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Before the
Federal Communications Commission
Washington, D.C. 20554

JUN 13 1997

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

TO: The Commission

PETITION FOR CLARIFICATION AND PARTIAL RECONSIDERATION OF

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SUMMARY

Petitioners respectfully petition the Commission to reconsider and clarify certain aspects of the Fifth and Sixth Reports and Orders to improve its DTV Allotments/Assignments, clarify and perfect its DTV implementation rules, and facilitate prompt DTV roll-out.

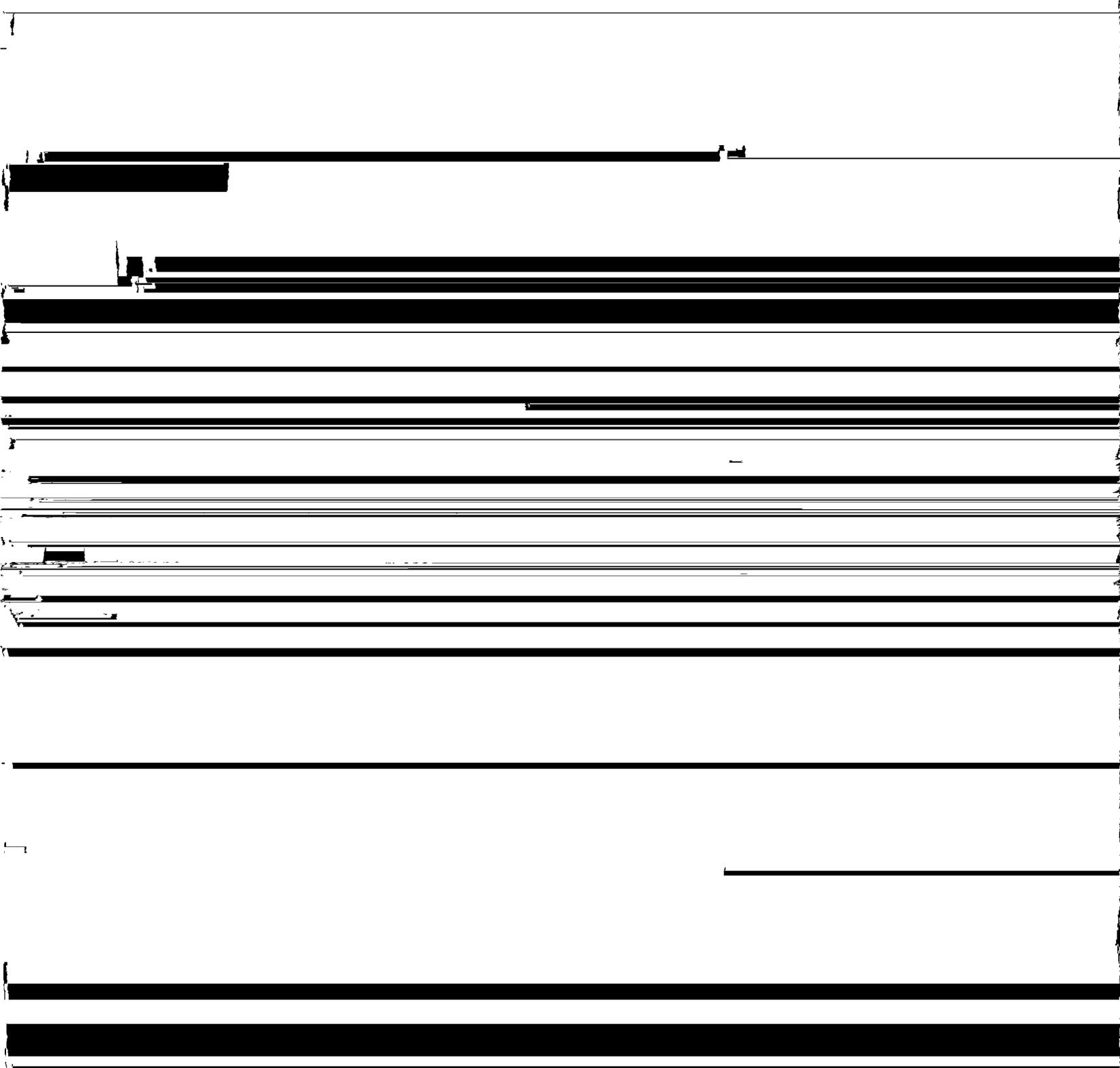
Petitioners seek reconsideration of discrete portions of the Fifth and Sixth Reports and Orders and urge the Commission to:

- Revise the DTV Allotments/Assignments in limited situations, especially in the three parts of the country where the new interference to the NTSC service areas is most severe, using the following tools as necessary:
 - Reassign some DTV-to-NTSC adjacent channels;
 - Tailor the protection afforded to Land Mobile in some cases;
 - Increase the co-channel DTV-to-NTSC separations in some cases;
 - Reassign DTV channels to the 60-69 range in some cases;
 - Make exceptions to the 1000 kW power cap in some cases; and
 - Provide an additional 90 days after the release of OET Bulletin No. 69 to allow for industry proposed solutions to some of the worst interference problems.
- Provide in the rules for interference protection of the DTV service areas of all existing licensees out to the NTSC Grade B contour of the paired channel or the DTV coverage contour, whichever is greater;
- Revise the methodology underlying the DTV Allotments/Assignments in several ways and make the limited number of associated DTV channel changes that become necessary:
 - Reassess interference and coverage for stations in which the Sixth Report and Order calculations overlooked sources of interference;
 - Address remaining errors and discrepancies in the NTSC Database;
- Ease the procedure for inter-market channel changes;

- Take affirmative steps to establish DTV coordinating committees and procedures by which they should work with the public and the Commission to facilitate DTV channel and facility changes;

- Compensate broadcasters for the cost of forced relocation to the core spectrum from revenues generated by auctioning the recaptured spectrum;

- Help broadcasters to make effective use of channels 2-6 for DTV and include those



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**PETITION FOR PARTIAL RECONSIDERATION AND CLARIFICATION OF
THE FIFTH AND SIXTH REPORTS AND ORDERS
SUBMITTED BY
THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION, INC.,
BROADCASTERS CAUCUS AND OTHER BROADCASTERS**

numerous industry filings over the past ten years^{1/} and in the notices the R&Os resolve.^{2/}

To improve these decisions, the Association for Maximum Service Television, Inc.

("MSTV"), the Broadcasters Caucus,^{3/} and other broadcasters (collectively, "Petitioners")^{4/}

urge the Commission:

- (1) to make limited revisions to the Table of DTV Allotments/Assignments

the loss of DTV and NTSC service in specific locales due to avoidable interference, failure to replicate and reduced maximization possibilities^{6/} and

(2) to clarify and reconsider portions of the R&Os that would result in delay and confusion. Petitioners believe that such action is necessary to more effectively implement the Commission's goals of converting to the DTV service quickly without harming NTSC stations and the American public.

One of the explicit goals of the R&Os was that DTV should be introduced expeditiously and that there should be a rapid recovery of spectrum for other uses both during and after the transition. Sixth R&O ¶ 1; Fifth R&O ¶ 97.^{7/} This Petition seeks to ensure that broadcasters, who shoulder most of the responsibility for DTV implementation, are equipped to do so -- namely, (a) that all 1601 DTV allotments/assignments are viable, are as optimal as possible and cause as little interference as practical to the public's existing service; and (b) that the rules for DTV implementation are clear and serve the public interest.

The DTV Allotments/Assignments are premised on many of the principles supported by a majority of broadcasters (between about 100 and 660 in more than a dozen joint filings) ("Broadcasters"), and Petitioners do not seek to alter the basic priorities and principles on which the DTV Allotments/Assignments are based. What we do request are targeted and limited adjustments to the DTV Allotments/Assignments, changes in the

^{5/}(...continued)

understood to incorporate associated changes to the DTV Table of Allotments that is contained in 62 Fed. Reg. 26684, 26712-17 (1997) (Section 73.622(b)).

^{6/} These terms are explained in Broadcasters' previous filings in this docket.

^{7/} See also 62 Fed. Reg. at 26684.

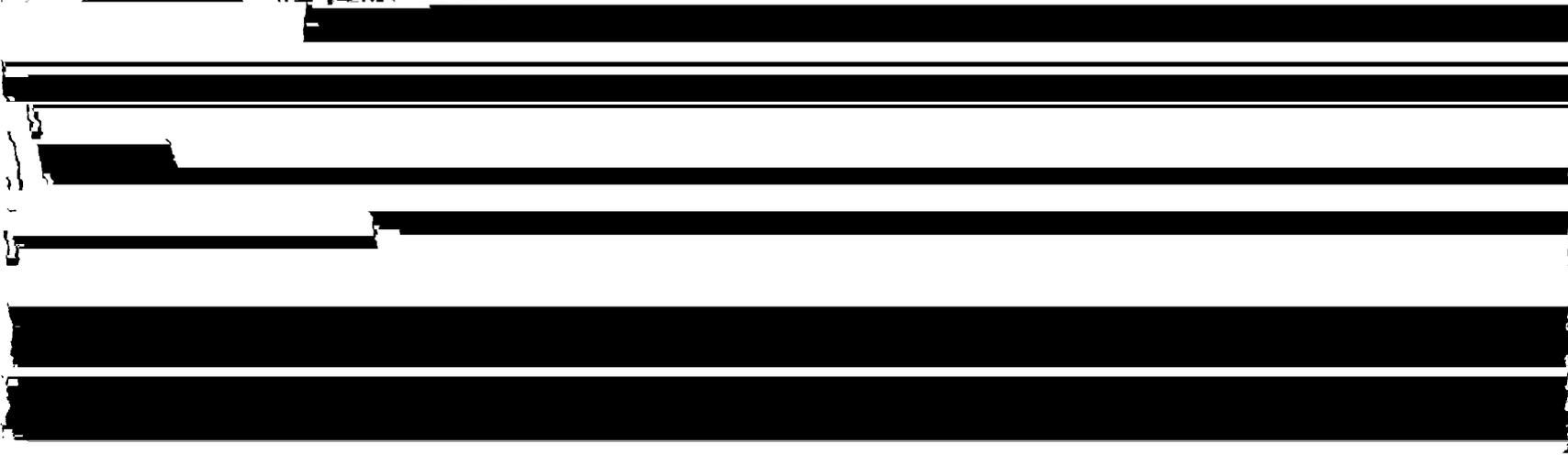
acceptable DTV power levels, the interference protection DTV stations will be afforded, and the precise service rules that will apply. This will speed the transition that the Fifth R&O build-out schedule seeks to achieve. Similarly, the Sixth R&O is vague about certain technical information and assumptions without which stations cannot reliably judge their DTV assignments or determine whether and how to request channel changes. Certain clarifications to and reconsideration of portions of the R&Os will help to avoid confusion and delay in the DTV implementation.

I. CORRECTION OF IMPERFECTIONS IN THE DTV ALLOTMENTS/ ASSIGNMENTS WOULD IMPROVE SERVICE TO THE PUBLIC.

The DTV Allotments/Assignments were apparently constructed from the building blocks set forth in the Sixth Further Notice and reflected in the table of allotments/assignments attached thereto (the "August 1996 Table").^{2/} The Sixth R&O made 1289 DTV Allotment/Assignment changes from the earlier table, evincing a shift in the Commission's priorities and methodology. Some of the problems Broadcasters identified in the August 1996 Table are now corrected, but other problems have arisen that result in significant service losses in certain cases.

This Section I shows the results of our extensive analysis of the DTV

Allotments/Assignments and the rest of Appendix B to the Sixth D&O ("Appendix B"). We



service areas, minimize interference and permit opportunities for maximization.^{10/} Fairly non-disruptive and limited solutions can remedy the most problematic cases as is discussed in Section II below.

A. INCREASED INTERFERENCE.

1. Overall Interference.

As compared with the August 1996 Table and even more so with the Broadcasters' Table, the world created by the DTV Allotments/Assignments in Appendix B is one in which millions of people could lose NTSC service through increased interference -- interference that could be mitigated through the steps we describe in Section II.

Using the Sixth R&O's methodology to compute coverage contours and interference,^{11/} we have determined that the DTV Allotments/Assignments increase the amount of new interference to existing service by 26% as compared to the August 1996 Table and by 41% as compared to the Broadcasters' Table.^{12/} In all, when compared to the August 1996 Table, 8 million people will lose NTSC service during the transition under the DTV Allotments/Assignments.

^{10/} We found that the DTV Allotments/Assignments fare significantly worse in interference and service shortfalls even as compared to the August 1996 Table, and especially as compared to the Broadcasters' Modified Allotment/Assignment Table submitted by Broadcasters in comments to the Sixth Further Notice (the "Broadcasters' Table"). The increased interference is not "de minimis" as stated in the Sixth R&O ¶ 78. Moreover, the increased interference is most striking because it falls on the most disadvantaged stations in a few parts of the country.

^{11/} Our analysis is made on the basis of an apples-to-apples comparison of the August 1996 Table, the DTV Allotments/Assignments and the Broadcasters' Table as if all were developed using the same minimum and maximum power levels, and number of eligible licensees and permittees.

^{12/} See Joint Comments IX at 27. Broadcasters' Table also permitted 20% more opportunities for maximization than does Appendix B.

2. Interference And Service Shortfalls Will Be Worst For Stations And Viewers In Three Regions.

We endeavored to identify those areas of the country where existing and future service was most in jeopardy due to increased interference to NTSC service and decreased replication resulting from the DTV Allotments/Assignments. The east coast north of Washington, D.C. ("Northeast Corridor"), the congested areas in the upper midwest (the "Great Lakes Region"), and the California coastal region are areas where existing service as well as future service will suffer the greatest impact under the DTV Allotments/Assignments ("Acute Problem Areas"). Some stations in these regions will be disproportionately harmed by the additional interference to their NTSC service. In fact, approximately 80% of those affected by new interference to their NTSC service are located in these areas. Exhibit 6 depicts these three regions. Even without correcting for the adjacent channel interference and the DTV coverage contour and service area calculation discrepancies discussed in Section B below, our analysis finds that during the transition:

- Approximately 4.8 million people will lose acceptable NTSC service in the Northeast Corridor under the DTV Table as a result of the increased interference. 1.4 million people will lose acceptable NTSC service in the Great Lakes Region, and 2.0 million will lose acceptable service in the California coastal region.
- New interference to NTSC service areas in the Northeast Corridor is increased from 87,210 sq. km under the August 1996 Table to 127,733 sq. km under the DTV Allotments/Assignments -- **a 54% increase in interference.**
- New interference to NTSC service areas in the Great Lakes Region is increased from 91,923 sq. km under the August 1996 Table to 112,370 sq. km under the DTV Allotments/Assignments -- **a 27% increase in interference.**

- New interference to NTSC service areas in the California coastal region is increased from 27,634 sq. km under the August 1996 Table to 43,334 sq. km under the DTV Allotments/Assignments -- a **56%**

B. INTERFERENCE WILL BE WORSE THAN PREDICTED.

The interference numbers above tell only part of the story. This is because the methodology the Sixth R&O uses to generate the DTV Allotments/Assignments and the interference and service statistics in Appendix B do not fully reflect the actual service area for some stations and, in some instances, do not take into account DTV-to-NTSC adjacent channel interference. If the interference calculations are revised, the overall interference numbers rise.

1. Coverage Contour/Service Area Discrepancies.

Although the Sixth Further Notice did not propose minimum and maximum power levels, the DTV Allotments/Assignments were developed based on this concept. The Commission used minimum power levels of 1 kW for low-band VHF stations, 3.2 kW for high-band VHF stations and 50 kW for UHF stations, and it used a maximum power of 1000 kW for UHF DTV stations. Sixth R&O ¶ 30. As a result, many of the stations subject to the maximum power level (or power cap) have DTV service which does not replicate their NTSC Grade B contours, while many of the stations subject to the UHF power minimum have DTV service that extends significantly beyond their NTSC Grade B contours. Exhibit 2 illustrates the relationship between the NTSC Grade B contour and the DTV contour of both types of station.^{13/} These realities are *not* reflected (i) in Appendix B, which shows high and fairly equivalent percent matches between DTV and NTSC service for both classes of stations, or (ii) in the Sixth R&O, which predicts that "1000 kW is sufficient to provide a very high degree of service replication for almost all stations." Id.; see also Sixth R&O

^{13/} For a description of how the maps in the appendices were created, see Exhibit 1.

¶ 206 (providing replication statistics). When these realities are taken into account, it becomes apparent that stations subject to the power cap have significantly less DTV service, less match between DTV and NTSC services, and a higher ratio of interference to the DTV service area than Appendix B reflects.^{14/}

The reason that Appendix B does not reflect the realities of the power maximum and minimum is that (i) for the stations subject to the power cap, Appendix B counts toward replication service that will not be protected under the rules and (ii) for the stations subject to the power minimum, Appendix B does not count additional service that will be protected under the rules. The rules adopted pursuant to the Fifth R&O define "DTV Coverage."^{15/} The rules adopted pursuant to the Sixth R&O define "DTV Service Areas"^{16/} and stipulate that stations' DTV service areas are protected out to the DTV coverage contour.^{17/} Thus, a DTV coverage contour encompasses the DTV service area and any losses due to interference or terrain. If there are no losses, coverage contour and service area are the same.^{18/}

^{14/} Conversely, coverage and service area figures for stations subject to minimum power levels increase. See Appendix B.

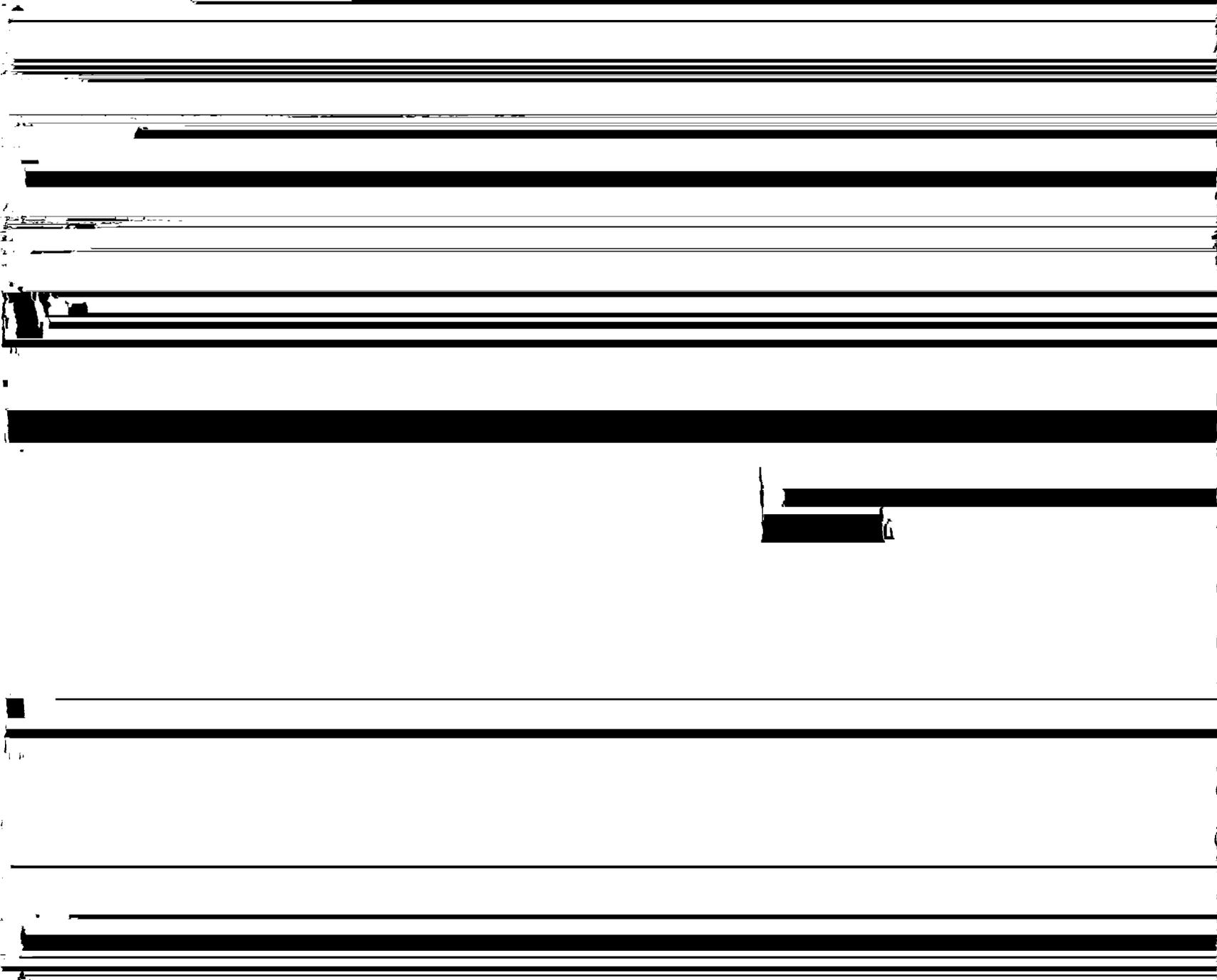
^{15/} See 62 Fed. Reg. 26966, 26990 (1997) (Section 73.625). This definition is consistent with the FCC definition of coverage for the NTSC Grade B.

^{16/} 62 Fed. Reg. at 26717 (Section 76.622(e)). This rule confuses the important semantic distinction between coverage and service by stating that the OET Bulletin No. 69 provides guidance for "evaluating coverage areas" when the rule appears to speak to service areas. Id. It should be noted that the NTSC service rules do not define "service area."

^{17/} Id. at 26719 (Section 73.623(c)).

^{18/} See, e.g., Sixth R&O ¶ 32 (referring synonymously to "the service or coverage area of a DTV allotment" for the purposes of service replication once it has subtracted out interference).

Appendix B does not, strictly speaking, apply these definitions when computing DTV service areas, NTSC interference, and replication for stations subject to the minimum and maximum power levels. A DTV UHF station subject to a power cap (primarily VHF NTSC stations) will have a DTV coverage contour that is well within its NTSC Grade B contour. Under the rules, it will be protected only to this DTV coverage contour. Yet, Appendix B counts service out to the NTSC Grade B -- service that is not protected under the rules and in effect does not belong to the DTV station. In contrast, a



of stations subject to the power maximum and stations subject to the power minimum. We believe that if only the *protected* service areas of the stations subject to the power cap were counted toward replication in Appendix B, other DTV channel pairs might have been selected. Because that was not done, as discussed in Section IV below, we request that the rules be changed to comport with Appendix B's treatment of stations subject to the power cap. Thus, protection of the DTV service areas of all existing licensees should be extended out to the NTSC Grade B contour of the paired channel or the DTV coverage contour, whichever is greater.^{19/}

2. Adjacent Channel Interference.

The development of the DTV Allotments/Assignments with power minimums has had an unintended and deleterious, but curable, consequence for the limited number of NTSC licensees that are adjacent to the DTV stations subject to the power minimum (often the same licensees as will operate the DTV stations). The Commission and the Broadcasters agree that adjacent channels (DTV-to-NTSC) should not, wherever possible, be assigned within the same or neighboring markets because of the potentially severe interference such assignments create to the public's existing service within those markets. However, there are simply not enough potential DTV channels to avoid assigning adjacent channels in the most congested markets. The Sixth R&O appears to have responded to Broadcasters' call to assign, where necessary, eligible DTV channels in a given market to the licensee of the existing adjacent-channel NTSC station, so as to provide exact collocation and thereby reduce

^{19/} This will not effect a change for most stations since the rules protect the DTV coverage contour and that contour is usually close to the NTSC Grade B.

interference.^{20/} However, this interference reduction is achieved only if the power level of the DTV signal is carefully calibrated so as not to cause interference within the principal community of the adjacent NTSC service. Power minimums have destroyed that delicate balance in about a dozen cases, which cases could be cured with channel adjustments.

As exemplified in Exhibit 4, in a handful of cases, jacking up the power of the DTV station to the minimum 50 kW power level, without making compensating allotment/assignment adjustments, all but obliterates the adjacent channel NTSC service. Because the DTV and NTSC services are collocated (which, without the power minimum, would be optimal), the new interference to the NTSC service spreads throughout the service area. As a result, about 10 stations stand to lose 80-90% of their NTSC service if they use the power levels Appendix B assigns to them. This design flaw has implications for other DTV channel pairings as well and the Commission should change the DTV channel assignments for these DTV stations.

A second, though less significant, adjacent channel problem is that there remain violations to the adjacent channel collocation, same-licensee principle. Although the DTV Allotments/Assignments improve on the number of assignments that are neither collocated nor assigned to the same licensee, the DTV Allotments/Assignments still include four violations of this priority. Exhibit 5 shows how a non-collocated DTV station interferes

^{20/} According to the Broadcasters' assignment methodology, the assignment of adjacent channels to the same licensee was the only goal that ranked higher than replication of NTSC service areas. No assignments violated this priority. To evaluate adjacent channel interference within the NTSC service area, a variable protection ratio was used. The Threshold of Visibility (TOV) for the strong signal condition was used for the area within the City Grade of the NTSC station, and a linear interpolation using a CCIR Grade 3 level for the moderate signal condition was used between the City Grade and the Grade A.

with two adjacent channel NTSC service areas. The assignments of this type are located principally in one of the three congested regions identified above. Correcting these adjacent channel assignments will improve the DTV Allotments/Assignments in those regions and elsewhere.

II. THE ALLOTMENT/ASSIGNMENT PROBLEMS CAN BE CURED QUICKLY WITH MINOR ADJUSTMENTS TO AND EXCEPTIONS FROM THE FCC'S PLANNING PRIORITIES AND ASSUMPTIONS.

Time is of the essence in the introduction of DTV, both because the buildout rules require speed and because the confidence of consumers, equipment manufacturers, and

the general community depend upon it. To save time and fine tune the DTV

number of exceptions to the FCC's priorities so as to ameliorate the Acute Problem Areas and severe individual station problems outside those areas.

A. DTV-TO-NTSC ADJACENT CHANNEL FIX.

The adjacent channel problems, both with respect to the power minimum and the collocation, same-licensee violations, are identified in Section I above. The Commission should remedy these situations. Doing so would ameliorate some of the most severe interference problems such as those in Exhibit 5.

B. ERROR CORRECTIONS.

1. Calculating Interference/Coverage.

Our assessment of the DTV Allotments/Assignments and the methodology used by the Commission reveals that Appendix B erred (usually very slightly) in calculating expected interference to the NTSC and DTV service of 1335 NTSC and 1163 DTV stations.^{21/} In particular, the Commission's assessment of coverage completely or partially overlooked sources of interference caused by distant co-channel, adjacent channel and taboo stations. Exhibit 8 exemplifies how some of the interference was not considered. For example, for KPIX in San Francisco, a source of interference overlooked in the Commission's calculations will cause an additional 107 sq. km of interference to KPIX, thus affecting 165,000 people. Correcting these coverage calculations could affect the DTV allotments/assignments for these stations and possibly for others, due to the daisy-chain effect. Therefore, we urge the Commission to reassess promptly the interference and

^{21/} Most of the errors are of less than 0.5% of the NTSC or DTV service area. A list of these stations will be submitted separately.

coverage for these stations and make appropriate adjustments to the DTV Allotments/Assignments.

2. Continuing Errors In The NTSC Database.

The Sixth R&O ¶ 20 states that an updated engineering NTSC database has been used to generate the DTV Allotments/Assignments and that the database is current as of April 3, 1997. As explained in more detail in the Broadcasters' Comments, because the parameters of an NTSC station determine the most appropriate paired DTV channel assignment, Broadcasters undertook in the fall of 1996 to verify the accuracy of the database. This effort produced responses from more than 250 stations identifying more than 150 errors or discrepancies in the Commission's NTSC database.^{22/}

Notwithstanding this effort to assist the Commission, there continue to be errors in the NTSC database. Exhibit 9 includes examples of errors or discrepancies of which we are aware that were not corrected in the engineering database used to develop the DTV Allotments/Assignments. As emphasized before, errors in the parameters of an NTSC station may invalidate a number of DTV Allotments/Assignments and could require changes to others, given the potential ripple effect of individual changes. We urge the Commission promptly to address remaining errors and discrepancies; otherwise, these problems will result in unnecessary requests for DTV channel changes after the reconsideration period.

^{22/} Joint Comments IX at 46-47 & Appendix C thereto.

similar approaches in the past by extending the time for compliance with rules when compliance depends on crucial guidance documents that are not released with the rules.^{23/}

Petitioners pledge to work with other broadcasters in developing the proposed solution. We anticipate that a solution can be found without jettisoning the methodology and priorities underlying the DTV Allotments/Assignments. Instead, limited exceptions to these priorities (discussed below) should be permitted to relieve a significant amount of harm, particularly in the Acute Problem Areas.

2. Station-By-Station Solutions.

Meritorious individual channel changes that are consistent with the goals of replication, maximization and reduced interference, particularly in the less congested markets, should also be considered as quickly as possible in this reconsideration phase. Unless these changes involve negotiated channel trades, they may require some exceptions to certain of the priorities listed below.

3. Targeted Exceptions To Priorities And Assumptions.

The DTV Allotments/Assignments are the product of its balancing among many different interests and goals: among others, the recovery of maximum channel 60-69

^{23/} For example, twice in the RF radiation proceeding, the Commission delayed the applicability of rules until the technical bulletin to help broadcasters comply with the rules was made available. In the first case, the Commission granted a request, filed with a timely petition for reconsideration, that the rules not become effective for 90 days after the release of the bulletin. See In re Responsibility of the Federal Communications Commission to consider biological effects of radio frequency radiation, 58 Rad. Reg 2d (P & F) 1128 (1985). In the second case, the Commission extended the time for complying with the new RF rules for eight months for television stations to allow adequate time for affected parties to achieve compliance. This was true even though, unlike in the case of OET Bulletin No. 69, the parties had already had time to review the draft RF radiation guidance document. See In re Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, 11 FCC Rcd. 17512 (1996).