

ABSTRACT

The Indonesian Ministry of Education developed a nano-sized satellite technology or often called nanosatellite by designing Indonesia inter-University Satellite - 1 (IiNUSAT-1). Nano satellite has a primary function for voice communication purposes. But in its development, it is necessary to add new subsystems, namely Remote Sensing Payload (RSPL) for image sensor payload (image) follows with a transmitter system that can be used for sensing applications earth's surface.

Transmitter works in S-band frequencies (2.4 to 2.45 GHz) and using helical antenna Quadrifilar. The antenna is designed to have unidireksional radiation pattern for the purposes point to point communications with ground stations. Wide beamwidth values are designed to anticipate and pointing satellite attitude control rudimentary. Circular polarization is chosen to anticipate the Faraday Effect. Gain values above 6 dBi based on determined link budget, as well as small and lightweight structures.

Having designed and realized, the antenna fulfill parameter requirement of antenna such as VSWR, *Bandwidth*, *Gain*, HPBW. This antenna works at a frequency of 2.4 GHz to 2.45 GHz well. From these specifications, Quadrifilar helix antenna reputed will work well for IiNUSAT-1.

Keyword - helix antenna Quadrifilar, IiNUSAT-1, RSPL, nano satellites.