[8] Non-limiting examples facilitate providing communication apparatuses and methods for optimising time domain window and DMRS for joint channel estimation.

[9] According to an aspect of the present disclosure, there is provided a communication apparatus comprising: circuitry, which in operation, determines one or more time domain windows for multiple physical uplink shared channel (PUSCH) transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions; and a transmitter, which in operation, transmits reference signals based on the one or more time domain windows.

[10] According to another aspect of the present disclosure, there is provided a communication method comprising: determining one or more time domain windows for multiple PUSCH transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions; and transmitting reference signals based on the one or more time domain windows.

[11] According to another aspect of the present disclosure, there is provided a communication method comprising: receiving an indication of one or more time domain windows for multiple physical uplink shared channel (PUSCH) transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions; and circuitry, which in operation, transmits reference signals based on the one or more time domain windows.

[11a] According to another aspect, the present disclosure refers to an integrated circuit comprising, determination circuit, which in operation, determines one or more time domain windows for multiple physical uplink shared channel (PUSCH) transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions, and transmitting circuit, which in operation, transmits reference signals based on the one or more time domain windows.

[12] According to another example of the present disclosure, there is provided a base station comprising: circuitry, which in operation,

determines one or more time domain windows for multiple physical uplink shared channel (PUSCH) transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions; and a transmitter, which in operation, indicates the one or more time domain windows to one or more communication apparatuses.

[13] According to another aspect of the present disclosure, there is provided a communication method comprising: determining one or more time

domain windows for multiple physical uplink shared channel (PUSCH) transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions; and indicating the one or more time domain windows to one or more communication apparatuses.

[13a] According to another aspect, the present disclosure refers to an integrated circuit comprising, determination circuit, which in operation, determines one or more time domain windows for multiple physical uplink shared channel (PUSCH) transmissions, each length of the one or more time domain windows being no more than an overall length of the multiple PUSCH transmissions, and transmitting circuit, which in operation, indicates the one or more time domain windows to one or more communication apparatuses.

[14] 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.

[15] Additional benefits and advantages of the disclosed examples 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 THE DRAWINGS

[16] Embodiments of the disclosure will be better understood and readily apparent to one of ordinary skilled in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

[17] Fig. 1 shows an exemplary 3GPP NR-RAN architecture.

[18] Fig. 2 depicts a schematic drawing which shows functional split between NG-RAN and 5GC.

[19] Fig. 3 depicts a sequence diagram for RRC (radio resource control) connection setup/reconfiguration procedures.

[20] Fig. 4 depicts a schematic drawing showing usage scenarios of Enhanced mobile broadband (eMBB), Massive Machine Type Communications (mMTC) and Ultra Reliable and Low Latency Communications (URLLC).

[21] Fig. 5 shows a block diagram showing an exemplary 5G system architecture for V2X communication in a non-roaming scenario.