ABSTRAK

PEMANFAATAN ANTENA *OMNIDIRECTIONAL* UNTUK SISTEM *MONITORING* FREKUENSI RADIO PADA BALAI MONITOR SPEKTRUM FREKUENSI RADIO KELAS I PALEMBANG

(2025 : XVI + 87 Halaman + 44 Gambar + 14 Tabel + 11 Lampiran)

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Abstrak – Balai Monitor Spektrum Frekuensi Radio berperan dalam pemberian izin dan pengawasan frekuensi VHF/UHF sesuai UU No. 36/1999 untuk mencegah interferensi sinyal. Penelitian ini menggunakan metode literatur dan observasi pada Balai Monitor Spektrum Frekuensi Radio Kelas I Palembang serta analisis sistem monitoring frekuensi, khususnya antena omnidirectional. Antena ini mampu menerima sinyal dari segala arah (360°), tanpa perlu penyesuaian arah penerimaan untuk meningkatkan efektivitas pengawasan. Hasil pengujian menunjukkan bahwa antena omnidirectional rakitan lebih unggul dalam menjangkau frekuensi tinggi dan menunjukkan sinyal tangkapan yang lebih stabil saat diuji dengan GNU Radio dibandingkan antena bawaan SDR (*Software Defined Radio*). Secara keseluruhan, antena omnidirectional rakitan memiliki sensitivitas penerimaan sinyal yang lebih baik untuk kebutuhan sistem monitoring frekuensi radio dibandingkan antena bawaan SDR (*Software Defined Radio*).

Kata Kunci : Antena *omnidirectional*, Balai Monitor Spektrum Frekuensi Radio, GNU Radio, *Software Defined Radio*

ABSTRACT

UTILIZATION OF OMNIDIRECTIONAL ANTENNA FOR RADIO FREQUENCY MONITORING SYSTEM AT THE PALEMBANG CLASS I RADIO FREQUENCY SPECTRUM MONITOR CENTER

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Abstract – The Radio Frequency Spectrum Monitor Center plays a role in granting permits and monitoring VHF/UHF frequencies in accordance with Law No. 36/1999 to prevent signal interference. This study uses literature and observation methods at the Palembang Class I Radio Frequency Spectrum Monitor Center as well as the analysis of frequency monitoring systems, especially omnidirectional antennas. This antenna is capable of receiving signals from all directions (360°), without the need for adjustment of the receiving direction to increase the effectiveness of surveillance. The test results showed that the assembled omnidirectional antenna was superior in reaching high frequencies and showed a more stable capture signal when tested with GNU Radio than the built-in SDR (Software Defined Radio) antenna. Overall, the assembled omnidirectional antenna has better signal reception sensitivity for the needs of radio frequency monitoring systems than the built-in SDR (Software Defined Radio) antenna.

Keywords : Omnidirectional Antenna, Radio Frequency Spectrum Monitor Station, GNU Radio, Software Defined Radio