

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

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Federal Communications Commission
Office of the Secretary



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

MM Docket No. 87-268

**COMMENTS OF THE
NATIONAL ASSOCIATION OF BROADCASTERS**

NATIONAL ASSOCIATION OF BROADCASTERS
1171 N ST., N.W.
Washington, D.C. 20036
(202) 429-5346

Michael C. Rau
Vice President, Science & Technology

Ralph Justus
Director, Engineering Regulatory and
International Affairs

Valerie Schulte
Julie Rhones
Of Counsel

Lynn D. Claudy
Staff Engineer

0711

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Executive Summary

NAB commends the Commission for providing a comprehensive and extensive examination on the many difficult and complicated Advanced Television (ATV) issues. By release of the Further Notice of Inquiry, the Commission has delineated the issues, sharpened the public interest debate, and encouraged interested parties to carefully consider the issues and implications of ATV technology.

In its comments, NAB strongly supports the Commission's tentative decision that the public interest is best served by ATV in the terrestrial broadcasting system. With respect to ATV spectrum, system and implementation issues, however, NAB believes it is premature to take decisive action, as long as the Commission's technical record remains incomplete. A great deal of testing and further development must still occur before a particular ATV standard and its technical characteristics can be recommended. NAB opposes the Commission's tentative decision to limit available spectrum to the VHF and UHF bands and to exclude non-compatible ATV systems that require more than a contiguous 6 MHz bandwidth. While such determinations may appear to be an appropriate narrowing of the options, its impact on the ultimate ATV broadcast service may be unnecessarily restrictive. A premature decision on spectrum availability jeopardizes the technical viability of ATV broadcasting, especially if greater bandwidth is found to be necessary. NAB urges the Commission to take a more cautious approach. We similarly urge caution in relying on the "preliminary" findings of the Interim Report.

In defining its role in ATV standards-development, the Commission should concentrate its resources on establishing a single terrestrial ATV broadcast transmission standard. To protect the public's investment in television receivers, the NTSC standard should remain in the Commission's rules for the foreseeable

future. The Commission need not be actively involved in the development or standardization of HDTV production technology or so-called open architecture receivers.

Finally, NAB asserts that issues of allotment of supplemental spectrum, post-allotment adjustments and transitional spectrum use are not yet ripe for decision. To the extent the Commission's proposals depart from the existing system of allocating broadcast spectrum, they must be approached with great caution. There is every reason to believe, however, that the Commission legally can assign additional spectrum to existing television licensees without considering applications from non-licensees.

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Advanced Television Systems and Their Impact on the Existing Television Broadcast Service)	
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Review of Technical and Operational Requirements: Part 73-E, Television Broadcast Stations)	MM Docket No. 87-268
)	RM-5811
)	
Reevaluation of the UHF Television Channel and Distance Separation Requirements of Part 73 of the Commission's Rules)	

**COMMENTS OF THE
NATIONAL ASSOCIATION OF BROADCASTERS**

The National Association of Broadcasters ("NAB")¹ submits its comments in response to the Commission's Tentative Decision and Further Notice of Inquiry in the above-captioned proceeding.²

I. INTRODUCTION AND SUMMARY.

The Commission's Further Inquiry in this proceeding represents, as did its original Notice of Inquiry,³ a comprehensive examination of the many issues now facing the television broadcast industry and the Commission as we collectively

¹NAB is a non profit incorporated association of radio and television broadcast stations and networks. NAB membership includes more than 900 television stations plus the major commercial broadcast networks.

²Tentative Decision and Further Notice of Inquiry, MM Docket No. 87-268, FCC 88-288, adopted and released September 1, 1988 ("Further Inquiry").

³Notice of Inquiry, MM Docket No. 87-268, FCC 87-246, adopted July 16, 1987, released August 20, 1987, 2 FCC Rcd 5125 (1987) ("Inquiry").

endeavour to choose and implement an Advanced Television ("ATV") service for free, over-the-air broadcasting to the viewing public. NAB commends the Commission for boldly facing the questions of how best to serve the public interest with the advent of ATV.

Many of the tentative decisions presented in the Further Inquiry are important and necessary initial findings for which there is great support throughout the broadcast industry. NAB joins with other broadcasting organizations, associations and television stations in filing Joint Comments supporting these tentative decisions and herein incorporates by reference those comments.

In these comments NAB responds to many other issues and questions raised in the Further Inquiry. Specifically, we offer comments on: the ATS Advisory Committee Interim Report, ATV spectrum requirements, Commission studies of spectrum availability and UHF television receiver performance, spectrum assignment options, ATV standards development, allotment and post-allotment issues and transitional spectrum use.

NAB concludes, as it has in its comments and reply comments filed in response to the Inquiry, that it is simply too soon to take decisive action on a number of these matters because there is to date only preliminary and incomplete data upon which to base decisions. We urge the Commission to continue analyzing those issues as the record develops. NAB again notes that the success of ATV policymaking "requires careful planning, ordered testing, reasoned decision-making and clear government action."⁴ The process cannot be rushed.

⁴Comments of NAB response to the Inquiry in MM Docket No. 87-268 ("NAB Comments"), filed November 18, 1987, at 3.

II. **IT IS PREMATURE TO FORECLOSE SPECTRUM AND ATV SYSTEM OPTIONS.**

The spectrum requirements for broadcasting ATV can be determined only after careful, deliberative testing and evaluation of the various ATV systems is completed and the options for implementation are known. The Commission's present technical record is both incomplete and inconclusive. The Advisory Committee's studies are only preliminary. Consequently, it is premature to consider the amount of spectrum needed by ATV systems, where that spectrum can be drawn from, or the specific means for implementing a chosen ATV broadcast system. A complete technical record, when developed, will itself narrow these issues.

A. **PRESENT COMMISSION AND ADVISORY COMMITTEE TECHNICAL STUDIES ARE PRELIMINARY IN NATURE AND CANNOT SUPPORT A DECISION ON ATV SPECTRUM ALLOCATIONS.**

The last year has seen the dedication of enormous industry resources to test and evaluate the various ATV systems. As the Further Inquiry discusses at para. 22, the ATSC, ATTC, ATS Advisory Committee, and the Cable Labs all have embarked on ATV systems testing in both the laboratory and the field. As discussed in the NAB comments to the Inquiry, these efforts are critical to informed decision making on spectrum requirements. Questions as to picture quality improvements provided by various ATV systems and the additional bandwidth required for each, and how that bandwidth can be attained, are yet unanswered and must await the results of objective and subjective testing. As discussed infra, the spectrum assessments and availability studies conducted to date are only estimates based on very broad assumptions -- assumptions that, consequently, introduce more questions than "hard" answers. NAB responds below to the Further Inquiry's request for comments on the impact of three studies that

relate to spectrum availability.

1. Working Party 3 Spectrum Studies.⁵

The Commission itself acknowledges two fundamental limitations of Working Party 3's Report: the "limited time available as well as the fact that the exact characteristics of the proponent ATV systems are not known."⁶ The Working Party 3 report also lists a number of limitations and caveats:

(a) UHF "taboo" restrictions were not employed except for adjacent channel protection;

(b) the ATV signal occupying the extra spectrum space would not be NTSC (which actually raises three technical issues -- the effect of (i) ATV transmissions on NTSC reception, (ii) NTSC transmissions on ATV reception, and (iii) cochannel and adjacent channel ATV transmissions on each another); and

(c) the spectral energy distribution in the augmentation channel is not yet known and therefore appropriate D/U ratios are not known, injecting significant uncertainty into the estimates of available spectrum.⁷

Further, these studies assumed maximum permissible effective radiated power (ERP) for existing television stations radiating omnidirectionally, antenna heights above average terrain of 1,000 feet (VHF) and 1,200 feet (UHF), and employed "equivalent protection" protection ratios for determining mileage separations. Each of these assumptions can introduce an inappropriate error into the study's conclusions. Collectively, however, these errors may result in gross distortions as to spectrum availability. On the other hand, some useful information has been developed from these studies that gives direction to pursue in further studies. For example, the latest computer runs initiated by WP3 indicate that the purported

⁵See Advisory Committee, Report of the Spectrum Utilization and Alternatives Working Party of the Planning Subcommittee (Working Party 3 Report) at 1 (April 17, 1988) and Further Inquiry at n.92.

⁶Further Inquiry at paras. 54-55.

⁷See Working Party 3 Report at 26.

advantages of "repacking" the existing NTSC allocations are very few and would not open up a significant amount of new spectrum. For these reasons, NAB strongly supports continuing the Working Party's studies.⁸

2. Office of Engineering and Technology (OET) Spectrum Studies.⁹

This study parallels that conducted by the ATS Advisory Committee and uses most of the same assumptions described above and produces similar results. Like the Working Party 3 Report, these results cannot be deemed conclusive. The OET Spectrum Study suggests future work on limited adjustments in the present table of TV allotments ("repacking") and on the need for receiver interference susceptibility tests similar to those that formed the basis of the protection ratios now used in the television service¹⁰ to support decisions on spectrum allocation. While this study does produce much useful information, NAB believes that these results must be expanded upon with further work before the Commission can take decisive action. As noted by the Commission's staff, "if 100% of existing TV stations are to be accommodated with added spectrum for ATV, the technology must allow operation at substantially reduced interference protection ratios; alternatively some reduction in service areas would have to be accepted. It is not clear that these are realistic conditions for growth of an ATV service."¹¹ NAB agrees and, therefore, more study of these issues is necessary.

⁸Moreover, the Working Party has expanded its analysis to include the important task of assessing of auxiliary service spectrum capacity, regulated under Part 74 of the Commission's Rules. This work continues.

⁹OET Technical Memorandum, FCC/OET TM88-1, August, 1988, "Interim Report: Estimate of Availability of Spectrum for Advanced Television (ATV) in the Existing Terrestrial Broadcast Bands," ("OET Spectrum Study").

¹⁰See OET Spectrum Study at 5,7.

¹¹See OET Spectrum Study at 3 (emphasis added).

3. Office of Engineering and Technology (OET) Receiver Study.¹²

This study presents the first comprehensive examination of UHF television receiver interference susceptibility to ATV system transmission. Much useful information is developed that, NAB believes, can form the basis for conducting future studies and needed testing.

The OET Receiver Study employs statistical analyses of a sample of television receivers and uses several assumptions in the data presentation. For the most part, NAB agrees with the assumptions made in the study.¹³ The Commission's methods are appropriate to assess the feasibility of ATV system use of UHF "taboo" channels. The study notes that the characteristics of ATV augmentation signals have not been established, and that use of NTSC signals provide "worst case" approximation. Finally, the study addresses the possibilities for using taboo-related channels for augmentation signal transmitters assuming they would be co-located with the primary transmitter. This assumption has not yet been determined as necessary, and should await the ATTC/ATSC propagation tests results discussed supra.

The OET Receiver Study contains many cautions. Its results are based on a limited sample of tested receivers, the study does not consider the possibility that some non-linear interference phenomena may be involved, and that protection of 90% of the receiver population could still result in significant numbers of households receiving interference if those 10% of susceptible receivers were in

¹²OET Technical Memorandum, FCC/OET TM88-2, August, 1988, "Analyses of UHF TV Receiver Interference Immunities Considering Advanced Television," ("OET Receiver Study").

¹³Specifically, the study examines electronically-tuned receivers only, uses the "just perceptible" interference threshold, and presents protection ratios that are designed to protect 90% of the receiver population.

highly-populated areas.¹⁴ NAB agrees with each of these cautions. The Commission should plan to undertake additional receiver tests and analysis programs that will improve the statistical inferences.

In such further tests, however, the Commission should examine the third and fifth adjacent channel interference susceptibility of receivers. The OET Receiver Study only tested the second and fourth adjacent channels, and assumed that the interference potentials for third and fourth channels were equivalent.¹⁵ But in earlier tests performed by NAB and submitted in another proceeding,¹⁶ we have shown that there is considerable fluctuation in receiver immunity from the second through fifth adjacent channels that challenges the validity of the Commission's assumption. This should be considered in future tests.

The OET Receiver study identified certain UHF "taboo" channels that appear to be the best candidates for ATV augmentation signals to use. The Commission notes that the RF Monolithics receiver developed for the Commission exhibits substantially better performance than that of ordinary receivers, and suggests that future NTSC or ATV receivers that incorporate similar technology would not require the UHF taboos protection.¹⁷ Further, the study concludes that "taboo related interference is expected to be a problem only during a transition period in which improved receivers are introduced."¹⁸ The history of electronics manufacturing suggests that reliance on manufacturers to voluntarily introduce ATV

¹⁴See OET Receiver Study, supra n.12 at 14.

¹⁵Id. at n.6.

¹⁶See Comments of the National Association of Broadcasters, filed July 11, 1986 in Gen. Docket No. 85-172, Appendix A, Figure 8.

¹⁷OET Receiver Study at 16.

¹⁸Id.

or even new NTSC receivers that are immune to taboo interference may be misplaced. The difficulty and importance of ATV development and spectrum requirements suggest that it may now be appropriate for the Commission to consider mandatory ATV receiver interference-rejection guidelines such that these spectrum-wasteful taboos could eventually be eliminated entirely.¹⁹

B. THERE IS NO NEED TO CONSTRAIN CHOICE OF AVAILABLE SPECTRUM AT THIS TIME.

While we support many of the Tentative Decision's public interest findings, the spectrum and system oriented tentative decisions are premature. Specifically, NAB strongly disagrees with the tentative decision to limit spectrum capacity needed for ATV broadcasts to the spectrum now allocated for broadcast television.²⁰ As developed infra, the spectrum requirements for broadcast ATV are yet unknown. These requirements depend on the particular ATV system that is selected for broadcast. There is no consensus, as yet, on the acceptable features of ATV systems nor as to a resolution of the tradeoffs involved.²¹ Until the testing of ATV systems is completed and the results analyzed, it is too early to limit spectrum options to the existing VHF/UHF television bands. While the initial spectrum studies indicate that there are possibilities for implementing an ATV nationwide within the existing television bands, these possibilities are not yet certain and rely on technical assumptions that have yet to be tested or verified.

¹⁹Any FCC proceeding that considers such guidelines requires significant participation of receiver manufacturers, and an objective of such a proceeding must be to lower costs of manufacturing where possible.

²⁰See Further Inquiry at para.4.

²¹These tradeoffs include factors such as interference susceptibility, coverage, number of scanning lines, horizontal resolution, static v. dynamic resolution, temporal v. spatial resolution, and colorimetry development.

The Commission should keep its options open, delaying a spectrum final decision until a technical record has been developed that firmly supports such action.

As justification for the Commission's tentative decision, the Further Inquiry states that certain technical studies conducted by the Commission and the Advisory Committee "support" limiting ATV system implementation only to the VHF/UHF bands. Three preliminary studies, discussed above, form much of the basis for this decision.²² While the Commission's tentative determination may appear to be an appropriate narrowing of the options, its impact on the ultimate ATV broadcast service may be restrictive and unnecessarily so. A premature decision puts the technical viability of ATV broadcasting at some risk, especially if more bandwidth is found to be necessary. NAB urges the Commission to take a more cautious approach, and not prematurely preclude spectrum options that may develop into requirements for successful implementation of an ATV system. We underscore the tentative nature of the Commission's record to date and suggest that, in light of these uncertainties, the Commission defer preclusive spectrum decisions until a stronger record develops supporting such actions.²³

Similarly, the tentative decision to exclude ATV systems that require more than 6 MHz additional spectrum to broadcast a non-compatible signal is premature.²⁴ Such a decision is supportable only if ATS implementation need be

²²These studies are (1) Working Party 3 Report on Spectrum Availability (2) the OET Spectrum Study, and (3) the OET Receiver Study.

²³NAB calls the Commission's attention to the on-going propagation tests of the Advanced Television Test Center (ATTC), the Advanced Television Systems Committee (ATSC) and the Commission's ATS Advisory Committee to determine whether supplemental ATV information in other bands (e.g., 2.5 GHz and 12 GHz) can physically be used to augment a VHF or UHF main channel, and, if so, what ATV receiver functions would be needed to reconstruct the ATV signal without undue artifacts.

²⁴See Further Inquiry at para.4.

restricted to the existing broadcast bands. However, should spectrum above 1 GHz be found more attractive, then a 6 MHz bandwidth limitation may not be needed. Here again, NAB urges the Commission to keep these options open, pending further testing and developments.²⁵

C. IT IS PREMATURE TO DECIDE ON AN ATV SPECTRUM IMPLEMENTATION SCENARIO.

The Commission requests comments on four basic implementation options for ATV spectrum assignments: (1) no additional spectrum allotment, (2) 3 MHz additional spectrum per station, (3) 6 MHz additional spectrum per station to augment an NTSC signal, and (4) 6 MHz additional spectrum per station for transmission of a non-compatible ATV signal.²⁶ NAB suggests that any action on these spectrum options must await the results of the critical programs for testing and evaluation of the various ATV proponent systems now under way.²⁷ Whether each, or any, of the ATV systems proposed can deliver a competitive picture quality to the home must be demonstrated by scientifically-conducted subjective assessments and objective testing. Absent actual evidence of how each system works in operation, it is impossible to meaningfully evaluate the tradeoffs of the various ATV systems in light of each's spectrum efficiencies.²⁸ Since these evaluations have not yet been completed, consideration of various spectrum options

²⁵It is likely that some ATV proponents could use the extra bandwidth capacity to full advantage, reducing artifacts and other negative effects of bandwidth compression in the encoding of the original wideband studio HDTV signals. However, all proponent candidate systems use 6 MHz or less additional spectrum (except some MUSE versions).

²⁶See Further Inquiry at para. 83.

²⁷See NAB Comments at 9.

²⁸Id.

is premature. It does reinforce, however, the cost-versus-benefits considerations (including opportunity costs) that must be made in the evaluation process, and thus helps to focus the attention of ATV system proponents on these critically important issues.

If option 4 (6 MHz, non-compatible) were implemented, even using limited "repacking" of NTSC assignments, the NTSC television system eventually could be phased out. This may create the potential for using the newly-vacant spectrum by other services. For example, there may well be a considerable need by that time for additional spectrum to support ATV broadcast auxiliary services. The range of possibilities are broad, but must be weighed against the enormous costs inherent in dislocating existing TV service by limited or large-scale repacking. NAB neither advances nor challenges this option on its merits, but will consider it further when the record is more fully developed.

D. THE ADVISORY COMMITTEE'S INTERIM REPORT MUST NOT BE CONSIDERED "THE LAST WORD."

The Commission's ATS Advisory Committee was established in November, 1987, to advise the Commission on ATV issues "and make recommendations on ATV relevant to the difficult technical, economic, and public interest determinations that must be made."²⁹ As we have made clear, NAB supports many of the Interim Report's conclusions.³⁰ The Committee's Interim Report, submitted on June 16, 1988, represents the intense efforts of many of the more knowledgeable experts in the broadcasting and related industries. However, it must be recognized that this Interim Report is "interim" in that it contains the output of only one of the ATS

²⁹See Further Inquiry at para.8.

³⁰See Correspondence from NAB to Richard E. Wiley, FCC ATS Committee Chairman (May 26, 1988).

subcommittees, the Planning subcommittees. NAB suggests that caution is warranted in adopting the Interim Report's recommendations and conclusions as the "last word" on these issues. The ATS Advisory Committee's activities are accelerating as the varied items of study within its scope develop. For example, all of the Planning Subcommittee's Working Parties are continuing their studies at an accelerated pace, and the Systems and Implementation Subcommittees' efforts similarly have intensified. Therefore, in NAB's opinion, it is only prudent to recognize that these on-going efforts will continue to develop recommendations on implementing ATV broadcasting and that the recommendations to date may substantively change.

III. THE COMMISSION'S ROLE IN ATV STANDARDS DEVELOPMENT SHOULD FOCUS ON ESTABLISHING A SINGLE TERRESTRIAL BROADCAST TRANSMISSION STANDARD.

The Commission requests comment on the optimal means to adopt ATV standards in order to ensure compatibility, control interference, facilitate efficient spectrum use, and ensure signal quality.³¹ In our view, the process for selection of a single ATV standard for terrestrial broadcasting is the most important technical issue in this proceeding. Less important are issues concerning HDTV production standards and so-called "open architecture" receivers.

A. SELECTION OF A SINGLE ATV STANDARD FOR BROADCASTING MUST AWAIT TESTING AND EVALUATION.

There is a great deal of work to do before an ATV transmission standard can be recommended. NAB believes that the Commission must consider standard-setting only when industry-wide testing and evaluation efforts have been completed

³¹See Further Inquiry at para. 106.

and have resulted in a recommendation to the Commission on an appropriate ATV technical standard for use in terrestrial broadcasting. Before a decision can be considered, it is necessary to (1) design and equip a suitable testing laboratory, (2) evaluate potential ATV transmission systems for the technical, subjective, transmission impairment and inter-operability characteristics of each system, and (3) reach a decision on a single system, documenting and presenting a recommended standard to the Commission for its consideration. This process cannot be completed before the middle of 1991, and, in any case, is fully supported by efforts underway at the ATTC and the ATS Advisory Committee.³²

In the meantime, the Commission must not allow the NTSC system to become "destandardized." In this respect we agree with the Commission's tentative decision not to relax or repeal the NTSC television standard, but rather to entertain case-by-case waiver requests that adequately demonstrate compliance with compatibility and interference protection requirements.³³ The Commission must be extremely careful in permitting extended-technology NTSC signals on the air. While the ATV standards decision-making process is underway, a proponent of such a waiver request must not be allowed to circumvent industry or government decision making committees.

We also support the Commission's willingness to take a "role in the development of [ATV] standards with the advice and involvement of all sectors of the industry."³⁴ NAB believes the appropriate role for the Commission is for it to endorse a single transmission standard. This, we believe, is the critical element for the success of ATV broadcasting -- critical to realizing economies of scale and

³²See NAB Comments at Appendix B.

³³Further Inquiry at para 109.

³⁴See Id. at para. 113.

to reducing the risks and costs to the public as well to broadcasters. The advantages of technical standards in broadcasting are well-recognized and generally accepted.³⁵ NAB encourages the Commission to either endorse or codify ATV standards developed and recommended by industry for adoption.³⁶ Whether the Commission "protects" a standard (as with the BTSC multichannel television sound standard) or mandates a system in its rules (as with the NTSC standard) matters not. Both approaches to "standards" have led to immediate and widespread technology implementation and reduced costs for the benefit of the public.

The same cannot be said of a standard used for allocation and assignment purposes but not protected or mandated for transmission.³⁷ Such a planning parameter may not assure continued compatibility. Similarly, adopting a "sunset provision" -- making adherence to a standard optional after an established period -- fails to recognize and reap the long-term benefits of technical standards: universal inter-operability over time.

B. THE COMMISSION SHOULD REFRAIN FROM MANDATING OR ENCOURAGING "ALL MEDIA" RECEIVER DEVELOPMENT, SUCH AS "OPEN ARCHITECTURE" RECEIVERS.

NAB opposes policies or regulations that encourage development of open architecture receivers (OARs). The notion of OAR design is a manufacturing issue,

³⁵Economic arguments that technical standards in broadcasting reduce consumer choice or prevent timely introduction of new technology have been alleged, but seldom demonstrated. See Further Inquiry at para. 109. In NAB's strongly held view, single technical standard for transmission is fundamental to the furthering of broadcasting as a mass-medium.

³⁶We express no view at the present time on whether such decisions should initially be made in government/industry committees or private-sector committees. Either way, there must be meaningful industry participation in the decision making process.

³⁷See Further Inquiry at para. 117.

addressing mass production manufacturing techniques and economics. In this regard, it is of no consequence to broadcasters as to whether open-architecture is adopted or not, in the same manner that it does not matter whether receivers are assembled by hand or automatically by machine. However, simple designs reduce costs for consumers, thus facilitating reception of broadcast programs. But the implications of OAR go beyond mere manufacturing refinements and, on the grounds listed below, NAB opposes OAR development.

First, NAB's main concern is that existing service to the public is maintained and viewer access to off-the-air broadcasts is not compromised. Currently, any TV receiver is configured to accept off-the-air broadcasting. If OAR technology produces that receivers not so configured (as in a model supplied only with a cable-TV capability option or only with a monitor capability) then consumers purchasing these "television sets" who could not automatically receive over-the-air broadcasts.

Second, a bus-oriented design such as the OAR concept makes great sense in the manufacturing of computer and other electronics where accommodation must be made for a large number of diverse peripheral devices. Using the personal computer as an example, one must choose from several input devices (mouse, tablet, keyboard), output devices (printer, plotter), communications (LAN, modem), processing and storage options (accelerators, memory expansion, disk drives), etc. However, the goal of the ATV effort is to arrive at a single ATV standard for North America. At the same time, economic benefits and technical simplification result from compatibility with ATV signal formats delivered by the various alternative media. If these goals are realized, the number of signal interfaces needed for a TV receiver will be relatively few and the OAR would seem to represent an approach that provides tremendous flexibility in an area where such

flexibility is not needed, thus increasing costs to consumers. In fact, by accommodating a multiplicity of signal standards, OAR technology would be a counter-productive element in the effort to arrive at and promote a single ATV transmission standard.

As to compatibility of the ATV standards of broadcasting and alternative media, NAB agrees with the Commission that it is too early in the process to identify significant problems. Studies underway at the ATTC and the Cable Labs are in their formative stages and have not yet produced results that are firm enough to adequately address this issue. However, NAB believes that significant economic benefits could accrue from compatibility among the various media using ATV signals -- particularly by lowering costs of ATV receivers.

C. THE COMMISSION'S ROLE IN INFLUENCING ATV PRODUCTION STANDARDS IS VERY LIMITED.

While the Further Inquiry recognizes that the "national and international efforts at production standardization [for HDTV] are outside the scope of this proceeding and indeed outside of [the FCC's] jurisdiction,"³⁸ it notes that production standards are relevant to the Commission's ATV systems consideration. The Commission notes that converting from a production source to a transmission format may produce conversion artifacts that are attributable to differences between signal formats.³⁹ NAB agrees. But it is impossible at this time to properly assess the importance of conversion artifacts in the overall issue of selecting an ATV standard. Potential artifacts may not be of such great consequence when the losses and distortions incurred from ATV transmission to the

³⁸See Further Inquiry at para. 21.

³⁹Id.

home are considered. With NTSC, the production, transmission and reception is accomplished with the same, non-converted standard. The same will not be true for ATV delivery to the home. For example, whatever HDTV production source is used, the HDTV camera output must be converted to whatever broadcast transmission format is used for delivery to the home receiver. Since NAB strongly believes that the costs of format transcoding must be kept as low as possible, we urge the Commission to consider transcoding costs as an important factor in the assessment of terrestrial transmission of ATV systems. An assessment of those costs, however, must await further ATV system testing.

IV. ALLOTMENT, POST-ALLOTMENT, AND TRANSITIONAL SPECTRUM USE ISSUES ARE NOT YET RIPE FOR DECISION.

A. THE COMMISSION CAN LAWFULLY ASSIGNED ADDITIONAL SPECTRUM TO EXISTING TELEVISION LICENSEES WITHOUT CONSIDERING COMPETING APPLICATIONS FROM NON-LICENSEES.

NAB believes that the Commission's view that, in furtherance of its planned transition of the television broadcasting system to an ATV environment, it can assign supplemental spectrum to existing broadcast licensees without entertaining competing applications from non-licensees⁴⁰ constitutes a sound preliminary determination, one that is firmly grounded in the public interest and which comports with the strictures of the Ashbacker doctrine and the Communications Act.

NAB agrees with the Commission's initial view that assigning additional spectrum to existing licensees as part of its transition to a ATV service would not conflict with the holding of the Supreme Court in Ashbacker Radio Corp. v. FCC,⁴¹

⁴⁰ Further Inquiry at para. 136-138.

⁴¹ 326 U.S. 327 (1945). See Further Inquiry at para. 137.

326 U.S. 327 (1945). That decision held that granting an application for a broadcast license that is mutually exclusive with another, without considering the merits of the other application at the same time, deprives the other of an opportunity for a hearing guaranteed by Section 309 of the Act.⁴²

But as the U.S. Supreme Court recognized in United States v. Storer Broadcasting Co., 315 U.S. 192 (1956), the Commission has the discretion to determine by rule the circumstances under which applications are considered mutually exclusive and can, by its determination, obviate the hearing requirement in particular instances. It can do this where it has established a policy rooted in its determination of the public interest that points to a particular limiting of eligible applicants.

The Commission, in the Further Inquiry, has recited other contexts in which it has declined to entertain competing applications where it found that the public interest was promoted by limiting an eligible class of applicants.⁴³ Similarly in this instance, the Commission has the legal authority to limit eligibility for assignment of supplemental spectrum to a class of existing broadcasters, where it finds, as it has, that so doing would promote the public interest.

Here, the Commission has initially determined that the public interest lies in providing for terrestrial broadcast use of ATV.⁴⁴ That preliminary determination of the public interest was supplemented by the view that "ATV broadcasting can be realized best by assigning suitable additional spectrum to existing licensees and applicants because of the considerable resources and expertise that licensees already have invested in the broadcast television system,

⁴²Ashbacker, *supra* at n. 24.

⁴³Further Inquiry at para. 138.

⁴⁴Further Inquiry at para. 136.

and the possibility that additional spectrum could be used only by them."⁴⁵

Thus, the mechanics of transition, a short supply of usable spectrum and the public interest determination that the existing broadcasting service should be enabled to provide ATV have resulted in the Commission's conclusion that it set aside supplemental spectrum for use only by existing licensees. This the Commission is clearly empowered to do.

B. FURTHER CONSIDERATION OF VARIOUS METHODS OF ALLOTING ADDITIONAL SPECTRUM SHOULD AWAIT THE MORE BASIC, AND POSSIBLY DETERMINATIVE, DECISIONS AS TO THE SPECIFIC TRANSMISSION SYSTEM TO BE EMPLOYED AND THE AMOUNT AND LOCATION OF ADDITIONAL SPECTRUM NEEDED.

The Commission has well set out in the Further Inquiry the issues and alternatives involved in distributing, to existing television stations, supplemental spectrum for advanced television. The undertaking will be massive, complicated and contentious. It could well become an administrative nightmare and be fraught with licensee displeasure and political controversy. The Commission has, wisely, begun to draft different schemes for implementation and has requested comment on these schemes as well as on other issues raised by the different allotment methods.

NAB believes the Commission is correct to raise these issues for discussion, but we believe that it is premature to narrow or to decide specific alternatives for implementation. Other issues and decisions will be made by industry and by the Commission that will affect consideration of specific allotment implementation plans. The various test centers are just beginning their work to test and evaluate proponent transmission systems and their trade-offs as to quality, bandwidth, ease of implementation, cost and other matters. The results of these tests will greatly define issues of bandwidth and technical capability that will impact on plans for

⁴⁵Id.

actual implementation.

While all parties involved should begin consideration of how best to distribute whatever supplemental spectrum is determined as necessary to implement ATV through the existing broadcasting system, it is way premature for the Commission to proceed with actual plans. NAB thus reserves for a later and more appropriate point a studied response and recommendation as to implementation schemes.

We do, however, want to re-iterate our position that all existing television service must be able to participate fully in the advent of advanced television and that, therefore, any allotment scheme must fully accommodate all licensees.

We also register our concurrence with the Commission's observations on the delays and disadvantages associated with the "demand" system of allotments described in the Further Inquiry. The simultaneous nation-wide allotment system based on the results of spectrum studies would seem to be more administratively "clean" and efficient. NAB reserves comment on the last, two-step procedure that would make "no alternative" allotments by computer matching, but allow other procedures to determine the bulk of the allotments. But have concerns with each of the "other procedures" as selection devices for the basic, initial allotment of the ability, or not, to provide advanced television service over existing, given facilities. The hearing procedure involves delays inimical to the swift implementation of HDTV. Both NAB and the Congress have questioned the use of lotteries as an allocation device. And, as we discuss below, NAB remains concerned with the use of private agreements to allocate spectrum.