

defeat many of the advantages that the first option could otherwise offer.

The nature of the third option depends entirely on the "fine-tuning" part of its two-stage process. If this "fine-tuning" is based on objective criteria, the third option reduces to the same as the second, because, as the Commission observes, Notice, par. 144, any objective criteria could be incorporated in the process of making the initial allotments. If the "fine-tuning" is resolved by private agreement among competing applicants, it has all the disadvantages of any system of post-allotment adjustments based on private consideration, as discussed in Section D.2., pp. 29-32, below. Finally, if the "fine-tuning" is done by lottery, it preserves a true neutrality, but at the expense of all public interest considerations other than administrative efficiency.

B. Technical studies supporting spectrum allotments and post-allotment procedures should adequately reflect policy interests that include the availability to viewers of public television services

The spectrum availability studies undertaken by PS-WP3 and OET represent the only Commission effort to date to outline a process for making actual allotments. These simulations are, in effect, highly simplified models of the methods the Commission might use, at least as a starting

point, in making an actual allotments plan or table.¹¹ However, in the current state of their application, these models are manifoldly oversimplified, in both method and assumption, to be credible or useful other than as a source for rough approximations of spectrum sufficiency.

The algorithms used in these simulations are essentially rules for deciding in what order to satisfy a list of requirements. The various algorithms used may appear to be a neutral allotment scheme, by simply reflecting the current NTSC allotments. But no truly neutral algorithm has been used, and none may actually exist.¹² Some appar-

¹¹ In these studies, wide ranges of possible minimum co-channel and adjacent channel geographic separations have been used as proxies for various sets of planning parameters, and allotment tables have been simulated for combinations of these separation requirements. See discussions of methods, id., pp. 5-8, and Report of the Spectrum Utilization and Alternatives Working Party (Working Party 3) of the Planning Subcommittee of the Advisory Committee on Advanced Television Service, marked "Draft" and dated April 17, 1988, pp. 6-16.

Various algorithms are used to identify nearly optimal combinations of supplemental channels and locations (i.e., patterns of combinations nationwide that are assignable to nearly as many existing allotments as mathematically possible). For a discussion of the kinds of algorithms used, see William K. Hale, "New Spectrum Management Tools," Proceedings of the 1981 IEEE International Symposium on Electromagnetic Compatibility, Boulder, Colo., August 18-20, 1981.

¹² Unless no potential supplemental channel is "equally assignable" to more than one existing broadcaster (as is often the case among collocated stations, and may also be the case for stations located within a single commun-
(Footnote continued)

ently "neutral" criteria like those used as "tie-breakers" in the OET and PS-WP3 studies, e.g., rank order of the broadcaster's current frequency, are in fact anything but neutral in their impact on public television, which has a disproportionate number of transmitters operating on the higher television frequencies. While algorithms that ignore crucial public policy considerations are of no consequence in a rough simulation designed to show gross sufficiency, it would be inappropriate and quite irregular to use any such biased algorithm in devising actual ATV allotments.

Both PS-WP3 and OET studies are continuing. The PS-WP3 studies are beginning to examine the sufficiency of available spectrum nationwide in light of modifications of the algorithm to give higher priority to stations serving large, dense concentrations of population in major metropolitan areas.¹³ The Commission should direct OET to begin

¹²(continued)

ity or metropolitan area), no neutral algorithm may exist. Whenever the situation of an "equally assignable" supplemental channel arises, any method employed to assign the supplemental channels will choose among broadcasters de novo, and not on the basis of some purely neutral rule. This is even more clearly the case when there are not enough such channels to satisfy all the broadcasters to whom they are "equally assignable".

¹³ Comments of Mr. Victor Tawil, Association of Maximum Service Telecasters, at PS-WP3 meeting, October 19, 1988.

examining in similar fashion the consequences of other "allotment principles", or policy interests that might guide the allotment planning. The longstanding public policy interest in the public's access to diverse public television services should be among the "allotment principles" studied.

- C. It is premature for the Commission to give serious consideration to major dislocations such as reduced service areas or channel reassignments

The Commission notes that under some possible ATV scenarios it might be necessary to reduce ATV service areas or reassign channels on a limited basis in order to accommodate more existing broadcasters. Notice, pars. 88, 92. These proposals would tend to have disproportionately harsh consequences for public television. Moreover, they do not now require serious consideration by the Commission.

Reducing the service areas within which television broadcast services are protected from objectionable interference might permit more broadcasters the use of some additional spectrum for ATV purposes. As a practical matter, though, an ATV system providing NTSC-receiver-compatible signals to a service area significantly smaller than heretofore would be a very unwelcome development. The drawbacks of a simulcast ATV system operating with a much

smaller service area, though, may not be so apparent. The Commission seems even to suggest, Notice, par. 89, that reduced service areas might be a useful interim phenomenon pending cessation of NTSC simulcasting, which would then free enough additional spectrum to restore original service areas.

The lack of spectrum congestion in remote rural areas and the concentration of spectrum congestion in the largest markets could combine to make reductions in standard service areas disadvantage viewers on the fringes of the most populous metropolitan areas. CPB and NAPTS wish to remind the Commission of the importance to public television of being able to provide service to the public in all areas of the nation, including these "exurban" areas and small "satellite" cities on the fringes of the largest metropolitan areas. Thus, CPB and NAPTS urge the Commission to consider not only the financial impact on commercial broadcasters that would clearly result from reduced service areas, but also the inequity of denying ATV service to the residents of such areas for even an interim period.

Considering reduced service areas should be purely hypothetical at this stage. Reductions in service areas would be dictated by a choice of minimum geographic separations between stations to accommodate the existing

distribution of television stations and by the desired-to-undesired signal strength ratios ("D/U ratios") at which candidate ATV systems can effectively operate. Until much more is known about the D/U ratios at which ATV systems can actually operate, speculation about service area reductions should remain speculation.

No proposal so disruptive of the broadcast television industry as wholesale channel reassignments should be considered unless it promises the public benefits (such as gains in efficiency of spectrum use) that are significant enough to balance or outweigh the adverse consequences of "repacking". This is an empirical question, for which the Commission may soon have an answer, if simulations indicate that little additional spectrum would actually be freed up. CPB and NAPTS urge the Commission to consider carefully the next reports from the OET and PS-WP3 spectrum studies, which have begun to explore the extent of possible gains from "repacking" scenarios.¹⁴

- D. Post-allotment practices that might compromise public television's participation in ATV should not be tolerated

The Commission has invited comment on several pro-

¹⁴ Id. and comments of both Mr. Tawil and Mr. Robert Eckert of OET at the PS-WP3 meeting, November 22, 1988.

cedures and practices for post-allotment adjustment of the specific authority embodied in an allotment of supplemental spectrum. Several of these procedures or practices would be inappropriate for application to public television, at least without considerable care and modification.

1. "Use it or lose it" rules

Any "use it or lose it" limitation on spectrum allotments, Notice, par. 145, would have to recognize that organizations seeking to offer public broadcast services typically require much longer periods than commercial broadcasters to initiate service.

Potential public television licensees usually cannot acquire and mobilize financial capital and institutional or entrepreneurial human resources as quickly as a typical commercial broadcaster. After the Commission reserved 242 channel allotments for noncommercial educational television throughout the country in the Sixth Order, 15 years passed before the count of activated educational stations reached half that number. During that same period, five times that many commercial stations were activated. Christopher H. Sterling, Electronic Media, pp. 18-19. Recognition of this difference has been a cornerstone of Commission policy toward public television. See discussion in Section II, at

7, above.

As with the allotments expressly reserved for noncommercial use, no time restrictions, or at least a longer "time window" for public television licensees to initiate ATV service, should remain a cornerstone of Commission policy.

2. Private agreements

CPB and NAPTS continue to oppose private agreements adjusting service areas, interference levels, assignments of supplemental channels, or uses of supplemental spectrum assignments. See Comments of CPB, NAPTS, and PBS in MM Docket No. 87-268, November 18, 1987, pp. 23-28. The Commission would be shirking its responsibilities under Section 307(b) of the Communications Act of 1934 if it permitted its statutory mandate to regulate and manage spectrum use to be supplanted by private economic decisions to reduce ATV service areas, tolerate greater levels of interference, or surrender entirely a supplemental ATV allotment.

In this regard, CPB and NAPTS support the views of Commissioner Quello, who states,

Privately negotiated interference agreements conflict directly with Section 307(b) of the Act which requires that the Commission distribute licenses among communities so "as to provide a fair, efficient and equitable distribution of radio services to each of the same." Only the Commission, and not private negotiations, can ensure that the distribution of ATV is accomplished in a fair and equitable manner.

Separate Statement of Commissioner James Quello in MM
Docket No. 87-268, October 12, 1988, at 5.

The public interest is not likely to be a factor in the negotiation of private arrangements concerning interference, service area, assignments of supplemental channel, or uses of such assigned spectrum. Such negotiations are likely to be driven by the economic interests of licensees rather than the needs and preferences of the communities of viewers served. Private arrangements concerning interference, service areas, assignment of supplemental channel, and uses of supplemental assignments pose a far greater risk of distorting the public interest with respect to noncommercial educational stations than for commercial broadcast licensees, because the former's operations tend to have much tighter budgets and do not reflect market forces.

The reasons underlying Congress's opposition to VHF/UHF channel swaps also require that the Commission not permit the public interest in noncommercial educational television

to be compromised by private agreements.

The Senate Appropriations Committee recently objected to permitting a few public television stations to benefit from UHF/VHF channel swaps, out of concern for public television services generally:

Since the 1950's, the Congress has been deeply involved in ensuring that public broadcasting has adequate channel assignments for a nationwide system. Today, there are over 300 public television stations, with some 120 on the VHF band. These stations are public broadcasting's birthright . . . There is also a major concern about the fate of Government funding for the entire public broadcasting system once a few stations swap and receive huge sums of money. The risks of grave consequences to the public broadcasting system from interband swaps are too great to permit a short-term gain for only a few.

S. Rep. No. 182, 100th Cong., 1st Sess., at 77. The same reasons for protecting against the "sale" of VHF reservations apply with equal force to the sale of protected service contours. Such sales would degrade public television service and undermine the goal of making noncommercial service available throughout the nation.

Spectrum management in the ATV transition process is the Commission's nondelegable responsibility. To subject public broadcasters to the intensified market forces inherent in private spectrum allocation negotiations would

likely result in a longer and much more chaotic transition period, without any assurance that the public's access to diverse public television ATV services will be protected.

3. Non ATV use of supplemental spectrum allotments

CPB and NAPTS oppose permitting any non ATV use of supplemental spectrum allotted for ATV purposes, even during an interim period. Nearly all parties in this proceeding appear to agree that spectrum usable for any ATV transmission system requiring additional spectrum beyond the current 6 MHz allotments is extremely scarce. To permit non ATV uses to acquire an economic interest in spectrum allotted for ATV is to invite even greater scarcity. Moreover, the Commission hopes, Notice, par. 146, that some broadcasters may not choose to offer ATV service and may therefore decline the extra spectrum. This scenario is almost certainly ruled out if the supplemental spectrum may be profitably used (or leased to others) for other purposes.

Furthermore, the justification for the inconveniences imposed on spectrum users, such as the freeze on television assignments in major markets and the freeze on land mobile radio use of shared television spectrum, is supported only by the need to implement ATV in the spectrum affected. It

is illogical to allow such spectrum then to be used for nonbroadcast uses.

In addition, transitional nonbroadcast uses of small slices of ATV supplemental spectrum may complicate the interference picture substantially, despite the Commission's stated intention to allow only noninterfering nonbroadcast use.

Finally, allowing nonbroadcast uses of spectrum allotted only to existing broadcast licensees and permittees may well run afoul of Ashbacker.¹⁵

Therefore, CPB and NAPTS strongly urge that supplemental ATV spectrum allotments be limited to ATV use from the start.

V. The Commission should not anticipate critical information that will soon be available

Whether or not there is "little benefit in deferring spectrum decisions until [the Commission] reach[es] a decision on technical standards issues," Notice, par. 94, CPB and NAPTS strongly maintain that the Commission's principal spectrum decisions should await critical infor-

¹⁵ Ashbacker Radio Corp. v. FCC, 326 U.S. 327 (1945).

mation about a variety of technical issues. Much of that information will soon become available, long before any decision on technical standards issues is required.

The Commission apparently believes that if it limits the spectrum potentially available for terrestrial broadcast ATV use and sets certain system constraints, ATV system designers will develop ATV systems that are more spectrum efficient. The Commission is also concerned about the lost-opportunity costs inherent in deferring spectrum decisions.¹⁶

CPB and NAPTS believe that premature decisions on the sufficiency of available spectrum or on allotments of that spectrum may result in long term spectrum costs far greater than those occurring during the short term pendency of these proceedings. The Commission should also avoid raising hypothetical controversies that may become moot in the course of choosing an ATV broadcast transmission standard, and thereby minimize potential litigation and

¹⁶ Comments of Mr. Alex Felker, Chief, Mass Media Bureau, at the meeting of the Advisory Committee's Planning Subcommittee, October 24, 1988.

hasten the transition to ATV in the United States.¹⁷

- A. At this early stage, the Commission should keep its decision to limit consideration to the current television bands a "tentative" one

It is far too early in this proceeding for the Commission to foreclose the possibility of looking to bands above 1 GHz to allot supplemental spectrum. For the reasons described in Sections III.B. and III.C., pp. 14-16, above. The Commission is not yet in a position to decide whether such spectrum might be needed because of insufficient available spectrum in the current television bands. The potential relief offered by bands over 1 GHz should not be foreclosed, at least certainly not until the results of propagation testing (which the ATTC is about to begin) are available.

The Commission is correct that serious problems might be posed by use of microwave frequencies for augmentation, Notice, par. 80, but only in the sense of "augmentation" as a channel used along with a "main channel" to transmit

¹⁷ Making informed decisions on a fully developed record will hasten the transition to ATV. Prolonged litigation challenging the Commission's decisions may result in stays of its decisions pending the litigation's outcome and a "wait and see" attitude on the part of broadcasters, consumers, and investors alike. C.f., Century Communications Corporation et al. v. FCC, 835 F.2d 292 (D.C. Cir. 1987), cert. denied, _____ U.S. _____, 108 S. Ct. 2014 (1988).

different portions of a single program source for coherent display. This difficulty does not necessarily extend to the use of "augmentation" spectrum for "simulcasting" of ATV service wholly separate from the NTSC service.

B. The Commission should defer choice of a specific type of allotment

The Commission proposes three potential types of allotment, or procedural formats by which specific channels might be associated with particular geographic areas. Notice, pars. 139-143.

It should make some difference in choosing a type of allotment whether a system chosen for terrestrial ATV broadcasting is more likely to be used in a "main-channel-and-augmentation-channel" configuration for transmitting one signal (receivable either as an ATV service or an NTSC service) or in a "simulcast" configuration for transmitting two wholly separate signals (even if they share a common program source).

In the former scenario, requirements for coordination of the two channels may limit narrowly (or even reduce to one) the supplemental channels that are technically "assignable" to most existing assignments and allotments, effectively

barring the benefits of providing for adjustments through either a "demand" mechanism or other post-allotment procedures. In a "simulcast" scenario, though, there might be clear benefits from recognizing the possibilities of more satisfactory local arrangements (provided, of course, that public television is not forced to compete with commercial licensees for spectrum). Thus, CPB and NAPTSS suggest that, because basic operating practices are not yet determined by choice of a transmission system, it is premature to choose which type of allotment is to be made.

VI. The Commission should select and mandate a single ATV terrestrial broadcast standard that best serves the public interest

The Commission has rightly determined that initiation of ATV service by terrestrial broadcast television is in the public interest. Notice, par. 39. The Commission is now ready to consider whether and how to select an ATV terrestrial broadcast transmission standard.

A. A single standard is needed

The question of whether to adopt a single mandatory ATV standard perhaps has the most serious implications for the future of ATV terrestrial broadcasting. Failure of the

Commission to adopt a single ATV standard might well result in the emergence of a de facto standard, or worse, multiple inconsistent standards, based on short term lower costs and success in marketing rather than on the nation's long term communications goals. For example, a de facto standard might develop that interfaces well with cable or DBS transmission standards, because those media will be able to offer ATV services before terrestrial broadcasters. Such a standard may offer little, however, in the way of long term public interest factors such as quality and spectrum efficiency.

The emergence of multiple inconsistent transmission standards could fragment the market and thus delay or prevent implementation of ATV broadcast technology. The still nascent state of AM stereo provides a sobering precedent that argues in favor of mandating an ATV standard. And even if, unlike AM stereo, ATV broadcast services do eventually take hold even with multiple standards, multiple standards would still prove costly for both consumers and broadcasters alike. Market fragmentation would result in higher equipment costs and wasteful purchases for those who opt to purchase equipment based on an ultimately unsuccessful standard. Given the expense and uncertainty surrounding the implementation of ATV broadcast technology in the United States, broadcasters, consumers, and perhaps even

distributors of alternative media will more readily invest in the equipment required to provide ATV services if there is a Commission-mandated ATV terrestrial broadcast standard.

B. A complete standard should be specified

For many of the same reasons, CPB and NAPTS also urge the Commission to mandate a complete standard rather than merely to protect key aspects of a system from interference. ATV technology is much more complicated than that used for stereo television, where the Commission did protect only one feature of the system. It is thus unclear which aspects of an ATV system the Commission would protect. Merely protecting certain ATV system features would also leave open the possibility that a later developed system may not be receivable by or would cause picture or sound degradation in already existing ATV receivers. While it would be desirable to leave open the potential for future technological improvements, such improvements should not be allowed to obsolete or in any way degrade the video or audio quality of existing ATV receivers and thus to disadvantage the early purchases of ATV receivers. The public interest dictates that the Commission act to facilitate the early purchase of ATV receivers and thus to further the transition to ATV broadcast services.

C. An industry consensus standard should be chosen only if it serves the public interest

CPB and NAPTS applaud the Commission's intention to "have a role in the ATV standards settings process," Notice, par. 121. And, while CPB and NAPTS also agree that the resources and expertise of the industry are crucial to the successful development of a standard, it believes the Commission must be actively involved in selecting a standard. The Commission should not simply adopt any standard reached by industry consensus, without assuring that the standard furthers the long term public interest. A consensus standard based on political compromise rather than on the long term public interest will likely offer lower quality.

For example, many may find NTSC-compatible systems appealing despite tradeoffs of quality and long term spectrum efficiency, because the transition to ATV would be easy. Yet, an incompatible simulcast system (because not constrained by NTSC artifacts) would probably provide better picture and sound quality than any compatible NTSC system or ATV system using an augmentation channel. A 6 MHz simulcast system would also be more spectrum efficient in the long term. As the number of NTSC receivers declines, the need for NTSC simulcasting would diminish, and spectrum used for NTSC broadcasting would become available

for ATV use.

Because adoption of an ATV broadcast transmission standard involves complex issues and will have unusually far reaching effects, it requires careful consideration of the long term public interest. An industry consensus may not adequately address the long term public interest in optimal broadcast quality and spectrum efficiency. Thus, undue deference by the Commission to a consensus standard could hinder the successful transition to broadcast ATV services and would be an abdication of the Commission's statutory responsibility to "encourage the larger and more effective use of radio in the public interest." 47 U.S.C. Section 303(g) (1962).

VII. The compatibility of alternative media and the interoperability of ATV consumer equipment are critical for the successful implementation of ATV terrestrial broadcasting

There is general industry agreement that compatibility among the various video media is desirable, Notice, par. 127. The Commission has nonetheless tentatively concluded that "ATV compatibility among the different media also may develop in an appropriate manner without government involvement." Notice, par. 133. For the reasons discussed below, CPB and NAPTS believe these issues are too important

and too complex to leave to marketplace determination, and therefore urge the Commission to encourage and, to the extent possible, to require compatibility among the various ATV video delivery services and interoperability of consumer video equipment.

To achieve these goals and facilitate the implementation of ATV broadcast services, the Commission should ensure that the ATV transmission standards used by alternative media such as cable television and direct broadcast satellite (DBS) are sufficiently similar to that used by terrestrial broadcasting that consumers can use essentially the same equipment to receive the services distributed by all media. If the standards for different media are so diverse that consumers need complex equipment, with multiple converters and multiple signal processors, the advantages to the various industries of being able to achieve their highest technological potential would mean undue disadvantages for the public for whom these dramatic advances are intended. The alternative media can be allowed to develop ATV services within this basic framework, in ways that best meet each medium's particular needs.¹⁸

¹⁸ The Commission may mandate the ATV transmission standard used by direct broadcast services, since they use spectrum and may also mandate the cable ATV transmission
(Footnote continued)

CPB and NAPTS, therefore, oppose the laissez-faire approach tentatively adopted by the Commission, Notice, par. 133. Subjecting the public to the expense and complexity of "smart" receivers or of interconnecting multiple converters, peripheral devices, or other circuit cards or boxes could severely cripple the introduction of terrestrial broadcast ATV services. For example, were terrestrial broadcasters to adopt an analog type baseband system and cable to adopt a digital type baseband system, the inputs would be so different that the monitor would be the only part of the television receiver shared by the different media. Reception of both inputs would require separate tuners and signal processors, which not only would raise equipment costs, but would also run the risk of confusing consumers.

Even if the various segments of the video delivery industry are able to achieve compatibility voluntarily, it may be at the expense of other public interest issues. The same factors that CPB and NAPTS believe compel the Commission to mandate a single ATV broadcast standard are operative here. The prior development of ATV services by other

¹⁸(continued)

standard, since here such regulation is "reasonably ancillary to the effective performance of the Commission's various responsibilities for the regulation of television broadcasting." United States v. Southwestern Cable Co., 392 U.S. 157, 178 (1968).

video delivery services, such as cable or DBS, may well mean that ATV receivers unless otherwise regulated will be built to suit those media's standards. To achieve compatibility, terrestrial broadcasting will then be constrained by the systems used by those media, regardless of whether those system constraints are otherwise in the public interest.

The Commission can, as noted above, achieve this compatibility directly by requiring broadcast, DBS, and cable ATV transmission standards to use the same basic signal processing approach, so that the public will not be forced to deal with multiple converters and peripheral devices or to pay for unduly expensive receivers. This requirement will also avoid burdening the distribution system with many complicated interfaces and promote the free exchange of programs among the different media.

VIII. Conclusion

Through all its deliberations and actions with respect to ATV, the Commission must ensure that it serves and promotes the public's interest in a continuing diversity of local broadcast services, including both public and commercial television services. In particular, the Commission must ensure that spectrum allotments and post-allotment

practices reflect the long-standing public policy interest in viewers' access to public television services. The American public deserves no less from the next generation of television technology.

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