

ABSTRACT

High Throughput Satellite (HTS) and Very High Throughput Satellite (VHTS) are technological innovations used in satellites today. Satellites with HTS and VHTS technology in this study will use the same frequency, namely Ka-Band (27 – 40 GHz) with an orbital slot located in the GEO orbital with an orbital distance of less than 12°. Based on the same frequency spectrum and orbital, there is an indication of overlapping frequencies that can cause the two satellites to interfere with each other.

This study analyzes the interference, economics, and regulations in the implementation of two satellites with HTS and VHTS technology on telecommunication networks in Indonesia using budget link analysis, coordination between satellites by paying attention to trigger arc to calculate interference between satellites, analysis of round trip time (RTT) of information transmission on satellite links, economic calculation of service costs before and after interference and regulatory recommendations based on Technical and economic analysis that has been carried out.

An analysis was carried out on HTS and VHTS satellites in Indonesia with two different zones, namely Western on the HTS satellite which includes the Batam Earth Station (ES) and Jakarta User Terminal (UT) with a total C/N Forward (FWD) result of 20.93 dB, and a total C/N Return (RTN) of 8.1 dB, and Eastern with the Ambon ES and UT Banda Neira points having a C/N FWD of 20.93 dB and a C/N RTN of 8.05 dB, there is no interference which means that the VHTS satellite is caused by the HTS satellite so that there is no reduction in capacity on the HTS satellite. However, VHTS satellites experienced interference which resulted in a considerable decrease in capacity of up to 17% on the downlink RTN, so that in the Western zone with the ES points of Hokkaido and UT Jakarta the C/N FWD was 46.46 dB and the C/N RTN 1.6 dB with C/(N+I) FWD of 20.85 dB, and in the Eastern zone with the ES Alice Springs and UT Jakarta points, the C/N FWD was 46.72 dB and the C/N RTN 1.88 dB with C/(N+I) FWD of 20.95 dB.

Keywords: HTS, VHTS, Interference, SATRIA-1, ViaSat-3, Regulation.