

**Exhibit 11 to
Intellectual Ventures II LLC's
Preliminary Infringement Contentions**

**Infringement Claim Chart of
U.S. Patent No. 11,206,670 (the “670 Patent”)**

The Accused Instrumentalities include, without limitation, Tesla automotive vehicles (*e.g.*, Tesla Model X, S, 3, Y, Semi, Roadster Second Generation, and Cybertruck) that are equipped with Connectivity features,¹ and all past, current and future Tesla products that operate in the same or substantially similar manner as the specifically identified products and components, and all past, current, and future Tesla products that have the same or substantially similar features as the specifically identified products and components (“Count II Automotive Vehicles” or “Tesla Automotive Vehicles”).

Plaintiff Intellectual Ventures II LLC (“IV” or “Plaintiff”) does not intend this exemplary claim chart to be limiting, and IV reserves its rights to pursue other accused instrumentalities, patent claims, evidence, and infringement arguments in this case. Discovery has yet to begin and this case is still in its initial stages. Accordingly, IV reserves the right to amend and/or supplement these contentions to the full extent allowed by the Court, including but not limited to, incorporating additional information, claims, theories, and / or accused products.

IV contends that Tesla, including Tesla’s employees, directly infringes each of the Asserted Claims, either literally or under the doctrine of equivalents. IV also contends that Tesla has indirectly infringed and continues to indirectly infringe by contributing to and actively inducing customers to use the Tesla vehicles and providing product manuals² that provide instructions regarding how to use Tesla vehicles in an infringing manner. Tesla also infringes via contributory infringement by providing replacement parts to Tesla vehicles and repair facilities by least making components that suitable for direct infringement that do not have any substantial non-infringing use.

Tesla makes, uses, sells, offers for sale, and /or imports the Tesla Count II Automobiles. For example, on information and belief, Tesla makes Tesla Count II Automobiles, including at least in its Fremont, California; Lathrop, California; Grand Rapids, Michigan; Storey County, Nevada; Buffalo, New York; Brooklyn Park, Minnesota; Elgin, Illinois; and Austin, Texas manufacturing facilities. Further, Tesla sells and/or offers for sale the Tesla Count II Automobiles in the United States through its sales centers.

¹ See, for example, <https://www.tesla.com/support/connectivity> (last accessed on April 10, 2024).

² See, for example, www.tesla.com/ownersmanual, www.tesla.com/support (last accessed on July 31, 2024).

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
1 A user equipment (UE) comprising	<p data-bbox="611 391 1766 423">On information and belief, the Tesla Automotive Vehicles include a user equipment (UE).</p> <p data-bbox="611 456 1919 565">For example, on information and belief, 3GPP LTE capable UE (User Equipment) comes equipped with antennas (transceiver) and CPU (processor) and performs cell search to acquire time and frequency synchronization with a cell. The UE receives synchronization signals and PBCH.</p>  <p data-bbox="611 1117 1451 1149">Source: https://www.tesla.com/ (last accessed on April 10, 2024).</p>

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	<h2>Connectivity</h2> <p>Connectivity is an important part of all Tesla vehicles, further enhancing the driving experience by providing access to features that require data usage — including streaming music and media, live traffic visualization and more.</p> <p>All Tesla vehicles come with access to Standard Connectivity. Standard Connectivity is included in your vehicle, at no additional cost, for eight years beginning on the first day your vehicle was delivered as new by Tesla or the first day it is put into service (for example, used as a demonstrator or service vehicle), whichever comes first. If you are purchasing a used vehicle, you will be notified of how long your vehicle will include access to Standard Connectivity. With Standard Connectivity, you have access to most connectivity features over Wi-Fi, in addition to basic maps and navigation and music streaming over Bluetooth®.</p> <p>Premium Connectivity provides the ability to access all connectivity features over cellular, in addition to Wi-Fi, for the most intuitive and engaging ownership experience. Premium Connectivity is currently available as a monthly subscription of \$9.99 plus applicable tax or as an annual subscription of \$99 plus applicable tax and can be purchased at any time from your vehicle touchscreen or the Tesla app. Orders of Model S, Model X, Model Y, Model 3 and future variants of Cybertruck will receive a Premium Connectivity trial at delivery.</p> <p>If you own a Tesla vehicle for personal use, you can subscribe to Premium Connectivity from your vehicle touchscreen or the Tesla app. If you are driving a company vehicle, contact your vehicle provider for more information.</p> <p>Source: https://www.tesla.com/support/connectivity (last accessed on April 10, 2024).</p> <h2>Certification Conformity</h2> <h3>FCC and ISSED Certification</h3> <table><tr><th>Component</th><th>Manufacturer</th><th>Model</th><th>Operating Frequency (MHz)</th><th>FCC ID</th><th>IC ID</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Component	Manufacturer	Model	Operating Frequency (MHz)	FCC ID	IC ID						
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<p>Source: https://www.tesla.com/ownersmanual/model3/en_tw/GUID-1F854D6E-67FA-4262-BB76-904C71FAC59F.html (last accessed on April 10, 2024).</p> <div><p>QUECTEL Build a Smarter World</p></div> <h1>AG525R-GL QuecOpen Hardware Design</h1> <p>Automotive Module Series</p> <p>Version: 1.0.0</p> <p>Source: https://fcc.report/FCC-ID/XMR2020AG525RGL/5011285 (last accessed on April 10, 2024).</p>						

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	<p>Table 1: Frequency Bands of AG525R-GL QuecOpen® Module</p> <table> <tr> <th>Network Type</th><th>AG525R-GL QuecOpen Module</th></tr> <tr> <td>LTE-FDD (with Rx-diversity)</td><td>B1/B2/B3/B4/B5/B7/B8/B9/B11/B12/B13/B18/B19/B20/B21/B25/B26/ B28/B29 ¹⁾/B30 ¹⁾/B32 ¹⁾/B66/B71</td></tr> <tr> <td>LTE-TDD (with Rx-diversity)</td><td>B34/B38/B39/B40/B41</td></tr> </table> <p>Source: https://fcc.report/FCC-ID/XMR2020AG525RGL/5011285 (last accessed on April 10, 2024).</p> <p>User Equipment (UE) is a term used in the context of mobile communication systems, referring to the end-user device that connects to a wireless network to access various services and applications. UE is also commonly known as a mobile device, mobile phone, smartphone, tablet, or any other device that can communicate over cellular networks. In the context of 5G, the term "UE" is often replaced with "UE" (User Equipment) or "UE" (User Endpoint) to emphasize its broader capabilities beyond traditional mobile phones.</p> <p>Source: https://www.telecomtrainer.com/ue-user-equipment/ (last accessed on April 10, 2024).</p> <h2>4 Synchronization procedures</h2> <h3>4.1 Cell search</h3> <p>Cell search is the procedure by which a UE acquires time and frequency synchronization with a cell and detects the physical layer Cell ID of that cell. E-UTRA cell search supports a scalable overall transmission bandwidth corresponding to 6 resource blocks and upwards.</p> <p>The following signals are transmitted in the downlink to facilitate cell search: the primary and secondary synchronization signals.</p> <p>A UE may assume the antenna ports 0 – 3 and the antenna port for the primary/secondary synchronization signals of a serving cell are quasi co-located (as defined in [3]) with respect to Doppler shift and average delay.</p> <p>See 3GPP TS 36.213 V14.17.0 at 12.</p>	Network Type	AG525R-GL QuecOpen Module	LTE-FDD (with Rx-diversity)	B1/B2/B3/B4/B5/B7/B8/B9/B11/B12/B13/B18/B19/B20/B21/B25/B26/ B28/B29 ¹⁾ /B30 ¹⁾ /B32 ¹⁾ /B66/B71	LTE-TDD (with Rx-diversity)	B34/B38/B39/B40/B41
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1[a] a transceiver; and	<p>On information and belief, the Tesla Automotive Vehicles include a transceiver.</p> <p>For example, on information and belief, 3GPP LTE capable UE (User Equipment) comes equipped with antennas (transceiver) and CPU (processor) and performs cell search to acquire time and frequency synchronization with a cell. The UE receives synchronization signals and PBCH. On information and belief, at least certain versions of the Tesla 3 includes a Quectel AG525R-GL component that supports 4G LTE communications.</p> <h3>Connectivity</h3> <p><u>Connectivity is an important part of all Tesla vehicles, further enhancing the driving experience by providing access to features that require data usage — including streaming music and media, live traffic visualization and more.</u></p> <p>All Tesla vehicles come with access to Standard Connectivity. Standard Connectivity is included in your vehicle, at no additional cost, for eight years beginning on the first day your vehicle was delivered as new by Tesla or the first day it is put into service (for example, used as a demonstrator or service vehicle), whichever comes first. If you are purchasing a used vehicle, you will be notified of how long your vehicle will include access to Standard Connectivity. With Standard Connectivity, you have access to most connectivity features over Wi-Fi, in addition to basic maps and navigation and music streaming over Bluetooth®.</p> <p><u>Premium Connectivity provides the ability to access all connectivity features over cellular,</u> in addition to Wi-Fi, for the most intuitive and engaging ownership experience. Premium Connectivity is currently available as a monthly subscription of \$9.99 plus applicable tax or as an annual subscription of \$99 plus applicable tax and can be purchased at any time from your vehicle touchscreen or the <u>Tesla app</u>. Orders of Model S, Model X, Model Y, Model 3 and future variants of Cybertruck will receive a Premium Connectivity trial at delivery.</p> <p>If you own a Tesla vehicle for personal use, you can subscribe to Premium Connectivity from your vehicle touchscreen or the Tesla app. If you are driving a company vehicle, contact your vehicle provider for more information.</p> <p>Source: https://www.tesla.com/support/connectivity (last accessed on April 10, 2024).</p>

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1[b] a processor, operatively coupled to the transceiver; wherein	<p>On information and belief, the Tesla Automotive Vehicles include a processor operatively coupled to the transceiver. For example, on information and belief, 3GPP LTE capable UE (User Equipment) comes equipped with antennas (transceiver) and CPU (processor) and performs cell search to acquire time and frequency synchronization with a cell. The UE receives synchronization signals and PBCH.</p> <p>Connectivity</p> <p><u>Connectivity is an important part of all Tesla vehicles, further enhancing the driving experience by providing access to features that require data usage — including streaming music and media, live traffic visualization and more.</u></p> <p>All Tesla vehicles come with access to Standard Connectivity. Standard Connectivity is included in your vehicle, at no additional cost, for eight years beginning on the first day your vehicle was delivered as new by Tesla or the first day it is put into service (for example, used as a demonstrator or service vehicle), whichever comes first. If you are purchasing a used vehicle, you will be notified of how long your vehicle will include access to Standard Connectivity. With Standard Connectivity, you have access to most connectivity features over Wi-Fi, in addition to basic maps and navigation and music streaming over Bluetooth®.</p> <p><u>Premium Connectivity provides the ability to access all connectivity features over cellular,</u> in addition to Wi-Fi, for the most intuitive and engaging ownership experience. Premium Connectivity is currently available as a monthly subscription of \$9.99 plus applicable tax or as an annual subscription of \$99 plus applicable tax and can be purchased at any time from your vehicle touchscreen or the <u>Tesla app</u>. Orders of Model S, Model X, Model Y, Model 3 and future variants of Cybertruck will receive a Premium Connectivity trial at delivery.</p> <p>If you own a Tesla vehicle for personal use, you can subscribe to Premium Connectivity from your vehicle touchscreen or the Tesla app. If you are driving a company vehicle, contact your vehicle provider for more information.</p> <p>Source: https://www.tesla.com/support/connectivity (last accessed on April 10, 2024).</p> <p>For example, on information and belief, at least certain versions of the Tesla 3 includes a Quectel AG525R-GL component that includes a processor and supports 4G LTE.</p>

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	<h1 data-bbox="646 277 1073 358">1 Introduction</h1> <p data-bbox="636 415 1803 597">QuecOpen® is an application solution where the module acts as a main processor. With the development of communication technology and the ever-changing market demands, more and more customers have realized the advantages of QuecOpen® solution. Especially, its advantage in reducing the product cost is greatly valued by customers. With QuecOpen® solution, development flow for wireless application and hardware design will be simplified. Main features of QuecOpen® solution are listed below:</p> <p data-bbox="613 651 1900 683">Source: https://fcc.report/FCC-ID/XMR2020AG525RGL/5011285 (last accessed on April 10, 2024).</p> <h2 data-bbox="632 737 1079 781">2.1. General Description</h2> <p data-bbox="632 841 1923 915">AG525R-GL QuecOpen module is a baseband processor platform based on ARM Cortex A7 kernel. The maximum dominant frequency is up to 1.497 GHz.</p> <p data-bbox="632 969 1923 1125">AG525R-GL QuecOpen module is a series of automotive-grade LTE-FDD/LTE-TDD/WCDMA/GSM wireless communication modules with receive diversity. It provides data connectivity on LTE-FDD, LTE-TDD, DC-HSDPA, HSPA+, HSDPA, HSUPA, WCDMA, EDGE and GPRS networks. It also provides GNSS function (optional) and audio function to meet specific application demands.</p> <p data-bbox="613 1179 1900 1211">Source: https://fcc.report/FCC-ID/XMR2020AG525RGL/5011285 (last accessed on April 10, 2024).</p>

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	<p>Key Components and Functions of UE:</p> <ol style="list-style-type: none"> 1. Radio Interface: The UE is equipped with a radio interface that allows it to communicate wirelessly with the cellular network infrastructure, including base stations (e.g., cell towers) and other network elements. 2. SIM Card: The Subscriber Identity Module (SIM) card is a small smart card that is inserted into the UE. It contains essential information, such as the subscriber's unique identifier (IMSI) and authentication data, which enable the device to access the mobile network and receive services. 3. Processor and Operating System: UE devices are equipped with a central processing unit (CPU) and an operating system (OS) that manage and run various applications, services, and functionalities on the device. <p>Source: https://www.telecomtrainer.com/ue-user-equipment/ (last accessed on April 10, 2024).</p>
<p>1[c] the transceiver and the processor are configured to receive a primary synchronization signal (PSS), a secondary synchronization signal (SSS), and a physical broadcast channel (PBCH) including a master information block (MIB), the PSS, SSS and PBCH are in a first bandwidth of a cell having a cell bandwidth, wherein the first bandwidth is a first portion of the cell</p>	<p>On information and belief, in the Tesla Automotive Vehicles, the transceiver and the processor are configured to receive a primary synchronization signal (PSS), a secondary synchronization signal (SSS), and a physical broadcast channel (PBCH) including a master information block (MIB), the PSS, SSS and PBCH are in a first bandwidth of a cell having a cell bandwidth, wherein the first bandwidth is a first portion of the cell bandwidth, wherein the MIB includes an indication of frequency resources and time resources for use in acquiring additional system information.</p> <p>For example, on information and belief, the User Equipment (UE) receives the Primary Synchronization Signal (PSS), Secondary Synchronization Signal (SSS), and the Physical Broadcast Channel (PBCH), from the base station. The Master Information Block (MIB) is periodically broadcast on the Physical Broadcast Channel (PBCH).</p>

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<p>bandwidth, wherein the MIB includes an indication of frequency resources and time resources for use in acquiring additional system information; and</p>	<p>4 Synchronization procedures</p> <p>4.1 Cell search</p> <p>Cell search is the procedure by which a UE acquires time and frequency synchronization with a cell and detects the physical layer Cell ID of that cell. E-UTRA cell search supports a scalable overall transmission bandwidth corresponding to 6 resource blocks and upwards.</p> <p>The following signals are transmitted in the downlink to facilitate cell search: the primary and secondary synchronization signals.</p> <p>A UE may assume the antenna ports 0 – 3 and the antenna port for the primary/secondary synchronization signals of a serving cell are quasi co-located (as defined in [3]) with respect to Doppler shift and average delay.</p> <p>See 3GPP TS 36.213 V14.17.0 at 12.</p> <p>7.1 UE procedure for receiving the physical downlink shared channel</p> <p>For frame structure type 1,</p> <ul style="list-style-type: none"> - the UE is not expected to receive PDSCH resource blocks transmitted on antenna port 5 in any subframe in which the number of OFDM symbols for PDCCH with normal CP is equal to four; - a non-BL/CE UE is not expected to receive PDSCH resource blocks transmitted on antenna port 5, 7, 8, 9, 10, 11, 12, 13 or 14 in the two PRBs to which a pair of VRBs is mapped if either one of the two PRBs overlaps in frequency with a transmission of either PBCH or primary or secondary synchronization signals in the same subframe; - the UE is not expected to receive PDSCH resource blocks transmitted on antenna port 7 for which distributed VRB resource allocation is assigned. - The UE may skip decoding the transport block(s) if it does not receive all assigned PDSCH resource blocks except if it is capable of receiving the non-colliding PDSCH resource blocks in an assignment which partly collides in frequency with a transmission of PBCH or primary synchronization signal or secondary synchronization signal in the same subframes and that capability is indicated by <i>pdsch-CollisionHandling</i> [12]. If the UE skips decoding, the physical layer indicates to higher layer that the transport block(s) are not successfully decoded.

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	<p>See 3GPP TS 36.213 V14.17.0 at 57, 60.</p> <p>5.2 System information</p> <p>5.2.1 Introduction</p> <p>5.2.1.1 General</p> <p>System information is divided into the <i>MasterInformationBlock</i> (MIB) and a number of <i>SystemInformationBlocks</i> (SIBs). The MIB includes a limited number of most essential and most frequently transmitted parameters that are needed to acquire other information from the cell, and is transmitted on BCH. SIBs other than <i>SystemInformationBlockType1</i> are carried in <i>SystemInformation</i> (SI) messages and mapping of SIBs to SI messages is flexibly configurable by <i>schedulingInfoList</i> included in <i>SystemInformationBlockType1</i>, with restrictions that: each SIB is contained only in a single SI message, and at most once in that message; only SIBs having the same scheduling requirement (periodicity) can be mapped to the same SI message; <i>SystemInformationBlockType2</i> is always mapped to the SI message that corresponds to the first entry in the list of SI messages in <i>schedulingInfoList</i>. There may be multiple SI messages transmitted with the same periodicity. <i>SystemInformationBlockType1</i> and all SI messages are transmitted on DL-SCH.</p> <p>See 3GPP TS 36.331 V14.16.0 at 36.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="632 269 1215 305">5.2.2 System information acquisition</p> <p data-bbox="632 342 903 375">5.2.2.1 General</p> <div data-bbox="850 402 1545 716"> <pre> sequenceDiagram participant UE participant EUTRAN as E-UTRAN EUTRAN->>UE: MasterInformationBlock EUTRAN->>UE: SystemInformationBlockType1 EUTRAN->>UE: SystemInformation </pre> </div> <p data-bbox="884 727 1516 753">Figure 5.2.2.1-1: System information acquisition, normal</p> <p data-bbox="611 808 1224 841">See 3GPP TS 36.331 V14.16.0 at Fig. 5.2.2.1-1.</p> <p data-bbox="638 889 1003 915">– <i>BCCH-BCH-Message</i></p> <p data-bbox="638 935 1577 977">The <i>BCCH-BCH-Message</i> class is the set of RRC messages that may be sent from the E-UTRAN to the UE via BCH on the BCCH logical channel.</p> <pre data-bbox="638 995 1581 1154"> -- ASN1START BCCH-BCH-Message ::= SEQUENCE { message BCCH-BCH-MessageType } BCCH-BCH-MessageType ::= -- ASN1STOP </pre> <p data-bbox="611 1219 1100 1252">See 3GPP TS 36.331 V14.16.0 at 251.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="636 264 1052 289">– <i>MasterInformationBlock</i></p> <p data-bbox="636 313 1339 337">The <i>MasterInformationBlock</i> includes the system information transmitted on BCH.</p> <p data-bbox="667 358 909 383">Signalling radio bearer: N/A</p> <p data-bbox="667 404 798 428">RLC-SAP: TM</p> <p data-bbox="667 449 869 474">Logical channel: BCCH</p> <p data-bbox="667 495 909 518">Direction: E-UTRAN to UE</p> <p data-bbox="1024 539 1266 563"><i>MasterInformationBlock</i></p> <pre data-bbox="636 579 1656 828"> -- ASN1START MasterInformationBlock ::= dl-Bandwidth phich-Config systemFrameNumber schedulingInfoSIB1-BR-r13 spare SEQUENCE { ENUMERATED { n6, n15, n25, n50, n75, n100}, PHICH-Config, BIT STRING (SIZE (8)), INTEGER (0..31), BIT STRING (SIZE (5)) } -- ASN1STOP </pre> <p data-bbox="613 881 1098 906">See 3GPP TS 36.331 V14.16.0 at 265.</p> <p data-bbox="613 951 1919 1052">On information and belief, the PSS/SSS are transmitted over 72 subcarriers in the first and sixth subframe of each frame and PBCH is carried over four subframes. The sub-carriers and subframes used by PSS/SSS/PBCH are just a part of the overall bandwidth of the cell.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p>5.1.7.3 Cell search</p> <p>Cell search is the procedure by which a UE acquires time and frequency synchronization with a cell and detects the Cell ID of that cell. E-UTRA cell search supports a scalable overall transmission bandwidth corresponding to 72 sub-carriers and upwards.</p> <p>E-UTRA cell search is based on following signals transmitted in the downlink: the primary and secondary synchronization signals.</p> <p>The primary and secondary synchronization signals are transmitted over the centre 72 sub-carriers in the first and sixth subframe of each frame.</p> <p>Neighbour-cell search is based on the same downlink signals as initial cell search.</p> <p>See 3GPP TS 36.300 V14.13.0 at 61.</p> <p>The physical channels of E-UTRA are:</p> <p>Physical broadcast channel (PBCH)</p> <ul style="list-style-type: none"> - 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. <p>See 3GPP TS 36.300 V14.13.0 at 56.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="636 272 1302 310">5.1 Downlink Transmission Scheme</p> <p data-bbox="636 350 1415 388">5.1.1 Basic transmission scheme based on OFDM</p> <p data-bbox="636 410 1749 516">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 <i>resource block</i>. In the frequency domain, the number of resource blocks, N_{RB}, can range from $N_{RB-min} = 6$ to $N_{RB-max} = 110$ per CC or per Cell in case of CA or DC.</p> <p data-bbox="636 540 1732 594">In addition, there are also two a reduced sub-carrier spacings, $\Delta f_{low} = 7.5$ kHz and $\Delta f_{low2} = 1.25$ kHz for both MBMS-dedicated cell and MBMS/Unicast-mixed cell.</p> <p data-bbox="611 638 1083 670">See 3GPP TS 36.300 V14.13.0 at 58.</p> <p data-bbox="625 719 1642 818">For the UE-selected subband CQI, a CQI report in a certain subframe of a certain serving cell describes the channel quality in a particular part or in particular parts of the bandwidth of that serving cell described subsequently as <i>bandwidth part (BP) or parts</i>. The bandwidth parts shall be indexed in the order of increasing frequency and non-increasing sizes starting at the lowest frequency.</p> <p data-bbox="625 846 814 870">For each serving cell</p> <ul data-bbox="657 878 1682 959" style="list-style-type: none"> - There are a total of N subbands for a serving cell system bandwidth given by N_{RB}^{DL} where $\lfloor N_{RB}^{DL} / k \rfloor$ subbands are of size k. If $\lceil N_{RB}^{DL} / k \rceil - \lfloor N_{RB}^{DL} / k \rfloor > 0$ then one of the subbands is of size $N_{RB}^{DL} - k \cdot \lfloor N_{RB}^{DL} / k \rfloor$. <p data-bbox="611 1008 1100 1040">See 3GPP TS 36.213 V14.17.0 at 132.</p> <p data-bbox="611 1076 1919 1182">On information and belief, the MIB contains scheduling information that is used by the UE to acquire SIB1. The scheduling information includes time/frequency domain schedule for receiving the SIB1 message.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p>4 Synchronization procedures</p> <p>4.1 Cell search</p> <p>Cell search is the procedure by which a UE acquires time and frequency synchronization with a cell and detects the physical layer Cell ID of that cell. E-UTRA cell search supports a scalable overall transmission bandwidth corresponding to 6 resource blocks and upwards.</p> <p>The following signals are transmitted in the downlink to facilitate cell search: the primary and secondary synchronization signals.</p> <p>A UE may assume the antenna ports 0 – 3 and the antenna port for the primary/secondary synchronization signals of a serving cell are quasi co-located (as defined in [3]) with respect to Doppler shift and average delay.</p> <p>See 3GPP TS 36.213 V14.17.0 at 12.</p> <p>5.2 System information</p> <p>5.2.1 Introduction</p> <p>5.2.1.1 General</p> <p>System information is divided into the <i>MasterInformationBlock</i> (MIB) and a number of <i>SystemInformationBlocks</i> (SIBs). The MIB includes a limited number of most essential and most frequently transmitted parameters that are needed to acquire other information from the cell, and is transmitted on BCH. SIBs other than <i>SystemInformationBlockType1</i> are carried in <i>SystemInformation</i> (SI) messages and mapping of SIBs to SI messages is flexibly configurable by <i>schedulingInfoList</i> included in <i>SystemInformationBlockType1</i>, with restrictions that: each SIB is contained only in a single SI message, and at most once in that message; only SIBs having the same scheduling requirement (periodicity) can be mapped to the same SI message; <i>SystemInformationBlockType2</i> is always mapped to the SI message that corresponds to the first entry in the list of SI messages in <i>schedulingInfoList</i>. There may be multiple SI messages transmitted with the same periodicity. <i>SystemInformationBlockType1</i> and all SI messages are transmitted on DL-SCH.</p> <p>See 3GPP TS 36.331 V14.16.0 at 36.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670					
	<div><div>– <i>MasterInformationBlock</i></div><div>The <i>MasterInformationBlock</i> includes the system information transmitted on BCH.</div><div>Signalling radio bearer: N/A</div><div>RLC-SAP: TM</div><div>Logical channel: BCCH</div><div>Direction: E-UTRAN to UE</div><div><i>MasterInformationBlock</i></div><div><pre>-- ASN1START MasterInformationBlock ::= dl-Bandwidth phich-Config systemFrameNumber schedulingInfoSIB1-BR-r13 spare } -- ASN1STOP</pre></div></div> <div>See 3GPP TS 36.331 V14.16.0 at 265.</div> <table><tr><th><i>MasterInformationBlock</i> field descriptions</th></tr><tr><td>dl-Bandwidth Parameter: transmission bandwidth configuration, N_{RB} in downlink, see TS 36.101 [42, table 5.6-1]. n6 corresponds to 6 resource blocks, n15 to 15 resource blocks and so on.</td></tr><tr><td>phich-Config Specifies the PHICH configuration. If the UE is a BL UE or UE in CE, it shall ignore this field.</td></tr><tr><td>schedulingInfoSIB1-BR Indicates the index to the tables that define <i>SystemInformationBlockType1-BR</i> scheduling information. The tables are specified in TS 36.213 [23, Table 7.1.6-1 and Table 7.1.7.2.7-1]. Value 0 means that <i>SystemInformationBlockType1-BR</i> is not scheduled.</td></tr><tr><td>system-frameNumber Defines the 8 most significant bits of the SFN. As indicated in TS 36.211 [21, 6.6.1], the 2 least significant bits of the SFN are acquired implicitly in the P-BCH decoding, i.e. timing of 40ms P-BCH TTI indicates 2 least significant bits (within 40ms P-BCH TTI, the first radio frame: 00, the second radio frame: 01, the third radio frame: 10, the last radio frame: 11). One value applies for all serving cells of a Cell Group (i.e. MCG or SCG). The associated functionality is common (i.e. not performed independently for each cell).</td></tr></table> <div>See 3GPP TS 36.331 V14.16.0 at 265.</div>	<i>MasterInformationBlock</i> field descriptions	dl-Bandwidth Parameter: transmission bandwidth configuration, N_{RB} in downlink, see TS 36.101 [42, table 5.6-1]. n6 corresponds to 6 resource blocks, n15 to 15 resource blocks and so on.	phich-Config Specifies the PHICH configuration. If the UE is a BL UE or UE in CE, it shall ignore this field.	schedulingInfoSIB1-BR Indicates the index to the tables that define <i>SystemInformationBlockType1-BR</i> scheduling information. The tables are specified in TS 36.213 [23, Table 7.1.6-1 and Table 7.1.7.2.7-1]. Value 0 means that <i>SystemInformationBlockType1-BR</i> is not scheduled.	system-frameNumber Defines the 8 most significant bits of the SFN. As indicated in TS 36.211 [21, 6.6.1], the 2 least significant bits of the SFN are acquired implicitly in the P-BCH decoding, i.e. timing of 40ms P-BCH TTI indicates 2 least significant bits (within 40ms P-BCH TTI, the first radio frame: 00, the second radio frame: 01, the third radio frame: 10, the last radio frame: 11). One value applies for all serving cells of a Cell Group (i.e. MCG or SCG). The associated functionality is common (i.e. not performed independently for each cell).
<i>MasterInformationBlock</i> field descriptions						
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Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p>5.2.1.2 Scheduling</p> <p>The SI messages are transmitted within periodically occurring time domain windows (referred to as SI-windows) using dynamic scheduling. Each SI message is associated with a SI-window and the SI-windows of different SI messages do not overlap. That is, within one SI-window only the corresponding SI is transmitted. The length of the SI-window is common for all SI messages, and is configurable. Within the SI-window, the corresponding SI message can be transmitted a number of times in any subframe other than MBSFN subframes, uplink subframes in TDD, and subframe #5 of radio frames for which SFN mod 2 = 0. The UE acquires the detailed time-domain scheduling (and other information, e.g. frequency-domain scheduling, used transport format) from decoding SI-RNTI on PDCCH (see TS 36.321 [6]). For a BL UE or a UE in CE, the detailed time/frequency domain scheduling information for the SI messages is provided in <i>SystemInformationBlockType1-BR</i>.</p> <p>See 3GPP TS 36.331 V14.16.0 at 37.</p>
<p>1[d] the transceiver and the processor are configured to acquire the additional system information using the indication of the frequency resources and the time resources, wherein the indicated frequency resources and the time resources include control information for use by the UE to acquire a system information block 1.</p>	<p>On information and belief, in the Tesla Automotive Vehicles, the transceiver and the processor are configured to acquire the additional system information using the indication of the frequency resources and the time resources, wherein the indicated frequency resources and the time resources include control information for use by the UE to acquire a system information block 1.</p> <p>For example, on information and belief, the MIB contains scheduling information that is used by the UE to acquire SIB1. The scheduling information includes time/frequency domain schedule for receiving the SIB1 message.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p>4 Synchronization procedures</p> <p>4.1 Cell search</p> <p>Cell search is the procedure by which a UE acquires time and frequency synchronization with a cell and detects the physical layer Cell ID of that cell. E-UTRA cell search supports a scalable overall transmission bandwidth corresponding to 6 resource blocks and upwards.</p> <p>The following signals are transmitted in the downlink to facilitate cell search: the primary and secondary synchronization signals.</p> <p>A UE may assume the antenna ports 0 – 3 and the antenna port for the primary/secondary synchronization signals of a serving cell are quasi co-located (as defined in [3]) with respect to Doppler shift and average delay.</p> <p>See 3GPP TS 36.213 V14.17.0 at 12.</p> <p>5.2 System information</p> <p>5.2.1 Introduction</p> <p>5.2.1.1 General</p> <p>System information is divided into the <i>MasterInformationBlock</i> (MIB) and a number of <i>SystemInformationBlocks</i> (SIBs). The MIB includes a limited number of most essential and most frequently transmitted parameters that are needed to acquire other information from the cell, and is transmitted on BCH. SIBs other than <i>SystemInformationBlockType1</i> are carried in <i>SystemInformation</i> (SI) messages and mapping of SIBs to SI messages is flexibly configurable by <i>schedulingInfoList</i> included in <i>SystemInformationBlockType1</i>, with restrictions that: each SIB is contained only in a single SI message, and at most once in that message; only SIBs having the same scheduling requirement (periodicity) can be mapped to the same SI message; <i>SystemInformationBlockType2</i> is always mapped to the SI message that corresponds to the first entry in the list of SI messages in <i>schedulingInfoList</i>. There may be multiple SI messages transmitted with the same periodicity. <i>SystemInformationBlockType1</i> and all SI messages are transmitted on DL-SCH.</p> <p>See 3GPP TS 36.331 V14.16.0 at 36.</p>

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670					
	<div><div>–MasterInformationBlock</div><div>The MasterInformationBlock includes the system information transmitted on BCH.</div><div>Signalling radio bearer: N/A</div><div>RLC-SAP: TM</div><div>Logical channel: BCCH</div><div>Direction: E-UTRAN to UE</div><div>MasterInformationBlock</div><div><pre>-- ASN1START MasterInformationBlock ::= SEQUENCE { dl-Bandwidth ENUMERATED { n6, n15, n25, n50, n75, n100}, phich-Config PHICH-Config, systemFrameNumber BIT STRING (SIZE (8)), schedulingInfoSIB1-BR-r13 INTEGER (0..31), spare BIT STRING (SIZE (5)) } -- ASN1STOP</pre></div></div> <div>See 3GPP TS 36.331 V14.16.0 at 265.</div> <div><table><tr><th>MasterInformationBlock field descriptions</th></tr><tr><td>dl-Bandwidth Parameter: transmission bandwidth configuration, N_{RB} in downlink, see TS 36.101 [42, table 5.6-1]. n6 corresponds to 6 resource blocks, n15 to 15 resource blocks and so on.</td></tr><tr><td>phich-Config Specifies the PHICH configuration. If the UE is a BL UE or UE in CE, it shall ignore this field.</td></tr><tr><td>schedulingInfoSIB1-BR Indicates the index to the tables that define SystemInformationBlockType1-BR scheduling information. The tables are specified in TS 36.213 [23, Table 7.1.6-1 and Table 7.1.7.2.7-1]. Value 0 means that SystemInformationBlockType1-BR is not scheduled.</td></tr><tr><td>system-frameNumber Defines the 8 most significant bits of the SFN. As indicated in TS 36.211 [21, 6.6.1], the 2 least significant bits of the SFN are acquired implicitly in the P-BCH decoding, i.e. timing of 40ms P-BCH TTI indicates 2 least significant bits (within 40ms P-BCH TTI, the first radio frame: 00, the second radio frame: 01, the third radio frame: 10, the last radio frame: 11). One value applies for all serving cells of a Cell Group (i.e. MCG or SCG). The associated functionality is common (i.e. not performed independently for each cell).</td></tr></table></div> <div>See 3GPP TS 36.331 V14.16.0 at 265.</div>	MasterInformationBlock field descriptions	dl-Bandwidth Parameter: transmission bandwidth configuration, N _{RB} in downlink, see TS 36.101 [42, table 5.6-1]. n6 corresponds to 6 resource blocks, n15 to 15 resource blocks and so on.	phich-Config Specifies the PHICH configuration. If the UE is a BL UE or UE in CE, it shall ignore this field.	schedulingInfoSIB1-BR Indicates the index to the tables that define SystemInformationBlockType1-BR scheduling information. The tables are specified in TS 36.213 [23, Table 7.1.6-1 and Table 7.1.7.2.7-1]. Value 0 means that SystemInformationBlockType1-BR is not scheduled.	system-frameNumber Defines the 8 most significant bits of the SFN. As indicated in TS 36.211 [21, 6.6.1], the 2 least significant bits of the SFN are acquired implicitly in the P-BCH decoding, i.e. timing of 40ms P-BCH TTI indicates 2 least significant bits (within 40ms P-BCH TTI, the first radio frame: 00, the second radio frame: 01, the third radio frame: 10, the last radio frame: 11). One value applies for all serving cells of a Cell Group (i.e. MCG or SCG). The associated functionality is common (i.e. not performed independently for each cell).
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Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p>5.2.1.2 Scheduling</p> <p>The SI messages are transmitted within periodically occurring time domain windows (referred to as SI-windows) using dynamic scheduling. Each SI message is associated with a SI-window and the SI-windows of different SI messages do not overlap. That is, within one SI-window only the corresponding SI is transmitted. The length of the SI-window is common for all SI messages, and is configurable. Within the SI-window, the corresponding SI message can be transmitted a number of times in any subframe other than MBSFN subframes, uplink subframes in TDD, and subframe #5 of radio frames for which SFN mod 2 = 0. The UE acquires the detailed time-domain scheduling (and other information, e.g. frequency-domain scheduling, used transport format) from decoding SI-RNTI on PDCCH (see TS 36.321 [6]). For a BL UE or a UE in CE, the detailed time/frequency domain scheduling information for the SI messages is provided in <i>SystemInformationBlockType1-BR</i>.</p> <p>See 3GPP TS 36.331 V14.16.0 at 37.</p>

Claim 2	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
2. The UE of claim 1 wherein the indication of the frequency resources and the time resources is within a first portion of the cell bandwidth.	<p>On information and belief, the Tesla Automotive Vehicles include the UE of claim 1 wherein the indication of the frequency resources and the time resources is within a first portion of the cell bandwidth.</p> <p>See Claim 1.</p> <p>For example, on information and belief, the PSS/SSS are transmitted over 72 subcarriers in the first and sixth subframe of each frame and PBCH is carried over four subframes. The sub-carriers and subframes used by PSS/SSS/PBCH are a part of the overall bandwidth of the cell.</p>

Claim 2	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="625 261 953 289">5.1.7.3 Cell search</p> <p data-bbox="625 318 1824 402">Cell search is the procedure by which a UE acquires time and frequency synchronization with a cell and detects the Cell ID of that cell. E-UTRA cell search supports a scalable overall transmission bandwidth corresponding to 72 sub-carriers and upwards.</p> <p data-bbox="625 427 1684 480">E-UTRA cell search is based on following signals transmitted in the downlink: the primary and secondary synchronization signals.</p> <p data-bbox="625 505 1814 558"><u>The primary and secondary synchronization signals are transmitted over the centre 72 sub-carriers in the first and sixth subframe of each frame.</u></p> <p data-bbox="625 583 1442 610">Neighbour-cell search is based on the same downlink signals as initial cell search.</p> <p data-bbox="611 646 1083 673">See 3GPP TS 36.300 V14.13.0 at 60.</p> <p data-bbox="625 764 1314 808">5 Physical Layer for E-UTRA</p> <p data-bbox="625 837 1818 891">Downlink and uplink transmissions are organized into radio frames with 10 ms duration. Three radio frame structures are supported:</p> <ul data-bbox="659 915 974 943" style="list-style-type: none"> - Type 1, applicable to FDD; <p data-bbox="611 976 638 992">...</p> <p data-bbox="625 1011 1024 1039">The physical channels of E-UTRA are:</p> <p data-bbox="663 1060 1052 1088">Physical broadcast channel (PBCH)</p> <ul data-bbox="699 1112 1759 1276" style="list-style-type: none"> - <u>The coded BCH transport block is mapped to four subframes within a 40 ms interval;</u> - 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. <p data-bbox="611 1304 1125 1331">See 3GPP TS 36.300 V14.13.0 at 53-55.</p>

Claim 2	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p>7.4 System Information</p> <p>System information is divided into the <i>MasterInformationBlock</i> (MIB) and a number of <i>SystemInformationBlocks</i> (SIBs):</p> <p>...</p> <p><u>The MIB is mapped on the BCCH and carried on BCH...</u></p> <p>See 3GPP TS 36.300 V14.13.0 at 86-87.</p> <p>5.2 System information</p> <p>5.2.1 Introduction</p> <p>5.2.1.1 General</p> <p>System information is divided into the <i>MasterInformationBlock</i> (MIB) and a number of <i>SystemInformationBlocks</i> (SIBs). The MIB includes a limited number of most essential and most frequently transmitted parameters that are needed to acquire other information from the cell, and is transmitted on BCH. SIBs other than <i>SystemInformationBlockType1</i> are carried in <i>SystemInformation</i> (SI) messages and mapping of SIBs to SI messages is flexibly configurable by <i>schedulingInfoList</i> included in <i>SystemInformationBlockType1</i>, with restrictions that: each SIB is contained only in a single SI message, and at most once in that message; only SIBs having the same scheduling requirement (periodicity) can be mapped to the same SI message; <i>SystemInformationBlockType2</i> is always mapped to the SI message that corresponds to the first entry in the list of SI messages in <i>schedulingInfoList</i>. There may be multiple SI messages transmitted with the same periodicity. <i>SystemInformationBlockType1</i> and all SI messages are transmitted on DL-SCH.</p> <p>See 3GPP TS 36.331 V14.16.0 at 36.</p>

Claim 2

Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670

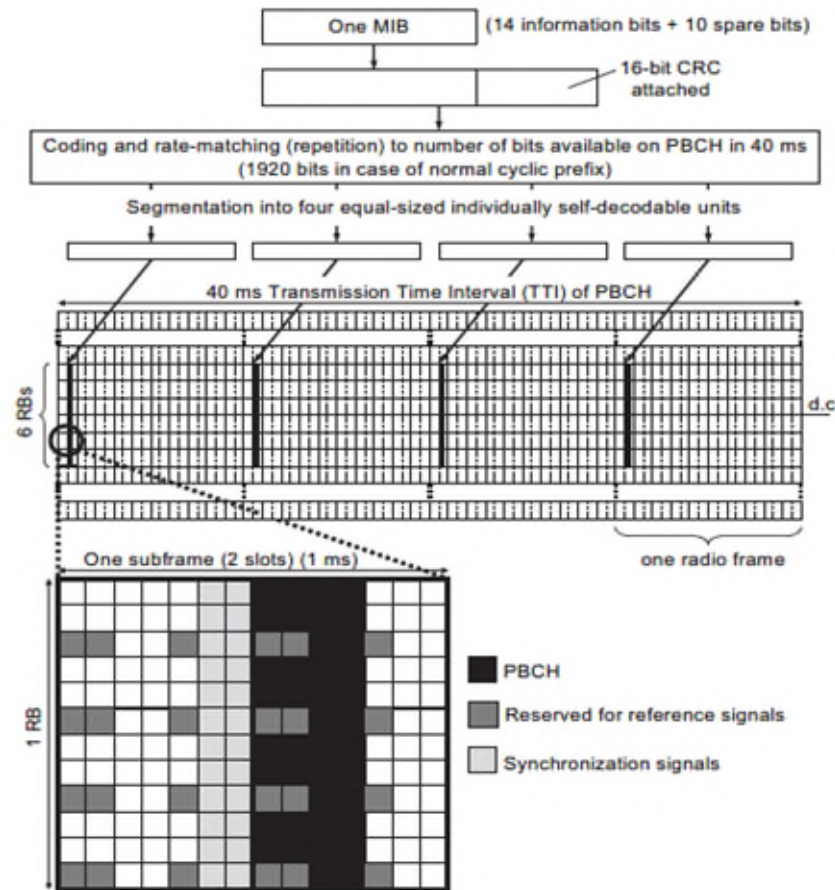


Figure 9.1: PBCH structure.

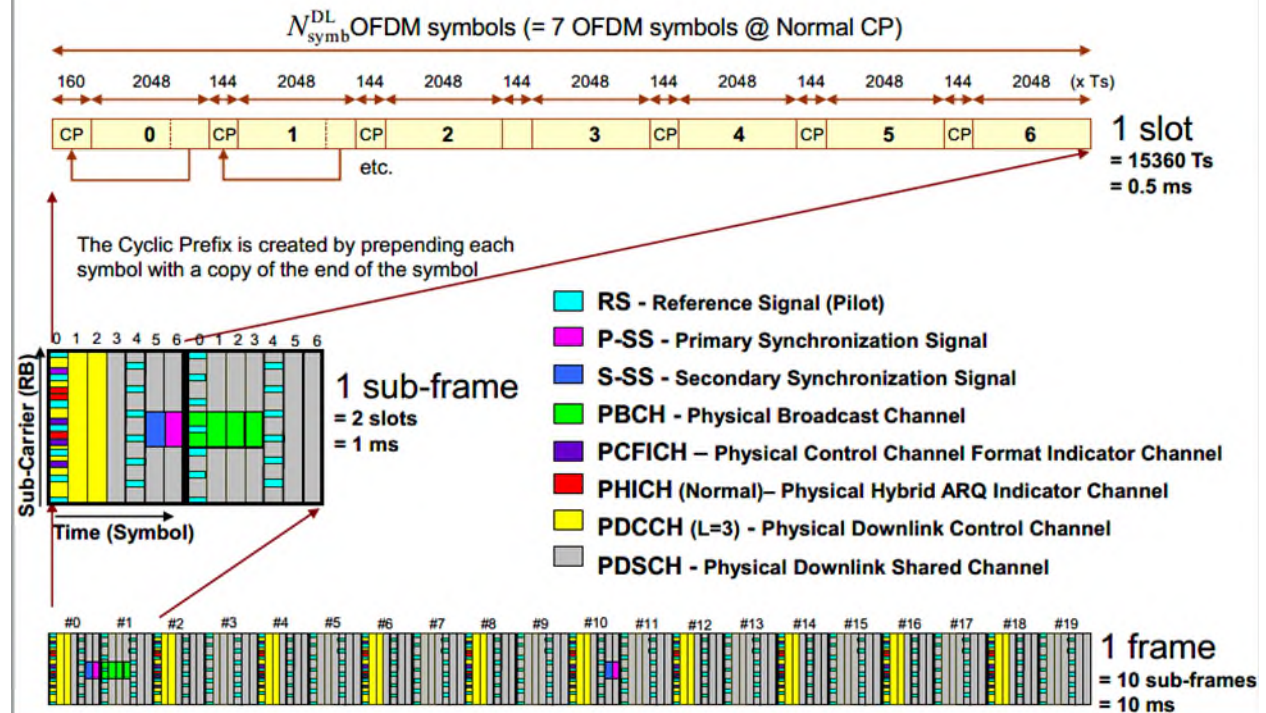
LTE – The UMTS - Long Term Evolution - From Theory to Practice -Second Edition

Claim 3	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
<p>3. The UE of claim 1 wherein the transceiver and the processor are configured to receive control information and physical downlink shared channel (PDSCH) transmissions with the first portion of the cell bandwidth and not in other portions of the cell bandwidth.</p>	<p>On information and belief, the Tesla Automotive Vehicles include the UE of claim 1 wherein the transceiver and the processor are configured to receive control information and physical downlink shared channel (PDSCH) transmissions with the first portion of the cell bandwidth and not in other portions of the cell bandwidth.</p> <p>See Claim 1.</p> <p>For example, on information and belief, PDSCH transmissions can be received with the first portion of the cell bandwidth and not in other portions of the cell bandwidth</p> <h2 data-bbox="625 678 1596 722">6.2 Slot structure and physical resource elements</h2> <h3 data-bbox="625 763 997 807">6.2.1 Resource grid</h3> <p data-bbox="625 828 1806 941">The transmitted signal in each slot is described by one or several resource grids of $N_{RB}^{DL} N_{sc}^{RB}$ subcarriers and N_{symb}^{DL} OFDM symbols. The resource grid structure is illustrated in Figure 6.2.2-1. The quantity N_{RB}^{DL} depends on the downlink transmission bandwidth configured in the cell and shall fulfil</p> $N_{RB}^{min, DL} \leq N_{RB}^{DL} \leq N_{RB}^{max, DL}$ <p data-bbox="625 1031 1816 1104">where $N_{RB}^{min, DL} = 6$ and $N_{RB}^{max, DL} = 110$ are the smallest and largest downlink bandwidths, respectively, supported by the current version of this specification.</p> <p>See 3GPP TS 36.211 V11.7.0 at 58</p>

Claim 3	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="625 261 1314 310">5 Physical Layer for E-UTRA</p> <p data-bbox="625 334 1818 391">Downlink and uplink transmissions are organized into radio frames with 10 ms duration. Three radio frame structures are supported:</p> <ul data-bbox="659 415 974 448" style="list-style-type: none"> - Type 1, applicable to FDD; <p data-bbox="615 472 638 488">...</p> <p data-bbox="632 513 1020 537">The physical channels of E-UTRA are:</p> <p data-bbox="615 570 638 586">...</p> <p data-bbox="640 602 1115 626"><u>Physical downlink control channel (PDCCH)</u></p> <ul data-bbox="674 651 1671 805" style="list-style-type: none"> - Informs the UE and the RN about the resource allocation of PCH and DL-SCH, and Hybrid ARQ information related to DL-SCH; - Carries the uplink scheduling grant; - Carries the sidelink scheduling grant. <p data-bbox="640 829 1241 854"><u>Enhanced physical downlink control channel (EPDCCH)</u></p> <ul data-bbox="674 878 1776 1008" style="list-style-type: none"> - Informs the UE about the resource allocation of DL-SCH, and Hybrid ARQ information related to DL-SCH; - Carries the uplink scheduling grant; - Carries the sidelink scheduling grant. <p data-bbox="615 1040 638 1057">...</p> <p data-bbox="640 1073 1115 1097"><u>Physical downlink shared channel (PDSCH)</u></p> <ul data-bbox="674 1122 1020 1154" style="list-style-type: none"> - Carries the DL-SCH and PCH. <p data-bbox="615 1211 1125 1235">See 3GPP TS 36.300 V14.13.0 at 53-55.</p>

Claim 3	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="611 254 1917 358">As a further example, on information and belief, the slide below shows the positions of the channels in one subframe from LTE (R8). The downlink control information is transmitted on the PDCCH and data is transmitted on the PDSCH.</p> <div data-bbox="877 399 1629 589"> <p data-bbox="940 464 1566 513">RF Measurements for LTE</p> </div> <p data-bbox="1157 631 1325 657"><i>Presented by:</i></p> <p data-bbox="1121 670 1381 751">Martha Zemedé August 7, 2008</p> <div data-bbox="1073 782 1430 854">  <p data-bbox="1157 805 1430 837">Agilent Technologies</p> </div>

Downlink frame structure type 1

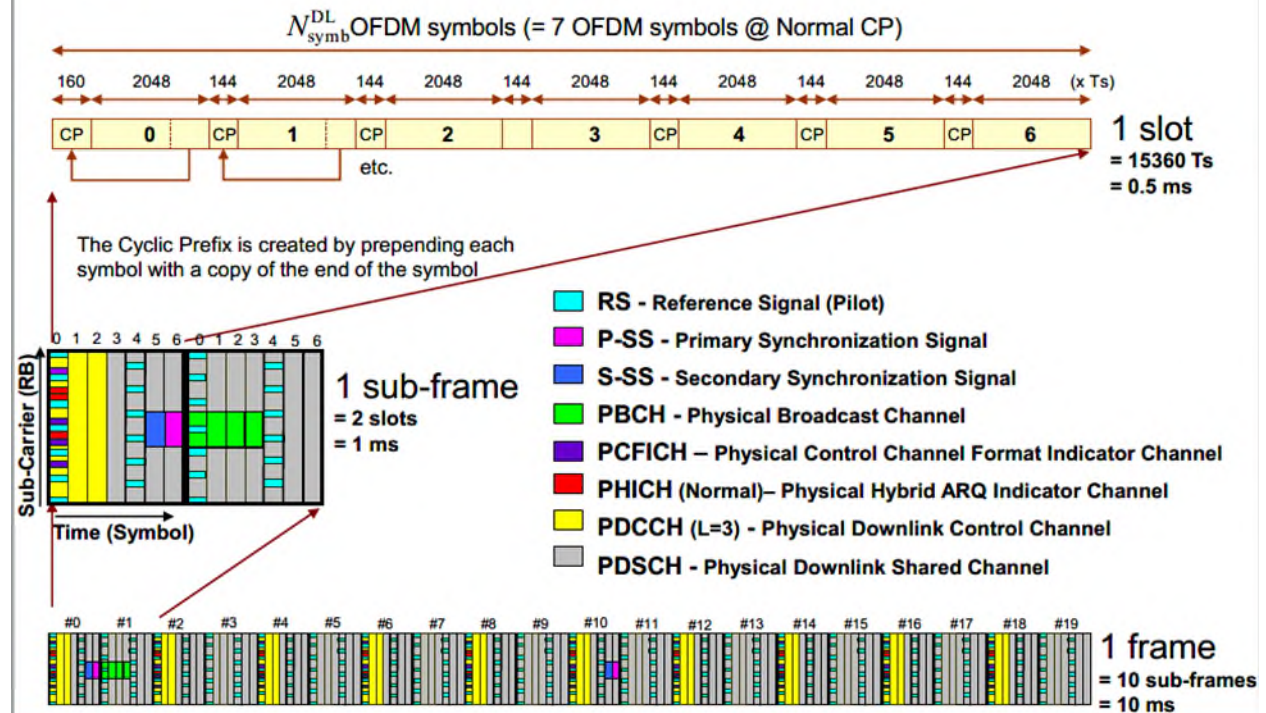


Claim 4	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
<p>4. The UE of claim 2 wherein the transceiver and the processor are configured to receive control information indicating a plurality of bandwidth portions of the cell bandwidth, wherein the plurality of bandwidth portions includes the first portion.</p>	<p>On information and belief, the Tesla Automotive Vehicles include the UE of claim 2 wherein the transceiver and the processor are configured to receive control information indicating a plurality of bandwidth portions of the cell bandwidth, wherein the plurality of bandwidth portions includes the first portion.</p> <p>See Claim 2.</p> <p>For example, on information and belief, control information indicating a plurality of bandwidth portions of the cell bandwidth, wherein the plurality of bandwidth portions includes the first portion can be received.</p> <p>6.2 Slot structure and physical resource elements</p> <p>6.2.1 Resource grid</p> <p>The transmitted signal in each slot is described by one or several resource grids of $N_{RB}^{DL} N_{sc}^{RB}$ subcarriers and N_{symp}^{DL} OFDM symbols. The resource grid structure is illustrated in Figure 6.2.2-1. The quantity N_{RB}^{DL} depends on the downlink transmission bandwidth configured in the cell and shall fulfil</p> $N_{RB}^{min,DL} \leq N_{RB}^{DL} \leq N_{RB}^{max,DL}$ <p>where $N_{RB}^{min,DL} = 6$ and $N_{RB}^{max,DL} = 110$ are the smallest and largest downlink bandwidths, respectively, supported by the current version of this specification.</p> <p>See 3GPP TS 36.211 V11.7.0 at 58</p>

Claim 4	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<p data-bbox="625 261 1316 310">5 Physical Layer for E-UTRA</p> <p data-bbox="625 334 1818 391">Downlink and uplink transmissions are organized into radio frames with 10 ms duration. Three radio frame structures are supported:</p> <ul data-bbox="659 415 976 444" style="list-style-type: none"> - Type 1, applicable to FDD; <p data-bbox="611 477 638 493">...</p> <p data-bbox="625 509 1024 539">The physical channels of E-UTRA are:</p> <p data-bbox="611 571 638 587">...</p> <p data-bbox="638 604 1119 631"><u>Physical downlink control channel (PDCCH)</u></p> <ul data-bbox="669 651 1673 808" style="list-style-type: none"> - Informs the UE and the RN about the resource allocation of PCH and DL-SCH, and Hybrid ARQ information related to DL-SCH; - Carries the uplink scheduling grant; - Carries the sidelink scheduling grant. <p data-bbox="638 829 1241 857"><u>Enhanced physical downlink control channel (EPDCCH)</u></p> <ul data-bbox="669 881 1782 1008" style="list-style-type: none"> - Informs the UE about the resource allocation of DL-SCH, and Hybrid ARQ information related to DL-SCH; - Carries the uplink scheduling grant; - Carries the sidelink scheduling grant. <p data-bbox="611 1040 638 1057">...</p> <p data-bbox="632 1078 1115 1105"><u>Physical downlink shared channel (PDSCH)</u></p> <ul data-bbox="669 1130 1020 1159" style="list-style-type: none"> - Carries the DL-SCH and PCH. <p data-bbox="611 1208 1125 1237">See 3GPP TS 36.300 V14.13.0 at 53-55.</p> <p data-bbox="611 1261 1906 1365">As a further example, on information and belief, the slide below shows the positions of the channels in one subframe from LTE (R8). The downlink control information is transmitted on the PDCCH and data is transmitted on the PDSCH.</p>

Claim 4	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
	<div data-bbox="877 272 1629 464" data-label="Section-Header"> <h2>RF Measurements for LTE</h2> </div> <div data-bbox="1142 500 1329 535" data-label="Text"> <p><i>Presented by:</i></p> </div> <div data-bbox="1102 537 1388 630" data-label="Text"> <p>Martha Zemedé August 7, 2008</p> </div> <div data-bbox="1064 652 1434 727" data-label="Image"> The logo for Agilent Technologies, featuring a blue stylized starburst icon to the left of the company name "Agilent Technologies" in a black sans-serif font. </div>

Downlink frame structure type 1



Claim 5	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 11,206,670
<p>5. The UE of claim 4 wherein the transceiver and the processor are configured to switch between the plurality of bandwidth portions at different times.</p>	<p>On information and belief, the Tesla Automotive Vehicles include the UE of claim 4 wherein the transceiver and the processor are configured to switch between the plurality of bandwidth portions at different times.</p> <p>See Claim 4.</p> <p>For example, the slot structure shows the transceiver and the processor are configured to switch between the plurality of bandwidth portions at different times.</p> <p>6.2 Slot structure and physical resource elements</p> <p>6.2.1 Resource grid</p> <p>The transmitted signal in each slot is described by one or several resource grids of $N_{RB}^{DL} N_{sc}^{RB}$ subcarriers and N_{symb}^{DL} OFDM symbols. The resource grid structure is illustrated in Figure 6.2.2-1. The quantity N_{RB}^{DL} depends on the downlink transmission bandwidth configured in the cell and shall fulfil</p> $N_{RB}^{min, DL} \leq N_{RB}^{DL} \leq N_{RB}^{max, DL}$ <p>where $N_{RB}^{min, DL} = 6$ and $N_{RB}^{max, DL} = 110$ are the smallest and largest downlink bandwidths, respectively, supported by the current version of this specification.</p> <p>See 3GPP TS 36.211 V11.7.0 at 58</p>

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	<table><tr><th>System BW</th><th>Number of RBs</th></tr><tr><td>1.4</td><td>6</td></tr><tr><td>3.0</td><td>15</td></tr><tr><td>5.0</td><td>25</td></tr><tr><td>10.0</td><td>50</td></tr><tr><td>15.0</td><td>75</td></tr><tr><td>20.0</td><td>100</td></tr></table>		System BW	Number of RBs	1.4	6	3.0	15	5.0	25	10.0	50	15.0	75	20.0	100
System BW	Number of RBs															
1.4	6															
3.0	15															
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10.0	50															
15.0	75															
20.0	100															
	https://www.sharetechnote.com/html/FrameStructure_DL.html ³ (last accessed on July 31, 2024).															

³ “RBs” is short for resource blocks.