# Annex B: Evaluations results (OPPO)

## B.1 Link level evaluation results

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

#### B.1.1.1 Evaluation results for PDSCH

Table 1: SNR in dB achieving PDSCH BLER of 10% or 1% with CPE compensation for PN model set 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz |
| R1-2006252 / OPPO | 7 | TDL-A, 5ns | 2.96/ 5.1 | 2.77/ 4.8 | 3/ 5.14 | 3.4/ 5.7 |
| TDL-A, 10ns | 2.6/ 4.6 | 2.5/ 4.4 | 2.9/ 4.8 | 3.3/ 5.56 |
| TDL-A, 20ns | 2.5/ 4.5 | 2.5/ 4.4 | 3 /4.8 | 3.5/ 5.35 |
| CDL-B, 20ns | -21.7/ -19.1 | -21.8/ -19.1 | -21.7/ -18.6 | -21.6/ -19 |
| CDL-B, 50ns | -22.2/ -19.5 | -22.1/ -19.5 | -21.9/ -19.5 | -21.8/ -19 |
| 16 | TDL-A, 5ns | 11.9/ 14.4 | 11.2/ 13.6 | 11/ 13.1 | 11/ 13.3 |
| TDL-A, 10ns | 11.7/14.1 | 11/ 13.2 | 10.9/12.8 | 11.1/ 13 |
| TDL-A, 20ns | 11.5/ 13.5 | 11/ 12.8 | 10.9/12.5 | 11.5/ 13.5 |
| CDL-B, 20ns | -12.8/ -9.56 | -13.4/ -10 | -13.7/ -11.1 | -13.9/ -10.7 |
| CDL-B, 50ns | -13.2/ -10.2 | -13.5/ -10.8 | -14.1/ -11.4 | -14.0/ -11.3 |
| 22 | TDL-A, 5ns | inf | inf | 19.8/ inf | 17.3/ 19.7 |
| TDL-A, 10ns | inf | inf | 20/ inf | 17.3/ 19.7 |
| TDL-A, 20ns | inf | inf | 20.2/ inf | 19.1/ 22.3 |
| CDL-B, 20ns | inf | inf | -4/inf | -7.4/-4.1 |
| CDL-B, 50ns | inf | inf | -4.3/ inf | -7.8/-4.6 |
| Additional report/notes:1. PN model set 1: BS: Ex2 BS and UE: Ex2 UE
2. CPE compensation
3. Normal CP
4. antenna configuration for CDL model

Configuration 2:- (Mg,Ng,M,N,P) = (1,1,8,16,2) BS with (0.5 dv, 0.5 dH)- (Mg,Ng,M,N,P) = (1,1,4,4,2) UE with (0.5 dv, 0.5 dH)1. PTRS: K=4, L=1
2. DMRS configuration: 1 DMRS symbol at (2)
3. No TRS, No CSI-RS
 |

Table 2: SNR in dB achieving PDSCH BLER of 10% or 1% with ICI compensation for PN model set 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz |
| R1-2006252 / OPPO | 22 | TDL-A, 5ns | inf | 18.2/ 21.4 | 18.1/20.4 | 19.8/ 22.4 |
| TDL-A, 10ns | inf | 18.1/ 20.8 | 18.1/20.3 | 19.1/ 21.5 |
| TDL-A, 20ns | inf | 18/ 20.5 | 18.3/ 20.3 | 22.8/ - |
| CDL-B, 20ns | inf | -6.6/ -3.2 | -6.6 / -3.2 | -5.1/ -1.7 |
| CDL-B, 50ns | inf | -6.7/ -3.2 | -6.8/ -3.9 | -5.2/ -1.9 |
| Additional report/notes:1. PN model set 1: BS: Ex2 BS and UE: Ex2 UE
2. ICI compensation with 3 taps
3. Normal CP
4. antenna configuration for CDL model

Configuration 2:- (Mg,Ng,M,N,P) = (1,1,8,16,2) BS with (0.5 dv, 0.5 dH)- (Mg,Ng,M,N,P) = (1,1,4,4,2) UE with (0.5 dv, 0.5 dH)1. PTRS: K=4, L=1
2. DMRS configuration: 1 DMRS symbol at (2)
3. No TRS, No CSI-RS
 |

#### B.1.1.2 Evaluation results for PUSCH with DFT-s-OFDM

Table 3: SNR in dB achieving PUSCH BLER of 10% or 1% with CPE compensation for PN model set 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | MCS | Channel | 120KHz/400MHz | 240KHz/400MHz | 480KHz/400MHz | 960KHz/400MHz |
| R1-2006252 / OPPO | 7 | TDL-A, 5ns | 7.7/ 10.8 | 7.43/10.6 | 7.7/ 10.25 | 7.8/ 10.3 |
| TDL-A, 10ns | 7.6/ 10.1 | 7.54/9.9 | 7.68/10.26 | 7.8/ 10.6 |
| TDL-A, 20ns | 7.5/ 9.7 | 7.4/ 9.56 | 7.8/ 9.7 | 8.2/ 10.4 |
| CDL-B, 20ns | -16.9/ -13.1 | -16.9/ -13.2 | -16.9/ -13.1 | -16.9/ -13.6 |
| CDL-B, 50ns | -17 /-14 | -17.3/ -14.3 | -17 / -13.7 | -17 / -14.2 |
| 16 | TDL-A, 5ns | 16.7/ 20.5 | 15.7/ 18.5 | 15.3/18.4 | 15.5/ 18.2 |
| TDL-A, 10ns | 16.6/20 | 15.7/18.3 | 15.4/ 18.1 | 15.6/ 18.3 |
| TDL-A, 20ns | 17/ 20.7 | 15.8/ 18.1 | 15.6/ 18 | 16.2/18.8 |
| CDL-B, 20ns | -8 /-4.3 | -9/-4.7 | -9.3/ -5 | -9/ -5.66 |
| CDL-B, 50ns | -8 /-4.9 | -8.84/ -5.66 | -9.4/ -6.2 | -9.2/ -5.7 |
| 22 | TDL-A, 5ns | inf | inf | 26.3/Inf | 22.8/26.2 |
| TDL-A, 10ns | inf | inf | 27/ Inf | 23.3/26 |
| TDL-A, 20ns | inf | inf | 28/- | 27.2/Inf |
| CDL-B, 20ns | inf | inf | 1.1/Inf | -1.9/ 1.76 |
| CDL-B, 50ns | inf | inf | 1.8/Inf | -1.65/ 1.7 |
| Additional report/notes:1. PN model set 1: BS: Ex2 BS and UE: Ex2 UE
2. CPE compensation
3. Normal CP
4. antenna configuration for CDL model

Configuration 2:- (Mg,Ng,M,N,P) = (1,1,8,16,2) BS with (0.5 dv, 0.5 dH)- (Mg,Ng,M,N,P) = (1,1,4,4,2) UE with (0.5 dv, 0.5 dH)1. PTRS: K=4, L=1
2. DMRS configuration: 1 DMRS symbol at (2)
3. No TRS, No CSI-RS
 |

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

#### B.1.2.1 Evaluation results for PSS/SSS

Table 4: SINR in dB achieving cell ID detection probability of 90% by one-shot detection from PSS/SSS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2006252 / OPPO | TDL-A, 5ns | -3.29 | -2.5 | -2.45 | -4.13 |
| TDL-A, 10ns | -3.15 | -2.67 | -2.25 | -4.08 |
| TDL-A, 20ns | -3.28 | -1.9 | -2.21 | -3.1 |
| CDL-B, 20ns |  |  |  |  |
| CDL-B, 50ns |  |  |  |  |
| Additional report/notes: 1. frequency offset: **10ppm**
2. carrier frequency**: 60GHz**
3. the number and granularity of the frequency locations: **-x...x, with granularity SCS/2 where x=frequency offset\*carrier frequency**
4. antenna configuration for CDL model: **N/A**
5. false alarm rate: **1%**
6. Criteria for PSS detection success: **the PSS detection is regarded as successful if PSS sequence index is detected correctly and the residual timing error is within [-Tcp/2, -Tcp/2] and the residual frequency error is within [-SCS/4, +SCS/4]. The reported results are the performance of PSS+SSS, the criteria for detection success is when the cell ID is corrected detected.**
7. Simulation duration**: 2000 SS/PBCH blocks**
 |

### B.1.3 Evaluation results for PRACH

#### B.1.3.1 Evaluation results for PRACH

Table 12: SINR in dB achieving PRACH preamble misdetection probability of 1% and corresponding false alarm probability, for PRACH format A1 (L = 139 refers to the PRACH sequence length)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tdoc /Source | Channel | 60KHz | 120KHz | 240KHz | 480KHz | 960KHz |
| R1-2006252 / OPPO | TDL-A, 5ns | -4.7/0.5‰ | -5/0.47‰ | -5.8/0.52‰ | -6.4/0.35‰ | -6.4/0.14‰ |
| TDL-A, 10ns | -5/ 0.49‰ | -5.86/0.44‰ | -6.5/0.55‰ | -6.1/0.53‰ | -5.6/0.14‰ |
| TDL-A, 20ns | -5.2/0.51‰ | -6.1/0.49‰ | -6.4/0.58‰ | -5.1/0.47‰ | Inf |
| CDL-B, 20ns | -17.2/0.33‰ | -16.2/0.54‰ | -16.7/0.36‰ | -17.6/0.53‰ | -19.1/0.14‰ |
| CDL-B, 50ns | -16.6/0.41‰ | -16.5/0.68‰ | -17.9/0.38‰ | -19.6/0.47‰ | -20.2/0.14‰ |
| Additional report/notes: 1. PRACH format A1 (L = 139 refers to the PRACH sequence length)2. No cyclic shifts4. Delay estimation tolerance is ± 0.5 × PUSCH CP (with PUSCH SCS assumed same as PRACH SCS).6. The detection threshold was selected to yield a maximum false-alarm probability of 0.1% across all SNRs and the actual false-alarm rate is reported in the table.  |

## B.2 System level evaluation results

### B.2.1 System level evaluation results for indoor scenario C

Table 16: System level evaluation results for scenario C, without LBT

|  |  |  |
| --- | --- | --- |
| Tdoc/ source | Cases | Case 1（Scenario C） |
| Traffic loadMetrics | Low load10%~25% BO | Medium load35%~50% BO | High loadabove 55% BO |
| R1-2006252 / OPPO | DL UPT (Mbps) | 5%ile | 14.14 | 5.47 | 3.5 |
| 50%ile | 76.28 | 47.34 | 27.65 |
| 95%ile | 244.23 | 238.41 | 151.15 |
| mean | 96.54 | 66.75 | 44.5 |
| DL delay (s) | 5%ile | 0.13 | 0.17 | 0.24 |
| 50%ile | 0.4 | 0.74 | 1.48 |
| 95%ile | 2.18 | 4.13 | 7.7 |
| mean | 0.62 | 1.22 | 2.21 |
| Arrival rate (files/s) | 0.4 | 0.6 | 0.8 |
| 𝜌DL | 63% | 47.9% | 37.5% |
| BO | 0.22 | 0.46 | 0.63 |
|  | Additional report/notes:6. Frequency 60GHz, BW = 400MHz, SCS = 120kHz. |