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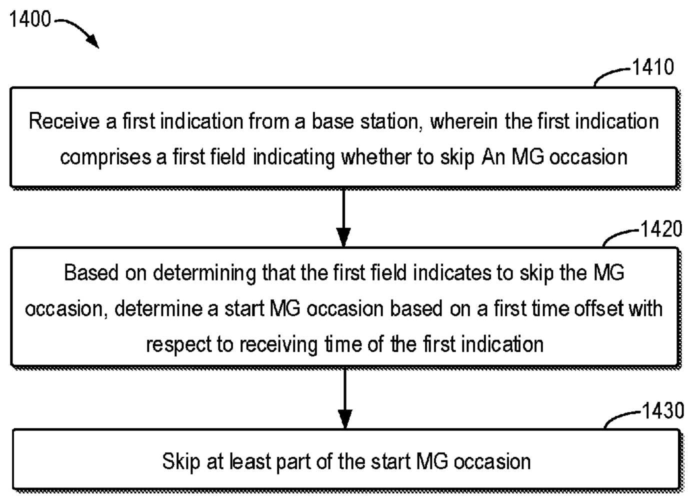

Fig. 14

(57) Abstract: Various aspects of the present disclosure relate to skipping an MG occasion. In one aspect, a UE receive a first indication from a base station. The first indication comprises a first field indicating whether to skip an MG occasion. If the first field indicates to skip the MG occasion, the UE determines a start MG occasion based on a first time offset with respect to receiving time of the first indication. Then, the UE skips at least part of the start MG occasion.

WO 2025/145705 A1

[Continued on next page]

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SKIP MEASUREMENT GAP OCCASION

TECHNICAL FIELD

[0001] The present disclosure relates to wireless communications, and more specifically to user equipment (UE), base station and methods for skipping a measurement gap (MG) occasion.

BACKGROUND

[0002] A wireless communications system may include one or multiple network communication devices, such as base stations, which may be otherwise known as an eNodeB (eNB), a next-generation NodeB (gNB), or other suitable terminology. Each network communication devices, such as a base station may support wireless communications for one or multiple user communication devices, which may be otherwise known as user equipment (UE), or other suitable terminology. The wireless communications system may support wireless communications with one or multiple user communication devices by utilizing resources of the wireless communication system (e.g., time resources (e.g., symbols, slots, subframes, frames, or the like) or frequency resources (e.g., subcarriers, carriers). Additionally, the wireless communications system may support wireless communications across various radio access technologies including third generation (3G) radio access technology, fourth generation (4G) radio access technology, fifth generation (5G) radio access technology, among other suitable radio access technologies beyond 5G (e.g., sixth generation (6G)).

[0003] MG configuration is a technical procedure in 5G networks that enables UEs to temporarily suspend their regular data transmission and reception activities to perform inter-frequency or intra-frequency Radio Resource measurements. When a UE is configured with periodical measurement gaps (MGs) for measurement, the UE is not expected to perform any transmissions or receptions of other signals/channels except random access channel (RACH). The UE may be configured with one or more MG configurations.

[0004] Therefore, there is a need to study how to determine which MG occasion to skip.

SUMMARY

[0005] The present disclosure relates to UE, base station and methods that support skipping an MG occasion. With the UE, base station and methods, the UE may skip at least part of the start MG occasion based on the indication from the base station and based on a time offset.

[0006] Some implementations of a UE described herein may include a processor and a transceiver coupled to the processor, wherein the processor is configured to: receive a first indication via the transceiver from a base station, wherein the first indication comprises a first field indicating whether to skip an MG occasion; and based on determining that the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication; and skip at least part of the start MG occasion.

[0007] In some implementations, the first indication further comprises a second field indicating the first time offset.

[0008] In some implementations, the processor is configured to determine the start MG occasion based on the first time offset by: determining the start MG occasion after the first time offset required between the receiving time of the first indication and a start of the MG occasion indicated by the first indication.

[0009] In some implementations, the processor is configured to determine the start MG occasion based on the first time offset by: determining the start MG occasion after the first time offset required between the receiving time of the first indication and a time point during the MG occasion indicated by the first indication. In such implementations, the processor is configured to skip at least part of the start MG occasion by skipping part of the start MG occasion.

[0010] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, determine a second start MG occasion based on a second time offset with respect to the receiving time of the first indication. In such implementations, the processor is configured to skip at least part of the start MG occasion by: based on determining that the start MG occasion is earlier than the second start MG occasion, skipping at least part of the start MG occasion.

[0011] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, determine a second start

MG occasion based on a second time offset with respect to the receiving time of the first indication; and skip at least part of the second start MG occasion.

[0012] In some implementations, the first time offset is associated with a first MG configuration for the start MG occasion, and the second time offset is associated with a second MG configuration for the second start MG occasion.

[0013] In some implementations, the first time offset is associated with a first type of MGs comprising the start MG occasion, and the second time offset is associated with a second type of MGs comprising the second start MG occasion.

[0014] In some implementations, the first time offset and the second time offset are predefined.

[0015] In some implementations, the first time offset is indicated in the first MG configuration, and the second time offset is indicated in the second MG configuration.

[0016] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, suspend evaluation of a measurement reporting event or conditional reconfiguration event.

[0017] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the skipped MG occasion is associated with a measurement object related to a measurement reporting event, suspend evaluation of the measurement reporting event.

[0018] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE considers an entering condition for a measurement reporting event is satisfied, suspend evaluation of the measurement reporting event.

[0019] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE has not considered a measurement reporting event has been satisfied for a time duration defined by a first timer for the measurement reporting event, suspend evaluation of the measurement reporting event. In such implementations, the first timer defines the time duration during which a criteria for the measurement reporting event needs to be met in order to trigger a measurement report.

[0020] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and based on radio condition of a serving cell or a neighbour cell of the UE, suspend evaluation of the measurement reporting event.In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE considers a measurement reporting event is satisfied for a time duration defined by a first timer for the measurement reporting event, suspend or extend the first timer. In such implementations, the first timer defines the time duration during which a criteria for the measurement reporting event needs to be met in order to trigger a measurement report.

[0021] In some implementations, the processor is further configured to: resume the evaluation of the measurement reporting event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.

[0022] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the skipped MG occasion is associated with a measurement object related to a conditional reconfiguration event, suspend evaluation of the conditional reconfiguration event.

[0023] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE considers an entering condition for a conditional reconfiguration event is satisfied, suspend evaluation of the conditional reconfiguration event.

[0024] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE does not considered a conditional reconfiguration event has been satisfied for a time duration defined by a second timer for the conditional reconfiguration event, suspend evaluation of the conditional reconfiguration event. In such implementations, the second timer defines the time duration during which a criteria for the conditional reconfiguration event needs to be met in order to execute the conditional reconfiguration.

[0025] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and based on radio condition of a serving cell or a neighbour cell of the UE, suspend evaluation of the conditional reconfiguration event.

[0026] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE considers a conditional reconfiguration event is satisfied for a time duration defined by a second timer for the conditional reconfiguration event, suspend or extend the second timer. In such implementations, the second timer defines the time duration during which a criteria for the conditional reconfiguration event needs to be met in order to execute of the conditional reconfiguration.

[0027] In some implementations, the processor is configured to suspend the evaluation of the conditional reconfiguration event at least during the skipped MG occasion.

[0028] In some implementations, the processor is further configured to: resume the evaluation of the conditional reconfiguration event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.

[0029] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, determine a length of a first timer for evaluation of a measurement reporting event or a second timer for evaluation of a conditional reconfiguration event based on one of the following: the skipped MG occasion, or a factor.

[0030] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, determine the first timer for evaluation of a measurement reporting event or the second timer for evaluation of a conditional reconfiguration event.

[0031] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, determine a non-skipped MG occasion within a time window based on the skipped MG occasion; and determine a first timer or second timer based on the non-skipped MG occasion.

[0032] In some implementations, the processor is configured to determine the first timer or second timer by: determining the first timer or second timer based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the non-skipped MG occasion within the time window.

[0033] In some implementations, the processor is configured to determine the first timer or second timer by: determining the measurement period based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of a non-dropped associated MG occasion and the non-skipped MG occasion within the time window.

[0034] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE considers an entering condition for a measurement reporting event is satisfied, determine the first timer for evaluating the measurement reporting event.

[0035] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE has not considered a measurement reporting event has been satisfied for a time duration defined by a first timer for the measurement reporting event, determine the first timer for evaluating the measurement reporting event.

[0036] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE considers an entering condition for a conditional reconfiguration event is satisfied, determine the second timer for evaluation of the conditional reconfiguration event.

[0037] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and the UE does not considered a conditional reconfiguration event has been satisfied for a time duration defined by a second timer for the conditional reconfiguration event, determine the second timer for evaluation of the conditional reconfiguration event.

[0038] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion and based on radio condition of a serving cell or a neighbour cell of the UE, determine the first timer for evaluation of a measurement reporting event or a second timer for evaluation of a conditional reconfiguration event.

[0039] In some implementations, the processor is further configured to: based on determining that the first field indicates to skip the MG occasion, determine a non-skipped MG occasion within a time window based on the skipped MG occasion; and determine a measurement period based on the non-skipped MG occasion.

[0040] In some implementations, the processor is configured to determine the measurement period by: determining the measurement period based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the non-skipped MG occasion within the time window.

[0041] In some implementations, the processor is configured to determine the measurement period by: determining the measurement period based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of a non-dropped associated MG occasion and the non-skipped MG occasion within the time window.

[0042] In some implementations, the skipped MG occasion is an active MG occasion.

[0043] In some implementations, the skipped MG occasion is a non-dropped MG occasion.

[0044] Some implementations of a base station described herein may include a processor and a transceiver coupled to the processor, wherein the processor is configured to: determine a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion; and transmit the first indication via the transceiver to a UE.

[0045] In some implementations, the first indication further comprises a second field indicating a first time offset.

[0046] In some implementations, a first time offset is associated with a first MG configuration for the start MG occasion, and a second time offset is associated with a second MG configuration for the second start MG occasion.

[0047] In some implementations, the first time offset is associated with a first type of MGs comprising a start MG occasion to be skipped or partially skipped, and the second time offset is associated with a second type of MGs comprising a second start MG occasion to be skipped or partially skipped.

[0048] In some implementations, a first time offset and a second time offset are predefined.

[0049] In some implementations, the first time offset is indicated in a first MG configuration, and the second time offset is indicated in a second MG configuration.

[0050] In some implementations, the skipped MG occasion is a non-dropped MG occasion.

[0051] Some implementations of a method described herein may include: receiving a first indication from a base station, wherein the first indication comprises a first field indicating whether to skip an MG occasion; based on determining that the first field indicates to skip the MG occasion, determining a start MG occasion based on a first time offset with respect to receiving time of the first indication; and skipping at least part of the start MG occasion.

[0052] Some implementations of a method described herein may include: determining a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion; and transmitting the first indication to a UE.

[0053] Some implementations of a processor described herein may include at least one memory and a controller coupled with the at least one memory and configured to cause the controller to: receive a first indication via the transceiver from a base station, wherein the first indication comprises a first field indicating whether to skip an MG occasion; and based on determining that the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication; and skip at least part of the start MG occasion.

[0054] It is to be understood that the summary section is not intended to identify key or essential features of embodiments of the present disclosure, nor is it intended to be used to limit the scope of the present disclosure. Other features of the present disclosure will become easily comprehensible through the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0055] Fig. 1 illustrates an example of a wireless communications system that supports skipping an MG occasion in accordance with aspects of the present disclosure;

[0056] Fig. 2 illustrates a signaling diagram illustrating an example process that supports skipping an MG occasion in accordance with aspects of the present disclosure;

[0057] Fig. 3 illustrates a signaling diagram illustrating an example process that supports skipping an MG occasion in accordance with aspects of the present disclosure;

[0058] Fig. 4 illustrates an example of the skip indication in accordance with aspects of the present disclosure;

[0059] Figs. 5, 6, 7, 8 and 9 illustrate an example for skipped an MG occasion in accordance with aspects of the present disclosure, respectively;

[0060] Fig. 10 illustrates a signaling diagram illustrating an example process that supports skipping an MG occasion in accordance with aspects of the present disclosure;

[0061] Fig. 11 illustrates a signaling diagram illustrating an example process that supports skipping an MG occasion in accordance with aspects of the present disclosure;

[0062] Fig. 12 illustrates an example of a device that supports skipping an MG occasion in accordance with aspects of the present disclosure;

[0063] Fig. 13 illustrates an example of a processor that supports skipping an MG occasion in accordance with aspects of the present disclosure; and

[0064] Figs. 14 and 15 illustrate a flowchart of a method that supports skipping an MG occasion in accordance with aspects of the present disclosure, respectively.

DETAILED DESCRIPTION

[0065] Principles of the present disclosure will now be described with reference to some embodiments. It is to be understood that these embodiments are described only for the purpose of illustration and help those skilled in the art to understand and implement the present disclosure, without suggesting any limitation as to the scope of the disclosure. The disclosure described herein may be implemented in various manners other than the ones described below.

[0066] In the following description and claims, unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skills in the art to which this disclosure belongs.

[0067] References in the present disclosure to “one embodiment,” “an example embodiment," "an embodiment," "some embodiments," and the like indicate that the embodiment(s) described may include a particular feature, structure, or characteristic, but it is not necessary that every embodiment includes the particular feature, structure, or characteristic. Moreover, such phrases do not necessarily refer to the same embodiment(s). Further, when a particular feature, structure, or characteristic is described in connection with an embodiment, it is submitted that it is within the knowledge of one skilled in the art to affect such feature, structure, or characteristic in connection with other embodiments whether or not explicitly described.

[0068] It shall be understood that although the terms "first" and "second" or the like may be used herein to describe various elements, these elements should not be limited by these terms. These terms are only used to distinguish one element from another element. For example, a first element could also be termed as a second element, and similarly, a second element could also be termed as a first element, without departing from the scope of embodiments. As used herein, the term "and/or" includes any and all combinations of one or more of the listed terms.

[0069] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of example embodiments. As used herein, the singular forms "a", "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises", "comprising", "has", "having", "includes" and/or "including", when used herein, specify the presence of stated features, elements, and/or components etc., but do not preclude the presence or addition of one or more other features, elements, components and/ or combinations thereof.

[0070] As described above, a UE may be configured with one or more MG configurations. Therefore, there is a need to study how to determine which MG occasion to skip.

[0071] In view of the above, the present disclosure provides a solution that supports handling of transmission or reception during an MG. In this solution, a UE receive a first indication from a base station. The first indication comprises a first field indicating whether to skip an MG occasion. If the first field indicates to skip the MG occasion, the UE determines a start MG occasion based on a first time offset with respect to receiving time of the first indication. Then, the UE skips at least part of the start MG occasion. With this solution, the UE may skip at least part of the start MG occasion based on the indication from the base station and based on a time offset.

[0072] Aspects of the present disclosure are described in the context of a wireless communications system.

[0073] Fig. 1 illustrates an example of a wireless communications system 100 that supports handling of transmission or reception during an MG in accordance with aspects of the present disclosure. The wireless communications system 100 may include one at least one of network entities 102 (also referred to as network equipment (NE)), one or more terminal devices or UEs 104, a core network 106, and a packet data network 108. The wireless communications system 100 may support various radio access technologies. In some implementations, the wireless communications system 100 may be a 4G network, such as an LTE network or an LTE-advanced (LTE-A) network. In some other implementations, the wireless communications system 100 may be a 5G network, such as an NR network. In other implementations, the wireless communications system 100 may be a combination of a 4G network and a 5G network, or other suitable radio access technology including institute of electrical and electronics engineers (IEEE) 802.11 (Wi-Fi), IEEE 802.16 (WiMAX), IEEE 802.20. The wireless communications system 100 may support radio access technologies beyond 5G. Additionally, the wireless communications system 100 may support technologies, such as time division multiple access (TDMA), frequency division multiple access (FDMA), or code division multiple access (CDMA), etc.

[0074] The network entities 102 may be dispersed throughout a geographic region to form the wireless communications system 100. One or more of the network entities 102 described herein may be or include or may be referred to as a network node, a base station (BS), a network element, a radio access network (RAN) node, a base transceiver station, an access point, a NodeB, an eNodeB (eNB), a next-generation NodeB (gNB), or other suitable terminology. A network entity 102 and a UE 104 may communicate via a communication link 110, which may be a wireless or wired connection. For example, a network entity 102 and a UE 104 may perform wireless communication (e.g., receive signaling, transmit signaling) over a Uu interface. The network entities 102 may be collectively referred to as network entities 102 or individually referred to as a network entity 102. Hereinafter, some implementations of the present disclosure will be described by taking a base station as an example of the network entity 102. Thus, the network entity 102 may be used interchangeably with a base station 102.

[0075] A network entity 102 may provide a geographic coverage area 112 for which the network entity 102 may support services (e.g., voice, video, packet data, messaging, broadcast, etc.) for one or more UEs 104 within the geographic coverage area 112. For example, a network entity 102 and a UE 104 may support wireless communication of signals related to services (e.g., voice, video, packet data, messaging, broadcast, etc.) according to one or multiple radio access technologies. In some implementations, a network entity 102 may be moveable, for example, a satellite associated with a non-terrestrial network. In some implementations, different geographic coverage areas 112 associated with the same or different radio access technologies may overlap, but the different geographic coverage areas 112 may be associated with different network entities 102. 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.

[0076] The one or more UEs 104 may be dispersed throughout a geographic region of the wireless communications system 100. A UE 104 may include or may be referred to as a mobile device, a wireless device, a remote device, a remote unit, a handheld device, or a subscriber device, or some other suitable terminology. In some implementations, the UE 104 may be referred to as a unit, a station, a terminal, or a client, among other examples. Additionally, or alternatively, the UE 104 may be referred to as an internet-of-things (IoT) device, an internet-of-everything (IoE) device, or machine-type communication (MTC) device, among other examples. In some implementations, a UE 104 may be stationary in the wireless communications system 100. In some other implementations, a UE 104 may be mobile in the wireless communications system 100.

[0077] The one or more UEs 104 may be devices in different forms or having different capabilities. Some examples of UEs 104 are illustrated in Fig. 1. A UE 104 may be capable of communicating with various types of devices, such as the network entities 102, other UEs 104, or network equipment (e.g., the core network 106, the packet data network 108, a relay device, an integrated access and backhaul (IAB) node, or another network equipment), as shown in Fig. 1. Additionally, or alternatively, a UE 104 may support communication with other network entities 102 or UEs 104, which may act as relays in the wireless communications system 100.

[0078] A UE 104 may also be able to support wireless communication directly with other UEs 104 over a communication link 114. For example, a UE 104 may support wireless communication directly with another UE 104 over a device-to-device (D2D) communication link. In some implementations, such as vehicle-to-vehicle (V2V) deployments, vehicle-to-everything (V2X) deployments, or cellular-V2X deployments, the communication link 114 may be referred to as a sidelink. For example, a UE 104 may support wireless communication directly with another UE 104 over a PC5 interface.

[0079] A network entity 102 may support communications with the core network 106, or with another network entity 102, or both. For example, a network entity 102 may interface with the core network 106 through one or more backhaul links 116 (e.g., via an S1, N2, N2, or another network interface). The network entities 102 may communicate with each other over the backhaul links 116 (e.g., via an X2, Xn, or another network interface). In some implementations, the network entities 102 may communicate with each other directly (e.g., between the network entities 102). In some other implementations, the network entities 102 may communicate with each other or indirectly (e.g., via the core network 106). In some implementations, one or more network entities 102 may include subcomponents, such as an access network entity, which may be an example of an access node controller (ANC). An ANC may communicate with the one or more UEs 104 through one or more other access network transmission entities, which may be referred to as a radio heads, smart radio heads, or transmission-reception points (TRPs).

[0080] In some implementations, a network entity 102 may be configured in a disaggregated architecture, which may be configured to utilize a protocol stack physically or logically distributed among two or more network entities 102, such as an integrated access backhaul (IAB) network, an open radio access network (O-RAN) (e.g., a network configuration sponsored by the O-RAN Alliance), or a virtualized RAN (vRAN) (e.g., a cloud RAN (C-RAN)). For example, a network entity 102 may include one or more of a central unit (CU), a distributed unit (DU), a radio unit (RU), a RAN intelligent controller (RIC) (e.g., a near-real time RIC (Near-RT RIC), a non-real time RIC (Non-RT RIC)), a service management and orchestration (SMO) system, or any combination thereof.

[0081] An RU may also be referred to as a radio head, a smart radio head, a remote radio head (RRH), a remote radio unit (RRU), or a transmission reception point (TRP). One or more components of the network entities 102 in a disaggregated RAN architecture may be co-located, or one or more components of the network entities 102 may be located in distributed locations (e.g., separate physical locations). In some implementations, one or more network entities 102 of a disaggregated RAN architecture may be implemented as virtual units (e.g., a virtual CU (VCU), a virtual DU (VDU), a virtual RU (VRU)).

[0082] Split of functionality between a CU, a DU, and an RU may be flexible and may support different functionalities depending upon which functions (e.g., network layer functions, protocol layer functions, baseband functions, radio frequency functions, and any combinations thereof) are performed at a CU, a DU, or an RU. For example, a functional split of a protocol stack may be employed between a CU and a DU such that the CU may support one or more layers of the protocol stack and the DU may support one or more different layers of the protocol stack. In some implementations, the CU may host upper protocol layer (e.g., a layer 3 (L3), a layer 2 (L2)) functionality and signaling (e.g., radio resource control (RRC), service data adaption protocol (SDAP), packet data convergence protocol (PDCP)). The CU may be connected to one or more DUs or RUs, and the one or more DUs or RUs may host lower protocol layers, such as a layer 1 (L1) (e.g., physical (PHY) layer) or an L2 (e.g., radio link control (RLC) layer, medium access control (MAC) layer) functionality and signaling, and may each be at least partially controlled by the CU.

[0083] Additionally, or alternatively, a functional split of the protocol stack may be employed between a DU and an RU such that the DU may support one or more layers of the protocol stack and the RU may support one or more different layers of the protocol stack. The DU may support one or multiple different cells (e.g., via one or more RUs). In some implementations, a functional split between a CU and a DU, or between a DU and an RU may be within a protocol layer (e.g., some functions for a protocol layer may be performed by one of a CU, a DU, or an RU, while other functions of the protocol layer are performed by a different one of the CU, the DU, or the RU).

[0084] A CU may be functionally split further into CU control plane (CU-CP) and CU user plane (CU-UP) functions. A CU may be connected to one or more DUs via a midhaul communication link (e.g., F1, F1-c, F1-u), and a DU may be connected to one or more RUs via a fronthaul communication link (e.g., open fronthaul (FH) interface). In some implementations, a midhaul communication link or a fronthaul communication link may be implemented in accordance with an interface (e.g., a channel) between layers of a protocol stack supported by respective network entities 102 that are in communication via such communication links.

[0085] The core network 106 may support user authentication, access authorization, tracking, connectivity, and other access, routing, or mobility functions. The core network 106 may be an evolved packet core (EPC), or a 5G core (5GC), which may include a control plane entity that manages access and mobility (e.g., a mobility management entity (MME), an access and mobility management functions (AMF)) and a 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)). In some implementations, the control plane entity may manage non-access stratum (NAS) functions, such as mobility, authentication, and bearer management (e.g., data bearers, signal bearers, etc.) for the one or more UEs 104 served by the one or more network entities 102 associated with the core network 106.

[0086] The core network 106 may communicate with the packet data network 108 over one or more backhaul links 116 (e.g., via an S1, N2, N2, or another network interface). The packet data network 108 may include an application server 118. In some implementations, one or more UEs 104 may communicate with the application server 118. A UE 104 may establish a session (e.g., a protocol data unit (PDU) session, or the like) with the core network 106 via a network entity 102. The core network 106 may route traffic (e.g., control information, data, and the like) between the UE 104 and the application server 118 using the established session (e.g., the established PDU session). The PDU session may be an example of a logical connection between the UE 104 and the core network 106 (e.g., one or more network functions of the core network 106).

[0087] In the wireless communications system 100, the network entities 102 and the UEs 104 may use resources of the wireless communications system 100 (e.g., time resources (e.g., symbols, slots, subframes, frames, or the like) or frequency resources (e.g., subcarriers, carriers)) to perform various operations (e.g., wireless communications). In some implementations, the network entities 102 and the UEs 104 may support different resource structures. For example, the network entities 102 and the UEs 104 may support different frame structures. In some implementations, such as in 4G, the network entities 102 and the UEs 104 may support a single frame structure. In some other implementations, such as in 5G and among other suitable radio access technologies, the network entities 102 and the UEs 104 may support various frame structures (i.e., multiple frame structures). The network entities 102 and the UEs 104 may support various frame structures based on one or more numerologies.

[0088] One or more numerologies may be supported in the wireless communications system 100, and a numerology may include a subcarrier spacing and a cyclic prefix. A first numerology (e.g., μ=0) may be associated with a first subcarrier spacing (e.g., 15 kHz) and a normal cyclic prefix. In some implementations, the first numerology (e.g., μ=0) associated with the first subcarrier spacing (e.g., 15 kHz) may utilize one slot per subframe. A second numerology (e.g., μ=1) may be associated with a second subcarrier spacing (e.g., 30 kHz) and a normal cyclic prefix. A third numerology (e.g., μ=2) may be associated with a third subcarrier spacing (e.g., 60 kHz) and a normal cyclic prefix or an extended cyclic prefix. A fourth numerology (e.g., μ=3) may be associated with a fourth subcarrier spacing (e.g., 120 kHz) and a normal cyclic prefix. A fifth numerology (e.g., μ=4) may be associated with a fifth subcarrier spacing (e.g., 240 kHz) and a normal cyclic prefix.

[0089] A time interval of a resource (e.g., a communication resource) may be organized according to frames (also referred to as radio frames). Each frame may have a duration, for example, a 10 millisecond (ms) duration. In some implementations, each frame may include multiple subframes. For example, each frame may include 10 subframes, and each subframe may have a duration, for example, a 1 ms duration. In some implementations, each frame may have the same duration. In some implementations, each subframe of a frame may have the same duration.

[0090] Additionally or alternatively, a time interval of a resource (e.g., a communication resource) may be organized according to slots. For example, a subframe may include a number (e.g., quantity) of slots. The number of slots in each subframe may also depend on the one or more numerologies supported in the wireless communications system 100. For instance, the first, second, third, fourth, and fifth numerologies (i.e., μ=0, μ=1, μ=2, μ=3, μ=4) associated with respective subcarrier spacings of 15 kHz, 30 kHz, 60 kHz, 120 kHz, and 240 kHz may utilize a single slot per subframe, two slots per subframe, four slots per subframe, eight slots per subframe, and 16 slots per subframe, respectively. Each slot may include a number (e.g., quantity) of symbols (e.g., OFDM symbols). In some implementations, the number (e.g., quantity) of slots for a subframe may depend on a numerology. For a normal cyclic prefix, a slot may include 14 symbols. For an extended cyclic prefix (e.g., applicable for 60 kHz subcarrier spacing), a slot may include 12 symbols. The relationship between the number of symbols per slot, the number of slots per subframe, and the number of slots per frame for a normal cyclic prefix and an extended cyclic prefix may depend on a numerology. It should be understood that reference to a first numerology (e.g., μ=0) associated with a first subcarrier spacing (e.g., 15 kHz) may be used interchangeably between subframes and slots.

[0091] In the wireless communications system 100, an electromagnetic (EM) spectrum may be split, based on frequency or wavelength, into various classes, frequency bands, frequency channels, etc. By way of example, the wireless communications system 100 may support one or multiple operating frequency bands, such as frequency range designations FR1 (410 MHz – 7.125 GHz), FR2 (24.25 GHz – 52.6 GHz), FR3 (7.125 GHz – 24.25 GHz), FR4 (52.6 GHz – 114.25 GHz), FR4a or FR4-1 (52.6 GHz – 71 GHz), and FR5 (114.25 GHz – 300 GHz). In some implementations, the network entities 102 and the UEs 104 may perform wireless communications over one or more of the operating frequency bands. In some implementations, FR1 may be used by the network entities 102 and the UEs 104, among other equipment or devices for cellular communications traffic (e.g., control information, data). In some implementations, FR2 may be used by the network entities 102 and the UEs 104, among other equipment or devices for short-range, high data rate capabilities.

[0092] FR1 may be associated with one or multiple numerologies (e.g., at least three numerologies). For example, FR1 may be associated with a first numerology (e.g., μ=0), which includes 15 kHz subcarrier spacing; a second numerology (e.g., μ=1), which includes 30 kHz subcarrier spacing; and a third numerology (e.g., μ=2), which includes 60 kHz subcarrier spacing. FR2 may be associated with one or multiple numerologies (e.g., at least 2 numerologies). For example, FR2 may be associated with a third numerology (e.g., μ=2), which includes 60 kHz subcarrier spacing; and a fourth numerology (e.g., μ=3), which includes 120 kHz subcarrier spacing.

[0093] Fig. 2 illustrates a signaling diagram illustrating an example process 200 that supports skipping an MG occasion in accordance with aspects of the present disclosure. The process 200 may involve the UE 104 and the base station 102 in Fig. 1. For the purpose of discussion, the process 200 will be described with reference to Fig. 1.

[0094] As shown in Fig. 2, the base station 102 determines 210 a first indication. The first indication may comprise a first field indicating whether to skip an MG occasion.

[0095] Hereinafter, the first indication may be referred to as a skip indication. The term "skip" may be used interchangeably with the term "cancel" or "deactivate". If an MG occasion is skipped, the UE 104 prioritizes uplink transmission and downlink reception during the skipped MG occasion. If an MG occasion is activated, the UE 104 prioritizes measurement during the activated MG occasion.

[0096] In turn, the base station 102 transmits 220 the first indication to the UE 104.

[0097] Upon receiving the first indication, if the UE 104 determines that the first field in the first indication indicates to skip the MG occasion, the UE 104 determines 230 a start MG occasion based on a first time offset with respect to receiving time of the first indication. Hereinafter, the start MG occasion is also referred to the first MG occasion.

[0098] Then, the UE 104 skips 240 at least part of the start MG occasion.

[0099] With the process 200, the UE 104 may skip at least part of the start MG occasion based on the indication from the base station and based on a time offset.

[0100] Fig. 3 illustrates a signaling diagram illustrating an example process 300 that supports skipping an MG occasion in accordance with aspects of the present disclosure. The process 300 may be considered as an example implementation of the process 200. The process 300 may involve the UE 104 and the base station 102 in Fig. 1. For the purpose of discussion, the process 300 will be described with reference to Fig. 1.

[0101] As shown in Fig. 3, the UE 104 reports 310 capability to skip an MG occasion to the base station 102.

[0102] In some implementations, the capability may indicate at least one of the following: supporting to skip an MG occasion based on the skip indication from the base station 102, or the minimum time offset required to apply the skip indication.

[0103] In some implementations, the minimum time offset required to apply the skip indication may be the minimum time offset required to apply the skip indication for an MG type. For example, an MG type may comprise at least one of the following: MG for FR1 measurement (represented by “perFR1”), MG for FR2 measurement (represented by “perFR2”), or MG for a UE (represented by “perUE”).

[0104] In some implementations, the minimum time offset required to apply the skip indication may be the minimum time offset required to apply the skip indication for an MG configuration.

[0105] In some implementations, the minimum time offset required to apply the skip indication may be the minimum time offset required to apply the skip indication for an MG configuration used for inter-frequency measurement or intra-frequency measurement.

[0106] The base station 102 transmits 320 one or more MG configurations to the UE 104.

[0107] In some implementations, the base station 102 may transmit one or more MG configurations by an RRC signalling.

[0108] In some implementations, the base station 102 may transmit indication to activate or deactivate one or more MG configurations by an RRC signalling or MAC CE signalling.

[0109] In some implementations, each of the one or more MG configurations may comprise at least one of the following:

- a type of an MG of an MG configuration which may be represented by *gapType* (hereinafter, “a type of one or more MGs of an MG configuration” is also referred to as “an MG type”),
- an MG length of the MG in ms of the MG, wherein the MG length may be represented by *MGL*,
- an MG repetition period in (ms) of the MG, wherein the MG repetition period may be represented by *mgrp or MGRP*,
- an MG timing advance which may be represented by *mgta*,
- a priority of the MG which may be represented by *gappriority*,
- a gap offset of the gap pattern with MGRP indicated in the field *mgrp*, where the value range is from 0 to *mgrp*-1; if *ncsgInd-r17* is present, this offset value refers to the starting point of VIL1 (the visible interruption length before the ML),

- an identifier (ID) of the MG which may be represented by *measGapId*, or
- Gap Association PRS which indicates that PRS measurement is associated with this MG.

[0110] In some implementations, a value of *gapType* may comprise one of the following:

- *perUE* which indicates that an MG is a per UE,
- *perFR1* which indicates that an MG is for FR1 measurement, or
- *perFR2* which indicates that an MG is for FR2 measurement.

[0111] In some implementations, the network entity 102 may transmit the skip indication via Downlink Control Information (DCI). In such implementations, the base station 102 transmits 330 configuration information for a field in DCI to include the skip indication to the UE 104.

[0112] For example, the configuration information indicates a field is present in the DCI.

[0113] For example, the DCI may be one of the following formats shown in Table 1.

Table 1: DCI formats

DCI format	**Usage**
0_0	Scheduling of PUSCH in one cell
0_1	Scheduling of one or multiple PUSCH in one cell, or indicating downlink feedback information for configured grant PUSCH (CG-DFI)
0_2	Scheduling of PUSCH in one cell
0_3	Scheduling of one PUSCH in one cell, or multiple PUSCHs in multiple cells with one PUSCH per cell
1_0	Scheduling of PDSCH in one cell
1_1	Scheduling of one or multiple PDSCH in one cell, and/or triggering one shot HARQ-ACK codebook feedback
1_2	Scheduling of PDSCH in one cell
1_3	Scheduling of one PDSCH in one cell, or multiple PDSCHs in multiple cells with one PDSCH per cell

[0114] In some implementations, the number of bits for the field may be predefined or it is configured by the base station 102. For example, the base station 102 configures the number of bits for the field per UE, per MG or per MG type.

[0115] Actions 340, 350, 360 and 370 in Fig. 3 are the same as actions 210, 220, 230 and 240 in Fig. 2. Details of these actions are omitted for brevity.

[0116] In some implementations, the skip indication may further comprise a second field indicating the first time offset. This will be described with reference to Fig. 4.

[0117] Fig. 4 illustrates an example of the skip indication in accordance with aspects of the present disclosure. As shown in Fig. 4, the skip indication comprises a first field and a second field.

[0118] The first field indicates whether to skip an MG occasion. Thus, the first field is also referred to as a skip field. For example, value 0 indicates no skipping for an MG occasion. Value 1 indicates skipping for an MG occasion. For example, the skip field has at least 1 bit length.

[0119] The second field indicates a time offset. Thus, the second field is also referred to as a time offset field. For example, the second field has at least 1 bit length.

[0120] In some implementations, the base station 102 selects a time offset to indicate in the skip indication according to the MG occasion to be skipped. The time offset required to apply the skip indication represents the minimum time offset.

[0121] In some implementations, if the skip field indicates to skip an MG occasion, the UE 104 may determine the start MG occasion to be skipped or partially skipped after the first time offset required between the receiving time of the skip indication and a start of the MG occasion indicated by the first indication. For example, the UE 104 determines the start MG occasion to be skipped or partially skipped after the indicated time offset required between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped gap/restriction occasion indicated by the DCI.

[0122] In some implementations, the MG occasion to be skipped or partially skipped may fulfil at least one of the following:

- belonging to the non-dropped MG occasions; for example, if the MG occasions are overlapped, the MG occasion with lower priority level is dropped;
- belonging to a predefined MG configuration which is allowed to

dynamically skip an MG occasion; or

- belonging to activated MG configuration.

[0123] In some implementations, unit for the time offset may be symbol, slot, sub-frame, radio frame or millisecond (ms).

[0124] In some implementations, the value indicated in the second field is an absolute value. For example, the time offset = 5 ms, or the time offset = 8 ms.

[0125] Alternatively, in some implementations, the value indicated in the second field is a code index which maps another absolute value. Code index set to value 0 corresponds to a value of 5 ms, and code index set to value 1 corresponds to a value of 8 ms.

[0126] Fig. 5 illustrates an example for skipped an MG occasion in accordance with aspects of the present disclosure. In the example of Fig. 5, the UE 104 is provided two MG configurations, one of which is of MG type 1 for FR1 and the other is of MG type 2 for FR2. The UE 104 receives the skip indication via DCI.

[0127] For example, the skip field with a value of 1 indicates to skip an MG occasion, and the time offset field indicates the time offset = 5ms. The UE 104 determines the first MG occasion (i.e., start MG occasion) to be skipped after the time offset=5ms required between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped gap/restriction occasion indicated by the DCI. In Fig. 5, MGO 1 is an MG occasion of MG type 2, MGO 2 is an MG occasion of MG type 1. The UE 104 skips MGO 1.

[0128] Fig. 6 illustrates an example for skipped an MG occasion in accordance with aspects of the present disclosure. In the example of Fig. 6, the UE 104 is provided two MG configurations, one of which is of MG type 1 for FR1 and the other is of MG type 2 for FR2. The UE 104 receives the skip indication via DCI.

[0129] For example, the skip field with a value of 1 indicates to skip an MG occasion, and the time offset field with a value of 1 indicates the time offset = 8ms. The UE 104 determines the first MG occasion to be skipped after the time offset= 8ms required between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped gap/restriction occasion indicated by the DCI. In Fig. 6, MGO 1 is an MG occasion of MG type 1, and MGO 2 is an MG occasion of MG type 2. The UE 104 skips MGO 2.

[0130] In some implementations, if the UE 104 is allowed to partially skip an MG occasion or reports capability to support of partially skipping an MG occasion to the base station 102, the UE 104 may partially skip an MG occasion based on the skip indication. In other words, the UE 104 may skip part of an MG occasion. In such implementations, the UE 104 may determine the start MG occasion after the time offset required between the receiving time of the skip indication and a time point or time instance during the MG occasion indicated by the first indication. In such implementations, the UE 104 may skip part of the start MG occasion from the time instance after the time offset with respect to the receiving time of the skip indication.

[0131] Fig. 7 illustrates an example for skipped an MG occasion in accordance with aspects of the present disclosure. In the example of Fig. 7, the UE 104 is provided two MG configurations, one of which is of MG type 1 for FR2 and the other is of MG type 2 for FR1. The UE 104 receives the skip indication via DCI.

[0132] In the example of Fig. 7, the UE 104 determines the first MG occasion to be partially skipped after the time offset= 8ms required between the last symbol of the PDCCH carrying the DCI format and a time 710 during MGO 1. MGO 1 is an MG occasion of MG type 1, and MGO 2 is an MG occasion of MG type 2. The UE 104 partially skips MGO 1 after the time offset= 8ms required after the last symbol of the PDCCH carrying the DCI format.

[0133] In some implementations, multiple time offsets may be predefined. Alternatively, the multiple time offsets may be associated with MG configurations or MG types.

[0134] In some implementations, unit for the multiple time offsets may be symbol, slot, sub-frame, radio frame or ms.

[0135] In some implementations, the UE 104 may determine the first MG occasion for each of one or more MG configurations after the time offset associated with each of one or more MG configurations required between the last symbol of the PDCCH carrying the skip indication and the start of corresponding skipped MG occasion indicated by the skip indication. In turn, the UE 104 may determine the earliest MG occasion from the determined first MG occasions and skip the earliest MG occasion.

[0136] Hereinafter, some implementations for skipping an MG occasion will be described by taking two time offsets for example. The scope of the present disclosure is not limited in this regard. The following implementations may be adapted for more than two time offsets.

[0137] In some implementations, the multiple time offsets may at least comprise the first time offset and a second time offset.

[0138] In some implementations, the first time offset is associated with a first MG configuration for the start MG occasion, and the second time offset is associated with a second MG configuration for the second start MG occasion. In some implementations, the first time offset is indicated in the first MG configuration, and the second time offset is indicated in the second MG configuration.

[0139] Alternatively, in some implementations, the first time offset is associated with a first type of MGs comprising the start MG occasion, and the second time offset is associated with a second type of MGs comprising the second start MG occasion. In other words, the first time offset is associated with a first MG type, and the second time offset is associated with a second MG type.

[0140] In some implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine a second start MG occasion based on the second time offset with respect to the receiving time of the skip indication. If the start MG occasion is earlier than the second start MG occasion, the UE 104 may skip at least part of the start MG occasion. This will be described with reference to Fig. 8.

[0141] Fig. 8 illustrates an example for skipped an MG occasion in accordance with aspects of the present disclosure. In the example of Fig. 8, the UE 104 is provided two MG configurations, one of which is of MG type 1 for FR2 and the other is of MG type 2 for FR1. The UE 104 receives the skip indication via DCI. MGO 1 is an MG occasion of MG type 1, and MGO 2 is an MG occasion of MG type 2.

[0142] The UE 104 determines the first MG occasion after a first time offset (which is equal to 5ms) associated with MGO 1 between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped MG occasion indicated by the DCI. The UE 104 determines the first MG occasion after a second time offset (which is equal to 8ms) associated with MGO 2 between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped MG occasion indicated by the DCI.

[0143] Therefore, the determined first MG occasion for MG type 1 of an MG configuration is MGO 1, and the determined first MG occasion for MG type 2 of an MG configuration is MGO 2. The UE 104 selects the earliest MG occasion from MGO 1 and MGO 2. Because MGO 1 is earlier than MGO 2, the UE 104 skips at least part of MGO 1.

[0144] In some implementations, the UE 104 may determine the first MG occasion for each of one or more MG configurations after the time offset associated with each of one or more MG configurations required between the last symbol of the PDCCH carrying the skip indication and the start of corresponding skipped MG occasion indicated by the skip indication. In turn, the UE 104 may determine the earliest MG occasion from the determined first MG occasions and skip the earliest MG occasion.

[0145] In some implementations, if multiple time offsets are predefined or configured by the base station 102, the UE 104 may skip multiple MG occasions based on the multiple time offsets. In such implementations, the UE 104 may determine the first MG occasion for each of one or more MG configurations after the time offset associated with each of one or more MG configurations required between the last symbol of the PDCCH carrying the skip indication and the start of corresponding skipped MG occasion indicated by the skip indication. In turn, the UE 104 may skip the first MG occasion for each of the one or more MG configurations after the time offset associated with each of the one or more MG configurations required between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped gap/restriction occasion indicated by the DCI.

[0146] Hereinafter, some implementations for skipping an MG occasion will be described by taking two time offsets for example. The scope of the present disclosure is not limited in this regard. The following implementations may be adapted for more than two time offsets.

[0147] In some implementations, the multiple time offsets may at least comprise the first time offset and a second time offset.

[0148] In some implementations, the first time offset is associated with a first MG configuration for the start MG occasion, and the second time offset is associated with a second MG configuration for the second start MG occasion. In some implementations, the first time offset is indicated in the first MG configuration, and the second time offset is indicated in the second MG configuration.

[0149] Alternatively, in some implementations, the first time offset is associated with a first type of MGs comprising the start MG occasion, and the second time offset is associated with a second type of MGs comprising the second start MG occasion. In other words, the first time offset is associated with a first MG type, and the second time offset is associated with a second MG type.

[0150] In some implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine a second start MG occasion based on the second time offset with respect to the receiving time of the skip indication. If the start MG occasion is earlier than the second start MG occasion, the UE 104 may skip at least part of the start MG occasion. This will be described with reference to Fig. 9.

[0151] Fig. 9 illustrates an example for skipped an MG occasion in accordance with aspects of the present disclosure. In the example of Fig. 9, the UE 104 is provided two MG configurations, one of which is of MG type 1 for FR2 and the other is of MG type 2 for FR1. The UE 104 receives the skip indication via DCI. MGO 1 is an MG occasion of MG type 1, and MGO 2 is an MG occasion of MG type 2.

[0152] The UE 104 determines the first MG occasion after a first time offset (which is equal to 5ms) associated with MGO 1 between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped MG occasion indicated by the DCI. The UE 104 determines the first MG occasion after a second time offset (which is equal to 8ms) associated with MGO 2 between the last symbol of the PDCCH carrying the DCI format and the start of corresponding skipped MG occasion indicated by the DCI.

[0153] Therefore, the determined first MG occasion for MG type 1 of an MG configuration is MGO 1, and the determined first MG occasion for MG type 2 of an MG configuration is MGO 2. The UE 104 skips at least part of MGO 1 and at least part of MGO 2.

[0154] In some implementations, additionally, if the UE 104 receives a configuration related to enhancement of measurement report event evaluation or conditional reconfiguration event evaluation, the UE 104 suspends the evaluation of the measurement report event or conditional reconfiguration event based on the skipped measurement gap.

[0155] In some implementations, additionally, if the UE 104 receives the configuration related to enhancement of the measurement report event evaluation or conditional reconfiguration event evaluation, the UE 104 determines the first timer for the evaluation for the measurement report event or the second timer for evaluation for the conditional reconfiguration event based on the skipped measurement gap.

[0156] In some implementations, if an MG occasion is skipped during a measurement reporting event evaluation procedure, it may impact the evaluation accuracy. If the UE 104 is configured with measurement reporting events, the UE 104 should evaluate whether the measurement report event is fulfilled during the TimeToTrigger period associated with the event. After entering condition for a measurement report event being satisfied, the UE 104 continues to evaluate the event even if no latest measurement result is obtained due to the skipped measurement gap occasion. Obviously, it may cause the false evaluation result when UE moves between the cell edge of two cells. For example, the UE 104 triggers Measurement Report based on the inaccurate evaluation and the base station 102 may trigger the handover procedure. In addition, the similar issue may happen to the conditional configuration event evaluation procedure. In legacy measurement procedure, the measurement based on measurement gap is only cancelled due to random access procedure or gap collision. The probability to cancel a measurement gap occasion is quite low. However, with Release 19 MG cancelling function, the probability to cancel gap occasion becomes higher. To migrate the impact, it is proposed to enhance the measurement reporting event evaluation. This will be described with reference to Fig. 10.

[0157] Fig. 10 illustrates a signaling diagram illustrating an example process 1000 that supports skipping an MG occasion in accordance with aspects of the present disclosure. The process 1000 may be considered as an example implementation of the process 200. The process 1000 may involve the UE 104 and the base station 102 in Fig. 1. For the purpose of discussion, the process 1000 will be described with reference to Fig. 1.

[0158] As shown in Fig. 10, the base station 102 transmits 1010 a measurement configuration to the UE 104.

[0159] The measurement configuration may comprise at least one of the following: measurement object, associated measurement gap configuration, or measurement reporting configuration. Table 2 gives an example of the measurement configuration.

Table 2

measGapConfig: Used to setup and release measurement gaps in NR.

measIdToAddModList: List of measurement identities to add and/or modify.
MeasIdToAddModList ::= SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasIdToAddMod
MeasIdToAddMod ::= SEQUENCE {
measId MeasId,
measObjectId MeasObjectId,
reportConfigId ReportConfigId
}

measObjectToAddModList: List of measurement objects to add and/or modify.

reportConfigToAddModList: List of measurement reporting configurations to add and/or modify.

```
ReportConfigToAddModList ::=        SEQUENCE (SIZE (1..maxReportConfigId)) OF
ReportConfigToAddMod
ReportConfigToAddMod ::=          SEQUENCE {
   reportConfigId                 ReportConfigId,
   reportConfig                   CHOICE {
      reportConfigNR              ReportConfigNR,
      ...,
   }
}

ReportConfigNR ::=                SEQUENCE {
   reportType                     CHOICE {
      periodical                  PeriodicalReportConfig,
      eventTriggered              EventTriggerConfig,
      ...,
      condTriggerConfig-r16       CondTriggerConfig-r16,
      cli-Periodical-r16          CLI-PeriodicalReportConfig-r16,
      cli-EventTriggered-r16      CLI-EventTriggerConfig-r16,
   }
}

EventTriggerConfig::=             SEQUENCE {
   eventId                        CHOICE {
  ...
      eventA3                     SEQUENCE {
         a3-Offset                MeasTriggerQuantityOffset,
         reportOnLeave            BOOLEAN,
         hysteresis               Hysteresis,
         timeToTrigger            TimeToTrigger,
         useAllowedCellList       BOOLEAN
```

```
    },
      }
}
```

[0160] As shown in Table 2, the measurement configuration may comprise the following: an information element (IE) “measGapConfig” which is used to setup and release measurement gaps in NR, an IE “measIdToAddModList” which is a list of measurement identities to add and/or modify, an IE “measObjectToAddModList” which is a list of measurement objects to add and/or modify, and an IE “reportConfigToAddModList” which is a list of measurement reporting configurations to add and/or modify.

[0161] The IE “reportConfigToAddModList” may comprise at least an IE “EventTriggerConfig” or “PeriodicalReportConfig”.

[0162] The IE “EventTriggerConfig” may comprise at least an IE “TimeToTrigger”. The IE TimeToTrigger specifies the value range used for time to trigger parameter, which concerns the time during which specific criteria for the event needs to be met in order to trigger measurement reporting. Value ms0 corresponds to 0 ms, value ms40 corresponds to 40 ms, and so on.

[0163] The IE “reportConfigToAddModList” may further comprise an IE “ReportConfigNR”. Table 3 gives description of the IE “ReportConfigNR”.

Table 3

The IE *ReportConfigNR* specifies criteria for triggering of an NR measurement reporting event or of a CHO, CPA or CPC event or of an L2 U2N relay measurement reporting event. For events labelled AN with N equal to 1, 2 and so on, measurement reporting events and CHO, CPA or CPC events are based on cell measurement results, which can either be derived based on SS/PBCH block or CSI-RS. Event A1: Serving becomes better than absolute threshold; Event A2: Serving becomes worse than absolute threshold; Event A3: Neighbour becomes amount of offset better than PCell/PSCell; Event A4: Neighbour becomes better than absolute threshold;

Event A5: PCell/PSCell becomes worse than absolute threshold1 AND Neighbour/SCell becomes better than another absolute threshold2; Event A6: Neighbour becomes amount of offset better than SCell; Event D1: Distance between the UE 104 and a reference location *referenceLocation1* becomes larger than configured threshold *distanceThreshFromReference1* and distance between the UE 104 and a reference location *referenceLocation2* becomes shorter than configured threshold *distanceThreshFromReference2*; CondEvent A3: Conditional reconfiguration candidate becomes amount of offset better than PCell/PSCell; CondEvent A4: Conditional reconfiguration candidate becomes better than absolute threshold; CondEvent A5: PCell/PSCell becomes worse than absolute threshold1 AND Conditional reconfiguration candidate becomes better than another absolute threshold2.

[0164] The IE “measObjectToAddModList” in Table 2 may comprise at least an IE “MeasObjectNR”. Table 4 gives an example of the IE “MeasObjectNR”.

Table 4

The IE *MeasObjectNR* specifies information applicable for SS/PBCH block(s) intra/inter-frequency measurements and/or CSI-RS intra/inter-frequency measurements.

***MeasObjectNR* information element**

```
MeasObjectNR ::=                SEQthe UE 104NCE {
   ssbFrequency                 ARFCN-ValueNR
OPTIONAL,   -- Cond SSBorAssociatedSSB
   smtc1                        SSB-MTC
OPTIONAL,   -- Cond SSBorAssociatedSSB
   smtc2                        SSB-MTC2
OPTIONAL,   -- Cond IntraFreqConnected
   referenceSignalConfig        ReferenceSignalConfig,
   cellsToAddModList            CellsToAddModList
OPTIONAL,   -- Need N
```

```
  ...,
  [[
  associatedMeasGapSSB-r17          MeasGapId-r17
OPTIONAL,   -- Need R
  associatedMeasGapCSIRS-r17        MeasGapId-r17
OPTIONAL,   -- Need R
  smtc4list-r17                     SSB-MTC4List-r17
OPTIONAL,    -- Need R
  ]],
}
```

[0165] The base station 102 determines 1020 a first indication. The first indication may comprise a first field indicating whether to skip an MG occasion. The action 1020 is the same as the action 210 in Fig. 2.

[0166] The base station 102 transmits 1030 the first indication to the UE 104. The action 1030 is the same as the action 220 in Fig. 2.

[0167] Upon receiving the first indication, if the UE 104 determines that the first field in the first indication indicates to skip the MG occasion, the UE 104 determines 1040 a start MG occasion based on a first time offset with respect to receiving time of the first indication.

[0168] Some implementations of determining the start MG occasion to be skipped or partially skipped have been described with reference to Figs. 2 to 9. Details of those implementations are omitted for brevity.

[0169] If the UE 104 determines that the first field in the first indication indicates to skip the MG occasion, the UE 104 may suspend 1050 evaluation of a measurement reporting event.

[0170] In some implementations, if the first field indicates to skip the MG occasion and the skipped MG occasion is associated with a measurement object related to a measurement reporting event, the UE 104 may suspend evaluation of the measurement reporting event.

[0171] In some implementations, if the first field indicates to skip the MG occasion and the UE 104 considers an entering condition for a measurement reporting event is satisfied, the UE 104 may suspend evaluation of the measurement reporting event. In other words, if the first field indicates to skip the MG occasion and the UE 104 considers an entering condition for a measurement reporting event to be satisfied, the UE 104 may suspend evaluation of the measurement reporting event.

[0172] In some implementations, if the first field indicates to skip the MG occasion and the UE 104 has not considered a measurement reporting event has been satisfied for a time duration defined by a first timer for the measurement reporting event, the UE 104 may suspend evaluation of the measurement reporting event. The first timer defines the time duration during which a criteria for the measurement reporting event needs to be met in order to trigger a measurement report. For example, the first timer may be represented by “Time ToTrigger” in Table 2.

[0173] In some implementations, if the first field indicates to skip the MG occasion and based on radio condition of a serving cell or a neighbour cell of the UE 104, the UE 104 may suspend evaluation of the measurement reporting event. In such implementations, if the first field indicates to skip the MG occasion and if the radio condition of the serving cell is lower than a threshold, the UE 104 may suspend the evaluation. The threshold may be configured by the base station 102.

[0174] For example, if the first field indicates to skip the MG occasion, the UE 104 may suspend evaluation of the measurement reporting event based on reference signal received power (RSRP) or reference signal received quality (RSRQ) of the serving cell or the neighbour cell. For example, if RSRP or RSRQ of the serving cell is lower than the threshold, the UE 104 may suspend the evaluation.

[0175] In some implementations, if the first field indicates to skip the MG occasion and the UE 104 considers a measurement reporting event is satisfied for a time duration defined by the first timer for the measurement reporting event, the UE 104 may suspend the first timer. In other words, if the first field indicates to skip the MG occasion and the UE 104 considers a measurement reporting event to be satisfied for a time duration defined by the first timer for the measurement reporting event, the UE 104 may suspend the first timer.

[0176] In some implementations, the UE 104 may suspend the evaluation of the measurement reporting event at least during the skipped MG occasion.

[0177] With continued reference to Fig. 10, the UE 104 skips 1060 at least part of the start MG occasion. The action 1060 is the same as the action 240 in Fig. 2.

[0178] It shall be noted that although the action 1050 is shown before the action 1060, the action 1050 may be performed after or in parallel to the action 1060.

[0179] In some implementations, the UE 104 may resume 1070 the evaluation of the measurement reporting event after the skipped MG occasion or after a measurement gap repetition period (MGRP) of the skipped MG occasion.

[0180] If the UE 104 determines a measurement reporting event is satisfied during the first timer defined for this event, the UE 104 initiates 1080 a measurement reporting procedure.

[0181] For example, if Event A3 is configured for measurement reporting and if the UE 104 considers the entering condition for this event to be satisfied e.g., when condition A3-1 is fulfilled, the UE 104 may initiate the measurement reporting procedure. Before the event is satisfied during the time defined by the first timer associated with the event, the UE 104 receives the skip indication indicating to skip an MG occasion. If the MG occasion is associated with the measurement object related to the measurement reporting event, the UE 104 may suspend the evaluation of the measurement reporting event. After the MGRP of the skipped MG, the UE 104 may resume the evaluation. Table 5 gives an example of the Event A3.

Table 5

Event A3 (Neighbour becomes offset better than SpCell)

The UE 104 shall:

1> consider the entering condition for this event to be satisfied when condition A3-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition A3-2, as specified below, is fulfilled;

1> use the SpCell for *Mp*, *Ofp and Ocp*.

Inequality A3-1 (Entering condition)

$Mn + Ofn + Ocn - Hys > Mp + Ofp + Ocp + Off$

Inequality A3-2 (Leaving condition)

$Mn + Ofn + Ocn + Hys < Mp + Ofp + Ocp + Off$

The variables in the formula are defined as follows:

Mn is the measurement result of the neighbouring cell, not taking into account any offsets.

Ofn is the measurement object specific offset of the reference signal of the neighbour cell (i.e. *offsetMO* as defined within *measObjectNR* corresponding to the neighbour cell).

Ocn is the cell specific offset of the neighbour cell (i.e. *cellIndividualOffset* as defined within *measObjectNR* corresponding to the frequency of the neighbour cell), and set to zero if not configured for the neighbour cell.

Mp is the measurement result of the SpCell, not taking into account any offsets.

Ofp is the measurement object specific offset of the SpCell (i.e. *offsetMO* as defined within *measObjectNR* corresponding to the SpCell).

Ocp is the cell specific offset of the SpCell (i.e. *cellIndividualOffset* as defined within *measObjectNR* corresponding to the SpCell), and is set to zero if not configured for the SpCell.

Hys is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigNR* for this event).

Off is the offset parameter for this event (i.e. *a3-Offset* as defined within *reportConfigNR* for this event).

Mn, Mp are expressed in dBm in case of RSRP, or in dB in case of RSRQ and RS-SINR.

Ofn, ***Ocn***, ***Ofp***, ***Ocp***, ***Hys***, ***Off*** are expressed in dB.

NOTE 2: The definition of Event A3 also applies to CondEvent A3.

[0182] With the process 1000, impact on the measurement reporting event evaluation due to skipping an MG occasion may be migrated.

[0183] In some implementations, if an MG occasion is skipped during a conditional reconfiguration event evaluation procedure, it may impact the evaluation accuracy. To migrate the impact, it is proposed to enhance the conditional reconfiguration event evaluation. This will be described with reference to Fig. 11.

[0184] Fig. 11 illustrates a signaling diagram illustrating an example process 1100 that supports skipping an MG occasion in accordance with aspects of the present disclosure. The process 1100 may be considered as an example implementation of the process 200. The process 1100 may involve the UE 104 and the base station 102 in Fig. 1. For the purpose of discussion, the process 1100 will be described with reference to Fig. 1.

[0185] As shown in Fig. 11, the base station 102 transmits 1010 a measurement configuration and a conditional reconfiguration to the UE 104.

[0186] Some implementations of the measurement configuration have been described with reference to Fig. 10. Details of those implementations are omitted for brevity.

[0187] In some implementations, the base station 102 may transmit the conditional reconfiguration via an IE "CondReconfigToAddModList". Table 6 gives an example of the IE "CondReconfigToAddModList".

Table 6

```
CondReconfigToAddModList-r16 ::= SEQUENCE (SIZE (1.. maxNrofCondCells-
r16)) OF CondReconfigToAddMod-r16

CondReconfigToAddMod-r16 ::=     SEQUENCE {
   condReconfigId-r16                  CondReconfigId-r16,
   condExecutionCond-r16               SEQUENCE (SIZE (1..2)) OF MeasId
          OPTIONAL,    -- Need M
   condRRCReconfig-r16                OCTET STRING (CONTAINING
          RRCReconfiguration)         OPTIONAL,    -- Cond condReconfigAdd
   ...,
```

```
    }
```

[0188] As shown in Table 6, the IE CondReconfigToAddModList concerns a list of conditional reconfigurations to add or modify, and may comprise the following fields: condReconfigId and the associated condExecutionCond/condExecutionCondSCG and condRRCReconfig.

[0189] As described with reference to Table 2, the IE "ReportConfigNR" in Table 2 may comprise at least an IE "condTriggerConfig-r16". The IE "condTriggerConfig-r16" indicates at least one condition for triggering conditional reconfiguration, which is used for Conditional handover, Conditional PSCell Addition or Conditional PSCell Change. The Table 7 gives an example of the IE "condTriggerConfig-r16".

Table 7

```
ReportConfigNR ::=                     SEQUENCE {
   reportType                          CHOICE {
      periodical                       PeriodicalReportConfig,
      eventTriggered                   EventTriggerConfig,
      ...,
      condTriggerConfig-r16            CondTriggerConfig-r16,
   }
}

CondTriggerConfig-r16 ::=      SEQUENCE {
   condEventId                 CHOICE {
      condEventA3              SEQUENCE {
         a3-Offset             MeasTriggerQuantityOffset,
         hysteresis            Hysteresis,
         timeToTrigger         TimeToTrigger
      },
}
```

[0190] As shown in Table 7, the IE "CondTriggerConfig-r16" comprises an IE "timeToTrigger". The IE "timeToTrigger" specifies time during which specific criteria for the event needs to be met in order to execute the conditional reconfiguration evaluation.

[0191] With continued reference to Fig. 11, the base station 102 determines 1120 a first indication. The first indication may comprise a first field indicating whether to skip an MG occasion. The action 1120 is the same as the action 210 in Fig. 2.

[0192] The base station 102 transmits 1130 the first indication to the UE 104. The action 1130 is the same as the action 220 in Fig. 2.

[0193] Upon receiving the first indication, if the UE 104 determines that the first field in the first indication indicates to skip the MG occasion, the UE 104 determines 1140 a start MG occasion based on a first time offset with respect to receiving time of the first indication.

[0194] Some implementations of determining the start MG occasion to be skipped or partially skipped have been described with reference to Figs. 2 to 9. Details of those implementations are omitted for brevity.

[0195] If the UE 104 determines that the first field in the first indication indicates to skip the MG occasion, the UE 104 may suspend 1150 evaluation of a conditional reconfiguration event.

[0196] In some implementations, if the first field indicates to skip the MG occasion and the skipped MG occasion is associated with a measurement object related to the conditional reconfiguration event, the UE 104 may suspend evaluation of the conditional reconfiguration event.

[0197] In some implementations, if the first field indicates to skip the MG occasion and the UE 104 considers an entering condition for the conditional reconfiguration event is satisfied, the UE 104 may suspend evaluation of the conditional reconfiguration event. In other words, if the first field indicates to skip the MG occasion and the UE 104 considers an entering condition for the conditional reconfiguration event to be satisfied, the UE 104 may suspend evaluation of the conditional reconfiguration event.

[0198] In some implementations, if the first field indicates to skip the MG occasion and the UE 104 has not considered the conditional reconfiguration event has been satisfied for a time duration defined by a second timer for the conditional reconfiguration event, the UE 104 may suspend evaluation of the conditional reconfiguration event. The second timer defines the time duration during which a criteria for the conditional reconfiguration event needs to be met in order to execute the conditional reconfiguration. For example, the second timer may be represented by “TimeToTrigger” in Table 7.

[0199] In some implementations, if the first field indicates to skip the MG occasion and based on radio condition of a serving cell or a neighbour cell of the UE 104, the UE 104 may suspend evaluation of the conditional reconfiguration event. In such implementations, if the first field indicates to skip the MG occasion and if the radio condition of the serving cell is lower than a threshold, the UE 104 may suspend the evaluation of the conditional reconfiguration event. The threshold may be configured by the base station 102.

[0200] For example, if the first field indicates to skip the MG occasion, the UE 104 may suspend evaluation of the conditional reconfiguration event based on RSRP or RSRQ of the serving cell or the neighbour cell. For example, if RSRP or RSRQ of the serving cell is lower than the threshold, the UE 104 may suspend the evaluation of the conditional reconfiguration event.

[0201] In some implementations, if the first field indicates to skip the MG occasion and the UE 104 considers a conditional reconfiguration event is satisfied for a time duration defined by the second timer for the conditional reconfiguration event, the UE 104 may suspend the second timer. In other words, if the first field indicates to skip the MG occasion and the UE 104 considers a conditional reconfiguration event to be satisfied for a time duration defined by the second timer for the conditional reconfiguration event, the UE 104 may suspend the second timer.

[0202] In some implementations, the UE 104 may suspend the conditional reconfiguration event at least during the skipped MG occasion.

[0203] With continued reference to Fig. 11, the UE 104 skips 1160 at least part of the start MG occasion. The action 1160 is the same as the action 240 in Fig. 2.

[0204] It shall be noted that although the action 1150 is shown before the action 1160, the action 1150 may be performed after or in parallel to the action 1160.

[0205] In some implementations, the UE 104 may resume 1170 the evaluation of the conditional reconfiguration event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.

[0206] If the UE 104 determines a conditional reconfiguration event is satisfied during the second timer defined for this event, the UE 104 initiates 1180 conditional reconfiguration execution.

[0207] For example, if Event A3 is configured for executing the conditional reconfiguration evaluation and if the UE 104 considers the entering condition for this event to be satisfied e.g., when condition A3-1 is fulfilled, the UE 104 may initiate conditional reconfiguration execution. Before the event is satisfied during the time defined by the second timer associated with the event, the UE 104 receives the skip indication indicating to skip an MG occasion. If the MG occasion is associated with the measurement object related to the conditional reconfiguration event, the UE 104 may suspend the evaluation of the conditional reconfiguration event. After the MGRP of the skipped MG, the UE 104 may resume the evaluation. Table 5 gives an example of the Event A3 as above.

[0208] With the process 1100, impact on the conditional reconfiguration event evaluation due to skipping an MG occasion may be migrated.

[0209] In some implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine a length of the first timer for evaluation of a measurement reporting event or the second timer for evaluation of a conditional reconfiguration event based on the non-skipped MG occasion.

[0210] In such implementations, the UE 104 may determine the length of the first timer or the second timer based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the non-skipped MG occasion within the time window.

[0211] In such implementations, the UE 104 may extend the length of the first timer or the second timer taking into account skipped MG occasions during a time window. For example, if the UE 104 skips an MG occasion, the UE 104 may extends the length of the first timer or the second timer with a length of the skipped MG occasion or an MGRP of the skipped MG occasion.

[0212] Alternatively, in some implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine the length of the first timer or the second timer based on a factor.

[0213] For example, the UE 104 may determine the factor taking into account the non-skipped occasions or skipped MG occasion during a window.

[0214] For another example, the UE 104 may determine the length of the first timer or the second timer based on the following:

$$\text{TTT} * \text{factor} \tag{1}$$

where TTT represents the length of the first timer or the second timer, factor is equal to the total number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the associated measurement gap within a window W divided by the number of SMTC occasions that are covered by instances of the non-dropped associated measurement gap and/or non-skipped associated measurement gap within the window W. A length of the window may be equal to the length of TTT.

[0215] For a further example, the factor may be configured by the base station 102 or predefined.

[0216] In some implementations, the UE 104 may perform measurements and transmit measurement reports to the base station 102 periodically. As shown in Table 2, the IE "ReportConfigNR" may comprise an IE "PeriodicalReportConfig". Table 8 gives an example of the IE "PeriodicalReportConfig".

Table 8

```
PeriodicalReportConfig ::=              SEQUENCE {
   rsType                          NR-RS-Type,
   reportInterval                    ReportInterval,
   includeBeamMeasurements                  BOOLEAN,
   ...,
}
```

[0217] As shown in Table 8, the IE "PeriodicalReportConfig" comprises at least a field "*reportInterval*" *which* indicates the periodicity for performing and reporting measurements.

[0218] In some implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine the periodicity based on the non-skipped MG occasion.

[0219] In such implementations, the UE 104 may extend the periodicity taking into account skipped MG occasions during a time window. For example, if the UE 104 skips an MG occasion, the UE 104 may extends the periodicity with a length of the skipped MG occasion or an MGRP of the skipped MG occasion.

[0220] Alternatively, in some implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine the periodicity based on a factor.

[0221] For example, the UE 104 may determine the factor taking into account the non-skipped occasions or skipped MG occasion during a window.

[0222] For another example, the UE 104 may determine the length of the first timer or the second timer based on the equation (1).

[0223] For a further example, the factor may be configured by the base station 102 or predefined.

[0224] For a further example, the factor is equal to the total number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the associated measurement gap within a window W divided by the number of SMTC occasions that are covered by instances of the non-dropped associated measurement gap and/or non-skipped associated measurement gap within the window W.

[0225] In some implementations, additionally or alternatively, the UE 104 determines to use some of second measurement reporting configurations for evaluating the measurement report event or conditional reconfiguration event if the UE 104 is skipping or to skip a measurement gap occasion. For example, if the UE 104 receives the first indication from base station 102, the UE 104 uses some of second measurement reporting configurations for evaluating the measurement report event or conditional reconfiguration event. In such implementation, the second measurement reporting configurations are separately configured from the legacy measurement reporting configurations. For example, the second measurement reporting configurations include at least one of second Periodical Report configurations, or second Event Trigger configurations. Similar as legacy parameters defined in Table 2, the second Periodical Report configurations include at least second interval for measurement report, the second Event Trigger configurations include at least one of second offset, second hysteresis or second timetotrigger for a measurement report event or conditional reconfiguration event. Wherein, the second Offset value(s) and hysteresis are to be used in measurement report triggering condition or in conditional reconfiguration triggering condition for an event.

[0226] In some implementations, if an MG occasion is skipped during measurement period, it may impact the measurement accuracy. Therefore, in order to migrate the impact, it is proposed to determine the measurement period taking into account the non-skipped MG occasion during a window if the measurement is associated with the skipped MG occasion. In such implementations, if the first field indicates to skip the MG occasion, the UE 104 may determine a non-skipped MG occasion within a time window based on the skipped MG occasion. In turn, the UE 104 may determine a measurement period based on the non-skipped MG occasion.

[0227] In some implementations, the UE 104 may determine the measurement period based at least on the number of SMTC occasions that are covered by instances of the non-skipped MG occasion within the time window.

[0228] In some implementations, the measurements may include measurement inter-frequency or intra-frequency measurement.

[0229] Table 9 gives an example of determining a measurement period for intra-frequency measurement with gaps for FR1.

Table 9

DRX cycle	$\mathbf{T}_{\mathbf{SSB\_measurement\_period\_intra}}$
No DRX	max(200ms, ceil(5 x K_{gap})x max(MGRP, SMTC period)) x $CSSF_{intra}$
DRX cycle≤ 320ms	max(200ms, ceil(1.5x 5 x K_{gap}) x max(MGRP, SMTC period,DRX cycle)) x $CSSF_{intra}$
DRX cycle>320ms	Ceil(5 x K_{gap}) x max(MGRP, DRX cycle) x $CSSF_{intra}$
NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.	

[0230] Table 10 gives an example of determining a measurement period for intra-frequency measurement with gaps for FR2.

Table 10

DRX cycle	T $_{SSB\_measurement\_period\_intra}$
No DRX	max(400ms, ceil($M_{meas\_period\ with\_gaps}$ x K_{gap}) x max(MGRP, SMTC period)) x $CSSF_{intra}$
DRX cycle≤ 320ms	max(400ms, ceil(1.5 x $M_{meas\_period\ with\_gaps}$ x K_{gap}) x max(MGRP, SMTC period, DRX cycle)) Note 1 x $CSSF_{intra}$
DRX cycle>320ms	Ceil($M_{meas\_period\ with\_gaps}$ x K_{gap}) x max(MGRP, DRX cycle) x $CSSF_{intra}$
NOTE 1: For a UE supporting concurrent GAPs, if multiple concurrent GAPs are configured, the MGRP is the periodicity of the activated Pre-MG or the MG pattern associated to the intra-frequency layer.	

[0231] The following is an example of extending intra-frequency measurement period with reference to Tables 9 and 10.

[0232] In Tables 9 and 10, T SSB_measurement_period_intra is equal to a measurement period of SSB based measurement given in Table 9 or 10.

- $M_{meas\_period\_\ with\_gaps}$: For a UE supporting FR2-1 power class 1 or 5, $M_{meas\_period\_\ with\_gaps}$ =40. For a UE supporting FR2-1 power class 2, $M_{meas\_period\_\ with\_gaps}$ =24. For a UE supporting FR2-1 power class 3, $M_{meas\_period\_\ with\_gaps}$ =24. For a UE supporting FR2-1 power class 4, $M_{meas\_period\ with\_gaps}$ =24. For a UE supporting FR2-2 power class 1, $M_{meas\_period\_\ with\_gaps}$ = 60. For a UE supporting FR2-2 power class 2, $M_{meas\_period\_\ with\_gaps}$ = 36. For a UE supporting FR2-2 power class 3, $M_{meas\_period\_\ with\_gaps}$ = 36
- $CSSF_{intra}$: it is a carrier specific scaling factor and is determined according to $CSSF_{within\_gap,i}$ in clause 9.1.5.2 of TS 38.133 for measurement conducted within measurement gaps.
- K_{gap} is the scaling factor for a SSB frequency layer to be measured within an associated measurement gap pattern. K_{gap} = 1 when the UE is not configured with or the UE does not support concurrent GAPs or MUSIM gaps or measurement gap skipping. Otherwise, $K_{gap} = N_{total} / N_{available}$ (2), where $N_{available}$ and N_{total} are calculated as follows.
- For a window W of duration max (SMTC period, xRP_max), where xRP_max is the maximum xRP across all configured per-UE GAPs, periodic MUSIM gaps and per-FR GAPs within the same FR as the SSB

frequency layer, and starting from the beginning of any SMTC occasion:

- N_{total} is the total number of SMTC occasions that are covered by instances of the associated measurement gap within the window W, including those overlapped with other GAP and MUSIM gap occasions within the window, and
- $N_{available}$ is the number of SMTC occasions that are covered by instances of the non-dropped associated measurement gap and non-skipped associated measurement gap within the window W after accounting for GAP and MUSIM gap collisions by applying the collision rules for GAP and MUSIM gap in section 9.1.8.3, 9.1.10.4, 9.1.10.5, 9.1.12.3, and 9.1.13.3 of TS 38.133 and for gap occasion skipping based on the first indication from base station, respectively.
- xRP = MGRP when configured GAP is activated Pre-MG or MG, and xRP = VIRP when configured GAP is NCSG, also xRP = MGRP for periodic MUSIM gap.

[0233] When measurement gaps are provided for inter frequency measurements, the UE 104 physical layer shall be capable of reporting SS-RSRP, SS-RSRQ and SS-SINR measurements to higher layers in $T_{SSB\_measurement\_period\_inter}$, which is equal to a measurement period of SSB based measurement given in as shown in Tables 11 and 12.

- $CSSF_{inter}$: it is a carrier specific scaling factor and is determined according to $CSSF_{within\_gap,i}$ in clause 9.1.5.2 of TS 38.133 for measurement conducted within measurement gaps.
- K_{gap} is a scaling factor for a SSB frequency layer to be measured within an associated measurement gap pattern. K_{gap} = 1 when the UE is not configured with concurrent GAPs or MUSIM gaps or measurement gap skipping. Otherwise, $K_{gap} = N_{total} / N_{available}$, where $N_{available}$ and N_{total} are calculated as follows:
  - For a window W of duration max(SMTC period, xRP_max), where xRP_max is the maximum xRP across all configured per-UE measurement GAPs, periodic MUSIM gaps, and/or per-FR measurement GAPs within the same FR, and starting from the beginning of any SMTC occasion:
    - N_{total} is the total number of SMTC occasions that are covered by instances of the associated measurement gap within the window W, including those

overlapped with other GAP occasions and MUSIM gap occasions within the window, and

- $N_{available}$ is the number of SMTC occasions that are covered by instances of the non-dropped associated measurement gap and non-skipped associated measurement gap within the window W, after accounting for measurement GAP and MUSIM gap collisions by applying the collision rules for the GAP and MUSIM gap in section 9.1.8.3, 9.1.10.5, 9.1.12.3, and 9.1.13.3 of TS 38.133 and and for gap occasion skipping based on the first indication from base station, respectively.
- xRP = MGRP when configured GAP is activated Pre-MG or MG, and xRP = VIRP when configured GAP is NCSG, also xRP = MGRP for periodic MUSIM gap.

[0234] Table 11 gives an example of determining a measurement period for inter-frequency measurement with gaps for FR1.

Table 11

Condition NOTE1,2	**T** $_{SSB\_measurement\_period\_inter}$
No DRX	Max(200ms, Ceil(8 * K_{gap}) × Max(MGRP , SMTC period)) × $CSSF_{inter}$
DRX cycle ≤ 320ms	Max(200ms, Ceil(8 × 1.5 * K_{gap}) × Max(MGRP, SMTC period, DRX cycle)) × $CSSF_{inter}$
DRX cycle > 320ms	Ceil(8 * K_{gap}) × DRX cycle × $CSSF_{inter}$
NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1 NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group. NOTE 3: For a UE supporting concurrent measurement GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured.	

[0235] Table 12 gives an example of determining a measurement period for inter-frequency measurement with gaps for FR2.

Table 12

Condition NOTE1,2	$T_{SSB\_measurement\_period\_inter}$
No DRX	Max(400ms, Ceil($K_{gap} \times M_{meas\_period\_inter}$) × Max(MGRP , SMTC period)) × $CSSF_{inter}$
DRX cycle ≤ 320ms	Max(400ms, Ceil(1.5 * $K_{gap} \times M_{meas\_period\_inter}$) × Max(MGRP, SMTC period, DRX cycle)) × $CSSF_{inter}$
DRX cycle > 320ms	Ceil($K_{gap} \times M_{meas\_period\_inter}$) × DRX cycle × $CSSF_{inter}$
NOTE 1: DRX or non DRX requirements apply according to the conditions described in clause 3.6.1 NOTE 2: In EN-DC operation, the parameters, timers and scheduling requests referred to in clause 3.6.1 are for the secondary cell group. The DRX cycle is the DRX cycle of the secondary cell group. NOTE 3: For a UE supporting concurrent measurement GAPs, the MGRP above is the MGRP of the activated Pre-MG or the measurement gap associated with the target frequency layer to be measured if concurrent GAPs are configured.	

[0236] Fig. 12 illustrates an example of a device 1200 that supports skipping an MG in accordance with aspects of the present disclosure. The device 1200 may be an example of a network entity 102 or a UE 104 as described herein. The device 1200 may support wireless communication with one or more network entities 102, UEs 104, or any combination thereof. The device 1200 may include components for bi-directional communications including components for transmitting and receiving communications, such as a processor 1202, a memory 1204, a transceiver 1206, and, optionally, an I/O controller 1208. These components may be in electronic communication or otherwise coupled (e.g., operatively, communicatively, functionally, electronically, electrically) via one or more interfaces (e.g., buses).

[0237] The processor 1202, the memory 1204, the transceiver 1206, or various combinations thereof or various components thereof may be examples of means for performing various aspects of the present disclosure as described herein. For example, the processor 1202, the memory 1204, the transceiver 1206, or various combinations or components thereof may support a method for performing one or more of the operations described herein.

[0238] In some implementations, the processor 1202, the memory 1204, the transceiver 1206, or various combinations or components thereof may be implemented in hardware (e.g., in communications management circuitry). The hardware may include a processor, a digital signal processor (DSP), an application-specific integrated circuit (ASIC), a field-programmable gate array (FPGA) or other programmable logic device, a discrete gate or transistor logic, discrete hardware components, or any combination thereof configured as or otherwise supporting a means for performing the functions described in the present disclosure. In some implementations, the processor 1202 and the memory 1204 coupled with the processor 1202 may be configured to perform one or more of the functions described herein (e.g., executing, by the processor 1202, instructions stored in the memory 1204).

[0239] For example, the processor 1202 may support wireless communication at the device 1200 in accordance with examples as disclosed herein. The processor 1202 may be configured to operable to support a means for performing the following: receiving a first indication from a base station, wherein the first indication comprises a first field indicating whether to skip an MG occasion; based on determining that the first field indicates to skip the MG occasion, determining a start MG occasion based on a first time offset with respect to receiving time of the first indication; and skipping at least part of the start MG occasion.

[0240] Alternatively, in some implementations, the processor 1202 may be configured to operable to support a means for performing the following: determining a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion; and transmitting the first indication to a UE.

[0241] The processor 1202 may include an intelligent hardware device (e.g., a general-purpose processor, a DSP, a 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 implementations, the processor 1202 may be configured to operate a memory array using a memory controller. In some other implementations, a memory controller may be integrated into the processor 1202. The processor 1202 may be configured to execute computer-readable instructions stored in a memory (e.g., the memory 1204) to cause the device 1200 to perform various functions of the present disclosure.

[0242] The memory 1204 may include random access memory (RAM) and read-only memory (ROM). The memory 1204 may store computer-readable, computer-executable code including instructions that, when executed by the processor 1202 cause the device 1200 to perform various functions described herein. The code may be stored in a non-transitory computer-readable medium such as system memory or another type of memory. In some implementations, the code may not be directly executable by the processor 1202 but may cause a computer (e.g., when compiled and executed) to perform functions described herein. In some implementations, the memory 1204 may include, 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.

[0243] The I/O controller 1208 may manage input and output signals for the device 1200. The I/O controller 1208 may also manage peripherals not integrated into the device M02. In some implementations, the I/O controller 1208 may represent a physical connection or port to an external peripheral. In some implementations, the I/O controller 1208 may utilize an operating system such as iOS®, ANDROID®, MS-WINDOWS®, OS/2®, UNIX®, LINUX®, or another known operating system. In some implementations, the I/O controller 1208 may be implemented as part of a processor, such as the processor 1206. In some implementations, a user may interact with the device 1200 via the I/O controller 1208 or via hardware components controlled by the I/O controller 1208.

[0244] In some implementations, the device 1200 may include a single antenna 1210. However, in some other implementations, the device 1200 may have more than one antenna 1210 (i.e., multiple antennas), including multiple antenna panels or antenna arrays, which may be capable of concurrently transmitting or receiving multiple wireless transmissions. The transceiver 1206 may communicate bi-directionally, via the one or more antennas 1210, wired, or wireless links as described herein. For example, the transceiver 1206 may represent a wireless transceiver and may communicate bi-directionally with another wireless transceiver. The transceiver 1206 may also include a modem to modulate the packets, to provide the modulated packets to one or more antennas 1210 for transmission, and to demodulate packets received from the one or more antennas 1210. The transceiver 1206 may include one or more transmit chains, one or more receive chains, or a combination thereof.

[0245] A transmit chain may be configured to generate and transmit signals (e.g., control information, data, packets). The transmit chain may include at least one modulator for modulating data onto a carrier signal, preparing the signal for transmission over a wireless medium. The at least one modulator may be configured to support one or more techniques such as amplitude modulation (AM), frequency modulation (FM), or digital modulation schemes like phase-shift keying (PSK) or quadrature amplitude modulation (QAM). The transmit chain may also include at least one power amplifier configured to amplify the modulated signal to an appropriate power level suitable for transmission over the wireless medium. The transmit chain may also include one or more antennas 1210 for transmitting the amplified signal into the air or wireless medium.

[0246] A receive chain may be configured to receive signals (e.g., control information, data, packets) over a wireless medium. For example, the receive chain may include one or more antennas 1210 for receive the signal over the air or wireless medium. The receive chain may include at least one amplifier (e.g., a low-noise amplifier (LNA)) configured to amplify the received signal. The receive chain may include at least one demodulator configured to demodulate the receive signal and obtain the transmitted data by reversing the modulation technique applied during transmission of the signal. The receive chain may include at least one decoder for decoding the processing the demodulated signal to receive the transmitted data.

[0247] Fig. 13 illustrates an example of a processor 1300 that supports skipping an MG in accordance with aspects of the present disclosure. The processor 1300 may be an example of a processor configured to perform various operations in accordance with examples as described herein. The processor 1300 may include a controller 1302 configured to perform various operations in accordance with examples as described herein. The processor 1300 may optionally include at least one memory 1304, such as L1/L2/L3 cache. Additionally, or alternatively, the processor 1300 may optionally include one or more arithmetic-logic units (ALUs) 1306. One or more of these components may be in electronic communication or otherwise coupled (e.g., operatively, communicatively, functionally, electronically, electrically) via one or more interfaces (e.g., buses).

[0248] The processor 1300 may be a processor chipset and include a protocol stack (e.g., a software stack) executed by the processor chipset to perform various operations (e.g., receiving, obtaining, retrieving, transmitting, outputting, forwarding, storing, determining, identifying, accessing, writing, reading) in accordance with examples as described herein. The processor chipset may include one or more cores, one or more caches (e.g., memory local to or included in the processor chipset (e.g., the processor 1300) or other memory (e.g., random access memory (RAM), read-only memory (ROM), dynamic RAM (DRAM), synchronous dynamic RAM (SDRAM), static RAM (SRAM), ferroelectric RAM (FeRAM), magnetic RAM (MRAM), resistive RAM (RRAM), flash memory, phase change memory (PCM), and others).

[0249] The controller 1302 may be configured to manage and coordinate various operations (e.g., signaling, receiving, obtaining, retrieving, transmitting, outputting, forwarding, storing, determining, identifying, accessing, writing, reading) of the processor 1300 to cause the processor 1300 to support various operations in accordance with examples as described herein. For example, the controller 1302 may operate as a control unit of the processor 1300, generating control signals that manage the operation of various components of the processor 1300. These control signals include enabling or disabling functional units, selecting data paths, initiating memory access, and coordinating timing of operations.

[0250] The controller 1302 may be configured to fetch (e.g., obtain, retrieve, receive) instructions from the memory 1304 and determine subsequent instruction(s) to be executed to cause the processor 1300 to support various operations in accordance with examples as described herein. The controller 1302 may be configured to track memory address of instructions associated with the memory 1304. The controller 1302 may be configured to decode instructions to determine the operation to be performed and the operands involved. For example, the controller 1302 may be configured to interpret the instruction and determine control signals to be output to other components of the processor 1300 to cause the processor 1300 to support various operations in accordance with examples as described herein. Additionally, or alternatively, the controller 1302 may be configured to manage flow of data within the processor 1300. The controller 1302 may be configured to control transfer of data between registers, arithmetic logic units (ALUs), and other functional units of the processor 1300.

[0251] The memory 1304 may include one or more caches (e.g., memory local to or included in the processor 1300 or other memory, such RAM, ROM, DRAM, SDRAM, SRAM, MRAM, flash memory, etc. In some implementation, the memory 1304 may reside within or on a processor chipset (e.g., local to the processor 1300). In some other implementations, the memory 1304 may reside external to the processor chipset (e.g., remote to the processor 1300).

[0252] The memory 1304 may store computer-readable, computer-executable code including instructions that, when executed by the processor 1300, cause the processor 1300 to perform various functions described herein. The code may be stored in a non-transitory computer-readable medium such as system memory or another type of memory. The controller 1302 and/or the processor 1300 may be configured to execute computer-readable instructions stored in the memory 1304 to cause the processor 1300 to perform various functions. For example, the processor 1300 and/or the controller 1302 may be coupled with or to the memory 1304, the processor 1300, the controller 1302, and the memory 1304 may be configured to perform various functions described herein. In some examples, the processor 1300 may include multiple processors and the memory 1304 may include multiple memories. One or more of the multiple processors may be coupled with one or more of the multiple memories, which may, individually or collectively, be configured to perform various functions herein.

[0253] The one or more ALUs 1306 may be configured to support various operations in accordance with examples as described herein. In some implementation, the one or more ALUs 1306 may reside within or on a processor chipset (e.g., the processor 1300). In some other implementations, the one or more ALUs 1306 may reside external to the processor chipset (e.g., the processor 1300). One or more ALUs 1306 may perform one or more computations such as addition, subtraction, multiplication, and division on data. For example, one or more ALUs 1306 may receive input operands and an operation code, which determines an operation to be executed. One or more ALUs 1306 be configured with a variety of logical and arithmetic circuits, including adders, subtractors, shifters, and logic gates, to process and manipulate the data according to the operation. Additionally, or alternatively, the one or more ALUs 1306 may support logical operations such as AND, OR, exclusive-OR (XOR), not-OR (NOR), and not-AND (NAND), enabling the one or more ALUs 1306 to handle conditional operations, comparisons, and bitwise operations.

[0254] The processor 1300 may support wireless communication at the device 1200 in accordance with examples as disclosed herein. The processor 1300 may be configured to operable to support a means for performing the following: receiving a first indication from a base station, wherein the first indication comprises a first field indicating whether to skip an MG occasion; based on determining that the first field indicates to skip the MG occasion, determining a start MG occasion based on a first time offset with respect to receiving time of the first indication; and skipping at least part of the start MG occasion.

[0255] Alternatively, in some implementations, the processor 1300 may be configured to operable to support a means for performing the following: determining a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion; and transmitting the first indication to a UE.

[0256] Fig. 14 illustrates a flowchart of a method 1400 that supports skipping an MG in accordance with aspects of the present disclosure. The operations of the method 1400 may be implemented by a device or its components as described herein. For example, the operations of the method 1400 may be performed by a UE 104 as described herein. In some implementations, the device may execute a set of instructions to control the function elements of the device to perform the described functions. Additionally, or alternatively, the device may perform aspects of the described functions using special-purpose hardware.

[0257] At 1410, the method may include receiving a first indication from a base station, wherein the first indication comprises a first field indicating whether to skip an MG occasion. The operations of 1410 may be performed in accordance with examples as described herein. In some implementations, aspects of the operations of 1410 may be performed by a device as described with reference to Fig. 1.

[0258] At 1420, the method may include based on determining that the first field indicates to skip the MG occasion, determining a start MG occasion based on a first time offset with respect to receiving time of the first indication. The operations of 1420 may be performed in accordance with examples as described herein. In some implementations, aspects of the operations of 1420 may be performed by a device as described with reference to Fig. 1.

[0259] At 1430, the method may include skipping at least part of the start MG occasion. The operations of 1430 may be performed in accordance with examples as described herein. In some implementations, aspects of the operations of 1430 may be performed by a device as described with reference to Fig. 1.

[0260] Fig. 15 illustrates a flowchart of a method 1500 that supports skipping an MG in accordance with aspects of the present disclosure. The operations of the method 1500 may be implemented by a device or its components as described herein. For example, the operations of the method 1500 may be performed by a base station 102 as described herein. In some implementations, the device may execute a set of instructions to control the function elements of the device to perform the described functions. Additionally, or alternatively, the device may perform aspects of the described functions using special-purpose hardware.

[0261] At 1510, the method may include determining a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion. The operations of 1510 may be performed in accordance with examples as described herein. In some implementations, aspects of the operations of 1510 may be performed by a device as described with reference to Fig. 1.

[0262] At 1520, the method may include transmitting the first indication to a UE. The operations of 1520 may be performed in accordance with examples as described herein. In some implementations, aspects of the operations of 1520 may be performed by a device as described with reference to Fig. 1.

[0263] It shall be noted that implementations of the present disclosure which have been described with reference to Figs. 1 to 11 are also applicable to the device 1200, the processor 1300 as well as the methods 1400 and 1500.

[0264] It should be noted that the methods described herein describes 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.

[0265] 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.

[0266] 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.

[0267] 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, 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.

[0268] As used herein, including in the claims, an article “a” before an element is unrestricted and understood to refer to “at least one” of those elements or “one or more” of those elements. The terms “a,” “at least one,” “one or more,” and “at least one of one or more” may be interchangeable. 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" or "one or both 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. Further, as used herein, including in the claims, a "set" may include one or more elements.

[0269] 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.

WHAT IS CLAIMED IS:

1. A user equipment (UE), comprising:

a processor; and

a transceiver coupled to the processor,

wherein the processor is configured to:

receive a first indication via the transceiver from a base station, wherein the first indication comprises a first field indicating whether to skip a measurement gap (MG) occasion; and

based on determining that the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication; and

skip at least part of the start MG occasion.

2. The UE of claim 1, wherein the first indication further comprises a second field indicating the first time offset.

3. The UE of claim 1, wherein the processor is configured to determine the start MG occasion based on the first time offset by:

determining the start MG occasion after the first time offset required between the receiving time of the first indication and a start of the MG occasion indicated by the first indication.

4. The UE of claim 1, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion, use a second measurement reporting configuration for evaluation of a measurement reporting event or conditional reconfiguration event, wherein the second measurement reporting configuration is separately from first measurement reporting configuration for evaluation of a measurement reporting event or conditional reconfiguration event.

5. The UE of claim 1, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion, determine a second start MG occasion based on a second time offset with respect to the receiving time of the first indication; and

wherein the processor is configured to skip at least part of the start MG occasion by:

based on determining that the start MG occasion is earlier than the second start MG occasion, skipping at least part of the start MG occasion.

6. The UE of claim 1, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion, determine a second start MG occasion based on a second time offset with respect to the receiving time of the first indication; and

skip at least part of the second start MG occasion.

7. The UE of claim 1, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion, suspend evaluation of a measurement reporting event or conditional reconfiguration event.

8. The UE of claim 1 or 7, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion and the skipped MG occasion is associated with a measurement object related to a measurement reporting event, suspend evaluation of the measurement reporting event.

9. The UE of claim 7 or 8, wherein the processor is further configured to:

resume the evaluation of the measurement reporting event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.

10. The UE of claim 1 or 7, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion and the skipped MG occasion is associated with a measurement object related to a conditional reconfiguration event, suspend evaluation of the conditional reconfiguration event.

11. The UE of claim 7, wherein the processor is configured to suspend the evaluation of the measurement reporting event or the conditional reconfiguration event at least during the skipped MG occasion.

12. The UE of claim 10, wherein the processor is further configured to:

resume the evaluation of the conditional reconfiguration event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.

13. The UE of claim 1, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion, determine a length of a first timer for evaluation of a measurement reporting event or a second timer for evaluation of a conditional reconfiguration event based on one of the following:

the non-skipped MG occasion, or

a factor.

14. The UE of claim 13, wherein the processor is configured to:

determine the length of the first timer or the second timer based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the non-skipped MG occasion within the time window.

15. The UE of claim 1, wherein the processor is further configured to:

based on determining that the first field indicates to skip the MG occasion, determine a non-skipped MG occasion within a time window based on the skipped MG occasion; and

determine a measurement period based on the non-skipped MG occasion.

16. The UE of claim 15, wherein the processor is configured to determine the measurement period by:

determining the measurement period based at least on the number of synchronization signal (SS)/physical broadcast channel (PBCH) block measurement timing configuration (SMTC) occasions that are covered by instances of the non-skipped

MG occasion within the time window.

17. A base station, comprising:

a processor; and

a transceiver coupled to the processor,

wherein the processor is configured to:

determine a first indication, wherein the first indication comprises a first field indicating whether to skip a measurement gap (MG) occasion; and

transmit the first indication via the transceiver to a user equipment (UE).

18. The base station of claim 17, wherein the first indication further comprises a second field indicating a first time offset.

19. A processor for wireless communication, comprising:

at least one memory; and

a controller coupled with the at least one memory and configured to cause the controller to:

receive a first indication via a transceiver from a base station, wherein the first indication comprises a first field indicating whether to skip a measurement gap (MG) occasion; and

based on determining that the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication; and

skip at least part of the start MG occasion.

20. A method for wireless communication, comprising:

receiving a first indication from a base station, wherein the first indication comprises a first field indicating whether to skip a measurement gap (MG) occasion; and

based on determining that the first field indicates to skip the MG occasion, determining a start MG occasion based on a first time offset with respect to receiving time of the first indication; and

skipping at least part of the start MG occasion.

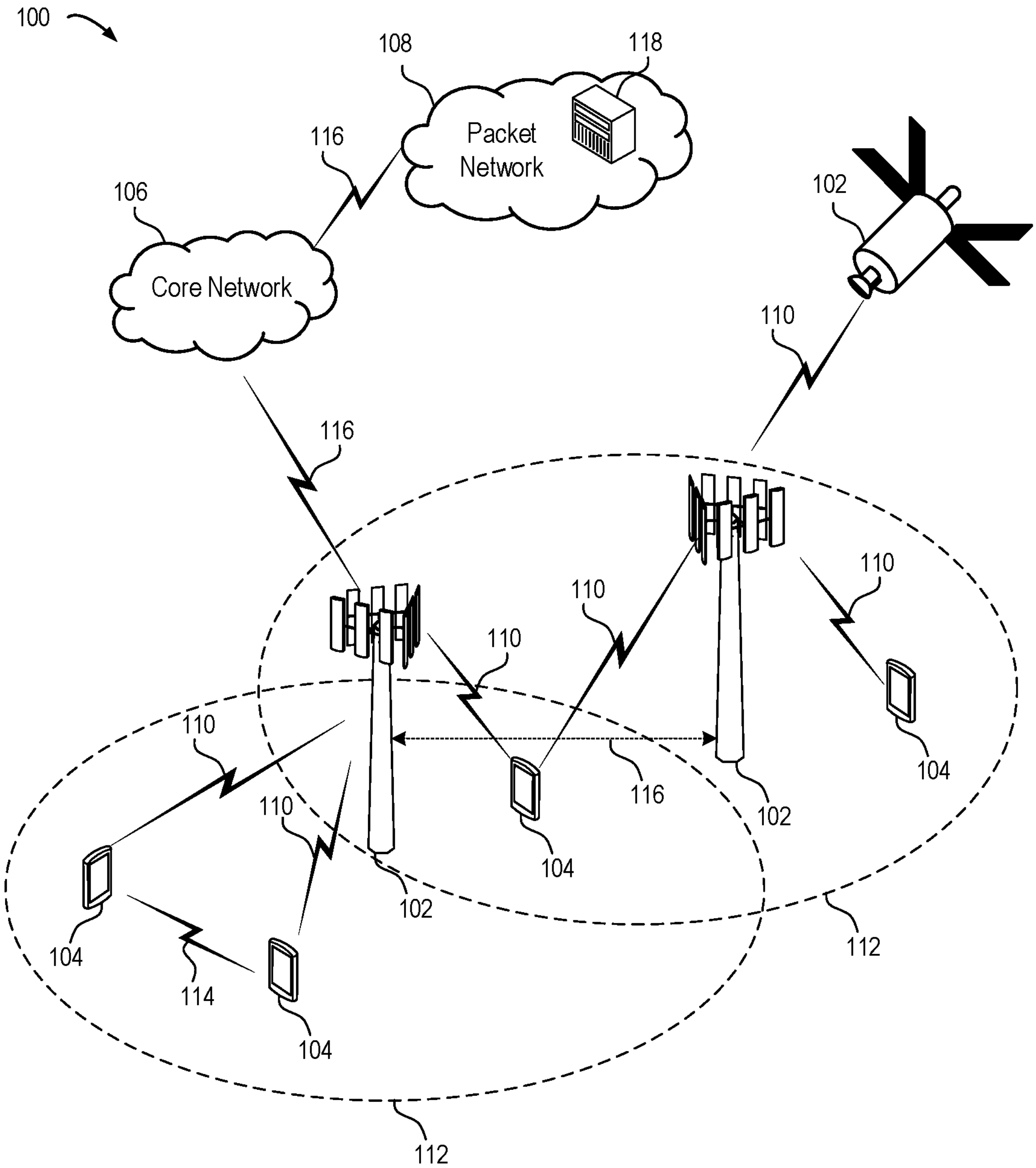
100
108
118
Packet
Network
116
106
Core Network
102
110
116
110
110
110
110
110
104
116
102
104
110
104
114
104
102
112
112

Fig. 1

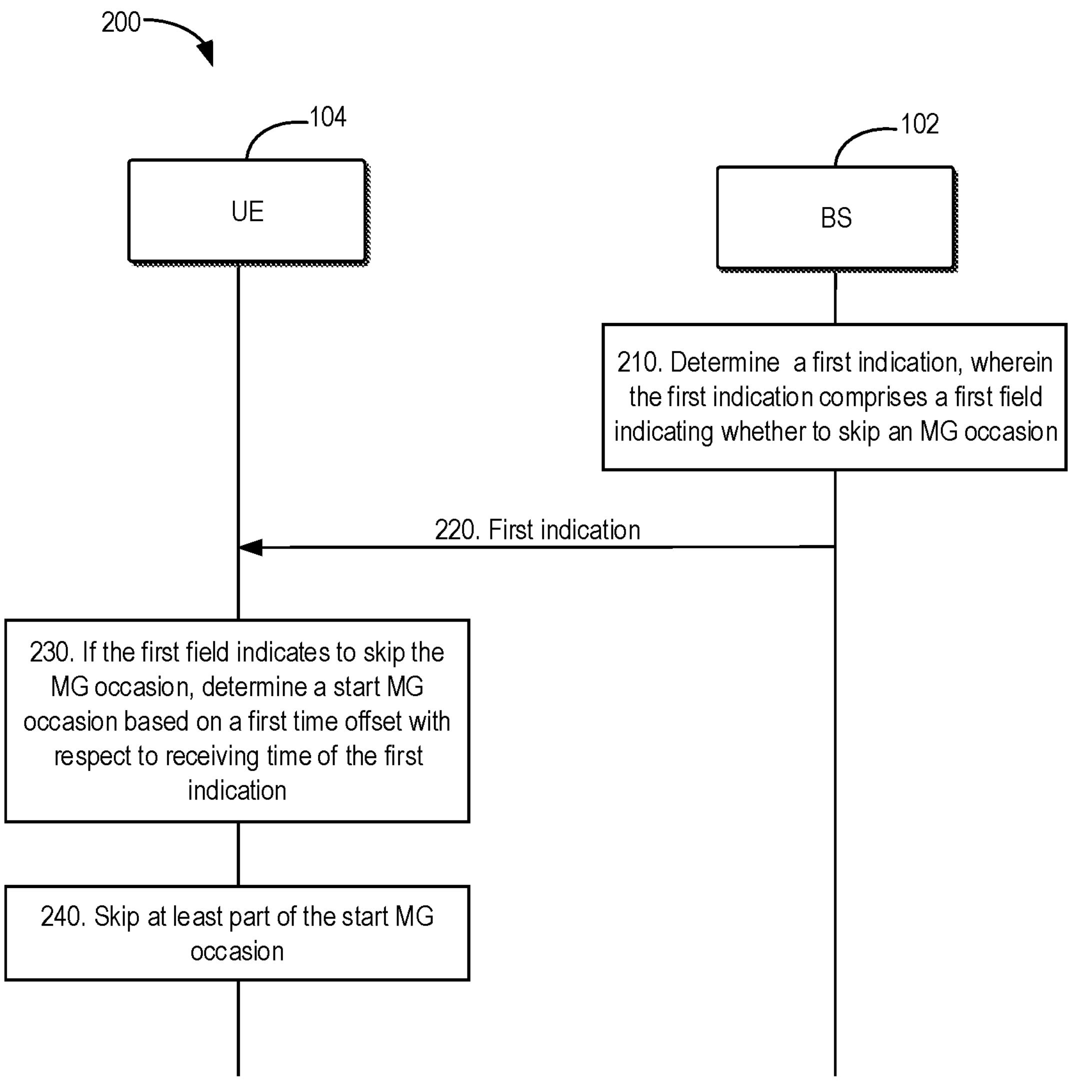
200
104
102
UE
BS
210. Determine a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion
220. First indication
230. If the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication
240. Skip at least part of the start MG occasion

Fig. 2

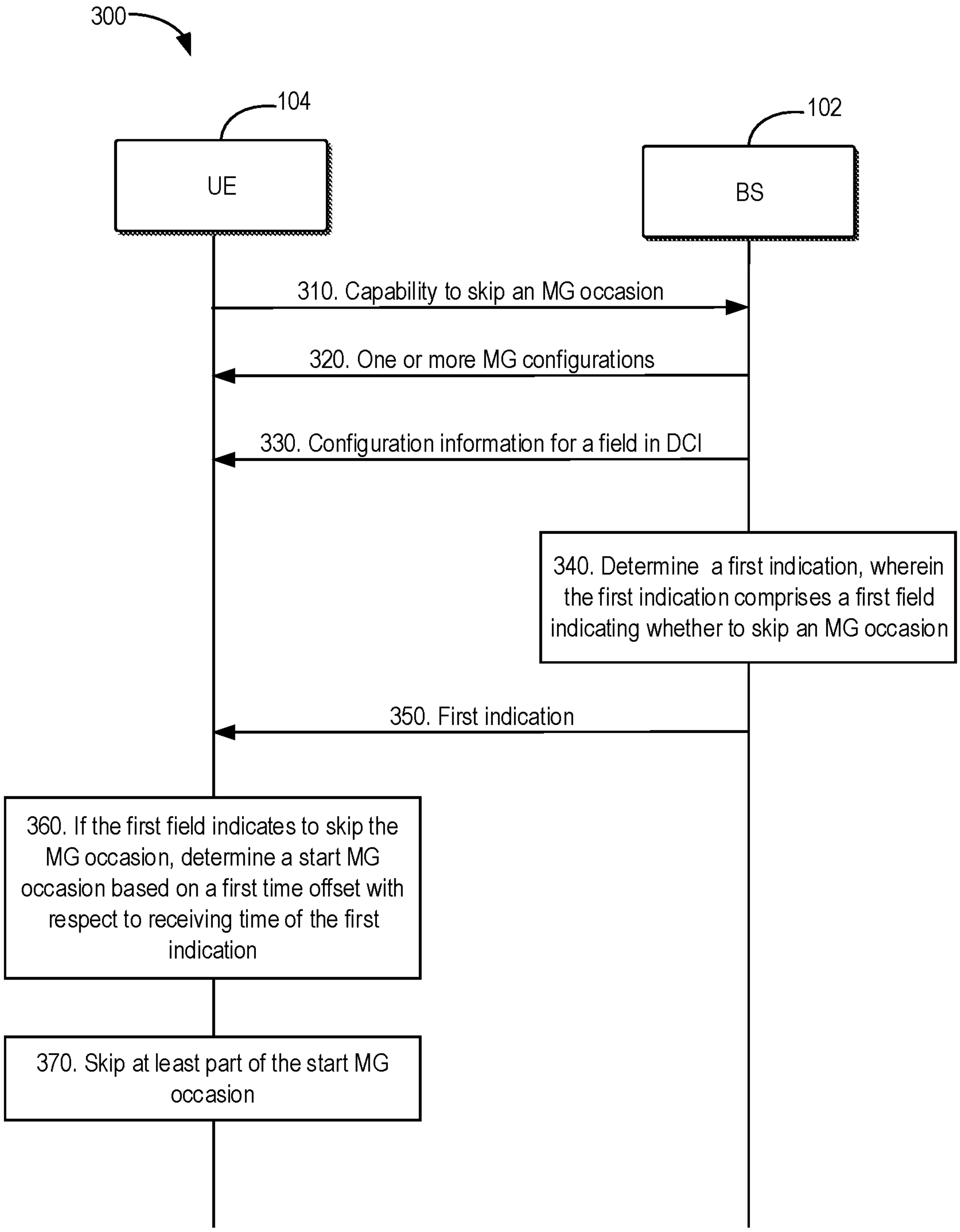
300
104
102
UE
BS
310. Capability to skip an MG occasion
320. One or more MG configurations
330. Configuration information for a field in DCI
340. Determine a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion
350. First indication
360. If the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication
370. Skip at least part of the start MG occasion

Fig. 3

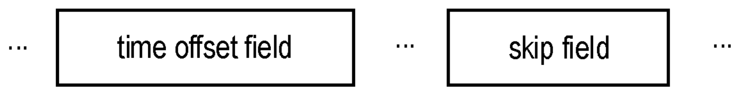

Fig. 4

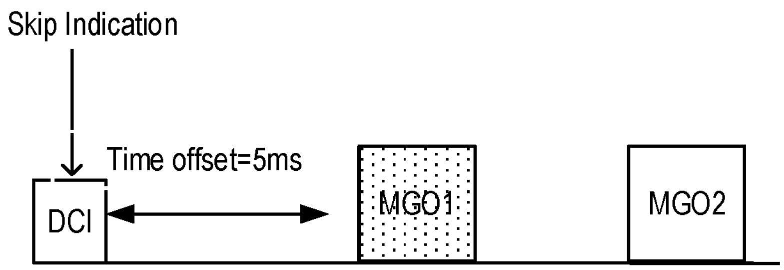

Fig. 5

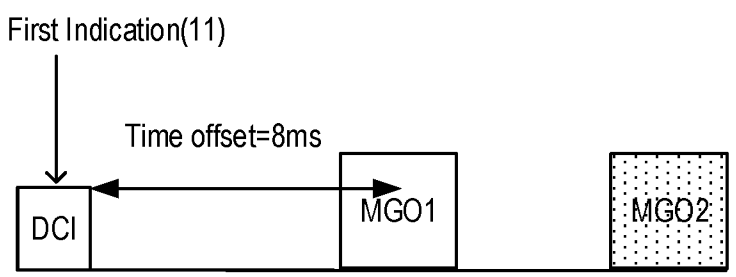

Fig. 6

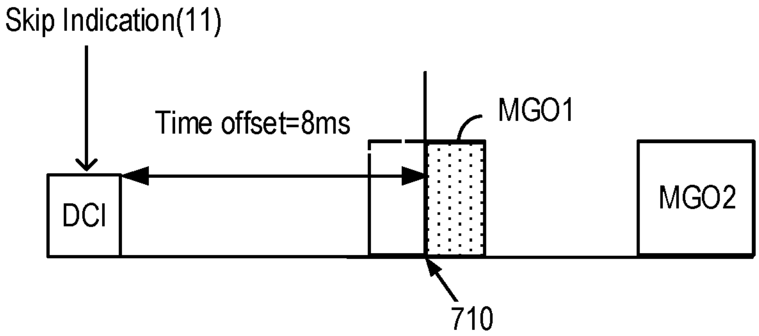

Fig. 7

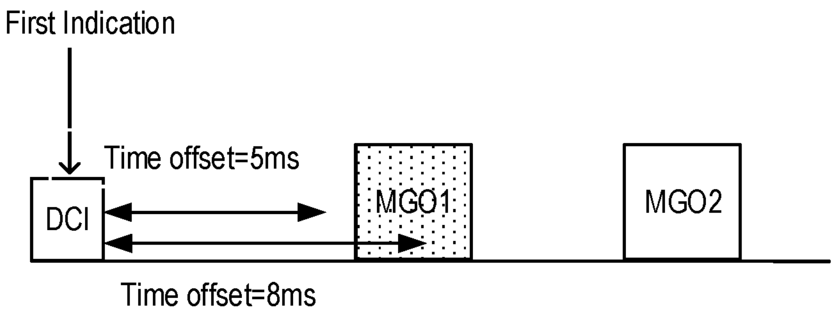

Fig. 8

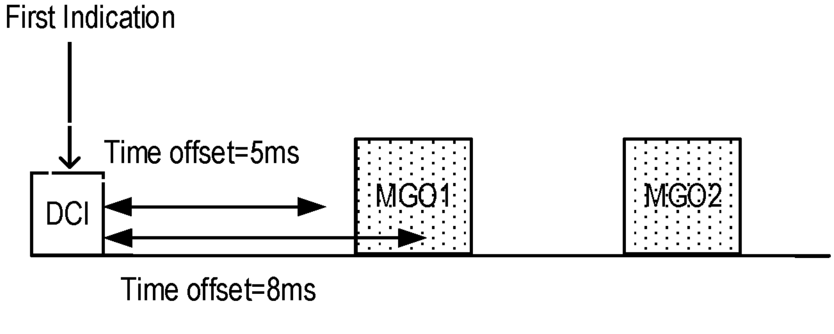

Fig. 9

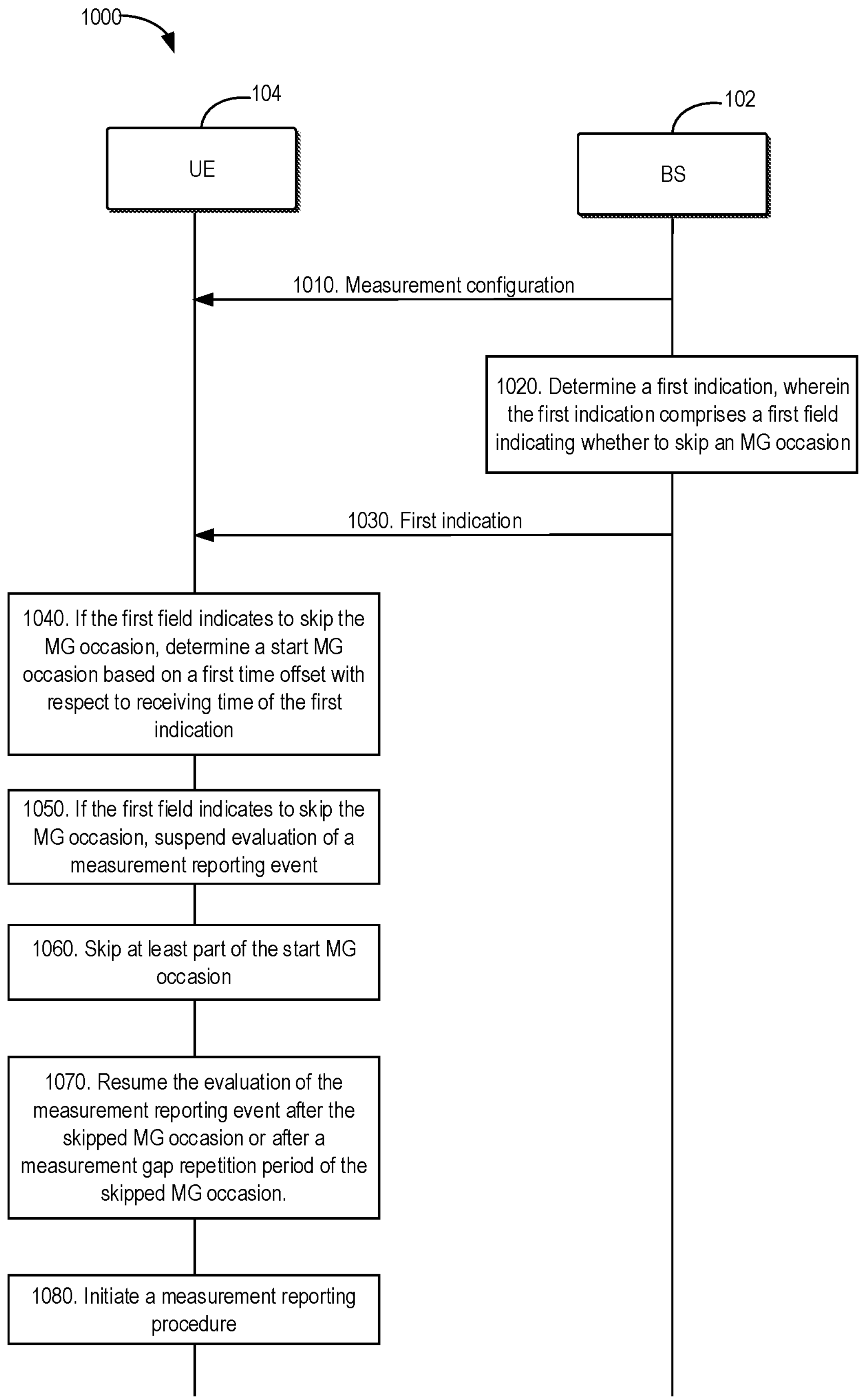
1000
104
102
UE
BS
1010. Measurement configuration
1020. Determine a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion
1030. First indication
1040. If the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication
1050. If the first field indicates to skip the MG occasion, suspend evaluation of a measurement reporting event
1060. Skip at least part of the start MG occasion
1070. Resume the evaluation of the measurement reporting event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.
1080. Initiate a measurement reporting procedure

Fig. 10

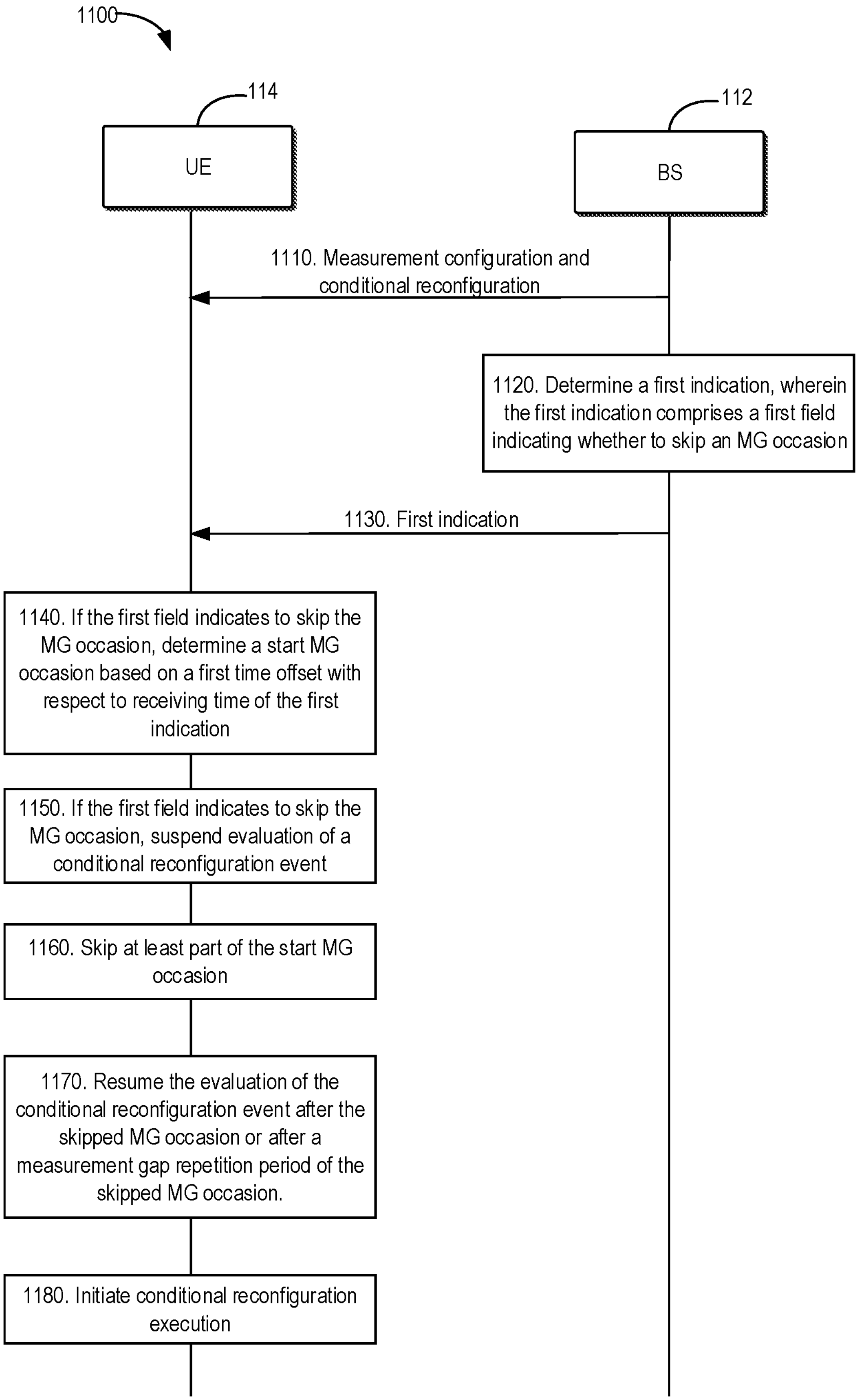
1100
114
UE
112
BS
1110. Measurement configuration and conditional reconfiguration
1120. Determine a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion
1130. First indication
1140. If the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication
1150. If the first field indicates to skip the MG occasion, suspend evaluation of a conditional reconfiguration event
1160. Skip at least part of the start MG occasion
1170. Resume the evaluation of the conditional reconfiguration event after the skipped MG occasion or after a measurement gap repetition period of the skipped MG occasion.
1180. Initiate conditional reconfiguration execution

Fig. 11

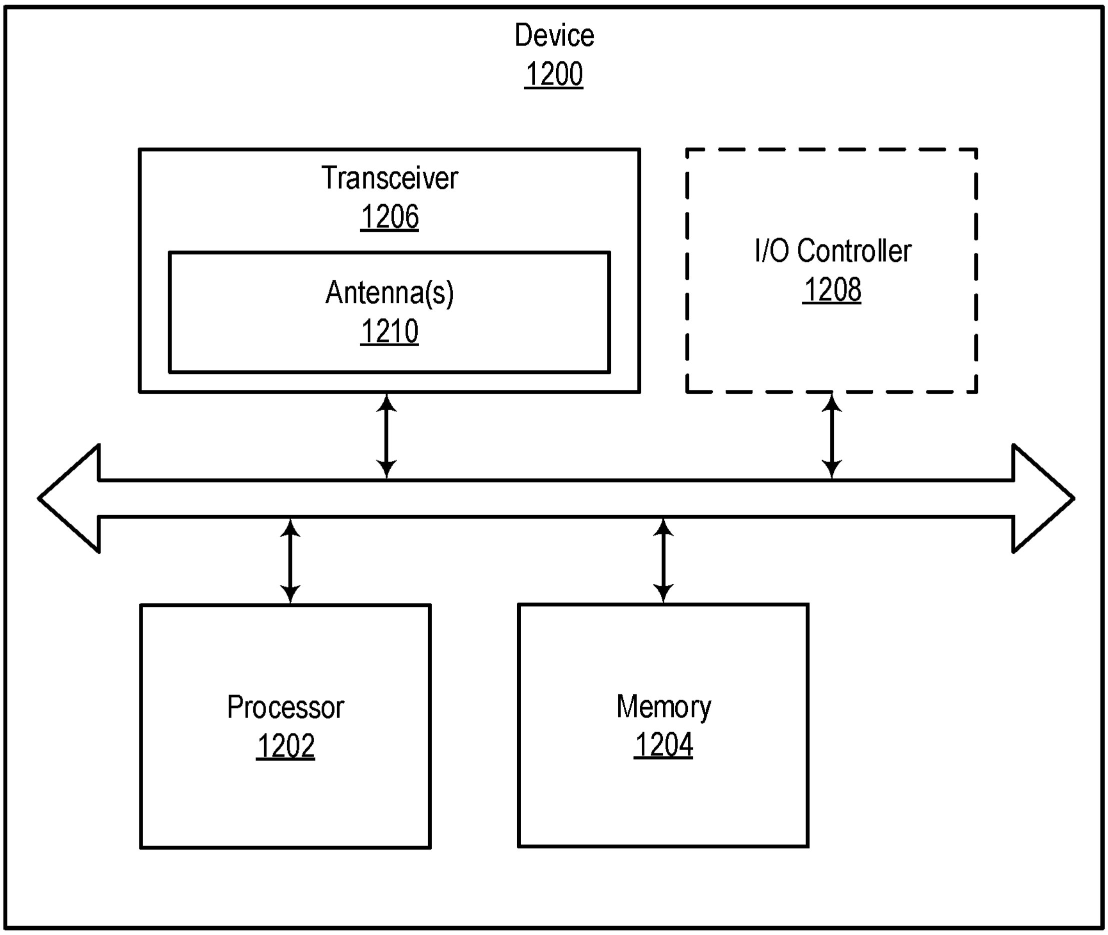
Device
1200
Transceiver
1206
Antenna(s)
1210
I/O Controller
1208
Processor
1202
Memory
1204

Fig. 12

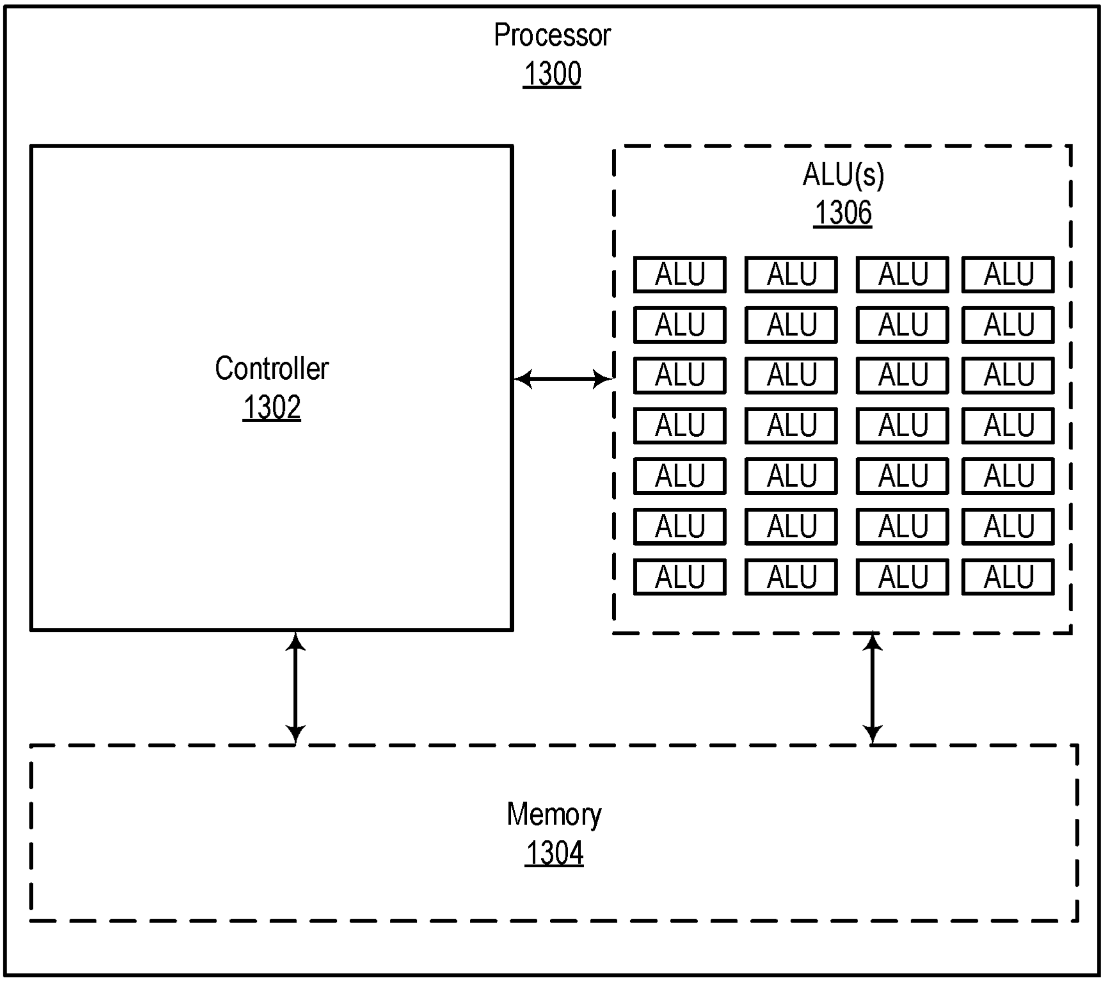

Fig. 13

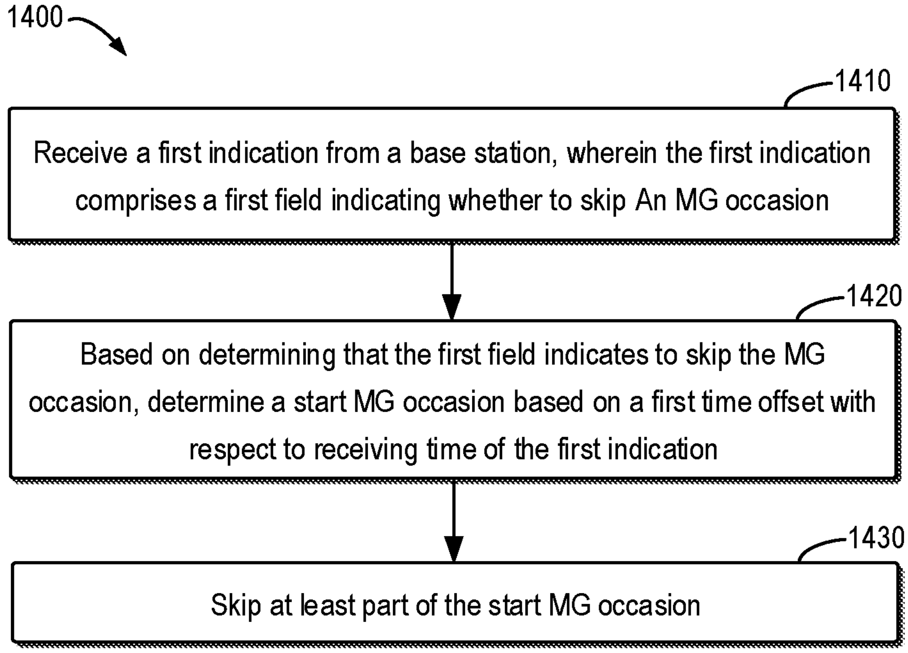
1400
1410
Receive a first indication from a base station, wherein the first indication comprises a first field indicating whether to skip An MG occasion
1420
Based on determining that the first field indicates to skip the MG occasion, determine a start MG occasion based on a first time offset with respect to receiving time of the first indication
1430
Skip at least part of the start MG occasion

Fig. 14

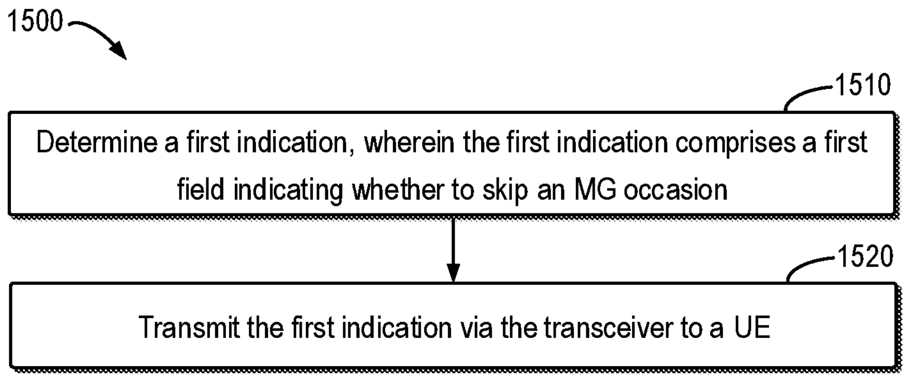
1500
1510
Determine a first indication, wherein the first indication comprises a first field indicating whether to skip an MG occasion
1520
Transmit the first indication via the transceiver to a UE

Fig. 15

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/123032

A. CLASSIFICATION OF SUBJECT MATTER

H04W56/00(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)

IPC: H04W, H04L

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)

CNTXT, ENTXT, DWPI, 3GPP, ENTXTC: measurement, gap, start, MG, time, offset, skip, indication

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2024096788 A1 (TELEFONAKTIEBOLAGET LM ERICSSON(PUBL)) 10 May 2024 (2024-05-10) description, paragraphs 27-189	1-20
X	CN 116326186 A (QUALCOMM INCORPORATED) 23 June 2023 (2023-06-23) description, paragraphs 62-162	1-20
X	CN 112956150 A (HUAWEI TECHNOLOGIES CO., LTD.) 11 June 2021 (2021-06-11) description, paragraphs 5-64	1-20
A	US 2022264622 A1 (LG ELECTRONICS INC.) 18 August 2022 (2022-08-18) the whole document	1-20

☐ 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

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

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"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
12 May 2025	**16 May 2025**

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2024/123032

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
WO 2024096788 A1	10 May 2024	None	
CN 116326186 A	23 June 2023	EP 4190014 A1	07 June 2023
		US 2023318781 A1	05 October 2023
		WO 2022026173 A1	03 February 2022
		IN 202247074959 A	30 December 2022
CN 112956150 A	11 June 2021	WO 2020088744 A1	07 May 2020
		EP 3864787 A1	18 August 2021
US 2022264622 A1	18 August 2022	WO 2021015376 A1	28 January 2021
		EP 4000299 A1	25 May 2022
		CN 114175716 A	11 March 2022