# Annex B: Evaluations results

## B.1 Link level evaluation results

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

Table 1: CINR in dB achieving PDSCH iBLER of 10% ∕ 1%: 1 DMRS symbol

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz | 960KHz/2GHz |
| R1-2008615 / Qualcomm | 7 | TDL-A, 5ns | -1.3/0.8 | -1.2/0.8 | -0.9/1.0 | -0.1/2.2 | -1.3/0.2 |
| TDL-A, 10ns | -1.4/0.2 | -1.4/0.2 | -1.0/0.7 | 0.2/1.9 | -0.9/0.4 |
| TDL-A, 20ns | -1.4/0.6 | -1.1/0.8 | 0.2/1.5 | 0.9/2.5 | 0.4/1.0 |
| CDL-B, 20ns (Cfg. 1) | -7.3/0.5 | -7.4/0.5 | -7.3/1.0 | -6.8/1.7 | -7.2/1.2 |
| CDL-B, 50ns (Cfg. 1) | -7.4/0.6 | -7.2/1.1 | -7.0/1.6 | -6.1/3.3 | -6.5/2.9 |
| CDL-D, 20ns (Cfg. 1) | -17.3/-11.1 | -17.3/-10.9 | -17.3/-10.9 | -17.0/-10.4 | -17.4/-11.1 |
| CDL-D, 30ns (Cfg. 1) | -17.3/-11.1 | -17.3/-11.0 | -17.3/-10.9 | -16.8/-10.4 | -17.4/-11.1 |
| CDL-B, 20ns (Cfg. 2) | -1.0/5.5 | -1.1/5.8 | -1.0/6.3 | -0.4/7.2 | -0.6/6.6 |
| CDL-B, 50ns (Cfg. 2) | -0.8/5.6 | -0.6/6.4 | -0.4/7.0 | 0.7/9.0 | 0.4/8.7 |
| CDL-D, 20ns (Cfg. 2) | -5.4/0.5 | -5.3/0.9 | -5.4/0.9 | -5.0/1.6 | -5.5/0.8 |
| CDL-D, 30ns (Cfg. 2) | -5.4/0.6 | -5.3/0.9 | -5.3/1.0 | -5.0/1.7 | -5.4/1.1 |
| 16 | TDL-A, 5ns | 6.6/8.6 | 6.5/8.6 | 6.6/8.6 | 6.9/9.1 | 6.3/7.9 |
| TDL-A, 10ns | 6.4/7.9 | 6.4/7.9 | 6.7/8.7 | 7.1/9.0 | 6.7/8.0 |
| TDL-A, 20ns | 6.0/7.8 | 6.3/7.9 | 6.8/8.3 | 7.9/9.8 | 7.4/8.7 |
| CDL-B, 20ns (Cfg. 1) | 1.1/8.3 | 1.0/8.5 | 1.2/8.7 | 1.2/8.9 | 0.8/8.8 |
| CDL-B, 50ns (Cfg. 1) | 1.2/8.7 | 1.1/8.8 | 1.2/9.3 | 1.6/11.9 | 1.3/12.0 |
| CDL-D, 20ns (Cfg. 1) | -9.0/-2.9 | -9.1/-3.3 | -9.1/-3.3 | -9.1/-3.5 | -9.5/-3.4 |
| CDL-D, 30ns (Cfg. 1) | -8.9/-3.2 | -9.1/-3.3 | -9.1/-3.4 | -9.2/-3.4 | -9.5/-3.6 |
| CDL-B, 20ns (Cfg. 2) | 7.2/13.4 | 7.2/13.6 | 7.6/14.0 | 7.6/14.5 | 7.6/14.3 |
| CDL-B, 50ns (Cfg. 2) | 7.6/13.9 | 7.6/14.1 | 8.1/14.9 | 9.0/19.0 | 8.8/19.0 |
| CDL-D, 20ns (Cfg. 2) | 2.9/8.5 | 2.8/8.4 | 2.9/8.7 | 2.9/8.7 | 2.6/8.5 |
| CDL-D, 30ns (Cfg. 2) | 3.0/8.7 | 2.9/8.5 | 2.9/8.8 | 2.9/8.8 | 2.6/8.7 |
| 22 | TDL-A, 5ns | 13.2/15.1 | 12.5/14.7 | 11.8/13.8 | 12.0/14.1 | 11.6/13.0 |
| TDL-A, 10ns | 13.4/15.4 | 12.3/14.3 | 11.9/13.7 | 12.3/14.0 | 11.9/13.5 |
| TDL-A, 20ns | 13.2/15.6 | 12.7/14.6 | 12.3/14.3 | 13.4/15.0 | 13.1/14.5 |
| CDL-B, 20ns (Cfg. 1) | 7.7/15.3 | 7.1/14.8 | 6.4/13.9 | 6.5/14.0 | 6.4/14.1 |
| CDL-B, 50ns (Cfg. 1) | 7.6/15.5 | 7.1/15.0 | 6.7/14.8 | 7.1/− | 7.2/− |
| CDL-D, 20ns (Cfg. 1) | -3.0/2.9 | -3.5/2.6 | -4.0/1.9 | -4.1/1.7 | -4.1/1.7 |
| CDL-D, 30ns (Cfg. 1) | -3.1/2.9 | -3.5/2.5 | -4.0/1.9 | -4.1/1.8 | -4.2/1.7 |
| CDL-B, 20ns (Cfg. 2) | 13.8/20.5 | 12.9/20.1 | 12.7/19.4 | 12.9/20.0 | 13.0/20.2 |
| CDL-B, 50ns (Cfg. 2) | 14.1/21.1 | 13.8/20.8 | 13.5/21.0 | 14.9/− | 15.0/− |
| CDL-D, 20ns (Cfg. 2) | 8.8/14.8 | 8.6/14.6 | 8.4/14.4 | 8.3/14.6 | 8.2/14.4 |
| CDL-D, 30ns (Cfg. 2) | 9.0/14.9 | 8.9/14.9 | 8.5/14.6 | 8.3/14.6 | 8.3/14.6 |
| Additional report/notes:1. CP type: NCP
2. antenna configuration for CDL model: Config 1 and Config 2
3. waveform in case of PUSCH
4. PTRS configuration: (K=4, L=1)
5. DMRS configuration: 1 DMRS, front loaded
6. any optional or other assumption/parameters used not as in the baseline: CPE compensation
 |

Table 2: CINR in dB achieving PDSCH iBLER of 10% ∕ 1%: 2 DMRS symbol

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz | 960KHz/2GHz |
| R1-2008615 / Qualcomm | 7 | TDL-A, 5ns | -1.4/0.8 | -1.5/0.8 | -1.4/1.0 | -0.2/1.7 | -1.6/0.4 |
| TDL-A, 10ns | -1.8/0.5 | -1.7/0.5 | -1.4/0.7 | -0.1/1.4 | -1.4/0.5 |
| TDL-A, 20ns | -1.8/0.2 | -1.5/0.5 | -1.2/0.8 | 0.2/1.6 | -1.2/0.7 |
| CDL-B, 20ns (Cfg. 1) | -7.5/0.3 | -7.6/0.4 | -7.6/0.6 | -7.1/1.2 | -7.6/0.6 |
| CDL-B, 50ns (Cfg. 1) | -7.6/0.3 | -7.5/0.4 | -7.3/0.8 | -6.5/2.3 | -7.1/1.7 |
| CDL-D, 20ns (Cfg. 1) | -17.4/-11.2 | -17.4/-11.2 | -17.4/-11.2 | -17.0/-10.5 | -17.5/-11.3 |
| CDL-D, 30ns (Cfg. 1) | -17.4/-11.3 | -17.4/-11.2 | -17.5/-11.1 | -17.1/-10.5 | -17.5/-11.4 |
| CDL-B, 20ns (Cfg. 2) | -1.2/5.1 | -1.3/5.5 | -1.2/5.8 | -0.7/6.6 | -0.7/5.9 |
| CDL-B, 50ns (Cfg. 2) | -1.0/5.4 | -0.8/5.6 | -0.7/6.3 | -0.1/7.8 | -0.4/7.5 |
| CDL-D, 20ns (Cfg. 2) | -5.5/0.5 | -5.5/0.7 | -5.5/0.8 | -5.0/1.5 | -5.6/0.7 |
| CDL-D, 30ns (Cfg. 2) | -5.6/0.6 | -5.4/0.7 | -5.5/0.8 | -5.1/1.5 | -5.4/0.8 |
| 16 | TDL-A, 5ns | 6.2/8.6 | 6.3/8.0 | 6.3/8.3 | 6.7/8.9 | 5.9/7.4 |
| TDL-A, 10ns | 6.1/7.9 | 6.0/7.8 | 6.4/7.9 | 6.7/8.7 | 6.1/7.5 |
| TDL-A, 20ns | 5.9/7.5 | 6.2/7.8 | 6.7/7.9 | 7.0/8.8 | 6.4/7.7 |
| CDL-B, 20ns (Cfg. 1) | 0.9/8.0 | 0.7/7.8 | 1.0/7.9 | 1.2/8.1 | 0.5/8.00 |
| CDL-B, 50ns (Cfg. 1) | 1.0/8.2 | 0.8/8.2 | 0.9/8.5 | 1.7/10.8 | 1.1/11.2 |
| CDL-D, 20ns (Cfg. 1) | -9.2/-3.5 | -9.3/-3.5 | -9.3/-3.5 | -9.3/-3.5 | -9.6/-3.7 |
| CDL-D, 30ns (Cfg. 1) | -9.2/-3.5 | -9.3/-3.6 | -9.3/-3.4 | -9.3/-3.5 | -9.6/-3.7 |
| CDL-B, 20ns (Cfg. 2) | 7.0/13.2 | 6.9/13.3 | 7.2/13.6 | 7.3/14.0 | 7.1/13.7 |
| CDL-B, 50ns (Cfg. 2) | 7.3/13.6 | 7.4/13.6 | 7.6/14.3 | 8.5/17.8 | 8.3/18.1 |
| CDL-D, 20ns (Cfg. 2) | 2.7/8.3 | 2.7/8.3 | 2.8/8.4 | 2.8/8.5 | 2.5/8.2 |
| CDL-D, 30ns (Cfg. 2) | 2.8/8.5 | 2.7/8.4 | 2.8/8.5 | 2.8/8.6 | 2.4/8.3 |
| 22 | TDL-A, 5ns | 13.1/15.8 | 12.4/14.9 | 11.6/13.6 | 11.7/13.9 | 11.4/12.9 |
| TDL-A, 10ns | 13.0/15.7 | 12.3/14.3 | 11.5/13.2 | 11.7/13.7 | 11.6/12.9 |
| TDL-A, 20ns | 12.9/15.5 | 12.5/14.8 | 11.9/13.4 | 12.5/14.0 | 12.4/13.9 |
| CDL-B, 20ns (Cfg. 1) | 7.8/15.2 | 7.1/14.7 | 6.1/13.5 | 6.0/13.6 | 6.3/13.9 |
| CDL-B, 50ns (Cfg. 1) | 7.7/15.3 | 7.1/14.9 | 6.2/13.9 | 6.6/− | 6.9/− |
| CDL-D, 20ns (Cfg. 1) | -2.9/2.9 | -3.4/2.6 | -4.1/1.7 | -4.2/1.7 | -4.1/1.7 |
| CDL-D, 30ns (Cfg. 1) | -2.9/2.9 | -3.3/2.7 | -4.1/1.7 | -4.2/1.6 | -4.1/1.7 |
| CDL-B, 20ns (Cfg. 2) | 13.8/20.5 | 13.2/19.3 | 12.5/19.1 | 12.5/19.3 | 12.8/19.6 |
| CDL-B, 50ns (Cfg. 2) | 14.0/20.9 | 13.6/20.4 | 12.8/19.9 | 14.2/− | 14.7/− |
| CDL-D, 20ns (Cfg. 2) | 9.0/14.9 | 8.8/14.9 | 8.2/14.0 | 8.1/14.3 | 8.3/14.5 |
| CDL-D, 30ns (Cfg. 2) | 9.2/15.2 | 9.0/15.1 | 8.3/14.1 | 8.1/14.3 | 8.3/15.0 |
| Additional report/notes:1. CP type: NCP
2. antenna configuration for CDL model: Config 1 and Config 2
3. waveform in case of PUSCH
4. PTRS configuration: (K=4, L=1)
5. DMRS configuration: 2 DMRSs, (2, 11)
6. any optional or other assumption/parameters used not as in the baseline: CPE compensation
 |

Table 3: CINR in dB achieving PUSCH iBLER of 10% ∕ 1%: 1 DMRS symbol

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz | 960KHz/2GHz |
| R1-2008615 / Qualcomm | 7 | TDL-A, 5ns | 2.5/5.7 | 2.3/5.6 | 2.1/5.2 | 1.9/4.8 | 2.9/5.6 |
| TDL-A, 10ns | 2.8/5.7 | 2.7/5.6 | 2.6/5.5 | 2.6/5.0 | 3.4/5.8 |
| TDL-A, 20ns | 3.0/5.7 | 3.0/5.6 | 3.1/5.7 | 3.3/5.5 | 4.0/6.5 |
| CDL-B, 20ns (Cfg. 1) | -4.4/4.9 | -4.6/4.8 | -4.6/4.7 | -4.7/4.7 | -3.5/5.3 |
| CDL-B, 50ns (Cfg. 1) | -4.0/4.9 | -3.8/4.9 | -3.8/5.1 | -3.8/6.1 | -3.1/6.8 |
| CDL-D, 20ns (Cfg. 1) | -15.3/-8.5 | -15.2/-8.6 | -15.5/-9.1 | -15.9/-9.2 | -15.4/-8.8 |
| CDL-D, 30ns (Cfg. 1) | -15.2/-8.4 | -15.4/-8.7 | -15.4/-9.0 | -16.0/-9.3 | -15.4/-8.8 |
| CDL-B, 20ns (Cfg. 2) | 2.0/10.3 | 2.2/10.3 | 2.1/10.2 | 1.9/9.9 | 2.0/9.9 |
| CDL-B, 50ns (Cfg. 2) | 2.0/10.3 | 2.3/9.9 | 2.5/10.6 | 2.9/12.0 | 2.6/11.7 |
| CDL-D, 20ns (Cfg. 2) | -3.3/3.6 | -3.4/3.4 | -3.4/3.1 | -3.9/2.9 | -3.5/3.6 |
| CDL-D, 30ns (Cfg. 2) | -3.4/3.6 | -3.5/3.0 | -3.5/3.2 | -4.0/2.8 | -3.5/3.5 |
| 16 | TDL-A, 5ns | 8.8/11.8 | 8.3/11.3 | 8.1/11.2 | 8.4/11.4 | 9.0/11.2 |
| TDL-A, 10ns | 9.5/12.0 | 8.8/11.2 | 8.7/11.0 | 9.1/11.6 | 9.6/11.2 |
| TDL-A, 20ns | 9.8/12.0 | 8.9/11.3 | 9.1/11.0 | 10.3/12.5 | 10.5/12.0 |
| CDL-B, 20ns (Cfg. 1) | 3.5/11.6 | 2.9/10.9 | 2.8/11.0 | 3.2/11.5 | 3.6/11.8 |
| CDL-B, 50ns (Cfg. 1) | 3.7/11.7 | 3.2/11.3 | 3.2/11.6 | 3.6/16.0 | 3.9/15.8 |
| CDL-D, 20ns (Cfg. 1) | -8.4/-2.5 | -9.1/-3.2 | -9.2/-3.3 | -9.0/-3.2 | -8.9/-2.9 |
| CDL-D, 30ns (Cfg. 1) | -8.4/-2.5 | -9.1/-3.1 | -9.2/-3.3 | -9.0/-3.1 | -9.0/-3.0 |
| CDL-B, 20ns (Cfg. 2) | 10.1/16.9 | 9.5/16.5 | 9.3/16.4 | 9.9/17.1 | 10.3/17.0 |
| CDL-B, 50ns (Cfg. 2) | 10.4/16.7 | 10.1/16.5 | 10.1/17.1 | 11.3/27.9 | 11.3/− |
| CDL-D, 20ns (Cfg. 2) | 3.5/9.4 | 3.0/8.9 | 3.0/8.8 | 3.1/9.1 | 3.2/9.1 |
| CDL-D, 30ns (Cfg. 2) | 3.6/9.4 | 3.2/9.0 | 2.9/9.0 | 3.1/9.0 | 3.2/9.6 |
| 22 | TDL-A, 5ns | 15.8/20.4 | 13.7/17.1 | 13.3/16.5 | 13.4/16.7 | 14.6/16.5 |
| TDL-A, 10ns | 16.6/21.2 | 14.5/17.5 | 13.9/16.6 | 14.4/16.7 | 14.9/16.9 |
| TDL-A, 20ns | 17.0/21.7 | 14.8/17.5 | 14.5/16.8 | 15.9/18.0 | 16.3/17.9 |
| CDL-B, 20ns (Cfg. 1) | 10.4/18.5 | 8.8/16.7 | 8.5/16.4 | 8.7/17.0 | 9.3/17.3 |
| CDL-B, 50ns (Cfg. 1) | 10.7/18.6 | 9.2/16.9 | 8.9/17.3 | 9.4/− | 9.6/− |
| CDL-D, 20ns (Cfg. 1) | -1.9/3.9 | -3.6/2.3 | -3.9/1.9 | -3.9/1.9 | -3.7/2.4 |
| CDL-D, 30ns (Cfg. 1) | -2.1/3.9 | -3.5/2.4 | -3.9/1.9 | -3.9/2.1 | -3.6/2.3 |
| CDL-B, 20ns (Cfg. 2) | 17.1/24.4 | 15.3/22.2 | 15.1/21.9 | 15.4/22.7 | 15.9/22.1 |
| CDL-B, 50ns (Cfg. 2) | 17.4/24.3 | 15.8/22.2 | 15.7/23.2 | 17.7/− | 18.1/− |
| CDL-D, 20ns (Cfg. 2) | 10.1/16.2 | 8.7/14.6 | 8.5/14.8 | 8.6/15.2 | 8.9/15.2 |
| CDL-D, 30ns (Cfg. 2) | 10.3/16.6 | 8.9/15.0 | 8.6/14.8 | 8.7/15.1 | 8.9/15.8 |
| Additional report/notes:1. CP type: NCP
2. antenna configuration for CDL model: Config 1 and Config 2
3. waveform in case of PUSCH: DFT-s-OFDM
4. PTRS configuration: (Ng=4, Ns=4, L=1)
5. DMRS configuration: 1 DMRS, front loaded
6. any optional or other assumption/parameters used not as in the baseline
 |

Table 4: CINR in dB achieving PUSCH iBLER of 10% ∕ 1%: 2 DMRS symbol

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz | 960KHz/2GHz |
| R1-2008615 / Qualcomm | 7 | TDL-A, 5ns | 2.2/5.3 | 1.8/5.4 | 1.3/4.0 | 1.5/4.3 | 2.4/5.2 |
| TDL-A, 10ns | 2.5/5.4 | 2.1/5.1 | 1.7/4.3 | 2.0/4.5 | 2.8/5.4 |
| TDL-A, 20ns | 2.8/5.3 | 2.4/4.9 | 1.9/4.0 | 2.4/4.8 | 3.1/5.7 |
| CDL-B, 20ns (Cfg. 1) | -4.7/4.5 | -5.0/4.1 | -5.4/3.7 | -5.3/4.0 | -4.0/4.6 |
| CDL-B, 50ns (Cfg. 1) | -4.2/4.6 | -4.4/4.3 | -4.9/4.0 | -4.4/4.9 | -3.9/6.1 |
| CDL-D, 20ns (Cfg. 1) | -15.4/-9.0 | -15.7/-9.1 | -16.2/-9.6 | -16.0/-9.5 | -15.6/-9.1 |
| CDL-D, 30ns (Cfg. 1) | -15.4/-8.8 | -15.7/-9.0 | -16.3/-9.5 | -16.1/-9.4 | -15.5/-9.0 |
| CDL-B, 20ns (Cfg. 2) | 1.9/10.1 | 1.8/9.5 | 1.1/8.8 | 1.4/9.5 | 2.3/9.9 |
| CDL-B, 50ns (Cfg. 2) | 1.9/9.8 | 2.0/9.4 | 1.5/9.1 | 2.1/10.6 | 2.8/11.6 |
| CDL-D, 20ns (Cfg. 2) | -3.6/3.2 | -3.6/2.6 | -4.3/2.2 | -4.1/2.5 | -3.6/3.2 |
| CDL-D, 30ns (Cfg. 2) | -3.7/3.4 | -3.9/3.2 | -4.4/2.3 | -4.2/2.6 | -3.7/3.3 |
| 16 | TDL-A, 5ns | 8.9/11.9 | 8.0/11.4 | 7.9/10.8 | 8.1/10.9 | 8.7/10.8 |
| TDL-A, 10ns | 9.3/12.0 | 8.6/11.0 | 8.8/10.8 | 8.6/10.9 | 9.0/10.9 |
| TDL-A, 20ns | 9.5/11.7 | 8.9/10.9 | 8.8/10.8 | 9.2/11.3 | 9.6/10.9 |
| CDL-B, 20ns (Cfg. 1) | 3.6/11.6 | 2.9/11.0 | 2.9/10.8 | 2.9/11.1 | 3.1/11.2 |
| CDL-B, 50ns (Cfg. 1) | 3.7/11.7 | 3.2/11.0 | 3.1/11.2 | 3.1/13.9 | 3.3/14.7 |
| CDL-D, 20ns (Cfg. 1) | -8.4/-2.4 | -9.0/-3.0 | -9.1/-3.1 | -9.2/-3.3 | -9.2/-3.1 |
| CDL-D, 30ns (Cfg. 1) | -8.4/-2.4 | -9.0/-2.9 | -9.0/-3.2 | -9.2/-3.2 | -9.2/-3.2 |
| CDL-B, 20ns (Cfg. 2) | 10.2/17.2 | 9.5/16.5 | 9.3/16.2 | 9.4/16.5 | 9.7/16.4 |
| CDL-B, 50ns (Cfg. 2) | 10.4/16.8 | 9.8/16.2 | 10.0/16.7 | 10.5/22.1 | 10.6/23.9 |
| CDL-D, 20ns (Cfg. 2) | 3.6/9.4 | 3.1/8.9 | 3.1/8.9 | 2.9/8.8 | 3.1/9.0 |
| CDL-D, 30ns (Cfg. 2) | 3.8/9.6 | 3.3/8.9 | 3.0/8.9 | 2.9/8.9 | 3.1/9.1 |
| 22 | TDL-A, 5ns | 15.4/18.9 | 13.6/17.1 | 12.9/16.1 | 12.9/16.0 | 14.2/16.4 |
| TDL-A, 10ns | 16.1/19.1 | 14.2/16.9 | 13.7/15.9 | 13.7/16.1 | 14.6/16.5 |
| TDL-A, 20ns | 16.3/19.2 | 14.7/16.8 | 14.0/16.1 | 14.8/17.3 | 15.6/17.2 |
| CDL-B, 20ns (Cfg. 1) | 10.3/18.2 | 8.9/16.7 | 8.2/16.1 | 8.3/16.5 | 9.1/16.8 |
| CDL-B, 50ns (Cfg. 1) | 10.4/18.3 | 9.1/16.7 | 8.6/16.6 | 8.9/− | 9.5/− |
| CDL-D, 20ns (Cfg. 1) | -2.1/3.7 | -3.4/2.5 | -4.1/1.8 | -4.1/1.8 | -3.6/2.4 |
| CDL-D, 30ns (Cfg. 1) | -2.0/3.8 | -3.5/2.5 | -4.1/1.8 | -4.0/1.9 | -3.6/2.4 |
| CDL-B, 20ns (Cfg. 2) | 16.8/23.9 | 15.3/22.1 | 14.8/21.5 | 15.0/22.0 | 15.7/22.5 |
| CDL-B, 50ns (Cfg. 2) | 17.1/23.7 | 15.8/21.9 | 15.2/22.4 | 16.9/− | 17.5/− |
| CDL-D, 20ns (Cfg. 2) | 10.1/16.2 | 8.8/14.7 | 8.3/14.5 | 8.4/14.7 | 9.0/15.0 |
| CDL-D, 30ns (Cfg. 2) | 10.4/16.1 | 9.0/15.2 | 8.4/14.6 | 8.5/14.9 | 9.0/15.6 |
| Additional report/notes:1. CP type: NCP
2. antenna configuration for CDL model: Config 1 and Config 2
3. waveform in case of PUSCH: DFT-s-OFDM
4. PTRS configuration: (Ng=4, Ns=4, L=1)
5. DMRS configuration: 2 DMRS, (2, 11)
6. any optional or other assumption/parameters used not as in the baseline
 |

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

Table 5: CINR in dB achieving PSS detection probability of 90%: one-shot, 5ppm

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008615 / Qualcomm | TDL-A, 5ns | -1.0 | -1.5 | -1.2 | 0.0 |
| TDL-A, 10ns | -0.9 | -1.2 | -0.2 | 0.3 |
| TDL-A, 20ns | -0.5 | -0.9 | 0.7 | 0.6 |
| CDL-B, 20ns (Cfg. 1)  | -6.6 | -7.1 | -6.6 | -5.8 |
| CDL-B, 50ns (Cfg. 1) | -6.5 | -6.5 | -6.2 | -5.1 |
| CDL-D, 20ns (Cfg. 1) | -19.9 | -20.1 | -20.3 | -19.9 |
| CDL-D, 30ns (Cfg. 1) | -19.8 | -20.1 | -20.2 | -20.1 |
| CDL-B, 20ns (Cfg. 2)  | -0.8 | -0.8 | -0.5 | 0.6 |
| CDL-B, 50ns (Cfg. 2) | -0.5 | -0.5 | 0.5 | 1.7 |
| CDL-D, 20ns (Cfg. 2) | -7.7 | -8.2 | -8.3 | -7.8 |
| CDL-D, 30ns (Cfg. 2) | -7.9 | -8.2 | -8.3 | -7.8 |
| Additional report/notes:1. Frequency offset: 5ppm
2. the number and granularity of the frequency locations: ${Δf}/{2} $
3. antenna configuration for CDL model: Config 1 and Config 2
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: residual timing error within a range of $\pm {T\_{CP}}/{2}$ and a residual frequency error within a range of $\pm {Δf}/{4}$
 |

Table 6: CINR in dB achieving PSS detection probability of 90%: one-shot, 10ppm

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008615 / Qualcomm | TDL-A, 5ns | -1.2 | -1.2 | -1.0 | -0.3 |
| TDL-A, 10ns | -1.3 | -1.0 | 0.0 | -0.2 |
| TDL-A, 20ns | -0.7 | -0.3 | 0.6 | -0.2 |
| CDL-B, 20ns (Cfg. 1)  | -7.2 | -6.5 | -6.8 | -6.3 |
| CDL-B, 50ns (Cfg. 1) | -6.8 | -6.1 | -6.0 | -5.4 |
| CDL-D, 20ns (Cfg. 1) | -20.1 | -19.7 | -20.3 | -20.5 |
| CDL-D, 30ns (Cfg. 1) | -20.1 | -19.7 | -20.2 | -20.5 |
| CDL-B, 20ns (Cfg. 2)  | -1.2 | -0.5 | -0.3 | 0.2 |
| CDL-B, 50ns (Cfg. 2) | -1.1 | 0.0 | 0.2 | 1.2 |
| CDL-D, 20ns (Cfg. 2) | -7.9 | -7.6 | -8.2 | -8.3 |
| CDL-D, 30ns (Cfg. 2) | -7.9 | -7.8 | -8.2 | -8.2 |
| Additional report/notes:1. Frequency offset: 10ppm
2. the number and granularity of the frequency locations: ${Δf}/{2} $
3. antenna configuration for CDL model: Config 1 and Config 2
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: residual timing error within a range of $\pm {T\_{CP}}/{2}$ and a residual frequency error within a range of $\pm {Δf}/{4}$
 |

Table 7: CINR in dB achieving PBCH BLER of 10% ∕ 1%

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008615 / Qualcomm | TDL-A, 5ns | -6.3/-1.3 | -6.4/-2.3 | -6.1/-2.1 | -6.1/-2.2 |
| TDL-A, 10ns | -6.3/-2.3 | -6.3/-2.1 | -6.1/-2.2 | -6.4/-3.0 |
| TDL-A, 20ns | -6.1/-1.8 | -5.9/-1.9 | -6.4/-3.2 | -6.7/-4.0 |
| CDL-B, 20ns (Cfg. 1) | -12.8/-5.3 | -12.4/-5.5 | -12.2/-5.3 | -12.0/-5.3 |
| CDL-B, 50ns (Cfg. 1) | -12.6/-5.6 | -12.2/-5.4 | -11.7/-4.9 | -11.3/-4.3 |
| CDL-D, 20ns (Cfg. 1) | -25.2/-20.2 | -25.1/-20.2 | -25.2/-20.1 | -25.2/-20.3 |
| CDL-D, 30ns (Cfg. 1) | -25.1/-20.1 | -25.2/-20.3 | -25.2/-20.1 | -25.2/-20.2 |
| CDL-B, 20ns (Cfg. 2)  | -7.0/-0.3 | -6.8/-0.5 | -6.5/-0.7 | -6.1/-0.5 |
| CDL-B, 50ns (Cfg. 2) | -6.6/-0.8 | -6.4/-0.9 | -5.7/-0.2 | -4.9/ 0.7 |
| CDL-D, 20ns (Cfg. 2) | -13.0/ -7.9 | -13.2/-7.7 | -12.9/-7.5 | -12.6/-7.1 |
| CDL-D, 30ns (Cfg. 2) | -12.9/-7.9 | -13.0/-7.6 | -12.7/-7.2 | -12.5/-6.5 |
| Additional report/notes:1. frequency offset: 5ppm
2. antenna configuration for CDL model: Config 1 and Config 2
3. any optional or other assumption/parameters used not as in the baseline: genie PSS/SSS
 |

### B.1.3 Evaluation results for PRACH

Table 8: CINR in dB achieving PRACH preamble misdetection probability of 1% ∕ false alarm: $L\_{RA}=139$

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008615 / Qualcomm | TDL-A, 5ns | -5.00|<0.1% | -5.52|<0.1% | -6.34|<0.1% | -6.15|<0.1% |
| TDL-A, 10ns | -6.00|<0.1% | -6.01|<0.1% | -6.28|<0.1% | -6.00|<0.1% |
| TDL-A, 20ns | -6.13|<0.1% | -6.00|<0.1% | -6.00|<0.1% | -6.00|<0.1% |
| CDL-B, 20ns (Cfg. 1) | -5.23|<0.1% | -5.45|<0.1% | -5.68|<0.1% | -6.12|<0.1% |
| CDL-B, 50ns (Cfg. 1) | -5.76|<0.1% | -6.06|<0.1% | -6.22|<0.1% | -5.87|<0.1% |
| CDL-D, 20ns (Cfg. 1) | -22.78|<0.1% | -22.97|<0.1% | -22.87|<0.1% | -22.96|<0.1% |
| CDL-D, 30ns (Cfg. 1) | -22.82|<0.1% | -22.93|<0.1% | -22.86|<0.1% | -22.97|<0.1% |
| CDL-B, 20ns (Cfg. 2) | -0.65|<0.1% | -0.45|<0.1% | -0.33|<0.1% | 0.00|<0.1% |
| CDL-B, 50ns (Cfg. 2) | 0.03|<0.1% | 0.42|<0.1% | -0.18|<0.1% | 1.22|<0.1% |
| CDL-D, 20ns (Cfg. 2) | -10.70|<0.1% | -10.64|<0.1% | -10.67|<0.1% | -10.58|<0.1% |
| CDL-D, 30ns (Cfg. 2) | -10.68|<0.1% | -10.62|<0.1% | -10.48|<0.1% | -10.64|<0.1% |
| Additional report/notes:1. PRACH format: A3, $L\_{RA}=139$
2. value of $N\_{CS}$: 46 (zeroCorrelationZoneConfig = 14) for CDL, 19 (zeroCorrelationZoneConfig = 10) for TDL
3. antenna configuration for CDL model: Config 1 and Config 2
4. any optional or other assumption/parameters used not as in the baseline
 |

Table 9: CINR in dB achieving PRACH preamble misdetection probability of 1% ∕ false alarm

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2008615 / Qualcomm | TDL-A, 5ns | -12.47|<0.1% | -12.50|<0.1% | -12.29|<0.1% | -12.55|<0.1% |
| TDL-A, 10ns | -12.56|<0.1% | -12.22|<0.1% | -12.54|<0.1% | -12.93|<0.1% |
| TDL-A, 20ns | -12.12|<0.1% | -12.35|<0.1% | -13.02|<0.1% | -12.33|<0.1% |
| CDL-B, 20ns (Cfg. 1) | -12.06|<0.1% | -12.33|<0.1% | -12.64|<0.1% | -11.07|<0.1% |
| CDL-B, 50ns (Cfg. 1) | -11.43|<0.1% | -11.45|<0.1% | -10.70|<0.1% | -10.28|<0.1% |
| CDL-D, 20ns (Cfg. 1) | -28.05|<0.1% | -28.08|<0.1% | -28.05|<0.1% | -28.03|<0.1% |
| CDL-D, 30ns (Cfg. 1) | -28.05|<0.1% | -28.08|<0.1% | -28.06|<0.1% | -28.03|<0.1% |
| CDL-B, 20ns (Cfg. 2) | -5.64|<0.1% | -5.46|<0.1% | -5.42|<0.1% | -5.00|<0.1% |
| CDL-B, 50ns (Cfg. 2) | -5.45|<0.1% | -5.28|<0.1% | -4.60|<0.1% | -3.47|<0.1% |
| CDL-D, 20ns (Cfg. 2) | -15.81|<0.1% | -15.85|<0.1% | -15.93|<0.1% | -15.76|<0.1% |
| CDL-D, 30ns (Cfg. 2) | -15.82|<0.1% | -15.88|<0.1% | -15.95|<0.1% | -15.77|<0.1% |
| Additional report/notes:1. PRACH format: A3, $L\_{RA}=571$
2. value of $N\_{CS}$: 190 (zeroCorrelationZoneConfig = 14) for CDL, 51 (zeroCorrelationZoneConfig = 10) for TDL
3. antenna configuration for CDL model: Config 1 and Config 2
4. any optional or other assumption/parameters used not as in the baseline
 |

## B.2 System level evaluation results

Table B.2-1-1: System level evaluation results for scenario Indoor Open Office 1/2

|  |  |  |  |
| --- | --- | --- | --- |
| Tdoc /Source | Cases | Case 1: -47dBM@gNB, Dynamic TDD (Mg,Ng,M,N,P) = (1,1,4,8,2) with (0.5 dv, 0.5 dH), 2Mbytes, 2 Operators,  | Case 2: -67dBM@gNB, (Mg,Ng,M,N,P) = (1,1,4,8,2) with (0.5 dv, 0.5 dH), 2Mbytes, 2 OperatorsOmni Listening |
| R1-xxxxxxx / Source 1 | Traffic loadMetrics  | Low load10%~25% BO  | Medium load35%~50% BO | High loadabove 55% BO | Low load10%~25% BO  | Medium load35%~50% BO | High loadabove 55% BO |
| DL UPT (Mbps) | 5%ile | 6381 | 3753 | 758 | 6176 | 3738 | 781 |
| 50%ile | 11297 | 8593 | 4511 | 11335 | 8607 | 4841 |
| 95%ile | 13685 | 12550 | 10440 | 13661 | 12503 | 10659 |
| mean | 10738 | 8387 | 4992 | 10734 | 8420 | 5170 |
| DL delay (ms) | 5%ile | 1.22 | 1.428 | 1.919 | 1.226 | 1.422 | 1.87 |
| 50%ile | 1.712 | 2.525 | 5.854 | 1.712 | 2.48 | 5.472 |
| 95%ile | 3.406 | 6.704 | 83.257 | 3.362 | 6.698 | 47.683 |
| mean | 1.942 | 3.172 | 24.875 | 1.944 | 3.111 | 20.491 |
| UL UPT (Mbps) | 5%ile | 4997 | 3438 | 935 | 4921 | 3506 | 972 |
| 50%ile | 8755 | 6996 | 4086 | 8731 | 7023 | 4281 |
| 95%ile | 10395 | 9591 | 8161 | 10372 | 9575 | 8316 |
| mean | 8407 | 6826 | 4300 | 8397 | 6841 | 4450 |
| UL delay (ms) | 5%ile | 1.597 | 1.791 | 2.357 | 1.604 | 1.806 | 2.287 |
| 50%ile | 2.091 | 2.921 | 6.543 | 2.099 | 2.881 | 6.041 |
| 95%ile | 3.822 | 6.702 | 37.443 | 3.872 | 6.7 | 36.987 |
| mean | 2.292 | 3.418 | 12.621 | 2.299 | 3.394 | 11.065 |
| Arrival rate (files/s) | 10 | 15 | 20 | 10 | 15 | 20 |  |
| 𝜌DL | 0.999 | 0.999 | 0.984 | 0.999 | 0.999 | 0.985 |  |
| 𝜌UL | 0.999 | 0.999 | 0.994 | 0.999 | 0.999 | 0.995 |  |
| BO | 0.18 | 0.33 | 0.508 | 0.18 | 0.326 | 0.502 |  |
| Additional report/notes: Case 1 and Case 21. LBT procedure and parameters : Case 1 and Case 2 Baseline LBT Procedure at gNB : 8us+(1-3)\*5us, at the gNB. Only gNBs perform extended CCA
2. any assumptions/parameters used not as in the agreed baseline
3. Details of case: e.g., single or two operators; no-LBT, omni-directional LBT, directional LBT schemes etc.: All Results with 2 operator Indoor scenario. Main assumptions provided in Column header and Table 1. Case 1 and Case 2: Omni Directional LBT with specified thresholds.
4. Other metric(s) and definition if reported
5. Details of COT sharing if used in evaluation: Only gNBs perform extended CCA. No COT sharing from UL to DL
 |

Table B.2-1-2: System level evaluation results for scenario Indoor Open Office 2/2

|  |  |  |  |
| --- | --- | --- | --- |
| Tdoc /Source | Cases | Case 3: -67dBM@gNB, Rx Assist (Mg,Ng,M,N,P) = (1,1,4,8,2) with (0.5 dv, 0.5 dH), 2Mbytes, 2 Operators, Omni Listening  | Case 4: -72dBM@gNB, Rx Assist (Mg,Ng,M,N,P) = (1,1,4,8,2) with (0.5 dv, 0.5 dH), 2Mbytes, 2 OperatorsOmni Listening |
| R1-xxxxxxx / Source 1 | Traffic loadMetrics  | Low load10%~25% BO  | Medium load35%~50% BO | High loadabove 55% BO | Low load10%~25% BO  | Medium load35%~50% BO | High loadabove 55% BO |
| DL UPT (Mbps) | 5%ile | 6275 | 3713 | 851 | 6368 | 3855 | 1146 |
| 50%ile | 11237 | 8686 | 5063 | 11235 | 8751 | 5497 |
| 95%ile | 13473 | 12340 | 10634 | 13480 | 12444 | 10730 |
| mean | 10631 | 8364 | 5340 | 10670 | 8492 | 5719 |
| DL delay (ms) | 5%ile | 1.239 | 1.442 | 1.844 | 1.231 | 1.425 | 1.799 |
| 50%ile | 1.719 | 2.464 | 5.203 | 1.69 | 2.429 | 4.489 |
| 95%ile | 3.355 | 6.728 | 43.559 | 3.326 | 6.33 | 26.962 |
| mean | 1.948 | 3.153 | 19.907 | 1.931 | 3.054 | 12.928 |
| UL UPT (Mbps) | 5%ile | 5023 | 3443 | 1132 | 5066 | 3521 | 1343 |
| 50%ile | 8740 | 7035 | 4438 | 8724 | 7142 | 4726 |
| 95%ile | 10362 | 9580 | 8331 | 10328 | 9614 | 8390 |
| mean | 8408 | 6850 | 4593 | 8405 | 6881 | 4796 |
| UL delay (ms) | 5%ile | 1.603 | 1.8 | 2.272 | 1.609 | 1.8 | 2.245 |
| 50%ile | 2.084 | 2.862 | 5.932 | 2.093 | 2.838 | 5.189 |
| 95%ile | 3.861 | 6.806 | 30.388 | 3.773 | 6.608 | 21.325 |
| mean | 2.29 | 3.368 | 9.494 | 2.292 | 3.316 | 7.919 |
| Arrival rate (files/s) | 10 | 15 | 20 | 10 | 15 | 20 |
| 𝜌DL | 0.999 | 0.999 | 0.987 | 0.999 | 0.999 | 0.993 |
| 𝜌UL | 0.999 | 0.999 | 0.996 | 0.999 | 0.999 | 0.997 |
| BO | 0.18 | 0.331 | 0.5 | 0.179 | 0.325 | 0.504 |
| Additional report/notes: Case 3 and Case 41. LBT procedure and parameters: Case 3 and Case 4 : ECCA based Contention at gNB : 8us+(1-3)\*5us, at the gNB. Rx-Assistance: Silencing signals sent by gNB and UE after winning the medium. Only gNBs perform extended CCA.2. Any assumptions/parameters used not as in the agreed baseline3. Details of case: e.g., single or two operators; no-LBT, omni-directional LBT, directional LBT schemes etc. :All results are for 2 operator Indoor office scenarios. Main Setup described in the column header and Table 14. Other metric(s) and definition if reported5. Details of COT sharing if used in evaluation: Only gNBs perform extended CCA. No COT sharing from UL to DL |

Note: companies are encouraged to also submit RSRP distribution (e.g. serving BS to UE links, BS-to-BS links, UE-to-UE links) for the evaluated scenario in SLS.