

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Jeffrey C. Hawkins, et al.
U.S. Patent No.: 9,203,940 Attorney Docket No.: 39521-0049IP1
Issue Date: December 1, 2015
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Title: INTEGRATED PERSONAL DIGITAL ASSISTANT DEVICE

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**PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT
NO. 9,203,940 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42**

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EXHIBITS

APPLE-1001	U.S. Patent No. 9,203,940 to Hawkins, et al. (“the ’940 patent”)
APPLE-1002	Excerpts from the Prosecution History of the ’940 Patent (“the Prosecution History”)
APPLE-1003	Declaration of Dr. Brad Myers
APPLE-1004	<i>Curriculum Vitae</i> of Dr. Brad Myers
APPLE-1005	Declaration of Ms. Diane McKenna (“McKenna Declaration”)
APPLE-1006	Sprint Samsung Model SCH-3500 User Guide
APPLE-1007	U.S. Pat. App. Pub. No. 2006/0095849 to Vertaschitsch <i>et al.</i> (“Vertaschitsch”)
APPLE-1008	PCT Appl. Pub. No. WO 2001/28191 to Sharp (“Sharp”)
APPLE-1009	English Translation of PCT Appl. Pub. No. WO 2000/62120 to Nakao <i>et al.</i> (“Nakao”)
APPLE-1010	PCT Appl. Pub. No. WO 2000/62120 (Original Japanese Version)
APPLE-1011	Declaration of Roland Piers Levan
APPLE-1012	U.S. Patent No. 5,642,413 to Little (“Little”)
APPLE-1013	Declaration of Mr. Jon McDonald (“McDonald Declaration”)
APPLE-1014	Exhibit A (Sprint PCS User Guide, Samsung Model SCH-3500) to the McDonald Declaration

APPLE-1015 Exhibit B (Samsung SCH-2500 Series Owner's Manual) to the
McDonald Declaration

APPLE-1016 Exhibit C (1999 Samsung Press Release) to the McDonald Dec-
laration

Apple Inc. (“Petitioner” or “Apple”) petitions for *inter partes* review (“IPR”) under 35 U.S.C. §§ 311–319 and 37 C.F.R. § 42 of claims 1, 3-5, 7, 8, 10-16, 18, 19, 21, and 22 (“the Challenged Claims”) of U.S. Patent No. 9,203,940 (“the ’940 patent”). As explained in this petition, there exists a reasonable likelihood that Apple will prevail with respect to at least one of the Challenged Claims.

The Challenged Claims are unpatentable based on teachings set forth in at least the references presented in this petition. Apple respectfully submits that an IPR should be instituted, and that the Challenged Claims should be canceled as unpatentable.

I. SUMMARY OF THE ’940 PATENT

A. Brief Description

Generally, the ’940 patent purportedly provides an integrated device having the functionality of both a PDA and a cellular telephone. APPLE-1001, Abstract. In particular, the ’940 patent describes that the integrated device includes “a power button offering control of both the computing and telephony functions of the device.” *Id.* The ’940 patent describes that “pressing the power button 110 when there is an incoming call silences the ring or vibrate” and “if the device is off when a call comes in, the device is turned on, and the backlight is illuminated.” *Id.*, 4:6-13.

The '940 patent includes 22 claims, of which claims 1 and 12 are independent.

B. Summary of the Prosecution History of the '940 Patent

The '940 patent issued on December 1, 2015 from U.S. Patent Application No. 13/117,729 (“the ‘729 application”), which was filed on May 27, 2011 with one claim. *See* APPLE-1002. This application is a continuation of U.S. Patent Application Serial No. 12/163,948 filed on June 27, 2008 (now U.S. Patent No. 8,224,379); which is a continuation of U.S. Patent Application Serial No. 09/976,475 filed on October 12, 2001 (now U.S. Patent No. 7,395,089), which claims priority to U.S. Provisional Application Serial No. 60/297,817 filed on June 11, 2001 (now expired). Thus, the earliest priority date proclaimed by the '940 patent is June 11, 2001 (hereinafter the “Critical Date”).

After multiple rounds of Office Actions and amendments to the claims, the Patent Office ultimately allowed the application with reference to the single power button to (1) “silence a ring” and (2) “activate a backlight of the display” limitations of the claimed method and device. *See* APPLE-1002, pp. 10-16. As described in detail below, these claim limitations, and the other limitations recited in the claims of '940 patent, are taught by the references cited herein.

II. REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. Grounds for Standing Under 37 C.F.R. § 42.104(a)

Apple certifies that the '940 Patent is available for IPR. The present petition

is being filed within one year of service of a complaint against Apple in the Southern District of California. Apple is not barred or estopped from requesting this review challenging the Challenged Claims on the below-identified grounds.

B. Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

Apple requests an IPR of the Challenged Claims on the grounds set forth in the table shown below, and requests that each of the Challenged Claims be found unpatentable. An explanation of how these claims are unpatentable under the statutory grounds identified below is provided in the form of detailed description and claim charts that follow, indicating where each element can be found in the cited prior art, and the relevance of that prior art. Additional explanation and support for each ground of rejection is set forth in Exhibit APPLE-1003, the Declaration of Dr. Brad Myers (“Expert Declaration”), referenced throughout this Petition. APPLE-1003, ¶¶1-110.

Ground	'940 Patent Claims	Basis for Rejection
Ground 1-A	1, 4, 7, 8, 12, 15, 18, 19	Obvious under § 103 over Samsung in view of Vertaschitsch
Ground 1-B	3, 13, 14	Obvious under § 103 over Samsung in view of Vertaschitsch and Sharp
Ground 1-C	5, 16	Obvious under § 103 over Samsung in view of Vertaschitsch and Nakao
Ground 1-D	10, 11, 21, 22	Obvious under § 103 over Samsung in view of Vertaschitsch and Little

Samsung (APPLE-1006) qualifies as prior art at least under 35 U.S.C § 102(b). Specifically, Samsung is a non-patent literature (NPL) reference that was available to the public more than one year before the Critical Date (June 11, 2001). In particular, Samsung is a user guide for the Sprint PCS/Samsung model SCH-3500 phone (“SCH-3500”) that launched in November of 1999, more than one year prior to the Critical Date. Petitioner submits herewith a declaration from witnesses (APPLE-1005, APPLE-1013 to APPLE-1016) having actual knowledge of the SCH-3500 and normal practices at Samsung Telecommunications during the 1999-2000 timeframe to establish that Samsung (APPLE-1006) was publicly available as early as November of 1999. *In re Enhanced Security Research*, 739 F.3d 1347 (Fed. Cir. 2014) (declaration of knowledgeable employee sufficient to support public availability of dated manual).

Vertaschitsch (U.S. Pub. No. 2006/0095849) (APPLE-1007) qualifies as prior art at least under 35 U.S.C § 102(e). Specifically, Vertaschitsch is a continuation of patent application Ser. No. 09/687,987, which was filed on Oct. 13, 2000, more than 8 months before the Critical Date.

Vertaschitch was cited during the prosecution of the '940 patent. *See* APPLE-1002, pp. 80-84. The Examiner rejected all pending claims first over the combination of Vertaschitch and Lee (*see id.*, 80), and subsequently over the com-

ination of Vertaschitch, Lee, and Mitchell (*see id.*, 44). The present Petition presents Vertaschitch as part of a combination (e.g., Samsung and Vertaschitch) that includes completely different references than the combinations used in prosecution. *See id.*, pp. 44, 80; Sections III.A-III.D, *infra*. In addition, the present Petition applies Vertaschitch as a secondary reference, rather as a primary reference as the reference was used in prosecution. *See* APPLE-1002, pp. 44, 80. Further, Vertaschitch is applied herein to dependent claim features that Patent Owner did not specifically argue during prosecution. *See id.*, pp. 37-38, 67-74. The present Petition thus does not rely upon Vertaschitch for the features deemed allowable by the Office during prosecution; Vertaschitch and its associated arguments do not represent “substantially the same prior art or arguments previously” presented during prosecution of the ’940 patent. 35 U.S.C. § 325(d).

Sharp (PCT Pub. No. WO 2001/28191) (APPLE-1008) qualifies as prior art at least under 35 U.S.C § 102(a). Specifically, Sharp published on April 19, 2001, which was about 2 months before the Critical Date.

Nakao (PCT Pub. No. WO 2000/62120) (APPLE-1009) qualifies as prior art at least under 35 U.S.C § 102(a). Specifically, Nakao published on October 19,

2000, more than 7 months before the Critical Date.¹

Little (U.S. Patent No. 5,642,413) (APPLE-1012) qualifies as prior art at least under 35 U.S.C § 102(b). Specifically, Little is a U.S. patent that issued on June 24, 1997, more than three years before the Critical Date.

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art as of the Critical Date of the '940 patent (hereinafter a "POSITA") would have had a Master of Science Degree in an academic area emphasizing electrical engineering, computer science, or an equivalent field (or a similar technical Master's Degree, or higher degree) with a concentration in mobile computing and user interface design. Alternatively, a POSITA would have had a Bachelor's Degree (or higher degree) in an academic area emphasizing electrical engineering, or computer science and having two or more years of experience in mobile computing and user interface design. Additional education in a relevant field, such as computer science, or electrical engineering, or industry experience may compensate for a deficit in one of the other aspects of the requirements stated above. APPLE-1003, ¶¶10-11.

¹ Petitioner has also provided the Nakao PCT application publication in its original foreign language (Japanese) (APPLE-1010) along with a declaration attesting to the accuracy of the translation (APPLE-1011).

D. Claim Construction under 37 C.F.R. § 42.104(b)(3)

Petitioner submits that all terms should be given their plain meaning, but reserves the right to respond to any constructions that may later be offered by the Patent Owner or adopted by the Board. APPLE-1003, ¶17. Petitioner is not waiving any arguments concerning indefiniteness or claim scope that may be raised in litigation.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

The sections below detail how the combinations of references provide every limitation of the Challenged Claims, thereby rendering at least claims 1, 3-5, 7, 8, 10-16, 18, 19, 21, and 22 of the '940 patent unpatentable. APPLE-1003, ¶¶18-110. The present Petition thus shows a reasonable likelihood that at least one claim of the '940 patent is unpatentable.

A. Ground 1-A: Claims 1, 4, 7, 8, 12, 15, 18, 19 Are Obvious under § 103 Over Samsung In View of Vertaschitsch

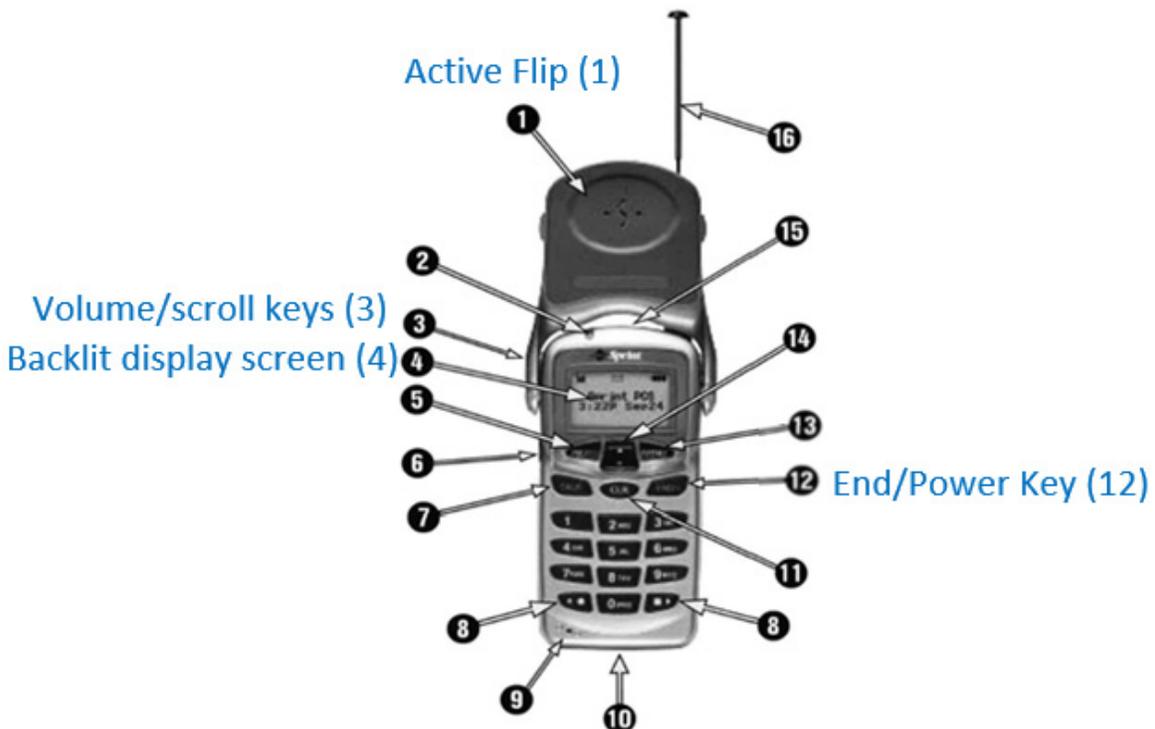
1. Overview of Samsung²

Samsung, entitled "User Guide," is a user manual for the Sprint PCS / Samsung Model SCH-3500 phone (SCH-3500). *See e.g.*, APPLE-1006, pp. 1, 13; APPLE-1003, ¶¶41-64. The SCH-3500 is "a wireless phone." *Id.*, p. 13. Samsung

² Petitioner hereby expressly incorporates the entirety of this Samsung discussion into the element-by-element analysis of each of Grounds 1-A through 1-D, *infra*.

generally describes the various features of the SCH-3500 and instructions for using the SCH-3500. *Id.*, *passim*. Like the '940 patent, Samsung provides several user interface features, such an “End/Power key” (e.g., power button) having multiple functions. *Id.*, p. 19. Samsung also provides a “volume/scroll key” to changing the volume setting of the SCH-3500 from an audible ring tone to a vibrate notification. *Id.*, pp. 15, 39.

The figure below of the SCH-3500 shows its various features, including an active flip 1, a volume/scroll key 3, backlit display screen 4, and the End/Power Key 12.



See *Id.*, p. 14 (annotated figure). Samsung explains that the user can use the active

flip for telephony functions, for example, to “open the flip to answer an incoming call, and close the flip to end the call.” *Id.*, p. 15; *see also* p. 14 (showing a figure of the phone with the flip open); p. 16 (showing a figure of the phone with the flip closed). With reference to the figure on page 16 (reproduced below), Samsung explains that the display screen “contains two areas: [t]he top line displays indications about your phone's operating mode” and “[t]he lower area displays in-use information such as the other party's number, the call timer, the name and number of the other party (if available), Mute, Call Waiting, etc.” *Id.*

Display screen



Id. (annotated figure). The display screen also includes a backlight. *Id.*, pp. 16, 38, 42. Samsung explains that a user can select various backlight options, including “Flip Open, 10 or 30 Seconds (after last keypress), or Off.” *Id.*, pp. 42, 96.

With reference to the figure on page 19 (reproduced below), Samsung explains that the End/Power key performs multiple functions. *Id.*, p. 19.



Id. For example, Samsung explains that the user can press the END/Power key to “turn the phone on or off,” “mute the ringer” when the phone receives an incoming call,” and “disconnect a call or to return to Standby mode from any menu.” *Id.*

The SCH-3500 includes a “ringer [that] sounds (unless set to Vibrate or Off).” *Id.*, p. 38. The SCH-3500 provides “[s]ix ring volume settings including Vibrate, Off, and 1-Beep.” APPLE-1006, p. 39. Samsung explains that to change the volume setting of the SCH-3500 from an audible ring tone to a vibrate notification, a user can “[i]n the Main Menu...[p]ress the scroll keys to HIGH, MED, LOW, OFF, VI-BRATE, or 1-BEEP.” *Id.* (emphasis added); *see also* p. 39; p. 47.

2. Overview of Vertaschitsch³

Vertaschitsch “relates generally to user interfaces.” APPLE-1007, [0003]; APPLE-1003, ¶¶65-68. Similar to the ’940 patent, Vertaschitsch describes user interfaces for phone and Personal Digital Assistants (PDAs).” *Id.* In particular, Vertaschitsch describes an “electronic device having integrated cell phone technology” including “a single main processor” and a “second, phone control processor”. *Id.*, [0013]. Vertaschitsch explains that the “user interfaces for the cell phone and the PDA are run on a single main processor” and “[a] second, phone control processor controls the radio functions of the cell phone.” *Id.* For example, Vertaschitsch describes “a handheld computer or electronic device comprising...a first processor configured to run user applications and send outputs of the user applications to the display screen,” and “a baseband processor connected to the telephone device and configured to control operations of the telephone device.” *Id.*, [0014].

Vertaschitsch teaches a “phone device” including “[a] display screen 230 is provided (preferably a touch sensitive screen) for display of Operating System prompts, buttons, icons, application screens, and other data, and for providing user inputs via tapping or touching ... via a stylus or other touch mechanism.” *Id.*, [0028]

³ Petitioner hereby expressly incorporates the entirety of this Vertaschitsch discussion into the element-by-element analysis of each of Grounds 1A-1D, *infra*.

(emphasis added). Vertaschitsch further teaches “a method for the user to answer [an] incoming call” by “tapping on a phone icon” on the display screen. *Id.*, [0031] (emphasis added).

3. The Samsung- Vertaschitsch Combination

Samsung describes a wireless phone including a “display” and various user interfaces, for example, the “END/Power Key.” APPLE-1006, pp. 15-16; APPLE-1003, ¶41. A POSITA would have incorporated Vertaschitsch’s “single main processor” and “second, phone control processor” to “control[] the radio functions of the cell phone” to implement or “improve the performance, convenience, and usability of...devices having mobile telephone capabilities.” APPLE-1007, [0012]-[0013]; APPLE-1003, ¶¶66, 69. Furthermore, Vertaschitsch’s processors can be “conveniently implemented on a...cell phone,” thus a POSITA would have been motivated to incorporate Vertaschitsch’s processor(s) into the Samsung device. APPLE-1007, [0017] (emphasis added); APPLE-1003, ¶¶66, 69.

Further details regarding the combined teachings of Samsung and Vertaschitsch, including various additional motivations that would have led a POSITA to implement such a combination, are provided in the following element-by-element analysis. APPLE-1003, ¶¶69-83.

1. Claim 1 is obvious over Samsung in view of Vertaschitsch

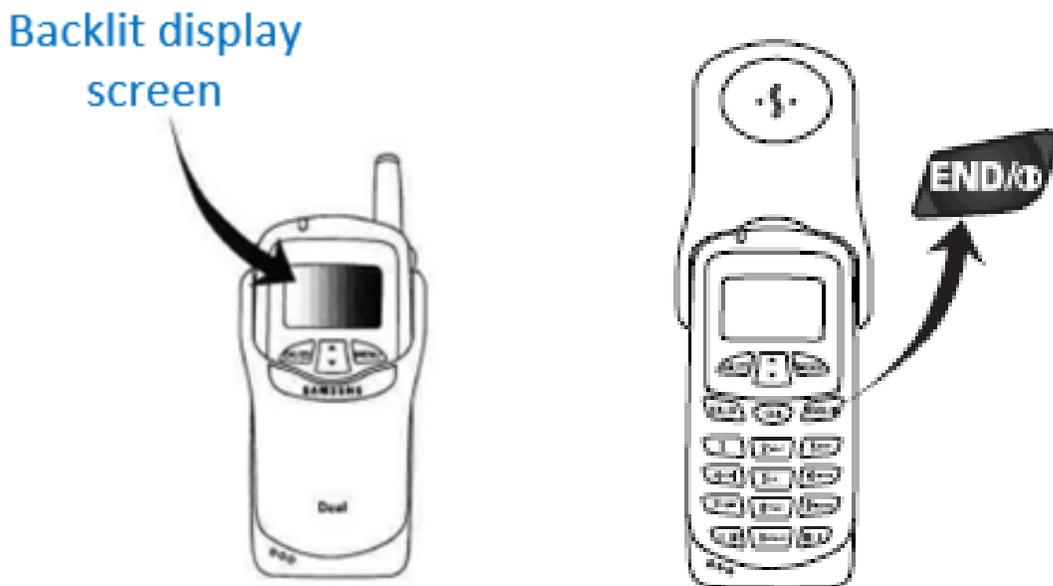
Claim 1 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. APPLE-1003, ¶¶41-72. The claim elements for claim 1 will be considered in order.

- i. “A method for operating a mobile computing device including a display, a power button, a radio, and one or more processors, the method performed by the one or more processors of the mobile computing device and comprising:”*

The Samsung-Vertaschitsch combination provides a method for operating a mobile computing device that includes a display, a power button, a radio, one or more processors, and the method performed by the one or more processors. APPLE-1003, ¶¶41-72. For example, as discussed above (Section II.B, *supra*), Samsung is the user guide for the Sprint PCS/Samsung model SCH-3500 phone, which is a type of “mobile” device, e.g., “wireless phone.” *See e.g.*, APPLE-1006, pp. 13, 3-5 (referencing product as a “wireless phone,” “[t]his phone,” and “Sprint PCS Phone™”); APPLE-1003, ¶41. Samsung explains that the SCH-3500 is used for telephony functions such as receiving a call (APPLE-1006, p. 15), “making calls,” (*id.*, p. 6), muting the ringer (*id.*, p. 19), “answering call[s]” (*id.*, p. 8), and disconnecting a call (*id.*, p. 19). APPLE-1003, ¶44. Samsung also provides various user applications and mobile computing functions, such as using message services, voicemail features (APPLE-1006, p. 10), a phone book (*id.*, pp. 66-70), and

a “MiniBrowser” (*id.*, p.88-94 (“[t]he Sprint PCS MiniBrowser allows you to access certain information such as stock quotes and weather via the Internet.”)), message services and voicemail (*Id.*, pp. 59-63) that send outputs to the display screen (*id.*, p. 16). Accordingly, SCH-3500 is a mobile computing device. APPLE-1003, ¶¶43-44.

As shown in the figures below, Samsung discloses that the SCH-3500 includes a display (APPLE-1006, p. 16 (“Backlit Display Screen”); *see also* p. 101 (“Display Screen: 5 Lines (4 Text Lines, 1 Icon Line)”) and an “END/Power Key” (APPLE-1006, p. 19); APPLE-1003, ¶¶ 45, 54-56. The END/Power Key is pressed to turn the phone on and off. *Id.* Accordingly, the END/Power Key is a power button.



APPLE-1006, p. 16 (annotated figure on the left showing a “Backlit Display Screen”); p. 19 (figure on the right showing the “END/Power Key”); APPLE-1003, ¶¶ 42, 45, 57-63. Samsung discloses that the SCH-3500 includes a radio. APPLE-1006, p. 98 (“[y]our phone is basically a radio transmitter and receiver.”); “[w]hen it’s turned on, it receives and transmits radio frequency (RF) signals.”); APPLE-1003, ¶¶ 42, 57-63.

The Samsung-Vertaschitsch-Nakao combination provides a mobile computing device that uses one or more processors, for example, to perform the methods recited in claim 1. APPLE-1003, ¶¶ 65-66, 69-72. Use of such processors were well known in the prior art. *Id.* For example, Vertaschitsch is one such example. APPLE-1003, ¶¶ 65-66. Vertaschitsch discloses or teaches that a mobile computing device includes one or more processors. APPLE-1007, [0013] (describes a mobile device using “a single main processor” and a “second, phone control processor”); APPLE-1003, ¶ 66. In particular, Vertaschitsch explains that its processors perform various tasks associated with its device, such as running user applications, sending outputs of the user applications to the display screen, and control operations of the telephone device. *Id.*, [0013] (“The user interfaces for the cell phone and the PDA are run on a single main processor” and “[a] second, phone control processor controls the radio functions of the cell phone.”); [0014] (“a handheld computer or electronic device comprising...a first processor configured

to run user applications and send outputs of the user applications to the display screen, ...a baseband processor connected to the telephone device and configured to control operations of the telephone device”). Vertaschitsch also discloses that its processor performs steps for answering a call and connecting a call. APPLE-1007, [0050] (“signals received by the phone control processor directing it to answer a call (step 615), and the operations of the control processor needed to connect the call (step 620) are performed.”). APPLE-1003, ¶¶65-66.

A POSITA would have been prompted to use the one or more processors, as explicitly taught by Vertaschitsch, in the Samsung-Vertaschitsch device for several reasons in addition to those noted above. APPLE-1003, ¶¶69-72. **First**, a POSITA would have been motivated to use the processors as taught by Vertaschitsch because its processors can be “conveniently implemented on a...cell phone.” APPLE-1007, [0017] (emphasis added); APPLE-1003, ¶69. Thus, a POSITA would have reasonably expected that Vertaschitsch’s processors could be used to perform telephony steps such as answering a call and connecting a call (APPLE-1007, [0050]) when using a phone, such as the Samsung’s SCH-3500. APPLE-1003, ¶69.

Second, a POSITA would have been prompted to use one or more processors as explicitly taught by Vertaschitsch in the Samsung-Vertaschitsch device be-

cause Vertaschitsch offers a solution for “expanding the capabilities and for increasing the convenience of using PDAs and cell phones.” APPLE-1007, [0011]; APPLE-1003, ¶70. Vertaschitsch’s solution includes using the “single main processor” and the “second, phone control processor” to “control[] the radio functions of the cell phone.” APPLE-1007, [0013]. A POSITA would have reasonably expected that benefits associated with Vertaschitsch’s processors would have been realized in the Samsung-Vertaschitsch combination. APPLE-1003, ¶70. For example, a POSITA would have reasonably expected Vertaschitsch’s processors to “improve the performance, convenience, and usability of PDA and/or other devices having mobile telephone capabilities.” APPLE-1007, [0012]; APPLE-1003, ¶70. Accordingly, it would have been obvious to a POSITA to use the processors as taught by Vertaschitsch, in the Samsung-Vertaschitsch device , to improve its performance, convenience and usability. APPLE-1003, ¶70; APPLE-1007, [0014].

Third, a POSITA would have been prompted to incorporate one or more processors, as taught by Vertaschitsch, in the Samsung-Vertaschitsch device because doing so would be merely the application of known techniques (e.g., using processors explicitly taught by Vertaschitsch) to a known device (e.g., the mobile computing device of Samsung) to yield predictable results. APPLE-1003, ¶71; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (a supposed invention that “simply arranges old elements with each performing the same function it had been

known to perform” is obvious).

Accordingly, a POSITA would have understood that the Samsung-Vertaschitsch combination yields “a mobile computing device including a display, a power button, a radio, and one or more processors, the method performed by the one or more processors of the mobile computing device” as recited in the claim.

APPLE-1003, ¶¶69-72.

- ii. “when a telephone call is being received by the mobile computing device, presenting a notification on the display indicating the telephone call; and”*

The Samsung-Vertaschitsch combination provides a method of presenting a notification on the display indicating the telephone call when a telephone call is being received by the mobile computing device. APPLE-1003, ¶54. For example, Samsung discloses that the SCH-3500 presents a display notification that indicates a telephone call is being received by the SCH-3500 because its display includes a “lower area display[ing] in-use information, such as the other party's number, the name and number of the other party....” APPLE-1006, p. 16 (emphasis added). Accordingly, the combination of Samsung and Vertaschitsch provides “presenting a notification on the display indicating the telephone” as recited in the claim. APPLE-1003, ¶¶54-55, 80.

- iii. “enabling a user to silence a ring associated with the telephone call by pressing the power*

button without turning off the mobile computing device; and”

The Samsung–Vertaschitsch combination provides enabling a user to silence a ring associated with the telephone call by pressing the power button without turning off the mobile computing device. APPLE-1003, ¶¶44, 58, 60, 105. For example, Samsung discloses that the SCH-3500 enables a user to “press the [END/Power Key]” to “silence the ringer” when there is an incoming call. APPLE-1006, p. 38 (emphasis added); *see also* p. 19 (“END/Power Key:...you can mute the ringer by pressing [END/Power key]”). Furthermore, Samsung explains that the power button can turn off and on the SCH-3500 if the user “press[es] and hold[s]” the power button. APPLE-1006, p. 19. Thus, pressing the power button for less than one second would silence the device but would not turn off the device. APPLE-1006, p. 24 (“[i]f the [END/Power Key] is pressed for less than one second, the phone will not turn off.”); APPLE-1003, ¶60. Accordingly, the combination of Samsung and Vertaschitsch provides “to silence a ring associated with the telephone call by pressing the power button without turning off the mobile computing device” as recited in the claim. APPLE-1003, ¶60.

- iv. “when the telephone call is not being received by the mobile computing device, enabling the user to activate a backlight of the display by pressing the power button.”*

The Samsung–Vertaschitsch combination provides a method of enabling the

user to activate a backlight of the display by pressing the power button when the telephone call is not being received by the mobile computing device. APPLE-1003, ¶¶61-62.

Samsung teaches that the backlight can be activated when a user presses any key, e.g., END/power key, of the SCH-3500 when the telephone call is not being received. APPLE-1006, p. 42, p. 19. For example, Samsung discloses that the user can choose one of several backlight control options. *Id.*, p. 42 (providing menu options in the “Backlight Control” subsection under “Display options”). Samsung explains that its backlight options include activating the backlight for 10 seconds or 30 seconds following the last keypress. *Id.* (“10 or 30 Seconds (after last keypress)”). The “after last keypress” option thus enables a user to press any key to activate the backlight for 10 seconds or 30 seconds. APPLE-1003, ¶¶61-62. Since Samsung’s power button (e.g., “End/Power **key**”) is a key, Samsung teaches activating the backlight upon a user pressing its power button. APPLE-1003, ¶62. Accordingly, Samsung in the combination, renders obvious “enabling the user to activate a backlight of the display by pressing the power button when the telephone call is not being received by the mobile computing device” as recited in the claim.

For all of the reasons provided above, the Samsung-Vertaschitsch combination renders claim 1 obvious and unpatentable. APPLE-1003, ¶¶61-62.

2. Claim 4 is obvious over Samsung in view of Vertaschitsch

Claim 4 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. Claim 4 of the '940 patent reads as follows:

4. The method of claim 1, further comprising: when the telephone call is not being received by the mobile computing device, enabling the user to power off the mobile computing device by pressing the power button.

The Samsung-Vertaschitsch combination provides enabling the user to power off the mobile computing device by pressing the power button when the telephone call is not being received by the mobile computing device. APPLE-1003, ¶¶59, 75. For example, Samsung describes that pressing the END/Power Key (e.g., the power button) powers off the phone. APPLE-1006, p. 19 ("END/Power Key:....[p]ress and hold this key to turn the phone on or off"); p. 24 (To turn your phone off, press and hold [END/Power Key] until the display goes blank."). Nothing in Samsung suggests that the power button functionality is conditioned by whether or not a telephone call is being received by the mobile computing device.

Accordingly, the combination of Samsung and Vertaschitsch provides “when the telephone call is not being received by the mobile computing device, enabling the user to power off the mobile computing device by pressing the power button” as recited in the claim. APPLE-1003, ¶¶59, 75.

3. Claim 7 is obvious over Samsung in view of Vertaschitsch

Claim 7 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. Claim 7 of the '940 patent reads as follows:

7. The method of claim 1, further comprising: enabling the user to answer the telephone call by selecting an icon presented on the display.

The Samsung-Vertaschitsch combination provides a method of enabling the user to answer the telephone call by selecting an icon presented on the display.

APPLE-1003, ¶¶77-83. For example, Samsung describes various ways to answer an incoming call, such as a user opening the flip, using any key on the keypad, or pressing the TALK key. APPLE-1006, p. 27 (“[t]o answer an incoming call, open the flip or press – if the flip is already open.”); p.39 (“Three answer options: press [TALK key], use Any Key Answer, or open the flip.”). As explained above in Section VIII.A.1.i., *supra*, Samsung discloses a display. APPLE-1006, p. 16.

When there is an incoming call, Samsung explains that the display provides information, such as the other party’s number, the call timer, the name and number of the other party. *Id.* Furthermore, Samsung describes a call waiting feature that enables a user to receive a second call during a conversation. APPLE-1006, p. 32.

Samsung explains that “[w]hen a Call Waiting call comes in, the incoming call alert sounds, when set, and a text notification displays.” *Id.* (emphasis added). To

answer such a call, Samsung discloses that the user presses the TALK key to connect the calling party. *Id.* Thus, Samsung provides presenting a text notification on its display and enabling the user to select a command associated with the notification (e.g., pressing the TALK key to answer the call.).

Samsung-Vertaschitsch combination renders obvious a method of enabling the user to answer the telephone call by “selecting an icon” presented on the display. Indeed, methods of selecting were explicitly taught in the prior art. APPLE-1003, ¶¶73, 77-83. For example, Vertaschitsch describes user interfaces for phone and personal digital assistants (PDAs). APPLE-1007, [0003]. In particular, Vertaschitsch describes a device that includes “cell phone technology” and has a display screen. APPLE-1007, [0027], [0028]. Vertaschitsch describes that the display screen has a “touch sensitive screen” for displaying “icons” and enabling the user to select the icon by “tapping or touching.... via a stylus or other touch mechanism.” APPLE-1007, [0028](emphasis added). Furthermore, Vertaschitsch explains that its “phone device also includes a method for the user to answer [an] incoming call” that includes “tapping on a phone icon...for answering a call signals the phone device to send instructions...to the mobile radio device 240 to answer the call.” APPLE-1007, [0031](emphasis added); *see also* [0049] (“at step 560, a user acts to answer the call (presses a talk button or icon, for example), which directs the phone application to connect the call”).

A POSITA would have been prompted to use the obvious solution of enabling the user to answer the telephone call by selecting an icon presented on the display in the Samsung-Vertaschitsch device as explicitly taught by Vertaschitsch. APPLE-1003, ¶¶78-83. **First**, a POSITA would have been motivated to enable the user to answer the telephone call by selecting an icon presented on the display to answer a call in the device “for increasing the convenience” of using the device when answering the call. APPLE-1007, [0011] (“many innovations are needed for expanding the capabilities and for increasing the convenience of using PDAs and cell phones.”). APPLE-1003, ¶78.

Second, a POSITA would have been motivated to enable the user to answer the telephone call by “selecting” an icon presented on the display in the Samsung-Vertaschitsch device because Vertaschitsch teaches integrating mobile telephone and PDA technologies to have “a telephone user interface configured to capture user inputs for telephone related operations and display current telephone operations information on the display screen.” APPLE-1007, [0014]. Samsung teaches enabling the user to press the TALK key to answer the call by selecting a command associated with the icon (e.g., a text notification) that notifies the user of an incoming call. APPLE-1006, p. 32. The use of selectable icons in the display as taught by Vertaschitsch as “a telephone user interface” to “display current telephone operations information on the display screen” and enable the “user to select

the icon by tapping or pressing the icon” to answer the call in Samsung’s device would have been an obvious design choice. *In re Kuhle*, 526 F.2d 553, 555 (CCPA 1975) (“design choice may be an acceptable rationale for an obviousness rejection when a claimed product merely arranges known elements in a configuration recognized as functionally equivalent to a known configuration.”); APPLE-1007, [0014]; APPLE-1003, ¶80.

Third, a POSITA would have been prompted to incorporate the use of selecting an icon in the Samsung-Vertaschitsch device in response to receiving a call because doing so would be merely the application of known techniques (e.g., tapping or touching an icon on the display as explicitly taught by Vertaschitsch) to a known device (e.g., Samsung’s SCH-3500) to yield predictable results. APPLE-1003, ¶81. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (a supposed invention that “simply arranges old elements with each performing the same function it had been known to perform” is obvious).

Accordingly, the combination of Samsung and Vertaschitsch provides “enabling the user to answer the telephone call by selecting an icon presented on the display” as recited in the claim. APPLE-1003, ¶¶78-82.

4. Claim 8 is obvious over Samsung in view of Vertaschitsch

Claim 8 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. Claim 8 of the ’940 patent reads as follows:

8. The method of claim 1, wherein the mobile computing device comprises two housing segments and operates in either a first state or a second state depending on a position of the two housing segments.

The Samsung-Vertaschitsch combination provides the mobile computing device including two housing segments and operating in either a first state or a second state depending on a position of the two housing segments. APPLE-1003, ¶¶ 46-48. For example, as shown in the figure below, the SCH-3500 includes two housing segments: 1) a main body, and 2) an active flip.



APPLE-1006, p. 15 (annotated figure labeling a “main body” and an “active flip”). Samsung teaches that the SCH-3500 includes a first state where the flip is closed over a front portion of the main body, and a second state where the flip is

opened and exposes the front portion of the main body. APPLE-1006, pp. 14-20 (providing illustrations of the phone in open and closed configurations, and describing phone functionality in both configurations). Samsung explains that the SCH-3500 operates depending on its state. *Id.* For example, when the flip is closed (e.g., in the first state), an incoming call can be answered by opening the flip. APPLE-1006, p. 15 (“open the flip to answer an incoming call”). As another example, when the flip is open (e.g., in the second state), the user can end the call by closing the flip. APPLE-1006, p. 15 (“close the flip to end the call.”). Samsung teaches numerous functions associated with the particular state of the SCH-3500. APPLE-1006, pp. 14-20; APPLE-1003, ¶¶46-48.

Accordingly, the combination of Samsung and Vertaschitsch provides that “the mobile computing device comprises two housing segments and operates in either a first state or a second state depending on a position of the two housing segments ” as recited in the claim. APPLE-1003, ¶¶46-48.

5. Claim 12 is obvious over Samsung in view of Vertaschitsch

Claim 12 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. The claim elements for claim 12 will be considered in order.

i. “A mobile computing device, comprising:”

As explained above in Section VIII.A.1.i., *supra*, the Samsung-

Vertaschitsch combination provides a mobile computing device. APPLE-1003, ¶¶41-45, 49-50, 52-56.

ii. “a radio;”

As explained above in Section VIII.A.1.i., *supra*, the Samsung-Vertaschitsch combination provides a radio. APPLE-1003, ¶42.

iii. “a display;”

As explained above in Section VIII.A.1.i., *supra*, the Samsung-Vertaschitsch provides a display. APPLE-1003, ¶¶44, 45, 49-50, 52-56.

iv. “a power button;

As explained above in Section VIII.A.1.i., *supra*, the Samsung-Vertaschitsch combination provides a power button. APPLE-1003, ¶¶41, 49, 51, 57-63.

v. “a processor;”

As explained above in Section VIII.A.1.i., *supra*, the Samsung-Vertaschitsch combination provides a processor. APPLE-1003, ¶¶66, 69-72.

vi. *and a memory storing instructions that, when executed by the processor, cause the mobile computing device to:*

The Samsung-Vertaschitsch combination provides a memory storing instructions that, when executed by the processor, cause the mobile computing de-

vice to perform a programmed set of steps, such as those recited in claim 12. APPLE-1003, ¶¶ 66, 67, 69-77, 83, 98, 107. As explained above in Section VIII.A.1.i., *supra*, the Samsung-Vertaschisch combination renders obvious including one or more processors in the Samsung device. APPLE-1003, ¶¶ 66, 69-77. For example, Samsung discloses that the device includes a memory for storing information, such as voicemail messages (APPLE-1006, p. 59 (“[m]essage memory capacity”), phone numbers (APPLE-1006, p. 61 (“[s]toring phone numbers”), and names (*id.*); APPLE-1003, ¶43.

Samsung-Vertaschitsch combination discloses or renders obvious memory storing instructions that, when executed by the processor, cause the mobile computing device to execute the instructions. APPLE-1003, ¶¶ 67, 73-77, 83, 98, 107. Such use a memory would have been obvious based on the prior art. *Id.* For example, Vertaschitsch discloses “a handheld computer 200 that includes cell phone technology” that includes “a memory device 220 for storing the operating system, data, and the applications.” APPLE-1007, [0027]. Vertaschitsch explains that “software, including a phone user interface, operating system, and other applications...are stored in memory device 320, along with program data, graphics, and other data 324, and executed on a processing device 310.” APPLE-1007, [0036]. Furthermore, Vertaschitsch explicitly teaches:

The present invention includes a computer program

product which is a storage medium (media) having instructions stored thereon/in which can be used to control, or cause, a computer to perform any of the processes of the present invention. The storage medium can include, but is not limited to, any type of disk including floppy disks, mini disks (MD's), optical discs, DVD, CD-ROMs, micro-drive, and magneto-optical disks, ROMs, RAMS, EPROMs, EEPROMs, DRAMS, VRAMs, flash memory devices (including flash cards), magnetic or optical cards, nanosystems (including molecular memory ICs), RAID devices, remote data storage/archive/warehousing, or any type of media r device suitable for storing instructions and/or data.

APPLE-1007, [0062] (emphasis added). It would have been obvious to a POSITA to use a memory (e.g., storage medium) in a mobile device to store instructions for performing steps, such as the steps recited in claim 12. Accordingly, the combination of Samsung and Vertaschitsch renders obvious a memory storing instructions that, when executed by the processor, cause the mobile computing device to perform the limitations of claim 12. APPLE-1003, ¶¶ 66, 67, 69-77, 83, 98, 107.

vii. “when a telephone call is being received by the mobile computing device, present a notification on the display indicating the telephone call; and”

As explained above in Section VIII.A.1.ii., *supra*, the Samsung-

Vertaschitsch combination provides that when a telephone call is being received by the mobile computing device, the mobile computing device presents a notification on the display indicating the telephone call. APPLE-1003, ¶¶54-55, 80, 104-105.

viii. “enable a user to silence a ring associated with the telephone call by pressing the power button without turning off the mobile computing device; and”

As explained above in Section VIII.A.1.iii., *supra*, the Samsung-Vertaschitsch combination provides enabling a user to silence a ring associated with the telephone call by pressing the power button without turning off the mobile computing device. APPLE-1003, ¶¶44, 58, 60, 105.

ix. “when the telephone call is not being received by the mobile computing device, enable the user to activate a backlight of the display by pressing the power button.”

As explained above in Section VIII.A.1.iv., *supra*, the Samsung-Vertaschitsch combination provides that when the telephone call is not being received by the mobile computing device, enabling the user to activate a backlight of the display by pressing the power button. APPLE-1003, ¶¶56, 61-62.

6. Claim 15 is obvious over Samsung in view of Vertaschitsch

Claim 15 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. Claim 15 of the '940 patent reads as follows:

15. The mobile computing device of claim 12, wherein execution of the instructions causes the mobile computing device to: enable the user to power off the mobile computing device by pressing the power button when the telephone call is not being received by the mobile computing device.

The Samsung-Vertaschitsch combination provides that the execution of the instructions causes the mobile computing device to enable the user to power off the mobile computing device by pressing the power button when the telephone call is not being received by the mobile computing device. APPLE-1003, ¶75. As explained above in with respect to claim 4 (*see* Section VIII.A.2, *supra*), the combination of Samsung and Vertaschitsch provides that pressing the END/Power Key powers off the phone. APPLE-1006, p. 19; APPLE-1003, ¶¶59, 75.

Furthermore, as explained above in Section VIII.A.5.vi, *supra*, the combination of Samsung and Vertaschitsch provides a memory storing instructions that, when executed by the processor, cause the mobile computing device to perform a programmed set of steps, such as those recited in claim 12. APPLE-1003, ¶¶54-55, 73-75, 80, 104-105. For the same reasons, a POSITA would have understood that the execution of the instructions stored in the memory would have been well-known for enabling the user to cause the mobile computing device to perform a programmed step, such as powering off a mobile computing device. APPLE-

1003, ¶¶75-76.

Accordingly, the combination of Samsung and Vertaschitsch provides that “execution of the instructions causes the mobile computing device to: enable the user to power off the mobile computing device by pressing the power button when the telephone call is not being received by the mobile computing device” as recited in the claim. APPLE-1003, ¶¶75-76.

7. Claim 18 is obvious over Samsung in view of Vertaschitsch

Claim 18 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. Claim 18 of the '940 patent reads as follows:

18. The mobile computing device of claim 12, wherein execution of the instructions causes the mobile computing device to: enable the user to answer the telephone call by selecting an icon presented on the display.

The Samsung-Vertaschitsch combination provides that execution of the instructions causes the mobile computing device to enable the user to answer the telephone call by selecting an icon presented on the display. APPLE-1003, ¶¶54, 68, 77-83. As explained above in Section VIII.A.3, *supra*, the Samsung-Vertaschitsch combination discloses that the device enables the user to answer the telephone call by selecting an icon presented on the display. APPLE-1003, ¶¶54, 68, 77-83.

Furthermore, as explained above in Section VIII.A.5.vi, *supra*, the Samsung-Vertaschitsch combination renders obvious that the memory storing instructions

that, when executed by the processor, cause the mobile computing device to perform a programmed set of steps, such as answering the telephone call by selecting an icon presented on the display. APPLE-1003, ¶¶ 66, 67, 69-77, 83, 98, 107. For example, Vertaschitsch explains that a method for the user to answer an incoming call includes “tapping on a phone icon...for answering a call signals the phone device to send instructions...to the mobile radio device 240 to answer the call.”) (emphasis added). APPLE-1007, [0031] (emphasis added).

Accordingly, the combination of Samsung and Vertaschitsch provides that “execution of the instructions causes the mobile computing device to: enable the user to answer the telephone call by selecting an icon presented on the display” as recited in the claim. APPLE-1003, ¶¶ 54, 66-83, 98, 107.

8. Claim 19 is obvious over Samsung in view of Vertaschitsch

Claim 19 and all of its claim elements are provided by the Samsung-Vertaschitsch combination. Claim 19 of the '940 patent reads as follows:

19. The mobile computing device of claim 12, wherein the mobile computing device further comprises two housing segments and operates in either a first state or a second state depending on a position of the two housing segments.

The Samsung-Vertaschitsch combination provides that the mobile computing device further includes two housing segments and operates in either a first

state or a second state depending on a position of the two housing segments. APPLE-1003, ¶¶ 46-48. As explained above with respect to claim 8 (Section VIII.A.4, *supra*), the Samsung-Vertaschitsch combination renders obvious that “the mobile computing device comprises two housing segments and operates in either a first state or a second state depending on a position of the two housing segments.”

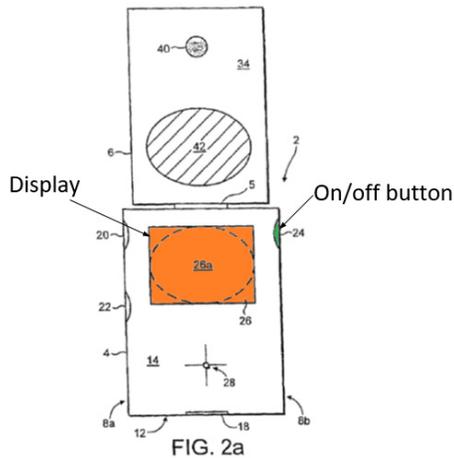
Accordingly, the combination of Samsung and Vertaschitsch provides that “the mobile computing device further comprises two housing segments and operates in either a first state or a second state depending on a position of the two housing segments” as recited in the claim. APPLE-1003, ¶¶ 46-48.

B. Ground 1-B: Claims 3, 13, and 14 Are Obvious under § 103 Over Samsung In View of Vertaschitsch and Sharp

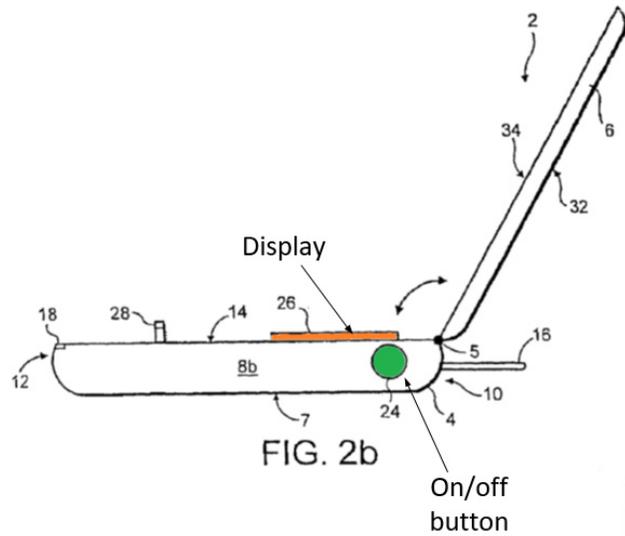
Overview of Sharp

Sharp, entitled “Communication Device,” generally “relates to a radio communications device.” APPLE-1008, 1:5-7; APPLE-1003, ¶84. The Sharp device overcomes an issue experienced by “[m]obile phones [that] have covers or flips which cover over all or part of a phone's keypad and display.” *Id.*, 1:9-17. Similar to the '940 patent, Sharp's radio communications device includes “a body portion 4” (*id.*, 3:7-11), “a cover portion 6” that is “movable between a closed position...and an open position” (*id.*), “a display 26” (*id.*, 3:18-21), and “an on/off button” (*id.*). The display in Sharp (shown in orange) is located on a front face and the “on/off

button” (shown in green) is located on a side face. *Id.*, 3:18-21; FIGS. 2a, 2b; *see also* FIGS. 1a, 1b.



Annotated FIG. 2a



Annotated FIG. 2b

Sharp explains that the “front face 14...is exposed when the cover is in the open position and concealed when the cover is in the closed position.” APPLE-1008, 3:13-18.

1. The Samsung-Vertaschitsch-Sharp Combination

As previously discussed, Samsung describes “a wireless phone” that includes a “display” and a power button (e.g., “End/Power Key”). APPLE-1006, p. 13-16, 19; APPLE-1003, ¶¶85-91. In the combination, the wireless phone of Samsung incorporates the processors provided in Vertaschitsch, to run “user interfaces” and “control[] the radio functions of the cell phone.” APPLE-1007, [0013]; Section III.A (*supra*). Furthermore, in the Samsung-Vertaschitsch-Sharp combination, the

Samsung wireless phone incorporates Sharp's "on/off button" (e.g., power button) on "side faces" of the phone to enable the user to turn the device on and off "independent of whether the cover is in the closed or open configuration." APPLE-1008, 3:18-21, Abstract, 23:1-16, FIGS. 2a, 2b; *see also* FIGS. 1a, 1b; APPLE-1003, ¶¶85.

Furthemore, details regarding the combined teachings of Samsung, Vertaschitsch and Sharp, including additional motivations that would have led a POSITA to implement such a combination, are provided in the following element-by-element analysis. APPLE-1003, ¶¶85-91.

1. Claim 3 is obvious over Samsung in view of Vertaschitsch and Sharp

Claim 3 and all of its claim elements are provided by the Samsung-Vertaschitsch-Sharp combination. Claim 3 of the '940 patent reads as follows:

3. The method of claim 1, wherein the first face is a front surface of the mobile computing device.⁴

The Samsung-Vertaschitsch-Sharp combination provides a first face that is a front surface of the mobile computing device. APPLE-1003, ¶¶ 85-91. For example, as shown in figure below, Samsung discloses that the SCH-3500 has a first

⁴ Petitioner notes that claim 3 of the '944 depends from claim 1, instead of claim 2, and thus recites "the first face" without proper antecedent basis.

face that is a front surface.



APPLE-1006, p. 14; *see also* illustrations provided on pp. 15-20.

As will be discussed in Sections III.B.2 and III.B.3 (*infra*), the Samsung-Vertaschitsch-Sharp combination renders obvious a first face that includes the display and a second (different) face that includes the power button. Accordingly, the Samsung-Vertaschitsch-Sharp combination provides “the first face is a front surface of the mobile computing device” as recited in the claim.

2. Claim 13 is obvious over Samsung in view of Vertaschitsch and Sharp

Claim 13 and all of its claim elements are provided by the Samsung-Vertaschitsch-Sharp combination. Claim 13 of the '940 patent reads as follows:

13. The mobile computing device of claim 12, wherein the display is located on a first face of the mobile computing device, and the power button is located on a second face of the mobile computing device, wherein the first face is different than the second face.

The Samsung-Vertaschitsch-Sharp combination provides that the display is located on a first face of the mobile computing device, and the power button is located on a second face of the mobile computing device, wherein the first face is different than the second face. APPLE-1003, ¶¶49-53, 85-91. For example, as explained above in Section VIII.B.1, *supra*, Samsung discloses that that SCH-3500 has a first face that is a front surface of the mobile computing device. APPLE-1006, p. 14; *see also* pp. 15-20; APPLE-1003, ¶¶49-53, 85-91. As shown in the annotated figure below, Samsung also discloses a second face disposed on the front surface of the mobile computing device.

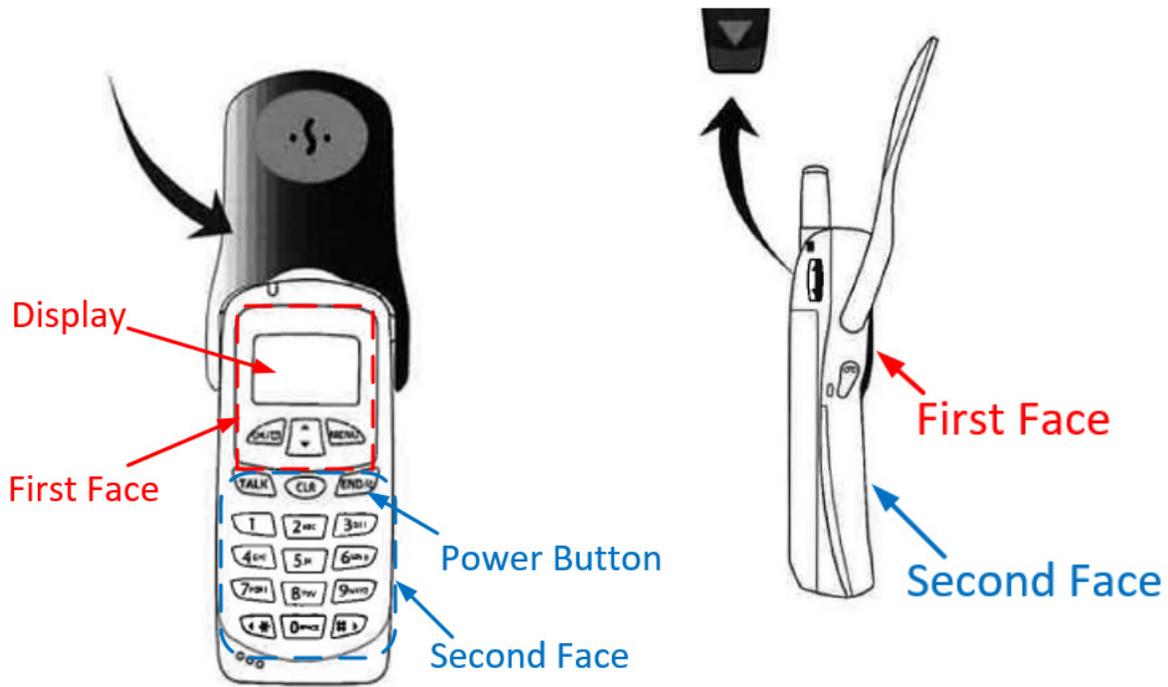


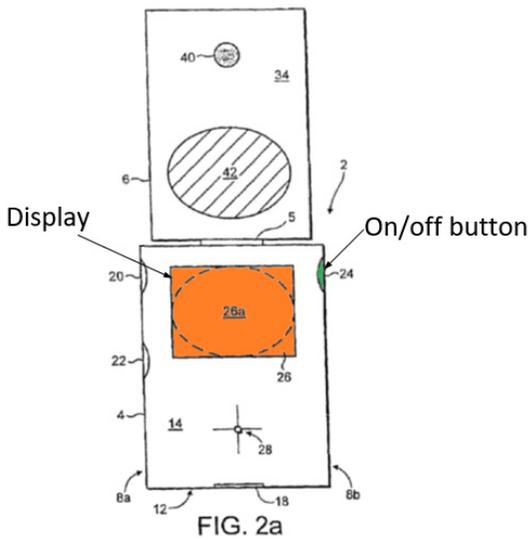
Figure showing a plan view

Figure showing a side view

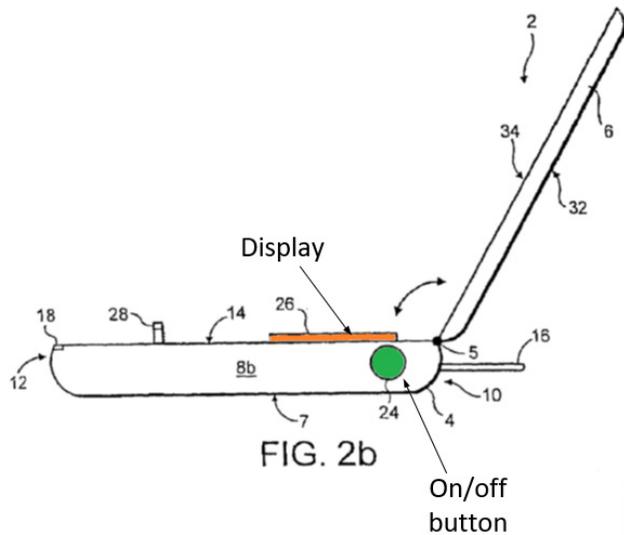
APPLE-1006, p. 15 (annotated to identify components and faces in red and blue font); *see also* illustrations provided on pp. 15-20; APPLE-1003, ¶¶49-53, 85-91. As depicted in the figures above, Samsung discloses or renders obvious a device that includes a first face that includes the display and a second face that includes the power button. APPLE-1006, p. 15. Depicted in the side view, Samsung shows that the first face is raised on an elevated plane relative to the plane of the second face. Furthermore, the plan view of the device shows clear delineation lines between the first and second faces, indicating that the first face and the second face are separate face components. Accordingly, Samsung discloses that the display is located on a first face of the mobile computing device, and the power

button is located on a second face of the mobile computing device, wherein the first face is different than the second face.

The Samsung-Vertaschitsch-Sharp combination renders obvious the power button located on a face other than a front face. APPLE-1003, ¶¶85-91. For example, Sharp describes a radio communications device that includes a display and a power button. APPLE-1008, 1:5-7; 3:18-21. As shown in annotated FIGS. 2a and 2b, Sharp explicitly discloses a display (shown in orange) disposed on a front face and a power button (shown in green) disposed on a side face:



Annotated FIG. 2a



Annotated FIG. 2b

APPLE-1008, 3:18-21 (“[t]he body has...an on/off button 24 on its side faces... and has a display 26...on its front face 14”); FIGS. 2a, 2b (annotated); *see also* FIGS. 1a, 1b. Furthermore, Sharp explains that “a front face 14...is exposed when

the cover is in the open position and concealed when the cover is in the closed position.” APPLE-1008, 3:13-18.

A POSITA would have been motivated to place the power button on a side or other face as taught by Sharp in the Samsung-Vertaschitsch device for multiple reasons in addition to those noted above. First, a POSITA would have been motivated to include a power button on a side face in the Samsung-Vertaschitsch device in view of Sharp in order to ensure that the power button could be accessible in both an open and closed flip configuration. Sharp explains that “[m]obile phones now commonly have covers or flips which cover over all or part of a phone's keypad and display.” APPLE-1008, 1:9-17. Furthermore, Sharp teaches making certain components of the phone “independent of whether the cover is in the closed or open configuration.” APPLE-1008, Abstract; 23:1-16. Since Samsung's power button is covered by a flip in a closed flip configuration, a user would appreciate its limited or non-existent ability to use the power button to, for example, turn the device on or off, in the closed flip configuration. A POSITA would have recognized that having “an on/off button 24 on its side faces 8” (APPLE-1008, 3:13-24), as taught by Sharp, could benefit the user by enabling the user to turn the device on or off in any flip configuration on the Samsung-Vertaschitsch device. APPLE-1003, ¶87.

Second, a POSITA would have been motivated to look to Sharp's disclosure of placing a power button in the Samsung-Vertaschitsch device because Sharp teaches making certain components of the phone easy to access. APPLE-1003, ¶88. A POSITA would have recognized that a power button positioned on a side face of the device is easy to access and, because it is not covered by a flip in a closed flip configuration, such a placement of the power button would not require opening of the flip. APPLE-1003, ¶88.

Third, a POSITA would have been motivated to include a power button on a side face in the Samsung-Vertaschitsch device because doing so would be merely the application of known techniques (e.g., placing power button on side face) to a known device (e.g., Samsung-Vertaschitsch device) to yield predictable results. APPLE-1003, ¶89. *KSR*, 550 U.S. at 417.

Accordingly, Samsung in combination teaches that "the display is located on a first face of the mobile computing device, and the power button is located on a second face of the mobile computing device, wherein the first face is different than the second face." APPLE-1003, ¶¶90-91. Thus, claim 13 is unpatentable.

3. Claim 14 is obvious over Samsung in view of Vertaschitsch and Sharp

Claim 14 and all of its claim elements are provided by the Samsung-Vertaschitsch-Sharp combination. APPLE-1003, ¶91. Claim 14 of the '940 patent reads as follows:

14. The mobile computing device of claim 13, wherein the first face is a front surface of the mobile computing device.

The Samsung-Vertaschitsch-Sharp combination provides a first face that is a front surface of the mobile computing device. APPLE-1003, ¶91. As explained above in Section VIII.B.1, *supra*, the combination of Samsung, Vertaschitsch, and Sharp discloses that the first face of the SCH-3500 is a front surface of the mobile computing device. APPLE-1006, p. 14; *see also* pp. 15-20. Accordingly, Samsung in combination renders obvious that “the first face is a front surface of the mobile computing device,” as recited in the claim.

C. Ground 1-C: Claims 5 and 16 Are Obvious under § 103 Over Samsung In View of Vertaschitsch and Nakao

1. Overview of Nakao

Nakao relates to liquid-crystal display devices of types usable for both transmission and reflection. APPLE-1009, Abstract; APPLE-1003, ¶92. Nakao discloses that the “liquid-crystal display device can provide a negative inverse display.” *Id.* Specifically, Nakao explains that “it is possible to produce a negative inversion of the display by inverting ON and OFF of a TFT by means of operation, in order to produce an optimum display in accordance with reflection and transmission.” *Id.*, 8:13-17. Nakao explains that “the negative display is opposite during reflection and during transmission, so it is necessary to add a function for causing a negative inversion of the display data according to the usage condition.”

Id., 16:10-16. Nakao teaches that the negative inverse display, *inter alia*, is desirable to use “to arrive at a liquid-crystal display device...wherein power consumption is reduced and a display is moreover brightened.” APPLE-1009, 6:5-9.

2. The Samsung-Vertaschitsch-Nakao Combination

Samsung provides a wireless phone that includes a display with a “LCD [s]creen” and a power button (e.g., “END/Power key”) that places the phone in a “standby” mode to conserve power. APPLE-1006, p. 19; p. 24; APPLE-1003, ¶¶93-98. In the combination, the wireless phone of Samsung incorporates the processors provided in Vertaschitsch, to run “user interfaces” and “control[] the radio functions of the cell phone.” APPLE-1007, [0013]; APPLE-1003, ¶¶ 85, 94. Furthermore, in the Samsung-Vertaschitsch-Nakao combination, the LCD display of Samsung incorporates the “negative inverse display” described in Nakao to extend the device usage time and to conserve battery power. APPLE-1009, Abstract; APPLE-1003, ¶¶92-96.

Further details regarding the combined teachings of Samsung, Vertaschitsch, and Nakao, including various additional motivations that would have led a POSITA to implement such a combination, are provided in the following element-by-element analysis. APPLE-1003, ¶¶93-98.

1. Claim 5 is obvious over Samsung in view of Vertaschitsch and Nakao

Claim 5 and all of its claim elements are provided by the Samsung-Vertaschitsch-Nakao combination. Claim 5 of the '940 patent reads as follows:

5. The method of claim 1, further comprising: when the telephone call is not being received by the mobile computing device, enabling the user to invert the display by pressing the power button.

The Samsung-Vertaschitsch-Nakao combination provides a method of, when the telephone call is not being received by the mobile computing device, enabling the user to invert the display by pressing the power button. APPLE-1003, ¶¶93-98. For example, Samsung discloses that the power button (aka, the END/Power Key) include other functions in addition to powering the device on and off and silencing the ringer. APPLE-1006, p.19 (disclosing functions of the “END/ Power Key”). For example, Samsung discloses pressing the power button to return the device to a “Standby” mode. APPLE-1006, p. 19 (“END/ Power Key: Press this key to...return to Standby mode from any menu.”); p. 24 (“Press [END/Power Key] at any time to return to Standby mode.”). Samsung explains that “[o]nce the phone is on, it enters Standby mode, which is the phone's idle state.” APPLE-1006, p. 24. Samsung teaches using power saving features, such as a standby mode and a power saving mode, directed at saving the device’s power consumption. APPLE-1006, pp. 8, 24; *see also* pp. 13, 22, 24, 101. For example, Samsung discloses that the amount of available phone usage time during

“talk time” is substantially shorter than the amount of available phone usage time during “standby time.” APPLE-1006, p. 101 (listing usage times, when using a standard battery, as: Talk Time Digital: up to 2.5 hours; Talk Time Analog: up to 45 mins; or Standby Time Digital: up to 130 hours Standby Time Analog: up to 15 hours). Accordingly, Samsung teaches that the Standby mode conserves the battery and extends the usage time of the device. APPLE-1003, ¶63.

The Samsung-Vertaschitsch-Nakao combination provides that pressing the power button enables the user to invert the display, when the telephone call is not being received by the mobile computing device would have been obvious based on well-known prior art. For example, Nakao relates to liquid crystal display devices of types usable for both transmission and reflection. APPLE-1009, Abstract. Nakao discloses that the “liquid-crystal display device can provide a negative inverse display.” *Id.* Specifically, Nakao explains that “it is possible to produce a negative inversion of the display by inverting ON and OFF of a TFT by means of operation, in order to produce an optimum display in accordance with reflection and transmission.” *Id.*, 8:13-17. Nakao explains that “the negative display is opposite during reflection and during transmission, so it is necessary to add a function for causing a negative inversion of the display data according to the usage condition.” *Id.*, 16:10-16. Nakao teaches that aspects of its invention, including

the feature where a display can be inverted to a negative, allow for “a liquid-crystal display device...wherein power consumption is reduced and a display is moreover brightened.” APPLE-1009, 6:5-9. Thus, a POSITA would have been motivated to combine Nakao’s invert option as one of Samsung’s power button features, and they would have further been motivated to integrate the same with the functionality described by Samsung in its use of a power saving mode (e.g., standby mode) to extend the device usage time and to conserve battery power. APPLE-1003, ¶¶95-98.

2. Claim 16 is obvious over Samsung in view of Vertaschitsch and Nakao

Claim 16 is provided by the Samsung-Vertaschitsch-Nakao combination.

Claim 16 of the ’940 patent reads as follows:

16. The mobile computing device of claim 12, wherein execution of the instructions causes the mobile computing device to: enable the user to invert the display by pressing the power button when the telephone call is not being received by the mobile computing device.

The Samsung-Vertaschitsch-Nakao combination provides that the execution of the instructions causes the mobile computing device to: enable the user to invert the display by pressing the power button when the telephone call is not being received by the mobile computing device. APPLE-1003, ¶¶95-98. As explained above in Section VIII.C.1, *supra*, the Samsung-Vertaschitsch-Nakao combination

provides that the mobile computing device, when the telephone call is not being received by the mobile computing device, enables the user to invert the display by pressing the power button. Furthermore, as explained above in Section VIII.A.5.vi, *supra*, the Samsung-Vertaschitsch combination provides that the memory stores instructions that, when executed by the processor, cause the mobile computing device to perform a programmed set of steps, such as enabling the user to invert the display by pressing the power button). APPLE-1005, ¶¶95-98. Thus, claim 16 is unpatentable.

D. Ground 1-D: Claims 10, 11, 21, and 22 Are Obvious over Samsung in View of Vertaschitsch or over Samsung In View of Vertaschitsch and Little

1. Overview of Little

Little, entitled “Telephone call alert device with selectable alert modes,” generally “relates to call annunciation devices and more particularly pertains to a cordless telephone vibration alert device for silently alerting an individual to a call on a cordless telephone.” APPLE-1012, 1:5-10; APPLE-1003, ¶99. Little teaches “a switch positionable in series electrical communication between a ring circuit power source and an audible ringer of the telephone or a vibration assembly coupled to the switch.” APPLE-1012, p. 1, Abstract. Little explains that “[v]ia the switch, either

one of the audible ringer and vibration assembly can be selected to alert the individual to a call or the ring circuit power source can be left absent a load.” *Id.* (emphasis added).

2. The Samsung-Vertaschitsch-Little Combination

Samsung provides a wireless phone that includes a display with a “LCD screen” and a power button (e.g., “END/Power key”) that places the phone in a “standby” mode to conserve power. APPLE-1006, p. 19; p. 24; APPLE-1003, ¶¶100-108, *see also* 94-96. In the combination, the wireless phone of Samsung incorporates the processors provided in Vertaschitsch, to run “user interfaces” and “control[] the radio functions of the cell phone.” APPLE-1007, [0013]; APPLE-1003, ¶101, *see also* ¶¶ 65-66, 68, 69, 85, 94. In the Samsung-Vertaschitsch-Little combination, the wireless phone of Samsung incorporates the “switch” described in Little such that “one of the audible ringer and vibration assembly can be selected.” APPLE-1012, Abstract; APPLE-1003, ¶¶ 99-103.

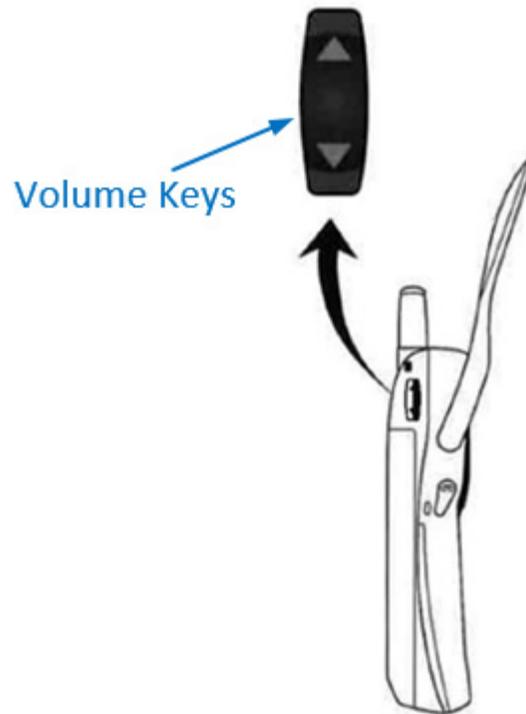
Further details regarding the combined teachings of Samsung, Vertaschitsch and Little, including various additional motivations that would have led a POSITA to implement such a combination, are provided in the following element-by-element analysis. APPLE-1003, ¶¶100-108.

1. Claim 10 is obvious over Samsung in view of Vertaschitsch or over Samsung in view of Vertaschitsch and Little

Claim 10 and all of its claim elements are provided by the Samsung-Vertaschitsch combination, or alternatively, by the Samsung-Vertaschitsch-Little combination. Claim 10 of the '940 patent reads as follows:

10. The method of claim 1, wherein the mobile computing device includes a ringer switch, the method further comprising: generating the ring when the telephone call is being received and the ringer switch is in a first state; and vibrating the mobile computing device when the telephone call is being received and the ringer switch is in a second state.

The Samsung-Vertaschitsch combination or alternatively, by the Samsung-Vertaschitsch-Little combination, provides that the mobile computing device includes a ringer switch, and that the method further includes generating the ring when the telephone call is being received and the ringer switch is in a first state, and vibrating the mobile computing device when the telephone call is being received and the ringer switch is in a second state. APPLE-1003, ¶¶100, 106-108. For example, as shown in the figure below, Samsung teaches that the SCH-3500 includes volume keys for “adjust[ing] ringer volume in Standby mode.”



APPLE-1006, p. 15 (annotated) (figure showing “volume keys”; “[a]djust ringer volume in Standby mode.”). Samsung explains that the volume keys have multiple volume settings (e.g., a “first state” and a “second state”). For example, Samsung explicitly explains that “[v]ibrate” is one of six ring volume settings.” APPLE-1006, p. 39 (“Six ring volume settings including Vibrate, Off, and 1-Beep.”); p. 47 (discloses that the six ring volumes include “HIGH, MED, LOW, OFF, VIBRATE, or 1-BEEP.”).

Samsung teaches that the SCH-3500 can generate a ring when the telephone call is being received and the volume keys are in a first setting (state). APPLE-1006, p. 38 (“[i]ncoming call notification...[t]he ringer sounds”); p. 39 (“[s]ix ring

volume settings including Vibrate, Off, and 1-Beep.”). Samsung also teaches that the SCH-3500 can vibrate when the telephone call is being received and the volume keys are in a second setting (state). APPLE-1006, p.21 (“an incoming call will vibrate the phone rather than ring it.”); p. 38 (“Incoming call notification...[t]he ringer sounds (unless set to Vibrate or Off).”); p. 39. Samsung explicitly discloses the benefit of including a vibrate option, stating that “[t]his [vibrate] feature is good for quiet situations where you don't want your ringer to disturb others.” APPLE-1006, p.21; APPLE-1003, ¶¶103-108. Samsung explicitly discloses a method of changing the ringer setting from an audible ringer to a vibrating ringer by “press[ing] the volume keys until the desired volume is reached.” APPLE-1006, p. 47, *see also* (“ways to set the ring volume for voice calls”). Thus, Samsung’s volume keys would have been understood by a POSITA to disclose or render obvious “a ringer switch” as the keys would have allowed a user to change the ringer setting between a vibrating ringer and an audible ringer.

Samsung-Vertaschitsch-Little combination also renders obvious an electrical switch for changing a ringer mode to a vibrate mode, as such switches were well-known in the art. APPLE-1003, ¶¶103-108. For example, Little teaches a “device for selectably providing an individual with different alert modes to a call on a telephone.” APPLE-1012, Abstract. In particular, Little teaches “a switch positionable in series electrical communication between a ring circuit power

source and an audible ringer of the telephone or a vibration assembly coupled to the switch.” *Id.* Little explains that “[v]ia the switch, either one of the audible ringer and vibration assembly can be selected to alert the individual to a call or the ring circuit power source can be left absent a load.” *Id.* (emphasis added); APPLE-1003, ¶¶ 99, 102-108. The switch of Little therefore allows the selection between the audible ringer and the vibration assembly, thereby teaching a “ringer switch.”

A POSITA would have modified the communication device of Samsung in view of Vertaschitsch to include the ringer switch taught by Little in order to change the alert type of the communication device via an electrical switch. APPLE-1012, 3:63-4:21; APPLE-1003, ¶ 103-108. Samsung recognizes the need to adjust the operation of the communication device to “vibrate the phone rather than ring it” because the “[vibrate] feature is good for quiet situations where you don't want your ringer to disturb others.” APPLE-1006, p.21; APPLE-1003, ¶ 103-108. Little furthers this goal from Samsung by allowing a user to quickly adjust the device's alert behavior “[v]ia the switch” to “either one of the audible ringer and vibration assembly.” APPLE-1012, Abstract; APPLE-1003, ¶ 103-108. A POSITA thus would have been motivated to incorporate the ringer switch of Little into the Samsung-Vertaschitsch device to improve the operation of the communication device by providing the user with this ability to quickly select between the audible ringer and the vibration assembly, in addition or as an alternative to requiring the

user to toggle through several volume settings using Samsung's volume keys.

APPLE-1003, ¶103. The result of the combination would have been predictable to a POSITA because Little teaches a communication device implemented in the manner proposed. APPLE-1012, 3:44-4:55; APPLE-1003, ¶ 103-108.

Accordingly, the combination of Samsung and Vertaschitsch, or, alternatively, of the combination of Samsung, Vertaschitsch and Little provides “a ringer switch” and a method for using the ringer switch as recited in the claim.

2. Claim 11 is obvious over Samsung in view of Vertaschitsch or over Samsung in view of Vertaschitsch and Little

Claim 11 and all of its claim elements are provided by the Samsung-Vertaschitsch combination, or alternatively, the Samsung-Vertaschitsch-Little combination. Claim 11 of the '940 patent reads as follows:

11. The method of claim 10, wherein pressing the power button when the ringer switch is in the second state causes the mobile computing device to stop vibrating.

The Samsung-Vertaschitsch combination, or alternatively, the Samsung-Vertaschitsch-Little combination, provides pressing the power button when the ringer switch is in the second state causes the mobile computing device to stop vibrating. APPLE-1003, ¶¶ 100-108. For example, as explained above in Section VIII.D.1, *supra*, Samsung in combination (e.g., Samsung in view of Vertaschitsch, or alternatively, Samsung in view of Vertaschitsch and Little) discloses or renders

obvious a method of vibrating the mobile computing device when a telephone call is incoming and the ringer switch is in a second state. APPLE-1006, p. 21 (“an incoming call will vibrate the phone rather than ring it.”); p. 38 (“Incoming call notification...[t]he ringer sounds (unless set to Vibrate or Off).”); p. 39.

Samsung explicitly discloses that pressing the power button silences the ringer. In particular, Samsung explains that an “[i]ncoming call notification continues until” the user “press[es]” the power button “to silence the ringer before answering the call.” APPLE-1006, p. 38. Furthermore, Samsung explains that the “call notification features” include “[s]ix ring volume settings including [v]ibrate.” APPLE-1006, pp. 38-39. Samsung explains that “vibrate” is one of six ring volume settings and a form of incoming call notification. A POSITA would have therefore reasonably understood that the incoming call notification would not continue (i.e., stops) when the power button is pressed in the Samsung-Vertaschitsch device, or alternatively, the Samsung-Vertaschitsch-Little device. APPLE-1006, p. 39; p. 47.

Accordingly, the combination of Samsung and Vertaschitsch, or, alternatively, of the combination of Samsung, Vertaschitsch and Little renders obvious a method of pressing the power button stop the device from vibrating when the ringer is in the second state. APPLE-1003, ¶¶ 103-108.

3. Claim 21 is obvious over Samsung in view of Vertaschitsch or over Samsung in view of Vertaschitsch and Little

Claim 21 and all of its claim elements are provided by the Samsung-Vertaschitsch combination, or alternatively, by the Samsung-Vertaschitsch-Little combination. APPLE-1003, ¶¶103-108. Claim 21 of the '940 patent reads as follows:

21. The mobile computing device of claim 12, wherein the mobile computing device includes a ringer switch, and wherein execution of the instructions causes the mobile computing device to: generate the ring when the telephone call is being received and the ringer switch is in a first state; and vibrate the mobile computing device when the telephone call is being received and the ringer switch is in a second state.

The Samsung-Vertaschitsch combination, or alternatively, the Samsung-Vertaschitsch-Little combination, provides that the mobile computing device includes a ringer switch, and execution of the instructions causes the mobile computing device to: generate the ring when the telephone call is being received and the ringer switch is in a first state, and vibrate the mobile computing device when the telephone call is being received and the ringer switch is in a second state. APPLE-1003, ¶¶ 100-108. As explained above in Section VIII.D.1, *supra*, Samsung in combination discloses and/or renders obvious that the mobile computing device

includes a ringer switch, and a method of generating the ring when the telephone call is being received and the ringer switch is in a first state and vibrating the mobile computing device when the telephone call is being received and the ringer switch is in a second state.

Furthermore, as explained above in Section VIII.A.5.vi, *supra*, Samsung in combination discloses or renders obvious that the memory storing instructions that, when executed by the processor, cause the mobile computing device to perform a programmed set of steps, such as causes the mobile computing device to generate the ring (when the ringer switch is in a first state) and vibrate (when the ringer switch is in a second state). APPLE-1003, ¶¶66, 67, 69-77, 83, 98, 107.

Accordingly, the Samsung-Vertaschitsch combination or, alternatively, the Samsung-Vertaschitsch-Little combination provides that “the mobile computing device includes a ringer switch, [and] wherein execution of the instructions causes the mobile computing device to: generate the ring when the telephone call is being received and the ringer switch is in a first state; and vibrate the mobile computing device when the telephone call is being received and the ringer switch is in a second state” as recited in the claim. APPLE-1003, ¶¶103-108.

4. Claim 22 is obvious over Samsung in view of Vertaschitsch or over Samsung in view of Vertaschitsch and Little

Claim 22 and all of its claim elements are provided by the Samsung-Vertaschitsch combination, or alternatively, by the Samsung-Vertaschitsch-Little combination. Claim 22 of the '940 patent reads as follows:

22. The mobile computing device of claim 21, wherein pressing the power button when the ringer switch is in the second state causes the mobile computing device to stop vibrating.

The Samsung-Vertaschitsch combination or, alternatively, the Samsung-Vertaschitsch-Little combination provides pressing the power button when the ringer switch is in the second state causes the mobile computing device to stop. APPLE-1003, ¶¶ 100-108. As explained above with respect to claim 11 (Section VIII.D.2, *supra*), the combination of Samsung and Vertaschitsch or, alternatively, the combination of Samsung, Vertaschitsch and Little renders obvious “pressing the power button when the ringer switch is in the second state causes the mobile computing device to stop vibrating” as recited in the present claim.

IV. PAYMENT OF FEES – 37 C.F.R. § 42.103

Apple authorizes the Patent and Trademark Office to charge Deposit Account No. 06-1050 for the fee set in 37 C.F.R. § 42.15(a) for this Petition and further authorizes payment for any additional fees to be charged to this Deposit Account.

V. REDUNDANCY

Petitioner presents a total of two Grounds in the present Petition and a second petition (the “Second Petition”) being filed contemporaneously with the present Petition. Petitioner submits that the grounds presented in these petitions are not redundant, and, to the extent the Board finds a reasonable likelihood that Petitioner will prevail with regard to each ground on the merits, Petitioner requests that all grounds be considered as part of the resulting trial. Petitioner has made a sufficient threshold showing on each ground. For example, Petitioner provides distinct reasoning and expert testimony to support each presented ground. *See* Section III, *supra*. Accordingly, Petitioner respectfully submits that the grounds in the present Petition and the Second Petition should not be held redundant.

VI. CONCLUSION

The cited prior art references identified in this Petition contain pertinent technological teachings (both cited and uncited), either explicitly or inherently disclosed, which were not previously considered in the manner presented herein, or relied upon on the record during original examination of the '940 patent. In sum, these references provide new, non-cumulative technological teachings which indicate a reasonable likelihood of success as to Petitioner's assertion that the Challenged Claims of the '940 patent are not patentable pursuant to the grounds presented in this Petition. Accordingly, Petitioner respectfully requests institution of an IPR for those claims of the '940 patent for each of the grounds presented herein.

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

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

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

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

Petitioner is not aware of any disclaimers, reexamination certificates or petitions for *inter partes* review for the '940 Patent. The '940 patent is the subject of the following civil action: *Qualcomm Incorporated v. Apple Inc.*, Case No. 3-17-cv-02403 (S.D. Cal. 2017).

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

Apple provides the following designation of counsel.

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D. Service Information

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

Petitioner consents to electronic service by email at IPR39521-0049IP1@fr.com

(referencing No. 39521-0049IP1 and cc'ing PTABInbound@fr.com, [\[ptab@fr.com\]\(mailto:ptab@fr.com\), \[rozylowicz@fr.com\]\(mailto:rozylowicz@fr.com\) and \[riffe@fr.com\]\(mailto:riffe@fr.com\).](mailto:axf-</p></div><div data-bbox=)

Respectfully submitted,

Dated June 21, 2018

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *inter partes* review totals 12,084 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated June 21, 2018

/Timothy W. Riffe/

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