ABSTRACT

People in remote areas of Indonesia still have difficulty accessing the internet. In fact, the need for the internet is very large, both for modern society and the industrial sector. Today's industrial scenario wants to leverage IoT-related capabilities. Manufacturing, transportation, logistics, agriculture, and energy industries are some of the most clearly visible sectors. To support the activities of the industrial sector such as the use of IoT devices and other operational activities, a secure, private and economical connectivity is needed according to the needs of each industrial sector so that the continuity of industrial operational activities can run well. In this case the cellular network Mobile Private Network (SMPN) using a freqUEncy of 900 MHz appears as a solution to these needs with a simple High Level Design with an open source system that is certainly economically valuable. Mobile Private Network Mobile private Network design configures 2 main parts, namely Radio Access Network (RAN) and Core Network (CN). In this network the administrator has full authority to configure and monitor the network. Only the EU with a provisioned SIM Card can connect to the SMPN network. The edge server network system allows all data and computing to be stored locally, making it more secure than a cloud system. The results of User Experience Testing of SMPN network with Closed RF Chamber meet the KPI target with the acquisition of RSRP of -62 dBm, SINR 26 dB, DL Throughput of 71.6 Mbps, UL Throughput of 23.6 Mbps. While the results of User Experience Testing with Open RF Chamber did not meet the target KPI with the acquisition of RSRP of -108 dBm, SINR -5 dB, DL Throughput of 0876 Mbps, UL Throughput of 0.91 Mbps.

Keywords : Cellular Mobile Private Network (CMPN), Radio Access Network (RAN), Core Network (CN), Reference Signal Received Power (RSRP), Signal to Interference plus Noise Ratio (SINR).