**IN THE UNITED STATES DISTRICT COURT**
**FOR THE WESTERN DISTRICT OF TEXAS**
**WACO DIVISION**

| | | |
|---|---|---|
| INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC, | ) | |
| Plaintiffs, | ) | C.A. No. 6:21-CV-1088 |
| v. | ) | |
| GENERAL MOTORS COMPANY and GENERAL MOTORS LLC, | ) | **JURY TRIAL DEMANDED** |
| Defendants. | ) | |

## COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs Intellectual Ventures I LLC and Intellectual Ventures II LLC (collectively, "Intellectual Ventures" or "Plaintiffs"), in their Complaint of patent infringement against Defendants General Motors Company and General Motors LLC (collectively, "General Motors," "GM," or "Defendants"), hereby allege as follows:

## NATURE OF THE ACTION

1. This is a civil action for the infringement of United States Patent No. 6,832,283 ("the '283 Patent"), United States Patent No. 7,891,004 ("the '004 Patent"), United States Patent No. 9,934,628 ("the '628 Patent), United States Patent No. 9,291,475 ("the '475 Patent"), United States Patent No. 7,382,771 ("the '771 Patent"), United States Patent No. 9,232,158 ("the '158 Patent"), United States Patent No. 9,681,466 ("the '466 Patent"), United States Patent No.

10,292,138 ("the '138 Patent"), United States Patent No. 8,953,641 ("the '641 Patent"), United States Patent No. 8,811,356 ("the '356 Patent"), United States Patent No. 7,684,318 ("the '318 Patent"), and United States Patent No. 9,602,608 ("the '608 Patent") (collectively, the "Patents-in-Suit") under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq*.

## THE PARTIES

### Intellectual Ventures

2. Plaintiff Intellectual Ventures I LLC ("Intellectual Ventures I") is a Delaware limited liability company having its principal place of business located at 3150 139th Avenue SE, Bellevue, Washington 98005.

3. Plaintiff Intellectual Ventures II LLC ("Intellectual Ventures II") is a Delaware limited liability company having its principal place of business located at 3150 139th Avenue SE, Bellevue, Washington 98005.

4. Intellectual Ventures I is the owner of all rights, title, and interest in and to the '004 and '318 Patents. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '283, '628, '475, '771, '158, '466, '138, '641, '356, and '608 Patents.

### General Motors

5. Upon information and belief, Defendant General Motors Company ("GMC") is a corporation organized and existing under the laws of Delaware. On information and belief, GMC does business itself, or through its subsidiaries, affiliates, and agents, in the State of Texas and the Western District of Texas.

6. Upon information and belief, Defendant General Motors LLC ("GML") is a limited liability company organized and existing under the laws of Delaware. On information and belief, GML is a wholly owned subsidiary of GMC and is responsible for making, marketing, distributing,

offering for sale, and selling automotive vehicles and components from GM-managed brands (*e.g.*, Buick, Cadillac, Chevrolet, and GMC) in the United States. On information and belief, GML has thousands of employees based in and does business throughout the State of Texas and in this District, including at, *e.g.*, the GM Austin Customer Engagement Center in Austin, the GM Austin IT Innovation Center in Austin, the GM Financial San Antonio Customer Service Center in San Antonio, the Arlington Assembly in Arlington, the Fort Worth Parts Distribution Center in Roanoke, the GM Financial Arlington Operations Service Center in Arlington, and the GM Financial Headquarters in Fort Worth. On information and belief, the GM Austin IT Innovation Center designs, develops, and maintains all IT infrastructure, applications, and solutions enabling General Motors' global operations, and delivers unique enterprise-wide IT solutions such as mobility and telematics.

7. On information and belief, General Motors designs, manufactures, distributes, imports, offers for sale, and/or sells in the State of Texas and the Western District of Texas automotive vehicles and components thereof that infringe the Patents-in-Suit, contributes to infringement by others, and/or induces others to commit acts of patent infringement in the State of Texas and the Western District of Texas. General Motors has regular and established places of business, at which it has committed acts of infringement and placed the accused products into the stream of commerce, throughout the State of Texas and in the Western District of Texas, including at, *e.g.*, the GM Austin Customer Engagement Center in Austin and the GM Austin IT Innovation Center in Austin ("Customer Engagement Center" and "Innovation Center"), Richard Karr Buick GMC located at 900 West Loop 340, Waco, Texas 76712, Douglass Chevrolet Buick GMC located at 1106 North Avenue G, Clifton, Texas 76634, Stanley Chevrolet Buick GMC Gatesville located at 210 TX-36 N, Gatesville, Texas 76528, Garlyn Shelton Buick GMC located at 5625 South

General Bruce Drive, Temple, Texas 76502, Mike Terry Chevrolet Buick GMC located at 1100 East Milam Street, Mexia, Texas 76667, Patriot Buick GMC located at 4600 East Central Expressway, Killeen, Texas 76543, and Allen Samuels Chevrolet Buick GMC located at 4556 Hwy 6, Hearne, Texas 77859 ("General Motors dealers").

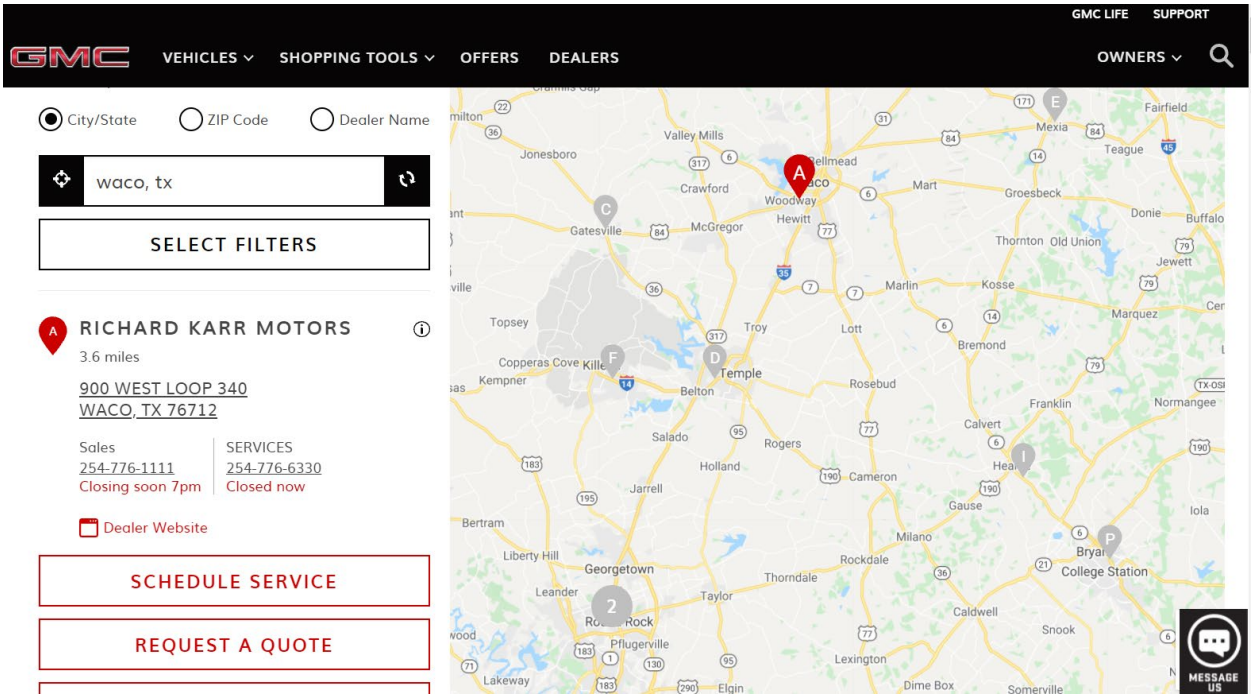
8. Upon information and belief, each of these authorized General Motors dealers in this District are regular, continuous, and established physical places of business of General Motors, being established, ratified, and/or controlled by General Motors as authorized dealers, which are the exclusive places of business at which General Motors offers for sale, sells, and provides authorized warranty, maintenance, and recall services for the General Motors automotive vehicles and components that infringe the Patents-in-Suit.

9. Upon information and belief, General Motors granted each of these authorized General Motors dealers in this District the exclusive right to offer for sale, sell, and service the infringing General Motors vehicles in this District, at these particular geographical locations, and has further conditioned these authorized dealers' continued offering for sale, sale, and service of the infringing General Motors vehicles in this District on these authorized dealers' continued presence in this District, at these particular geographical locations, so that the infringing General Motors automobiles and components are offered for sale, sold, and/or distributed in this District.

10. Upon information and belief, General Motors ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by listing each of them in General Motors' sales directories and on General Motors' website(s), including, *e.g.*, as shown below[1]:

[1] https://www.gmc.com/locate-gmc-dealer#!?searchType=cityState&searchTerm=waco%252C%2520tx

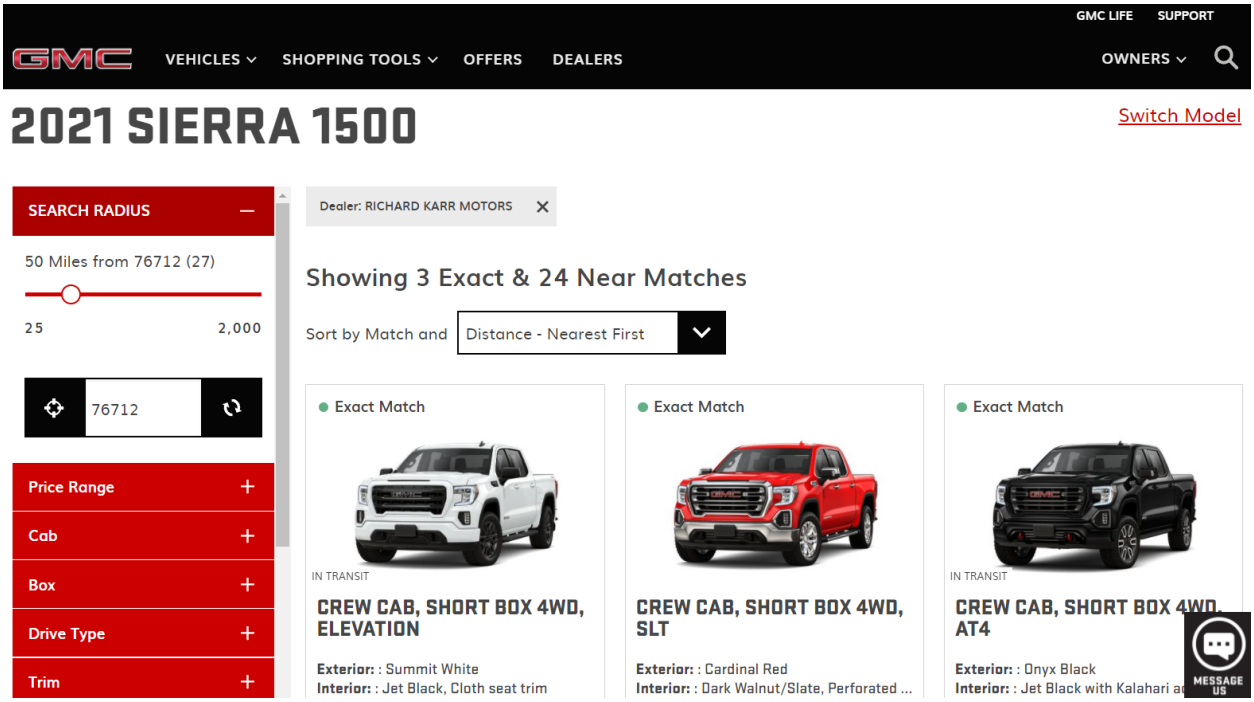
**Figure 1**




11. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by offering for sale on General Motors' website(s) the infringing automobiles and components at the physical, geographical locations of these authorized General Motors dealers, including, *e.g.*, as shown below[2]:

[2] https://www.gmc.com/view-inventory/sierra-1500#?bacs=165932&radius=50&models=Sierra%201500&years=2021&customertype=GC&makes=GMC&filterconfigkey=GMC-2021-Sierra-1500&requestedPostalcode=76712&postalcode=76712&customSearchRadius=touched

**Figure 2**

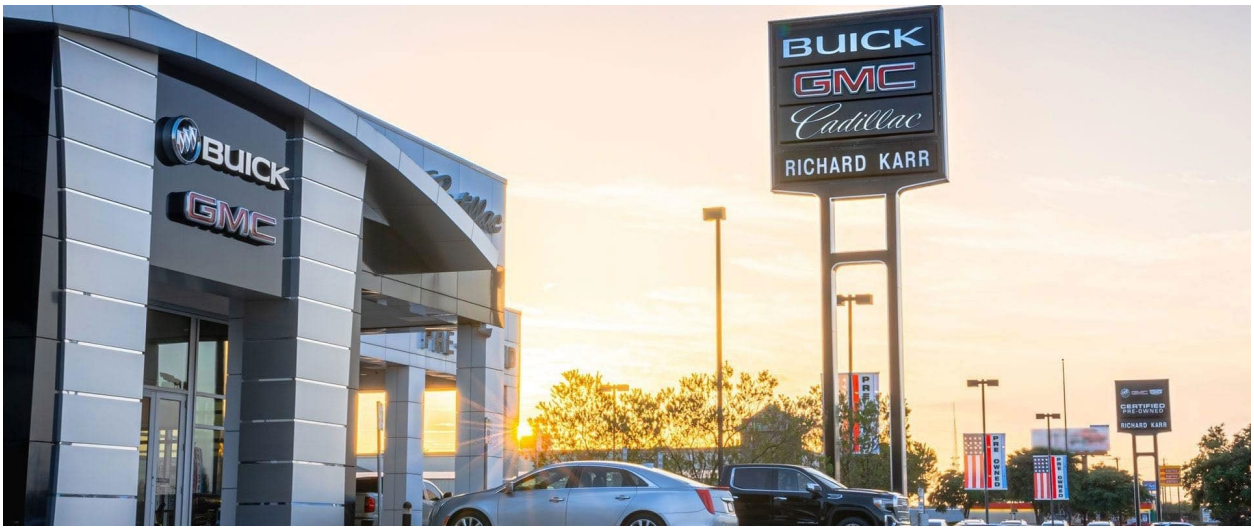



12. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by requiring these authorized dealers to feature and use General Motors names, branding, trademarks, and/or trade dress, in each of these authorized dealers' names, including, *e.g.*, Richard Karr Buick GMC, Douglass Chevrolet Buick GMC, Stanley Chevrolet Buick GMC Gatesville, Garlyn Shelton Buick GMC, Mike Terry Chevrolet Buick GMC, Patriot Buick GMC, and Allen Samuels Chevrolet Buick GMC, as well as in the marketing and advertising materials that these authorized dealers use and make to offer for sale and sell the infringing automobiles and components in this District – including on each authorized dealer's website hosted, maintained, and shown to consumers in this District.

13. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by controlling in whole or in part the name, geographical location, design,

layout, marketing, and branding of these places to test drive and purchase the infringing General Motors automobiles and components, including, *e.g.*, as shown below:

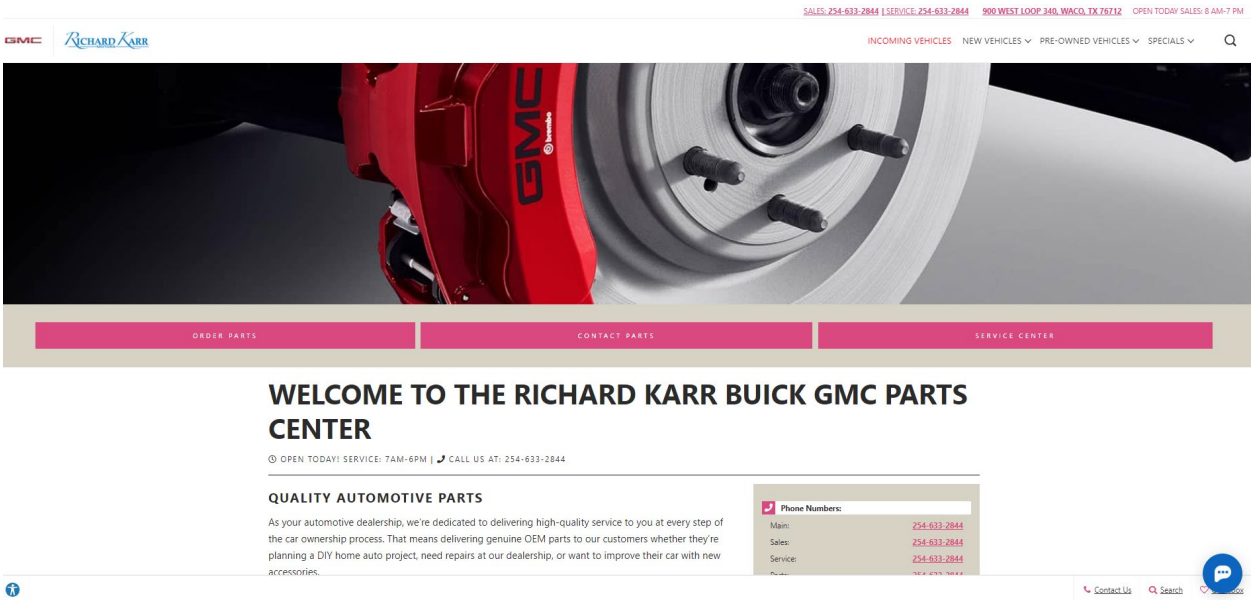
**Figure 3**




14. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by requiring these businesses to store, display, and/or distribute marketing materials, informational brochures, product specifications, service information, warranty information, lease information, financing information, and various other literature, as well as General Motors authorized service, parts, and accessories, for the infringing automobiles and components, including, *e.g.*, as shown below[3]:

[3] https://www.richardkarrbuickgmc.com/parts/

**Figure 5**




15. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by establishing, authorizing, and requiring these places of business to offer to consumers in this District, at the time of sale and/or distribution of the infringing automobiles and components, General Motors financial services and products, General Motors warranties, General Motors service from General Motors certified and/or trained technicians, General Motors parts, and General Motors accessories.

16. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by recruiting, hiring, training, offering compensation and benefits to, controlling, and/or labeling as authorized or certified General Motors employees and agents some or all of the employees or agents employed in this District by these authorized dealers, including for example, General Motors certified brand advisors, General Motors certified technicians, and General Motors certified service advisors.

17. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors by providing these dealers sales promotions, providing these dealers financing for dealership improvements directed by General Motors, and sharing customer data with these dealers to provide customized General Motors services.

18. Upon information and belief, General Motors further ratifies and holds these authorized General Motors dealers out as the regular and established places of business of General Motors in this District by establishing, authorizing, and requiring consumers in this District to visit and use these authorized dealers in order to obtain authorized General Motors service, obtain scheduled maintenance under any General Motors service plan, make repairs pursuant to any General Motors warranty, or obtain any recall work for all new General Motors automobiles and components, including the infringing automobiles and components.

19. Upon information and belief, General Motors has established and ratified and holds these authorized General Motors dealers out as the regular and established places of business of General Motors by directing and controlling these authorized dealers' actions, sales, and services in the foregoing manner, and has consented to these authorized dealers acting on General Motors' behalf and being the exclusive places of business whereby the infringing automobiles and components are distributed, offered for sale, sold, and serviced in order to place these infringing articles into the stream of commerce in this District, and these authorized dealers have consented to act on General Motors' behalf pursuant to the foregoing terms of control and direction in order to be able to provide these General Motors automobiles, components, and services to consumers in this District.

## JURISDICTION AND VENUE

20. This is an action for patent infringement arising under the patent laws of the United States. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

21. This Court has personal jurisdiction over General Motors because General Motors conducts business in and has committed acts of patent infringement, contributed to infringement by others, and/or induced others to commit acts of patent infringement in this District, the State of Texas, and elsewhere in the United States and has established minimum contacts with this forum state such that the exercise of jurisdiction over General Motors would not offend the traditional notions of fair play and substantial justice. Upon information and belief, General Motors transacts substantial business with entities and individuals in the State of Texas and the Western District of Texas, by among other things, importing, offering to sell, distributing, and selling products that infringe the Patents-in-Suit, including the infringing automotive vehicles and components thereof that General Motors purposefully directs into the State of Texas and this District as alleged herein, as well as by providing service and support to its customers in this District. General Motors places the accused automotive vehicles and components thereof into the stream of commerce via authorized and established distribution channels with the knowledge and expectation that they will be sold in the State of Texas, including this District, and do not otherwise permit the sale of the accused automotive vehicles and components thereof in the State of Texas, or in this District, outside of these established, authorized, and ratified distribution channels and dealer networks.

22. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b)-(c) and 1400(b) because General Motors has committed acts of infringement in this District and maintains numerous regular and established places of business in this District.

23. General Motors is subject to this Court's general and specific jurisdiction pursuant

to due process and/or the Texas Long Arm Statute due at least to General Motors' substantial business in the State of Texas and this District, including through its past infringing activities, because General Motors regularly does and solicits business herein, and/or because General Motors has engaged in persistent conduct and/or has derived substantial revenues from goods and services provided to customers in the State of Texas and this District.

## FACTUAL BACKGROUND

24. Intellectual Ventures Management, LLC ("Intellectual Ventures Management") was founded in 2000. Since then, Intellectual Ventures Management has been involved in the business of inventing. Intellectual Ventures Management creates inventions and files patent applications for those inventions; collaborates with others to develop and patent inventions; and acquires and licenses patents from individual inventors, universities, corporations, and other institutions. A significant aspect of Intellectual Ventures Management's business is managing the plaintiffs in this case, Intellectual Ventures I and Intellectual Ventures II.

25. To create its own inventions, Intellectual Ventures Management has a staff of scientists and engineers who develop ideas in a broad range of fields, including agriculture, computer hardware, life sciences, medical devices, semiconductors, and software. Intellectual Ventures Management has invested millions of dollars developing such ideas and has filed hundreds of patent applications on its inventions. Intellectual Ventures Management has also invested in laboratory facilities to assist with the development and testing of new ideas.

26. One of the founders of Intellectual Ventures Management is Nathan Myhrvold, who worked at Microsoft from 1986 until 2000 in a variety of executive positions, culminating in his appointment as the company's first Chief Technology Officer ("CTO") in 1996. While at Microsoft, Dr. Myhrvold founded Microsoft Research in 1991 and was one of the world's foremost

software experts. Between 1986 and 2000, Microsoft became the world's largest technology company.

27. Under Dr. Myhrvold's leadership, Intellectual Ventures acquired more than 70,000 patents covering many important inventions of the Internet era. Many of these inventions coincided with Dr. Myhrvold's successful tenure at Microsoft.

28. One of the most significant accomplishments of the Internet era is the emergence of wireless technologies for vehicles. Wireless connectivity systems in vehicles enable communication channels within vehicles as well as with other external networks. Intellectual Ventures' Patents-In-Suit provide improvements to wireless communications used in vehicles.

29. General Motors provides several types of wireless communication system solutions and services to their customers. General Motors' product offerings include but are not limited to: Connected Services and/or OnStar. These product offerings are included in various automotive vehicles managed by General Motors including but not limited to: Buick, Cadillac, Chevrolet, and GMC product lines. General Motors markets and sells these wireless communication system solutions and services in several General Motors models throughout the world, including in the United States and Texas.

## THE PATENTS-IN-SUIT

***U.S. Patent No. 6,832,283***

30. On December 14, 2004, the PTO issued the '283 Patent, titled "METHOD FOR ADDRESSING NETWORK COMPONENTS." The '283 Patent is valid and enforceable. A copy of the '283 Patent is attached as Exhibit 1.

31. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '283 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude

others, and to enforce and recover past damages for infringement of the ’283 Patent.

32. The ’283 Patent generally relates to systems and methods for addressing components of a network, especially in the case of data bus systems in transport means, in which each component is assigned a first address for the mutual communication within the network and the first addresses are stored in a central register. The network addressing systems and methods covered by the ’283 Patent include addressing components of a first network, especially in the case of data bus systems in transport vehicles, in which each component is assigned a first address for the mutual communication within the network and the first addresses are stored in a central register, in which at least one particular component of the first network communicates with another network, this component, when dialing into the second network, is assigned a second address by the latter and, within the first network, addressing takes place on the basis of function-specific address components, identical function blocks of the components being addressed via identical function-specific address components.

***U.S. Patent No. 7,891,004***

33. On February 15, 2011, the PTO issued the ’004 Patent, titled “METHOD FOR VEHICLE INTERNETWORKS.” The ’004 Patent is valid and enforceable. A copy of the ’004 Patent is attached as Exhibit 2.

34. Intellectual Ventures I is the owner of all rights, title, and interest in and to the ’004 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the ’004 Patent.

35. The ’004 Patent generally relates to intelligent networks that include connections to the physical world. For example, the invention relates to providing distributed network and Internet access to processors, controls, and devices in vehicles. The networks covered by the

'004 Patent provide for communications among diverse electronic devices within a vehicle, and for communications among these devices and networks external to the vehicle. The networks covered by the '004 Patent comprise specific devices, software, and protocols, and provide for security for essential vehicle functions and data communications, ease of integration of new devices and services to the vehicle internetwork, and ease of addition of services linking the vehicle to external networks such as the Internet.

***U.S. Patent No. 9,934,628***

36. On April 3, 2018, the PTO issued the '628 Patent, titled "VIDEO RECORDER." The '628 Patent is valid and enforceable. A copy of the '628 Patent is attached as Exhibit 3.

37. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '628 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '628 Patent.

38. The '628 Patent generally relates to image analysis. For example, the invention relates to image compression using adaptive coding that includes connection to the physical world and relates to providing a simple, convenient, and effective means of storing and of communicating video and audio data.

***U.S. Patent No. 9,291,475***

39. On March 22, 2016, the PTO issued the '475 Patent, titled "DEVICE, SYSTEM AND METHOD FOR CONTROLLING SPEED OF A VEHICLE USING A POSITIONAL INFORMATION DEVICE." The '475 Patent is valid and enforceable. A copy of the '475 Patent is attached as Exhibit 4.

40. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '475 Patent, and holds all substantial rights therein, including the right to grant licenses, to

exclude others, and to enforce and recover past damages for infringement of the '475 Patent.

41. The '475 Patent generally relates to navigational or positional information systems, and more particularly, to devices, systems, and methods for controlling the speed of a vehicle using a positional information device, e.g., a global positioning system (GPS) device. For example, the systems include a locational information module for determining location information and speed; a storage module for storing at least one geographic map including at least one route and a speed limit for at least one route; a processing module configured to receive the location information, retrieve at least one geographic map based on the location information, determine the speed limit based on the location information, and compare the speed of the device to the determined speed limit; and a display module for alerting a user if the speed of the device exceeds the determined speed limit.

***U.S. Patent No. 7,382,771***

42. On June 3, 2008, the PTO issued the '771 Patent, titled "MOBILE WIRELESS HOTSPOT SYSTEM." The '771 Patent is valid and enforceable. A copy of the '771 Patent is attached as Exhibit 5.

43. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '771 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '771 Patent.

44. The '771 Patent generally relates to wireless Internet access points, and in particular, for example, for providing an improved mobile wireless access point for use with high-speed wireless devices. For example, a system allows client devices configured for short-range, high-speed wireless Internet access to use said system to access the Internet while in a mobile environment, such as a passenger vehicle.

***U.S. Patent No. 9,232,158***

45. On January 5, 2016, the PTO issued the '158 Patent, titled "LARGE DYNAMIC RANGE CAMERAS." The '158 Patent is valid and enforceable. A copy of the '158 Patent is attached as Exhibit 6.

46. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '158 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '158 Patent.

47. The '158 Patent generally relates to optical devices and more particularly to expanding the dynamic exposure range in digital cameras.

***U.S. Patent No. 9,681,466***

48. On June 13, 2017, the PTO issued the '466 Patent, titled "SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK." The '466 Patent is valid and enforceable. A copy of the '466 Patent is attached as Exhibit 7.

49. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '466 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '466 Patent.

50. The '466 Patent generally relates to mechanisms to support Internet Protocol data flows within a wireless communication system, applicable to, but not limited to, gateway queuing algorithms in packet data transmissions, for example, for use in the universal mobile telecommunication system.

***U.S. Patent No. 10,292,138***

51. On May 14, 2019, the PTO issued the '138 Patent, titled "DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO

BEARER." The '138 Patent is valid and enforceable. A copy of the '138 Patent is attached as Exhibit 8.

52. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '138 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '138 Patent.

53. The '138 Patent relates to mechanisms to support Internet Protocol data flows within a wireless communication system, applicable to, but not limited to, gateway queuing algorithms in packet data transmissions, for example, for use in mobile telecommunications. The products and methods covered by the '138 Patent relate to user equipment (UE) that may determine and transmit to a network buffer occupancy associated with one or more radio bearers, and may select data for transmission from radio bearers using a received single allocation of uplink resources.

***U.S. Patent No. 8,953,641***

54. On February 10, 2015, the PTO issued the '641 Patent, titled "METHODS AND APPARATUS FOR MULTI-CARRIER COMMUNICATIONS WITH VARIABLE CHANNEL BANDWIDTH". The '641 Patent is valid and enforceable. A copy of the '641 Patent is attached as Exhibit 9.

55. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '641 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '641 Patent.

56. The '641 Patent relates to methods and apparatus for multi-carrier communication with variable channel bandwidth.

***U.S. Patent No. 8,811,356***

57. On August 19, 2014, the PTO issued the '356 Patent, titled "COMMUNICATIONS IN A WIRELESS NETWORK". The '356 Patent is valid and enforceable. A copy of the '356 Patent is attached as Exhibit 10.

58. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '356 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '356 Patent.

59. The '356 Patent relates to equipment and methods used in communication systems in a wireless network. The equipment and methods covered by the '356 Patent generally relate to receiving resource allocation information associated with an uplink physical control channel.

***U.S. Patent No. 7,684,318***

60. On March 23, 2010, the PTO issued the '318 Patent, titled "SHARED-COMMUNICATIONS CHANNEL UTILIZATION FOR APPLICATIONS HAVING DIFFERENT CLASS OF SERVICE REQUIREMENTS". The '318 Patent is valid and enforceable. A copy of the '318 Patent is attached as Exhibit 11.

61. Intellectual Ventures I is the owner of all rights, title, and interest in and to the '318 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '318 Patent.

62. The '318 Patent relates to telecommunications in general, and, more particularly, to a technique for enabling the stations in a local area network to intelligently use their shared-communications channel. For example, at least one of the inventions set forth in the '318 Patent enables latency-tolerant and latency-intolerant applications to intelligently share a shared-communications channel in a manner that seeks to satisfy the needs of all of the applications. An

illustrative embodiment enables each application to be associated with a different class of service, wherein each class of service is associated with one or more quality-of-service parameters (*e.g.*, minimum throughput, maximum latency, etc.).

***U.S. Patent No. 9,602,608***

63. On March 21, 2017, the PTO issued the '608 Patent, titled "SYSTEM AND METHOD FOR NOTIFYING A USER OF PEOPLE, PLACES OR THINGS HAVING ATTRIBUTES MATCHING A USER'S STATED PREFERENCE". The '608 Patent is valid and enforceable. A copy of the '608 Patent is attached as Exhibit 12.

64. Intellectual Ventures II is the owner of all rights, title, and interest in and to the '608 Patent, and holds all substantial rights therein, including the right to grant licenses, to exclude others, and to enforce and recover past damages for infringement of the '608 Patent.

65. The '608 Patent relates to communications systems and methods for providing localized resource information to mobile customers based on their explicit preferences that match profiles of media content about people, places and things. The communication systems, apparatus, and methods covered by the '608 Patent include location-based and preference-based systems and methods for matching media content about persons, places and things with the expressed preferences of mobile users to notify users about and provide users with access to media content about persons, places and things that match the user's expressed preferences. The systems covered by the '608 Patent provide information such as stories or articles that match the user's interests and relate to their location.

**COUNT I**

(General Motors' Infringement of U.S. Patent No. 6,832,283)

66. Paragraphs 1-65 are incorporated by reference as if fully set forth herein.

67. General Motors has directly infringed, and continues to directly infringe, literally

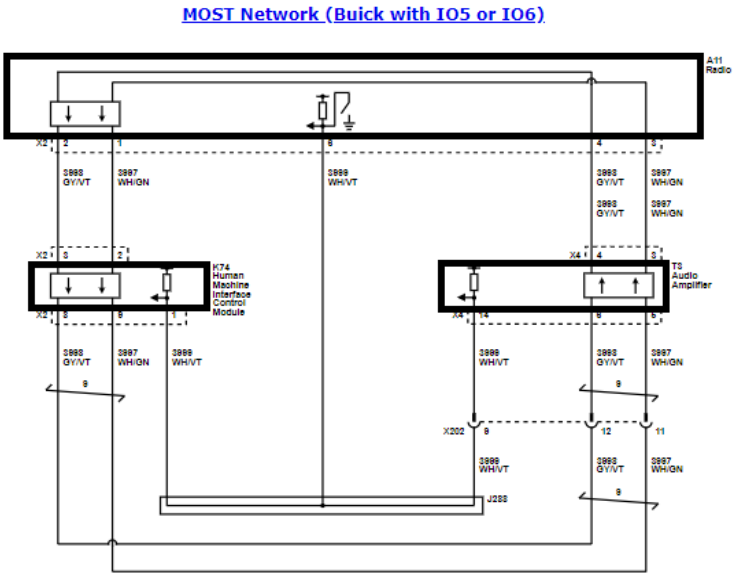
and/or by the doctrine of equivalents, individually and/or jointly, the '283 Patent, by making, using, performing, testing, leasing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '283 Patent including, but not limited to the Buick Encore (collectively, "GM Count I Automobiles").

68. As an exemplary claim, Claim 1 of the '283 Patent is reproduced below:

> *1. Method for addressing components of a first network in a data bus system in a transport vehicle, in which each component is assigned a first address for mutual communication within the network and the first addresses are stored in a central register, wherein at least one particular component of the first network communicates with a second network, said one component, when dialling into the second network, is assigned a second address by the second network, and wherein, within the first network, addressing takes place on the basis of function-specific address components, identical function blocks of the components being addressed via identical function-specific address components.*

69. Upon information and belief, General Motors and the GM Count I Automobiles perform each and every limitation of at least claim 1.

70. Upon information and belief, the GM Count I Automobiles include the General Motors systems that use the MOST Automotive Multimedia Network ("MOST"). Upon information and belief, the GM Count I Automobiles include a first network of components in data bus systems using, for example, MOST networks, as the below example shows:




*See* Exhibit 24, MOST Network (Buick with IO5 or IO6) at p. 1.

71. Upon information and belief, the GM Count I Automobiles using, for example, MOST, address the components in the first network, in which each component is assigned a first address for mutual communication within the network, addressing takes place on the basis of function-specific address components, identical function blocks of the components being addressed via identical function-specific address components.

**2.1.2.6 Addressing MOST Functions**

In a MOST network, the devices are connected in a ring structure. To address these devices, different types of addresses can be used. The MOST Network Interface Controller provides six different types of addresses, which are introduced below.

**2.1.2 Device Model**

The following sections describe the logical model of a MOST device. A MOST device is a physical unit that can be connected to a MOST network via a MOST Network Interface Controller.

On the application level, a MOST device contains multiple components that are called function blocks (FBlocks), for example, tuner, amplifier, or CD player. It is possible that there are multiple FBlocks in a single MOST device, such as a tuner and an amplifier combined in one case and connected to the MOST network via a common MOST Network Interface Controller.

Exhibit 13, MOST Specification Rev. 3.0 E2 (07/2010) at pp. 39, 34

72. Upon information and belief, the GM Count I Automobiles include a central registry that stores the first addresses of the components.

MOST

**3.1.3.3.2 Central Registry**

The NetworkMaster generates the Central Registry during the initialization of the network and it continues to administrate it until Network Shutdown (section 3.1.2.3.2). The Central Registry is an image of the physical and logical system configuration. It contains the logical node address and the respective FBlocks of each device:

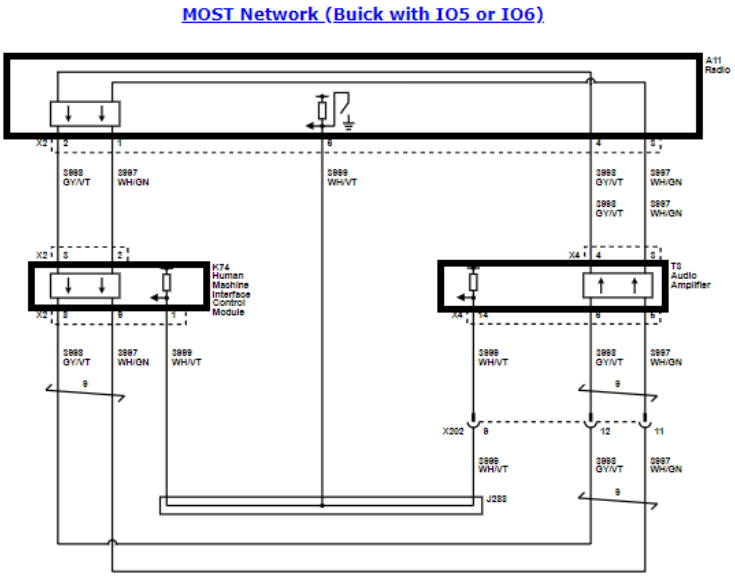
| | |
|---|---|
| DeviceID | The DeviceID stands for a physical device or a group of devices in the network. The DeviceID (RxTxAdr) can represent a node position address (RxTxPos), a logical address (RxTxLog), or a group address. |

| RxTxLog | RxTxPos | FBlockID | InstID |
|---|---|---|---|
| 0x0100 | 0 | AudioDiskPlayer | 1 |
| | | NetworkMaster | 10 |
| | | ConnectionMaster | 1 |
| 0x0101 | 1 | AudioDiskPlayer | 2 |
| 0x0102 | 2 | AM/FMTuner | 1 |
| | | AudioTapeRecorder | 1 |
| | | | |
| 0x0103 | 3 | AudioAmplifier | 2 |
| | | | |
| Etc. | | | |
| | | | |
| MaxNode | MaxNode | HumanMachineInterface | 1 |
| | | | |

*Table 3-10: Example of a Central Registry*

Exhibit 13, MOST Specification Rev. 3.0 E2 (07/2010) at p. 140

73. Upon information and belief, the GM Count I Automobiles' Systems, or components therein communicate with other networks, such as cellular networks and Bluetooth networks. For example, the GM Count I Automobiles include a Human Machine Interface module ("HMI") that is a component within the MOST network.




*See* Exhibit 24, MOST Network (Buick with IO5 or IO6) at p. 1.

74. Upon information and belief, the HMI includes a Bluetooth component and can connect and/or pair to another Bluetooth device, such as a mobile phone.[4]

## 2 NG 2.5 HMI module provided by Bosch

Bosch part of the GM Next Generation (GM NG) infotainment system is the HMI module (NG 2.5 HMI), which serves as the central HMI interface in the GM NG infotainment system which contains Bluetooth. WLAN. GPS.

https://fccid.io/ANATEL/00472-15-06541/Manual/018F8F5B-69A9-409E-AB67-4F13C8B0E8F8/PDF at p. 2.

75. Upon information and belief, the GM Count I Automobiles' System, or other components therein (such as the HMI) are assigned a second address by the other (second) network, e.g., Bluetooth network.

76. Accordingly, General Motors and/or the GM Count I Automobiles operating, for example, Telematics, Infotainment, and/or other systems within and external to the GM Count I

[4] *See* https://fccid.io/ANATEL/00472-15-06541/Manual/018F8F5B-69A9-409E-AB67-4F13C8B0E8F8/PDF at pp. 2, 6; https://www.gmc.com/support/vehicle/smartphone-connections/bluetooth-wifi/bluetooth-pairing-instructions#using-the-infotainment-touchscreen.

Automobiles for, among other things, diagnostics directly infringe the methods covered by one or more claims of the ’283 Patent.

77. Additionally, General Motors has been, and currently is, actively inducing infringement of the ’283 Patent under 35 U.S.C. § 271(b) and contributorily infringing the ’283 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

78. General Motors knew of the ’283 Patent, or should have known of the ’283 Patent, but was willfully blind to its existence. General Motors has had actual knowledge of the ’283 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, General Motors will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the ’283 Patent.

79. General Motors has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the ’283 Patent with knowledge of the ’283 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the ’283 Patent. As an illustrative example only, General Motors induces such acts of infringement by its affirmative action of providing and promoting the described hardware and/or software components and features in the GM Count I Automobiles that when used in their normal and customary way as intended and designed by General Motors, infringe one or more claims of the ’283 Patent. As an illustrative example only, General Motors induces such acts of infringement by providing its customers instructions on how to use its products and services in a manner or configuration that infringes one or more claims of the ’283 Patent.

80. General Motors has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used

cause the direct infringement of one or more claims of the ’283 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’283 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

81. As a result of General Motors’ acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT II**

(General Motors’ Infringement of U.S. Patent No. 7,891,004)

82. Paragraphs 1-81 are incorporated by reference as if fully set forth herein.

83. General Motors has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the ’004 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the ’004 Patent including, but not limited to the General Motors’ Chevrolet Silverado (collectively, “GM Count II Automobiles”).[5]

84. As an exemplary claim, Claim 68 of the ’004 Patent is reproduced below:

*68. A method for internetworking, comprising:*

*coupling, at a gateway node, a plurality of network elements in a motor vehicle, the motor vehicle comprising the gateway node, a first vehicle bus configured to carry communications according to a first communication protocol, a second vehicle bus configured to carry communications according to a second communication protocol, and the plurality of network elements, wherein the plurality of network elements includes a first set of network elements connected to*

[5] *See, e.g.*, https://www.chevrolet.com/trucks/silverado/1500.

*the first vehicle bus, and a second set of network elements connected to the second vehicle bus;*

*automatically forming a network of the plurality of network elements in which the gateway node provides a bridge between the first vehicle bus and the second vehicle bus, wherein the bridge is operable to pass messages between the first vehicle bus and the second vehicle bus;*

*coupling at least one network element of the assembled plurality of network elements to a remote computer located outside of the motor vehicle; and*

*remotely controlling, at the remote computer, at least one function of the assembled plurality of network elements*

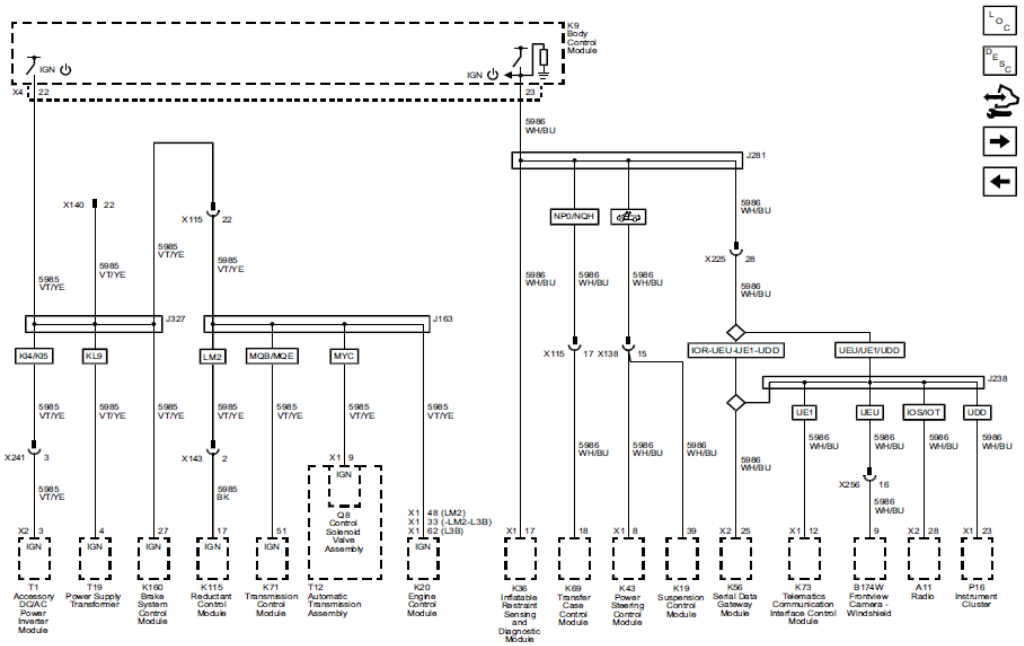
85. Upon information and belief, General Motors and the GM Count II Automobiles perform or can perform each and every limitation of at least claim 1 of the ’004 Patent.

86. Upon information and belief, the GM Count II Automobiles are equipped with systems, such as General Motors’ infotainment systems, Connected Services, and/or OnStar, that use a method for internetworking.[6]

87. Upon information and belief, General Motors and the GM Count II Automobiles use and/or include systems, such as Connected Services and OnStar that employ coupling, at a gateway node, a plurality of network elements in a motor vehicle, the motor vehicle comprising the gateway node, a first vehicle bus configured to carry communications according to a first communication protocol, a second vehicle bus configured to carry communications according to a second communication protocol, and the plurality of network elements, wherein the plurality of network elements includes a first set of network elements connected to the first vehicle bus, and a

[6]Exhibit 14, 2020 Chevrolet Infotainment System Owner’s Manual at p. 39.

second set of network elements connected to the second vehicle bus.




https://my.chevrolet.com/content/dam/gmownercenter/gmna/dynamic/manuals/2021/chevrolet/silverado-1500/2021-chevrolet-silverado-1500-owners-manual.pdf

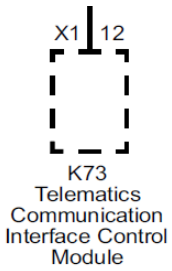
88. Upon information and belief, General Motors and the GM Count II Automobiles use and/or include systems, such as Connected Services and OnStar, that automatically form a network of the plurality of network elements in which the gateway node provides a bridge between the first vehicle bus and the second vehicle bus, wherein the bridge is operable to pass messages between the first vehicle bus and the second vehicle bus.

89. Upon information and belief, as shown above, the Body Control Module acts as a gateway node coupling the Low Speed GMLAN and the High Speed GMLAN vehicle subnetworks. The Low Speed GMLAN and the High Speed GMLAN both comprise a plurality of network elements. The Low Speed GMLAN comprises, for example, instrument cluster, audio amplifier, and telematics modules, *i.e.* a plurality of network elements. The High Speed GMLAN comprises, for example, brake system, transmission control, and engine control modules, *i.e.*, a

plurality of network elements.

90. Upon information and belief, General Motors and the GM Count II Automobiles use and/or include systems, such as Connected Services and OnStar, that couples at least one network element of the assembled plurality of network elements to a remote computer located outside of the motor vehicle.

91. Upon information and belief, the GM Count II Automobiles include a Telematics Interface Control Module that provides coupling to a remote computer.




https://my.chevrolet.com/content/dam/gmownercenter/gmna/dynamic/manuals/2021/chevrolet/silverado-1500/2021-chevrolet-silverado-1500-owners-manual.pdf

92. Upon information and belief, General Motors and the GM Count II Automobiles use features, including the Telematics Communication Interface Control Module which provides a coupling to the OnStar servers which are remote and located outside the motor vehicle.[7] These features are thus used to remotely control, at the remote computer, at least one function of the assembled plurality of network elements.

93. Accordingly, General Motors is using, offering for sale, or selling in the United States the GM Count II Automobiles equipped with features such as Connected Services and OnStar as covered by one or more claims of the '004 Patent.

[7] https://gmauthority.com/blog/2011/07/feature-spotlight-heres-how-onstars-remotelink-app-works/#:~:text=When%20a%20user%20requests%20a,Internet%20using%20a%20cellular%20connection; https://www.onstar.com/us/en/home

94. Additionally, General Motors has been, and currently is, actively inducing infringement of the ’004 Patent under 35 U.S.C. § 271(b) and contributorily infringing the ’004 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

95. General Motors knew of the ’004 Patent, or should have known of the ’004 Patent, but was willfully blind to it its existence. General Motors has had actual knowledge of the ’004 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, General Motors will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the ’004 Patent.

96. General Motors has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the ’004 Patent with knowledge of the ’004 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the ’004 Patent. As an illustrative example only, General Motors induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use the claimed OnStar and/or Connected Services features in the GM Count II Automobiles that when used in their normal and customary way as intended and designed by General Motors, infringe one or more claims of the ’004 Patent.

97. General Motors has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’004 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’004 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

98. As a result of General Motors' acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT III**

(General Motors' Infringement of U.S. Patent No. 9,934,628)

99. Paragraphs 1-98 are incorporated by reference as if fully set forth herein.

100. General Motors has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '628 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '628 Patent including, but not limited to GM's Cadillac CT5, Cadillac CT6, and Cadillac XT6 (collectively, "GM Count III Automobiles").[8]

101. As an exemplary claim, Claim 1 of the '628 Patent is reproduced below:

*1. A video recorder, comprising:*

*a processor;*

*a buffer in communication with the processor; and*

*a memory device in communication with the processor;*

*wherein the processor is configured to:*

*store video data in the buffer;*

*detect a movement of a door latch of a vehicle;*

*attempt to detect a wireless key fob configured to provide digital authorization for an attempted access event; and*

*transfer at least a portion of the video data from the buffer to the memory device if and only if the wireless key fob has not been detected.*

[8] *See, e.g.*, https://www.chevrolet.com/trucks/silverado/1500.

102. Upon information and belief, General Motors and the GM Count III Automobiles perform or can perform each and every limitation of at least claim 1 of the ’628 Patent.

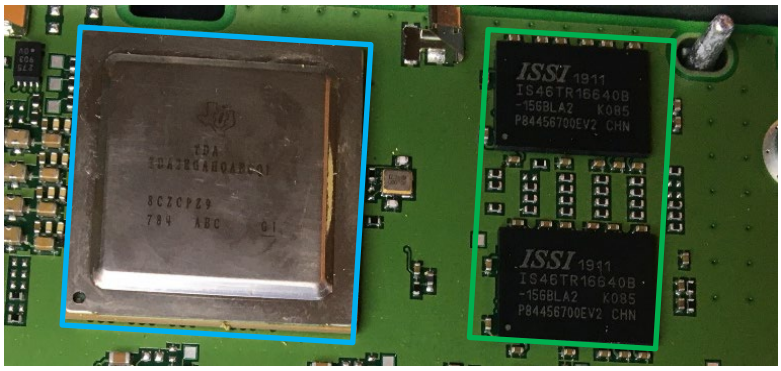
103. Upon information and belief, the GM Count III Automobiles are equipped with a Surround-View Recording System.[9]


https://gmauthority.com/blog/gm/general-motors-technology/gm-convenience-technology/gm-video-recording-technology/gm-surround-video-recording-system

104. Upon information and belief, General Motors and the GM Count III Automobiles use and/or include a TDA2Ex processor that is used within the Surround Vision ECU.[10]

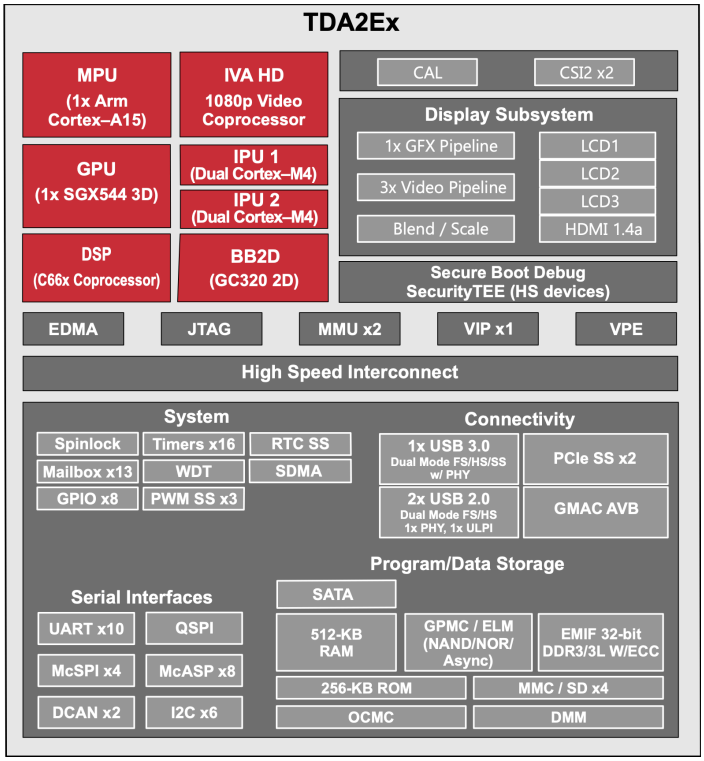

[9] https://gmauthority.com/blog/gm/general-motors-technology/gm-convenience-technology/gm-video-recording-technology/gm-surround-video-recording-system/; https://media.cadillac.com/media/us/en/cadillac/vehicles/ct5/2020.html

[10] https://techlink.mynetworkcontent.com/wp-content/uploads/2020/02/GM_TechLink_02_Mid-January_2020.pdf at p. 6




*See* Exhibit 25, 2019 GM Surround Vision ECU.

105. Upon information and belief, General Motors and the GM Count III Automobiles use and/or include a TDA2Ex processor or other processer that buffers video data in (2) DDR3 SDRAM devices and interfaces with an SD memory card.




https://www.ti.com/lit/ds/symlink/tda2e.pdf?ts=1610992157406&ref_url=https%3A%2F%2Fwww.ti.com%2Fsitesearch%2Fdocs%2Funiversalsearch.tsp%3FsearchTerm%3Dtda2egahqab at p. 3

106. Upon information and belief, General Motors and the GM Count III Automobiles

use and/or include a Body Control Module (BCM) that monitors the door latches when the alarm system is armed. If a door latch is opened, it will send a signal to the video processing control module which allows the processor to detect that the door latch has been moved from the secured position.

107. Upon information and belief, General Motors and the GM Count III Automobiles use and/or include systems where the driver door must be unlocked with a digitally authorized wireless key fob prior to opening the door, or the alarm will be activated. Access events are monitored for the presence of an authorized wireless key fob.[11]

> When the video recording system is activated, the cameras can capture video in one of two modes:
>
> - Using the front and rear cameras during vehicle operation, or
> - Using all four cameras in a round-robin fashion when the vehicle security system is armed. This mode will only record video once the vehicle has been disturbed. The same cameras are also used to provide the Surround View around the vehicle on the CUE screen to aid in vehicle maneuvering.
>
> Captured footage is stored on a standard SD card in the trunk of the vehicle. Owners can choose to save certain captures indefinitely on the SD card or they can view or save the video files onto their personal computers. The recorded videos can also be played back while in the vehicle.

https://gmauthority.com/blog/gm/general-motors-technology/gm-convenience-technology/gm-video-recording-technology/gm-surround-video-recording-system/

108. Accordingly, General Motors is using, offering for sale, or selling in the United States the GM Count III Automobiles equipped with features such as HD Surround Vision Recorder that directly infringe one or more claims of the ’628 Patent.

109. Additionally, General Motors has been, and currently is, actively inducing infringement of the ’628 Patent under 35 U.S.C. § 271(b) and contributorily infringing the ’628 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

110. General Motors knew of the ’628 Patent, or should have known of the ’628 Patent,

[11] https://gmauthority.com/blog/gm/general-motors-technology/gm-convenience-technology/gm-video-recording-technology/gm-surround-video-recording-system/; *see also* https://my.cadillac.com/content/dam/gmownercenter/gmna/dynamic/manuals/2020/cadillac/ct5/2020-cadillac-ct5-owners-manual.pdf.

but was willfully blind to it its existence. General Motors has had actual knowledge of the '628 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, General Motors will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the '628 Patent.

111. General Motors has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the '628 Patent with knowledge of the '628 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the '628 Patent. As an illustrative example only, General Motors induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use the claimed HD Surround Vision Recorder features in the GM Count III Automobiles that when used in their normal and customary way as intended and designed by General Motors, infringe one or more claims of the '628 Patent.

112. General Motors has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the '628 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the '628 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

113. As a result of General Motors' acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

## COUNT IV

(General Motors' Infringement of U.S. Patent No. 9,291,475)

114. Paragraphs 1-113 are incorporated by reference as if fully set forth herein.

115. General Motors has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '475 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '475 Patent including, but not limited to the Chevrolet, Buick, GMC, and Cadillac vehicle lines, such as GMC Terrain, GMC Sierra, GMC Acadia, and GMC Yukon ("GM Count IV Automobiles").[12]

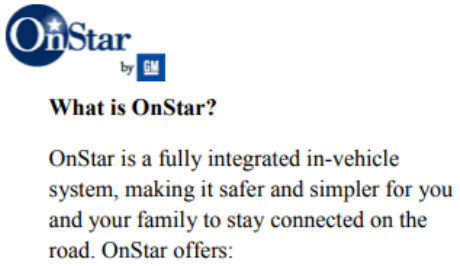
116. As an exemplary claim, Claim 15 of the '475 Patent is reproduced below:

> *15. A device for notifying a recipient of a violation by a driver of a vehicle, the device comprising:*
>
> *an information module configured to determine, while the device is located within a vehicle, information about the vehicle;*
>
> *a processing module configured to determine, while the device is located within the vehicle, that the vehicle committed a violation based on the information about the vehicle; and*
>
> *a transmission module configured to send, to a remote computing system while the device is located within the vehicle, an indication of the violation;*
>
> *wherein the remote computing device is configured to notify a recipient about the violation committed by the vehicle.*

117. Upon information and belief, General Motors and the GM Count IV Automobiles perform or can perform each and every limitation of at least claim 15 of the '475 Patent.

[12] *See, e.g.*, https://my.chevrolet.com/onstar/learn; https://my.gmc.com/onstar/learn; https://my.cadillac.com/onstar/learn; https://media.gm.com/media/cn/en/gm/news.detail.html/content/Pages/news/cn/en/2021/Sept/0917-wuling.html.

118. Upon information and belief, the GM Count IV Automobiles include and use a device, for example, the OnStar telematics unit, which has a Family Link feature for notifying a recipient of a violation by a driver of a vehicle.[13]



**What is OnStar?**

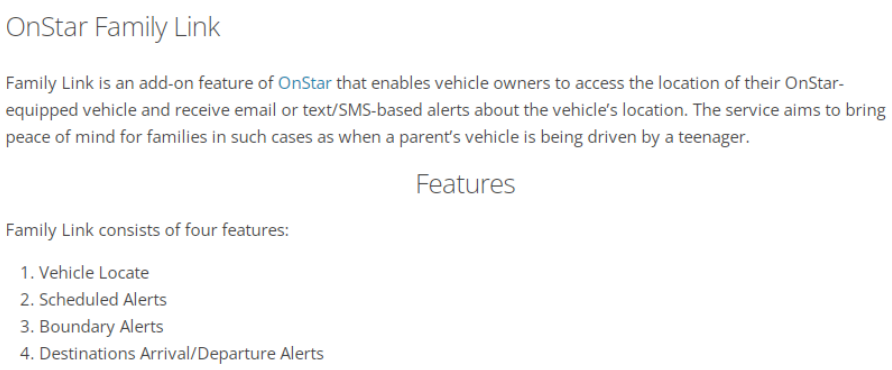
OnStar is a fully integrated in-vehicle system, making it safer and simpler for you and your family to stay connected on the road. OnStar offers:

http://luppino.weebly.com/uploads/6/4/5/3/645358/microsoft_word_-_what_is_onstar_final.pdf

**UNLOCK YOUR VEHICLE'S FULL POTENTIAL**

GMC owners get GMC Connected Services and OnStar Safety & Security coverage at no additional cost for a limited time. These services give added confidence by providing your vehicle with emergency support and a seamless connection to entertainment on the road. Unlock these services today by pushing your blue OnStar® button.

https://www.hartmotorsgmc.com/onstar.html



OnStar Family Link

Family Link is an add-on feature of OnStar that enables vehicle owners to access the location of their OnStar-equipped vehicle and receive email or text/SMS-based alerts about the vehicle's location. The service aims to bring peace of mind for families in such cases as when a parent's vehicle is being driven by a teenager.

Features

Family Link consists of four features:

1. Vehicle Locate
2. Scheduled Alerts
3. Boundary Alerts
4. Destinations Arrival/Departure Alerts

https://gmauthority.com/blog/gm/general-motors-technology/onstar/onstar-family-link/

119. Upon information and belief, the GM Count IV Automobiles with the OnStar

[13] https://www.hartmotorsgmc.com/onstar.html; https://gmauthority.com/blog/gm/general-motors-technology/onstar/onstar-family-link/; http://luppino.weebly.com/uploads/6/4/5/3/645358/microsoft_word_-_what_is_onstar_final.pdf.

telematics unit include an information module configured to determine, while the device is located within a vehicle, information about the vehicle. Upon information and belief, the OnStar telematics unit in the GM Count IV Automobiles is equipped with a GPS receiver to calculate location data.[14]

> If you've ever wondered how GM's OnStar telematics system functions, wonder no more! The extremely useful service ties together several technologies, including GPS and cellular communications, to deliver an intuitive experience and piece of mind (as well as the cutting-edge "cool" factor when it comes to OnStar Mobile Apps). So, how does OnStar work?
>
> 1. It all begins with GPS satellites orbiting the earth at 12,000 miles, continually relaying navigational data.
> 2. This data is then used by a GM vehicle's (or by a vehicle equipped with Onstar FMV) GPS receiver to calculate location data from at least three GPS satellites.

https://gmauthority.com/blog/2011/06/feature-spotlight-so-here-is-how-onstar-works-infographic/


https://gmauthority.com/blog/2011/06/feature-spotlight-so-here-is-how-onstar-works-infographic/

120. Further, for example, the OnStar telematics unit includes a Family Link feature in the GM Count IV Automobiles that determines, for example, that the vehicle is driven outside the

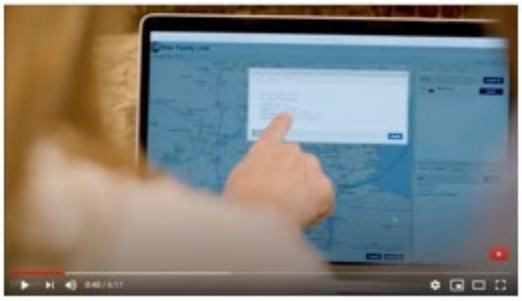
[14] *See, e.g.*, https://gmauthority.com/blog/2011/06/feature-spotlight-so-here-is-how-onstar-works-infographic/.

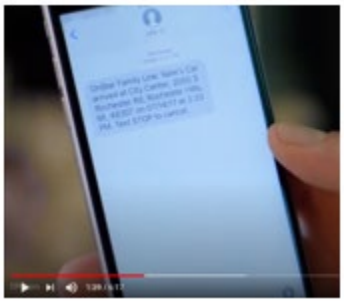
user-set parameter (violation).[15]

> teenager can drive. Once you set that perimeter online, you will get a text message if your teenager decides on a sudden road trip and crosses that digital barrier. You also can locate the vehicle at any time by going onto the system's web site.

https://www.cbsnews.com/news/new-technology-lets-parents-set-controls-for-teen-drivers/

121. Upon information and belief, the GM Count IV Automobiles with the OnStar Family Link feature include a transmission module configured to send, to a remote computing system while the device is located within the vehicle, an indication of the violation, wherein the remote computing device is configured to notify a recipient about the violation committed by the vehicle. Upon information and belief, the OnStar Family Link feature sends a violation notice to the General Motors servers and a text notification is forwarded to the recipient, for example if the vehicle is driven outside the user-set perimeter. [16]





https://www.youtube.com/watch?v=NLFVLWFNhl8.

122. Accordingly, General Motors is using, offering for sale, or selling in the United States the GM Count IV Automobiles equipped with OnStar Family Link that directly infringes one or more claims of the '475 Patent.

[15] *See, e.g.*, https://www.cbsnews.com/news/new-technology-lets-parents-set-controls-for-teen-drivers/.
[16] *See, e.g.*, https://www.cbsnews.com/news/new-technology-lets-parents-set-controls-for-teen-drivers/; https://www.youtube.com/watch?v=NLFVLWFNhl8 .

123. Additionally, General Motors has been, and currently is, actively inducing infringement of the ’475 Patent under 35 U.S.C. § 271(b) and contributorily infringing the ’475 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

124. General Motors knew of the ’475 Patent, or should have known of the ’475 Patent, but was willfully blind to it its existence. General Motors has had actual knowledge of the ’475 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, General Motors will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the ’475 Patent.

125. General Motors has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the ’475 Patent with knowledge of the ’475 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the ’475 Patent. As an illustrative example only, General Motors induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use the claimed the OnStar Family Link in the GM Count IV Automobiles that when used in their normal and customary way as intended and designed by General Motors, infringe one or more claims of the ’475 Patent.

126. General Motors has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’475 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’475 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

127. As a result of General Motors' acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT V**

(General Motors' Infringement of U.S. Patent No. 7,382,771)

128. Paragraphs 1-127 are incorporated by reference as if fully set forth herein.

129. General Motors has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '771 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '771 Patent including, but not limited to the Sonic, Cruze, Malibu, Impala, Equinox, Suburban, Spark, Corvette, Enclave, Encore, Encore GX, Regal, XT4, XT5, XT6, Escalade, Escalade, CT5, CT5-V, CT5-V Blackwing; Sierra, Canyon, Terrain, Acadia, Yukon, Hummer, Terrain Denali, Acadia Denali, Canyon Denali, Sierra Denali, Sierra Denali, and Yukon Denali that are equipped with "In-Vehicle Wi-Fi" and/or similar mobile wireless hotspot functionality ("Mobile HotSpot System") ("GM Count V Automobiles").

130. An exemplary claim, claim 1 of the '771 Patent is reproduced below:

*1. A mobile wireless hot spot system, comprising:*

*a) a short-range, high-speed wireless access point operative to communicate with short-range client devices;*

*b) a long-range, wireless Internet access interface operative to communicate with the Internet; and*

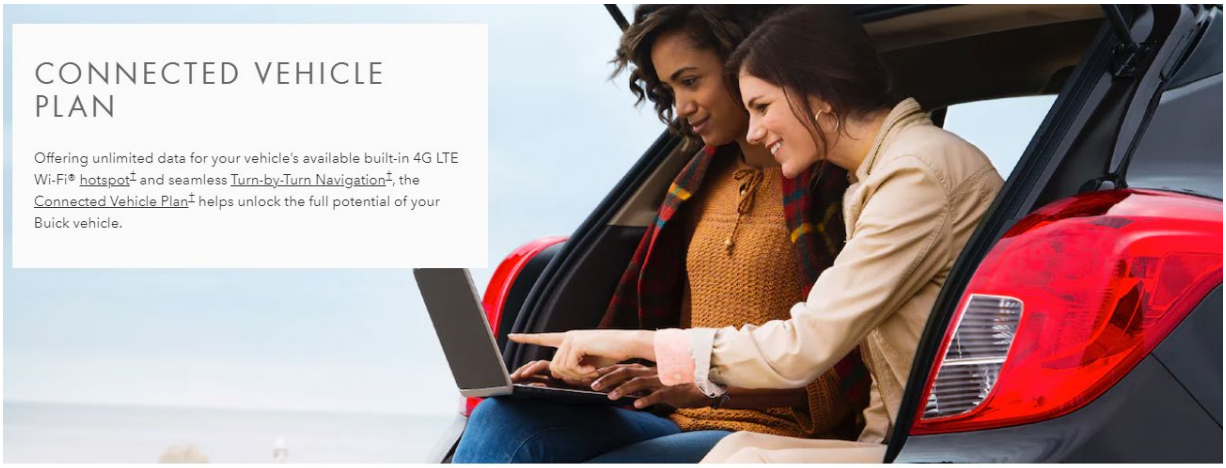
*c) a Local Area Network (LAN) routing system managing the data path between said wireless access point and said Internet access interface,*

*wherein said mobile wireless hotspot system is a stand-alone system that enables*

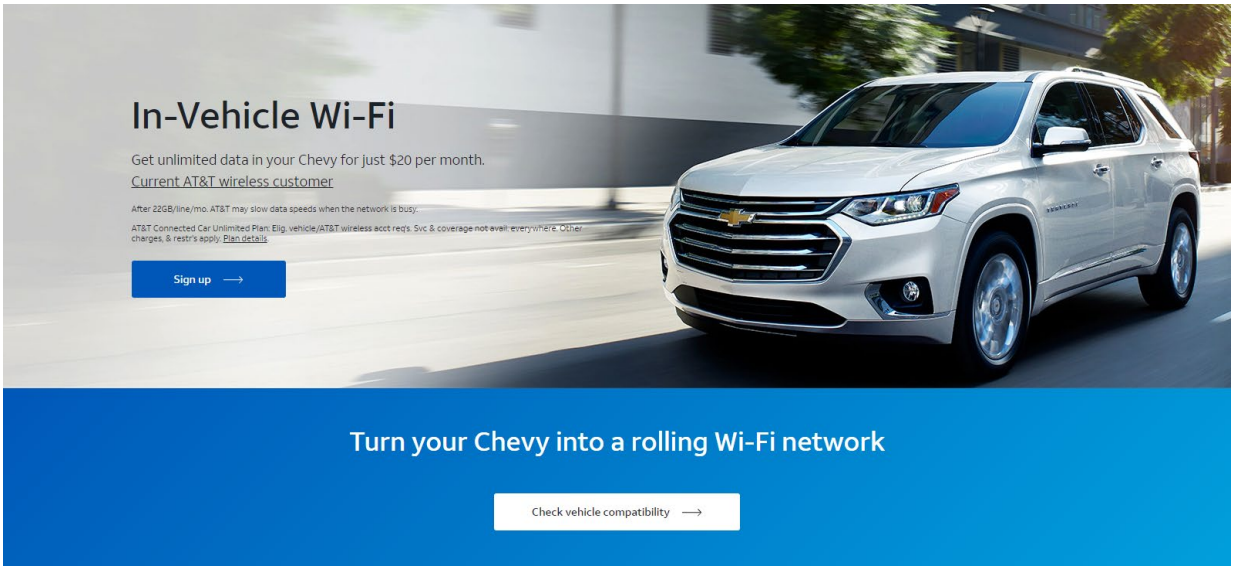
*client devices configured for short-range, high-speed wireless Internet access to use said mobile wireless hotspot system to access the Internet without the need to access an external service controller server.*

131. Upon information and belief, General Motors and the GM Count V Automobiles perform or can perform each and every limitation of at least claim 1 of the '771 Patent.

132. Upon information and belief, the GM Count V Automobiles are equipped with Mobile Hotspot Systems.




https://www.buick.com/discover/connectivity/connected-services




https://www.att.com/plans/connected-car/chevrolet/


https://www.gmc.com/connectivity-technology/wifi-hotspot

133. Upon information and belief, the Mobile Hotspot Systems in the GM Count V Automobiles includes a short-range, high-speed wireless access point operative to communicate with short-range client devices, such as mobile phones or tablets. Upon information and belief, the Mobile Hot-Spot allows users to connect to the Internet through Wi-Fi.

134. Upon information and belief, the Mobile Hotspot Systems in the GM Count V Automobiles includes a long-range, wireless Internet access interface operative to communicate

with the Internet through networks provided by AT&T, OnStar, and/or other Internet providers.

135. Upon information and belief, the Mobile Hotspot Systems in the GM Count V Automobiles includes a Local Area Network (LAN) routing system which manages the data path between the wireless access point and the Internet access interface. Upon information and belief, the Mobile Hotspot Systems in the GM Count V Automobiles is a stand-alone system that allows client devices to access the internet, for example, through Wi-Fi, and connect to high-speed wireless Internet, including 4G. Upon information and belief, the Mobile Hotspot stand-alone system enables client devices configured for short-range, high-speed wireless Internet access to use said Mobile Hotspot System to access the Internet without the need to access an external service controller server. As a result, user devices such as mobile phones and tablets are capable of accessing the Internet through the Mobile Hotspot System without having to rely on the user device's own cellular capability to access the Internet.

136. Accordingly, General Motors is using, offering for sale, or selling in the United States the GM Count V Automobiles equipped with a Mobile Hotspot System that infringes one or more claims of the '771 Patent.

137. Additionally, General Motors has been, and currently is, actively inducing infringement of the '771 Patent under 35 U.S.C. § 271(b) and contributorily infringing the '771 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

138. General Motors knew of the '771 Patent, or should have known of the '771 Patent, but was willfully blind to it its existence. General Motors has had actual knowledge of the '771 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, General Motors will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one

or more claims of the ’771 Patent.

139. General Motors has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the ’771 Patent with knowledge of the ’771 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the ’771 Patent. As an illustrative example only, General Motors induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use the claimed Mobile Hotspot Systems in the GM Count V Automobiles that when used in their normal and customary way as intended and designed by General Motors, infringe one or more claims of the ’771 Patent.

140. General Motors has also committed, and continues to commit, contributory infringement by, *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’771 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’771 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

141. As a result of General Motors’ acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

## COUNT VI

(General Motors’ Infringement of U.S. Patent No. 9,232,158)

142. Paragraphs 1-141 are incorporated by reference as if fully set forth herein.

143. General Motors has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the ’158 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the ’158 Patent including, but not limited to Chevy,

Cadillac, GMC, and Buick's vehicle lines that are equipped with Surround Vision ("GM Count VI Automobiles").

144. An exemplary claim, claim 9 of the '158 Patent is reproduced below:

> *9. A system comprising:*
>
> *a plurality of channels, wherein each channel of the plurality of channels includes a sensor; and*
>
> *a processing component coupled to the plurality of channels, wherein the processing component is configured to determine an integration time of each channel of the plurality of channels, wherein the processing component is configured to combine data from the plurality of channels received to provide an image...*

145. Upon information and belief, General Motors and the GM Count VI Automobiles perform or can perform each and every limitation of at least claim 9 of the '158 Patent.

146. Upon information and belief, the GM Count VI Automobiles are equipped with a processing component that determines the integration time of multiple channels and combines the data from the multiple channels to provide an image as claimed in the '158 Patent.

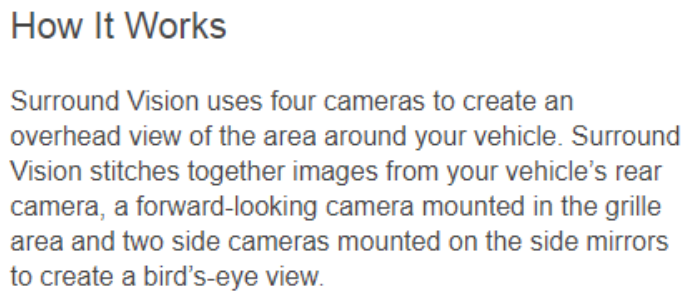
https://gm-techlink.com/?p=12549

https://www.youtube.com/watch?v=LaIKt78oplE&feature=youtu.be


https://www.youtube.com/watch?v=wCgx9Kgisck

147. Upon information and belief, Surround Vision in the GM Count VI Automobiles includes a plurality of channels, wherein each channel of the plurality of channels includes a sensor. Upon information and belief, Surround Vision uses four cameras (sensors) to create an overhead view of the area around the vehicle.

148. Upon information and belief, Surround Vision in the GM Count VI Automobiles includes a processing component coupled to the plurality of channels, wherein the processing component is configured to determine an integration time of each channel of the plurality of channels, wherein the processing component is configured to combine data from the plurality of channels received to provide an image. Surround Vision includes hardware and software that stitches together the images from the four cameras to create a combined image displaying a bird's eye view of the vehicle.




https://my.gmc.com/how-to-support/driving-performance/parking/surround-vision#:~:text=Surround%20Vision%20uses%20four%20cameras,create%20a%20bird's%2Deye%20view

149. Accordingly, General Motors is using, offering for sale, or selling in the United States the GM Count VI Automobiles equipped with Surround-View that directly infringes one or more claims of the '158 Patent.

150. Additionally, General Motors has been, and currently is, actively inducing infringement of the '158 Patent under 35 U.S.C. § 271(b) and contributorily infringing the '158 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

151. General Motors knew of the '158 Patent, or should have known of the '158 Patent, but was willfully blind to it its existence. General Motors has had actual knowledge of the '158 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, General Motors will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the '158 Patent.

152. General Motors has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the '158 Patent with knowledge of the '158 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the '158 Patent. As an illustrative example only, General Motors induces such acts of infringement by their affirmative action of providing, promoting, and instructing its customers on

how to use Surround View in the GM Count VI Automobiles that when used in their normal and customary way as intended and designed by General Motors, infringe one or more claims of the '158 Patent.

153. General Motors has also committed, and continues to commit, contributory infringement by, *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the '158 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the '158 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

154. As a result of General Motors' acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT VII**

(GM's Infringement of U.S. Patent No. 9,681,466)

155. Paragraphs 1-154 are incorporated by reference as if fully set forth herein.

156. GM has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '466 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '466 Patent including, but not limited to Sonic, Cruze, Malibu, Impala, Equinox, Suburban, Spark, Corvette, Enclave, Encore, Encore GX, Regal, XT4, XT5, XT6, Escalade, Escalade ESV, CT4, CT4-V, CT4 – V Blackwing, CT5, CT5-V, CT5-V Blackwing; Sierra, Canyon, Terrain, Acadia, Yukon, Hummer, Terrain Denali, Acadia Denali, Canyon Denali, Sierra Denali, Sierra Denali, and Yukon Denali that use in-Vehicle Wi-Fi or other vehicle Wi-Fi service (collectively, "GM Count VII Automobiles").

157. As an exemplary claim, Claim 1 of the '466 Patent is reproduced below:

*1. A user equipment (UE) comprising:*

*circuitry configured to receive, from a network device, a first transmission including a first parameter corresponding to each of a plurality of channels and a second transmission including an allocation message for an uplink resource from the network device;*

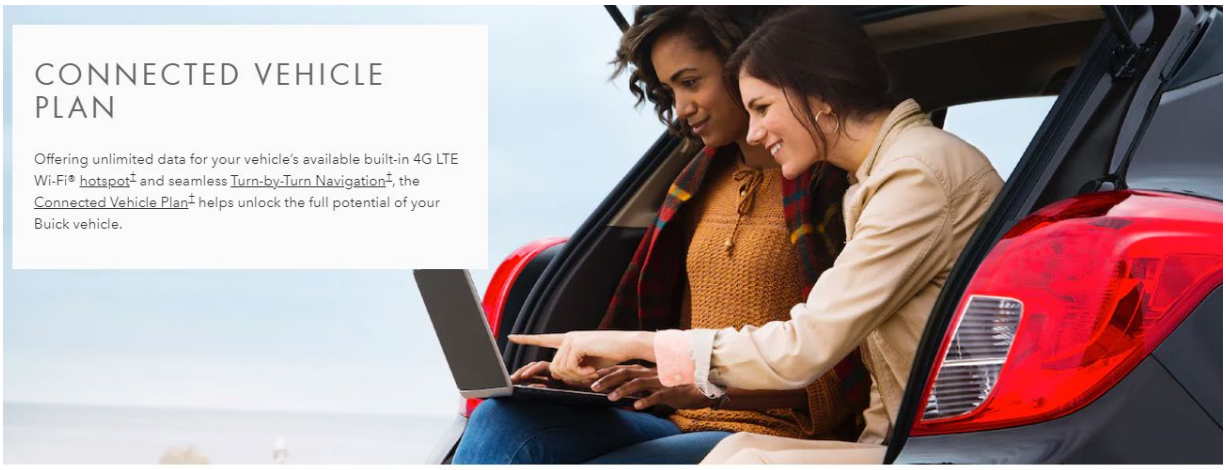
*a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for data of each channel having a second parameter above zero prior to another channel's data for transmission having a third parameter less than or equal to zero; and*

*wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter.*

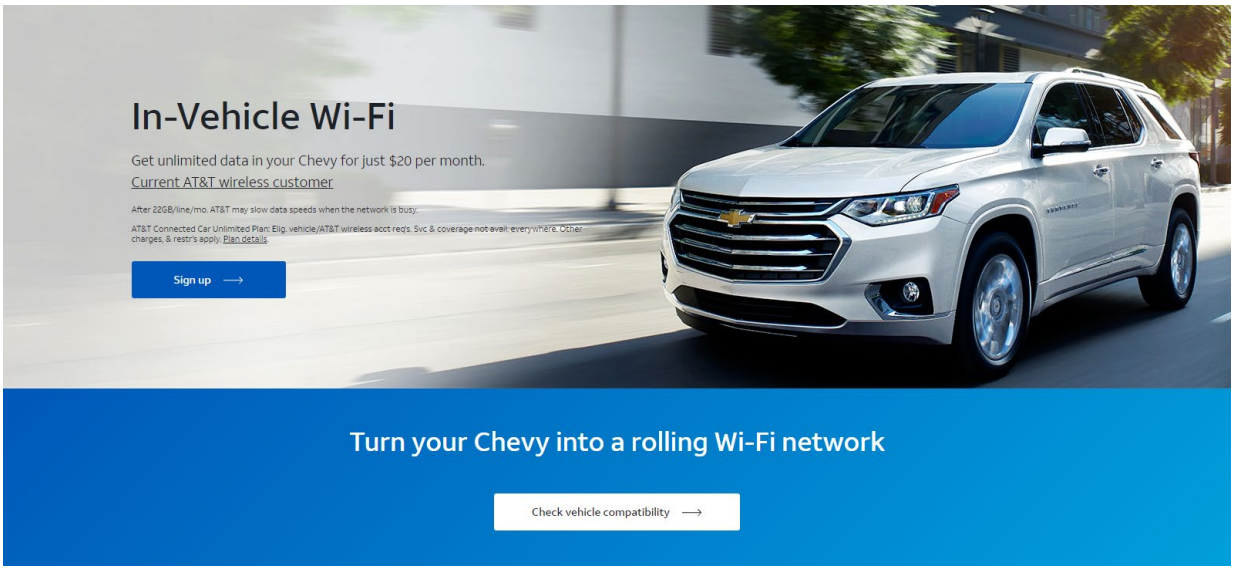
158. Upon information and belief, the GM Count VII Automobiles perform each and every limitation of at least claim 1 of the ’466 Patent.

159. Upon information and belief, the GM Count VII Automobiles support GM’s Mobile Hotspot System. Upon information and belief, the GM Count VII Automobiles’ Mobile Hotspot System can connect with 4G LTE to the Internet.

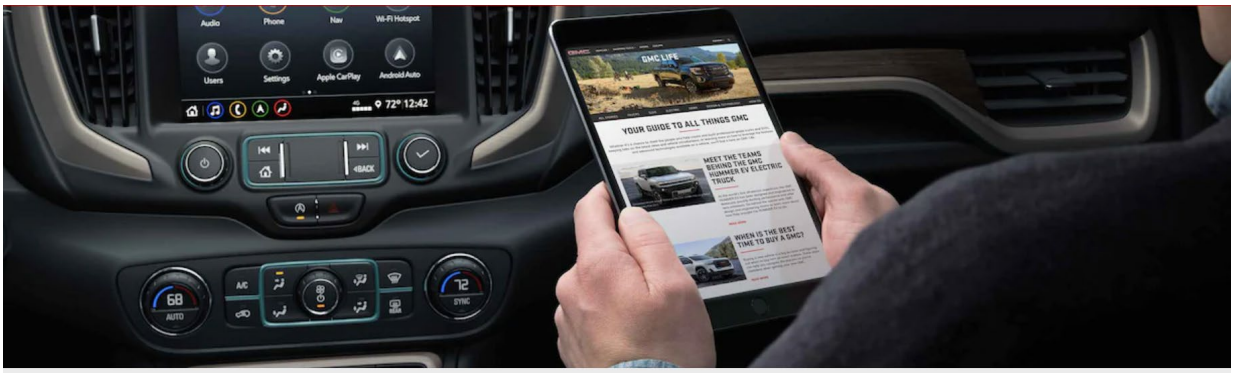
160. Upon information and belief, the GM Count VII Automobiles are equipped with mobile wireless hot-spot systems as claimed in the ’466 Patent. Upon information and belief, Internet connectivity for the Mobile Hot-Spot is provided by AT&T, Verizon Wireless and/or another Internet provider through, for example, a trial period and/or through a subscription.




https://www.buick.com/discover/connectivity/connected-services




https://www.att.com/plans/connected-car/chevrolet/




https://www.gmc.com/connectivity-technology/wifi-hotspot

161. Upon information and belief, the GM Count VII Automobiles' Mobile Hotspot, and/or 4G LTE modem are compliant with and use the 3GPP standards.

162. Upon information and belief, the GM Count VII Automobiles contain user equipment (UE).

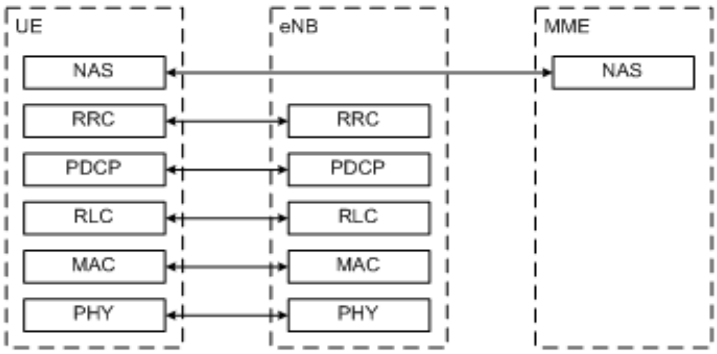



**Figure 4.3.2-1: Control-plane protocol stack**

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 19.

### 7.2 RRC protocol states & state transitions

- At PDCP/RLC/MAC level:
  - UE can transmit and/or receive data to/from network;
  - UE monitors control signalling channel for shared data channel to see if any transmission over the shared data channel has been allocated to the UE;

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at pp. 37, 38.

163. Upon information and belief, the GM Count VII Automobiles contain circuitry configured to receive, from a network device, a first transmission including a first parameter corresponding to each of a plurality of channels and a second transmission including an allocation message for an uplink resource from the network device.

### 4.4 Functions

The RRC protocol includes the following main functions:

- QoS control including assignment/ modification of semi-persistent scheduling (SPS) configuration information for DL and UL, assignment/ modification of parameters for UL rate control in the UE, i.e. allocation of a priority and a prioritised bit rate (PBR) for each RB;

*See* Exhibit 16, 3GPP TS 36.331 V8.21.0 at p. 19.

### 11.1 Basic Scheduler Operation

MAC in eNB includes dynamic resource schedulers that allocate physical layer resources for the DL-SCH and UL-SCH transport channels. Different schedulers operate for the DL-SCH and UL-SCH.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 67.

#### 11.1.2 Uplink Scheduling

In the uplink, E-UTRAN can dynamically allocate resources (PRBs and MCS) to UEs at each TTI via the C-RNTI on PDCCH(s). A UE always monitors the PDCCH(s) in order to find possible allocation for uplink transmission when its downlink reception is enabled (activity governed by DRX when configured).

*See id.*

164. Upon information and belief, the GM Count VII Automobiles include a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for data of each channel having a second parameter above zero prior to another channel's data for transmission having a third parameter less than or equal to zero.

#### 4.2.1 MAC Entities

E-UTRA defines two MAC entities; one in the UE and one in the E-UTRAN. These MAC entities handle the following transport channels:

- Uplink Shared Channel(s) (UL-SCH);
- Random Access Channel(s) (RACH);

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 8.

### 5.4.1 UL Grant reception

In order to transmit on the UL-SCH the UE must have a valid uplink grant (except for non-adaptive HARQ retransmissions) which it may receive dynamically on the PDCCH or in a Random Access Response or which may be configured semi-persistently. To perform requested transmissions, the MAC layer receives HARQ information from

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 20.

### 5.4.3 Multiplexing and assembly

#### 5.4.3.1 Logical channel prioritization

The UE shall perform the following Logical Channel Prioritization procedure when a new transmission is performed:

- The UE shall allocate resources to the logical channels in the following steps:
  - Step 1: All the logical channels with Bj > 0 are allocated resources in a decreasing priority order. If the PBR of a radio bearer is set to "infinity", the UE shall allocate resources for all the data that is available for transmission on the radio bearer before meeting the PBR of the lower priority radio bearer(s);
  - Step 2: the UE shall decrement Bj by the total size of MAC SDUs served to logical channel j in Step 1

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 24.

165. Upon information and belief, GM Count VII Automobiles contain a system wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter.

### 5.4.3 Multiplexing and assembly

#### 5.4.3.1 Logical channel prioritization

RRC controls the scheduling of uplink data by signalling for each logical channel: *priority* where an increasing *priority* value indicates a lower priority level, *prioritisedBitRate* which sets the Prioritized Bit Rate (PBR), *bucketSizeDuration* which sets the Bucket Size Duration (BSD).

The UE shall maintain a variable Bj for each logical channel j. Bj shall be initialized to zero when the related logical channel is established, and incremented by the product PBR × TTI duration for each TTI, where PBR is Prioritized Bit Rate of logical channel j. However, the value of Bj can never exceed the bucket size and if the value of Bj is larger than the bucket size of logical channel j, it shall be set to the bucket size. The bucket size of a logical channel is equal to PBR × BSD, where PBR and BSD are configured by upper layers.

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 24.

166. Accordingly, GM is using, offering for sale, or selling in the United States the GM Count VII Automobiles equipped with a Mobile Hotspot System and/or 4G LTE modem that

directly infringe one or more claims of the ’466 Patent.

167. Additionally, GM has been, and currently is, actively inducing infringement of the ’466 Patent under 35 U.S.C. § 271(b) and contributorily infringing the ’466 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

168. GM knew of the ’466 Patent, or should have known of the ’466 Patent, but was willfully blind to it its existence. GM has had actual knowledge of the ’466 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, GM will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the ’466 Patent.

169. GM has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the ’466 Patent with knowledge of the ’466 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the ’466 Patent. As an illustrative example only, GM induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use the claimed Mobile Hotspot System and/or 4G LTE modem and connectivity features in the GM Count VII Automobiles that when used in their normal and customary way as intended and designed by GM, infringe one or more claims of the ’466 Patent.

170. GM has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’466 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’466 Patent and is not a staple article or

commodity of commerce suitable for a substantial non-infringing use.

171. As a result of GM's acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT VIII**
(GM's Infringement of U.S. Patent No. 10,292,138)

172. Paragraphs 1-171 are incorporated by reference as if fully set forth herein.

173. GM has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '138 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '138 Patent including, but not limited to Sonic, Cruze, Malibu, Impala, Equinox, Suburban, Spark, Corvette, Enclave, Encore, Encore GX, Regal, XT4, XT5, XT6, Escalade, Escalade ESV, CT4, CT4-V, CT4 – V Blackwing, CT5, CT5-V, CT5-V Blackwing; Sierra, Canyon, Terrain, Acadia, Yukon, Hummer, Terrain Denali, Acadia Denali, Canyon Denali, Sierra Denali, Sierra Denali, and Yukon Denali that use in-Vehicle Wi-Fi or other vehicle Wi-Fi service (collectively, "GM Count VIII Automobiles").

174. An exemplary claim, claim 1 of the '138 Patent is reproduced below:

*1. A user equipment (UE) comprising:*

*a processor communicatively coupled to a transmitter and circuitry configured to receive; and*

*the processor is configured to:*

*cause the circuitry to receive parameters associated with a plurality of radio bearers,*

*determine a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the*

*plurality of radio bearers,*

*cause the transmitter to transmit a message including the plurality of buffer occupancies to a network,*

*cause the circuitry to receive a single allocation of uplink resources,*

*select data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration,*

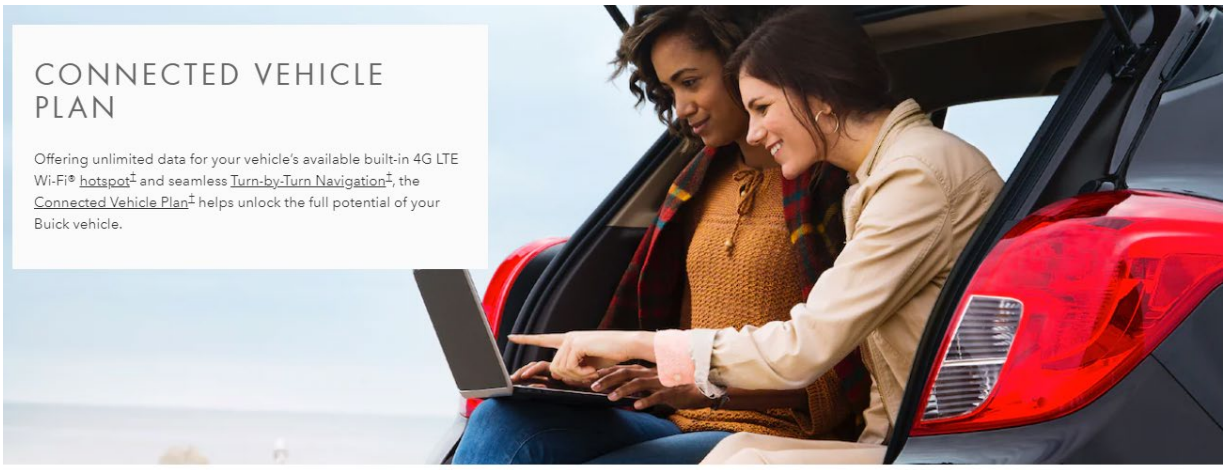
*wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters,*

*wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers, and cause the transmitter to transmit a signal including the selected data.*

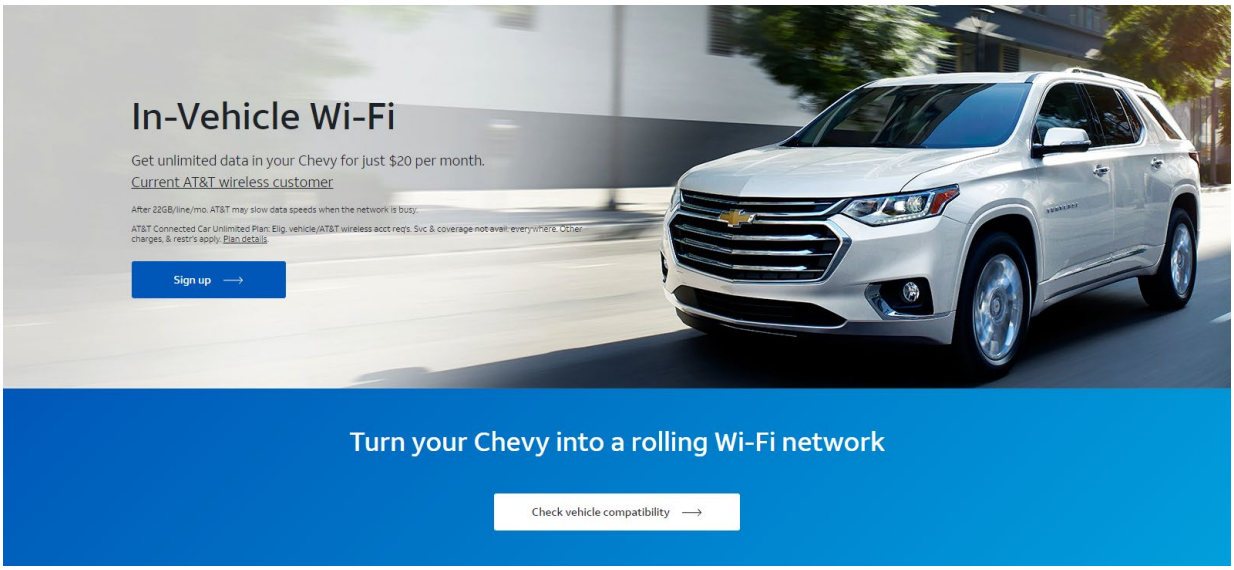
175. Upon information and belief, the GM Count VIII Automobiles perform each and every limitation of at least claim 1 of the ’138 Patent.

176. Upon information and belief, the GM Count VIII Automobiles include GM’s Mobile Hotspot System. Upon information and belief, the GM Count VIII Automobiles’ Mobile Hotspot System can connect with 4G LTE to the Internet.

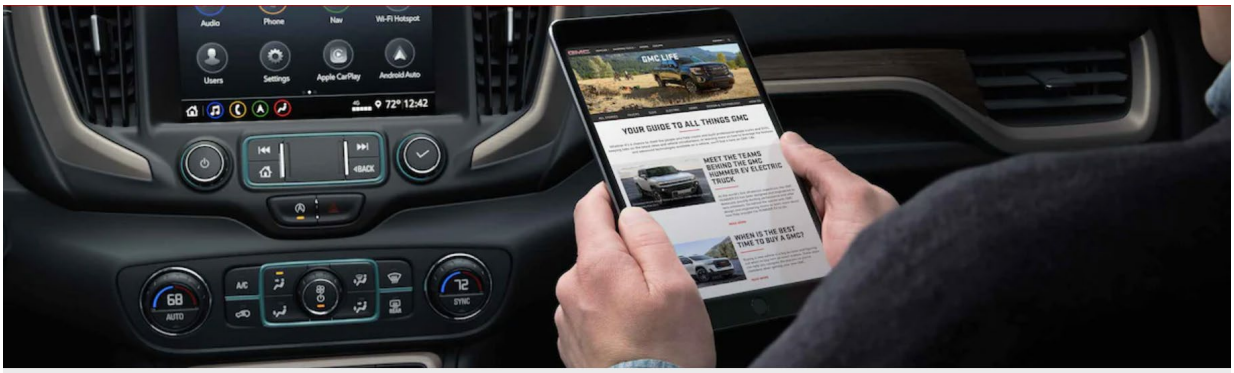
177. Upon information and belief, the GM Count VIII Automobiles are equipped with mobile wireless hot-spot systems as claimed in the ’138 Patent. Upon information and belief, Internet connectivity for the Mobile Hot-Spot is provided by AT&T, Verizon Wireless and/or another Internet provider through, for example, a trial period and/or through a subscription.




https://www.buick.com/discover/connectivity/connected-services




https://www.att.com/plans/connected-car/chevrolet/




## WI-FI® HOTSPOT

Hotspot to go. Whether you're on a business trip and need to stay in touch with the office or on a family vacation and need to keep the kids entertained — connectivity has never been more important. And with GMC, it's never been easier. GMC's Wi-Fi Hotspot[1] is available on most GMC vehicles.

https://www.gmc.com/connectivity-technology/wifi-hotspot

178. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot, and/or 4G LTE modem are compliant with and use the 3GPP standards.

179. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor communicatively coupled to a transmitter and circuitry configured to receive. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor which is communicatively coupled to a transmitter and circuitry configured to receive.

### 3.2 Abbreviations

UE User Equipment

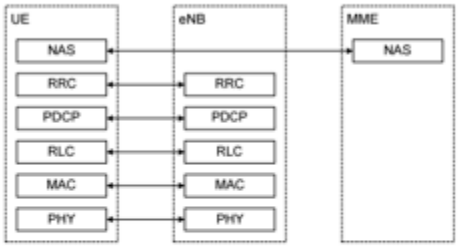



**Figure 4.3.2-1: Control-plane protocol stack**

### 7.2 RRC protocol states & state transitions

- At PDCP/RLC/MAC level:
  - UE can transmit and/or receive data to/from network;
  - UE monitors control signalling channel for shared data channel to see if any transmission over the shared data channel has been allocated to the UE;

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at pp. 12, 15, 19, 37, 38.

180. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor further configured to cause the circuitry to receive parameters associated with a plurality of radio bearers.

4.3.2 Control plane

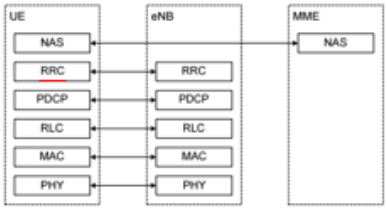



**Figure 4.3.2-1: Control-plane protocol stack**

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 19.

5.4.3 Multiplexing and assembly

5.4.3.1 Logical channel prioritization

The Logical Channel Prioritization procedure is applied when a new transmission is performed.

RRC controls the scheduling of uplink data by signalling for each logical channel: *priority* where an increasing *priority* value indicates a lower priority level, *prioritisedBitRate* which sets the Prioritized Bit Rate (PBR), *bucketSizeDuration* which sets the Bucket Size Duration (BSD).

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 24.

6.3.2 Radio resource control information elements

***LogicalChannelConfig* information element**

```
-- ASN1START

LogicalChannelConfig ::=            SEQUENCE {
    ul-SpecificParameters               SEQUENCE {
        priority                            INTEGER (1..16),
        prioritisedBitRate                  ENUMERATED {
                                                kBps0, kBps8, kBps16, kBps32, kBps64, kBps128,
                                                kBps256, infinity, spare8, spare7, spare6,
                                                spare5, spare4, spare3, spare2, spare1},
        bucketSizeDuration                  ENUMERATED {
                                                ms50, ms100, ms150, ms300, ms500, ms1000, spare2,
                                                spare1},
```

*See* Exhibit 16, 3GPP TS 36.331 V8.21.0 at pp. 116, 118.

181. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor configured to further determine a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the plurality of radio bearers.

### 5.4.5 Buffer Status Reporting

The Buffer Status reporting procedure is used to provide the serving eNB with information about the amount of data available for transmission in the UL buffers of the UE. RRC controls BSR reporting by configuring the two timers *periodicBSR-Timer* and *retxBSR-Timer* and by, for each logical channel, optionally signalling *logicalChannelGroup* which allocates the logical channel to an LCG [8].

For the Buffer Status reporting procedure, the UE shall consider all radio bearers which are not suspended and may consider radio bearers which are suspended.

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at Sec. 5.4.5 at p. 25.

## 6 Layer 2

- The multiplexing of several logical channels (i.e. radio bearers) on the same transport channel (i.e. transport block) is performed by the MAC sublayer;

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at Fig. 6-2 at pp. 31, 32.

182. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot, and/or 4G LTE modem comprise a processor configured to further cause the transmitter to transmit a message including the plurality of buffer occupancies to a network.

### 4.3.2 Control plane

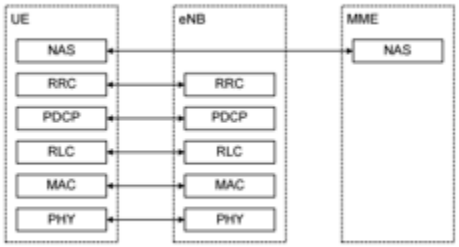



**Figure 4.3.2-1: Control-plane protocol stack**

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at pp. 18, 19.

### 5.4.5 Buffer Status Reporting

The Buffer Status reporting procedure is used to provide the serving eNB with information about the amount of data available for transmission in the UL buffers of the UE. RRC controls BSR reporting by configuring the two timers *periodicBSR-Timer* and *retxBSR-Timer* and by, for each logical channel, optionally signalling *logicalChannelGroup* which allocates the logical channel to an LCG [8].

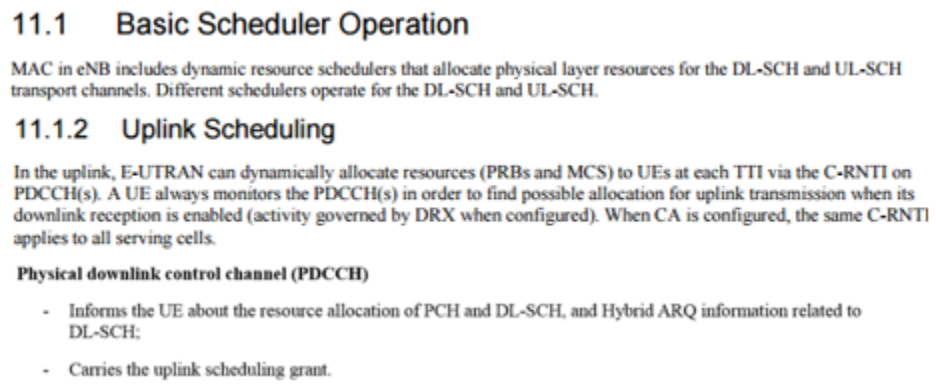
For the Buffer Status reporting procedure, the UE shall consider all radio bearers which are not suspended and may consider radio bearers which are suspended.

A Buffer Status Report (BSR) shall be triggered if any of the following events occur:

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 25.

183. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor configured to further cause the circuitry to receive a

single allocation of uplink resources.



11.1 Basic Scheduler Operation

MAC in eNB includes dynamic resource schedulers that allocate physical layer resources for the DL-SCH and UL-SCH transport channels. Different schedulers operate for the DL-SCH and UL-SCH.

11.1.2 Uplink Scheduling

In the uplink, E-UTRAN can dynamically allocate resources (PRBs and MCS) to UEs at each TTI via the C-RNTI on PDCCH(s). A UE always monitors the PDCCH(s) in order to find possible allocation for uplink transmission when its downlink reception is enabled (activity governed by DRX when configured). When CA is configured, the same C-RNTI applies to all serving cells.

**Physical downlink control channel (PDCCH)**

- Informs the UE about the resource allocation of PCH and DL-SCH, and Hybrid ARQ information related to DL-SCH;
- Carries the uplink scheduling grant.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at pp. 67, 24.

184. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor configured to further select data from the plurality of radio bearers for transmission using the single allocation of uplink resources. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor that selects the data for transmission and allocates resources for each logical channel (i.e. radio bearer) for transmission on the allocated uplink resources. Upon information and belief, in the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem, the selection of the data occurs using a first iteration and a second iteration. Upon information and belief, in the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem, in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters. Upon information and belief, in the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem, in the second iteration, the selection of the data is based on buffered data for respective radio bearers.

> 4.2.1 MAC Entities
>
> E-UTRA defines two MAC entities; one in the UE and one in the E-UTRAN. These MAC entities handle the following transport channels:
>
> - Uplink Shared Channel (UL-SCH);
> - Random Access Channel(s) (RACH).

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 8.

> 5.4.3.1 Logical channel prioritization
>
> The Logical Channel Prioritization procedure is applied when a new transmission is performed.
>
> RRC controls the scheduling of uplink data by signalling for each logical channel: *priority* where an increasing *priority* value indicates a lower priority level, *prioritisedBitRate* which sets the Prioritized Bit Rate (PBR), *bucketSizeDuration* which sets the Bucket Size Duration (BSD).
>
> The UE shall maintain a variable Bj for each logical channel j. Bj shall be initialized to zero when the related logical channel is established, and incremented by the product PBR × TTI duration for each TTI, where PBR is Prioritized Bit Rate of logical channel j. However, the value of Bj can never exceed the bucket size and if the value of Bj is larger than the bucket size of logical channel j, it shall be set to the bucket size. The bucket size of a logical channel is equal to PBR × BSD, where PBR and BSD are configured by upper layers.
>
> The UE shall perform the following Logical Channel Prioritization procedure when a new transmission is performed:
>
> - The UE shall allocate resources to the logical channels in the following steps:
>   - Step 1: All the logical channels with Bj > 0 are allocated resources in a decreasing priority order. If the PBR of a radio bearer is set to "infinity", the UE shall allocate resources for all the data that is available for transmission on the radio bearer before meeting the PBR of the lower priority radio bearer(s);
>   - Step 2: the UE shall decrement Bj by the total size of MAC SDUs served to logical channel j in Step 1
>
> NOTE: The value of Bj can be negative.
>
>   - Step 3: if any resources remain, all the logical channels are served in a strict decreasing priority order (regardless of the value of Bj) until either the data for that logical channel or the UL grant is exhausted, whichever comes first. Logical channels configured with equal priority should be served equally.

*See* Exhibit 17, 3GPP TS 36.321 V8.12.0 at p. 24.

185. Upon information and belief, the GM Count VIII Automobiles' Mobile Hotspot and/or 4G LTE modem comprise a processor configured to further cause the transmitter to transmit a signal including the selected data.

13.1 Bearer service architecture

- A data radio bearer transports the packets of an EPS bearer between a UE and an eNB. When a data radio bearer exists, there is a one-to-one mapping between this data radio bearer and the EPS bearer/E-RAB.

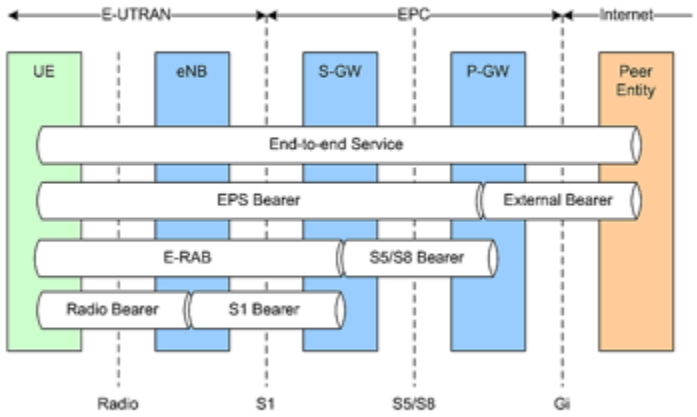



**Figure 13.1-1: EPS Bearer Service Architecture**

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 71.

186. Accordingly, GM is using, offering for sale, or selling in the United States the GM Count VIII Automobiles equipped with a Mobile Hotspot System and/or 4G LTE modem that directly infringe one or more claims of the '138 Patent.

187. Additionally, GM has been, and currently is, actively inducing infringement of the '138 Patent under 35 U.S.C. § 271(b) and contributorily infringing the '138 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

188. GM knew of the '138 Patent, or should have known of the '138 Patent, but was willfully blind to it its existence. GM has had actual knowledge of the '138 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, GM will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the '138 Patent.

189. GM has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the '138 Patent with knowledge of the '138 Patent and

knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the '138 Patent. As an illustrative example only, GM induces such acts of infringement by their affirmative action of providing, promoting, and instructing its customers on how to use GM's Mobile Hotspot systems and connectivity features in the GM Count VIII Automobiles that when used in their normal and customary way as intended and designed by GM, infringe one or more claims of the '138 Patent.

190. GM has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the '138 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the '138 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

191. As a result of GM's acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT IX**

(GM's Infringement of U.S. Patent No. 8,953,641)

192. Paragraphs 1-191 are incorporated by reference as if fully set forth herein.

193. GM has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '641 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '641 Patent including, but not limited to Sonic, Cruze, Malibu, Impala, Equinox, Suburban, Spark, Corvette, Enclave, Encore, Encore GX, Regal, XT4, XT5, XT6, Escalade, Escalade ESV, CT4, CT4-V, CT4 – V Blackwing, CT5, CT5-V, CT5-V Blackwing; Sierra, Canyon, Terrain, Acadia, Yukon, Hummer, Terrain Denali, Acadia Denali,

Canyon Denali, Sierra Denali, Sierra Denali, and Yukon Denali that use in-Vehicle Wi-Fi or other vehicle Wi-Fi service (collectively, "GM Count IX Automobiles").

194. As an exemplary claim, Claim 11 of the '641 Patent, is reproduced below:

*11. A mobile station, comprising:*

*circuitry configured to receive broadcast information to access an orthogonal frequency division multiple access (OFDMA) system, wherein the broadcast information is received only in a first band having a first bandwidth and the broadcast information is carried by a plurality of groups of subcarriers with each group having a plurality of contiguous subcarriers; and*

*circuitry configured to determine a second bandwidth of a second band that is associated with the OFDMA system based upon the broadcast information received in the first band, wherein a second bandwidth of the second band is greater than the first bandwidth of the first band,*

*wherein the first band is contained within the second band,*

*wherein a data channel is carried by at least one subcarrier group of the second band,*

*wherein the plurality of contiguous subcarriers have fixed spacing,*

*wherein a number of usable subcarriers is adjustable to realize a variable band, wherein the number of usable subcarriers is determined based on a plurality of operating channel bandwidths, and*

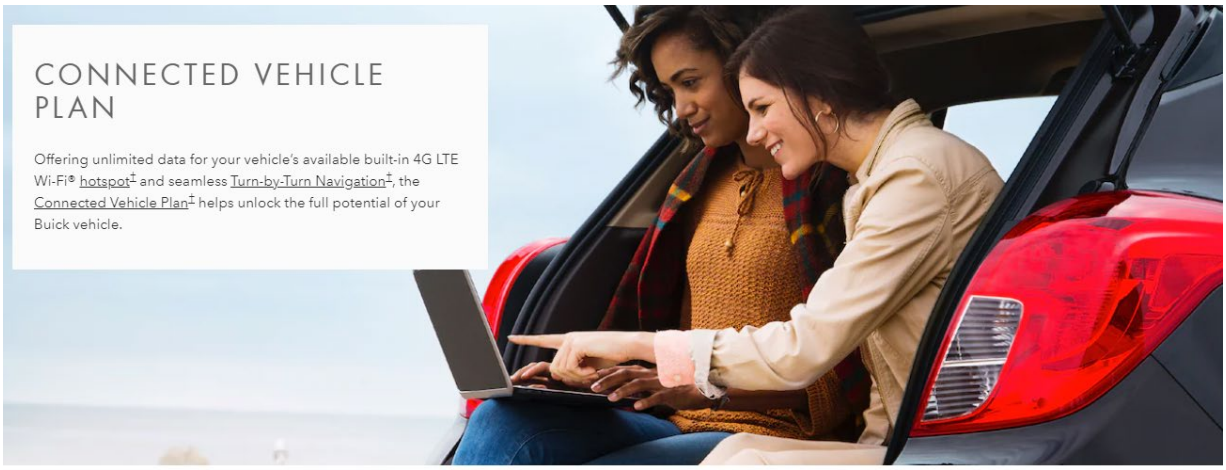
*wherein the first band is defined as a frequency segment with a bandwidth that is not greater than a smallest operating channel bandwidth among the plurality of operating channel bandwidths, the first band having a same value for the*

*plurality of operating channel bandwidths wherein the mobile station is configured to operate within the plurality of operating channel bandwidths.*

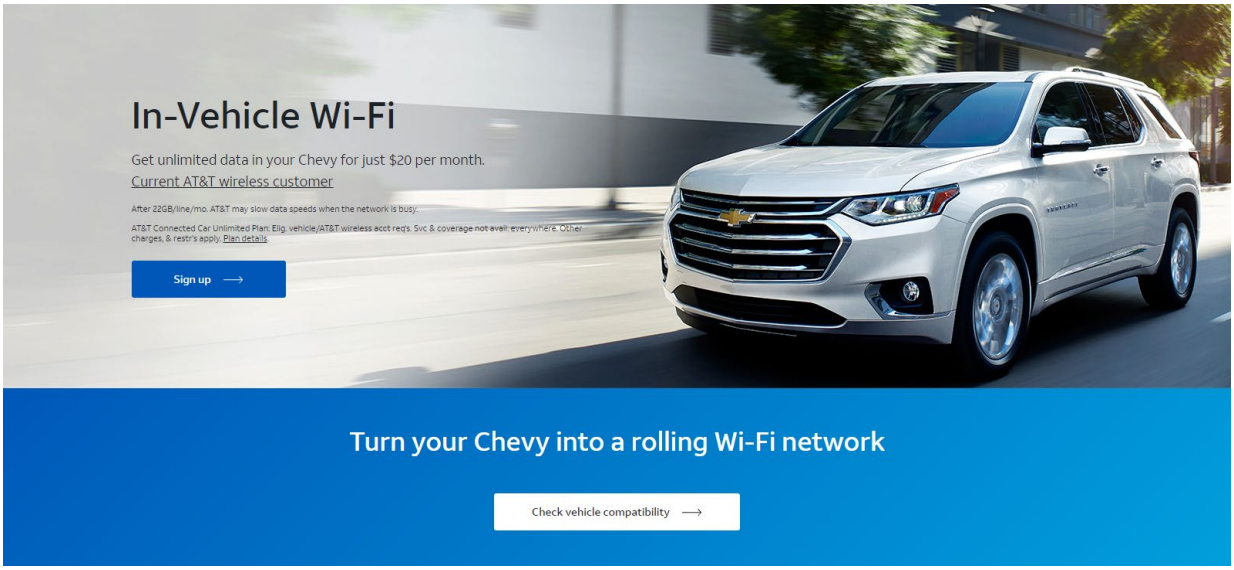
195. Upon information and belief, the GM Count IX Automobiles perform each and every limitation of at least claim 1 of the '641 Patent.

196. Upon information and belief, the GM Count IX Automobiles include GM's Mobile Hotspot System. Upon information and belief, the GM Count IX Automobiles' Mobile Hotspot System can connect with 4G LTE to the Internet.

197. Upon information and belief, the GM Count IX Automobiles are equipped with mobile wireless hot-spot systems as claimed in the '641 Patent. Upon information and belief, Internet connectivity for the Mobile Hot-Spot is provided by AT&T, Verizon Wireless and/or another Internet provider through, for example, a trial period and/or through a subscription.




https://www.buick.com/discover/connectivity/connected-services




https://www.att.com/plans/connected-car/chevrolet/


https://www.gmc.com/connectivity-technology/wifi-hotspot

198. Upon information and belief, the GM Count IX Automobiles' Mobile Hotspotand/or 4G LTE modem are compliant with and use the 3GPP standards.

199. Upon information and belief, the GM Count IX Automobiles include circuitry configured to receive broadcast information to access an orthogonal frequency division multiple

access (OFDMA) system.[17]

### 4.3.2 Control plane

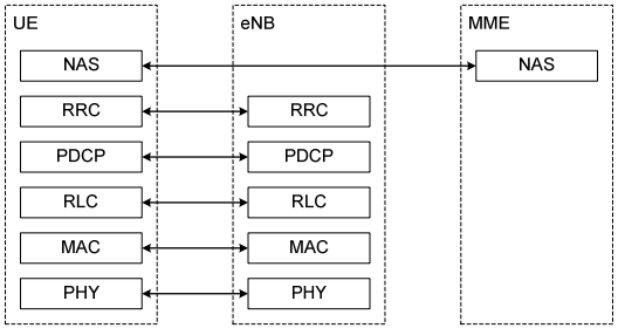



**Figure 4.3.2-1: Control-plane protocol stack**

## 4 Overall architecture

The E-UTRAN consists of eNBs, providing the E-UTRA user plane (PDCP/RLC/MAC/PHY) and control plane (RRC) protocol terminations towards the UE. The eNBs are interconnected with each other by means of the X2 interface. The eNBs are also connected by means of the S1 interface to the EPC (Evolved Packet Core), more specifically to the MME (Mobility Management Entity) by means of the S1-MME and to the Serving Gateway (S-GW) by means of the S1-U. The S1 interface supports a many-to-many relation between MMEs / Serving Gateways and eNBs.

### 4.3.2 Control plane

- RRC (terminated in eNB on the network side) performs the functions listed in subclause 7, e.g.:
  - Broadcast;

## 5.1 Downlink Transmission Scheme

### 5.1.1 Basic transmission scheme based on OFDM

The downlink transmission scheme is based on conventional OFDM using a cyclic prefix. The OFDM sub-carrier spacing is $\Delta f = 15$ kHz. 12 consecutive sub-carriers during one slot correspond to one downlink *resource block*. In the frequency domain, the number of resource blocks, $N_{RB}$, can range from $N_{RB\text{-}min} = 6$ to $N_{RB\text{-}max} = 110$.

*See* Exhibit 15, 3GPP TS 36.300 at pp. 18, 19, 15, 25.

200. Upon information and belief, broadcast information is received only in a first band having a first bandwidth.[18]

[17] *See* Exhibit 15, 3GPP TS 36.300 at pp. 18, 19, 15, 25.
[18] *See* Exhibit 18, 3GPP TS 36.211 V8.9.0 at Sec. 6.6.4, pp. 56, 57, 58.

## 6.6 Physical broadcast channel

### 6.6.4 Mapping to resource elements

The block of complex-valued symbols $y^{(p)}(0),\ldots,y^{(p)}(M_{\text{symb}}-1)$ for each antenna port is transmitted during 4 consecutive radio frames starting in each radio frame fulfilling $n_f \bmod 4 = 0$ and shall be mapped in sequence starting with $y(0)$ to resource elements $(k,l)$. The mapping to resource elements $(k,l)$ not reserved for transmission of reference signals shall be in increasing order of first the index $k$, then the index $l$ in slot 1 in subframe 0 and finally the radio frame number. The resource-element indices are given by

$$k = \frac{N_{\text{RB}}^{\text{DL}} N_{\text{sc}}^{\text{RB}}}{2} - 36 + k', \qquad k' = 0,1,\ldots,71$$
$$l = 0,1,\ldots,3$$

where resource elements reserved for reference signals shall be excluded. The mapping operation shall assume cell-specific reference signals for antenna ports 0-3 being present irrespective of the actual configuration. The UE shall assume that the resource elements assumed to be reserved for reference signals in the mapping operation above but not used for transmission of reference signal are not available for PDSCH transmission. The UE shall not make any other assumptions about these resource elements.

*See* Exhibit 18, 3GPP TS 36.211 V8.9.0 at Sec. 6.6.4, pp. 56, 57.

201. Upon information and belief, broadcast information is received only in a first band having a first bandwidth and the broadcast information is carried by a plurality of groups of subcarriers with each group having a plurality of contiguous subcarriers.[19]

### 5.1.1 Basic transmission scheme based on OFDM

The downlink transmission scheme is based on conventional OFDM using a cyclic prefix. The OFDM sub-carrier spacing is $\Delta f = 15$ kHz. 12 consecutive sub-carriers during one slot correspond to one downlink *resource block*. In the frequency domain, the number of resource blocks, $N_{RB}$, can range from $N_{RB\text{-}min} = 6$ to $N_{RB\text{-}max} = 110$.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 25.

202. Upon information and belief, the GM Count IX Automobiles include circuitry configured to determine a second bandwidth of a second band that is associated with the OFDMA system based upon the broadcast information received in the first band.[20]

[19] *See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 25; Exhibit 16, 3GPP TS 36.331 V8.21.0 at p. 21.
[20] *See* Exhibit 16, 3GPP TS 36.331 V8.21.0 at pp. 21, 85, 86.

**Physical broadcast channel (PBCH)**

- The coded BCH transport block is mapped to four subframes within a 40 ms interval;
- 40 ms timing is blindly detected, i.e. there is no explicit signalling indicating 40 ms timing;
- Each subframe is assumed to be self-decodable, i.e. the BCH can be decoded from a single reception, assuming sufficiently good channel conditions.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 24.

203. Upon information and belief, the second bandwidth of the second band is greater than the first bandwidth of the first band.

**Table 5.6-1 Transmission bandwidth configuration $N_{RB}$ in E-UTRA channel bandwidths**

| Channel bandwidth $BW_{Channel}$ [MHz] | 1.4 | 3 | 5 | 10 | 15 | 20 |
|---|---|---|---|---|---|---|
| Transmission bandwidth configuration $N_{RB}$ | 6 | 15 | 25 | 50 | 75 | 100 |

*See* Exhibit 19, 3GPP TS 36.104 V8.14.1 at p. 14.

204. Upon information and belief, the GM Count IX Automobiles include a mobile station wherein the first band is contained within the second band and wherein a data channel is carried by at least one subcarrier group of the second band.

205. Upon information and belief, the GM Count IX Automobiles include a mobile station wherein the plurality of contiguous subcarriers have fixed spacing.[21]

### 5.1.1 Basic transmission scheme based on OFDM

The downlink transmission scheme is based on conventional OFDM using a cyclic prefix. The OFDM sub-carrier spacing is $\Delta f = 15$ kHz. 12 consecutive sub-carriers during one slot correspond to one downlink *resource block*. In the frequency domain, the number of resource blocks, $N_{RB}$, can range from $N_{RB\text{-}min} = 6$ to $N_{RB\text{-}max} = 110$.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 25.

206. Upon information and belief, the GM Count IX Automobiles include a mobile station wherein a number of usable subcarriers is adjustable to realize a variable band, wherein the

[21] *See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 25.

number of usable subcarriers is determined based on a plurality of operating channel bandwidths.[22]

### 5.1.1 Basic transmission scheme based on OFDM

The downlink transmission scheme is based on conventional OFDM using a cyclic prefix. The OFDM sub-carrier spacing is $\Delta f = 15$ kHz. 12 consecutive sub-carriers during one slot correspond to one downlink *resource block*. In the frequency domain, the number of resource blocks, $N_{RB}$, can range from $N_{RB\text{-}min} = 6$ to $N_{RB\text{-}max} = 110$.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 25.

207. Upon information and belief, the GM Count IX Automobiles include a mobile station wherein the first band is defined as a frequency segment with a bandwidth that is not greater than a smallest operating channel bandwidth among the plurality of operating channel bandwidths, the first band having a same value for the plurality of operating channel bandwidths.[23]

| LTE bandwidth | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |
|---|---|---|---|---|---|---|
| PBCH Resource Elements per radio Frame | 240 | 240 | 240 | 240 | 240 | 240 |
| Overhead(normal CP) | 240/ 10080 = 2.4% | 240/ 25200 = 1.0% | 240/ 42000 = 0.6% | 240/ 84000 = 0.3% | 240/ 126000 = 0.2% | 240/ 168000 = 0.1% |
| Overhead(extended CP) | 240/ 8640 = 2.8% | 240/ 21600 = 1.1% | 240/ 36000 = 0.7% | 240/ 72000= 0.3% | 240/ 108000 = 0.2% | 240/ 144000 = 0.2% |

208. Upon information and belief, the GM Count IX Automobiles include a mobile station configured to operate within the plurality of operating channel bandwidths.[24]

[22] Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 25; Exhibit 19, 3GPP TS 36.104 V8.14.1 at p. 14; Exhibit 16, 3GPP TS 36.331 V8.21.0 at pp. 85-86.
[23] Exhibit 19, 3GPP TS 36.104 V8.14.1 at p. 14; http://www.rfwireless-world.com/Terminology/LTE-PBCH-Physical-Broadcast-Channel.html
[24] Exhibit 16, 3GPP TS 36.331 V8.21.0 at pp 85-86; Exhibit 19, 3GPP TS 36.104 V8.14.1 at p. 14; Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 24.

**Physical broadcast channel (PBCH)**

- The coded BCH transport block is mapped to four subframes within a 40 ms interval;
- 40 ms timing is blindly detected, i.e. there is no explicit signalling indicating 40 ms timing;
- Each subframe is assumed to be self-decodable, i.e. the BCH can be decoded from a single reception, assuming sufficiently good channel conditions.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 24.

209. Accordingly, GM is using, offering for sale, or selling in the United States the GM Count IX Automobiles equipped with a Mobile Hotspot System and/or 4G LTE modem that directly infringe one or more claims of the '641 Patent.

210. Additionally, GM has been, and currently is, actively inducing infringement of the '641 Patent under 35 U.S.C. § 271(b) and contributorily infringing the '641 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

211. GM knew of the '641 Patent, or should have known of the '641 Patent, but was willfully blind to it its existence. GM has had actual knowledge of the '641 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, GM will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the '641 Patent.

212. GM has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the '641 Patent with knowledge of the '641 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the '641 Patent. As an illustrative example only, GM induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use GM's Mobile Hotspot systems and connectivity features in the GM Count IX Automobiles that when used in their normal and customary way as intended and designed by GM, infringe one or more

claims of the ’641 Patent.

213. GM has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’641 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’641 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

214. As a result of GM’s acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT X**

(GM’s Infringement of U.S. Patent No. 8,811,356)

215. Paragraphs 1-214 are incorporated by reference as if fully set forth herein.

216. GM has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the ’356 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the ’356 Patent including, but not limited to GM’s vehicle line, such as Sonic, Cruze, Malibu, Impala, Equinox, Suburban, Spark, Corvette, Enclave, Encore, Encore GX, Regal, XT4, XT5, XT6, Escalade, Escalade ESV, CT4, CT4-V, CT4 – V Blackwing, CT5, CT5-V, CT5-V Blackwing; Sierra, Canyon, Terrain, Acadia, Yukon, Hummer, Terrain Denali, Acadia Denali, Canyon Denali, Sierra Denali, Sierra Denali, and Yukon Denali that use in-Vehicle Wi-Fi or other vehicle Wi-Fi service (collectively, “GM Count X Automobiles”).

217. An exemplary claim, claim 1 of the ’356 Patent is reproduced below:

*1. A user equipment (UE) comprising:*

*a processor configured to receive resource allocation information associated with*

*an uplink physical control channel, wherein the uplink physical control channel and a physical uplink shared channel have different resources;*

*the processor is further configured to send data over the physical uplink shared channel in assigned time intervals;*

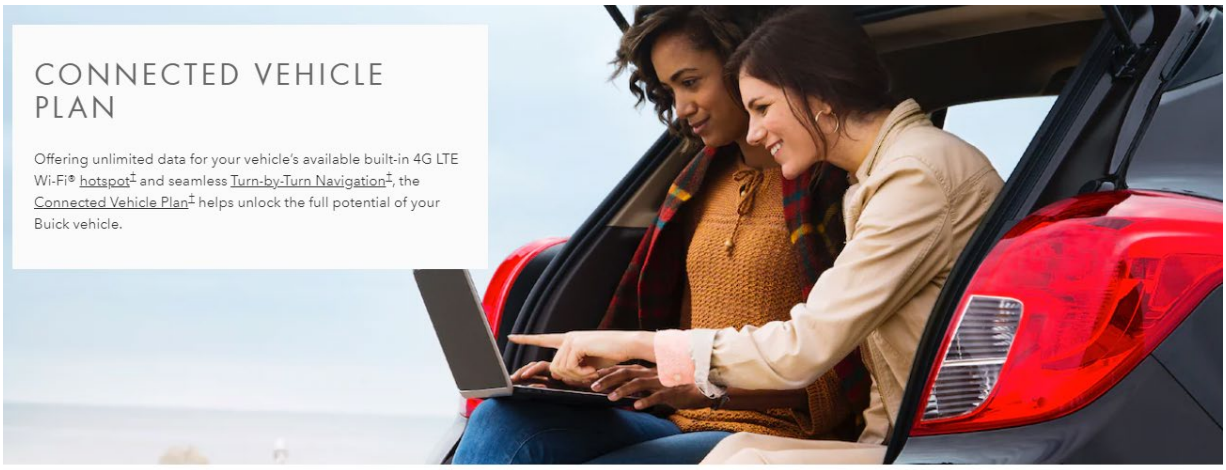
*the processor is further configured, in a time interval that it is not sending information over the physical uplink shared channel, to send a signal over the uplink physical control channel based on the received resource allocation information; and*

*the processor is further configured to receive feedback information from a downlink control channel.*

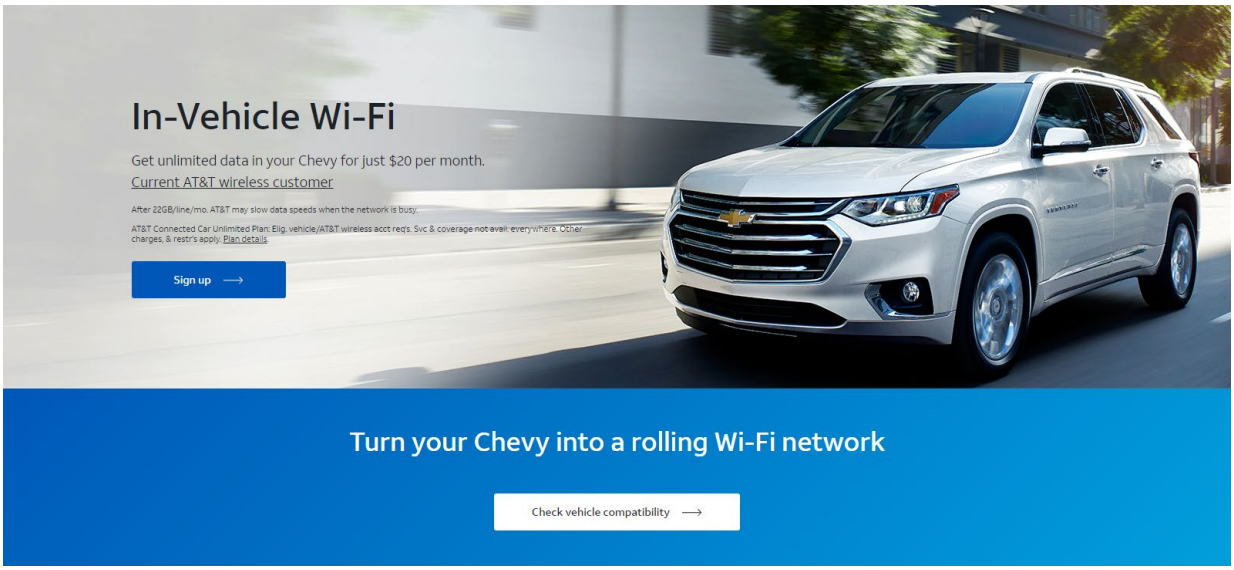
218. Upon information and belief, the GM Count X Automobiles perform each and every limitation of at least claim 1 of the ’356 Patent.

219. Upon information and belief, the GM Count X Automobiles include GM’s Mobile Hotspot System. Upon information and belief, the GM Count X Automobiles’ Mobile Hotspot System that can connect with 4G LTE to the Internet.

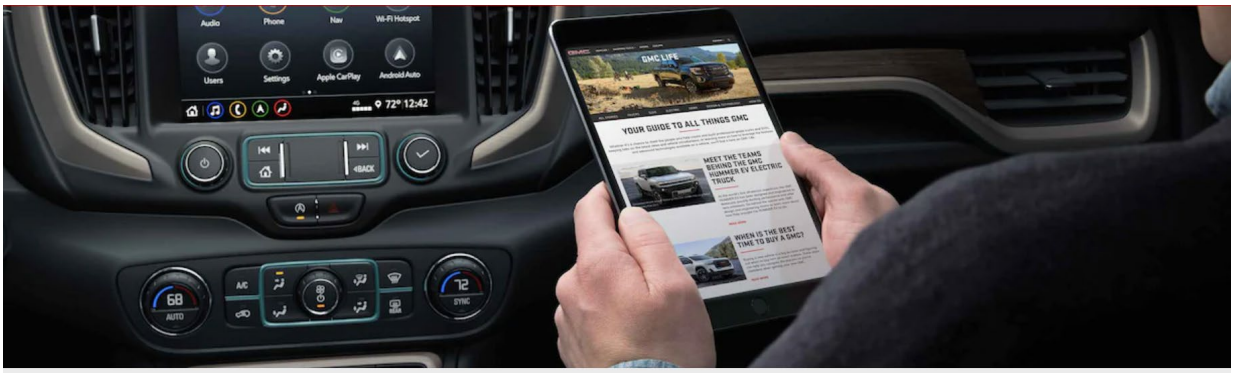
220. Upon information and belief, the GM Count X Automobiles are equipped with mobile wireless hot-spot systems as claimed in the ’356 Patent. Upon information and belief, Internet connectivity for the Mobile Hot-Spot is provided by AT&T, Verizon Wireless and/or another Internet provider through, for example, a trial period and/or through a subscription.




https://www.buick.com/discover/connectivity/connected-services



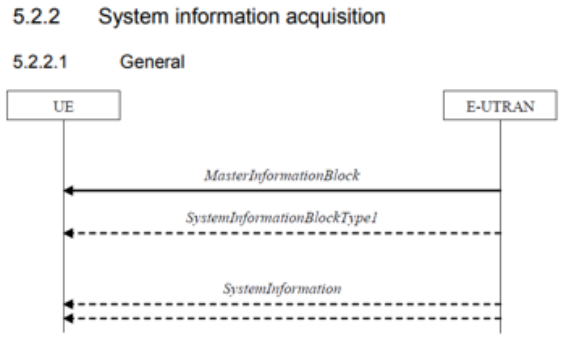

https://www.att.com/plans/connected-car/chevrolet/




https://www.gmc.com/connectivity-technology/wifi-hotspot

221. Upon information and belief, the GM Count X Automobiles' Mobile Hotspot and/or 4G LTE modem are compliant with and use the 3GPP standards.

222. Upon information and belief, the GM Count X Automobiles using, for example, a 4G LTE modem comprise a processor configured to receive resource allocation information associated with an uplink physical control channel, wherein the uplink physical control channel and a physical uplink shared channel have difference resources. Upon information and belief, the uplink physical control channel and a physical uplink shared channel in the 4G LTE modem used in the GM Count X Automobiles are transmitted on different sets of sub-carriers.




*See* Exhibit 16, 3GPP TS 36.331 V8.21.0 at p. 23.

### 5.4 Physical uplink control channel

The physical resources used for PUCCH depends on two parameters, $N_{RB}^{(2)}$ and $N_{cs}^{(1)}$, given by higher layers. The variable $N_{RB}^{(2)} \geq 0$ denotes the bandwidth in terms of resource blocks that are available for use by PUCCH formats 2/2a/2b transmission in each slot. The variable $N_{cs}^{(1)}$ denotes the number of cyclic shift used for PUCCH formats 1/1a/1b in a resource block used for a mix of formats 1/1a/1b and 2/2a/2b. The value of $N_{cs}^{(1)}$ is an integer multiple of $\Delta_{shift}^{PUCCH}$ within the range of {0, 1, ..., 7}, where $\Delta_{shift}^{PUCCH}$ is provided by higher layers. No mixed resource block is

*See* Exhibit 18, 3GPP TS 36.211 V8.9.0 at p. 16.

### 6.3.1 System information blocks

*SystemInformationBlockType2*

The IE *SystemInformationBlockType2* contains radio resource configuration information that is common for all UEs.

### 6.3.2 Radio resource control information elements

*RadioResourceConfigCommon*

***RadioResourceConfigCommon* information element**

```
-- ASN1START

RadioResourceConfigCommonSIB ::=    SEQUENCE {
    rach-ConfigCommon                   RACH-ConfigCommon,
    bcch-Config                         BCCH-Config,
    pcch-Config                         PCCH-Config,
    prach-Config                        PRACH-ConfigSIB,
    pdsch-ConfigCommon                  PDSCH-ConfigCommon,
    pusch-ConfigCommon                  PUSCH-ConfigCommon,
    pucch-ConfigCommon                  PUCCH-ConfigCommon,
```

*See* Exhibit 16, 3GPP TS 36.331 V8.21.0 at pp. 105, 116, 128.

223. Upon information and belief, the GM Count X Automobiles using a 4G LTE modem comprise a processor further configured to send data over the physical uplink shared channel in assigned time intervals.

### 11.1.2 Uplink Scheduling

In the uplink, E-UTRAN can dynamically allocate resources (PRBs and MCS) to UEs at each TTI via the C-RNTI on PDCCH(s). A UE always monitors the PDCCH(s) in order to find possible allocation for uplink transmission when its downlink reception is enabled (activity governed by DRX when configured).

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at p. 67.

## 8 Physical uplink shared channel related procedures

For FDD and normal HARQ operation, the UE shall upon detection of a PDCCH with DCI format 0 and/or a PHICH transmission in subframe *n* intended for the UE, adjust the corresponding PUSCH transmission in subframe *n+4* according to the PDCCH and PHICH information.

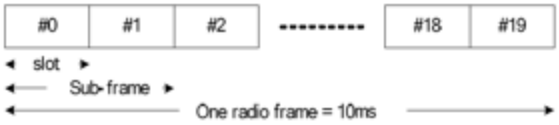
*See* Exhibit 20, 3GPP TS 36.213 V8.8.0 at p. 52.

## 5 Physical Layer for E-UTRA

Downlink and uplink transmissions are organized into radio frames with 10 ms duration. Two radio frame structures are supported:

- Type 1, applicable to FDD,
- Type 2, applicable to TDD.

Frame structure Type 1 is illustrated in Figure 5.1-1. Each 10 ms radio frame is divided into ten equally sized sub-frames. Each sub-frame consists of two equally sized slots. For FDD, 10 subframes are available for downlink transmission and 10 subframes are available for uplink transmissions in each 10 ms interval. Uplink and downlink transmissions are separated in the frequency domain.




*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at pp. 23, 24.

224. Upon information and belief, the GM Count X Automobiles using, for example, a 4G LTE modem comprise a processor further configured, in a time interval that it is not sending information over the physical uplink shared channel, to send a signal over the uplink physical control channel based on the received resource allocation information.

## 5.4 Physical uplink control channel

The physical uplink control channel, PUCCH, carries uplink control information. The PUCCH is never transmitted simultaneously with the PUSCH from the same UE. For frame structure type 2, the PUCCH is not transmitted in the UpPTS field.

*See* Exhibit 18, 3GPP TS 36.211 V8.9.0 at p. 16.

225. Upon information and belief, the GM Count X Automobiles using a 4G LTE modem comprise a processor further configured to receive feedback information from a downlink control channel.

## 5 Physical Layer for E-UTRA

The physical channels of E-UTRA are:

**Physical Hybrid ARQ Indicator Channel (PHICH)**

- Carries Hybrid ARQ ACK/NAKs in response to uplink transmissions.

*See* Exhibit 15, 3GPP TS 36.300 V8.12.0 at pp. 23 and 24.

## 4.2 Downlink

**Table 4.2-2**

| Control information | Physical Channel |
|---|---|
| CFI | PCFICH |
| HI | PHICH |
| DCI | PDCCH |

*See* Exhibit 21, 3GPP TS 36.212 V8.8.0 at p. 8.

226. Accordingly, GM is using, offering for sale, or selling in the United States the GM Count X Automobiles equipped with a Mobile Hotspot System and/or 4G LTE modem infringe one or more claims of the '356 Patent.

227. Additionally, GM has been, and currently is, actively inducing infringement of the '356 Patent under 35 U.S.C. § 271(b) and contributorily infringing the '356 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

228. GM knew of the '356 Patent, or should have known of the '356 Patent, but was willfully blind to it its existence. GM has had actual knowledge of the '356 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, GM will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the '356 Patent.

229. GM has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the '356 Patent with knowledge of the '356 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the '356 Patent. As an illustrative example only, GM induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use GM's Mobile Hotspot System, GMLink® and connectivity features in the GM Count X Automobiles that when used in their normal and customary way as intended and designed by GM, infringe one

or more claims of the ’356 Patent.

230. GM has also committed, and continues to commit, contributory infringement, by *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’356 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’356 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

231. As a result of GM’s acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT XI**
(GM’s Infringement of U.S. Patent No. 7,684,318)

232. Paragraphs 1-231 are reincorporated by reference as if fully set forth herein.

233. GM has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the ’318 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the ’318 Patent including, but not limited to Sonic, Cruze, Malibu, Impala, Equinox, Suburban, Spark, Corvette, Enclave, Encore, Encore GX, Regal, XT4, XT5, XT6, Escalade, Escalade ESV, CT4, CT4-V, CT4 – V Blackwing, CT5, CT5-V, CT5-V Blackwing; Sierra, Canyon, Terrain, Acadia, Yukon, Hummer, Terrain Denali, Acadia Denali, Canyon Denali, Sierra Denali, Sierra Denali, and Yukon Denali that use in-Vehicle Wi-Fi or other vehicle Wi-Fi service (collectively, “GM Count XI Automobiles”).

234. An exemplary claim, claim 1 of the ’318 Patent is reproduced below:

*1. A method, comprising:*

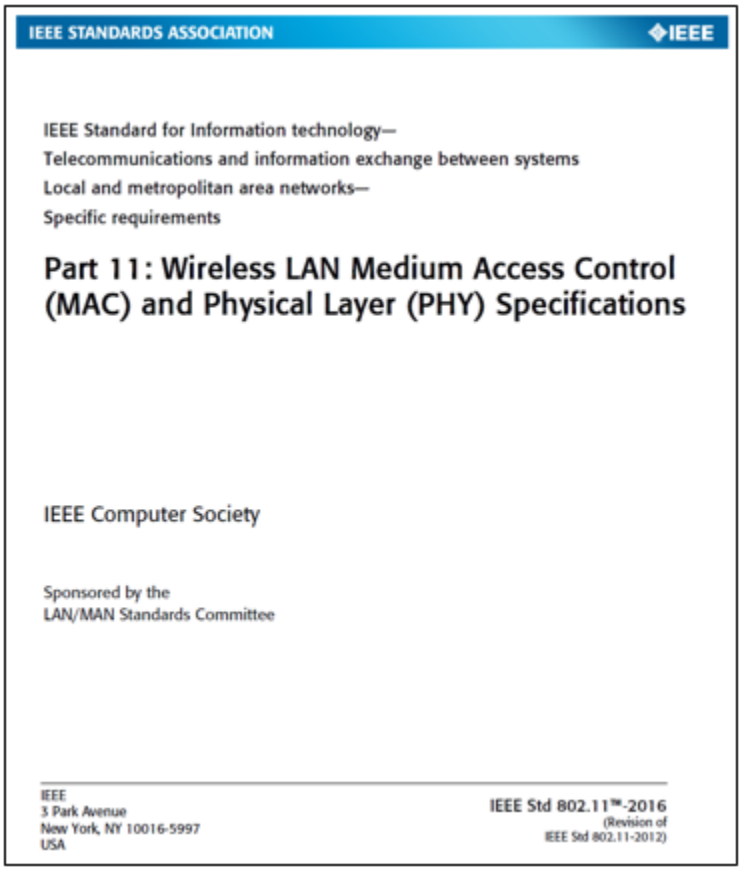
*queuing data frames to be transmitted during a transmitting station's transmit*

*opportunity, wherein the data frames are queued in a queue, wherein the transmit opportunity corresponds to a length of time during which the transmitting station will transmit data frames from the queue to a shared-communications channel, and wherein the transmit opportunity is commenced with a control frame; and*

*setting a length of time for the transmit opportunity based on a priority of the queue.*

235. Upon information and belief, GM and the GM Count XI Automobiles perform or can perform each and every limitation of at least claim 1 of the '318 Patent.

236. Upon information and belief, GM Count XI Automobiles are equipped to provide wireless connectivity utilizing IEEE 802.11-2016.


IEEE STANDARDS ASSOCIATION IEEE

IEEE Standard for Information technology—
Telecommunications and information exchange between systems
Local and metropolitan area networks—
Specific requirements

Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

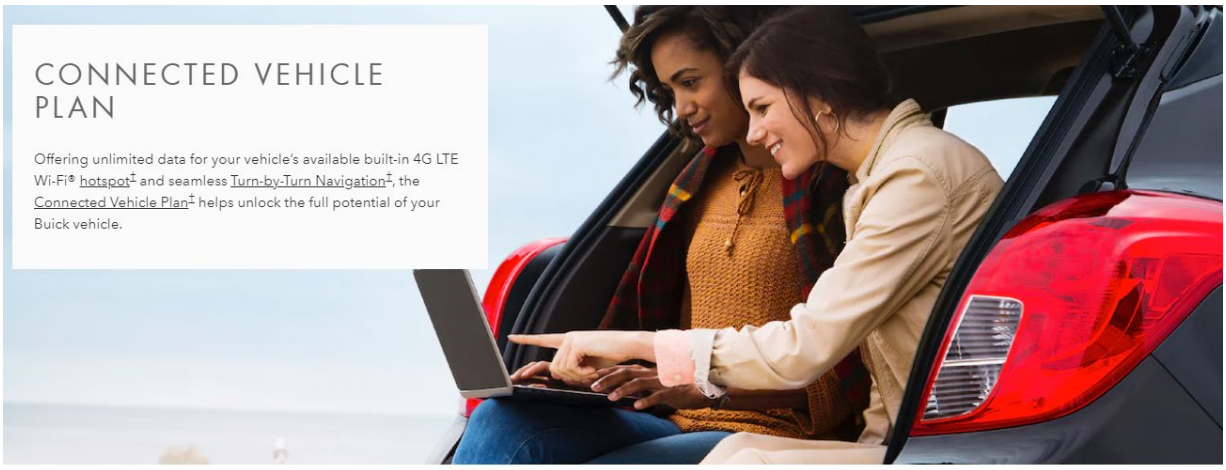
IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

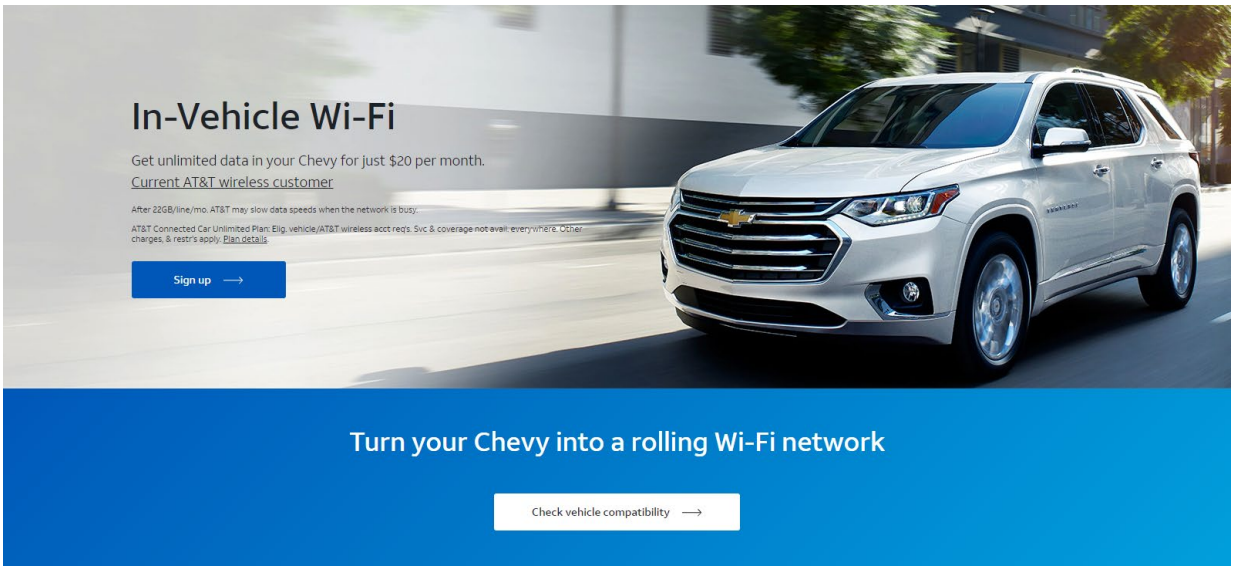
IEEE
3 Park Avenue
New York, NY 10016-5997
USA

IEEE Std 802.11™-2016
(Revision of
IEEE Std 802.11-2012)

*See* Exhibit 22, IEEE 802.11-2016.




https://www.buick.com/discover/connectivity/connected-services




https://www.att.com/plans/connected-car/chevrolet/


https://www.gmc.com/connectivity-technology/wifi-hotspot

237. Upon information and belief, the GM Count XI Automobiles' Wi-Fi functionality supports Quality of Service (QoS) capability via the 802.11 standard ("802.11 Wi-Fi"). Upon information and belief, IEEE 802.11-2016 standard defines the Enhanced Distributed Channel Access (EDCA) mechanism for prioritized QoS. This provides access categories (ACs) for differentiating traffic types that have a separate queue for queuing frames to be transferred.

238. Upon information and belief, 802.11 Wi-Fi performs queuing data frames to be transmitted during a transmitting station's transmit opportunity, wherein the data frames are queued in a queue.

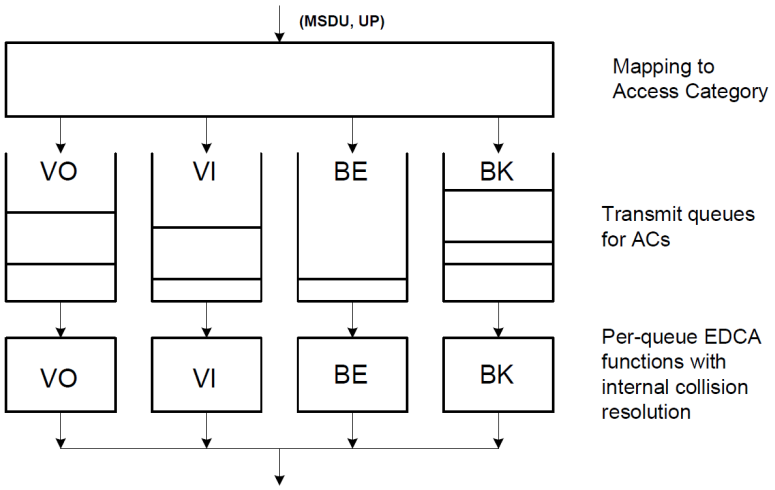



**Figure 10-24—Reference implementation model when dot11AlternateEDCAActivated is false or not present**

*See* Exhibit 22, IEEE Std 802.11-2016 at p. 1378.

239. Upon information and belief 802.11 Wi-Fi performs wherein the transmit opportunity corresponds to a length of time during which the transmitting station will transmit data frames from the queue to a shared-communications channel, and wherein the transmit opportunity is commenced with a control frame. Upon information and belief, in an EDCA transmission opportunity or TXOP (transmit opportunity), the transmitting station selects frames for transmission from a set of transmission queues. Upon information and belief, TXOP commences with a control frame.

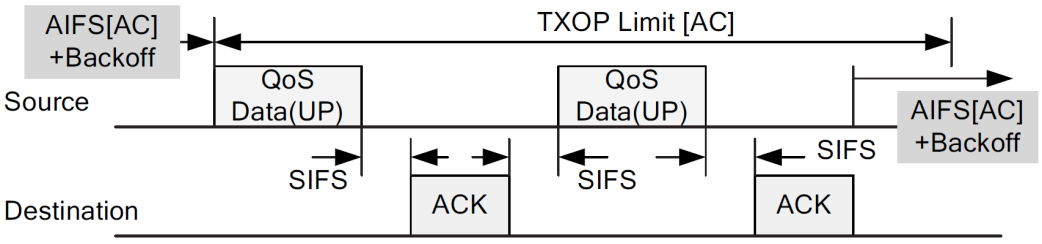



**Figure 3.5** EDCA TXOP operation timing structure.

Exhibit 23, Shorey, Rajeev, et al., eds. *Mobile, wireless, and sensor networks: technology, applications, and future directions*. John Wiley & Sons, 2006, p. 54.

240. Upon information and belief, 802.11 Wi-Fi performs setting a length of time for

the transmit opportunity based on a priority of the queue.

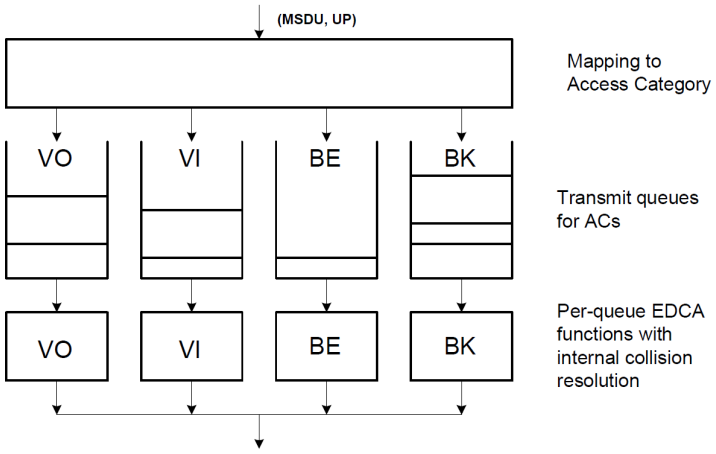



**Figure 10-24—Reference implementation model when dot11AlternateEDCAActivated is false or not present**

*See* Exhibit 22, IEEE Std 802.11-2016 at p. 1378.

**Table 10-1—UP-to-AC mappings**

| Priority | UP (Same as IEEE 802.1D user priority) | IEEE 802.1D designation | AC | Transmit queue (dot11Alternate-EDCAActivated false or not present) | Transmit queue (dot11Alternate EDCAActivated true) | Designation (informative) |
|---|---|---|---|---|---|---|
| Lowest | 1 | BK | AC_BK | BK | BK | Background |
| | 2 | — | AC_BK | BK | BK | Background |
| | 0 | BE | AC_BE | BE | BE | Best Effort |
| | 3 | EE | AC_BE | BE | BE | Best Effort |
| | 4 | CL | AC_VI | VI | A_VI | Video (alternate) |
| | 5 | VI | AC_VI | VI | VI | Video (primary) |
| | 6 | VO | AC_VO | VO | VO | Voice (primary) |
| Highest | 7 | NC | AC_VO | VO | A_VO | Voice (alternate) |

*See* Exhibit 22, IEEE Std 802.11-2016 at pp. 1298-1299.

241. Upon information and belief, Internet connectivity is provided in GM Count XI Automobiles through, for example, a trial or subscription service through AT&T, Verizon Wireless, and/or other Internet providers.

242. Accordingly, GM is making, using, testing, selling, offering for sale and/or

importing into the United States the GM Count XI Automobiles that infringe one or more claims of the ’318 Patent.

243. Additionally, GM has been, and currently is, actively inducing infringement of the ’318 Patent under 35 U.S.C. § 271(b) and contributorily infringing the ’318 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

244. GM knew of the ’318 Patent, or should have known of the ’318 Patent, but was willfully blind to it its existence. GM has had actual knowledge of the ’318 Patent since at least as early receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, GM will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the ’318 Patent.

245. GM has committed, and continue to commit, affirmative acts that cause infringement of one or more claims of the ’318 Patent with knowledge of the ’318 Patent and knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the ’318 Patent. As an illustrative example only, GM induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use wireless connectivity features in the GM Count XI Automobiles that when used in their normal and customary way as intended and designed by GM, infringe one or more claims of the ’318 Patent.

246. GM has also committed, and continues to commit, contributory infringement by, *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the ’318 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the ’318 Patent and is not a staple article or

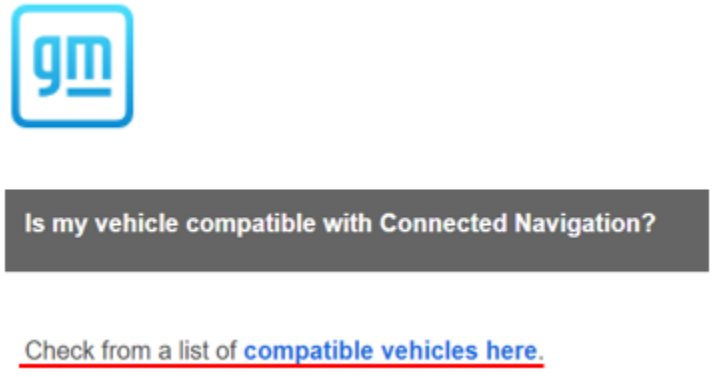
commodity of commerce suitable for a substantial non-infringing use.

247. As a result of GM's acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

**COUNT XII**
(GM's Infringement of U.S. Patent No. 9,602,608)

248. Paragraphs 1-247 are incorporated by reference as if fully set forth herein.

249. GM has directly infringed, and continues to directly infringe, literally and/or by the doctrine of equivalents, individually and/or jointly, the '608 Patent, by making, using, testing, selling, offering for sale and/or importing into the United States vehicles that embody products and/or services that infringe the '608 Patent, including, but not limited to Enclave, Encore, Encore GX, Envision, CT4, CT5, CT4-V Blackwing, CT5-V Blackwing, Escalade, XT4, CT5, CT6, Blazer, Bolt EV, Bolt EUV, Camero, Colorado, Corvette, Equinox, Express, Malibu, Silverado, Silverado HD, Spark, Suburban, Tahoe, Trailblazer, Traverse, Trax, Acacia, canyon, Hummer EV, Savana, Sierra, Sierra HD Terrain, Yukon and other GM vehicles that are equipped with GM Connected Navigation or similar functionality (collectively, "GM Count XII Automobiles").




https://my.gm.com/how-to-support/onstar-connected/features/connected-navigation

**MY VEHICLE AVAILABILITY** | Click your vehicle's blue dot to learn more

● OnStar and Connected Services capable (No dot indicates vehicle not available or discontinued)

| | | MY '21 | MY '22 |
|---|---|---|---|
| BUICK | Enclave | ● | ● |
| | Encore | ● | ● |
| | Encore GX | ● | ● |
| | Envision | ● | ● |
| Cadillac | CT4 | ● | ● |
| | CT5 | ● | ● |
| | CT4-V Blackwing | | ● |
| | CT5-V Blackwing | | ● |
| | Escalade | ● | ● |
| | XT4 | ● | ● |
| | XT5 | ● | ● |
| | XT6 | ● | ● |
| CHEVROLET | Blazer | ● | ● |
| | Bolt EV | ● | ● |
| | Bolt EUV | | ● |
| | Camaro | ● | ● |
| | Colorado | ● | ● |
| | Corvette | ● | ● |
| | Equinox | ● | ● |
| | Express | ● | ● |
| | Malibu | ● | ● |
| | Silverado | ● | ● |
| | Silverado HD | ● | ● |
| | Spark | ● | ● |
| | Suburban | ● | ● |
| | Tahoe | ● | ● |
| | Trailblazer | ● | ● |
| | Traverse | ● | ● |
| | Trax | ● | ● |
| GMC | Acadia | ● | ● |
| | Canyon | ● | ● |
| | HUMMER EV | | ● |
| | Savana | ● | ● |
| | Sierra | ● | ● |
| | Sierra HD | ● | ● |
| | Terrain | ● | ● |
| | Yukon | ● | ● |

https://www.onstar.com/content/dam/onstar/pages/new-vehicles/MyAvailability_US_21-22.pdf

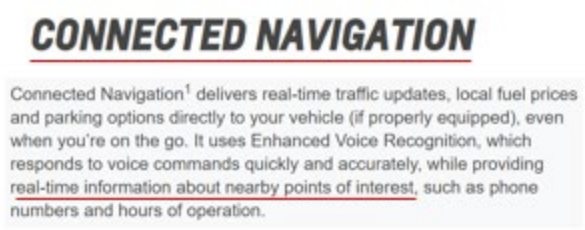
CHEVROLET **Connected Services**

CONNECTED NAVIGATION

Navigation has never been easier

Available Connected Navigation‡ makes getting to your destination a breeze thanks to Internet based traffic and road closure updates along with the ability to search destinations by address, point of interest or voice.

https://www.chevrolet.com/connectivity-and-technology/in-vehicle-technology




https://my.gm.com/how-to-support/onstar-connected/features/connected-navigation

250. An exemplary claim, Claim 1 of the '608 Patent, is reproduced below:

*The invention claimed is:*

*1. A electronic computer implemented method for matching users with information, comprising:*

*receiving a first user preference, a location of a mobile device of the first user, and a geographic area limitation;*

*storing, for a plurality of objects, a set of attributes of each corresponding object, and a location of the corresponding object;*

*determining an object of the plurality of objects that matches the first user based on at least:*

*(a) the set of attributes for the object satisfies the first user preference, and*

*(b) the distance between the received location of the mobile device of the first user and the object is within the geographic area limitation;*

*sending to the first user, in response to a positive outcome of the determining, information about the matching object; and*

*wherein the matching object is a person, place and/or thing.*

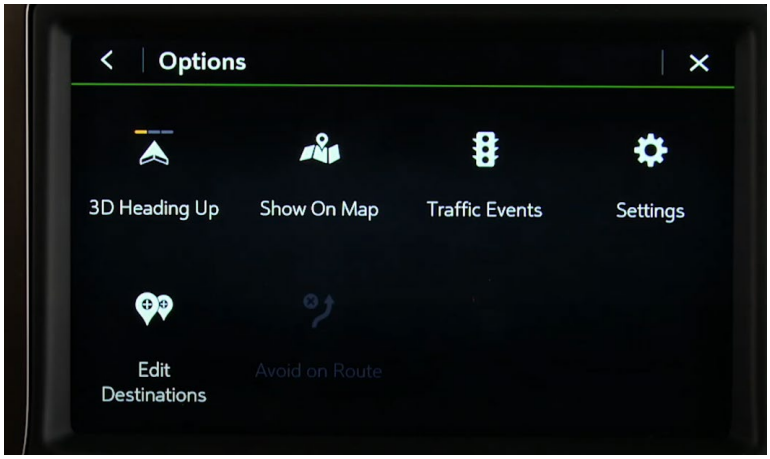
251. Upon information and belief, the GM Count XII Automobiles are equipped with a

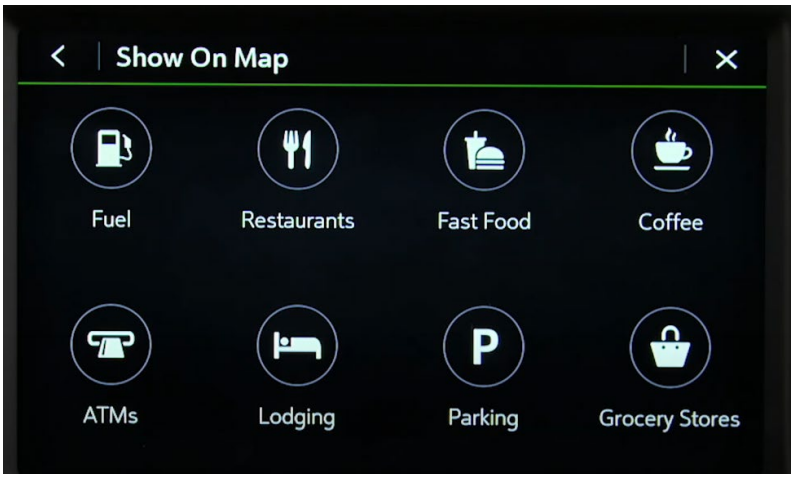
navigation system that performs or can perform each and every limitation of at least claim 8 of the '608 Patent, including but not limited to the GM Connected Navigation System ("GM Navigation System").

252. Upon information and belief, the GM Count XII Automobiles equipped with GM Navigation System comprises an electronic computer implemented method for matching users with information.


https://www.chevrolet.com/trucks/silverado/1500

253. Upon information and belief, the GM Count XII Automobiles equipped with GM Navigation System are capable of receiving a first user preference, a location of a mobile device of the first user, and a geographic area limitation.






https://www.youtube.com/watch?v=XArIavilRYA

**CONNECTED NAVIGATION**

Connected Navigation[1] delivers real-time traffic updates, local fuel prices and parking options directly to your vehicle (if properly equipped), even when you're on the go. It uses Enhanced Voice Recognition, which responds to voice commands quickly and accurately, while providing real-time information about nearby points of interest, such as phone numbers and hours of operation.

• **Real-Time Points of Interest**: Get the most up-to-date points of interest, including hours of operation and phone numbers for nearby shops and retailers

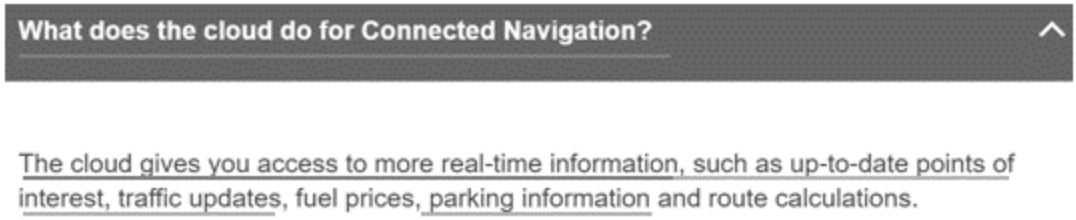
https://my.gm.com/how-to-support/onstar-connected/features/connected-navigation

**Global Positioning System (GPS)**

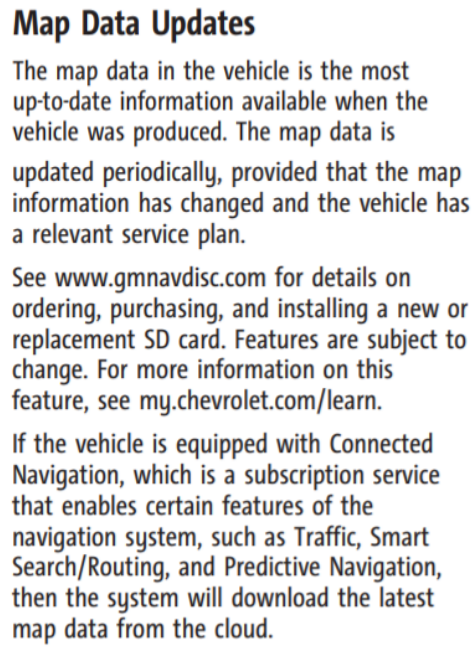
The GPS shows the current position of the vehicle using signals sent by GPS satellites. When the vehicle is not receiving signals from the satellites, a symbol appears in the status bar.

https://my.chevrolet.com/content/dam/gmownercenter/gmna/dynamic/manuals/2021/chevrolet/silverado-1500/2021-chevrolet-silverado-1500-owners-manual.pdf, pp. 177, 442, 463.

254. Upon information and belief, the GM Count XII Automobiles equipped with GM Navigation System are capable of storing, for a plurality of objects, a set of attributes of each corresponding object, and a location of that corresponding object;

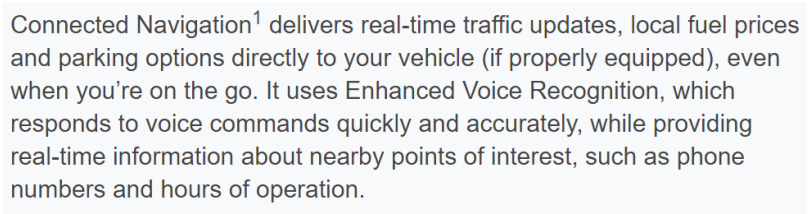



https://my.gm.com/how-to-support/onstar-connected/features/connected-navigation




https://my.chevrolet.com/content/dam/gmownercenter/gmna/dynamic/manuals/2021/chevrolet/silverado-1500/2021-chevrolet-silverado-1500-owners-manual.pdf, pp. 178, 463.

255. Upon information and belief, the GM Count XII Automobiles equipped with GM Navigation System are capable of determining an object of the plurality of objects in the database that matches the first user based on at least (a) the set of attributes for the object satisfies the first user preference, and (b) the distance between the received location of the mobile device of the first user and the object is within the geographic area limitation.



How It Works

Connected Navigation includes the following features:

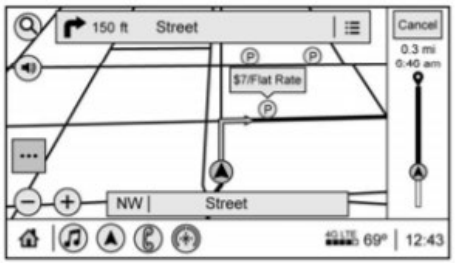
- **Real-Time Points of Interest**: Get the most up-to-date points of interest, including hours of operation and phone numbers for nearby shops and retailers

https://my.gm.com/how-to-support/onstar-connected/features/connected-navigation

**Show POI Icons**

To see the POI categories, touch Options, then touch Show on Map. Up to eight categories of icons can be selected.

**Smart POI Icons on Map (If Equipped)**

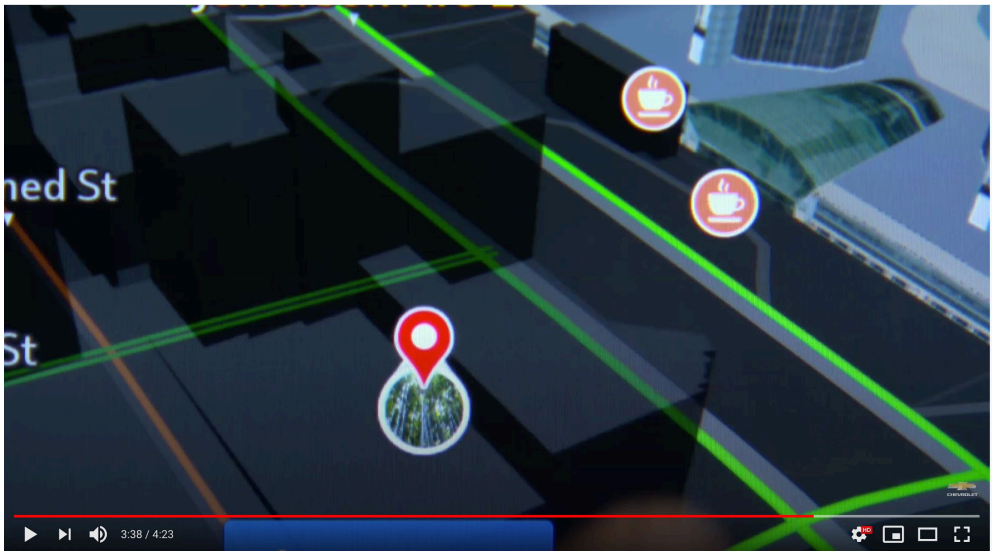



The smart POI icons such as fuel stations and parking may appear based on time, location, driver search behavior, driving conditions, and vehicle conditions.

Touch a smart POI icon to open the corresponding details:

- Left side: Name and address of the POI.
- Right side: + ETE (Estimated Time Enroute.)

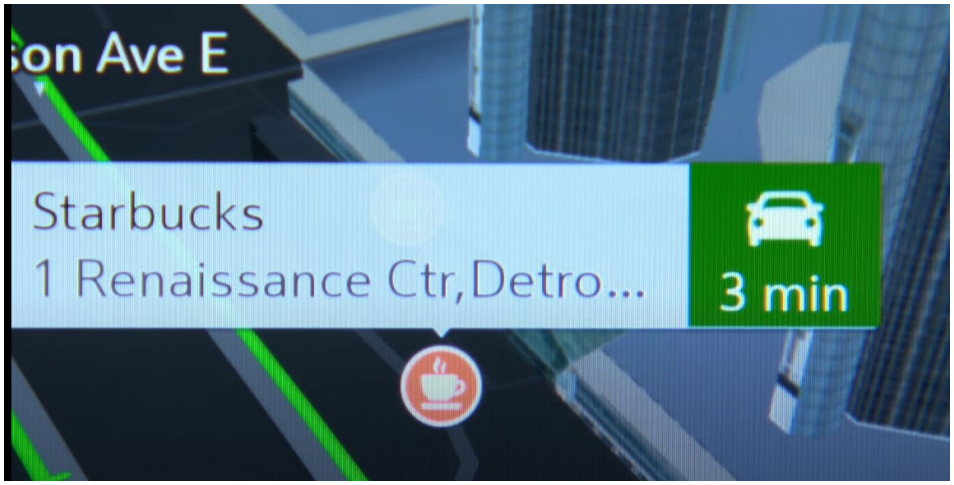
https://my.chevrolet.com/content/dam/gmownercenter/gmna/dynamic/manuals/2021/chevrolet/silverado-1500/2021-chevrolet-silverado-1500-owners-manual.pdf, pp. 175, 463.




https://www.youtube.com/watch?v=XArIavilRYA

256. Upon information and belief, the GM Count XII Automobiles equipped with GM Navigation System are capable of sending to the first user, in response to a positive outcome of

the determining, information about the matching object; and wherein the matching object is a person, place and/or thing.




https://www.youtube.com/watch?v=XArIavilRYA

257. Accordingly, GM is using, offering for sale, or selling in the United States the GM Count XII Automobiles equipped with the GM Navigation System that directly infringe one or more claims of the '608 Patent.

258. Additionally, GM has been, and currently is, actively inducing infringement of the '608 Patent under 35 U.S.C. § 271(b) and contributorily infringing the '608 Patent under 35 U.S.C. § 271(c) either literally and/or by the doctrine of equivalents.

259. GM knew of the '608 Patent, or should have known of the '608 Patent, but was willfully blind to it its existence. GM has had actual knowledge of the '608 Patent not later than receipt of a letter dated October 18, 2021 and received on the same date. By the time of trial, GM will have known and intended (since receiving such notice) that its continued actions would infringe and actively induce and contribute to the infringement of one or more claims of the '608 Patent.

260. GM has committed, and continues to commit, affirmative acts that cause infringement of one or more claims of the '608 Patent with knowledge of the '608 Patent and

knowledge or willful blindness that the induced acts constitute infringement of one or more claims of the '608 Patent. As an illustrative example only, GM induces such acts of infringement by its affirmative action of providing, promoting, and instructing its customers on how to use the claimed GM Navigation System in the GM Count XII Automobiles that when used in their normal and customary way as intended and designed by GM infringe one or more claims of the '608 Patent.

261. GM has also committed, and continues to commit, contributory infringement by, *inter alia*, knowingly selling products and/or methods or services that when used cause the direct infringement of one or more claims of the '608 Patent by a third party, and which have no substantial non-infringing uses, or include a separate and distinct component that is especially made or especially adapted for use in infringement of the '608 Patent and is not a staple article or commodity of commerce suitable for a substantial non-infringing use.

262. As a result of GM's acts of infringement, Plaintiffs have suffered and will continue to suffer damages in an amount to be proven at trial.

## DEMAND FOR JURY TRIAL

263. Under Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiffs respectfully request a trial by jury on all issues so triable.

## PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully request the following relief:

A. A judgment that the Patents-in-Suit are valid and enforceable;

B. A judgment that Defendants directly infringe, contributorily infringe, and/or induce infringement of one or more claims of *each of* the Patents-in-Suit;

C. A judgment that awards Plaintiffs all damages adequate to compensate them for Defendants' direct infringement, contributory infringement, and/or induced

infringement, of the Patents-in-Suit, including all pre-judgment and post-judgment interest at the maximum rate permitted by law;

D. A judgment that awards Plaintiffs all appropriate damages under 35 U.S.C. § 284 for Defendants' past infringement with respect to the Patents-in-Suit;

E. A judgment that awards Plaintiffs all appropriate damages under 35 U.S.C. § 284 for Defendants' continuing or future infringement, up until the date such judgment is entered with respect to the Patents-in-Suit, including ongoing royalties, pre- or post-judgment interest, costs, and disbursements as justified under 35 U.S.C. § 284;

F. A judgment that this case is exceptional under 35 U.S.C. § 285;

G. An accounting of all damages not presented at trial; and

H. A judgment that awards Plaintiffs their costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by the Court.

Dated: October 19, 2021

RESPECTFULLY SUBMITTED,

By: */s/ Mark D. Siegmund*

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**Attorneys for Plaintiffs**
**INTELLECTUAL VENTURES I LLC, and**
**INTELLECTUAL VENTURES II LLC**

**CERTIFICATE OF SERVICE**

The undersigned certifies that a copy of the foregoing document was served on all parties who have appeared in this case on October 19, 2021, via the Court's CM/ECF system.

*/s/ Mark D. Siegmund*
**Mark D. Siegmund**