

Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of)
)
Establishment of an Improved Model for)
Predicting the Broadcast Television Field)
Strength Received at Individual Locations)

ET Docket No. 01-101

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

To: Commission

COMMENTS OF PAXSON COMMUNICATIONS CORPORATION

Paxson Communications Corporation ("Paxson"), by its attorneys, hereby submits these Comments on the proposal to modify the Individual Location Longley-Rice ("ILLR") model for predicting broadcast television signal field strength for purposes of the Satellite Home Viewer Improvement Act of 1999 ("SHVIA")¹ included in the *Notice of Proposed Rule Making* in the above-captioned proceeding. Paxson owns the PAXTV television network and fifty-five full-power television stations located across the country.

While Paxson applauds the Commission for attempting to refine ILLR to account for land clutter variations, the revisions proposed in the *Notice* would make the ILLR model less accurate, less precise and less reliable. As such, adoption of the proposed revisions would exceed the Commission's mandate and directly conflict with the express terms and stated intent of the SHVIA. The Commission therefore should – indeed it must – decline to modify the model until an accurate and reliable application for accounting for land clutter variations has been developed and accepted by the scientific community.

¹ Title I of the Intellectual Property and Communications Omnibus Reform Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501, Appendix I (1999).

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The SHVIA directs the Commission to develop a predictive model for “reliably and presumptively determining the ability of individual locations to receive signals in accordance with the signal intensity standard in effect under section 119(d)(10)(A).”² Well aware of the widespread use of the Commission’s ILLR model for this purpose, Congress instructed the Commission “to attempt to increase its [the ILLR model’s] accuracy further by taking into account not only terrain, as the ILLR model does now, but also land cover variations such as buildings and vegetation.”³ Lest there be any question about congressional intent, the Conference Report emphasizes that “[t]he linchpin of whether particular proposed refinements to the ILLR model result in greater accuracy is whether the revised model’s predictions are closer to the results of actual field testing in terms of predicting whether households are served by a local affiliate of the relevant network.”⁴ Consequently, Congress charged the Commission with modifying the ILLR model only if doing so would “increase its accuracy further.”

In the *Notice*, the Commission generally proposes to account for land clutter by reducing ILLR results by a figure that corresponds to a generic classification of the receiving location’s environment. This pre-determined “clutter loss value” is derived from a study by Thomas Rubinstein of the effect of land clutter on the propagation of land mobile signals. Even if that study accurately reflects signal propagation in the land mobile context, Rubinstein’s data provides an inappropriate means to evaluate television broadcast signal propagation.

Rubinstein conducted his measurements with three omnidirectional, vertically polarized monopole antennas (similar to those commonly used for land mobile reception) mounted on top

² 47 U.S.C. § 339(c)(3).

³ *Joint Explanatory Statement of the Committee of Conference on H.R. 1554*, 106th Cong. (“*Conference Report*”), 145 Cong. Rec. H11793, H11796 (daily ed. Nov. 9, 1999).

⁴ *Id.* at 11796.

of an automobile, presumably at a height of approximately six feet. Under the SHVIA, the relevant receiving antenna is a traditional outdoor rooftop television antenna mounted at twenty feet for a one-story residence or thirty feet for a two-story residence. A rooftop television antenna typically is a directional, horizontally polarized yaggi or log-periodic. The differences in receiving antenna render Rubinstein's data virtually meaningless for SHVIA purposes.

The dramatic height differentials lead to dramatically different estimates of clutter loss. Clutter loss decreases at greater heights as the number of objects protruding into a signal path (*e.g.*, trees and surrounding buildings) decrease. As such, land clutter variations will effect a lower antenna much more than an antenna located at a height above some or most of the clutter. Rubinstein's clutter values consequently overstate the propagation loss for television signals because they are based on a measure of signal strength that is significantly lower than one would expect at the antenna heights provided in the SHVIA.

In addition, the use of an omnidirectional, vertically polarized antenna overstates the actual effect of clutter on television signal propagation. An omnidirectional antenna is designed to receive signals reflecting off of buildings, terrain, and other objects. In contrast, a directional antenna oriented toward the direction of maximum signal gain discriminates against signals from other directions, thereby decreasing the effect of multipath interference. Moreover, vertical polarization can be expected generally to increase signal loss because trees, buildings, and other clutter-causing objects are typically vertical. In contrast, the cross polarization between clutter-causing objects and a horizontally polarized antenna leads to less signal loss.⁵

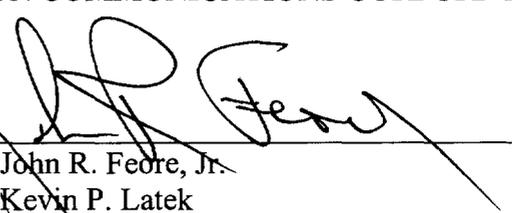
⁵ See A.G. Longley, *Radio Propagation in Urban Areas*, Conf. Rec. 28th IEEE Vehicular Tech. Conf. 503, 504 (Denver, Colo., Mar. 22-24, 1978).

The differences between Rubinstein's methodology and the SHVIA-specified receiving antenna are not purely academic. Rubinstein's measurements, if applied to Longley-Rice predictions of television signal propagation, would overstate the amount of signal loss caused by clutter at a particular subscriber's household. Overstating clutter loss would make ILLR predictions less accurate, less precise and less reliable, thus necessitating unnecessary signal strength tests at subscriber households and generating unnecessary consumer confusion and frustration.

The SHVIA and the public interest generally compel the Commission to refrain from adopting the any revisions to ILLR model that fail to "increase its accuracy further." Paxson therefore respectfully requests that the Commission refrain from modifying the ILLR model until it is presented with the results of "real world," realistic and scientifically tested and accepted measurements of the effect of clutter loss on television signal propagation.

Respectfully submitted,

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