

ABSTRACT

Based on several studies conducted by Kavindra Kumar Kasari, Bernard Veyret, Riadh W. Y. Habash, and *Government of India*, exposure to electromagnetic wave radiation emitted by BTS can have a negative impact on human health. These adverse effect can cause headaches, brain tumors, cancer and fetal disorders in pregnant women due to imperfect DNA formation. Therefore, to minimize the adverse effects of electromagnetic wave radiation exposure on the human body, the construction of BTS must comply with regulations regarding the minimum safe distance of BTS from residential areas. As regulations that have been applied in South Korea.

Indonesia has not yet implemented regulations regarding electromagnetic wave radiation exposure standards emitted by BTS based on standards set by WHO. This has become one of the reasons for doing research in this Final Project, with BTS samples at frequencies of 900 MHz, 1800 MHz, and 2100 MHz in urban areas, suburban areas, and rural areas with research scenarios using 30 dBm and 43 dBm power, and 10 dBi - 20 dBi gain.

Based on the calculation results, it can be seen that on the usage of 20 dBi gain and 43 dBm power with 900 MHz of frequency, the distance from BTS to Class 2 zone is 39,86 m. Meanwhile, for the usage of 19 dBi gain, the distance from BTS to Class 2 zone is 35,77 m. If compared with the simulation results, it can be seen that in the Warning zone and the Caution zone in the BTS sample area analyzed, there are no settlements. However, for the site 01 in Surabaya if the 900 MHz frequency is applied with 43 dBm power, and 18 dBi and 20 dBi gain, there are still settlements in the Class 2 zone. Likewise, the site 04 in Surabaya if the 900 MHz frequency is applied with 43 dBm power and 19 dBi gain. However, according to WHO standards, the Class 2 zone is included as a zone that is safe from exposure to electromagnetic wave radiation.

Key Words : Radiation, Electromagnetic Wave, Power Density, WHO standards