**3GPP TSG RAN WG1#100bis-e R1-**

**e-Meeting, April 20th – 30th, 2020**

**Agenda Item: 7.2.2.1.2**

**Source: Moderator (Lenovo)**

**Title: Text proposal for search space switching (NR-U DL Signals and Channels)**

**Document for: Discussion, Decision**

# Scope

This TP intends to cover the following agreements from RAN1#100bis-e:

Agreement:

* Define two capabilities of P values
  + SSSG switching Capability-1: P=25 symbols for µ = 0/1/2 SCS
  + SSSG switching Capability-2: P=10/12/22 symbols for µ = 0/1/2 SCS
  + Introduce a UE capability to signal support of SSSG switching Capability-2 in addition to SSSG switching Capability-1
* Introduce a RRC configuration parameter to indicate the P value to be applied by a UE for SSSG switching (no lower than the reported capability by the UE).

Agreement:

The smallest subcarrier spacing of the corresponding active BWP across CCs within a CC group and the CC in which a DCI format 2\_0 triggering group switching is detected, if any, is used to determine the first slot of search space set group switching for all CCs within a CC-group.

Agreement:

SS set group 0, if configured, is applicable for a UE at least after RRC (re)configuration of SS set group by *searchSpaceGroupIdList-r16*.

# TP for 38.213 (based on v16.1.0)

## 10.4 Search space set switching

A UE can be provided a group index for a respective search space set by *searchSpaceGroupIdList-r16* for PDCCH monitoring on a serving cell. If the UE is not provided *searchSpaceGroupIdList-r16* for a search space set, the following procedures are not applicable for PDCCH monitoring according to the search space set.

If a UE is provided *searchSpaceSwitchingGroupList-r16*, indicating one or more groups of serving cells, the following procedures apply to all serving cells within each group; otherwise, the following procedures apply only to a serving cell for which the UE is provided *searchSpaceGroupIdList-r16*.

If a UE is provided *searchSpaceSwitchingGroupList-r16*, the UE shall monitor PDCCH according to search space sets with group index 0, if configured, after RRC (re)configuration of search space set group(s) by *searchSpaceGroupIdList-r16*.

A UE can be provided, by *<NEW\_RRC\_PARAMETER\_NAME>* and Table 10.4-1, a value in units of symbols for purposes of switching monitoring PDCCH between search space sets with different group index, with the following relation:

Table 10.4-1: Determination of value P [symbols]

|  |  |  |
| --- | --- | --- |
|  | value for  *<NEW\_RRC\_PARAMETER\_NAME>=Value1* | value for  *<NEW\_RRC\_PARAMETER\_NAME>=Value2* |
| 0 | 25 | 10 |
| 1 | 25 | 12 |
| 2 | 25 | 22 |

A UE can be provided, by *searchSpaceSwitchingTimer-r16*, a timer value. The UE decrements the timer value by one after each slot in the active DL BWP of the serving cell where the UE monitors PDCCH for detection of DCI format 2\_0.

If a UE is provided by *SearchSpaceSwitchTrigger-r16* a location of a search space set switching field for a serving cell in a DCI format 2\_0, as described in Clause 11.1.1, and detects the DCI format 2\_0 in a slot

- if the UE is not monitoring PDCCH according to search space sets with group index 0, the UE starts monitoring PDCCH according to search space sets with group index 0, and stops monitoring PDCCH according to search space sets with group index 1, on the serving cell at a first slot that is at least symbols after the last symbol of the PDCCH with the DCI format 2\_0, if a value of the search space set switching field is 0

- if the UE is not monitoring PDCCH according to search space sets with group index 1, the UE monitors PDCCH according to search space sets with group index 1, and stops monitoring PDCCH according to search space sets with group index 0, on the serving cell at a first slot that is at least symbols after the last symbol of the PDCCH with the DCI format 2\_0, and the UE sets the timer value to the value provided by *searchSpaceSwitchingTimer-r16*, if a value of the search space set switching field is 1

- if the UE monitors PDCCH on a serving cell according to search space sets with group index 1, the UE starts monitoring PDCCH on the serving cell according to search space sets with group index 0, and stops monitoring PDCCH according to search space sets with group index 1, on the serving cell at the beginning of the first slot that is at least symbols after a slot where the timer expires or after a last symbol of a remaining channel occupancy duration for the serving cell that is indicated by DCI format 2\_0

If a UE is not provided *SearchSpaceSwitchTrigger-r16* for a serving cell,

- if the UE detects a DCI format by monitoring PDCCH according to a search space set with group index 0, the UE starts monitoring PDCCH according to search space sets with group index 1, and stops monitoring PDCCH according to search space sets with group index 0, on the serving cell at a first slot that is at least symbols after the last symbol of the PDCCH with the DCI format, the UE sets the timer value to the value provided by *searchSpaceSwitchingTimer-r16* if the UE detects a DCI format by monitoring PDCCH in any search space set

- if the UE monitors PDCCH on a serving cell according to search space sets with group index 1, the UE starts monitoring PDCCH on the serving cell according to search space sets with group index 0, and stops monitoring PDCCH according to search space sets with group index 1, on the serving cell at the beginning of the first slot that is at least symbols after a slot where the timer expires or, if the UE is provided a search space set to monitor PDCCH for detecting a DCI format 2\_0, after a last symbol of a remaining channel occupancy duration for the serving cell that is indicated by DCI format 2\_0

For purposes of determining the slot or symbol for search space set group switching for all serving cells within a group of serving cells, a UE shall use the smallest subcarrier spacing of the corresponding active BWP across serving cells within a group of serving cells and the serving cell in which the DCI format 2\_0 carrying the search space set switching field, if any.