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

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Federal Communications Commission
Office of the Secretary

In the Matter of)
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Advanced Television Systems)
and Their Impact on the)
Existing Television Broadcast)
Service)
)
Review of Technical and)
Operational Requirements:)
Part 73-E, Television Broadcast)
Stations)
)
Re-evaluation of the UHF Television)
Channel and Distance Separation)
Requirements of Part 73 of the)
Commission's Rules)

MM Docket No. 87-268 ✓

REPLY COMMENTS OF THE
NATIONAL CABLE TELEVISION ASSOCIATION, INC.

The National Cable Television Association, Inc. ("NCTA"), by its attorneys, hereby submits its reply comments in the Notice of Inquiry ("Notice") on advanced television ("ATV") systems.

As the first phase of this proceeding demonstrates, there is no doubt that the communications industry regards ATV systems, particularly high definition television ("HDTV"), as a technological breakthrough with major benefits for the American viewing public.^{1/} The central theme of the comments -- from

1/ Advanced television systems broadly comprise both enhancements to the current NTSC standard and high definition, widescreen systems that may or may not be compatible with NTSC. While improvements to NTSC are widely regarded as important innovations, some commenters view these systems as merely an interim step to the implementation of full HDTV. See e.g. Comments of Maximum Service Telecasters ("MST"), (Footnote continues on next page)

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broadcasters, cable operators, programmers and equipment manufacturers alike -- is that advanced television is too important for anything less than careful analysis and deliberation on its implementation. Indeed, the clear consensus among industry participants is that the government should not take any definitive action on ATV policy until more data is available on the technical performance and practical feasibility of the various systems under development.^{2/} It is simply too early in the development of these technologies to select a specific system or systems, to determine spectrum allocations for ATV use, or to adopt new television standards.

In NCTA's initial comments, we expressed the cable industry's particular concern that the Commission is taking a myopic view of ATV systems by approaching its inquiry only from a broadcast television perspective. As Time Inc. noted in its comments, the Commission "must face the reality of a much more diversified video distribution universe," in which the delivery media possess vastly different characteristics and

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David Sarnoff Research Center, NBC. Moreover, because of the greatly improved picture and sound quality associated with HDTV and the spectrum and other technical issues that come into play, most commenters, including NCTA, have generally focused on HDTV.

2/ See e.g. Comments of NCTA, MST, National Association of Broadcasters ("NAB"), Satellite Broadcasting and Communications Association ("SBCA"), Time Inc., CBS, Capital Cities/ABC, NBC, Zenith Electronics Corporation, North American Philips Corporation, Advanced Television Systems Committee ("ATSC"), Cox Enterprises, Inc.

capabilities.^{3/} Unless the Commission factors in these differences and the impact of ATV on all video delivery media, a standard could be established which would diminish the ability of non-broadcast media to provide ATV to the public.^{4/} Broadcasters are understandably concerned that they not be overly constrained in their ability to offer high quality programming. Similarly the Commission must take care that it considers carefully the full ramifications of this inquiry on all television services, including cable and other media. Each video distribution medium should have the opportunity to provide consumers with HDTV programming in a manner that is optimal for that medium.

With the above premise in mind, NCTA concurs with the broadcast industry's view that it would be premature to attempt to answer the complex technical and policy issues surrounding the use of ATV systems at this stage of their development. Indeed, at this juncture, NCTA can only offer a few preliminary, and cautionary, responses on the compatibility, transmission standard, and spectrum usage issues. As noted in our initial comments, the Commission should not prejudge these and other related issues during its investigation of ATV in the months ahead.

3/ Comments of Time Inc., p. 4.

4/ See Comments of NCTA, SBCA, General Instrument Corporation, Time Inc., Viacom International, Metrovision Inc., New Channels Corporation, Sammons Communications, Hughes Communication Galaxy, North American Philips.

DISCUSSION

As the Commission has recognized, compatibility with the existing NTSC standard is an important issue in the transition to an ATV environment. Not surprisingly, therefore, the commenters devoted much attention to this matter, with several advocating the NTSC standard as an essential building block to the attainment of full high definition television.^{5/} The presence of millions of NTSC receivers in American homes may favor an evolution to full HDTV through progressive improvements to NTSC. But given the still unknown and still unproven aspects of the proposed ATV systems, it would be short-sighted to lock the development of ATV into an NTSC-based standard at this time. The advantages of NTSC compatibility must be analyzed in conjunction with other comparison criteria, such as the quality-for-bandwidth trade-offs of the various ATV proposals and, more importantly, the ability for any particular ATV format to be transmitted via cable television.^{6/}

5/ See e.g. Comments of North American Philips, David Sarnoff Research Center, GE Consumer Electronics Business, Viacom International. CBS, for example, sets forth six levels of compatibility for analytical purposes, ranging from existing receivers displaying high definition pictures (highest level) to existing receivers requiring expensive adapters to decode high definition pictures to complete incompatibility (lowest level).

6/ The concept of NTSC compatibility raises a highly complex set of issues. On one level it addresses whether an ATV signal will be viewable on existing receivers. Other questions involve the need for adapters and the ability of those units to interface with consumer products such as remote control units and VCRs. Still other compatibility-related issues include the technical characteristics of cable distribution equipment and their ability to pass a
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Several parties, including NCTA, MST, Capital Cities/ABC and Zenith, for example, recognized the symbiotic relationship between cable and broadcasting. With over 50 percent of American television homes currently choosing cable service as their primary means of accessing over-the-air broadcast signals,^{7/} any broadcast ATV system must be capable of producing a high quality signal that can be retransmitted effectively by a cable system.^{8/} As NCTA pointed out in its initial comments, a broadcast signal must be sufficiently robust to survive cable retransmission. And it is too early to know whether the compression techniques or other proposed adjustments to the NTSC signal will enable delivery of significantly better quality images in cable homes. At the same time, adopting a broadcast standard that interrelates well with cable technology should not

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particular ATV signal. These and other points have been raised by various parties to this proceeding. At best it can be said that interested parties are in the process of determining the NTSC compatibility issues that need to be addressed; given the nascent stage of this inquiry few can yet offer definitive responses.

7/ A.C. Nielsen Co., NSI November 1987 Cable Penetration Report (50.5 percent).

8/ General Instrument, a major manufacturer of cable equipment, noted, for example, that such factors as carrier-to-noise ratios, encryption methods and the horizontal blanking interval are important considerations for cable's reception and transmission of ATV-quality signals. Comments of General Instrument, p. 8. Time Inc. also noted the possibility that higher bandwidth broadcast ATV systems could require new cable headend broadcast reception equipment and converter boxes. Comments of Time Inc., pp. 12-15. See also Comments of NCTA, New York Institute of Technology.

preclude cable's potential to utilize its unique technical characteristics to deliver cable programming via a different format.

Numerous commenters recognized, in fact, that multiple HDTV transmission formats may exist in the future, necessitating television sets with the capability of receiving and displaying multiple formats.^{9/} Television equipment manufacturers, such as North American Philips and Zenith, envision an integrated system of HDTV standards and multi-standard home receivers in the future. And the National Telecommunications and Information Administration expects that receiver manufacturers will have the incentive to build sets capable of all methods of ATV reception in order to meet consumer demand. While the possibility of a single ATV transmission standard cannot be ruled out yet, it appears that a family of signal formats can successfully be achieved so as to provide consumers the very best that technology can offer.^{10/} NCTA again urges the Commission that it take care

9/ See Comments of NCTA, NTIA, North American Philips, Zenith, Time Inc., General Instrument, Prof. Russell Neuman, Massachusetts Institute of Technology.

10/ Several commenters, including NTIA and Viacom, have endorsed a single standard for broadcast transmission of ATV. Only a very few commenters appear to seek imposition of a single ATV standard for both broadcast and non-broadcast media. See Comments of Tribune Broadcasting, p. 6; Comments of Cox Enterprises, Inc., p. 4; and Comments of the David Sarnoff Research Center, Inc., p. 26. Interestingly each of the proponents for a single standard raise competitive issues to support their view, but none addresses the impact that standard would have on consumers. Notable among the purported rationales for a single standard is that competition can then "focus on diversity in program services rather than on technical issues." See Comments of Cox
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not to prejudice further development by prematurely adopting an ATV standard.^{11/}

Finally, regarding the spectrum issues raised in the Notice, the broadcast industry wishes to preserve the existing spectrum allocation scheme so as to ensure that broadcasters will not be foreclosed from providing HDTV. The broadcast industry comments indicate that additional spectrum may be needed to implement HDTV comparable in quality to the NHK-Muse system; that transmission over adjacent channels is preferable to non-contiguous channels; that the UHF and VHF broadcast bands have the best propagation characteristics for transmission of ATV; and that UHF taboos should not be relaxed without detailed analysis and coordination.^{12/} The broadcast industry further strongly believes that

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Enterprises, Inc., p. 7. But HDTV is by its nature a means for advancing the technical quality of programming, not its diversity. The suggestion that the preservation of "localism" demands a single standard is no more persuasive. See, e.g. Quincy Cable T.V., Inc. v. FCC, 768 F. 2d 1434, 1458 (D.C. Cir. 1985); DBS Inquiry, 90 FCC 2d 676, 691 (1982), aff'd. sub nom., National Association of Broadcasters v. FCC, 740 F. 2d 1190 (D.C. Cir. 1984).

11/ Some commenters have approached this inquiry in terms of developing a broadcast ATV standard comparable to the HDTV quality that can be offered by "videocassette, videodisc, direct broadcast satellite and, notably, cable television...." Comments of NAB, p. 4. Whether or not comparability can be achieved, NAB is right on point in identifying some of the other players in today's video marketplace. Whatever the final resolution of a standard for broadcast television, the FCC must take cognizance of cable's need to maximize its own delivery capabilities in response to competition posed by DBS and the video cassette and video disc industries.

12/ See Comments of MST, NAB.

the spectrum requirements of broadcast delivery of ATV (and related interference issues) cannot be decided in advance of system evaluation.^{13/} Since the spectrum issues are currently the subject of intensive study and investigation, NCTA agrees that spectrum allocation decisions should await the further development, testing and evaluation of proposed ATV systems.

While most ATV systems are still on the drawing boards, the comments reflect that the development of these systems is progressing rapidly. Several developers are aiming either to have prototypes available for preliminary testing, or to have computer simulations of various transmission formats, completed before the end of 1988.^{14/} ATSC's three-part program for testing various spectrum characteristics and evaluating proposed transmission systems for terrestrial broadcasting also is well underway. As hardware is made available for each ATV system, ATSC will test these systems under both laboratory and actual field conditions.^{15/} ATSC has also begun to focus on the unique propagation characteristics of signals on cable television systems toward the goal of identifying appropriate transmission formats.

13/ See Comments of MST.

14/ See Comments of New York Institute of Technology, Del Rey Group, Inc., North American Philips, Dr. William Schrieber.

15/ In addition to rigorous field testing, each system must undergo subjective evaluation, or psychophysical testing, with actual consumers. See e.g. Comments of Capital Cities/ABC, NCTA, NAB.

In addition to supporting the work of ATSC, various industry organizations are pressing ahead with their own advanced television research and development work.^{16/} As we described in our initial comments, NCTA's "blue ribbon" HDTV committee is actively studying the policy and practical implications of high definition television as it applies to cable television. NCTA is also providing key input to the Commission's Advisory Committee on Advanced Television Service through its steering committee and various working groups.

Many of the commenters have indicated that the entire ATV process -- development, testing, evaluation, comparative analyses and adoption of standards -- will take at least three years to complete.^{17/} Commercial implementation of the new technologies could take an additional one to two years. It is likely that at some point direction from the Commission will be necessary, rather than leaving standards-setting purely to marketplace forces. However, the time for such action has not yet arrived.

CONCLUSION

The Commission's Notice is a good starting point for establishing the criteria for evaluating ATV technologies and approaches for its introduction to the public. The record to date provides the Commission with the preliminary views of

16/ See Comments of NCTA, NAB, MST, Center for Advanced Television Studies. Some parties have advocated joint funding of ATV research and development work by industry participants and other collaborative research efforts. See Comments of Time Inc., Capital Cities/ABC.

17/ See e.g. Comments of NTIA, General Instrument, MST, CBS.

potential ATV providers and other parties involved in the development and implementation of this technology. As further information and data is gathered, and as the industries refine their viewpoints, additional comments will aid the Commission in resolving the complex issues raised in this inquiry. Therefore, NCTA requests that the docket in this proceeding remain open and that additional comment dates be set for later this year and at such future dates that more definitive information may become available.

Respectfully submitted,

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