

ABSTRACT

Madura Island is an island that has superior potential which can be maximized further. Madura Island has superior tourism and has Trunojoyo Airport which is located in Sumenep. Apart from that, Madura Island is the largest salt producing region in Indonesia, located in all 4 districts in Madura. Therefore, designing 5G in Madura is important to be able to increase the need for information and communication network services, as well as to strengthen the technological infrastructure that supports superior sectors in Madura.

This research involves the design of a 5G New Radio network on Madura Island using a 2.3 GHz frequency with an urban macro propagation model. The technical design of the 5G network includes coverage planning and capacity planning.

The design in Bangkalan Regency for coverage planning resulted in 274 sites, while capacity planning required 18 sites. In Sampang Regency, the coverage planning resulted in 268 sites, and capacity planning required 14 sites. For Pamekasan Regency, coverage planning resulted in 97 sites, while capacity planning required 13 sites. Meanwhile, in Sumenep Regency, coverage planning resulted in 256 sites, and capacity planning required 32 sites.

Keywords: 5G NR, Madura, Frequency 2.3 GHz.