, emulate[e] a RFID transponder, as well as facilitate[e] user communication.” *Id.*, 3:56-61. RFID 110 may represent various types of information. *Id.*, 3:66-4:4; APPLE-1003, ¶¶38-41.

Figure 4 shows elements of transceiver 308:



APPLE-1001, FIG. 4

Transceiver 308 “includes a joint radio frequency (RF) transmit/receive (TX/RX) section 402, separate signal processing sections 408 and 410 for a range of higher frequencies and a range of low frequencies, switch 404² and splitter 406.” APPLE-1001, 6:56-63. Additionally, “[f]or transmission, switch 404 switches between the output of high frequency signal processing 410 and the output of low frequency signal processing 408 to the transmit path of joint RF TX/RX 402.” *Id.*, 7:5-8. High frequency signal processing 410 “performs up and down conversions of the transmit and receive signals of the primary communication function of mobile communication device 102, e.g., the transmit and receive signals of a voice call.” *Id.*, 7:13-20. Low frequency signal processing 408 “performs up and down conversions of the transmit and receive signals of the RFID feature, e.g., the output signal of a RFID,” which acts as “either an active or a passive transponder, and the received probing signal of a RFID reader.” *Id.*, 7:21-27; APPLE-1003, ¶¶42-43.

B. Relevant Prosecution

² Figure 4 incorrectly labels the element identified with reference numeral 404 as “SP.” Based on the corresponding description, “SP” 404 in Figure 4 should be identified as “SW” 404. *See* APPLE-1001, 6:56-7:8.

The '974 patent was allowed with only double patenting rejections. *See* APPLE-1002, 51-55, 39-48. The examiner also did not identify any particular allowable feature. *See id.*, 17-19. As discussed in §III.A.2, during prosecution of related applications, Varia made various statements characterizing key elements recited in the claims (e.g., *transceiver*, *switch[ing]*, *state*). *See, e.g.*, APPLE-1008, 92, 155; APPLE-1003, ¶44.

C. Claim Construction

No formal claim constructions are required in this proceeding.³ *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); APPLE-1003, ¶45. Apple reserves the right to respond to any constructions offered by Varia or adopted by the Board. APPLE-1003, ¶45

The parties have submitted claim construction briefing in a district court litigation involving the '974 patent in the Eastern District of New York (*Varia Holdings LLC v. Apple Inc.*, 23-cv-7477, E.D.N.Y.) ("Litigation"). APPLE-1059; *see* APPLE-1060; APPLE-1061. The proposed claim constructions (in the table

³ Apple does not concede that each of the Challenged Claims satisfies all statutory requirements, such as 35 U.S.C §112. Apple is not waiving any arguments concerning other grounds that can only be raised in district court. Nor is Apple waiving the right to raise formal claim constructions in district court.

below) are preliminary, and (as the filing of this Petition) the district court has not issued a claim construction order. APPLE-1003, ¶¶46-48.

Claim Term	Apple's Proposed Construction	Varia's Proposed Construction
"transceiver"	A single component within the mobile communication[s] device that includes common circuitry for transmitting and receiving both RFID and voice signals to/from an antenna	The components responsible for transmitting and receiving signals in a mobile communications device that are integrated into the electronics of the device
"transmitter"	A single component within the mobile communication[s] device that includes common circuitry for transmitting both RFID and voice signals to an antenna	The components responsible for transmitting signals in a mobile communications device that are integrated into the electronics of the device

“communication circuitry”	A single component within the mobile communication[s] device that includes common circuitry for transmitting and receiving both RFID and voice signals to/from an antenna	The combination of circuits responsible for outputting voice call and RFID signals, and receiving RFID signals, that are integrated into the electronics of the device
“switchable mobile communication[s] device”	Mobile communication[s] device configured to switch between an RFID state and a voice call signal state	To the extent the preamble is limiting: mobile communication[s] device capable of changing states
“proximal presence” / “proximal RFID reader”	Indefinite	Plain and ordinary meaning
“operational space”	Indefinite	Plain and ordinary meaning
“on detection of the RFID	The [RFID transponder data / RFID signal] is outputted	Plain and ordinary meaning

reader...outputting ...second RFID transponder data...”	automatically whenever the mobile communication[s] device is within the [operational space / proximal presence] of the RFID reader	
“the RFID reader”	Indefinite	Plain and ordinary meaning
“[facilitate / facilitating] the user” / “[facilitate / facilitating] a user”	Indefinite	Plain and ordinary meaning
“u on receipt of the RFID robin signal [sic]”	Corrected to: Upon receipt of the RFID probing signal	

Varia seeks to broaden claim scope in the Litigation. *See, e.g.*, APPLE-1053, 13; *see* §III.B.2(i). Regardless, the prior art advanced in this Petition ultimately satisfies the claim language under either party’s interpretation. This is demonstrated by Ground 1A, which applies the prior art based on Apple’s interpretations based on the claim language and prosecution history, and Ground

1B, which applies the prior art based on Varia's interpretations in the Litigation.

III. UNPATENTABILITY

A. [GROUND 1A] – Claims 1-3, 5-9, 11-13, 16-18, And 19 Are Obvious Over Willgert-Mooney

1. Willgert-Mooney

(i) Willgert

Willgert describes a “communications unit for identifying objects or persons.” APPLE-1004, Abstract. The “communications unit” includes a “receiver/transmitter unit” operable with a “Bluetooth communications system,” as well as a “transponder” operable with an “RFID system.” *Id.*; APPLE-1003, ¶57.

While Bluetooth and RFID functionality are useful for “different applications,” this “results in higher costs.” APPLE-1004, [0008]. It is also “troublesome for a user to carry two systems on his/her person.” *Id.* Willgert thereby proposes “provid[ing] a solution...that significantly lowers the costs and affords simpler handling.” *Id.*, [0009]. The “communications unit” is “integrated” within a telephone, enabling Bluetooth and RFID transmission. *Id.*, [0010]; APPLE-1003, ¶58.

Figure 1 shows an example of the “communications unit”:

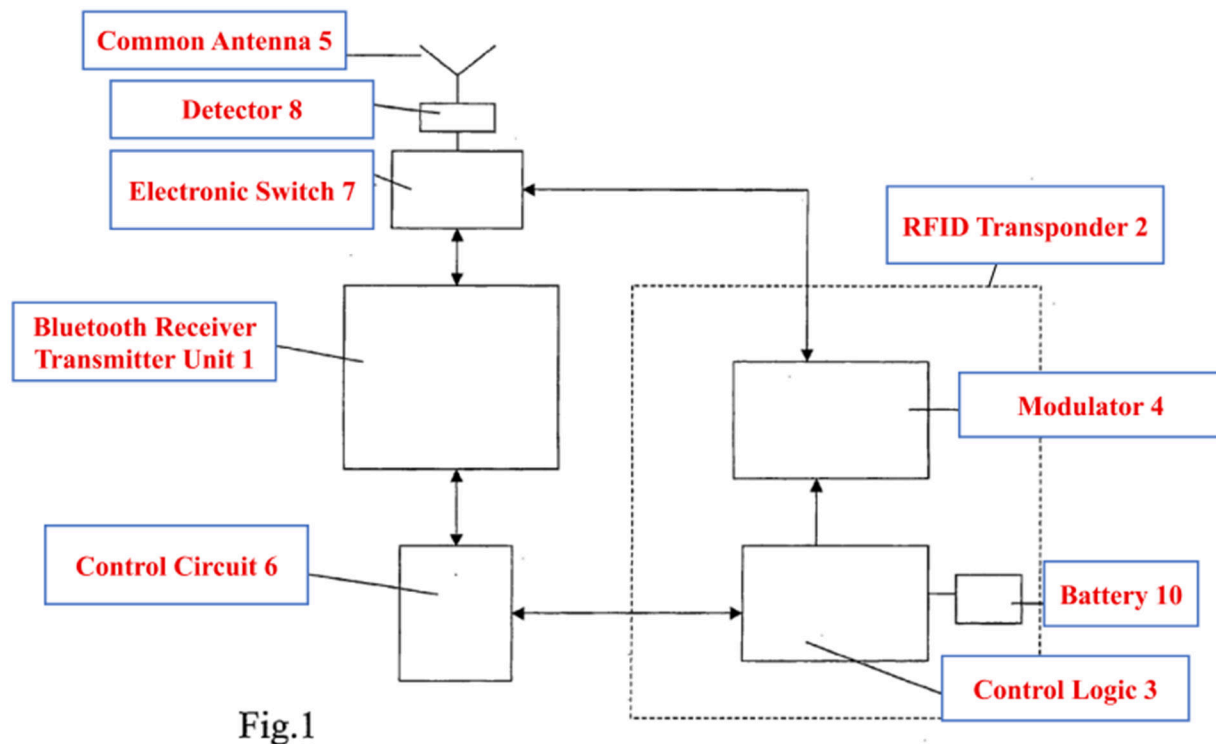


Fig.1

APPLE-1004, FIG. 1 (annotated)

The “communications unit” may be used for “identifying objects or persons,” e.g., identifying a person uniquely associated with an identifier. APPLE-1004, [0014]; APPLE-1003, ¶¶59-60. The “communications unit” includes “[Bluetooth] receiver/transmitter unit 1 in accordance with a Bluetooth system[,]” and “also includes a [RFID] transponder 2.” *Id.*; APPLE-1003, ¶¶59-61.

In Figure 1, “an electronic switch 7 is included between the common antenna 5 and the specific components of the receiver/transmitter unit 1 as well as the specific components of the [RFID] transponder 2, respectively.” APPLE-1004, [0020]. For transmission of signals, “switch 7 is controlled by the control circuit 6

when transmitting from the communications unit.” *Id.*, [0022]. For reception of signals, switch 7 is “controlled by a detector 8 positioned at the antenna 5, and it functions to detect whether a signal received by the antenna 5 is a Bluetooth signal or an RFID signal intended for the [RFID] transponder 2[,]” and “[u]pon completion of this detection, the signal received is sent either to the Bluetooth receiver/transmitter 1 or, alternatively, to the [RFID] transponder 2.” *Id.*, [0021]. For instance, “[w]hen a transponder signal is received, the signal will either be reflected by the modulator 4 or, if it is a write signal, it will be decoded in the aforesaid manner and entered into the memory, depending on the design of the transponder.” *Id.*, [0024]. Alternatively, “[w]hen the signal received is a Bluetooth signal, a transmitter signal is created in the receiver/transmitter unit 1 and sent to the antenna 5.” *Id.*, [0025]; APPLE-1003, ¶62.

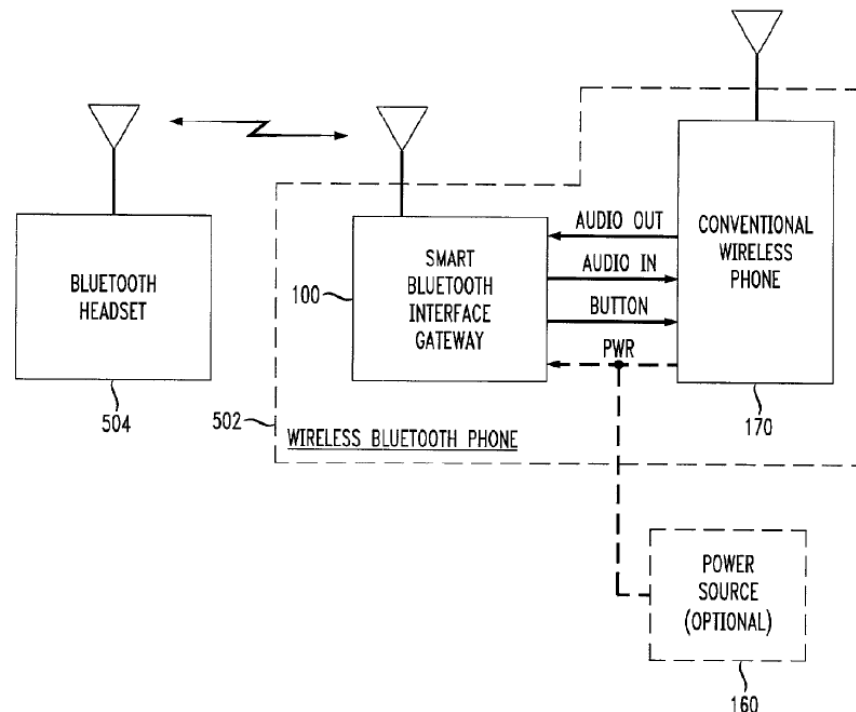
(ii) Mooney

Mooney describes systems and techniques for enabling an audio connection between a Bluetooth headset and wireless phones. APPLE-1005, Abstract. The audio connection is established through use of a “Bluetooth interface gateway device” that communicates with a “conventional wireless phone (e.g., a wireless phone that does not have BLUETOOTH installed).” *Id.* Thus, through use of the gateway device, a conventional wireless phone may communicate with the

Bluetooth headset in the same manner as, for example, a Bluetooth-enabled wireless phone. APPLE-1003, ¶63.

Figure 1 shows an example of Bluetooth headset 504 paired with wireless Bluetooth phone 502 via smart Bluetooth interface gateway 100 enabling Bluetooth functionality to conventional wireless phone 170:

FIG. 1



APPLE-1005, FIG. 1

“[C]onventional Bluetooth headset 504” communicates with a “conventional wireless phone 170 by adaptation of the wireless phone into a wireless BLUETOOTH phone 502 by the external connection of a smart BLUETOOTH interface gateway 100.” APPLE-1005, [0039]. Further, Bluetooth headset 504 is

“conventional,” and thus, a person of ordinary skill in the art (POSITA)⁴ would have understood and found obvious that it is configured to similarly communicate with telephones without the smart Bluetooth interface gateway 100. *Id.*; APPLE-1003, ¶¶64-65. The Bluetooth headset 504 is configured to “hear voice and/or tones...generated from the wireless phone [].” *Id.*, [0048]. Mooney also describes processes for answering phone calls using a Bluetooth headset. *Id.*, [0033], [0047]-[0060], FIG. 3; APPLE-1003, ¶¶64-65.

(iii) Combination

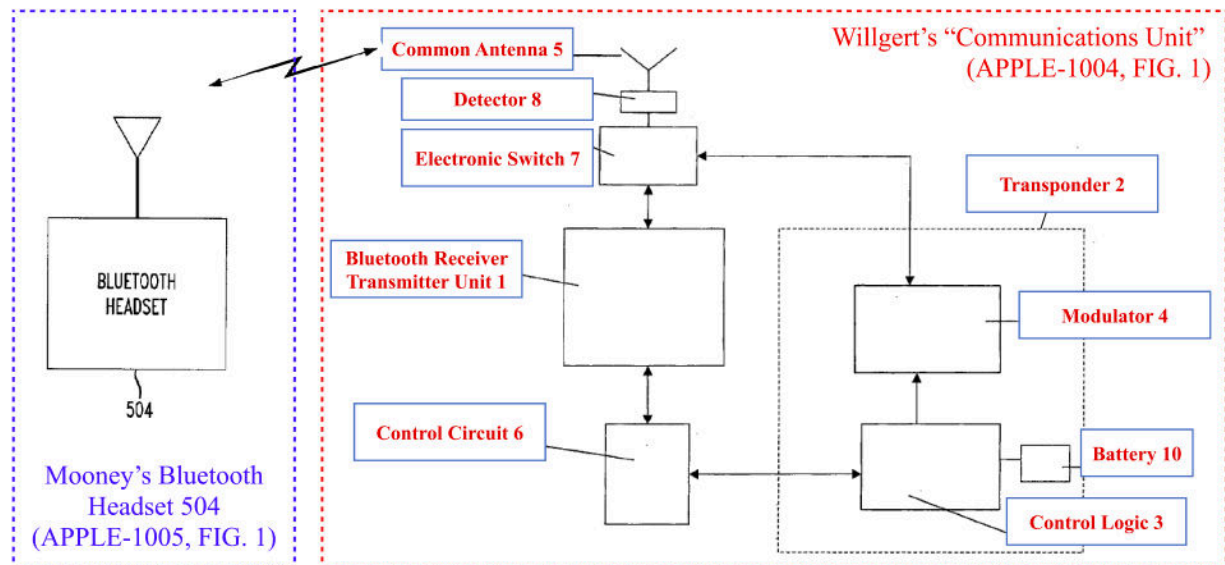
Willgert contemplates embodiments in which an RFID transponder is “included in a mobile telephone designed for Bluetooth communication.” APPLE-1004, [0030]. In one example, Willgert discloses “[a] design in which Bluetooth and [an RFID] transponder are both integrated in a mobile telephone,” which “mak[es] use of Bluetooth communication possible” via the mobile phone. *Id.*, [0032]. A POSITA seeking to implement a telephone having both Bluetooth and RFID communication capabilities as taught by Willgert would have looked to available configurations for telephones that advantageously leverage the “design in which Bluetooth and transponder are both integrated in a mobile telephone . . . for making use of Bluetooth communication.” *Id.*, [0032]; APPLE-1003, ¶¶72-73.

⁴ APPLE-1003, ¶¶19-20 (defining “POSITA”)

In seeking these configurations, a common use of Bluetooth was through headsets enabling hands-free phone calls. *See generally* APPLE-1021 (Sony Ericson BT headset from 1994). Thus, in seeking to implement this functionality in Willgert’s telephone, a POSITA would have looked to Mooney, which discloses implementation detail related to the use of Bluetooth connectivity for a telephone and advantages of doing so. APPLE-1003, ¶74. Mooney teaches that Bluetooth technology has “permitted the addition of BLUETOOTH functionality and communication between a wireless phone and a wireless headset.” *Id.*, [0007]. As discussed in §III.A.1(i), Mooney describes a Bluetooth headset 504 providing an audio gateway with an associated Bluetooth phone 502 that allows the Bluetooth headset 504 to “hear voice and/or tones...generated from [a] wireless phone...” *Id.*, [0048]. Mooney further discloses a process (in Figure 3) by which “an incoming call is answered using a BLUETOOTH headset and wireless BLUETOOTH phone including a smart BLUETOOTH interface gateway as shown in FIGS. 1 and 2.” *Id.*, [0046]; *see also id.*, [0047]-[0060], FIG. 3; APPLE-1003, ¶74.

As combined, Willgert-Mooney would have provided a system that includes a telephone (incorporating Willgert’s “communications unit”) and an associated Bluetooth headset that enables a user of the telephone to conveniently receive and respond to voice calls through use of the wireless headset. *See* APPLE-1004,

[0030]-[0032]; APPLE-1005, [0039]. Such a configuration would have been well-known by the Critical Date because the use of Bluetooth headsets for hands-free phone communications was conventional by 1994. *See generally* APPLE-1021. A POSITA would have also been motivated to implement this configuration since Willgert describes “a transponder [being] included in a mobile telephone designed for Bluetooth communication” as a “highly user-friendly application.” APPLE-1004, [0030]. Through incorporation of Mooney’s teaching, 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, as shown in a modified version of Willgert’s Figure 1 below. APPLE-1005, [0048]; APPLE-1003, ¶75.



Willgert-Mooney

A POSITA would have readily recognized that Mooney's headset was a technical implementation of a well-known concept (use of Bluetooth headsets for voice communications) and thereby a compatible companion device to Willgert's telephone. APPLE-1004, [0008], [0030]; *See generally* APPLE-1021; APPLE-1003, ¶76 (citing APPLE-1016). Such a configuration would have improved the use of Willgert's telephone since a user would enjoy greater freedom when participating in private phone calls (i.e., calls that do not use the phone's speaker) by no longer requiring that the user be manually holding or otherwise physically tethered to the telephone during these calls. APPLE-1003, ¶76. Bluetooth headsets were also widely available and used for phone calls in this manner before the Critical Date. *See, e.g.*, APPLE-1021, 2 (describing a "practical headset that connects to a mobile phone by a radio link instead of a cable"); APPLE-1017, 1 (describing a "triple-band GSM phone capable of working in the 900-, 1800-, and 1900-MHz bands" that is "Bluetooth enabled"). And, Willgert recognizes, such a telephone configuration would have allowed "a user to have access to both systems for different applications" (Bluetooth, RFID) without the "higher costs" associated with having an ID system different from a Bluetooth system and without having to "trouble[] ... a user to carry two systems on his/her person." APPLE-1004, [0008]; APPLE-1003, ¶77.

As discussed above, Willgert-Mooney would have involved incorporating

prior art elements according to known methods to yield predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-21 (2007); MPEP 2143. Each of Willgert's telephone and Mooney's Bluetooth headset were well-known by the Critical Date, and thus, their combination would have predictably improved user convenience while using a telephone as a multi-purpose device (e.g., telephony, identification). APPLE-1004, [0010]; APPLE-1003, ¶78. Further, the combination would have involved use of known aspects of the Bluetooth protocol for a telephone. *See* APPLE-1021, 2; APPLE-1017, 3.

Finally, a POSITA would have reasonably expected to succeed in combining the teachings of Willgert and Mooney. APPLE-1003, ¶79. Implementation of the combination would have required only routine knowledge because the addition of Mooney's Bluetooth headset to a telephone incorporating Willgert's communications unit would have involved, for example, "[t]he Headset Profile of the BLUETOOTH specification, version 1.1, Part K:6," which "provides the framework for conventional BLUETOOTH communications between a wireless BLUETOOTH phone and a wireless BLUETOOTH headset." APPLE-1005, [0008]. Further, use of Bluetooth protocol to enable the hands-free communication of voice and data between a Bluetooth headset and a cellphone was conventional by the Critical Date. *See, e.g.*, APPLE-1021, 2 (a "Bluetooth Headset" is a "hands-free accessory to incorporate Bluetooth technology"); *see also* APPLE-1017, 3

(Bluetooth connectivity enables “hands-free communications between a Bluetooth-enabled headset”).

2. Analysis

(i) *Claim 1*

[1.pre]

Willgert-Mooney renders [1.pre] obvious through disclosure of a Bluetooth-enabled mobile telephone (*mobile communications device*). APPLE-1004, [0030], [0032]. The “communications unit” includes a “receiver/transmitter unit” operable with a “Bluetooth communications system” (Bluetooth transmitter) and a “transponder” operable with an “RFID system” (RFID transponder). APPLE-1004, Abstract; APPLE-1003, ¶98.

As explained in §III.A.1(iii), the Willgert-Mooney telephone is capable of transmitting (a) RFID signals (*RFID communication*) to a communicator, and (b) Bluetooth voice communication between a telephone (*voice call communication*) and a Bluetooth headset. *See* [1.1]-[1.3]; APPLE-1003, ¶99. A POSITA would have understood and found obvious that the communicator to at least provide the functionality of an RFID reader since it is configured to receive an RFID signal transmitted by an RFID transponder and decode the received signal to identify a unique identity associated with the RFID transponder. APPLE-1004, [0017], [0018]; APPLE-1003, ¶¶99-100.

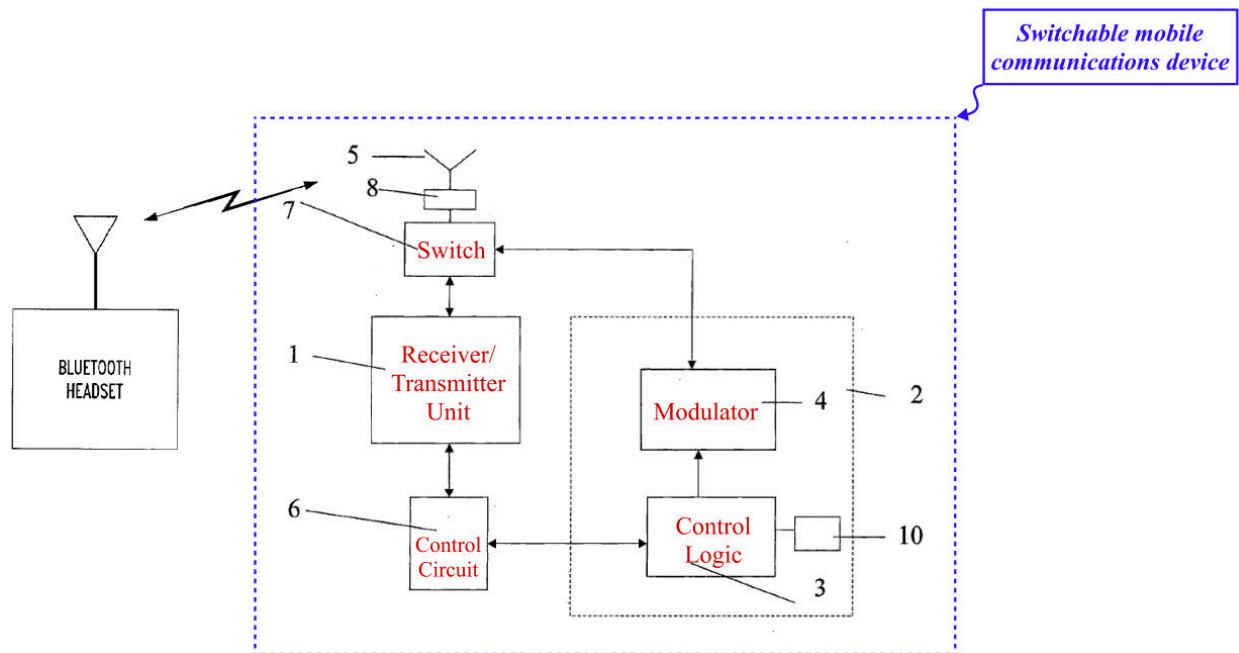
Willgert-Mooney telephone is also a *switchable* mobile communications device in that it is configured to use Willgert's switch 7⁵ to *switch* between an RFID state (e.g., signal output by RFID transponder 2) and a Bluetooth voice communication state (e.g., signal output by Bluetooth transmitter/receiver 1). APPLE-1003, ¶¶99-101; APPLE-1004, [0020], [0022]. Specifically, switch 7 is “controlled by [a] control circuit 6 when transmitting from the communications unit,” which enables different functionality based on the type of received signal. APPLE-1004, [0022]. When in an RFID state, the telephone utilizes switch 7 to enable communication between RFID transponder 2 and the antenna. APPLE-1003, ¶¶99-101. In this state, “[w]hen a transponder signal is received,” RFID transponder 2 is configured to “reflect” a received signal by modulator 4 (if the received signal is a read transponder signal) or “decode” the signal and enter the decoded signal “into memory” (if the received signal is a write transponder signal). *Id.* [0023].

Alternatively, when in Bluetooth voice communication state (e.g., “[w]hen

⁵ Like the switch 404 described in the '974 patent, switch 7 of Willgert-Mooney is configured to switch from one state (for transmitting voice call signals, via Bluetooth voice communication) to another state (for transmitting RFID signals). APPLE-1004, [0022]-[0024]. *See* [1.2]. APPLE-1003, ¶¶99-101.

the signal received is a Bluetooth signal”), the telephone utilizes switch 7 to enable communication between Bluetooth receiver/transmitter 1 and the antenna.

APPLE-1003, ¶102. In this state, the Bluetooth receiver/transmitter 1 creates a “transmitter signal” (e.g., relating to a Bluetooth voice communication), which is then “sent to the antenna” and ultimately the Bluetooth headset to allow a user to participate in a voice call through the headset. *Id.*, [0024]; APPLE-1003, ¶102.



Willgert-Mooney

[1.1]

As explained in §III.A.1(iii), the Willgert-Mooney telephone includes an RFID transponder 2 and associated functionality to “*receive* a signal sent by a communicator...” APPLE-1004, [0004]. RFID transponder 2 includes “control logic 3 and an associated memory and modulator 4” and is “adapted to receive a

query signal sent from a suitably known communicator.” *Id.*, [0017]; *see id.*, [0023]. Thus, using RFID transponder 2, the telephone (*mobile communications device*) is configured to *receive* a query/transponder signal from a communicator of an RFID system. APPLE-1003, ¶103. Further, a POSITA would have understood and found obvious that the *instruction* recited in [1.1] encompasses the query/transponder signal of Willgert-Mooney under its plain meaning. *Id.* (citing APPLE-1018).

In Willgert-Mooney, the query/transponder signal includes information (e.g., signal type) that, once received, enables the RFID transponder 2 to perform a responsive action (e.g., reflect a read signal, store data for a write signal). APPLE-1004, [0017], [0023]. The RFID transponder 2 “includes control logic 3 and an associated memory and modulator 4[]” and is “adapted to receive a query signal sent from a suitably known communicator.” *Id.*, [0017]. Thus, upon receiving the query/transponder signal, RFID transponder “modulat[es] the signal with a pulse train” and “[i]nformation relating to the pulse train is stored in the memory. *Id.* Thus, the query/transponder signal includes signal information (*instruction*) enabling control logic 3 of the RFID transponder 2 to identify a signal type (read, write) and *to transmit first RFID transponder data*. APPLE-1003, ¶¶104-107. Additionally, the query/transponder signal is used by the communicator to obtain, from the RFID transponder 2, information to determine the “identity” of RFID

transponder 2 and also causes the RFID transponder 2 to provide a responsive signal such that the query/transponder signal is an *instruction to transmit* identity information (*first RFID transponder data*). APPLE-1004, [0005]; APPLE-1003, ¶¶104-107. Additionally, Willgert teaches that, when a query/transponder signal is received by a mobile device, switch 7 is configured to identify the type of signal received, and thereby adjust signal output based on signal type. APPLE-1004, [0021]-[0022]. Thus, Willgert teaches that when an RFID signal is received the logic circuit 6 will issue *instructions* to allow switch 7 to permit the reception and transmission of RFID to “reflect” the signal. *Id.*; APPLE-1003, ¶¶104-107.

[1.2]

The transmission functionality of the “communications unit” within a Bluetooth-enabled telephone of Willgert-Mooney renders each aspect of this limitation obvious. APPLE-1003, ¶108.

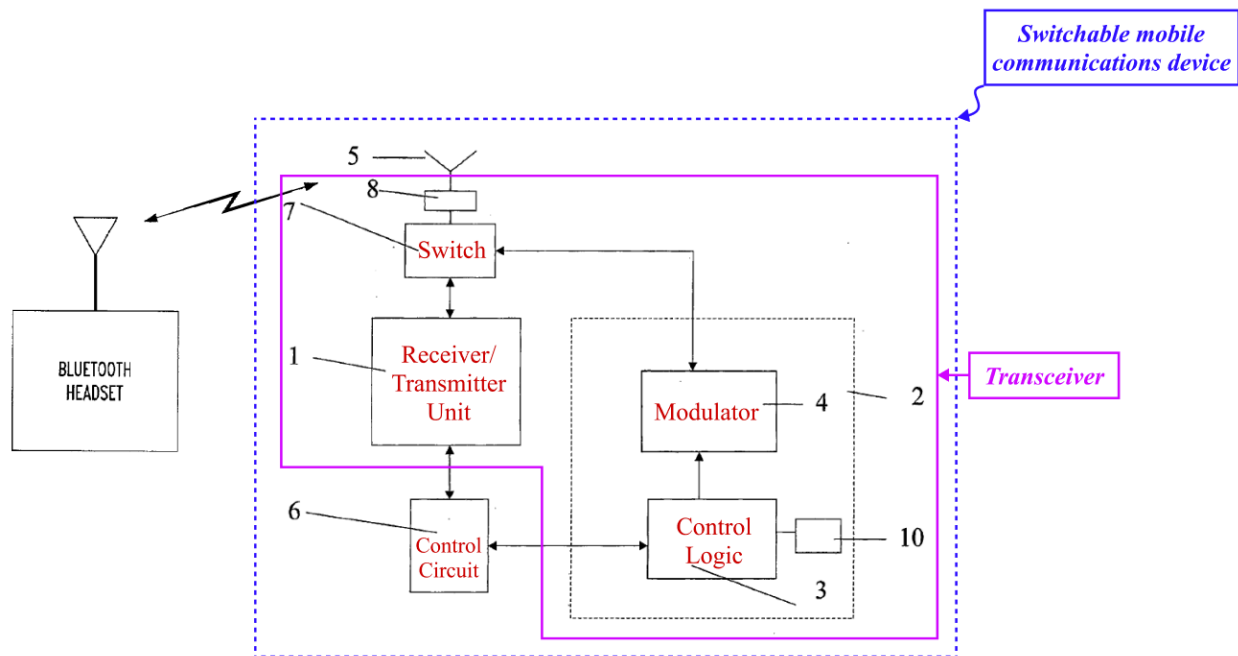
a. ***Switching / State[s]***

i. ***Claim Language***

Willgert-Mooney renders the *state[s]* obvious because it includes elements, e.g., switch 7, detector 8, configured to operate in a Bluetooth voice communication state (*first state*) and, alternatively, in a RFID state (*second state*). This is analogous to '974 patent specification's disclosure of a “switch 404 “switch[ing] between the outputs” of a transmitter. APPLE-1001, 7:5-7. Willgert

likewise teaches a “switch 7” configured to control “transmitting from the communications unit.” APPLE-1004, [0022]; APPLE-1003, ¶¶55, 109-110; *compare* APPLE-1001, 9:32-36, 10:8-17 *and* APPLE-1004, [0020]-[0024].

The “communications unit” is configured for Bluetooth voice communication (e.g., Bluetooth transmitter 1) and RFID (e.g., RFID transponder 2) which includes a common switch 7 and detector 8. APPLE-1003, ¶¶55, 110-111.



Willgert-Mooney

ii. *Prosecution*

According to Varia, “the first state is **exclusive** of the second state, and the second state is exclusive of the first state.” *See, e.g.*, APPLE-1008, 40-41, 91-94, 133-136, 154-157, 196-200; APPLE-1009, 531. Varia also characterized the

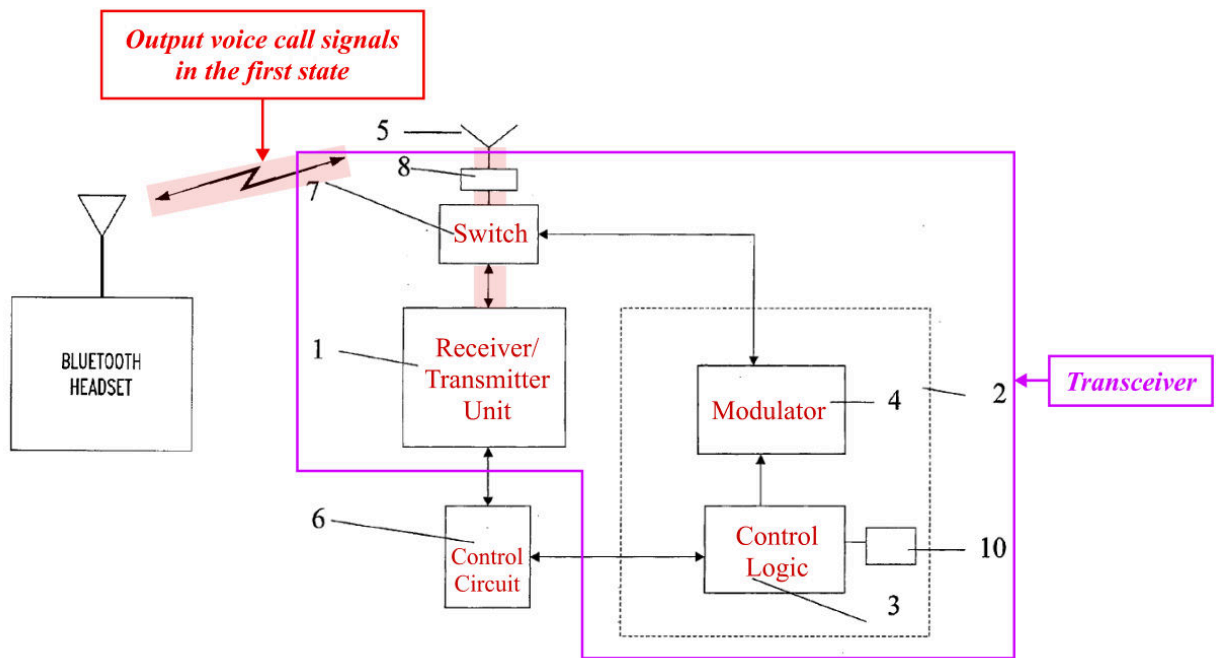
claimed **transceiver** as a “two state (switching required) transceiver.” APPLE-1008, 155. The “communications unit” satisfies these articulations because both the ’974 patent specification and Willgert teach the same functionality resulting from the switching. Compare APPLE-1004, [0022] and APPLE-1001, 7:5-7; APPLE-1003, ¶¶56, 112.

b. **Transceiver**

i. *Claim Language*

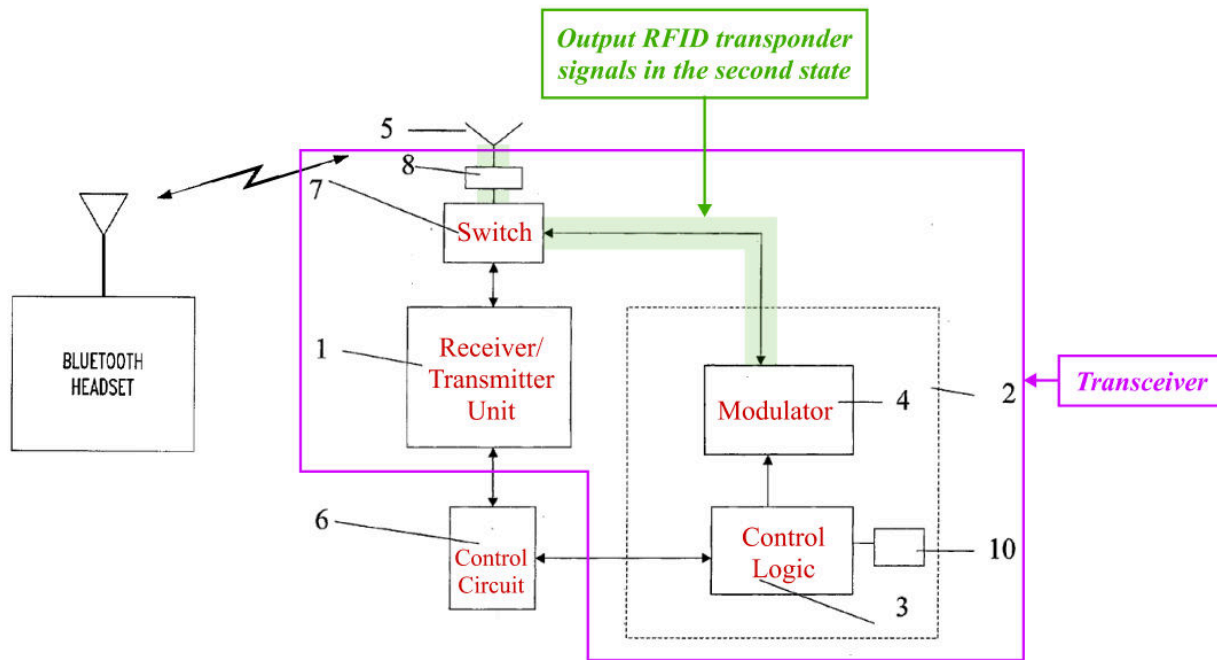
Limitation [1.2] also recites a **transceiver** configuration with three attributes: (a) outputting **voice call signals**, (b) outputting **RFID transponder signals**, and (c) **switching** of states **upon reception of the instruction** recited in [1.1]. APPLE-1003, ¶¶49-54, 113. The “communications unit” satisfies each of these attributes and thereby renders the **transceiver** configuration obvious.

As to (a), in a first state, the “communications unit” is configured to transmit (**output**) Bluetooth voice communications (**voice call signals**) to a Bluetooth headset. APPLE-1004, [0030]; APPLE-1005, [0048], FIG. 3Switch 7, like switch 404 of the ’974 patent, allows for transmitting voice communications. APPLE-1004 [0022]-[0024]. As discussed in §III.A.1(iii), the Bluetooth voice communication would have enabled the Bluetooth headset to “hear voice and/or tones” generated from the telephone, as shown below. APPLE-1005, [0048]; see APPLE-1004, [0024], [0030]; APPLE-1003, ¶114.



Willgert-Mooney

As to (b), in a second state, the “communications unit” is configured to transmit (*output*) RFID signals (*RFID transponder signals*) to a communicator of an RFID system. APPLE-1004, [0023], [0030]. Switch 7, like switch 404 of the ’974 patent, allows for transmitting RFID communications. APPLE-1004 [0022]-[0024]. As discussed in §III.A.1(i), in response to receiving a “query signal,” RFID transponder 2 “send[s] a signal in response to the signal received.” *Id.*, [0025]. The transmission of the responsive signal enables a communicator (RFID reader) to read the “identity” of RFID transponder 2, e.g., “at a given short distance,” such as “five meters.” *Id.*, [0005]; *see id.*, [0017]; APPLE-1003, ¶115.



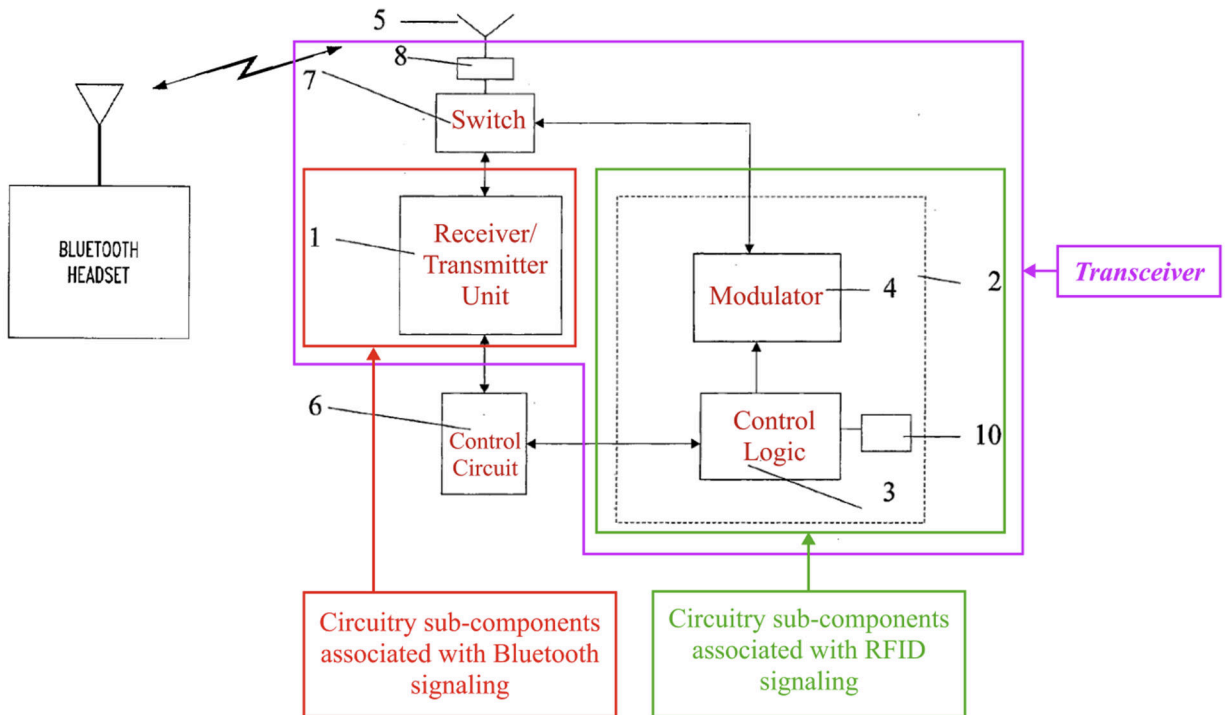
Willgert-Mooney

As to (c), switch 7 is controlled by the detector 8 when receiving transmissions at the “communications unit” and by control circuit 6 when transmitting from the communications unit. APPLE-1004, [0020]-[0022]. The “communications unit” (*transceiver*) is a dual-mode transceiver, and thus, its signal transmission is *switch[ed]* from a state of transmitting Bluetooth voice communication (*first state*) to a state of transmitting RFID signals (*second state*) upon receiving a query signal from a RFID reader (*upon reception of [an]*

instruction to transmit [] RFID transponder data).⁶ APPLE-1003, ¶116; *see* APPLE-1001, 7:5-7; APPLE-1004, [0002], [0020]-[0022].

Moreover, switch 7, like that of switch 404 of the ‘974 patent, switches between transmitting voice signals (e.g., Bluetooth voice communication) and RFID signals, e.g., by switching between the output of Bluetooth transmitter 1 and the output of RFID transponder 2 depending on either the type of signal received through antenna 5. APPLE-1004, [0022]-[0024]. If the “communications unit” transmitted a Bluetooth voice communication using antenna 5 before receiving a query/transponder signal from a communicator of an RFID system, then a configuration of switch 7 would have *switch[ed]* to enable RFID transponder 2 to transmit a responsive signal. APPLE-1004, [0030]; APPLE-1003, ¶117.

⁶ A POSITA would have recognized usage scenarios involving a dual-mode transmitter based on their well-known capability to receive and transmit different types of signals (Bluetooth, RFID) and thereby operate in different states. APPLE-1003, ¶116; *see KSR*, 550 U.S., at 421.



Willgert-Mooney

ii. *Prosecution*

In prosecution Varia stated that the plain and ordinary meaning of the term “transceiver” is “a single component for transmitting and receiving.” APPLE-1008, 155, *id.*, 92. Further, according to Varia, the *transceiver* may be met by “a single/package/unit and sharing at least some common circuitry for both transmission and reception located within a mobile communication device.” APPLE-1008, 92; APPLE-1003, ¶118. The “communications unit” still satisfies even these characterizations. APPLE-1003, ¶118.

Specifically, the “communications unit” includes switch 7 and detector 8 (“common circuitry for both transmission and reception”) and are located within a

telephone. *See* APPLE-1008, 92; APPLE-1004, [0021], [0024], [0030]; APPLE-1003, ¶119. Thus, by including this common circuitry for transmitting and receiving Bluetooth and RFID signals, the “communications unit” represents an example of Varia’s characterization of *transceiver* being “a single component for transmitting and receiving.” APPLE-1008, 155; APPLE-1004, [0021]-[0024]; APPLE-1003, ¶¶119-122. Similarly, the “communications unit” is an example of single component that includes common circuitry (e.g., switch 7, detector 8) for transmitting and receiving both RFID and voice call signals to/from an antenna (e.g., antenna 5). *See* APPLE-1008, 92, 93, 134-157; APPLE-1004, [0021]-[0024], [0028]; APPLE-1003, ¶¶119-122. Further, “the specific implementation of Willgert’s ‘communications unit’ within a single component would have been an obvious design choice that would have been known to a POSITA based on Willgert’s disclosure of transmission functionality.” APPLE-1003, ¶¶119-122 (citing APPLE-1004, [0010], [0014]-[0019]).

[1.3]

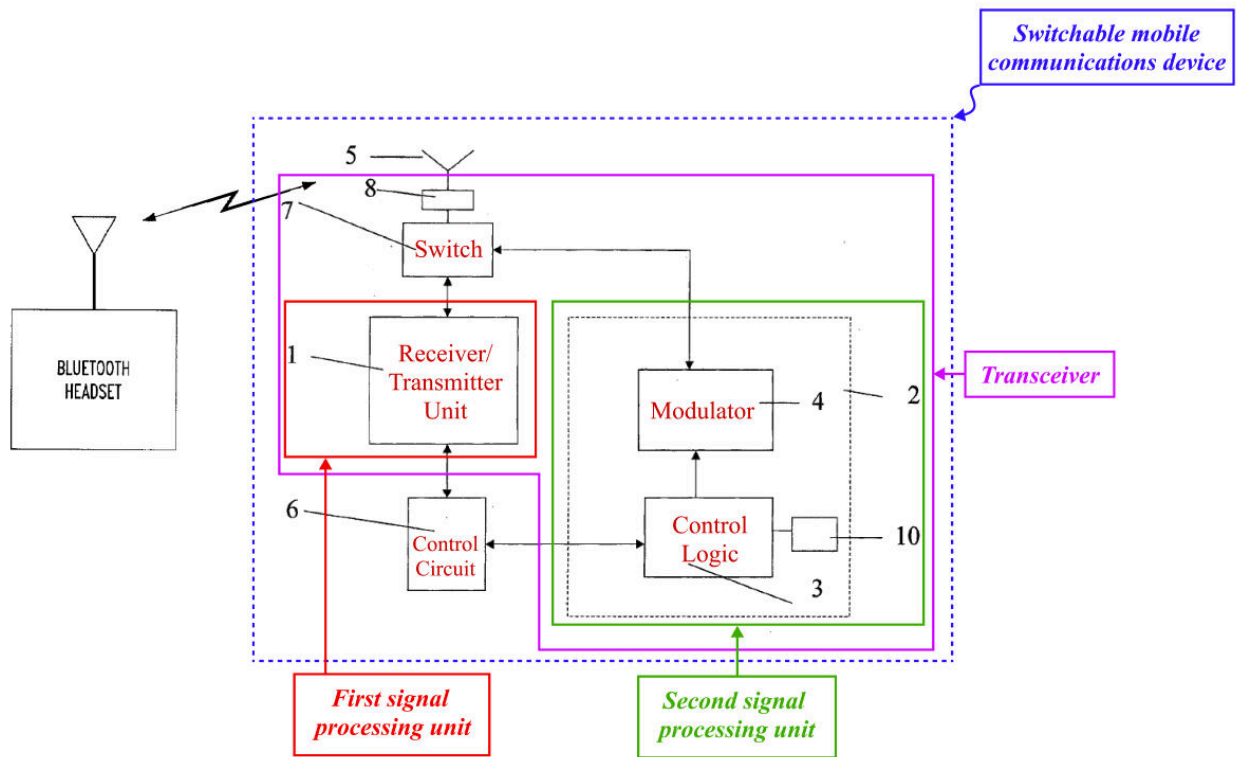
As discussed above, the “communications unit” (*transceiver*) of Willgert-Mooney includes an RFID transponder 2 configured to communicate with a RFID reader. APPLE-1004, [0023], [0030]. In response to receiving a query/transponder signal, RFID transponder 2 generates and sends a responsive signal. *Id.*, [0022]-[0024]. The “communications unit” therefore transmits

(*output[s]*) the responsive signal with identity information, which then enables the communicator to determine the “identity” of RFID transponder 2. *Id.*, [0005]. The outputted signal (*RFID transponder signal*) therefore includes identity information (*first RFID transponder data*). *Id.*; *see id.*, [0017] (“[e]ach transponder typically have a unique identity that is sent to the communicator...”); APPLE-1003, ¶123.

(ii) *Claims 2, 3, 5-7*

[2.1]

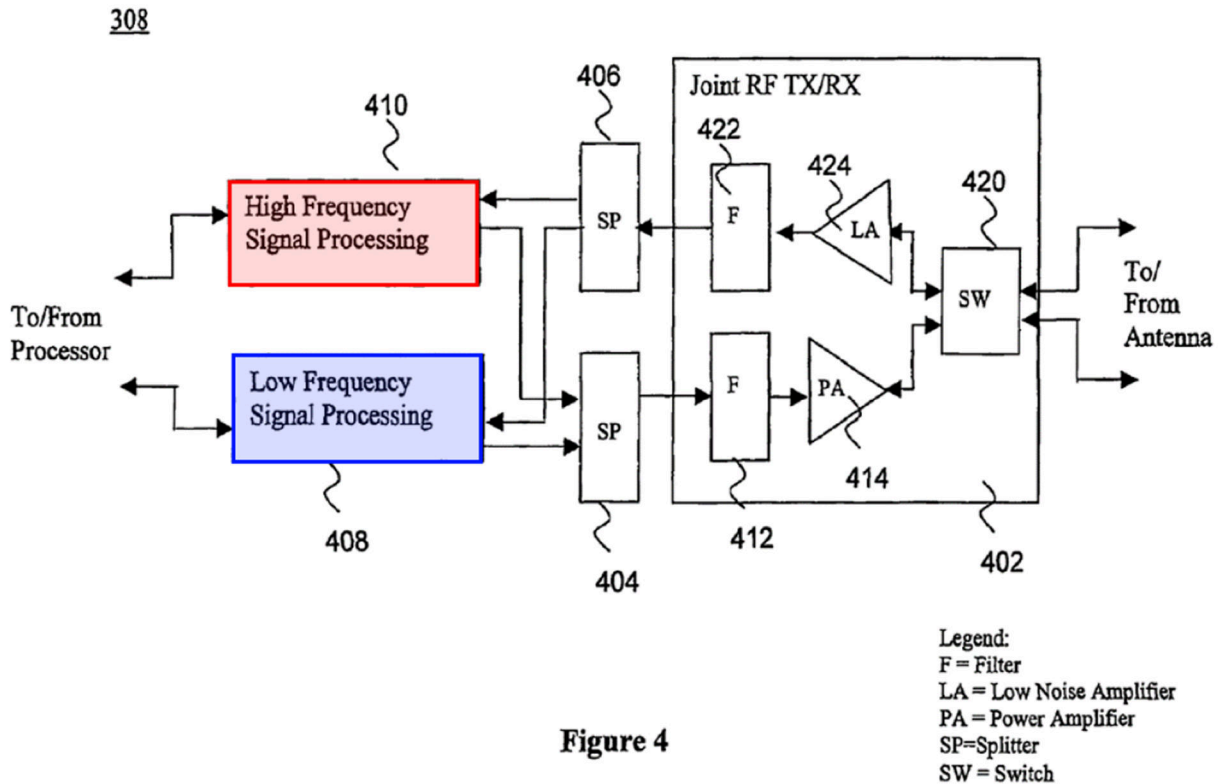
As discussed for [1.2], the “communications unit” (*transceiver*) includes a Bluetooth transmitter 1 (*first signal processing unit*) configured to *process* Bluetooth voice communications (*voice call signals*). APPLE-1004, [0030]; APPLE-1005, [0048], FIG. 3. The “communications unit” also includes a RFID transponder 2 (*second signal processing unit*) configured to *process RFID signals*. APPLE-1004, [0023], [0030]; APPLE-1003, ¶124. As shown below, the Bluetooth transmitter 1 and RFID transponder 2 are each sub-components within the “communications unit” (*transceiver*) and thereby represent *unit[s]* of the *transceiver*:



Willgert-Mooney

Identification of sub-components (*units*) shown above is consistent with disclosure in the '974 patent specification of the *transceiver*. APPLE-1003, ¶¶124-125.

Figure 4 of the '974 patent shows the structure of “transceiver 308,” including “low frequency signal processing 408” (blue) and “high frequency signal processing 410” (red):



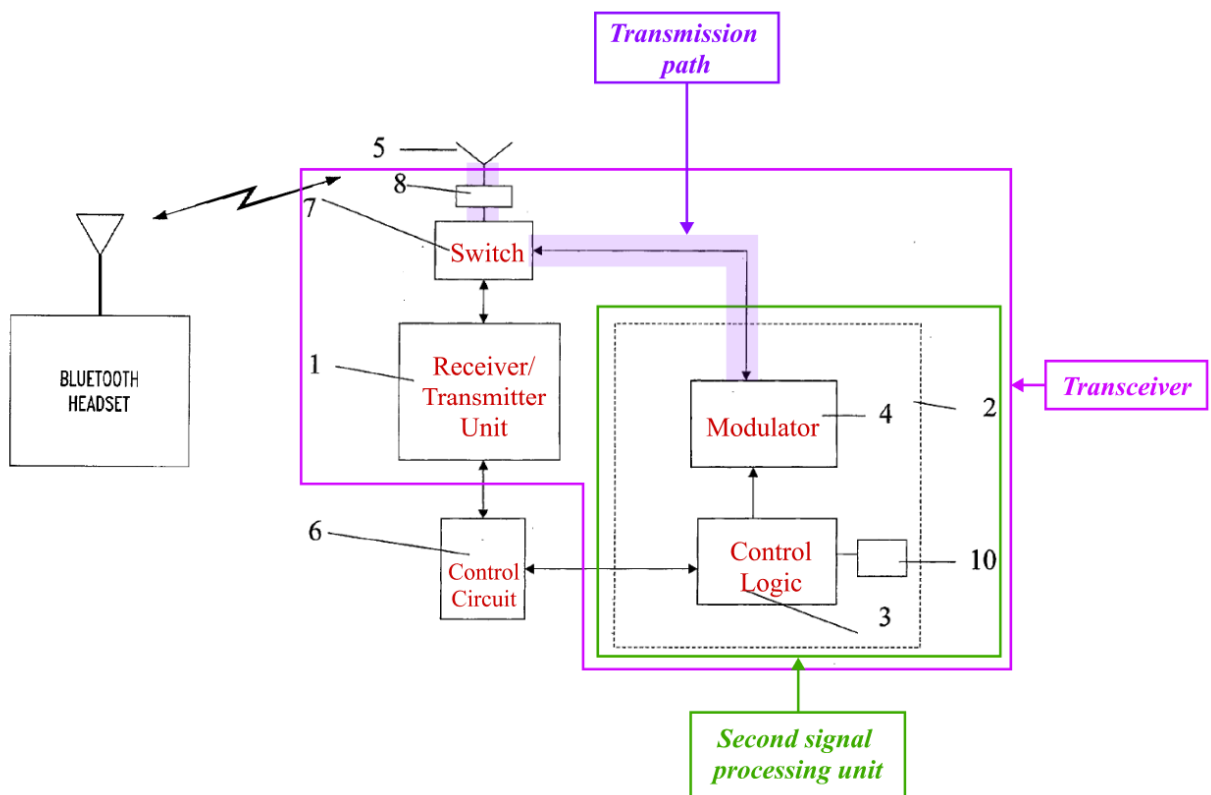
APPLE-1001, FIG. 4

The '974 patent describes “transceiver 308” as performing conventional circuit functions using “separate signal processing sections 408 and 410” to process the different frequency voice call and RFID signals. APPLE-1001, 6:56-7:32. Thus, each of the sub-components of the “communications unit” would have been obviously understood to process corresponding signals and thereby represent examples of *signal processing unit[s]* as recited in [2.1]. See, e.g., APPLE-1004, [0024], [0028]; APPLE-1003, ¶125 (citing APPLE-1004, [0015], [0023]).

[2.2]

As discussed for [2.1], the “communications unit” includes a RFID

transponder 2 (*second signal processing unit*) and associated components for processing RFID signals. APPLE-1004, [0023], [0030]. Further, as discussed for [1.pre] and [1.2], Willgert teaches use of “electronic switch 7” to switch signal processing functionality relating to Bluetooth and RFID signals. APPLE-1004, [0022-0024]. Thus, the switching performed by the “communications unit” would have included *coupling*, through the switch 7, the RFID transponder 2 (*second signal processing unit*) to a transmission path of the transceiver. APPLE-1004, [0023], [0022-0024], [0030], cl. 5; APPLE-1003, ¶126.



Willgert-Mooney

[3]

In Willgert-Mooney, data output by RFID transponder 2 (e.g., a responsive signal transmitted in response to receiving a query/transponder signal) uniquely identifies transponder 2 to a RFID reader that provided the query/transponder signal and receives the responsive signal. APPLE-1004, [0017]; *see id.*, [0005]. A POSITA would have thereby understood and found obvious that the responsive signal output by RFID transponder 2 (*first RFID transponder data*) utilizes an identifier (*selected one of...an identifier*) used by the communicator to identify the RFID transponder 2. APPLE-1004, [0017]; APPLE-1003, ¶¶127-131.

[5]

In Willgert-Mooney, RFID transponder 2 of the “communications unit” is configured to receive at least two different types of RFID signals from an communicator—a query/transponder (read) signal or a write signal. APPLE-1004, [0023]. This technique enables the well-known ability “to read and write other information from and into the ID tag, respectively, with the said of the communicator [(RFID reader)].” APPLE-1004, [0005]. Willgert teaches that “the transponder may also be designed to enable information [(*the first RFID transponder data*)] to be written into the transponder memory [(*comprises facilitating provision...to the mobile communication device*)], so that said information can be read-out from the memory later on, in the aforesaid manner

[(responding to a query/probing signal)] [(*in the format compatible with said RFID reader*)].” APPLE-1004, [0018]. A POSITA would have understood and found obvious that when writing into the transponder’s memory for the purpose of later reading out in response to a query/probing signal, that the RFID transponder data “written into the transponder memory” comprises at least a *signaling attribute*, so that the RFID transponder data can later be “read-out from the memory” in response to a query signal. APPLE-1004, [0018]; APPLE-1003, ¶¶132-133. Willgert teaches that the “write signal is a modulated signal sent by the communicator...control logic 3 includes a decoder, which functions to decode the signal received.” APPLE-1004, [0018]. Finally, because the response provided by the RFID transponder 2 is itself based on receipt of a query/transponder signal provided by the communicator, a POSITA would have understood and found obvious that the RFID data is “written into the transponder memory” such that it is *in the format compatible with said RFID reader*. *Id.*; APPLE-1003, ¶¶132-133.

[6.1]

Willgert-Mooney’s RFID transponder 2 is configured to determine when it is in sufficient proximity to the communicator (*RFID reader*). APPLE-1004, [0004], [0006], [0007], [0015], [0017]. This determination involves determining that the Willgert-Mooney phone is in a *proximal presence* of the communicator, e.g., the phone is located in an area surrounding the communicator in which the

RFID transponder 2 would be able to detect a query/transponder signal. APPLE-1003, ¶134.

Willgert contemplates using communication between the RFID transponder and the communicator for “reading an identity,” which would have involved communication with the “communicator at a given short distance,” e.g., “five meters.” APPLE-1004, [0005]. At such distances, the RFID transponder 2 would be capable of (1) detecting a query/transponder signal provided by the communicator and (2) responding to the query/transponder signal. *see* APPLE-1004, [0015], [0017]; APPLE-1003, ¶135. Thus, in the context of the identity verification systems contemplated in Willgert, a determination by the Willgert-Mooney phone of being within a sufficient proximity to a communicator involves the phone being in its *proximal presence*. APPLE-1003, ¶135; *see* APPLE-1004, [0005]-[0006].

Further, RFID transponder 2 may be configured as a passive RFID transponder, which was conventional by the Critical Date. *See* APPLE-1011, [0006]; APPLE-1003, ¶¶136-139. Likewise, RFID transponder 2 may be configured such that it is activated by a query signal sent by a communicator when the passive RFID transponder is in sufficient proximity to the communicator. *See* APPLE-1004, [0015], [0017]; APPLE-1003, ¶¶136-139. Thus, in these

implementations, RFID transponder 2 waits to receive (*monitor[s]*)⁷ query/transponder signal provided by a communicator when the RFID transponder is in sufficient proximity (*proximal presence*) to the communicator (*RFID reader*). APPLE-1004, [0004], [0006], [0007], [0015], [0017].

[6.2]

Under plain meaning, the language of [6.2] does not impose limitations on the nature of the *first RFID transponder data* and the *second RFID transponder data*, and thus, is broad enough to encompass various types of transmission scenarios. As one example, [6.2] may be satisfied where two signals transmission outputs are separate in time, such that transmission at a first time corresponds to the *first RFID transponder data* and transmission at a second time corresponds to the *second RFID transponder data*. APPLE-1003, ¶140. Absent claim language to the contrary, this principle remains true whether each transmission represents a

⁷ The term “monitor” is used once in the ’974 patent specification and in reference to monitoring signals sent by an RFID reader. APPLE-1001, 5:5-10; APPLE-1003, ¶¶136-139. Willgert similarly describes a telephone monitoring for query/transponder signals provided by a communicator in determining that the communicator is close to the telephone. *See* APPLE-1004, [0015]-[0017].

different type of RFID transponder data or, or whether they are instead directed to the same type of RFID transponder data. *Id.*

Transmissions by the “communications unit” satisfy [6.2] under plain meaning. First, the RFID transponder 2 is “designed to enable information to be written into transponder memory, so that said information can be read-out from memory later on,” as taught by Willgert. APPLE-1004, [0018]. Further, the RFID transponder 2 is configured to output multiple signal transmissions over time (e.g., based on information that is “read-out from the memory”). APPLE-1003, ¶¶141-142. Thus, RFID transponder 2 may transmit a first signal transmission (***first RFID transponder data***), followed sequentially by a second signal transmission (***second RFID transponder data***). *Id.* Each transmission may be based on different data, e.g., different data written into transponder memory, and thus, each transmission constitutes different data. APPLE-1004, [0018]; APPLE-1003, ¶¶141-142. This configuration is suggested by Willgert. *See* APPLE-1004, [0017].

As discussed for [1.3], in response to receiving a query/transponder signal, RFID transponder 2 “send[s] a signal in response to the signal received.” APPLE-1004, [0025]. The transmission (***output***) of the responsive signal (***RFID transponder signal***) enables the communicator to determine the “identity” of RFID transponder 2 and thus, includes information representing the first ***RFID***

transponder data. *Id.*, [0005]; *see id.*, [0017]. Given Willgert’s disclosure of proximity-based communications between an RFID transponder and a RFID reader, a POSITA would have expected different types of connections in relation to movement of the device incorporating the RFID transponder (relative to the RFID reader). APPLE-1003, ¶143. After the initial communication, a user moving the device such that the RFID transponder is no longer within the range of the RFID reader. In this scenario, a POSITA would have recognized that the user may or may not return within the range of the RFID reader. *Id.* Where a user returns within range of the RFID reader after leaving, the RFID transponder would have engaged in a subsequent communication with the RFID reader similar to the initial communication. *Id.* Specifically, RFID transponder 2 would have received a second query/transponder signal, and in response, send a second signal in response to the second query signal received. APPLE-1004, [0025]. The transmission (**output**) of the subsequent responsive signal (**second RFID transponder signal**) enables the communicator to determine the “identity” of RFID transponder 2 and thus, includes information representing the **second RFID transponder data**.

Because Willgert teaches that it was well-known for RFID-based identity verification to use information being “read by a communicator at a given short distance” (e.g., “five meters”) (APPLE-1004, [0005]), a POSITA would have found it obvious that some implementations of the identity verification

functionality of Willgert-Mooney would have involved the RFID transponder 2 being implemented as a passive RFID transponder (an RFID transponder without a dedicated power source, configured to output identity information in response to being activated by a signal from a nearby RFID reader). APPLE-1003, ¶144. In such implementations, the RFID transponder 2 would have output information representing the *second RFID transponder data* automatically whenever the telephone is within a proximity to a RFID communicator and the RFID transponder 2 is activated by a signal provided by the RFID communicator. APPLE-1003, ¶¶143-144; APPLE-1004, [0005]; *see id.*, [0017], [0025]. This was a well-known configuration by the Critical Date, demonstrated by Freund. APPLE-1003, ¶144 (discussing APPLE-1011, [0006]). Because these implementations would have involved the RFID transponder 2 being implemented within the Willgert-Mooney phone (*see* APPLE-1004, [0030]-[0032])), a POSITA would have understood and found obvious that the *outputting* of identity information *emulate[s] output of the second RFID transponder data* by the RFID transponder 2 (implemented as a passive RFID transponder) (*RFID transponder of a passive type*). Such outputting occurs automatically, whenever the RFID transponder 2 is within a certain proximity to a communicator. APPLE-1003, ¶144; *compare* APPLE-1001, 4:65-5:4 *and* APPLE-1004, [0004].

[7]

Demonstrated in [6.1], the RFID transponder 2 of “communications unit” may function as a passive RFID transponder. APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1011, [0006]; APPLE-1003, ¶145. It would have been obvious that RFID transponder 2 both *sense[s]* for signals external to the device through an antenna and *monitor[s]* for which of the external signals constitutes *a probing radio frequency signal*. APPLE-1003, ¶145. This involves the RFID transponder 2 being configured to wait to receive (*monitoring*) a query signal (*probing radio frequency signal*) provided by a RFID reader when the RFID transponder is in sufficient proximity to the communicator (*RFID reader*). APPLE-1004, [0004], [0006], [0007], [0015], [0017]; *compare* APPLE-1001, 7:21-27 *with* APPLE-1004, [0017]. Such a passive RFID transponder configurations were conventional by the Critical Date. *See* APPLE-1003, ¶145 (discussing APPLE-1011, [0006]).

(iii) *Claim 8*

Willgert-Mooney renders the following limitations of [8] obvious in the same manner explained above. APPLE-1003, ¶146.

Claim 8 Limitation	Corresponding Claim Limitation
[8.pre]	[1.pre]

[8.3]	[1.3]
-------	-------

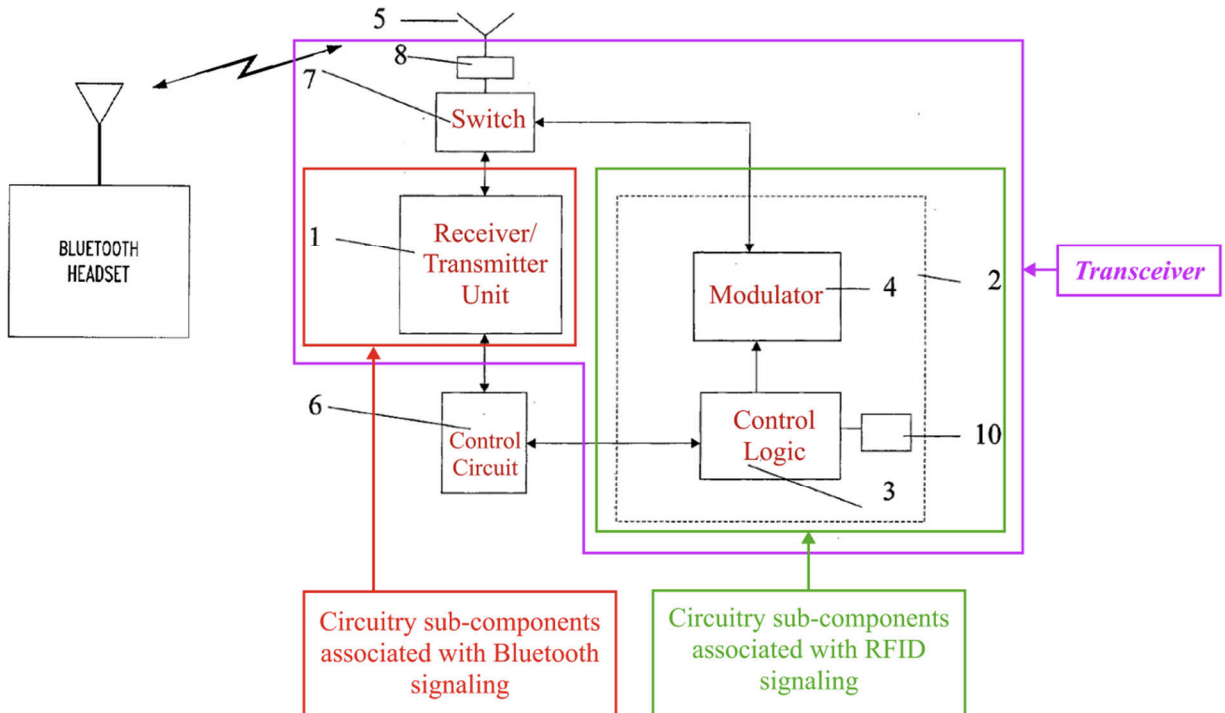
[8.1]

Demonstrated in [6.1], RFID transponder 2 of the “communications unit” may be a passive RFID transponder configured to wait to receive a signal provided by a communicator. APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1011, [0006]; APPLE-1003, ¶147. In such implementations, RFID transponder 2 (included in the *mobile communication device*) waits to receive (*monitor[s]*) a signal provided by a RFID reader when the RFID transponder is in sufficient proximity (*proximal presence*) to the communicator. APPLE-1003, ¶147; *see* APPLE-1011, [0006].

[8.2a]

Demonstrated in [1.2] and [8.1], the “communications unit” (*transceiver*) includes a RFID transponder that may be configured to wait to receive a signal provided by a RFID reader when the RFID transponder is in sufficient proximity to the communicator. APPLE-1004, [0004]-[0007], [0017]; *see* APPLE-1003, ¶148 (citing APPLE-1011, [0006]). As discussed for [1.2] and [6.1], *the transceiver* is also *configured* to transmit (*output*) RFID signals to a communicator of an RFID system (*to be received by the proximal RFID reader*). APPLE-1004, [0023], [0030]. In response to determining sufficient proximity to a communicator by receiving a “query signal” (*upon...determining proximal presence of one or more*

RFID readers), RFID transponder 2 generates and sends a responsive signal (*output, in a first state, RFID transponder data...*) by using modulator 4 to “reflect[]” the received signal or “send[s] a signal in response to the signal received.” *Id.*, [0022]-[0025]; APPLE-1003, ¶148.

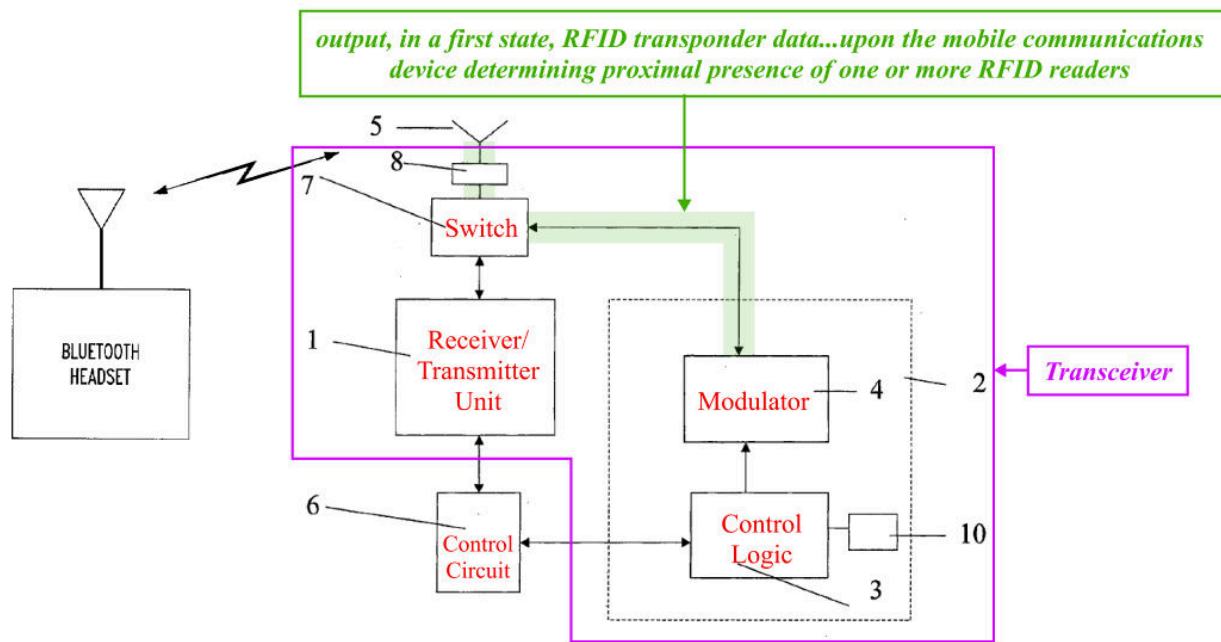


Willgert-Mooney

Thus, RFID transponder 2 of the “communications unit” (*transceiver*) may be configured to transmit a responsive signal (*RFID transponder data*) to be received by a communicator “at a given short distance, for example of five meters” that provides a query signal (*proximal RFID reader*). APPLE-1004, [0005]-[0006]. Demonstrated for [6.1] and [6.2], this involves the telephone being in the *proximal presence* of the communicator when the responsive signal is outputted

(...*determining proximal presence of one or more RFID readers*). APPLE-1003, ¶149; APPLE-1011, [0006]; §III.A.2(i). This happens *upon* and, thus, “in response to” a *proximal presence* determination. APPLE-1003, ¶149.

Further, Willgert discloses that “[*u*]pon completion of this detection, the signal received is sent either to the Bluetooth receiver/transmitter 1 or, alternatively, to the transponder 2” and that “[w]hen a transponder signal is received, the signal will either be reflected by the modulator 4 [(*output*)] or . . . entered into the memory, depending on the design of the transponder.” APPLE-1004, [0017], [0021], [0023]; APPLE-1003, ¶150.

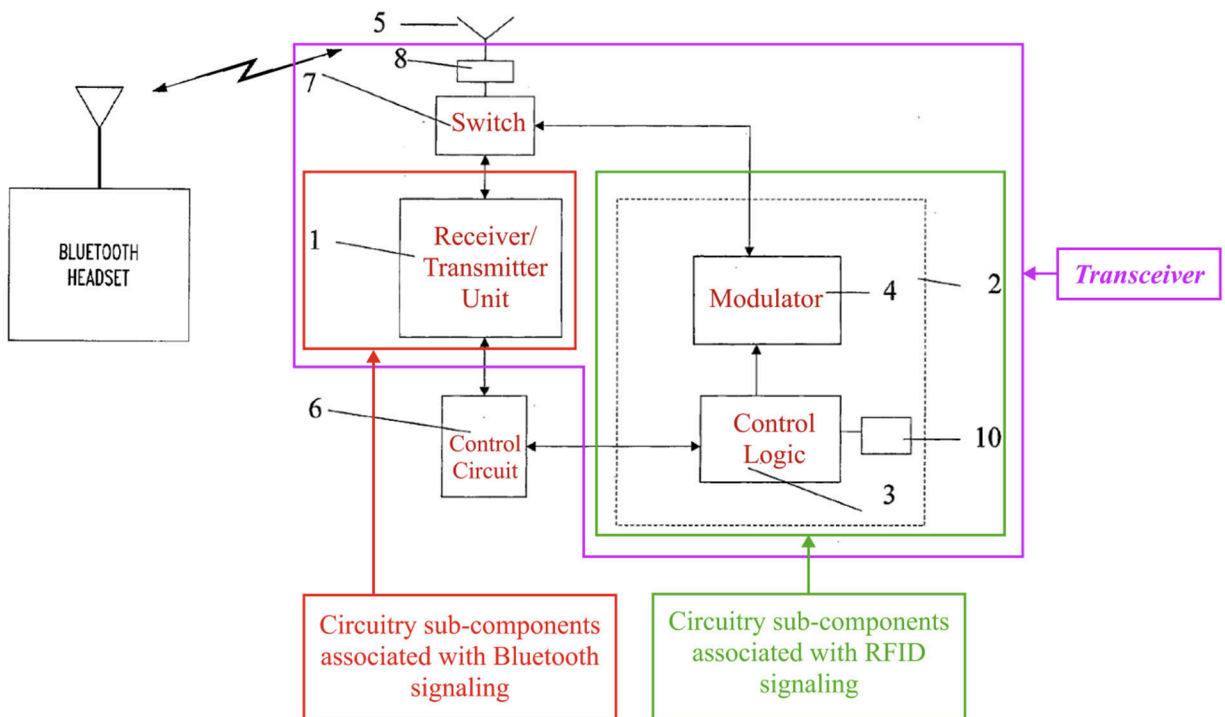


Willgert-Mooney

Discussed for [1.2], the “communications unit” also satisfies Varia’s statements regarding *transceiver* from prosecution history. See APPLE-1008, 92-93, 134-57; APPLE-1004, [0021]-[0024], [0028], [0030]; APPLE-1003, ¶¶150-151.

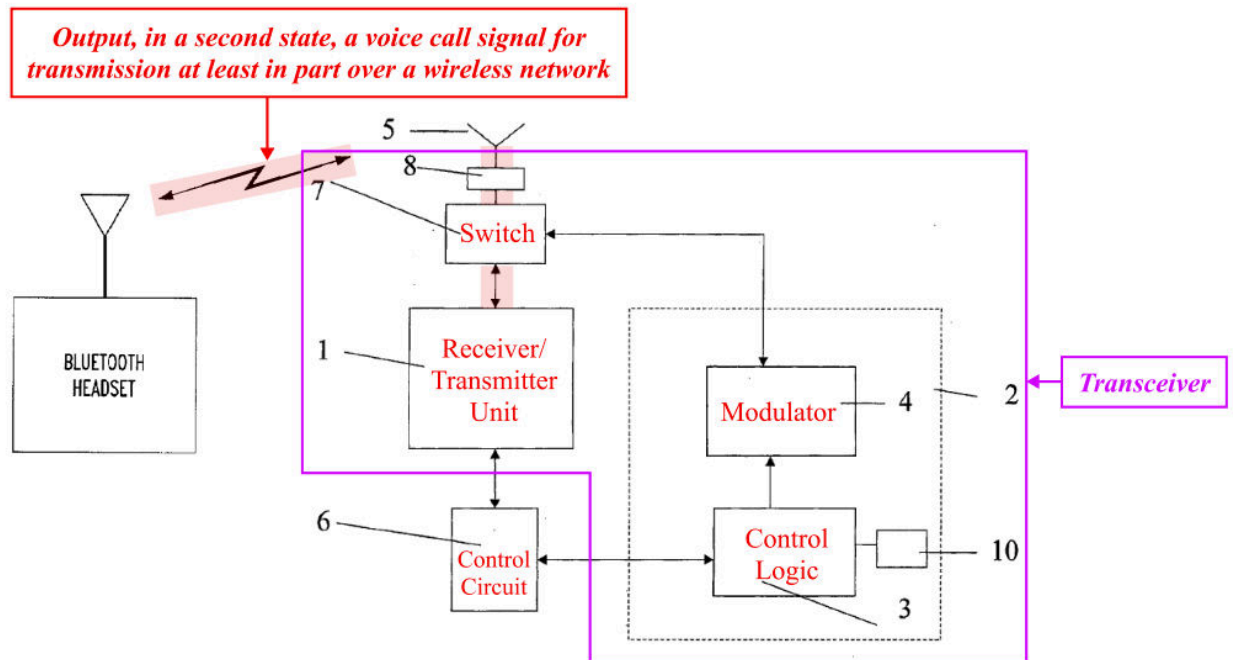
[8.2b]

Discussed for [1.2], in one state (*second state*) the “communications unit” (*transceiver*) is *configured to* transmit (*output*) Bluetooth voice communications (*voice call signal*) to a Bluetooth headset. APPLE-1004, [0030]; APPLE-1005, [0048], FIG. 3. Switch 7, like switch 404 of the ‘974 patent, is in a second state when it is transmitting voice communications. APPLE-1004 [0022-0024]; APPLE-1003, ¶152.



Willgert-Mooney

Further, the Bluetooth voice communication would have enabled the Bluetooth headset to “hear voice and/or tones” generated from the telephone, as shown below. APPLE-1005, [0048]; *see* APPLE-1004, [0024], [0030]; APPLE-1003, ¶153. In using the Bluetooth protocol to establish a connection between the telephone and the Bluetooth headset, the established wireless connection (*transmission at least in part over a wireless network*) would have formed over a piconet wireless network (*wireless network*), which Mooney teaches “provides peer-to-peer communications over short distances.” APPLE-1005, [0004]; APPLE-1003, ¶153.



Willgert-Mooney

To be clear, the “communications unit” renders obvious the *transceiver* configuration collectively recited in [8.2a] and [8.2b] for the same reasons as discussed above for [1.2]. See APPLE-1008, 92-93, 134-57; APPLE-1004, [0021]-[0024], [0028], [0030]; APPLE-1003, ¶154.

[8.3]

See [1.3]; [6.2]. APPLE-1003, ¶155.

(iv) *Claims 9, 11*

[9]

As above, the RFID transponder 2 of the “communications unit” may function as a passive RFID transponder. APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1011, [0006]; APPLE-1003, ¶156. In such implementations, RFID transponder 2 (included in the *mobile communication device*) would have been configured to detect (*sense[]*) an activation signal (*one or more probing radio frequency signals*) provided by a RFID reader (*one or more RFID readers*) when the RFID transponder is in sufficient proximity to the communicator. APPLE-1003, ¶156. Such passive RFID transponder configurations were conventional by the Critical Date. APPLE-1003, ¶156 (citing APPLE-1011, [0006]).

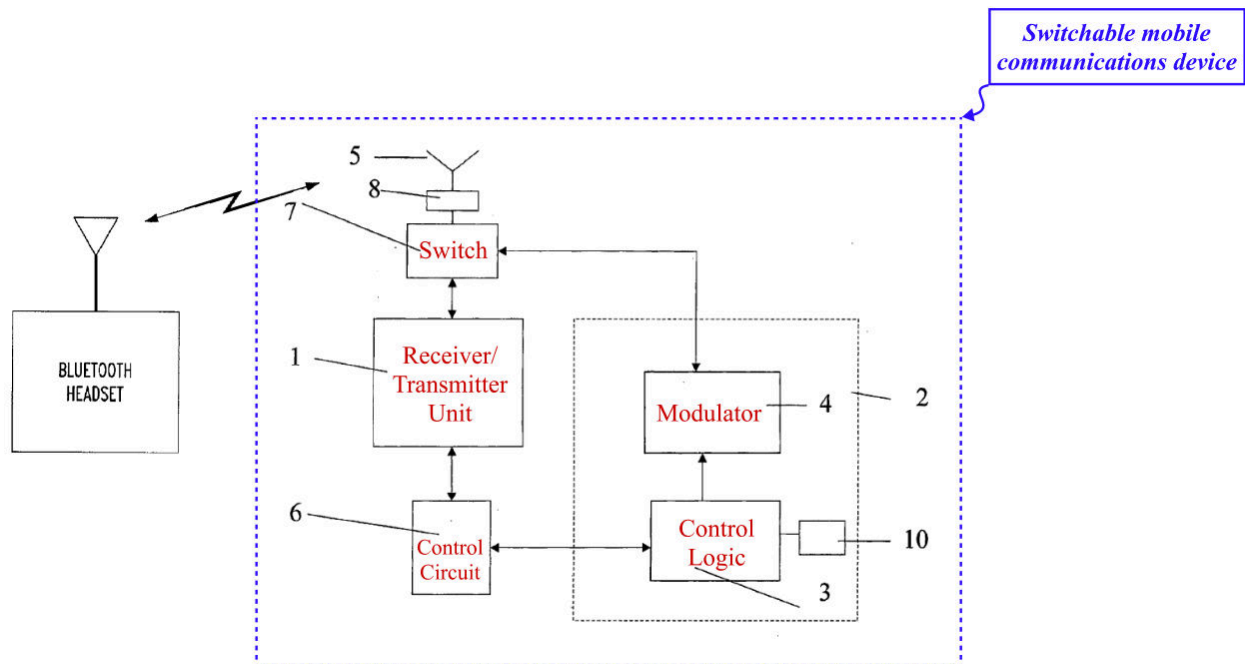
[11]

See [5].

(v) *Claim 12*

[12.pre]

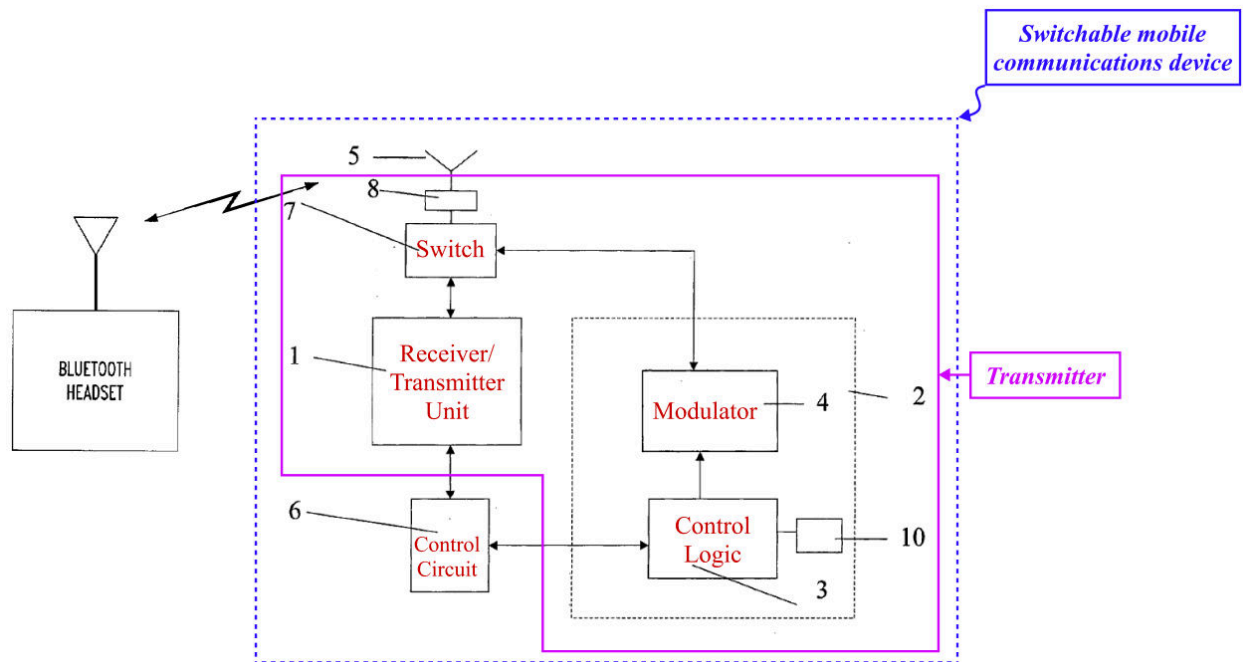
Willgert-Mooney renders [1.pre] obvious through disclosure of a Bluetooth-enabled mobile telephone (*mobile communications device*). APPLE-1004, Abstr., [0030], [0032]. As discussed for [1.pre], the telephone is capable of communications that involve (a) RFID signals (*RFID communication*) to a RFID reader, and (b) Bluetooth voice communication based on voice data collected by a telephone (*voice call communication*) to a Bluetooth headset. See [12.1]-[12.3]; APPLE-1003, ¶157.



Willgert-Mooney

[12.1]

In Willgert-Mooney, the “communications unit” includes transmitting sub-components that render this limitation obvious. As shown below, the “communications unit” includes sub-components for Bluetooth voice communication (e.g., Bluetooth transmitter 1) and RFID (e.g., RFID transponder 2), each of which share a common antenna 5. APPLE-1003, ¶158.



Willgert-Mooney

It would have been obvious that Bluetooth transmitter 1 and RFID transponder 2 of the “communications unit” in Willgert-Mooney are configured to transmit signals of different frequency ranges. APPLE-1003, ¶159. Around January 2002, Bluetooth was known to “use[] the unlicensed ISM band,” which

includes frequency ranges between “2.4000” GHz and “2.4835” GHz worldwide.

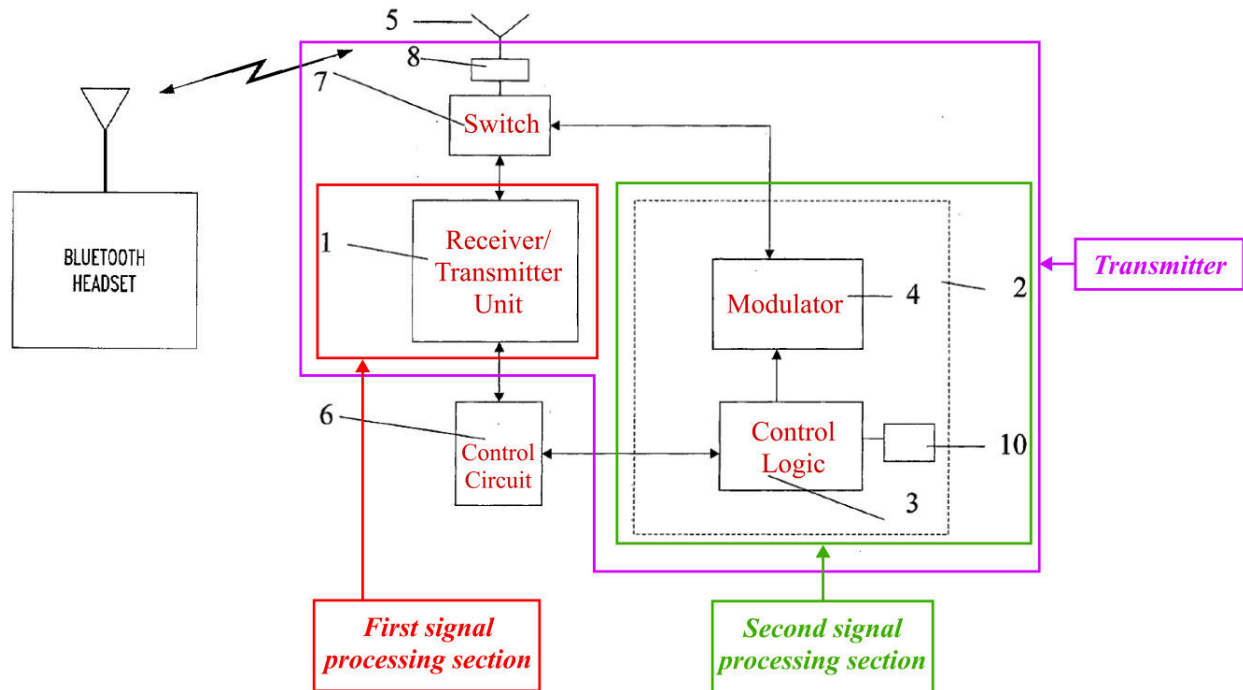
APPLE-1013, 23. In contrast, the frequency range for “the vast majority of [RFID] transponders” was “in the 13.56MHz” range, whereas the frequency ranges of “passive” RFID transponders was “less than 135 KHz range.” *Id.*, 20. Thus, a POSITA would have found it obvious that, in at least some configurations of the “communications unit” in Willgert-Mooney, Bluetooth transmitter 1 is configured to output Bluetooth signals in the frequency range of 2.4000-2.4835 GHz, while RFID transponder 2 is configured to RFID transponder signals in the frequency range around 13.56MHz or less than 135 KHz. APPLE-1003, ¶159. Indeed, dual-band transceivers configured to transmit signals over non-overlapping frequency ranges were conventional by the Critical Date. APPLE-1003, ¶159 (citing APPLE-1014, APPLE-1015).

Further, because the “communications unit” includes sub-components for transmitting signals in different frequency ranges, Bluetooth transmitter 1 would have operated as a *first signal processing section* and RFID transponder 2 would have operated as a *second signal processing section*. APPLE-1003, ¶160.

Notably, the ’974 Patent’s own disclosure related to the “separate signal processing sections 408 and 410” acknowledges that the functionality performed by these sections was purely conventional, simply performing signal processing functions

“known in the art” to process the different frequency voice call and RFID signals.

APPLE-1001, 6:56-7:32.



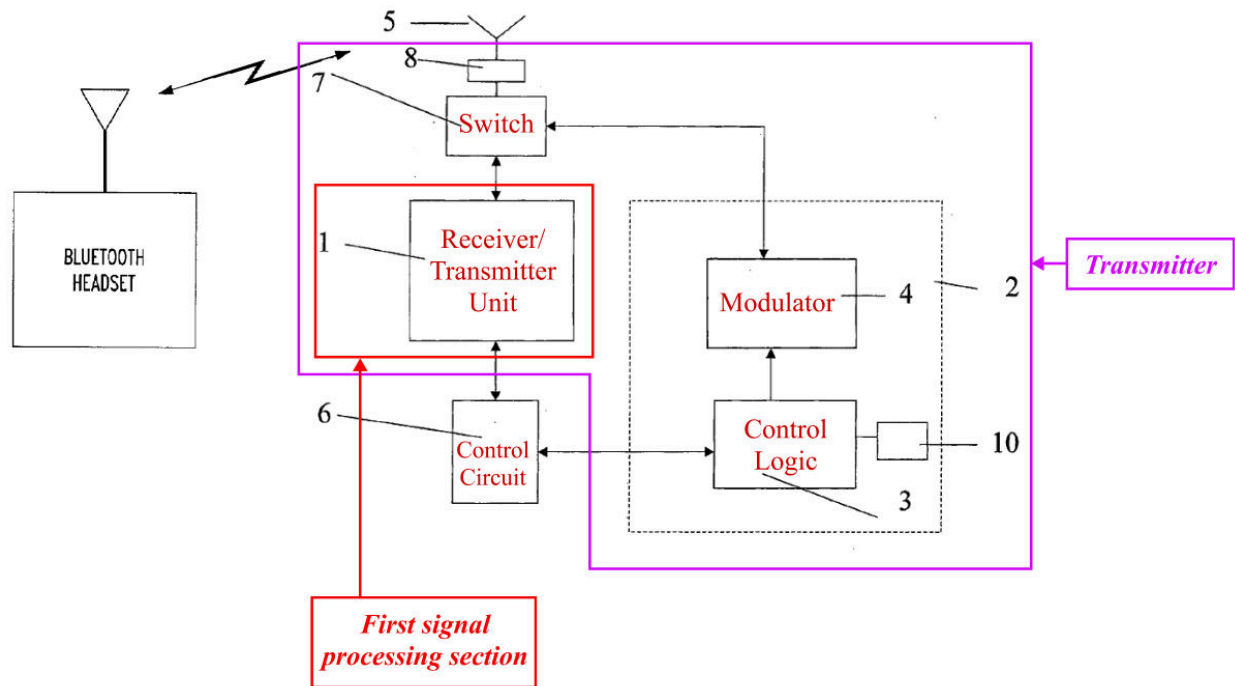
Willgert-Mooney

Thus, for the reasons discussed above, the “communications unit” is an example of single component that includes common circuitry (e.g., switch 7, detector 8) for transmitting RFID and voice call signals to an antenna (e.g., antenna 5). See APPLE-1008, 92-93, 134-157; APPLE-1004, [0021]-[0024], [0028]; APPLE-1003, ¶161. The “communications unit” is also an example of single two state component for transmitting signals and switching between voice signal transmission and RFID. APPLE-1008, 134-157. The “communications unit” is also an example of one or more signal processing units that share common transmit

components (e.g., switch 7, detector 8). APPLE-1004, [0021]-[0024], [0028];
APPLE-1008, 92-93; APPLE-1003, ¶162.

[12.2]

As discussed for [12.1], in the “communications unit,” Bluetooth transmitter 1 would have operated as a *first signal processing section* that outputs Bluetooth voice communication signals within the frequency range of 2.4000-2.4835 GHz (*first radio frequency range*). APPLE-1013, 23; APPLE-1003, ¶163. Further, as explained in §III.A.1(iii) and [1.1], Bluetooth transmitter 1 is configured to transmit (*output*) Bluetooth voice communications to a Bluetooth headset. APPLE-1004, [0024], [0030]; APPLE-1005, [0048], FIG. 3; APPLE-1003, ¶163. Finally, the '974 specification teaches that the “high frequency signal processing” can “transmit and receive signals are transmitted and received in the GHz ranges.” APPLE-1001, 7:13-20.

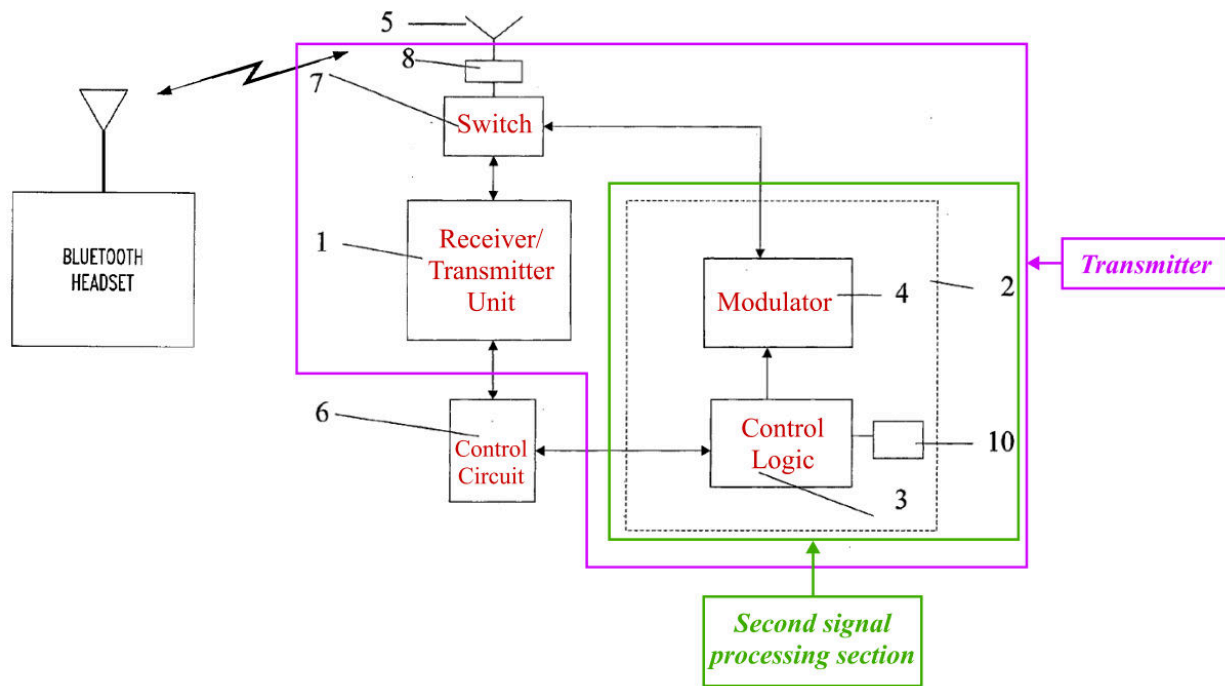


Willgert-Mooney

[12.3]

As discussed for [12.1], in the “communications unit,” RFID transponder 2 would have operated as a *second signal processing section* that outputs RFID transponder signals within, for example, in the frequency range around 13.56MHz or less than 135 KHz (*second frequency range*). APPLE-1013, 20-21; APPLE-1003, ¶164. Further, as explained in §III.A.1(iii) and [1.1], RFID transponder 2 is configured to transmit (*output*) RFID signals representing identity information (*RFID transponder signals*) to a nearby RFID reader. APPLE-1004, [0005], [0025]; APPLE-1003, ¶164. Finally, the ’974 specification teaches that the “[l]ow

frequency signal processing” can “transmit and receive signals are transmitted and received in the MHz ranges.” APPLE-1001, 7:20-27.



Willgert-Mooney

[12.4]

In Willgert-Mooney, signal transmission functionality of the “communications unit” is controlled by control circuit 6. APPLE-1004, [0022]; *see id.*, [0019]. A POSITA would have understood and found obvious that telephones may provide signal transmission functionality using a processor that runs software *instructions* stored in a memory. APPLE-1003, ¶165. This would have provided greater flexibility, through software updates, relative to that of a hardware-based signal processor (e.g., in circuitry) with fixed operation. *Id.*

Software-based processors for controlling signal transmissions were also well-known by the Critical Date, as shown by Schlang. *See* APPLE-1012, Abstract, 12:14-20, 13:1-36, FIG. 9; APPLE-1003, ¶165.

The configurations of logic circuit 6 discussed above would have been implemented with associated memory (*storage medium*) for storing *instructions* and the *first data* associated with RFID signals to control and enable the communication functionality of RFID transponder 2. *See* APPLE-1012, 13:1-12. The transmission functionality stored in the memory would have included instructions for detecting (*monitoring*), using detector 8, a signal provided by a RFID reader when the RFID transponder is in sufficient proximity (*proximal presence*) to the communicator (*proximal RFID reader*). APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1011, [0006]; APPLE-1003, ¶166.

Further, at least some of the memory in communication with the processor would have been configured to store data associated with RFID transponder 2. APPLE-1003, ¶¶167-170. This would have improved the transmission control capabilities of the “control unit,” e.g., by enabling memory access to RFID transponder data after the detection of a signal from an RFID reader. *Id.* The configuration is consistent with Willgert, which describes RFID transponder 2 including “associated memory” for storing similar information. *See* APPLE-1004, [0017]-[0018]; APPLE-1003, ¶¶167-170. The configuration is also supported by

the '974 patent specification. *See* APPLE-1001, 5:14-49; APPLE-1003, ¶¶167-170.

[12.5]

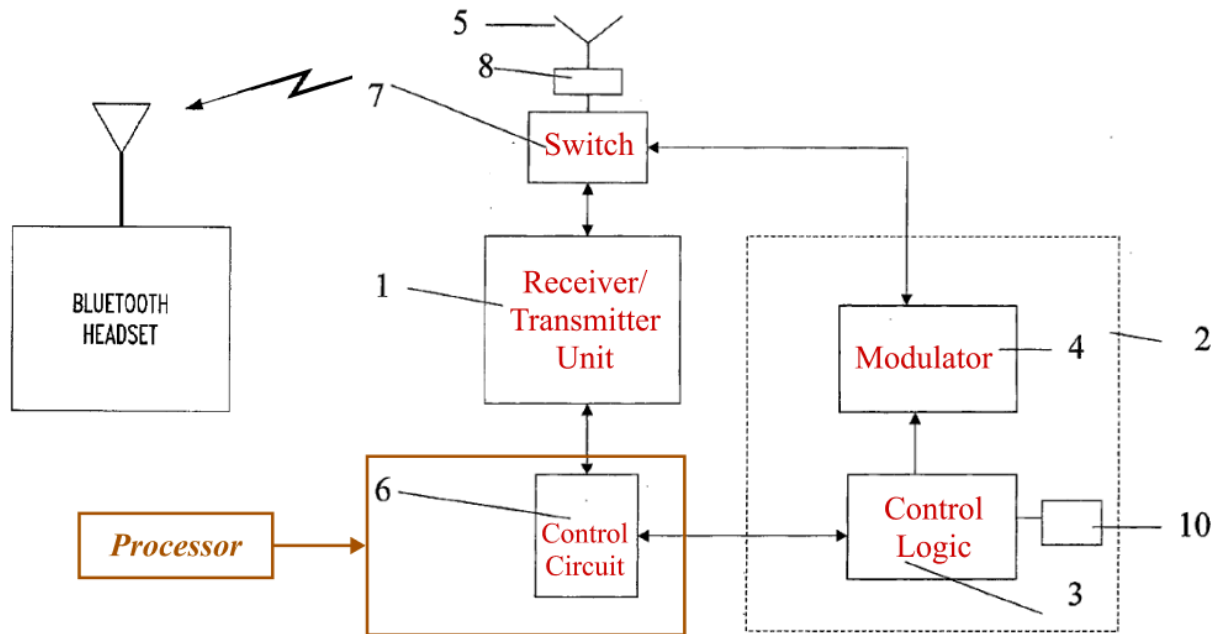
As discussed for [1.2], Willgert-Mooney renders obvious certain scenarios where the “communications unit” (*transmitter*) is *switch[ed]* between two states. APPLE-1004, [0020]-[0024]. The first state involves transmitting RFID signals (*output[ing] first RFID transponder data*) in response to receiving a query signal from a RFID reader (*in response to detection...of the proximal RFID reader*). The second state involves transmitting Bluetooth voice communication (*output a voice call signal for transmission over a wireless network*). APPLE-1003, ¶171.

As discussed for [12.pre] and [12.4], it would have been obvious that the Willgert-Mooney telephone is used in different transmission scenarios where the “communications unit” has *switch[ed]* states in the manner recited in [12.5]. APPLE-1003, ¶172. This is because the transmission configuration of the “communications unit” would have *selectively* changed, e.g., between a *first signal processing section* outputting Bluetooth voice communication signals within the frequency range of 2.4000-2.4835 GHz (*first radio frequency range*), and *second signal processing section* outputting RFID transponder signals within the frequency range of, e.g., around 13.56MHz or less than 135 KHz (*second radio frequency range*). APPLE-1013, 21-23; APPLE-1003, ¶¶172-177. This involves

a change to the configuration of the switch 7 in controlling transmission output of the “communications unit.” APPLE-1004, [0020]-[0024]. It would have also been obvious that if the “communications unit” transmitted a Bluetooth voice communication using antenna 5 before receiving a query/transponder signal from a communicator of an RFID system, then a configuration of switch 7 would have *switch[ed]* to enable RFID transponder 2 to transmit a responsive signal. APPLE-1004, [0022]-[0024], [0030]; APPLE-1003, ¶¶171-177; *see* [1.2].

[12.6]

As discussed for [12.4], a POSITA would have found it obvious to implement the “communications unit” by configuring control circuit 6 to function as a software-based processor (*processor*) to provide functionality of RFID transponder 2 with memory (*storage*) with stored instructions, including instructions relating to controlling transmission output of RFID transponder 2 (*instructions*). *See* APPLE-1012, Abstr., 12:14-20, 13:1-12, 13:21-36, FIG. 9; APPLE-1003, ¶178. These instructions are executed to, e.g., allow RFID transponder 2 to wait to receive a signal provided by a RFID reader when the RFID transponder is in sufficient proximity to the communicator. APPLE-1004, [0004], [0006], [0007], [0015], [0017].



Willgert-Mooney

(vi) *Claims 13, 16-18, 19*

[13]

See [3].

[16]

See [5].

[17]

See [5].

[18]

Demonstrated in [12.4], signal transmission functionality of the “communications unit” may be controlled by control circuit 6 functioning as a processor that runs *instructions* stored in memory. APPLE-1003, ¶180; APPLE-

1004, [0017]-[0019], [0022]; APPLE-1012, Abstract, 13:1-12, 13:21-36. The instructions enable signal transmission functionality, and thus, are *designed to* enable an RFID transponder to sense a query signal (*probing radio frequency signal*) provided by a nearby communicator (*RFID reader*). See [7]; see APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1011, [0006]; APPLE-1003, ¶180.

[19]

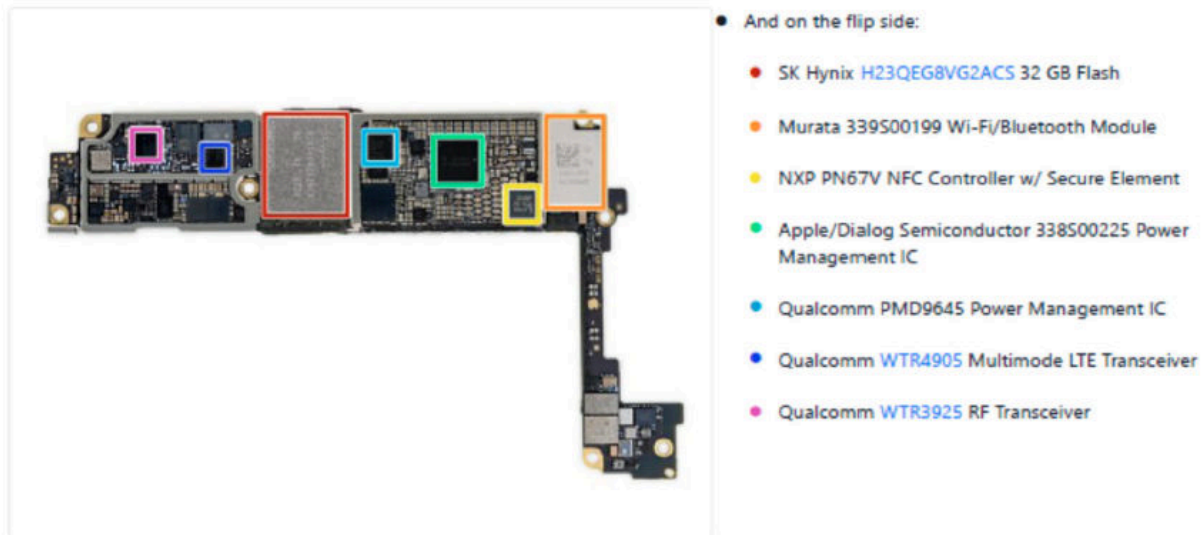
In Willgert-Mooney, the “communications unit” is incorporated in a telephone (*selected one of a wireless mobile phone*) equipped with Bluetooth communication capability (*equipped with communication capability*). APPLE-1003, ¶181; APPLE-1004, [0030]-[0031]. The telephone is therefore “designed for Bluetooth” (*wireless*). APPLE-1003, ¶181.

B. [GROUND 1B] – Claims 1, 3, 5-9, And 11 Are Obvious Over Willgert

1. Litigation

As noted in §II.C, Varia seeks to broaden claim scope for alleging infringement. See, e.g., APPLE-1050 (complaint); APPLE-1052; APPLE-1053; APPLE-1055. Under these broad constructions, Willgert alone renders claims 1, 3, and 6-9 obvious. APPLE-1003, ¶¶182-183. Varia identifies “NXP 67V04 NFC Controller, Qualcomm WTR4905 Multimode LTE Transceiver, and Qualcomm

WTR3925 RF Transceiver” as “collectively” representing the *transceiver*.⁸ See APPLE-1050, 25-26; APPLE-1052, 8.



(See <https://www.ifixit.com/Teardown/iPhone+7+Teardown/67382>).

APPLE-1050, 26

Varia also argues that its “patented inventions simply require that the components performing telephony and RFID be located within the mobile communication device and share some common or overlapping architecture of the smartphone.”

⁸ This statement contradicts Varia’s characterizations of *transceiver* during prosecution of the ’984 patent: “[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; APPLE-1008, 92.

APPLE-1053, 13; *see* APPLE-1003, (citing APPLE-1008, 68); APPLE-1055, 65:13-23, 134:5-13 (deposition testimony of Varia’s expert relating to *switch[ing]* of *states*). Thus, Varia interprets *transceiver* as encompassing circuitry of different components within a mobile device that *collectively* enable transmission/reception functionality of the mobile device. Petitioner’s expert, Dr. Ding, explains that “Varia’s interpretation lacks physical or logical constraints for the claimed ‘transceiver,’ in which case its elements are rendered obvious by Willgert’s contemplated RFID and voice call signaling functionality within a single telephone.” APPLE-1003, ¶¶182-183 (citing APPLE-1004, [0014], [0030]-[0032]).

2. Analysis

(i) Claim 1

Ground 1B renders obvious [1.pre], [1.3] for the same reasons as Ground 1A. APPLE-1003, ¶184.

[1.2]

As discussed below, Willgert’s “communications unit” satisfies Varia’s broad interpretations in the Litigation. APPLE-1003, ¶185.

a. *Switching / State[s]*

Varia interprets *switching* and *state* in the context of the *transceiver* configuration recited in [1.2]. Its expert testified that a “state” can be “A,” “B” or

“A and B.” APPLE-1055, 65:13-23, 134:5-13. This interprets a *state* as being unbounded such that it encompasses a transmission state in which an associated transmitter may be configured to transmit different signal types (whether sequentially or simultaneously) over a specified time frame (e.g., a state in which a transceiver can transmit either RFID and/or voice call signals). *See* APPLE-1003, ¶186. While this interpretation is not supported by the intrinsic record,⁹ implementations of Willgert’s “communications unit” nonetheless satisfy it. *Id.*

Specifically, it would have been obvious that some implementations of Willgert’s “communications unit,” involve use of a single, common processor (e.g., a control circuit 6) for processing all wireless signals (RFID, Bluetooth, voice calls). APPLE-1003, ¶187; APPLE-1004, [0019], [0024]. Willgert teaches that the “function of the control logic 3” (associated with Bluetooth) may be “included in the function of the control circuit 6,” and thus, circuit 6 provides signal processing functionality for both Bluetooth signals and RFID signals. APPLE-1004, [0019]. Given this disclosure, a POSITA would have been motivated to

⁹ The ’974 patent specification does not reference the term “state.” Nor does it teach an example where a transceiver switches specifically from a voice transmission mode to an RFID transmission mode. APPLE-1003, ¶186 (citing APPLE-1001, 6:56-7:32, FIG. 4).

configure control circuit 6 as a common processor for handling processing for voice call signals, removing the need for redundant circuitry (e.g., the need for different, dedicated processors) for Bluetooth and voice call signals. APPLE-1003, ¶¶187-188 (citing APPLE-1017, 1 and APPLE-1012, 13:1-12). This is also consistent with Willgert’s description of leveraging the “communications unit” to provide signaling capabilities relating to different types of wireless signals (e.g., Bluetooth, RFID). APPLE-1004, [0031]; APPLE-1003, ¶¶187-188.

Configurations of multi-modal transceivers with circuitry associated with different types of wireless signals were also conventional by the Critical Date. APPLE-1003, ¶¶187-188 (citing APPLE-1010, 3:22-25, 5:1-12).

Thus, in a first state, a POSITA would have found it obvious that Willgert’s “communications unit” uses control circuit 6 as a single, common processor for processing wireless signals of a telephone, including transmissions (*output[s]*) related to voice call signals (*voice call signals*) of the telephone. APPLE-1004, [0024], [0030]. This would have removed the need for redundant circuitry for Bluetooth and voice call signals within a telephone. APPLE-1003, ¶187.

Further, in a second state, the “communications unit” includes RFID transponder 2, which is configured to transmit (*output*) RFID signals (*RFID transponder signals*) to a communicator of an RFID system. APPLE-1004, [0023], [0030]. In response to receiving a “query signal,” RFID transponder 2

“send[s] a signal in response to the signal received.” *Id.*, [0025]. This transmission enables a RFID reader to read the “identity” of RFID transponder 2, e.g., “at a given short distance,” such as “five meters.” *Id.*, [0005]; *see id.*, [0017]; APPLE-1003, ¶188.

Additionally, under Varia’s interpretation, Willgert renders obvious certain scenarios where the “communications unit” (*transceiver*) is *switch[ed]* from a state of transmitting voice call signals (*first state*) to a state of transmitting RFID signals (*second state*) upon receiving a query signal from a RFID reader (*upon reception of [an] instruction to transmit [] RFID transponder data*). As discussed for [1.1] in Ground 1A, the query/transponder signal obviously includes signal information enabling RFID transponder 2 to identify a signal type (read, write) and such that the included information represents an *instruction* to the RFID transponder 2 to identify the type of signal. APPLE-1003, ¶189; APPLE-1004, [0023].

Moreover, based on the signaling functionality described in Willgert, a POSITA would have found it obvious that at least some of the transmission scenarios of the “communications unit” satisfy Varia’s interpretation of [1.2]. *See, e.g.*, APPLE-1004, [0014], [0030]-[0032]. In one exemplary usage scenario, the “communications unit” would have *switch[ed]* states because the configuration of the “communications unit” would have changed as a result of the type of signal being transmitted, e.g., from a *first state* where voice call signals are transmitted

for output, to a *second state* where RFID signals are transmitted for output.

APPLE-1003, ¶190 (citing to APPLE-1006, 4:15-18 for corroboration).

b. *Transceiver*

Varia interprets *transceiver* as encompassing circuitry of different components within a mobile device that *collectively* enable transmission/reception functionality of the mobile device. APPLE-1053, 6, 13; *see id.*, 1 (citing APPLE-1008, 68); APPLE-1055, 65:13-23, 134:5-13. Willgert’s “communications unit” similarly includes a combined set of components and/or a sum total of circuitry for outputting *voice call signals* and *RFID transponder signals*. APPLE-1004, [0030]-[0032]; *see* APPLE-1001, 9:32-36, 10:8-17. APPLE-1003, ¶¶191-192. As discussed above, control circuit 6 may be implemented as a common processor for handling voice call signals and RFID signals, which was a well-known configuration of multi-modal transceivers. *See* APPLE-1017, 1; APPLE-1012, 13:1-12; APPLE-1010, 3:22-25, 5:1-12.

(ii) *Claim 8*

Ground 1B incorporates by reference the disclosures of Willgert referenced in Ground 1A with respect to Willgert-Mooney and thereby renders obvious [8.1], [8.2a], and [8.2b] for similar reasons. APPLE-1003, ¶¶193-194.

Claim 8	Claim 1
[8pre]	[1pre]
[8.3]	[1.3]

(iii) Claims 3, 5-7, 9, 11

Ground 1B renders these claims obvious for the same reasons discussed in Ground 1A. APPLE-1003, ¶195.

C. [GROUND 2] – Claims 3-6, 10, 11, And 13-17 Are Obvious Over Willgert-Mooney-Holloway-Pitroda

1. Willgert-Mooney-Holloway-Pitroda

(i) Holloway

Holloway addresses limitations of traditional “RFID smart cards” that are “used across a wide range of applications,” including “mass transit, vending machines, access control and use as an electronic purse.” APPLE-1006, 2:15-23¹⁰; *see id.*, Abstr., 11:16-27. These limitations include (1) the inability to “verify that the user of the card is the true owner,” (2) lack of compatibility with devices other than “custom device[s]” that are “located either at special cash points or in the user's home,” and (3) a requirement for a user to carry “[a] large number of cards.” *Id.*; APPLE-1003, ¶66.

¹⁰ Citations to APPLE-1006 are to PDF page numbers.

In addressing these limitations, Holloway proposes using a telephone that is “fully compatible with existing RFID cards” to replace the use of traditional “RFID smart cards” in the variety of RFID smart card-based transactions. APPLE-1006, 11:16-27; *see id.*, 2:15-23. This is accomplished by “incorporat[ing] the functionality of a number of different cards” within the one telephone. *Id.*, 12:5-18; *see id.*, 8:23-9:4, 9:25-10:2. The telephone improves the security of user identity verification through use of “one or more fingerprint scanning means, voice or password recognition means...” *Id.*, Abstr. This allows the telephone to be used “for checking the identity of a user in connection with various transactions.” *Id.*; *see id.*, 2:3-4. To support smart card functionality, the telephone includes “memory” for separately storing information for different RFID smart cards. *Id.*, Abstr.. This functionality coincides with the storage configurations of multiple RFIDs in the '974 patent. *See, e.g.*, APPLE-1001, 4:60-64; 7:45-53; APPLE-1003, ¶67.

Figure 1 (annotated below) shows an example of Holloway’s telephone:

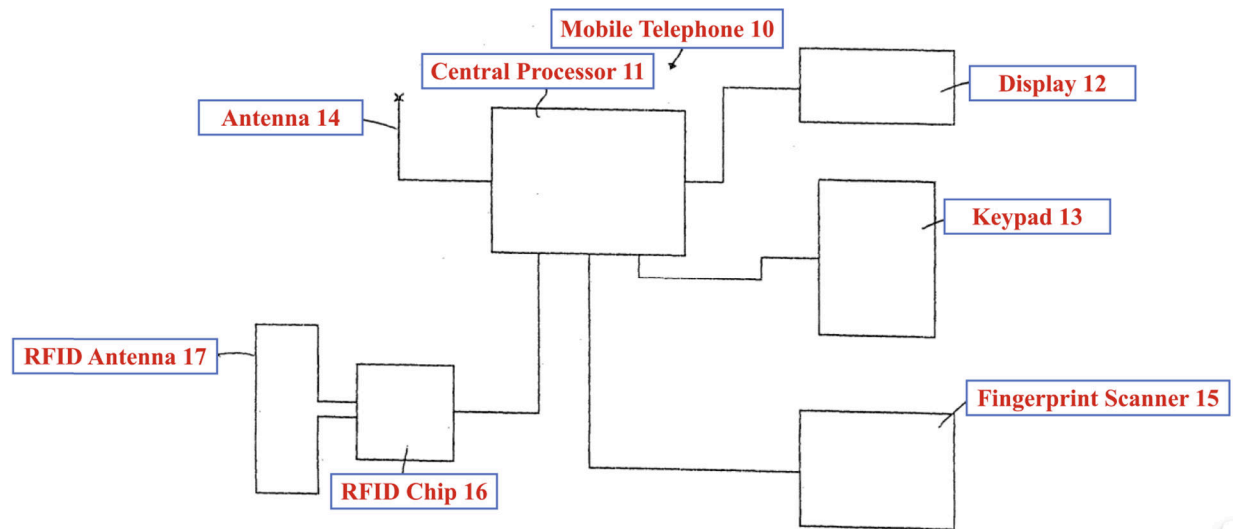


Fig 1

APPLE-1006, FIG. 1 (annotated)

RFID smart card functionality in Holloway's telephone is provided through a "memory" configured to "receive and/or send data via [a] telephone means."

APPLE-1006, 3:28-30. The "memory" may store information "corresponding to different smart cards" (*see id.*, Abstr.). This "makes it possible to allocate service providers with individual areas for their particular application[,] and "incorporate the functionality of a number of different cards" within "one mobile telephone." *Id.*, 12:11-18. This storage configuration may therefore involve use of subdivisions/separations of the "memory." *Id.*, Abstr. ("memory" may be "divided into a plurality of secure areas"); APPLE-1003, ¶¶68-69.

Holloway envisions incorporating RFID technology within a telephone such that a shared memory may exist for RFID and telephone communications.

APPLE-1003, ¶70 (citing APPLE-1017, 2:28-30). The telephone may “undertak[e] a local communication [(RFID communication)] using said communications means substantially simultaneously with, before or subsequent to a telephone communication.” APPLE-1006, 4:15-18. Thus, a user can securely interact with RFID data within the telephone using various devices, e.g., external readers, RFID smart cards, another telephone, or software within the telephone connected to external entities. APPLE-1006, 3:1-2, 3:20-27, 6:11-20, 8:1-6; APPLE-1003, ¶70.

(ii) Pitroda

Pitroda describes “methods of administering a plurality of client accounts for an electronic transaction device...” APPLE-1007, 1:6-12. An “electronic transaction device” can communicate with “point of sale computers” so that “a person may use a single electronic transaction device to conduct financial transactions to several credit, debit, or deposit accounts, such as accounts normally associated with...banking transactions.” *Id.*, 1:13-42. The “electronic transaction device” may be “general purpose hand held computers” that are “programmed to conduct electronic transactions[,]” e.g., those that run “Palm OS or Microsoft Windows CE.” *Id.*, 1:43-52. In performing an electronic financial transaction, a user can “select a credit card account” on an electronic transaction device 12 and then “transmit the account information” to a payment processing device. *Id.*, 7:18-

29; APPLE-1003, ¶71.

(iii) Combination

As combined, Willgert-Mooney-Holloway-Pitroda would have incorporated the teachings of Holloway and Pitroda relating to RFID smart cards to further improve Willgert-Mooney (discussed in §III.A.1). A POSITA would have been motivated to seek these improvements because Willgert and Holloway each similarly express a desire to improve user convenience when using a similar type of device—a telephone with RFID signaling capabilities. *Compare* APPLE-1004, [0009] (“simpler handling”), *and* APPLE-1006, 6:4-16 (“greater flexibility and convenience”). Like Willgert and Holloway, Pitroda also focuses on user action, and does so by specifically discussing a usage scenario involving the same type of telephone in one of the RFID smart card transactions contemplated in Holloway. *See* APPLE-1007, 7:18-40 (RFID-capable telephone being used in a financial transaction); APPLE-1003, ¶80.

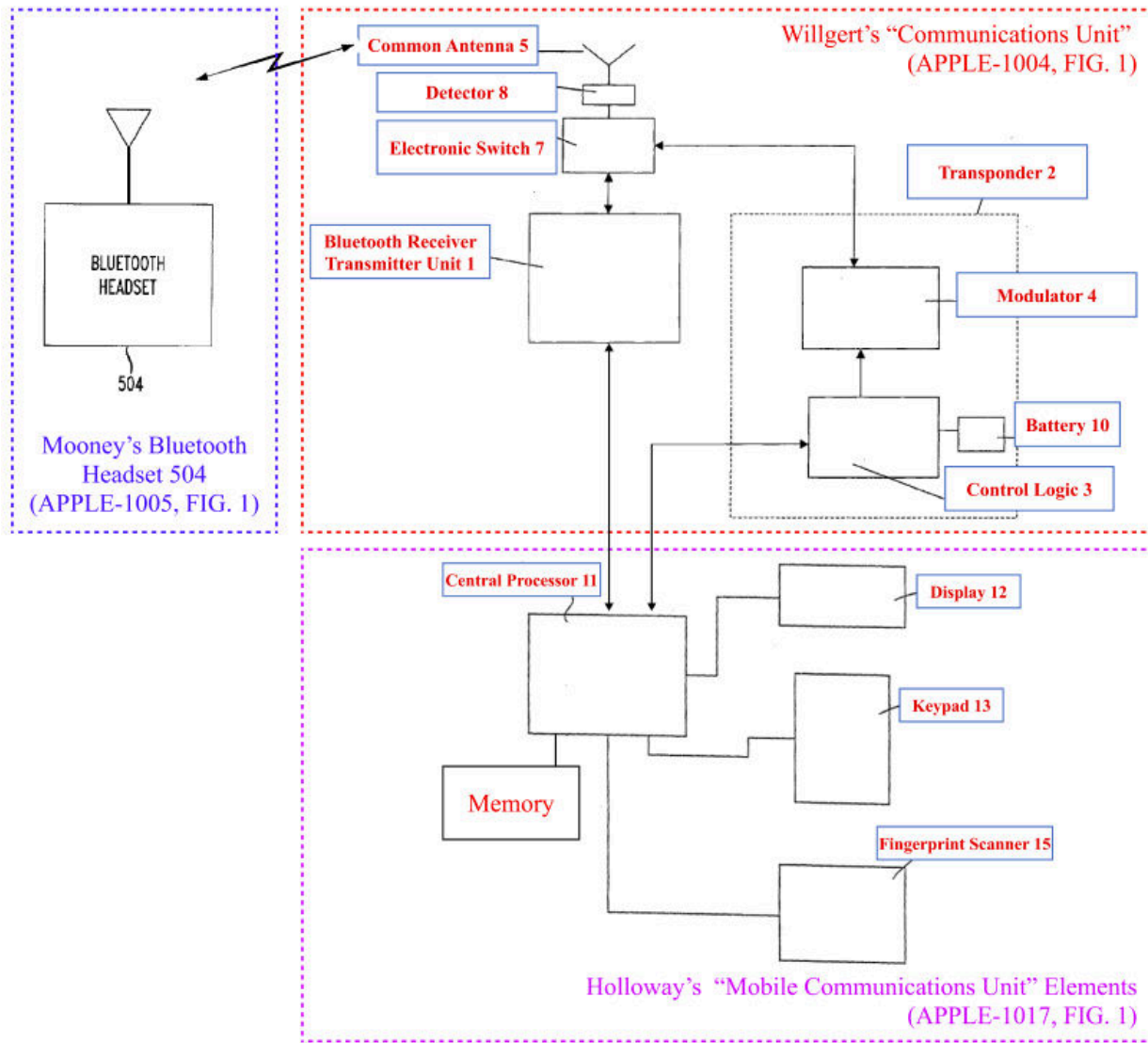
Given these overlaps, a POSITA would have sought to improve the RFID capabilities of Willgert-Mooney by incorporating the teachings of Holloway and Pitroda. Specifically, the POSITA would have looked to Holloway’s teaching of using a telephone for use in an RFID smart transaction. APPLE-1006, 10:4-15. The POSITA would have also looked to Pitroda’s teaching of enabling a user to select a particular RFID smart card (from among multiple available RFID smart

cards) for use in the RFID smart card transaction. APPLE-1007, 7:18-40. By combining these teachings, a POSITA would have realized the “real benefit” to the user described in Holloway—a mobile device configuration where the user “no longer has to carry in his wallet a collection of cards that he may rarely use.”

APPLE-1006, 12:11-18; APPLE-1003, ¶81. By combining these features, a POSITA would have understood and found obvious that the features describing multiple RFID smart cards and the selection of those RFID smart cards in Holloway and Pitroda further enable Willgert’s transponder that already possess the ability to have RFID data “written into the transponder memory, so that said information can be read-out from the memory later on.” APPLE-1004, [0018].

To provide the improvements discussed above, a POSITA would have implemented the Willgert-Mooney-Holloway-Pitroda phone to incorporate an improved RFID transponder. APPLE-1003, ¶82. This (1) enables the functionality of multiple RFID smart cards (as contemplated in each of Holloway and Pitroda) and (2) enhances the capabilities of Willgert’s telephone. APPLE-1003, ¶83; *see* APPLE-1004, [0015]; APPLE-1006, 3:1-5; *see id.*, 3:10-12. The phone would also have included logic (e.g., implemented through Holloway’s central processor 11 and/or Willgert’s control circuit 6) to provide management of RFID data (e.g., a plurality of RFID smart cards) for various RFID implementations. APPLE-1004, [0019]; APPLE-1006, 3:24-26.

One example of Willgert-Mooney-Holloway-Pitroda is shown below:



Willgert-Mooney-Holloway-Pitroda¹¹

Because Willgert, Holloway, and Pitroda each describe employing RFID

¹¹ Figure component labels have been added in red font. See APPLE-1006, Abstr., 5:21-28; APPLE-1003, ¶¶84-85.

technology through mobile devices, a POSITA would have understood and found obvious that Pitroda's organization of memory storage for each RFID smart card and the input capabilities of the mobile phone could be utilized to improve the user's experience and achieve the goals stated by Willgert and Holloway. APPLE-1003, ¶¶85-86. Thus, in implementing Willgert-Mooney-Holloway-Pitroda, a POSITA would have utilized hardware elements described in Willgert and Holloway, while leveraging the software enhancements described in Pitroda, e.g., the employment of multiple different RFID smart cards through the Willgert transponder using Pitroda's disclosure of user selection. APPLE-1003, ¶¶87-94.

Finally, a POSITA would have had a reasonable expectation of success in combining the teachings of Willgert-Mooney, Holloway, and Pitroda in the manner discussed above. APPLE-1003, ¶95. Implementation of the combination with Pitroda would have required only routine knowledge because Holloway and Willgert both teach similar types of devices (telephones) for enabling similar types of communication functionality (RFID communication, telephone communication). APPLE-1004, [0014]-[0019]; APPLE-1006, 4:20-5:15. The incorporation of multiple types of RFID smart card functionality into a mobile device (e.g., Willgert-Mooney telephone) also represented a well-known configuration. *See, e.g.*, APPLE-1006, 2:15-23 (“**For some time** RFID smart cards have been used across a wide range of applications”); *see also id.*, 2:6-13.

By at least 2002, combining RFID technology implementations into a single device was practiced in “hybrid cards,” which are “a physical medium on which several technologies coexist . . . [to] support different external systems and applications.”

Id. Specifically, the hybrid cards could incorporate “[m]ultiple contactless technologies (125 kHz, 13.56 MHz)” and “both contact and contactless technologies are in the early stages of market deployment.” *Id.*; APPLE-1003, ¶95.

Providing RFID technology for multiple applications (e.g., mass transit, credit/debit transactions, and access control) was similarly well-known by October 2002. *Id.*; *see also* APPLE-1006, 2:15-23. Specifically, “[a]pplications such as logical access to computer networks, electronic payment, electronic ticketing and transit can be combined with physical access to offer a multi-application and multi-technology ID credential [(smart card)].” APPLE-1003, ¶96.

As Dr. Ding explains, “various systems were known to have been capable of simultaneously providing RFID smart card functionality complying with multiple standards.” APPLE-1003, ¶97 (citing APPLE-1019, 21-22, 13, identifying “125 kHz technology” as a “secure and proven technology for access control applications”). For instance, the “multiple standards” could include the “three primary contactless technologies considered for physical access control applications: 125 kHz, ISO/IEC 14443, and ISO/IEC 15693 technologies.”

APPLE-1006, 2. Thus, implementation of Willgert-Mooney-Holloway-Pitroda would have been within the skill level of a POSITA without invention. APPLE-1003, ¶97; APPLE-1019, 13, 19, 21-22.

2. Analysis

(i) Claims 3-6, 10, 14-17

[3]

As discussed for [3] in Ground 1A, Willgert describes **RFID transponder data compris[ing]** identification information (**identifier**), consistent with the '974 patent specification. APPLE-1003, ¶196; APPLE-1004, [0017]; APPLE-1001, 3:60-65. Holloway identifies scenarios where RFID technology is used through a telephone, including “at passport control points, [to] access to high security buildings or [for] checks on the holders of driving licenses.” APPLE-1006, 9:25-10:2. Thus identification information output by an RFID transponder (**first RFID transponder data**) may include a **security key** (e.g., information providing “access to high security buildings”) and/or an **identifier** (e.g., information representing a “driving license[]”). *Id.*; APPLE-1003, ¶196; APPLE-1001, 1:45-58.

To the extent that **selected one** in [3] is deemed to require user selection, it would have been obvious that the Willgert-Mooney-Holloway-Pitroda telephone is configured to output, via an RFID transponder, identification information (**first RFID transponder data**) based on a user selection (**selected one**) of a particular

RFID smart card from amongst the different types of RFID smart cards, including information providing “access to high security buildings” (*security key*), or information representing a “driver license[]” (*identity*). APPLE-1006, 9:25-10:2; APPLE-1003, ¶197.

Holloway’s telephone “provides a means to carry out normal day to day credit/debit purchases,” which may be accomplished through, e.g., user selection between a credit card and a debit card for use in an RFID smart card transaction. APPLE-1006, 7:28-32, 10:4-15; APPLE-1003, ¶¶198-99; APPLE-1007, 7:16-38, 8:18-29. This is consistent with Holloway’s description of a telephone “incorporat[ing] the functionality of a number of different cards” within “one mobile telephone.” APPLE-1006, 12:11-18. Holloway also describes display and user input mechanisms for supporting RFID smart card-based financial transactions. APPLE-1006, 7:22-26, 8:14-24, 9:1-6.

[4]

Holloway’s telephone “incorporate[s] the functionality of a number of different cards,” rendering this claim obvious. APPLE-1006, 12:5-18; APPLE-1003, ¶200.

As discussed for [3], Pitroda teaches user selection of (*facilitating the user in selecting*) an RFID smart card (*the first RFID transponder data*) from among a wallet of available RFID smart cards (*from a plurality of RFID transponder*

data). APPLE-1007, 7:16-38, 8:18-29. The Willgert-Mooney-Holloway-Pitroda telephone enables user selection of a particular RFID smart card from “different cards” for use in an RFID smart card transaction. APPLE-1006, 12:11-18; *see id.*, 7:28-32, 10:4-15; APPLE-1003, ¶201. Each RFID smart card is associated with different identification information (e.g., different credit card number), and therefore, the identification information associated with the “different cards” (and stored in memory) represents *a plurality of RFID transponder data*. *See id.*, Abstract, 12:11-18. Thus, in *facilitating selection of* an RFID smart card from “multiple cards” through a user interface (*using the mobile communication device*), the Willgert-Mooney-Holloway-Pitroda telephone would have thereby *facilitat[ed] the user in selecting* an RFID smart card (*first RFID transponder data*) from multiple available RFID smart cards (*from a plurality of RFID transponder data*). APPLE-1003, ¶¶201-202. Because such user selection allows transmission of identification information of a selected RFID smart card by the telephone, the user selection itself is a selection of the outputted identification information (e.g., credit card number) (*first RFID transponder data*) from amongst the identification information for different available RFID smart cards (*plurality of RFID transponder data*). APPLE-1003, ¶¶201-202.

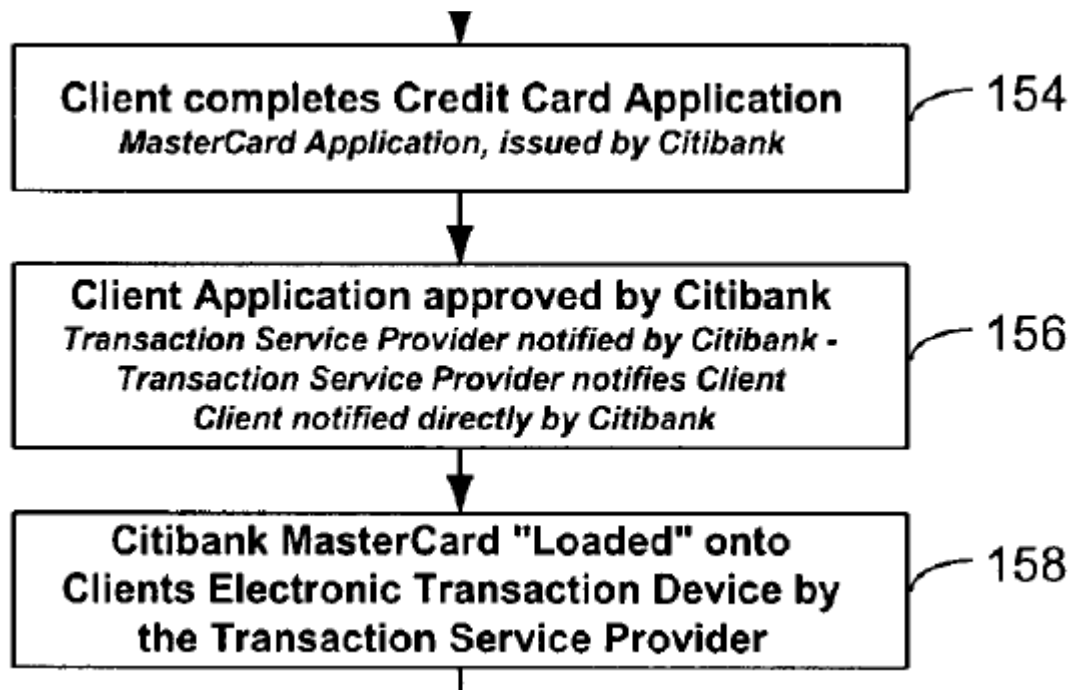
[5]

Discussed for [5] in Ground 1A, Willgert teaches RFID transponder 2 “may

also be designed to enable information to be written into the transponder memory, so that said information can be read-out from the memory later on, in the aforesaid manner [(in response to a query/probing signal)].” APPLE-1004, [0018]. Thus, by enabling information to be written into transponder memory, Willgert thereby discloses *facilitating provision of the first RFID transponder data*. *Id.*; APPLE-1003, ¶203. In providing transponder data to a telephone, the data can be “read-out from them memory later on” such that the information written into transponder memory includes attributes associated with a subsequent transmission based on read-out (*signaling attribute*). *Id.* Finally, because the response provided by the RFID transponder 2 is itself based on receipt of a query/transponder signal provided by an RFID communicator, the RFID data is “written into the transponder memory” such that it is *in the format compatible with said RFID reader*. *Id.*; APPLE-1003, ¶203.

The Willgert-Mooney-Holloway-Pitroda telephone stores “a number of different cards.” APPLE-1006, 12:11-18; *see id.*, 2:15-23. This stored information would have been obtained at least during an initial configuration operation through one of several exemplary processes described in Pitroda for providing RFID smart card information to a telephone. *See, e.g.*, APPLE-1007, 3:59-4:40. Pitroda’s Figure 10 references a “transaction service provider service flow,” during which a user registers as a new client and a “new electronic transaction device 12 requested

by [the] client.” APPLE-1007, 17:44-62. During this process, a “Citibank MasterCard” is “Loaded” onto a client’s device by the transaction service provider and a client profile is updated. *Id.*, 17:63-65. The transaction service provider may provide “Issue account services,” which include “activating specific accounts, such as credit cards, on an electronic transaction device 12” after which “the specific card(s) may be **downloaded** from the transaction service provider 10 to the electronic transaction device 12.” APPLE-1007, 12:6-14. Indeed, “loading” (or “download[ing]”) of RFID smart card information onto Willgert-Mooney-Holloway-Pitroda telephone involves the provision of identification information to be used in an RFID smart card transaction (*provision of the first RFID transponder data*). APPLE-1003, ¶204.



APPLE-1007, Fig. 10 (cropped)

By the Critical Date, RFID readers were known to use different signal formats (e.g., different signal frequencies, different coding schemes). *See* APPLE-1025. Dr. Ding explains, “receipt of provider-specific signal format information” enables “communications with the different types of RFID readers described in Holloway.” APPLE-1003, ¶¶205-206 (citing APPLE-1006, 7:22-26, 7:27-30, and 8:14-24).

Further, “RFID readers used different generations of smart card technology,” including “different frequencies and and/or different signal formatting requirements (*signaling attributes*).” APPLE-1003, ¶¶206-207 (citing APPLE-1019, 20). And, because Holloway teaches one device for “a number of different cards,” RFID smart card information “loaded” or “downloaded” onto the Willgert-Mooney-Holloway-Pitroda telephone would have included provider-specific signal information (*signaling attribute*) for enabling the telephone to communicate with different types of RFID readers (*format compatible with said RFID reader*). APPLE-1003, ¶¶206-207. Such provisioning was conventional by the Critical Date. APPLE-1003, ¶¶206-207; *see*, APPLE-1006, 2:15-23, 4:1-2, 4:20-27, 7:11-20, 9:1-6; APPLE-1025. APPLE-1004, [0017]; *see id.*, [0005].

[6.1]

Willgert-Mooney-Holloway-Pitroda renders [6.1] obvious for the reasons discussed in Ground 1A. APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1001, [0006]; APPLE-1003, ¶208.

Holloway and Pitroda further demonstrate obviousness of various elements of the independent claims (e.g., [1.1], [1.2], [8.1], [8.2a], [8.2b]). The Willgert-Mooney-Holloway-Pitroda telephone would have enabled a user to select an RFID smart card amongst multiple available options for use in an RFID smart card transaction, which may satisfy the *instruction* recited in at least [1.1]. APPLE-1006, 10:4-15, 12:11-18; APPLE-1007, 7:18-40. Further, as discussed for [6.2], the Willgert-Mooney-Holloway-Pitroda telephone would have rendered obvious scenarios in which a user may select different RFID smart cards sequentially for use. APPLE-1003, ¶209.

[6.2]

Willgert-Mooney-Holloway-Pitroda incorporates renders [6.2] obvious for the reasons discussed in Ground 1A. APPLE-1004, [0004], [0006], [0007], [0015], [0017]; APPLE-1001, [0006]; APPLE-1003, ¶210. Limitation [6.2] is also obvious based on the teachings of Holloway and Pitroda.

Discussed in Ground 1A, a POSITA would have understood and found obvious that the RFID transponder 2 of the “communications unit” as being

configured to transmit multiple signal transmissions over time. APPLE-1003, ¶211; APPLE-1004, [0017]. The Willgert-Mooney-Holloway-Pitroda device, (discussed in §III.C.1) would have stored RFID smart card data to allow the user can use a single device as a replacement for “different cards.” APPLE-1006, 10:16-27, 11:5-18, 2:20-23.

Based on Pitroda, the Willgert-Mooney-Holloway-Pitroda device would have allowed a user to select an RFID smart card to be outputted for a given RFID transaction. APPLE-1007, 7:18-40, 7:11-29, 7:28-8:4, 9:1-2, 9:5-6, 12:11-19. Thus, because the device enables use for multiple smart card transactions, it is configured to transmit (*output*) a first signal with identification information for a first RFID smart card transaction (*RFID transponder signal* with *first RFID transponder data*) and, at some later time, transmit a second signal with identification information for a second RFID smart card transaction (*second radio frequency signal* with *second RFID transponder data*). APPLE-1007, 7:14-40. Further, because RFID smart card transactions by the Willgert-Mooney-Holloway-Pitroda device are based on user selection, the combination renders [6.2] obvious whether the user selects the same RFID smart card, or selects different RFID smart cards, for use in each smart card transaction. APPLE-1003, ¶212.

Based on Holloway, the Willgert-Mooney-Holloway-Pitroda device would have transmitted signals with identification information for RFID smart card

transactions using “relatively short-range communication means” to determine proximity to a nearby reader (*on detection of the RFID reader*). APPLE-1006, 3:24-26, 7:22-26; *see id.*, 7:28-8:4. Signal output by the telephone emulates functionality of an RFID smart card and thereby *emulates output* of an RFID transponder associated with a smart card, including a passive RFID smart card (*RFID transponder of a passive type*). *Id.*, 7:22-26; *see* APPLE-1011, [0006]; APPLE-1003, ¶213.

[10]

Consistent with the ‘974 specification, the Willgert-Mooney-Holloway-Pitroda telephone would have allowed RFID technology to be used in access control scenarios. APPLE-1001, 3:66-4:4; APPLE-1006, 9:25-10:2. Further, “access to high security buildings” may involve, e.g., providing access to a building through a door by transmission of RFID transponder data including an access credential (*security key*) to an RFID reader associated with the door. APPLE-1003, ¶214. RFID-based access control systems were also well-known before the Critical Date. *Id.* (citing APPLE-1019, 8).

[14]

See [10]. A POSITA would have found it obvious that “access to high security buildings” within Holloway may involve, e.g., providing access to a building through a door by transmission of RFID transponder data including an

access credential (*door key*) to an RFID reader associated with the door, similar to the access control scenarios of the '974 specification,. APPLE-1001, 3:66-4:4; APPLE-1006, 9:25-10:2, APPLE-1003, ¶215 (citing APPLE-1019, 8, describing a conventional RFID-based access control system).

[15]

Demonstrated in [12.4], Ground 1A, in implementations of Willgert-Mooney-Holloway-Pitroda, signal transmission functionality of the “communications unit” is controlled by control circuit 6, which may be provided using a processor that runs software *instructions* stored in memory. APPLE-1003, ¶216; *see* APPLE-1004, [0017]-[0019], [0022]; APPLE-1012, Abstract, 13:1-12, 13:21-36. The instructions provide signal transmission functionality, and thus, would have been *designed to* enable an RFID transponder to facilitate selection of an RFID smart card from “multiple cards” through a user interface shown on a telephone (*facilitate the user in selecting the first RFID transponder data*). *See* [4]; APPLE-1017, 7:28-32, 10:4-15, 12:11-18; APPLE-1007, 7:16-38, 8:18-29.

Demonstrated in [6.2] of Ground 1A, a POSITA would have understood and found obvious that, in this example, the “multiple cards” would each be represented as unique RFID transponder data, thus in selecting a single card, a user is *selecting the first RFID transponder data from a plurality of RFID transponder data*.

APPLE-1003, ¶216. The instructions would have also *instruct[ed]* identification

information for a selected RFID smart card (*output*), consistent with Willgert's disclosure of logic circuit 6 controlling transmission output of the "communications unit." See APPLE-1004, [0004], [0006], [0007], [0015], [0017].

[16]

See [5], Ground 2; [12.4], Ground 1A. In implementations of Willgert-Mooney-Holloway-Pitroda, signal transmission functionality of the "communications unit" is controlled by control circuit 6, which may be provided using a processor that runs software *instructions* stored in memory. APPLE-1003, ¶217; see APPLE-1004, [0017]-[0019], [0022]; APPLE-1012, Abstract, 13:1-12, 13:21-36. The instructions provide signal transmission functionality, and thus, would have been *designed to* enable an RFID transponder to facilitate provisioning of RFID smart card information to a telephone (*facilitate provision of the first RFID transponder data*). See [5]; see APPLE-1006, 2:15-23, 4:1-2, 4:20-27, 7:11-20, 9:1-6; APPLE-1025; APPLE-1003, ¶217. Thus, a POSITA would have understood and found obvious that when Willgert teaches writing into the transponder's memory for the purpose of later reading out in response to a query/probing signal, that the RFID transponder data "written into the transponder memory" comprises at least *facilitat[ing] provision of the first RFID transponder data*, so that the RFID transponder data can later be "read-out from the memory" in response to a query signal. APPLE-1004, [0018]; APPLE-1003, ¶217.

[17]

As discussed for [16], implementations of Willgert-Mooney-Holloway, software *instructions* provided by a processor are *designed to* enable an RFID transponder to facilitate provisioning of RFID smart card information to a telephone. *See* [5]; APPLE-1006, 2:15-23, 4:1-2, 4:20-27, 7:11-20, 9:1-6; APPLE-1025. Such provisioning would have included proprietary signal information (*signaling attribute*), allowing the mobile device to output identification information of different RFID smart cards (*outputting of the first RFID transponder data*) in a manner compatible with the external RFID reader (*radio frequency signal*). APPLE-1025; APPLE-1003, ¶218.

(ii) *Claims 11, 13*

Willgert-Mooney-Holloway-Pitroda renders the following claims obvious in same manner as discussed above. APPLE-1003, ¶219.

Claim	Corresponding Claim
[11]	[5]
[13]	[3]

IV. PTAB DISCRETION

A. §325(d)

Discretionary denial under the Board's §325(d) *Advanced Bionics* analysis is not warranted. *See* IPR2019-01469, Paper 6, 8-9 (PTAB Feb. 13,

2020)(“*Advanced Bionics*”)(precedential). Neither prong of the *Advanced Bionics* test is met. None of the prior art advanced in this Petition was before the Office and there is no evidence of substantive consideration by the Office. *See* APPLE-1002, 51-55. In any event, the Examiner overlooked the prior art because no substantive rejections were issued during examination. Because this Petition establishes a reasonable likelihood that at least one of the Challenged Claims is unpatentable, Apple has demonstrated material error by the Office. *See* §III.A-C; *see* PGR2022-00010, Paper 9, 8-9 (PTAB June 6, 2022).

B. §314(a)

Consistent with Congressional intent, the goals of *Fintiv*, and the interim guidance issued by Director Vidal on June 21, 2022 (“Director’s Guidance” or APPLE-1056), Apple asks the Board to consider the challenges raised in this Petition. IPR2020-00019, Pap. 11, 6 (PTAB Mar. 20, 2020)(“*Fintiv*”)(precedential).¹²

Factor 1 is currently neutral because a stay has not been requested in the

¹² Apart from Apple’s showing that *Fintiv* favors institution, the *Fintiv* framework should not be followed because it is legally invalid. The framework (1) exceeds the Director’s authority, (2) is arbitrary and capricious, and (3) was adopted without notice-and-comment rulemaking.

Litigation. Moreover, the Board does “not attempt to predict” how an appeals or district court might adjudicate a future motion to stay. *Fintiv*, 12; IPR2019-01393, Pap. 24, 7 (PTAB June 16, 2020)(“*Sand Revolution*”)(informative); IPR2020-01019, Pap. 12, 14 (PTAB Dec. 1, 2020)(“*Sotera*”)(precedential).

Factor 2 favors institution because no trial date is set in the Litigation and any scheduled trial date is speculative since “scheduled trial dates are unreliable and often change.” APPLE-1056, 8. A claim construction hearing is yet to be scheduled. *See* APPLE-1058, 3. Further, the median time-to-trial for EDNY is currently 63.8 months, which suggests a likely trial date no sooner than January 2029. APPLE-1057, 2. In contrast, if instituted, the Board will likely issue its Final Written Decision around March 2026.

Factor 3 favors institution. By any objective standard, this petition is being filed at an early stage of the Litigation, which “has weighed against exercising the authority to deny institution[.]” IPR2020-00156, Pap. 10, 9 & n.8 (June 15, 2020)(“*Seven*”), 11-12 (quoting *Fintiv*, 11). The District Court has yet to expend significant resources on the case. *Seven*, 10-13; *Sotera*, 16-17; IPR2020- 00820, Pap. 15, 11-13 (Oct. 21, 2020)(“*Snap*”)(precedential). By contrast, Apple has diligently filed this petition more than a month ahead of the one-year time bar, while the Litigation is still in its early stages.

As to Factor 4, there is limited overlap between issues between the

Litigation and any IPR resulting from this petition. Such lack of overlap “has tended to weigh against exercising discretion to deny institution.” *Fintiv*, 12-14. Varia also asserts claims 1, 4, 6, 8, 12, and 15 of infringement in the district court, while this Petition addresses all claims.

Factor 5 is neutral. Apple’s status in the Litigation is at worst neutral under *Fintiv* Factor 5. Indeed, the *Fintiv* decision “says nothing about situations in which the petitioner is the same as, or is related to, the district court defendant.” IPR2020-00122, Pap. 15, *10 (Crumbley, dissenting) (“*Cisco*”); *Fintiv*, 13-14.

Factor 6 strongly favors institution because Director Vidal explained that “the PTAB will not deny institution...under *Fintiv*...when a petition presents compelling evidence of unpatentability....” APPLE-1056, 3-5, 9; *see Fintiv*, 14-15. Here, the merits of this Petition are similarly compelling, and institution would result in a finding of unpatentability based on prior art references materially different from those considered by the Examiner. *See* §§III.A-C; *see* APPLE-1003. Further, any inefficiencies borne out parallel proceedings before the Litigation is outweighed by the strength of the merits alone. APPLE-1056, 3-5, 9; *Fintiv*, 14-15.

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner authorizes charge of fees to Deposit Account 06-1050.

VI. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Apple Inc. is the real party-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

The '974 patent is the subject of a civil action, *Varia Holdings LLC v. Apple Inc.*, 23-cv-7477, E.D.N.Y., filed October 5, 2023 (APPLE-1004). Apple is not aware of any other disclaimers, reexamination certificates, or IPR petitions addressing the '974 patent.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Apple provides the following designation of counsel.

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D. Service Information

Please address all correspondence and service to the address listed above.

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Respectfully submitted,

Dated: August 30, 2024

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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 Petition for Inter Partes Review totals 13,985 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: August 30, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on August 30, 2024, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided by Federal Express, to the Patent Owner, by serving the correspondence address of record as follows:

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