

ABSTRACT

Industrial needs really need good network service. 5G New Radio (NR) technology has a service that requires a better network than before. This thesis is planning a 5G NR at a frequency (mmWave) of 26 GHz in the Karawang Industrial area. The scenarios used are uplink and downlink conditions; outdoor-to-outdoor (O2O) and outdoor-to-indoor (O2I); As well as a line of sight (LOS) and non-line of sight (NLOS). The results were analyzed through link budget calculations with existing parameters through the Urban Micropropagation model (UMi). The calculation result shows the path loss value; cell radius; and the number of sites that will be needed later, the results of these calculations are simulated using Mentum Planet 7.3.0 software with ASP features to place the site automatically. The simulation results show the traffic accommodation in the Karawang Industrial Area, it can be seen that the downlink scenario requires a larger number of sites in the uplink scenario; the O2I scenario requires more number sites for the O2O scenario; NLOS scenario requires more LOS scenario site. The highest SS-RSRP parameter can be seen in scenario 8 (Downlink O2I NLOS) has an average value of -70.46 dBm, scenario 1 (Uplink O2O LOS) has the lowest SS-RSRP average value of -87.90 dBm; The highest SS-SINR parameter can be seen in scenario 1 (Uplink O2O LOS) which has an average value of 1.87 dB, scenario 8 (Downlink O2I NLOS) has the lowest SS-SINR average value of -5.08 dB; The highest data rate parameter can be seen in scenario 1 (Uplink O2O LOS) with a maximum value of 543.79 Mbps, scenario 8 (Downlink O2I NLOS) with the lowest maximum value of 259.28 Mbps.

Keywords: 5G NR, Coverage Planning, Mentum Planet, 26 GHz Frequency, Link Budget