Analisis rasio proteksi digital video broadcasting second generation terrestrial terhadap interferensi divais whitespace = Analysis of protection ratio for digital video broadcasting second generation terrestrial in interference of whitespace device

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Abstrak

Televisi (TV) whitespace menjadi salah satu solusi layanan internet di daerah rural yang beroperasi tanpa lisensi dengan mengutilisasi alokasi frekuensi TV yang tidak digunakan. Dengan beroperasinya divais whitespace, dapat menimbulkan interferensi bagi Digital Video Broadcasting Second Generation Terrestrial (DVB-T2). Untuk menghindari terjadinya interferensi diantara divais whitespace (WSD) dan DVB-T2, dibutuhkan nilai rasio proteksi sebagai selisih maksimum kekuatan pancaran sinyal kedua divais. Simulasi dilakukan menggunakan perangkat lunak Spectrum Engineering Advanced Monte Carlo Analysis Tool (SEAMCAT), dengan pendekatan Monte Carlo. Hasil simulasi menunjukan bahwa semakin besar nilai rasio carrier to noise (C/N) yang dihasilkan setiap variasi coderate dan tipe modulasi DVB-T2, menghasilkan nilai rasio proteksi yang semakin tinggi, dengan catatan jarak diantara kedua divais 1 km. Selain nilai C/N, lebar pita frekuensi kerja WSD juga berpengaruh dalam perbedaan nilai rasio proteksi.
.....Whitespace television (TV) is one of the internet service solutions in rural areas that operate without a license by utilizing TV frequency allocation that is not used. With the operation of the whitespace device, it can cause interference for Digital Video Broadcasting Second Generation Terrestrial (DVB-T2). To avoid interference between whitespace device (WSD) and DVB-T2, a protection ratio value is needed as the maximum difference in signal strength of the two devices.
Simulation is done using Spectrum Engineering Advanced Monte Carlo Analysis Tool (SEAMCAT) software, with the monte carlo approach. The simulation results show that the greater the C/N value produced by each coderate variation and modulation type of DVB-T2, the higher the value of the protection ratio, with the distance between the two devices 1 km. In addition to the carrier to noise ratio C/N value, the bandwidth of WSD also influences the difference in the value of the protection ratio.