ABSTRACT

Arjani Rosalina : Frequency Refarming Analysis for LTE Implemetation in Indonesia using SEAMCAT Simulation
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The LTE technology is expected to offer a number of distinct advantages over other wireless technologies. Scarcity of spectrum had been encourage regulator and provider to refarmed the spectrum. Refarming of the spectrum associated with the reuse of existing 2G or 3G spectrum licenses to launch new technologies such as LTE.

This research analyze technically on several scenarios of the spectrum such as allocated frequency spectrum to existing 2G dan 3G frequency to be used for LTE in Indonesia case study for Telkomsel provider. As a result from the simulation, LTE in 900MHz has the best performance when deployed in 10 MHz, it can be seen in terms of SINR, bit rate and capacity based on dropped users while interferred by LTE itself. Basically, the performance of 2100 MHz is the best value while LTE is interferred by other systems such as GMS and UMTS in terms of SINR, bit rate and capacity based on dropped users

Spectrum refarming for LTE in 900MHz, 1800 MHz or 2100 MHz frequencies band is considered to be triggered the potential degradation of existing services such as GSM and UMTS. The simulationôs results decribe that in those frequencies band options, LTE can well coexist with other technologies in the ecosystem such as GSM and UMTS. Overall simulationôs results show that at 1800 MHz while LTE is interferred by LTE and others such as GSM and UMTS, the performance is lower than other frequencies, so the best option is at 900 MHz or 2100 MHz of the frequencies.