

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Technical Standards for Determining) ET Docket No. 05-182
Eligibility for Satellite-Delivered Network Signals)
Pursuant to the Satellite Home Viewer)
Extension and Reauthorization Act of 2004)

**REPLY COMMENTS OF THE
ABC, CBS, AND NBC
TELEVISION AFFILIATE ASSOCIATIONS**

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Summary

The comments filed in this proceeding come from a variety of industries potentially affected by the Commission's recommendations to Congress in this matter. Some parties urge the Commission to concentrate on developing a predictive model, but SHVERA only permits the Commission to *recommend* to Congress that it should adopt a predictive model, not implement one. Other comments show that digital reception performance is not based on the price or brand of DTV receivers and that there will soon be digital smart antennas that can instantaneously alter their electrical characteristics, including gain, orientation, and pattern. And several sets of comments show that the current digital signal intensity thresholds set forth in Section 73.622(e)(1) of the Commission's rules are the appropriate metric for determining digital service under SHVERA.

EchoStar, however, in a stab at the very heart of the distant digital network signal compulsory license scheme, disagrees with this conclusion about the adequacy of the current digital signal strength standards. But EchoStar's approach is deeply flawed.

The cumulative effect of all of the alleged shortcomings EchoStar claims to find with the current signal strength standards leads to absurd noise-limited field strengths: 101.5 dBu for low VHF, 98.6 dBu for high VHF, and 98.4 dBu for UHF. In other words, EchoStar would have the Commission believe that its current noise-limited field strengths for DTV are too low by 73.7 dB for low VHF, by 62.8 dB for high VHF, and by 57.6 dB for UHF! EchoStar's wholly fanciful digital signal strength standards are reminiscent of similar outlandish adjustments to the Grade B planning factors that EchoStar (and also the Satellite Broadcasting and Communications Association) proposed five years ago in ET Docket No. 00-90. Just as the Commission did five years ago in the analog context, it should reject EchoStar's "adjustments" to the DTV planning factors which form

the basis for the entire digital television transition.

The real cumulative effect of any legitimate concerns with the adequacy of the DTV planning factors amounts to less than 6 dB. But, as shown extensively in Network Affiliates' opening comments, there is a safety margin of 9 dB for low VHF, 9 dB for high VHF, and 6.6 dB for UHF already built into the planning factors if a real-world reception installation is assumed with a readily available consumer antenna and low-noise amplifier ("LNA"). The Commission has previously recognized that LNAs are typical in fringe areas, and the ATSC recommends their use for digital reception. Moreover, these safety margins include only the advantage in system noise figure due to the LNA and not any of the actual gain that the LNA can deliver to the receiver. If the 15 dB to 20 dB additional gain that the LNA provides to the signal is also taken into consideration, then it is plain that the current digital signal strength standards in Section 73.622(e)(1) are far more than adequate to ensure good-quality DTV reception.

EchoStar also makes a number of other assertions, each of which would essentially permit the misorientation of antennas, that, while not expressly affecting the digital signal strength standards themselves, would have a negative effect on local network stations by penalizing them for inappropriate factors and, consequently, shrinking their local service areas. None of these assertions has any merit. EchoStar's attempts to avoid the use of rotors or to not fully orient an antenna properly are bad engineering practice and contrary to the Commission's long-standing expectations.

For the foregoing reasons, Network Affiliates respectfully request that the Commission reject EchoStar's purported "adjustments" to the DTV planning factors and EchoStar's other suggestions that would thwart localism and shrink network affiliate service areas.

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The ABC Television Affiliates Association, the CBS Television Network Affiliates Association, and the NBC Television Affiliates Association (collectively, the “Network Affiliates”), by their attorneys, hereby reply to the comments filed in response to the *Notice of Inquiry* (“*Notice*”), FCC 05-94, released on May 3, 2005, in the above-referenced proceeding.¹

The comments filed in this proceeding come from a variety of industries potentially affected by the Commission’s recommendations to Congress in this matter. Both DIRECTV, Inc. and the Consumer Electronics Association (“CEA”) urge the Commission to concentrate on developing a predictive model.² However, as pointed out by both Network Affiliates and the National Association of Broadcasters (“NAB”), SHVERA, as enacted, requires distant digital network signal eligibility to be determined by a complex site testing scheme.³ SHVERA only permits the Commission to recommend to Congress that it should adopt a predictive model, and both Network Affiliates and

¹ Network Affiliates collectively represent approximately 600 local television stations affiliated with the ABC, CBS, and NBC Television Networks.

² See DIRECTV Comments at 2; CEA Comments at 1.

³ See Network Affiliates Comments at 42-43; NAB Comments at 3-4.

NAB agree that the Commission should make such a recommendation, but, for the many reasons expressed in their comments, a predictive methodology should not be implemented until after the DTV transition is complete.⁴

In other comments, ATI Technologies, Inc. (“ATI”) shows that digital reception performance is not based on the price or brand of DTV receivers, that current DTV receivers perform well in a wide range of even less than ideal reception conditions, and that, “soon, all DTV sets and receivers should perform at least as well as the most advanced equipment available today.”⁵ ATI’s comments are fully consistent with the views expressed by Network Affiliates and NAB in their respective comments. Viamorph, Inc. informs the Commission of its development of a digital smart antenna that can alter its electrical characteristics, including gain, orientation, and pattern, as directed by DTV receiver-resident software performing virtually instantaneous signal analysis.⁶ And the Association for Maximum Service Television, Inc. (“MSTV”) shows that the current digital signal intensity thresholds set forth in Section 73.622(e)(1) of the Commission’s rules are the appropriate metric for determining digital service under SHVERA, a conclusion with which both Network Affiliates and NAB concur.

EchoStar Satellite L.L.C. (“EchoStar”), however, disagrees with this conclusion about the adequacy of the current digital signal strength standards. Because EchoStar’s various assertions stab at the very heart of the distant digital network signal compulsory license scheme, these reply comments focus on detailing why EchoStar’s claims are seriously flawed.

⁴ See Network Affiliates Comments at 43-44; NAB Comments at 33-38.

⁵ ATI Comments at 3, 9.

⁶ See Viamorph Comments at 3-4.

I. The DTV Planning Factors Established Appropriate Signal Strength Thresholds for Reception of Real-World Broadcast Signals, and EchoStar’s “Adjustments” Are Groundless

EchoStar’s comments attack SHVERA’s current requirements, and the Commission’s current rules, concerning both digital signal strength standards in Section 73.622(e)(1) and site testing methodology in Section 73.686(d), in what amounts to a mud-slinging kitchen-sink approach. Presumably, EchoStar hopes that if any mud sticks to the sink, then it will have succeeded in shrinking local network stations’ coverage areas, which, as Network Affiliates extensively demonstrated, is the antithesis of localism, which has always been the guiding principle at the core of the distant signal compulsory license.⁷

But EchoStar’s approach is unfocused and deeply flawed. It appears to be intentionally unfocused in at least one way: The cumulative effect of all of the alleged shortcomings EchoStar claims to find with the current signal strength standards leads to absurd adjustments, as shown below. EchoStar’s approach is also unfocused (either intentionally or unintentionally) in a second way in that it presents no concrete suggestions for Commission action. Close scrutiny of EchoStar’s various claims shows that they are flawed and without merit, and, consequently, it is not surprising that EchoStar proffers no substantive solutions since there is no substance underlying the complaints.

If each of EchoStar’s complaints about digital reception impairments affecting the signal intensity necessary to provide good-quality DTV reception were taken at face value, they would result in the additions to the Commission’s DTV planning factors shown in Table 1.

⁷ See Network Affiliates Comments at 1-13.

EchoStar Proposed Additions to the DTV Planning Factors

Table 1

<i>Parameter</i>	Channels 2 to 6	Channels 7 to 13	Channels 14 to 69
Current FCC Median Field Intensity	27.8	35.8	40.8
Indoor Antenna Penalty ^a	8	10	9
Increase to 99% Time Probability ^b	0.6	4.7	17.5
White Noise Enhancement ^c	2	2	2
Man-Made Noise ^d	30	13	0
Impedance Mismatch ^e	3	3	3
Receiver Sensitivity Adjustment ^f	2.6	2.6	2.6
Building Penetration Loss ^g	27.5	27.5	23.5
EchoStar Proposed Median Field Intensity	101.5 dBu	98.6 dBu	98.4 dBu

^a Derived from 1979 ITS study cited by EchoStar for each band, rounded to nearest whole number.

^b Figures for the high VHF and UHF bands are taken from EchoStar Comments; figure for the low VHF band is by linear extrapolation.

^c Taken from EchoStar Comments.

^d Figure for the low VHF band is taken from EchoStar Comments; figure for high VHF is extrapolated for mid-frequency of the band from 20 dB figure given at 137 MHz; figure for UHF is assumed to be 0 dB since EchoStar does not make an argument that man-made noise is problematic at UHF frequencies.

^e Taken from EchoStar Comments.

^f Taken from EchoStar Comments to be representative of the typical receiver across all channels.

^g Figures are derived as the average of the figures given by EchoStar from a 1963 study in the New York City area.

As Table 1 shows, the cumulative effect of EchoStar’s various “adjustments” would result in digital signal intensity thresholds of 101.5 dBu for low VHF, 98.6 dBu for high VHF, and 98.4 dBu for UHF. In other words, EchoStar would have the Commission believe that its current noise-limited field strengths for DTV are too low by 73.7 dB for low VHF, by 62.8 dB for high VHF, and by 57.6 dB for UHF. To achieve the field strengths that EchoStar apparently believes are necessary for DTV service, television stations, in order to replicate their Grade B coverage areas, would need to be broadcasting with more than 23 million times the power than they are permitted now in the low VHF band, more than 1.9 million times the power than they are permitted now in the high VHF band, and more than 575,000 times the power than they are permitted now in the UHF

band. The absurdity of these proposals is self-apparent. It is no wonder that EchoStar did not tally the results of its kitchen-sink approach.

EchoStar's wholly fanciful digital signal strength standards are reminiscent of similar outlandish adjustments to the Grade B planning factors that EchoStar (and also the Satellite Broadcasting and Communications Association) proposed five years ago in ET Docket No. 00-90.⁸ Just as the Commission did five years ago in the analog context,⁹ it should reject EchoStar's "adjustments" to the DTV planning factors which form the basis for the entire digital television transition.

EchoStar's various "adjustments" are discussed below.

Indoor Antenna Penalty and Building Penetration Loss. EchoStar claims that indoor antennas have far less gain than outdoor antennas and suggests that the DTV planning factors need to be adjusted for this disadvantage.¹⁰ EchoStar cites earlier studies that purport to establish that the indoor antenna penalty is approximately 8 dB in the low VHF band, 10 dB in the high VHF band, and 9 dB in the UHF band.¹¹ EchoStar further points out that indoor antennas suffer not only from

⁸ See EchoStar Satellite Corporation Comments, ET Docket No. 00-90, at 17 (proposing that the median field intensity for Grade B should be 66 dBu for low VHF, 77 dBu for high VHF, and 84 dBu for UHF). See also Satellite Broadcasting and Communications Association Comments, ET Docket No. 00-90, at 3 (proposing that the median field intensity for Grade B should be 70.5 dBu for low VHF, 76.5 dBu for high VHF, and 92.75 dBu for UHF).

⁹ See *Technical Standards for Determining Eligibility for Satellite-Delivered Network Signals Pursuant to the Satellite Home Viewer Improvement Act*, Report, 15 FCC Rcd 24321 (2000).

¹⁰ See EchoStar Comments, Engineering Statement of Hammett & Edison (hereinafter "Hammett & Edison Statement"), at 3.

¹¹ See Hammett & Edison Statement at 4.

having less gain but are also subject to weaker signals due to attenuation from building penetration.¹² EchoStar suggests that building penetration losses may range as high as 25 dB to 30 dB in the VHF bands and 21 dB to 26 dB in the UHF band in cities such as New York.¹³ Although there are certainly indoor antennas that do not suffer nearly the disadvantage EchoStar claims (for example, the Zenith Silver Sensor has an average gain of approximately 4 dB and, being indoors, also does not have up to a 4 dB line loss) and although EchoStar itself points to building penetration loss data that is on the order of 10 dB lower, it is not necessary to either accept or challenge EchoStar's data on these points, for EchoStar's claims with respect to indoor antennas and building penetration losses are simply irrelevant. The Commission has always assumed that homeowners would employ an *outdoor*, directional gain antenna for over-the-air reception of television signals. The *Notice* states that the DTV planning factors "presume that households will exert similar efforts to receive DTV broadcast stations as they have always been expected to exert to receive NTSC analog TV signals."¹⁴ OET 69 states that the planning factors are "assumed to characterize the equipment, including antenna systems, used for home reception."¹⁵ And even EchoStar itself concedes that the digital signal strength standards "are predicated on the use of an *outdoor* antenna."¹⁶ In short, EchoStar has provided no justifiable grounds to overturn an essential element that characterizes the digital replication and transition schemes. This attempt to rewrite the Commission's digital standards is particularly egregious in light of the necessity to locate a Dish Network satellite dish

¹² See Hammett & Edison Statement at 13.

¹³ See Hammett & Edison Statement at 13.

¹⁴ *Notice* at ¶ 6.

¹⁵ OET 69 at 3.

¹⁶ Hammett & Edison Statement at 3 (emphasis added).

outdoors.

99% Time Probability. EchoStar's attempt to increase time probability to 99% from 90% is deeply flawed. EchoStar asserts that it takes an additional 4.7 dB to achieve F(50,99) at Channel 12 in the high VHF band and 17.5 dB at Channel 41 in the UHF band.¹⁷ These adjustments are said to be derived from data collected at Hammett & Edison's offices. But neither EchoStar nor Hammett & Edison gives any information about how these data were purportedly collected. Significantly, Hammett & Edison claims that it collected data on "fourteen DTV signals that could be received at its Sonoma, California, offices," yet it only provides data for six of those signals.¹⁸ What happened to the data from the other eight stations? Why was it excluded from public dissemination?

EchoStar's claim that 90% time reliability means that a viewer will not receive a digital picture for 36.5 days a year is nonsensical.¹⁹ The statistical nature of the probability function means that any dips below the digital signal strength threshold will be randomly spaced over very long time periods. It has no meaning in the sense of a consecutive time period. EchoStar's assertion is akin to saying that if the weather forecast calls for a 10% chance of rain tomorrow, then it will rain for 2 hours 24 minutes tomorrow and it won't rain for the remaining 21 hours 36 minutes. Obviously, that is not what the weather forecast or the probability of rain means at all.

Finally, and most importantly, the entire DTV replication and transition scheme is predicated

¹⁷ See Hammett & Edison Statement at 7.

¹⁸ Compare Hammett & Edison Statement at 6 (stating that data was collected on 14 DTV signals) *with id.* at Figures 1A-1C (exhibiting data on 6 DTV signals).

¹⁹ See Hammett & Edison Statement at 7.

upon F(50,90) service. This is clear in the DTV proceedings²⁰ and in OET 69²¹ and is expressly acknowledged by EchoStar.²² Moreover, F(50,90) is currently being used for DTV spectrum repacking and maximization. Not only would it be grossly unfair to change the statistical nature of digital television service in the seventh inning, but such a change to 99% time probability would greatly shrink local service areas and, therefore, would be directly contrary to SHVERA's purpose to preserve and promote localism and to the requirement that compulsory licenses be construed narrowly, not expansively.²³

Man-Made Noise. EchoStar claims, relying on an NTIA report, that man-made noise is typically 20 dB and, in urban areas, is typically 30 dB near 54 MHz (Channel 2). EchoStar further speculates that “[t]he increasing use of electrical and electronic equipment in the U.S. suggests that current noise levels could become much greater.”²⁴ EchoStar has misrepresented what the NTIA report says. Rather, the NTIA report cited by EchoStar found man-made noise at 137 MHz, which is between the low VHF and high VHF bands, to be 17.5 dB in business areas and *only 3.6 dB in residential areas*.²⁵ At UHF frequencies (402.5 MHz and 761 MHz), it was not possible to differentiate man-made noise from system noise, showing that man-made noise is insignificant in

²⁰ See, e.g., *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, Sixth Report and Order, 12 FCC Rcd 14588 (1997) (“*Sixth DTV Report and Order*”), at Appendix A & Appendix B.

²¹ See OET 69 at 2.

²² See Hammett & Edison Statement at 7 (stating that the “F(50,90) statistical reliability is stated in the FCC planning factors for DTV”).

²³ See Network Affiliates Comments at 2-13.

²⁴ Hammett & Edison Statement at 10.

²⁵ See R.J. Achatz & R.A. Dalke, *Man-Made Noise Power Measurements at VHF and UHF Frequencies*, NTIA Report 02-390 (Dec. 2001), at 25.

the UHF band.²⁶ An earlier 1998 NTIA report found that “residential F_{am} [man-made noise] has *decreased dramatically*.”²⁷ Therefore, contrary to EchoStar’s assertions, man-made noise is not becoming greater, and is certainly not becoming greater than 30 dB or even 20 dB, but, instead, man-made noise is actually *decreasing* in residential areas, amounting to no more than 3 or 4 dB at VHF frequencies, and is insignificant at UHF frequencies. Of course, it is in residential areas where people live.

EchoStar notes that the DTV planning factors include a system noise figure of 10 dB at VHF frequencies, which is comprised of 5 dB for receiver noise and 5 dB for environmental noise.²⁸ The 2001 NTIA report shows that man-made noise at VHF frequencies is within the planning margin (as it also is at UHF frequencies).

Moreover, even EchoStar concedes that “[l]ow-band VHF stations will probably represent a small fraction of all DTV stations.”²⁹ In fact, only 26 stations affiliated with one of the Big 4 networks have been given a DTV tentative channel designation in the low VHF band.³⁰ EchoStar’s concern appears to be that some of these very few stations “may include large rural land areas,”³¹ but those are precisely the situations in which the stations are likely to utilize translator and booster

²⁶ *See id.*

²⁷ R.J. Achatz *et al.*, *Man-Made Noise in the 136 to 138-MHz VHF Meteorological Satellite Band*, NTIA Report 98-355 (Sept. 1998), at 31 (emphasis added).

²⁸ *See* Hammett & Edison Statement at 10 n.28.

²⁹ Hammett & Edison Statement at 10.

³⁰ This analysis is based on the DTV tentative channel designations released by the Commission on June 23, 2005. *See DTV Tentative Channel Designations for 1,554 Stations Participating in the First Round of DTV Channel Elections*, Public Notice, DA 05-1743 (June 23, 2005).

³¹ Hammett & Edison Statement at 10.

stations to augment their service coverage.

In sum, EchoStar provides no evidence to adjust the digital signal strength standards, even for low VHF, due to man-made noise. Just as the Commission had done in 2000 for analog, it should not recommend any revision to the DTV planning factors based on environmental noise.³²

White Noise Enhancement, Impedance Mismatch, and Receiver Sensitivity. Unlike the indoor antenna penalty, building penetration loss, 99% time probability, and man-made noise adjustments to the digital signal strength standards that EchoStar appears to propose—each of which it is inappropriate to consider, as shown above—EchoStar raises concerns about white noise enhancement, impedance mismatch, and receiver sensitivity that do have legitimate relevance to whether good DTV reception is possible with the digital signal strength standards set forth in Section 73.622(e)(1). Although the concerns are legitimate, EchoStar’s adjustments for these factors tend to lie on the high side but, more importantly, fit within the “safety margin” that already exists in the current planning factors given real-world reception conditions and equipment.

White noise enhancement is the additional noise created in the DTV receiver when the equalizer compensates for multipath ghosts. EchoStar notes that at a “good” receiver location, the white noise enhancement necessary to handle multipath is “less than 0.5 dB,” but, “at a poor location, the white noise penalty may exceed 2 dB.”³³ However, there is no reason to assume that even a majority of the locations are “poor.” A more typical value for moderate multipath conditions with moderate ghosts is around 1 dB. Just as the Commission should not assume the need for a time

³² See *Technical Standards for Determining Eligibility for Satellite-Delivered Network Signals Pursuant to the Satellite Home Viewer Improvement Act*, Report, 15 FCC Rcd 24321 (2000), at ¶ 52.

³³ Hammett & Edison Statement at 9.

probability of 99%, it should not assume the need for substantial white noise enhancement.

EchoStar presents data that it claims show that the typical DTV receiver is 2.6 dB less sensitive than assumed by the DTV planning factors.³⁴ However, of the four consumer receivers apparently tested, one, the RCA DTC100, is clearly an older model of either the first or second generation. The other three are either third or fourth generation receivers. None of them was a current fifth generation receiver. The sensitivity of the older model was noticeably worse than that of the other three. Excluding the early generation receiver, then, the average sensitivity, according to EchoStar's own data, is only about 1.7 dB less than assumed by the DTV planning factors, not 2.6 dB. It is believed that the sensitivity of fifth generation receivers nearly matches that assumed by the planning factors.

It is true that the DTV planning factors do not account for impedance mismatch between the antenna and the receiver front end. EchoStar claims that the Voltage Standing Wave Ratio (VSWR) exceeds 2:1 over the bandwidth of consumer antennas, resulting in an impedance mismatch loss of 3 dB.³⁵ This claim, however, is not based on empirical studies of consumer equipment. One study, which, unfortunately, did not fully present its results, did conclude as follows:

The results of the tests conducted on the professional-grade antennas show that it is technically possible for antennas to have low return loss and mismatch loss. It is, therefore, reasonable to conclude that consumer-grade antennas with good impedance matching capabilities are feasible. Such antennas would help deliver full coverage to DTV stations.³⁶

³⁴ See Hammett & Edison Statement at 13.

³⁵ See Hammett & Edison Statement at 11-12.

³⁶ D. Schnelle & R.E. Wetmore, *Evaluation of Antenna and Receiver Mismatch Effects on DTV Reception*, 48 IEEE TRANS. ON BROADCASTING 365, 369 (Dec. 2002).

While a 3 dB impedance mismatch loss may be an approximate rule-of-thumb, further study is necessary to determine how accurate it is. It is technically possible that any mismatch could be considerably lower.

In any event, a typical white noise enhancement of 1 dB, an adjustment of 1.7 dB or less for receiver sensitivity not meeting DTV planning assumptions, and an impedance mismatch loss of 3 dB have a cumulative effect of less than 6 dB. As shown extensively in Network Affiliates' opening comments, there is a safety margin of 9 dB for low VHF, 9 dB for high VHF, and 6.6 dB for UHF already built in to the planning factors if a real-world reception installation is assumed with a readily available consumer antenna and LNA.³⁷ Those safety margins, it must be noted, include only the advantage in system noise figure due to the LNA and not any of the actual gain that the LNA can deliver to the receiver. If the 15 dB to 20 dB additional gain that the LNA provides to the signal is also taken into consideration, then it is plain that the current digital signal strength standards in Section 73.622(e)(1) are far more than adequate to ensure good-quality DTV reception. As Network Affiliates demonstrated in their opening comments, the Commission has previously recognized that LNAs are typical in fringe areas, and the ATSC recommends their use for digital reception.³⁸

In sum, as Network Affiliates, NAB, and MSTV all showed in their comments, the DTV planning factors are appropriate for DTV replication and for SHVERA purposes. There is no need to recommend to Congress the alteration of the digital signal strength thresholds set forth in Section 73.622(e)(1) of the Commission's rules. EchoStar has presented no evidence that

³⁷ See Network Affiliates Comments at 15-33 & Table 2.

³⁸ See Network affiliates Comments at 24-25.

undermines those thresholds or that even serves as a basis to question them.³⁹

II. EchoStar's Suggestions That Would Permit Misoriented Antennas Are Without Merit

EchoStar also makes a number of other assertions, each of which would essentially permit the misorientation of antennas, that, while not expressly affecting the digital signal strength standards themselves, would have a negative effect on local network stations by penalizing them for inappropriate factors and, consequently, shrinking their local service areas. None of these assertions has any merit.

First, EchoStar claims that it is uncommon for households to use rotors. Indeed, EchoStar claims that only about 10-15% of households with outdoor antennas also utilize rotors.⁴⁰ EchoStar's estimate of rotor use, however, is fully consistent with the fact that, in most markets, the network affiliates are essentially co-located. Because they are essentially co-located, a rotor is not necessary. NAB showed that 83% (112 of 135) of the television markets with a complement of all four of the

³⁹ Although it is not clear, EchoStar also appears to suggest that the actual signal strength *measured* during a site test be "adjusted" downward for a variety of reasons. *See* EchoStar Comments at 7-9; Hammett & Edison Statement at 5. If that is what EchoStar is saying, it must be summarily rejected. SHVERA expressly *fixes* the signal strength thresholds set forth "in section 73.622(e)(1) of title 47, Code of Federal Regulations, *as in effect on December 8, 2004.*" 47 U.S.C. § 339(a)(2)(D)(vi)(I) (emphasis added).

EchoStar also repeatedly states that, for digital television, "the difference between an acceptable picture and an unacceptable picture is no picture at all." Hammett & Edison Statement at 11; *see also* EchoStar Comments at 2. This is not true. DTV receivers do not fail by exhibiting no picture at all. Instead, momentary dips in signal strength, momentary increases in interference, and momentary instances of multipath, if temporarily too great for the receiver to handle, result in momentary freezing or macro-blocking. This is no different than what a viewer sees with momentary satellite reception failure. *See also* ATI Comments, Attachment B, White Paper, at 2 & Figure 1.

⁴⁰ *See* Hammett & Edison Statement at 2.

Big 4 affiliates have essentially co-located transmitter sites.⁴¹ NAB's data and EchoStar's estimate match up almost exactly.

Second, EchoStar claims that 70% of households are predicted to receive signals from stations that do not fall within the half-power beamwidth of the antenna assumed by the planning factors.⁴² However, EchoStar did not analyze whether the stations making up this percentage were Big 4 network affiliates and whether they were affiliated with the same network or a different network. Moreover, in fringe areas the angle necessary to encompass all of the network stations broadcasting from the central metropolitan area is likely to be much smaller than 50°. Furthermore, it is not necessary, for purposes of SHVERA, that a household be able to receive every network affiliate from every market that it may be predicted to receive. For example, a household in Montgomery County, Maryland, located in the Washington, D.C., DMA, may also be predicted to receive the Baltimore stations, but, if it points its antenna towards the Washington stations, that is sufficient, and the angle between the Washington stations and the Baltimore stations is irrelevant. Finally, EchoStar's assertion that "most viewers will not be able to receive optimally all available DTV stations without a properly oriented rotatable antenna"⁴³ only shows that the Commission's assumption that households should and will use a rotor to orient the antenna properly is correct.⁴⁴

⁴¹ See NAB Comments, Engineering Statement of Meintel, Sgrignoli, & Wallace, at ¶ 44.

⁴² See Hammett & Edison Statement at 3.

⁴³ Hammett & Edison Statement at 3.

⁴⁴ See *Cable Communications Policy Act Rules*, Second Report and Order, FCC 88-128, 64 Rad. Reg. 2d (P & F) 1276 (1988), ¶ 18 (stating that the Commission has always expected and recognized that "persons living in areas located in the outer reaches of the service areas of broadcast stations (for example, at the edge of a predicted Grade B contour) can, and generally do, take relatively simple measures such as installation of an improved roof-top antenna and careful location and orientation of that antenna to enhance their off-the-air reception"); *Improvements to UHF* (continued...)

The use of a rotor “solves” this purported problem *in toto*.

Third, and finally, EchoStar claims that, during a site measurement test, the test antenna should only be oriented “in the same direction as other antennas in the area, since it can be assumed that those antennas would be oriented toward a direction that provides the best reception overall.”⁴⁵ EchoStar ignores several obvious problems with this suggestion: neighboring households may have rotors and only be temporarily oriented in their current direction, neighboring households may have antenna installations that have been essentially abandoned, there may be no neighboring households with outdoor antennas, and there is no readily available methodology to determine which direction the neighboring households have oriented their antennas and to translate that into a direction for the test antenna. In addition, the test antenna should be oriented to the strongest signal, which may mean it is oriented to a nearby multipath reflector and not to the bearing of the transmitter site. There is simply no reason to adopt EchoStar’s proposal, which constitutes bad engineering practice.

In short, EchoStar’s attempts to avoid the use of rotors or to not fully orient an antenna properly are inappropriate and contrary to the Commission’s long-standing expectations.

Conclusion

For the foregoing reasons, Network Affiliates respectfully request that the Commission reject EchoStar’s purported “adjustments” to the DTV planning factors and EchoStar’s other suggestions that would thwart localism and shrink network affiliate service areas. Instead, as set forth in the

⁴⁴(...continued)

Television Reception, Report and Order, 90 F.C.C.2d 1121 (1982), ¶ 50 (advising that “[a]ntennas should be installed by ‘probing’ for the best receiving location; signal strength can vary significantly over a very short distance; thus, the antenna should be installed at the location that provides good picture quality for the channels desired”).

⁴⁵ Hammett & Edison Statement at 4-5.

opening comments, Network Affiliates respectfully request that the Commission recommend to Congress (1) that the digital signal strength thresholds set forth in Section 73.622(e)(1) remain the same for purposes of determining whether a household is “unserved” by a digital signal pursuant to 17 U.S.C. § 119(d)(10); (2) that the testing methodology set forth in Section 73.686(d) be modified slightly, as explained therein, so that the procedure may be used for digital signal site tests; and (3) that Congress prescribe a slightly modified ILLR model, as explained therein, to be used after the digital television transition is complete to presumptively determine the eligibility of a household to receive a duplicating distant digital network signal.

Respectfully submitted,

**ABC, CBS, AND NBC
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/s/

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