

## ABSTRACT

Indonesia is a disaster-prone country and has a high crime rate. The disasters of most commonly happened in West Java especially Bandung area are earthquakes, floods, landslides, and tornado. Meanwhile, the equipment of public rescue agency currently has limited features and access that requires high quality. Public Protection and Disaster Relief (PPDR) is considered as a solution to help the process of rescue and evacuation of victims during natural disasters and criminal acts.

The output of this thesis is planning of PPDR network based on the number of sites and signal quality that has been adjusted to the needs of the service Personal PPDR. The frequency used is 400 MHz in the 31 and band 800 MHz in band 20. The analysis parameters used are: the number of sites, Throughput, Reference Signal Received Power (RSRP), and Signal to Interference Noise Ratio (SINR). Number of sites needed using a 43 dBm power transmitter is 47 sites, and at 46 dBm is 32 sites. At 43 dBm SINR power transmitter which produces scenarios A and B 10.58 dB and for scenario C 11.51 dB, while for scenario A and feedback 46 dBm is 9.33 dB and for scenario C 10.48 dB. The RSRP that produces scenario A and B on the 43 dBm transmitter is -84.42 dBm and the C -78.18 dBm scenario, whereas for 46 dBm is -85.4 dBm and scenario C is -77.43 dBm. In the throughput scenario A gives better results than scenario B and C. In scenario 43 dBm scenario A produces 70.11 Mbps and scenario B and C produce 50.29 Mbps and 21.24 Mbps. Scheme 46 dBm scenario A produces a value of 62.66 Mbps while scenarios B and C produce 45.46 dBm and 17.61 dBm.

Keywords: PPDR, LTE-A, Carrier Aggregation, Throughput, RSRP, SINR