# 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 /  1.56  ECP:  -0.58 /  1.21 | NCP:  -1.31 / 0.02  ECP:  -1.43 / 0.00 |
| TDL-A, 10ns | -1.58 /  -0.14 | -1.56 /  -0.07 | -1.19 /  0.60 | NCP:  -0.52 /  1.33  ECP:  -0.52 /  1.20 | NCP:  -0.94 / 0.03  ECP:  -0.90 / 0.03 |
| TDL-A, 20ns | -1.60 /  -0.37 | -1.40 / 0.01 | -0.86 / 0.04 | NCP:  -0.29 /  1.70  ECP:  -0.20 /  1.51 | NCP:  -0.83 / 0.04  ECP:  -0.94 / 0.51 |
| TDL-A, 40ns | -1.44 /  -0.13 | -1.00 / 0.03 | -0.29 / 0.06 | NCP:  0.38 / 2.00  ECP:  0.44 / 2.00 | NCP:  0.13 / 1.36  ECP:  0.03 / 1.01 |
| CDL-B, 20ns | -8.55 /  -6.40 | -8.71 /  -7.00 | -8.67 /  -6.80 | NCP:  -8.14 /  -6.31  ECP:  -8.03 /  -6.06 | NCP:  -8.18 /  -6.19  ECP:  -8.26 /  -6.05 |
| CDL-B, 50ns | -8.74 /  -6.92 | -8.61 /  -6.70 | -8.38 /  -6.27 | NCP:  -7.67 /  -5.36  ECP:  -7.47 /  -5.53 | NCP:  -7.48 /  -5.32  ECP:  -7.45 /  -5.21 |
| CDL-D, 20ns | -23.03 /  -22.93 | -23.00 /  -22.93 | -23.19 /  -22.93 | NCP:  -22.99 /  -22.93  ECP:  -22.99 /  -22.92 | NCP:  -22.99 /  -22.92  ECP:  -22.98 /  -22.91 |
| CDL-D, 30ns | -23.00 /  -22.93 | -23.00 /  -22.93 | -23.19 /  -22.94 | NCP:  -22.99 /  -23.93  ECP:  -22.99 /  -22.92 | NCP:  -22.99 /  -23.92  ECP:  -22.98 /  -22.91 |
| 16 | TDL-A, 5ns | 6.79 / 8.94 | 6.83 / 8.71 | 7.20 / 9.64 | NCP:  8.13 / 11.09  ECP:  7.52 / 10.50 | NCP:  8.30 / 15.27  ECP:  7.97 / 12.42 |
| TDL-A, 10ns | 6.42 / 8.00 | 6.62 / 8.01 | 7.32 / 9.30 | NCP:  8.18 / 11.15  ECP:  7.74 / 10.00 | NCP:  8.88 / 15.59  ECP:  8.62 / 13.06 |
| TDL-A, 20ns | 6.59 / 8.01 | 6.93 / 8.03 | 7.65 / 9.59 | NCP:  8.40 / 11.32  ECP:  8.02 / 9.91 | NCP:  9.16 / 18.00  ECP:  8.87 / 13.54 |
| TDL-A, 40ns | 6.74 / 8.01 | 7.45 / 9.19 | 8.03 / 10.15 | NCP:  9.35 / 13.20  ECP:  8.58 / 10.89 | NCP:  10.09 / x  ECP:  9.58 / 16.95 |
| CDL-B, 20ns | -0.31 / 1.62 | -0.54 / 1.51 | -0.17 / 2.33 | NCP:  0.19 / 2.66  ECP:  -0.13 / 2.45 | NCP:  1.22 / 9.31  ECP:  0.88 / 5.00 |
| CDL-B, 50ns | -0.20 / 1.68 | -0.38 / 1.84 | 0.12 / 2.28 | NCP:  0.89 / 3.74  ECP:  0.50 / 3.00 | NCP:  1.96 / 15.00  ECP:  1.63 / 6.45 |
| CDL-D, 20ns | -14.97 /  -14.90 | -14.97 /  -14.90 | -14.97 /  -14.90 | NCP:  -14.96 /  -14.90  ECP:  -14.96 /  -14.90 | NCP:  -14.33 /  -13.38  ECP:  -14.27 /  -13.29 |
| CDL-D, 30ns | -14.97 / --14.90 | -14.97 / -14.90 | -14.97 / --14.90 | NCP:  -14.96 /  -14.90  ECP:  -14.96 /  -14.90 | NCP:  -14.26 /  -13.23  ECP:  -14.29 /  -13.37 |
| 22 | TDL-A, 5ns | 17.38 / x | 18.52 / x | 23.84 / x | NCP:  25.11 / x  ECP:  22.00 / x | NCP:  x / x  ECP:  x / x |
| TDL-A, 10ns | 18.48 / x | 19.66 / x | 30.32 / x | NCP:  30.79 / x  ECP:  26.24 / x | NCP:  x / x  ECP:  x / x |
| TDL-A, 20ns | 18.66 / x | 20.22 / x | x / x | NCP:  x / x  ECP:  x / x | NCP:  x / x  ECP:  x / x |
| TDL-A, 40ns | 19.87 / x | 22.64 / x | x / x | NCP:  x / x  ECP:  x / x | NCP:  x / x  ECP:  x / x |
| CDL-B, 20ns | 12.36 / x | 15.35 / x | 31.00 / x | NCP:  29.32 / x  ECP:  22.31 / x | NCP:  x / x  ECP:  x / x |
| CDL-B, 50ns | 13.74 / x | 15.78 / | x / x | NCP:  x / x  ECP:  40.00 / x | NCP:  x / x  ECP:  x / x |
| CDL-D, 20ns | -6.94 /  -0.05 | -7.21 /  -1.00 | -7.34 / x | NCP:  -7.34 /  x  ECP:  -7.27 / x | NCP:  x / x  ECP:  x / x |
| CDL-D, 30ns | -6.68 / x | -7.32 /  -2.40 | -7.24 / x | NCP:  -7.29 / x  ECP:  -7.20 / x | NCP:  x / x  ECP:  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: A1  2. values of : No cyclic shift  3. antenna configuration for CDL model: N/A  4. 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 load  Metrics | | 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% |