ABSTRACT

This study designs a 5G New Radio of coverage with a frequency of 2.3 GHz in Mijen District using software Atoll 3.4. This study uses 4 scenarios, namely downlink outdoor-to-outdoor (O2O), uplink outdoor-to-outdoor (O2O), downlink outdoor-to-indoor (O2I) and uplink outdoor-to-indoor (O2I). The area of Mijen sub-district is 56.52 km2. This study uses the Urban Macro – street canyon (UMa) propagation model based on the standard of 3GPP TR 38,901 to obtain signal strength parameters (SS-RSRP) and signal quality (SS-SINR). The simulation results from all scenarios require traffic to accommodate 54 sites in scenario 1 downlink outdoor-to-outdoor (O2O), 34 sites in scenario 2 uplink outdoor-to-outdoor (O2O), 60 sites in scenario 3 downlink outdoor-to-outdoor (O2O). indoor (O2I) and 38 sites in scenario 4 outdoor-to-indoor (O2I) uplinks. The simulation results from all scenarios on the observed SS-RSRP parameters, in scenario 3 Downlink outdoor-to-indoor (O2I) LOS has the highest average SS RSRP which is -70.06 dBm, while for the SS-SINR parameter the scenario with an average highest average is scenario 1 Downlink outdoor-to-outdoor (O2O) LOS of 7.11 dB.

Keywords : 5G NR, Coverage, SS-SINR, SS-RSRP.