Before the
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF ENGINEERING AND TECHNOLOGY
Washington, D.C. 20554

In the Matter of	)	
	)	
Office of Engineering and Technology Releases and Seeks Comment on Updated OET-69 Software	)	ET Docket No. 13-26
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	GN Docket No. 12-268

To: The Incentive Auction Task Force

COMMENTS OF THE
NATIONAL ASSOCIATION OF BROADCASTERS

The National Association of Broadcasters ("NAB")[1] submits these comments in response to the Public Notice released on June 2, 2014 ("Public Notice") updating prior staff analysis by: (1) using actual, rather than proxy, channels to determine whether a station can be assigned a particular new channel; and (2) releasing a new analysis of potential new aggregate interference to broadcast television stations.[2] NAB commends the staff for seeking "to improve the ability of interested parties to analyze [the] complex issues"[3] involved in repacking. Based on NAB's analysis so far, it appears that the Commission's updated constraint files may contain anomalous information, though the

[1] The National Association of Broadcasters is a nonprofit trade association that advocates on behalf of free local radio and television stations and broadcast networks before Congress, the Federal Communications Commission and other federal agencies, and the courts.

[2] *Incentive Auction Task Force Releases Updated Constraint File Data Using Actual Channels and Staff Analysis Regarding Pairwise Approach to Preserving Population Served*, Public Notice, GN Docket No. 12-268, ET Docket No. 13-26, DA 14-677 (rel. June 2, 2014).

[3] *Id.* at 1.

cause is not immediately apparent. NAB looks forward to working with the Commission constructively to identify potential sources of such errors and to improve the ability of other parties to provide analysis and comment.

DISCUSSION

Section 6403(b)(2) of the Spectrum Act requires the Commission to use "all reasonable efforts to preserve, as of the date of the enactment of this Act, the coverage area and population served of each broadcast television licensee, as determined using the methodology described in OET Bulletin 69 of the Office of Engineering and Technology of the Commission."[4] In previous comments, NAB identified two specific issues that are addressed by the Public Notice. First, NAB argued that the proposed use of proxy channels, rather than actual channels, to calculate population served and coverage area in order to determine whether a television station could feasibly be relocated to a particular channel could produce inaccurate results.[5] Second, NAB, in addressing the Commission's proposed options for fulfilling the mandate to preserve coverage area and population served, supported "Option 2," but with the addition of a cap on aggregate interference.[6] Option 2 would require that no individual channel reassignment would reduce a station's population served by more than 0.5 percent. NAB noted that several such reassignments, while individually complying with the 0.5 percent cap, could combine to create significant aggregate interference. Thus, NAB

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[4] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, 126 Stat. 156, § 6403(b)(2) (Feb. 22, 2012) (codified at 47 U.S.C. § 1452(b)(2)) ("Spectrum Act") (emphasis added).

[5] *See* Letter from Rick Kaplan, NAB to Marlene H. Dorth, Secretary, FCC, GN Docket No. 12-268, Attachment at 19 (filed Sep. 5, 2013); *see also* Letter from Rick Kaplan, NAB to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 at 2-3 (filed Nov. 27, 2013).

[6] *See* Comments of the National Association of Broadcasters, GN Docket No. 12-268 at 20-21 (filed Jan. 25, 2013); *see also* Reply Comments of the National Association of Broadcasters, GN Docket No. 12-268 at 43-44 (filed Mar. 12, 2013).

sought the amendment of Option 2 to include a cap on aggregate additional interference of no more than one percent.

A. The Commission Should Use Actual Channels To Develop Constraint Files, But the Updated Constraint Files Appear to Contain Anomalies.

NAB commends the staff for recognizing the potential problems associated with the use of proxy channels and for releasing updated constraint files based on actual channels. The use of actual channels in the analysis of interference to population served represents a significant improvement and will provide more accurate repacking solutions.

NAB notes that the updated constraint files include hundreds of thousands of rows of data in an Excel spreadsheet, making any significant analysis of the accuracy of these updated files impossible in the time permitted for comment. However, a brief review of the updated constraint files released with the Public Notice suggests that the files may contain inconsistencies, or at least questionable information. While the following examples are by no means the only such anomalies, NAB hopes they will prove illustrative.

Example 1: Station 35862

A partial excerpt from the UHF co- channel interference paired file for this station is shown below:

CO	38	38	35862	4624	21656	23428	33749	33894	34847	35396	35419	49264	
				53586	56852	62468	62469	66781	67950	69571			
CO	39	39	35862	4624	21656	23428	33749	33894	34847	35380	35396	35419	
				49264	53586	56852	62468	62469	66781	67950	69571		
CO	40	40	35862	4624	21656	23428	33749	33894	34847	35380	35396	35419	
				49264	53586	56852	62468	62469	66781	67950	69571		
CO	41	41	35862	4624	21656	23428	33749	33894	34847	35380	35396	35419	
				49264	53586	56852	62468	62469	66781	67950	69571		
CO	42	42	35862	4624	21656	23428	33749	33894	34847	35380	35396	35419	
				49264	53586	56852	62468	62469	66781	67950	69571		
CO	43	43	35862	4624	5801	10192	21649	21656	23428	33749	33894	34847	
				35380	35396	35419	49264	53586	56852	62468	62469	66781	
				67950	69571								
CO	44	44	35862	4624	5801	10192	21649	21656	23428	33749	33894	34847	
				34874	35380	35396	35419	47707	49264	50589	53586	56852	
				62468	62469	66781	67950	69571					
CO	45	45	35862	4624	21656	23428	33749	33894	34847	35396	35419	49264	
				53586	56852	62468	62469	66781	67950	69571			

This file suggests that station 35862 cannot operate co-channel to station 35380 if station 35862 is assigned channels 39, 40, 41, 42, 43 or 44, but that station 35862 *can* operate co-channel to station 35380 if assigned channels 38 or 45. Further, the file suggests that station 35862 cannot operate on channel 44 co-channel to stations 5801, 10192, 21649, 34847, 34874, 35380, 47707, and 50589, but is *not* precluded from operating on channels 38 or 45 co-channel to this same group of stations. Such results appear highly unlikely given that the culling distance (the distance used to determine which stations to consider in replication scenarios) for extracting all stations in the

affected area is the same and the change in the amount of interference caused between assigning closely spaced channels (i.e. 38 and 39, or 44 and 45) is not significant.[7]

Example 2: Station 125.

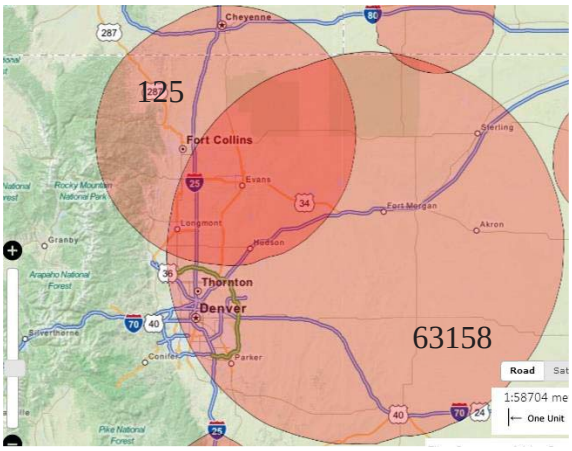
A partial excerpt from the VHF adjacent channel interference paired file for station 125 is shown below:

ADJ+1	2	3	125	126	14040	***	57219		63166
ADJ+1	3	4	125	126	14040	***	57219		63166
ADJ+1	5	6	125	126	14040	***	57219	63158	63166
ADJ+1	7	8	125	126	14040	***	57219		63166
ADJ+1	8	9	125	126	14040	***	57219		63166
ADJ+1	9	10	125	126	14040	***	57219		63166
ADJ+1	10	11	125	126	14040	***	57219		63166
ADJ+1	11	12	125	126	14040	***	57219	63158	63166
ADJ+1	12	13	125	126	14040	***	57219	63158	63166
ADJ-1	3	2	125	126	14040	***	57219	63158	63166
ADJ-1	4	3	125	126	14040	***	57219	63158	63166
ADJ-1	6	5	125	126	14040	***	57219	63158	63166
ADJ-1	8	7	125	126	14040	***	57219	63158	63166
ADJ-1	9	8	125	126	14040	***	57219	63158	63166
ADJ-1	10	9	125	126	14040	***	57219	63158	63166
ADJ-1	11	10	125	126	14040	***	57219	63158	63166
ADJ-1	12	11	125	126	14040	***	57219	63158	63166
ADJ-1	13	12	125	126	14040	***	57219	63158	63166

This file suggests that station 125 *can* operate on TV channel 2, 3, 7, 8, 9 or 10 with station 63158 operating on TV upper adjacent channel 3, 4, 8, 9, 10, or 11, respectively, but that station 125 *cannot* operate on TV channel 5 with station 63158 operating on TV channel 6, nor can station 125 operate on TV channel 11 or 12 with station 63158 on the upper adjacent channel 12 or 13. Further, the file shows that no

[7] We also examined whether such a change could be attributed to the antenna directionality of the impacted stations (i.e, 5801, 10192, 21649, 34874, 34847, 35380, 47707, 50589) and determined that all the impacted stations are non-directional high power stations operating both at VHF and UHF.

lower adjacent channel operation is permitted by station 63158 with regard to station 125. The two stations are shown below:



Clearly *any* adjacent channel operation will cause significant interference and significant coverage or service area loss between these two stations. In addition, the D/U ratios for DTV suggest that upper adjacent channel operation is worse in terms of interference than lower adjacent channel operation by a factor of 2 dB. However, the constraint file generation suggests that some upper adjacent channel operation is possible but no lower adjacent channel operations can take place between station 63158 and 125.

Both of these examples appear to reflect anomalies in the FCC's data. While we understand that interference may not be symmetric between stations,[8] both of these examples, as well as numerous others, raise questions about the difference in interference and coverage results on different channels. The causes of these differences are not immediately apparent, and could not be fully analyzed without access to the FCC's algorithms and software used to generate the constraint files,

[8] *See, e.g., Incentive Auction Task Force Releases Information Related to Incentive Auction Repacking*, Public Notice, 28 FCC Rcd 10370, 10400-10403 (2013).

which the FCC has not yet made public. NAB respectfully suggests that the FCC's constraint files and analysis may require significant additional refinement, and NAB wants to work constructively with the FCC to identify potential sources of such anomalies.

B. The Public Notice's Analysis of Potential Aggregate Interference Raises Many Questions.

The Public Notice also provides staff analysis of potential new aggregate interference to television stations under the Commission's adopted approach for preserving population served based on pairwise or station-to-station interference limits. The Public Notice states the results in the attached Appendix are not exhaustive and invites parties to conduct their own simulations and interference analyses.[9] Nevertheless, the Public Notice states that the results of the staff's analysis show that approximately one percent of all stations in simulated channel reassignments received new interference above one percent with the majority of stations receiving less than the *de minimis* limit of 0.5 percent adopted by the Commission.[10]

NAB agrees with the Task Force's assessment that these aggregate interference studies are not exhaustive and cannot be used to draw conclusive findings with regard to aggregate interference. The Public Notice provides some summary information on 100 unique repacking scenarios. These results are encouraging, in that that the *de minimis* 0.5 percent interference level adopted by the Commission provides some limitations on the harm to broadcasters. The aggregate results, however, are based on an interference paired file containing possible errors that could affect the generation of

[9] Public Notice at 4.

[10] *Id.* at 3-4.

these repacking scenarios and ultimately the aggregate interference results. NAB recommends that, once issues with the interference paired file are resolved, the staff should conduct additional studies to more accurately measure the possible effects of aggregate interference, particularly in the most congested and highly populated areas of the country.

In addition, these results are based on what we believe are highly optimistic participation levels of 80, 90, and 100 percent of UHF television stations, without presenting any basis for selection of such high participation levels. NAB understands that the Commission views auction participation as a unique opportunity. Nevertheless, an analysis premised on overwhelming participation by broadcasters seems, at best, incomplete. At lower, perhaps more realistic, levels of participation, repacking solutions could well be more limited. As a result, more repacked stations would have the potential to interfere with other stations, and it is reasonable to expect that the percentage of stations experiencing additional aggregate interference above one percent would increase. At a minimum, the Commission should conduct additional analysis with a wide variety of participation levels, ranging from perhaps 10 to 100 percent, to provide a more comprehensive view of potential repacking scenarios.

The actual number of stations causing interference above the 0.5 percent threshold is also important to the analysis. As repacking scenarios become tighter, it is possible that aggregate interference just over the threshold from multiple stations could increase.

Ultimately, even if the staff's simulations can be considered representative and realistic, this analysis only underscores the reasonableness of NAB's proposed cap on

aggregate interference. After all, if the staff is confident that its pool of 100 unique repacking scenarios is truly representative of likely auction outcomes, there is no reason *not* to adopt an aggregate interference cap that, according to the staff's analysis, is extraordinarily unlikely to constrain the Commission's ability to repack broadcast television stations.

Further, the Public Notice, as well as the updated constraint files, focus exclusively on preserving population served. The Public Notice provides no information on the impact on coverage areas under any of the 100 simulations staff analyzed or how the Commission intends to preserve coverage in its feasibility checks. NAB expects that the effect on coverage areas could be greater than the values shown in the studies. Of course, the Spectrum Act mandates the preservation of *both* population served *and* coverage area, not just one or the other.

Finally, NAB notes that, while the Public Notice invites parties to conduct their own simulations and interference analyses using these updated constraint files in conjunction with the publicly available TVStudy software, the Commission has not made the software or the algorithms used in its studies available to the public, so there is a limited amount of analysis the public can actually perform. The Commission has, however, recently made publicly available all 100 of its repacking scenarios in response to NAB's request. NAB very much appreciates this accommodation, and expects to be able to provide further information and analysis based on its ongoing review of these scenarios.

Respectfully submitted,

NATIONAL ASSOCIATION OF BROADCASTERS
1771 N Street, NW
Washington, DC 20036
(202) 429-5430

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Rick Kaplan
Jerianne Timmerman
Patrick McFadden

Victor Tawil
Bruce Franca

NAB Strategic Planning

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