

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

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

Satellite Delivery of Network Signals)
to Unserved Households for Purposes)
of the Satellite Home Viewer Act)

Part 73 Definition and Measurement of)
Signals of Grade B Intensity)
_____)

CS Docket No. 98-201
RM No. 9335
RM No. 9345

**OPPOSITION TO ECHOSTAR AND DIRECTV
PETITIONS FOR RECONSIDERATION**

The National Association of Broadcasters hereby files its Opposition to the petitions for reconsideration filed by DIRECTV, Inc. and EchoStar Communications Corporation on March 15, 1999.

I. DIRECTV PETITION

DIRECTV's Petition for Reconsideration invites the Commission to endorse use of unknown software -- the accuracy of which has never been subjected to scientific scrutiny -- to modify the Individual Location Longley-Rice ("ILLR") model endorsed by the Commission. The stated purpose of this software is to take land use and land cover ("LULC") data into account in predicting signal intensity at particular locations. Even DIRECTV does not know how or whether the software will work, since it has not even completed development of the LULC application. Yet DIRECTV asks the Commission to authorize satellite companies -- which have

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a vested interest in declaring viewers to be “unserved” -- to decide for themselves what LULC software they prefer and how to run it.

The Commission obviously should not hand satellite carriers a license to override ILLR propagation predictions through use of undisclosed and untested software. Of course, if DIRECTV in the future proposes use of a *specific* software package to modify the ILLR model, NAB would support an expedited review by the Commission to determine, using scientific methods, whether the software package increases, decreases, or has no effect on the accuracy of the ILLR model. Such a review would necessarily require careful comparisons of the modified version of the ILLR model against actual signal strength measurements. In the meantime, the Commission should reject DIRECTV's request to allow satellite companies to unilaterally tamper with the ILLR model.

Discussion

In its Report & Order, the Commission indicated that “when an appropriate application develops,” land use and land cover data should be used in the ILLR model. Report & Order ¶ 83 (emphasis added). The Commission “challenge[d] interested parties to develop such an application that more accurately reflects the signal intensity at an individual location.” *Id.* For now, however, the Commission observed that “no standard means of including [land cover] data with the ILLR . . . has been accepted by the technical and scientific community.” *Id.*

As the Report & Order indicates, there are two steps that must take place before any application using land use and land cover data can be incorporated into the ILLR model.

First, a party must publicly offer a specific proposed LULC model to the Commission (and to the technical and scientific community) for evaluation. Second, the Commission must either review and evaluate the accuracy of the model itself, or ensure that the consensus of the technical and scientific community supports use of the model as a way to “more accurately reflect[] the signal intensity at an individual location.” Report & Order, ¶ 83.

DIRECTV does not contend that either of these steps has taken place. First, DIRECTV does not even have a specific software package to propose. See DIRECTV Petition for Reconsideration at 3 (process for converting USGS data “is currently being pursued by DIRECTV”); id. (“Such software will be able to pinpoint . . . those households that are not able to receive a signal of Grade B intensity”); id. at 4 (“DIRECTV’s research thus far indicates”); id. at 5 (“[a] number of companies are developing an application” to integrate LULC Data with the ILLR Model); Plummer Decl. ¶ 7 (“efforts . . . are underway to combine this data with commercially-available mapping software”) (emphasis added in all cases). While DIRECTV claims that the USGS database is reliable, land cover data -- even if perfectly accurate -- would merely be an input to a (currently unknown and untested) algorithm that predicts the impact of land cover on signal propagation.^{1/}

Second, even if it had actually developed a particular algorithm, DIRECTV does not and could not claim that either the Commission or the technical and scientific community has had the opportunity to test and evaluate the proposed LULC application. Unless a particular

^{1/} As the Opposition filed by the Affiliate Associations explains, Longley-Rice already takes land use and land cover into account to a significant degree.

LULC application is shown through objective evidence to increase the accuracy of the ILLR model, there is no reason to add an additional element of complexity and cost to the Commission-endorsed ILLR model. It is obviously impossible even to begin that evaluation process when DIRECTV has not identified a specific software package to be evaluated.

In the Report & Order, the Commission addressed and rejected a similar (indeed, more defensible) proposal with respect to the TIREM model, for reasons squarely applicable here:

- ▶ Like the TIREM model endorsed by some commenters, the proposed LULC software is not “readily available” to the public (Report & Order, ¶ 87) -- indeed, it does not even yet exist.
- ▶ As with TIREM, neither DIRECTV nor any other satellite company has presented any information regarding “which, if any version [of LULC software] would work best in the SHVA context.” Id.
- ▶ DIRECTV has not presented “any empirical information demonstrating that publicly available applications” of LULC software “are substantively more accurate than the ILLR.” Id.
- ▶ Again as with TIREM, the Commission has no experience with the LULC software that DIRECTV claims it is developing, in contrast to the Commission's “many years of experience using and evaluating the Longley-Rice model.” Id. at ¶ 88.

II. ECHOSTAR PETITION

EchoStar's Petition consists largely of a rehash of the same arguments the Commission considered -- and rejected -- in issuing its Report and Order. Ignoring the meticulous reasoning in the Commission's Report & Order, EchoStar yet again asks the Commission to adopt inflated SHVA-specific values for "Grade B intensity," to endorse grossly unscientific methods of measuring signal intensity, and to adopt an inappropriate "confidence" factor that would misclassify countless viewers as unserved. As the Commission has consistently recognized, it is inappropriate to use a petition for reconsideration to reargue matters already conclusively decided.^{2/} Because the Commission has already carefully considered the issues raised by EchoStar in the main proceeding, it should reject EchoStar's petition.

^{2/} See Amendment of Part 97 of the Commission's Rules Concerning the Establishment of a Codeless Class of Amateur Operator License, FCC 92-72, 7 F.C.C.R. 1753 (released March 4, 1992), at ¶ 3 (finding that submissions did not meet standard for petition for reconsideration under § 1.429 where they "fail [to] present any facts or raise any issue that we did not consider in the Order."); see also Application of MCI General Partnership, 13 F.C.C.R. 16200 (released Aug. 24, 1998), at ¶ 2 (finding that petition did not meet standards under § 1.106 where it "does not raise any new issues or evidence that are not discussed in WWC's other pleadings in this and related proceedings); Applications of Cannon Communications Corp., FCC 91-169, 6 F.C.C.R. 3310 (released June 4, 1991), at ¶ 7 ("[Petitioner's] argument is little more than a rehash of the arguments that it raised in its petition to reopen. Reconsideration will not be granted for the purpose of again debating matters upon which we have already deliberated and spoken.").

A. EchoStar's Rehash of Its Arguments for a "SHVA-Specific" Grade B Standard Provides No Basis for Overturning the Commission's Considered Rejection of That Proposal

During the comment phase of this proceeding, EchoStar and other satellite industry commenters urged the Commission to increase the dBu levels defined as "Grade B" as a way to shrink stations' legally-protected service areas. EchoStar and its allies exhaustively briefed this issue, as did broadcasters and other commenters in response. After considering a mountain of filings, the Commission concluded: "we do not believe that we have the authority to create a special Grade B solely for the purpose of the SHVA, nor do we believe this is an advisable approach to take." Report & Order, ¶ 43.

In its Report & Order, for example, the Commission pointed out that "no current study" exists that demonstrates any need to change Grade B intensity values based on changing viewer expectations (¶ 40); noted that changes since the 1950s in the planning factors "tend to cancel each other out" (¶ 42); and confirmed that the Commission has repeatedly evaluated the matter and reaffirmed the appropriateness of existing Grade B values, most recently in the digital television proceeding (*id.*).

EchoStar offers no rebuttal whatsoever to these substantive points. Instead, EchoStar offers only an irrelevant legal analysis, citing cases in utterly different circumstances to support the untenable proposition that Congress intended to allow the FCC unilaterally to alter the central genetic code of the Satellite Home Viewer Act.^{3/} In any event, since EchoStar has

^{3/} The cases cited by EchoStar appear to deal with instances in which the

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offered no substantive grounds for the Commission to change its conclusions, there is no reason for the Commission to address EchoStar's tortured legal analysis.

B. Ghosting Is Irrelevant to the Grade B Inquiry

Because Congress created a standard based on “Grade B intensity,” the Commission obviously could not adopt a new SHVA eligibility standard based on something other than signal strength. EchoStar acknowledges that ghosting is “a problem unrelated to signal strength.” Pet. at 7. Hence, the Commission unquestionably lacks authority to alter the SHVA eligibility standard to deal with ghosting. (We emphasize, however, that there are many

^{3/} (...continued)

interpreting agencies were determining the meaning of terms that *did not have settled agency definitions* and/or *were ambiguously defined* by Congress at the time the respective statutes were drafted, thus Congress was not incorporating a specific objective definition previously crafted by the agency. See Comite Pro Rescate de la Salud v. Puerto Rico Aqueduct and Sewer Authority, 888 F.2d 180, 185 (1st Cir. 1989) (upholding EPA definition of “domestic sewage” where “definitional section use[d] highly general terms,” “language in question constitute[d] a small part of a comprehensive regulatory scheme that Congress entrusted the EPA to administer,” and “the statute . . . reflect[ed] a congressional intent to give EPA considerable authority itself to interpret language”); Abbott Laboratories v. Young, 920 F.2d 984, 987 (D.C. Cir. 1990) (noting in dicta that it is “not impermissible for an agency to interpret *an imprecise term* differently in two separate sections of a statute which have different purposes” but ruling that agency interpretation of ambiguous phrase was unreasonable) (emphasis added); Acquarius Marine Co. v. Pena, 64 F.3d 82, 88 (2nd Cir. 1995) (holding that two separate agencies may have independent interpretations of the same term in different statutes where meaning of term is ambiguous, “[t]here are textual differences in the two acts suggesting that Congress was not seeking absolute congruity,” and Congress declined to define term with reference to earlier statute despite doing so in other section of subsequent statute).

In contrast, here, the FCC had *already* created a Grade B intensity standard and it was *that standard* that Congress incorporated into the SHVA, not some vague, yet-to-be-determined standard. See NAB Comments (Dec. 11, 1998) at 25-32.

self-help procedures available -- most notably, correct orientation of a directional antenna -- to minimize or eliminate ghosting on those occasions when it occurs. See NAB Reply Comments at 23.)

The impropriety of EchoStar's proposal is particularly clear in light of the origins of the "Grade B" standard: Congress chose that objective test after considering -- and rejecting as an unworkable morass -- a subjective "picture quality" standard. See CBS, Inc. v. PrimeTime 24, 9 F.Supp.2d 1333, 1339 (S.D. Fla. 1998). Since the only way to take account of ghosting would be to adopt a subjective test, EchoStar's proposal would have the Commission go down the very path that Congress explicitly rejected. In the Report & Order, for example, the Commission declined to incorporate interference into SHVA testing procedures on precisely the same grounds:

[T]he only current way to include these factors [such as interference] is for all interested parties to undertake a common *subjective* evaluation at the test site and make a common judgment on the issue. *In the absence of a common subjective judgment, it remains necessary to rely on the standard process that does not take this factor into account.*

Order at ¶ 57 (emphasis added) (noting also that subjective interference inquiry "cannot be required" and "would add expense to the testing procedure").

C. EchoStar's Complaints About Testing Methodology Are Meritless

EchoStar complains that the testing methodology adopted by the Commission is supposedly too complex. Pet. at 8-14. But EchoStar does not offer any scientifically valid ways of simplifying the testing process. Rather, with one exception, EchoStar simply repeats the patently improper proposals it previously urged the Commission to adopt, and that the Commission properly rejected:

- ▶ using unknown and uncalibrated consumer equipment, which the satellite industry's own engineers acknowledge makes it impossible to measure signal intensity;^{4/}
- ▶ pointing the antenna away from the station being measured, contrary to “good engineering practice” (Report & Order, ¶ 59) and to the Commission's express statements in a recent OTARD ruling;^{5/} and

^{4/} CBS v. PrimeTime 24, Trial Tr. 686:23-687:19 (PrimeTime 24 expert Robert Culver); id. at 696:2-11 (even with very low voltage measured using homeowner's own equipment, PrimeTime 24 engineer not prepared to testify that signal intensity in the air is below Grade B); id. at 698:21-22 (“I cannot calculate the signal level in the air [above] the house from the indoor voltage measurements.”); id. at 689:3-4 (Culver had “never measured field intensity with antennas of unknown characteristics”); id. at 700:13-23 (Culver not prepared to testify about signal intensity at any household at which he used homeowner's own equipment); PX 566, Tr. at 63-65 (PrimeTime 24 expert Richard Biby) (impossible to use unknown equipment to measure signal intensity); id. at 18-19 (describing proper procedure for measuring signal intensity, which requires use of “a receiving antenna of known characteristics”); id. at 69 (measurement at the bottom of old rooftop antenna at residence would say “very little if anything” about the signal intensity above the rooftop).

^{5/} In upholding the Cable Services Bureau in the OTARD (Lubliner) case, the Commission observed that “th[e] requirement to orient toward the strongest signal available guards against an improper signal strength test in which the antenna is oriented (intentionally or
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- ▶ choosing a single point at which to conduct measurements, thereby enabling the very “gaming” the Commission sought to prevent and creating a serious risk of “misleading results.” (Report & Order, ¶ 53)

The Commission was right to reject these proposals, and there is no reason for the Commission to spend any time considering EchoStar's rehash of them.

The only arguably new item in EchoStar's entire petition is its discussion about the type of testing antenna to be used. We are providing the Commission with an Engineering Statement from Jules Cohen addressing these issues. In brief, Mr. Cohen explains that although it is possible -- through complex calibration procedures -- to use a fixed-length dipole antenna, it is not possible to obtain reliable results with a fixed-length dipole by using a pre-existing “calibration curve,” as EchoStar advocates. Because of the complexity of empirically calibrating a fixed-length dipole in the field, Mr. Cohen suggests that the Commission not endorse use of fixed-length dipoles. Mr. Cohen explains that it is possible, however, to use a properly calibrated gain antenna to conduct signal intensity measurements.

D. There Is No Reason for the Commission to Revisit Its Carefully Considered Rejection of a Biased “Confidence” Factor

Finally, EchoStar repeats the same flawed arguments it previously advanced for raising the Longley-Rice “confidence” factor above 50%. Pet. at 14-18. The Commission gave extraordinarily careful consideration to the identical points in its Report and Order, and correctly

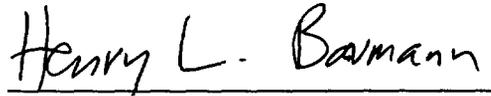
^{5/} (...continued)
inadvertently) in the worst possible direction for receiving the signal, thus giving a misleading result.” FCC 98-201, at n.43 (emphasis added).

concluded that EchoStar's proposal would simply "decrease[] errors of one type and increase[] errors of another type." Report & Order at ¶ 76. EchoStar has provided no reason whatsoever for the Commission to spend additional time on this issue.

CONCLUSION

For the foregoing reasons, NAB respectfully requests that the Commission deny DIRECTV's and EchoStar's petitions for reconsideration and/or clarification.

Respectfully submitted,



Henry L. Baumann
Benjamin F. P. Ivins

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Dated: April 16, 1999

CERTIFICATE OF SERVICE

I hereby certify that I have today arranged for a copy of the foregoing Opposition to be sent by U.S. Mail, first class postage prepaid, addressed as follows:

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April 16, 1999

**ENGINEERING STATEMENT ON BEHALF OF
NATIONAL ASSOCIATION OF BROADCASTERS
CS DOCKET NO. 98-201**

This engineering statement, prepared on behalf of the National Association of Broadcasters, is in support of an Opposition to the EchoStar Communications Corporation (“EchoStar”) Petition for Reconsideration and/or Clarification in the matter of Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewer Act (CS Docket No. 98-201). The statement is directed, particularly, to the EchoStar proposal to permit the use of a fixed-length dipole in making measurements of received television signal strength at households for determining the eligibility of such households to receive network programming from distant stations. In previously submitted engineering statements, I have addressed all of the other engineering matters raised by EchoStar in its petition for reconsideration, such as the proposal to use unknown customer equipment or to make measurements using incorrectly oriented antennas.

Use of a fixed length dipole, in contrast to the standard half-wave dipole specified for use by the Commission, introduces the need for calibration procedures which, if not carried out properly, make measurement results unreliable. (For this purpose, use of printed calibration tables, as EchoStar suggests, is unreliable.) To determine the energy intercepted by an antenna, and derive from that the ambient field strength, the antenna impedance must be “matched” to the measuring device. A basic principle learned by freshman engineering

Jules Cohen, P.E.
Consulting Engineer

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students is that maximum transfer of energy requires that the energy source and the load must have complementary impedances.

A half-wave dipole set for the appropriate channel provides a constant terminal impedance, no matter what channel is being measured. That balanced impedance can then be matched to the unbalanced coaxial cable leading to the measuring device by the use of a broad-band balun of fixed ratio. The gain of the half-wave dipole is the standard against which other antenna gains are referenced for the broadcast service. On the other hand, the impedance of a fixed dipole varies with channel frequency as does its gain. Furthermore, the impedance is affected also by the ratio of diameter to length. A balun will not match properly the variable impedance of the fixed dipole to the characteristic impedance of the coaxial lead to the measuring instrument. (Of course, the input impedance of the measuring instrument must match the characteristic impedance of the coaxial cable.)

To calibrate the fixed dipole system, a measurement with the fixed dipole must be compared with a measurement made with a standard half-wave dipole at precisely the same point in space and with the same orientation as close in time as feasible. (To repeat: use of pre-existing calibration tables is not reliable.) The empirical calibration procedure must be repeated for each channel to be measured. In addition, the transmission line and measuring instrument used in the calibration must be the same transmission line and measuring

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Consulting Engineer

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instrument that is to be used for the household measurements. The last point is significant because the instrument is measuring the voltage across its input terminals. Any unintentional mismatch in the system will cause a standing wave to be produced on the coaxial cable and variation in the cable length or characteristics will change the voltage across the instrument's terminals.

The conclusion to be drawn is that the use of a fixed-length dipole is possible but only if a careful, fully-documented calibration procedure is undertaken. Because of the complexity of the calibration procedure, and the fact that tests may be conducted by a wide range of technicians across the country, I respectfully suggest that the use of a fixed-length dipole would be inconsistent with the Commission's goals of having a simple and readily replicable procedure. By contrast, as I have previously indicated, use of a properly calibrated gain antenna -- the procedure that engineers have used in conducting hundreds of tests in five markets under my direction -- is a more straightforward process, because the gain antenna has a more consistent input impedance, it does not need to be calibrated separately for each channel.

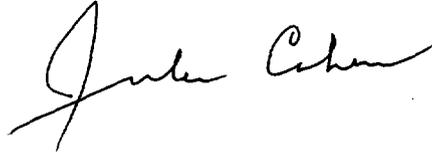
I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Jules Cohen, P.E.
Consulting Engineer

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Executed on April 15, 1999.

A handwritten signature in cursive script that reads "Jules Cohen". The signature is written in black ink and is positioned above the printed name.

Jules Cohen, P.E.