

ABSTRACT

Tricula Omnidirectional Triangle Antenna for Range 300 MHz – 3000 MHz With Monopol-konik is designed with goals, namely to produce a prototype antenna omnidireksional with a very wide band that can be used by multiple operators simultaneously, to save the tower and land.

Specification that must be met are: the frequency of 0,3 GHz-3,0 GHz with a VSWR maximum 1,5 in the terminal 50 ohm unbalance, 2,14 dBi minimum gain, the radiation pattern omnidirectional and with the polarity linier. The antenna was built with two-channel strip twin row, based on the triangle pat for use in air or vacuum, use a portion monopol-konik to produce a wide band but without toroid.

By using the principle channel strip twin row can be obtained by the construction / layout and size of each are as follows: $\beta l = 0,95p$, $L = 11$ cm, $\epsilon_{r1} = 6,128$ (mika), $\epsilon_{r2} = 5,5926$ (glass), $\epsilon_{r3} = 4,8023$ (computer stopple), $\epsilon_{r4} = 3,88$ (FR2 Eproxoy PCB), $\epsilon_{r5} = 2,9495$ (A4 + glue), $\epsilon_{r6} = 2,142$ (Bufalo paper), $\epsilon_{r7} = 1,6283$ (A4 70 gr), $\epsilon_{r8} = 1,315587$ (cake cardboard), $\epsilon_{r9} = 1,1297$ (styrofoam) using a copper strip with a row 0,344 cm (w) x 11 cm long (L) x 2 cm space (s). Monopol-konik portion is made of sheet copper of 90° , high (s) = 2 cm, the terminal (Z_T) = 50 Ω unbalance.

Through the test specifications have been implemented in yards Institution IT Telkom results obtained VSWR maximum 1,5 but with working frequency 943,2 MHz to 3000 MHz in the terminal unbalance Z_T 50 Ω . So, from the end of this project established the bandwidth of 2057,8 MHz with the radiation pattern omnidirectional, polarization ellipse, and the gain of 5,53 dBi (900 MHz), 8,813 dBi (1800 MHz), and 7,601 dBi (2400 MHz). With omnidirectional radiation pattern, polarization ellips, and the gain is greater than 2,14 dBi, the antenna is already close to the specification have been determined.

To get a frequency at range 0,3 GHz – 3,0 GHz it is suggested to enhance the space from 20 mm become 50 mm and adjust the high of monokonik from 15 mm become 20 mm so that kapasitif be on the strip. Meanwhile, to make sure the polarity linier and radiation pattern of the picture right, it is recommended to test in space without the antenna resonance where the test pattern files have used the pencil.

Keywords: *tricula omnidirectional antenna, monopol-konik, unbalance, triangle gradual, tricula, omnidirectional, ellips, gain, linier.*