## Issue 1 (in R2-2312194): UE behavior's text to support approach 1/approach 2 for MCSt

|  |
| --- |
| Approach 1: “best effort for multiple TBs”   * Step 1: Higher layer triggers L1 resource selection for one TB with one set of parameters (, remaining PDB, and ) - R16/17 behavior. * Step 2: L1 report a set of candidate single-slot resource (*SA*) according to existing L1 resource allocation procedure - R16/17 behavior. * Step 3: Higher layer selects a set of resources either randomly (R16/17 behavior) or according to a consecutive-slots criterion (new behavior) to achieve MCSt. * Step 4: Repeat Step 1-3 for different TB if required.   Approach 2: “guarantee MCSt for single TB and best effort for multiple TBs”   * Step 1: Higher layer triggers L1 resource selection for one TB with one set of parameters (, remaining PDB, and ) + “number of slots for MCSt” which could be derived based on CAPC of the logical channel/TB or other means. * Step 2: L1 report a set of candidate multi-slot resource (*SA*) according to most of the existing L1 resource allocation procedure (FFS: RSRP calculation / threshold may need to change) * Step 3: Higher layer selects a candidate multi-slot resource either randomly (R16/17 behavior) or according to a consecutive-slots criterion (new behavior). * Step 4: Repeat Step 1-3 for different TB if required. |

Approach 1 and approach 2 based UE operation for MCSt has been reflected in MAC running CR as follows:

5.22.1.1 SL Grant reception and SCI transmission

(Text omitted)

NOTE 3A2: MAC entity, based on UE implementation, decides whether to indicate the number of consecutive slots for Multi-consecutive slots transmission as specified in clause 8.1.4 of TS 38.214 [7] larger than 1.

NOTE 3A3: MAC entity, based on UE implementation, decides the value of the number of consecutive slots for Multi-consecutive slots transmission if it decides the number of consecutive slots for Multi-consecutive slots transmission larger than 1, as long as it meets the CAPC maximum COT duration requirement as specified in TS 37.213 [18].

NOTE 3A4: When the MAC entity selects the time and frequency resources from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], it is up to the UE implementation whether to randomly select resources for transmission opportunities from the resources indicated by the physical layer or to select resources in consecutive slots by UE implementation from the resources indicated by the physical layer.

NOTE 3A5: For a resource pool configured with PSFCH resource, UE cannot select consecutive slots for SL transmissions of a single TB for Multi-consecutive slots transmission.

The following #123bis agreement was specified in the NOTE 3A2:

|  |
| --- |
| **#123bis agreement:**  MAC layer, based on UE implementation, decides whether to indicate a “number of consecutive slots for MCSt” larger than 1. |

And UE behaviour of “number of consecutive slots for MCSt” being passed from MAC to PHY has already been specified in running CR of TS38.214 as follows:

In resource allocation mode 2, the higher layer can request the UE to determine a subset of resources from which the higher layer will select resources for PSSCH/PSCCH transmission. To trigger this procedure, in slot *n,* the higher layer provides the following parameters for this PSSCH/PSCCH transmission:

- the resource pool from which the resources are to be reported;

- L1 priority, ;

- the remaining packet delay budget;

- optionally, the number of consecutive slots for Multi-consecutive slots transmission, .

The following #123bis agreement was specified in the NOTE 3A3:

|  |
| --- |
| **#123bis agreement:**  MAC layer, based on UE implementation, decides the value of “number of consecutive slots for MCSt”, as long as it meets the CAPC maximum COT duration requirement. |

The following #114 agreement was specified in the NOTE 3A4:

|  |
| --- |
| RAN1 #114 agreement:  In Mode 2 resource allocation,   * The higher layer can indicate a “number of consecutive slots for MCSt” () larger than 1 for L1 reporting multi-slots candidates to the higher layer. The candidate multi-slots resource definition is applied.   + Otherwise, the candidate single-slot resource definition is applied (same as R16/17). * The higher layer selects resources from the reported according to one of the following based on UE implementation:   + Random selection as per R16/17   + Higher layer is not restricted to select resources at random, and can select in consecutive slots     - It is up to RAN2 to define detailed behaviour as needed   + It is RAN1 intention that, once the higher layer selects a multi-slots candidate from the set , it will use all the single-slot resources of the selected multi-slots candidate for transmission. This RAN1 agreement has no intention on potential RAN2 discussion about how SL resource selection processes are defined in MCSt. * Note, the above is intended to support Approach 1 and 2 only. * Send an LS to RAN2 informing that it is up to RAN2 to decide in regards to the HARQ RTT timing (minimum time gap)   + whether a single TB transmitted over consecutive slots is supported in a resource pool configured with PSFCH resource |

The RAN1 agreement highlighted in yellow above is an agreement that applies to both approach 1 and approach 2. Moreover, the MAC entity performs a resource selection procedure including NOTE 3A4 operation based on the SA set (single slot resource set or Multi-consecutive slots resource set) indicated from the physical layer. From a Rapporteur perspective, I think this combination of UE procedures covers both approach 1 and approach 2 of MCSt.

**Q1: Does your company agree that UE behaviour for both approach 1 and approach 2 for MCSt is covered in the running CR?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Sharp |  | We are not sure about the common understanding on the wording in the CR (i.e. for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7]). Specifically, for R16 NR V2X, naturally it is a candidate resource in a single slot for potential initial transmission of a TB. For R18 SL-U, since a multi-slot candidate resource is actually for multiple transmissions of a TB, it seems not clear enough for approach 2, i.e. it is ambiguous whether one transmission opportunity refers to single slot or multiple slots in MCSt. |
| OPPO | Agree |  |
| Xiaomi | Agree | Just reply to Sharp’s concern, for MCSt approach 2, the resource delivered from PHY is multi-slot resource, so the picked “one” transmission opportunity is multi-slot resources. |
| Apple | Agree |  |
| Nokia | Agree |  |

**[Summary]**

In addition, rapporteur believes that the operation of MAC selecting MCSt resources for single TB transmission based on sidelink grant selected from a resource pool where PSFCH is not configured is also covered by MAC running CR (i.e. combination of UE procedures throuth the clause 5.22.1.1, NOTE3A4 and NOTE3A5).

**Q2: Does your company think that additional text is needed for MCSt for single TB transmission based on sidelink grant selected from a resource pool where PSFCH is not configured?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Further comments |
| LG | No | See the rapporteur view on this issue. |
| Sharp | Yes | If the wording “for one transmission opportunity” still refers to a single slot in SL-U, for MCSt of a single TB, the condition to select for remaining transmission opportunities is “3> if one or more HARQ retransmissions are selected”, as there is no PSFCH, i.e. no HARQ retransmissions, the condition cannot be met. Therefore, we wonder whether the case for MCSt of a single TB is implemented in the specs. |
| OPPO | No |  |
| Xiaomi | No |  |
| Apple | No |  |
| Nokia | No |  |

**[Summary]**

## Issue 2 (in R2-2312194): LBT recovery timer

In #124 meeting, there was an opinion that the SL LBT cancellation timer is more suitable than the SL recovery timer because the SL LBT recovery timer is a timer used to cancel triggered SL consistent LBT failure*. sl-LBT-RecoveryTimer* is used in RRC running CR, and UE behavior of triggered C-LBT failure being canceled when *sl-LBT-RecoveryTimer* expires in MAC running CR is clear, so rapporteur think that correction is not necessary.

Rapporteur would like to check the companies' view on whether a change of parameter name for SL LBT recovery timer is needed.

- Option 1. No change (keep *sl-LBT-RecoveryTimer*)

- Option 2. Change to *sl-LBT-CancellationTimer*

**Q3: Does your company agree to change the parameter name from *sl-LBT-RecoveryTimer to sl-LBT-CancellationTimer*?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Disagree | See the rapporteur view on this issue. |
| Xiaomi | Disagree | Not essential as long as the definition and how to use the time is clear, there is no need to change. |
| Apple | Disagree | Same view as Xiaomi. It is not essential. Current name can live. |
| Nokia | Disagree | This is just a naming issue as long as the UE behaviour is unchanged. |

**[Summary]**

## Issue 3 (in R2-2312824): On Sidelink logical channel selection

In Release 17 SL relay, the common and dedicated discovery pools were added in order to provide the means to enable sidelink discovery transmission in dedicated discovery pool(s). In the running CR for MAC spec, there is currently no differentiation on whether the UE operated on the unlicensed or licensed band, but the enhanced LCP is precluded of usage in case either *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon* is configured. This means that in theory, SL-U can be applied even though the common or dedicated discovery pool can be configured, but LCP enhancements related to MCSt and COT sharing cannot, according running CR text.

**Observation 1: SL-U can be applied even though the common or dedicated discovery pool can be configured, but LCP enhancements related to MCSt and COT sharing cannot, according running CR text.**

|  |
| --- |
| 5.22.1.4.1.2 Selection of logical channels The MAC entity shall for each SCI corresponding to a new transmission:  1> if *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon* is configured according to TS 38.331 [5]:  2> if the new transmission is associated to a sidelink grant in *sl-DiscTxPoolSelected* or *sl-DiscTxPoolScheduling* configured in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*:  3> select a Destination associated with NR sidelink discovery as specified in TS 23.304 [26], that is in the SL Active time for the SL transmission occasion if SL DRX is applied for the destination, and among the logical channels that satisfy all the following conditions for the SL grant associated to the SCI:  4> SL data for NR sidelink discovery is available for transmission; and  4> *SBj* > 0, in case there is any logical channel having *SBj* > 0; and  4> *sl-configuredGrantType1Allowed*, if configured, is set to *true* in case the SL grant is a Configured Grant Type 1; and  4> *sl-AllowedCG-List*, if configured, includes the configured grant index associated to the SL grant.  2> else:  <Missing enhanced LCP check>  3> select a Destination associated to one of unicast, groupcast and broadcast (excluding the Destination(s) associated with NR sidelink discovery as specified in TS 23.304 [26]), that is in the SL Active time for the SL transmission occasion if SL DRX is applied for the destination, and having at least one of the MAC CE and the logical channel with the highest priority, among the logical channels that satisfy all the following conditions and MAC CE(s), if any, for the SL grant associated to the SCI:  4> SL data for NR sidelink communication is available for transmission; and  4> *SBj* > 0, in case there is any logical channel having *SBj* > 0; and  4> *sl-configuredGrantType1Allowed*, if configured, is set to *true* in case the SL grant is a Configured Grant Type 1; and  4> *sl-AllowedCG-List*, if configured, includes the configured grant index associated to the SL grant; and  4> *sl-HARQ-FeedbackEnabled* is set to *disabled*, if PSFCH is not configured for the SL grant associated to the SCI.  1> else:  <Enhanced LCP>  2> If multiple consecutive slots are used for transmitting multiple sidelink transmissions; or  2> if COT sharing information has been received from lower layers as specified in TS 37.213[18]: |

In order to sort this out, either RAN2 should agree to not allow SL-U operation in case of configuration of *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, or add the enhanced LCP within the clause that the common and dedicated discovery pools are configured but the data is not related to discovery. We think that since SL-U is somewhat RAN2 agnostic, the enhanced LCP check should be added.

**Observation 2: Since SL-U is somewhat RAN2 agnostic, the enhanced LCP check should be feasible also in case of configuration of *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*.**

**Proposal 3: RAN2 to agree that MCSt and COT sharing enhancement are applicable also when dedicated or common discovery pool is configured by the network.**

**Rapporteur view:** SL-U does not apply to relay scenarios. Therefore, it is correct to distinguish between licensed and unlicensed band operation by the distinction of 1> in running CR.

**Q4: Does your company agree the proposal 3 (“RAN2 to agree that MCSt and COT sharing enhancement are applicable also when dedicated or common discovery pool is configured by the network.”) in R2-2312824?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Disagree | See the rapporteur view on this issue. |
| OPPO | Agree | We understand the SL-U was designed mainly for commercial use case (compared to CA for V2X use case), and therefore, there seems no reason to exclude the usage of SL-U for normal ProSe use case. Since otherwise, it means we limit SL-U to V2X case as well, which however was not captured in the WID.  The exclusion of SL-U for relay case was mainly to rule out relay-specific work for SL-U, but when it can be applied to ProSe (no matter relay or non-relay case) without additional work, we should not exclude it artificially.  [Rapp] For my clarification, if E-LCP should be included in the “2> else:  <Missing enhanced LCP check>” part, why shouldn’t it be included in the discovery part (2> if the new transmission is associated to a sidelink grant in *sl-DiscTxPoolSelected* or *sl-DiscTxPoolScheduling* configured in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*:)?  Moreover, my understanding is that whether the SL-U is supported in the relay use case requires an agreement in RAN2 online discussion. Also, I think that public safety messages can be delivered even if the discovery pool is not configured. Therefore, I believe that the UE behavior that transmits public safety messages is already supported in the SL-U operation part (1> else:  <Enhanced LCP>) that currently includes E-LCP. |
| Xiaomi | See comments | LCP enhancement for COT sharing should be withdrawn according to the agreement from this meeting. Regarding whether to apply SL-U to ProSe, we think this issue was raised during offline discussion in last meeting, but companies have different understandning, so we agree with Rapp that some online confirmation is needed. |
| Apple | Agree | Same view as OPPO.  1: We agree that SL-U can apply to Prose.  2: We think the Nokia proposed CR is reasonable. |
| Nokia | Agree (Proponent) |  |

**[Summary]**