

Patent Owner's Oral Argument Demonstratives

Apple Inc. v. Varia Holdings LLC

U.S. Patent Nos. 8,381,974, 9,405,947, 8,127,984

IPR2024-01362, IPR2024-01363, IPR2024-01364

Patent Trial and Appeal Board

United States Patent and Trademark Office

KASOWITZ

(54) **EMULATED RADIO FREQUENCY IDENTIFICATION**

*All citations are to -1364 proceedings unless otherwise indicated

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

This claim

(21) Appl. No.: 13/061,300

(12) **Unite Zatlouk**

(54) EMULATED IDENTIFICATION

(73) Inventors:

(73) Assignee:

(*) Notice:

(21) Appl. No.

(22) Filed:

(65)

US 2012/0131447 A1

(63) Continuation of application No. 2004, now Pat. No. 7,300,000.

(60) Provisional application No. 60/478,245, filed on Jan. 13, 2003.

(51) Int. Cl. G06K 7/00 (2006.01) G06K 7/10 (2006.01) G06K 7/14 (2006.01) G06K 7/16 (2006.01) G06K 7/20 (2006.01) G06K 7/22 (2006.01) G06K 7/24 (2006.01) G06K 7/26 (2006.01) G06K 7/28 (2006.01) G06K 7/30 (2006.01) G06K 7/32 (2006.01) G06K 7/34 (2006.01) G06K 7/36 (2006.01) G06K 7/38 (2006.01) G06K 7/40 (2006.01) G06K 7/42 (2006.01) G06K 7/44 (2006.01) G06K 7/46 (2006.01) G06K 7/48 (2006.01) G06K 7/50 (2006.01) G06K 7/52 (2006.01) G06K 7/54 (2006.01) G06K 7/56 (2006.01) G06K 7/58 (2006.01) G06K 7/60 (2006.01) G06K 7/62 (2006.01) G06K 7/64 (2006.01) G06K 7/66 (2006.01) G06K 7/68 (2006.01) G06K 7/70 (2006.01) G06K 7/72 (2006.01) G06K 7/74 (2006.01) G06K 7/76 (2006.01) G06K 7/78 (2006.01) G06K 7/80 (2006.01) G06K 7/82 (2006.01) G06K 7/84 (2006.01) G06K 7/86 (2006.01) G06K 7/88 (2006.01) G06K 7/90 (2006.01) G06K 7/92 (2006.01) G06K 7/94 (2006.01) G06K 7/96 (2006.01) G06K 7/98 (2006.01) G06K 8/00 (2006.01) G06K 8/02 (2006.01) G06K 8/04 (2006.01) G06K 8/06 (2006.01) G06K 8/08 (2006.01) G06K 8/10 (2006.01) G06K 8/12 (2006.01) G06K 8/14 (2006.01) G06K 8/16 (2006.01) G06K 8/18 (2006.01) G06K 8/20 (2006.01) G06K 8/22 (2006.01) G06K 8/24 (2006.01) G06K 8/26 (2006.01) G06K 8/28 (2006.01) G06K 8/30 (2006.01) G06K 8/32 (2006.01) G06K 8/34 (2006.01) G06K 8/36 (2006.01) G06K 8/38 (2006.01) G06K 8/40 (2006.01) G06K 8/42 (2006.01) G06K 8/44 (2006.01) G06K 8/46 (2006.01) G06K 8/48 (2006.01) G06K 8/50 (2006.01) G06K 8/52 (2006.01) G06K 8/54 (2006.01) G06K 8/56 (2006.01) G06K 8/58 (2006.01) G06K 8/60 (2006.01) G06K 8/62 (2006.01) G06K 8/64 (2006.01) G06K 8/66 (2006.01) G06K 8/68 (2006.01) G06K 8/70 (2006.01) G06K 8/72 (2006.01) G06K 8/74 (2006.01) G06K 8/76 (2006.01) G06K 8/78 (2006.01) G06K 8/80 (2006.01) G06K 8/82 (2006.01) G06K 8/84 (2006.01) G06K 8/86 (2006.01) G06K 8/88 (2006.01) G06K 8/90 (2006.01) G06K 8/92 (2006.01) G06K 8/94 (2006.01) G06K 8/96 (2006.01) G06K 8/98 (2006.01) G06K 9/00 (2006.01) G06K 9/02 (2006.01) G06K 9/04 (2006.01) G06K 9/06 (2006.01) G06K 9/08 (2006.01) G06K 9/10 (2006.01) G06K 9/12 (2006.01) G06K 9/14 (2006.01) G06K 9/16 (2006.01) G06K 9/18 (2006.01) G06K 9/20 (2006.01) G06K 9/22 (2006.01) G06K 9/24 (2006.01) G06K 9/26 (2006.01) G06K 9/28 (2006.01) G06K 9/30 (2006.01) G06K 9/32 (2006.01) G06K 9/34 (2006.01) G06K 9/36 (2006.01) G06K 9/38 (2006.01) G06K 9/40 (2006.01) G06K 9/42 (2006.01) G06K 9/44 (2006.01) G06K 9/46 (2006.01) G06K 9/48 (2006.01) G06K 9/50 (2006.01) G06K 9/52 (2006.01) G06K 9/54 (2006.01) G06K 9/56 (2006.01) G06K 9/58 (2006.01) G06K 9/60 (2006.01) G06K 9/62 (2006.01) G06K 9/64 (2006.01) G06K 9/66 (2006.01) G06K 9/68 (2006.01) G06K 9/70 (2006.01) G06K 9/72 (2006.01) G06K 9/74 (2006.01) G06K 9/76 (2006.01) G06K 9/78 (2006.01) G06K 9/80 (2006.01) G06K 9/82 (2006.01) G06K 9/84 (2006.01) G06K 9/86 (2006.01) G06K 9/88 (2006.01) G06K 9/90 (2006.01) G06K 9/92 (2006.01) G06K 9/94 (2006.01) G06K 9/96 (2006.01) G06K 9/98 (2006.01) G06K 10/00 (2006.01) G06K 10/02 (2006.01) G06K 10/04 (2006.01) G06K 10/06 (2006.01) G06K 10/08 (2006.01) G06K 10/10 (2006.01) G06K 10/12 (2006.01) G06K 10/14 (2006.01) G06K 10/16 (2006.01) G06K 10/18 (2006.01) G06K 10/20 (2006.01) G06K 10/22 (2006.01) G06K 10/24 (2006.01) G06K 10/26 (2006.01) G06K 10/28 (2006.01) G06K 10/30 (2006.01) G06K 10/32 (2006.01) G06K 10/34 (2006.01) G06K 10/36 (2006.01) G06K 10/38 (2006.01) G06K 10/40 (2006.01) G06K 10/42 (2006.01) G06K 10/44 (2006.01) G06K 10/46 (2006.01) G06K 10/48 (2006.01) G06K 10/50 (2006.01) G06K 10/52 (2006.01) G06K 10/54 (2006.01) G06K 10/56 (2006.01) G06K 10/58 (2006.01) G06K 10/60 (2006.01) G06K 10/62 (2006.01) G06K 10/64 (2006.01) G06K 10/66 (2006.01) G06K 10/68 (2006.01) G06K 10/70 (2006.01) G06K 10/72 (2006.01) G06K 10/74 (2006.01) G06K 10/76 (2006.01) G06K 10/78 (2006.01) G06K 10/80 (2006.01) G06K 10/82 (2006.01) G06K 10/84 (2006.01) G06K 10/86 (2006.01) G06K 10/88 (2006.01) G06K 10/90 (2006.01) G06K 10/92 (2006.01) G06K 10/94 (2006.01) G06K 10/96 (2006.01) G06K 10/98 (2006.01) G06K 11/00 (2006.01) G06K 11/02 (2006.01) G06K 11/04 (2006.01) G06K 11/06 (2006.01) G06K 11/08 (2006.01) G06K 11/10 (2006.01) G06K 11/12 (2006.01) G06K 11/14 (2006.01) G06K 11/16 (2006.01) G06K 11/18 (2006.01) G06K 11/20 (2006.01) G06K 11/22 (2006.01) G06K 11/24 (2006.01) G06K 11/26 (2006.01) G06K 11/28 (2006.01) G06K 11/30 (2006.01) G06K 11/32 (2006.01) G06K 11/34 (20

POR at 2-4, 12

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

During operation, in response to a user instruction, typically after the user has selected the RFID to be outputted from a number of RFIDs stored in device 102, block 203, device 102 outputs the selected RFID as instructed, emulating an active RFID transponder, block 204.

3

Radio Frequency Identification (RFID)

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

VARIA HOLDINGS LLC,
Patent Owner

Case No.: IPR2024-01364
U.S. Patent No. 8,127,984

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF MICHAEL I. SHAMOS, PH.D.
IN SUPPORT OF PATENT OWNER'S RESPONSE

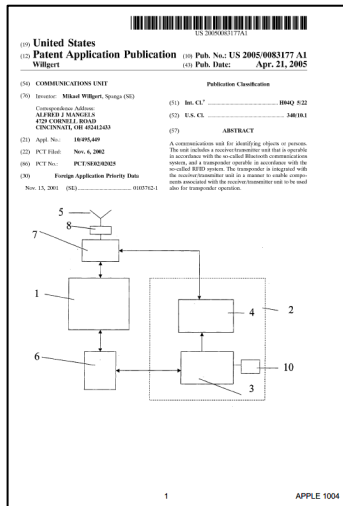
Varia Holdings LLC, Exhibit 2004
Apple Inc. v. Varia Holdings LLC, IPR2024-01364
Page 1 of 37

49. The purpose of the invention is to emulate one or more RFID transponders within a mobile communication device by having the device behave as if it were an RFID transponder without the need for an actual physical transponder. A benefit of such emulation is that the device is not tied to the capabilities of one or more physical transponders and can be used flexibly in a variety of environments. The specification explains:

Radio Frequency Identification (RFID)

receiver/transmitter unit to be used also for operation of the transponder 2, i.e., when the transponder receives a query signal and when it reflects and modulates said signal.

[0017] The transponder 2 is of a kind known per se. It includes control logic 3 and an associated memory and modulator 4. The transponder is thus adapted to receive a query signal sent from a suitably known communicator, and therewith reflect the received signal while modulating the signal with a pulse train. Information relating to the pulse train is stored in the memory. The pulse train is received and decoded by the communicator. The modulated signal may contain various types of information. Each transponder will typically have a unique identity that is sent to the communicator in the aforesaid manner.



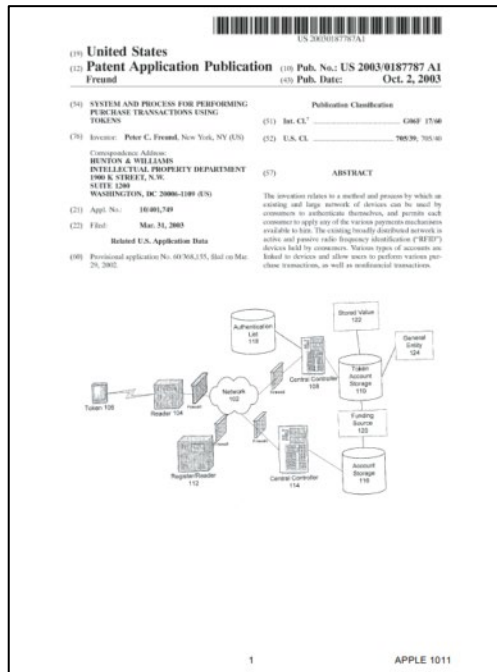
Ex. 1004
at [0015]

POR at 8

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Radio Frequency Identification (RFID)

connected to passive devices. Passive RFID devices have no battery. These devices contain chips and an antenna. When the passive RFID device is in proximity of a reader, usually within inches but can be feet away, the chip is activated by an RF signal sent by the reader. The reader's broadcast RF signal is captured by the passive device's antenna and generates sufficient electrical energy to activate the chip. The passive RFID chip is hardwired to respond in a particular way, to be recognized by the reader.



Ex. 1011
at [0006]

Radio Frequency Identification (RFID)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zoroukai, et al.
U.S. Patent No.: 8,381,974 Attorney Docket No.: 50095-01811P1
Issue Date: February 26, 2013
Appl. Serial No.: 13/363,202
Filing Date: January 31, 2012

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DR. ZHI DING

I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that those statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 28 August 2024 By:  Digitally signed by Zhi Ding
Date: 2024.08.28 10:33:42 -07'00'

Zhi Ding

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APPLE 1003

33. In an RFID system, a transponder or tag attached to an object interacts

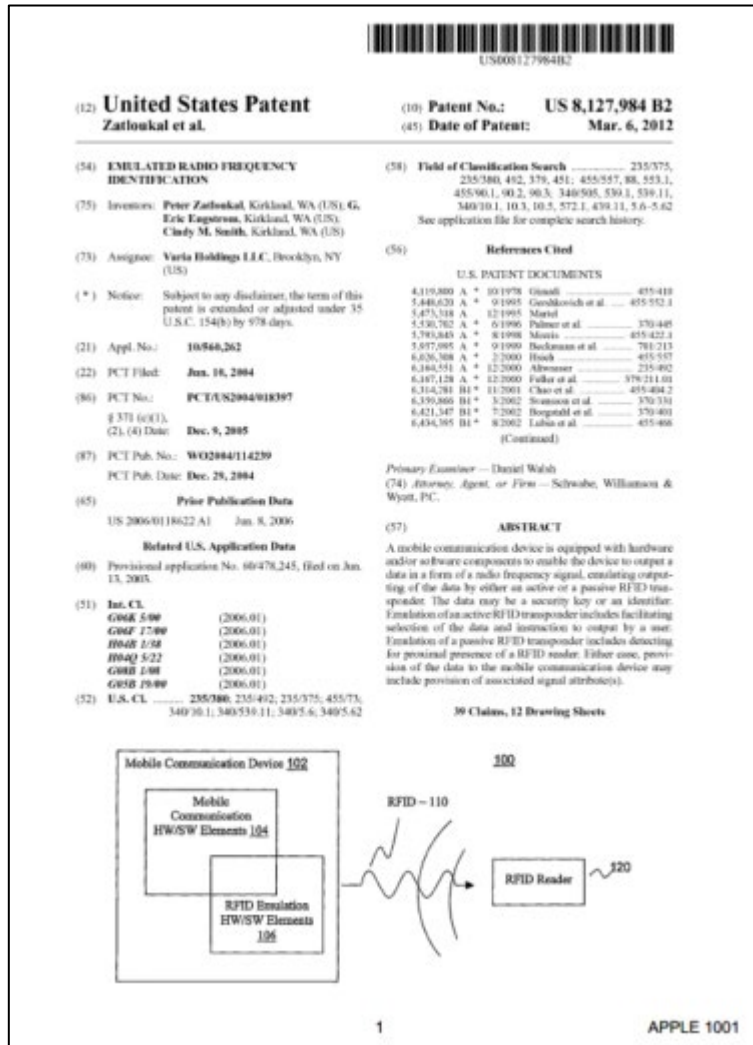
with an RFID reader to communicate identification (ID) data. In some examples the communication facilitates identification and tracking. The reader emits radio waves, creating an electromagnetic field that powers the tag if it is passive, or communicates with an active tag that has its own power source. Once activated by the reader, the tag's integrated circuit (IC) modulates and sends back a radio frequency (RF) signal carrying its unique identification data to the reader. The reader then decodes this signal into identification (ID) data and sends the data to a computer system for processing. RFID systems operate in various frequency bands, each suited for specific applications, ranging from inventory management to access control and asset tracking.

Ex. 1003

POR at 8

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Patents at Issue—Exemplary Claim

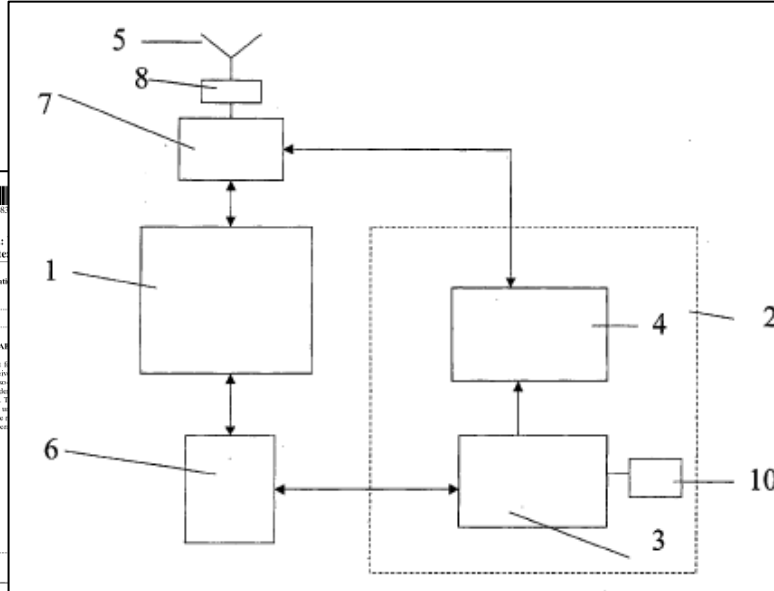


Instituted Grounds

Grounds	Basis	References	IPR2024-01362 '974 Claims Challenged	IPR2024-01363 '947 Claims Challenged	IPR2024-01364 '984 Claims Challenged
1A	§ 103	Willgert, Mooney	1–3, 5–9, 11–13, 16–19	1, 2, 6–9, 13–17, 22, 23, 25, 26, 30–32	1–3, 7–14, 18–22, 27–33, 37–39
1B	§ 103	Willgert	1, 3, 5–9, 11	1, 2, 6–8	1, 3, 7–14, 18–20, 32, 33, 37–39
2	§ 103	Willgert, Mooney, Holloway, Pitroda	3–6, 10, 11, 13–17	2–7, 10–14, 17–24, 27–31	3–9, 15–19, 22–28, 34–38

Willgert

(54) COMMUNICATIONS UNIT

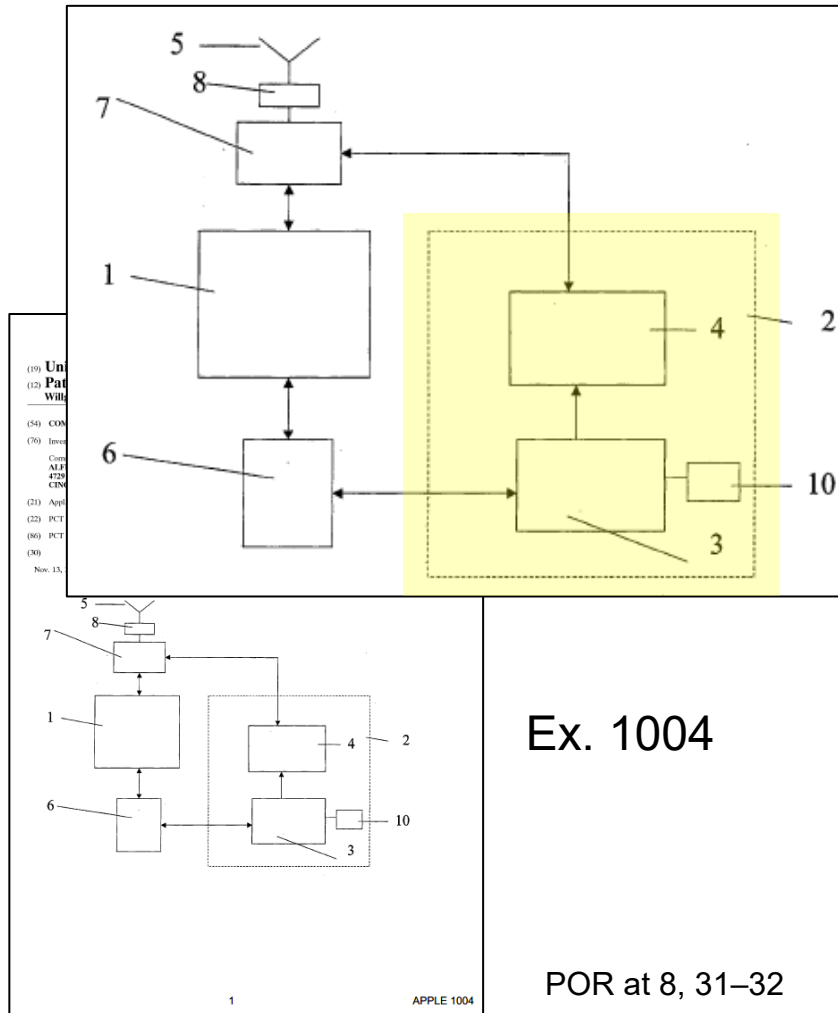


Ex. 1004

(57) ABSTRACT

A communications unit for identifying objects or persons. The unit includes a receiver/transmitter unit that is operable in accordance with the so-called Bluetooth communications system, and a transponder operable in accordance with the so-called RFID system. The transponder is integrated with the receiver/transmitter unit in a manner to enable components associated with the receiver/transmitter unit to be used also for transponder operation.

Willgert

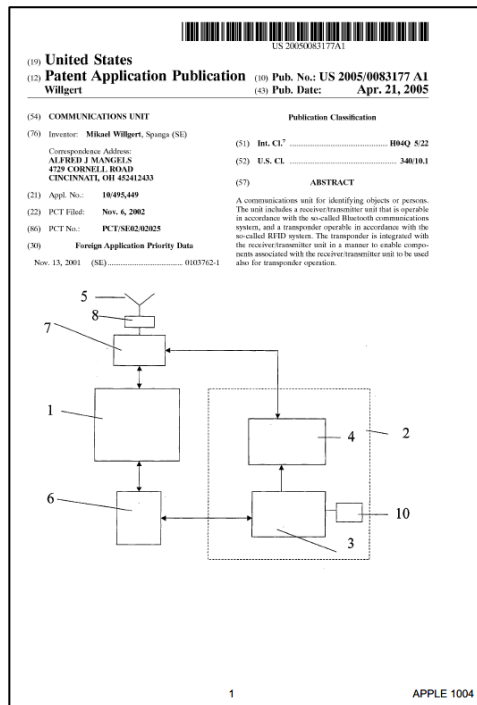


[0004] Known automatic identification systems that use radio frequencies, so-called RFID (Radio Frequency Identification), include identification tags (ID tags) and communicators. Each identification tag includes an antenna, a modulator, and a control logic circuit for controlling the modulator. One such ID tag is designed to receive a signal sent by a communicator and to reflect this signal in a modulated state.

[0014] Shown in **FIGS. 1 and 2** is a communications unit for identifying objects or persons. The unit includes a receiver/transmitter unit 1 in accordance with a Bluetooth system. The communications unit also includes a transponder 2 in accordance with a so called RFID system. The figures also show transponder specific circuits within the dotted frame.

[0017] The transponder 2 is of a kind known per se.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE



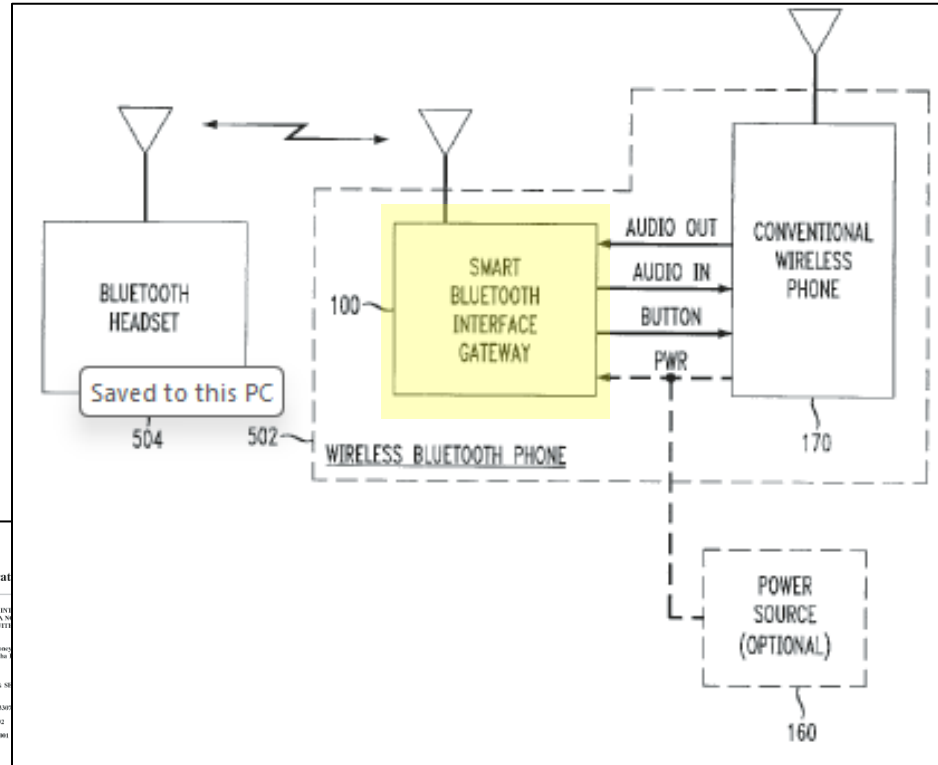
[0030] In one highly user-friendly application, a transponder can also be included in a mobile telephone designed for Bluetooth communication.

[0031] This design is particularly advantageous when the present communications unit is constructed so that the transponder will also function when the mobile telephone is switched-off in general. This means that the user can be identified without carrying a separate transponder.

[0032] A design in which Bluetooth and transponder are both integrated in a mobile telephone enables, e.g., the transponder to be used for identifying a user of a computer, or some other equipment equipped with Bluetooth, for making use of Bluetooth communication possible.

Ex. 1004

Mooney

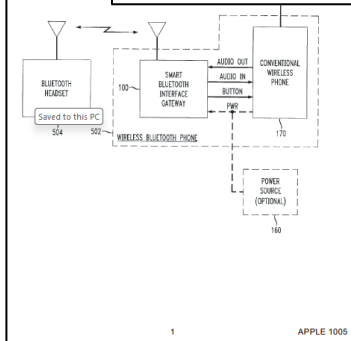


Ex. 1005, Ex. 1003
para. 63.

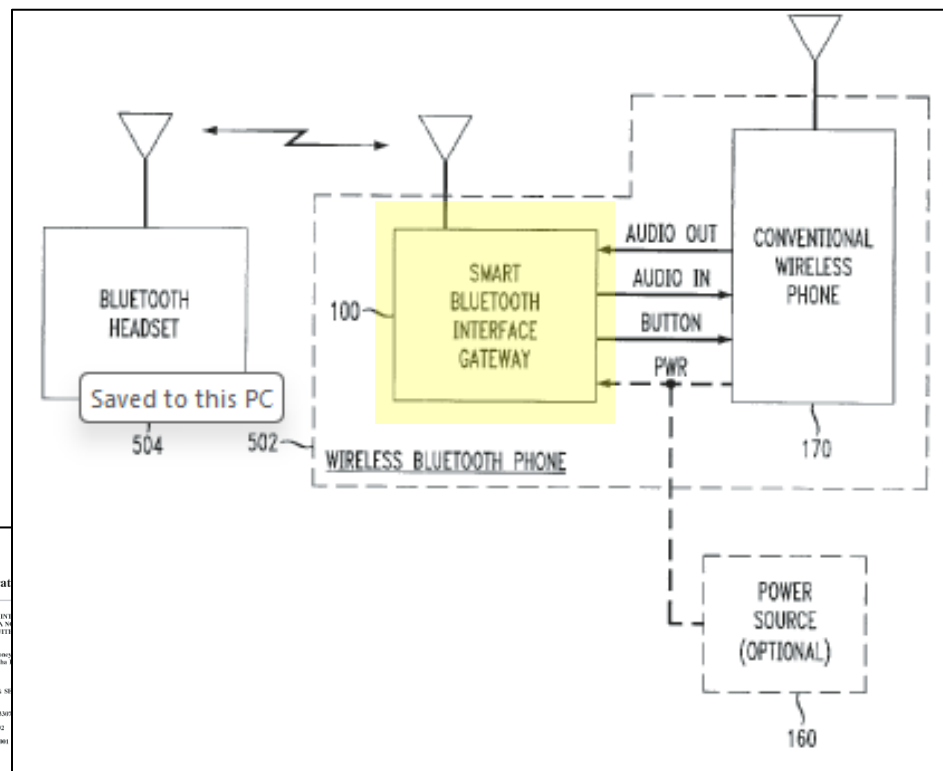
2. Overview of Mooney

63. Mooney describes systems and techniques for enabling an audio connection between a Bluetooth headset and wireless phones, including phones without Bluetooth connectivity. 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.* Through use of the Bluetooth interface gateway device, a conventional wireless phone may communicate with the Bluetooth headset in the same manner as, for example, a Bluetooth-enabled wireless phone.

(10) United States
(12) Patent Application
Mooney et al.
(14) SMART BLUETOOTH INTERFACE GATEWAY TO MAKE A WIRELESS DEVICE WITH BLUETOOTH
(15) Inventors: Philip D. Mooney (US), Sangeetha (US)
Correspondence Address: MANELLI DENISON & SONS, 200 3rd Street, N.W., Washington, DC 20036-1307
(21) Appl. No.: 09/845,792
(22) Filed: Sep. 5, 2001

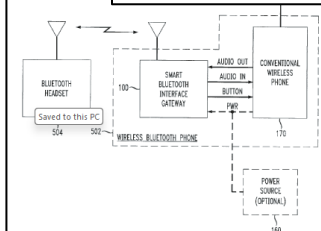


Mooney



Ex. 1005

(10) United States
(12) Patent Application
Mooney et al.
(14) SMART BLUETOOTH INTERFACE
GATEWAY TO MAKE A
WIRELESS DEVICE WITH
HEADSET
(73) Inventors: Philip D. Mooney
(US), Sangeetha
(US)
Correspondence Address:
MANELLI DENSON & S
200 5th Street, N.W.
Washington, DC 20005-1000
(21) Appl. No.: 09/145,792
(22) Filed: Sep. 5, 2001



(57)

ABSTRACT

A smart BLUETOOTH interface gateway device that allows a BLUETOOTH headset to establish an audio connection and communicate with a conventional wireless phone (e.g., a wireless phone that does not have BLUETOOTH installed). In accordance with the principles of the present invention, the connection is controlled merely by monitoring the presence of sound and tones in the audio stream from an analog audio jack of a conventional wireless phone. The smart BLUETOOTH interface gateway device preferably attaches to the wireless phone just as a wired headset would. Use of the wireless phone is the same as if a wired headset were plugged in.

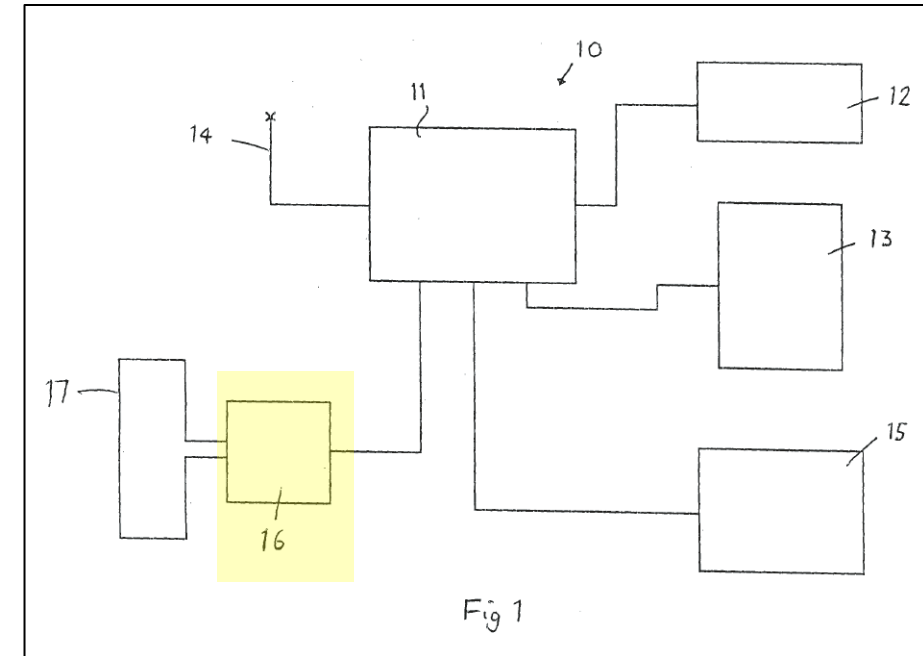
SUMMARY OF THE INVENTION

[0027] In accordance with the principles of the present invention, a device to enable BLUETOOTH communications between a wireless BLUETOOTH headset and a non-BLUETOOTH enabled wireless audio device comprises a BLUETOOTH front end, and a connection between an audio path from the wireless audio device and the BLUETOOTH front end. An activity detector senses audio

Holloway

Thus it will be seen that two additional modules have been interfaced to the central processor unit of a conventional mobile telephone, viz a first module comprising a biometric reader in the form of a fingerprint scanner 15 and a second module comprising an antenna and a chip which is the same as that used in a conventional combi card. A

physically mounted at the foot of the keypad 13. Also connected to processor 11 is an RFID (radio frequency identity) chip 16 corresponding to the chips found in RFID smart cards, or combi cards. The chip 16 is connected to an RFID antenna 17 which is tuned to



Ex. 1006 at 4:25–26; 5:6–7

(43) International Publication Date 20 June 2002 (20.06.2002)		(18) International Publication Number WO 02/49322 A2	
PCT			
(51) International Patent Classification:	H04M 1/00	(52) Designated States (national):	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CL, CN, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GR, HU, IL, IN, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LS, LU, LV, MA, MD, MG, MK, MN, MW, MX, NZ, NO, NZ, OM, PL, PT, RU, SD, SE, SG, SI, SK, SL, SY, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
(21) International Application Number:	PCT/GB01/05492	(53) Designated States (regional):	ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), European patent (AM, AZ, BY, CU, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IL, IN, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LS, LU, LV, MA, MD, MG, MK, MN, MW, MX, NZ, NO, NZ, OM, PL, PT, RU, SD, SE, SG, SI, SK, SL, SY, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW).
(22) International Filing Date:	11 December 2001 (11.12.2001)	(54) Title:	MOBILE COMMUNICATION UNIT
(23) Filing Language:	English	(55) Abstract:	A mobile telephone (10) includes a device (15) for checking the identity of a user in connection with various transactions. The device (15) may include one or more of fingerprint scanning means, voice or password recognition means (e.g. using a microphone of the telephone), photograph display means (e.g. using a display (12) of the telephone) or retina recognition means. The telephone also includes a short-range communication means (16, 17) for undertaking RFID smart card transactions. A user can load data representing money by means of a telephone communication into a memory (16) for use in subsequent transactions. Alternatively, current transactions may be validated. The memory (16) may have sub-divisions corresponding to different smart cards.
(24) Publication Language:	English	(56) References:	None
(30) Priority Data:	090183.8 11 December 2000 (11.12.2000) GB	(57) Claims:	None
(71) Applicant (for all designated States except US):	CAMBRIDGE WIRELESS TECHNOLOGIES LIMITED (GB); c/o Laker House, Enterprise House, Vision Park, Cambridge CB4 6ZB (GB).	(58) Summary of Invention:	None
(72) Inventor(s) and		(59) Abstract:	None
(73) Inventor(s)/Applicant (for US only):	HOLLOWAY, Paul (GB); 19 Carleton Close, Sandy, Bedfordshire SG19 1TY (GB); FALCK, John (GB); 36 New Barn Road, Ely, Cambs CB7 4PN (GB).	(60) Continuation of:	None
(74) Agent:	POWELL, Stephen, David; Williams, Powell & Associates, 4 St. Paul's Churchyard, London EC4M 8AT (GB).	(61) Divisional of:	None

Willgert and Holloway

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zorlouch, et al. Attorney Docket No.: 50095-0181P1
U.S. Patent No.: 8,381,971
Issue Date: February 26, 2013
Appl. Serial No.: 13,565,202
Filing Date: January 31, 2012

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DR. ZHIDONG

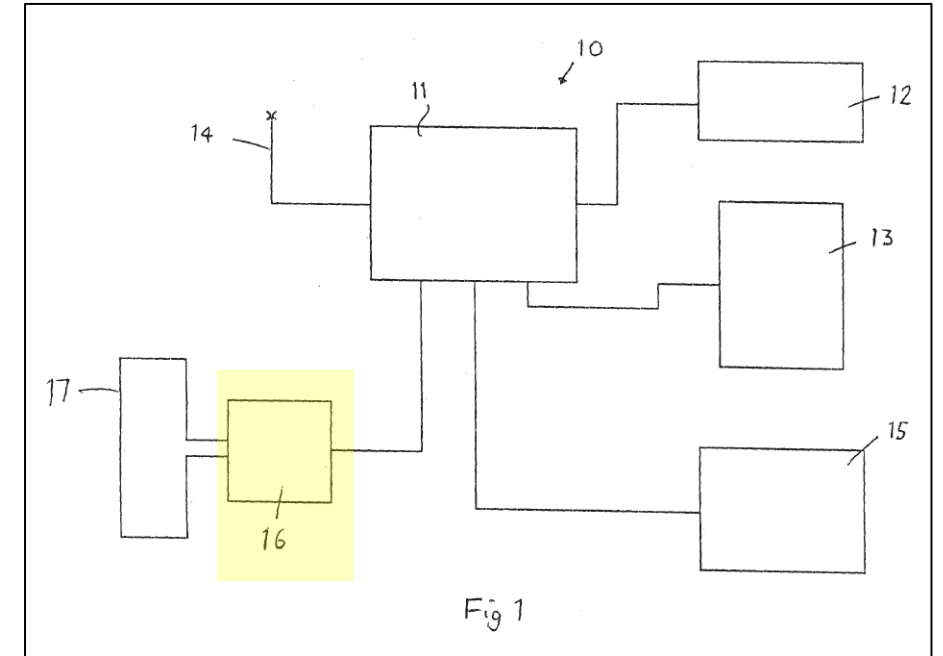
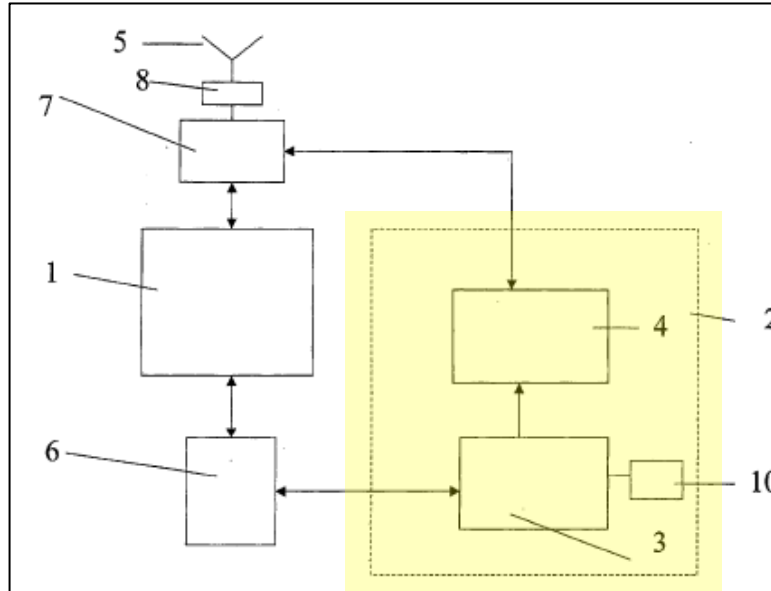
I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 28 August 2024 By:  Digitally signed by Zhi Dong
DATE: 2024.08.28 10:53:42 -0700

1 APPLE 1003

'974 Ex. 1003 para. 84



86. Specifically, Willgert and Holloway each describe RFID transponder hardware being incorporated into a mobile telephone. APPLE-1004, FIG. 1 (RFID transponder 2), [0017]; APPLE-1006, FIG. 1 (RFID chip 16), 5:21-28. And, for

Pitroda

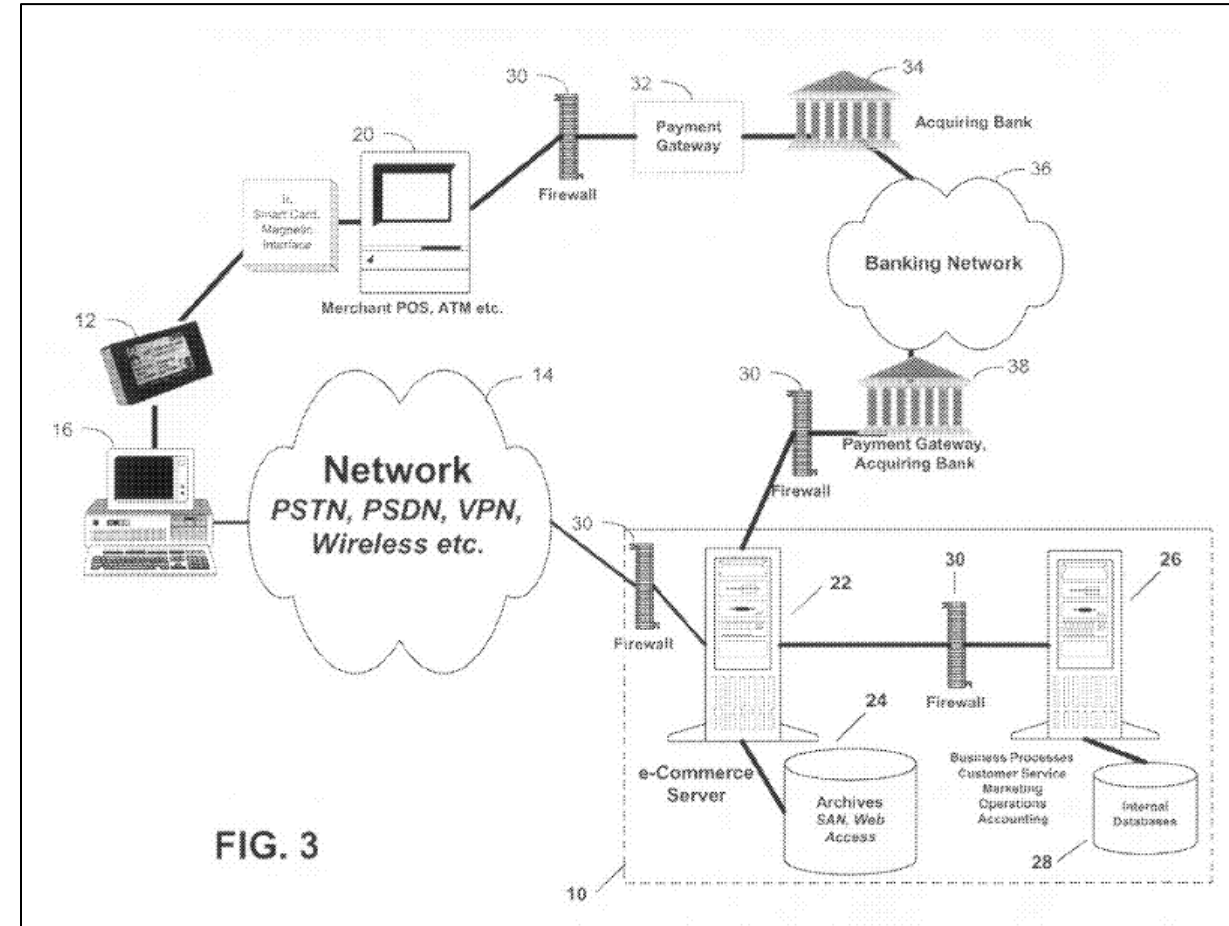
(57)

ABSTRACT

A service transaction provider for administering a accounts for a client includes a computer having a processor, a data storage medium, and a network port. The storage medium is configured to store the clients' personal information, account information, and transactional information. The processor configured to create a database of client information; designate as confidential a predetermined first portion of the database client information; designate as non-confidential a predetermined second portion of the database of client information non-confidential; and provide the client with access to the first and second portions of the database of client information via the network port. Access to the second portion is provided to a plurality of vendors, while access for the first portion is denied to the vendors.

Ex. 1007

POR at 9



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

17

Terms for Construction

Claim Term

“wireless mobile phone” (’974 claim 12; ’947 claims 8, 15, 25, 32; ’984 claims 12, 20, 31, 39)

“voice call signal[s]” (’974 claims 1, 8, 12; ’947 claims 1, 9, 16, 26; ’984 claims 1, 2, 13, 21, 32)

“RFID transponder signal[s]” (’974 claims 1, 12; ’984 claims 1, 21) /

“RFID transponder data as an RFID signal” (’984 claim 32)

“RFID transponder data as a radio frequency signal” (’974 claim 8; ’984 claim 13)

“second RFID transponder data as a second radio frequency signal” (’974 claim 6; ’984 claim 9)

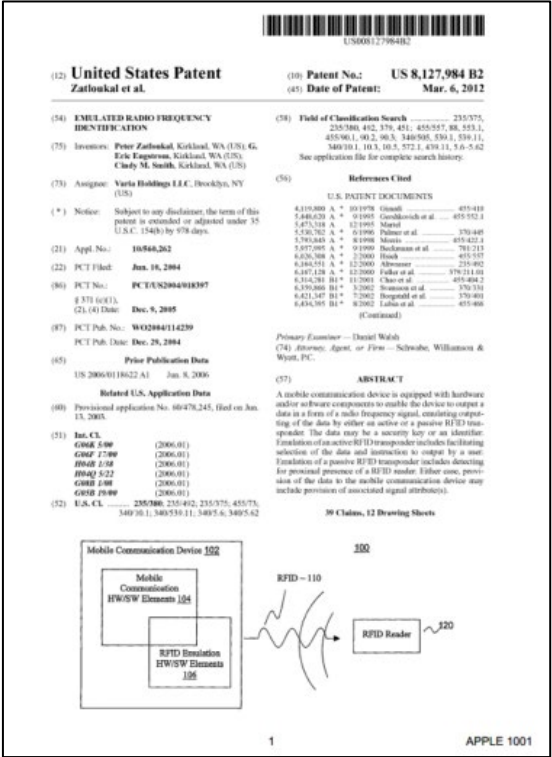
“RFID signal” (’947 claims 1, 2, 9, 16, 17, 26, 27)

Claim Construction—Wireless Mobile Phone

Claim Term	Patent Owner's Proposed Construction
“wireless mobile phone” ('974 claim 12; '947 claims 8, 15, 25, 32; '984 claims 12, 20, 31, 39)	“telephony device equipped to facilitate a use in communicating with another user of another communication device notwithstanding the user's movement around different geographic area, so long the wireless mobile phone is in contact with a base/service station of a wireless network service provider. The other use/communication device may be mobile or land line based”

Claim Construction—Wireless Mobile Phone

The term “wireless mobile phone” as used herein, including the specification and the claims, refers to the class of telephony devices equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user’s movement around different geographic areas, so long the wireless mobile phone is in contact with a base/service station of a wireless network service provider. The term includes the analog as well as the digital



Ex. 1001 at 4:5–12

Claim Construction—Voice Call Signals

Claim Term	Patent Owner’s Proposed Construction
“voice call signal[s]” (’974 claims 1, 8, 12; ’947 claims 1, 9, 16, 26; ’984 claims 1, 2, 13, 21, 32)	“transmit and receive signal[s] of a voice call over a network of a wireless network service provider”

Claim Construction—Voice Call Signals

- “Voice call signals” = signals that **transmit/receive a voice call**
- Must occur over a **wireless network service provider’s system**

As depicted in FIG. 1, blocks 104 and 106 “intersect” with one another. The “intersection” represents the fact that in preferred embodiments of the present invention, substantial portions of the hardware and/or software elements employed to provide a RFID, are the same elements employed to facilitate the primary function of device 102, i.e. to facilitate a user in communicating with another user of another communication device.

Ex. 1001 at 3:47-49

For the embodiment, 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. In one embodiment, the transmit and receive signals are transmitted and received in the GHz ranges.

Ex. 1001 at 7:11-13

Claim Construction—Voice Call Signals

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner
v.
VARIA HOLDINGS LLC,
Patent Owner

Case No.: IPR2024-01364
U.S. Patent No. 8,127,984

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF MICHAEL I. SHAMOS, PH.D.
IN SUPPORT OF PATENT OWNER'S RESPONSE

Varia Holdings LLC, Exhibit 2004
Apple Inc. v. Varia Holdings LLC, IPR2024-01364
Page 1 of 37

independent claims requires “voice call signal[s].” A POSITA would have understood from the teachings of the Patent and the express definition of “wireless mobile phone” that “voice call signals” are the type of signals capable of carrying a voice call from one user to the user of another device over the network of a wireless network service provider.

Ex. 2004 at para. 46

POR at 16–17; Sur-reply at 16–18

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Claim Construction—Voice Call Signals

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zafloskal, et al. Attorney Docket No.: 50095-0182IP1
U.S. Patent No.: 9,405,947
Issue Date: August 2, 2016
Appl. Serial No.: 13/750,970
Filing Date: January 25, 2013
Title: EMULATED RADIO FREQUENCY IDENTIFICATION

SUPPLEMENTAL DECLARATION OF DR. ZHI DING

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 8/27/2025 By:  Digitally signed by Zhi Ding
Date: 2025.08.27 17:22:35
07'02'

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APPLE 1063
Apple v. Visa Holdings
IPH2024-01363

Ex. 1063

24. As explained above, the plain and ordinary meaning of “signal” includes a potential, for example, voltage or light, “used to convey information” from one point to another. APPLE-1065, 3. Additionally, the plain and ordinary meaning of “voice call[s]” includes a “telephone call established for the purpose of transmitting voice rather than data communications.” APPLE-1067, 40⁵. When combined, the phrase “voice call signal[s]” under its plain meaning includes a potential “used to convey information” relating to a telephone call established for the purpose of transmitting voice rather than data communications. APPLE-1065, 3.

Claim Construction—Voice Call Signals

- **Specification:** Defines “wireless mobile phone” as telephony device communicating via base/service station (Ex. 1001, 4:11-21)
- **Petitioner’s Position:** “a potential ‘use to convey information’ relating to a telephone call....” (Reply at 14)
- **Petitioner’s Expert Testimony:** Petitioner’s expert varyingly testified:
 - The signal must be “for the purpose of transmitting voice”
but can also merely be “to convey information about the telephone call”
 - The signal “should be the same session” as the voice call
but need not be “contemporaneously” (Ex. 2009 at 58:7-59:6; 62:16-64:3)

Claim Construction—Voice Call Signals

- **'974 Claims 8 and 12:** Require transmission “over a wireless network” ('974 Ex. 1001 at 10:16–17; 10:51–52)
- **'947 Independent Claims 1, 9, 16:** recite outputting “voice call signal[s] . . . over a wireless network” ('947 Ex. 1001 at 9:43–4; 10:23–24; 10:62–63)
- **'947 Independent Claim 26:** recites “transmit a voice call signal to another mobile communication device via the communication circuitry at least in part over a wireless network.” ('947 Ex. 1001 at 12:16–18)

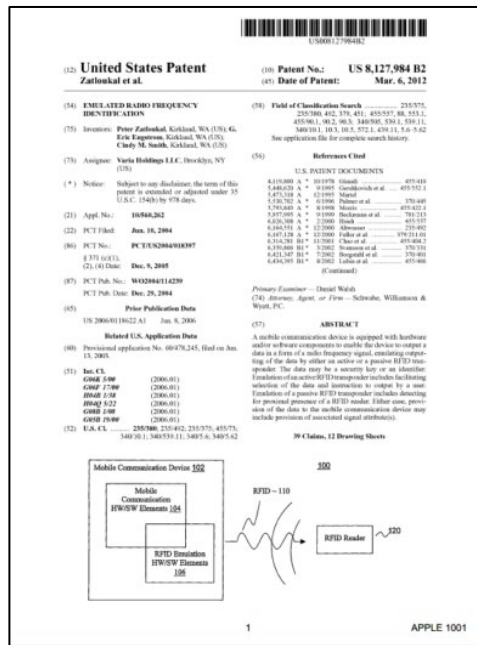
Claim Construction—Voice Call Signals

- Petitioner’s definition is overbroad
 - Voice Call = “a telephone call established for the purpose of transmitting voice rather than data communications”
 - Voice Call Signal = any signal “relating” to such a call
- Petitioner’s definition would cover phone bills or any signals “related” to a call
- Leads to absurd results; ignores intrinsic record
- Proper construction: signals that carry the call itself over the mobile network

RFID Transponder Signal Terms

Claim Term	Patent Owner's Proposed Construction
"RFID transponder signal[s]" ('974 claims 1, 12; '984 claims 1, 21) / "RFID transponder data as an RFID signal" ('984 claim 32)	"RFID signal[s] emulated by a mobile communications device without the use of a physical RFID transponder"
"RFID transponder data as a radio frequency signal" ('974 claim 8; '984 claim 13)	"RFID transponder data as a radio frequency signal emulated by a mobile communications device without the use of a physical RFID transponder"
"second RFID transponder data as a second radio frequency signal" ('974 claim 6; '984 claim 9)	"second RFID transponder data as a second radio frequency signal emulated by a mobile communications device without the use of a physical RFID transponder"
"RFID signal" ('947 claims 1, 2, 9, 16, 17, 26, 27)	"RFID transponder signal emulated by a mobile communications device without the use of a physical RFID transponder"

RFID Transponder Signal Terms



Ex. 1001 at 9:23–40

What is claimed is:

1. 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:

receiving, by the mobile communications device, from an RFID reader external to the mobile device, an instruction to transmit first RFID transponder data in a format compatible with said RFID reader;

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

outputting the first data by the transceiver in the second state, the transceiver outputting the first data as an RFID transponder signal in the format compatible with said RFID reader.

RFID Transponder Signal Terms

- '984 claim 1 & '974 claim 1: “the transceiver configured...to output **RFID transponder signals**” ('974 Ex. 1001 at 9:32–36; '984 Ex. 1001 at 9:34–36)
- '984 claim 13: “a transceiver configured to output...**RFID transponder data**” ('984 Ex. 1001 at 10:32-33)
- '974 claim 12: “a transmitter configured...to output **RFID transponder signals**” ('974 Ex. 1001 at 10:36-42)
- '947 claim 1: “to cause the mobile communication device to output **an RFID signal**” ('947 Ex. 1001 at 9:38)
- '947 claim 16: “communication circuitry configure[] to ... output **radio frequency identification (RFID) signals**” ('947 Ex. 1001 at 10:46–49)

RFID Transponder Signal Terms

- Each of the '974, '947, and '984 patents are about **emulated RFID signals**
- Signals mimic a transponder **without a physical RFID transponder**
- Consistent across specification, claims, and prosecution history
 - Title: “*Emulated Radio Frequency Identification*” (Ex. 1001 at 1)
 - Abstract: “emulating outputting of the data by [a] RFID transponder” (Ex. 1001, Abstract)
 - Specification: “present invention includes an emulated RFID method” ('974 Ex. 1001, 2:18–19)

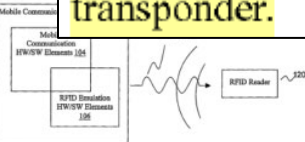
RFID Transponder Signal Terms

- **Specification:** Consistently discloses RFID emulation without the use of a physical transponder
- **Specification:** No disclosed embodiments use physical transponder
- **Specification:** “Emulation” appears 22 times, modifies every instance of “transponder” (’974 Ex. 1001, cols. 3–8)

RFID Transponder Signal Terms

In other words, illustrative embodiments of the present invention advantageously leverage on existing elements of mobile communication device **102**, and supplement them, to enable mobile communication device **102** to be able to provide a RFID, **emulating a RFID transponder**, as well as facilitating user communication.

As will be described in more detail below, in preferred embodiments, mobile communication device **102** is equipped to provide RFID, **emulating an active and/or a passive RFID transponder**.



Ex. 1001 3:56-59

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accordingly is to be given the meaning that is consistent with the content under which the term is used.

Section Headings, Order of Descriptions and Embodiments

Section headings are merely employed to improve readability, and they are not to be construed to restrict or narrow the present invention.

Various operations will be described as multiple discrete

US 8,127,984 B2

4
represents a broad range of mobile communication devices known in the art, including but not limited to wireless mobile phones and personal digital assistants equipped with communication capability.

5 The term "wireless mobile phone" as used herein, including the specification and the claims, refers to the class of telephony devices equipped to facilitate a user in communicating with another user of another communication device, notwithstanding the user's movement around different geographic areas, so long as the wireless mobile phone is in contact with a base station of a wireless network service provider. The term includes the analog as well as the digital subclasses. Communication may be voice and/or data, audio, textual and/or visual. The other user/communication device may be mobile or land line based.

10 RFID reader 120 represents a broad range of such devices known in the art or to be designed. Currently, most RFID readers 120 employ proprietary formats/protocols. That is, RFID readers 120 of different manufacturers tend to employ different frequencies, amplitudes, and/or coding schemes (which may be frequency shifting keying (FSK), amplitude shifting keying (ASK) or phase shifting keying (PSK)).

15 Various embodiments of the methods of the present invention, including:

20 will be described

During operation, in response to a user instruction, typically after the user has selected the RFID to be outputted from a number of RFIDs stored in device **102**, block **203**, device **102** outputs the selected RFID as instructed, **emulating an active RFID transponder**, block **204**.

Ex. 1001 4:54-58

(such as messaging) and/or visual (such as affecting using light sensors). Additionally, for the embodiment, mobile communication device 102 is equipped with hardware and/or software elements 106 to facilitate provision or transfer of a key/identifier in a form a radio frequency signal 110, which may be read e.g. by a radio frequency identifier (RFID) reader 120. In turn, the provision of RFID 110 may be responded to by a system (not shown) with which RFID reader 120 is a part or coupled to.

As depicted in FIG. 3, blocks 104 and 106 "interpose" with each other in a substantial manner. For example, the embodiment employed to facilitate a user communication with the present invention, the present invention is to be provided as a preferred embodiment, mobile communication device 102 is equipped to provide RFID, emulating an active and/or a passive RFID transponder.

Further, RFID 110 may be any keys and/or identifiers, including but not limited to security keys, such as garage-door "keys", exterior or interior door keys, or identifiers, such as, employee numbers, driver's license numbers, social security numbers, credit card numbers (optionally, including expiration dates), affinity program member identifiers, and so forth.

Continue to refer to FIG. 1, except for the present invention incorporated therein, mobile communication device 102 represents

FIG. 2 illustrates an embodiment of the present invention, in accordance with the present invention, the present invention is to be provided as a preferred embodiment, mobile communication device 102 is equipped to provide RFID, emulating an active and/or a passive RFID transponder.

For the embodiment, one RFID, e.g. an access key/identifier (such as an employee number), may also be selected/designated as a default RFID, the output of which may be emulated in a passive manner. That is, the selected/designated default RFID will be outputted automatically, whenever device 102 is within the proximal presence, or direct specification, of an intended RFID reader 120.

Accordingly, device 102 monitors for probing signals of an intended RFID reader 120 (or a type of RFID readers 120), to

RFID Transponder Signal Terms

US 8,127,984

3

accordingly is to be given the meaning that is consistent with the context under which the term is used.

Section Headings, Order of Descriptions and Embodiments

Section headings are merely employed to improve readability, and they are not to be construed to restrict or narrow the present invention.

Various operations will be described as multiple discrete steps in time, in a manner that is most helpful in understanding the present invention, however, the order of description should not be construed as to imply that those operations are necessarily order dependent. In particular, these operations need not be performed in the order of presentation.

The phrase "in one embodiment" is used repeatedly. The phrase generally does not refer to the same embodiment, however, it may. The terms "comprising", "having" and "including" are synonymous, unless the context dictates otherwise.

Overview

Refer now to FIG. 1, which is a block diagram illustrating an overview of the present invention 100, in accordance with one embodiment, is shown. As illustrated, for the embodiment, mobile communication device 102 is equipped with hardware and/or software elements 104 to perform its primary function, which is to facilitate a user of device 102 to engage in communication with another user of another communication device (not shown). In various embodiments, the communication may be audio (such as phone calls), textual (such as messaging) and/or visual (such as streaming video light sources). Additionally, for the embodiment, mobile communication device 102 is equipped with hardware and/or software elements 106 to facilitate provision or transfer of a key (identifier in a form a radio frequency signal 110, which may be used e.g. by a radio frequency identifier (RFID) reader 120. In turn, the provision of RFID 110 may be responded to by a system (not shown) with which RFID reader 120 is a part or coupled to.

As depicted in FIG. 1, blocks 104 and 106 "intersect" with one another. The "intersection" represents the fact that in preferred embodiments of the present invention, substantial portions of the hardware and/or software elements employed to provide a RFID, are the same elements employed to facilitate the primary function of device 102, i.e. to facilitate a user in communicating with another user of another communication device.

In other words, illustrative embodiments of the present invention advantageously leverage on existing elements of mobile communication device 102, and supplement them, to enable mobile communication device 102 to be able to provide a RFID, emulating a RFID transponder, as well as facilitating user communication.

As will be described in more detail below, in preferred embodiments, mobile communication device 102 is equipped to provide RFID, emulating an active and/or a passive RFID transponder.

Further, RFID 110 may be any keys and/or identifiers, including but not limited to security keys, such as garage-door "keys", exterior or interior door keys, or identifiers, such as, employee numbers, driver's license numbers, social security numbers, credit card numbers (optionally, including expiration dates), affinity program member identifiers, and so forth.

Continue to refer to FIG. 1, except for the present invention incorporated therein, mobile communication device 102 represents whether device 102 is within the operational space of such a RFID reader 120, block 205. On so determining, device 102 outputs the designated RFID automatically, emulating a passive RFID transponder, block 206.

A Hardware/Software Implementation

FIG. 3 illustrates the relevant elements of device 102, in accordance with one embodiment. As illustrated, for the embodiment, device 102 includes processor 302, memory 304, persistent store 306, transceiver 308, and a number of other components 310, coupled to each other via bus 312.

Persistent store 306 and memory 304 are employed to store permanent and working copies of a software implementation of the operating logic 320 of device 102, including the supplemental RFID feature 322. In various embodiments, persistent store 306 may be an EEPROM or like kind variants, such as a Flash Memory, a Memory Stick, a magnetic or optical disk drive, a CDROM, a DVD drive and so forth. Memory 304 may be any SDRAM, DDRAM or other high speed volatile as well as non-volatile storage devices known in the art.

Processor 302 is employed to execute operating logic 320, including RFID feature 322. As will be mostly apparent from the description to follow, operating logic 320 may be implemented in any one of a number of suitable system programming languages, including but not limited to high level languages that may be compiled into executable instructions supported by processor 302. Processor 302 may be any one of a number of processors designed or to be designed for mobile devices.

Except for transceivers 308, RFID feature 322 and the various elements of FIG. 3 are used to practice the present invention, the other illustrated elements are known in the art, and accordingly will not be further described. One embodiment of transceiver 308 will be described referencing FIG. 4, and one embodiment of RFID feature 322 will be described, referencing FIG. 6-7.

As described earlier, processor 302, memory 304, persistent store 306 and bus 312 may be shared elements of device 102, also employed to implement the primary communication function of device 102. However, in alternate embodiments, dedicated elements may be employed for some or all of these elements (noted).

In one embodiment, device 102 is a wireless mobile telephone, an exploded view of which is illustrated in FIG. 5a. Wireless mobile phone 500, in addition to the earlier described elements, also includes display 506, control buttons 504, keypad 502, antenna 508, body 512 and cover 514. Body 512 is substantially rectangular in shape. Further, body 512 is palm-sized or smaller.

For the embodiment, cover 514 includes embedded electronic components having instructions, data, and/or locations to obtain such instructions and/or data to personalize, customize and/or enhance PDA 520. PDA 520 includes complementary electronic component interface 516 in support of such personalization, customization and/or enhancement.

Cover 514 may form a part of housing 512, i.e. a required element to complete phone 500, or it may be an accessory to be added by phone 500, i.e. not a required element to complete phone 500.

In another embodiment, device 102 is a PDA, an exploded view of which is illustrated in FIG. 5b. PDA 502, in addition to the earlier described elements, also includes display 524, control buttons 522, antenna 526, body 532, and cover 534. Body 530 is also substantially rectangular in shape, as well as palm-sized or smaller.

Similarly, for the embodiment, cover 534 includes embedded electronic components having instructions, data, and/or locations to obtain such instructions and/or data to personalize, customize and/or enhance PDA 520. PDA 520 includes complementary electronic component interface 536 in support of such personalization, customization and/or enhancement.

Cover 534 may form a part of housing 532, i.e. a required element to complete PDA 520, or it may be an accessory to be added by PDA 520, i.e. not a required element to complete PDA 520.

FIG. 5c-5d illustrate yet another embodiment of device 102, another wireless mobile telephone, an exploded view of which is illustrated. Wireless mobile phone 540 is similarly constituted as the earlier described embodiments, including body 542 and cover 544. However, body 542 has a substantially becoming or half palm-sized or smaller.

For the embodiment, electronic components 546 are used to obtain such instructions and/or data to personalize, customize and/or enhance PDA 540. PDA 540 includes complementary electronic component interface 548 in support of such personalization, customization and/or enhancement.

Cover 544 may form a part of housing 542, i.e. a required element to complete phone 540, or it may be an accessory to be added by phone 540, i.e. not a required element to complete phone 540.

In all or selected one elements 104 in support of the present invention may be pre-components of the device and/or components of the device.

Smart covers are the co-pending U.S. application, 1, 2002, entitled "For Smart Covering", and filed May 2, 2003, entitled "Personalization of mobile electronic Devices and Smart Accessory Cover", which specifications are hereby fully incorporated by reference.

While all these embodiments of FIG. 5a-5d have been illustrated with smart covers and external antennas, in alternate embodiments, the present invention may be practiced without smart covers and/or external antennas. The present invention may be practiced with conventional covers, without embedded intelligence and/or internal antennas.

Transceiver

FIG. 4 illustrates transceiver 308 of FIG. 3 in further details, in accordance with one embodiment. As illustrated, for the embodiment, 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 404 and output 406. The elements are coupled to each other as shown.

For the embodiment, joint RF TX/RX 402 includes in particular, switch 420, filters 412 and 422, low noise amplifier 424 and power amplifier 414, coupled to one another as shown. Switch 420 is employed to switch between transmitting and receiving RF signals. Filters 412 and 422, low noise amplifier 424 and power amplifier 414 are employed to perform their conventional filtering and amplification functions on the transmit and receive signals.

Accordingly, device 102 monitors for probing signals of an intended RFID reader 120 (or a type of RFID readers 120), to determine whether device 102 is within the operational space of such a RFID reader 120, block 205. On so determining, device 102 outputs the designated RFID automatically, emulating a passive RFID transponder, block 206.

Ex. 1001 4:66-67, 5:1-4

RFID Transponder Signal Terms

Low frequency signal processing 408, on the other hand, performs up and down conversions of the transmit and receive signals of the RFID feature, e.g. the output signal of a RFID to emulate either an active or a passive transponder, and the received probing signal of a RFID reader. In one embodiment, the transmit and receive signals are transmitted and received in the MHz ranges.

Ex. 1001 7:17–23

As illustrated in FIG. 6b, for the embodiment, the user interface further includes screen 612 enumerating a list of RFIDs 614 stored in device 102. List 614 may be displayed for example, among other situations, in response to a user's selection of text display 604 of screen 602. A user may select one of the RFIDs, and instruct device 102 to output the selected RFID in a form of an appropriate radio frequency signal, emulating provision of the RFID by an active RFID transponder, using e.g. a "send/call" key of device 102.

Ex. 1001 7:42–50

As illustrated in FIG. 6g, for the embodiment, the user interface further includes screen 662 displaying a request 664 to confirm whether a RFID is to be selected or designated as the default RFID to be used for emulation of passive transponders. Request 664 may be displayed for example, among

Ex. 1001 8:19–23

emulating passive RFID. Request 674 may be displayed for example, among other situations, in response to a user selecting the "edit" option, using screen 622, or on completion of designating a RFID as the default RFID for emulating passive transponders, using screen 662

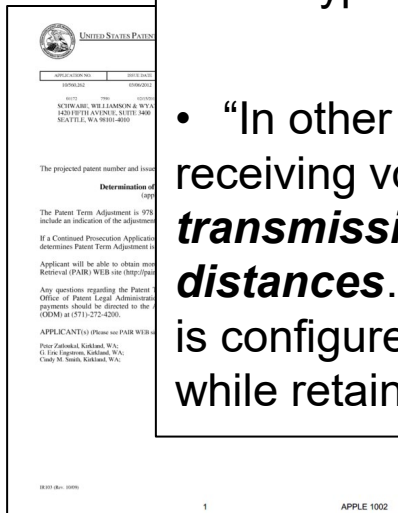
Ex. 1001 8:31–35

Similarly, on determining that the user has requested a selected RFID to be sent (emulating output of the RFID by an active RFID transponder), support logic 322 causes the RFID to be outputted in a form of an appropriate RF signal (in accordance with the associated intended RFID reader type). Thereafter, support logic 322 again returns to block 710 and waits for further input.

Ex. 1001 8:51–57

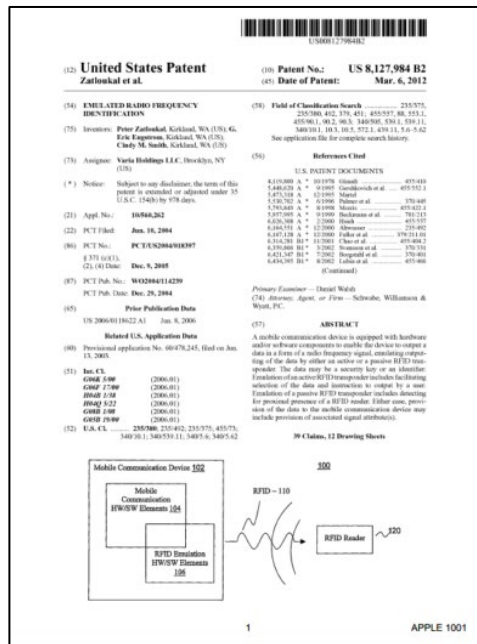
'984 Prosecution

- “[W]hile Zalewski teaches using a RFID transponder to output data, claim 1 recites an instruction to a component to output data, ‘emulating an output of the first data by an active RFID transponder.’ **Zalewski’s RFID transponder is not a component that emulates an output by an active RFID transponder, being itself an RFID transponder.**” (Ex. 1002 at 236 (emphasis added))
- “Zalewski does not teach a mobile communication device component that . . . outputs data ‘in the form of a radio frequency signal, said outputting **emulating output of the first data by an RFID transponder** of an active type.” (Ex. 1002 at 236 (emphasis added))
- “In other words, the device of Zalewski has a traditional radio frequency component for transmitting and receiving voice calls and message over a radio frequency network, **and requires a separate transmission/reception component (a transponder) for providing data transfer over short distances**.... Amended claim 1 recites a method for providing a RFID identification using a transceiver that is configured to output both voice call signals and RFID signals, eliminating an element taught by Zalewski while retaining the function of that element.” (Ex. 1002 at 197(emphasis and parenthetical in original))



Ex. 1002

RFID Transponder Signal Terms



9. The method of claim 1, wherein the method further comprises:
monitoring for proximal presence of the RFID reader by the mobile communication device; and
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.

Ex. 1001 at 10:10–13; see *also*, '947 Ex. 1001 cl. 6

RFID Transponder Signal Terms

UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD APPLE INC., Petitioner v. VARIA HOLDINGS LLC, Patent Owner Case No.: IPR2024-01364 U.S. Patent No. 8,127,984 Title: EMULATED RADIO FREQUENCY IDENTIFICATION DECLARATION OF MICHAEL I. SHAMOS, PH.D. IN SUPPORT OF PATENT OWNER'S RESPONSE Varia Holdings Apple Inc. v. Varia Holdings LLC	VII. SUMMARY OF OPINIONS 37. Petitioner misapprehends the claimed invention. It does not comprise a mobile phone plus an RFID transponder. It requires emulation of an RFID signal, not a signal from an actual RFID transponder. This is clear from the title “Emulated Radio Frequency Identification,” and the Abstract, which reads: 49. The purpose of the invention is to emulate one or more RFID transponders within a mobile communication device by having the device behave as if it were an RFID transponder without the need for an actual physical transponder. A benefit of such emulation is that the device is not tied to the capabilities of one or more physical transponders and can be used flexibly in a variety of environments. The specification explains:
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RFID Transponder Signal Terms

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zatloukal, et al.
U.S. Patent No.: 8,127,984 Attorney Docket No.: 50095-01871P1
Issue Date: March 6, 2012
Appl. Serial No.: 10/560,262
Filing Date: June 10, 2004

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DR. ZHI DING

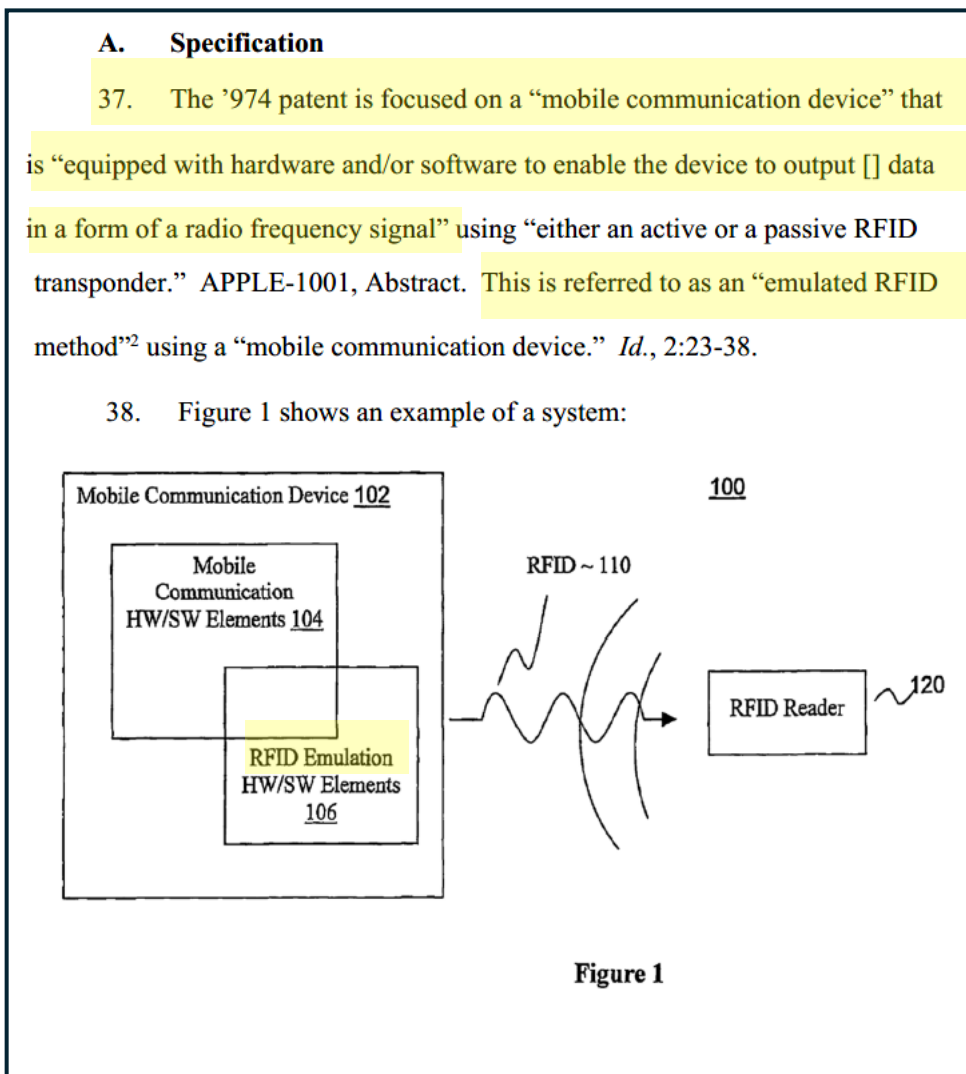
I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 28 August 2024 By: Zhi Ding Digitally signed by Zhi Ding
Date: 2024.08.28 10:39:16 -07'00'

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Ex. 1003



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

RFID Transponder Signal Terms

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zatloukal, et al. Attorney Docket No.: 50095-0182IP1
U.S. Patent No.: 9,405,947
Issue Date: August 2, 2016
Appl. Serial No.: 13/750,970
Filing Date: January 25, 2013
Title: EMULATED RADIO FREQUENCY IDENTIFICATION

SUPPLEMENTAL DECLARATION OF DR. ZHI DING

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 8/27/2025 By:  Digitally signed by Zhi Ding
Date: 2025.08.27 17:22:35 -07'00'

1

APPLE 1063
Apple v. Varia Holdings
IPR2024-01383

Ex. 1063

20. The plain and ordinary meaning of “signal” includes a potential, for example, voltage or light, “used to convey information” from one point to another. APPLE-1065, 3⁴. The plain and ordinary meaning of “RFID” (or “radio frequency identification”) includes a generic term for all technologies that use radio waves to achieve automatic identification of objects and people. When combined, the “RFID Elements” under its plain and ordinary meaning include a potential “used to convey information” using radio waves to achieve automatic identification of objects and people from one point to another. APPLE-1065, 3.

RFID Transponder Signal Terms

- The Board should construe RFID signal terms in accordance with consistent usage in the specification and prosecution history
- *Columbia Univ. v. Symantec*, 811 F.3d 1359, 1367–69 (Fed. Cir. 2016)
 - The specification “consistently describe[d] ... ordinary programs to ‘generate normal data for building an accurate and complete training model’”
 - “Nothing in the specification describe[d] any embodiment which use[d] attack data to build the model”

RFID Transponder Signal Terms

- Petitioner relies on dictionary definitions, ignores intrinsic record
- “Functional emulation” = invented term, unsupported (Ex. 1063 ¶ 35 (below); Ex. 2009 at 27:2–12, 29:20–30:14)

Supplement
308 acts as an RFID transponder e.g., for transmitting architecture suggests that the '974 patent does not require without the use of a "physical RFID transponder."

35. By the Critical Date, a POSITA would have known of RFID "emulation" techniques that involve use of an RFID device (e.g., mobile device) to make an external RFID transmission of an RFID signal as if it were transmitted from an originating device of a different device type (e.g., perceive a device that is not a passive RFID tag as if it were a passive RFID tag). This example is consistent with the specification, which describes a mobile device being used to transmit an RFID signal that is perceived by an RFID reader as being transmitted by a dedicated RFID device such as a passive RFID tag.

36. Several ways to implement functional emulation are disclosed in the specification. One example is re-using or sharing at least one component that the transmitting device already employs for another function (e.g., its main communications antenna, or transceiver path) instead of relying on a self-contained device that has its own dedicated antenna and operates independently of the specification, which, as shown in Figure 4, is

20

35. By the Critical Date, a POSITA would have also known of RFID “emulation” techniques that involve use of an RFID transponder signal. One example is “functional emulation,” which refers to the capability of a transmitting device (e.g., mobile device) to make an external RFID reader perceive a transmission of an RFID signal as if it were transmitted from an originating device of a different device type (e.g., perceive a device that is not a passive RFID tag as if it were a passive RFID tag). This example is consistent with the specification, which describes a mobile device being used to transmit an RFID signal that is perceived by an RFID reader as being transmitted by a dedicated RFID device such as a passive RFID tag.

Instituted Grounds

Grounds	Basis	References	IPR2024-01362 '974 Claims Challenged	IPR2024-01363 '947 Claims Challenged	IPR2024-01364 '984 Claims Challenged
1A	§ 103	Willgert, Mooney	1–3, 5–9, 11–13, 16–19	1, 2, 6–9, 13–17, 22, 23, 25, 26, 30–32	1–3, 7–14, 18–22, 27–33, 37–39
1B	§ 103	Willgert	1, 3, 5–9, 11	1, 2, 6–8	1, 3, 7–14, 18–20, 32, 33, 37–39
2	§ 103	Willgert, Mooney, Holloway, Pitroda	3–6, 10, 11, 13–17	2–7, 10–14, 17–24, 27–31	3–9, 15–19, 22–28, 34–38

Instituted Grounds

Grounds	Basis	References	IPR2024-01362 '974 Claims Challenged	IPR2024-01363 '947 Claims Challenged	IPR2024-01364 '984 Claims Challenged
1A	§ 103	Willgert, Mooney	1–3, 5–9, 11–13, 16–19	1, 2, 6–9, 13–17, 22, 23, 25, 26, 30–32	1–3, 7–14, 18–22, 27–33, 37–39
1B	§ 103	Willgert	1, 3, 5–9, 11	1, 2, 6–8	1, 3, 7–14, 18–20, 32, 33, 37–39
2	§ 103	Willgert, Mooney, Holloway, Pitroda	3–6, 10, 11, 13–17	2–7, 10–14, 17–24, 27–31	3–9, 15–19, 22–28, 34–38

Summary of Impacted Claims

Limitation	IPR2024-01362 '974 Claims Not Unpatentable	IPR2024-01363 '947 Claims Not Unpatentable	IPR2024-01364 '984 Claims Not Unpatentable
"Voice Call Signals"	At least 2, 4, 10, 12–18	At least 3–5, 9–32	At least 2, 4–6, 15–17, 21–31, 34–36
"RFID Transponder Signal" Terms	All (1–18)	All (1–32)	All (1–39)
"Determining"		All (1–32)	

Summary of Impacted Claims

Limitation	IPR2024-01362 '974 Claims Not Unpatentable	IPR2024-01363 '947 Claims Not Unpatentable	IPR2024-01364 '984 Claims Not Unpatentable
"Voice Call Signals"	At least 2, 4, 10, 12–18	At least 3–5, 9–32	At least 2, 4–6, 15–17, 21–31, 34–36
"RFID Transponder Signal" Terms	All (1–18)	All (1–32)	All (1–39)
"Determining"		All (1–32)	

No Voice Call Signals (Grounds 1A & 2)

- Petition maps “voice call signal[s]” to Bluetooth communication signals transmitted between Willgert’s phone and its paired Bluetooth headset (Reply at 25–26; Pet. at 25)
- Bluetooth does not carry “voice call signal[s]” (POR at 28–30; Ex. 2004 ¶ 55)
- Bluetooth signals are not used to transmit a voice call over the network of a wireless service provider

No Voice Call Signals (Grounds 1A & 2)

1. No cited reference teaches emulation of an RFID signal. This is applicable to all Grounds.
2. Bluetooth does not carry “voice call signals.” This is also applicable to all Grounds.

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

VARIA HOLDINGS LLC,
Patent Owner

Case No.: IPR2024-01364
U.S. Patent No. 8,127,984

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF MICHAEL I. SHAMOS, PH.D.
IN SUPPORT OF PATENT OWNER'S RESPONSE

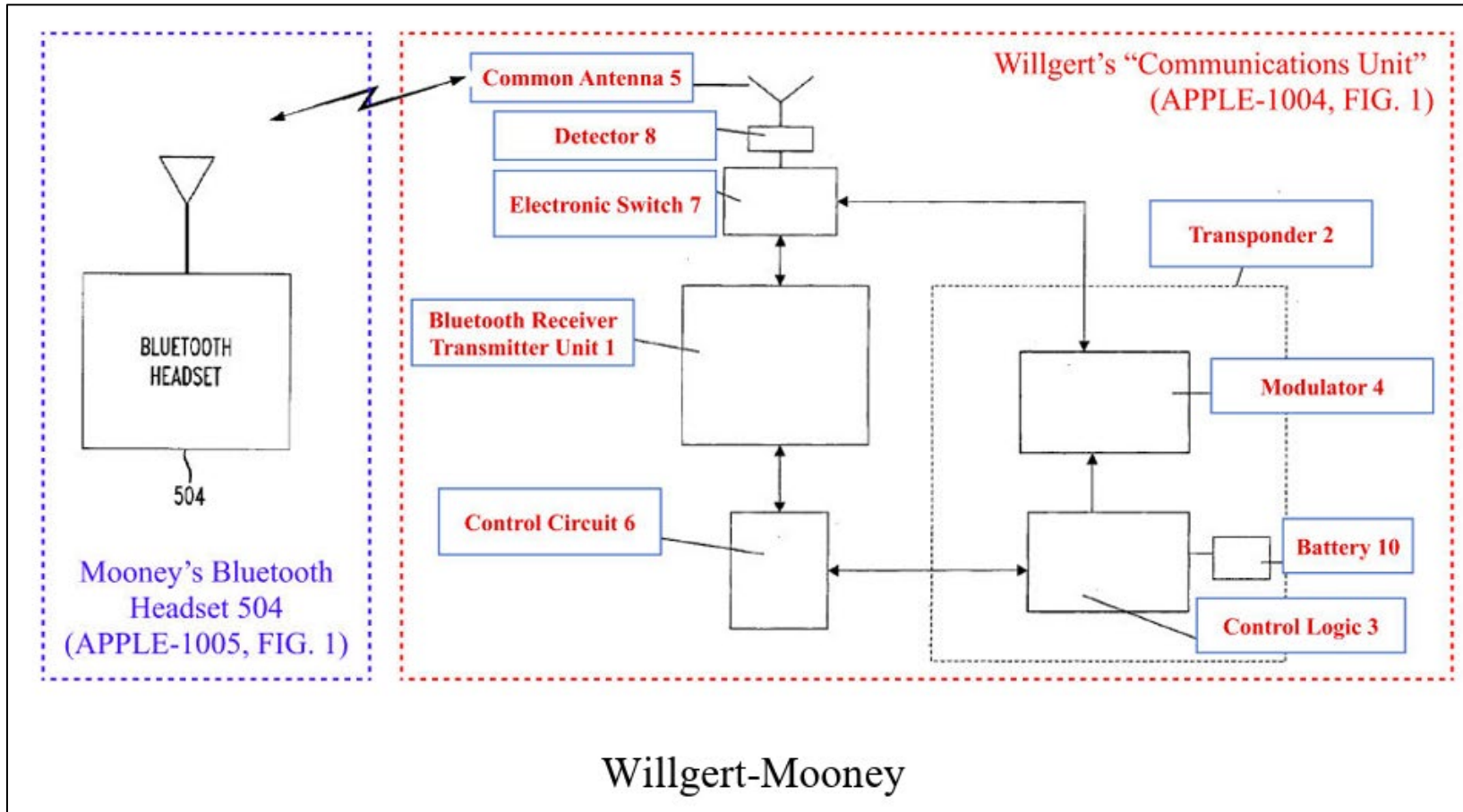
Varia Holdings LLC, Exhibit 2004
Apple Inc. v. Varia Holdings LLC, IPR2024-01364
Page 1 of 37

Ex. 2004 at para. 55

POR at 27–34; Sur-reply 21–22

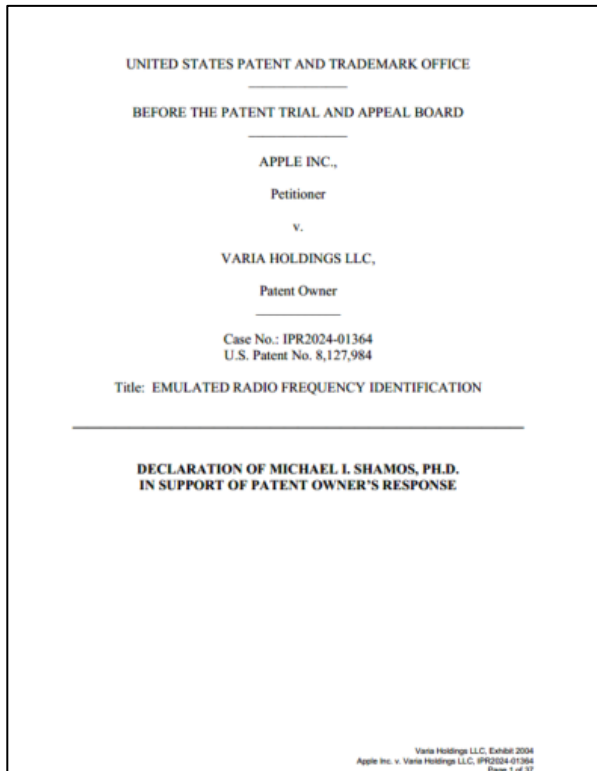
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

No Signals to/from a Wireless Network Service Provider



'974 Pet. at 16

No Voice Call Signals



Ex. 2004

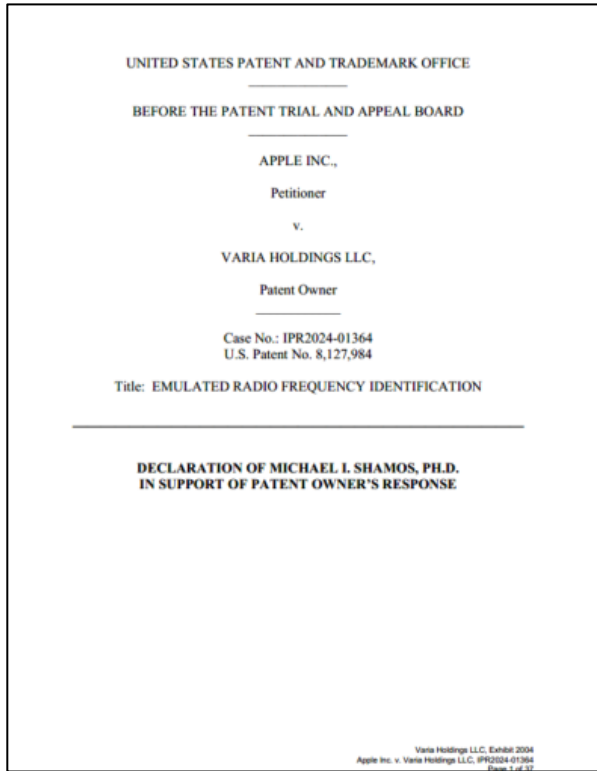
POR at 27–30; Sur-reply 21–22

58. A POSITA would have recognized that a Bluetooth communication signal, such as the one disclosed in Willgert/Mooney, is not a “voice call signal,” because it is not carried over the network of a wireless network service provider.

59. Further, a POSITA would have understood that (1) a Bluetooth communication signal is carried only between a mobile phone and a nearby headset over a short-range Personal Area Network (PAN), and not over a network of a wireless network service provider; and (2) is not carried over the network of a wireless network service provider to call a user of another communications device.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

No Voice Call Signals



Ex. 2004

61. A Bluetooth signal may allow a headset to “hear voice and/or tones . . . generated from [a] wireless phone” via an “audio gateway” (Pet. at 17 (citing Ex. 1003 at [0048])), but such a signal is not carried over a network of a wireless network service provider, or otherwise capable of making or initiating a voice call to a user of another communication device.

62. Therefore, Willgert-Mooney’s Bluetooth headset signal does not enable the “primary communication function of the device,” which is to transmit and receive the “signals of a voice call” to another user of another communication device.

Summary of Impacted Claims

Limitation	IPR2024-01362 '974 Claims Not Unpatentable	IPR2024-01363 '947 Claims Not Unpatentable	IPR2024-01364 '984 Claims Not Unpatentable
"Voice Call Signals"	At least 2, 4, 10, 12–18	At least 3–5, 9–32	At least 2, 4–6, 15–17, 21–31, 34–36
"RFID Transponder Signal" Terms	All (1–18)	All (1–32)	All (1–39)
"Determining"		All (1–32)	

RFID Transponder Signal Terms—No Emulation

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner
v.
VARIA HOLDINGS LLC,
Patent Owner

Case No.: IPR2024-01364
U.S. Patent No. 8,127,984

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

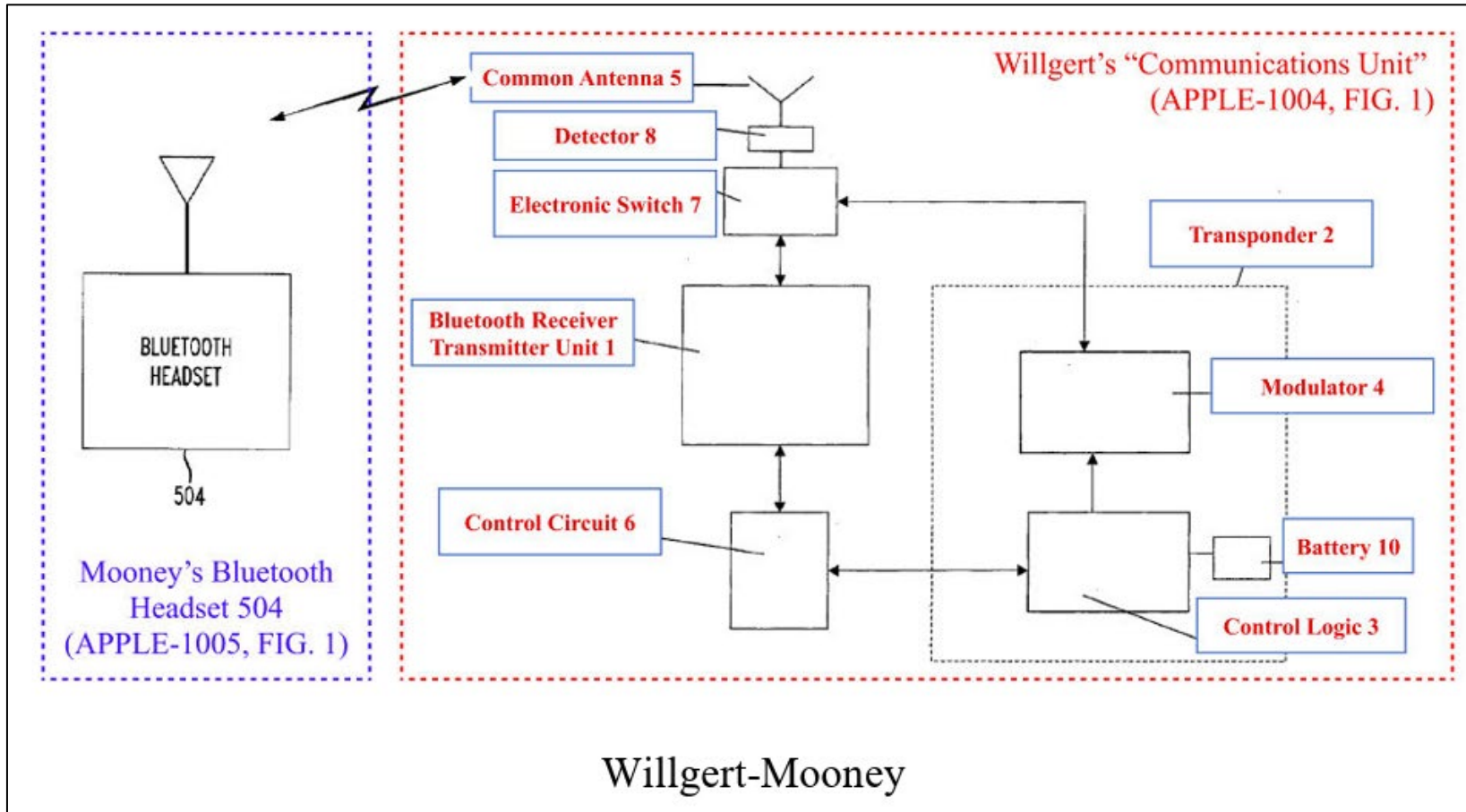
DECLARATION OF MICHAEL I. SHAMOS,
IN SUPPORT OF PATENT OWNER'S RESPONSE

69. Willgert, alone or in combination with Mooney, has no ability to emulate an RFID signal because its device outputs RFID signals exclusively from RFID transponder 2, a physical transponder. Therefore, neither Willgert nor Mooney, separately or together, renders obvious any Challenged Claim.

Varia Holdings LLC, Exhibit 2004
Apple Inc. v. Varia Holdings LLC, IPR2024-01364
Page 2 of 27

Ex. 2004

RFID Transponder Signal Terms—No Emulation



'974 Petition at 16

RFID Transponder Signal Terms—No Emulation

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zafrouh, et al. Attorney Docket No.: 50095-01 R1UP1
 U.S. Patent No.: 8,381,974
 Issue Date: February 26, 2013
 Appl. Serial No.: 13/563,202
 Filing Date: January 31, 2012

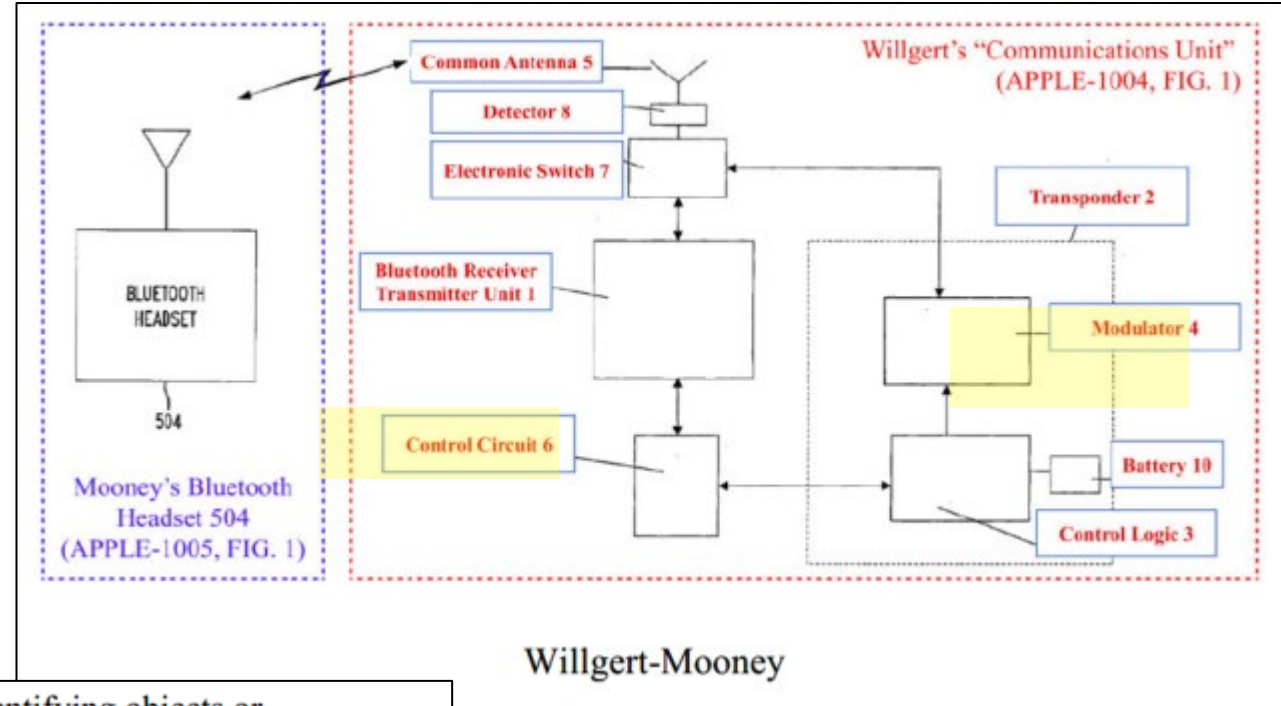
Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DE ZHIDING

I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 28 August 2024 By: Zhi Deng Digitally signed by Zhi Deng
 Date: 2024.08.28 10:53:42 -07'00'



Ex. 1003 at
paras. 59–60

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

RFID Transponder Signal Terms—No Emulation

- Willgert does not emulate – its RFID signal output is from (physical) RFID transponder 2. (Ex. 2004 at ¶ 69).
- Willgert does not perform “functional emulation.”
 - Petitioner’s “functional” argument is as to Holloway – not Willgert. (Reply at 8; Ex. 1063 ¶ 39)
 - Holloway is only used in Ground 2 of each Petition, which still uses Willgert’s transponder
- Holloway uses an RFID chip inserted in a phone. (Ex. 2004 at ¶ 90). This is not emulation.
- Petition never relied on Holloway for RFID Signal Terms in Ground 2

RFID Transponder Signal Terms—No Emulation

- Even Petitioner's expert admitted: a transponder cannot emulate itself

Dr. Zhi Ding - October 7, 2005

1 coming from an RFID tag, but the actual
2 transmission would be coming from different
3 types of device.
4 That is what I explained as a
5 functional emulation. And that's just a
6 phrase of a -- what we mean by RFID
7 emulation. You're emulating the
8 functionalities of a passive RFID tag by
9 using a different device.

Q But you're specifically calling it
11 a functional emulation versus merely
12 emulation, correct?
13 A My -- my declaration here explains
14 that emulation involves -- or at least one
15 example of emulation is functional emulation.
16 This example is consistent with a
17 specification which actually describes the
18 mobile device being used to transmit an RFID
19 signal that is perceived by an RFID reader as
20 being transmitted by a dedicated RFID device
21 or a stand-alone RFID device such as a
22 passive RFID tag.
23 Q Is there a distinction between
24 emulation and functional emulation in what
25 you're saying here?

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Varia Holdings LLC, Exhibit 2009
Apple Inc. v. Varia Holdings LLC (IP02044-01382)
Page 26 of 70

4 That is what I explained as a
5 functional emulation. And that's just a
6 phrase of a -- what we mean by RFID
7 emulation. You're emulating the
8 functionalities of a passive RFID tag by
9 using a different device.

Ex. 2009 at 26:4-9

Petitioner Relies on a Transponder Emulating a Transponder

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zafoulak, et al. Attorney Docket No.: 50095-0181P1
U.S. Patent No.: 8,381,971
Issue Date: February 26, 2015
Appl. Serial No.: 13/963,202
Filing Date: January 31, 2012

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DR. ZHI DING

I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 28 August 2024 By:  Digitally signed by Zhi Ding
Date: 2024.08.28 10:55:42 -07'00'

1
APPLE 1003

Ex. 1003 at para. 148–149

POR at 31–32, 42–43; Sur-reply at 18-21

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 provided by Willgert-Mooney would have involved the RFID transponder 2 being implemented as a passive RFID transponder (e.g., an RFID

[0032])), a POSITA would have understood and found it obvious that the *outputting* of identity information by the Willgert-Mooney phone *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*). This is because the outputting of signals in these implementations occurs automatically, whenever the RFID transponder 2 is within a certain proximity to a communicator. *see* APPLE-1001, 4:65-5:4 (describing RFID transponder output

A Transponder Does Not Emulate a Transponder

- “Zalewski’s RFID transponder is not a component that emulates an output by an active RFID transponder, being itself an RFID transponder.” (Ex. 1002 at 277)
- “And that’s just a phrase of a –what we mean by RFID emulation. You’re emulating the functionalities of a passive RFID tag **by using a different device.**” (Ex. 2009 at 26:5–9)
- Petitioner “stands the concept of emulation on its head, essentially arguing that every device emulates itself when it operates. According to Petitioner’s erroneous argument, an RFID transponder emulates an RFID transponder. This makes as much sense as saying that a banana emulates a banana.” (Ex. 2004 ¶¶ 70–71)

Grounds of Invalidity

- **All Grounds Fail:**

- No disclosure/suggestion of RFID emulation (Ex. 2004 ¶¶ 48–54)
- Holloway & Willgert do not teach or suggest emulation
- No teaching of instructions to switch or selection
- Grounds 1A & 2 fail to disclose voice call signals
- Ground 1B is improper and does not address all challenged claims

Holloway Inapplicable to RFID Transponder Signal Terms

- Petition Did Not Rely on Holloway for RFID Signal Terms
- Petition Did Not Rely on Holloway for “Emulation”

Holloway Inapplicable to RFID Transponder Signal Terms

- “Also connected to processor 11 is an RFID chip 16 **corresponding to the chips found in RFID smart cards or combi cards**” (Ex. 1006 at 4:24–26)
- Holloway’s RFID signaling embodiments all depend on a single, physical RFID chip that would need to be replaced in order to output a different RFID signal. (Ex. 2004 at ¶90)
- “Q. And the chip would be functioning just as it does in the smart card, correct? A. The chip will function like what—the chip 16 would function as if you would find—you would find it in an RFID smart card. That’s what I said here, you’re—Holloway is embedding an RFID chip 16 corresponding to the chips found in RFID smart card together with an antenna.” (Ex. 2009 at 43:22–44:6)

Holloway Inapplicable to RFID Transponder Signal Terms

14 Q So it takes a chip out of a card
15 and puts it into a telephone.
16 What is being emulated in Holloway?
17 A What -- what I have explained
18 earlier is that you would have a mobile
19 phone, but you don't actually carry a smart
20 card.

11 Q The chip is acting just as it would
12 in the smart card, correct?
13 A "Chip 16 is an RFID chip
14 corresponding to the chips found in the RFID
15 smart card or combi cards."
16 Holloway left it open. It may be
17 identical, it may not be identical, but they
18 have to work together with the memories and
19 other components in the phone.

Ex. 2009 at 35:14–20; 36:11–19

Summary of Impacted Claims

Limitation	IPR2024-01362 '974 Claims Not Unpatentable	IPR2024-01363 '947 Claims Not Unpatentable	IPR2024-01364 '984 Claims Not Unpatentable
"Voice Call Signals"	At least 2, 4, 10, 12–18	At least 3–5, 9–32	At least 2, 4–6, 15–17, 21–31, 34–36
"RFID Transponder Signal" Terms	All (1–18)	All (1–32)	All (1–39)
"Determining"		All (1–32)	

“Determining” Is a Separate Requirement



US009405947B2

(12) United States Patent
Zatlonkal et al.

(10) Patent No.: US 9,405,947 B2
(45) Date of Patent: *Aug. 2, 2016

(54) EMULATED RADIO FREQUENCY
IDENTIFICATION

(71) Applicant: Varta Holdings LLC, Brooklyn, NY
(US)

(72) Inventors: Peter Zatlonkal, Kirkland, WA (US); G.
Eric Engstrom, Kirkland, WA (US);
Cindy M. Smith, Kirkland, WA (US)

(73) Assignee: Varta Holdings LLC, Brooklyn, NY
(US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(h) by 0 days.

This patent is subject to a terminal
disclaimer.

(21) Appl. No.: 13/756,970

(22) Filed: Jun. 25, 2013

(45) Prior Publication Data
US 2013/0207777 A1 Aug. 15, 2013

Related U.S. Application Data
(63) Continuation of application No. 13/363,262, filed on
Jan. 31, 2012, now Pat. No. 8,381,974, which is a
continuation of application No. 10/560,262, filed as
application No. PCT/US2004/018397 on Jan. 10,
2004, now Pat. No. 8,127,884.

(60) Provisional application No. 60/478,245, filed on Jan.
13, 2005.

(51) Int. Cl.
G06K 7/38 (2006.01)
G06K 7/30 (2006.01)
(Continued)

(52) U.S. Cl.
CPC: G06K 7/38466 (2013.01); G06K 1/07
(2013.01); G06K 7/0008 (2013.01);
(Continued)

(58) Field of Classification Search
CPC: G06K 7/10566; G06K 7/0008; G06K
1/00723; G06K 5/06011; H04M 1/7253;
H04M 1/72575; G06D 1/00; H04D 5/0062
See application file for complete search history.

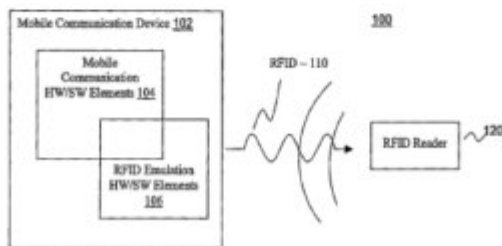
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(Continued)

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WO 2004/14239 A3 12/2004
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International Search Report and Written Opinion mailed Feb. 15,
2005 for PCT Application No. PCT/US04/018397, 11 pages.
(Continued)

Primary Examiner—Daniel Walsh
(74) Attorney, Agent, or Firm—Withrow & Terman,
P.L.L.C.

(57) ABSTRACT
A mobile communication device is equipped with hardware
and/or software components to enable the device to output a
data in a form of a radio frequency signal, emulating output-
ting of the data by either an active or a passive RFID trans-
ponder. The data may be a security key or an identifier.
Emulation of an active RFID transponder includes facilitating
selection of the data and instruction to output by a user.
Emulation of a passive RFID transponder includes detecting
for presence of a RFID reader. Either case, provi-
sion of the data to the mobile communication device may
include provision of associated signal attribute(s).

32 Claims, 12 Drawing Sheets



1

APPLE 1001

What is claimed is:

1. A method for operating a mobile communication device comprising:

receiving, by the mobile communication device, a radio frequency identification (RFID) probing signal from an RFID reader external to the mobile communication device;

executing, on processing circuitry in the mobile communication device, instructions stored in a memory in the mobile communication device, the instructions configured to cause the mobile communication device to:

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

'947-Ex. 1001 at 9:28-

46

'947 POR at 5-6, 32-35, 38, 47

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

66

Petitioner Conflates “Determining” with other Limitations

But the claim language does not support this purported distinction. For example, [1.4] merely recites “the RFID signal is output in response to the mobile communication device determining the mobile communication device is in an operational space of the RFID reader based upon receipt of the RFID probing signal.” See [9.3], [16.5], [26.5]. In context, “determining” function is satisfied by “receipt of the RFID probing signal” without further processing. See APPLE-

’947 Reply at 24

WHAT IS CLAIMED IS:

1. A method for operating a mobile communication device comprising:
receiving, by the mobile communication device, a radio frequency identification (RFID) probing signal from an RFID reader external to the mobile communication device;
executing, on processing circuitry in the mobile communication device, instructions stored in a memory in the mobile communication device, the instructions configured to cause the mobile communication device to:
output an RFID signal and output a voice call signal, wherein the RFID signal is output in response to the mobile communication device determining the mobile communication device is in an operational space of the RFID reader based upon receipt of the RFID probing signal, and wherein the voice call signal is output over a wireless network and within a radio frequency range that is different than a radio frequency range used to output the RFID signal.

’947 Cl. 1

“Determining” Is a Separate Requirement

71. All Challenged Claims of require the mobile communication device to “output” an RFID signal in response to “determining” the mobile communications device is in an operational space of the reader based on “receipt” of an RFID probing signal. The Challenged Claims expressly require that this “determining” is distinct from receiving the probing signal and also distinct from outputting an RFID signal.

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.

because they obtain their power from the radiated signal from the reader. A POSITA would have understood that a passive RFID transponder would output its signal when activated by radiated signal from a reader, without any “determining.”

VeriFone Holdings LLC, Exhibit 2004
Apple Inc. v. VeriFone Holdings LLC, IP#2004-01233
Page 14 of 23

’947 Ex. 2004 at paras. 71, 75

WHAT IS CLAIMED IS:

1. A method for operating a mobile communication device comprising:

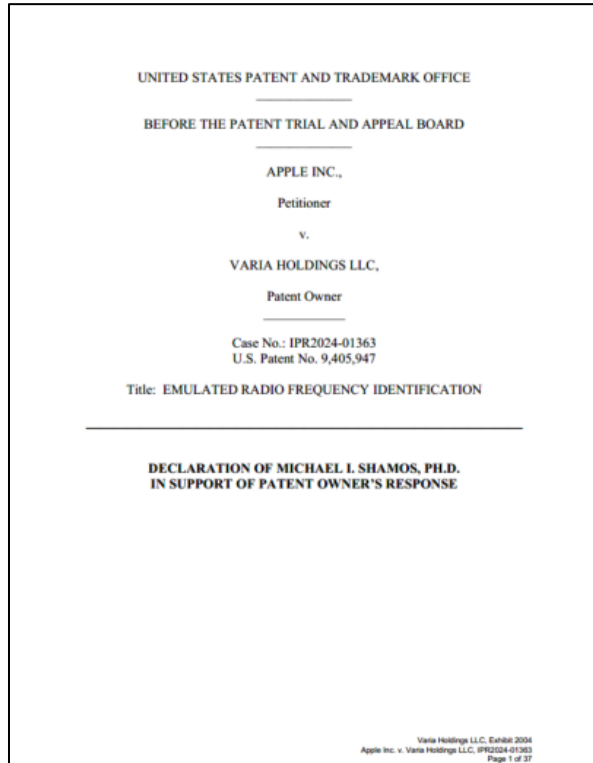
receiving, by the mobile communication device, a radio frequency identification (RFID) probing signal from an RFID reader external to the mobile communication device;

executing, on processing circuitry in the mobile communication device, instructions stored in a memory in the mobile communication device, the instructions configured to cause the mobile communication device to:

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

’947 Cl. 1

“Determining” Is a Separate Requirement



73. There is no disclosure in Willgert, alone or in combination with Mooney, of the claimed “determining,” let alone any “determining” that is distinct from receiving a probing signal and distinct from outputting an RFID signal, as required by all Challenged Claims. This makes sense because Willgert discloses a physical RFID transponder, which does not performed any “determining,” and Mooney does not disclose RFID at all.

74. Willgert discloses that its “transponder is thus adapted to receive a query signal sent from a suitably known communicator, and therewith reflect the received signal while modulating the signal with a pulse train.” EX1004, [0017].

‘947 Ex. 2004

‘947 POR at 32–35, 38; ‘947 Sur-reply at 19–23

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

“Determining” Is a Separate Requirement

In Willgert-Mooney, RFID transponder 2 of the “communications unit” is configured to determine when it is in sufficient proximity to the communicator (*RFID reader*). APPLE-1004, [0004], [0006], [0007], [0015], [0017]. A POSITA would have understood and found obvious that this determination involves

determining that the Willgert-Mooney phone is in *an operational space*⁶ 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 respond to a query/transponder signal provided by the communicator. APPLE-1003, ¶92.

¶¶94-95. Likewise, RFID transponder 2 may be similarly configured as a passive RFID transponder such that it is activated by a query signal sent by a communicator disclosed in Willgert when the passive RFID transponder is in sufficient proximity to the communicator. See APPLE-1004, [0015], [0017]; APPLE-1003, ¶¶94-95.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zatloukal, et al.
U.S. Patent No.: 9,405,947
Issue Date: August 2, 2016
Appl. Serial No.: 13/750,970
Filing Date: January 25, 2013
Title: EMULATED RADIO FREQUENCY IDENTIFICATION

Attorney Docket No.: 50095-0182001

Mail Stop Patent Board
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR INTER PARTES REVIEW OF UNITED STATES

PATENT NO. 9,405,947 PURSUANT TO 35 U.S.C. §§ 311-319,

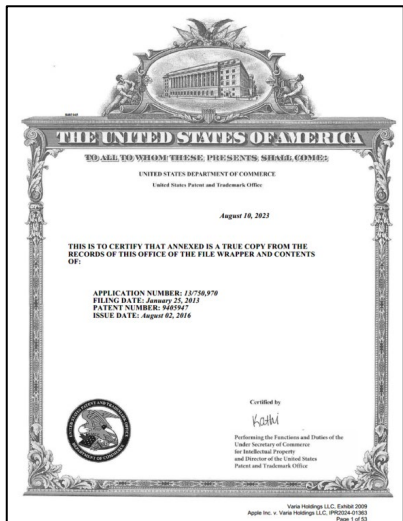
37 C.F.R. § 42

'947 Pet. at 30–32

“Determining” Is a Separate Requirement

Zalewski fails to describe at least these features. As discussed in Applicant’s previous response to the Final Office Action mailed July 22, 2014, Zalewski describes attaching a passive RFID transponder to a mobile station via a changeable cover. Accordingly, as previously described, the passive RFID transponder described in Zalewski will either obtain sufficient energy from a nearby electric field to power on, or it will remain off. In other words, it is assumed that any time the passive RFID transponder is powered on, it is within the operational space of an RFID

In contrast to claim 61, the passive RFID transponder described in Zalewski will assume that it is within the operational space of an RFID reader any time it is powered on. These operational principles are not equivalent to those described in claim 61. In particular, the operational principles described in Zalewski differ in several ways with respect to claim 61. First, the mobile terminal described in Zalewski does not determine if it is in the operational space of an RFID reader at all.⁵ Instead, it is assumed by the passive RFID transponder



'947 Ex. 2009 at 35;

Neither Construction nor Disclaimer Required

To the extent that Varia's position is that passive RFID transponders are excluded from the "determining" function, this is undercut but its choice to not express construe either the "determining" function or "operational space."

Because it chose not to construe these elements, Varia tacitly admits that prosecution statements cited in pages 6 to 9 of the POR do not rise to disclaimer.

'947 Reply at 24

Instituted Grounds

Grounds	Basis	References	IPR2024-01362 '974 Claims Challenged	IPR2024-01363 '947 Claims Challenged	IPR2024-01364 '984 Claims Challenged
1A	§ 103	Willgert, Mooney	1–3, 5–9, 11–13, 16–19	1, 2, 6–9, 13–17, 22, 23, 25, 26, 30–32	1–3, 7–14, 18–22, 27–33, 37–39
1B	§ 103	Willgert	1, 3, 5–9, 11	1, 2, 6–8	1, 3, 7–14, 18–20, 32, 33, 37–39
2	§ 103	Willgert, Mooney, Holloway, Pitroda	3–6, 10, 11, 13–17	2–7, 10–14, 17–24, 27–31	3–9, 15–19, 22–28, 34–38

Ground 1B (Improper and Does not Address all claims)

- Ground 1B is not properly argued, and that it would be improper to construe the terms here to resolve the issues raised Petition.
 - Petition conflates the terms “switchable mobile communications device” and “switching a transceiver/transmitter” (Pet. at 62–67)
- Petitioner has not met its burden in Ground 1B
 - Flimsy, short argument with inconsistencies – e.g., missing any mention of independent claims from which listed dependent claims depend.
 - Single sentence allegedly invalidating multiple claims.
- Ground 1B pertains only to some challenged claims.

Ground 1B Not Fulsomely Presented

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zafoulak, et al. Attorney Docket No.: 50095-0181P1
U.S. Patent No.: 8,381,971
Issue Date: February 26, 2015
Appl. Serial No.: 13/963,202
Filing Date: January 31, 2012

Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DR. ZHI DING

I currently hold the opinions set expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code.

Dated: 28 August 2024 By:  Digitally signed by Zhi Ding
Date: 2024.08.28 10:55:42 -07'00'

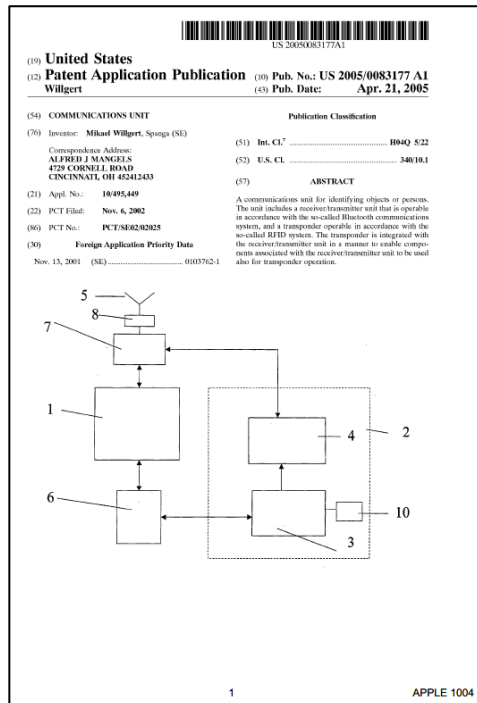
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APPLE 1003

Ex. 1003

200. Specifically, under Varia’s interpretation (where a *state* is not uniquely limited to transmission of a specific signal type), 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-1004, [0019], [0024].

201. Configurations of multi-modal transceivers with circuitry associated with different types of wireless signals were also conventional by the Critical Date. APPLE-1010, 3:22-25, 5:1-12. Based on the disclosure above, 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 mobile telephone, including transmissions (i.e., *output[s]*) related to voice call signals (*voice call signals*) of the telephone. APPLE-1004, [0024], [0030]. As

Willgert Does Not Disclose a “Common Processor”



[0030] In one highly user-friendly application, a transponder can also be included in a mobile telephone designed for Bluetooth communication.

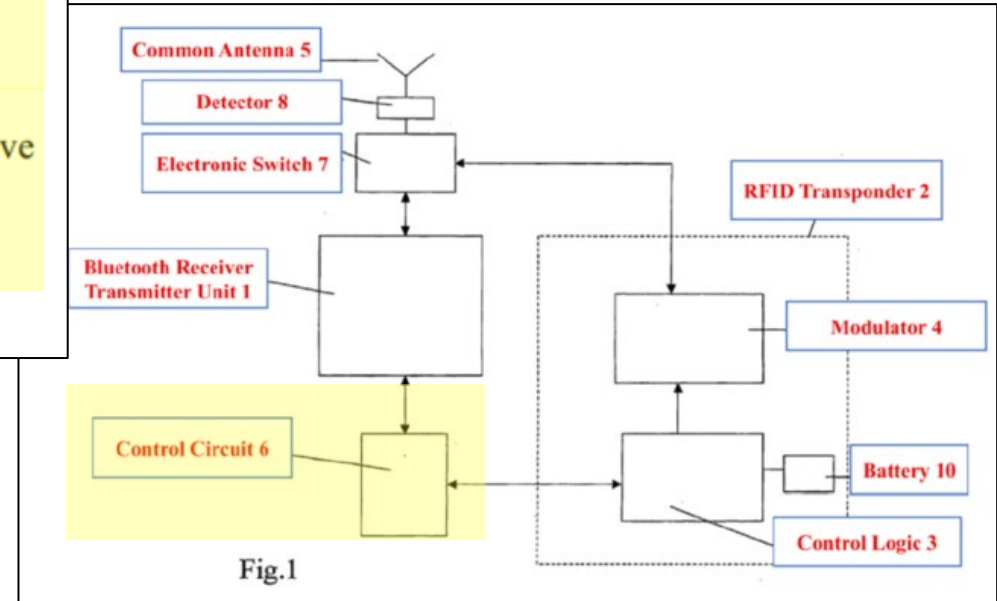
[0031] This design is particularly advantageous when the present communications unit is constructed so that the transponder will also function when the mobile telephone is switched-off in general. This means that the user can be identified without carrying a separate transponder.

[0032] A design in which Bluetooth and transponder are both integrated in a mobile telephone enables, e.g., the transponder to be used for identifying a user of a computer, or some other equipment equipped with Bluetooth, for making use of Bluetooth communication possible.

Willgert Does Not Disclose a “Common Processor”

200. Specifically, under Varia’s interpretation (where a *state* is not uniquely limited to transmission of a specific signal type), 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-1004, [0019], [0024].

Ex. 1003



- “control circuit 6” does not process RFID signals
- “control circuit 6” does not connect to any voice call signals
- no processing of voice call signals (by any processor) taught

Ground 2

Grou nds	Basis	References	IPR2024-01362 '974 Claims Challenged	IPR2024-01363 '947 Claims Challenged	IPR2024-01364 '984 Claims Challenged
1A	§ 103	Willgert, Mooney	1–3, 5–9, 11–13, 16–19	1, 2, 6–9, 13–17, 22, 23, 25, 26, 30–32	1–3, 7–14, 18–22, 27–33, 37–39
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Ground 2

Grou nds	Basis	References	IPR2024-01362 '974 Claims Challenged	IPR2024-01363 '947 Claims Challenged	IPR2024-01364 '984 Claims Challenged
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- Does not address any limitations of the independent claims
- Does not remedy lack of “voice call signals”, “RFID transponder signals”, or “determining” limitations

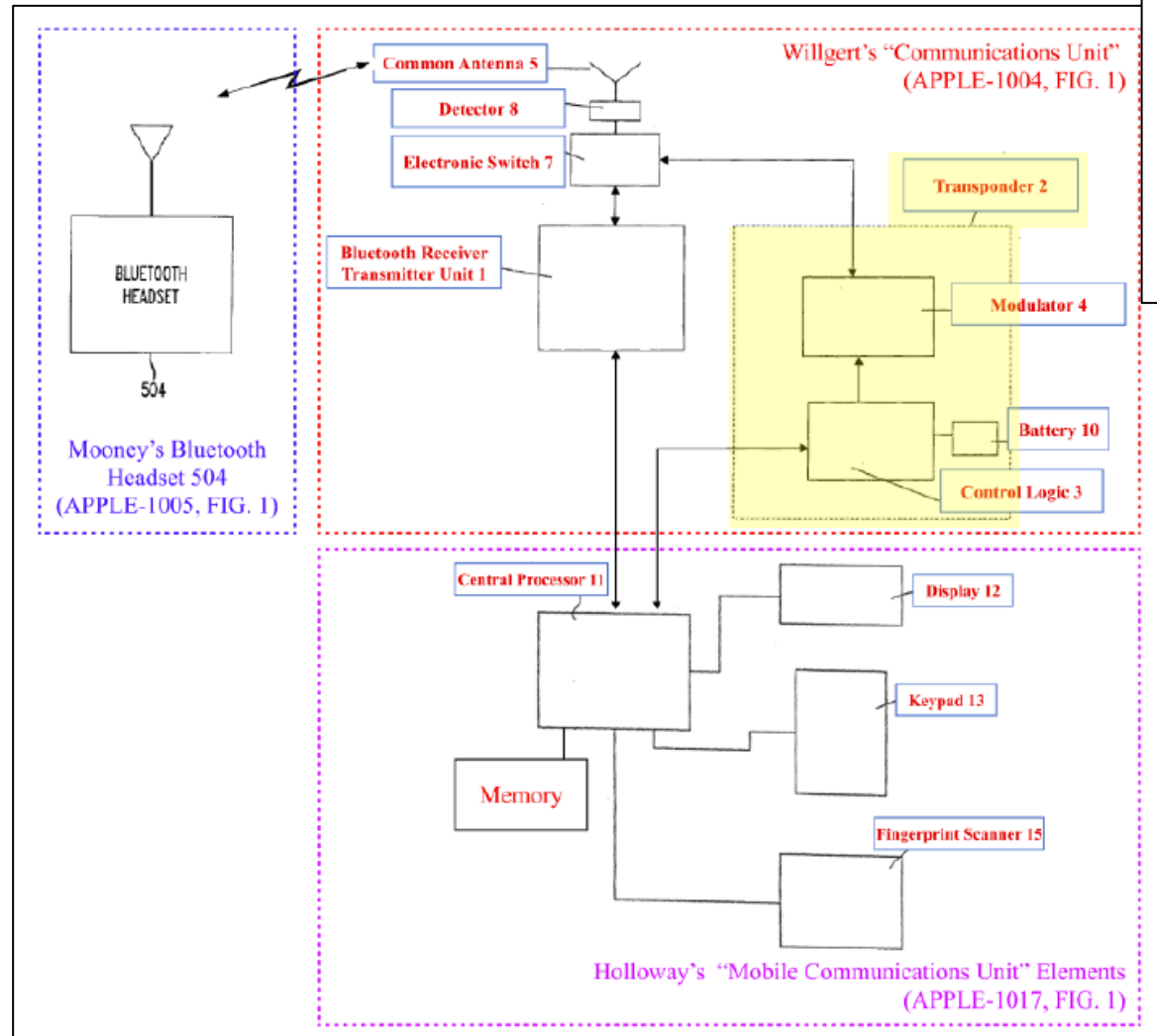
No Voice Call Signals (Grounds 1A & 2)

- Petition maps “voice call signal[s]” to Bluetooth communication signals transmitted between Willgert’s phone and its paired Bluetooth headset (Reply at 25–26; Pet. at 25)
- Bluetooth does not carry “voice call signal[s]” (POR at 27–30; Ex. 2004 ¶ 55)
- Bluetooth signals are not used to transmit a voice call over the network of a wireless service provider

Ground 2

- Adds nothing to the analysis of independent claims
- If Ground 1 fails, then Ground 2 fails on the independent claims for at least the same reasons

Ground 2



Ground 2

86. Specifically, Willgert and Holloway each describe RFID transponder

hardware being incorporated into a mobile telephone. APPLE-1004, FIG. 1 (RFID transponder 2), [0017]; APPLE-1006, FIG. 1 (RFID chip 16), 5:21-28. And, for

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Peter Zafoulak, et al. Attorney Do
U.S. Patent No.: 8,381,971
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Title: EMULATED RADIO FREQUENCY IDENTIFICATION

DECLARATION OF DR. ZHIDING

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Dated: 28 August 2024 By:  Digitally signed by Zhi Ding
Date: 2024.08.28 10:55:42 -07'00'

Zhi Ding

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1 APPLE 1003

Ex. 1003

Summary of Impacted Claims

Limitation	IPR2024-01362 '974 Claims Not Unpatentable	IPR2024-01363 '947 Claims Not Unpatentable	IPR2024-01364 '984 Claims Not Unpatentable
“RFID Transponder Signal” Terms	All (1–18)	All (1–32)	All (1–39)
“Voice Call Signals”	At least 2, 4, 10, 12– 18	At least 3–5, 9–32	At least 2, 4–6, 15–17, 21–31, 34–36
“Determining”		All (1–32)	