**3GPP TSG-SA5 Meeting #142e S5-222350rev1**

**e-meeting 4th - 12th April 2022**

**Source: China Unicom**

**Title: Add Key Issue on classification of URLLC related RAN features from management perspective**

**Document for: Approval**

**Agenda Item: 6.5.10 Study on Management Aspects of URLLC**

# 1 Decision/action requested

***The group is asked to approve the proposal.***

# 2 References

[1] 3GPP TR 28.832 v0.0.0: “Management Aspects of URLLC”

# 3 Rationale

It was approval in SP-220146 to study the management aspect of URLLC and one of the objectives is to investigate potential requirements related to management of URLLC serviced-based features in RAN network. In order to achieve the objective mentioned above, all the features related to URLLC defined in RAN side are classified according to each feature’s function and effective in this contribution.

# 4 Detailed proposal

This contribution proposes to make the following changes in [1].

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| **1st Change** |

# 5 Key Issues Investigation and Potential Solutions

## 5.X Key Issue #X: Classification of URLLC related RAN features from management perspective

### 5.X.1 Description

URLLC is a set of service scenarios which require low-latency and high reliabile communications. Specific SLAs are defined for each scenario correspondingly. Different scenarios have different requirements, some of which focus on latency (e.g. Motion control) and some focus reliability (e.g. Discrete automation).

In order to satisfy the requirements of URLLC, many features have been defined by 3GPP RAN side to decrease latency and increase reliability to guarantee the SLAs of different URLLC service scenarios. These features with different functions and different effectives are distributed in different specifications, which bring complexity to the invocation and management when deploying URLLC service. Features related to URLLC need to be classified from the perspective of management, so that different features can be invoked according to different SLAs, and the management of URLLC-related features can be achieved.

### 5.X.2 Potential solutions

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| This document sorts out the features related to URLLC defined in RAN and classifies them from a management perspective. According to the characteristics of URLLC service, features are classified into the following two categories based on their effects : low latency and ultra reliability. Features belonging to low-latency category are mainly used to reduce data transmission delay, reliability features are mainly used to improve the reliability of transmission.Among the features belonging to low-latency category, some of them reduce the transmission latency from the effective mechanism and other features improve service priority to reduce URLLC latency in multi-service scenario. **Feature** | **Category** | **Reference** |
| Mini-slot transmission | Low latency | TS 38.214 |
| Numerology/SCS | Low latency | TS 38.211 |
| UL configured grant | Low latency | TS 38.214 |
| DL SPS  | Low latency | TS 38.213 |
| PDCCH monitoring | Low latency | TS 38.213 |
| Logical channel priority | Low latency | TS 38.321 |
| Short PUCCH | Low latency | TS 38.211 |
| UE processing capability#2 | Low latency | TS 38.214 |
| Span based PDCCH monitoring | Low latency | TS 38.212/TS 38.213 |
| UL configured grant enhancements | Low latency | TS 38.214 |
| DL SPS enhancements | Low latency | TS 38.213 |
| Sub-slot level HARQ-ACK(UCI enhancements) | Low latency | TS 38.213 |
| Two HAQR-ACK codebooks(UCI enhancements) | Low latency | TS 38.213 |
| Low SE MCS/CQI table | Ultra reliability | TS 38.214 |
| PDSCH repetitions | Ultra reliability | TS 38.214 |
| PUSCH repetitions | Ultra reliability | TS 38.214 |
| PUCCH repetitions | Ultra reliability | TS 38.213 |
| PDCCH aggregation level 16 | Ultra reliability | TS 38.213 |
| PDCP duplication | Ultra reliability | TS 38.323 |
| PUSCH repetitions enhancements | Ultra reliability | TS 38.214 |
| DCI format 0\_2 and DCI format 1\_2 | Ultra reliability | TS 38.213 |
| DL Multi-TRP for URLLC data channel repetitions | Ultra reliability | TS 38.213 |
| PDCP duplication enhancements | Ultra reliability | TS 38.323 |
| DL Preemption Indication (PI) | Low latency | TS 38.213 |
| Code Block Group (CBG) | Low latency | TS 38.214 |
| Inter UE: UL Cancellation Indication(CI) | Low latency | TS 38.213 |
| Inter UE: Power Boosting | Low latency | TS 38.213 |
| Intra UE: UL Prioritization | Low latency | TS 38.213 |

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| **End of changes** |