ABSTRACT

The Telkom-2 satellite launches as a proud to Indonesian society. As a replacement satellite for Palapa B4, Telkom-2 has larger coverage. Telkom-2 satellite is used to support the telecommunication network of PT.Telkom, such as access network, broadcast, and also as backbone to whole of Indonesian country. In the satellite operation, bandwidth and power as priority problem. The condition of satellite transponder capacity can be bandwidth limited or power limited. The best condition is optimum condition when the percentage of bandwidth using equal with the percentage of power consumption.

Utilization of BPSK, QPSK, 8PSK, and 16QAM modulation at Telkom-2 is verified in this final task. Verification process is occurred in order to find the most optimum calculation of satellite capacity to bandwidth and power side. The impact of modulation using and another parameter to satellite transponder capacity is obtained in this final task. Beside that, the election of most optimum modulation technique and profile loading power at Telkom-2 are also obtained.

Analyzing is fulfilled at four receiver earth stations which has extremists signal quality to Telkom-2. Tarempah earth station which has the best signal quality, Jakarta and Makasar which have the average signal quality, while Taipei which has the worst. At the existing condition, wasting bandwidth and power limitation are created.

Based on analysis result, can be known that Tarempah ES get optimum condition when using QPSK at receiver antenna diameter 1,0325 meter, 8PSK at diameter 2,158 meter, and 16QAM at diameter 2,9122 meter. While Taipei ES get optimum condition when using QPSK at diameter 1,6539 meter, 8PSK at diameter 3,4684 meter, and 16QAM at diameter 4,7038 meter.