WID:

|  |
| --- |
| Evaluate and, if needed, specify Type II port selection codebook enhancement (based on Rel.15/16 Type II port selection) where information related to angle(s) and delay(s) are estimated at the gNB based on SRS by utilizing DL/UL reciprocity of angle and delay, and the remaining DL CSI is reported by the UE, mainly targeting FDD FR1 to achieve better trade-off among UE complexity, performance and reporting overhead |

RAN1#104bis-e

Companies: HW, Nokia, CATT, MTK, Fraunhofer, QCM, SS, E///

Results comparing Mv=2 with Wf OFF (Mv=1)

|  |  |  |  |
| --- | --- | --- | --- |
| Company | 8 ports | 16 ports | 32 ports |
| C1 |  |  | No comparison |
| C2 |  |  | No comparison |
| C3 |  |  | Small gain (1%) |
| C4 |  | Mod gain (2-3%) |  |
| C5 |  | Small gain (~1%) | Very small gain (<0.5%) |
| C6 |  |  | No gain |
| C7 |  | Small gain (1-2%) | No gain |
| C8 | Gain (~4%) | Small gain (~1%) | No gain |
| Performance | Gain | Small gain | No gain |
| Overhead | Not too high | High | Highest |
| Complexity | Not too high | High | Highest |
| Overall trade-off among 3 metrics | Yes | No | No |

RAN1#105-e

Companies: HW, CATT, Fraunhofer, Nokia/NSB, SS, MTK, E///

Results comparing Mv=2 with Wf OFF (Mv=1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Company | 8 ports | 12 ports | 16 ports | 24 ports | 32 ports |
| C1 |  | 3.58% | 3.26% | 2.31% | 0.87% |
| C2 |  |  | <3% |  | <1.3% |
| C3 |  |  | ~1% |  | ~1% |
| C4 |  |  |  |  | No gain in lower overhead regime, very small gain in high overhead regime;New results: gain when there SRS BW < ½ CSIRS BW |
| C5 |  |  | Small gain (1-2%) |  | No gain |
| C6 |  |  | Mod gain (3-4%) |  |  |
| C7 | Mod gain (2-3%) |  | Mod gain (2-3%) |  | No gain |
| C8 |  |  |  |  |  |
| Performance | Gain |  | Small gain |  | No gain, very small gain |
| Overhead | Not too high |  | High |  | Highest |
| Complexity | Not too high |  | High |  | Highest |
| Overall trade-off among 3 metrics | Yes |  | No |  | No |

**Compromise (as commented by MTK)**

* UE capable of supporting Mv>1 (agreement from RAN1#104bis-e) shall report whether it support Mv=2 for P > 16 CSI-RS ports