CLAIMS

1. A communication apparatus, comprising:

a transceiver, which, in operation, receives control information indicating two or more beams for uplink transmissions; and

circuitry, which, in operation, uses the two or more beams for a plurality of uplink transmission occasions ~~in response to meeting at least one condition for beam switching~~ based on the control information and based on at least one condition for beam switching.

2. The communication apparatus of claim 1, wherein ~~each of~~ the plurality of uplink transmission occasions ~~is~~ include one or more of~~are~~ a physical uplink control channel (PUCCH), a physical uplink shared channel (PUSCH) processing from one or more transport blocks, a sounding reference signal (SRS), or a physical random access (PRACH) transmission occasion, and are~~is~~ defined by a slot index, a starting symbol, and a number of consecutive symbols.

3. The communication apparatus of claim 1, wherein ~~each of~~ the plurality of uplink transmission occasions are~~is~~ ~~a~~ transmission occasions among a plurality of repetitions of a physical uplink control channel (PUCCH) or a physical uplink shared channel (PUSCH) in an inter-slot level repetition framework, or ~~a~~ transmission occasions among a plurality of nominal/actual repetitions of the PUCCH or the PUSCH in an intra-slot level repetition framework.

4. The communication apparatus of claim 1, wherein the transceiver ~~further~~, in operation, receives an explicit indication of performing the beam switching in a time-domain from a base communication apparatus, wherein the at least one condition for beam switching is ~~further~~ based on the explicit indication.

5. The communication apparatus of claim 1, wherein the transceiver, in operation, receives the control information by using at least one of a downlink control information (DCI) signaling, a medium access control layer control element (MAC CE) signaling, or a radio resource control (RRC) signaling.

6. The communication apparatus of claim 1, wherein the at least one condition is that a first interval between two consecutive uplink transmission occasions of the

plurality of uplink transmission occasions is not less than a required latency of beam switching.

7. The communication apparatus of claim 6, wherein the beam switching is performed within a cyclic prefix in case the required latency of beam switching is not greater than a duration of the cyclic prefix.

~~7~~8. The communication apparatus of claim 1, wherein the circuity ~~is further configured to~~, in operation, provide~~s~~ ~~an~~ assistance information to a base communication apparatus based on capabilities of the two or more beams~~, the assistance information relating to a configuration of the two or more beams for the plurality of uplink transmission occasions~~.

~~8~~9. The communication apparatus of claim 1, wherein the circuitry ~~is configured to~~, in operation, use~~s~~ ~~each of~~ the two or more beams for the plurality of uplink transmission occasions in a cyclical or a sequential pattern ~~in response to meeting the at least one condition~~.

10. The communication apparatus of claim 1, wherein the circuitry, in operation, associates the two or more beams with a plurality of transmission configuration indicator (TCI) states.

~~9. The communication apparatus of any one of claims 1-3, wherein the circuitry is further configured to:~~

~~determine new invalid symbols based on a single one or more consecutive legacy invalid symbols and a required latency of beam switching, wherein the new invalid symbols have a length corresponding to a greater one of a length of the required latency of beam switching and a length of the single one or more consecutive legacy invalid symbols; and~~

~~determine the plurality of uplink transmission occasions based on the new invalid symbols; and~~

~~use the two or more beams for the plurality of uplink transmission occasions in response to the determinations.~~

~~10. The communication apparatus of claim 9, wherein the determination of the plurality of uplink transmission occasions based on the new invalid symbols is applied to every single one or more consecutive legacy invalid symbols.~~

~~11. The communication apparatus of any one of claims 1-3, wherein the circuitry is further configured to:~~

~~determine new invalid symbols consisting of a single one or more consecutive legacy invalid symbols and a required latency of beam switching, wherein the single one or more consecutive legacy invalid symbols are non-overlapped with the required latency of beam switching;~~

~~determine the plurality of uplink transmission occasions based on the new invalid symbols; and~~

~~use the two or more beams for the plurality of uplink transmission occasions in response to the determinations.~~

~~12. The communication apparatus of any one of claims 1-3, wherein the circuitry is further configured to:~~

~~determine new invalid symbols as a union of a single one or more consecutive legacy invalid symbols and a required latency of beam switching; and~~

~~determine the plurality of uplink transmission occasions based on the new invalid symbols; and~~

~~use the two or more beams for the plurality of uplink transmission occasions in response to the determinations.~~

11~~3~~. The communication apparatus of claim 1, wherein ~~each of~~ the two or more beams are configured with a set of power control parameters.

12~~4~~. The communication apparatus of claim 1, wherein the circuitry ~~is further configured to~~, in operation, associate~~s~~ ~~each of~~ the two or more beams with at least one of a plurality of transmit precoders from a~~the~~ codebook for codebook-based transmission based on the control information.

13~~5~~. The communication apparatus of claim 12~~4~~, wherein the one of a plurality of transmit precoders is indicated by using at least a transmit precoding matrix indicator~~ion~~ (TPMI) and/or a sounding reference signal resource indicator (SRI) in a downlink control information (DCI) signalling.

~~16. The communication apparatus of claim 14, wherein the plurality of transmit precoders are indicated by reinterpreting at least a TPMI and/or an SRI in a DCI signalling.~~

147. The communication apparatus of claim 1, wherein the circuitry ~~is configured to~~, in operation, associates ~~each of~~ the two or more beams with at least one of sounding reference signal (SRS) resource sets for codebook-based transmission, wherein the at least one of SRS resource sets is associated with a channel state information reference signal (CSI-RS) resource.

158. The communication apparatus of claim 14731, wherein the at least one of SRS resource sets is indicated by using at least a~~n~~ signal resource indicator (SRI) in a downlink control information (DCI) signalling.

~~19. The communication apparatus of claim 31, wherein the SRS resource sets are indicated by reinterpreting at least an SRI in a DCI signalling.~~

1620. A communication method, comprising:

receiving control information indicating two or more beams for uplink transmissions; and

using the two or more beams for a plurality of uplink transmission occasions ~~in response to meeting at least one condition for beam switching~~ based on the control information and based on at least one condition for beam switching ~~being met~~.

17. A base communication apparatus, comprising:

circuitry, which, in operation, generates control information indicating two or more beams for uplink transmissions, wherein at least one condition for beam switching is~~being~~ met; and

a transmitter, which, in operation, transmits the control information.

18. A communication method, comprising:

generating control information indicating two or more beams for uplink transmissions, wherein at least one condition for beam switching is~~being~~ met; and

transmitting the control information.

19. A integrated circuit configured to control ~~which, in operation, controls~~ a process of a communication apparatus, the process comprising:

receiving control information indicating two or more beams for uplink transmissions; and

using the two or more beams for a plurality of uplink transmission occasions based on the control information~~,~~ and based on at least one condition for beam switching ~~being met~~.

20. A integrated circuit configured to control ~~which, in operation, controls~~ a process of a base communication apparatus, the process comprising:

~~G~~generating control information indicating two or more beams for uplink transmissions, wherein at least one condition for beam switching is~~being~~ met; and

transmitting the control information.