ABSTRAK

RANCANG BANGUN ANTENA *ULTRA HIGH FREKUENCY* UNTUK SISTEM PENGUSIR HAMA TIKUS PADA AREA PEMUKIMAN

(2026 : + 88 Halaman + 40 Tabel + 12 Halaman Lampiran + 20 Daftar Pustaka)

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Penelitian ini bertujuan dan mengimplementasikan antena Ultra High Frequency (UHF) sebagai bagian dari sistem pengusir tikus berbasis radiasi elektromagnetik terarah. Perancangan antena dilakukan dengan mempertimbangkan dimensi, pola radiasi, gain, dan kestabilan frekuensi kerja agar mampu menghasilkan cakupan area yang lebih luas. Hasil pengujian menunjukkan bahwa antena yang dirancang memiliki performa pancaran yang stabil dan mampu mendukung proses pengusiran tikus secara efektif. Pengamatan lapangan menunjukkan adanya penurunan aktivitas tikus setelah sistem dioperasikan secara kontinu. Teknologi UHF yang diterapkan memberikan keunggulan dalam jangkauan dan cakupan area dibandingkan metode pengusiran konvensional. Sistem yang dikembangkan berpotensi menjadi solusi pengendalian hama yang lebih modern, adaptif, dan ramah lingkungan.

Kata kunci: Antena UHF, radiasi elektromagnetik, pengusir tikus, pola radiasi, pengendalian hama modern.

ABSTRACT

DESIGN AND DEVELOPMENT OF AN ULTRA HIGH FREQUENCY ANTENNA FOR A RAT PEST REPELLENT SYSTEM IN RESIDENTIAL AREAS
(2026 : + 88 Halaman + 40 Tabel + 12 Halaman Lampiran + 20 Daftar Pustaka)

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This study aims to design and implement an Ultra High Frequency (UHF) antenna as part of a directional electromagnetic rat repellent system. The antenna was developed by considering its dimensions, radiation pattern, gain, and frequency stability to achieve wider coverage and improved performance. The test results showed that the designed antenna produced stable radiation characteristics and effectively supported the rat repellent system. Field observations indicated a reduction in rat activity after the system was operated continuously. Compared to conventional repellent methods, the UHF-based system offers advantages in signal coverage and operational range. Therefore, the proposed system has the potential to become a modern, adaptive, and environmentally friendly solution for pest control in residential environments.

Keywords: *UHF antenna, electromagnetic radiation, rat repellent, radiation pattern, modern pest control system.*