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107849	7590	04/20/2015	EXAMINER	
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DETAILED ACTION

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating

obviousness or nonobviousness.

4. Claims 1-3, 8-10, 11-14 and 16- 20 are rejected under 35 U.S.C. 103 as being unpatentable over Guterman et al. (US 2012/0068893) in view of Stjernman et al. (US 2014/0347248)(hereafter Stjernman) and further in view of Bevelacqua et al. (US 2014/0306857) (hereafter Bevelacqua).

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Regarding claims 1, 11, 12, 17 Guterman discloses an antenna structure (see abstract), comprising: a conductive cover of an electronic device (see abstract, electronic device, paragraph [0006], paragraph [0007]); a first antenna element (see, abstract, paragraph [0009], antenna resonating elements, one of the antenna resonating elements interpreted as first antenna element) for converting between first electromagnetic signals and first electrical signals (see, paragraph [0048], resonant behavior opening i.e. the electromagnetic behavior of the openings at radio frequency and paragraph [0003]), wherein the first antenna element comprises a first portion of the conductive cover having a first opening formed therein (see, paragraph [0007], dielectric opening in form of slot within the conductive housing structures is interpreted to be a conductive cover), a second antenna element (see, abstract, paragraph [0009], antenna resonating elements, other of the resonating element interpreted as second antenna element) for converting between second electromagnetic signals and second electrical signals (see, paragraph [0048], resonant behavior opening i.e. the electromagnetic behavior of the openings at radio frequency and paragraph [0003])), wherein the second antenna element comprises a second portion of the conductive cover having a second opening formed therein (see, paragraph [0007], dielectric opening in form of slot within the conductive housing structures), But Guterman does not explicitly disclose wherein the first antenna element is communicatively coupled to first antenna ports; wherein the second antenna element is communicatively coupled to second antenna ports. However, in same field of endeavor, Stjernman teaches in Fig. 2, the antenna elements, 5a, 5b and paragraph [0027], [0028], the antenna ports, 7 and 9 connected to the

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antenna elements 5a-5d. Here, interpreted as first antenna element connected to first port and second antenna element connected to second port. Therefore, it would have been obvious, before the effective filing date of the claimed invention, to combine the teachings of Stjernman with the Guterman, to connect the antenna ports with each of the antenna elements; the motivation is to assigning these ports to antenna elements for signal transmission. The combined teachings as a whole do not explicitly disclose a trade dress design in the conductive cover, wherein a shape of the trade dress design is defined by the first opening comprising the first antenna element and the second opening comprising the second antenna element. However, in same field of endeavor, Bevelacqua teaches in paragraph [0023] housing 12 may include peripheral housing structures and structures run around the periphery of the device 10 and display 14. In paragraph [0028], the regions, 22 and 20, openings may be formed within the conductive structures of the device, 10, the openings in regions 20 and 22 may serve as slots in open or closed slot antennas. Also, see, paragraph [0029], the device may include suitable number of antennas. Antenna may be located at opposite ends of the device housings along the edges of device housings, in the center of the device housing, in other suitable locations., note that such antenna location and housing structure and opening within the conductive structure are interpreted as trade dress design since it defines the particular structure of cover. Taking the teachings in consideration, one of ordinary skilled in the art would recognize that the housings for antenna slots can be made in the center of the device. Therefore, it would have been obvious to one of ordinary skilled in the art, before the effective filing date of the claimed

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invention, to combine the teachings of Bevelacqua, with the Guterman and Stjernman, as a whole, to have trade dress design based on the slot openings of the antennas, the motivation is to provide satisfactory performance over a range of operating frequencies.

Regarding claim 2, the combined teachings do not explicitly disclose the antenna structure of claim 1, wherein the first opening and the second opening comprise slots formed through the conductive cover. However, in same field of endeavor, Bevelacqua teaches in paragraph [0023] housing 12 may include peripheral housing structures and structures run around the periphery of the device 10 and display 14. In paragraph [0028], the regions, 22 and 20, openings may be formed within the conductive structures of the device, 10, the openings in regions 20 and 22 may serve as slots in open or closed slot antennas. Also, see, paragraph [0029], the device may include suitable number of antennas. Antenna may be located at opposite ends of the device housings along the edges of device housings, in the center of the device housing, in other suitable locations. Taking the teachings in consideration, one of ordinary skilled in the art would recognize that the housings for antenna slots can be made in the center of the device. Therefore, it would have been obvious to one of ordinary skilled in the art, before the effective filing date of the claimed invention, to combine the teachings of Bevelacqua, with the Guterman and Stjernman, as a whole, to have trade dress design based on the slot openings of the antennas, the motivation is to provide satisfactory performance over a range of operating frequencies.

Regarding claims 3, 13 and 18, Guterman further discloses the antenna structure of claim 1, further comprising a coupling element comprising a third portion of the

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conductive cover having a third opening formed therein, wherein the third opening connects the first opening to the second opening, wherein the coupling element causes differential currents and common mode currents flowing through the first antenna element and the second antenna element (see, paragraph [0066], the currents to flow through the conductive elements) to combine in a manner that increases signal isolation between the first antenna ports of the first antenna element and the second antenna ports of the second antenna element (see, paragraph [0082], resonating elements to implement desired protocol while exhibiting sufficient isolation between the respective resonating elements).

Regarding claims 8, 14 and 20, the combined teachings further discloses the antenna structure of claim 1, wherein the trade dress design comprises one of a trademark, a likeness of a person, a rendition of an object, or any combination thereof (Bevelacqua, Fig.1 and 3).

Regarding claim 9, the combined teachings further discloses the antenna structure of claim 1, wherein the conductive cover is one of a front cover, a back cover, or a combination thereof, for an electronic device (Figs. 1 and 3, see, paragraph [0022]).

Regarding claims 10, 16 and 19, the combined teachings further discloses the antenna structure, wherein the electronic device transmits the first electromagnetic signals via the first antenna element and receives the second electromagnetic signals via the second antenna element (Guterman, paragraph [0003], antennas transmitting and receiving the radio frequency antenna signals, paragraph [0053] and [0054]).

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5. Claims 4-7 and 15 are rejected under 35 U.S.C. 103 as being unpatentable over Guterman et al. (US 2012/0068893) in view of Stjernman et al. (US 2014/0347248)(hereafter Stjernman) and further in view of Bevelacqua et al. (US 2014/0306857) (hereafter Bevelacqua) and further in view of Ozden et al. (US 8,988,290)(hereafter Ozden).

Regarding claims 4, 5, 6 and 15, the combined teachings do not explicitly disclose the antenna structure, further comprising a non-conductive material filling one of the first opening, the second opening, the third opening, or a combination thereof, the non-conductive material filling the third opening comprises a color scheme of a portion of the conductive cover and does not allow light to pass, wherein the non-conductive material comprises a translucent material. However, in same field of endeavor, Ozden teaches the conductive and nonconductive portion also teaches the rear external surface of the second portion comprises battery cover and battery cover may comprise a conductive material such as metal or a non-conductive material such as plastic. Coloring the plastic and using non-conductive material such as well-known translucent material is well-known technology to one skilled in the art since; translucent material can be also plastic or other material which allows some light to pass through the material but not all. Such different plastic material like transparent, translucent and opaque is well known in the field of cell phone communications. Therefore, it would have been obvious, before the effective filing date of the claimed invention, to combine the teachings of Ozden with the Guterman, Stjernman and Bevelacqua, as a whole, to have antenna slot

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openings cover with the plastic which do not allow light to pass, the motivation is to avoid the damage of the material.

Regarding claim 7, Guterman further discloses the antenna structure, further comprising a lighting source attached inside of the conductive cover, wherein light from the lighting source is visible through one of the first opening, the second opening, the third opening, or any combination thereof (see, paragraph [0050]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DHAVAL PATEL whose telephone number is (571)270-1818. The examiner can normally be reached on M-F 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DHAVAL PATEL/

Primary Examiner, Art Unit 2631

4/14/2015