(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) **World Intellectual Property Organization**
International Bureau

(43) **International Publication Date**
**02 December 2021 (02.12.2021)**

WIPO | PCT

(10) **International Publication Number**
**WO 2021/237581 A1**

(51) **International Patent Classification:**
*H04W 76/15* (2018.01) *H04W 88/06* (2009.01)

(21) **International Application Number:**
PCT/CN2020/092968

(22) **International Filing Date:**
28 May 2020 (28.05.2020)

(25) **Filing Language:** English

(26) **Publication Language:** English

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(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,

# (54) Title: TRIGGERING DROPBACK FOR LATENCY SENSITIVE SERVICE

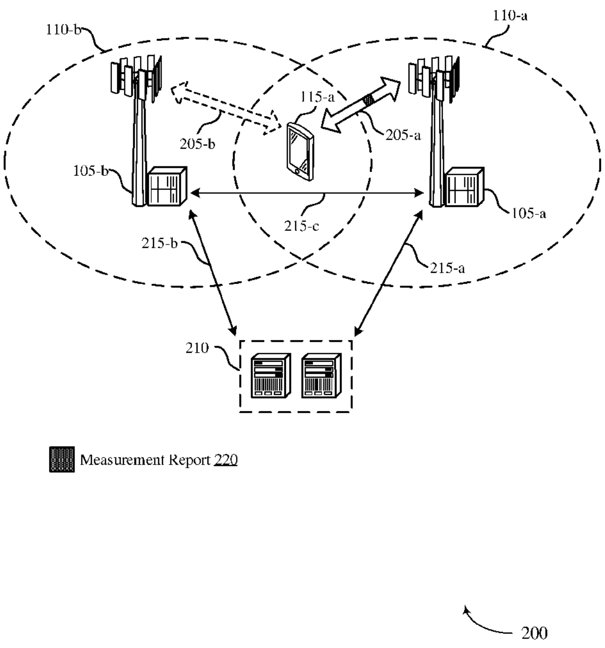


FIG. 2

(57) **Abstract:** Methods, systems, and devices for wireless communications are described. Some wireless communications systems may support dual connectivity (DC) between different radio access technologies (RATs), such as Long Term Evolution (LTE) and New Radio (NR). In some cases, a user equipment (UE) may run an application associated with latency sensitive service. However, an NR connection may fail to support a data rate used for the latency sensitive service. Based on the signal quality of the NR connection, the UE may release the NR connection and modify criteria for triggering a measurement report to re- establish the NR connection. For example, the UE may use an additional threshold, an additional offset value, or both as compared to a baseline criteria to trigger the measurement report transmission. This modified criteria may allow the UE to dropback and use the LTE connection for running the latency sensitive service rather than re-establish the NR connection.

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KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

**(84) Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

— *of inventorship (Rule 4.17(iv))*

**Published:**

— *with international search report (Art. 21(3))*

# TRIGGERING DROPBACK FOR LATENCY SENSITIVE SERVICE

## FIELD OF TECHNOLOGY

**[0001]** The following relates generally to wireless communications and more specifically to triggering dropback for latency sensitive service.

## BACKGROUND

**[0002]** Wireless communications systems are widely deployed to provide various types of communication content such as voice, video, packet data, messaging, broadcast, and so on. These systems may be capable of supporting communication with multiple users by sharing the available system resources (e.g., time, frequency, and power). Examples of such multiple-access systems include fourth generation (4G) systems such as Long Term Evolution (LTE) systems, LTE-Advanced (LTE-A) systems, or LTE-A Pro systems, and fifth generation (5G) systems which may be referred to as New Radio (NR) systems. These systems may employ technologies such as code division multiple access (CDMA), time division multiple access (TDMA), frequency division multiple access (FDMA), orthogonal frequency division multiple access (OFDMA), or discrete Fourier transform spread orthogonal frequency division multiplexing (DFT-S-OFDM). A wireless multiple-access communications system may include one or more base stations or one or more network access nodes, each simultaneously supporting communication for multiple communication devices, which may be otherwise known as user equipment (UE).

**[0003]** Some wireless communications systems may support dual connectivity (DC) between different radio access technologies (RATs), such as LTE and NR. For example, when operating in a non-standalone (NSA) mode, a UE may communicate with the network via both an LTE connection (e.g., for control signaling) and an NR connection (e.g., for data signaling). However, in some cases, the UE may operate a latency sensitive service. If the quality of the NR connection is below a specific threshold, the NR connection may fail to support the data rate used by the latency sensitive service. As such, the network may experience data stall for the service or may release the NR connection. If the network experiences data stall for the service, the performance of the latency sensitive service may degrade significantly at the UE. If the network releases the connection, but the NR cell still supports non-latency sensitive services, the network may trigger the UE to re-establish the

NR connection, causing the UE to enter a looped procedure. Such a looped procedure may adversely impact the UE's data service, cause significant processing overhead at the UE, and cause significant messaging overhead on a channel due to the repeated NR connection setup and release procedures.

SUMMARY

**[0004]** The described techniques relate to improved methods, systems, devices, and apparatuses that support triggering dropback for latency sensitive service. Generally, the described techniques provide for a user equipment (UE) to avoid data stall and achieve a stable data rate with a network by falling back from a New Radio (NR) connection to a Long Term Evolution (LTE) connection for data communications. For example, some wireless communications systems may support dual connectivity (DC) between different radio access technologies (RATs), such as LTE and NR. In some cases, a UE may run an application associated with latency sensitive service. For example, the application may be associated with a minimum data rate threshold, a minimum latency threshold, or both. However, based on a signal quality of the UE's NR connection in DC, the NR connection may fail to support the data rate, latency threshold, or both for the latency sensitive service. The UE may release the NR connection and may modify criteria for triggering a measurement report to re-establish the NR connection. For example, the UE may use an additional threshold, an additional offset value, or both as compared to a baseline criteria to trigger the measurement report transmission. In some examples, the additional threshold, additional offset value, or both may correspond to a greater signal quality threshold for re-establishing the NR connection than for the baseline criteria (e.g., such that the modified criteria indicates an NR connection that supports latency sensitive service). Such modified criteria may allow the UE to dropback and use the LTE connection for running the latency sensitive service rather than re-establish an NR connection that may continue to fail to support the latency sensitive service.

**[0005]** A method for wireless communications at a UE is described. The method may include establishing a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT, determining that a signal quality of the second connection is less than a threshold quality, releasing the second connection with the second cell group based on the signal quality of the second connection, and modifying a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection.

**[0006]** An apparatus for wireless communications at a UE is described. The apparatus may include a processor, memory coupled with the processor, and instructions stored in the memory. The instructions may be executable by the processor to cause the apparatus to establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT, determine that a signal quality of the second connection is less than a threshold quality, release the second connection with the second cell group based on the signal quality of the second connection, and modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection.

**[0007]** Another apparatus for wireless communications at a UE is described. The apparatus may include means for establishing a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT, determining that a signal quality of the second connection is less than a threshold quality, releasing the second connection with the second cell group based on the signal quality of the second connection, and modifying a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection.

**[0008]** A non-transitory computer-readable medium storing code for wireless communications at a UE is described. The code may include instructions executable by a processor to establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT, determine that a signal quality of the second connection is less than a threshold quality, release the second connection with the second cell group based on the signal quality of the second connection, and modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection.

**[0009]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, modifying the criterion for triggering the measurement report associated with re-establishing the second connection may include operations, features, means, or instructions for updating a trigger condition for transmitting the measurement report associated with re-establishing the second connection from a first trigger condition to a second trigger condition.

**[0010]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the first trigger condition includes a first signal quality measurement for the second cell group exceeding a first threshold, and the second trigger condition includes the first signal quality measurement for the second cell group exceeding the first threshold and a second signal quality measurement for the second cell group exceeding a second threshold.

**[0011]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the first signal quality measurement includes a reference signal received power (RSRP), a reference signal received quality (RSRQ), a received signal strength indicator (RSSI), a signal-to-noise ratio (SNR), a signal-to-interference-plus-noise ratio (SINR), or a combination thereof, and the second signal quality measurement includes an RSRP, an RSRQ, an RSSI, an SNR, an SINR, or a combination thereof different from the first signal quality measurement.

**[0012]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for applying a first set of offset values to the first signal quality measurement for the first trigger condition and applying the first set of offset values and one or more additional offset values to the first signal quality measurement for the second trigger condition.

**[0013]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for activating a timer based on the signal quality of the second connection and determining whether to trigger transmission of the measurement report associated with re-establishing the second connection using the modified criterion based on the timer being activated.

**[0014]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for deactivating the timer, resetting the timer to a timer start value based on deactivating the timer, and determining whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based on the timer being deactivated, where the modified criterion may be modified from the baseline criterion.

[0015] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for switching the first connection from a first cell to a second cell, where the timer may be deactivated based on switching the first connection to the second cell.

[0016] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for determining that a first signal quality for the second cell group may be greater than a second signal quality for the first cell group, where the timer may be deactivated based on the first signal quality being greater than the second signal quality.

[0017] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for determining an expiry of the timer, where the timer may be deactivated based on the expiry of the timer.

[0018] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for receiving, from a base station corresponding to the first cell group, the second cell group, or both, a data stall indicator based on the signal quality of the second connection.

[0019] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for determining that a previous data connection may be via the second cell group and triggering a radio link failure (RLF) for the second connection based on the data stall indicator and the previous data connection being via the second cell group, where the second connection with the second cell group may be released based on the triggered RLF.

[0020] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for triggering an RLF for the second connection based on the quality of the second connection, where the second connection may be released based on the triggered RLF.

[0021] Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for identifying an application running at the UE, where modifying the criterion for triggering the measurement report associated with re-establishing the second connection may be further based on the application running at the UE.

**[0022]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the application may be associated with a latency threshold, a data rate threshold, or a combination thereof.

**[0023]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for identifying the application ends at the UE and determining whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based on the application ending at the UE, where the modified criterion may be modified from the baseline criterion.

**[0024]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for communicating data via the first connection with the first cell group associated with the first RAT based on releasing the second connection.

**[0025]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for measuring an additional signal quality for the second cell group and triggering transmission of the measurement report associated with re-establishing the second connection based on comparing the additional signal quality to at least the modified criterion.

**[0026]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for transmitting, via the first connection, the measurement report associated with re-establishing the second connection based on the triggering and re-establishing the second connection with the second cell group associated with the second RAT based on transmitting the measurement report associated with re-establishing the second connection.

**[0027]** Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for operating in a DC mode, where the first connection and the second connection may be established based on operating in the DC mode.

**[0028]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the first RAT includes an LTE technology, a fourth generation (4G) technology, or a combination thereof, and the second RAT includes an NR technology, a fifth generation (5G) technology, or a combination thereof.

**[0029]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the measurement report associated with re-establishing the second connection indicates a B1 event for inter-RAT data handover.

**[0030]** In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the first cell group includes a master cell group (MCG) and the second cell group includes a secondary cell group (SCG).

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0031]** FIGs. 1 and 2 illustrate examples of wireless communications systems that support triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

**[0032]** FIGs. 3 and 4 illustrate examples of process flows that support triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

**[0033]** FIGs. 5 and 6 show block diagrams of devices that support triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

**[0034]** FIG. 7 shows a block diagram of a communications manager that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

**[0035]** FIG. 8 shows a diagram of a system including a device that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

**[0036]** FIGs. 9 through 13 show flowcharts illustrating methods that support triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

## DETAILED DESCRIPTION

**[0037]** Some wireless communications systems may support dual connectivity (DC) between different radio access technologies (RATs). For example, evolved universal terrestrial radio access (E-UTRA) and New Radio (NR) DC (EN-DC) may support a user equipment (UE) communicating with a wireless network using both Long Term Evolution (LTE) and NR. When operating in a non-standalone (NSA) mode, the UE may communicate via an LTE connection (e.g., for control signaling) and an NR connection (e.g., for data signaling). However, in some cases, the UE may operate a latency sensitive service. If the quality of the data connection (e.g., the NR connection for EN-DC) between the UE and the network is below a specific threshold, the connection may fail to support the data rate used by the latency sensitive service. As such, the network may experience data stall for the service or may release the data connection. If the network experiences data stall for the service, the performance of the latency sensitive service may degrade significantly at the UE. If the network releases the connection (e.g., the NR connection), but the NR cell still supports non-latency sensitive services such that the NR signal quality meets a quality threshold for establishing an NR connection but not a quality threshold for supporting latency sensitive service, the network may trigger the UE to re-establish the NR connection, causing the UE to enter a looped procedure. Such a looped procedure may adversely impact the UE's data service, cause significant processing overhead at the UE, and cause significant messaging overhead on a channel due to the repeated NR connection setup and release procedures.

**[0038]** To support latency sensitive service when the signal quality for an NR connection is below a signal quality threshold, a UE may trigger dropback to LTE to run the latency sensitive service. For example, a UE may run an application associated with latency sensitive service, such as an application associated with a minimum data rate threshold, a minimum latency threshold, or both. If the UE is operating according to an EN-DC mode, the UE may use an NR connection to communicate data with the network for the application. However, in some cases, based on an NR signal quality, the UE's NR connection may fail to support the data rate, latency threshold, or both for the latency sensitive service. In such cases, the UE may release the NR connection and may modify criteria for triggering a measurement report to re-establish the NR connection. For example, the UE may use an additional threshold, an additional offset value, or both as compared to a baseline criteria to trigger the measurement report transmission. In some examples, the additional threshold, additional offset value, or both may correspond to a greater signal quality threshold for re-establishing the NR connection than for the baseline criteria, such that the modified criteria causes the UE to refrain from establishing an NR connection that fails to support latency sensitive service.

Such modified criteria may allow the UE to dropback and use an LTE connection as the data connection for running the latency sensitive service, improving performance of the application at the UE.

**[0039]** Modifying the criteria for triggering the measurement report may involve the UE operating according to a different mode for identifying a B1 entering condition. A B1 entering condition may involve the UE identifying a signal quality for an inter-RAT neighboring cell exceeding a threshold. The UE may operate according to a baseline mode or according to a "Mode 1" (e.g., corresponding to one or more additional thresholds or one or more additional offsets as compared to the baseline mode). As such, Mode 1 may correspond to a heightened threshold for establishing an NR connection with a neighboring cell as compared to the baseline mode.

**[0040]** In some cases, the UE may operate according to Mode 1 based on identifying the application running at the UE. For example, while the UE is running an application involving a latency sensitive service, the UE may determine whether to transmit a measurement report associated with re-establishing the NR connection based on the heightened threshold(s) of Mode 1. Additionally or alternatively, the UE may operate according to Mode 1 based on receiving an indicator, such as a data stall indicator, from the network. In some cases, the UE may operate according to Mode 1 based on an active timer at the UE. For example, the UE may activate a timer based on receiving a data stall indicator, based on detecting data stall at the UE, based on detecting a looped procedure of establishing and releasing an NR connection, or based on any combination thereof.

**[0041]** Aspects of the disclosure are initially described in the context of wireless communications systems. Additional aspects are described in the context of process flows. Aspects of the disclosure are further illustrated by and described with reference to apparatus diagrams, system diagrams, and flowcharts that relate to triggering dropback for latency sensitive service.

**[0042]** **FIG. 1** illustrates an example of a wireless communications system 100 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The wireless communications system 100 may include one or more base stations 105, one or more UEs 115, and a core network 130. In some examples, the wireless communications system 100 may be an LTE network, an LTE-Advanced (LTE-A) network, an LTE-A Pro network, or an NR network. In some examples, the wireless communications system 100 may support enhanced broadband communications, ultra-reliable (e.g., mission critical) communications, low latency communications, communications with low-cost and low-complexity devices, or any combination thereof.

**[0043]** The base stations 105 may be dispersed throughout a geographic area to form the wireless communications system 100 and may be devices in different forms or having different capabilities. The base stations 105 and the UEs 115 may wirelessly communicate via one or more communication links 125. Each base station 105 may provide a coverage area 110 over which the UEs 115 and the base station 105 may establish one or more communication links 125. The coverage area 110 may be an example of a geographic area over which a base station 105 and a UE 115 may support the communication of signals according to one or more radio access technologies.

**[0044]** The UEs 115 may be dispersed throughout a coverage area 110 of the wireless communications system 100, and each UE 115 may be stationary, or mobile, or both at different times. The UEs 115 may be devices in different forms or having different capabilities. Some example UEs 115 are illustrated in FIG. 1. The UEs 115 described herein may be able to communicate with various types of devices, such as other UEs 115, the base stations 105, or network equipment (e.g., core network nodes, relay devices, integrated access and backhaul (IAB) nodes, or other network equipment), as shown in FIG. 1.

**[0045]** The base stations 105 may communicate with the core network 130, or with one another, or both. For example, the base stations 105 may interface with the core network 130 through one or more backhaul links 120 (e.g., via an S1, N2, N3, or other interface). The base stations 105 may communicate with one another over the backhaul links 120 (e.g., via an X2, Xn, or other interface) either directly (e.g., directly between base stations 105), or indirectly (e.g., via core network 130), or both. In some examples, the backhaul links 120 may be or include one or more wireless links.

**[0046]** One or more of the base stations 105 described herein may include or may be referred to by a person having ordinary skill in the art as a base transceiver station, a radio base station, an access point, a radio transceiver, a NodeB, an eNodeB (eNB), a next-generation NodeB or a giga-NodeB (either of which may be referred to as a gNB), a Home NodeB, a Home eNodeB, or other suitable terminology.

**[0047]** A UE 115 may include or may be referred to as a mobile device, a wireless device, a remote device, a handheld device, or a subscriber device, or some other suitable terminology, where the “device” may also be referred to as a unit, a station, a terminal, or a client, among other examples. A UE 115 may also include or may be referred to as a personal electronic device such as a cellular phone, a personal digital assistant (PDA), a tablet computer, a laptop computer, or a personal computer. In some examples, a UE 115 may include or be referred to as a wireless local loop (WLL) station, an Internet of Things (IoT) device, an Internet of Everything (IoE) device, or a machine type communications (MTC) device, among other examples, which may be implemented in various objects such as appliances, or vehicles, meters, among other examples.

**[0048]** The UEs 115 described herein may be able to communicate with various types of devices, such as other UEs 115 that may sometimes act as relays as well as the base stations 105 and the network equipment including macro eNBs or gNBs, small cell eNBs or gNBs, or relay base stations, among other examples, as shown in FIG. 1.

**[0049]** The UEs 115 and the base stations 105 may wirelessly communicate with one another via one or more communication links 125 over one or more carriers. The term “carrier” may refer to a set of radio frequency spectrum resources having a defined physical layer structure for supporting the communication links 125. For example, a carrier used for a communication link 125 may include a portion of a radio frequency spectrum band (e.g., a bandwidth part (BWP)) that is operated according to one or more physical layer channels for a given radio access technology (e.g., LTE, LTE-A, LTE-A Pro, NR). Each physical layer channel may carry acquisition signaling (e.g., synchronization signals, system information), control signaling that coordinates operation for the carrier, user data, or other signaling. The wireless communications system 100 may support communication with a UE 115 using carrier aggregation or multi-carrier operation. A UE 115 may be configured with multiple downlink component carriers and one or more uplink component carriers according to a carrier aggregation configuration. Carrier aggregation may be used with both frequency division duplexing (FDD) and time division duplexing (TDD) component carriers.

**[0050]** In some examples (e.g., in a carrier aggregation configuration), a carrier may also have acquisition signaling or control signaling that coordinates operations for other carriers. A carrier may be associated with a frequency channel (e.g., an E-UTRA absolute radio frequency channel number (EARFCN)) and may be positioned according to a channel raster for discovery by the UEs 115. A carrier may be operated in a standalone mode where initial acquisition and connection may be conducted by the UEs 115 via the carrier, or the carrier may be operated in a non-standalone mode where a connection is anchored using a different carrier (e.g., of the same or a different radio access technology).

**[0051]** The communication links 125 shown in the wireless communications system 100 may include uplink transmissions from a UE 115 to a base station 105, or downlink transmissions from a base station 105 to a UE 115. Carriers may carry downlink or uplink communications (e.g., in an FDD mode) or may be configured to carry downlink and uplink communications (e.g., in a TDD mode).

**[0052]** Signal waveforms transmitted over a carrier may be made up of multiple subcarriers (e.g., using multi-carrier modulation (MCM) techniques such as orthogonal frequency division multiplexing (OFDM) or discrete Fourier transform spread OFDM (DFT-S-OFDM)). In a system employing MCM techniques, a resource element may consist of one symbol period (e.g., a duration of one modulation symbol) and one subcarrier, where the symbol period and subcarrier spacing are inversely related. The number of bits carried by each resource element may depend on the modulation scheme (e.g., the order of the modulation scheme, the coding rate of the modulation scheme, or both). Thus, the more resource elements that a UE 115 receives and the higher the order of the modulation scheme, the higher the data rate may be for the UE 115. A wireless communications resource may refer to a combination of a radio frequency spectrum resource, a time resource, and a spatial resource (e.g., spatial layers or beams), and the use of multiple spatial layers may further increase the data rate or data integrity for communications with a UE 115.

**[0053]** The time intervals for the base stations 105 or the UEs 115 may be expressed in multiples of a basic time unit which may, for example, refer to a sampling period of $T_s = 1/(\Delta f_{max} \cdot N_f)$ seconds, where $\Delta f_{max}$ may represent the maximum supported subcarrier spacing, and $N_f$ may represent the maximum supported discrete Fourier transform (DFT) size. Time intervals of a communications resource may be organized according to radio frames each having a specified duration (e.g., 10 milliseconds (ms)). Each radio frame may be identified by a system frame number (SFN) (e.g., ranging from 0 to 1023).

**[0054]** Each frame may include multiple consecutively numbered subframes or slots, and each subframe or slot may have the same duration. In some examples, a frame may be divided (e.g., in the time domain) into subframes, and each subframe may be further divided into a number of slots. Alternatively, each frame may include a variable number of slots, and the number of slots may depend on subcarrier spacing. Each slot may include a number of symbol periods (e.g., depending on the length of the cyclic prefix prepended to each symbol period). In some wireless communications systems 100, a slot may further be divided into multiple mini-slots containing one or more symbols. Excluding the cyclic prefix, each symbol period may contain one or more (e.g., $N_f$) sampling periods. The duration of a symbol period may depend on the subcarrier spacing or frequency band of operation.

**[0055]** A subframe, a slot, a mini-slot, or a symbol may be the smallest scheduling unit (e.g., in the time domain) of the wireless communications system 100 and may be referred to as a transmission time interval (TTI). In some examples, the TTI duration (e.g., the number of symbol periods in a TTI) may be variable. Additionally or alternatively, the smallest scheduling unit of the wireless communications system 100 may be dynamically selected (e.g., in bursts of shortened TTIs (sTTIs)).

**[0056]** Physical channels may be multiplexed on a carrier according to various techniques. A physical control channel and a physical data channel may be multiplexed on a downlink carrier, for example, using one or more of time division multiplexing (TDM) techniques, frequency division multiplexing (FDM) techniques, or hybrid TDM-FDM techniques. A control region (e.g., a control resource set (CORESET)) for a physical control channel may be defined by a number of symbol periods and may extend across the system bandwidth or a subset of the system bandwidth of the carrier. One or more control regions (e.g., CORESETs) may be configured for a set of the UEs 115. For example, one or more of the UEs 115 may monitor or search control regions for control information according to one or more search space sets, and each search space set may include one or multiple control channel candidates in one or more aggregation levels arranged in a cascaded manner. An aggregation level for a control channel candidate may refer to a number of control channel resources (e.g., control channel elements (CCEs)) associated with encoded information for a control information format having a given payload size. Search space sets may include common search space sets configured for sending control information to multiple UEs 115 and UE-specific search space sets for sending control information to a specific UE 115.

**[0057]** Each base station 105 may provide communication coverage via one or more cells, for example a macro cell, a small cell, a hot spot, or other types of cells, or any combination thereof. The term "cell" may refer to a logical communication entity used for communication with a base station 105 (e.g., over a carrier) and may be associated with an identifier for distinguishing neighboring cells (e.g., a physical cell identifier (PCID), a virtual cell identifier (VCID), or others). In some examples, a cell may also refer to a geographic coverage area 110 or a portion of a geographic coverage area 110 (e.g., a sector) over which the logical communication entity operates. Such cells may range from smaller areas (e.g., a structure, a subset of structure) to larger areas depending on various factors such as the capabilities of the base station 105. For example, a cell may be or include a building, a subset of a building, or exterior spaces between or overlapping with geographic coverage areas 110, among other examples.

**[0058]** In some examples, a base station 105 may be movable and therefore provide communication coverage for a moving geographic coverage area 110. In some examples, different geographic coverage areas 110 associated with different technologies may overlap, but the different geographic coverage areas 110 may be supported by the same base station 105. In other examples, the overlapping geographic coverage areas 110 associated with different technologies may be supported by different base stations 105. The wireless communications system 100 may include, for example, a heterogeneous network in which different types of the base stations 105 provide coverage for various geographic coverage areas 110 using the same or different radio access technologies.

**[0059]** The wireless communications system 100 may be configured to support ultra-reliable communications or low-latency communications, or various combinations thereof. For example, the wireless communications system 100 may be configured to support ultra-reliable low-latency communications (URLLC) or mission critical communications. The UEs 115 may be designed to support ultra-reliable, low-latency, or critical functions (e.g., mission critical functions). Ultra-reliable communications may include private communication or group communication and may be supported by one or more mission critical services such as mission critical push-to-talk (MCPTT), mission critical video (MCVideo), or mission critical data (MCData). Support for mission critical functions may include prioritization of services, and mission critical services may be used for public safety or general commercial applications. The terms ultra-reliable, low-latency, mission critical, and ultra-reliable low-latency may be used interchangeably herein.

**[0060]** In some examples, a UE 115 may also be able to communicate directly with other UEs 115 over a device-to-device (D2D) communication link 135 (e.g., using a peer-to-peer (P2P) or D2D protocol). One or more UEs 115 utilizing D2D communications may be within the geographic coverage area 110 of a base station 105. Other UEs 115 in such a group may be outside the geographic coverage area 110 of a base station 105 or be otherwise unable to receive transmissions from a base station 105. In some examples, groups of the UEs 115 communicating via D2D communications may utilize a one-to-many (1:M) system in which each UE 115 transmits to every other UE 115 in the group. In some examples, a base station 105 facilitates the scheduling of resources for D2D communications. In other cases, D2D communications are carried out between the UEs 115 without the involvement of a base station 105.

**[0061]** The core network 130 may provide user authentication, access authorization, tracking, Internet Protocol (IP) connectivity, and other access, routing, or mobility functions. The core network 130 may be an evolved packet core (EPC) or 5G core (5GC), which may include at least one control plane entity that manages access and mobility (e.g., a mobility management entity (MME), an access and mobility management function (AMF)) and at least one user plane entity that routes packets or interconnects to external networks (e.g., a serving gateway (S-GW), a Packet Data Network (PDN) gateway (P-GW), or a user plane function (UPF)). The control plane entity may manage non-access stratum (NAS) functions such as mobility, authentication, and bearer management for the UEs 115 served by the base stations 105 associated with the core network 130. User IP packets may be transferred through the user plane entity, which may provide IP address allocation as well as other functions. The user plane entity may be connected to the network operators IP services 150. The operators IP services 150 may include access to the Internet, Intranet(s), an IP Multimedia Subsystem (IMS), or a Packet-Switched Streaming Service.

**[0062]** Some of the network devices, such as a base station 105, may include subcomponents such as an access network entity 140, which may be an example of an access node controller (ANC). Each access network entity 140 may communicate with the UEs 115 through one or more other access network transmission entities 145, which may be referred to as radio heads, smart radio heads, or transmission/reception points (TRPs). Each access network transmission entity 145 may include one or more antenna panels. In some configurations, various functions of each access network entity 140 or base station 105 may be distributed across various network devices (e.g., radio heads and ANCs) or consolidated into a single network device (e.g., a base station 105).

**[0063]** The wireless communications system 100 may operate using one or more frequency bands, typically in the range of 300 megahertz (MHz) to 300 gigahertz (GHz). Generally, the region from 300 MHz to 3 GHz is known as the ultra-high frequency (UHF) region or decimeter band because the wavelengths range from approximately one decimeter to one meter in length. The UHF waves may be blocked or redirected by buildings and environmental features, but the waves may penetrate structures sufficiently for a macro cell to provide service to the UEs 115 located indoors. The transmission of UHF waves may be associated with smaller antennas and shorter ranges (e.g., less than 100 kilometers) compared to transmission using the smaller frequencies and longer waves of the high frequency (HF) or very high frequency (VHF) portion of the spectrum below 300 MHz.

**[0064]** The wireless communications system 100 may utilize both licensed and unlicensed radio frequency spectrum bands. For example, the wireless communications system 100 may employ License Assisted Access (LAA), LTE-Unlicensed (LTE-U) radio access technology, or NR technology in an unlicensed band such as the 5 GHz industrial, scientific, and medical (ISM) band. When operating in unlicensed radio frequency spectrum bands, devices such as the base stations 105 and the UEs 115 may employ carrier sensing for collision detection and avoidance. In some examples, operations in unlicensed bands may be based on a carrier aggregation configuration in conjunction with component carriers operating in a licensed band (e.g., LAA). Operations in unlicensed spectrum may include downlink transmissions, uplink transmissions, P2P transmissions, or D2D transmissions, among other examples.

**[0065]** A base station 105 or a UE 115 may be equipped with multiple antennas, which may be used to employ techniques such as transmit diversity, receive diversity, multiple-input multiple-output (MIMO) communications, or beamforming. The antennas of a base station 105 or a UE 115 may be located within one or more antenna arrays or antenna panels, which may support MIMO operations or transmit or receive beamforming. For example, one or more base station antennas or antenna arrays may be co-located at an antenna assembly, such as an antenna tower. In some examples, antennas or antenna arrays associated with a base station 105 may be located in diverse geographic locations. A base station 105 may have an antenna array with a number of rows and columns of antenna ports that the base station 105 may use to support beamforming of communications with a UE 115. Likewise, a UE 115 may have one or more antenna arrays that may support various MIMO or beamforming operations. Additionally or alternatively, an antenna panel may support radio frequency beamforming for a signal transmitted via an antenna port.

**[0066]** Beamforming, which may also be referred to as spatial filtering, directional transmission, or directional reception, is a signal processing technique that may be used at a transmitting device or a receiving device (e.g., a base station 105, a UE 115) to shape or steer an antenna beam (e.g., a transmit beam, a receive beam) along a spatial path between the transmitting device and the receiving device. Beamforming may be achieved by combining the signals communicated via antenna elements of an antenna array such that some signals propagating at particular orientations with respect to an antenna array experience constructive interference while others experience destructive interference. The adjustment of signals communicated via the antenna elements may include a transmitting device or a receiving device applying amplitude offsets, phase offsets, or both to signals carried via the antenna elements associated with the device. The adjustments associated with each of the antenna elements may be defined by a beamforming weight set associated with a particular orientation (e.g., with respect to the antenna array of the transmitting device or receiving device, or with respect to some other orientation).

**[0067]** The wireless communications system 100 may be a packet-based network that operates according to a layered protocol stack. In the user plane, communications at the bearer or Packet Data Convergence Protocol (PDCP) layer may be IP-based. A Radio Link Control (RLC) layer may perform packet segmentation and reassembly to communicate over logical channels. A Medium Access Control (MAC) layer may perform priority handling and multiplexing of logical channels into transport channels. The MAC layer may also use error detection techniques, error correction techniques, or both to support retransmissions at the MAC layer to improve link efficiency. In the control plane, the Radio Resource Control (RRC) protocol layer may provide establishment, configuration, and maintenance of an RRC connection between a UE 115 and a base station 105 or a core network 130 supporting radio bearers for user plane data. At the physical layer, transport channels may be mapped to physical channels.

**[0068]** In some examples, a UE 115 may be capable of DC operations. That is, the UE 115 may be capable of communicating with a wireless network using different RATs concurrently. In some cases, the wireless communications system 100 may support DC via a master cell (e.g., an LTE cell) and a secondary cell (e.g., an NR cell). In ENDC mode, three bearer types may exist for a UE 115: a master cell group (MCG) bearer, a secondary cell group (SCG) bearer, and a split bearer. An MCG may correspond to a first cell group with which the UE 115 initially connects with the network, with which the UE 115 communicates control information, or both. An SCG may correspond to a second cell group added in addition to a first cell group with which the UE 115 may communicate data. For example, a UE 115 may communicate with a first base station 105 (e.g., an eNB) supporting an LTE connection for an MCG and with a second base station 105 (e.g., a gNB) supporting an NR connection for an SCG.

**[0069]** In some examples, the network may configure the UE 115 with parameters associated with the MCG bearer, the SCG bearer, the split bearer, or a combination thereof. For example, the network may configure the UE 115 with a "keyToUse" parameter and an "UL-datasplitthreshold" parameter. The keyToUse and UL-datasplitthreshold parameters may indicate whether the UE 115 is to transmit uplink data via a secondary cell path (e.g., to an SCG) and whether the UE 115 supports an uplink split bearer. For ENDC operation, the keyToUse parameter may be set to "secondary," indicating that the uplink data is to be sent via the secondary cell path, and the UL-datasplitthreshold may be set to "infinity" (e.g., an infinite amount of bytes), indicating that the UE 115 does not support an uplink split bearer (e.g., as a data radio bearer (DRB)). As such, the network may configure an SCG uplink DRB for the UE 115 (e.g., to support a "secondary" cell path without using a split bearer). Furthermore, in some cases (e.g., if there is no LTE radio link control (RLC) entity in the radio bearer configuration), the network may configure an SCG downlink DRB for the UE 115. If the SCG supports NR operation, the network may configure NR priority using these parameters (e.g., keyToUse and UL-datasplitthreshold) such that the UE 115 and a base station 105 may communicate uplink and downlink data via an NR path.

**[0070]** In some cases, the NR connection may not support latency sensitive service (e.g., services which involve a relatively quick response time, a relatively high data rate, etc.). For example, the NR signal may be weak compared to the LTE signal. In some examples, the UE 115 may be located at the edge of the geographic coverage area 110 for the NR cell while utilizing latency sensitive services. However, the UE 115 may have a relatively strong connection with an LTE cell (e.g., supporting a data rate sufficient for the latency sensitive service). In some such cases, the UE 115 may improve performance of the latency sensitive service by falling back to the LTE connection and using the MCG as the DRB.

**[0071]** **FIG. 2** illustrates an example of a wireless communications system 200 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. For example, a UE 115 may fallback to an MCG in latency sensitive situations when the signal strength and/or quality associated with a connection to an SCG is weak (e.g., below a specific threshold). In some examples, the wireless communications system 200 may implement aspects of a wireless communications system 100. For example, the wireless communications system 200 may include base station 105-a, base station 105-b, and UE 115-a, which may be examples of base stations 105 and a UE 115 as described with reference to FIG. 1. Base station 105-a may serve coverage area 110-a and base station 105-b may serve coverage area 110-b.

**[0072]** In some examples, base station 105-a may serve a master cell corresponding to a first RAT (e.g., LTE) and base station 105-b may serve a secondary cell corresponding to a second RAT (e.g., NR). As such, base station 105-a may be an example of a master eNB (MeNB) and base station 105-b may be an example of a secondary gNB (SgNB). In some examples, a base station 105 may support both a master cell for the first RAT and a secondary cell for a second RAT. UE 115-a may establish a connection 205-a to the network via an LTE cell. Additionally or alternatively, UE 115-a may establish a connection 205-b to the network via an NR cell. However, in some cases, UE 115-a may experience significant latency while communicating with the network via the NR cell during latency sensitive operations, for example, if signaling quality for the NR cell is weak (e.g., below a specific quality or strength threshold).

**[0073]** Wireless communications system 200 may support an NSA mode of operation. In the NSA mode, both base stations 105 may be supported by a shared core network 210 (e.g., an EPC or a 5G NSA core). That is, a 5G network may be supported by 4G infrastructure (e.g., eNBs, an EPC, or some combination thereof). The base stations 105 may communicate with the core network 210, each other, or both via backhaul links 215. The backhaul links 215 may be examples of wired backhaul links, wireless backhaul links, or some combination thereof. For example, base station 105-a may communicate with the core network 210 via backhaul link 215-a, base station 105-b may communicate with the core network 210 via backhaul link 215-b, and base station 105-a may communicate with base station 105-b either indirectly through the core network 210 or directly via backhaul link 215-c. In some examples, when operating in an NSA mode of operation, UE 115-a may communicate with the LTE cell (e.g., via a connection 205-a) for control plane signaling and may communicate with the 5G cell (e.g., via a connection 205-b) to transmit and receive user plane data.

**[0074]** In some examples, the network may configure UE 115-a (e.g., operating in NSA mode) with an SCG connection, such as connection 205-b. For example, UE 115-a may initially establish connection 205-a with an MCG and may add connection 205-b with an SCG (e.g., based on an RRC reconfiguration message indicating SCG addition). UE 115-a may communicate data with the network via connection 205-b to the NR cell. To establish connection 205-b, UE 115-a may receive reference signals and assess the power and/or quality characteristics of the received reference signals. For example, UE 115-a may assess a reference signal received power (RSRP), a reference signal received quality (RSRQ), a received signal strength indicator (RSSI), a signal-to-noise ratio (SNR), a signal-to-interference-plus-noise ratio (SINR), or a combination thereof. In some examples, UE 115-a may determine whether the one or more reference signal characteristics (e.g., RSRP, RSRQ, RSSI, SNR, SINR, or some combination thereof) for the NR cell satisfy an entering condition. The entering condition may depend on an event type. For example, the entering condition for a B1 event may be when the signal associated with an inter-RAT neighboring cell (e.g., an NR cell when UE 115-a is connected to an LTE cell) becomes better than a threshold (e.g., an RSRP threshold or another threshold). If the signal characteristics satisfy the entering condition(s) for an event, the specified event is triggered. For example, in the case of a B1 event, if an entering condition associated with the B1 event is satisfied, UE 115-a may transmit a measurement report 220 to the network and the network may configure UE 115-a with connection 205-b (e.g., the connection with the inter-RAT neighboring cell).

UE 115-a may communicate with the network via the secondary cell (e.g., NR cell) upon establishing connection 205-b.

**[0075]** In some examples, UE 115-a may communicate via the secondary cell (e.g., the NR cell) even when the signal associated with the secondary cell is relatively weak (e.g., a signal measurement for connection 205-b fails to meet a threshold). For example, UE 115-a may be located or moving toward the edge of coverage area 110-b. Additionally, in some cases, UE 115-a may run one or more latency sensitive services, such as playing a game, utilizing ping services, running speed tests, or performing any other latency sensitive operations. Because UE 115-a may continue communication via the NR cell while the signal associated with the NR cell is relatively weak, the uplink data rate, downlink data rate, or both may be unstable. Latency sensitive services may transmit and/or receive data at a high rate compared to other services with more elongated response times and, thus, an unstable uplink data rate, downlink data rate, or both may increase latency and decrease overall user experience for a latency sensitive service. In some cases, if connection 205-b does not support a data rate used by a latency sensitive service, base station 105-b, UE 115-a, or both may experience data stall, where data builds up in a messaging buffer due to the insufficient data rate. Additionally or alternatively, the block error rate (BLER) for uplink data, downlink data, or both may increase based on the relatively weak NR connection. In some cases, UE 115-a may experience significant uplink power limitation due to a high pathloss for the NR connection, resulting in unsuccessful uplink transmissions.

**[0076]** In some examples, UE 115-a may release the SCG connection when the signal associated with the secondary cell is weak (e.g., below a threshold) in latency sensitive situations. For example, UE 115-a may trigger a radio link failure (RLF) due to the poor signal and may transmit a release request message to the network. In response, the network may release UE 115-a from the SCG connection (e.g., connection 205-b) and UE 115-a may fall back to the MCG connection (e.g., connection 205-a). UE 115-a may communicate with the network (e.g., for both data and control signaling) via the LTE cell. However, in some examples, soon after releasing UE 115-a from the SCG connection (e.g., within a specific time window), the network may determine to re-add the SCG connection. For example, even if the NR signal is weak (e.g., below a threshold signal quality for supporting latency sensitive service), UE 115-a may still send a measurement report 220 to the network (e.g., if the NR signal is strong enough to support other services). This may be due to the threshold signal quality and/or strength for establishing an NR connection being relatively low (e.g., lower than a threshold signal quality and/or strength for supporting latency sensitive service), such that a relatively weak NR signal may satisfy the entering condition for a B1 event. In some examples, the network may successfully re-establish the SCG connection. In some other examples, the network may fail to re-establish the SCG connection (e.g., based on a random access channel (RACH) failure). In some cases, a cycle of establishing and releasing the NR connection may occur and system latency may increase to the point of data stall (e.g., indicated by a 460 error code). Additionally or alternatively, the cycle of establishing and releasing the NR connection may involve significant signaling overhead on a channel and significant processing overhead at UE 115-a.

**[0077]** UE 115-a may fallback to an MCG connection (e.g., connection 205-a) from an SCG connection (e.g., connection 205-b) for data communications during latency sensitive situations when the signal associated with the secondary cell is weak. In some examples, UE 115-a may determine if latency sensitive services are currently in use at UE 115-a. For example, UE 115-a may utilize information within the application layer to determine if an application running at the UE 115-a corresponds to a latency sensitive service. A latency sensitive service may be any service that reacts quickly (e.g., on the scale of one or more subframes, frames, or milliseconds) to specific events in order for the service to operate properly. As such, a latency sensitive service may be associated with a specific latency threshold (e.g., for communicating or responding to data packets), a specific data rate threshold (e.g., for downlink data, uplink data, or both), or some combination thereof. In some cases, UE 115-a may receive a data stall indicator from the network (e.g., from base station 105-a or base station 105-b) which may indicate that data stall is occurring and that latency sensitive service may not be supported.

**[0078]** If latency sensitive services are not in use at UE 115-a, UE 115-a may perform an SCG establishment procedure according to a baseline mode. For example, UE 115-a may transmit a measurement report 220 to the network according to a “standard” entering condition (e.g., a baseline trigger condition). The standard entering condition may correspond to an entering condition defined for a B1 event. In some cases, the baseline trigger condition for a B1 event may be defined by Equation 1:

$$M_{neigh} + O_{neigh,freq} - Hyst > Threshold, \qquad (1)$$

where $M_{neigh}$ is the signal level or quality of an inter-RAT neighboring cell (e.g., RSRP for the NR cell supported by base station 105-b), $O_{neigh,freq}$ indicates the frequency offset for the inter-RAT neighboring cell, and $hyst$ is a hysteresis parameter used for cell entry and exit which may be defined by a "reportConfigInterRAT" value (e.g., the $hyst$ value may be 0.5 decibels (dB) multiplied by the "reportConfigInterRAT" field value). The network may define the hysteresis parameter to avoid "ping-pong" handover between base stations 115, cells, RATs, or some combination thereof. In some cases, the $Threshold$ value may be defined by the network. Different events may use different thresholds, such that the $Threshold$ value in Equation 1 may be specific to a B1 event. In some cases, the criteria for triggering a measurement report may be configured for UE 115-a based on a command message from the network.

**[0079]** If latency sensitive services are in use at UE 115-a (e.g., UE 115-a identifies a latency sensitive service running at UE 115-a, UE 115-a receives a data stall indicator, a specific timer is active at UE 115-a, UE 115-a identifies a potential looped procedure of establishing and releasing an SCG connection, etc.), UE 115-a may perform an SCG establishment procedure according to a different mode. For example, UE 115-a may transmit a measurement report 220 to the network according to a "Mode 1." Mode 1 may indicate an update to the standard entering condition. In some examples, UE 115-a may change a threshold associated with the standard entering condition (e.g., increase the threshold), add one or more parameters to the standard entering condition (e.g., an NR B1 Offset), add one or more thresholds to the standard entering condition (e.g., an NR SNR Threshold), or some combination thereof when operating according to Mode 1. For example, the modified trigger condition for a B1 event according to Mode 1 may be defined by Equation 2:

$$\begin{aligned} &M_{neigh} + O_{neigh,freq} - Hyst > Threshold \ \&\& \\ &M_{neigh_{nr}} > Customized\_B1\_L2NR\_RSRP \ \&\& \\ &SNR_{neigh\_nr} > Customized\_B1\_L2NR\_SNR, \end{aligned} \tag{2}$$

where an RSRP threshold associated with the neighboring cell may be defined for Mode 1 but not a baseline mode (e.g., Customized_B1_L2NR_RSRP) and an SNR threshold associated with the neighboring cell may be defined for Mode 1 but not the baseline mode (e.g., Customized_B1_L2NR_SNR). Additionally or alternatively, the modified trigger condition for a B1 event according to Mode 1 may be defined by Equation 3:

$$M_{neigh} + O_{neigh,freq} - Hyst - Addition\_NR\_B1\_Offset > Threshold \;\&\& \quad M_{neigh\_nr} > Addition\_NR\_SNR\_Threshold, \tag{3}$$

where an SNR threshold associated with the neighboring cell may be defined for Mode 1 but not the baseline mode (e.g., Addition_NR_SNR_Threshold) and an additional offset value may be defined for Mode 1 as compared to the baseline mode (e.g., Addition_NR_B1_Offset). In some examples, an NR signal that satisfies the entering condition(s) according to Mode 1 may be stronger than an NR signal that satisfies the standard entering condition(s) (e.g., for the baseline mode). For example, the Mode 1 entering condition(s) may correspond to an NR signal that supports latency sensitive service, while the baseline mode entering condition(s) may correspond to an NR signal that supports other service with a longer response time (e.g., using a lower data rate). If the NR signal satisfies the entering condition(s) according to Mode 1, UE 115-a may transmit a measurement report 220 and the network may configure UE 115-a with an SCG connection. For example, UE 115-a may move to a location within coverage area 110-b where the NR signal is relatively strong and may re-establish connection 205-b for data communications. If the NR signal does not satisfy the entering condition(s) according to Mode 1, UE 115-a may fallback to the MCG connection (e.g., connection 205-a) and communicate data to the network via the LTE cell as opposed to the NR cell. Whether UE 115-a falls back to the LTE connection or re-establishes the NR connection using the higher standards of Mode 1, the UE 115-a may use a connection 205 with a relatively stable data rate.

**[0080]** In some examples, UE 115-a may stop running latency sensitive services. For example, a user may stop playing a game on UE 115-a. In some such examples, when latency sensitive services cease, UE 115-a may transmit the measurement report 220 to the network according to the baseline mode (e.g., a “Mode 0”). Mode 0 may indicate a removal of the modified parameters and thresholds for Mode 1, reverting the entering condition(s) back to the standard entering condition(s). As such, UE 115-a may recover to operate in ENDC mode (e.g., using an NR connection for data communication) based on reverting to the baseline criteria for establishing the connection 205-b.

**[0081]** In some examples, UE 115-a may determine whether to transmit a measurement report 220 according to the baseline mode or Mode 1 based on a comparison of a signal strength associated with the master cell and a signal strength associated with the secondary cell. For example, UE 115-a may compare LTE reference signal characteristics (e.g., signal strength, quality, or both) with NR reference signal characteristics (e.g., signal strength, quality, or both) to determine which of the two (e.g., LTE or NR) is stronger. If the NR signal strength is stronger than the LTE signal strength, the measurement report 220 transmission may be triggered according to the baseline mode (e.g., even if UE 115-a is running a latency sensitive service). If the LTE signal strength is stronger than the NR signal strength, the measurement report 220 may be triggered according to Mode 1 (e.g., if UE 115-a is running a latency sensitive service).

**[0082]** **FIG. 3** illustrates an example of a process flow 300 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. In some examples, the process flow 300 may implement aspects of a wireless communications system 100 or 200. The process flow 300 may include UE 115-b, which may be an example of a UE 115 as described with reference to FIGs. 1 and 2. In some examples, UE 115-b may operate in an NSA mode. That is, UE 115-b may be capable of communicating with a wireless network via an MCG associated with a first RAT (e.g., LTE) and an SCG associated with a second RAT (e.g., NR). In some examples, the network may configure UE 115-b with an SCG connection (e.g., an NR connection). During low latency operation, UE 115-b may determine whether to fallback to communicate data via the MCG connection or continue to communicate data via the SCG connection. To support falling back to the MCG connection, UE 115-b may update the SCG establishment procedure. That is, UE 115-b may update an entering condition for triggering a measurement report according to a baseline mode (e.g., Mode 0) or an updated mode (e.g., Mode 1). Mode 1 may indicate an addition of one or more thresholds, one or more offset values, and/or one or more measurement characteristics to a standard entering condition (e.g., for the baseline mode). In some examples, reverting to the baseline mode from Mode 1 may involve the removal of the one or more thresholds, the one or more offset values, and/or the one or more measurement characteristics from the entering condition. UE 115-b may implement one or more techniques described herein to mitigate data signaling latency during latency sensitive situations. Alternative examples of the following may be implemented, where some steps are performed in a different order than described or are not performed at all. In some cases, steps may include additional features not mentioned below, or further steps may be added.

**[0083]** In some examples, UE 115-b may run a latency sensitive service. For example, UE 115-b may run an application such as a game, a ping service, etc. At 305, UE 115-b may receive an indication from the network related to a DRB for the UE 115-b. In some examples, the indication may indicate that latency sensitive services are in use at UE 115-b or may indicate that data stall is occurring (e.g., such that latency sensitive service is not currently supported for UE 115-b). For example, UE 115-b may receive a data stall indicator from the network (e.g., where a “Data_stall_trigger_flag” is set to “true”). Additionally or alternatively, UE 115-b may determine that a latency sensitive service is in use by analyzing information in an application layer.

**[0084]** At 310, UE 115-b may determine if the previous DRB for UE 115-b was an SCG DRB. The previous DRB may be an SCG DRB if service data was transmitted via an SCG connection (e.g., an NR connection) prior to SCG release.

**[0085]** At 315, UE 115-b may determine whether an SCG is released. That is, UE 115-b may determine if the process for an SCG release has been initiated, for example, based on whether an RLF has been triggered. As described with reference to FIG. 2, a weak signal (e.g., below a signal quality threshold) associated with the SCG connection may trigger an RLF. In some cases, UE 115-b may not trigger SCG release based on identifying a weak signal. That is, UE 115-b may still be communicating via the weak signal associated with the secondary cell. If the release process has not started, UE 115-b may trigger an SCG RLF at 320.

**[0086]** In some examples, UE 115-b may implement a timer (e.g., an “NR_Limit_Timer”). The timer may define when UE 115-b is to utilize the updated SCG procedure (e.g., operate according to Mode 1 for triggering a measurement report and re-establishing the SCG). The active duration of the timer may be pre-configured at UE 115-b or may be dynamically configured (e.g., by the network or UE 115-b). UE 115-b may activate the timer at 325, for example, based on receiving the data stall indicator, identifying a latency sensitive service running at UE 115-b, releasing the SCG, or some combination thereof. Upon initiation, the timer may run for the active duration before expiring (or until a condition for stopping the timer occurs). When the timer expires, UE 115-b may reassess the updated procedure. That is, UE 115-b may revert back to an initial SCG procedure if the timer is deactivated. For example, at 330, UE 115-b may determine whether the timer has expired. If the timer has not expired, UE 115-b may determine whether to transmit the measurement report according to either the baseline mode or Mode 1 (e.g., at 335). If the timer has expired, UE 115-b may determine whether to transmit the measurement report according to the baseline mode at 350.

**[0087]** At 335, UE 115-b may determine if the master cell has changed (e.g., if the LTE cell has changed). For example, UE 115-b may move into another coverage area and the network may perform handover for UE 115-b to another base station 115 supporting an LTE cell. If the master cell has changed, UE 115-b may stop the timer and reset the timer to a timer start value at 345 (e.g., based on the timer being cell-specific). In this way, UE 115-b may revert back to a baseline mode for determining whether to trigger a measurement report transmission at 350. Additionally or alternatively, at 335, UE 115-b may determine if the signal associated with the secondary cell (e.g., NR) is stronger than the signal associated with the master cell (e.g., LTE). For example, UE 115-b may compare RSRP, RSRQ, RSSI, SNR, SINR, or a combination thereof associated with the LTE signal with that of the NR signal. If the NR signal is stronger than the LTE signal, UE 115-b may stop and reset the timer at 345 and determine whether to transmit the measurement report according to a baseline mode at 350. If the timer is active, the LTE cell is unchanged, and the LTE signal is stronger than the NR signal, UE 115-b may determine whether to transmit the measurement report according to Mode 1 at 340.

**[0088]** **FIG. 4** illustrates an example of a process flow 400 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. In some examples, the process flow 400 may implement aspects of a wireless communications system 100 or 200 as described with reference to FIGs. 1 and 2. The process flow 400 may involve UE 115-c operating in a DC mode with base station 105-c (e.g., an eNB supporting an LTE cell) and base station 105-d (e.g., a gNB supporting an NR cell). In some examples, UE 115-c may operate in an NSA mode. UE 115-c may detect that an NR connection is insufficient to support latency sensitive service and may temporarily fallback to LTE-only operation (e.g., rather than ENDC operation). Alternative examples of the following may be implemented, where some steps are performed in a different order than described or are not performed at all. In some cases, steps may include additional features not mentioned below, or further steps may be added.

**[0089]** At 405, UE 115-c may establish a first connection with a first cell group associated with a first RAT. For example, UE 115-c may establish an LTE connection with base station 105-c corresponding to an MCG. At 410, UE 115-c may establish a second connection with a second cell group associated with a second RAT. For example, UE 115-c may establish an NR connection with base station 105-d corresponding to an SCG. When both connections are established, UE 115-c may operate in a DC mode (e.g., an ENDC mode). In the DC mode, UE 115-c may communicate control signaling with the network via the LTE connection and may communicate data signaling with the network via the NR connection.

**[0090]** UE 115-c may run a latency sensitive service. For example, UE 115-c may run an application associated with a specific latency threshold, a specific data rate threshold, or both, such as playing a mobile game. While operating in the DC mode, UE 115-c may use the NR connection to communicate data with the network to support running the latency sensitive service (e.g., according to the specific latency threshold, the specific data rate threshold, or both).

**[0091]** At 415, UE 115-c may determine that a signal quality of the second connection is less than a threshold quality. For example, an RSRP measurement, an RSRQ measurement, an RSSI measurement, an SNR measurement, an SINR measurement, or some combination thereof for the NR connection may fail to meet a threshold quality level. In some cases, this signal quality measurement for the second connection may trigger RLF at 425 for the second connection. In other cases, the signal quality measurement may indicate that the second connection may not support the latency threshold, the data rate threshold, or both for the latency sensitive service.

**[0092]** In some cases, at 420, UE 115-c may receive a data stall indicator. In some cases, base station 105-d may transmit the data stall indicator based on determining that the signal quality of the second connection is less than the threshold quality. In some other cases, base station 105-d may transmit the data stall indicator based on determining that the data rate for UE 115-c fails to support a latency sensitive service at UE 115-c. For example, base station 105-d may detect data buildup in a messaging queue at base station 105-d based on the data rate supported by the second connection falling below a data rate threshold for the latency sensitive service. In yet some other cases, base station 105-c may transmit the data stall indicator. UE 115-c may trigger RLF at 425 for the second connection based on the data stall indicator. In some examples, UE 115-c may further determine that a previous data connection was via the SCG (e.g., an NR connection) and may trigger the RLF further based on the previous data connection.

**[0093]** At 430, UE 115-c may release the second connection with the second cell group based on the signal quality of the second connection. For example, UE 115-c may release the second connection (e.g., an NR connection to an SCG) based on the triggered RLF at 425.

**[0094]** In some cases, at 435, UE 115-c may activate a timer (e.g., based on the signal quality of the second connection). In some examples, UE 115-c may activate the timer based on receiving the data stall indicator, identifying the application associated with a latency sensitive service running at UE 115-c, releasing the second connection, detecting a looped procedure of releasing and re-establishing the second connection, or some combination thereof. The timer may be an example of an "NR_Limit_Timer." The duration of the timer may be static or dynamic. For example, the network may configure the timer duration or UE 115-c may select a timer duration based on one or more parameters (e.g., channel conditions, latency sensitive service parameters, etc.).

**[0095]** At 440, UE 115-c may modify a criterion for triggering a measurement report associated with re-establishing the second connection. For example, UE 115-c may modify the criterion based on the signal quality of the second connection being less than the threshold quality, the application associated with the latency sensitive service running at UE 115-c, receiving the data stall indicator, the timer being active, or some combination thereof. Modifying the criterion may involve updating a trigger condition for transmitting the measurement report associated with re-establishing the second connection from a first trigger condition to a second trigger condition. The first trigger condition may correspond to a baseline mode for sending a measurement report to re-establish an inter-RAT connection (e.g., an NR connection with an SCG in ENDC), while the second trigger condition may correspond to a second mode (e.g., Mode 1) for sending the measurement report. In some examples, the first trigger condition may include a first signal quality measurement for the second cell group exceeding a first threshold, and the second trigger condition may include the first signal quality measurement (e.g., in some cases, with an additional offset value) for the second cell group exceeding the first threshold and a second signal quality measurement for the second cell group exceeding a second threshold. For example, the first trigger condition may include an RSRP threshold, while the second trigger condition may apply an additional offset value to the RSRP measurement when comparing the RSRP measurement for the second connection with the RSRP threshold. Additionally or alternatively, the second trigger may include one or more additional thresholds, such as an SNR threshold for the second connection.

**[0096]** At 445, UE 115-c may determine whether to trigger transmission of a measurement report associated with re-establishing the second connection to the network (e.g., via the first connection with base station 105-c) based on Mode 1 (e.g., using the modified criterion). If NR signaling fails to meet the modified criterion (e.g., a signal quality for the NR cell fails to meet one or more thresholds defined by Mode 1), UE 115-c may fallback to communicating data via the first connection at 450. In this way, UE 115-c may use LTE services to communicate data with the network. In some cases, if the LTE connection is significantly stronger than the released NR connection, the LTE connection may support the latency sensitive service at UE 115-c. This may improve performance of one or more applications at UE 115-c and may improve user experience.

**[0097]** If NR signaling meets the modified criterion (e.g., a signal quality for the NR cell meets or exceeds one or more thresholds defined by Mode 1), UE 115-c may transmit a measurement report at 455 to trigger re-establishment of the second connection. At 460, UE 115-c may re-establish the second connection with the second cell group (or a different second cell group supporting NR) based on transmitting the measurement report. At 465, UE 115-c may communicate data via the second connection with the second cell group based on re-establishing the second connection. Because the NR cell meets the modified criterion, the NR cell may support a data rate sufficient to support the latency sensitive service at UE 115-c. As such, UE 115-c may avoid entering a looped procedure of NR release and re-establishment (e.g., based on using the modified criterion for triggering the measurement report).

**[0098]** **FIG. 5** shows a block diagram 500 of a device 505 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure.

The device 505 may be an example of aspects of a UE 115 as described herein. The device 505 may include a receiver 510, a communications manager 515, and a transmitter 520. The device 505 may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses).

**[0099]** The receiver 510 may receive information such as packets, user data, or control information associated with various information channels (e.g., control channels, data channels, and information related to triggering dropback for latency sensitive service, etc.). Information may be passed on to other components of the device 505. The receiver 510 may be an example of aspects of the transceiver 820 described with reference to FIG. 8. The receiver 510 may utilize a single antenna or a set of antennas.

**[0100]** The communications manager 515 may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT, determine that a signal quality of the second connection is less than a threshold quality, release the second connection with the second cell group based on the signal quality of the second connection, and modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection. The communications manager 515 may be an example of aspects of the communications manager 810 described herein.

**[0101]** The actions performed by the communications manager 515 as described herein may be implemented to realize one or more potential advantages. For example, modifying the criterion for triggering a measurement report to re-establish a second connection (e.g., an NR connection for DC operation) may allow the device 505 (e.g., a UE 115) to break out of a looped procedure involving repeatedly setting up and releasing an NR connection with an SCG. Breaking out of this procedure may reduce processing and channel overhead, as the UE 115 may reduce the number of times that SCG setup and release is performed. Additionally or alternatively, breaking out of this procedure may allow the UE 115 to fall back to LTE operations, supporting data communications over an LTE connection. This fallback procedure may reduce latency and mitigate data stall, as the UE 115 may transmit or receive, via an LTE connection, data pending in a data buffer that may otherwise be held for an NR connection (e.g., a connection repeatedly released by the network). In some examples, the LTE connection may support latency sensitive service, while the released NR connection may not. The modified criterion may cause the UE 115 to refrain from re-establishing the NR connection until the NR signal meets a signal quality threshold that supports latency sensitive service.

**[0102]** Based on modifying the criterion for triggering a measurement report to re-establish a second connection (e.g., an NR connection), a processor of the device 505 (e.g., a processor controlling the receiver 510, the communications manager 515, the transmitter 520, or a combination thereof) may reduce processing resources used for network connection procedures. For example, by reducing a number of times the device 505 (e.g., a UE 115) sets up and releases an SCG connection in a looped procedure, the device 505 may reduce the processing overhead associated with establishing these connections. Reducing the number of SCG connection procedures may reduce a number of times the processor ramps up processing power and turns on processing units to handle network connection (e.g., 5G network connection) procedures in an NSA mode. Additionally or alternatively, by triggering SCG release when data stall occurs, the device 505 may improve performance of a latency sensitive service and improve user experience.

**[0103]** The communications manager 515, or its sub-components, may be implemented in hardware, code (e.g., software or firmware) executed by a processor, or any combination thereof. If implemented in code executed by a processor, the functions of the communications manager 515, or its sub-components may be executed by a general-purpose processor, a digital signal processor (DSP), an application-specific integrated circuit (ASIC), a field programmable gate array (FPGA) or other programmable logic device, discrete gate or transistor logic, discrete hardware components, or any combination thereof designed to perform the functions described in the present disclosure.

**[0104]** The communications manager 515, or its sub-components, may be physically located at various positions, including being distributed such that portions of functions are implemented at different physical locations by one or more physical components. In some examples, the communications manager 515, or its sub-components, may be a separate and distinct component in accordance with various aspects of the present disclosure. In some examples, the communications manager 515, or its sub-components, may be combined with one or more other hardware components, including but not limited to an input/output (I/O) component, a transceiver, a network server, another computing device, one or more other components described in the present disclosure, or a combination thereof in accordance with various aspects of the present disclosure.

**[0105]** The transmitter 520 may transmit signals generated by other components of the device 505. In some examples, the transmitter 520 may be collocated with a receiver 510 in a transceiver module. For example, the transmitter 520 may be an example of aspects of the transceiver 820 described with reference to FIG. 8. The transmitter 520 may utilize a single antenna or a set of antennas.

**[0106]** **FIG. 6** shows a block diagram 600 of a device 605 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The device 605 may be an example of aspects of a device 505 or a UE 115 as described herein. The device 605 may include a receiver 610, a communications manager 615, and a transmitter 640. The device 605 may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses).

**[0107]** The receiver 610 may receive information such as packets, user data, or control information associated with various information channels (e.g., control channels, data channels, and information related to triggering dropback for latency sensitive service, etc.). Information may be passed on to other components of the device 605. The receiver 610 may be an example of aspects of the transceiver 820 described with reference to FIG. 8. The receiver 610 may utilize a single antenna or a set of antennas.

**[0108]** The communications manager 615 may be an example of aspects of the communications manager 515 as described herein. The communications manager 615 may include a connection establishment component 620, a signal quality evaluation component 625, a connection release component 630, and a measurement report trigger component 635. The communications manager 615 may be an example of aspects of the communications manager 810 described herein.

**[0109]** The connection establishment component 620 may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. The signal quality evaluation component 625 may determine that a signal quality of the second connection is less than a threshold quality. The connection release component 630 may release the second connection with the second cell group based on the signal quality of the second connection. The measurement report trigger component 635 may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection.

**[0110]** The transmitter 640 may transmit signals generated by other components of the device 605. In some examples, the transmitter 640 may be collocated with a receiver 610 in a transceiver module. For example, the transmitter 640 may be an example of aspects of the transceiver 820 described with reference to FIG. 8. The transmitter 640 may utilize a single antenna or a set of antennas.

**[0111]** **FIG. 7** shows a block diagram 700 of a communications manager 705 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The communications manager 705 may be an example of aspects of a communications manager 515, a communications manager 615, or a communications manager 810 described herein. The communications manager 705 may include a connection establishment component 710, a signal quality evaluation component 715, a connection release component 720, a measurement report trigger component 725, a timer component 730, a data stall indicator component 735, an RLF component 740, an application identifier 745, a communication component 750, a measurement report component 755, or a combination of these or other components. Each of these modules may communicate, directly or indirectly, with one another (e.g., via one or more buses). The communications manager 705 may be implemented at a UE 115 as described herein.

**[0112]** The connection establishment component 710 may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. In some cases, the first RAT may be an LTE technology, a 4G technology, or a combination thereof, and the second RAT may be an NR technology, a 5G technology, or a combination thereof. In some cases, the first cell group may be an MCG and the second cell group may be an SCG.

**[0113]** The signal quality evaluation component 715 may determine that a signal quality of the second connection is less than a threshold quality. The connection release component 720 may release the second connection with the second cell group based on the signal quality of the second connection. The measurement report trigger component 725 may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection. In some cases, the measurement report associated with re-establishing the second connection indicates a B1 event for inter-RAT data handover.

**[0114]** In some examples, modifying the criterion for triggering the measurement report associated with re-establishing the second connection may involve the measurement report trigger component 725 updating a trigger condition for transmitting the measurement report associated with re-establishing the second connection from a first trigger condition to a second trigger condition. In some cases, the first trigger condition may include a first signal quality measurement for the second cell group exceeding a first threshold, and the second trigger condition may include the first signal quality measurement for the second cell group exceeding the first threshold and a second signal quality measurement for the second cell group exceeding a second threshold. In some examples, the first signal quality measurement includes an RSRP, an RSRQ, an RSSI, an SNR, an SINR, or a combination thereof, and the second signal quality measurement includes an RSRP, an RSRQ, an RSSI, an SNR, an SINR, or a combination thereof different from the first signal quality measurement. In some examples, the measurement report trigger component 725 may apply a first set of offset values to the first signal quality measurement for the first trigger condition and may apply the first set of offset values and one or more additional offset values to the first signal quality measurement for the second trigger condition.

**[0115]** The timer component 730 may activate a timer based on the signal quality of the second connection and may determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using the modified criterion based on the timer being activated. In some examples, the timer component 730 may deactivate the timer. In some such examples, the timer component 730 may reset the timer to a timer start value based on deactivating the timer and may determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based on the timer being deactivated, where the modified criterion is modified from the baseline criterion. In some cases, the timer component 730 may switch the first connection from a first cell to a second cell, where the timer is deactivated based on switching the first connection to the second cell. Additionally or alternatively, the timer component 730 may determine that a first signal quality for the second cell group is greater than a second signal quality for the first cell group, where the timer is deactivated based on the first signal quality being greater than the second signal quality. In some cases, the timer component 730 may determine an expiry of the timer, where the timer is deactivated based on the expiry of the timer.

**[0116]** The data stall indicator component 735 may receive, from a base station corresponding to the first cell group, the second cell group, or both, a data stall indicator based on the signal quality of the second connection. In some examples, the data stall indicator component 735 may determine that a previous data connection is via the second cell group. In some such examples, the RLF component 740 may trigger an RLF for the second connection based on the data stall indicator and the previous data connection being via the second cell group, where the second connection with the second cell group is released based on the triggered RLF. In some other examples, the RLF component 740 may trigger an RLF for the second connection based on the quality of the second connection, where the second connection is released based on the triggered RLF.

**[0117]** The application identifier 745 may identify an application running at the UE, where modifying the criterion for triggering the measurement report associated with re-establishing the second connection is further based on the application running at the UE. In some cases, the application may be associated with a latency threshold, a data rate threshold, or a combination thereof (e.g., the application may correspond to a latency sensitive service). In some examples, the application identifier 745 may identify the application ends at the UE and may determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based on the application ending at the UE, where the modified criterion is modified from the baseline criterion.

**[0118]** The communication component 750 may communicate data via the first connection with the first cell group associated with the first RAT based on releasing the second connection.

**[0119]** In some examples, the signal quality evaluation component 715 may measure an additional signal quality for the second cell group, and the measurement report trigger component 725 may trigger transmission of the measurement report associated with re-establishing the second connection based on comparing the additional signal quality to at least the modified criterion.

**[0120]** The measurement report component 755 may transmit, via the first connection, the measurement report associated with re-establishing the second connection based on the triggering. In some examples, the connection establishment component 710 may re-establish the second connection with the second cell group associated with the second RAT based on transmitting the measurement report associated with re-establishing the second connection.

**[0121]** In some examples, the communication component 750 may operate in a DC mode, where the first connection and the second connection are established based on operating in the DC mode.

**[0122]** **FIG. 8** shows a diagram of a system 800 including a device 805 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The device 805 may be an example of or include the components of device 505, device 605, or a UE 115 as described herein. The device 805 may include components for bi-directional voice and data communications including components for transmitting and receiving communications, including a communications manager 810, an I/O controller 815, a transceiver 820, an antenna 825, memory 830, and a processor 840. These components may be in electronic communication via one or more buses (e.g., bus 845).

**[0123]** The communications manager 810 may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT, determine that a signal quality of the second connection is less than a threshold quality, release the second connection with the second cell group based on the signal quality of the second connection, and modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection.

**[0124]** The I/O controller 815 may manage input and output signals for the device 805. The I/O controller 815 may also manage peripherals not integrated into the device 805. In some cases, the I/O controller 815 may represent a physical connection or port to an external peripheral. In some cases, the I/O controller 815 may utilize an operating system such as iOS®, ANDROID®, MS-DOS®, MS-WINDOWS®, OS/2®, UNIX®, LINUX®, or another known operating system. In other cases, the I/O controller 815 may represent or interact with a modem, a keyboard, a mouse, a touchscreen, or a similar device. In some cases, the I/O controller 815 may be implemented as part of a processor. In some cases, a user may interact with the device 805 via the I/O controller 815 or via hardware components controlled by the I/O controller 815.

**[0125]** The transceiver 820 may communicate bi-directionally, via one or more antennas, wired, or wireless links as described above. For example, the transceiver 820 may represent a wireless transceiver and may communicate bi-directionally with another wireless transceiver. The transceiver 820 may also include a modem to modulate the packets and provide the modulated packets to the antennas for transmission, and to demodulate packets received from the antennas.

**[0126]** In some cases, the wireless device may include a single antenna 825. However, in some cases the device may have more than one antenna 825, which may be capable of concurrently transmitting or receiving multiple wireless transmissions.

**[0127]** The memory 830 may include random-access memory (RAM) and read-only memory (ROM). The memory 830 may store computer-readable, computer-executable code 835 including instructions that, when executed, cause the processor to perform various functions described herein. In some cases, the memory 830 may contain, among other things, a basic I/O system (BIOS) which may control basic hardware or software operation such as the interaction with peripheral components or devices.

**[0128]** The processor 840 may include an intelligent hardware device (e.g., a general-purpose processor, a DSP, a central processing unit (CPU), a microcontroller, an ASIC, an FPGA, a programmable logic device, a discrete gate or transistor logic component, a discrete hardware component, or any combination thereof). In some cases, the processor 840 may be configured to operate a memory array using a memory controller. In other cases, a memory controller may be integrated into the processor 840. The processor 840 may be configured to execute computer-readable instructions stored in a memory (e.g., the memory 830) to cause the device 805 to perform various functions (e.g., functions or tasks supporting triggering dropback for latency sensitive service).

**[0129]** The code 835 may include instructions to implement aspects of the present disclosure, including instructions to support wireless communications. The code 835 may be stored in a non-transitory computer-readable medium such as system memory or other type of memory. In some cases, the code 835 may not be directly executable by the processor 840 but may cause a computer (e.g., when compiled and executed) to perform functions described herein.

**[0130]** **FIG. 9** shows a flowchart illustrating a method 900 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The operations of method 900 may be implemented by a UE 115 or its components as described herein. For example, the operations of method 900 may be performed by a communications manager as described with reference to FIGs. 5 through 8. In some examples, a UE may execute a set of instructions to control the functional elements of the UE to perform the functions described below. Additionally or alternatively, a UE may perform aspects of the functions described below using special-purpose hardware.

**[0131]** At 905, the UE may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. The operations of 905 may be performed according to the methods described herein. In some examples, aspects of the operations of 905 may be performed by a connection establishment component as described with reference to FIGs. 5 through 8.

**[0132]** At 910, the UE may determine that a signal quality of the second connection is less than a threshold quality. The operations of 910 may be performed according to the methods described herein. In some examples, aspects of the operations of 910 may be performed by a signal quality evaluation component as described with reference to FIGs. 5 through 8.

**[0133]** At 915, the UE may release the second connection with the second cell group based on the signal quality of the second connection. The operations of 915 may be performed according to the methods described herein. In some examples, aspects of the operations of 915 may be performed by a connection release component as described with reference to FIGs. 5 through 8.

**[0134]** At 920, the UE may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection. The operations of 920 may be performed according to the methods described herein. In some examples, aspects of the operations of 920 may be performed by a measurement report trigger component as described with reference to FIGs. 5 through 8.

**[0135]** **FIG. 10** shows a flowchart illustrating a method 1000 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The operations of method 1000 may be implemented by a UE 115 or its components as described herein. For example, the operations of method 1000 may be performed by a communications manager as described with reference to FIGs. 5 through 8. In some examples, a UE may execute a set of instructions to control the functional elements of the UE to perform the functions described below. Additionally or alternatively, a UE may perform aspects of the functions described below using special-purpose hardware.

**[0136]** At 1005, the UE may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. The operations of 1005 may be performed according to the methods described herein. In some examples, aspects of the operations of 1005 may be performed by a connection establishment component as described with reference to FIGs. 5 through 8.

**[0137]** At 1010, the UE may determine that a signal quality of the second connection is less than a threshold quality. The operations of 1010 may be performed according to the methods described herein. In some examples, aspects of the operations of 1010 may be performed by a signal quality evaluation component as described with reference to FIGs. 5 through 8.

**[0138]** At 1015, the UE may release the second connection with the second cell group based on the signal quality of the second connection. The operations of 1015 may be performed according to the methods described herein. In some examples, aspects of the operations of 1015 may be performed by a connection release component as described with reference to FIGs. 5 through 8.

**[0139]** At 1020, the UE may activate a timer based on the signal quality of the second connection. The operations of 1020 may be performed according to the methods described herein. In some examples, aspects of the operations of 1020 may be performed by a timer component as described with reference to FIGs. 5 through 8.

**[0140]** At 1025, the UE may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the timer being activated. The operations of 1025 may be performed according to the methods described herein. In some examples, aspects of the operations of 1025 may be performed by a measurement report trigger component as described with reference to FIGs. 5 through 8.

**[0141]** At 1030, the UE may determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using the modified criterion based on the timer being activated. The operations of 1030 may be performed according to the methods described herein. In some examples, aspects of the operations of 1030 may be performed by a timer component as described with reference to FIGs. 5 through 8.

**[0142]** **FIG. 11** shows a flowchart illustrating a method 1100 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The operations of method 1100 may be implemented by a UE 115 or its components as described herein. For example, the operations of method 1100 may be performed by a communications manager as described with reference to FIGs. 5 through 8. In some examples, a UE may execute a set of instructions to control the functional elements of the UE to perform the functions described below. Additionally or alternatively, a UE may perform aspects of the functions described below using special-purpose hardware.

**[0143]** At 1105, the UE may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. The operations of 1105 may be performed according to the methods described herein. In some examples, aspects of the operations of 1105 may be performed by a connection establishment component as described with reference to FIGs. 5 through 8.

**[0144]** At 1110, the UE may determine that a signal quality of the second connection is less than a threshold quality. The operations of 1110 may be performed according to the methods described herein. In some examples, aspects of the operations of 1110 may be performed by a signal quality evaluation component as described with reference to FIGs. 5 through 8.

**[0145]** At 1115, the UE may receive, from a base station corresponding to the first cell group, the second cell group, or both, a data stall indicator based on the signal quality of the second connection. The operations of 1115 may be performed according to the methods described herein. In some examples, aspects of the operations of 1115 may be performed by a data stall indicator component as described with reference to FIGs. 5 through 8.

**[0146]** At 1120, the UE may determine that a previous data connection was via the second cell group. The operations of 1120 may be performed according to the methods described herein. In some examples, aspects of the operations of 1120 may be performed by a data stall indicator component as described with reference to FIGs. 5 through 8.

**[0147]** At 1125, the UE may trigger an RLF for the second connection based on the data stall indicator and the previous data connection being via the second cell group. The operations of 1125 may be performed according to the methods described herein. In some examples, aspects of the operations of 1125 may be performed by an RLF component as described with reference to FIGs. 5 through 8.

**[0148]** At 1130, the UE may release the second connection with the second cell group based on the triggered RLF. The operations of 1130 may be performed according to the methods described herein. In some examples, aspects of the operations of 1130 may be performed by a connection release component as described with reference to FIGs. 5 through 8.

**[0149]** At 1135, the UE may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection. The operations of 1135 may be performed according to the methods described herein. In some examples, aspects of the operations of 1135 may be performed by a measurement report trigger component as described with reference to FIGs. 5 through 8.

**[0150]** **FIG. 12** shows a flowchart illustrating a method 1200 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The operations of method 1200 may be implemented by a UE 115 or its components as described herein. For example, the operations of method 1200 may be performed by a communications manager as described with reference to FIGs. 5 through 8. In some examples, a UE may execute a set of instructions to control the functional elements of the UE to perform the functions described below. Additionally or alternatively, a UE may perform aspects of the functions described below using special-purpose hardware.

**[0151]** At 1205, the UE may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. The operations of 1205 may be performed according to the methods described herein. In some examples, aspects of the operations of 1205 may be performed by a connection establishment component as described with reference to FIGs. 5 through 8.

**[0152]** At 1210, the UE may determine that a signal quality of the second connection is less than a threshold quality. The operations of 1210 may be performed according to the methods described herein. In some examples, aspects of the operations of 1210 may be performed by a signal quality evaluation component as described with reference to FIGs. 5 through 8.

**[0153]** At 1215, the UE may release the second connection with the second cell group based on the signal quality of the second connection. The operations of 1215 may be performed according to the methods described herein. In some examples, aspects of the operations of 1215 may be performed by a connection release component as described with reference to FIGs. 5 through 8.

**[0154]** At 1220, the UE may identify an application running at the UE. The operations of 1220 may be performed according to the methods described herein. In some examples, aspects of the operations of 1220 may be performed by an application identifier as described with reference to FIGs. 5 through 8.

**[0155]** At 1225, the UE may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the application running at the UE. The operations of 1225 may be performed according to the methods described herein. In some examples, aspects of the operations of 1225 may be performed by a measurement report trigger component as described with reference to FIGs. 5 through 8.

**[0156]** **FIG. 13** shows a flowchart illustrating a method 1300 that supports triggering dropback for latency sensitive service in accordance with aspects of the present disclosure. The operations of method 1300 may be implemented by a UE 115 or its components as described herein. For example, the operations of method 1300 may be performed by a communications manager as described with reference to FIGs. 5 through 8. In some examples, a UE may execute a set of instructions to control the functional elements of the UE to perform the functions described below. Additionally or alternatively, a UE may perform aspects of the functions described below using special-purpose hardware.

**[0157]** At 1305, the UE may establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT. The operations of 1305 may be performed according to the methods described herein.

In some examples, aspects of the operations of 1305 may be performed by a connection establishment component as described with reference to FIGs. 5 through 8.

**[0158]** At 1310, the UE may determine that a signal quality of the second connection is less than a threshold quality. The operations of 1310 may be performed according to the methods described herein. In some examples, aspects of the operations of 1310 may be performed by a signal quality evaluation component as described with reference to FIGs. 5 through 8.

**[0159]** At 1315, the UE may release the second connection with the second cell group based on the signal quality of the second connection. The operations of 1315 may be performed according to the methods described herein. In some examples, aspects of the operations of 1315 may be performed by a connection release component as described with reference to FIGs. 5 through 8.

**[0160]** At 1320, the UE may modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection. The operations of 1320 may be performed according to the methods described herein. In some examples, aspects of the operations of 1320 may be performed by a measurement report trigger component as described with reference to FIGs. 5 through 8.

**[0161]** At 1325, the UE may communicate data via the first connection with the first cell group associated with the first RAT based on releasing the second connection. The operations of 1325 may be performed according to the methods described herein. In some examples, aspects of the operations of 1325 may be performed by a communication component as described with reference to FIGs. 5 through 8.

**[0162]** It should be noted that the methods described herein describe possible implementations, and that the operations and the steps may be rearranged or otherwise modified and that other implementations are possible. Further, aspects from two or more of the methods may be combined.

**[0163]** Although aspects of an LTE, LTE-A, LTE-A Pro, or NR system may be described for purposes of example, and LTE, LTE-A, LTE-A Pro, or NR terminology may be used in much of the description, the techniques described herein are applicable beyond LTE, LTE-A, LTE-A Pro, or NR networks. For example, the described techniques may be applicable to various other wireless communications systems such as Ultra Mobile Broadband (UMB), Institute of Electrical and Electronics Engineers (IEEE) 802.11 (Wi-Fi), IEEE 802.16 (WiMAX), IEEE 802.20, Flash-OFDM, as well as other systems and radio technologies not explicitly mentioned herein.

**[0164]** Information and signals described herein may be represented using any of a variety of different technologies and techniques. For example, data, instructions, commands, information, signals, bits, symbols, and chips that may be referenced throughout the description may be represented by voltages, currents, electromagnetic waves, magnetic fields or particles, optical fields or particles, or any combination thereof.

**[0165]** The various illustrative blocks and components described in connection with the disclosure herein may be implemented or performed with a general-purpose processor, a DSP, an ASIC, a CPU, an FPGA or other programmable logic device, discrete gate or transistor logic, discrete hardware components, or any combination thereof designed to perform the functions described herein. A general-purpose processor may be a microprocessor, but in the alternative, the processor may be any processor, controller, microcontroller, or state machine. A processor may also be implemented as a combination of computing devices (e.g., a combination of a DSP and a microprocessor, multiple microprocessors, one or more microprocessors in conjunction with a DSP core, or any other such configuration).

**[0166]** The functions described herein may be implemented in hardware, software executed by a processor, firmware, or any combination thereof. If implemented in software executed by a processor, the functions may be stored on or transmitted over as one or more instructions or code on a computer-readable medium. Other examples and implementations are within the scope of the disclosure and appended claims. For example, due to the nature of software, functions described herein may be implemented using software executed by a processor, hardware, firmware, hardwiring, or combinations of any of these. Features implementing functions may also be physically located at various positions, including being distributed such that portions of functions are implemented at different physical locations.

**[0167]** Computer-readable media includes both non-transitory computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another. A non-transitory storage medium may be any available medium that may be accessed by a general-purpose or special purpose computer. By way of example, and not limitation, non-transitory computer-readable media may include RAM, ROM, electrically erasable programmable ROM (EEPROM), flash memory, compact disk (CD) ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other non-transitory medium that may be used to carry or store desired program code means in the form of instructions or data structures and that may be accessed by a general-purpose or special-purpose computer, or a general-purpose or special-purpose processor. Also, any connection is properly termed a computer-readable medium. For example, if the software is transmitted from a website, server, or other remote source using a coaxial cable, fiber optic cable, twisted pair, digital subscriber line (DSL), or wireless technologies such as infrared, radio, and microwave, then the coaxial cable, fiber optic cable, twisted pair, DSL, or wireless technologies such as infrared, radio, and microwave are included in the definition of computer-readable medium. Disk and disc, as used herein, include CD, laser disc, optical disc, digital versatile disc (DVD), floppy disk and Blu-ray disc where disks usually reproduce data magnetically, while discs reproduce data optically with lasers. Combinations of the above are also included within the scope of computer-readable media.

**[0168]** As used herein, including in the claims, “or” as used in a list of items (e.g., a list of items prefaced by a phrase such as “at least one of” or “one or more of”) indicates an inclusive list such that, for example, a list of at least one of A, B, or C means A or B or C or AB or AC or BC or ABC (i.e., A and B and C). Also, as used herein, the phrase “based on” shall not be construed as a reference to a closed set of conditions. For example, an example step that is described as “based on condition A” may be based on both a condition A and a condition B without departing from the scope of the present disclosure. In other words, as used herein, the phrase “based on” shall be construed in the same manner as the phrase “based at least in part on.”

**[0169]** In the appended figures, similar components or features may have the same reference label. Further, various components of the same type may be distinguished by following the reference label by a dash and a second label that distinguishes among the similar components. If just the first reference label is used in the specification, the description is applicable to any one of the similar components having the same first reference label irrespective of the second reference label, or other subsequent reference label.

**[0170]** The description set forth herein, in connection with the appended drawings, describes example configurations and does not represent all the examples that may be implemented or that are within the scope of the claims. The term "example" used herein means "serving as an example, instance, or illustration," and not "preferred" or "advantageous over other examples." The detailed description includes specific details for the purpose of providing an understanding of the described techniques. These techniques, however, may be practiced without these specific details. In some instances, known structures and devices are shown in block diagram form in order to avoid obscuring the concepts of the described examples.

**[0171]** The description herein is provided to enable a person having ordinary skill in the art to make or use the disclosure. Various modifications to the disclosure will be apparent to a person having ordinary skill in the art, and the generic principles defined herein may be applied to other variations without departing from the scope of the disclosure. Thus, the disclosure is not limited to the examples and designs described herein, but is to be accorded the broadest scope consistent with the principles and novel features disclosed herein.

# CLAIMS

**What is claimed is:**

1. A method for wireless communications at a user equipment (UE), comprising:

establishing a first connection with a first cell group associated with a first radio access technology and a second connection with a second cell group associated with a second radio access technology;

determining that a signal quality of the second connection is less than a threshold quality;

releasing the second connection with the second cell group based at least in part on the signal quality of the second connection; and

modifying a criterion for triggering a measurement report associated with re-establishing the second connection based at least in part on the signal quality of the second connection.

2. The method of claim 1, wherein modifying the criterion for triggering the measurement report associated with re-establishing the second connection comprises:

updating a trigger condition for transmitting the measurement report associated with re-establishing the second connection from a first trigger condition to a second trigger condition.

3. The method of claim 2, wherein:

the first trigger condition comprises a first signal quality measurement for the second cell group exceeding a first threshold; and

the second trigger condition comprises the first signal quality measurement for the second cell group exceeding the first threshold and a second signal quality measurement for the second cell group exceeding a second threshold.

4. The method of claim 3, wherein:

the first signal quality measurement comprises a reference signal received power, a reference signal received quality, a received signal strength indicator, a signal-to-noise ratio, a signal-to-interference-plus-noise ratio, or a combination thereof; and the second signal quality measurement comprises a reference signal received power, a reference signal received quality, a received signal strength indicator, a signal-to-noise ratio, a signal-to-interference-plus-noise ratio, or a combination thereof different from the first signal quality measurement.

5. The method of claim 3, further comprising:

applying a first set of offset values to the first signal quality measurement for the first trigger condition; and

applying the first set of offset values and one or more additional offset values to the first signal quality measurement for the second trigger condition.

6. The method of claim 1, further comprising:

activating a timer based at least in part on the signal quality of the second connection; and

determining whether to trigger transmission of the measurement report associated with re-establishing the second connection using the modified criterion based at least in part on the timer being activated.

7. The method of claim 6, further comprising:

deactivating the timer;

resetting the timer to a timer start value based at least in part on deactivating the timer; and

determining whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based at least in part on the timer being deactivated, wherein the modified criterion is modified from the baseline criterion.

8. The method of claim 7, further comprising:

switching the first connection from a first cell to a second cell, wherein the timer is deactivated based at least in part on switching the first connection to the second cell.

9. The method of claim 7, further comprising:

determining that a first signal quality for the second cell group is greater than a second signal quality for the first cell group, wherein the timer is deactivated based at least in part on the first signal quality being greater than the second signal quality.

10. The method of claim 7, further comprising:

determining an expiry of the timer, wherein the timer is deactivated based at least in part on the expiry of the timer.

11. The method of claim 1, further comprising:

receiving, from a base station corresponding to the first cell group, the second cell group, or both, a data stall indicator based at least in part on the signal quality of the second connection.

12. The method of claim 11, further comprising:

determining that a previous data connection is via the second cell group; and

triggering a radio link failure for the second connection based at least in part on the data stall indicator and the previous data connection being via the second cell group, wherein the second connection with the second cell group is released based at least in part on the triggered radio link failure.

13. The method of claim 1, further comprising:

triggering a radio link failure for the second connection based at least in part on the quality of the second connection, wherein the second connection is released based at least in part on the triggered radio link failure.

14. The method of claim 1, further comprising:

identifying an application running at the UE, wherein modifying the criterion for triggering the measurement report associated with re-establishing the second connection is further based at least in part on the application running at the UE.

15. The method of claim 14, wherein the application is associated with a latency threshold, a data rate threshold, or a combination thereof.

16. The method of claim 14, further comprising:

identifying the application ends at the UE; and

determining whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based at least in part on the application ending at the UE, wherein the modified criterion is modified from the baseline criterion.

17. The method of claim 1, further comprising:

communicating data via the first connection with the first cell group associated with the first radio access technology based at least in part on releasing the second connection.

18. The method of claim 1, further comprising:

measuring an additional signal quality for the second cell group; and

triggering transmission of the measurement report associated with re-establishing the second connection based at least in part on comparing the additional signal quality to at least the modified criterion.

19. The method of claim 18, further comprising:

transmitting, via the first connection, the measurement report associated with re-establishing the second connection based at least in part on the triggering; and

re-establishing the second connection with the second cell group associated with the second radio access technology based at least in part on transmitting the measurement report associated with re-establishing the second connection.

20. The method of claim 1, further comprising:

operating in a dual connectivity mode, wherein the first connection and the second connection are established based at least in part on operating in the dual connectivity mode.

21. The method of claim 1, wherein:

the first radio access technology comprises a long term evolution technology, a fourth generation (4G) technology, or a combination thereof; and

the second radio access technology comprises a new radio technology, a fifth generation (5G) technology, or a combination thereof.

22. The method of claim 1, wherein the measurement report associated with re-establishing the second connection indicates a B1 event for inter-radio access technology data handover.

23. The method of claim 1, wherein the first cell group comprises a master cell group and the second cell group comprises a secondary cell group.

24. An apparatus for wireless communications at a user equipment (UE), comprising:

a processor;

memory coupled with the processor; and

instructions stored in the memory and executable by the processor to cause the apparatus to:

establish a first connection with a first cell group associated with a first radio access technology and a second connection with a second cell group associated with a second radio access technology;

determine that a signal quality of the second connection is less than a threshold quality;

release the second connection with the second cell group based at least in part on the signal quality of the second connection; and

modify a criterion for triggering a measurement report associated with re-establishing the second connection based at least in part on the signal quality of the second connection.

25. The apparatus of claim 24, wherein the instructions to modify the criterion for triggering the measurement report associated with re-establishing the second connection are executable by the processor to cause the apparatus to:

update a trigger condition for transmitting the measurement report associated with re-establishing the second connection from a first trigger condition to a second trigger condition.

26. The apparatus of claim 25, wherein:

the first trigger condition comprises a first signal quality measurement for the second cell group exceeding a first threshold; and

the second trigger condition comprises the first signal quality measurement for the second cell group exceeding the first threshold and a second signal quality measurement for the second cell group exceeding a second threshold.

27. The apparatus of claim 26, wherein:

the first signal quality measurement comprises a reference signal received power, a reference signal received quality, a received signal strength indicator, a signal-to-noise ratio, a signal-to-interference-plus-noise ratio, or a combination thereof; and

the second signal quality measurement comprises a reference signal received power, a reference signal received quality, a received signal strength indicator, a signal-to-noise ratio, a signal-to-interference-plus-noise ratio, or a combination thereof different from the first signal quality measurement.

28. The apparatus of claim 26, wherein the instructions are further executable by the processor to cause the apparatus to:

apply a first set of offset values to the first signal quality measurement for the first trigger condition; and

apply the first set of offset values and one or more additional offset values to the first signal quality measurement for the second trigger condition.

29. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

activate a timer based at least in part on the signal quality of the second connection; and

determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using the modified criterion based at least in part on the timer being activated.

30. The apparatus of claim 29, wherein the instructions are further executable by the processor to cause the apparatus to:

deactivate the timer;

reset the timer to a timer start value based at least in part on deactivating the timer; and

determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based at least in part on the timer being deactivated, wherein the modified criterion is modified from the baseline criterion.

31. The apparatus of claim 30, wherein the instructions are further executable by the processor to cause the apparatus to:

switch the first connection from a first cell to a second cell, wherein the timer is deactivated based at least in part on switching the first connection to the second cell.

32. The apparatus of claim 30, wherein the instructions are further executable by the processor to cause the apparatus to:

determine that a first signal quality for the second cell group is greater than a second signal quality for the first cell group, wherein the timer is deactivated based at least in part on the first signal quality being greater than the second signal quality.

33. The apparatus of claim 30, wherein the instructions are further executable by the processor to cause the apparatus to:

determine an expiry of the timer, wherein the timer is deactivated based at least in part on the expiry of the timer.

34. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

receive, from a base station corresponding to the first cell group, the second cell group, or both, a data stall indicator based at least in part on the signal quality of the second connection.

35. The apparatus of claim 34, wherein the instructions are further executable by the processor to cause the apparatus to:

determine that a previous data connection is via the second cell group; and

trigger a radio link failure for the second connection based at least in part on the data stall indicator and the previous data connection being via the second cell group, wherein the second connection with the second cell group is released based at least in part on the triggered radio link failure.

36. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

trigger a radio link failure for the second connection based at least in part on the quality of the second connection, wherein the second connection is released based at least in part on the triggered radio link failure.

37. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

identify an application running at the UE, wherein modifying the criterion for triggering the measurement report associated with re-establishing the second connection is further based at least in part on the application running at the UE.

38. The apparatus of claim 37, wherein the application is associated with a latency threshold, a data rate threshold, or a combination thereof.

39. The apparatus of claim 37, wherein the instructions are further executable by the processor to cause the apparatus to:

identify the application ends at the UE; and

determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using a baseline criterion based at least in part on the application ending at the UE, wherein the modified criterion is modified from the baseline criterion.

40. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

communicate data via the first connection with the first cell group associated with the first radio access technology based at least in part on releasing the second connection.

41. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

measure an additional signal quality for the second cell group; and

trigger transmission of the measurement report associated with re-establishing the second connection based at least in part on comparing the additional signal quality to at least the modified criterion.

42. The apparatus of claim 41, wherein the instructions are further executable by the processor to cause the apparatus to:

transmit, via the first connection, the measurement report associated with re-establishing the second connection based at least in part on the triggering; and

re-establish the second connection with the second cell group associated with the second radio access technology based at least in part on transmitting the measurement report associated with re-establishing the second connection.

43. The apparatus of claim 24, wherein the instructions are further executable by the processor to cause the apparatus to:

operate in a dual connectivity mode, wherein the first connection and the second connection are established based at least in part on operating in the dual connectivity mode.

44. The apparatus of claim 24, wherein:

the first radio access technology comprises a long term evolution technology, a fourth generation (4G) technology, or a combination thereof; and

the second radio access technology comprises a new radio technology, a fifth generation (5G) technology, or a combination thereof.

45. The apparatus of claim 24, wherein the measurement report associated with re-establishing the second connection indicates a B1 event for inter-radio access technology data handover.

46. The apparatus of claim 24, wherein the first cell group comprises a master cell group and the second cell group comprises a secondary cell group.

47. An apparatus for wireless communications at a user equipment (UE), comprising:

means for establishing a first connection with a first cell group associated with a first radio access technology and a second connection with a second cell group associated with a second radio access technology;

means for determining that a signal quality of the second connection is less than a threshold quality;

means for releasing the second connection with the second cell group based at least in part on the signal quality of the second connection; and

means for modifying a criterion for triggering a measurement report associated with re-establishing the second connection based at least in part on the signal quality of the second connection.

48. A non-transitory computer-readable medium storing code for wireless communications at a user equipment (UE), the code comprising instructions executable by a processor to:

establish a first connection with a first cell group associated with a first radio access technology and a second connection with a second cell group associated with a second radio access technology;

determine that a signal quality of the second connection is less than a threshold quality;

release the second connection with the second cell group based at least in part on the signal quality of the second connection; and

modify a criterion for triggering a measurement report associated with re-establishing the second connection based at least in part on the signal quality of the second connection.

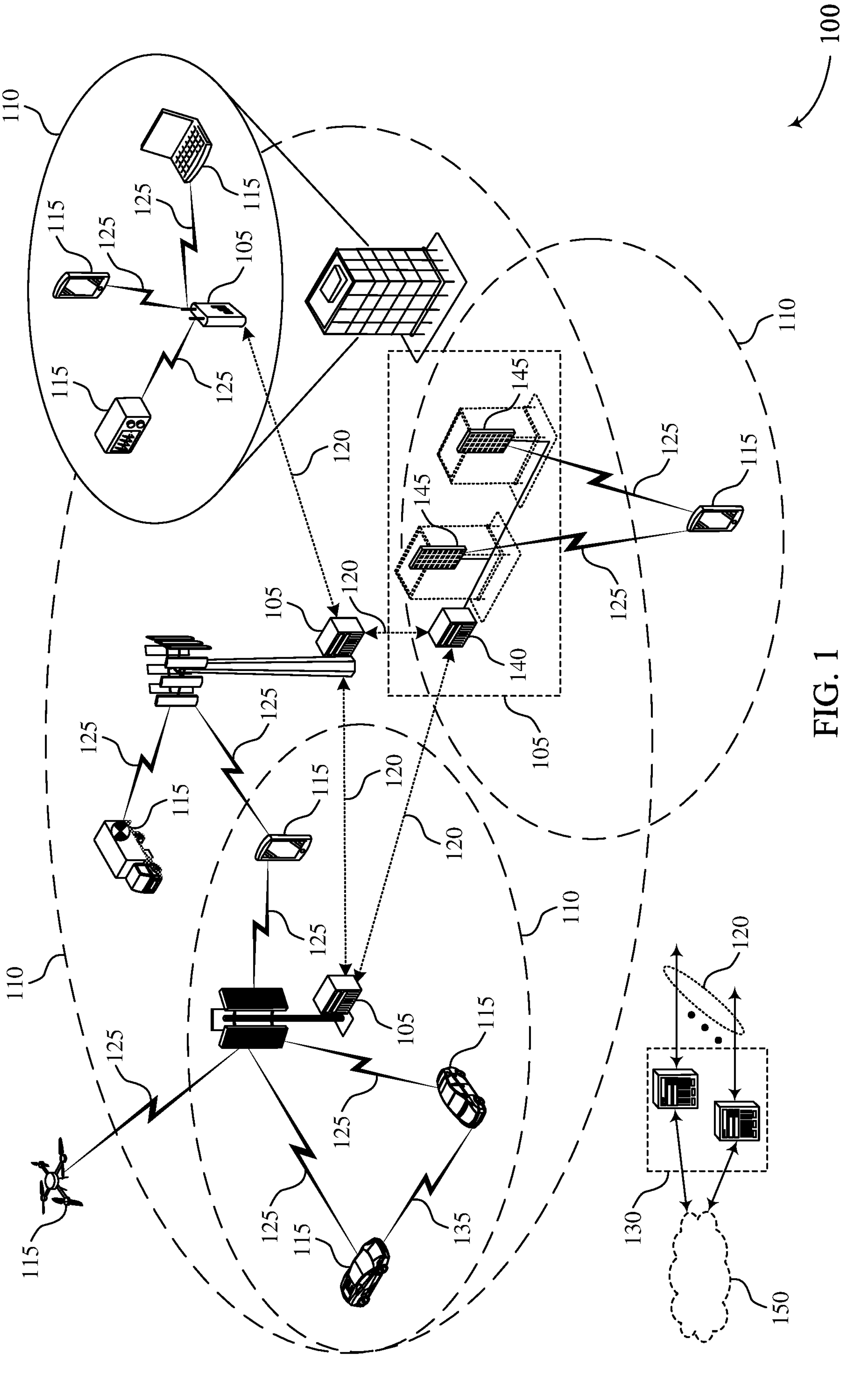



FIG. 1

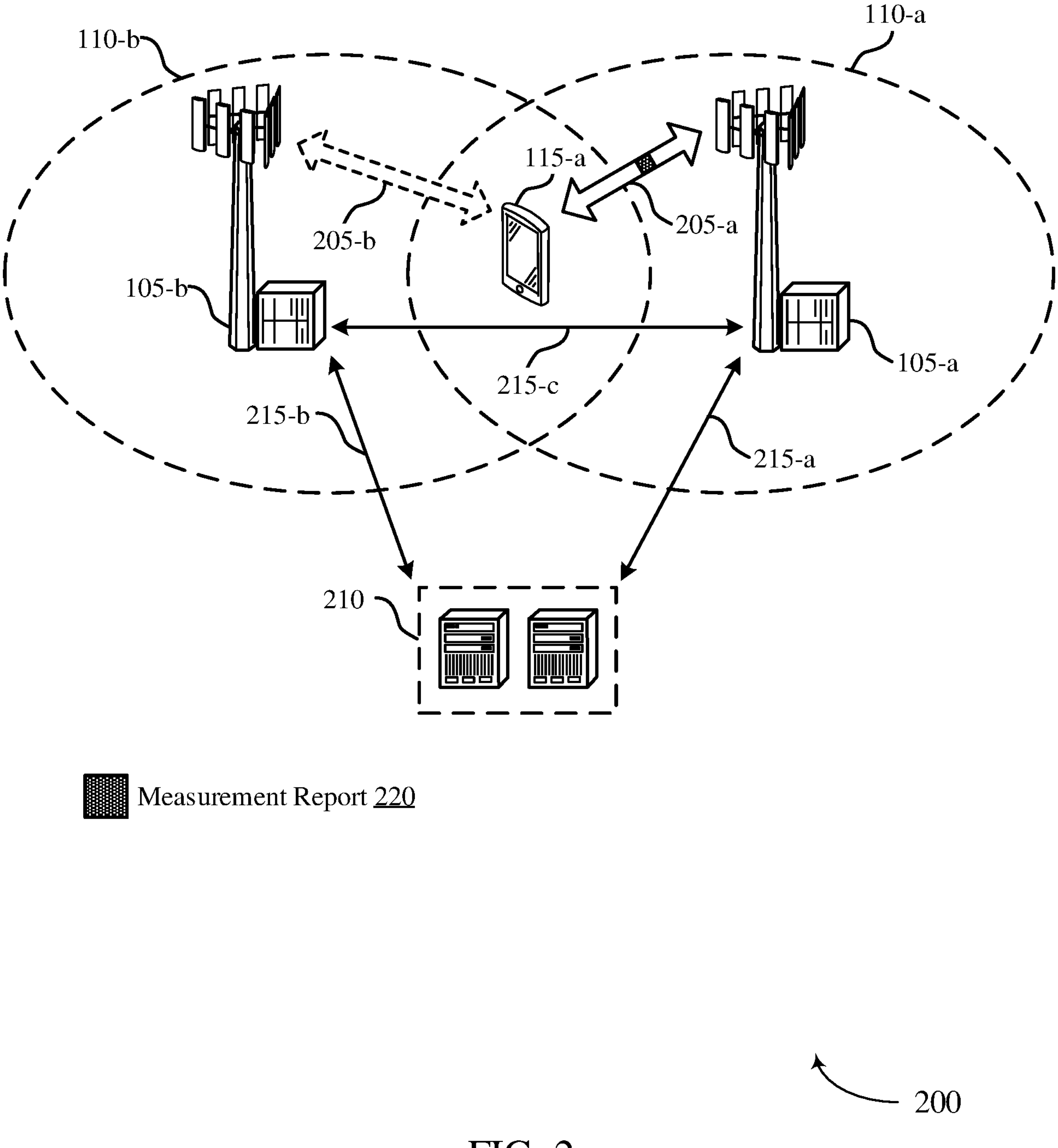

110-b
110-a
115-a
205-b
205-a
105-b
105-a
215-c
215-b
215-a
210
Measurement Report 220
200

FIG. 2

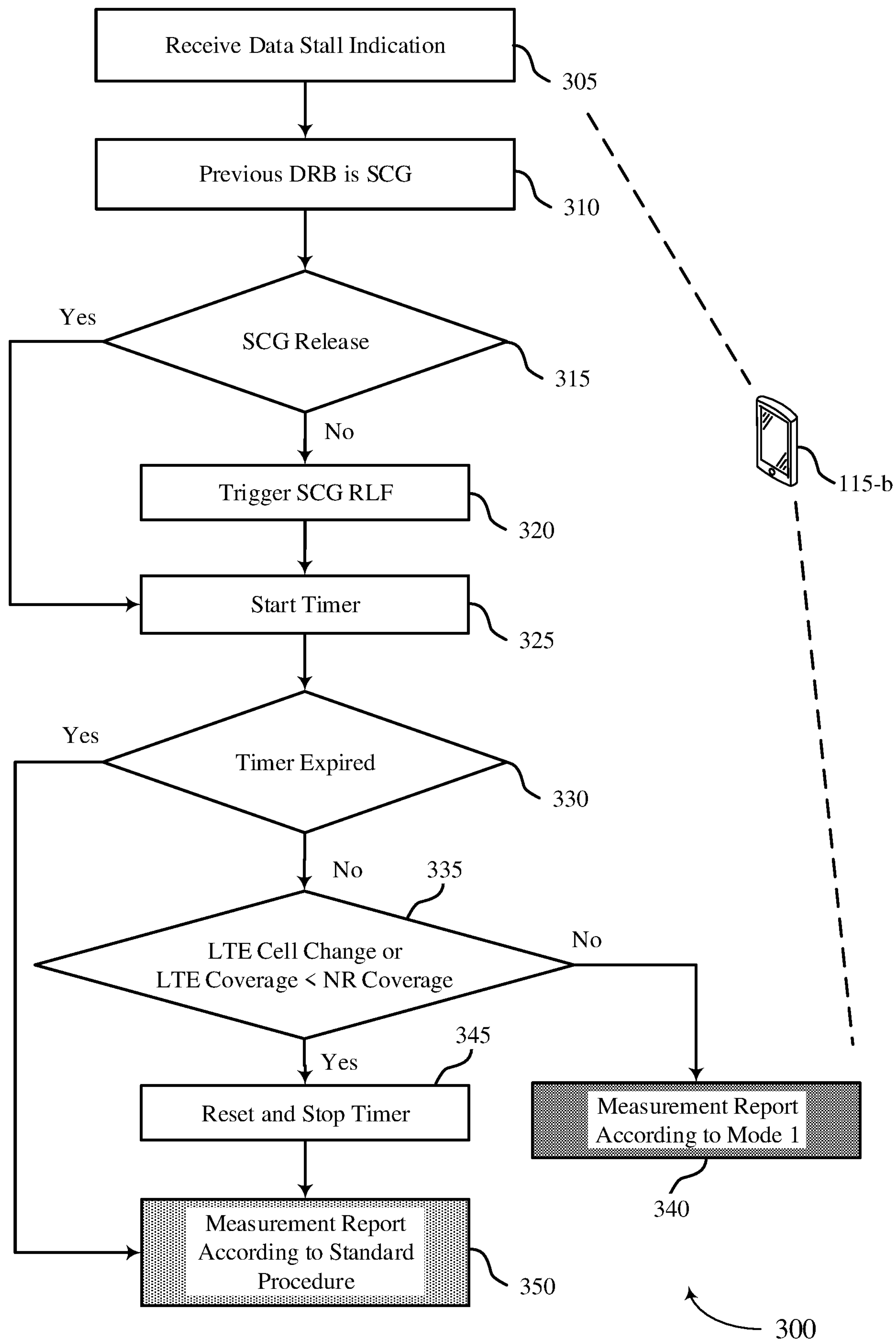

Receive Data Stall Indication
305
Previous DRB is SCG
310
SCG Release
Yes
No
315
Trigger SCG RLF
320
Start Timer
325
Timer Expired
Yes
No
330
335
LTE Cell Change or
LTE Coverage < NR Coverage
No
Yes
345
Reset and Stop Timer
Measurement Report
According to Mode 1
340
Measurement Report
According to Standard
Procedure
350
115-b
300

FIG. 3

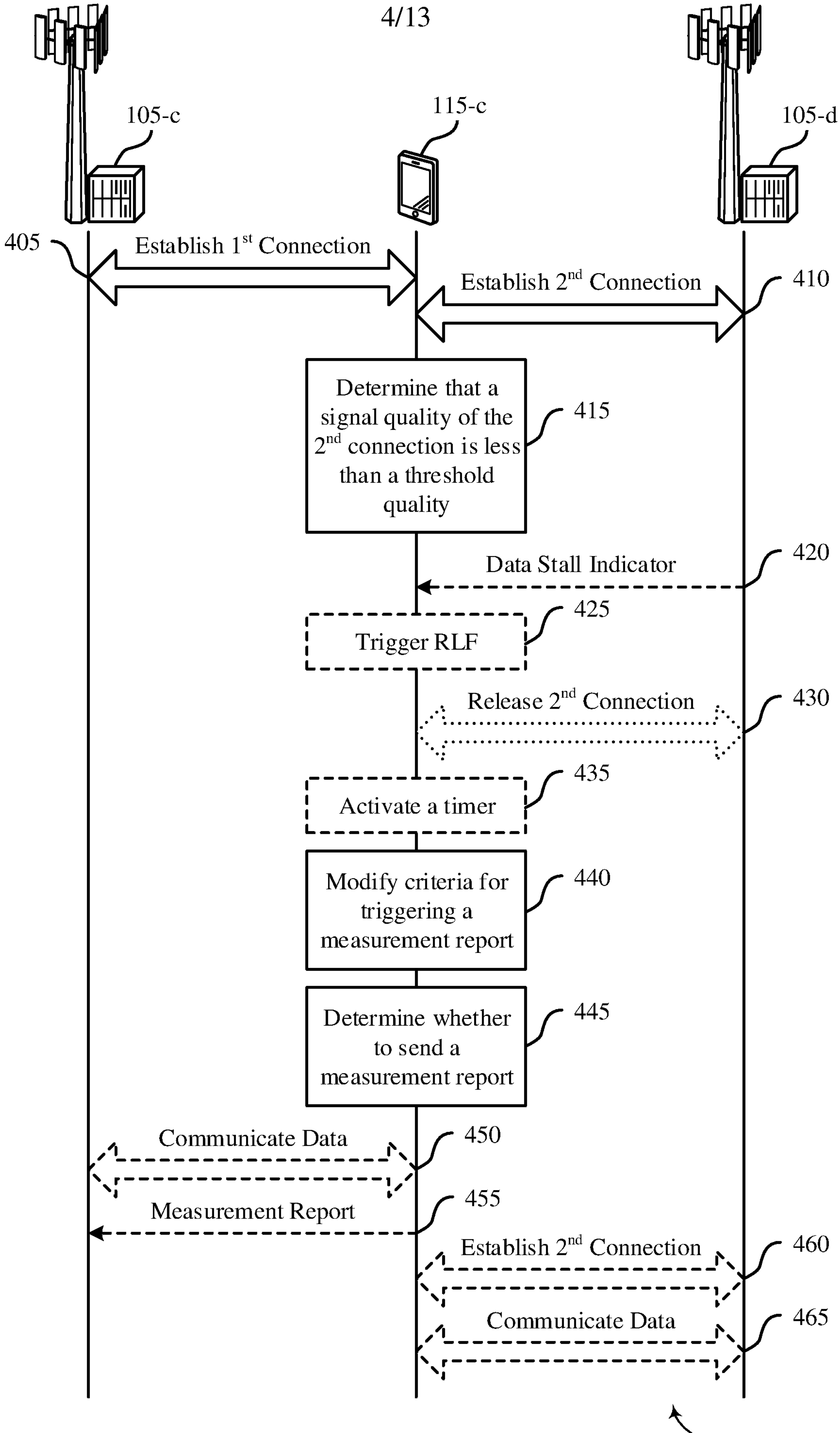

105-c
115-c
105-d
405
Establish 1st Connection
Establish 2nd Connection
410
Determine that a signal quality of the 2nd connection is less than a threshold quality
415
Data Stall Indicator
420
Trigger RLF
425
Release 2nd Connection
430
Activate a timer
435
Modify criteria for triggering a measurement report
440
Determine whether to send a measurement report
445
Communicate Data
450
Measurement Report
455
Establish 2nd Connection
460
Communicate Data
465
400

FIG. 4

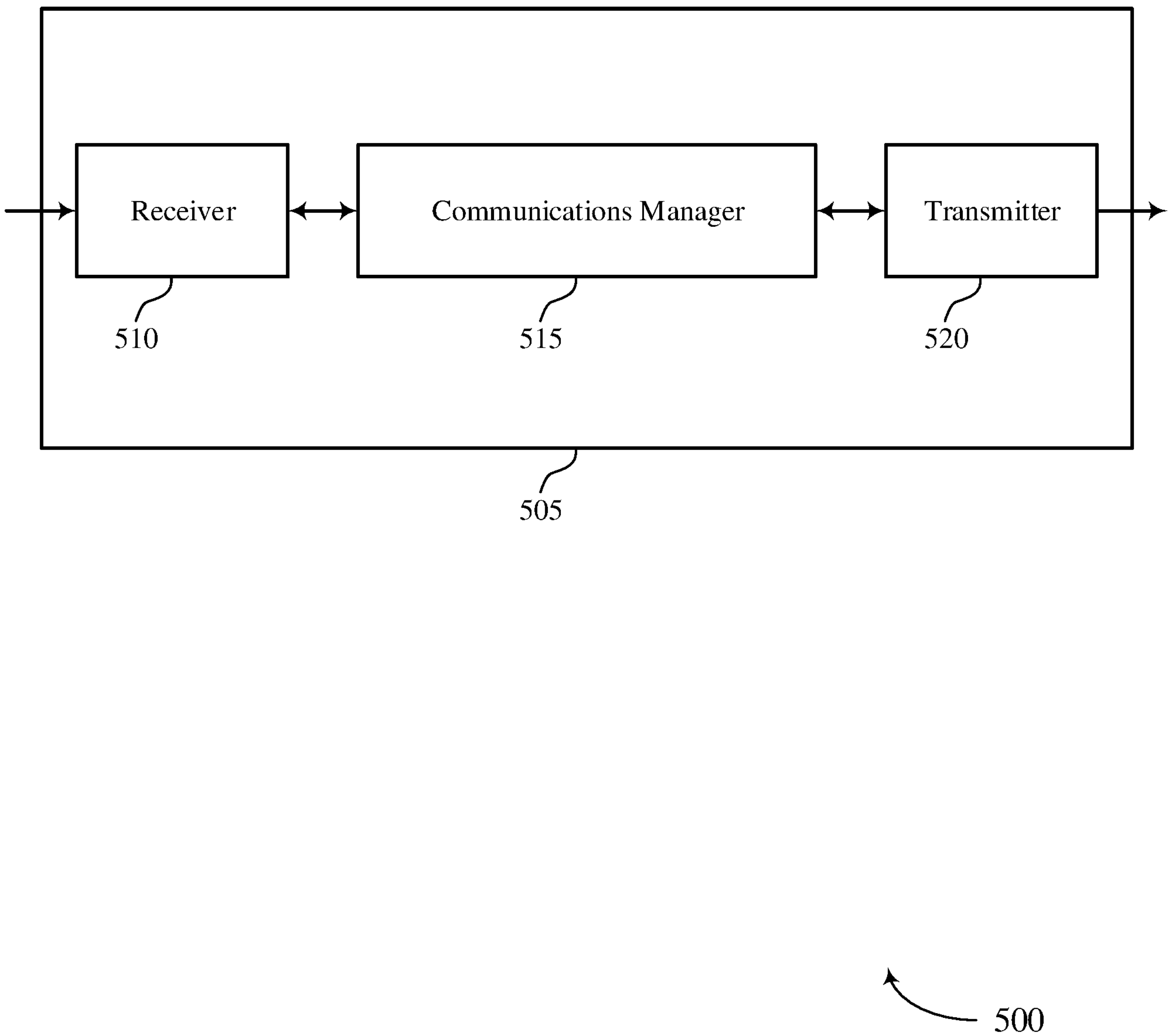
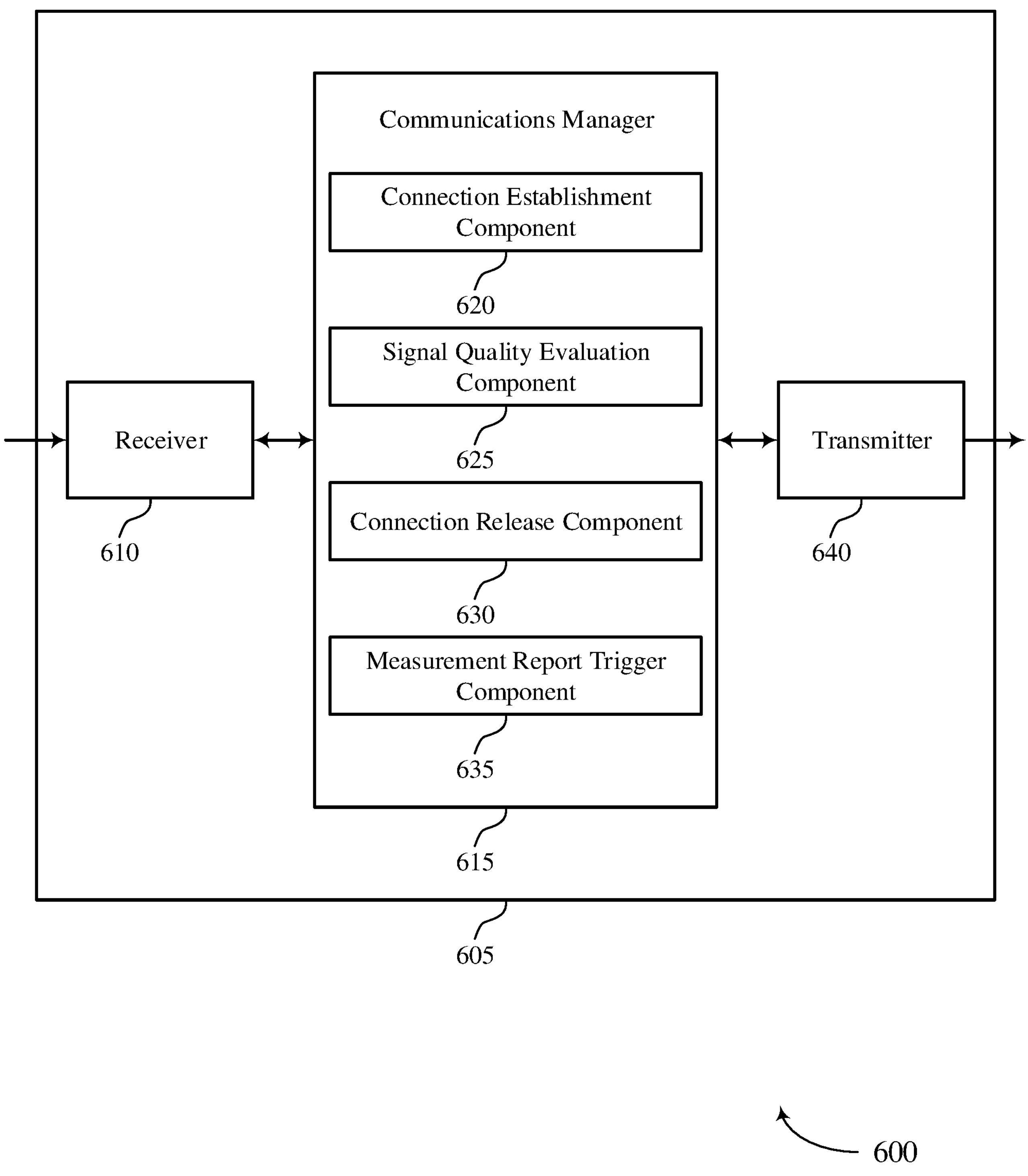

Receiver
Communications Manager
Transmitter
510
515
520
505
500

FIG. 5



Communications Manager
Connection Establishment Component
620
Signal Quality Evaluation Component
625
Receiver
610
Transmitter
640
Connection Release Component
630
Measurement Report Trigger Component
635
615
605
600


FIG. 6

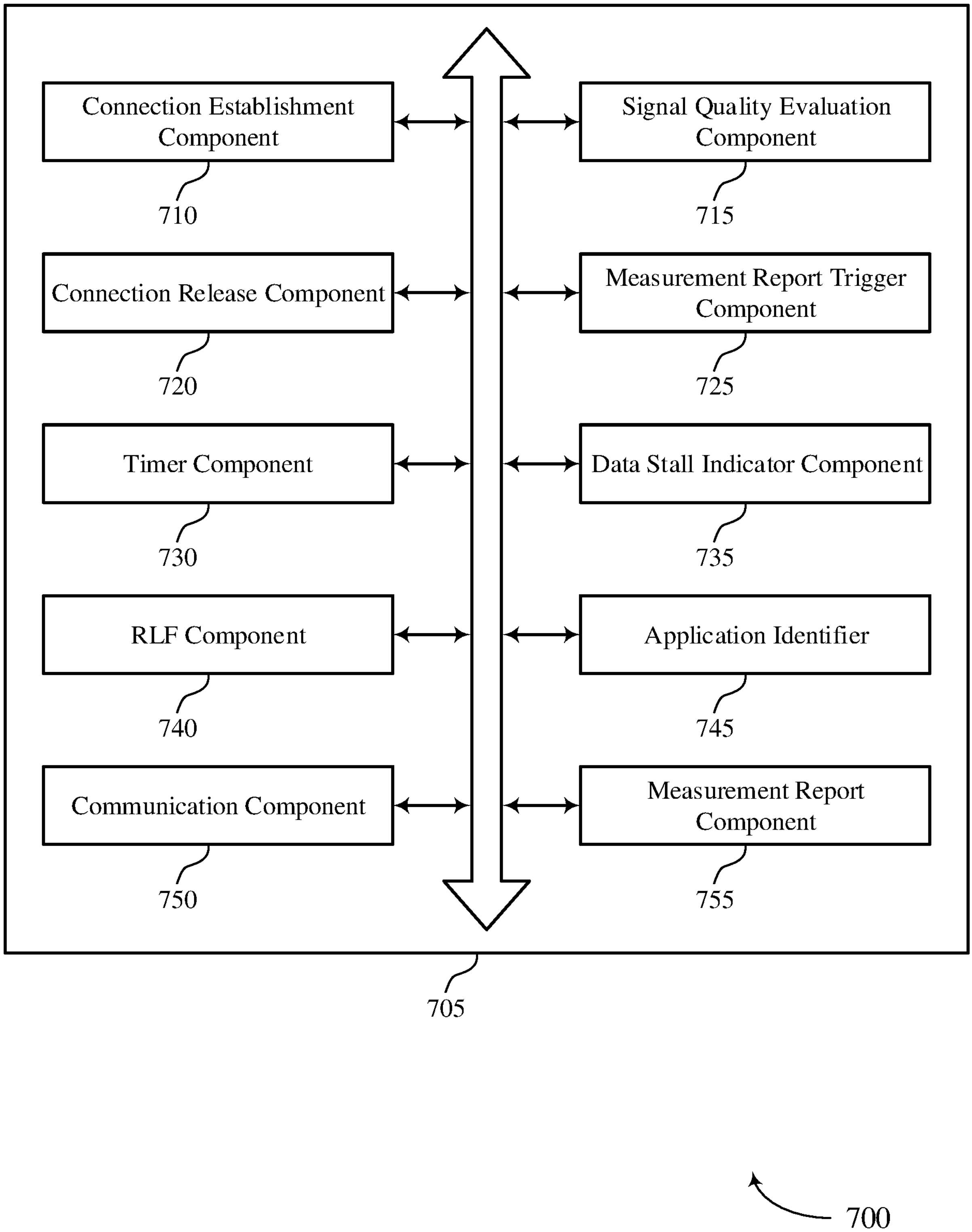

Connection Establishment Component
710
Signal Quality Evaluation Component
715
Connection Release Component
720
Measurement Report Trigger Component
725
Timer Component
730
Data Stall Indicator Component
735
RLF Component
740
Application Identifier
745
Communication Component
750
Measurement Report Component
755
705
700

FIG. 7

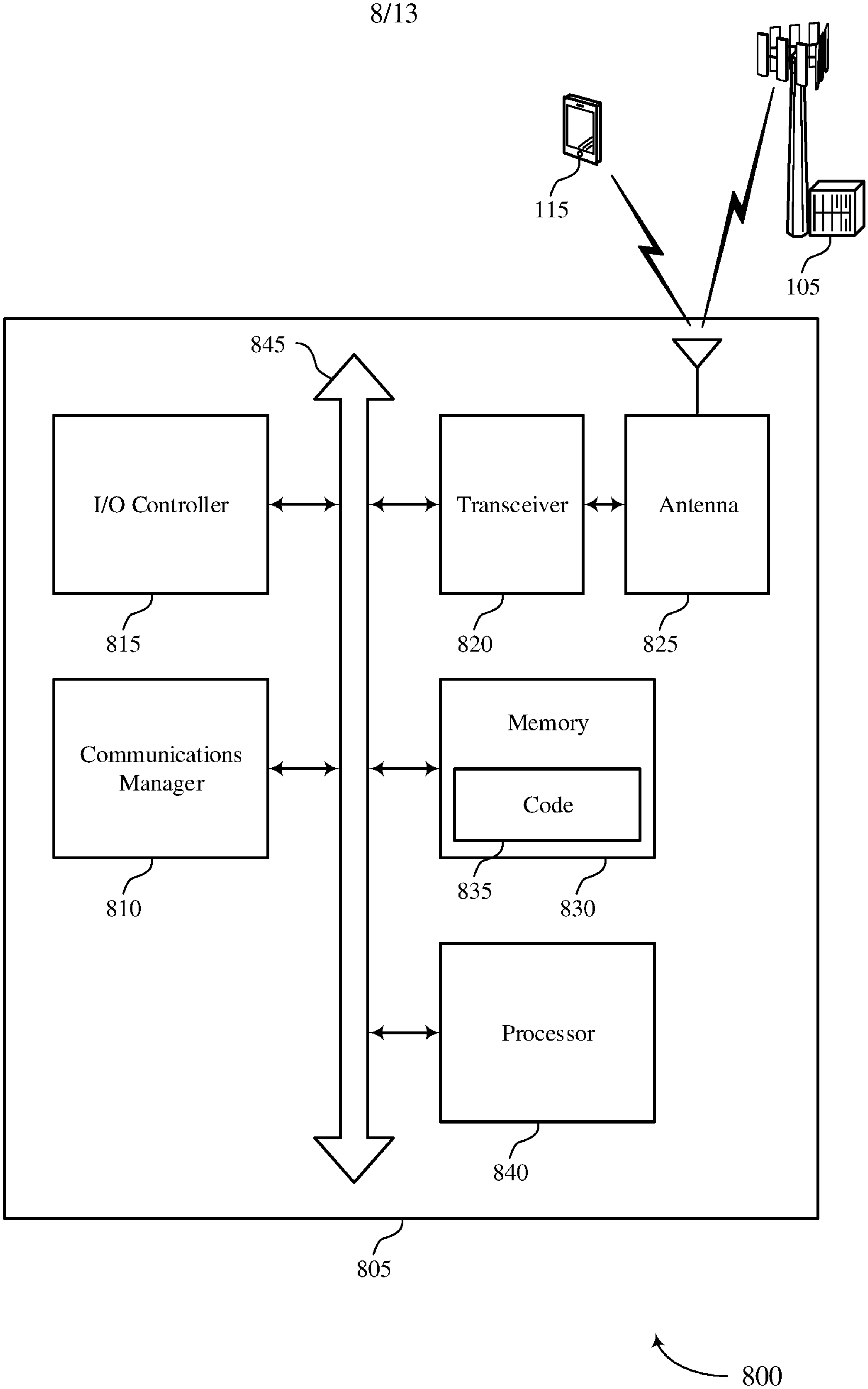

115
105
845
I/O Controller
Transceiver
Antenna
815
820
825
Communications Manager
Memory
Code
810
835
830
Processor
840
805
800

FIG. 8

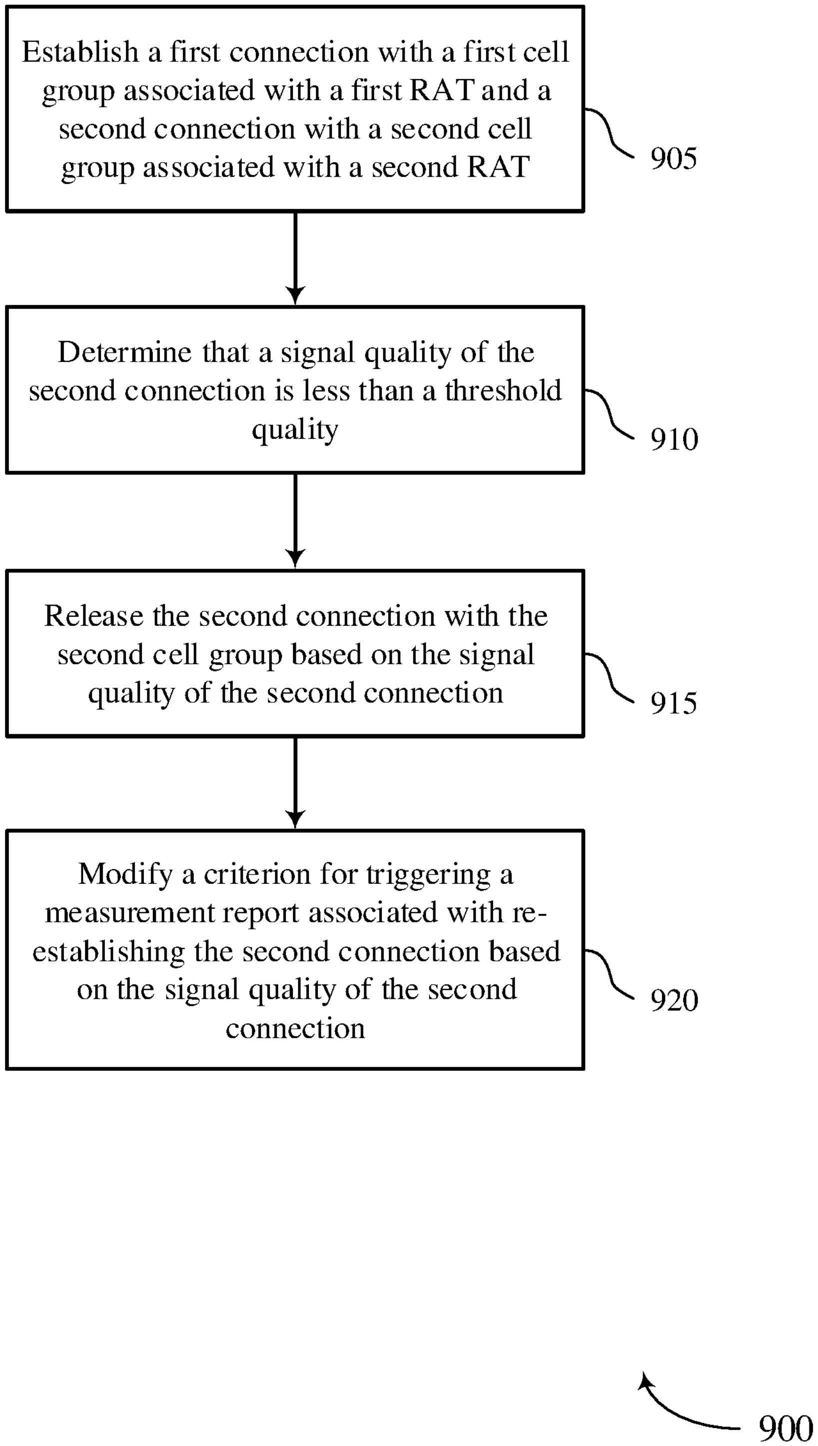

Establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT
905
Determine that a signal quality of the second connection is less than a threshold quality
910
Release the second connection with the second cell group based on the signal quality of the second connection
915
Modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection
920
900

FIG. 9

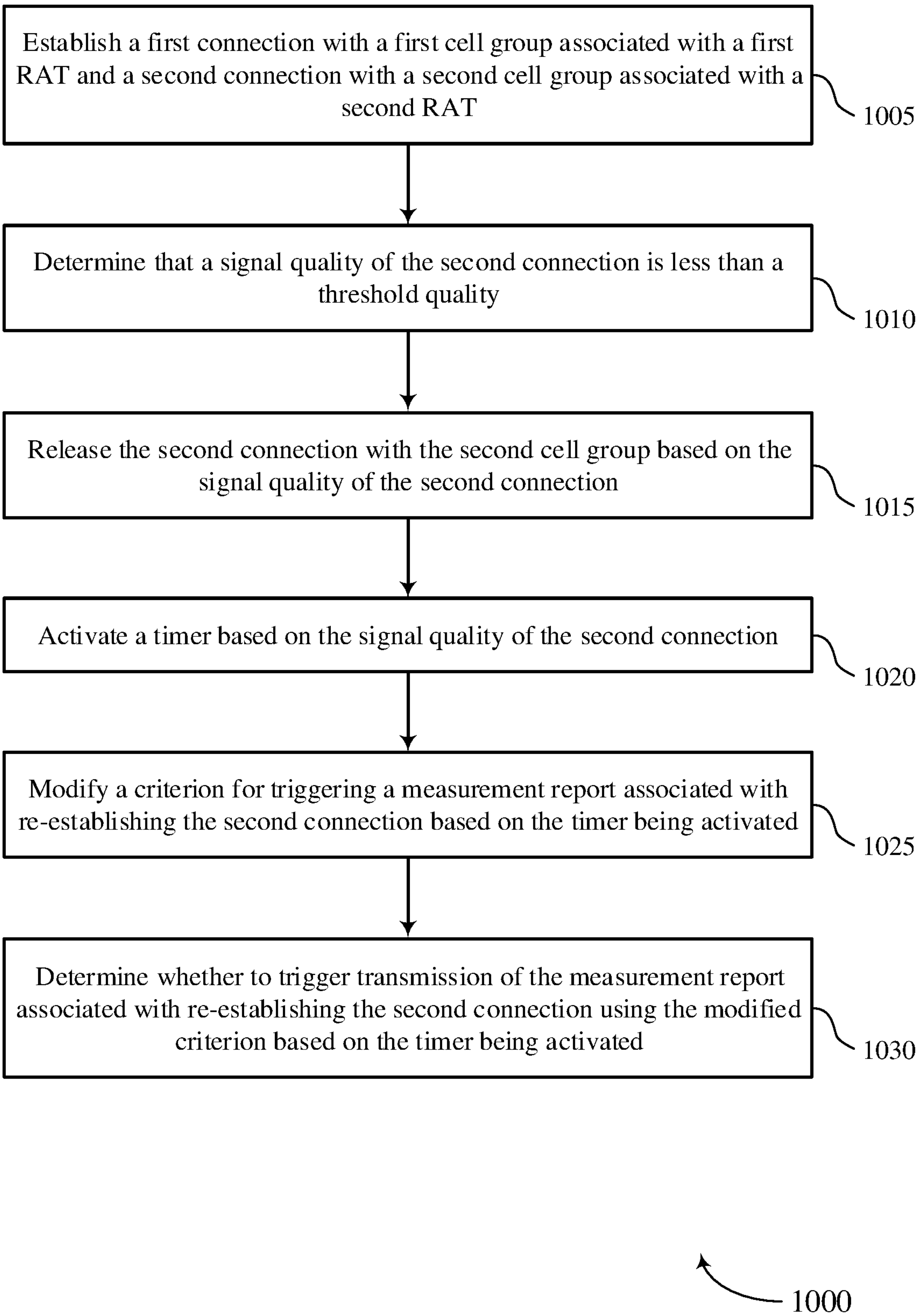

Establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT
1005
Determine that a signal quality of the second connection is less than a threshold quality
1010
Release the second connection with the second cell group based on the signal quality of the second connection
1015
Activate a timer based on the signal quality of the second connection
1020
Modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the timer being activated
1025
Determine whether to trigger transmission of the measurement report associated with re-establishing the second connection using the modified criterion based on the timer being activated
1030
1000

FIG. 10

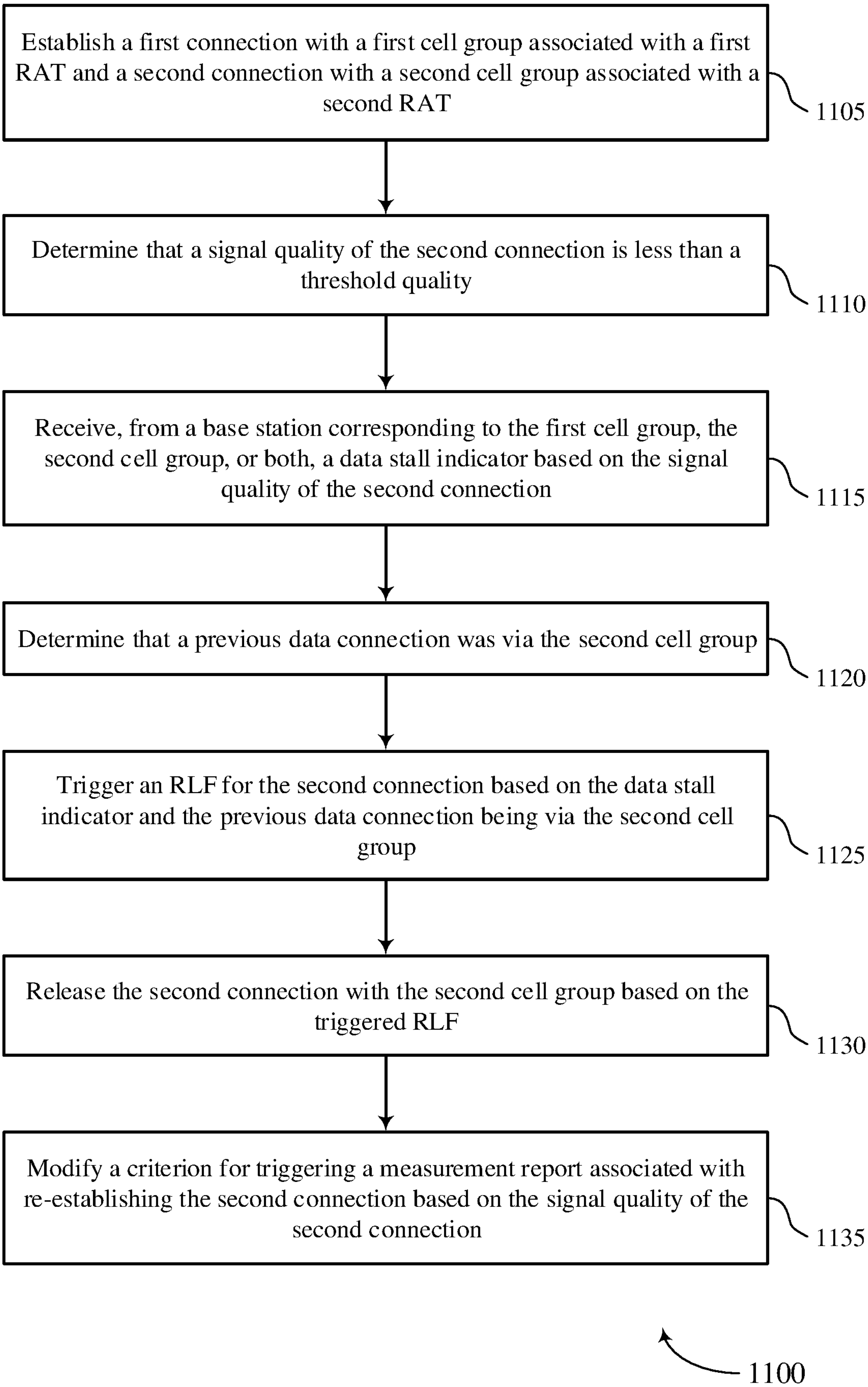

Establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT
1105
Determine that a signal quality of the second connection is less than a threshold quality
1110
Receive, from a base station corresponding to the first cell group, the second cell group, or both, a data stall indicator based on the signal quality of the second connection
1115
Determine that a previous data connection was via the second cell group
1120
Trigger an RLF for the second connection based on the data stall indicator and the previous data connection being via the second cell group
1125
Release the second connection with the second cell group based on the triggered RLF
1130
Modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection
1135
1100

FIG. 11

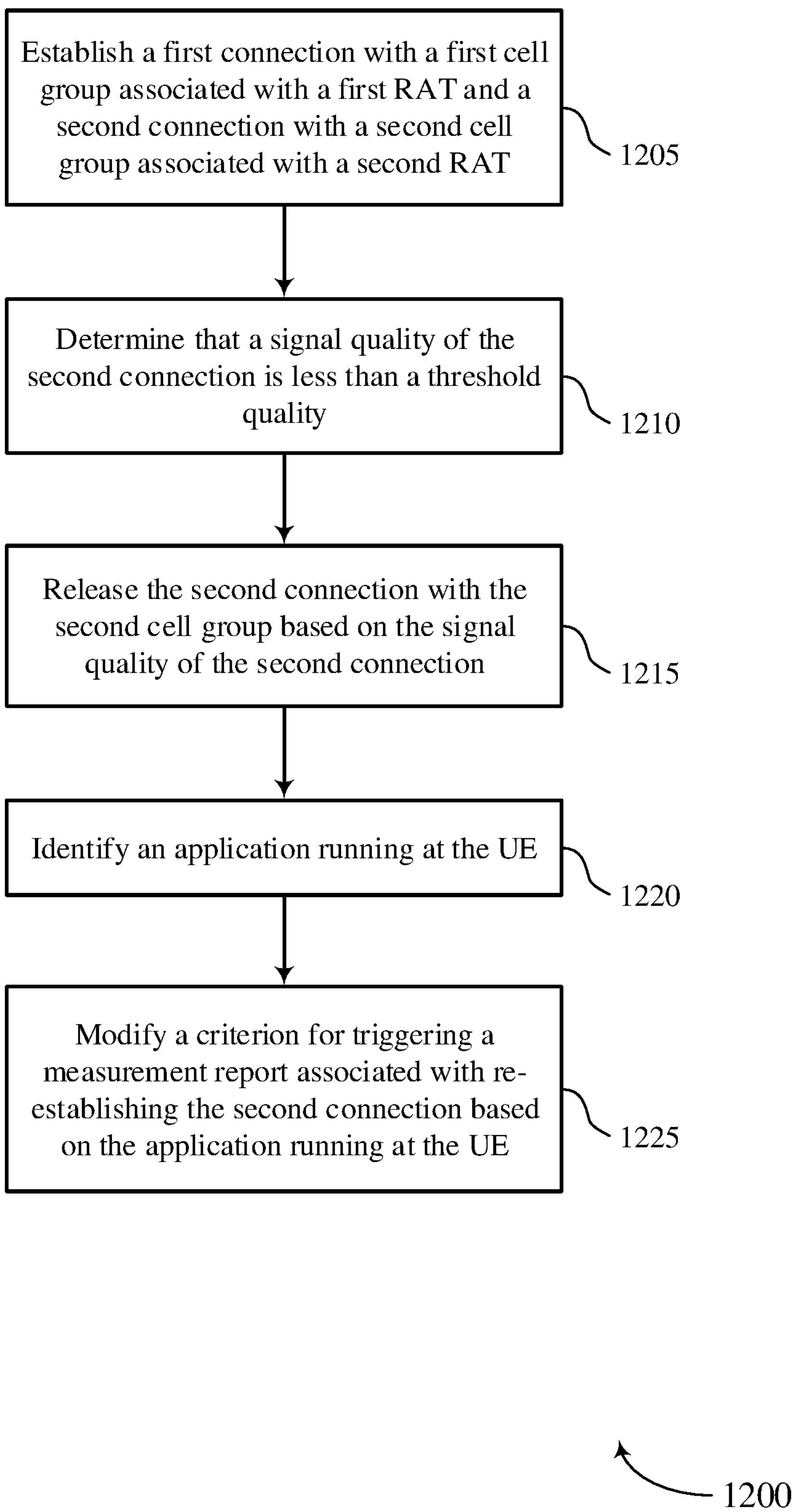

Establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT
1205
Determine that a signal quality of the second connection is less than a threshold quality
1210
Release the second connection with the second cell group based on the signal quality of the second connection
1215
Identify an application running at the UE
1220
Modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the application running at the UE
1225
1200

FIG. 12

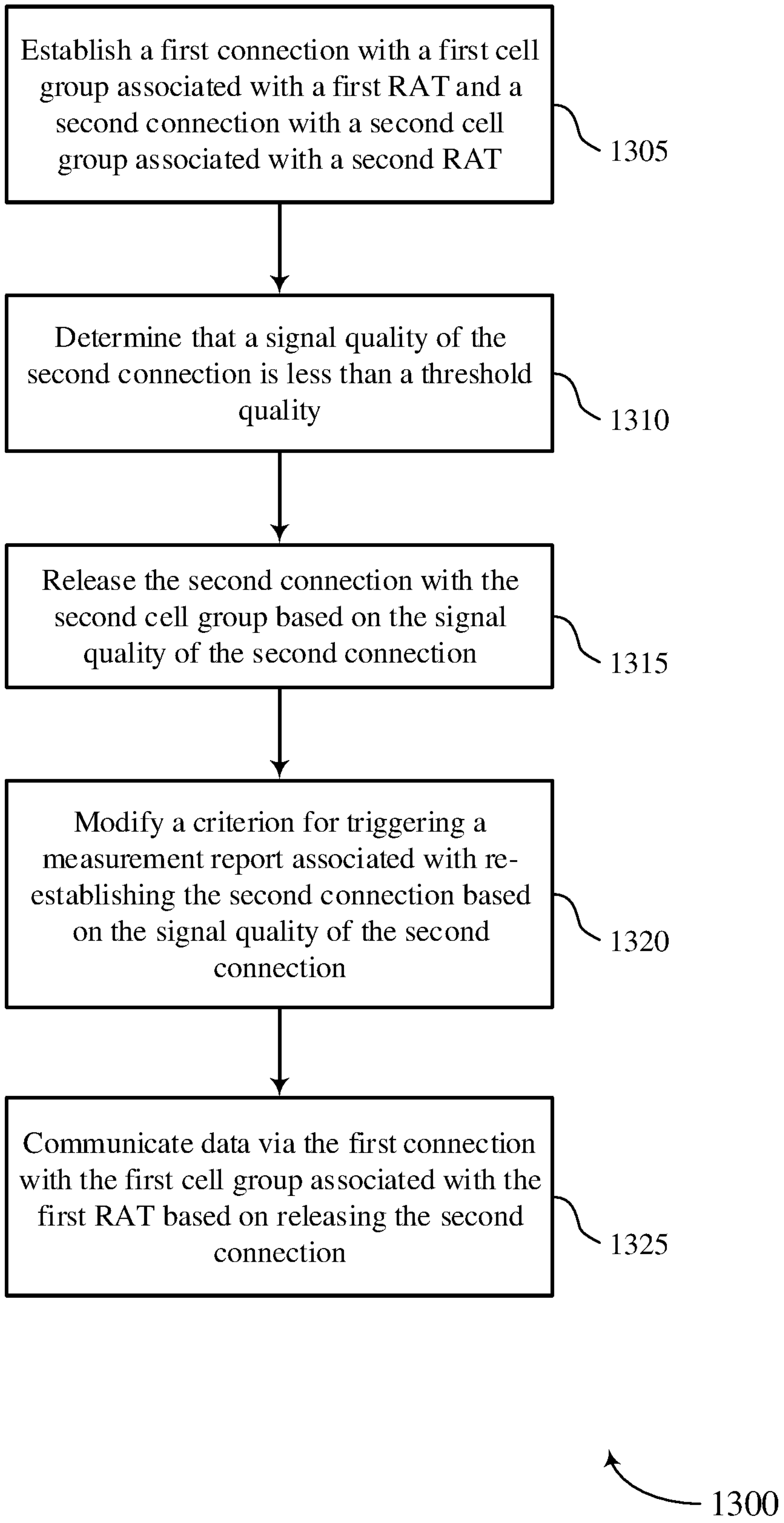

Establish a first connection with a first cell group associated with a first RAT and a second connection with a second cell group associated with a second RAT
1305
Determine that a signal quality of the second connection is less than a threshold quality
1310
Release the second connection with the second cell group based on the signal quality of the second connection
1315
Modify a criterion for triggering a measurement report associated with re-establishing the second connection based on the signal quality of the second connection
1320
Communicate data via the first connection with the first cell group associated with the first RAT based on releasing the second connection
1325
1300

FIG. 13

# INTERNATIONAL SEARCH REPORT

International application No.
**PCT/CN2020/092968**

**A. CLASSIFICATION OF SUBJECT MATTER**

H04W 76/15(2018.01)i; H04W 88/06(2009.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

H04L, H04W

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS;CNTXT;VEN;WOTXT;EPTXT;USTXT;CNKI;3GPP: dual connect, release, disconnect, quality, threshold, less, first, second, different, radio access technology, RAT, modify, update, criterion, condition, trigger, measure, report, reestablish

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | US 2019320481 A1 (SAMSUNG ELECTRONICS CO LTD) 17 October 2019 (2019-10-17)<br>the whole document | 1-48 |
| A | WO 2018029370 A1 (SONY CORP et al.) 15 February 2018 (2018-02-15)<br>the whole document | 1-48 |
| A | US 2015087324 A1 (HITACHI LTD) 26 March 2015 (2015-03-26)<br>the whole document | 1-48 |
| A | "Study on New Radio (NR) Access Technology"<br>*3GPP TR 38.912 V1.0.0,* 16 March 2017 (2017-03-16),<br>section 9.8.4 | 1-48 |

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| **01 February 2021** | **18 February 2021** |


| Name and mailing address of the ISA/CN | Authorized officer |
|---|---|
| **National Intellectual Property Administration, PRC<br>6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088<br>China** | **DENG,Lu** |
| Facsimile No. **(86-10)62019451** | Telephone No. **86-(010)-62089138** |

## INTERNATIONAL SEARCH REPORT
**Information on patent family members**

International application No.
**PCT/CN2020/092968**

| Patent document cited in search report | | | Publication date (day/month/year) | Patent family member(s) | | | Publication date (day/month/year) |
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| WO | 2018029370 | A1 | 15 February 2018 | US | 2019174363 | A1 | 06 June 2019 |
| | | | | EP | 3497968 | A1 | 19 June 2019 |
| US | 2015087324 | A1 | 26 March 2015 | JP | 2015061248 | A | 30 March 2015 |