What is Claimed is:

1. A multi-subscriber identity module (SIM) device comprising:

a first SIM configured to use a first service of a first network;

a second SIM configured to use a second service of a second network;

a first radio frequency (RF) resource configured to support use of a non-limited channel configuration, namely to support processing channels that a certain SIM handles to maintain a network connection mode and channels handled in an idle mode, according to a radio resource control (RRC) protocol;

a second RF resource configured to support use of a limited channel configuration, namely to support processing channels that a certain SIM handles in the idle mode, according to the RRC protocol; and

a baseband processor configured to selectively assign the first RF resource and the second RF resource to the first SIM and the second SIM, based on information regarding the first network and the second network,

wherein the baseband processor is further configured to:

select a mode among a dual radio (DR) mode and a dual sim dual standby (DSDS) mode based on the information when the first RF resource use request interval of the first SIM overlaps the second RF resource use request interval of the second SIM; and control the multi-SIM device to operate in the mode that is selected,

wherein in response to the DR mode being selected, the baseband processor is further configured to set a main SIM and a sub-SIM by using the first SIM and the second SIM, assign the first RF resource to the main SIM, and assign the second RF resource to the sub-SIM, and

wherein setting the main SIM and the sub-SIM is based on first periodic/non-periodic characteristics of a first channel between the first network and the first SIM, and second periodic/non-periodic characteristic of a second channel between the second network and the second SIM.

2. The multi-SIM device of claim 1, wherein a first structure of the first RF resource is different from a second structure of the second RF resource.

3. The multi-SIM device of claim 1 or claim 2, wherein the first RF resource is further configured to support processing the~~a~~ first channel that a first assigned SIM of the first SIM and the second SIM, which is assigned to the first RF resource, handles in the~~an~~ idle mode and a third~~second~~ channel used to maintain the~~a~~ network connection mode, and

the second RF resource is further configured to support processing the~~a~~ second~~third~~ channel that a second assigned SIM of the first SIM and the second SIM, which is assigned to the second RF resource, handles in the idle mode.

4. The multi-SIM device of claim 1 or claim 2, wherein the information comprises at least one of first channel configuration information regarding the~~a~~ first channel between the first network and the first SIM, first scheduling information regarding the first channel, second channel configuration information regarding the~~a~~ second channel between the second network and the second SIM, and second scheduling information regarding the second channel.

~~5. The multi-SIM device of any one of claims 1 to 4, wherein the baseband processor is further configured to:~~

~~select a mode among a dual radio (DR) mode and a dual sim dual standby (DSDS) mode based on the information when a first RF resource use request interval of the first SIM overlaps a second RF resource use request interval of the second SIM; and~~

~~control the multi-SIM device to operate in the mode that is selected.~~

~~6. The multi-SIM device of claim 5, wherein, in response to the DR mode being selected, the baseband processor is further configured to set a main SIM and a sub-SIM by using the first SIM and the second SIM, assign the first RF resource to the main SIM, and assign the second RF resource to the sub-SIM.~~

~~7. The multi-SIM device of claim 6, wherein the baseband processor is further configured to set the main SIM and the sub-SIM based on first periodic/non-periodic characteristics of a first channel between the first network and the first SIM and second periodic/non-periodic characteristics of a second channel between the second network and the second SIM.~~

5~~8~~. The multi-SIM device of any one of claims 1 to 4~~6 or claim 7~~, wherein the baseband processor is further configured to set the main SIM and the sub-SIM based on first scheduling information of thea~~n~~ first channel between the first network and the first SIM, and second scheduling information of thea~~n~~ second channel between the second network and the second SIM.

6~~9~~. The multi-SIM device of any one of claims 1~~6~~ to 5~~8~~, wherein the main SIM is configured to perform a first operation with the first network by using the first RF resource,

and the sub-SIM is configured to perform a second operation with the second network by using the second RF resource.

7~~10~~. The multi-SIM device of claim 1~~5~~, wherein, in response to the DSDS mode being selected, the baseband processor is further configured to assign the first RF resource to one of the first SIM and the second SIM.

8~~11~~. The multi-SIM device of claim 1~~5~~ or claim 7~~10~~, wherein, in response to the first RF resource use request interval not overlapping the second RF resource use request interval, the baseband processor is further configured to control the multi-SIM device to operate in the DSDS mode.

9~~12~~. The multi-SIM device of any one of claims 1 to 8~~11~~, further comprising a memory configured to store first information regarding the first network that is obtained from the first SIM and second information regarding the second network that is obtained from the second SIM, the first information and the second information being accessible by the baseband processor.

10~~13~~. A multi-subscriber identity module (SIM) device comprising:

a plurality of SIMs;

a plurality of radio frequency (RF) resources assigned to the plurality of SIMs, a first portion of the plurality of RF resources supporting use of a non-limited channel configuration, namely to support processing channels that a certain SIM handles to maintain a network connection mode and channels handled in an idle mode, and a second portion of the plurality of RF resources supporting use of a limited channel configuration, namely to support

processing channels that a certain SIM handles in the idle mode, according to a radio resource control (RRC) protocol; and

a baseband processor configured to, in response to RF resource use request intervals of at least two target SIMs among the plurality of SIMs overlapping each other, control the plurality of RF resources to support the use of the non-limited channel configuration for one of the at least two target SIMs and to support the use of the limited channel configuration for the other of the at least two target SIMs, based on information regarding networks respectively corresponding to the at least two target SIMs,

wherein the baseband processor is further configured to:

select a mode among a dual radio (DR) mode and a dual sim dual standby (DSDS) mode based on whether the at least two target SIMs among the plurality of SIMs overlap each other; and control the multi-SIM device to operate in the mode that is selected,

wherein in response to the DR mode being selected, the baseband processor is further configured to set a main SIM and a sub-SIM by using the at least two target SIMs among the plurality of SIMs, assign the first portion of the plurality of the RF resources to the main SIM, and assign the second portion of the plurality of RF resources to the sub-SIM, and

wherein setting the main SIM and the sub-SIM is based on first periodic/non-periodic characteristics of a first channel between a first network and a first target SIM among the at least two target SIMs, and second periodic/non-periodic characteristics of a second channel between a second network and a second SIM of the at least two target SIMs.

11~~14~~. The multi-SIM device of claim 10~~13~~, wherein the baseband processor is further configured to support the use of the non-limited channel configuration for the~~a~~ first target SIM that handles a non-periodic channel among the at least two target SIMs and support

the use of the limited channel configuration for thea second target SIM that handles a periodic channel.

1215. The multi-SIM device of claim 1013, wherein the baseband processor is further configured to support the use of the non-limited channel configuration for thea first target SIM having a fast wake-up timing in thean idle mode among the at least two target SIMs and support the use of the limited channel configuration for thea second target SIM among the at least two target SIMs.

1316. A method of operating a multi-subscriber identity module (SIM) device comprising a first SIM and a second SIM, the method comprising:

generating, by using the first SIM, a radio frequency (RF) resource request;

determining whether it is possible to set a dual radio (DR) mode in which use of a non-limited channel configuration, namely to support processing channels that a certain SIM handles to maintain a network connection mode and channels handled in an idle mode according to a radio resource control (RRC) protocol, and use of a limited channel configuration, namely to support processing channels that a certain SIM handles in the idle mode according to the RRC protocol, are simultaneously supported, based on first information regarding a first network corresponding to the first SIM and second information regarding a second network corresponding to the second SIM; and

selectively assigning a first RF resource supporting the use of the non-limited channel configuration and a second RF resource supporting the use of the limited channel configuration to the first SIM and the second SIM, based on a result of the determining,

wherein the determining comprises:

determining whether the first RF resource use request interval of the first SIM overlaps the second RF resource use request interval of the second SIM,

wherein, in response to determining that it is possible to set the DR mode:

one of the first SIM and the second SIM is set as a main SIM and the other of the first SIM and the second SIM is set as a sub-SIM, based on the first information and the second information; and the first RF resource is assigned to the main SIM and the second RF resource is assigned to the sub-SIM, and

wherein setting the main SIM and the sub-SIM is based on first periodic/non-periodic characteristics of a first channel between the first network and the first SIM, and second periodic/non-periodic characteristics of a second channel between the second network and the second SIM.

14~~17~~. The method of claim 13~~16~~, wherein the determining further comprises:

~~determining whether a first RF resource use request interval of the first SIM overlaps a second RF resource use request interval of the second SIM; and~~

determining whether the~~a~~ first channel received from the first network and the~~a~~ second channel received from the second network are processed by using the first RF resource and the second RF resource.

15~~18~~. The method of claim 14~~17~~, wherein the determining further comprises:

determining whether a first frequency band of the first channel and a second frequency band of the second channel ~~r~~ correspond to a third frequency band supported by the multi-SIM device.

~~19. The method of any one of claims 16 to 18, wherein, in response to determining that it is possible to set the DR mode:~~

~~one of the first SIM and the second SIM is set as a main SIM and the other of the first SIM and the second SIM is set as a sub-SIM, based on the first information and the second information; and~~

~~the first RF resource is assigned to the main SIM and the second RF resource is assigned to the sub-SIM.~~

16~~20~~. The method of claim 13~~16~~, wherein the first information comprises at least one of first channel configuration information regarding the~~a~~ first channel between the first network and the first SIM and first scheduling information regarding the first channel, and

wherein the second information comprises at least one of second channel configuration information regarding the~~a~~ second channel between the second network and the second SIM, and second scheduling information regarding the second channel.