

ABSTRACT

Bicula Bidireksional Eksponensiel Antenna for Range 300 MHz – 3000 MHz With Monopol is designed with 2 goals, namely to produce a prototype antenna bidireksional with a very wide band that can be used by multiple operators simultaneously, to save the tower and land and to prove that the hypothetical founder of the antenna is to match the propagation impedance with the space between radio channels.

Specification that must be met are: the frequency of 300 MHz-3000 MHz with a VSWR maximum 1,5:1 in the terminal 50 ohm unbalance, 2.14 dBi minimum gain, the radiation pattern bidireksional and with the polarity linier. The antenna was built with two-channel strip twin row, based on the eksponensiel pat for use in air or vacuum, use a portion monopol triangle to produce a wide band.

By using the principle channel strip twin row can be obtained by the construction / layout and size of each are as follows: $L = 25$ cm, $\epsilon_{r1} = 7.7961$ (Sim card), $\epsilon_{r2} = 5.6698$ (Mika), $\epsilon_{r3} = 4.1233$ (stopple computer), $\epsilon_{r4} = 2.9987$ (Paper Asturo), $\epsilon_{r5} = 2.1808$ (thong), $\epsilon_{r6} = 1.586$ (Paper Gift), $\epsilon_{r7} = 1.1534$ (Styrofoam), $\epsilon_{r8} = 1.3409$ (cardboard), using a copper strip with a row $w = 1.0336$ cm x 25 cm long (L) x 3 cm space (s). Monopol portion is made of sheet copper of-90o, high (s) = 3 cm, the terminal (Z_T) 50 Ω = unbalance.

Through the test specifications have been implemented in yards Institution IT Telkom results obtained VSWR maximum 1,5:1 but with working frequency 653.23 MHz to 2530.05 MHz in the terminal unbalance Z_T 50 Ω , gain = 7.795 dBi at 2.4 GHz frequency and with polarity ellips (near linier).

To be able to produce an antenna that works at a frequency of 300 MHz - 3000 MHz, it is suggested to change the height of the portion monopol from 30 mm to be 29 mm. Meanwhile, in order to generate polarity linier and the appropriate radiation pattern, it is recommended to test the antenna in the room without the antenna resonance where the test pattern files have used the pencil.

Keywords: *Bicula, Bidireksional, Eksponensiel, Monopol*