

FOR FURTHER INFORMATION CONTACT: Kathleen Scheuerle, Mass Media Bureau, (202) 418-2180.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, MM Docket No. 00-43, adopted May 17, 2000, and released May 26, 2000. The full text of this Commission decision is available for inspection and copying during normal business hours in the Commission's Reference Center, 445 12th Street, SW, Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Services, Inc., 1231 20th Street, NW, Washington, DC 20036, (202) 857-3800, facsimile (202) 857-3805.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Part 73 of title 47 of the Code of Federal Regulations is amended as follows:

PART 73—[AMENDED]

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334 and 336.

§ 73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments under Florida, is amended by adding Ebro, Channel 236A.

Federal Communications Commission.

John A. Karousos,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[ET Docket No. 00-11; FCC 00-185]

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

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document prescribes an improved point-to-point predictive model for determining the ability of individual locations to receive an over-the-air television broadcast signal of a specific intensity through the use of a conventional, outdoor rooftop receiving antenna. This document also provides for the model's continued refinement by the use of additional data as they

become available. In the absence of on-site measurements of signal intensity, the model will be used to establish whether individual households are eligible to receive certain satellite home viewing services. The Commission is complying with new statutory requirements set forth in the Satellite Home Viewer Improvement Act of 1999. **DATES:** Effective June 26, 2000.

FOR FURTHER INFORMATION CONTACT: Robert Eckert (202-418-2433), Office of Engineering and Technology.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's First Report and Order in ET Docket No. 00-11, FCC 00-185, adopted May 22, 2000, and released May 26, 2000. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Center (Room CY-A257) 445 12th Street, SW., Washington, DC, and may also be purchased from the Commission's copy contractor, International Transcription Services, Inc., (202) 857-3800, 1231 20th Street, NW., Washington, DC 20036.

Summary of the First Report and Order

1. In this First Report and Order (Report and Order), the Commission prescribes an improved point-to-point predictive model for determining the ability of individual locations to receive an over-the-air television broadcast signal of a specific intensity through the use of a conventional, outdoor rooftop receiving antenna. The Report and Order also provides for the model's continued refinement by the use of additional data as they become available. Under the provisions of the 1988 Satellite Home Viewer Act (SHVA), a household that cannot receive the over-the-air signal of a local network affiliate is eligible to receive the distant network signal through satellite carriers. In the absence of on-site measurements of signal intensity, the predictive model will provide a reliable and presumptive means for determining whether the over-the-air signal of a network affiliated television station can be received at an individual location.

2. A Notice of Proposed Rule Making (Notice) issued on January 20, 2000, 65 FR 4923 (February 2, 2000) addressed the SHVA statutory requirement for prescribing the Individual Location Longley-Rice model, a version of Longley-Rice 1.2.2. At issue is how the basic Longley-Rice radio propagation prediction model should be refined so that it will accurately take land cover variations into account as required by the SHVA. The Notice proposed a

specific computational procedure based on a certain database of land cover variations published by the United States Geological Survey. According to this procedure, individual locations are to be identified as lying in one of 10 land use and land cover (LULC) categories ranging from open land to urban environments. The computational procedure then finds a clutter loss value (a reduction in available signal intensity) associated with this environmental class for the TV channel of interest, and subtracts that clutter loss from the signal intensity predicted by the Longley-Rice model. The Notice proposed a specific set of clutter loss values based on the results published in a recent engineering journal by Thomas N. Rubinstein.

3. There are three major issues to be resolved in this matter. These are first, whether it would improve the accuracy of the ILLR model to assign clutter loss values as a function of the LULC category of the receiving location, as proposed in the Notice. Second, whether there are specific clutter loss values that would have the desired effect of improving prediction accuracy. Third, the provisions to be made for the introduction of further improvements in prediction accuracy as additional data become available. The Report and Order also addresses certain matters of technical detail raised by the comments having to do with error flags and the surface refractivity parameter of the ILLR model. In a separate but related matter, an independent and neutral entity is designated that will in turn designate who shall conduct the objective test of received signal intensity for verification purposes in case a satellite provider and network station cannot agree on a person to conduct such a test.

4. *Clutter Loss Assignment by LULC Category.* The proposal to assign clutter loss values according to LULC category was supported by the major providers of direct-to-home satellite services, DIRECTV, Inc. (DIRECTV) and EchoStar Satellite Corporation (EchoStar). These organizations stated that the LULC database is a source of credible and verifiable information regarding vegetation, water and other features on the land surface, and that it is widely relied upon by the scientific and technical communities for a variety of applications. Engineering firms generally agreed that this approach has merit, at least until a more up-to-date source of land use and land clutter information with finer resolution, such as Landsat, becomes available. Commenters representing terrestrial broadcasting interests, however, argued

that increased prediction accuracy will not be obtained by the approach proposed in the Notice because there are serious deficiencies with the LULC database for purposes of modifying the ILLR model. Based on analysis of these comments, the Commission finds that the assignment of clutter loss values based on LULC categories would enhance the accuracy of predictions made with the ILLR model. Therefore, although they are not ideal, the LULC categories proposed in the Notice are adopted as an integral part of the ILLR. The addition of these LULC categories will provide the ILLR with an approximate means for accounting for the reception environment of individual locations, as those environments are affected by vegetation and building structures as well as the specific terrain elevation features already accounted for by the basic Longley-Rice model. The effect of each reception environment on signal reception is dependent on the clutter loss value assigned to each of the LULC categories.

5. *Clutter Loss Values.* Commenters expressed strongly opposing views on the specific clutter loss values to use for improving ILLR predictions. While DIRECTV and EchoStar recommended specific values for clutter loss, namely those proposed in the Notice, parties representing the interests of the network affiliates believe that the predictions of the ILLR model in its present form already include the effects of clutter so that no prescription of additional losses is appropriate. Middle ground was found in the comments of engineering firms. These generally favored assignment of clutter loss values to be determined by further study of existing measurement data or data acquired by further measurement programs. The Commission believes that the values assigned as clutter losses should be determined by statistical study of actual measurements in the specific LULC environments to which they are to be applied. The results of a study of this type were reported in the comments of the National Association of Broadcasters and the Association for Maximum Service Television, Inc. (NAB/AMSTV). The NAB/AMSTV study compared predictions of all the various proposed models with measured data to determine the relative accuracy of the models. The prediction at each of approximately 1000 locations was classified as correct, an under-prediction, or an over-prediction. A model was deemed to have made an under-prediction if it predicted that a location could not receive a signal of at least Grade B strength, when the

location in fact did receive a Grade B signal; it was charged with an over-prediction if it predicted that a location could receive a signal of at least Grade B when the household in fact was measured not to receive a Grade B signal.

6. For VHF channels, the comparisons indicate that a prescription of additional losses would make the ILLR model less accurate because it already produces more under-predictions than over-predictions (a condition that favors the interests of satellite service providers). For both VHF and UHF, the ILLR model without clutter corrections proves superior to other models by making the correct prediction more often. For UHF, however, even though more correct than the competing models, the ILLR model tends to over-predict the field intensity substantially more often than it under-predicts. This is a condition that could be restored to approximate balance by assigning clutter losses. Based on the available measured data of television signals, the Commission reduced the clutter loss values from those proposed in the Notice in order to make the ILLR model more accurate. The clutter loss values for VHF channels are set to zero because the measurement data indicate that larger values produce fewer correct predictions. Thus the ILLR model is not changed for VHF. For UHF channels, small clutter loss values are set in order to obtain a better balance between under-predictions and over-predictions. Specifically, the clutter loss values are reduced to one-third of those proposed in the Notice because the Commission's assessment of the data indicates that this will produce a better balance between under-predictions and over-predictions without adversely affecting the overall percentage of correct predictions.

7. *Error Flags.* In the Notice it was proposed to presume lack of service in the rare instances where the output of the Longley-Rice computational procedure includes an error flag along with the predicted field strength to indicate a possible error in the prediction. No argument can be made for the accuracy of either convention, since the error flag simply indicates uncertainty in the predicted value of field strength due to the fact that the parameters presented to the ILLR are somewhat outside their proper limits. The Commission believes that the best approach is to ignore the error flag and simply accept the predicted value for comparison with the signal intensity standard. Thus, in uncertain cases the improved ILLR model will prefer neither under-prediction nor over-prediction errors.

8. *Surface Refractivity.* Commenters stated that it could improve the accuracy of the ILLR model to use the actual surface refractivity in the geographical region between the transmitter and individual reception point in place of the fixed median value proposed in the Notice. However, commenters did not propose a precise algorithm or particular database for determining the refractivity value to be used for individual radio paths. While it would be desirable to include surface refractivity in the ILLR model as a geographic variable, the Commission believes that the effects on the precise signal strength predictions made by the ILLR model would be too small to make a difference, as a practical matter, in the determination of served/unserved status of individual locations. Therefore, due to the lack a precise procedure and database for this proposed ILLR refinement, the fixed median value of surface refractivity is retained in the ILLR model as proposed in the Notice.

9. *Provisions for Further Improvements in Prediction Accuracy.* The comments indicate that improvements in the accuracy of the ILLR model beyond those specifically proposed may be possible either by obtaining additional measurement data or through further analysis of existing data. In the Report and Order the Commission declared that it will initiate a further rule making, *i.e.*, a standard notice-and-comment procedure, to improve the accuracy of the ILLR model upon the filing of a petition for such rule making that is supported by high quality engineering studies containing conclusions based on reliable and publicly available measurement data. Changes to the ILLR model based on such additional data may be proposed by referencing the present Docket, which will be held open for this purpose.

10. *Designation of Neutral and Independent Entity for Signal Tests Purposes.* The SHVIA relies on the ILLR model to determine presumptively whether a subscriber is served or unserved for purposes of eligibility to receive satellite retransmission of distant network signals. The SHVIA further provides that subscribers who are denied retransmission of distant signals may request that the satellite carrier seek a waiver of the denial from the network station that is asserting that retransmission is prohibited. If the network station rejects the waiver request, the subscriber may request an on-site test. To address those circumstances in which the satellite provider and network station cannot agree on a person to conduct the test,

the SHVIA requires that the Commission designate by rule an independent and neutral entity that shall in turn designate the person to conduct the test. The American Radio Relay League (ARRL) is particularly appropriate in this role since it has no commercial connection with delivery of television services, its field offices cover the United States, and its members are actively engaged in activities related to the measurement of radio field intensity. Accordingly, the Report and Order provides that the ARRL shall serve as the independent and neutral entity that shall designate the person to conduct the test.

11. *Final Regulatory Flexibility Certification.* The Regulatory Flexibility Act (RFA)¹ requires that a regulatory flexibility analysis be prepared for rulemaking proceedings, unless the agency certifies that “the rule will not have a significant economic impact on a substantial number of small entities.”² The RFA generally defines “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”³ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁴ A small business concern is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).⁵

12. In this Report and Order, the Commission prescribes a prediction technique for determining the ability of individual households to receive television signals broadcast over-the-air by local stations. The prediction technique applies exclusively to the sources of data for certain engineering calculations and to the manner in which these calculations are made. Television station licensees, Direct Broadcast Satellite (DBS) operators, and other

Direct to Home (DTH) Satellite operators may use the technique to establish the eligibility or non-eligibility of individual households for satellite delivery of distant television programming. These determinations will usually be made at the point of sale of satellite receiving equipment for homes and will tend to increase the number of eligible customers. As noted in paragraph 3 of the Report and Order, the statute requires that we increase the accuracy of the prediction model based on technical data regarding terrain and land cover variations. Thus, the prescribed prediction technique is of a purely electrical engineering, scientific nature, and the Commission’s aim is to improve its scientific accuracy. Moreover, the changes prescribed in the technique are small and will have only a minor effect on the proportion of households that are eligible to receive distant network signals. The number of viewers served by network affiliate stations will not be significantly reduced, and hence the economic effect on network affiliates and satellite carriers will not be significant. Therefore, the Commission certifies that the requirements of this First Report and Order will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the First Report and Order including a copy of this final certification, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, see 5 U.S.C. 801(a)(1)(A). In addition, the First Report and Order and this certification will be sent to the Chief Counsel for Advocacy of the Small Business Administration. See 5 U.S.C. 605(b).

13. Pursuant to Sections 1, 4(i), 4(j) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), and 154(j); Section 1008 of the Intellectual Property and Communications Omnibus Reform Act of 1999, Public Law 106–113, 113 Stat. 1501, Appendix I; and Section 119(d)(10)(a) of the Copyright Act, 17 U.S.C. 119(d)(10)(a), the rule changes set forth *shall be effective* June 26, 2000.

14. That the Commission’s Consumer Information Bureau, Reference Information Center, *shall send* a copy of the First Report and Order, including the Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Part 73

Television.

Federal Communications Commission.

Magalie Roman Salas,
Secretary.

Rule Changes

For the reasons discussed in the preamble, part 73 of title 47 of the Code of Federal Regulations is amended as follows:

PART 73—RADIO BROADCAST SERVICES

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334, and 336.

2. In § 73.683, the section heading is revised and paragraphs (d) and (e) are added to read as follows:

§ 73.683 Field strength contours and presumptive determination of field strength at individual locations.

* * * * *

(d) For purposes of determining the eligibility of individual households for satellite retransmission of distant network signals under the copyright law provisions of 17 U.S.C. 119(d)(10)(A), field strength shall be determined by the Individual Location Longley-Rice (ILLR) propagation prediction model. Guidance for use of the ILLR model for these purposes is provided in OET Bulletin No. 72. This document is available through the Internet on the FCC Home Page at <http://www.fcc.gov>.

(e) In the case of measurements to determine the eligibility of individual households to receive satellite retransmission of distant network signals under the copyright law provisions of 17 U.S.C. 119(d)(10), if a satellite carrier and the network station or stations asserting that the retransmission of a signal of a distant network station is prohibited are unable to agree on a person to conduct the test, the American Radio Relay League, Inc., 225 Main Street, Newington, CT 06111–1494, shall designate the person or organization to conduct measurements based on the technical qualifications and independence of proposed testers. The satellite carrier and network station shall propose testers and provide their qualifications in writing to the American Radio Relay League (ARRL). Individuals may also volunteer themselves as testers by submitting their qualifications to the ARRL. The ARRL can be reached by telephone at 860–594–0200, or email at hq@arrl.org.

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¹ The RFA, see 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Public Law 104–121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

² 5 U.S.C. 605(b).

³ 5 U.S.C. 601(6).

⁴ 5 U.S.C. 601(3) (incorporating by reference the definition of “small business concern” in Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

⁵ Small Business Act, 15 U.S.C. § 632.