PUBLIC NOTICE

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INCENTIVE AUCTION TASK FORCE RELEASES UPDATED CONSTRAINT FILE DATA USING ACTUAL CHANNELS AND STAFF ANALYSIS REGARDING PAIRWISE APPROACH TO PRESERVING POPULATION SERVED

GN Docket No. 12-268
ET Docket No. 13-26

Comment Date: July 2, 2014
Reply Comment Date: July 22, 2014

This Public Notice is one of a series of Public Notices that the Incentive Auction Task Force has released relating to the repacking process, seeking to build a robust record on which the Commission can base its decisions and to improve the ability of interested parties to analyze these complex issues.[1] In this Public Notice, we:

1. Update prior staff analysis to determine whether a television station can be assigned a particular channel while preserving the television stations' coverage area and population served using actual channels instead of proxy channels; and

2. Release a 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.[2] The results of the staff analysis show that approximately one percent of all stations in simulated channel reassignments received new interference above one percent, and that the majority of stations received new aggregate interference well below the *de minimis* pairwise interference limit adopted by the Commission.[3]

As noted in prior Public Notices, the data and information released today are based on preliminary assumptions necessary for completing the analysis, and are illustrative only. The Commission will adopt final decisions regarding the repacking process at a later date. This Public Notice and the attached Appendix relate only to the repacking process, and specifically to issues commenters raised regarding the necessity of an

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[1] *See Incentive Auction Task Force Releases Information Related to Repacking; Announces Workshop/Webinar to Provide Additional Detail*, GN Docket No. 12-268, ET Docket No. 13-26, Public Notice, 29 FCC Rcd 47 (2014) (*Repacking Update PN*); *Incentive Auction Task Force Releases Information Related to Incentive Auction Repacking*, GN Docket No. 12-268, ET Docket No. 13-26, Public Notice, 28 FCC Rcd 10370 (2013) (*First Repacking Data PN*).

[2] *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, FCC 14-50, para. 179 (2014) (*Report and Order*).

[3] *Id*.

aggregate interference cap and the use of proxy channels when preserving coverage area and population served. Further, the results of studies released today do not reflect any assumptions about auction participation or station valuation.

Aggregate Interference Analysis

As the Commission has explained, the incentive auction will have three major pieces: a reverse auction, a forward auction, and a repacking of the broadcast television bands which is likely to include the reassignment of some television stations to new channels.[4] The Middle Class Tax Relief and Job Creation Act requires that the Commission make "all reasonable efforts to preserve, as of [February 22, 2012], 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."[5] In the *Report and Order* the Commission adopted the *NPRM*'s proposed "Option 2" for fulfilling the statutory mandate, requiring that an individual channel reassignment, considered alone, "would reduce a station's specific population served by no more than 0.5 percent."[6]

As explained in the *Report and Order*, a number of commenters supported using this approach for limiting interference in the repacking process, but argued that the Commission should impose a cap of one percent on allowable aggregate interference for each station.[7] These commenters argued that under the approach the Commission adopted, while no single station could cause greater than 0.5 percent new interference, an individual station in a crowded market could receive significant new interference when the permitted pairwise interference from multiple stations is added up.[8]

In response to that argument, staff conducted studies to calculate potential aggregate interference using the constraint files we release today, which are based on actual channels, versus proxy channels. The staff analysis shows that approximately one percent of all stations in simulated channel reassignments received new interference above a one percent cap, and that the majority of stations received new aggregate interference well below the pairwise interference limit adopted by the Commission. This analysis is presented in detail in the attached Appendix.

Repacking Calculations on Actual Channels versus Proxy Channels

In July 2013, the Incentive Auction Task Force released the results of a staff analysis on the feasibility of channel assignments in the repacking process, consistent with statutory and other requirements, based on certain

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[4] *Report and Order* at paras. 1-6. *See also Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Notice of Proposed Rulemaking, 27 FCC Rcd 12357, 12359, para. 5 (2012) (*NPRM*).

[5] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §§ 6402, 6403(b)(2), 125 Stat. 156 (2012) (Spectrum Act); *see* OET Bulletin No. 69 (Feb. 6, 2004), available at http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet69/oet69.pdf.

[6] *Report and Order* at para. 178.

[7] *Id.* at para. 182. *See also* Comments of the National Association of Broadcasters, GN Docket No. 12-268 at 20-21 (filed Jan. 25, 2013) (NAB Comments); Comments of ABC Television Affiliates Association et al., GN Docket No. 12-268 at 3 (filed Jan. 25, 2013); Comments of Univision Communications, GN Docket No. 12-268 at 7 (filed Jan. 25, 2013); Comments of Belo Corp., GN Docket No. 12-268 at 14-15 (filed Jan. 25, 2013); Reply Comments of the National Association of Broadcasters, GN Docket No. 12-268 at 43-44 (filed Mar. 12, 2013).

[8] NAB Comments at 30 ("Applying Option 2, a station may therefore receive 2% to 3% additional aggregate interference on top of the replacement interference described above. Under Option 3, stations could receive additional new interference from a number of other stations that could result in coverage and population losses of 10% and more.").

preliminary assumptions.[9] One such assumption was the use of a single "proxy channel" in each band to conduct the pairwise study to determine whether a television station can be assigned a particular channel.[10] The National Association of Broadcasters ("NAB") expressed concern that using a "proxy" channel approach could result in differences between predicted service losses calculated on proxy versus actual channels.[11]

In January 2014, the Incentive Auction Task Force released information about the manner in which the data released in the *First Repacking Data PN* can be used to conduct "feasibility checks" in the context of a reverse auction.[12] Feasibility checking, in this context, means determining whether a channel assignment satisfies all pairwise interference limits. Using pre-calculated interference constraint data,[13] the staff developed a computer program that determines, in real time, whether a feasible channel assignment exists for a given set of stations in a given band. In February 2014, the staff hosted a workshop to share the performance results of this simulation feasibility checking software, and to explain how interested parties could develop their own software.[14]

Continued software improvements allowed for feasibility checks to be performed using actual channels, instead of proxy channels, as adopted by the Commission in the *Report and Order*.[15] Specifically, *TVStudy* generates pairwise constraints on actual channels.[16] The repacking scenarios relate only to the UHF band because the largest number of stations that could potentially be assigned a new channel will be in this band. Today, we are releasing updated constraint files based upon actual channels to assist interested parties in conducting their own repacking studies.[17]

To generate sufficient data from which to draw meaningful results, Commission staff performed 100 simulations using several variations of the approach we developed for creating simulated sets of stations to be repacked. The output of each of these simulations was a set of stations that remain on the air in the UHF band, together with the respective channel assignments, called a channel plan. Consistent with the *Report and Order*, none of the 100 channel plans involves new pairwise interference of greater than 0.5 percent. For each of these 100 channel plans, we examined cell-level data generated by *TVStudy* to determine the aggregate interference experienced by each station. The results in the attached Appendix show that across all simulations, on average approximately one percent of stations are predicted to receive new aggregate interference after channel reassignment above NAB's proposed one percent cap, while the average new aggregate interference level was less

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[9] *See First Repacking Data PN*, 28 FCC Rcd at 10370. The PN emphasized that the assumptions were necessary for completing the analysis but were for illustrative purposes only because the Commission had made no decision on them yet.

[10] *See id.* at 10385 (Technical Appendix).

[11] *See* Letter from Rick Kaplan, NAB to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 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 (filed Nov. 27, 2013) ("The use of proxy channels has a dramatic impact on almost every TV station, and thus cannot represent a reasonable effort – let alone 'all reasonable efforts' – to preserve stations' coverage areas and populations served.").

[12] *See Repacking Update PN*, 29 FCC Rcd at 47, para. 2.

[13] *See First Repacking Data PN*, 28 FCC Rcd at 10385 (Technical Appendix).

[14] *See* LEARN Workshop on Feasibility Checking During Repacking Process, FCC (Feb. 21, 2014), available at http://www.fcc.gov/events/learn-workshop-feasibility-checking-during-repacking-process.

[15] *Report and Order* at para. 115.

[16] Consistent with the *Report and Order*, the pairwise constraints that we used limit allowable station assignments to those causing 0.5 percent interference or less, replicated on actual channels.

[17] The new constraint files are in the same format as those released in July 2013, and can be found on the FCC's LEARN website under the Repacking Section at: http://fcc.gov/learn. These files will also be posted at: http://data.fcc.gov/download/incentive-auctions/Constraint_Files/.

than 0.2 percent, well below the *de minimis* constraint threshold. In none of the results did any station receive new aggregate interference above 2 percent. Details about the methodology as well as study results can be found in the Appendix.

The analysis pertains only to constraints applied to prevent new interference under the approach adopted by the Commission, and does not consider any alternatives that stations may have, including the opportunity reassigned stations will have to request alternate channels or expanded facilities on their newly assigned channels.[18] Similarly, the approach used in these studies does not factor in any post-auction optimization, which will be run after the completion of bidding in the auction.[19] Such optimization could consider additional factors, such as minimizing the number of channel reassignments or the estimated costs of repacking.[20]

To assist commenters in designing and running their own simulations, we are releasing information about how we conducted the analysis and performed interference calculations. The results in the attached Appendix are not exhaustive. We invite parties to conduct their own simulations and interference analyses using these updated constraint files in conjunction with the publicly available *TVStudy* software.

The Incentive Auction Task Force invites interested parties to comment on the data and analyses we release in this Public Notice and the attached Appendix. New constraint files and all current and subsequent releases relating to the Incentive Auction will be posted to and available on the LEARN website at: http://www.fcc.gov/learn.

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This Public Notice is being issued pursuant to sections 0.31, 0.51, 0.61, and 0.131 of the Commission's rules by the Office of Engineering and Technology and the International, Media, and Wireless Telecommunications Bureaus, members of the Incentive Auction Task Force.[21] Comments may be filed using the procedures for *ex parte* submissions in permit-but-disclose proceedings set forth in section 1.1206 of the Commission's rules.[22] When filing comments, please reference GN Docket No. 12-268 and ET Docket No. 13-26.

For further information, contact Jonathan McCormack at 202-418-1065, or via e-mail at Jonathan.McCormack@fcc.gov.

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[18] *Report and Order* at para. 539.

[19] *Id.* at para. 118.

[20] *Repacking Update PN*, 29 FCC Rcd. at 48, para. 3.

[21] 47 C.F.R. §§ 0.31, 0.51, 0.61, 0.131.

[22] *See* 47 C.F.R. § 1.1206(b)(2).