# USER EQUIPMENT AND METHOD THEREFOR

## BACKGROUND

1. Technical Field

[0001] The present disclosure relates to wireless communication field, and more particular, to a user equipment and a method for selecting at least one resource across multiple carries for transmitting at least one packet in sidelink.

2. Description of the Related Art

[0002] A PC5 operation across multiple carriers is an object in eV2X (enhanced V2X) work item. However, for a mode 4 operation in which a user equipment operates in an autonomous scheduling scheme, it is unclear how to do sensing, carrier/resource selection, power control, and collision handling between transmission and reception in case of multiple carriers.

## SUMMARY

[0002a] In one aspect, this disclosure provides a communication apparatus, comprising: a circuitry; and a transmitter which is coupled to the circuitry, wherein in a first case that a relation between a first resource pool in a first carrier and a priority of a packet satisfies a determined condition, the circuitry, in operation, selects the first resource pool for transmission of the packet, and the transmitter, in operation, transmits the packet using the first resource pool, in a second case that the relation between the first resource pool in the first carrier and the priority of the packet does not satisfy the determined condition, the circuitry, in operation, selects a second resource pool out of a plurality of resource pools in a plurality of carriers, based on channel busy ratios (CBRs) of the plurality of resource pools, wherein the second resource pool is selected in increasing order of the CBRs from a lowest CBR of the CBRs, and the transmitter, in operation, transmits the packet using the second resource pool.

[0002b] In another aspect, this disclosure provides a communication method implemented by a communication apparatus, the communication method comprising: in a first case that a relation between a first resource pool in a first carrier and a priority of

a packet satisfies a determined condition, selecting the first resource pool for transmission of the packet, and transmitting the packet using the first resource pool; and in a second case that the relation between the first resource pool in the first carrier and the priority of the packet does not satisfy the determined condition, selecting a second resource pool out of a plurality of resource pools in a plurality of carriers, based on channel busy ratios (CBRs) of the plurality of resource pools, wherein the second resource pool is selected in increasing order of the CBRs from a lowest CBR of the CBRs, and transmitting the packet using the second resource pool.

[0003] In one example, it is to provide a user equipment (UE) that selects at least one resource across a plurality of carries for transmitting at least one packet in sidelink, comprising: a sensor, operative to sense a plurality of resource pools of the plurality of carriers within a sensing window to obtain a sensing result, wherein the length of the sensing window is configurable or preconfigured; a resource selector, operative to obtain a plurality of available resources of the plurality of carriers within a resource selection window according to the sensing result, wherein the plurality of available resources are included in at least one resource pool of the plurality of carriers within the resource selection window, the resource selector is operative to select at least one resource from the plurality of available resources of the plurality of carriers within the resource selection window in accordance with at least one of a priority of the at least one resource pool and a priority of the at least one packet, and wherein the length of the resource selection window is determined according to a desired latency; and a transmitter, operative to transmit the at least one packet on the at least one resource which is selected by the resource selector.

[0004] In another example, it is to provide a method for selecting at least one resource across a plurality of carries for transmitting at least one packet in sidelink by a user equipment (UE), comprising: sensing a plurality of resource pools of the plurality of carriers within a sensing window to obtain a sensing result, wherein the length of the sensing window is configurable or preconfigured; obtaining a plurality of available resources of the plurality of carriers within a resource selection window according to the sensing result, wherein the plurality of available resources are included in at least one resource pool of the plurality of carriers within the resource selection window, wherein the length of the resource selection window is determined according to a desired latency; selecting at least one resource from the plurality of available resources of the plurality of carriers within the resource selection window in accordance with at least one of a priority of the at least one available resource pool and a priority of the at least one packet; and transmitting the at least one packet on the at least one resource which is selected.

[0005] It should be noted that general or specific examples may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[0006] Additional benefits and advantages of the examples in the disclosure will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various examples and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

## BRIEF DESCRIPTION OF DRAWINGS

[0007] Fig. 1 schematically shows an example of sensing resources of one carrier within a sensing window in a prior art.

[0008] Fig. 2 schematically shows an example of block diagram of a user equipment according to an embodiment of the present disclosure.

[0009] Fig. 3 schematically shows an example of available resources in multiple resource pools of multiple carries within a resource selection window according to an embodiment of the present disclosure.

[0010] Fig. 4 schematically shows an example of determining multiple non-monitored

**CLAIMS**

1. A communication apparatus, comprising:

circuitry; and

a transmitter which is coupled to the circuitry, wherein

in a first case that a relation between a first resource pool in a first carrier and a priority of a packet satisfies a determined condition,

the circuitry, in operation, selects the first resource pool for transmission of the packet, and

the transmitter, in operation, transmits the packet using the first resource pool,

in a second case that the relation between the first resource pool in the first carrier and the priority of the packet does not satisfy the determined condition,

the circuitry, in operation, selects a second resource pool out of a plurality of resource pools in a plurality of carriers, based on channel busy ratios (CBRs) of the plurality of resource pools, wherein the second resource pool is selected in increasing order of the CBRs from a lowest CBR of the CBRs, and

the transmitter, in operation, transmits the packet using the second resource pool.

2. The communication apparatus according to claim 1, wherein the circuitry selects the second resource pool based on channel occupancy ratios (CRs) of the plurality of resource pools.

3. The communication apparatus according to claim 2, wherein the second resource pool is selected in increasing order of the CRs from a lowest CR of the CRs.

4. The communication apparatus according to claim 1, wherein at least one resource in the second resource pool is selected, out of a plurality of resources in the second resource pool, based on Received Signal Strength Indicators (RSSIs) of the plurality of resources.

5. The communication apparatus according to claim 1, wherein any resources

which the communication apparatus does not monitor are precluded from selection of at least one resource in the second resource pool.

6. A communication method implemented by a communication apparatus, the communication method comprising:

in a first case that a relation between a first resource pool in a first carrier and a priority of a packet satisfies a determined condition,

selecting the first resource pool for transmission of the packet, and transmitting the packet using the first resource pool; and

in a second case that the relation between the first resource pool in the first carrier and the priority of the packet does not satisfy the determined condition,

selecting a second resource pool out of a plurality of resource pools in a plurality of carriers, based on channel busy ratios (CBRs) of the plurality of resource pools, wherein the second resource pool is selected in increasing order of the CBRs from a lowest CBR of the CBRs, and

transmitting the packet using the second resource pool.

7. The communication method according to claim 6, wherein the second resource pool is selected based on channel occupancy ratios (CRs) of the plurality of resource pools.

8. The communication method according to claim 7, wherein the second resource pool is selected in increasing order of the CRs from a lowest CR of the CRs.

9. The communication method according to claim 6, wherein at least one resource in the second resource pool is selected, out of a plurality of resources in the second resource pool, based on Received Signal Strength Indicators (RSSIs) of the plurality of resources.

10. The communication method according to claim 6, wherein any resources which the communication apparatus does not monitor are precluded from selection of at least one resource in the second resource pool.