

Antena Mikrostrip Array Dengan Polarisasi Melingkar Sebagai Sensor Synthetic Aperture Radar Unmanned Aerial Vehicle (SAR UAV) = Circularly Polarized Microstrip Array Antena as Synthetic Aperture Radar Unmanned Aerial Vehicle (SAR UAV) Sensor

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Abstrak

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Pada jurnal ini, desain elemen atau patch yang digunakan adalah desain patch antena berdasarkan hasil riset grup AMRG UI. Elemen atau patch yang digunakan berbentuk segitiga dan parameter desainnya disesuaikan agar memiliki karakteristik polarisasi melingkar dengan axial ratio bandwidth dan impedance bandwidth sebesar 10 MHz pada rentang frekuensi 1,265 ? 1,275 GHz dengan frekuensi tengah 1,27 GHz. Gain sebesar 14,32 dBiC diperoleh dengan menggunakan teknik susun (array). Desain kemudian disimulasikan dengan perangkat lunak Computer Simulation Technology (CST). Setelah dilakukan fabrikasi, antena array yang didesain dapat beresonansi di frekuensi 1,27 GHz dengan impedance bandwidth sebesar 33 MHz pada rentang frekuensi 1,2605 ? 1,2935 GHz, karakteristik polarisasi melingkar (axial ratio) 3 dB pada rentang frekuensi 1,263 ? 1,277 GHz dan memiliki gain sebesar 11,42 dBi. Pada jurnal ini, desain elemen atau patch yang digunakan adalah desain patch antena berdasarkan hasil riset grup AMRG UI. Elemen atau patch yang digunakan berbentuk segitiga dan parameter desainnya disesuaikan agar memiliki karakteristik polarisasi melingkar dengan axial ratio bandwidth dan impedance bandwidth sebesar 10 MHz pada rentang frekuensi 1,265 ? 1,275 GHz dengan frekuensi tengah 1,27 GHz. Gain sebesar 14,32 dBiC diperoleh dengan menggunakan teknik susun (array). Desain kemudian disimulasikan dengan perangkat lunak Computer Simulation Technology (CST). Setelah dilakukan fabrikasi, antena array yang didesain dapat beresonansi di frekuensi 1,27 GHz dengan impedance bandwidth sebesar 33 MHz pada rentang frekuensi 1,2605 ? 1,2935 GHz, karakteristik polarisasi melingkar (axial ratio) 3 dB pada rentang frekuensi 1,263 ? 1,277 GHz dan memiliki gain sebesar 11,42 dBi.

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ABSTRACT

In this journal, patch design is based on the results of the previous research of AMRG UI research group. Triangular patch are used and the design parameters are adjusted to have the characteristics of the circular polarization with axial ratio bandwidth and impedance bandwidth of 10 MHz in the frequency range from 1.265 to 1.275 GHz with center frequency of 1.27 GHz. Gain of 14.32 dBiC is obtained by using the array technique. Design then simulated with Computer Simulation Technology (CST) software. The result is, the simulation results gives impedance bandwidth is about 22,5 MHz and its frequency range between 1,2625 ? 1,285 GHz, circular polarization characteristics 3 dB with its frequency range between 1,265 ? 1,276 GHz and its gain is 11,42 dBi.

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