ABSTRACT

Advances in satellite technology have become a key factor in supporting digital connectivity, especially in an archipelagic country like Indonesia that still faces obstacles in equalizing broadband access. BRIsat, as a geostationary satellite operating in the Ku-band, has a strategic role in supporting national banking services. However, the use of the Ku-band spectrum by BRIsat is not free from the risk of interference, especially from the JCsat-1C satellite which also operates on the same frequency. In addition, the regulatory aspect of GSO satellite market access in Indonesia is also an important factor that needs to be studied to ensure the efficiency and desirability of satellite communication services.

This study aims to analyze the impact of interference on BRIsat's performance and to disseminate Ku-band spectrum regulations in the context of GSO satellite market access in Indonesia. The methods used include quantitative analysis of technical parameters such as C/N, C/I, BER, throughput, jitter, and latency, as well as regulatory analysis that assesses spectrum usage policies and their effectiveness on satellite service efficiency. Comparison with JCsat-1C is used to understand how interference can affect BRIsat's service quality and data transmission capacity.

The results of the study show that JCsat-1C interference significantly reduces BRIsat performance, especially in terms of C/I and throughput, which has implications for increasing BER and latency. Low C/I in the downlink causes throughput to decrease to 55 Mbps, far below its ideal capacity. In addition, existing regulations still need to be optimized in terms of interference mitigation and spectrum usage efficiency. Therefore, this study recommends interference mitigation strategies, spectrum optimization, and improving satellite market access regulations, in order to support BRIsat service efficiency and ensure smooth satellite communica-

tions in Indonesia.

Keywords : *GSO*, *Interference*, *FSS*,*Ku-Band*,*Regulation*,*BRIsat*,*Jsat-1C*