

About The Accompanying Maps

The coverage of FM and TV stations is greatly affected by the nature of the terrain in which the stations are located. In flat or gently rolling country, coverage extends approximately the same distance in all directions and is controlled mainly by the power radiated and the height of the transmitting antenna. In such smooth terrain, the simple method of predicting coverage used by the FCC for over forty years provides useful and reasonably accurate maps of coverage. However, for stations located in rough terrain, the FCC-style maps fail to provide a meaningful measure of TV coverage.

To prepare coverage maps that realistically predict coverage, Hammett & Edison, Inc. developed a complete system to determine and show the actual effects of terrain on coverage. This system uses the sophisticated propagation algorithm called the Terrain Integrated Rough Earth Model (TIREM), developed at the Joint Spectrum Center (JSC, formerly ECAC) in Annapolis, Maryland. TIREM uses detailed terrain profiles to compute values of basic transmission loss from point to point. The model evaluates the profile between two sites and, based on the geometry of the profile, selects automatically the most probable mode of propagation from various knife-edge models, a rough-earth diffraction model, and line-of-sight models. When combined with the United States Geological Survey (USGS) 3-second terrain database, as has been done, the TIREM model is the most accurate available means of predicting signal strength when details of terrain along the propagation path are known.

The maps presented here, in a style first copyrighted by Hammett & Edison in 1989, show TIREM-computed desired-to-undesired (D/U) ratios for the predicted effect on FM station coverage, for FM stations in the 88.1 to 90.9 MHz range, from potential interference by a digital television (DTV) station operating on TV Channel 6 (82-88 MHz). In all cases, the FM station is treated as the desired station, so negative D/U ratios indicate areas for higher DTV station signal strengths. An FM threshold of 48 dBu was selected, under which no D/U ratios were computed. A 3-meter receiving antenna height was assumed for all cases. All D/U ratio threshold figures are as provided to Hammett & Edison by National Public Radio, as based on previously conducted laboratory studies commissioned by NPR.

The color contours shown on the attached maps represent D/U regions as defined by the scale at the bottom of each map. For comparison, the 60 dBu F(50,50) contour of each FM station, as plotted in accordance with FCC procedures, is included on each map. Population figures, as based on the 1990 U.S. Census, also are shown at the bottom, for population contained both within the defined D/U region and within the FCC 60 dBu contour, as well as for the entire map area shown. Percentage of FCC 60 dBu contour population coverage is also shown for each D/U region.

