

HD RADIO COVERAGE MEASUREMENT AND PREDICTION

John Kean
NPR Labs, National Public Radio
Washington DC

ABSTRACT

Because of its unique digital transmission, HD Radio® requires new methods and standards to measure and predict signal coverage, relative to analog FM. Because analog FM reception quality is known to decline gradually with degraded RF signal quality, analog FM service may be quantified in simple terms of signal strength. With digital audio broadcasting, reception quality remains ‘perfect’ until signal quality degrades below threshold requirements, at which point reception ends. This “cliff effect” as it is commonly known in digital television, required NPR to use new techniques to measure HD Radio reception and predict coverage.

No model for measurement and prediction has been developed for this new service. Since real coverage is an oft-mentioned concern of station engineering and management, NPR Labs embarked on a year-long project to collect data from stations transmitting HD Radio and form a propagation model for this digital radio service. The following report summarizes our study, discusses current conclusions, and addresses future work that should be done to improve the coverage analysis process.