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

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In the Matter of	)	
	)	
Advanced Television Systems	)	
and Their Impact Upon the	)	**MM Docket No. 87-268**
Existing Television Broadcast	)	
Service	)	

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COMMENTS OF THE DIGITAL HDTV GRAND ALLIANCE

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November 15, 1995

SUMMARY

The Grand Alliance supports the Commission's twin goals of preserving and promoting free over-the-air television while making the most efficient use possible of television spectrum. We believe that both of these fundamental goals will be best served by the rapid introduction of ATV, including HDTV, and that this can be accomplished with modest modifications of the Commission's ATV implementation plan.

The Commission should maintain its 6 MHz channelization scheme, since 6 MHz is the minimum amount of spectrum required to broadcast HDTV. As long as the predominant use of the ATV conversion channel is for free over-the-air television with HDTV as the primary application, initial eligibility for ATV licenses should be limited to existing broadcasters, and the Commission should give broadcasters wide latitude in exploiting the unprecedented flexibility afforded by the all-digital Grand Alliance system. This flexibility can increase the ability of broadcasters to compete, can bring new, innovative services to the American public, and can help accelerate and pay for the conversion to a digital broadcast television system.

HDTV provides the significant increase in resolution that broadcasters will need to remain competitive in the decades to come, the quantum improvements in video and audio quality that will motivate consumers to invest in digital television. It is vital that the Commission require broadcasters to provide minimum amounts of HDTV on their ATV spectrum, e.g., 25 hours per week with 15 of these in prime time or weekend afternoons, so that viewers have the opportunity to make informed choices in the marketplace. Moreover, requiring HDTV will ensure that broadcasters follow through on their commitment to offer HDTV, the only ATV application that requires the exclusive use of the full 19 Mbps available over a 6 MHz channel.

To promote the rapid transition to HDTV/ATV and the recovery of NTSC spectrum, the Commission should modify its simulcast requirements. For HDTV, simulcast requirements should be minimal in the early years of the transition to facilitate innovative HDTV programming, and more comprehensive in the later years to avoid perpetuating unique NTSC programming that would make it difficult to cease NTSC broadcasts. For SDTV, throughout the transition the SDTV program, or one program in any set of simultaneously broadcast SDTV programs, should be identical to the program carried on the NTSC channel.

To determine when NTSC broadcasts should cease, the Commission should establish a nominal target date and adjust it forward or backward based on the percentage of households that no longer rely exclusively on terrestrial NTSC broadcasts and based on the cost and availability of receivers and converters.

At the end of the transition, the Commission should repack the ATV spectrum in order to free up large, contiguous, nationwide blocks of spectrum. Careful planning now can minimize the number of relocations at the end of the transition while maximizing the value of recovered spectrum.

To hasten the transition to ATV, the Commission should adopt its proposed six-month election period, but must provide some means to ensure that a broadcaster's election represents a real commitment to convert. The six-year application/construction schedule should be shortened for broadcasters in the 25 largest markets, and need not be extended for small-market broadcasters or noncommercial broacasters, except in unusual circumstances where waivers are granted. Most of the costs to convert to basic HDTV operation are required anyway to convert to lower resolution digital television, and these costs are frequently overstated.

Television receiver manufacturers will build sets that *receive* all digital ATV formats without any requirement to do so, but the Commission should not regulate the manner in which those signals are *displayed*. Instead, manufacturers should be given latitude to

differentiate their products and meet varying consumer needs. Any requirement to limit or ban the sale of NTSC receivers would be particularly ill-advised, and mandatory labels warning consumers that at some point their NTSC receivers would no longer receive over-the-air broadcasts are also unnecessary and would be confusing and counterproductive.

In reviewing its Must Carry and Retransmission Consent rules, the Commission should promote the rapid availability of digital HDTV broadcasts over cable TV systems without placing undue burdens on cable operators.

The United States stands on the threshold of deploying a world-leading digital high-definition television system that will usher in a new era of digital broadcast communications--one that will not only bring dramatic improvements in the technical quality of television, but will also enable a host of other applications that help meet pressing needs of American citizens. To harvest these benefits for the American public, and to optimize the use of valuable television spectrum, the Commission should make the minor modifications to its ATV policies proposed herein, and should proceed as expeditiously as possible to adopt an ATV broadcast transmission standard based on the Grand Alliance system, to assign ATV transition channels to broadcasters, and to do all else possible to promote the rapid introduction of HDTV and other ATV applications. In reiterating its clear commitment to the process it began eight years ago, and in acting promptly to set an ATV transmission standard, the Commission will unleash the industry to make investments that will commercialize this powerful technology, turning the vision of digital high-definition television into a reality for the American people.

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COMMENTS OF THE DIGITAL HDTV GRAND ALLIANCE

I. Introduction

The undersigned members of the *digital* HDTV Grand Alliance ("Grand Alliance")[1] respectfully submit these comments on the Commission's Fourth Further Notice of Proposed Rulemaking and Third Notice of Inquiry ("Notice") in its Advanced Television ("ATV") proceeding. The Notice continues the Commission's efforts to usher in the next era of broadcast television: *digital* broadcast television, and seeks comment regarding which of its policies need to be revised in light of evolving digital technology.

The Grand Alliance members endorse the Commission's commitment to preserve and promote universal, free, over-the-air television. (Notice, ¶6) We also endorse the Commission's goal to promote the most efficient use of the spectrum, including recapturing as much spectrum as possible in contiguous blocks after the transition to ATV. (Notice, ¶6) Both of these fundamental goals will be best served by the rapid adoption of ATV, especially

[1]The *digital* HDTV Grand Alliance was formed in 1993 to combine the best elements of four previously competing all-digital high-definition television ("HDTV") systems, and consists of AT&T, General Instrument, the Massachusetts Institute of Technology, Philips Electronics, the David Sarnoff Research Center, Thomson Consumer Electronics, and Zenith Electronics. Under the direction of the Commission's Advisory Committee on Advanced Television Service ("Advisory Committee"), the Grand Alliance constructed a prototype best-of-the-best HDTV system which recently has been tested extensively by the Advisory Committee and found to exceed performance requirements and expectations. The Advisory Committee will meet on November 28, 1995 to consider whether to recommend the Grand Alliance system to the Commission as the basis for a new advanced television transmission standard.

HDTV, and we offer these comments exploring means whereby the Commission can accelerate the conversion to digital high-definition television.

II. The Commission should maintain the 6 MHz channelization scheme.

Using 6 MHz channels for the spectrum *temporarily* provided to broadcasters for the conversion to ATV continues to be the optimum balance of broadcast needs and spectrum efficiency. With the Grand Alliance's world-leading implementation of state-of-the-art digital video compression and transmission technology, it is now possible in a 6 MHz channel to provide high quality HDTV to the public while allowing all 1,500 broadcasters a transition channel for making the conversion to ATV.

HDTV is the defining and most constraining ATV application, a digital television standard that must and can endure for decades to come. It represents the kind of quantum improvement in the technical quality of entertainment television that warrants temporarily lending broadcasters a second 6 MHz channel to make the conversion. Even if some broadcasters chose not to offer HDTV--an outcome as unlikely as it is unwise--it would still make sense to retain the 6 MHz channelization scheme and to share the 19Mbps digital bit stream available over such a channel among multiple providers.

III. The Commission should permit flexible use of the channel, consistent with its goal to preserve and promote free, over-the-air television.

The *digital* Grand Alliance HDTV system offers broadcasters unprecedented *flexibility*. Working under the direction of the Commission's Advisory Committee, the Grand Alliance designed and implemented a packetized data transport system that organizes all information carried over the channel into packets of data, each with its own header and descriptor information. Thus, each packet carries a label telling a receiver what kind of information it contains, e.g., "program 1 video," "program 2 video," "program 1 audio," "auxiliary data," etc. In essence, this makes the HDTV transport system a generalized digital

data delivery vehicle, capable of carrying 19 Mbps per television channel of any kind of digital information into American homes and businesses. This same capability also ensures the *extensibility* of the system, i.e., that additional features and functions can be added in the future without degrading the performance of the earliest HDTV/ATV receivers or rendering them inoperable. This is possible because later generations of receivers can use packet headers to recognize data associated with new capabilities, while earlier receivers will ignore packets of a type they don't recognize.

This tremendous flexibility means that in addition to the quantum improvement in the technical quality of free over-the-air television, implementing HDTV offers an immediate opportunity to improve the national information infrastructure to help address pressing needs in health care, education and other areas. By putting huge data "pipes" and high-resolution displays into American homes, HDTV can help cover the costs and facilitate the introduction of these other applications. With an eye to these important uses, the Advisory Committee and the Grand Alliance members worked diligently over the past several years to maximize the *interoperability* of the HDTV/ATV system with computers and telecommunications, while satisfying extremely challenging objectives for improving entertainment television.

The Grand Alliance members believe that upgrading the nation's terrestrial television system to digital high-definition capability is and should remain the principal use of the conversion channel. Once the Commission adopts policies that ensure this principal use, broadcasters should be allowed to take advantage of the unprecedented flexibility designed into the system. Such flexibility can increase broadcasters' ability to compete, by improving the technical quality of their services and by allowing them to provide new, innovative services which will themselves serve the public interest. Moreover, this flexibility will promote a more rapid transition to digital broadcasting by increasing the appeal to consumers and by providing the potential for additional advertising and other revenues to offset the expenses of conversion.

A. The Commission should require broadcasters to provide a minimum amount of HDTV on their ATV spectrum.

In considering the future of television, it is vital that the Commission, broadcasters and all other parties interested in this proceeding focus several years into the future, and take into account the technological and competitive environment that will exist at that time--the time when broadcast ATV will begin to become a significant factor in the marketplace. The spatial resolution of today's computer screens has already surpassed that of today's television, and by then such higher resolution will have become common in entertainment applications. Indeed, today's consumer-oriented high-power direct broadcast satellite services already offer better resolution than most of today's televisions can support. HDTV provides the significant increase in resolution that broadcasters will need to remain competitive in the future, while delivering quantum improvements in video and audio quality that will motivate consumers to invest in digital television. By requiring HDTV broadcasts, the Commission will ensure early and frequent availability of HDTV programs which will encourage consumers to purchase HDTV sets, creating higher manufacturing volumes that will help drive unit costs and prices down more rapidly. The more HDTV programming that is offered, the faster the transition to digital will proceed, and the sooner the Commission will be able to recapture valuable NTSC spectrum.

Furthermore, requiring HDTV will ensure that broadcasters follow through on their commitment to offer HDTV as the primary application of the ATV channel. HDTV is the *only* ATV application that requires a full 6 MHz channel. If broadcasters were not committed to offering substantial amounts of HDTV programming, they would not need the entire capacity of a 6 MHz channel to provide other ATV services. If broadcasters only offered digital standard definition television ("SDTV"), all the broadcasters in a single market could share the digital bit streams carried over one to three 6 MHz channels, leaving the remainder of the spectrum for other ATV entrants or for other uses. However, the Grand Alliance companies are convinced that broadcasters *must* offer HDTV if they are to compete

successfully in the decades to come. Moreover, by maintaining HDTV as the centerpiece application of ATV, the Commission can ensure that a high ceiling is established for the future technological evolution of digital television.

We urge the Commission to require broadcasters to offer minimum amounts of HDTV programming each week, focusing on prime time and weekend afternoon time periods. One effective approach would be to require a minimum of 25 hours per week of HDTV programming, with 15 of these hours offered in prime time or weekend afternoons. We believe that a minimum HDTV requirement will rapidly become superfluous and eventually could be eliminated as consumers express their preference for higher resolution video, but in the early years it will help ensure that consumers have the opportunity to make informed choices.

B. As long as the predominant use of the ATV channel is for free over-the-air television, including a substantial commitment to HDTV, broadcasters should be given wide latitude in exploiting the flexibility of the Grand Alliance system.

Ancillary and supplementary services that are analogous to those permitted under the Commission's current regulatory scheme and that don't interfere with or detract from the primary broadcast function should be permitted. As previously described, the Grand Alliance's packetized data transport structure makes a vast array of such services possible. For example, the Grand Alliance has demonstrated an interactive high-definition automobile commercial that makes opportunistic use of excess channel capacity. As this existing ad is transmitted, scenes that contain complicated motion require the full bit rate of the channel to render high-quality video and audio, while other simpler scenes need only a fraction of the available data rate. During these simpler scenes, supplementary information about available options, performance and safety features, and dealer locations, is included in the data stream. Interested viewers who have ATV receivers that support these features can then use an air mouse to interact with their receivers to obtain additional information about the automobile.

With this particular 51-second ad, a total of 60 megabytes of supplemental information (enough to fill more than 40 floppy diskettes!) was transmitted over the channel without degrading the high-definition images. Besides demonstrating the tremendous capabilities of the Grand Alliance system for conveying supplemental information concurrently with high-definition images, this example belies the erroneous but oft-repeated notion that HDTV will represent greater expenses with no greater revenues for broadcasters. Advertisers will certainly be willing to pay more for commercials that target interested purchasers more closely and give them more useful and relevant information. By delivering supplementary and ancillary services with greater value and appeal to consumers and advertisers, broadcasters and consumers alike can take advantage of the flexibility of HDTV/ATV to help finance and accelerate the conversion to digital television.

Even for services that go beyond broadcast television or traditional ancillary or supplementary services, including nonbroadcast services, broadcasters should be given substantial flexibility, provided that the predominant use of the channel continues to be for free over-the-air television and that the minimum hours of HDTV are broadcast. Generally, if such services are offered to the public for a charge, licensees should be required to pay spectrum fees as contemplated in proposed legislation pending before Congress.

C. The Commission should adopt nonburdensome administrative processes to ensure compliance with these requirements.

In administering these rules, the Commission ought to minimize the burdens on broadcasters. Wherever possible, the Commission should rely on operating logs and internal monthly reports which could be available for review by the Commission if complaints were to arise.

If during some time periods broadcasters use part or all of the channel for pay services, it will be necessary to measure the amount of such usage. Because the Grand Alliance HDTV transport packets have a fixed length, counting the number of packets

devoted to each type of use will give an accurate measure of the proportional use of the channel. Such measurements can easily be made by the broadcaster at the encoder, and could also be monitored at any decoder with only modest additional equipment.

IV. Initial eligibility for ATV licenses should be limited to existing broadcasters, provided that the channel is used predominantly for free over-the-air television with HDTV as the primary application.

As previously discussed, ATV spectrum should be used to enable broadcasters to upgrade their existing television service from analog to digital and from today's resolution to much higher resolution, i.e., HDTV. The emphasis should be on preserving free-over-the-air television with HDTV as the primary use of the channel.

Because the temporary assignment of an additional 6 MHz channel to each existing broadcaster will bring about the smoothest and most expeditious transition to digital HDTV, the Grand Alliance members wholeheartedly endorse the Commission's current plan to limit the initial eligibility for ATV licenses to existing broadcasters. (Notice, ¶27) However, in the unlikely event that existing broadcasters are uninterested or unable to make the transition to ATV, including HDTV, within a reasonable transition period determined by the Commission, the ATV spectrum should be made available to new entrants who make a commitment to broadcast HDTV and other digital television services.

V. In considering public interest obligations, the Commission should not detract from broadcasters' ability to upgrade to HDTV.

The conversion to digital affects the *ability* of the Commission to impose public interest obligations more than the *merits* of doing so. In considering what, if any, public interest obligations to impose on broadcasters' offerings of digital television, the Commission should take care not to detract from broadcasters ability to upgrade their service to HDTV.

For example, requiring simultaneous children's television programming during prime time would force adoption of multicast SDTV and effectively prohibit HDTV.

Beyond this, the Grand Alliance members take no position at this time on the merits of imposing public interest obligations on broadcasters.

VI. The Commission should modify its simulcast requirement in order to promote the rapid transition to HDTV and ATV and the recovery of NTSC spectrum.

Modest rules governing the relationship between a broadcaster's NTSC and ATV programs can facilitate both the transition to ATV and the rapid recovery of spectrum at the end of the transition period. In fashioning such rules, the Commission must strike a careful balance. On one hand, broadcasters should be allowed to optimize ATV and especially HDTV, taking full advantage of the capabilities of the new technology and recognizing that production concepts, techniques and values may differ relative to NTSC. On the other hand, requiring ATV programming identical to that provided on the NTSC channel can help facilitate the transition to HDTV/ATV. In the early days of HDTV/ATV, simulcasting will allow direct comparisons of NTSC and HDTV/ATV, helping consumers to evaluate the performance improvements. And near the end of the transition, simulcasting can ensure that unique NTSC programming is not perpetuated which would cause customers to balk at the cessation of NTSC broadcasts.

In light of these objectives, for HDTV the Commission should adopt rules that require a modest percentage of HDTV broadcasts to be simulcast on the NTSC channel during the early years, gradually increasing to 100% for the last few years of the transition period. For example, if the nominal transition period were established as 12 years, the requirement could begin at 25%, increase to 50% in year four, 75% in year seven and 100% beginning in year ten.

For SDTV the requirement can be simpler. Throughout the transition, the Commission should require that one of any set of multiplexed SDTV data streams carry the

same programming as the NTSC channel. If a broadcaster were to show a single SDTV program, it would be the same as the NTSC program. If a broadcaster were to show three simultaneous SDTV programs, one of these programs would be identical to the NTSC program.

These modest changes to the Commission's earlier simulcast requirements fully accommodate the changed circumstances brought about by the development of digital ATV technology. Moreover, these proposed simulcast requirements would give broadcasters wide latitude in developing HDTV and other innovative ATV applications, but would ensure that separate NTSC programming that could prolong the transition would not be perpetuated. If conditions arose where these requirements seemed inappropriate, broadcasters could seek waivers on a case-by-case basis, as long as such exceptions did not jeopardize the Commission's ability to reclaim one of the channels at the end of the transition period.

VII. The Commission should authorize both NTSC and ATV facilities under a single, unified license.

The Commission's tentative conclusion to authorize both NTSC and ATV facilities under a single, unified license (Notice, ¶ 46) is sound. Such a policy is consistent with the Commission's approach to limit initial eligibility for ATV licenses to existing broadcasters to enable them to upgrade the technical quality of their service.

Moreover, issuing separate licenses would create the possibility that in the future two voices would argue for continuation of both channels, potentially jeopardizing the Commission's ability to reclaim one 6 MHz channel at the end of the transition.

VIII. The Commission should establish a nominal target date and evaluate it against objective benchmarks to determine when broadcasters should cease NTSC transmissions.

In determining the length of the transition period, the Commission's basic approach of setting a target date, conducting periodic reviews to monitor the progress of ATV implementation, and making adjustments, if necessary, remains fundamentally sound. Although the Commission can do much to promote the rapid implementation of ATV and to focus the industry on a practical timetable for the conversion, no one can predict with precision how fast consumers will adopt the new technology. Consequently, the Commission should work toward a nominal target date for the cessation of NTSC broadcasts, and evaluate the progress of implementation using objective benchmarks.

We agree with the Commission that there are valid reasons to believe that broadcasters may adopt ATV more rapidly (Notice, ¶50), and that other developments in the marketplace may make fewer viewers dependent upon over-the-air NTSC transmissions (Notice, ¶51). In light of these factors, the Commission may want to reduce the nominal transition period from the current fifteen years to something shorter, perhaps twelve or even ten years.

In its intermediate reviews and in its final decision to fix the end of the transition period, the Commission should look at the percentage of households in broadcast reception areas that no longer obtain television service *solely* from over-the-air NTSC broadcasting, including those that have either a digital receiver or a digital-to-analog converter that allows digital broadcasts to be received and displayed on an NTSC set. The Commission should evaluate this benchmark periodically and adjust the "date certain" end of NTSC transmissions--forward or backward--to the point in time where it is projected to be 80 percent. By periodically reviewing the progress of implementation against this benchmark, the Commission should be able to fix a final date certain upon which NTSC transmissions will cease, giving two or three years of advance notice. This will give the relatively few viewers who still remain

dependent on over-the-air NTSC broadcasts ample time either to obtain digital receivers or converters or to subscribe to another television service. It will also give broadcasters and manufacturers time to make final plans for the end of the transition.

As digital receivers become less expensive, more consumers will be willing and able to make the change, and inexpensive converters will help alleviate the problem of providing service to analog receivers, whether they are primary household viewing sets or sets that have been supplanted by digital TVs or otherwise relegated to secondary use, e.g., in bedrooms, dens, etc. Thus, in finally fixing the end of the transition period, the Commission should also assess the degree to which the availability and cost of digital receivers and converters supports a cessation of NTSC broadcasts.

The Commission can be confident that manufacturers and suppliers in the industry will provide ample equipment choices and financing arrangements to help consumers obtain the digital receivers and converters needed to complete the transition. The Commission should leave these arrangements to the marketplace, and need not involve broadcasters in any sort of joint or cooperative effort to market such equipment to consumers.

IX. At the end of the transition period the Commission should repack the ATV spectrum in order to free up large, contiguous, nationwide blocks of spectrum.

In making ATV channel assignments, it is vital that the FCC look ahead to the recovery of one of each broadcaster's 6 MHz channels at the end of the transition period. With careful planning now, the Commission will be able to recover more spectrum and to organize the recovered spectrum into large, contiguous, nationwide blocks that will be far more valuable than a patchwork quilt of locally available spectrum.[2] Recovered spectrum

[2]Proposals have recently been made in Congress that aim to reduce the federal budget deficit by requiring the Commission to auction the television spectrum currently planned for the conversion to ATV. Such proposals would not only render broadcast ATV stillborn and undermine the ability of free over-the-air television to compete technically in the decades to come, but would lock in an inefficient usage of scarce spectrum and grossly reduce the funds that ultimately could flow to the U.S. Treasury by auctioning recaptured television spectrum at the conclusion of the transition to ATV.

could be organized into more than one block, as long as the blocks are large and cleared nationwide.

To create these large blocks of recovered spectrum, it will be necessary for some ATV broadcasters to be relocated at the end of the transition period. The cessation of NTSC broadcasts will create vacant channels that can then be occupied by ATV stations. In addition, because digital ATV signals require much less interference protection than NTSC signals, the resulting ATV channels can be packed more tightly once NTSC transmissions cease.

The Commission is wise to solicit information about repacking the spectrum. Planning now for the end of the transition will yield a more spectrum-efficient result, will encourage planning and investment in new services that can take advantage of the freed-up spectrum, and will reinforce the basis upon which a second channel is being temporarily assigned to each broadcaster.

To obtain these benefits, the Commission must identify the spectrum to be recaptured. In addition to specifying initial ATV channel assignments, the Commission should indicate which of the two channels must be relinquished and which ATV broadcasters will need to be relocated at the end of the transition. To minimize relocation costs, in most cases it will probably make sense to recapture the NTSC assignment. However, in some cases it may be preferable to recover what had been the ATV assignment, requiring a broadcaster to switch its ATV service back to what had been its NTSC channel. For example, if the broadcaster's current assignment is in what will ultimately be the ATV band(s), the Commission may choose to assign the ATV channel in spectrum that will ultimately be recaptured, and move the broadcaster's ATV service back to the original channel at the end of the transition.

Careful planning now can maximize the value of recovered spectrum while keeping the number of relocations to a reasonable level. The substantial benefits of repacking the ATV spectrum at the end of the transition period will accrue not to the broadcasters who must relocate, but to the new users of the cleared spectrum. Consequently, it makes sense for

relocation costs to be paid by the new licensees who take over the vacated spectrum, or from a fund generated from any potential auction of the recovered television spectrum.

X. The Commission should shorten the application/construction period.

Six-Month Election Period

The Commission's proposal to require broadcasters to elect within six months whether to convert to ATV (Notice, ¶63) has merit, but some means must be included to ensure that a broadcaster's election represents a real commitment to convert. Some scheme of incentives or penalties or both needs to accompany the election, e.g., a non-refundable application fee, or a substantial deposit that is refunded upon actual commencement of ATV broadcasts, or a substantial fine if ATV broadcasts do not commence by a date certain. An early election will stimulate broadcasters, after many years of discussion and evaluation, either to make a firm commitment to convert, as we expect most will do, or to step aside and permit other potential entrants the opportunity to take their places. Such public, formal commitments to digital television will also help stimulate the early availability of consumer receivers and the hardware necessary for broadcasters to make the conversion to ATV.

Large-Market Broadcasters

As a further means of accelerating the transition to ATV, the Commission should adopt a shorter application/construction schedule for broadcasters in the 25 largest markets. Broadcasters have been on notice during the entire eight-year Advisory Committee process of the impending opportunity and need to convert to advanced television. Many have prepared implementation plans, and await the finalization of an ATV standard to set those plans into motion. With their greater population coverage and scope of operations, broadcasters in the largest markets generally will be better able to afford and support a more rapid transition. The resulting early lead by large-market broadcasters will jump-start the conversion process, bringing higher sales volumes and declining prices for both broadcast equipment and ultimately for consumers.

Small-Market Broadcasters

Many small-market stations may need the full six-year application/construction period, but the Commission need not grant any general extension to small-market broadcasters or any other particular class of stations. The rapid conversion of small-market stations is not as critical for establishing initial momentum for the conversion to ATV, however, it is important for the Commission's objective of clearing nationwide spectrum for other uses.

Many small-market broadcasters are understandably concerned about their ability to afford the conversion to digital television. However, we believe that broadcasters, including small-market broadcasters, cannot afford *not* to convert to digital television, including HDTV, if they are to remain competitive with other delivery media in the decades to come. Indeed, broadcasters of all sizes need to realize that digital television competition has already arrived in their markets in the form of direct broadcast satellite services, and other means for delivering digital television loom on the horizon.

Beyond this compelling *need* to upgrade, the *costs* to convert to HDTV--even for the smallest broadcasters--are frequently overstated. The costs for a local broadcaster to convert to *basic* high-definition operation are now estimated at about $1.1 million, and these costs are likely to fall further over the next several years.[3] This includes pass-through of the network high-definition signal, commercial insertion by up-converting to high-definition, insertion of non-network material received in high-definition format, and recording of network high-definition material for later playback.

Moreover, approximately 70% of the costs required to commence basic high-definition operations represent the costs of converting to digital transmission. If a broadcaster were never to offer HDTV, but only digital SDTV, about $780,000 would have

[3]R. L. Stow, RUPERT STOW ASSOCIATES, "Capital Cost Estimates for a Medium Market Station Transitioning to HDTV Capability," October 27, 1995.

to be incurred anyway. Only about $320,000 represents costs unique to high-definition digital operation.

To add local news production to this basic high-definition operation, a basic high-definition electronic news gathering system with two cameras and field recorders and a basic editing suite can be obtained for about $270,000. Full scale high-definition studio production will cost much more, but there is really very little local program production other than news, especially at smaller stations.

The best current estimates for the cost of a total conversion to high-definition, including full-blown high-definition studio capability, are $6 - 8 million, which includes the $1.4 million initial investment described above that is required for basic high-definition operation with basic local news.[4] But where these additional investments are made at all by small broadcasters, they can be made over a period of years as part of the regular capital budget. For example, when it's necessary to replace a camera, a high-definition camera would be purchased. The *incremental* investment beyond the regular NTSC-based capital budget would be only a small fraction of the full-blown conversion costs estimated here.

Moreover, those who see only cost and no revenue in HDTV aren't looking forward. First, in the early part of the transition, HDTV viewers will form a self-selected market segment that will be of particular interest and value to certain advertisers. Second, digital television and especially HDTV will permit advertisers to do things that haven't been possible in the past. Advertisers will pay more for programs that move audiences. And finally, broadcasters, including small-market broadcasters, should not overlook the increased advertising and other revenue potential made possible by the flexible capabilities of the Grand Alliance system, e.g., from interactive, more closely targeted messages such as the automobile commercial described earlier, and from other supplementary and ancillary services that can be provided over the digital channel.

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[4] Ibid.

Where hardships or unique problems arise, the Commission should consider waivers of the application/construction deadlines for individual broadcasters based on the specific circumstances. In evaluating such waiver requests, the Commission should consider whether a reasonable time extension would enable the broadcaster to complete construction and commence ATV operation, and whether other prospective providers were interested in and capable of providing digital service substantially earlier.

Noncommercial Broadcasters

Noncommercial broadcasters have made essential and significant contributions to the development of ATV, including HDTV, and they should be fully included in the Commission's proposal to adopt a paired-channel assignment scheme. Notwithstanding their special needs, the Commission is wise not to establish two different implementation schedules for commercial and noncommercial broadcasters. Noncommercial stations must be an integral part of the Commission's plan to recapture spectrum at the end of the transition, and a longer transition period for them would jeopardize the Commission's ability to reclaim valuable spectrum.

The flexibility of the Grand Alliance HDTV transport system will give public broadcasters opportunities to offer additional valuable services that can help pay for their conversion to digital television, even without modifying the definition of noncommercial service. For instance, if public television stations offer to transmit multiple SDTV educational programs to schools and homes during non-prime time hours, government and private entities may be more willing to provide funds necessary to finance their conversion to digital television. As with commercial broadcasters, unique problems in making the conversion can be dealt with on a case-by-case basis.

XI. The Commission need not mandate requirements for the consumer electronics equipment required to support the introduction of digital television.

To succeed in the marketplace, television set manufacturers must be prepared to produce sets capable of receiving and displaying any combination of NTSC and ATV services desired by consumers. For many years to come, digital television sets will be designed to receive and display analog NTSC broadcasts without any FCC requirement to do so. Consumers will want to view both digital and analog broadcasts without requiring two side-by-side sets, and they will want to view analog VCR tapes on their new digital televisions.

The Grand Alliance members also believe that all set manufacturers will build digital receivers that *receive* all ATV formats, including HDTV, without any FCC requirement to do so. Different receivers might have different grades of *display* resolution, depending on marketplace factors. Even though a mandate is unnecessary, we would support a requirement that all digital receivers *receive* HDTV, provided that it is coupled with the requirement we endorsed above that broadcasters transmit minimum amounts of HDTV programming. The Commission should not regulate the manner in which the received digital signals are displayed, but should rely on marketplace forces, giving manufacturers the latitude to differentiate their products and meet varying consumer needs.

Any requirement to limit or ban the sale of NTSC receivers would be particularly ill-advised. During and even after the transition to digital, there will be a demand for NTSC sets driven by preexisting cable services, wireless cable services, direct broadcast satellite services, and VCRs. Also, for broadcast television and these other services and applications, the marketplace will demand low-cost digital converters that can be used with existing and new NTSC sets to provide many consumers with an initial economical means of accessing digital services.

The Grand Alliance members see no need for mandatory labels on NTSC sets warning consumers that at some point their NTSC set will no longer receive over-the-air

broadcasts. The success of consumer electronics manufacturers and retailers depends on educating their customers, and the industry can be relied upon to inform consumers and minimize any confusion caused by the availability of multiple formats or the process for converting to digital television. Negative labeling would only add confusion to the process.

XII. In reviewing its Must Carry and Retransmission Consent rules, the Commission should promote the rapid availability of digital HDTV broadcasts over cable TV systems without placing undue burdens on cable operators.

Although the Advisory Committee's charter has been to recommend a *terrestrial broadcast* ATV transmission standard, from the beginning the easy interoperability of the broadcast ATV standard with cable TV systems has been a key objective in the development of the standard and the Grand Alliance system. Throughout the eight-year Advisory Committee process, the cable industry has made significant investments and contributions to ensure the suitability of the standard for carriage over cable systems. A significant portion of the Advisory Committee's laboratory and field tests were conducted by Cable Television Laboratories, Inc. and focused on ensuring that the digital HDTV system developed for terrestrial broadcast would also meet the needs of the cable industry. As a result, as voluntary standards activities continue in the cable industry, it's likely that many elements of the terrestrial ATV standard will also be incorporated in emerging cable industry standards.

The Commission's review of its Must Carry and Retransmission Consent rules is timely in this proceeding. The Grand Alliance members look forward particularly to the comments of broadcasters and cable operators in hopes that mutually satisfactory policies can be determined that promote the early availability of digital television, especially HDTV, over cable systems as well as terrestrial broadcasts, without causing undue burdens on cable operators.

XIII. Third Notice of Inquiry

As discussed in Section IX, the Commission's best plan for utilizing television spectrum is to do everything possible to hasten the transition to HDTV/ATV and to repack the spectrum at the end of the transition period by relocating some broadcasters. The amount of spectrum that can be recovered at the end of the transition period will be substantial, not only because the interspersed NTSC channels will become vacant, but because the remaining ATV channels can be packed more tightly once NTSC broadcasts cease. With careful planning now, the Commission can recapture more spectrum and make that spectrum more valuable by organizing it into large, contiguous nationwide blocks.

In determining where in the broadcast television spectrum ultimately to locate broadcast television, the real-world practicalities and costs of relocating broadcasters may well become the controlling factor. As discussed in Section IX, the transition will be less disruptive to viewers and less expensive for broadcasters if the number of post-transition repacking moves is minimized by careful planning now.

XIV. Conclusion

As a result of the Commission's eight-year effort to upgrade the nation's television infrastructure, the United States stands on the threshold of deploying a world-leading digital high-definition television system that will usher in a new era of digital broadcast communications--one that will not only bring a quantum improvement in the technical quality of television, but will also enable a host of other applications that help meet pressing needs of American citizens. To harvest these benefits for the American public, and to optimize the use of valuable television spectrum, the Commission should make the minor modifications to its ATV policies proposed herein, should proceed as expeditiously as possible to adopt an ATV broadcast transmission standard based on the Grand Alliance system, should assign ATV transition channels to broadcasters, and to do all else possible to promote the rapid introduction of HDTV and other ATV applications. By reiterating its clear