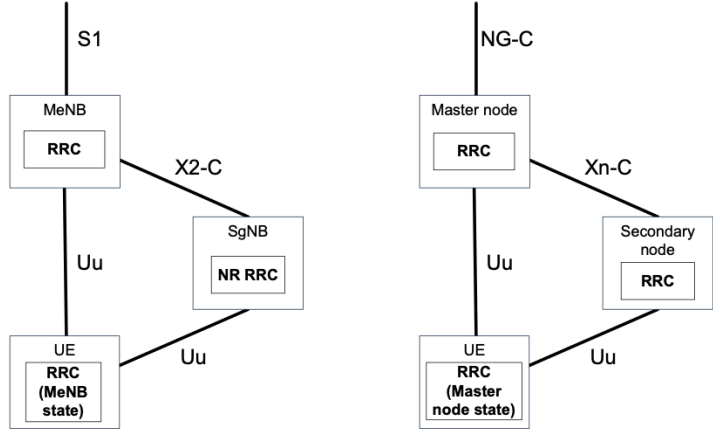


Exhibit E
U.S. Patent No. 10,045,383
v.
AT&T’s 5G Cellular Services (“Exemplary Product”)

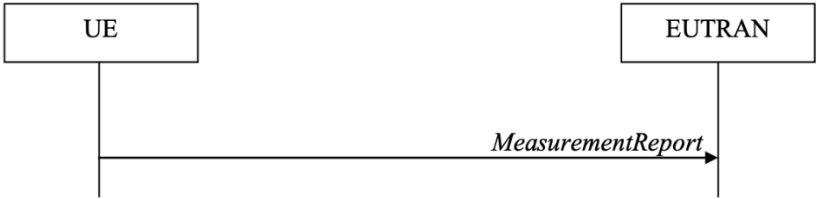
Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
Claim 1	
[pre] An operating method of a network comprising at least a base station, the method comprising:	The Exemplary Product is an operating method of a networking comprising at least a base station. For example, Defendant markets and sells 5G cellular services to customers. <i>E.g.</i>, https://www.att.com/5g/consumer/ (). The 5G technology used by Defendant is defined by a wireless standards body in which Defendant is a member, the 3rd Generation Partnership Project (“3GPP”). 3GPP promulgates a number of standards including the 38.xxx series that defines the standards for 5G. These standards, including the specific aspects of the standards discussed below, define a method for managing base stations such as those utilized by Defendant in offering its 5G cellular services. Defendant also markets and sells 4G cellular services to customers. <i>E.g.</i>, https://www.att.com/support/article/wireless/KM1008740. The 4G technology used by Defendant is also defined by the 3rd Generation Partnership Project (“3GPP”). 3GPP promulgates a number of standards including the 36.xxx series that defines the standards for 4G. These standards, including

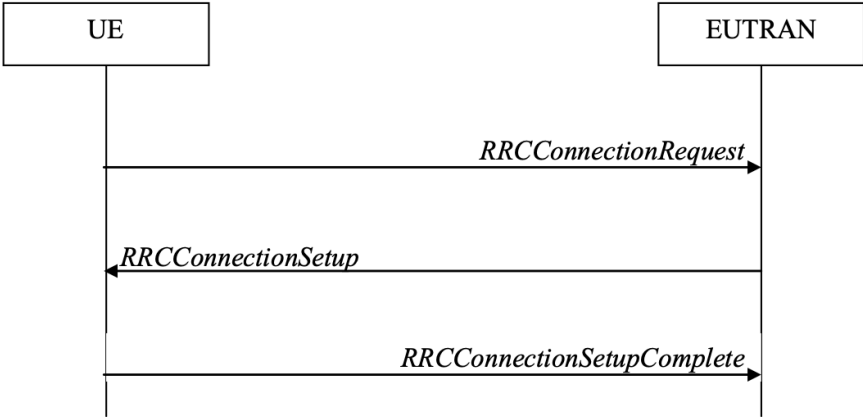
Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	the specific aspects of the standards discussed below, define a method for managing base stations such as those utilized by Defendant in offering its 4G cellular services. On information and belief, Defendant also uses base stations that offer 4G and 5G multi-connectivity, offering the ability for a single physical structure to operate as multiple base stations (e.g., a 4G base station and a 5G base station). 3GPP promulgates a number of standards including the 37.xxx series that defines the standards for 4G and 5G multi-connectivity. The Exemplary Product has been infringing since at least its implementation of the standards set forth in versions of the 36.xxx, 37.xxx, and 38.xxx series referenced in this chart. On information and belief, the functionality described in this chart has been implemented in all versions of the series published after the cited versions. The Exemplary Product may also have practiced the disclosed functionality prior to the publication of the cited versions. 3GPP TS 37.340 V15.5.0 (“TS 37.340”) demonstrates an example of the control plane architecture used in the Exemplary Product.  Figure 4.2.1-1: Control plane architecture for EN-DC (left) and MR-DC with 5GC (right). TS 37.340 (available to download at https://www.3gpp.org/ftp/Specs/archive/37_series/37.340/37340-f50.zip) at 10. See also <i>id.</i> at 8 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product																				
	3.2 Abbreviations For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1] and 3GPP TS 36.300 [2]. <table border="0"> <tr><td>DC</td><td>Intra-E-UTRA Dual Connectivity</td></tr> <tr><td>EN-DC</td><td>E-UTRA-NR Dual Connectivity</td></tr> <tr><td>MCG</td><td>Master Cell Group</td></tr> <tr><td>MN</td><td>Master Node</td></tr> <tr><td>MR-DC</td><td>Multi-Radio Dual Connectivity</td></tr> <tr><td>NE-DC</td><td>NR-E-UTRA Dual Connectivity</td></tr> <tr><td>NGEN-DC</td><td>NG-RAN E-UTRA-NR Dual Connectivity</td></tr> <tr><td>NR-DC</td><td>NR-NR Dual Connectivity</td></tr> <tr><td>SCG</td><td>Secondary Cell Group</td></tr> <tr><td>SN</td><td>Secondary Node</td></tr> </table>). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.	DC	Intra-E-UTRA Dual Connectivity	EN-DC	E-UTRA-NR Dual Connectivity	MCG	Master Cell Group	MN	Master Node	MR-DC	Multi-Radio Dual Connectivity	NE-DC	NR-E-UTRA Dual Connectivity	NGEN-DC	NG-RAN E-UTRA-NR Dual Connectivity	NR-DC	NR-NR Dual Connectivity	SCG	Secondary Cell Group	SN	Secondary Node
DC	Intra-E-UTRA Dual Connectivity																				
EN-DC	E-UTRA-NR Dual Connectivity																				
MCG	Master Cell Group																				
MN	Master Node																				
MR-DC	Multi-Radio Dual Connectivity																				
NE-DC	NR-E-UTRA Dual Connectivity																				
NGEN-DC	NG-RAN E-UTRA-NR Dual Connectivity																				
NR-DC	NR-NR Dual Connectivity																				
SCG	Secondary Cell Group																				
SN	Secondary Node																				
[a] transmitting, performed by each of base stations, a downlink reference signal to a terminal;	Each of the base stations in the Exemplary Product transmits a downlink reference signal to a terminal. For example, 3GPP TS 36.214 V15.3.0 (“TS 36.214”) describes the 4G aspects of the multi-connectivity base stations transmitting reference signals. TS 36.214 (can be downloaded at https://www.etsi.org/deliver/etsi_TS/136200_136299/136214/15.03.00_60/ts_136214v150300p.pdf) at 8 (																				

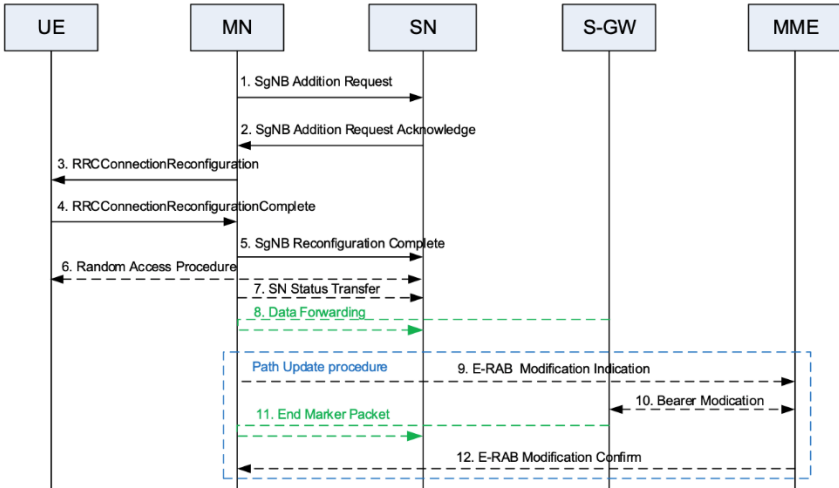
Claim Language	Selected Analysis and Evidence Regarding Exemplary Product		
	5.1.1 Reference Signal Received Power (RSRP) <table border="1" data-bbox="688 344 1818 727"> <tr> <td data-bbox="688 344 911 727">Definition</td><td data-bbox="911 344 1818 727"> Reference signal received power (RSRP), is defined as the linear average over the power contributions (in [W]) of the resource elements that carry cell-specific reference signals within the considered measurement frequency bandwidth. For RSRP determination the cell-specific reference signals R_0 according to TS 36.211 [3] shall be used. If the UE can reliably detect that R_1 is available, it may use R_1 in addition to R_0 to determine RSRP. If higher layers indicate measurements based on discovery signals, the UE shall measure RSRP in the subframes in the configured discovery signal occasions. For frame structure 1 and 2, if the UE can reliably detect that cell-specific reference signals are present in other subframes, the UE may use those subframes in addition to determine RSRP. The reference point for the RSRP shall be the antenna connector of the UE. If receiver diversity is in use by the UE, the reported value shall not be lower than the corresponding RSRP of any of the individual diversity branches. </td></tr> </table>). Similarly, 3GPP TS 38.215 V15.4.0 (“TS 38.215”) describes the 5G aspects of the multi-connectivity base stations transmitting reference signals. TS 38.215 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/38_series/38.215/38215-f40.zip) at 7 (	Definition	Reference signal received power (RSRP), is defined as the linear average over the power contributions (in [W]) of the resource elements that carry cell-specific reference signals within the considered measurement frequency bandwidth. For RSRP determination the cell-specific reference signals R_0 according to TS 36.211 [3] shall be used. If the UE can reliably detect that R_1 is available, it may use R_1 in addition to R_0 to determine RSRP. If higher layers indicate measurements based on discovery signals, the UE shall measure RSRP in the subframes in the configured discovery signal occasions. For frame structure 1 and 2, if the UE can reliably detect that cell-specific reference signals are present in other subframes, the UE may use those subframes in addition to determine RSRP. The reference point for the RSRP shall be the antenna connector of the UE. If receiver diversity is in use by the UE, the reported value shall not be lower than the corresponding RSRP of any of the individual diversity branches.
Definition	Reference signal received power (RSRP), is defined as the linear average over the power contributions (in [W]) of the resource elements that carry cell-specific reference signals within the considered measurement frequency bandwidth. For RSRP determination the cell-specific reference signals R_0 according to TS 36.211 [3] shall be used. If the UE can reliably detect that R_1 is available, it may use R_1 in addition to R_0 to determine RSRP. If higher layers indicate measurements based on discovery signals, the UE shall measure RSRP in the subframes in the configured discovery signal occasions. For frame structure 1 and 2, if the UE can reliably detect that cell-specific reference signals are present in other subframes, the UE may use those subframes in addition to determine RSRP. The reference point for the RSRP shall be the antenna connector of the UE. If receiver diversity is in use by the UE, the reported value shall not be lower than the corresponding RSRP of any of the individual diversity branches.		

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product		
	5.1.1 SS reference signal received power (SS-RSRP) <table border="1" data-bbox="688 358 1808 1027"> <tr> <td data-bbox="688 358 909 383">Definition</td><td data-bbox="909 358 1808 1027"> SS reference signal received power (SS-RSRP) is defined as the linear average over the power contributions (in [W]) of the resource elements that carry secondary synchronization signals. The measurement time resource(s) for SS-RSRP are confined within SS/PBCH Block Measurement Time Configuration (SMTTC) window duration. If SS-RSRP is used for L1-RSRP as configured by reporting configurations as defined in 3GPP TS 38.214 [6], the measurement time resources(s) restriction by SMTTC window duration is not applicable. For SS-RSRP determination demodulation reference signals for physical broadcast channel (PBCH) and, if indicated by higher layers, CSI reference signals in addition to secondary synchronization signals may be used. SS-RSRP using demodulation reference signal for PBCH or CSI reference signal shall be measured by linear averaging over the power contributions of the resource elements that carry corresponding reference signals <u>taking into account power scaling</u> for the reference signals as defined in 3GPP TS 38.213 [5]. If SS-RSRP is not used for L1-RSRP, the additional use of CSI reference signals for SS-RSRP determination is not applicable. SS-RSRP shall be measured only among the reference signals corresponding to SS/PBCH blocks with the same SS/PBCH block index and the same physical-layer cell identity. If SS-RSRP is not used for L1-RSRP and higher-layers indicate certain SS/PBCH blocks for performing SS-RSRP measurements, then SS-RSRP is measured only from the indicated set of SS/PBCH block(s). For frequency range 1, the reference point for the SS-RSRP shall be the antenna connector of the UE. For frequency range 2, SS-RSRP shall be measured based on the combined signal from antenna elements corresponding to a given receiver branch. For frequency range 1 and 2, if receiver diversity is in use by the UE, the reported SS-RSRP value shall not be lower than the corresponding SS-RSRP of any of the individual receiver branches. </td></tr> </table>). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.	Definition	SS reference signal received power (SS-RSRP) is defined as the linear average over the power contributions (in [W]) of the resource elements that carry secondary synchronization signals. The measurement time resource(s) for SS-RSRP are confined within SS/PBCH Block Measurement Time Configuration (SMTTC) window duration. If SS-RSRP is used for L1-RSRP as configured by reporting configurations as defined in 3GPP TS 38.214 [6], the measurement time resources(s) restriction by SMTTC window duration is not applicable. For SS-RSRP determination demodulation reference signals for physical broadcast channel (PBCH) and, if indicated by higher layers, CSI reference signals in addition to secondary synchronization signals may be used. SS-RSRP using demodulation reference signal for PBCH or CSI reference signal shall be measured by linear averaging over the power contributions of the resource elements that carry corresponding reference signals <u>taking into account power scaling</u> for the reference signals as defined in 3GPP TS 38.213 [5]. If SS-RSRP is not used for L1-RSRP, the additional use of CSI reference signals for SS-RSRP determination is not applicable. SS-RSRP shall be measured only among the reference signals corresponding to SS/PBCH blocks with the same SS/PBCH block index and the same physical-layer cell identity. If SS-RSRP is not used for L1-RSRP and higher-layers indicate certain SS/PBCH blocks for performing SS-RSRP measurements, then SS-RSRP is measured only from the indicated set of SS/PBCH block(s). For frequency range 1, the reference point for the SS-RSRP shall be the antenna connector of the UE. For frequency range 2, SS-RSRP shall be measured based on the combined signal from antenna elements corresponding to a given receiver branch. For frequency range 1 and 2, if receiver diversity is in use by the UE, the reported SS-RSRP value shall not be lower than the corresponding SS-RSRP of any of the individual receiver branches.
Definition	SS reference signal received power (SS-RSRP) is defined as the linear average over the power contributions (in [W]) of the resource elements that carry secondary synchronization signals. The measurement time resource(s) for SS-RSRP are confined within SS/PBCH Block Measurement Time Configuration (SMTTC) window duration. If SS-RSRP is used for L1-RSRP as configured by reporting configurations as defined in 3GPP TS 38.214 [6], the measurement time resources(s) restriction by SMTTC window duration is not applicable. For SS-RSRP determination demodulation reference signals for physical broadcast channel (PBCH) and, if indicated by higher layers, CSI reference signals in addition to secondary synchronization signals may be used. SS-RSRP using demodulation reference signal for PBCH or CSI reference signal shall be measured by linear averaging over the power contributions of the resource elements that carry corresponding reference signals <u>taking into account power scaling</u> for the reference signals as defined in 3GPP TS 38.213 [5]. If SS-RSRP is not used for L1-RSRP, the additional use of CSI reference signals for SS-RSRP determination is not applicable. SS-RSRP shall be measured only among the reference signals corresponding to SS/PBCH blocks with the same SS/PBCH block index and the same physical-layer cell identity. If SS-RSRP is not used for L1-RSRP and higher-layers indicate certain SS/PBCH blocks for performing SS-RSRP measurements, then SS-RSRP is measured only from the indicated set of SS/PBCH block(s). For frequency range 1, the reference point for the SS-RSRP shall be the antenna connector of the UE. For frequency range 2, SS-RSRP shall be measured based on the combined signal from antenna elements corresponding to a given receiver branch. For frequency range 1 and 2, if receiver diversity is in use by the UE, the reported SS-RSRP value shall not be lower than the corresponding SS-RSRP of any of the individual receiver branches.		
[b] receiving, performed by a first base station, a strength of the	A first base station in the Exemplary Product receives a strength of the downlink reference signal from the terminal.		

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
downlink reference signal from the terminal;	For example, 3GPP TS 36.331 V15.5.1 (“TS 36.331”) describes the 4G base station receiving a MeasurementReport with a strength of the downlink reference signal. TS 36.331 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/36_series/36.331/36331-f51.zip) at 209-210 (5.5.5 Measurement reporting 5.5.5.1 General  <pre> sequenceDiagram participant UE participant EUTRAN UE->>EUTRAN: MeasurementReport </pre> Figure 5.5.5.1-1: Measurement reporting The purpose of this procedure is to transfer measurement results from the UE to E-UTRAN. The UE shall initiate this procedure only after successful security activation. For the <i>measId</i> for which the measurement reporting procedure was triggered, the UE shall set the <i>measResults</i> within the <i>MeasurementReport</i> message as follows: 1> set the <i>measId</i> to the measurement identity that triggered the measurement <u>reporting</u>; 1> set the <i>measResultPCell</i> to include the quantities of the <u>PCell</u>;). <i>See also id.</i> at 609-616 (describing and providing an example of MeasResults, including fields such as <i>rsrpResult</i> and <i>RSRP-Range</i>). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
[c] establishing, performed by the first base station, a downlink cell association with the terminal;	A first base station in the Exemplary Product establishes a downlink cell association with the terminal. For example, TS 36.331 describes forming a downlink cell association with a UE. <i>E.g.</i>, TS 36.331 at 73 (5.3.3 RRC connection establishment 5.3.3.1 General  <pre> sequenceDiagram participant UE participant EUTRAN UE->>EUTRAN: RRCConnectionRequest EUTRAN->>UE: RRCConnectionSetup UE->>EUTRAN: RRCConnectionSetupComplete </pre> Figure 5.3.3.1-1: RRC connection establishment, successful). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.

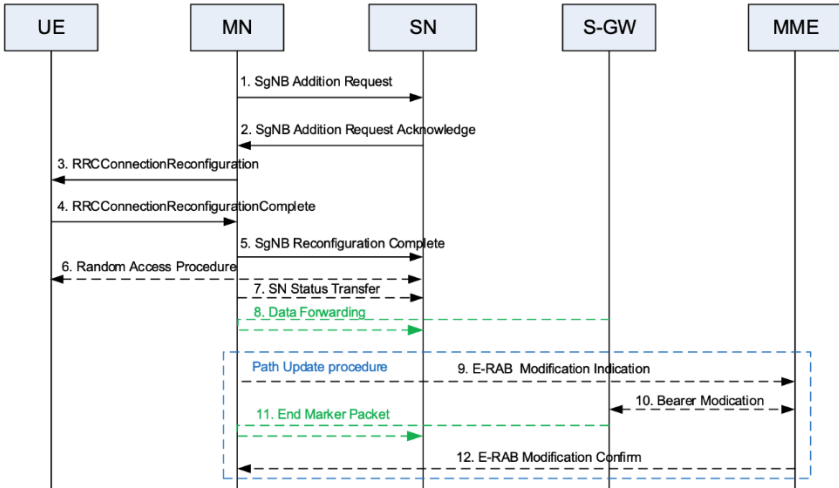
Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
[d] determining, performed by the first base station, an identifier of a second base station providing an uplink control channel;	The first base station in the Exemplary Product determines an identifier of a second base station providing an uplink control channel. For example, in TS 37.340, a first base station determines the identifier of a second base station through messages such as a SgNB Addition Request. <i>E.g.</i>, TS 37.340 at 8, 22-23 (4.1.2 MR-DC with the EPC E-UTRAN supports MR-DC via E-UTRA-NR Dual Connectivity (EN-DC), in which a UE is connected to one eNB that acts as a MN and one en-gNB that acts as a SN. The eNB is connected to the EPC via the S1 interface and to the en-gNB via the X2 interface. The en-gNB might also be connected to the EPC via the S1-U interface and other en-gNBs via the X2-U interface. ; the first base station is referred to as eNB and the second base station is referred to as en-gNB;

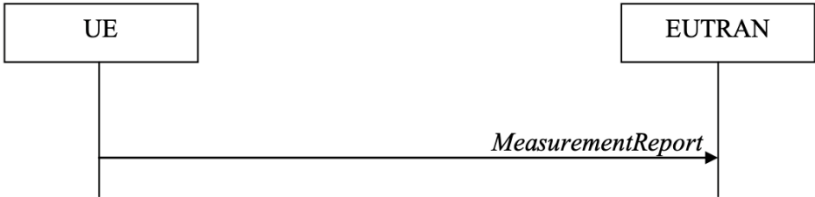
Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	10.2.1 EN-DC The Secondary Node Addition procedure is initiated by the MN and is used to establish a UE context at the SN to provide resources from the SN to the UE. For bearers requiring SCG radio resources, this procedure is used to add at least the first cell of the SCG. This procedure can also be used to configure an SN terminated MCG bearer (where no SCG configuration is needed). Figure 10.2.1-1 shows the Secondary Node Addition procedure.  Figure 10.2.1-1: Secondary Node Addition procedure 1. The MN decides to request the SN to allocate resources for a specific E-RAB, indicating E-RAB characteristics (E-RAB parameters, TNL address information corresponding to bearer type). In addition, for bearers requiring SCG radio resources, MN indicates the requested SCG configuration information, including the entire UE capabilities and the UE capability coordination result. In this case, the MN also provides the latest measurement results for SN to choose and configure the SCG cell(s). The MN may request the SN to allocate radio resources for split SRB operation. The MN always provides all the needed security information to the SN (even if no SN terminated bearers are setup) to enable SRB3 to be setup based on SN decision. In case of bearer options that require X2-U resources between the MN and the SN, the MN provides X2-U TNL address information for the respective E-RAB, X2-U DL TNL address information for SN terminated bearers, X2-U UL TNL address information for MN terminated bearers. In case of SN terminated split bearers the MN provides the maximum QoS level that it can support. The SN may reject the request. 6. If configured with bearers requiring SCG radio resources, the UE performs synchronisation towards the PSCell of the SN. The order the UE sends the <i>RRCCConnectionReconfigurationComplete</i> message and performs the Random Access procedure towards the SCG is not defined. The successful RA procedure towards the SCG is not required for a successful completion of the RRC Connection Reconfiguration procedure. ; the first base station is referred to as “MN” and the second base station is referred to as “SN”); 3GPP TS 36.423 V.15.4.0 (which can be downloaded at https://www.3gpp.org/ftp//Specs/archive/36_series/36.423/36423-f40.zip) at 145-147 (describing SgNB Addition Request Acknowledge). See also 3GPP TS 38.213

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	V15.4.0 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/38_series/38.213/38213-f40.zip) at 19 (7.2 Physical uplink control channel If the UE is configured with a SCG, the UE shall apply the procedures described in this subclause for both MCG and SCG. - When the procedures are applied for MCG, the term 'serving cell' in this subclause refers to serving cell belonging to the MCG. - When the procedures are applied for SCG, the term 'serving cell' in this subclause refers to serving cell belonging to the SCG. The term 'primary cell' in this subclause refers to the PSCell of the SCG. ; the SCG (secondary cell group) supports Uplink Control Channel; EN-DC E-UTRA NR dual connectivity with MCG using E-UTRA and SCG using NR); 3GPP TS 38.331 V15.4.0 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/38_series/38.331/38331-f40.zip) at 429-433 (describing CG-Config message). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
[e] transmitting, performed by the first base station, the identifier of a second base station through the downlink cell association; and	The first base station of the Exemplary Product transmits the identifier of a second base station through the downlink cell association. For example, the first base station can transmit the identifier of a second base station through the downlink cell association in the form of, for example, an RRC Connection Reconfiguration message and related messages. <i>E.g.</i>, TS 37.340 at 22 (

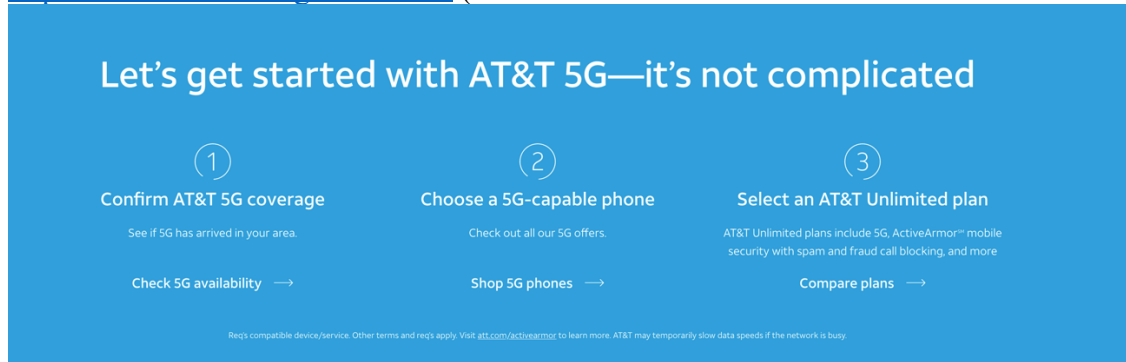
Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	10.2.1 EN-DC The Secondary Node Addition procedure is initiated by the MN and is used to establish a UE context at the SN to provide resources from the SN to the UE. For bearers requiring SCG radio resources, this procedure is used to add at least the first cell of the SCG. This procedure can also be used to configure an SN terminated MCG bearer (where no SCG configuration is needed). Figure 10.2.1-1 shows the Secondary Node Addition procedure. Figure 10.2.1-1: Secondary Node Addition procedure 1. The MN decides to request the SN to allocate resources for a specific E-RAB, indicating E-RAB characteristics (E-RAB parameters, TNL address information corresponding to bearer type). In addition, for bearers requiring SCG radio resources, MN indicates the requested SCG configuration information, including the entire UE capabilities and the UE capability coordination result. In this case, the MN also provides the latest measurement results for SN to choose and configure the SCG cell(s). The MN may request the SN to allocate radio resources for split SRB operation. The MN always provides all the needed security information to the SN (even if no SN terminated bearers are setup) to enable SRB3 to be setup based on SN decision. In case of bearer options that require X2-U resources between the MN and the SN, the MN provides X2-U TNL address information for the respective E-RAB, X2-U DL TNL address information for SN terminated bearers, X2-U UL TNL address information for MN terminated bearers. In case of SN terminated split bearers the MN provides the maximum QoS level that it can support. The SN may reject the request.). See also TS 36.331 at 335-343 (describing RRCConnectionReconfiguration message, including describing nr-SecondaryCellGroupConfig as including the “NR RRCReconfiguration”); TS 38.331 at 23 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	5.1.3 Requirements for UE in EN-DC In this specification, the UE considers itself to be in EN-DC if and only if it is configured with nr-SecondaryCellGroupConfig according to TS 36.331[10].); 127-28 (describing RRCReconfiguration message); 129 (<u>secondaryCellGroup</u> Configuration of secondary cell group (EN-DC).); 178-181 (description of CellGroupConfig information element); 261 (describing PhysCellId as identifying “physical cell identity (PCI)”). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
[f] establishing, performed by the second base station, an uplink cell association with the terminal.	The second base station of the Exemplary Product establishes an uplink cell association with the terminal. For example, in TS 37.340, this is shown by the Random Access Procedure and SN Status Transfer messages and related messages, also described in narrative step 6. <i>E.g.</i>, TS 37.340 at 22-23 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	10.2.1 EN-DC The Secondary Node Addition procedure is initiated by the MN and is used to establish a UE context at the SN to provide resources from the SN to the UE. For bearers requiring SCG radio resources, this procedure is used to add at least the first cell of the SCG. This procedure can also be used to configure an SN terminated MCG bearer (where no SCG configuration is needed). Figure 10.2.1-1 shows the Secondary Node Addition procedure.  Figure 10.2.1-1: Secondary Node Addition procedure 1. The MN decides to request the SN to allocate resources for a specific E-RAB, indicating E-RAB characteristics (E-RAB parameters, TNL address information corresponding to bearer type). In addition, for bearers requiring SCG radio resources, MN indicates the requested SCG configuration information, including the entire UE capabilities and the UE capability coordination result. In this case, the MN also provides the latest measurement results for SN to choose and configure the SCG cell(s). The MN may request the SN to allocate radio resources for split SRB operation. The MN always provides all the needed security information to the SN (even if no SN terminated bearers are setup) to enable SRB3 to be setup based on SN decision. In case of bearer options that require X2-U resources between the MN and the SN, the MN provides X2-U TNL address information for the respective E-RAB, X2-U DL TNL address information for SN terminated bearers, X2-U UL TNL address information for MN terminated bearers. In case of SN terminated split bearers the MN provides the maximum QoS level that it can support. The SN may reject the request. 6. If configured with bearers requiring SCG radio resources, the UE performs synchronisation towards the PSCell of the SN. The order the UE sends the <i>RRCConnectionReconfigurationComplete</i> message and performs the Random Access procedure towards the SCG is not defined. The successful RA procedure towards the SCG is not required for a successful completion of the RRC Connection Reconfiguration procedure.).

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
Claim 2	
The method of claim 1, wherein the strength of the downlink reference signal is measured by the terminal.	The Exemplary Product includes the method of claim 1 wherein the strength of the downlink reference signal is measured by the terminal. For example, 36.331 describes the 4G base station receiving a Measurement Report with a strength of the downlink reference signal: 5.5.5 Measurement reporting 5.5.5.1 General  <pre> sequenceDiagram participant UE participant EUTRAN UE->>EUTRAN: MeasurementReport </pre> Figure 5.5.5.1-1: Measurement reporting TS 36.331 at 209-210. This demonstrates that the strength of the downlink reference signal is measured by the terminal. Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
Claim 4	
The method of claim 1, further comprising: receiving, performed by the second base station, an uplink reference signal.	The Exemplary Product includes the method of claim 1 further comprising receiving, performed by the second base station, an uplink reference signal. For example, an uplink includes SRS signal (“sounding reference signal”). 3GPP TS 38.211 V15.4.0 (which can be downloaded at https://www.3gpp.org/ftp//Specs/archive/38_series/38.211/38211-f40.zip) at 21 (6.1.2 Overview of physical signals An uplink physical signal is used by the physical layer but does not carry information originating from higher layers. The following uplink physical signals are defined: - Demodulation reference signals, DM-RS - Phase-tracking reference signals, PT-RS - Sounding reference signal, SRS); <i>see generally id.</i> at 70-75 (describing the SRS signal in detail); 3GPP TS 38.214 V15.4.0 (which can be downloaded at https://www.3gpp.org/ftp//Specs/archive/38_series/38.214/38214-f40.zip). An SRS signal is received by the second base station. <i>Id.</i> Alternatively, other signals may also be an uplink reference signal received by the second base station, such as DM-Rs and PT-RS. Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
Claim 5	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
The method of claim 1, wherein the first base station is a macro base station and the second base station is a small base station.	The Exemplary Product includes the method of claim 1 wherein the first base station is a macro base station and the second base station is a small base station. For example, on information and belief, Defendant uses a combination of microcell base stations, and small cell base stations. <i>See, e.g.</i>, https://www.essentracomponents.com/en-us/news/industries/telecoms-data/a-guide-to-5g-small-cells-and-macrocells (describing usage of macro, micro and pico cells); https://www.techtarget.com/searchnetworking/feature/Macrocell-vs-small-cell-vs-femtocell-A-5G-introduction (similar). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
Claim 6	
[pre] A base station, comprising:	The Exemplary Product includes a base station. For example, Defendant markets and sells 5G cellular services to customers. <i>E.g.</i>, https://www.att.com/5g/consumer/ ( The screenshot shows a blue background with the text 'Let's get started with AT&T 5G—it's not complicated'. Below this, there are three numbered steps: (1) Confirm AT&T 5G coverage, (2) Choose a 5G-capable phone, and (3) Select an AT&T Unlimited plan. Each step has a brief description and a link to further information. At the bottom, there is a small disclaimer: 'Requires compatible device/service. Other terms and restrictions apply. Visit att.com/activearmor to learn more. AT&T may temporarily slow data speeds if the network is busy.'

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	). The 5G technology used by Defendant is defined by a wireless standards body in which Defendant is a member, the 3rd Generation Partnership Project (“3GPP”). 3GPP promulgates a number of standards including the 38.xxx series that defines the standards for 5G. These standards, including the specific aspects of the standards discussed below, define a method for managing base stations such as those utilized by Defendant in offering its 5G cellular services. Defendant also markets and sells 4G cellular services to customers. <i>E.g.</i>, https://www.att.com/support/article/wireless/KM1008740. The 4G technology used by Defendant is also defined by the 3rd Generation Partnership Project (“3GPP”). 3GPP promulgates a number of standards including the 36.xxx series that defines the standards for 4G. These standards, including the specific aspects of the standards discussed below, define a method for managing base stations such as those utilized by Defendant in offering its 4G cellular services. On information and belief, Defendant also uses base stations that offer 4G and 5G multi-connectivity, offering the ability for a single physical structure to operate as multiple base stations (e.g., a 4G base station and a 5G base station). 3GPP promulgates a number of standards including the 37.xxx series that defines the standards for 4G and 5G multi-connectivity. The Exemplary Product has been infringing since at least its implementation of the standards set forth in versions of the 36.xxx, 37.xxx, and 38.xxx series referenced in this chart. On information and belief, the functionality described in this chart has been implemented in all versions of the series published after the cited versions. The Exemplary Product may also have practiced the disclosed functionality prior to the publication of the cited versions. 3GPP TS 37.340 V15.5.0 (“TS 37.340”) demonstrates an example of the control plane architecture used in the Exemplary Product.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product																				
	The diagram illustrates two control plane architectures. The left architecture (EN-DC) shows a MeNB (Master eNodeB) connected to an S1 interface. The MeNB contains an RRC (Radio Resource Control) block. Below the MeNB is a UE (User Equipment) containing an RRC (MeNB state) block. To the right of the MeNB is an SgNB (Secondary gNodeB) containing an NR RRC (New Radio RRC) block. The MeNB and SgNB are connected via an X2-C interface. The MeNB and UE are connected via a Uu (Universal Terrestrial Radio Access) interface. The UE and SgNB are also connected via a Uu interface. The right architecture (MR-DC with 5GC) shows a Master node connected to an NG-C (Next Generation Core) interface. The Master node contains an RRC block. Below the Master node is a UE containing an RRC (Master node state) block. To the right of the Master node is a Secondary node containing an RRC block. The Master node and Secondary node are connected via an Xn-C interface. The Master node and UE are connected via a Uu interface. The UE and Secondary node are also connected via a Uu interface. Figure 4.2.1-1: Control plane architecture for EN-DC (left) and MR-DC with 5GC (right). TS 3.340 (available to download at https://www.3gpp.org/ftp/Specs/archive/37_series/37.340/37340-f50.zip) at 10. <i>See also id.</i> at 8 (3.2 Abbreviations For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1] and 3GPP TS 36.300 [2]. <table border="0"> <tbody> <tr> <td>DC</td><td>Intra-E-UTRA Dual Connectivity</td></tr> <tr> <td>EN-DC</td><td>E-UTRA-NR Dual Connectivity</td></tr> <tr> <td>MCG</td><td>Master Cell Group</td></tr> <tr> <td>MN</td><td>Master Node</td></tr> <tr> <td>MR-DC</td><td>Multi-Radio Dual Connectivity</td></tr> <tr> <td>NE-DC</td><td>NR-E-UTRA Dual Connectivity</td></tr> <tr> <td>NGEN-DC</td><td>NG-RAN E-UTRA-NR Dual Connectivity</td></tr> <tr> <td>NR-DC</td><td>NR-NR Dual Connectivity</td></tr> <tr> <td>SCG</td><td>Secondary Cell Group</td></tr> <tr> <td>SN</td><td>Secondary Node</td></tr> </tbody> </table>). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding	DC	Intra-E-UTRA Dual Connectivity	EN-DC	E-UTRA-NR Dual Connectivity	MCG	Master Cell Group	MN	Master Node	MR-DC	Multi-Radio Dual Connectivity	NE-DC	NR-E-UTRA Dual Connectivity	NGEN-DC	NG-RAN E-UTRA-NR Dual Connectivity	NR-DC	NR-NR Dual Connectivity	SCG	Secondary Cell Group	SN	Secondary Node
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SN	Secondary Node																				

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
[a] a networking unit configured to transmit a downlink reference signal to a terminal; and	The Exemplary Product includes a base station with a networking unit configured to transmit a downlink reference signal to a terminal. For example, certain functionalities of Defendant’s base stations are discussed above with respect to claim 1. On information and belief, this functionality could only be accomplished if the base station includes a networking unit configured to transmit a downlink reference signal to a terminal. Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
[b] a processor configured to establish a downlink cell association with the terminal,	The Exemplary Product includes a processor configured to establish a downlink cell association with the terminal. For example, certain functionalities of Defendant’s base stations are discussed above with respect to claim 1. On information and belief, this functionality could only be accomplished if the base station includes a processor configured to establish a downlink cell association with the terminal. Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
[c] wherein the processor further configured to determine an identifier of a second base station	The Exemplary Product includes a processor further configured to determine an identifier of a second base station providing an uplink control channel. <i>See, e.g.</i>, theories and evidence disclosed in claim element 1[d].

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
providing an uplink control channel, and	
[d] wherein the networking unit further configured to receive a strength of the downlink reference signal from the terminal, and to transmit the identifier of the second base station through the downlink cell association.	The Exemplary Product includes a networking unit further configured to receive a strength of the downlink reference signal from the terminal, and to transmit the identifier of the second base station through the downlink cell association. <i>See, e.g.</i> , theories and evidence disclosed in claim elements 1[b], [e].
Claim 7	
The base station of claim 6, wherein the base station is a macro base station and the second base station is a small base station.	The Exemplary Product includes a base station of claim 6 wherein the base station is a macro base station and the second base station is a small base station. <i>See, e.g.</i> , theories and evidence disclosed in claim 5.