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

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

REPLY COMMENTS OF MSTV

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SUMMARY

MSTV strongly urges the Commission to adopt an HDTV allotment/assignment plan that pairs specific HDTV and NTSC channels on the basis of current transmitter sites and in accordance with service-area replication, interference prevention and coverage maximization principles. The Joint Broadcaster Comments filed in this proceeding attest to the fact that all segments of the broadcast industry support such an approach. In addition, the Commission's ATV Advisory Committee has expressed its support for a channel-pairing assignment plan.

A pairing plan will minimize interference and maximize HDTV coverage overall, thus achieving maximum spectrum efficiency and meeting the needs of the public. Moreover, this approach will provide an appropriate and manageable framework where alternative arrangements are desired or necessary and for both pre- and post-assignment negotiations among stations.

The negotiate/first-to-file/lottery proposal, on the other hand, received little support from the commenters. Because this approach is essentially unrelated to current service, it has the potential for seriously disrupting existing television service by generating speculation and creating arbitrary and inequitable HDTV channel assignments. It will also create an uncertain and hostile atmosphere for stations attempting to negotiate community-wide channel

assignments and raises the potential for hold-outs extorting substantial payoffs.

The comments in this proceeding also demonstrate the risks of imposing a rigid implementation timetable for HDTV. Equipment manufacturers provided strong evidence that little is known at this point regarding the many factors that will control the development of this new technology in the marketplace, including the availability and cost of receiver and production equipment and HDTV programming. The hedged predictions concerning these factors indicate the need to avoid imposing premature, unrealistic deadlines at this point.

MSTV consequently urges the Commission to relax its application and construction deadlines, as it has requested in a Petition for Partial Reconsideration filed June 22, 1992, and to defer the establishment of timetables for conversion and simulcasting, or at least adhere to its decision to revisit its conversion deadline in 1998, at which time it should also revisit any simulcasting requirement it has imposed. A regulatory policy aimed at creating an artificial stimulus to this new technology, divorced of marketplace realities, will impose an unfair burden on broadcasters and may very well frustrate the objective that prompted this proceeding: ensuring that the unique benefits of the universally available local broadcast system can be preserved and enhanced in the advanced television environment.

These reply comments also address the following issues:

(1) MSTV supports the Commission proposed general ranking among eligibles in the event of a shortage of HDTV channels. There is a compelling basis for the Commission's decision to give the highest priority to licensees and permittees with constructed facilities and program test authority given their demonstrated experience in providing, and maintaining, service to the public. The Commission, however, should take all possible steps to prevent such a shortfall, including the adoption of a channel-pairing assignment plan.

(2) The Commission should reject proposals made by land mobile operators to reallocate spectrum to land mobile prior to the final conversion of NTSC to HDTV. These proposals are wholly unrealistic and would seriously jeopardize the implementation of broadcast HDTV given the spectrum requirements necessitated by this conversion process and the time broadcasters will need to adjust to the propagation and interference characteristics of this new technology. For the same reasons, it would be premature for the Commission to initiate a rulemaking, as suggested by NTIA, concerning how to reclaim spectrum at the end of the conversion process.

(3) The Commission should adhere to its commitment to displace LPTV stations where necessary to ensure the

successful implementation of HDTV for full-service stations. The repeated proposals by LPTV stations to prevent their displacement in this process are contrary to their secondary status and should be given no weight.

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REPLY COMMENTS OF MSTV

The Association for Maximum Service Television, Inc. ("MSTV") hereby files reply comments to the Second Report and Order/Further Notice of Proposed Rulemaking, 7 FCC Rcd 3340 (1992) ("Further Notice"), released in the above-captioned docket on May 8, 1992. MSTV was a signatory to the Joint Broadcaster Comments filed on July 17, 1992 which set forth the unified views of a large cross-section of broadcaster organizations -- one hundred and one in all -- on the issues raised in the Further Notice. These reply comments elaborate further on these issues and also respond to other comments filed in this proceeding.

MSTV commends the Commission for the strong leadership it has shown in addressing the difficult and sometimes competing concerns raised by the implementation of broadcast HDTV and in actively soliciting the views of interested parties at each stage of this endeavor. An enormous investment of time and resources has already been made in tackling these issues by the Commission, the Commission's ATV Advisory Committee and its subcommittees and

working parties, and numerous interested parties, including broadcasters who have such an important stake in a smooth, workable transition to HDTV. The views expressed by MSTV through its participation in the Joint Broadcaster Comments and in these reply comments are intended to facilitate these efforts and the Commission's goal of ensuring that the unique benefits of the universally available local broadcast system can be preserved in the advanced television environment.

I. ALLOTMENT/ASSIGNMENT ISSUES

A. The Comments Strongly Support the Adoption of a Channel-Pairing Approach to Assigning HDTV Channels.

The record in this proceeding overwhelmingly calls for an HDTV allotment/assignment plan that pairs specific HDTV and NTSC channels on the basis of current transmitter sites and in accordance with service-area replication, interference-prevention and coverage-maximization principles. As set forth fully in the previous Joint Broadcaster Comments, the proposed channel-pairing approach minimizes interference and maximizes HDTV coverage overall, thereby achieving maximum spectrum efficiency.[1/] It thus offers the best means of achieving the Commission's objective of preserving and improving existing broadcast service through the implementation of broadcast HDTV in an expeditious, nondisruptive fashion. Further Notice at ¶

[1/] See Joint Broadcaster Comments 4-11 (filed July 17, 1992); Joint Broadcaster Comments at 3-12 (filed December 20, 1992).

5; Tentative Decision and Further Notice of Inquiry, MM Docket No. 87-268, 3 FCC Rcd 6520, 6537 (1988).

A site-specific pairing plan would also be consistent with the sample Table of Allotments which the Commission released for comment on August 14, 1992 and which is based on the use of existing NTSC transmitter sites. Moreover, by employing the principles enunciated in the Joint Broadcaster Comments at 5-6, the Commission will harmonize the goals of service replication and service maximization which otherwise could split the industry. This approach will provide channel assignments that at least match and in many cases exceed existing NTSC service areas, thus meeting the needs of the public currently served by existing NTSC stations. A pairing approach also offers a ready mechanism for the Commission's plan to reserve HDTV channels for noncommercial use. Comments of APTS, CPB, PBS at 4-8.

Broadcasters across the board -- large and small market stations, VHF and UHF band licensees, commercial and noncommercial stations, networks, affiliates and independents -- have firmly urged the Commission to adopt this approach. It has also received the support of the Commission's own Advisory Committee. ATV Advisory Committee, Fifth Interim Report at 12. In fact, a pairing approach has been employed in fully developed software currently being used by the Advisory Committee's Planning Subcommittee/Working Party 3 to develop paired allotment/assignment tables for each of the

HDTV systems now being tested. The Commission has long since been offered access to this software which is complementary to its own software.

In contrast to the many voices calling for a pairing approach, there was very little support for the proposed negotiate/first-to-file/lottery mechanism for assigning HDTV channels. While the National Telecommunications and Information Administration ("NTIA") noted its nominal support for a first-to-file/lottery approach, its support was qualified by its recommendation that stations be allowed to negotiate assignments after HDTV channels have been assigned in addition to the pre-assignment negotiations already proposed. A first-to-file/lottery plan assigns HDTV channels not on the basis of technically maximizing current coverage areas and minimizing interference, but on the basis of which station happens to file first or is lucky enough to win the lottery. Because such an approach is essentially unrelated to current service, it would disrupt existing television service to the public and would distort the existing marketplace, a result that is inconsistent with the Commission's objective of preserving and improving existing broadcast service rather than launching a new, separate service. See Further Notice at ¶ 5.

To minimize as best they can the risk under the first-to-file/lottery plan of receiving an HDTV channel with a coverage area unrelated to their current NTSC service areas,

stations will be compelled to apply immediately for HDTV channels. This will create speculation and arbitrary and inequitable HDTV channel assignments, and will contract the two-year filing window existing broadcasters will have to file their applications, thus placing on them immediately the burden of having to meet a three-year construction deadline that will, in many cases, be unrealistic even if appended to a full two-year application period. See, infra, at pages 14-22.

A first-to-file/lottery approach will also distort efforts by stations to negotiate channel assignments as they will be forced to focus on the fact that the smallest stakeholder in a given community, i.e., the station with the smallest or least valuable NTSC coverage area, will have the same chance at receiving the HDTV channel it deems to be the "best" in that market, notwithstanding that it would best match another station's NTSC coverage area. This would create a hostile negotiating environment, and raise the specter of holdouts preventing community-wide settlement in the hope of extorting substantial pay-offs. Thus, under a first-to-file/lottery plan, NTIA's suggested post-assignment negotiations would be rendered less effective and, by providing an additional opportunity for a payoff, would discourage both pre- and post-assignment settlements. A pairing approach, on the other hand, will provide an appropriate and manageable framework that will facilitate both pre- and post-assignment agreements by assuring that all

stations will, at a minimum, be able to continue service to their existing coverage areas, thus allowing them to use the negotiating process to improve their coverage areas or otherwise enhance their service.

B. There Is a Sound Basis for the Commission's Proposed General Ranking Procedure in the Event of a Shortage of HDTV Channels.

The Commission has proposed the following ranking should there be an insufficient number of HDTV channels to accommodate all eligible parties: (1) licensees and permittees with constructed facilities having program test authority; (2) other permittees; and (3) applicants. Further Notice at ¶ 9. Two broadcast permittees object to this ranking, arguing that there is no rational basis for distinguishing between eligibles in categories one and two and that this scheme "grants an unfair advantage to incumbent broadcasters over permittees." Comments of Salvatierra at 1. See also Comments of Brunson Communications, Inc.

As set forth in the Joint Broadcaster Comments at 16, there is a compelling basis for the Commission's proposal to give highest priority to broadcasters with a proven track record of constructing broadcast facilities and providing service to the public. Current licensees, and to a lesser extent permittees with constructed facilities, have demonstrated such a record, and, given their resources and their stake in maintaining and enhancing existing service, are the entities most likely to bring HDTV to the public "in the

most expeditious and nondisruptive manner." Further Notice at ¶ 6, 8. Moreover, the priorities proposed by the Commission protect the interests of the public who currently view the program services of licensees and constructed permittees.[2/]

In any event, these ranking procedures should prove to be unnecessary if the proponent systems currently being tested perform as anticipated and the Commission takes all possible steps to avoid a shortfall of channels, including the adoption of a pairing approach in assigning HDTV channels, as recommended in the Joint Broadcaster Comments. Id. at 17-18. This would moot the concerns and suggestions raised not only by permittees but also by several commenters regarding particular methods for assigning scarce HDTV channels within the highest priority group, a question which the Commission wisely chose not to address at this point. Further Notice at 10 n.22. See Comments of Golden Orange Broadcasting Co. at 4 (suggesting use of alternative dispute resolution procedures); Comments of APTS, CPB, PBS at 10-11 (urging the Commission to assign HDTV channels to all operating noncommercial stations in the event of a shortfall). The Further Notice is correct in recognizing that it is premature at this point to establish

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[2/] Salvatierra argues that "financial qualifications, not NTSC broadcasting experience, should be the only factor used to distinguish among competing entities in the event of a spectrum shortfall." Comments of Salvatierra at 1. But financial resources have never before been considered a comparative criteria, and, in any event, existing licensees will typically have sufficient financial resources and will in addition have demonstrated the experience and commitment necessary to ensure a smooth transition from NTSC to HDTV.

specific shortfall selection criteria among eligibles in the highest priority group until more information is available concerning the extent, if any, of a shortage of HDTV channels.

II. SPECTRUM ISSUES

A. Land Mobile's Proposed Spectrum Reallocations during the NTSC-HDTV Transition Period are Wholly Unrealistic and Premature.

Claiming that its proposals would "'fine tune' the proposed time-frames for ATV implementation", the Land Mobile Communications Council ("LMCC") argues that the Commission should reallocate to land mobile any HDTV channel which is not applied for within the initial two-year filing period or which is not built within the three-year construction period. LMCC Comments at 4-5. LMCC also proposes that the Commission make available, "immediately and without regard to the proposed 15-year [conversion timetable], any NTSC channel no longer in operation because a given licensee has completed the transition to ATV." Id. at 5.

Far from "fine tuning" the process, these proposals are nothing less than back-door attempts by the land mobile community to prematurely interject an interservice spectrum-sharing proposal that would seriously jeopardize the implementation of broadcast HDTV. Moreover, LMCC's first proposal ignores the fact that, in the event an existing broadcaster is unable to apply for or construct an HDTV facility in the initial time periods, the Commission has determined that the HDTV channel will remain available to that

broadcaster "on an equal basis with other applicants" until the time of full conversion. Further Notice at ¶¶ 21, 51. As for its second proposal, broadcasters will need both paired channels during the entire conversion period to implement this new technology fully without prematurely terminating NTSC service.[3/]

It is grossly premature to address the reallocation of HDTV or NTSC channels to land mobile at this point given the time that will be needed to develop and implement the full potential of HDTV. The Commission has recognized that it will be a "challenge" to provide each existing broadcaster the additional 6 Mhz channel essential for the transition from NTSC to HDTV, and that "the necessary equipment for [broadcast HDTV] transmission and production will have to be newly developed. Licensees will need time to solve the unique problems that pioneering construction of an ATV facility may raise." Further Notice at ¶¶ 23, 39. During the transition period, broadcasters will need to readjust to the real-world propagation and interference characteristics of HDTV and a host of other possible operational challenges.

As the Commission itself has indicated, only after full conversion to HDTV will it be able to consider reclaiming "one of two 6 Mhz channels -- the 'reversion channel' --

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[3/] LMCC's second proposal would in addition have the perverse effect of discouraging broadcasters from reaching full HDTV capacity prior to the conversion deadline since this would lead to the loss of their NTSC channel prior to that date.

without abruptly disenfranchising television broadcast licensees." Id. at ¶ 7. Until that time all available VHF and UHF spectrum will be needed to ensure effective service to the public during the transition from NTSC to HDTV. LMCC's proposals ignore the time and flexibility needed to implement this new technology.

It should come as no surprise that the implementation of new services can require quite some time. By definition they entail resolution in unchartered territory of difficult issues of technology and policy. Even such a clear spectrum "success story" as cellular telephone took a considerable period to implement after the technology had been developed and even after the initial spectrum allocation in the early 1970s. First Report and Order, Gen. Docket No. 18262, 35 Fed. Reg. 8644 (1970); Second Report and Order, Docket No. 18262, 46 FCC2d 752 (1974). Because the land mobile community has been a beneficiary of the Commission's flexibility and patience in the past,[4/] the draconian and unrealistic recommedations that it now urges in the context of broadcast HDTV are especially startling and should be rejected.

[4/] Even today, there are several major markets where land mobile channels in the UHF band are unused or lightly used. See Reply Comments of MSTV at 20-22 (filed January 31, 1992).

B. It is Premature to Initiate a Rulemaking Regarding the Commission's Plan to Reclaim Spectrum upon the Conversion to HDTV.

For similar reasons, MSTV opposes NTIA's recommendation that the Commission "initiate a rulemaking to determine how best to create large national or regional blocks of vacant radio spectrum and to examine the treatment of NTSC broadcasters that continue to occupy channels within blocks of spectrum that may have been largely vacated." NTIA Comments at 18. As noted above, little is known at this point concerning the operational characteristics of HDTV and the actual development of this new technology in the marketplace. Until such information is available, it would be premature and disruptive to initiate a rulemaking as to how to reclaim spectrum at the end of the conversion process which is years away.

C. The Commission Should Adhere to its Longstanding Position that LPTV Stations Must Give Way to Full-Service Stations in the Implementation of HDTV.

LPTV licensees continue to advance proposals that are inconsistent with their secondary status and would frustrate the successful implementation of HDTV. For example, Island Broadcasting Co. ("Island") requests that HDTV channels be allotted in co-located groupings and then assigned to broadcasters according to a set of contrived "assignment guidelines" that are dictated by the goal of preventing the displacement of LPTV stations. Comments of Island at 2-9. Skinner Broadcasting, Inc. ("Skinner") also argues that the

Commission should make HDTV allotments so as to minimize LPTV displacement, and points to a previous presentation made by Island that presents such an allotment scenario for the New York market.[5/] Comments of Skinner at 9.

The Commission has already resolved these issues, however, finding that "ATV implementation will require that LPTVs and translators, as secondary services, yield to new full-power ATV stations" and that it will not be possible "to factor in LPTV displacement considerations in making ATV assignments...."[6/] Further Notice at ¶¶ 39, 42. The proposals made by Island and Skinner are wholly unrealistic in ignoring the amount of spectrum that will be necessary, especially in larger markets, to accommodate all existing broadcasters with an HDTV channel, and the impact the assignment of HDTV channels in one market will have on adjacent markets.

From the outset and consistently thereafter, the Commission put LPTV applicants and licensees on notice that they will have to yield to broadcasters in the implementation

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[5/] Island made this presentation in a letter dated April 30, 1992 to Thomas P. Stanley, Chief Engineer in the Office of Engineering and Technology. The substance of this presentation, and its flaws, are addressed in the Joint Broadcaster Comments at 18 n.13.

[6/] In a petition filed on June 18, 1992, Polar Broadcasting, Inc., et al., sought reconsideration of the Commission's decision on these issues. On July 16, 1992, MSTV filed an opposition to this petition, as did APTS, CPB, and PBS in a joint filing.

of HDTV,[7] and has made clear that it will not retreat from that position now. LPTV operators entered the business with the clearest possible understanding that they were receiving secondary status; their repeated efforts to violate that understanding are entitled to no weight.

Skinner protests that the Commission is expanding its definition of "secondary service" by requiring that LPTVs be displaced by broadcast HDTV. Again, the Commission has already rejected such a notion:

> We do not agree with those who argue that this is impermissible and unfair because the low-power service was not established as secondary to ATV stations, but only to certain land mobile services and to the full-power television broadcast service in existence at the time the service was created. Our rules proscribe interference to "<u>any</u> TV broadcast station" operating on the same or adjacent channel." The low-power television service was established for the specific purpose of supplementing conventional broadcast station coverage and we have always considered low-power service stations secondary. The low-power service thus has had ample notice that it would have to yield to any full-service stations, without exception for the specific mode in which the full-service station transmits.

<u>Further Notice</u> at ¶ 40 (footnotes omitted).

This is consistent with the Commission's view that HDTV represents "a major advance in television technology, not the start of a new and separate video service." <u>Id.</u> at ¶ 5. Moreover, in requiring LPTVs to give way to broadcast HDTV,

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[7] <u>See</u>, <u>e.g.</u>, <u>Advanced Television Systems and Their Impact on the Existing Television Broadcasting Service</u>, RM-5811, Mimeo No. 4074, slip op. at 3 n.4 (July 17, 1987) (existing and newly granted LPTV and translator stations "will not restrict Commission options" in implementing HDTV).

the Commission is following its long-held definition of "secondary service" which states in part that "an existing low power station that would cause interference in connection with a proposed increase or modification of facilities of an existing full service station or in connection with a proposed new full service station is responsible for eliminating the interference, or the low power station must cease operation." In re Future Role of LPTV and Translator Stations, 51 RR2d 476, 486 (1982).

III. THE TIMETABLE FOR IMPLEMENTING BROADCAST HDTV

A. The Comments Demonstrate the Risks of Setting Rigid Implementation Deadlines at this Juncture.

In an avowed effort to give a regulatory jump-start to HDTV in the United States, the Commission has set forth a timetable for HDTV implementation that calls for all broadcast stations to apply for and construct their HDTV facilities within five years, simulcast 100% of their programming on their NTSC and HDTV channels no later than four years after the conclusion of this application/construction period, and fully convert to HDTV in 15 years. MSTV and the Joint Broadcasters have articulated in previous filings the strongly held view of broadcasters that setting fixed implementation deadlines at this point is at best premature and at worst counterproductive.[8/]

[8/] See Joint Broadcaster Comments at 15-31 (filed December 20, 1991); Joint Broadcaster Comments at 19-23 (filed July 17, (continued...)

In support of these filings, on July 17, 1992, MSTV submitted an analysis of broadcast implementation costs, burdens and risks prepared by Larry F. Darby of Darby Associates (the "Darby Study"). As MSTV noted in its comments on petitions requesting relaxation of the application/ construction deadline, the Darby Study's analysis of the costs of implementing broadcast HDTV provides powerful evidence that adoption of rigid implementation deadlines at this juncture is fraught with risk. See Reply Comments of MSTV to Comments on MSTV's Petition for Reconsideration (filed July 29, 1992). The Darby Study demonstrates that the costs of HDTV are likely to be considerable and are unlikely to be matched by any appreciable revenues for the foreseeable future. Moreover, the investment will fall with disproportionate impact on smaller and weaker stations.

The Study also reveals how accelerating the HDTV timetable will negate the significant economies accruing to those who construct later in the cycle. The Study makes clear that the consequence of an unreasonably accelerated implementation timetable could well be to force a significant number of stations to waive their initial HDTV eligibility

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[8/](...continued)
1992). On June 22, 1992, MSTV, NAB and three individual broadcasters filed petitions requesting the Commission to reconsider the application and construction deadlines established in the Further Notice at ¶¶ 20-30. See also Reply of MSTV to Comments on MSTV's Petition for Reconsideration (filed July 29, 1992); Comments of NASA; Morgan Murphy Group; Gillett Holdings, Inc., Freedom Newspapers (filed July 15, 1992).

while forcing others to sustain significantly higher costs over a longer period of time, thereby threatening not only the viability of their HDTV enterprise but the quality of their NTSC operations as well.

For these reasons, MSTV firmly believes the Commission should grant the MSTV request to relax the application and construction deadlines. While establishing clear deadlines may well be desirable at some point, the Commission should, moreover, also defer the establishment of timetables for conversion and simulcasting, or at least adhere to its decision to revisit its conversion deadline in 1998 at which time it should also revisit any simulcasting requirements it has imposed. See Comments of NTIA at 14.

The comments provide additional strong evidence that the marketplace factors that will control the implementation of HDTV -- the availability and cost of HDTV receivers, transmission and production equipment, and programming -- are largely unknown and unknowable at this point. In response to the express Commission request for comment on these key variables, Further Notice at ¶ 54, equipment manufacturers and system proponents could offer only projections that were admittedly speculative and tentative. Thus, the EIA/ATV Committee ("EIA") conceded that predictions concerning the availability and cost of ATV receivers, broadcast equipment and downconverters are only "'guesstimates' because of the large number of variables and uncertainties that now surround

such predictions." Comments of EIA at 8. Sony Corp. of America ("Sony") acknowledged that "... because of the wide range of factors that may impact upon consumer behavior, it is not yet possible to define with precision the likely scenario for transition to full ATV service." Comments of Sony at 27.

Even the qualified projections that were made indicate that consumer and professional equipment and programming will be costly and in short supply for some years to come. EIA tentatively predicted that HDTV home receivers would not even be available until two to three years after an HDTV standard is selected and documented. Comments of EIA at 8. See also Comments of Zenith Electronics Corp. at 4 (giant screen receivers available approximately two years after standard established). This documentation process, which MSTV believes should be implemented as suggested by the Advanced Television Systems Committee ("ATSC"),[9/] will be critical for the mass production of HDTV equipment, as the Commission has recognized. Further Notice at ¶ 69. The Commission must also recognize that this effort could prove quite time-consuming if it is to be done thoroughly and correctly. But under the current implementation timetables, these estimates indicate virtually all stations would be forced to apply for, and in some cases construct, their HDTV facilities before any HDTV receivers are sold to consumers.

[9/] See Comments of ATSC (filed June 5, 1992); Joint Broadcaster Comments at 25 (filed July 17, 1992).

EIA ventured a further guess that the cost of HDTV receivers will be 100-300% higher than NTSC receivers of comparable size. Comments of EIA at 8. And most expert observers anticipate that significant benefits to consumers of HDTV will not be realized without purchase of larger sets. Thus, for the foreseeable future, HDTV will be very expensive relative to NTSC sets. While this price differential should decline through economies of scale as sales grow, predictions about the pace of such price reductions are wholly speculative. Indeed, Sony declined to "offer even a tentative pricing" of HDTV receivers. Comments of Sony at 29.

The same picture appears for production equipment. Sony stated that the cost of HDTV production equipment now runs 3-5 times greater than the highest-end NTSC studio equipment. Id. at 10-11. Sony also indicated that this premium will persist for several years to come, and, indeed, is unlikely ever to decline until other industry segments begin purchasing HDTV production equipment. Id. See also Comments of General Instrument Corp. at 6. Grass Valley Group, another equipment manufacturer, commented that "true HDTV production equipment is very expensive, and at this time does not offer all of the operational features and flexibility considered normal in equipment for conventional television." Grass Valley stated its belief "that significant advances in semiconductor technology are required before it will be possible to offer true HDTV production equipment at prices

affordable by the majority of broadcasters, production facilities, and post production facilities." Comments of Grass Valley Group at 3.

Even upon construction of such costly HDTV facilities, a broadcaster may very well have little HDTV programming to transmit during the initial phases of the transition to this new technology. MPAA expressed the view that "[t]here is a serious question of whether sufficient programming in the ATV format will be available by the Commission's proposed deadline" for 100% simulcasting. Comments of MPAA at 5.[10/]

Given the enormous uncertainties at this time, but the overriding certainty that the initial costs of implementing HDTV will be quite high, both EIA and Sony requested that the Commission defer setting a conversion deadline. According to the former, "[i]nformation and insights available today are grossly inadequate to verify the practicality of any date certain for the termination of NTSC." Comments of EIA at 7. Sony recommended that a decision as to the appropriate conversion deadline be made when HDTV receivers achieve a 1% penetration rate and revisited again

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[10/] Adding to the uncertainties surrounding the availability and cost of programming and equipment, HDTV implementation may also be slowed by litigation over channel assignments, a shortage of qualified personnel to construct HDTV facilities, and delays encountered in obtaining the necessary zoning and environmental approvals for new HDTV antenna towers. See NAB Petition for Partial Reconsideration at 16-17; Comments of Sutro Tower, Inc.