UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TCL CORPORATION, TCL COMMUNICATION TECHNOLOGY HOLDINGS, LTD.; TCT MOBILE LIMITED; TCT MOBILE INC.; AND TCT MOBILE (US) INC.,
Petitioners

v.

TELEFONAKTIEBOLAGET LM ERICSSON,
Patent Owner

_____

IPR Case No. IPR2015-01674
Patent RE43,931

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PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. § 311 *ET SEQ.* AND 37 C.F.R. §42.100 *ET SEQ.* (CLAIMS 1-12 and 15 OF U.S. PATENT NO. RE43,931)

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1001	U.S. Patent No. RE43,931	Dec. 30, 1997	’931 patent
1002	Complaint, *Ericsson Inc., and Telefonaktiebolaget LM Ericsson v. TCL Communication Technology Holdings, LTD., TCT Mobile Limited, and TCT Mobile (US), Inc.*, Case No. 2:15-cv-00011-JRG-RSP (E.D. Tex. 2015)	Jan. 8, 2015	Ericsson Litigation - Complaint
1003	Infringement Contentions re One Touch Ultra 960, *Ericsson Inc., and Telefonaktiebolaget LM Ericsson v. TCL Communication Technology Holdings, LTD., TCT Mobile Limited, and TCT Mobile (US), Inc.*, Case No. 2:15-cv-00011-JRG-RSP (E.D. Tex. 2015)	Jan. 8, 2015	Ericsson’s Infringement Contentions
1004	U.S. Patent No. 6,278,888	Dec. 30, 1997	’888 Patent
1005	U.S. Patent No. 6,131,047	Dec. 30, 1997	’047 Patent
1006	File History for U.S. Patent No. 6,278,888	n/a	’888 Patent File History
1007	File History for U.S. Patent No. RE43,931	n/a	’931 patent File History
1008	U.S. Patent No. 6,424,830	Jul. 26, 1994	O’Hagan
1009	E.U. Patent No. EP0499012	Feb. 13, 1991	Yaniv
1010	U.S. Patent No. 5,615,384	Nov. 1, 1993	Allard
1011	U.S. Patent No. 5,889,236	Jun. 8, 1992	Gillespie
1012	U.S. Patent No. 4,566,001	Feb. 8, 1983	Moore
1013	U.S. Patent No. 5,621,437	Oct. 7, 1994	Jeong
1014	“Transducer”, Dictionary.com Unabridged, Random House, Inc., 2015, Dictionary.com, http://dictionary. reference.com/browse/ transducer	n/a	“Transducer”, Random House

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1016	Horowitz, Paul and Winfield Hill, The Art of Electronics, Cambridge University Press, pp. 7, 15, 61-79, 988, 2nd Edition, 1989	1989	Horowitz
1017	U.S. Patent No. 3,382,588	Jan. 11, 1965	Kling
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1022	U.S. Patent No. 4,550,221	Oct. 7, 1983	Mabusth
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1026	Buxton, W. & Myers, B., A study in two-handed input, Proceedings of CHI '86, 321-326, 1986	1986	Buxton
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1028	U.S. Patent No. 5,943,052	Aug. 12, 1997	Allen
1029	U.S. Patent No. 6,009,338	Apr. 26, 1996	Iwata
1030	U.S. Patent No. 5,923,861	Mar. 7, 1997	Bertram
1031	U.S. Patent No. 5,663,748	Dec. 14, 1995	Huffman
1032	U.S. Patent No. 5,745,116	Sep. 9, 1996	Pisutha
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1036	U.S. Patent No. 5,748,185	Jul. 3, 1996 (102(e))	Stephan
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1038	Complaint, *TCL Communication Technology Holdings, LTD v. Telefonaktienbolaget LM Ericsson and Ericsson Inc.*, Case No. 814-cv-00341(C.D.Cal. 2014) (January 8, 2015)	Mar. 5, 2014	FRAND Action Complaint
1039	Second Amended Complaint, *TCL Communication Technology Holdings, LTD and TCT Mobile (US) Inc. v. Telefonaktienbolaget LM Ericsson and Ericsson Inc.*, Case No. 814-cv-00341(C.D.Cal. 2014) (January 8, 2015)	Jun. 20, 2014	FRAND Action 2nd Amended Complaint
1040	Complaint, *Ericsson Inc., and Telefonaktiebolaget LM Ericsson v. TCL Communication Technology Holdings, LTD., TCT Mobile Limited, and TCT Mobile (US), Inc.*, Case No. 2:14-cv-677 (E.D. Tex. 2014)	Jun. 3, 2014	Ericsson's First Complaint
1041	Ericsson's Amended Motion for Leave to File Amended Complaint to Add Patents, *Ericsson Inc., and Telefonaktiebolaget LM Ericsson v. TCL Communication Technology Holdings, LTD., TCT Mobile Limited, and TCT Mobile (US), Inc.*, Case No. 2:14-cv-677 (E.D. Tex. 2014)	Dec. 21, 2014	Ericsson's Motion to Amend

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1042	Order Denying Ericsson's Motion to Amend, *Ericsson Inc., and Telefonaktiebolaget LM Ericsson v. TCL Communication Technology Holdings, LTD., TCT Mobile Limited, and TCT Mobile (US), Inc.*, Case No. 2:14-cv-677 (E.D. Tex. 2014)	Jan. 29, 2015	Order Denying Ericsson's Motion to Amend
1043	U.S. Patent No. 5,936,615	Sep. 12, 1996	Waters
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1045	Microsoft Word DOS Preview Demonstration Version, 5.25" Diskette	1983	Microsoft Word
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1047	U.S. Patent No. 6,037,930	Nov. 28, 1984	Wolfe
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1060	Macintosh PowerBook 540: Technical Specifications, http://support.apple.com/kb/SP162	n/a	PowerBook 540 Specifications
1061	IBM Thinkpad 360PE-2620 Touch Flip Screen: 20 years old, http://www.ebay.com/itm/IBM-THINKPAD-360PE-2620-TOUCH-Flip-Screen-20-years-old-/181604157715	n/a	Thinkpad 360PE - Ebay
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1063	PDP-1 XD116.79, Computer History Museum, http://www.computerhistory.org/collections/catalog/XD116.79A	n/a	PDP-1 Artifact
1064	"Meet the Family", Digital's Video Terminals-VT100.net, http://www.vt100.net/vt_history	n/a	VT100
1065	Digital Equipment Corporation: Nineteen Fifty-Seven to the Present	1972-1978	DEC - 1957 to Present

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1067	IBM PCjr Personal Computer, Smithsonian National Museum of American History: Kenneth E. Behring Center, http://americanhistory.si.edu/collections/search/object/nmah_905913	n/a	IBM PC
1068	Timeline of Computer History, Computer History Museum, http://www.computerhistory.org/timeline/?category=cmptr	n/a	Computer History Timeline
1069	U.S. Patent No. 5,920,310	Nov. 15, 1996	Faggin
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1073	U.S. Patent No. 3,482,241	Aug. 2, 1966	Johnson
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1077	GUIFX: Touch Screens that Changed the World, http://blog.guifx.com/2010/01/27/touchscreens-that-changed-the -world	n/a	GUIFX
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1080	MacWorld Magazine Cover, International Data Group	Sep. 1993	1993 MacWorld
1081	U.S. Patent No. 5,526,422	Jun. 20, 1994	Keen
1082	European Patent No. EP0473465	Apr. 3, 1992	Harte
1083	U.S. Patent No. 5,276,917	Jan. 15, 1991	Lindoff
1084	U.S. Patent No. 5,293,639	Aug. 9, 1991	Wilson
1085	U.S. Patent No. 5,276,917	Oct. 22, 1991	Vanhanen
1086	Razavi, Behzad, "RF Transmitter Architectures and Circuits," IEEE	1999	Razavi
1087	U.S. Patent No. 5,892,475	Jun. 23, 1997	Palatsi
1088	European Patent No. EP0721272A2	Jul. 10, 1996	Tiilikainen

Exhibit No.	Description	Priority/Date	Identifier
1089	U.S. Patent No. 8,812,059	Dec. 30, 1997	’059 patent
1090	U.S. Application 14/459,536	Dec. 30, 1997	’536 application
1091 to 1204	Reserved for future use.		
1205	Declaration of Andrew Wolfe in Support of Petition for *Inter Partes* Review	n/a	Wolfe Dec.

I. INTRODUCTION

TCL Corporation, TCL Communication Technology Holdings, Ltd., TCT Mobile Limited, TCT Mobile Inc., and TCT Mobile (US) Inc. (collectively "Petitioners" or "TCL") petition for *Inter Partes* Review ("IPR") under 35 U.S.C. §§ 311-319 and 37 C.F.R., Part 42 of thirteen claims (1-12 and 15) of U.S. Patent No. RE43,931 (the "'931 patent") (Ex. 1001), assert that there is a reasonable likelihood that they will prevail with respect to each of the claims challenged in this petition, and respectfully request cancellation of each challenged claim.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Parties-In-Interest (§ 42.8 (b)(1))

The real parties-in-interest are TCL Corporation; TCL Communication Technology Holdings, LTD.; TCT Mobile Limited; TCT Mobile Inc.; and TCT Mobile (U.S.) Inc.

B. Related Matters (§ 42.8 (b)(2))

As part of a licensing dispute (Exs. 1038, 1039), on June 3, 2014, Ericsson sued TCL for patent infringement. (Ex. 1040, *Ericsson Inc., et al. v. TCL Commc'n Tech. Holdings, Ltd., et al.*, No. 2:14-cv-667 (E.D. Tex. 2014).) On October 21, 2014, Ericsson attempted to add a claim for infringement of the '931 patent (Ex. 1041), but was denied (Ex. 1042). On January 8, 2015, Ericsson asserted the '931 Patent in a second action, in which the '931 patent remains. (Ex. 1002, *Ericsson Inc., et al. v. TCL Commc'n Tech. Holdings, Ltd., et al.*, No. 2:15-cv-11 (E.D. Tex.

2015).) The validity of the ’931 patent is also being litigated in *Ericsson Inc. et al v. Apple Inc.*, No. 2:15-cv-289 (E.D. Tex. 2015). In continuation of and claiming priority to the ’931 patent, Ericsson also filed U.S. Application No. 13/682,566 on November 20, 2012 (issued as U.S. Patent No. 8,812,059 on August 19, 2014) and U.S. Application No. 14/459,536 filed August 14, 2014. (Exs. 1088, 1089.) The ’931 patent is also the subject of related IPR petitions IPR2015-01602, IPR2015-01637, IPR2015-01641, and IPR2015-01646.

C. Lead And Backup Counsel (§ 42.8(b)(3))

TCL appoints Stephen S. Korniczky (Reg. No. 34,853) of Sheppard Mullin Richter & Hampton LLP as lead counsel, and appoints Martin R. Bader (Reg. No. 54,736), David A. Randall (Reg. No. 37,217), Nam H. Kim (Reg. No. 64,160), and Hector A. Agdeppa (Reg. No. 58,238) of the same firm as back-up counsel. An appropriate Power of Attorney is filed concurrently herewith.

D. Service Information (§ 42.8(b)(4))

Service of documents to lead and back-up counsel can be made via hand-delivery to Sheppard Mullin Richter & Hampton LLP, 12275 El Camino Real, Ste. 200, San Diego, California 92130. Petitioners consent to service by e-mail at LegalTm-TCL-IPRs@sheppardmullin.com. Ph: 858.720.8900; Fax: 858.509.3691.

III. FEE FOR IPR (37 C.F.R. § 42.15(a) and § 42.103)

Petitioners have paid the required fees. The Office is authorized to charge any fee deficiency, or credit any overpayment, to Deposit Account No. 50-4562.

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

A. Grounds for Standing (§ 42.104(a))

Petitioners certify that (i) the '931 patent is available for IPR; and (ii) Petitioners are not barred or estopped from requesting *inter partes* review of the claims of the '931 patent on the grounds identified in this Petition.

B. Identification of Challenged Claims (§ 42.104(b)(1))

Petitioners request *inter partes* review of claims 1-12 and 15 of the '931 patent and requests cancellation of those claims as unpatentable.

C. Grounds of Challenge (§ 42.104(b)(2))

The grounds of unpatentability presented in this Petition are as follows:

Ground 1: Claims 1-11 and 15 are rendered obvious by Palatsi in view of Moore under pre-AIA 35 U.S.C. § 103.

Ground 2: Claim 12 is rendered obvious by Palatsi in view of Moore, and further in view of Tiilikainen under pre-AIA 35 U.S.C. § 103.

The unpatentability grounds set forth in this Petition are confirmed and supported by the Declaration of Dr. Andrew Wolfe (Ex. 1205), submitted herewith.

V. THE PROPOSED GROUNDS ARE NOT REDUNDANT

The obviousness grounds presented herein are not redundant, because they address different claims. The grounds presented herein are also not redundant to the grounds presented in related petitions IPR2015-01602, IPR2015-01637, IPR2015-01641, and IPR2015-01646, each of which relies on Iwata as a primary

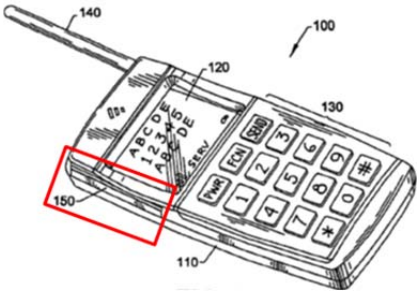
reference (collectively, the "Iwata Petitions"). Iwata discloses a "contact-sensitive transducer" embodied as a touchscreen display, an interpretation Ericsson has implied in its Infringement Contentions (Ex. 1003). (Ex. 1205, ¶ 108.) However, the grounds presented herein rely on Palatsi in combination with Moore. This combination discloses a "contact-sensitive transducer" embodied as a touch sensitive strip that is wholly distinct from a display, as originally described in the specification of the '931 patent, and which was well known prior to December 30, 1997 (the "Alleged Priority Date"). (*Id*. ¶¶ 131-148.) Thus, the present petition is not redundant to the Iwata Petitions because it addresses a different possible interpretation of the contact-sensitive transducer as recited by the claims of the '931 patent. (*Id*.)

Furthermore, Iwata more strongly suggests using moving contact-based scrolling to navigate large amounts of data on a display using visual "scroll bars," whereas Palatsi describes a mobile telephone having more limited capabilities that could be accomplished via the push/touch sensor "buttons" that are already disclosed therein. (*Id*., ¶ 135.) However, in contrast to Iwata, Palatsi explicitly discloses graphical user interface (GUI) functionality, such as selectively scrolling, highlighting, and identifying rows on a mobile telephone interface in a manner identical to that disclosed in the '931 patent. (*Id*., ¶ 133.)

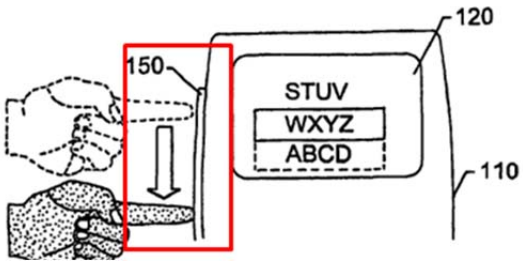
VI. RELEVANT INFORMATION CONCERNING THE '931 PATENT

A. Subject Matter Of The ’931 Patent

The ’931 patent is directed to mobile telephones that include a “contact sensitive transducer” to control graphical user interface (GUI) functionality, including scrolling, tapping, and double tapping selection features. (*Id.*, ¶ 114.) In particular, the specification of the ’931 patent recites a “contact-sensitive transducer,” i.e., a touch sensitive strip that produces an output signal that characterizes a contact with the contact-sensitive transducer. (*Id.*, ¶ 117; Ex. 1001, 5:22-35.) For example, “the contact-sensitive transducer 150 produces an output signal 155 that characterizes contact of an object, such as a user’s finger 210, along an axis 150a of the transducer 150.” (Ex. 1001, Figs. 1, 7B.)



(Annotated Fig. 1 (’931 patent).)



(Annotated Fig. 7B (’931 patent).)

Despite the contact-sensitive transducer of the ’931 patent being described and illustrated therein as a “touch strip,” Ericsson’s Infringement Contentions suggest that Ericsson is alleging that a contact-sensitive transducer reads on a touchscreen display of a mobile telephone. (*See* Ex. 1003, Ericsson’s Infringement Contentions.) Regardless of how Ericsson may attempt to characterize the claimed contact-sensitive transducer, both touch strips and touchscreens were well known

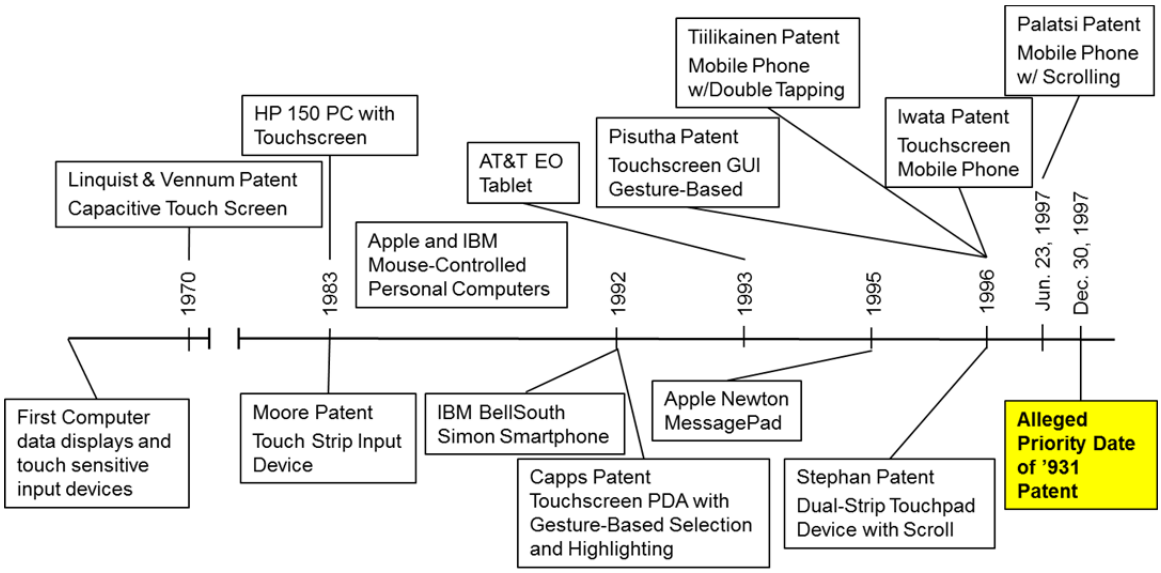
in the art as of the Alleged Priority Date. (Ex. 1205, ¶¶ 66-110.)

B. Mobile Phone Interface Technology as of December 30, 1997

As described above, the ’931 patent discloses a mobile telephone implementing a purportedly novel mechanism for providing user input, i.e., a touch sensitive interface device, but such technology was readily available long before the Alleged Priority Date. Touch sensitive input devices, including touchscreens and touch pads, date back to the 1960s. (*Id.*, ¶¶ 66–68.) At that time, prevalent touch sensitive input device technologies included resistive sensors, capacitive sensors, light-beam devices, surface acoustic wave devices, and image-based sensing. (*Id.*, ¶¶ 69-73.) Examples of such touch sensitive devices include touch strips described in aforementioned U.S. Patent No. 4,566,001 to Moore. (*Id.*, ¶ 97.) Moreover, in 1993, U.S. Patent No. 5,889,236 to Gillespie disclosed a touch sensitive input device with an array of touch sensitive strips for gesture-based control of user interfaces (i.e., scrolling, tapping, and double tapping selection features) in hand held devices. (*Id*., ¶ 93.) Also in 1993, Hewlett Packard introduced a touchscreen interface in the HP 150 personal computer that incorporated an infrared touch sensitive display. (*Id*., ¶ 82.)

Many of the touch sensitive interface technologies described above had already been integrated into mobile devices by the early 1990s. (*Id.*, ¶¶ 83–88, 93–99.) Examples include the IBM/BellSouth Simon mobile telephone, the AT&T EO

tablet, and the Apple Newton, introduced in 1992, 1993, and 1995, respectively. (*Id*., ¶¶ 84-86.) Furthermore, U.S. Patents 5,892,475 to Palatsi ("Palatsi") and U.S. Patent 6,009,338 to Iwata ("Iwata") each predate the Alleged Priority Date and teach mobile telephones with touch sensitive user interfaces (e.g., a touch screen [Iwata] or touch sensors [Palatsi]) configured to enable menu selection and scrolling). (*Id*., ¶¶ 108-09.) And, U.S. patent 4,566,001 to Moore ("Moore") and U.S. Patent 5,748,185 to Stephan ("Stephan") also each predate the Alleged Priority Date and teach touch sensors implemented on computer devices configured to produce output signals that characterize moving contact for the purpose of enabling a user to scroll and select menu items in a GUI. (*Id*., ¶¶ 97-99.) The timeline below (not to scale) summarizes the breadth of available contact-sensitive technologies for mobile telephones as of the '931 patent's priority date (*Id*., ¶ 113):



C. Effective Filing Date And Prosecution History Of The '931 Patent

The '931 patent was filed March 11, 2005 as a reissue of U.S. Patent No. 6,278,888 (Ex. 1004), and claims priority back to U.S. Patent No. 6,131,047 filed December 30, 1997 (Ex. 1005). A first round of prosecution of the reissue application culminated on August 6, 2007 with a pre-appeal panel withdrawing pending obviousness rejections over O'Hagan (which discloses a mobile phone with a thumb wheel) and Yaniv (which discloses a device with a touchscreen). (*Id*. at 617-19.) The examiner responded by combining O'Hagan with Gillespie (which discloses a touchscreen) and Moore (which discloses the use of touch strips to effect scrolling based on moving contact along those strips) to render the claims obvious. (*Id*. at 514-41.) On appeal, the Board maintained those rejections. In response, PO amended the claims in a request for continued examination by adding a second, non-responsive mode and moving the contact-sensitive transducer to the front surface. (*Id*. at 348-64, 98-99.) Before the Board could consider a second appeal, the examiner allowed the claims. (*Id*. at 42.)

D. The Claims Of The '931 Patent

The '931 patent recites a radiotelephone (or apparatus) with a housing small enough to fit in a user's hand. (Ex. 1001, 1:23-25, Claims 1, 2, 16, 30, 33, 37, 38, 58, 64-66.) The application which led to the '931 patent described that the contact-sensitive transducer produced an output signal that "characterizes" contact with a

contact-sensitive surface. (Ex. 1006, at 11,13, 23, 27, 29-30.) The majority of the claims (pursuant to reissue) were amended to more particularly recite that the contact-sensitive transducer is located on the *front* of the radiotelephone, and to recite that the output signal is produced in response to *moving* contact. (Ex. 1001, Claims 1, 16, 30, 33.) Claim 1 recites:

> **1**. A radiotelephone, comprising:
> a housing having a front surface, a rear surface and first and second side surfaces adjoining respective opposite edges of the front surface and extending from the respective opposite edges of the front surface to respective opposite edges of the rear surface, the housing configured to be held in a user's hand such that the rear surface confronts the user's palm;
> a radiotelephone communications transceiver, supported by the housing;
> a display, supported by the housing, that displays an image at the front surface of the housing;
> a contact-sensitive transducer, supported by the housing and having a contact-sensitive surface disposed at **[**at least one of the first and second side surfaces**]** *said front surface*, which produces an output signal **[**that characterizes**]** *in response to moving* contact of an object along the contact-sensitive surface of the contact-sensitive transducer; and
> a controller, responsive to the output signal and operatively associated with the display and the radiotelephone communications transceiver, which controls at least one of the display and the radiotelephone communications transceiver **[**according to**]** *and which scrolls displayed rows along an axis of the display based upon* the output signal of the contact-sensitive transducer, *the controller having a first mode wherein the controller is responsive to contact with the contact-sensitive transducer and a second mode wherein the controller is unresponsive to contact with the contact-sensitive transducer, the second mode being entered in response to an input from a user*.

(Ex. 1001, '931 Patent, Claim 1.)

Claims 2-12 and 15 depend from Claim 1 and are addressed in more detail in Section VII below.

E. Person Of Ordinary Skill In The Art

For purposes of the obviousness analyses presented below for each ground, Petitioners submit that a person of ordinary skill in the art ("POSITA") is someone with a bachelor's degree in computer engineering, electrical engineering, or computer science, and two years of experience with touch-based user input systems or equivalent education and experience on December 30, 1997, the date to which the '931 patent claims priority. (Ex. 1205, ¶¶ 56-58; *see* also *id*. at ¶¶ 5-19 (in support of qualifications as expert of Andrew L. Wolfe).)

F. How The Challenged Claims Are To Be Construed

For purposes of this IPR, each challenged claim must be given "its broadest reasonable construction in light of the specification." 37 CFR § 42.100(b); *see also In re Cuozzo Speed Tech*, 778 F.3d 1271, 1279 (Fed. Cir. 2015). The broadest reasonable construction standard requires that claim terms be "given their ordinary and customary meaning," as would be understood by a POSITA in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc)). A special definition for a claim term must be set forth in the specification with "reasonable clarity, deliberateness, and precision." *In re Paulsen*, 30 F.3d

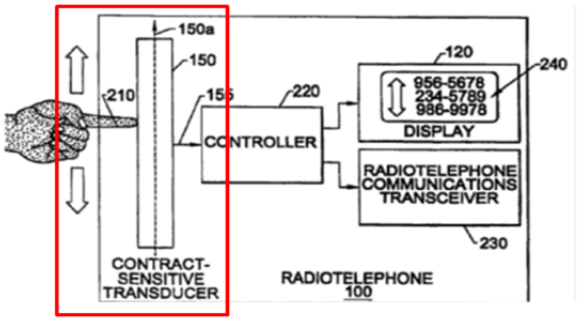
1475, 1480 (Fed. Cir. 1994). Indeed, to the extent Ericsson contends a term in the challenged claims should be read to have a special meaning, those contentions should be disregarded unless the claims are amended to expressly correspond to the contended meaning. *See* Trial Practice Guide, 77 Fed. Reg. 48756, 48764 at col. 2 (August 14, 2012). Because the claim construction standard in an IPR is different than that used in litigation, Petitioners reserve the right to present different constructions of terms in litigation under claim construction standards appropriate for those cases. *See In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004). Petitioners propose the claim constructions below for purposes of this Petition only. Any claims terms that are not construed specifically below are presumed to take on their ordinary and customary meaning.

1. "contact-sensitive transducer…which produces an output signal" (Claims 1, 3-11, and 15)

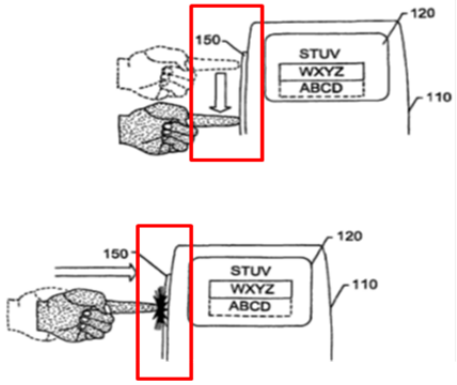
Under the broadest reasonable construction, Petitioners propose that the term "contact sensitive transducer…which produces an output signal" should be construed as "*a device that converts physical contact of an object with the device to an electrical signal*." (Ex. 1205, ¶ 126.) This construction is supported by the specification, the PO's statements during prosecution, and the prior art. (*Id.*) Referring to Annotated Figs. 2, 7B, 7C of the '931 patent below with **red** boxes highlighting the described feature, the '931 patent states that "the contact-sensitive transducer 150 produces an output signal 155 that characterizes contact of an

object, such as a user's finger." (Ex. 1001, 5:22-25.)

The '931 patent does not define "transducer." However, as is generally known in the art, a "transducer" refers to a device that receives a signal in the form of one type of energy and converts it to a signal in another form. (Ex. 1016, at 987-88; Ex. 1205, ¶ 127.) Accordingly, in view of the description from the '931 patent's specification and the understood definition of "transducer," the contact-sensitive transducer converts physical contact of the object (e.g., a finger) to another form of energy. (Ex. 1205, ¶ 127.)



(Annotated Fig. 2 ('931 patent).)



(Annotated Figs. 7B and 7C ('931 patent).)

Furthermore, the '931 patent's specification describes that the "contact-sensitive transducer 150 may comprise…resistive, capacitive or semiconductive strips." (Ex. 1001, 5:33-35.) A POSITA would have recognized that resistance, capacitance, and conductance refer to electrical properties. (*See* Ex. 1016, at 7, 61-79, 988; Ex. 1205, ¶ 128.) It follows that a resistive, capacitive, or semiconductive transducer is a transducer that "convert[s] some physical quantity" to an "electrical quantity." (Ex. 1205, ¶ 128.)

Moreover, the term "signal," in the context of electronics, refers to "voltages that change in time in a particular way." (Ex. 1016, at 15; Ex. 1205, ¶ 129.) Voltage is an electrical quantity as outputted by the transducer. (Ex. 1205, ¶ 129.) Indeed, the '931 patent's specification describes measuring the output from the transducers as sampling "[v]oltages between the nodes R_1 and R_c and nodes L_1 and L_c" of the transducers over time. (*Id*.; Ex. 1001, 5:53-55.) Accordingly, the output signal of the contact-sensitive transducer as described in the patent is a change in voltage (an electrical quantity), further supporting the conclusion that the "contact-sensitive transducer" converts physical contact of an object with the device to an electrical signal. (Ex. 1205, ¶ 129.)

1. "graphical object(s)" (Claims 4, 6-11)

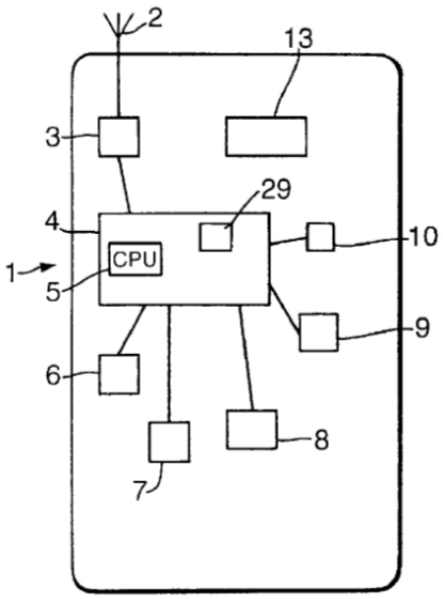
Under the broadest reasonable construction, Petitioners propose that the term "graphical object(s)" should be construed as "*visual element(s) including image(s) and/or row(s) of alphanumeric characters*." (Ex. 1205, ¶ 130.) In particular, the '931 patent describes that "the controller is configured to selectively display an image, e.g., a graphical object such as a row of alphanumeric characters, on the display responsive to the output signal of the contact-sensitive transducer. " (Ex. 1001. 2:54-62.) Thus, as used in the '931 patent, row(s) of alphanumeric characters is(are) visually observable graphical object(s), and both are images. (Ex. 1205, ¶ 130.)

VII. PRECISE REASONS FOR RELIEF REQUESTED

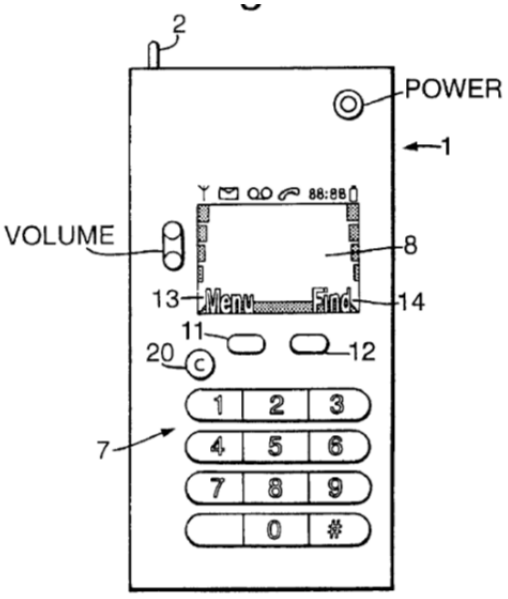
A. Claims 1-11 and 15 are rendered obvious by Palatsi in view of Moore under pre-AIA 35 U.S.C. § 103

1. Overview of Palatsi

Palatsi, a Nokia patent, was filed June 23, 1997, and is therefore prior art to the ’931 patent under 35 U.S.C. § 102(e). (*See generally*, Ex. 1087; Ex. 1205, ¶ 131.) Palatsi discloses a mobile telephone (i.e., a “portable telephone”) that incorporates a “scroll-and-select menu system” configured to “scroll through menu items” on a display, “select the desired one,” and control the telephone transceiver unit, display, or other features of the telephone based on the selection. (Ex. 1087, at Abstract, 1:5-20, 2:17-29, 2:60-3:19, Figs. 1-4; Ex. 1205, ¶ 133.) Specifically, referring to Figs. 1 and 2 (below), Palatsi describes “a portable telephone 1” that includes “an antenna 2 connected to a radio transceiver unit 3,” “a digital processing section 4 including a processor 5 [that] is connected to: the transceiver unit,…a LCD display 8 controlled by the processor,” a “keypad 7 [that] has at least two ‘soft’ keys 11, 12,” and a “battery 13 [that] is the source of power for the telephone.” (Ex. 1205, ¶ 133; Ex. 1087, 2:17-29.)



(Fig. 1 (Palatsi).)



(Fig. 2 (Palatsi).)

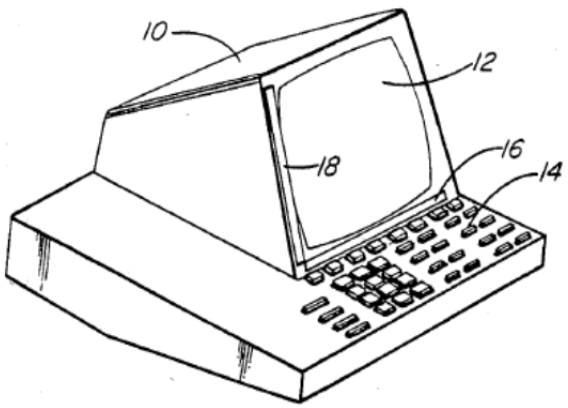
Palatsi discloses that the soft keys 11, 12 can be used for scrolling and/or selecting displayed menu items. (Ex. 1205, ¶134.) Specifically, the "user can scroll through the menu items and then select the desired one." (Ex. 1087, 2:41-43.) For example, the menu items available for selection may include functions such as "Messages", "Lights", and "Last Calls Redial", and once selected, the user may scroll through submenu ("next scroll-and-select menu level") items such as "On" or "Off" with respect to the "Lights" using the soft keys 11, 12. (*Id*., 2:60-63; 3:20-42, Figs. 3,4; Ex. 1205, ¶ 134.)

Although the soft keys 11, 12 disclosed in the illustrated embodiments of Palatsi are push-type keys, Palatsi discloses that the soft keys 11, 12 could include "one or more touch sensors…." (Ex. 1087, 4:14-23; Ex. 1205, ¶ 135.) Furthermore, those "soft keys are located close together to minimise finger movement." (Ex.

1087, 2:38-39.)

2. Overview of Moore

Moore issued on January 21, 1986, making it prior art to the ’931 patent under 35 U.S.C. § 102(a). (*See generally*, Ex. 1012; Ex. 1205, ¶ 136.) Moore discloses an interactive display terminal flanked by touch strips used to provide, e.g., menu selection, scrolling, and cursor generation. (Ex, 1012, at Abstract, 1:27-35, 3:18-25, 3:54-4:28, Fig. 1; Ex. 1205, ¶ 137.) Disposing touch strips at the side of a display (contrary to terminals in which a touch sensor is overlaid on the display) enables control of the display without unduly distorting displayed images due to the touch sensor itself, dirt, and/or oil. (Ex. 1205, ¶ 137, Ex. 1012, 1:36-59.) The orientation of touch strips 16 and 18 relative to display 12 is illustrated in Fig. 1 of Moore, (below).



(Fig. 1 (Moore).)

The touch strips comprise resistive material spaced from conductive material, and are controlled by applying a voltage gradient along the resistive strips

and reading an output voltage that correlates to position. (Ex. 1205, ¶138, Ex. 1012, 1:60-2:5, 2:38-67, 4:37-41.) Alternatively, the touch strips may comprise a "linear array of discrete [capacitive] touch sensitive areas." (Ex. 1205, ¶ 138, Ex. 1012, 4:41-48.) Moore also discloses processing output signals from the touch strips using a controller that comprises "a multiplexer" and a "microprocessor." (Ex. 1205, ¶ 138, Ex. 1012, 4:37-48.)

Moore further discloses scrolling displayed items based on a moving-touch along the touch strips, i.e., in "scrolling mode…the user merely strokes the touch strips along their length in the direction in which the displayed field is to move." (Ex. 1205, ¶139; Ex. 1012, 4:20-28.) Additionally, the touch strips of Moore can be responsive to a press-touch, i.e., "[b]y pressing the menu selection function key, a program is selected which enables the user to select one title from a list of displayed titles merely by pressing the touch strip (usually the vertical extending touch strip) at a location adjacent to the particular displayed title. (Ex. 1205, ¶139; Ex. 1012, 3:45-49.) Moreover, the touch strips can control specific functions of a telephone. (Ex. 1205, ¶ 139.) Specifically, a touch strip can control "sound volume (for telephone ringing or voice) and display brightness, contrast or colour determinants" through graded control in response to moving contact along the touch strip. (*Id*.; Ex. 1012, 4:10-15.)

Moore also teaches activating and deactivating touch strips. (Ex. 1205, ¶

140.) Specifically, with respect to one embodiment, Moore describes using "keys associated with [a] functional keyboard" to "switch[] between different [] banks of touch strips." (Ex. 1012, 4:33-36; Ex. 1205, ¶ 140.) These "functional keys" may be programmed to correspond to predetermined locations on the touch strips themselves, such that user input on the touch strips may be used to switch between modes of operation whereby different banks of touch strips are enabled or disabled. (Ex. 1012, 3:22-25, 4:33-36; Ex. 1205, ¶ 140.)

3. Motivation to Combine

A POSITA would have been motivated to combine the teachings of Palatsi and Moore as of the Alleged Priority Date because both are directed to improving a user interface, e.g., how a user can efficiently control various functions and interact with (e.g., scroll and select) displayed items using various input methods. (Ex. 1205, ¶ 141.) Thus, a POSITA would have looked to Moore for alternative input methods in order to improve Palatsi's user interface, i.e., by using Moore's touch strips in place of Palatsi's push-type keys. (*Id*. (citing *KSR*, 550 U.S. 398, 417 (2007) ("When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.")).)

This is especially true because, as discussed in Section VII.A.1, Palatsi already contemplates substituting "one or more touch sensors" to replace "one or

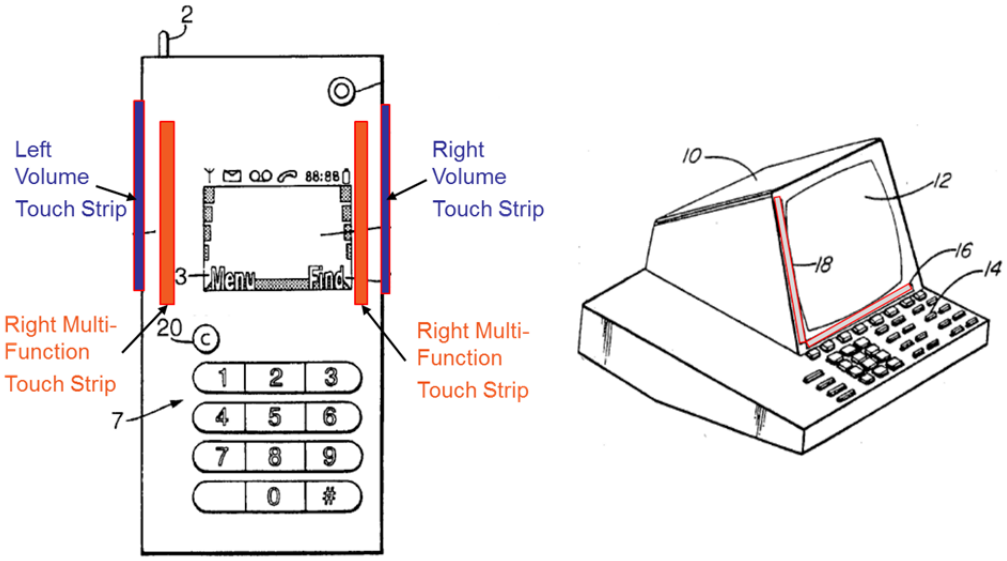
more keys" used for input to the telephone (e.g., the soft key). (Ex. 1205, ¶¶ 135, 142; Ex. 1087, 4:15-23.) So, it would have been obvious for a POSITA to try the proposed modification of replacing Palatsi's keys/touch sensors with Moore's touch strips. (Ex. 1205, ¶ 142 (citing *KSR*, 550 U.S. at 417).)

Moreover, a POSITA would have appreciated that the proposed modification fulfills one of the needs identified in Palatsi, namely, providing efficient input mechanisms that increase functionality while reducing the consumption of space. (*Id*., ¶ 143.) Specifically, Palatsi teaches that "[t]here is a need for portable telephones (especially hand-held portable telephones) to be smaller, to make them more convenient to carry," while still maintaining ease of use by not making the input keys too small. (*Id*.; Ex. 1087, 1:21-29.) Palatsi relies on programmable soft-keys having multiple functions (instead of function-dedicated keys) to avoid overcrowding the front housing of the mobile telephone. (Ex. 1205, ¶ 143.) As discussed in Section VII.A.2, Moore discloses that the touch strips can be responsive to multiple types of touches including moving (i.e., stroking) touches and momentary contact (i.e., pressing). (*Id*.; Ex. 1012, 3:45-53, 4:20-29.) Therefore, one touch strip of Moore could cover the functionality of multiple ones of Palatsi's push-type keys (e.g., keys 11, 12 for scrolling and selection). Finally, a touch strip provides for a more intuitive method of scrolling/moving between menu items versus push-type keys. (Ex. 1205, ¶ 144.)

For these reasons, a POSITA would have been strongly motivated to modify the mobile telephone of Palatsi by replacing the push-type keys with one or more touch strips taught by Moore. (*Id*. (citing *KSR*, 550 U.S. at 417).)

4. Obvious Modifications

A POSITA would have known to modify the mobile telephone of Palatsi by replacing the horizontally-arranged soft keys 11, 12 located below the display 8 with a first touch strip of Moore, and to replace the vertically-arranged volume control keys located to the left of the display 8 with a second touch strip of Moore. Such a modification is illustrated in Demonstrative Fig. 2 of Palatsi (below). (Ex. 1205, ¶ 145.)



(Demonstrative Fig. 2 (Palatsi modified by Moore).)

As illustrated, banks of touch strips of Moore is located are located on each side of the housing, flanking the display, with a multi-function touch strip on the front surface of the housing flanking either side of the display, shown in **orange**,

and a volume control touch strip on either side of the housing, shown in **blue**. (referred to hereinafter as the "proposed modification to Palatsi by Moore"). (Ex. 1205, ¶ 146.) It would have been intuitive for a POSITA to make this proposed modification because the modified arrangement would "minimise finger movement when using those" touch strips by locating a set of touch strips (one volume control and one multi-function) in a location accessible to a holding hand, whether that holding hand is the left hand or the right hand. (*Id*.; Ex. 1087, 2:38-39.) Indeed, Moore teaches that it is preferred to "stroke the touch strip" vertically, such that the touch strip would be oriented vertically. (Ex. 1205, ¶ 147; Ex. 1012, 4:20-28.) Furthermore, the touch strips could be implemented on either or both sides of display 8 (one for right-hand use and one for left-hand use). (Ex. 1205, ¶ 147.) Indeed, Moore teaches mounting touch strips such that the "extend along all the edges of the screen," with "a bank of touch strips mounted along each edge." (*Id*. ¶ 147; Ex. 1012, 4:29-34.) Such an arrangement would again "minimise finger movement" by negating the need for users to engage a touch strip potentially located opposite their dominant hand (and also potentially obscure the display). (Ex. 1205, ¶ 147; Ex. 1087, 2:38-39.)

Furthermore, in view of Moore's teaching that "the functional keyboard must permit switching between different ones of the banks of the strips" (Ex. 1012, 4:34-46), either the right bank of strips, or left bank of strips, illustrated in

Demonstrative Fig. 2 above, could be activated or deactivated to avoid accidental contact with the strips that are not in use (i.e., the left-side touch strips should not be active when in right-hand mode). (Ex. 1205, ¶ 148.) Thus, in view of the analysis above, combining Palatsi with Moore to arrive at the modified mobile phones illustrated in Demonstrative Fig. 2 of Palatsi above amounts to nothing more than employing a "predictable use of" touch strip sensors, as known in the art, to accomplish their "established function[]. (*Id*. (quoting *KSR*, 550 U.S. at 417).)

5. Independent Claim 1

The preamble of Claim 1 recites: "A radiotelephone." Palatsi describes a "portable telephone" with "a radio transceiver unit." (Ex. 1087, 2:17-18.) The portable telephone of Palatsi is a radiotelephone. (Ex. 1205, ¶ 153.)

Claim 1a recites: "a housing having a front surface, a rear surface and first and second side surfaces adjoining respective opposite edges of the front surface and extending from the respective opposite edges of the front surface to respective opposite edges of the rear surface, the housing configured to be held in a user's hand such that the rear surface confronts the user's palm." Palatsi discloses or renders obvious this limitation. (Ex. 1205, ¶¶ 154-157.)

First, Palatsi discloses or renders obvious "a housing having a front surface, a rear surface and first and second side surfaces adjoining respective opposite

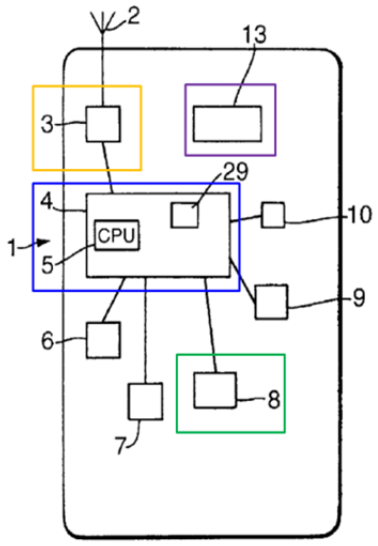
edges of the front surface and extending from the respective opposite edges of the front surface to respective opposite edges of the rear surface." (*Id*., ¶ 155.) Fig. 2 of Palatsi (above) illustrates the front surface of the radiotelephone. (*Id*.) Moreover, Palatsi teaches that "[t]here is a need for portable telephones (especially hand-portable telephones) to be smaller to make them more convenient to carry." (*Id*.; Ex. 1087, 1:21-24.) Accordingly, the radiotelephone of Palatsi would be understood by a POSITA to fit in a user's hand and would have a housing capable of securely containing electronic components therein (e.g., by holding the components illustrated in Annotated Fig. 1, below, in place within a housing with a front, rear, and side surfaces). (Ex. 1205, ¶ 155.) Indeed, it was well understood in the art as of the Alleged Priority Date that radiotelephones would include a housing that includes a rear surface and side surfaces adjoining the rear surface to a front surface. (*Id*. ¶ 156.)

Second, Palatsi discloses or renders obvious that the housing is "configured to be held in a user's hand such that the rear surface confronts the user's palm." (*Id*., ¶ 157.) By virtue of the radiotelephone housing of Palatsi being small enough to be held in a user's hand, a POSITA would have understood that the housing would be held with the rear surface confronting the palm of the user's hand in order to interact with the keys and/or display on the front surface. (*Id*.) Thus, Palatsi discloses or renders obvious Claim 1a. (*Id*.)

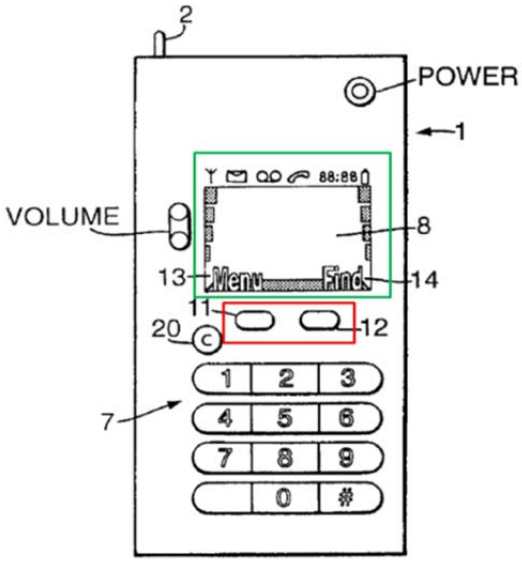
Claim 1b recites "a radiotelephone communications transceiver, supported by the housing." Palatsi discloses or renders obvious this limitation. (*Id*., ¶ 158.)

First, Palatsi discloses "a radiotelephone communications transceiver. Specifically, "portable telephone 1 shown in FIGS. 1 and 2 has… a radio transceiver unit 3." (Ex. 1087, 2:17-18, Figs. 1, 2 (below, with the transceiver highlighted in **orange**).) The radio transceiver unit of Palatsi is a radiotelephone communications transceiver. (Ex. 1205, ¶ 159.)

Second, Palatsi discloses or renders obvious that the radiotelephone communications transceiver is "supported by the housing." (*Id*. ¶ 160.) Specifically, a POSITA would have appreciated that the housing of Palatsi would support the internal electronics, including the radio transceiver unit. (*Id*.) For example, if components were not supported by the housing, either directly or indirectly, e.g., by being affixed to a circuit board that is supported by the housing, they would move within the housing resulting in potential damage to the components themselves or other components. (*Id*.) Thus, Palatsi discloses or renders obvious Claim 1b. (*Id*.)



(Annotated Fig. 1 (Palatsi).)



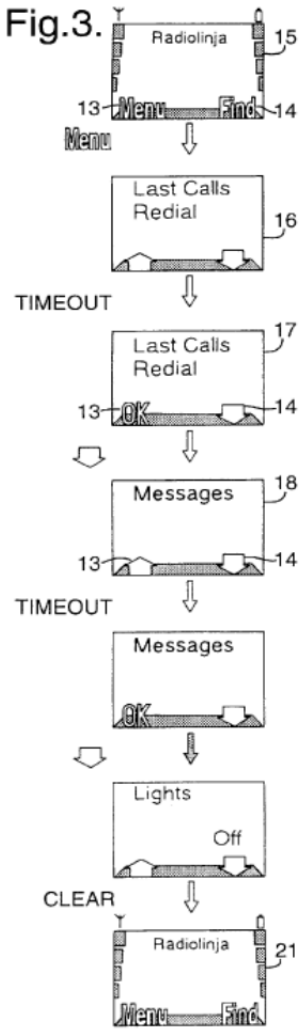
(Annotated Fig. 2 (Palatsi).)

Claim 1c recites "a display, supported by the housing, that displays an image at the front surface of the housing." Palatsi discloses this limitation. (Ex. 1205, ¶ 161.)

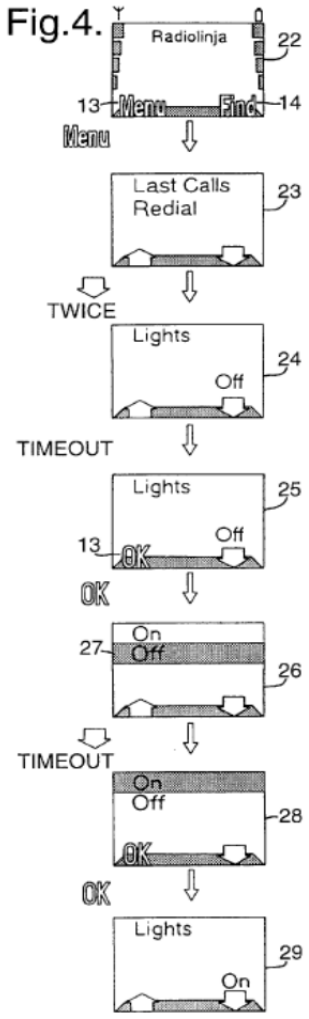
First, Palatsi discloses that "portable telephone 1" has "an LCD display 8." (*Id*., ¶ 162; Ex. 1087, 2:24, Figs. 1, 2 (above, with the display highlighted in **green)**.)

Second, Palatsi discloses that the display is supported by the housing. (Ex. 1205, ¶ 163.) Specifically, as illustrated in Fig. 2 of Palatsi, the display is contained within an opening in the front surface of the housing such that it would be supported by the housing e.g. by being affixed to or held in place by the housing, or held in place by a circuit board that is supported by the housing, such that the display is restrained from moving relative to the housing when the portable

telephone is in use or being moved. (*Id*.; Ex. 1087, Fig. 2) In either case, a POSITA would have understood that the display is supported by the housing. (Ex. 1205, ¶ 163.)



(Fig. 3 (Palatsi).)



(Fig. 4 (Palatsi).)

Third, Palatsi discloses the display of an image at the front surface of the housing. (*Id*., ¶ 164.) Specifically, Palatsi describes displaying a "scroll-and-select menu system" on the display, e.g., by displaying text and icons (i.e., images) as illustrated in Figs. 3 and 4 (above). (Ex. 1205, ¶ 164; Ex. 1087, 2:40-59, Figs. 3,

4.) The images are displayed on display 8 illustrated in Fig. 2 (above), which is at the front surface of the housing. (Ex. 1205, ¶ 164; Ex. 1087, Fig. 2). Thus, the images are displayed at the front surface of the housing. (Ex. 1205, ¶ 164.) Accordingly, Palatsi discloses Claim 1c. (*Id*.)

Claim 1d recites "a contact-sensitive transducer, supported by the housing and having a contact-sensitive surface disposed at said front surface, which produces an output signal in response to moving contact of an object along the contact-sensitive surface of the contact-sensitive transducer." Palatsi in combination with Moore renders obvious this limitation. (Ex. 1205, ¶ 165.) Specifically, the proposed modification to Palatsi by Moore disclose this feature. (*Id*.)

First, the proposed modification to Palatsi by Moore discloses "a contact-sensitive transducer…which produces an output signal." (*Id*. ¶ 166.) The broadest reasonable interpretation of this term is "a device that converts physical contact of an object with the device to an electrical signal" for the reasons set forth *supra* in Section VI.F.1. Palatsi discloses an input device as "a keypad 7 for providing input to the processor," wherein "keypad 7 has at least two 'soft' keys 11 [and] 12," as illustrated in Fig. 2 (above) with a **red** box highlighting the soft keys. (Ex. 1205, ¶ 166; Ex. 1087, at 2:23-26.) By virtue of the schematic diagram (Fig. 1 of Palatsi, above) depicting keypad 7 connected to processor 5 by a line, a POSITA would

understand that input provided to keypad 7 from a user pressing one of the keys (including the soft keys 11 and 12) would be converted to an electrical signal by the keypad and sent to the processor 5. (Ex. 1205, ¶ 166.)

Furthermore, Moore discloses "a display unit having a display screen and a position sensitive touch strip extending along an edge of the screen, the touch strip having an output in response to its being touched by a user, the nature of the output being dependent on the distance along the strip of the position touched by a terminal user." (Ex. 1012, 1:42-48.) Moore further describes that "[t]ypical functional keys associated with the touch strips are ***soft-key*** designation, menu selection, cursor generation, graded control and scrolling." (*Id*. 3:22-25 (emphasis added).) Furthermore, Moore explains that, "[t]o operate the terminal in [scrolling] mode, the user merely strokes the touch strips along their length in the direction in which the displayed field is to move." (*Id*., 4:21-28.) Accordingly, each touch strip of the proposed modification to Palatsi by Moore is a contact-sensitive transducer that responds to moving contact along its surface and produces an output as "a voltage output which is representative of the distance along it at which it is touched." (Ex. 1205, ¶ 167; Ex. 1012, 2:22-26.) Voltage is an electrical quantity, and thus, each touch strip of Moore converts a physical contact of an object with the touch strip (i.e., a touch or stroke from a user's finger) to an electrical signal (i.e., voltages representing the distances along the touch strip of the contact point,

as the contact point moves). (Ex. 1205, ¶ 167.)

Second, the proposed modification to Palatsi by Moore discloses that the contact-sensitive transducer is "supported by the housing." (Ex. 1205, ¶ 169.) Specifically, Fig. 2 of Palatsi illustrates that soft keys 11 and 12 are located on the front surface of the housing. (*Id*.; Ex. 1087, Fig. 2.) As discussed above, it would have been obvious to use the touch strips of Moore in place of the soft keys of Palatsi. (Ex. 1205, ¶ 169.) In doing so, a POSITA would have known to locate the touch strips on the edges of the display as taught by Moore. (*Id*; Ex. 1012, 1:53-59.) Notably, Moore teaches that the touch strips are "mounted at positions offset from the screen," "on a bezel surrounding the screen," or "on the screen but at a location so as not unduly to distort or block a displayed image." (Ex. 1012, 1:53-59.) Thus, Moore teaches touch strips that are mounted to, and thus supported by the housing of a computer. (Ex. 1205, ¶ 169.) Similarly, a POSITA would appreciate that the touch strips would also be affixed to the front surface of the radiotelephone housing of Palatsi, such that they would not fall off or move relative to the housing when the phone is used. (*Id*.)

Third, the proposed modification to Palatsi by Moore discloses that the contact-sensitive transducer has "a contact-sensitive surface disposed at said front surface" of the housing. (Ex. 1205, ¶ 170.) Specifically, as described above, it would have been apparent to a POSITA to locate the touch strips of Moore on the

front surface of the housing of Palatsi, in place of the soft keys. (*Id*.) Indeed, it would have been equally apparent to orient the touch strips such that their contact-sensitive surface faces outward to enable contact with the surface by a user, and thus, the contact-sensitive surface would be located at the front surface of the housing. (*Id*.)

Fourth, the proposed modification to Palatsi by Moore discloses that the output signal is produced "in response to moving contact of an object along the contact-sensitive surface of the contact-sensitive transducer." (*Id*., ¶ 171.) Specifically, Moore teaches that, to cause scrolling of displayed text or graphics, "the user merely strokes the touch strips along their length in the direction in which the displayed field is to move." (Ex. 1205, ¶ 171; Ex. 1012, 20-29.) Moreover, such moving contact produces "voltage output which is representative of the distance along [the strip] at which [the strip] is touched." (Ex. 1012, 2:22-25.) Accordingly, the touch strip of Moore produce an output signal (electrical signal) in response to moving contact along the strip. (Ex. 1205, ¶ 171.) When considering that, as of the Alleged Priority Date, gesture-based scrolling using touch sensitive input devices was becoming more prevalent in mobile devices to solve problems associated with displaying large amounts of data on smaller display, combining Moore with Palatsi to achieve gesture-based scrolling would have been an intuitive solution (using a gestural command to mimic a desired action) to further simplify

and make more efficient, Palatsi's user interface. (*Id*. ¶ 173.) Thus, Palatsi in combination with Moore renders obvious this Claim 1d. (*Id*.)

Claim 1e recites "a controller, responsive to the output signal and operatively associated with the display and the radiotelephone communications transceiver, which controls at least one of the display and the radiotelephone communications transceiver " according to the output signal. Palatsi in combination with Moore renders obvious this limitation. (*Id*. ¶ 174.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation.

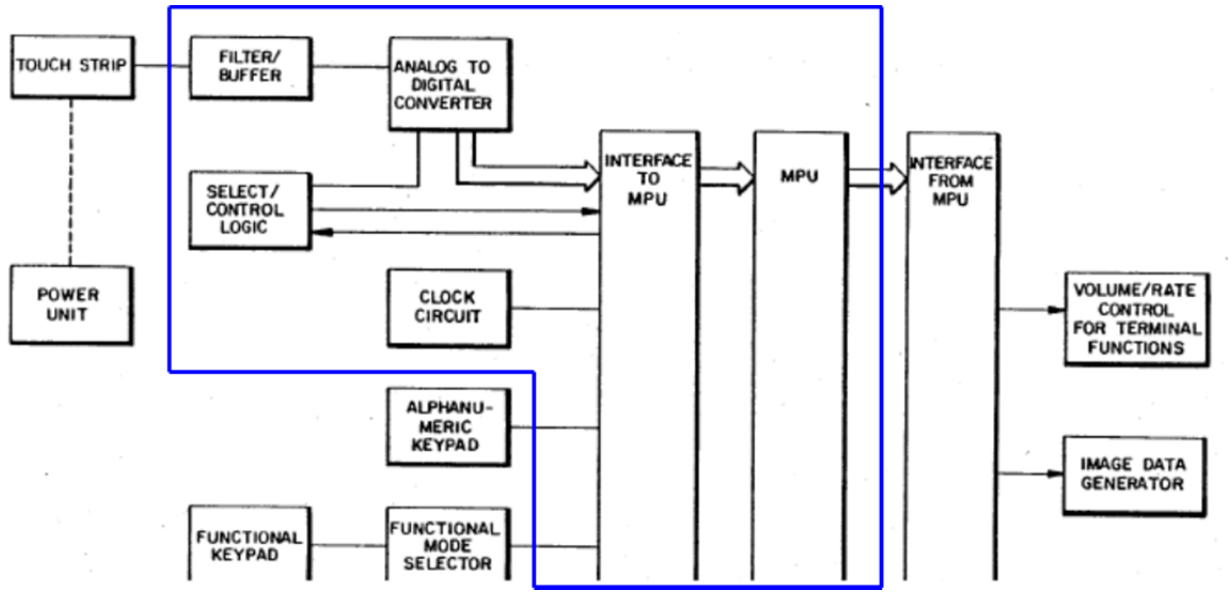
First, the proposed modification to Palatsi by Moore discloses a controller that is "responsive to the output signal." (*Id*. ¶ 175.) Specifically, in reference to Fig. 1 (above), Palatsi describes that "digital processing section 4 including a processor 5 [] connected to: the transceiver unit" controls the display and receives input from keypad 7." (*Id*.; Ex. 1087, 2:20-25, Fig. 1 (with the controller highlighted in **blue**).) Furthermore, Palatsi explains that a "scroll-and-select menu system" is controlled using soft keys 11 and 12 to scroll or select menu options. (Ex. 1205, ¶ 175; Ex. 1087, 2:40-3:19.) For example, in one state, "pressing key 12…will cause the processor to restore the up arrow function key." (Ex. 1087, 3:11-14.) In other words, the processor accepts input from the soft keys (i.e., the output signal) and initiates actions (i.e., changing images on the display) responsive to that output signal. (Ex. 1205, ¶ 175.) Thus, Palatsi discloses a

controller that is responsive to an output signal from the soft keys. (*Id*.)

Moreover, a POSITA would have known that processor 5 in Palatsi would be responsive to the output signal from the touch strip of Moore, just as it is responsive to the output signal from the soft keys. (Ex. 1205, ¶ 176.) In particular, referring to Fig. 3, Moore teaches a microprocessor unit (MPU) in combination with a filter/buffer unit and analog digital converter, that "accept[s] data from the touch strip" and performs functions, such as "menu selection, cursor generation, graded control, or scrolling," based on that data. (*Id*.; Ex. 1012, 2:38-56; 3:1-4; 3:22-25, Fig. 3 (with the controller highlighted in **blue**).) Indeed, it would have been apparent to a POSITA to modify the processor 5 in Palatsi with the microprocessor electronics described in Moore to facilitate the incorporation of the touch strips of Moore into the radiotelephone of Palatsi. (Ex. 1205, ¶ 176.) Thus, Palatsi in combination with Moore renders obvious a controller responsive to the output signal. (*Id*.)

Second, the proposed modification to Palatsi by Moore discloses that the controller is "operatively associated with the display." (Ex. 1205, ¶ 177.) Specifically, Palatsi describes that the "display 8 [is] controlled by the processor." (Ex. 1087, 2:24-25.) Moreover, Moore describes that, for example, the microprocessor runs a program that generates a cursor "at a reference position in the terminal display" in response to the output signal of the touch strips. (Ex. 1012,

3:54-62; Ex. 1205, ¶ 177.) Thus, a POSITA would have appreciated that the combined controller of Palatsi and Moore, as per the proposed modification to Palatsi by Moore, would also be operatively associated with the display. (Ex. 1205, ¶ 177.)



(Annotated Fig. 3 (Moore).)

Third, the proposed modification to Palatsi by Moore discloses that the controller is "operatively associated with the radiotelephone communications transceiver." (*Id.*, ¶ 178.) Specifically, Palatsi describes that the "digital processing section 4 including a processor 5 is connected to: the transceiver unit." (*Id.*; Ex. 1087, 2:18-20.) Furthermore, Palatsi describes using a "scroll-and-select menu system" to control "functions of the telephone." (Ex. 1205, ¶ 178.) A POSITA would appreciate that, by virtue of the digital processing section 4 (i.e., the controller) being connected to the transceiver unit, that one of the "functions of the

telephone" that the digital processing unit 4 would control, responsive to user input via the "scroll-and-select menu system," would be the transceiver unit (i.e., the radiotelephone communications transceiver). (*Id*.) By virtue of Palatsi's description of controlling telephone functions with the digital processing unit 4 responsive to the "scroll-and-select menu system" (e.g., operated via the soft keys 11 and 12), a POSITA would have appreciated that the microprocessor of Moore, as combined with the processor of Palatsi to accommodate the touch strips of the proposed modification to Palatsi by Moore would also control the radiotelephone communications transceiver in the same way. (*Id*.) Thus, Palatsi in combination with Moore renders obvious this feature. (*Id*.)

Fourth, the proposed modifications to Palatsi by Moore discloses that the controller "controls at least one of the display and the radiotelephone communications transceiver" according to the output signal. (*Id*. ¶ 179.) Specifically, as discussed above, Palatsi and Moore each disclose a controller that controls the display according to an output signal from an input device (i.e., the soft keys of Palatsi and the touch strips in Moore). (*Id*.; Ex. 1087, 2:40-3:19, Fig. 3; Ex. 1012, 3:54-62.) Moreover, as discussed below with respect to Claim 1f, the controller of the proposed modification to Palatsi by Moore scrolls displayed rows along an axis of the display based upon the output signal produced in response to moving contact along the contact-sensitive transducer. (Ex. 1205, ¶ 179.) Thus, a

POSITA would have appreciated that Palatsi, in combination with Moore, teaches that the output signal that controls the display is in response to moving contact along the contact-sensitive surface. (*Id*.) Accordingly, Palatsi in combination with Moore renders obvious Claim 1d (*Id*.)

Claim 1f recites that the controller "scrolls displayed rows along an axis of the display based upon the output signal of the contact-sensitive transducer." Palatsi in combination with Moore renders obvious this limitation. (*Id*. ¶ 180.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.)

First, Palatsi discloses that the controller "scrolls displayed rows along an axis of the display." (*Id*. ¶ 181.) Specifically, as described above, Palatsi describes that "in the scroll-and-select menu mode the soft keys are marked by up and down arrows in the soft key zones and can be used to scroll through the menu options," for example, by "[p]ressing key 11 [to] cause[] the menu item preceding the currently-displayed one to be displayed," and "pressing key 12 [to] cause[] the succeeding item to be displayed." (*Id*.; Ex. 1087, 2:63-3:2.) Indeed, Fig. 3 of Palatsi, reproduced above, demonstrates this scrolling mode wherein the fifth picture shows the menu option "Messages" displayed, and then, after scrolling down by pressing the soft key under the down arrow icon, the sixth picture shows the menu option "Lights" displayed. (Ex. 1205, ¶ 181; Ex. 1087, Fig. 3.)

Furthermore, in the Lights menu shown in the fifth and sixth pictures of Fig. 4 from Palatsi reproduced above, a user can scroll between "On" and "Off" by selecting the appropriate soft key to scroll up or down, thus highlighting the selection of either "On" or "Off" (i.e., by "us[ing] the soft keys marked by arrows to scroll between the items"). (Ex. 1205, ¶ 181; Ex. 1087, 3:29-39, Fig. 4.) As further depicted in Figs. 3 and 4 of Palatsi, rows of text (e.g., menu items) extend horizontally across the display, and are scrolled vertically such that one name disappears and another appears in response to either scrolling up or down. (Ex. 1205, ¶ 181; Ex. 1087, Figs. 3, 4.) Thus, scrolling is along a vertical axis of the display. (Ex. 1205, ¶ 181.)

Second, the proposed modification to Palatsi by Moore discloses that the scrolling displayed rows is based on the output signal of the contact-sensitive transducer. (*Id*., ¶182.) Specifically, Moore describes that, "[b]y pressing the scrolling key, the terminal is programmed to permit the displayed text or graphics to be moved vertically or laterally to display adjacent parts of the displayed matter." (Ex. 1012, 4:20-25.) Moore further describes scrolling rows by "merely strok[ing] the touch strips along their length in the direction in which the displayed field is to move." (*Id*., 4:21-28.) Thus, combining Palatsi with Moore amounts to nothing more than substituting one known work (the touch strips of Moore) in one field of endeavor for use in either the same or different field for the purposes of

simplifying the scroll-and-select menu interface described in Palatsi. (Ex. 1205, ¶ 182 (quoting *KSR*, 550 U.S. at 417).) Accordingly, Palatsi in view of Moore renders obvious, scrolling in response to an output signal produced in response to moving contact along the touch strips described in Moore. (*Id*.) Thus, Palatsi in combination with Moore renders obvious Claim 1f. (*Id*.)

Claim 1g recites that the controller has "a first mode wherein the controller is responsive to contact with the contact-sensitive transducer and a second mode wherein the controller is unresponsive to contact with the contact-sensitive transducer." Palatsi in combination with Moore renders obvious this limitation. (*Id*., ¶ 183.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.)

First, the proposed modification to Palatsi by Moore discloses that the controller has "a first mode wherein the controller is responsive to contact with the contact-sensitive transducer." (*Id*. ¶ 184.) Specifically, for the reasons discussed above with respect to Claims 1d and 1e, the proposed modification to Palatsi by Moore discloses that the "contact-sensitive transducer…produces an output signal in response to moving contact of an object along the contact-sensitive surface of the contact-sensitive transducer" and the controller is "responsive to the output signal." (*Id*.; *see id.*, ¶¶ 165-179.) Thus, Palatsi in combination with Moore renders obvious that the controller is responsive, at least, to moving contact with the

contact-sensitive transducer by virtue of the controller being responsive to the output signal produced in response to that moving contact. (*Id*., 184.)

Second, the proposed modification to Palatsi by Moore discloses "a second mode wherein the controller is unresponsive to contact with the contact-sensitive transducer." (*Id*. ¶ 185.) Specifically, Moore describes that "a bank of [] touch strips can be mounted along each edge" and "keys associated with the functional keyboard [enable] switching between different ones of the banks of touch strips." (*Id*.; Ex. 1012,. at 4:33-36.) As described above in Section VII.A.3, in replacing both the soft keys and volume control illustrated in Fig. 2 of Palatsi with touch strips from Moore, as illustrated in Demonstrative Fig. 2 (above), a POSITA would intuitively locate a first and second touch strip on opposite sides of the display for scrolling or soft key functionality, and a third and fourth touch strip on opposite sides of the housing for volume control. (Ex. 1205, ¶¶ 145-148, 185.) However, by virtue of the ability to hold the portable telephone in a user's hand with a thumb extending around one side and the thumb extending around the other, as described above with respect to Claim 1a, a configuration with touch strips flanking either side of the display would create a risk of the user accidentally activating an unintended touch strip on the opposite side of the display. (*Id*., ¶¶ 154-157, 185.) A POSITA would have appreciated that switching a non-used bank of touch strips off, such that the non-used bank of touch strips and the controller would be

unresponsive to contact with the non-used bank of touch strips, would intuitively solve this problem. (*Id*., ¶ 185.) Notably, Moore teaches this exact functionality. (*Id*.) Specifically, Moore discloses "switching between ones of the banks of touch strips" to disable one bank of touch strips, such that the controller is unresponsive to contact with the one bank of touch strips, while enabling another bank of touch strips, such that the controller is responsive to contact with the other bank of touch strips. (*Id.*, ¶ 185; Ex. 1012, 4:33-36.) Accordingly, Palatsi in combination with Moore teaches a second, unresponsive mode where the controller is unresponsive to contact with the contact-sensitive transducer. (Ex. 1205, ¶ 185.) Thus, Palatsi in combination with Moore renders obvious Claim 1g. (*Id*., ¶ 186.)

Claim 1h recites "the second mode being entered in response to an input from a user." Palatsi in combination with Moore discloses this limitation. (*Id*., ¶ 187.) As discussed above with respect to Claim 1g, by virtue of Moore's disclosure of switching between banks of touch strips, it would have been obvious to combine Moore with Palatsi to render obvious a second mode wherein the controller is unresponsive to contact with one of the banks of touch strips. (*Id*., ¶¶ 185, 187.) Moore further discloses that this second mode may be entered in response to user input. (*Id*., ¶ 187.) Specifically, Moore describes that "functional keys" may be programmed to correspond to predetermined locations on the touch strips themselves, such that user input on the "functional keyboard" on the touch strips

"permit[s] switching between different ones of the banks of strips" (i.e., enabling or disabling banks of touch strips). (*Id*.; Ex. 1012, 3:22-25, 4:33-36.)

In view of the analysis above, Palatsi in view of Moore discloses or renders obvious each and every limitation of Claim 1. (Ex. 1205, ¶ 188.)

6. Dependent Claims

Claim 2, which depends from Claim 1, recites that "the contact-sensitive surface, when the housing is held within the user's hand such that the rear surface confronts the user's palm, confronts a finger or a thumb of the holding hand." Palatsi in combination with Moore discloses or renders obvious this limitation. (Ex. 1205, ¶ 189.)

First, Palatsi discloses or renders obvious holding "the housing [] within the user's hand such that the rear surface confronts the user's palm" for the same reasons as described above with respect to Claim 1a. (*Id*., ¶¶ 154-157, 190.) Second, Palatsi in combination with Moore renders obvious that the "contact-sensitive surface…confronts a finger or a thumb of the holding hand." (*Id*., ¶ 191.) Indeed, as discussed above with respect to Claim 1d, it would have been obvious to replace the soft keys of Palatsi with the touch strips of Moore, such that the touch strips (contact-sensitive transducers) are supported by the front surface of the housing. (*Id*., ¶¶160-170, 191.) Furthermore, by virtue of the fact that Palatsi teaches minimizing the size of radiotelephones such that they can be easily held by

a user, it would have been apparent to a POSITA that a user would be able to hold the radiotelephone of Palatsi by wrapping a finger(s) or thumb of the holding hand around the side of the phone and onto the front surface of the housing to operate the soft keys. (*Id*., ¶ 191; Ex. 1087, 1:21-25.) By replacing the soft keys of Palatsi with the touch strips of Moore, a user would have similarly been able to hold the portable telephone of Palatsi such that the rear surface of the housing opposes the user's palm while a thumb wraps around the phone to confront or engage the contact-sensitive surface of the touch strip. (Ex. 1205, ¶ 191.) Thus, Palatsi discloses or renders obvious this limitation, and Palatsi in combination with Moore renders obvious Claim 2. (*Id*.)

With respect to **Claims 3-5**, Palatsi in combination with Moore renders obvious that the controller is operative to selectively display an image [Claim 3, depending from Claim 1], a graphical object [Claim 4, depending from Claim 3], or a row [Claim 5, depending from Claim 4] "on the display according to the output signal of the contact-sensitive transducer." (*Id*. ¶ 192.) Specifically, the proposed modification to Palatsi by Moore discloses these limitations. (*Id*.) First, Palatsi describes that menu options "Last Calls Redial", "Messages" and "Lights" can be selectively displayed on the display. (*Id*.; Ex. 1087, 2:60-63, Figs. 3-4.) Palatsi further explains that"[i]nitially in the scroll-and-select menu mode the soft keys are marked by up and down arrows in the soft key zones and can be used to

scroll through the menu options," such that "[p]ressing key 11 causes the menu item preceding the currently-displayed one to be displayed; pressing key 12 causes the succeeding item to be displayed (as illustrated at 17)." (Ex. 1087, 2:63-3:2; Figs. 3-4.) As depicted, the menu selections (Last Call Redial, Messages, and Lights) are rows of alphanumeric characters. (Ex. 1205, ¶ 192.) Moreover, as discussed in Section VI.F.2 *supra*, graphical object(s)s means "visual element(s) including image(s) and/or row(s) of alphanumeric characters."(*Id*.) Thus, with respect to **Claim 3**, the rows of alphanumeric characters are images. (*Id*.) With respect to **Claim 4**, the rows are also graphical objects. (*Id*.) Furthermore, by virtue of the ability to scroll through each menu selection such that only a single selection is displayed on the display at a time based on pressing either soft key to scroll either up or down, the rows of alphanumeric characters (which are also images and graphical objects) are selectively displayed on the screen. (*Id*.) Thus, Palatsi discloses ***selective*** display of images, graphical objects, and rows of alphanumeric characters. (*Id*.)

Second, the proposed modification to Palatsi by Moore discloses that the selective display is in response to the output signal produced in response to moving contact. (*Id*. ¶ 193.) A POSITA would have appreciated that control of the selective display of images, graphical objects, or rows disclosed by Palatsi would have been accomplished by stroking the touch strip of Moore as combined with the

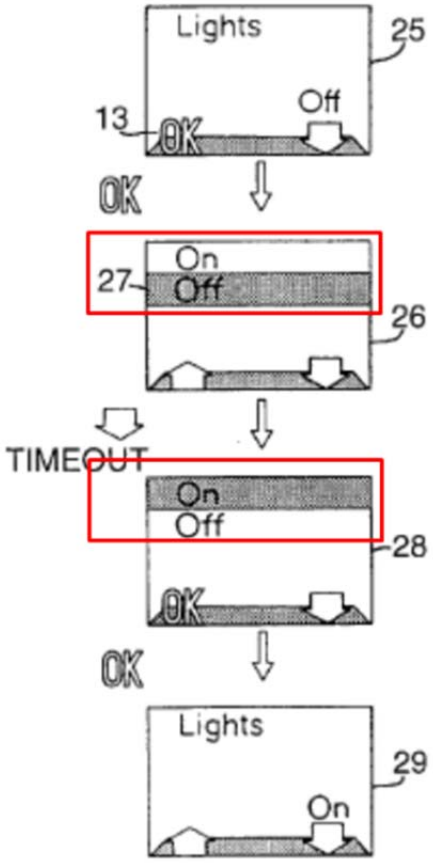
portable telephone of Palatsi. (*Id*.) Thus, Palatsi in combination with Moore renders obvious that the controller is operative to display an image on the display according to the output signal of the contact-sensitive transducer. (*Id*.)

Accordingly, Palatsi in combination with Moore discloses or renders obvious each and every limitation of Claims 3, 4, and 5, and renders the claims obvious. (*Id*.)

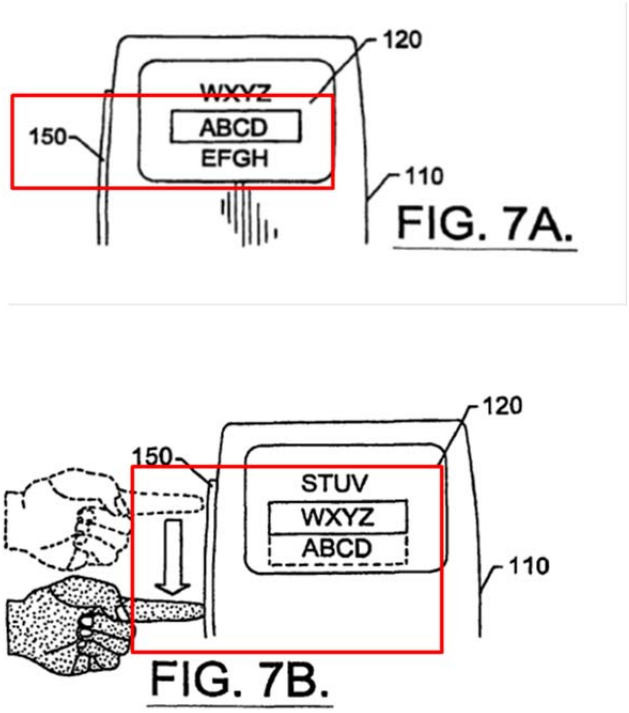
Claim 6, which depends from Claim 4, recites that "the controller is operative to display a plurality of graphical objects on the display and to identify one of the displayed plurality of graphical objects responsive to the output signal of the contact-sensitive transducer." Palatsi in combination with Moore renders this limitation obvious. (Ex. 1205, ¶ 194.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.)

First, Palatsi discloses displaying "a plurality of graphical objects on the display." (*Id*. ¶ 195.) Specifically, Fig. 4 of Palatsi, a portion of which is reproduced below with a **red** box highlighting the disclosed feature, illustrates the display of multiple rows of alphanumeric characters with respect to the "Lights" menu (e.g., "On" and "Off"). (*Id*.; Ex. 1087, 3:20-42.) Moreover, as described above with respect to Claims 3-5, displayed rows of alphanumeric characters are also graphical objects. (Ex. 1205, ¶ 195.) Thus, Palatsi discloses displaying a plurality of graphical objects on the display (i.e., a first graphical object is a row of

alphanumeric characters reading "On" and a second graphical object is a row of alphanumeric characters reading "Off") (*Id.*)



(Fig. 4 (Palatsi).)



(Figs. 7A,7B ('931 Patent).)

Second, the proposed modification to Palatsi by Moore discloses identifying "one of the displayed plurality of graphical objects responsive to the output signal of the contact-sensitive transducer." (Ex. 1205, ¶ 196.) Specifically, referring to Fig. 4, Palatsi describes that the a "reversed bar 27 highlights the current setting of the option" and "the user can use the soft keys marked by arrows to scroll between the items," for example, to switch the reversed bar from "Off" to "On". (*Id.*; Ex. 1087, 3:32-37.) Notably, selecting a row of alphanumeric characters in this manner

(with a reversed bar, or a box indicating the row) is nearly identical to the highlighting-based identification mechanism described and illustrated in the '931 patent's specification, as illustrated by Figures 7A and 7B reproduced above next to Figure 4 of Palatsi for comparison. (Ex. 1205, ¶ 196; Ex. 1001, Figs. 7A, 7B; Ex. 1087, Fig. 4.) Moreover, a POSITA would have known that the selection of a function (represented by the row of alphanumeric characters and correspondingly highlighted) from the submenu of Palatsi (i.e., identifying either "On" or "Off"), would be achieved by scrolling via stroking the touch strip of Moore. (Ex. 1205, ¶ 197.) Thus, Palatsi in combination with Moore renders obvious identifying one of the displayed plurality of graphical objects responsive to the output signal of the contact-sensitive transducer. (*Id*.) Accordingly, Palatsi in combination with Moore renders obvious Claim 6.

Claim 7, which depends from Claim 4, recites that "the controller is operative to determine a position of contact of an object along an axis of the contact-sensitive transducer responsive to the output signal of the contact-sensitive transducer, and to selectively display a graphical object based on the determined position of contact to thereby identify the graphical object." Palatsi in combination with Moore renders obvious this limitation. (Ex. 1205, ¶ 197.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.)

First, the proposed modification to Palatsi by Moore discloses that "the

controller is operative to determine a position of contact of an object along an axis of the contact-sensitive transducer responsive to the output signal of the contact-sensitive transducer." (*Id*. ¶ 198.) Specifically, the scrolling functionality of Moore, as implemented on the proposed modification to Palatsi by Moore as discussed *supra* with respect to Claims 1d and 1f, is premised upon determining a position of contact and movement of that contact point. (*Id*.) Specifically, Moore describes that the touch strip outputs a voltage "representing a position touched on the touch strip," and that scrolling is effectuated by "strok[ing] the touch strips along their length in the direction in which the displayed field is to move." (*Id*.; Ex. 1012, 2:57-59, 4:25-28.) Accordingly, a POSITA would have understood that the controller determines a starting position and an ending position of contact along the touch strip (i.e., the controller determines, at least, a position of contact of an object along an axis of the touch strip). (Ex. 1205, ¶ 198.) Thus, using a touch strip of Moore to selectively display a graphical object on the display of Palatsi, as discussed *supra* with respect to Claim 4, would require the controller to determine a position (i.e., actually, both a starting position and a stopping position) of contact along the axis of the touch strip, responsive to the output signal produced in response to moving contact with the touch strip. (*Id*.)

Second, the proposed modification to Palatsi by Moore discloses that the controller "selectively display[s] a graphical object based on the determined

position of contact to thereby identify the graphical object (*Id*., ¶ 199.) Specifically, and by virtue of, e.g., scrolling based on starting position and an ending position on the touch strip to selectively display the "Last Calls Redial," the "Messages," or the "Lights" menu items as illustrated in Figs. 3 and 4 of Palatsi (above), and thereby identify one of the menu items (i.e., a graphical object), the selective display is based on the last position of the contact along the touch strip. (*Id*.; Ex. 1087, 2:60-66, Fig. 3.) Thus, Palatsi combined with Moore renders obvious Claim 7. (Ex. 1205, ¶ 199.)

Claim 8, which depends from Claim 7, recites that "the controller is operative to highlight one of a plurality of displayed graphical objects responsive to the output signal of the contact-sensitive transducer." Palatsi in combination with Moore renders this limitation obvious. (*Id*., ¶ 200.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.) As discussed *supra* with respect to Claim 6, the proposed modification to Palatsi by Moore discloses that "the controller is operative to display a plurality of graphical objects on the display and to identify one of the displayed plurality of graphical objects responsive to the output signal of the contact-sensitive transducer." (*Id*.) Moreover, as further described with respect to Claim 6, Palatsi discloses that the mechanism for identifying the selected one of the plurality of graphical objects is by highlighting with a reversed bar displayed over the selected row, similar to a box

used to highlight, and thereby identify the select row as disclosed by the '931 patent, as illustrated by comparing Fig. 4 of Palatsi (above) with Figs. 7A and 7B from the '931 patent (above). (*Id*.) Indeed, Palatsi teaches that "the telephone could indicate items for selection by…highlighting successive items…." (Ex. 1087, 4:24-27.) Furthermore, as described above with respect to Claims 1d and 1f, it would have been obvious to replace the soft keys and scroll-and-select menu functionality of Palatsi with a touch strip (contact-sensitive transducer) and gesture based scrolling of Moore. (Ex. 1205, ¶ 200.) Thus, Palatsi in combination with Moore renders obvious Claim 8. (*Id*.)

Claim 9, which depends from Claim 7, recites that "the controller is operative to display a cursor that indicates one of a plurality of displayed graphical objects." Palatsi in combination with Moore renders this limitation obvious. (*Id*. ¶ 201.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.) As discussed *supra* with respect to Claims 6, the proposed modification to Palatsi by Moore discloses selectively displaying a graphical object to identify the graphical object. (*Id*.) Moreover, Palatsi teaches that "the telephone could indicate items for selection by…moving a cursor from one item to the next…or scrolling menu items relative to the cursor." (Ex. 1087, 4:24-27.) And, Moore further teaches that "[w]hen a cursor generation program is selected by pushing the appropriate functional key, a cursor is generated at a reference position

in the terminal display the cursor being usable for many functions." (Ex. 1012, 3:54-58.) Thus, it would have been obvious to a POSITA to combine Palatsi with Moore to render obvious that "the controller is operative to display a cursor that indicates one of a plurality of displayed graphical objects." (Ex. 1205, ¶ 201.) Accordingly, Palatsi in combination with Moore renders obvious Claim 9. (*Id*.)

Claim 10, which depends from Claim 7, recites that "the controller is operative to cause at least one of the display or the radiotelephone communications transceiver to perform a plurality of actions, wherein an action of the plurality of actions is associated with the identified graphical object and wherein the controller is further operative, responsive to the contact-sensitive transducer, to initiate the action associated with the identified graphical object." Palatsi in combination with Moore renders obvious these limitations. (*Id*., ¶ 202.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.)

First, the proposed modification to Palatsi by Moore discloses that "the controller is operative to cause either the display or radiotelephone communications transceiver to perform a plurality of actions." (*Id*., ¶ 203.) Specifically, as described above with respect to the limitation Claim 6, the proposed modification to Palatsi by Moore teaches a controller that is "operative to display a plurality of graphical objects on the display" and to "identify one of the displayed plurality of graphical objects responsive to the output signal of the

contact-sensitive transducer," e.g., "Messages" or "Lights" menu items (i.e., perform a first action). (*Id*.) Moreover, Palatsi further describes that a user may scroll through options within a menu, then pause for a predetermined time frame to change the state of the scroll-and-select menu such that pressing the soft key again "will then select the currently-displayed menu item and cause the processor to take the appropriate action corresponding to that item—for instance to move to the next menu level…" (i.e., perform a second action). (*Id*.; Ex. 1087, 3:7-10.) Thus, the processor (i.e., the controller) is operative to cause the display to perform a plurality of actions (i.e., either scroll through menu options or display the next menu level). (Ex. 1205, ¶ 203.)

Second, Palatsi discloses that "an action of the plurality of actions is associated with the identified graphical object." Specifically, as described above, Palatsi discloses switching between desired menu items by scrolling to the desired menu item (e.g., "Messages" or "Lights", or "On" or "Off" within the "Lights" menu). (Ex. 1205, ¶ 204; Ex. 1087, Figs. 3, 4.) As illustrated in Fig. 4 (above), Palatsi then teaches that the selection of one of these options by waiting for a predetermined time period and then pressing the soft key again, causes the controller to initiate an associated action (i.e., change to the next menu level, or revert to the previous menu level 29 in Fig. 4 of Palatsi), resulting in the display of associated text on the display (e.g., changing from the "On" and "Off" menu

options to display just the "Lights" menu label). (Ex. 1205, ¶ 204; Ex. 1087, 3:20-43, Fig. 4.)

Third, the proposed modification to Palatsi by Moore discloses that the "controller is further operative, responsive to the contact-sensitive transducer, to initiate the action associated with the identified graphical object." Specifically, as described above, Palatsi teaches that selecting a menu option, pausing for a predetermined time frame, and then pressing the soft key again "will then select the currently-displayed menu item and cause the processor to take the appropriate action corresponding to that item—for instance to move to the next menu level…." (Ex. 1087, 3:7-10; Ex. 1205, ¶ 205.) By virtue of implementing scrolling on the mobile telephone of Palatsi using the moving contact-based touch strips of Moore, as discussed *supra* with respect to Claim 1f, a POSITA would have known that a user would identify the graphical object associated with the desired action by scrolling using the touch strip (i.e., stroking the surface of the touch strip in the desired direction). (Ex. 1205, ¶ 205.) Accordingly, Palatsi in combination with Moore renders obvious this feature. (*Id*.)

Thus, Palatsi in combination with Moore discloses or renders obvious each and every feature of Claim 10, and renders the claim obvious. (*Id*. ¶ 206.)

Claim 11, which depends from Claim 10, recites that "the controller is operative, responsive to the contact-sensitive transducer to detect a momentary

contact with the contact-sensitive transducer and to initiate the action associated with the identified graphical object responsive to detection of the momentary contact." Palatsi in combination with Moore discloses this feature. (*Id*. ¶ 207.) Specifically, the proposed modification to Palatsi by Moore discloses this limitation. (*Id*.)

A POSITA would have known that, where Palatsi discloses pressing a soft key to "select the currently-displayed menu item and cause the processor to take the appropriate action corresponding to that item," the equivalent operation would be performed using the touch strip of Moore. (Ex. 1087, 3:7-9, Figs. 3-4; Ex. 1205, ¶ 208.) Indeed, Moore discloses that "pressing the menu selection function key" designated on the touch strip to cause the microprocessor to initiate a desired program. (*Id*.; Ex. 1012, 3:45-52.) Thus, it would have been apparent to a POSITA to initiate the scroll-and-select menu selection functions described with respect to Figs. 3 and 4 of Palatsi (e.g., enter the "Lights" menu or the "Messages" menu) associated with the graphical object (the row of text indicating "Lights" or "Messages"), by pressing the touch strip location corresponding to a programmed menu selection function key, as described in Moore. (Ex. 1087, Figs. 3, 4; Ex. 1205, ¶ 208.) Moreover, a POSITA would have further understood the "pressing of the menu selection function key" to be a momentary contact with the touch strip (i.e., the contact-sensitive transducer), such that the controller would be operative

to detect that momentary contact and initiate the menu selection action (i.e., display the "Lights" menu or the "Messages" menu) as illustrated in Fig. 3 of Palatsi. (Ex. 1012, 3:45-52; Ex. 1087, Fig. 3; Ex. 1205, ¶ 208.) For example, as discussed *supra* with respect to Claim 10, Palatsi teaches that the selection of one of these options can be made by waiting for a predetermined time period and then pressing the soft key again (i.e., pressing the touch strip of Moore as implemented on the mobile telephone of Palatsi) to cause the controller to initiate an associated action (i.e., change to the next menu level, or revert to the previous menu level 29 in Fig. 4 of Palatsi), resulting in the display of associated text on the display (e.g., changing from the "On" and "Off" menu options to display just the "Lights" menu label). (Ex. 1205, ¶208.) A POSITA would have also known that pressing the touch strip again when the "On" menu option is displayed in the "Lights" menu would cause the controller to initiate an action of turning on lights (e.g., LED light or backlighting on the mobile telephone display or keypad). (*Id*.) Accordingly, Palatsi in combination with Moore renders obvious each and every feature of Claim 11, and renders the claim obvious. (*Id*.)

Claim 15, which depends from Claim 1, recites that "the contact-sensitive transducer comprises one of a resistive transducer, a capacitive transducer, or a semiconductive transducer." Palatsi in combination with Moore renders obvious this limitation. (*Id*. ¶ 211.) Specifically, the proposed modification to Palatsi by

Moore discloses this limitation. (*Id*.) Moore describes that the touch strip (i.e., the contact-sensitive transducer of the proposed modification to Palatsi by Moore) comprises resistive material spaced from conductive material, and are controlled by applying a voltage gradient along the resistive strips and reading an output voltage that correlates to position. (*Id*.; Ex. 1012, 1:60-2:5, 2:38-67, 4:37-41.) Accordingly, Moore discloses a resistive contact-sensitive transducer. (Ex. 1205, ¶ 211.) Thus, Palatsi in combination with Moore renders obvious this limitation, and renders the claim obvious. (*Id*.)

B. Ground 2: Claim 12 is rendered obvious by Palatsi in view of Moore and Tiilikainen under pre-AIA 35 U.S.C. § 103

1. Disclosure of Tiilikainen

Tiilikainen published on July 10, 1996, making it prior art to the ’931 patent under 35 U.S.C. § 102(a). (*See generally*, Ex. 1088; Ex. 1205, ¶ 149.) Like Palatsi, Tiilikainen is also a Nokia patent directed towards a mobile telephone that incorporates a GUI responsive to scrolling. (Ex. 1088, at Abstract, 1:3-22, 3:9-4:4, Figs. 1-3; Ex. 1205, ¶ 150.) Specifically, referring to Fig. 1 (below), Tiilikainen describes a “[m]obile phone 10 [that] is equipped with an alphanumerical display 11…and a scrolling key 12.” (Ex. 1088, 19-22.) Tiilikainen further describes a “method of quick-dialing a telephone number” by scrolling to display a desired contact, and then selecting a column on the display corresponding to a particular type of stored telephone number (e.g., work, home, or mobile). (*Id*., 1:3-4, 3:9-4:4,

Figs. 2, 3; Ex. 1205, ¶ 150.) Referring to Fig. 2 (below), Tiilikainen further describes that, in "quick dialing mode," a user brings the required contact "to field 24 of the display 28 with the scrolling key 12," and presses "the corresponding column 25, 26, or 27" with a finger or pen to initiate a call to the contact's work [col. 25], home [col. 26], or mobile [col. 27] number. (Ex. 1088, 3:13-22, Fig. 2.) "Alternatively, the selection can be thought of as being activated by double-pressing, i.e. pressing the required column quickly two subsequent times." (*Id.*, 3:22-24.)

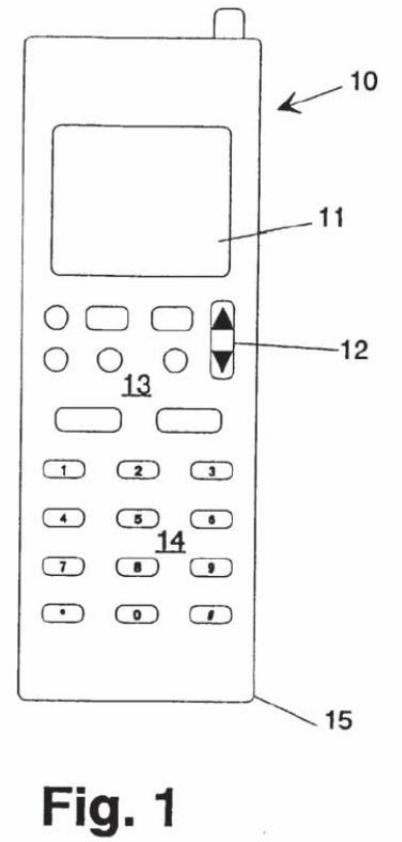


Fig. 1

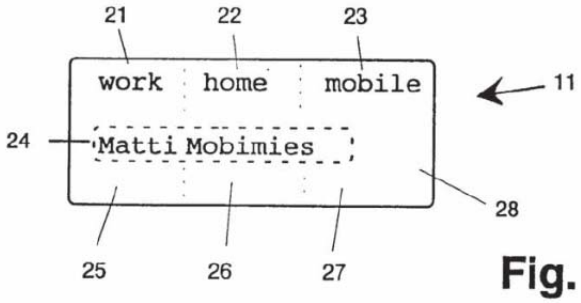


Fig. 2

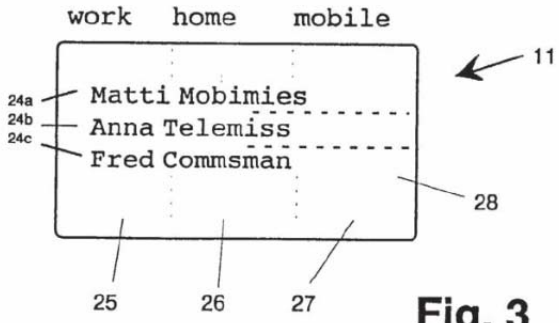


Fig. 3

(Figs. 1-3 (Tiilikainen).)

2. Motivation to Combine

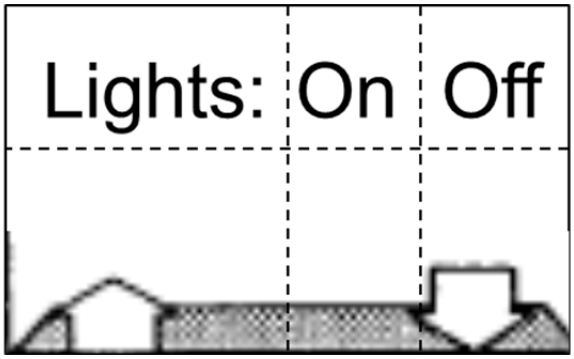
Combining Palatsi with Moore would have been obvious as of the Alleged Priority Date for the reasons described above with respect to Ground 1. (Ex. 1205, ¶ 151.) Similarly, it would have also been obvious to a POSITA to combine Tiilikainen with Palatsi and Moore to further simplify the user interface, baking it both "more basic" and "user-friendly," in line with the stated goal of Palatsi. (*Id*.; Ex. 1087, 1:24-29.) Palatsi and Tiilikainen are both Nokia patents directed towards mobile telephones (e.g., Nokia's lines of mobile telephones available in the mid-1990s). (Ex. 1205, ¶ 151.) As such, both references were clearly directed towards improvements to the same technology (e.g., improving a Nokia's portable telephones) , and would have both been available and known by a POSITA. (*Id.*)

Moreover, Palatsi describes the state of mobile telephone technology as requiring "more basic" and "user-friendly" GUI control systems to maintain functionality (i.e., scrolling through and selecting options from lists and menus) while counteracting the problem of reduced keypad sizes in increasingly smaller portable telephones, such that the smaller keys are difficult for users to activate (*Id*.; Ex. 1087, 1:21-29.) Palatsi addresses this goal by incorporating "soft keys" that may be programmed with multiple functions within a "scroll-and-select menu system." (Ex. 1205, ¶ 151.) Moore further enhances this solution by substituting one or more touch strips for the "soft keys" of Palatsi with one or more touch strips to facilitate swipe-based scrolling, and reducing the overall number of keys

required on the front surface of the housing. (*Id*.) Tiilikainen' s multi-column display mechanism further "enhance[s] user-friendliness" of the mobile telephone GUI with its intuitive grid-based "quick-dialing" method that enables users to select and call a number within a plurality of numbers identified on a single row, as opposed to having to enter a sub-menu to make the selection (i.e., a contact's work number may be dialed directly from a display showing the contact with a work, home, and mobile number). (*Id*.; Ex. 1088, 1:1-46, Figs. 2, 3.)

Similarly, it would have been intuitive to a POSITA to use the same "quick-dialing" method described in Tiilikainen to enhance the dialing method in Palatsi, e.g., calling a "Last Calls Redial" contact illustrated in Fig. 3 by directing the call to either a mobile, home, or work number by selecting the corresponding column in a grid, as described in Tiilikainen. (Ex. 1205, ¶ 152.) Furthermore, as illustrated in Demonstrative Fig. 4 of Palatsi as modified by Tiilikainen (below), it would have been equally intuitive to use the same grid-based menu interaction system to select menu options in the mobile telephone of Palatsi, without needing to enter a submenu, for example, by selecting "On" or "Off" directly from the function menu without having to enter the "Lights" submenu simply by selecting a column representing "On" or "Off" within the row showing the menu item of "Lights." (*Id*.) Thus, combining Palatsi and Moore with Tiilikainen amounts to nothing more than employing a "predictable use of" a method of selecting information displayed

on mobile telephone GUI, as known in the art, to accomplish its "established function[]." (*Id*. (quoting *KSR*, 550 U.S. at 417).)



(Demonstrative Fig. 4 (Palatsi modified by Tiilikainen).)

3. Claim 12

Claim 12, which depends from Claim 11, recites that the "controller is operative to initiate the action in response to detection of a plurality of momentary contacts occurring within a predetermined time interval." Palatsi in combination with Moore renders obvious this limitation. (Ex. 1205, ¶209.) As described above with respect to Claim 11, Palatsi in combination with Moore discloses that "the controller is operative, responsive to the contact-sensitive transducer to detect a momentary contact with the contact-sensitive transducer and to initiate the action associated with the identified graphical object responsive to detection of the momentary contact." (*Id*.) Neither Palatsi nor Moore explicitly disclose a "plurality of momentary contacts occurring within a predetermined time interval" (i.e., double tapping). However, Tiilikainen renders this limitation obvious. (*Id*.) In particular, as discussed above in Section VII.B.2, it would have been obvious to

incorporate the grid-based menu selection GUI system described in Tiilikainen with the portable telephone of Palatsi to further enhance user-friendliness. (*Id*.)

Similar to both Palatsi and Moore, Tiilikainen describes selecting menu items using a single momentary contact (i.e., tapping). (*Id*. ¶ 210.) Specifically, Tiilikainen describes that "selection can be made by pressing with a finger or e.g. with a pen whereby the phone immediately makes a call to the chosen number." (Ex. 1088, 3:19-22.) This "pressing with a finger or [pen]" is a momentary contact. (Ex. 1205, ¶ 210.) Moreover, Tiilikainen also discloses double tapping. (*Id*.) Specifically, Tiilikainen explains that "the selection can be thought to be activated by double-pressing, i.e. pressing the required column quickly two subsequent times." (Ex. 1088, 3:22-24.) By virtue of pressing twice (i.e., a plurality of momentary contacts) "quickly," the double-pressing of Tiilikainen would occur within a predetermined (i.e., quick) time interval. (Ex. 1205, ¶ 210.) Combining Tiilikainen with Palatsi and Moore, therefore, renders obvious double tapping as a selection mechanism. (*Id*.) Accordingly, it would have been just as apparent to a POSITA to use a double tapping contact with the touch strips of Moore to initiate an action, such as initiating a call or function (i.e., turning Lights "On" or "Off" as illustrated in Demonstrative Fig. 4 of Palatsi as modified by Tiilikainen (above) to increase the user-friendliness of the mobile telephone interface. (*Id*.) Thus, Palatsi in combination with Moore and Tiilikainen renders Claim 12 obvious. (*Id*.)

VIII. CONCLUSION

Based on the foregoing, Petitioners respectfully requests that a Trial be instituted and that challenged claims be canceled as unpatentable.

Respectfully submitted,

Dated: August 12, 2015

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a), the undersigned hereby certifies that the foregoing **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. RE43,931**, including all exhibits and supporting evidence, was served in its entirety on August 13, 2015, by FEDERAL EXPRESS upon the Patent Owner at the correspondence address of record for U.S. Patent No. RE43,931 as follows:

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