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Federal Communications Commission
Office of the Secretary

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

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
ELECTRONIC INDUSTRIES ASSOCIATION ATV COMMITTEE
IN RESPONSE TO
TENTATIVE DECISION AND
FURTHER NOTICE OF INQUIRY

EXECUTIVE SUMMARY

Difficulty of Decisions Ahead

The Electronic Industries Association understands the variety of issues that face the Commission regarding ATV. In particular, very difficult tradeoffs are required regarding the following:

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- Allocation of broadcast spectrum (bandwidth of the transmitted ATV signal).
- Efficiency of broadcast spectrum utilization (modulation methods and channelization plan for ATV signals).
- Quality of video reception to consumers (selection of ATV standards and control of interference during transmission).
- Compatibility with existing and future video services and delivery media (NTSC, direct broadcast satellite, cable, satellite, fiber).
- Cost of system components.
- Cost of consumer equipment (architecture and design of consumer equipment).
- Timeliness of ATV availability.

Further Work is Required

Recognizing the difficulty of these choices, we believe that further work is needed to provide sound technological and market-based data before final selections are made. Prototype systems must be demonstrated and tested to allow rational and cost-effective solutions to emerge. Once these systems reach an appropriate degree of readiness (see Section IV.B.3), the tradeoff decisions alluded to above can be made with a degree of integrity that is likely to provide a long-living service to the public.

Principle for Decisions

To aid in making these choices, we recommend adoption of the following principles, which are expounded upon in subsequent sections of the present document.

- Spectrum Issues

The EIA feels it is premature to force a decision on most spectrum issues at this time (see Sections III.A, B, C). Furthermore, during the course of making such decisions, the following constraints should be applied to ensure final selections that are in the best interest of the public:

1. Selection of standards, delivery technologies and other technical aspects of the ATV service definition will be made only after public demonstration of these parameters in working prototypes.
2. The ultimate criteria against which alternative ATV systems will be evaluated is to provide highest value to the consumer.
3. Selection of a suitable broadcast system will be aimed at minimizing the amount of spectrum utilized by the ATV service, subject to the above constraints.

- Compatibility Issues

The EIA believes that compatibility with NTSC service is highly desirable and should be a closed issue (see Section III. B. 5).

The EIA also believes that interoperability of ATV signals among alternative media is critical, to allow display of video information to consumers.

- Standards

EIA feels that standards for the broadcast ATV service should be set by members of industry and other organizations (ATSC) through the FCC Advisory Committee on ATV (see Section IV.B.1). These standards should

have enough flexibility to allow inclusion of innovations and improvements over the years, such as we have seen in the NTSC service.

EIA also feels that NTSC should continue to thrive and be improved upon, if the marketplace demands such improvement. Nothing in the selection or implementation of ATV standards should preclude this possibility.

Major Issues Not Covered in Docket 87-268

In addition to the specific comments in reply to the Commission's Further Notice of Inquiry, the EIA respectfully submits the following serious concerns that have arisen during our review of the Docket:

1. The process by which detailed technical standards will be developed and adopted by the Commission is not clear to us. We believe this process must be clarified before further substantial progress can be made with regard to ATV.
2. Notwithstanding the previous point, it is our belief that the FCC ATV Advisory Committee must play a key role in selection of standards. Given our strong belief that these selections must await demonstration of prototype systems, we believe that the two-year constitution of the Advisory Committee is inconsistent with playing this role. We strongly recommend that action be taken to ensure continuity of purpose of the Advisory Committee for the foreseeable future.

I. INTRODUCTION

The Electronic Industries Association ATV Committee ("EIA") files these comments in response to the September 1, 1988 "Tentative Decision and Further Notice of Inquiry." ("Notice") These comments reflect the consensus of the participants in EIA's ATV Committee.

A. The Electronic Industries Association ATV Committee

Recognizing the importance of advanced television ("ATV"), EIA has formed a committee to consider all public policy issues associated with ATV. The EIA-ATV Committee includes representatives from the broad spectrum of the electronics industry.* Participating in the EIA-ATV Committee are EIA members, including members of EIA's affiliate -- the Telecommunications Industry Association (TIA)**, as well as non-EIA members.

EIA is a 64-year-old trade association representing major companies which make equipment for television production, transmission and viewing. EIA's Consumer Electronics Group represents manufacturers of television sets. EIA's Components Group represents manufacturers which make parts and components for television sets. Members of EIA's affiliate, the TIA, make satellite and ground equipment for satellite transmission; cable television transmission and in-house cable subscriber products; and

*The EIA-ATV Committee is chaired by Sidney Topol, Chairman of the Board of Scientific-Atlanta, Inc. Companies participating in the Committee include: AMP, Inc.; AT&T; Alcatel, NA; Bellcore; Cooper Industries; Corning Asahi Video Products Co.; GE Americom Communications, Inc.; GTE Service Corporation; Harris Corporation; Hitachi Sales Corporation of America; Hughes Aircraft Co.; IBM; Mitsubishi Electric Sales America, Inc.; Motorola, Inc.; NEC Home Electronics (USA), Inc.; North American Philips Corporation; OI-NEG TV Products, Inc.; Panasonic Technologies, Inc.; Philips Consumer Electronics; Quasar Company; Scientific-Atlanta, Inc.; Sony Inc.; TRW, Inc.; Thomas Electronics, Inc.; Thomson Consumer Electronics; Varian Electronics; U.S. Precision Lens, Inc. and Zenith Electronics Corporation.

**The Telecommunications Industry Association (TIA) is a full service national trade organization with nearly 600 members which provide materials, products, systems, distribution services and professional services to the telecommunications industry in the United States and countries around the world. TIA represents the telecommunications industry in association with EIA.

television transmission equipment (including microwave links and fiber optics).

The EIA-ATV Committee and its Subcommittees have been charged with developing positions on ATV issues and these comments are consensus views reached through committee deliberations.

B. The FCC Process

At the outset, EIA commends the Commission for its proactive yet thoughtful approach in easing and assuring ATV acceptance and development. EIA applauds the Commission's two tier approach. The Advisory Committee on Advanced Television Service with its three subcommittees and numerous working parties truly reflects the consensus building approach necessary to achieve ATV standards. The FCC's two Notices of Inquiry and tentative decision are indicative of a comprehensive, well-executed process for obtaining analysis and input. The comments which follow are intended to assist and encourage that process.

EIA's comments reflect the issues as raised by the Notice. To assist the reader, EIA, for the most part, addresses issues in the order raised by the Commission.

II. TENTATIVE DECISION/ADVISORY COMMITTEE INTERIM REPORT

The Notice requests comments on the "issues, recommendations and conclusions expressed by the Advisory Committee in its Interim Report."

(Par. 5) The Notice also includes several "tentative decision(s)" made by the Commission. As the two are in part integrally related, EIA will comment on key points of both to the extent the issues are not raised specifically in the Notice.

As a starting point, EIA agrees with the thrust of the Interim Report and the Notice. In EIA's view, the unanimously approved Interim Report provided an important stepping-stone for the logical decisions reached in the Notice. In fact, it is EIA's view that the cross-industry consensus reached in the Interim Report may be an essential prerequisite to successful FCC action on ATV.

Two key FCC findings, not addressed elsewhere in these comments, deserve particular commendation:

First, EIA agrees with the FCC findings that terrestrial broadcast of ATV will benefit the public and that existing broadcasters should be permitted to implement ATV. These important FCC statements were simple, clear and necessary.

Second, and equally significant, EIA strongly agrees with the Advisory Report suggestion and FCC conclusion that no attempts should be made to retard the introduction of ATV over non-regulated media. However, EIA supports a broadcast ATV standard which insures continued service to NTSC receivers. EIA believes the standard should be inter-operable and

"friendly" among various delivery media in order to provide the lowest cost receiver possible and to hasten early adoption of a standard to permit delivery over all media.

While EIA lauds the Interim Report for the above-stated reasons, it remains concerned over a regulatory approach favoring open architecture (see Section IV. B.7) and the tension among systems, receivers and spectrum allocations (see Section II A.5). UHF taboo criteria must also be addressed in practically realizable ways (see Section III. A.6). Further, EIA is concerned about the Report's description of U.S. TV manufacturing and its relationship to ATV. EIA intends to address this latter issue in a report to be filed by January 4, 1989 with Congressman Ed Markey, Chairman of the House Energy and Commerce Telecommunications and Finance Subcommittee.

III. SPECTRUM ISSUES

EIA recognizes that spectrum issues are among the thorniest issues in the ATV area. Further, as spectrum trustee, the FCC confronts Solomonic decisions in the ATV area.

These decisions must reflect the tension among compatibility, cost, spectrum efficiency and system quality. While there is no right and wrong, spectrum decisions clearly cannot be viewed in isolation.

A. Spectrum Availability

1. Is 6 MHz enough bandwidth for ATV? (Par. 41-48)

Resolution of this issue may be premature at this point. The Advisory Committee should evaluate systems proponent claims that 6 MHz provides sufficient bandwidth and the Committee should then report its findings to the FCC.

2. Should UHF and VHF be repackaged in 9 MHz channels? (Par. 49)

No. Repackaging would be an undesirable and radical action which would disrupt broadcasting and consumer reception of signals without corresponding benefit.

3. What are the problems with non-contiguous or simulcast scenarios? (Par. 50-53)

EIA believes that non-contiguous augmentation channel allocations may result in a difference in channel impairments between the main channel and the augmentation channel; especially if they are separated between VHF and UHF, or widely separated in the UHF spectrum. Therefore, contiguous or, at least, UHF/UHF, VHF/VHF augmentation assignments are preferred.

Simulcasted signals do not exhibit these problems because the signal must be complete within the 6 MHz bandwidth.

It has yet to be shown that high quality HDTV can be achieved by a 6 MHz direct compatible or simulcast system when compared to a 6+3 or 6+6 MHz augmentation system.

Further, the proponents of compatible and non-compatible systems must demonstrate that they can insert their system into a spectrum space more crowded than today's without perceivable deterioration to NTSC service.

We assume that the system proponents of each type of system will solve these problems to varying degrees, and will incur system implementation costs in doing so. Therefore, field tests and detailed economic analysis of the proposed systems must be completed prior to final conclusions. The goal of the decision-making process that uses the conclusions must be to deliver a new service and new products with perceptible benefits to the U.S. consumer at a price in line with the value received.

4. Implications and assumptions of the Advisory Committee Spectrum Study (Par. 54-59)

The Spectrum Working Party provides a guide on the availability of spectrum space in the UHF and VHF bands for ATV transmission. EIA asks the Commission to recognize, however, that due to time and resource constraints, the study could only superficially examine the interdependent nature and tradeoffs involved with spectrum allocation. Taboos cannot be completely ignored in further studies. Co-channel interference can only be

reduced by proper choice of ATV system and allocation methodology. All must be based on demonstrated results.

5. Implications and assumptions of the OET Study on Spectrum (Par. 60-68)

Two key factors will profoundly influence the direction of ATV: first is the FCC decision to contain broadcast ATV within its existing allocated spectrum. This narrows options. Second is the implications of the findings of PS/WP-3 and FCC/OET concerning the stringent requirements on ATV systems, receiver selectivity, and allocation methodology within that spectrum.

All must recognize that systems, receivers and allocations are intertwined. Tradeoffs abound.

For example, the OET study found that broadcasters must be able to operate at reduced minimum separation distances. This is necessary to allow most stations to expand their bandwidth to use the ATV systems.

The ATV system adopted must then be robust. Simply put, it must be immune to other ATV and NTSC signals.

But it must also be benign. It must not cause interference to other ATV or NTSC signals.

EIA therefore believes that as a requisite, systems proponents should be required to demonstrate how their transmission systems would be both robust and benign. Further, the corresponding receiver requirements should be specified. This would allow real analysis and thorough interference testing during the selection process.

6. OET Receiver Study (Par. 60, 69-72)

EIA is concerned that the spectrum allocation study ignored UHF taboo criteria. Decisions on allocation methods must be made while considering their impact. If the taboo effect on allocation is small, the tradeoffs required in receiver design to improve taboo rejection may not be required. But a large taboo effect requires consideration of benign modulation schemes.

The FCC advanced technology receiver also presents problems. As Zenith points out in its systems proposal this receiver design:

- Degrades VHF performance.
- Raises concerns about achievement and control of UHF noise performance in mass production.
- Increases cost and complexity without corresponding benefits.
- Is incompatible with CATV that now extends into the UHF TV band.
- Cannot improve the performance of the existing 160 million NTSC receivers.

Given these facts, this receiver design may raise more problems than it resolves.

B. FCC Conclusions on Spectrum

1. The ATV system will only use VHF and UHF bands. (Par.73-81)

We agree with this conclusion based on the premise that all other spectrum space is occupied by other users: to plan on expanding would lengthen the time required to make the new spectrum space available for ATV. Further, it is not clear that these other bands under consideration are technically appropriate for ATV.

2. ATV system must not be susceptible to UHF taboo interference but must be robust and benign for co-channel and adjacent channel interference. (Par. 81)

See A-5 above.

3. Only plans that use 6 MHz or less of additional bandwidth per station will be considered. (Par. 82)

Given the characteristics of the transmission systems, and the results of the Spectrum Working Party, we agree that 6 MHz appears to be an upper limit for additional space.

4. ATV service that results in a reduction to NTSC service will not be authorized. (Par. 82)

Any potential reduction should be carefully scrutinized.

5. NTSC compatible or simulcast signal will be required for licensees. (Par. 82)

Given the commitment to support NTSC in the future and the results of the spectrum studies, we see no other options than those choices.

6. Spectrum decisions should be cleared up and not await technical standards issues. (Par. 94 or 84)

Again, EIA supports the proposal to limit ATV transmission to presently existing TV bands. The spectrum decisions related to channel bandwidths, channel space, channel packing density, etc., should be made expeditiously based on experimental results and sound technical advice and consistent with the recommendations of the Advisory Committee.

C. FCC Seeks Comments On:

1. How do the four basic spectrum options affect service quality, equipment cost and other economic impact elements? (Par. 83) What are the costs and benefits of various spectrum options? (Par. 91) What are the long and short term implications of the options? (Par. 13)

With regard to the first option of no space allocation, we consider this to be a trivial solution which does not allow HDTV. Improvements can be made, but in the long run will be inadequate.

HDTV broadcasters will need additional spectrum or taboo space. This would enable broadcast to remain as a fundamental delivery media.

This is extremely important because broadcasters deliver free local content programming to all consumers.

The technical and administrative challenge of providing the additional spectrum is very great. Much evaluation and extreme care must be taken in freeing spectrum from taboo areas so as to assure that major interference problems are not introduced. Our goal must be improved picture performance which will depend upon very low levels of interference.

The selectivity of new tuners and the basic characteristics of the new ATV signals are not known. Final assignment of additional spectrum must await system evaluation and interference testing. Additional spectrum and equal treatment for all broadcasters must be the prime objective.

D. UHF Freeze and Private Land Mobile Sharing (Par. 96)

The Commission has elected to defer action on use of the UHF television spectrum for land mobile sharing and assignment of additional television stations until completion of its technical analysis and allotment plans. Accordingly, EIA now makes no specific comments on the merits of these additional uses. The demand for additional television stations will continue, and of course, HDTV offers opportunity for more intense use of the television spectrum. The opportunity costs associated with these uses is expected to be substantial. Therefore, the Commission should move expeditiously to resolve the spectrum issues involved in this

proceeding based on sound technical advice and consistent with the results of the Advisory Committee.*

E. Relay Services (Par. 97-102)

For satellite delivery to stations and cable systems, EIA believes that existing Fixed-Satellite Service (FSS) systems can deliver 6, 9 or 12 MHz baseband ATV signals.

Without significant earth station changes (as indicated in Par. 98) a 36 MHz, C-Band transponder could likely provide distribution of 6 and 9 MHz baseband ATV signals. The 12 MHz baseband ATV signals, which generally are composed of 2-6 MHz baseband signals, could be delivered using 2-36 MHz transponders, or one 54 MHz transponder. However, the exact satellite transmission link configuration will depend on the ATV signal requirements with respect to carrier-to-noise (C/N), pre and de-emphasis network and i-f bandwidth needed for a given deviation.

With current excess capacity at C-Band and with greater use of Ku-band satellites for television signal relay, we expect that initially sufficient capacity may be available to provide ATV relay services.** The

*The TIA Mobile Communications Division has additional views on the spectrum allocation issue which are contained in a separate filing by that Division.

**Working Party 4, the Advisory Committee's Planning Subcommittee "opined that the excess of FSS spectrum-orbit over demand will continue for some time." (Notice Par. 98-) However, according to a published report, a recent Booz, Allen and Hamilton study predicts that "C-Band demand will remain flat or diminish slightly over the next ten years, while supply will decline at a much faster rate." Video Technology Newsletter, p. 7 (October 10, 1988).

available capacity would have to be examined as a large number of ATV channels are required. If ATV service becomes widely used however, some transponders currently carrying NTSC channels can be used to carry ATV channels in the future.

IV. ATV STANDARDS

EIA views the FCC role in ATV standard setting as catalyst (creating the Advisory Committee), adopter (embracing the industry consensus standard) and enforcer (maintaining the integrity of the adopted standard). The FCC, however, should not adopt standards which are not agreed upon by industry; have not gone through rigorous analysis, evaluation, testing; or concern products over which the FCC has no legal authority. EIA encourages early adoption of a broadcast standard commensurate with evaluation and testing. Establishment of a standard will encourage all elements of U.S. industry to move forward with commercial products.

A. Relaxation or Repeal of the NTSC Standard

1. Should the FCC relax or repeal the NTSC standard? (Par. 107-109)

EIA agrees with the Commission that much would be lost by eliminating or relaxing the NTSC standard at this time.

2. Does the interim policy on waivers (no impaired reception and no new interference) make sense? (Par. 109)

The proposed waiver criteria appears to be the same as have been used previously. EIA therefore considers them acceptable for experimental broadcasting only.

B. Establishment of ATV Standards

1. Should the FCC set a standard? (Par. 122-1)

The Commission should establish standards based on industry's recommendations. It is the role of industry, including the FCC Advisory Committee and other industry groups like the Advanced Television Test Center, to develop a consensus on a standard.

The Commission has appropriately asserted its leadership role in establishing the Advisory Committee; however, industry should be responsible for recommending an ATV standard to the Commission. That recommendation requires the consensus support of the various industry segments whose business interests are affected. Such an approach would avoid problems created when there is no consensus. For example, the incompatible sequential color standard was created without industry support, and as a result, the standard failed and had to be changed. If industry cannot agree upon standards, then the FCC must act diligently.

EIA is also concerned over the process by which a standard is set. A fair and workable committee voting procedure must be established.

2. How can the standard allow for future technological developments? (Par. 115)

Television standards have not been set until the technology necessary to implement them was available and an emerging technology would not affect the choices made. Likewise, standards have been "forward looking." The people who developed them understood that standards must stand the test of time. The framework for our present television standard was established 47 years ago. Color, stereo sound, and ancillary services have all been added in a compatible manner. The NTSC may not have yet reached its full potential, as evidenced by the various ATV system proposals submitted to the Advisory Committee that involve compatible improvements to NTSC. The NTSC standard has been anything but "inflexible," however, it is much less than full HDTV.

Likewise, an ATV standard must be flexible. A standard will last if it allows for technological improvement.

3. When should a standard be set? (Par. 120, 122(1))

EIA agrees with the Commission that it is too early to adopt standards. However, early adoption of a standard, based on proper evaluation and testing is important so the U.S. can commercialize HDTV.

The Advisory Committee program for analysis and evaluation/testing should first be completed without artificially-imposed deadlines. Benchmark events usable in determining that standards setting can go forward are:

- a. When actual systems demonstrations and technical evaluations have been made and the technical record of the Advisory Committee is complete.
- b. When it is the judgment of the industry that tradeoffs are understood or apparent and that the marketplace will support the tradeoffs.
- c. When there is strong movement toward industry consensus on a single ATV system.

With regard to the benchmark event (c), it is worthwhile to note that in its report following the May 1940 hearing on monochrome, the Commission stated:

"As soon as the engineering opinion of the industry is prepared to approve any one of the competing systems of broadcasting as the standard system, the Commission will consider authorization of full commercialization."*

4. What are the pros and cons and likelihood of an industry de facto standard? (Par. 122(3))

While answers to the issues raised by the FCC on de facto standards are highly speculative, creation of a de facto standard is possible. Of course, de facto standards may be established for DBS, cable, and recorded media if manufacturers and marketers see business opportunities to offer services or products within an environment where industry agreement on a single broadcast/cable standard appears unlikely. A de

*Fink, Donald G., "Television Standards and Practice; Selected Papers from the National Television System Committee and Its Panels" (McGraw-Hill, 1943).

facto standard can become a problem if there are several different ATV standards vying for public acceptance. Different standards, then, would slow the development of an ATV broadcast or cable service because of public (and industry) confusion and uncertainty, and reduced economies of scale for equipment producers.

5. Should a standard be mandatory, recommended or one which protects systems characteristics? (Par. 116, 122(4))

EIA considers it in the public interest for the Commission to mandate an ATV standard recommended by industry. Failure to sufficiently define the system would be an invitation to modify it. Poor ATV service might result because receiver designers would be unable to anticipate the conditions under which receivers would be required to perform.*

6. Should an ATV standard be limited in duration? (Par. 118; 127(5))

EIA is aware of no advantage of limiting the duration of a standard. The primary disadvantage of a finite duration is that it introduces an element of uncertainty. Standards are intended to foster certainty. A standard with a limited life is like a marriage with a pre-set duration -- tempting but unacceptable in the real world.

*See Paragraph 107 referencing General Electric's opposition to modification of the NTSC standard. Also, the FCC has correspondence regarding NTSC modulators, intended for use on cable systems, that do not conform to FCC/OET Bulletin No. 60 with respect to stereo difference signal companding.

7. What are the costs, benefits, disadvantages and advantages of the Schreiber open architecture receiver? (Par. 119-122(5))

Open architecture is, if anything, a marketing driven alternative. If the marketplace can support open architecture and such a proposal is technologically feasible, then there will be no shortage of manufacturers and marketers who will provide such a device. EIA believes, however, that the appropriate FCC role is to set a terrestrial broadcast ATV standard. Standard setting is a regulatory concept. It should not be confused with unrestricted open architecture which the EIA opposes as a regulatory option.*

EIA is endeavoring to respond to a Systems Subcommittee Working Party 3 (Economic Assessment) request for the projected cost of receiver architectures for the various system proposals submitted to the Advisory Committee. Examination of the projected cost of an OAR will depend on the outcome of this study. The problem of marketplace confusion is also very important.

C. Compatibility with NTSC Receivers

EIA agrees that the decision setting the future ATV standard should insure continued service to NTSC receivers without noticeable picture or sound degradation. Continuation of NTSC service is critical to protect the massive consumer and broadcast investment.

*See EIA/CEG letter of June 30, 1988 to FCC.

1. Should the FCC specify quality levels? How? For how long? (Par. 126-2)

As part of its evaluation of systems, working parties under the FCC Advisory Committee will examine the quality of the received signal. This is entirely appropriate.

EIA is reluctant, absent a clear problem, to ask the FCC to define additional quality parameters for transmitting the 47-year old NTSC standard. The FCC does not now set a quality standard as the marketplace provides a strong incentive for broadcasters to send high quality signals. With NTSC now and with ATV-NTSC in the future, there is a marketplace disincentive for sending lower quality signals as consumers are less likely to watch the poorer signals.

2. Should the FCC require that ATV signals be received on NTSC sets if low-cost converters are available? If so, for how long? (Par. 126-3)

If the ATV system is compatible, then converters are not required. EIA questions the authority of the FCC to act in this area but also recognizes several issues to resolve before this alternative can be seriously considered.

- a. What is "low-cost"? Is it low relative to the value of confirmed television service? Is it low compared to other home media services (VCR, cable and satellite)? Is it low relative to the present free TV service?
- b. Would the converters be required to obtain service on the existing 160 million TV sets in use?

- c. How can a converter plan be reconciled with growing consumer distaste for black boxes? Should consumers be compelled to buy converters?

The obligation to continue service to the owners of 160 million TV set purchasers must be weighed against the costs a converter imposes. EIA is skeptical that it is economically efficient to impose additional costs on users of 160 million sets rather than making adjustments higher up the signal distribution chain.

D. Compatibility with Alternative Media

1. Should ATV signals be compatible among alternative media?
(Par. 134)

EIA believes a single transmission standard for terrestrial broadcasting which is compatible with cable is a highly desirable objective, with an important goal being compatibility between the media. While other media may select other transmission formats most suitable for that media, they must have common baseband video and sound parameters so they can interface with the ATV receiver -- at least at a baseband level.

EIA recognizes that interfaces between the TV set and the different delivery media must be friendly. That is, at least two ports to the TV set will likely be required to accept TV signals from different delivery media such as terrestrial broadcasts, VCR, cable and satellite. We have adopted the term of "friendly multiport" television receiver to convey the idea of allowing more than one input to the TV set depending on

the delivery medium but requiring that the input signal still conform to a critical group of signal format characteristics.

The TV set manufacturers have already moved toward friendly multi-port TV sets to accommodate multiple delivery media. For example, there is a RF input port to accept the normal channels from over-the-air broadcasting for both video and sound. However, in today's TV sets, there is also the so-called Y/C or S-video connector with separate inputs for brightness and color (the two major parts of a color TV signal). The Y/C or S-video connector bypasses the tuner and RF parts of a TV set that are not needed for some delivery methods. New super VHS VCR's use this Y/C or S-video input because the channel tuning and RF parts of the TV set are unnecessary for VCR input. However, the VCR TV signal still is based on 525 lines of television per picture frame, 59.94/2 frames per second, and a 4:3 aspect ratio of the picture, the same values that are used for the RF broadcast NTSC input.

2. Should compatibility among alternative media be FCC mandated or recommended? (Par. 134-2)

The FCC has limited or no jurisdiction in mandating standards for non-broadcast media. While that standardization might be desirable, it is unclear that an FCC mandate is legal. However, a strong recommendation might be appropriate.

At the same time, we recognize that there must be sufficient