# Annex B: Evaluations results

## B.1 Link level evaluation results

### B.1.1 Evaluation results for PDSCH/PUSCH

Table B.1.1-1: LLS template: SINR in dB achieving PDSCH/PUSCH BLER of 10% /1%

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz | 960KHz/2GHz |
| R1-2008547 / NTT DOCOMO | 7 | TDL-A, 5ns | -1.23 / 0.97 | -1.26 / 0.55 | -1.15 / 0.70 | NCP:-0.59 / 1.56ECP:-0.58 / 1.21 | NCP:-1.31 / 0.02ECP:-1.43 / 0.00 |
| TDL-A, 10ns | -1.58 / -0.14 | -1.56 / -0.07 | -1.19 / 0.60 | NCP:-0.52 / 1.33ECP:-0.52 / 1.20 | NCP:-0.94 / 0.03ECP:-0.90 / 0.03 |
| TDL-A, 20ns | -1.60 / -0.37 | -1.40 / 0.01 | -0.86 / 0.04 | NCP:-0.29 / 1.70ECP:-0.20 / 1.51 | NCP:-0.83 / 0.04ECP:-0.94 / 0.51 |
| TDL-A, 40ns | -1.44 / -0.13 | -1.00 / 0.03 | -0.29 / 0.06 | NCP:0.38 / 2.00ECP:0.44 / 2.00 | NCP:0.13 / 1.36ECP:0.03 / 1.01 |
| CDL-B, 20ns | -8.55 / -6.40 | -8.71 / -7.00 | -8.67 / -6.80 | NCP:-8.14 / -6.31ECP:-8.03 / -6.06 | NCP:-8.18 / -6.19ECP:-8.26 / -6.05 |
| CDL-B, 50ns | -8.74 / -6.92 | -8.61 / -6.70 | -8.38 / -6.27 | NCP:-7.67 / -5.36ECP:-7.47 / -5.53 | NCP:-7.48 / -5.32ECP:-7.45 / -5.21 |
| CDL-D, 20ns | -23.03 / -22.93 | -23.00 / -22.93 | -23.19 / -22.93 | NCP:-22.99 / -22.93ECP:-22.99 / -22.92 | NCP:-22.99 / -22.92ECP:-22.98 / -22.91 |
| CDL-D, 30ns | -23.00 / -22.93 | -23.00 / -22.93 | -23.19 / -22.94 | NCP:-22.99 / -23.93ECP:-22.99 / -22.92 | NCP:-22.99 / -23.92ECP:-22.98 / -22.91 |
| 16 | TDL-A, 5ns | 6.79 / 8.94 | 6.83 / 8.71 | 7.20 / 9.64 | NCP:8.13 / 11.09ECP:7.52 / 10.50 | NCP:8.30 / 15.27ECP:7.97 / 12.42 |
| TDL-A, 10ns | 6.42 / 8.00 | 6.62 / 8.01 | 7.32 / 9.30 | NCP:8.18 / 11.15ECP:7.74 / 10.00 | NCP:8.88 / 15.59ECP:8.62 / 13.06 |
| TDL-A, 20ns | 6.59 / 8.01 | 6.93 / 8.03 | 7.65 / 9.59 | NCP:8.40 / 11.32ECP:8.02 / 9.91 | NCP:9.16 / 18.00ECP:8.87 / 13.54 |
| TDL-A, 40ns | 6.74 / 8.01 | 7.45 / 9.19 | 8.03 / 10.15 | NCP:9.35 / 13.20ECP:8.58 / 10.89 | NCP:10.09 / xECP:9.58 / 16.95 |
| CDL-B, 20ns | -0.31 / 1.62 | -0.54 / 1.51 | -0.17 / 2.33 | NCP:0.19 / 2.66ECP:-0.13 / 2.45 | NCP:1.22 / 9.31ECP:0.88 / 5.00 |
| CDL-B, 50ns | -0.20 / 1.68 | -0.38 / 1.84 | 0.12 / 2.28 | NCP:0.89 / 3.74ECP:0.50 / 3.00 | NCP:1.96 / 15.00ECP:1.63 / 6.45 |
| CDL-D, 20ns | -14.97 / -14.90 | -14.97 / -14.90 | -14.97 / -14.90 | NCP:-14.96 / -14.90ECP:-14.96 / -14.90 | NCP:-14.33 / -13.38ECP:-14.27 / -13.29 |
| CDL-D, 30ns | -14.97 / --14.90 | -14.97 / -14.90 | -14.97 / --14.90 | NCP:-14.96 / -14.90ECP:-14.96 / -14.90 | NCP:-14.26 / -13.23ECP:-14.29 / -13.37 |
| 22 | TDL-A, 5ns | 17.38 / x | 18.52 / x | 23.84 / x | NCP:25.11 / xECP:22.00 / x | NCP:x / xECP:x / x |
| TDL-A, 10ns | 18.48 / x | 19.66 / x | 30.32 / x | NCP:30.79 / xECP:26.24 / x | NCP:x / xECP:x / x |
| TDL-A, 20ns | 18.66 / x | 20.22 / x | x / x | NCP:x / xECP:x / x | NCP:x / xECP:x / x |
| TDL-A, 40ns | 19.87 / x | 22.64 / x | x / x | NCP:x / xECP:x / x | NCP:x / xECP:x / x |
| CDL-B, 20ns | 12.36 / x | 15.35 / x | 31.00 / x | NCP:29.32 / xECP:22.31 / x | NCP:x / xECP:x / x |
| CDL-B, 50ns | 13.74 / x | 15.78 /  | x / x | NCP:x / xECP:40.00 / x | NCP:x / xECP:x / x |
| CDL-D, 20ns | -6.94 / -0.05 | -7.21 / -1.00 | -7.34 / x | NCP:-7.34 / xECP:-7.27 / x | NCP:x / xECP:x / x |
| CDL-D, 30ns | -6.68 / x | -7.32 / -2.40 | -7.24 / x | NCP:-7.29 / xECP:-7.20 / x | NCP:x / xECP:x / x |
| Additional report/notes:1. CP type:
	1. For 960 kHz, ECP is also investigated in addition to normal CP.
2. antenna configuration for CDL model
	1. Antenna configuration: (1,1,8,16,2)
3. PTRS configuration
	1. K = 2, L = 1
4. DMRS configuration
	1. 1 symbol front-loaded DMRS

Note: “x” in the table means the target BLER level cannot be reached. |

### B.1.2 Evaluation results for PSS/SSS

Table B.1.2: LLS template: SINR in dB achieving cell ID detection probability of 90% by one-shot detection from PSS/SSS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008547 / NTT DOCOMO | TDL-A, 5ns | 4.1 | 2.8 | 1.9 | 2.9 |
| TDL-A, 10ns | 2.4 | 1.9 | 2.4 | 3.8 |
| TDL-A, 20ns | 1.7 | 2.8 | 3.6 | 4.6 |
| CDL-B, 20ns |  |  |  |  |
| CDL-B, 50ns |  |  |  |  |
| CDL-D, 20ns |  |  |  |  |
| CDL-D, 30ns |  |  |  |  |
| Additional report/notes: 1. frequency offset: +/- 0.5 ppm at gNB, +/- 5 ppm at UE
2. the number and granularity of the frequency locations: -1.5\*SCS to 1.5 SCS, with the granularity less than SCS/2 (IFO and FFO are estimated)
3. antenna configuration for CDL model: N/A
4. any optional or other assumption/parameters used not as in the baseline
5. false alarm rate: less than 1 %
6. criteria for PSS detection success: correct cell ID
 |

### B.1.3 Evaluation results for PRACH

Table B.1.3-1: LLS template: SINR in dB achieving PRACH preamble misdetection probability of 1% and corresponding false alarm probability

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008547 / NTT DOCOMO | TDL-A, 5ns | 1.1/<0.001 | 0.4/<0.001 | 0.2/<0.001 | -0.3/<0.001 |
| TDL-A, 10ns | 0.8/<0.001 | 0.8/<0.001 | -0.4/<0.001 | -1.2/<0.001 |
| TDL-A, 20ns | 1.4/<0.001 | 0.3/<0.001 | -0.8/<0.001 | -0.2/<0.001 |
| CDL-B, 20ns |  |  |  |  |
| CDL-B, 50ns |  |  |  |  |
| CDL-D, 20ns |  |  |  |  |
| CDL-D, 30ns |  |  |  |  |
| Additional report/notes: 1. PRACH format: A12. values of $N\_{cs}$: No cyclic shift3. antenna configuration for CDL model: N/A4. any optional or other assumption/parameters used not as in the baseline- #loops for each combination of SCS and DS: 1000 |

## B.2 System level evaluation results

Table B.2-1: System level evaluation results for scenario

|  |  |  |  |
| --- | --- | --- | --- |
|  | Cases | Case 1: Indoor-C Scenario(2GHz CBW) |  Case 2: Indoor-C Scenario(400MHz CBW) |
| R1-2008547 / NTT DOCOMO | Traffic loadMetrics  | Low load | Medium load | High load | Low load | Medium load | High load |
| DL UPT (Mbps) | 5%ile | 4842 | 2722 | 1175 | 1354 | 618 | 280 |
| 50%ile | 10402 | 7727 | 5254 | 3053 | 1870 | 1191 |
| 95%ile | 15275 | 15275 | 13382 | 3053 | 3053 | 3053 |
| mean | 10161 | 8044 | 6080 | 2611 | 1926 | 1408 |
| DL delay (ms) | 5%ile | 14 | 14 | 16 | 71 | 71 | 71 |
| 50%ile | 21 | 28 | 41 | 71 | 115 | 181 |
| 95%ile | 45 | 79 | 183 | 160 | 350 | 771 |
| mean | 24 | 36 | 68 | 90 | 150 | 275 |
| UL UPT (Mbps) | 5%ile | 489 | 223 | 172 | 283 | 132 | 62 |
| 50%ile | 1203 | 665 | 517 | 511 | 357 | 245 |
| 95%ile | 1947 | 1539 | 1597 | 723 | 626 | 590 |
| mean | 1176 | 760 | 656 | 514 | 369 | 284 |
| UL delay (ms) | 5%ile | 104 | 138 | 133 | 295 | 345 | 366 |
| 50%ile | 179 | 325 | 417 | 423 | 601 | 881 |
| 95%ile | 413 | 934 | 1254 | 761 | 1616 | 3498 |
| mean | 220 | 416 | 522 | 447 | 759 | 1267 |
| Arrival rate (files/s) | 48 | 192 | 288 | 9.6 | 48 | 72 |
| 𝜌DL | 100% | 100% | 100% | 100% | 100% | 100% |
| 𝜌UL | 100% | 100% | 100% | 100% | 100% | 99.9% |
| BO | 8% | 35% | 53% | 6% | 31% | 51% |