

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

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*Federal Communications Commission
Office of Secretary*

In the matter of)
)
Advanced Television Systems)
)
and Their Impact Upon the)
Existing Television Broadcast Service)

MM Docket No. 87-268

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PETITION FOR RECONSIDERATION

Association of Local Television Stations, Inc.
1320 19th Street, N.W.
Suite 300
Washington, D.C. 20036
(202) 887-1970

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**PETITION FOR RECONSIDERATION
OF
THE ASSOCIATION OF LOCAL TELEVISION STATIONS, INC.**

This petition, submitted by the Association of Local Television Stations, Inc. ("ALTV"), seeks reconsideration of the Commission's *Sixth Report and Order* in the above-captioned proceeding.¹ ALTV is a non-profit, incorporated association of broadcast television stations unaffiliated with the ABC, CBS, or NBC television networks.²

I. INTRODUCTION AND SUMMARY

ALTV herein urges the Commission to adopt a slightly more flexible policy with respect to power increases for DTV facilities. In light of the exceedingly low power levels assigned to many

¹FCC 97-115 (released April 21, 1997), 62 *Fed. Reg.* 26683 (Wednesday, May 14, 1997) [hereinafter cited as *Sixth Report and Order*].

²ALTV's membership includes not only truly independent stations, but also local television stations affiliated with the three emerging networks, Fox, UPN, and WB. ALTV's membership includes both VHF and UHF stations.

U-to-U DTV stations, the ability of UHF DTV stations to thrive is in considerable doubt. Not only are U-to-U stations at a worse competitive disadvantage *vis-a-vis* their V-to-V and V-to-U station competitors in the digital world than they were in the NTSC world, their ability to provide reliable service even within the hearts of their service areas is far from assured. If they are left to compete with inferior technical facilities, they are destined to fail. The public will be deprived of service, and the transition to a fully digital world will be stymied. As a result, the return of NTSC spectrum may be delayed. In a worst case, full conversion to digital may never happen.

ALTV, therefore, offers the following proposal to permit power increases by U-to-U DTV stations on a case-by-case basis, pursuant to a more flexible definition of interference and other specific public interest criteria. First, the Commission should reaffirm that DTV stations may increase power even if some additional interference is created, provided the licensees of the stations subject to additional interference agree to accept the additional interference. Second, the Commission should modify the criteria for showings that no additional interference would result from a proposed DTV station power increase. Specifically, the Commission should permit showings based on a somewhat less conservative definition of DTV-to-NTSC interference (*i.e.*, the predicted field strength of the undesired or interfering signal would be determined using F(50,50) curves in lieu of F(50,10) curves for purposes of predicting interference within an NTSC station's predicted Grade B coverage area). The Commission would determine whether the showing was adequate based on several public interest criteria, as follows:

- The cumulative effect of additional interference (based on the current worst-case definition) to the station that could result from power increases by other proximate co-channel, adjacent channel, and taboo channel stations;
- Whether the new interference area is located in the station's Designated Market Area ("DMA");
- Whether the geographic area in which the new interference occurs represents more than 5% of the area within the predicted Grade B contour of the station accepting interference;
- Whether the population in the geographic area in which the new interference occurs represents more than 5% of the population within the predicted Grade B contour of the station accepting interference; and
- Whether the proposed power increase is necessary to assure growth and development of DTV in the applicant's market.

Under ALTV's proposal, existing definitions of interference would be used to assess DTV-to-DTV interference and interference within the predicted Grade A contour of an NTSC station accepting new interference. No new potential interference either to UHF DTV stations or within the Grade A contours of UHF NTSC stations would be permitted. No changes in the DTV channel allotments are contemplated.

In support of ALTV's proposal, set forth in more detail below, the following is shown:

II. THE DEVELOPMENT OF UHF DTV SERVICE REMAINS IN CONSIDERABLE JEOPARDY.

In setting DTV power levels, the Commission considered it "important to adopt an approach that provides for a high degree of service replication by all stations, while at the same time ensuring that all stations are able to provide DTV service *competitively* within their respective markets."³ If

³*Sixth Report and Order* at ¶30 [emphasis supplied].

new DTV stations are not competitive in their markets, then the Commission's expectations of a smooth, expedient transition to DTV will be dashed. First, as the Commission has observed, "If digital over-the-air television does not succeed ... viewers will be without a free, universally available digital programming service."⁴

If U-to-U DTV facilities are inadequate to provide reliable broadcast and ancillary services throughout the stations' current NTSC service areas, their viability will be in jeopardy. Viewers and subscribers will be attracted to the more easily received V-to-U facilities and, perhaps, nonbroadcast DTV services. With their audience bases eroded and their ability to offer ancillary services on a reliable and competitive basis uncertain, the U-to-U DTV stations would see their revenues pinched -- a particularly troublesome occurrence given the extensive investment necessary to initiate DTV service in the first place. Consequently, the millions of viewers who rely on broadcast television exclusively could find the array of broadcast signals available to them cut in half, as UHF stations whither under the competitive disadvantage of their under powered facilities.⁵

⁴*Fifth Report and Order*, MM Docket No. 87-268, FCC 97-116 (released April 21, 1997) at ¶80.

⁵Having imposed must carry requirements on cable television to preserve the viability and vitality of all local television stations and, thus, assure the availability of a full complement of free local broadcast signals to viewers who do not or cannot subscribe to the service of a multichannel video provider, Congress and the Commission would be poised to preside over the undoing of their efforts.

Second, if half the new DTV stations provide only an inferior service, DTV receiver penetration will lag.⁶ Consequently, many viewers will remain dependent on NTSC stations for broadcast service, likely for periods far in excess of the Commission's expectations. Such an extended transition in turn would frustrate the Commission's plan for a prompt return of broadcast spectrum. Again, as the Commission has recognized, "[A] rapid build-out works to ensure that recovery of broadcast spectrum occurs as quickly as possible."⁷ In a worst case, viewers might be left with a skeletal DTV service considered inadequate to justify the cessation of NTSC service at all. Thus, the Commission is correct in insisting that new DTV stations be able to hold their own competitively.

As the Commission already is well aware, many UHF NTSC licensees are deeply concerned that the power assigned their UHF DTV facilities falls well short of what would be necessary to maintain their competitive positions in their markets.⁸ This is not a matter of changing the underlying philosophy of replication or shifting to an UHF-VHF equalization approach. Most UHF stations

⁶Approximately one-half of all commercial stations are UHF stations. Thus, as many as half the new DTV stations may be in jeopardy.

⁷*Fifth Report and Order* at ¶83.

⁸Letter of March 26, 1997, from Viacom, Inc. *et al.* to the Honorable Reed E. Hundt, Chairman, Federal Communications Commission.

would be content with the *status quo vis-a-vis* the continuing disparity between UHF and VHF facilities.⁹

However, the power levels assigned many UHF DTV channels allotted to current UHF NTSC stations not only mock the concept of replication and exacerbate the disparity between UHF and VHF stations, but also impede the ability of many such U-to-U DTV stations to provide service even to close-in viewers. First, the power level disparities are enormous. In many markets, 50kW U-to-U DTV stations will find themselves competing with one megawatt V-to-U DTV stations -- a 20:1 power advantage for the NTSC VHF licensee.¹⁰ Notably, this disparity would be even more substantial had the Commission not limited V-to-U facilities to one megawatt and set a 50 kW minimum (which often serves as the maximum, as well) for U-to-U DTV stations. Second, whereas the powerful V-to-U signals will be received easily even with set-mounted indoor antennas, reception of the relatively lower powered UHF signals is far from assured. To be received by an

⁹*Id.*

¹⁰The reasons for these power disparities are no secret. VHF NTSC stations have relatively larger Grade B coverage areas because VHF signals are transmitted over the radio horizon far more efficiently than UHF signals. Although the Commission has established maximum power levels for VHF and UHF NTSC channels, which are designed to compensate for the differing propagation characteristics of UHF and VHF signals, few UHF stations have been able to operate at maximum power (five megawatts ERP) in light of the enormous costs involved. On the other hand, most VHF stations have operated at maximum power for many years. As a result of the different propagation characteristics and the inability of most UHF stations to operate at maximum power, VHF NTSC stations almost invariably have much larger Grade B service areas than their UHF competitors. In order to replicate these larger Grade B coverage areas in cases where VHF NTSC stations are assigned UHF DTV channels, enormous power levels have been assigned to the V-to-U DTV facilities.

indoor antenna, a signal must be powerful. Signal loss from penetrating a building and ricocheting from obstacle to obstacle ranges from 10 to 1000 times the loss from penetrating air. Consequently, no assurance exists that U-to-U facilities will be adequate to serve viewers with indoor antennas, especially in urban areas with many large buildings. Third, the consequence of a poor DTV signal is not a poor picture; it is no picture. Digital signals, unlike analog signals, the quality of which decreases with distance from the transmitter, are subject to a cliff effect. At some point of degradation, the signal simply cannot be viewed. Thus, a viewer on one side of the street may have a perfect DTV picture, while neighbors across the street have no picture at all. This has all the makings of a competitive nightmare for U-to-U DTV licensees. Fourth, U-to-U DTV stations will be at a significant disadvantage in the delivery of ancillary services, such as data transmission to computers with low gain antennas. The ability to provide such services reliably within U-to-U DTV stations's Grade A contours or even their DMAs is problematic in light of the low power levels assigned U-to-U facilities.

Furthermore, the "maximization" element of the Commission's regime offers only illusory benefits to many U-to-U DTV licensees. In its zeal to recover spectrum quickly, the Commission has crammed DTV allotments into a limited portion of the current television spectrum (primarily channels 2-51).¹¹ Consequently, many new UHF DTV stations are packed tightly in among existing UHF NTSC stations. As a practical matter, these DTV stations would have no ability to increase their power and coverage areas. They will be strapped with their inferior power levels for the

¹¹*Sixth Report and Order* at ¶76.

duration of the transition -- the time in which they will be struggling to gain a competitive foothold in the emerging world of digital television.

The inability of U-to-U facilities to compete effectively would turn the clock back forty years to the times when UHF television consisted of a handful of struggling, stumbling stations, fighting an often futile uphill battle against the inherent technical disadvantages of UHF transmission. Therefore, to burden the new DTV facilities of current UHF stations with the same yoke of technical inferiority would amount to a stunning and ironic defeat for the public interest.

III. THE ALTV PROPOSAL EMPLOYS SOUND CRITERIA FOR EVALUATING PROPOSALS BY DTV STATIONS TO INCREASE THEIR POWER.

ALTV submits that the Commission may provide a more promising future for U-to-U DTV facilities through embrace of a more flexible approach to power increases by U-to-U DTV stations. Thus, the concept of maximization would become more real to many U-to-U DTV stations, which could increase their power and attenuate the severe competitive disadvantage they now face at the start-up of their DTV operations.

Under the Commission's recently adopted rules, stations may maximize their facilities provided no new interference is caused to other stations.¹² Thus, stations requesting power increases

¹²*Sixth Report and Order* at ¶31.

must submit a technical showing that the increase would not result in new interference or statements agreeing to the change from any co-channel or adjacent channel stations that might be affected.¹³

ALTV applauds the Commission's willingness to permit power increases based on the agreement of affected stations and asks only that the Commission reaffirm this element of its maximization rules and policies. Additionally, ALTV urges the Commission entertain technical showings based on a slightly less conservative definition of DTV-to-NTSC interference and grant power increases on a case-by-case basis pursuant to such technical showings and several specific public interest criteria.¹⁴

The technical showing which ALTV proposes would be based on a revised method for predicting DTV-to-NTSC interference. The FCC predicts interference based on a calculated desired-to-undesired signal ratio. In simplest terms, the strength of the desired signal must exceed the strength of the undesired signal by a certain amount.¹⁵ Otherwise, the desired signal may be subject

¹³*Id.*

¹⁴ALTV proposes no change in the showing now required with respect to predicted DTV-to-DTV interference.

¹⁵Potentially undesired signals include signals operating on the same channel (co-channel) or an adjacent channel. In the case of UHF stations, it also includes a number of so-called "taboo" channels. The severest interference is most likely to occur between co-channel stations. Therefore, the desired-to-undesired ratio must be greater to assure interference-free coverage where co-channel stations are involved.

to interference from the undesired signal.¹⁶ The FCC has determined threshold ratios at which the desired signal is not expected to be subject to interference from an undesired signal.

To determine whether a station's coverage may be subject to interference or "interference limited" at any given location, one first must determine the strength of the station's signal at that point and compare it with the strength of any co-channel, adjacent channel, or taboo channel undesired signal at the same location. The strength of a signal at any given distance and direction from the transmitter is a function of the station's power, antenna height, antenna transmitting pattern (if directional), and the intervening terrain. In the case of applications for new stations, the Commission obviously cannot go out and measure actual signals. Therefore, the Commission for years has maintained methods for predicting the so-called "field strength" of broadcast signals at any given location in relation to the station's transmitter. Typically, the Commission predicts field strength on the basis of propagation curves, which reflect statistical estimates of the probability that a signal of a particular strength will exist in a particular area (a two square kilometer rectangle) given the station's effective radiated power (ERP) power and antenna height.

The Commission followed precisely this approach in determining the coverage and interference areas for DTV facilities assigned in the DTV Table of Allotments. Using somewhat more sophisticated propagation models, the Commission predicted the field strength of the desired

¹⁶A signal subject to interference is not necessarily unviewable. Interference may manifest itself in a television picture as snow or wavy lines or ghosts or other degradations in picture quality, depending on the nature and strength of the interfering signal.

signal and pertinent undesired signals. The desired signal was set equal to the value predicted for 50% of locations in the area, 90% of the time. The undesired or interfering signal was set equal to the value predicted for 50% of locations, 10% of the time. The FCC described this as a “worst-case comparison.”¹⁷ Thus, to predict the coverage area for a station, the Commission first determines the areas in which the desired signal is strong enough to be receivable absent interference from another station.¹⁸ It then determines the areas within the coverage areas where the signal would be limited by interference.

Based on the predicted field strengths for the desired and undesired signals, the Commission establishes the ratio of the desired-to-undesired signal to determine if it is high enough to predict interference free reception in that area. The predicted coverage areas of both existing NTSC stations and new DTV stations were determined in this manner.

ALTV’s proposal involves no change in the ratios of desired-to-undesired signals. However, a different propagation curve or model would be employed to predict the field strength of the undesired DTV signal. Specifically, the undesired or interfering signal would set equal to the value

¹⁷*Sixth Report and Order*, Appendix B at B-3.

¹⁸Even where no undesired signal is present in an area, the desired signal must be sufficiently strong relative to radio “noise” in the area. Such “noise” is present everywhere. Thus, all signals must achieve a certain threshold level in order to be receivable. The propagation curves or models used to predict signal strength assume reception by an unamplified receiving antenna approximately 30 feet above ground.

predicted for 50% of locations, *50% of the time* in lieu of the value predicted for 50% of the locations, *10% of the time*.¹⁹

ALTV's proposal focuses on the predicted field strength of the undesired DTV signal because the Commission's "worst case" approach to predicting the strength of the undesired or interfering signal may be unnecessarily conservative. Use of this less conservative approach should result in no new material interference to existing NTSC stations. First, new interference which might result from use of a more liberal definition of interference may be of less concern in terms of actual picture quality or viewability. The perceivable effect, if any, is likely to take the form of additional "snow" in the picture. Nothing as disturbing to viewers as ghosting or wavy lines would be expected occur, as they do in the case of NTSC-to-NTSC interference. Second, in the case of UHF NTSC stations, any newly perceptible interference likely would occur at the fringes of the NTSC signal's Grade B contour.²⁰ Therefore, use of this less conservative means of predicting interference is likely to permit no interference of material concern to the viewing public or the Commission.

Using the revised means of predicting interference, the applicant would be required to show that:

- No new interference would occur within an affected NTSC station's predicted Grade A contour using F(50,10) curves to

¹⁹This would apply only to DTV into NTSC interference determinations.

²⁰As set forth below, under ALTV's proposal, interference would be limited to the outside portion of the NTSC station's predicted Grade B contour.

predict the strength of the undesired DTV signal (*i.e.*, the Commission's current method for predicting interference).

- No new interference would occur within the inner portion of an affected NTSC station's predicted Grade B contour using F(50,10) curves to predict the strength of the undesired DTV signal.²¹
- No new interference would occur to new UHF DTV facilities, again, using the Commission's current method for predicting interference.

If the applicant satisfied this threshold technical showing, then the Commission would proceed to evaluate the requested power increase under the following criteria.

First, the Commission would consider the cumulative effect of additional interference to the NTSC station that potentially could occur if other proximate DTV stations sought power increases. This assures that no NTSC station would be subject to successive, but ultimately *excessive* interference.

Second, the Commission would consider whether the new potential interference area is located within the NTSC station's DMA.²² Potential interference losses outside a station's DMA would be of less consequence because advertising is sold and programming purchased on a local

²¹In other words, even interference predicted using F(50,10) curves must be shown to occur no closer to the NTSC station's transmitter than any point on any radius determined by bisecting the radius between the predicted Grade A contour and the predicted Grade B contour -- in effect, the outer half of the "doughnut" formed by the predicted Grade B contour and the predicted Grade A contour.

²²The new potential interference area is the area in which the station is protected from interference based on use of F(50, 10) curves, but potentially subject to interference predicted on the use of F(50,50) curves to estimate the field strength of the undesired signal.

market or DMA basis. Audience outside a station's DMA has considerably less revenue effect than audience within a station's DMA. Furthermore, viewers in the area already focus their viewing on stations from other markets. Thus, neither the station nor viewers in the area stand to suffer harm from any additional interference.

Third, the Commission would examine whether the new potential interference area amounted to more than five per cent of the area within the NTSC station's predicted Grade B contour (*i.e.*, its total coverage area). This criterion assures that any additional interference would be limited in scope, thereby preserving the bulk of the NTSC station's coverage.

Fourth, the Commission would examine whether the new potential interference area included more than five per cent of the total population within the NTSC station's predicted Grade B contour (*i.e.*, its total coverage area). Again, this criterion assures that the number of viewers potentially subject any additional interference would be limited, thereby preserving the bulk of the NTSC station's potential audience. In assessing the population effect, the Commission could take into account the extent to which viewers in the area retained access to the NTSC signal on cable or other multichannel video providers.

Finally, the Commission would consider the extent to which the proposed power increase is necessary to assure growth and development of DTV in the applicant's market.

Upon review of all the factors, the Commission then would determine whether to grant the application for increased power. Again, these decisions would be made on a case-by-case basis and could be granted only where the applicant initially satisfies the technical showing requirement. Notably, ALTV's proposal would require no changes in the Commission's DTV Table of Allotments. Licensees could seek higher power levels at the time they filed their construction permits for their DTV facilities. The Commission would review such increases on a case-by-case basis and act on them prior to commencement of construction by the new DTV station. This would place licensees in the position of knowing what their power would be prior to beginning construction of their initial DTV facilities. If their operation at higher power did cause new unacceptable interference, then they would be required to reduce power or directionalize their coverage to eliminate the new interference.

The added flexibility of ALTV's proposal may permit many U-to-U DTV stations to increase their power and provide genuinely reliable and competitive signals within their markets. At the same time, it poses no material danger to current NTSC service. Case-by-case analysis will enable the Commission to evaluate all such applications with great care and to cure problems which arise subsequently. Finally, ALTV emphasizes that its proposal adds a framework -- and, perhaps, some additional breadth -- to the Commission's plan to gain real world experience by permitting some DTV stations to operate at power levels higher than those specified in the Table of Allotments.²³ Most significantly, it will enable the Commission to gain experience by granting power increases

²³*Sixth Report and Order* at ¶30.

where they are needed most to assure the availability, reliability, and competitiveness of U-to-U DTV stations.

IV. NEITHER NTSC NOR DTV STATIONS SHOULD BE SUBJECT TO ADDITIONAL INTERFERENCE FROM SOURCES OTHER THAN EXISTING FULL POWER UHF DTV STATIONS.

In no way does ALTV's proposal signal a willingness of UHF NTSC stations to accept any additional interference outside the context of ALTV's proposal. First, ALTV's proposal involves a willingness of UHF NTSC licensees to risk some very modest amount of additional interference to their NTSC facilities during the transition in order to improve their DTV facilities, sometimes substantially. Any injury would be in the broad sense self-inflicted. More to the point, the costs and benefits will be contained with a singular class of affected stations -- U-to-U DTV stations and their existing NTSC facilities. Second, the case-by-case approach assures that costs and benefits can remain close to equilibrium, both within particular situations and on an overall basis.

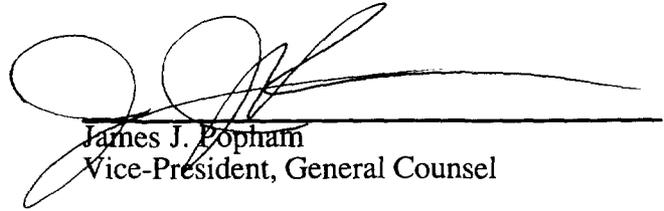
Third, ALTV's proposal is offered reluctantly in light of concerns about potential additional interference to NTSC UHF stations. ALTV would prefer that the Commission provide additional room for power increases by removing the bias against use of certain segments of the broadcast television spectrum. However, unless the Commission is willing to do so, ALTV sees no other way to offer many U-to-U DTV stations a real prospect for additional power and a greater opportunity to compete and survive. Their ability to compete from the start in a digital world in the long run requires some concession in terms of additional potential interference to their NTSC facilities.

Finally, opening the door to additional interference from low power television stations or land mobile facilities only would make the problem ALTV is attempting to solve worse. Accordingly, the Commission never ought construe ALTV's proposal as a willingness or agreement to accept additional interference by existing UHF NTSC stations.

V. CONCLUSION

Therefore, ALTV urges the Commission to adopt its proposal for case-by-case consideration of applications for power increases by U-to-U DTV stations, pursuant to the criteria enumerated herein. ALTV's proposal is offered as a narrow, partial, perhaps, even stopgap, procedure for promoting the survival of essentially underpowered UHF DTV facilities assigned to many UHF NTSC licensees. It is imperfect, but also feasible. It is hardly risk-free, but the Commission and the broadcast industry stand at the frontier of a new age of television. Unless risks are taken at the frontier, progress will cease; service will be lost; and the next frontier ever will remain a dream.

Respectfully submitted,



James J. Popham
Vice-President, General Counsel

**Association of Local
Television Stations, Inc.**
1320 19th Street, N.W.
Suite 300
Washington, D.C. 20036
(202) 887-1970

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