3GPP TSG RAN WG1 Meeting #xxx R1-200xxxx

**xxx, xxx, xxth – xxth xxx, 2020**

Title: Offline summary on SRS evaluation methodology

# General methodology for SRS evaluation

In Phase-1 discussion of Rel-17 FeMIMO EVM, 15 companies think LLS should be used to evaluate SRS enhancements, among which 4 companies think SLS can be used additionally. Hence the following is proposed.

* LLS is used to evaluate SRS enhancements in Rel-17 FeMIMO, while SLS can be used optionally.

Please provide your views on the above proposal.

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

***Proposal 1:*** *TBD*

# LLS methodology

## Target enhancements

In Phase-1 discussion of Rel-17 FeMIMO EVM, 9 companies point out LLS is needed for SRS coverage/capacity enhancements and 3 companies think LLS is needed for antenna switching xTyR for up to 8 Rx antennas.

Please provide your views on the target enhancements requiring LLS, for which candidates include

* SRS coverage/capacity enhancement,
* SRS antenna switching xTyR for up to 8 Rx antennas.

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## Evaluation metrics

Please provide your views on evaluation metrics for the target enhancements in Section 2.1, with the following as a start point.

* DL or UL BLER

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## Baseline

Please provide your views on baseline scheme used for the target enhancements in Section 2.1, with the following as a start point.

* Rel-15 SRS with R=1. Use m\_SRS=4 for the case with frequency hopping.

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## System setting

Please provide your views on the general system setting for the target enhancements in Section 2.1, with the following as a start point.

* Carrier frequency, sub-carrier spacing and system bandwidth
	+ For UL BLER, use 4GHz, 30KHz and 20MHz
	+ For DL BLER, use 3.5GHz, 30KHz and 20MHz
* Channel model
	+ CDL-C
* UE speed
	+ 3 km/h

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## MIMO setting

Please provide your views on MIMO setting for the target enhancements in Section 2.1, with the following as a start point.

* gNB and UE antennas for UL/DL transmission, e.g., number of Tx/Rx antennas, antenna configuration etc..
	+ 2 or 4 UE Tx/Rx antennas and 8-64 gNB Tx/Rx antennas
	+ For FR1, use omni UE antennas
	+ For FR2, use directional UE antennas
* Rank, precoder and MCS determination for UL/DL transmission
	+ For UL, rank, precoder and MCS are adaptive and indicated in DCI
	+ For DL, rank and precoder are derived with reciprocity and MCS can be fixed
* Precoding granularity for UL/DL transmission
	+ For UL, wideband TPMI is assumed
	+ For DL, a fixed PRG size = 2 PRBs, 4 PRBs or wideband can be assumed
* Number of TBs
	+ Assume 1 TB

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## SRS setting

Please provide your views on SRS setting for the target enhancements in Section 2.1, with the following as a start point.

* SRS frequency hopping
	+ Enable frequency hopping with m\_SRS=4
* Number of SRS ports
	+ 2 or 4 port SRS
* SRS periodicity
	+ 4 slots
* SRS comb
	+ Comb 2 or 4
* Repetition factor R
	+ R depends on the simulated scheme
* SRS channel estimation algorithm
	+ SRS channel estimation algorithm is left to companies’ choice

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## Other comments

Please provide your views on other aspects which are not included in the above.

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

***Proposal 2:*** *TBD*

# SLS methodology

## Target enhancements

In Phase-1 discussion of Rel-17 FeMIMO EVM, 2 companies think SLS can be used for SRS antenna switching xTyR for up to 8 Rx antennas, meanwhile 3 companies think SLS is useful for evaluating SRS capacity enhancement.

Please provide your views on the target enhancements which require SLS evaluation, for which candidates include

* SRS antenna switching xTyR for up to 8 Rx antennas
* SRS capacity enhancement

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

## SLS assumptions

For the target enhancements in Section 3.1, please provide your views on what simulation assumptions are needed besides the assumptions agreed in Rel-16, including the following bullets.

* Metric
	+ DL throughput
* Baseline
	+ Rel-15 SRS
* SRS setting, e.g., SRS periodicity, SRS error modelling, etc.
	+ 40 or 80 ms for SRS periodicity.
	+ Table A.1-2 of TR 36.897 for SRS error modelling

|  |  |
| --- | --- |
| Companies | Views |
|  |  |
|  |  |

***Proposal 3:*** *TBD*