Exemplary Mapping of US6987986 Patent Against Motorola Moto X™ Android Smartphone

Please direct inquiries to:

Chris Sommers
Office: 908.991.9014
Email: csommers@thinkfire.com

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US Patent 6,987,986 – Cellular Telephone, Personal Digital Assistant With Dual Lines for Simultaneous Uses

Claim 10:

A handheld personal communications device capable of simultaneous communication across a first communication channel associated with a first antenna and a second communications channel associated with a second antenna, comprising:

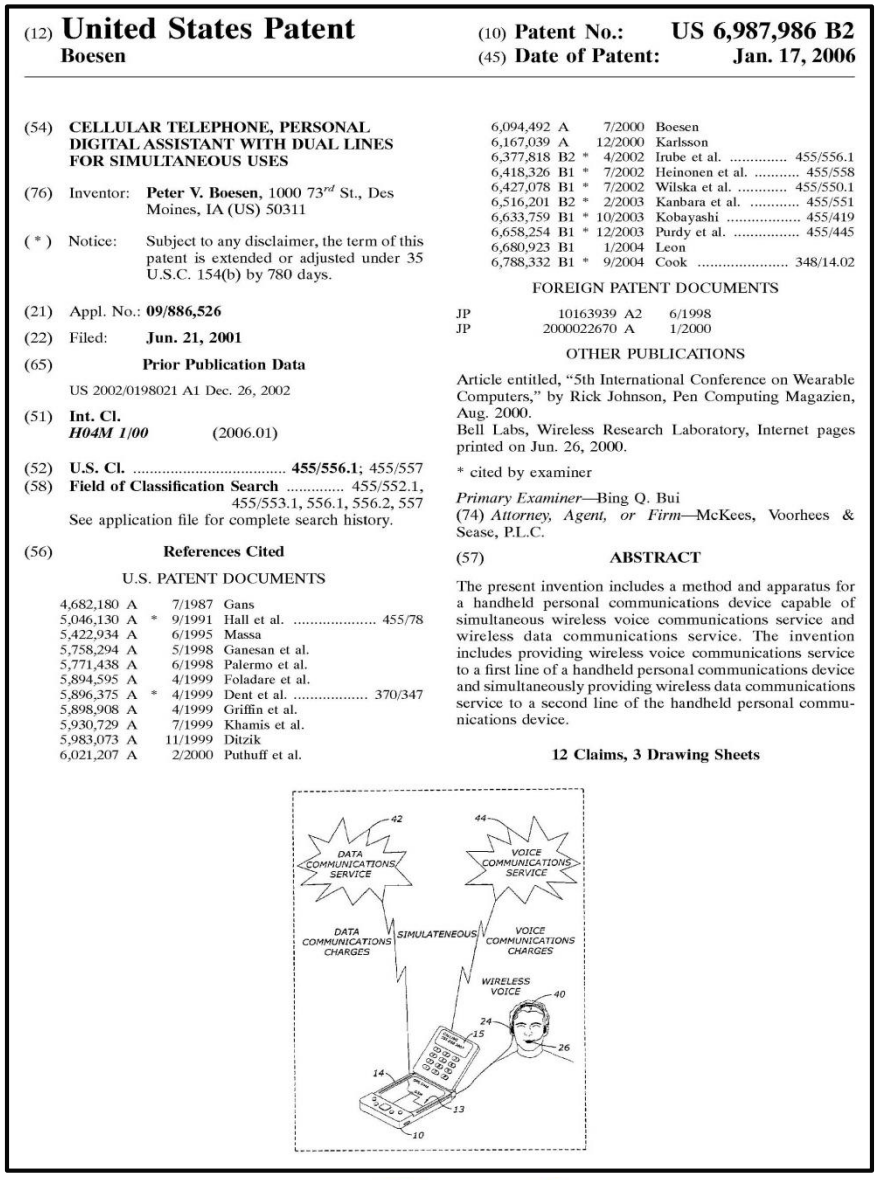
a housing;

the first antenna operatively connected to a radio transceiver disposed within the housing for operative voice communication across the first communications channel;

the second antenna for receiving GPS data over the second communications channel;

an intelligent control operatively connected to the radio transceiver arid adapted to receive the GPS data; and

a display operatively connected to the intelligent control.



(12) **United States Patent**
Boesen

(10) **Patent No.: US 6,987,986 B2**
(45) **Date of Patent: Jan. 17, 2006**

(54) **CELLULAR TELEPHONE, PERSONAL DIGITAL ASSISTANT WITH DUAL LINES FOR SIMULTANEOUS USES**

(76) Inventor: **Peter V. Boesen**, 1000 73rd St., Des Moines, IA (US) 50311

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 780 days.

(21) Appl. No.: **09/886,526**

(22) Filed: **Jun. 21, 2001**

(65) **Prior Publication Data**

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(51) **Int. Cl.**
H04M 1/00 (2006.01)

(52) **U.S. Cl.** **455/556.1**; 455/557
(58) **Field of Classification Search** 455/552.1, 455/553.1, 556.1, 556.2, 557
See application file for complete search history.

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Primary Examiner—Bing Q. Bui
(74) *Attorney, Agent, or Firm*—McKees, Voorhees & Sease, P.L.C.

(57) **ABSTRACT**

The present invention includes a method and apparatus for a handheld personal communications device capable of simultaneous wireless voice communications service and wireless data communications service. The invention includes providing wireless voice communications service to a first line of a handheld personal communications device and simultaneously providing wireless data communications service to a second line of the handheld personal communications device.

12 Claims, 3 Drawing Sheets

US Patent 6,987,986 – Patent Overview

- **Title: Cellular Telephone, Personal Digital Assistant With Dual Lines for Simultaneous Uses**
- **Priority Date: June 21, 2001**
- **Issue Date: January 17, 2006**
- This invention is useful for simultaneously talking on a cellular phone while accessing data, such as GPS data, over a wireless data communication service.
- **Specific Technical Domain of the Invention:** Simultaneous voice and data transmission in a handheld device

- **References:**

[R1]: https://www.motorola.com/us/motomaker?pid=FLEXR1#exterior/frontplate
[R2]: http://motorolahelp.com/post/simultaneous-voice-data-on-motox-moto-x.html
[R3]: http://www.phonescoop.com/phones/fcc_query.php?gc=IHD&pc=T56PA2
[R4]: http://press.ihs.com/press-release/design-supply-chain/us-made-moto-xs-cost-comparable-asian-assembled-smartphones-ihs-te
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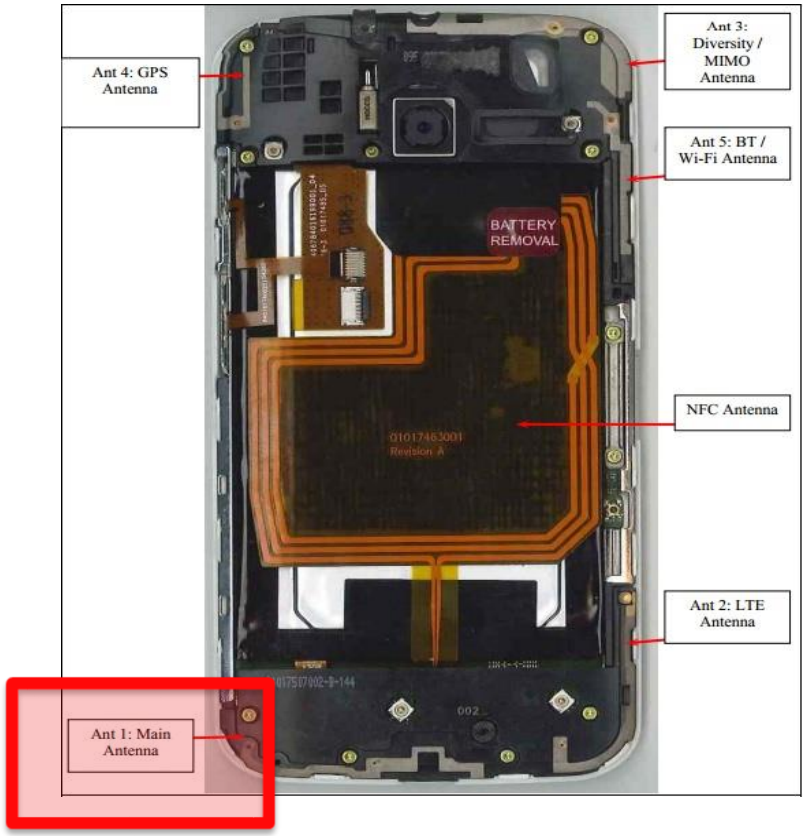
US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
A handheld personal communications device capable of simultaneous communication across a first communication channel associated with a first antenna and a second communications channel asso-ciated with a second antenna, comprising:	 simultaneous voice/data on motox[MOTO X] Anything new on this problem since December 2013. **The answer for "simultaneous voice/data on motox[MOTO X]" is:** While some phones (such as the initial iteration of the iPhone on Verizon), do not support voice/data concurrently, the Moto X does support this feature, however, the availability of the feature is carrier-dependent, and signal-dependent. The Moto X (and other phones like the Droid 4--see help video on VZW) have no difficulty with simultaneous voice and data... with one important proviso -- and this is from the Moto Support page : "You must be in a 4G coverage area, or connected using Wi-Fi in order to use simultaneous voice and data. Simultaneous voice and data will not work on 3G." When I can't get a reliable 4G signal, the browser just hangs. If I have a strong 4G signal, or am on WiFi, as I am now, I can *[Refs. R1, R2]*	The Motorola Moto X 4G LTE Smartphone supports simultaneous voice and data communication.

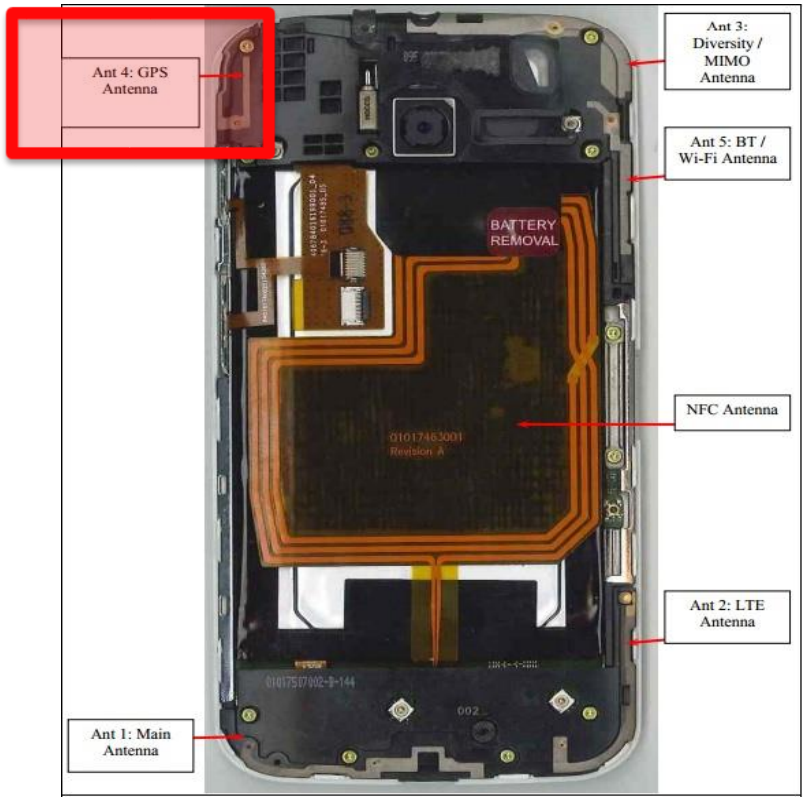
Patent Spec. Reference [Col. 2, Ll 1-5]: "The invention is an apparatus and method that provides for a handheld wireless communications device capable of simultaneous wireless voice communications and wireless data communications."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
A handheld personal communications device capable of simultaneous communication **across a first communication channel associated with a first antenna** and a second communications channel asso-ciated with a second antenna, comprising:	 *[Refs. R3]*	The Moto X makes use of the **Main Antenna** for voice communication.

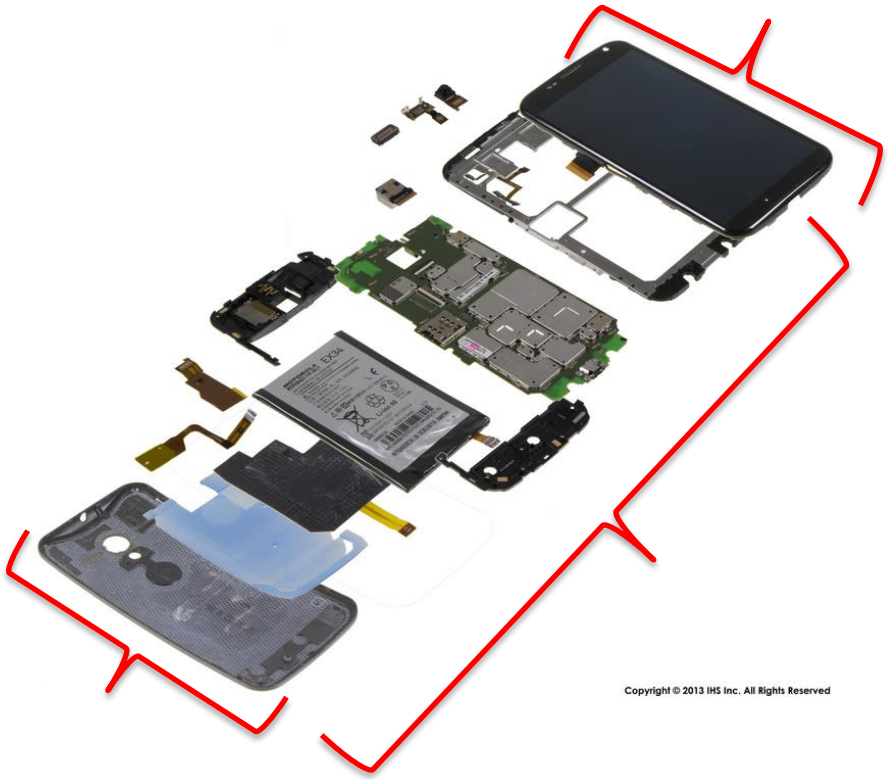
Patent Spec. Reference [Col. 3, Ll 20-23]: "As shown, there is the first antenna 12 corresponding to a first line. The antenna 12 is electrically connected to a voice transceiver line one 16."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
A handheld personal communications device capable of simultaneous communication across a first communication channel associated with a first antenna **and a second communications channel asso-ciated with a second antenna, comprising:**	 *[Refs. R3]*	The Moto X makes use of the **GPS Antenna** to obtain GPS data.

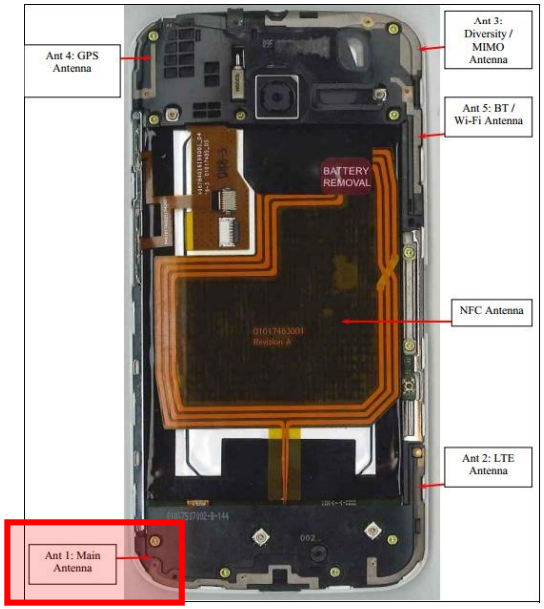
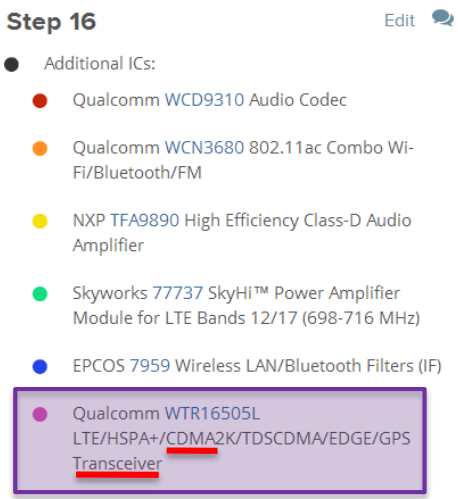
Patent Spec. Reference [Col. 3, Ll 31-35]: "In addition, a second antenna 14 is used for line two. A data communications signal is received through the antenna 14 and sent to the data transceiver for line two 18. The data transceiver is then electrically connected to a modem 20."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
a housing;	 *[Ref. R4]*	The GPS and Main Antennas are placed inside the handset, as shown in the exploded view of Moto X.

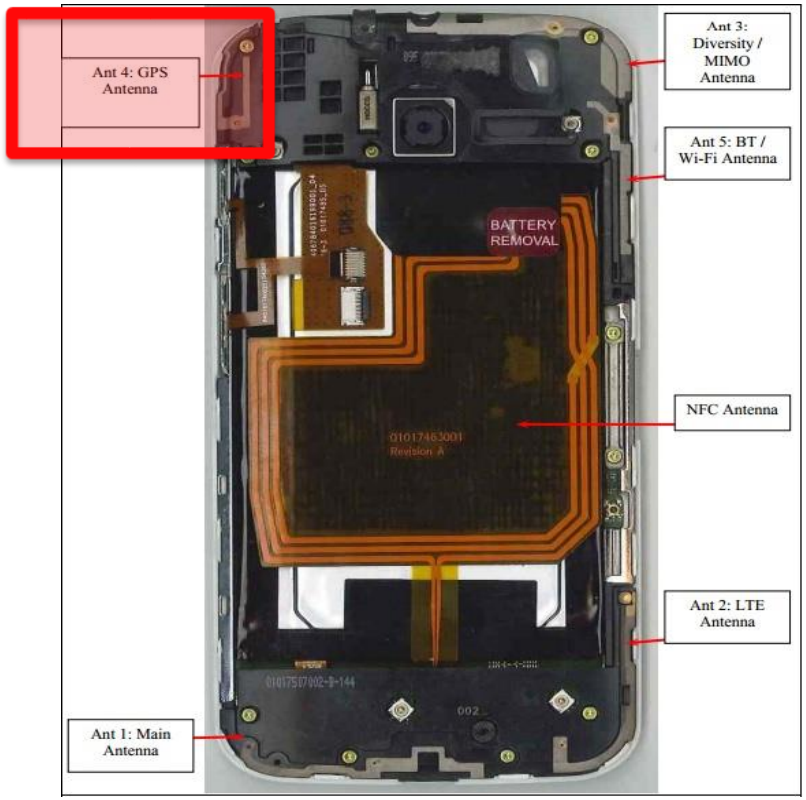
Patent Spec. Reference [Col. 3, Ll 52-55]: "FIG. 3 illustrates a pictorial representation of the handheld personal communication device of the present invention in use. The handheld personal communication device 10 is shown."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
the first antenna operatively connected to a radio transceiver disposed within the housing for operative voice communication across the first communications channel;	 *[Refs. R3, R4]*   *[Refs. R5, R6]*	The chip diagram shows the Main Antenna, which is connected with the Qualcomm LTE WTR16505L transceiver used for CDMA voice communication.

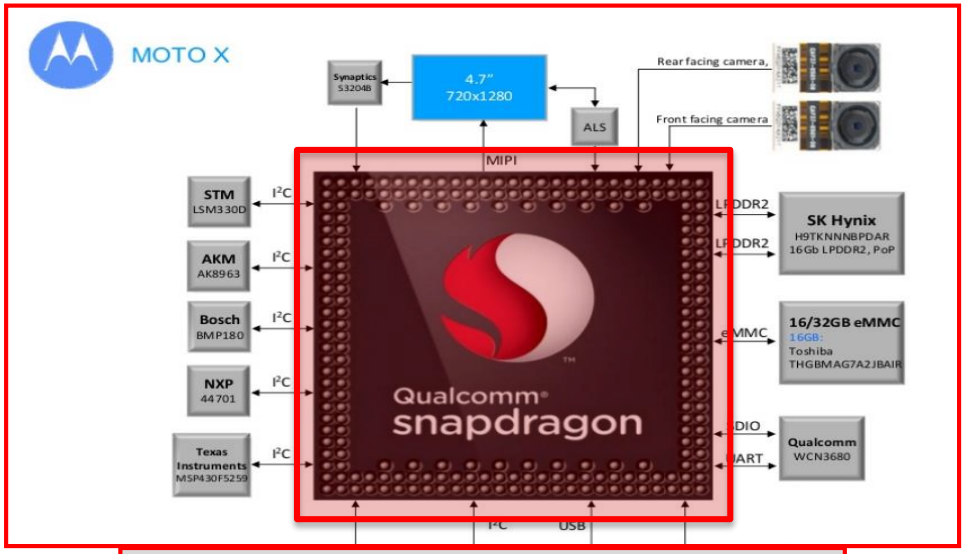
Patent Spec. Reference [Col. 3, Ll 20-23]: "As shown, there is the first antenna 12 corresponding to a first line. The antenna 12 is electrically connected to a voice transceiver line one 16."
[Col. 2, Ll 50-51]: "A first antenna 12 is used for a first line for voice communications."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
the second antenna for receiving GPS data over the second communications channel;	 *[Refs. R3]*	The GPS Antenna is particularly used for receiving GPS data using data communication.

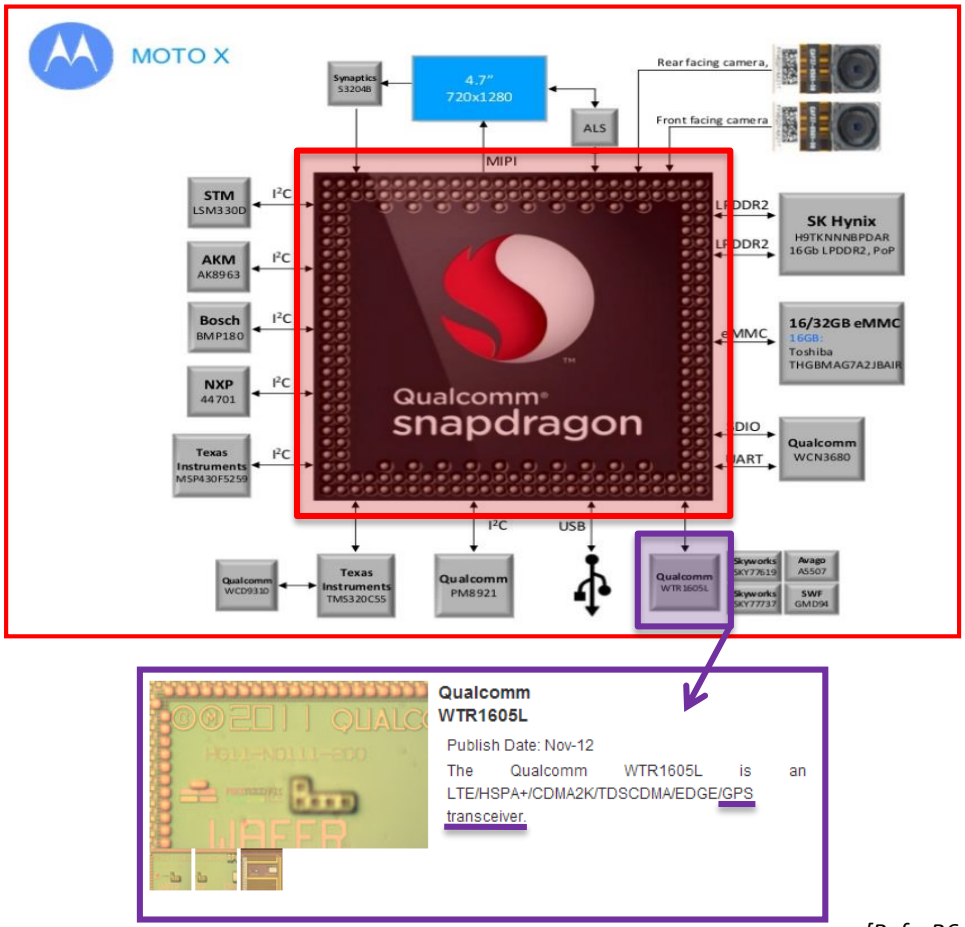
Patent Spec. Reference [Col. 3, Ll 31-35]: "In addition, a second antenna 14 is used for line two. A data communications signal is received through the antenna 14 and sent to the data transceiver for line two 18. The data transceiver is then electrically connected to a modem 20." ***[Col. 2, Ll 50-52]:*** "A first antenna 12 is used for a first line for voice communications while a second antenna 14 is used for wireless data communications."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
an intelligent control operatively connected to the radio transceiver and adapted to receive the GPS data; and	 **Moto X by Motorola** Featuring a **Snapdragon S4 Pro Processor.** Your Moto X is truly yours because you design it, and then it's assembled in the USA. It responds to your voice - no touching necessary. Instead of a generic, unhelpful blinking light, information important to you quietly appears on the screen. Moto X is curved to fit right in your hand. Twist your wrist twice, it becomes your camera, and gets the shots you'd otherwise miss. Once you turn it on, Moto X is ready to respond to you. Just talk. *[Refs. R7, R8]*	The Moto X uses the Qualcomm Snapdragon S4 Pro Processor.

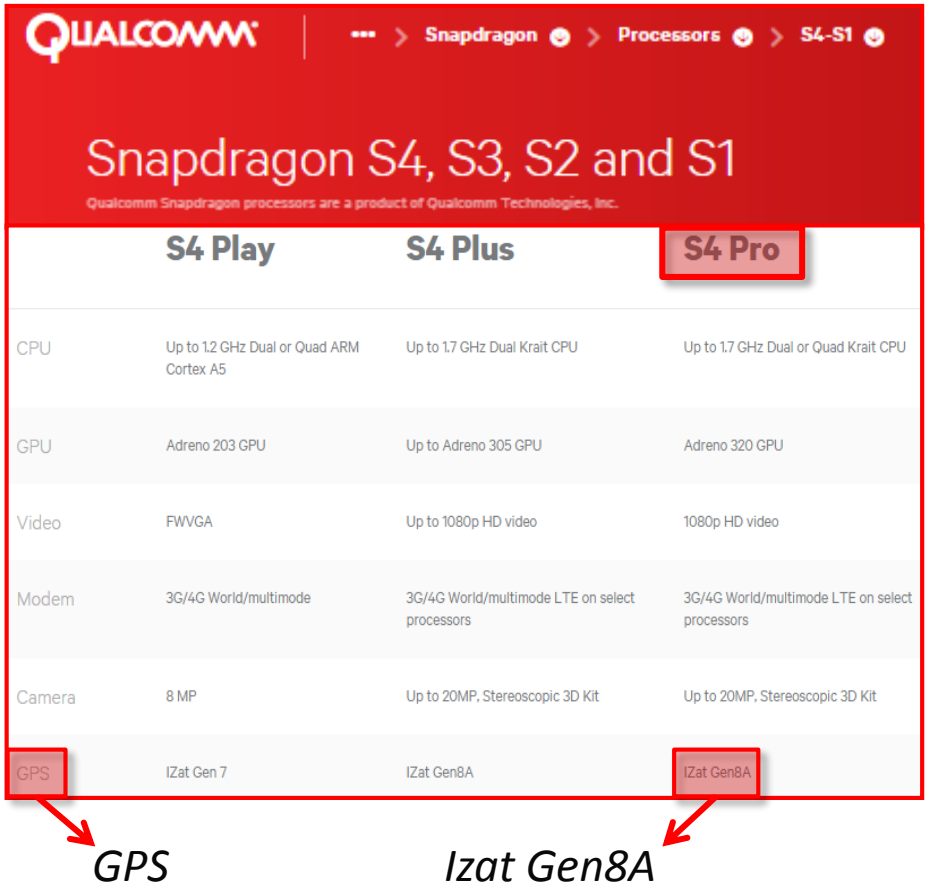
Patent Spec. Reference [Col. 3, Ll 23-29]: "The voice transceiver 16 is then electrically connected to an intelligent control 22. The intelligent control 22 may be a processor, a microprocessor, a microcontroller, a digital signal processor, an integrated circuit, a portion of an integrated circuit, a control circuit, or any of the above in combination with other control logic or other intelligent control."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
an intelligent control operatively connected to the radio transceiver and adapted to receive the GPS data; and	 *[Refs. R6, R7]*	The Qualcomm Snapdragon processor is connected with the Qualcomm LTE WTR16505L transceiver and can receive GPS data.

Patent Spec. Reference [Col. 3, Ll 23-29]: "The voice transceiver 16 is then electrically connected to an intelligent control 22. The intelligent control 22 may be a processor, a microprocessor, a microcontroller, a digital signal processor, an integrated circuit, a portion of an integrated circuit, a control circuit, or any of the above in combination with other control logic or other intelligent control."

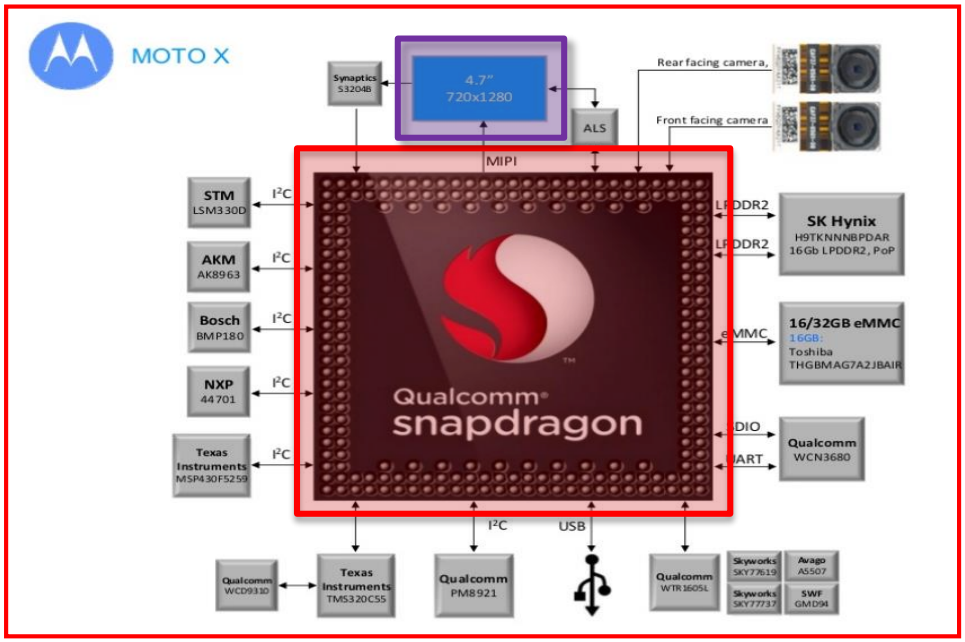
US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
an intelligent control operatively connected to the radio transceiver and **adapted to receive the GPS data**; and		The Qualcomm Snapdragon processor is capable of receiving GPS data.

[Ref. R9]

Patent Spec. Reference [Col. 3, Ll 23-29]: "The voice transceiver 16 is then electrically connected to an intelligent control 22. The intelligent control 22 may be a processor, a microprocessor, a microcontroller, a digital signal processor, an integrated circuit, a portion of an integrated circuit, a control circuit, or any of the above in combination with other control logic or other intelligent control."

US6987986 – Technical Mapping of Claim 10

Claim Element	Evidence of Use: Motorola Moto X™	Comment
a display operatively connected to the intelligent control.	 DISPLAY Type: AMOLED capacitive touchscreen, 16M colors Size: 720 x 1280 pixels, 4.7 inches (~312 ppi pixel density) Multitouch: Yes Protection: Corning Gorilla Glass 3 *[Refs. R7, R10]*	The Qualcomm Snapdragon processor is connected to the AMOLED display of Moto X.

Patent Spec. Reference [Col. 3, LI 60-67]: "The device 10 also includes a display 13. The display may be used for displaying a visual representation of data received over the data communications line. For example, the display 13 can display portions of the wireless web. In addition, a display 13 can contain other PDA information and may also include such things as a visual representation of a key pad that, when the display is a touch sensitive display, may be used to initiate a call."

Chris Sommers

CEO

csommers@thinkfire.com

908 991 9014

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