

Pengembangan hardware sistem rf tomografi = Hardware development of system rf tomography

Sinambela, Joni, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20414096&lokasi=lokal>

Abstrak

[ABSTRAK

Telah dikembangkan hardware pada sistem RF Tomografi menggunakan VCO (voltage controlled oscillator) MAX2750 sebagai komponen dasar transmitter dan MAX2015 sebagai RPD (RF Power Detector). MAX2750 memiliki rangkaian frekuensi tala (tuning frequency) pada internal VCO sehingga dapat menghasilkan frekuensi yang dapat dikontrol oleh tegangan dari 2300 MHz hingga 2500MHz. Pada penelitian ini analisa hasil pengukuran pada RPD saat diberikan attenuator atau objek pengukuran yang berbeda diantara transmitter dan receiver yang berbanding dengan pengukuran referensi atau hasil pengukuran tanpa adanya objek. Rangkaian receiver terdiri atas MAX2015, ADC 16-Bit, dan beberapa komponen pasif lainnya, dimana MAX2015 merupakan logaritmik RF Detector yang dapat mendeteksi power pada frekuensi 0.1GHz hingga 3GHz. Dalam penelitian ini frekuensi yang dipancarkan oleh RF Transmitter berada pada frekuensi 2.3GHz hingga 2.5GHz, hal ini dilakukan berdasarkan referensi dari beberapa jurnal dan penelitian yang dapat dipercaya. Dari hasil penelitian didapatkan bahwa Antenna memiliki puncak respon maksimum pada frekuensi 2.4GHz, dimana objek yang digunakan adalah balok kayu, balok nilon, dan balok alumunium dengan panjang 60mm, lebar 40mm, dan tinggi 80mm.

<hr>

ABSTRACT

Has been developed a hardware in the system RF Tomography using a transmitter VCO (voltage controlled oscillator) MAX2750 as a basic component of transmitter and MAX2015 as a RPD (RF Power Detector). The MAX2750 has an integrated VCO with a fundamental output frequency ranging from 2300MHz to 2500MHz that controlled by voltage. This research analyzed the measurement data for each different attenuator or object interest which among of transmitter and receiver that comparing with the reference data. Receiver circuit consists of MAX2015, ADC 16-Bit, and some pasif component, MAX2015 is a logarithmic RF Detector which detect the power in frequency ranging 01.GHz to 3GHz. In this study the transmission frequency ranging 2.3GHz to 2.5GHz, based on by using some journals that have credibility as reference. Of the result showed that Antenna has a maximum respons on frequency 2.4GHz, and the attenuator are a wood cube, a nylon cube, and alumunium cube with length 60mm, width 40mm, and height 80mm, Has been developed a hardware in the system RF Tomography using a transmitter

VCO (voltage controlled oscillator) MAX2750 as a basic component of transmitter and MAX2015 as a RPD (RF Power Detector). The MAX2750 has an integrated VCO with a fundamental output frequency ranging from 2300MHz to 2500MHz that controlled by voltage. This research analyzed the measurement data for each different attenuator or object interest which among of transmitter and receiver that comparing with the reference data. Receiver circuit consists of MAX2015, ADC 16-Bit, and some passive component, MAX2015 is a logarithmic RF Detector which detect the power in frequency ranging 0.1GHz to 3GHz. In this study the transmission frequency ranging 2.3GHz to 2.5GHz, based on by using some journals that have credibility as reference. Of the result showed that Antenna has a maximum response on frequency 2.4GHz, and the attenuator are a wood cube, a nylon cube, and aluminium cube with length 60mm, width 40mm, and height 80mm]