

## ABSTRACT

*Development of telecommunication technology in Indonesia led to many facilities offered such as video conferencing, streaming, and online games. Mobile phone users today require high-speed data communications to be able to enjoy the facility. To always provide the best service to customers and anticipate the overload on the network, there needs to expand capacity with the implementation of LTE technology in areas of overload. Cluster Regol is one cluster in Bandung city which is experiencing overload characterized by Element Channel Utilization on site Asmipungkur of 77.5%. Bandung including densely populated cities and buildings, which in doing expand network capacity is constrained by the availability of land.*

*BTS Hotel as one of solutions when conventional BTS tower can not be built because of the unavailability of empty space. Calculation of the number of pole in planning LTE Hotel base stations using the calculation capacity planning and coverage planning . Most selected pole number of calculations performed. While the number of pole on GSM using the calculation of the coverage planning. The calculations show Regol cluster requires 4 pole at 900 MHz LTE, LTE 6 pole at 1800 MHz and 1 pole for the GSM 900 MHz.*

*Planning BTS Hotel simulated using software Atoll 3.2 that uses two scenarios. Scenario 1 LTE 900 MHz BTS Hotel has result distribution of RSRP  $\geq -90$  dBm at 100% with average -35.28 dBm, CINR  $\geq 7$  dB at 100% with average 42 dB, and throughput 19523.63 kbps. While the scenario 2 with LTE 1800 MHz BTS Hotel has result distribution of RSRP  $\geq -90$  dBm at 49.23% with average -62.35 dBm, CINR  $\geq 7$  dB at 100% with average -45.84 dB and throughput 19703.63 kbps. In scenario 1 and 2, the planning GSM 900 MHz BTS Hotel to support the existing GSM network generates the signal level  $\geq -85$  dBm at 95.9% with average -36.91 dBm and the C/I  $\geq 9$  dB at 100 %.*

*Keywords: BTS Hotel, GSM, LTE, Capacity, Coverage*