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

In Re Measurement Standards for Digital Television Signals Pursuant to the Satellite Home Viewer Extension and Reauthorization Act	))))	**ET Docket No. 06-94**

COMMENTS OF THE NATIONAL ASSOCIATION OF BROADCASTERS, THE ABC, CBS, AND NBC AFFILIATE ASSOCIATIONS, AND THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION ("MSTV")

The National Association of Broadcasters ("NAB"), the ABC Television Affiliates Association, CBS Television Network Affiliates Association, and NBC Television Affiliates ("Affiliate Associations"), and the Association for Maximum Service Television ("MSTV") (collectively "Broadcasters") hereby file their initial comments in response to the Notice of Proposed Rulemaking ("NPRM") published in the Federal Register on July 6, 2006 in the above-referenced proceeding.[1/]

The Broadcasters strongly support the Commission's decision to rely heavily, in formulating digital signal testing rules, on its time-tested methods for measuring *analog* signal intensity. Those procedures, published in Section 73.686(d) of the Commission's rules, are the

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1/ The National Association of Broadcasters is a trade association that advocates on behalf of more than 8,300 free, local radio and television stations and also broadcast networks before Congress, the Federal Communications Commission, and the Courts.

The Affiliate Associations represent approximately 600 television stations affiliated with the ABC, CBS, and NBC Television Networks.

MSTV is a nonprofit trade association of local broadcast televisions stations committed to achieving and maintaining the highest technical quality for the local broadcast system.

product of a recent and exhaustive inquiry by the Commission, and the logic behind those methods remains sound today. Reliance on (the median of) five different measurement locations near the household, for example, makes sense whether the signals being measured are analog or digital. Similarly, the Commission's insistence on strictly objective measurements by qualified personnel using calibrated equipment is appropriate in either context.

To be sure, and as the Commission recognizes, certain modifications to the existing procedures are necessitated by the fact that the signals being measured are digital and not analog. The Broadcasters endorse virtually all of the technical modifications suggested in the NPRM, with a few minor suggested modifications discussed below.

With regard to the specific questions raised by the Commission, the Broadcasters are submitting a detailed Engineering Report by the respected and experienced firm of Meintel, Sgrignoli & Wallace ("MSW"). In brief, the Broadcasters' positions on these issues are as follows:

1. **Type of antenna**. For the reasons discussed in more detail in the MSW Engineering Report, the Commission should require use of a calibrated gain antenna, rather than a dipole antenna A gain antenna delivers a stronger signal to the measuring equipment, and will therefore permit use of a wider variety of measuring equipment than would be possible using a dipole antenna. (That is, a stronger signal makes it easier to measure signals that are above, but not far above, the signal-intensity minimums set forth in the Commission's rules.) In addition, a gain antenna is much less subject to multipath than is a dipole. A gain antenna is far easier to use than a dipole: a tester can use the same gain antenna (with no physical adjustments) for all the tests at each household (at least four network stations at each of five locations). The alternative, using a dipole, would require adjusting the length of the dipole multiple times at a

single household to reflect the different channels being tested. Finally, the Commission's entire digital transition process has assumed use of a gain antenna, so it is logical to use such an antenna during the testing process.

2. **Measurement procedures**. The Broadcasters endorse the Commission's determination that at each household, five measurements should be taken in a cluster near the consumer's home, with the median measurement being dispositive. With regard to the particular questions raised in the NPRM:

- **Bandwidth to be measured**. The Broadcasters concur with the Commission's conclusion that a digital signal test should measure the integrated average power across the entire 6 MHz bandwidth of a digital channel. NPRM, ¶ 10. With regard to the *way* in which this is done, Broadcasters propose that the Commission require testers to measure relatively narrow bandwidths and then integrate those measurements across the full 6 MHz channel. *See* MSW Engineering Statement at 6-7. In particular, the Broadcasters respectfully suggest that testers should be required to use an instrument that measures a bandwidth much narrower than the 6 MHz range that the NPRM would permit. As Meintel Sgrignoli & Wallace explain, an instrument with a 6 MHz IF Bandwidth might yield inaccurate results because of spillage from an adjacent channel, which could result in a household being measured as "served" when it is in fact unserved. Most instruments on the market today measure a bandwidth considerably narrower than 6 MHz, so the approach suggested here should not present any practical difficulty.

- **Transmission line**. The Broadcasters agree with the Commission that the measurement should be taken with a shielded transmission line between the testing antenna and the field strength meter. NPRM, ¶ 11. For the reasons discussed in detail in the MSW Engineering Statement, the Commission should require use of shielded coaxial transmission lines

between the antenna and the measurement instrument, along with a balun. The Broadcasters also recommend that the tester measure transmission line loss for each frequency tested, and use the measured line loss figures in performing the calculations needed to determine signal strength.

- **Horizontally polarized antenna**. The Broadcasters support the Commission's conclusion that the antenna used for measurements be horizontally polarized. NPRM, ¶ 12. As Meintel Sgrignoli & Wallace explain, use of a vertically polarized antenna could result in dramatic measurement errors.

- **Orientation to strongest signal**. As with the Commission's existing rules for testing of analog signals, the Commission sensibly proposes that testing of digital signals be conducted with the antenna pointed in the direction that yields the strongest signal from a particular station. NPRM, ¶ 13. While this may require reorientation of the antenna between tests in some instances, proper orientation is vital, since the entire digital TV planning process was premised on the assumption of a correctly-oriented rooftop antenna. Nor is there any unfairness about this, since satellite dishes themselves must be precisely oriented to receive any signal at all.

- **Antenna height**. The reasoning behind the Commission's easily-implemented height rules -- 20 feet for one story houses, 30 feet for two-story houses -- applies equally to digital as to analog signals. NPRM, ¶ 13.

- **Adverse weather conditions**. The Commission is correct that heavy rain or major weather fronts can adversely affect signal strength measurements, and that measurements should not be taken when those conditions are present. NPRM, ¶ 14. In addition, safety considerations bar taking of measurements during (or when there is a serious risk of) a thunderstorm.

3. **Data recording**. The Broadcasters agree that recording of detailed information about the test is required by good engineering practices, and agree (with some minor suggested amendments) with the list of items to be recorded. As to the latter, the MSW Engineering Statement recommends that the tester make a record of the following:

> "(i) A list of calibrated equipment used in the field strength survey, which for each instrument specifies the manufacturer, type, serial number and rated accuracy, and the date of the most recent calibration by the manufacturer or by a laboratory. Include complete details of any instrument not of standard manufacture.
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> (ii) A detailed description of the calibration of the measuring equipment, including spectrum analyzers, amplifiers, connecting cables, baluns, and receive antenna.
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> (iii) For each spot at the measuring site, all factors which may affect the recorded field strength, such as topography, antenna height, as well as types of vegetation, buildings, obstacles, weather, and other local features.
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> (iv) A description of where the cluster measurements were made.
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> (v) Time and date of the measurements and signature of the person making the measurements.
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> (vi) For each channel being measured, a list of the measured values of field strength (in units of dBu and after adjustment for line loss and antenna factor) of the five readings made during the cluster measurement process, with the median value highlighted."

For the Commission's convenience, Meintel Sgrignoli & Wallace have prepared a revised version of the Commission's proposed rule with these (and a small number of other) suggested amendments, along with other technical materials designed to help make the testing process more efficient and understandable.

4. **Tester availability**. The Commission asks for comments on ways of increasing the number of individuals qualified to perform signal intensity measurements. NPRM, ¶ 16. While there is no silver-bullet solution to this problem, Meintel Sgrignoli & Wallace have

offered to provide a special, customized electronic spreadsheet designed specifically for this purpose. With the spreadsheet, a tester can input test measurement data and certain other information and instantly generate all necessary calculations about signal strength. In addition, the MSW firm -- which has performed thousands of signal intensity tests in locations across the United States -- offers inexpensive seminars to educate technical personnel about how to conduct tests in a way consistent with sound engineering practices and the Commission's rules. Finally, MSW have provided a step-by-step set of instructions (as Appendix D to their Engineering Statement) for how a signal intensity test should be done. Should the Commission find these to be helpful, we respectfully suggest that the Commission consider publishing an OET Bulletin setting forth the specific steps that should be taken in conducting digital signal testing for purposes of SHVERA.

Other Important Issues About Testing Procedure

In addition to the issues on which the Commission has requested comment, the Broadcasters raise two other matters that are important to ensuring that signal intensity tests are conducted fairly and accurately.

1. **Making sure all relevant digital stations are tested**. The Act provides that a household is "unserved" with respect to a particular network only if it cannot receive a signal of the specified intensity from *any* station affiliated with the relevant network. *See* 17 U.S.C. § 119(d)(2)(A) (definition of "network station" includes "any translator station or terrestrial satellite station that rebroadcasts all or substantially all of the programming broadcast by a network station"). Indeed, a federal court found that EchoStar violated the Act by ignoring all

stations that Nielsen classified as being from a different "market," even if the station delivered a strong signal to the household.[2/]

It is therefore critical that testers examine the signals of any tower -- whether a full-power station in an adjacent market or a translator or satellite station -- that delivers programming from the same network. When doing a test in the counties between Washington, D.C. and Baltimore, for example, a tester must examine the ABC, CBS, Fox, and NBC stations from *both* cities. (Of course, if the test for the first (say) ABC station shows that the household is served, it will be unnecessary to test the second ABC station, because the viewer is ineligible anyway.) Given the judicially-documented abuse by one of the two DBS carriers, the Commission should add a provision to its rules specifically requiring the tester to measure the signals of any TV tower that may deliver a signal of the required strength to the household and that is affiliated with the same network.

2. Dealing with stations that are not yet eligible to have a digital signal test. Because the transition to digital broadcasting is not yet complete, the Commission's rules about testing of digital signals must take into account that some stations are -- through no fault of their own -- not yet transmitting digital signals. The pertinent background facts are as follows:

a. Congress has postponed the date on which many broadcast stations can have their digital signals evaluated. In the SHVERA, Congress recognized that it would

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2/ "[U]ntil October 2000, EchoStar . . . failed to consider stations that were predicted by the ILLR model to deliver a Grade B or better signal to its subscribers because these stations were not in the same Nielsen defined DMA as the subscribers. The Court finds that use of the 'DMA Rule' is improper and that EchoStar's . . . methodology was flawed during the time that it was applying the 'DMA Rule.'" *CBS Broadcasting Inc. v. EchoStar Communications Corp.*, 276 F. Supp. 2d 1237, 1249 (S.D. Fla. 2003), *aff'd in relevant part*, ___ F.3d ____ (11th Cir. 2006).

be unfair to punish a station for failing to deliver a digital signal when it cannot reasonably be expected to do so. The SHVERA therefore includes an unavoidably complex system for deciding which stations are eligible to have their digital signals tested. 39 U.S.C. § 339(a)(2)(d)(vii) ("Trigger Dates for Testing"). The schedule includes the following timetable:

April 30, 2006 trigger date for testing:

- stations in the top 100 markets that (i) have chosen a tentative digital television service channel designation that is the same as the station's current digital television service channel, and (ii) that have not been granted a testing waiver pursuant to 39 U.S.C. § 339(a)(2)(d)(vii); and
- stations in the top 100 markets that have been found by the Commission to have lost interference protection.

July 15, 2007 trigger date for testing:

- stations in the top 100 markets that (i) have chosen a tentative digital television service channel designation that is different from the station's current digital television service channel, and (ii) that have not been granted a testing waiver pursuant to 39 U.S.C. § 339(a)(2)(d)(vii); and
- stations below the top 100 markets that have not been granted a testing waiver pursuant to 39 U.S.C. § 339(a)(2)(d)(vii).

Unknown future trigger dates for testing:

- ***translator stations*** will be subject to testing "one year after the date on which the Commission completes all actions necessary for the allocation and assignment of digital television licenses to television translator stations," except to the extent

that the translator station has been granted a testing waiver pursuant to 39 U.S.C. § 339(a)(2)(d)(ix);

- ***full-power stations that have obtained testing waivers*** will continue to be exempt from testing for as long as the Commission continues to approve six-month extensions of an existing waiver. (On May 1, 2006, in Docket No. 05-317, the Media Bureau granted waiver requests filed by 23 stations.)

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In other words, to protect stations from a draconian loss of local viewers due to circumstances beyond their control, Congress has created a detailed schedule for when particular stations can have their digital signal tested. To make these rules meaningful, testers must be required to implement them.

b. Those stations *exempt* from having their digital signals evaluated will need analog measurements in the interim. As just described, Congress has decreed that certain towers may not have their digital signal evaluated until some time in the future: stations in markets 101-210 may not be evaluated before July 2007 at the earliest; translator stations may not be evaluated until a much later date; and individual stations that receive temporary testing waivers from the Commission will have varying dates on which their digital signals will be subject to evaluation.

This schedule creates a practical dilemma: if a station is exempt from testing because of these rules, how is the station to be treated in the testing process? Consider a household near the Shenandoah Mountains in Virginia that is predicted to (and does) receive an analog signal of a Washington, D.C. network affiliate from a translator station. Congress has directed that the digital signal of this translator station cannot be evaluated until some future date – which is only

fair, since the translator does not even have a digital channel assignment as of now. How should this translator tower be treated for purposes of signal measurements? To simply not test this station at all during site measurements would be to treat all of its viewers as being unserved -- obviously not what Congress intended.

What Congress must have had in mind is that, if a station is not yet eligible to have its digital coverage evaluated, one must look to the station's *analog* service. (This is exactly what the Act provided for *all* stations before April 30, 2006, and therefore should be the "default" rule when digital testing of a station is not yet permissible.) Thus, when a test is performed, the engineer must look both for the digital signal of any affiliate of the relevant network (say, ABC) and *also* for the analog signal of any tower in the area that is not yet subject to digital testing. This is the only way to give stations "credit" for their coverage when they have been excused -- for the time being -- from digital testing.

The Commission should therefore revise its proposed rules to require that the tester (a) determine the "testability" of each nearby station (including satellite stations and translators) affiliated with the relevant network, and (b) for those stations excused from digital testing, do a test to determine if the station is delivering at least a Grade B intensity analog signal to the household. Because keeping track of station "testability" will require careful recordkeeping, the Commission may wish to require testers to consult with a reputable, neutral entity (such as Decisionmark Corporation) about what stations should be tested for particular households, and whether their digital or analog signals should be tested.

Conclusion

For these reasons, the Commission should promulgate digital signal testing rules in accordance with the suggestions discussed above.

Respectfully submitted,

/s/

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