



# PUBLIC NOTICE

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## INCENTIVE AUCTION TASK FORCE RELEASES INITIAL CLEARING TARGET OPTIMIZATION SIMULATIONS

**AU Docket No. 14-252**  
**GN Docket No. 12-268**

**Comment Date:** June 3, 2015

1. By this Public Notice, the Incentive Auction Task Force provides the results of several staff simulations of the initial clearing target optimization procedure proposed in the *Auction 1000 Comment PN*,<sup>1</sup> modified as discussed below. Releasing this data will better enable interested parties to analyze issues related to the selection of an initial spectrum clearing target.

2. The clearing target selection procedure proposed in the *Auction 1000 Comment PN* would, *inter alia*, impose a nationwide cap on impairments.<sup>2</sup> To conduct the simulations, the staff applied the clearing target selection procedure proposed in the *Auction 1000 Comment PN*,<sup>3</sup> with the following exceptions reflecting the range of comments in response to the *Comment PN*. Instead of accommodating impairments up to 20 percent, the simulations apply a standard of up to (but not equal to) the equivalent of one license block nationwide, as measured by weighted population (“weighted-pops”).<sup>4</sup> The simulations also apply equal weighting to

<sup>1</sup> *Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002*, GN Docket No. 12-268, AU Docket No. 14-252, Public Notice, FCC 14-191, 29 FCC Rcd 15750 (Dec. 17, 2014) (“*Auction 1000 Comment PN*” or “*Comment PN*”).

<sup>2</sup> Impairments are the result of assigning TV stations to channels in the 600 MHz Band in order to accommodate market variation. *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 29 FCC Rcd 6567, 6604-6607, paras. 81-87 (2014) (“*Incentive Auction R&O*”). See *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Second Report and Order and Further Notice of Proposed Rulemaking, 29 FCC Rcd 13071 (2014) (adopting methodology for use during the incentive auction to predict inter-service interference between impairing TV stations and licensed wireless services in the 600 MHz Band).

<sup>3</sup> *Auction 1000 Comment PN*, 29 FCC Rcd at 15762-69, paras. 27-45.

<sup>4</sup> “Weighted-pops” refers to the proposed approach of weighting the population in a given PEA based on an index of area-specific prices from prior auctions and counting population in each block in the PEA. See *id.*, 29 FCC Rcd at 15766-67, para. 38, 15803, paras. 162-63. The standard applied in the simulations would allow impairments at a smaller percentage of impaired weighted-pops at higher clearing targets and a larger percentage of impaired weighted-pops at lower clearing targets. We note that “the equivalent of one block nationwide” does not mean that one block would be impaired in each

impairments regardless of whether they are in the uplink or downlink portion of the band.<sup>5</sup> The data and information we release today are illustrative only.<sup>6</sup> The Commission will adopt final decisions regarding the proposed initial clearing target selection procedure in a forthcoming *Auction 1000 Procedures PN*.<sup>7</sup>

3. In order to conduct the simulations released with this Public Notice, the staff had to make certain assumptions about protection of foreign TV stations. With respect to Canada, the simulations assume for illustrative purposes only that the Commission will not need to protect vacant allotments in Canada's TV bands, an option put forth in Industry Canada's *Consultation on Repurposing the 600 MHz Band* proceeding.<sup>8</sup> Mexico has not yet put forward any public plans for repurposing the 600 MHz Band; as a result, for purposes of these simulations all Mexican allotments are protected.<sup>9</sup> Due to insufficient data at this time, the simulations do not reflect any interference from Mexican TV stations into the United States.<sup>10</sup>

4. The simulations released with this Public Notice reflect three different illustrative broadcaster participation scenarios: (1) participation by between 40 and 50 percent of broadcast stations; (2) participation between 50 and 60 percent; and (3) participation between 60 and 70 percent. We emphasize that these simulations model only the number of spectrum blocks that would be available under various initial clearing targets that would be feasible based on broadcaster participation in the auction. The simulations reflect no assumptions about auction outcomes in terms of which reverse auction participants would be selected as winning bidders, the winning bid amounts, the total proceeds of the forward auction, or whether the Commission would be able to close the auction at the initial clearing target.

5. For each of the three broadcaster participation scenarios, the attached Appendix provides information on the number of spectrum blocks that would be offered in the forward auction in each proposed

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market, but rather that the total number of impaired weighted-pops cannot exceed the equivalent weighted-pops of one block nationwide in the aggregate. For example, under the clearing targets and associated band plans adopted in the *Incentive Auction R&O*, the equivalent of one block under an 84 megahertz clearing target would be approximately 14 percent of total weighted-pops nationwide, the equivalent of one block under a 114 megahertz clearing target would be approximately 11 percent, and the equivalent of one block under a 126 megahertz clearing target would be 10 percent.

<sup>5</sup> This variation from the *Comment PN* eliminates the proposed weighting on impairments in the downlink band, under which a downlink impairment would be counted as impairing the corresponding uplink band, but an uplink impairment would not be counted as impairing the corresponding downlink band. *Auction 1000 Comment PN*, 29 FCC Rcd at 15762, para. 29. We also note that the simulations apply a 10 percent standard for treating a county's entire population as impaired for the purposes of applying the primary objective; the *Comment PN* proposed a range between 10 and 20 percent. *See id.*

<sup>6</sup> *See 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, Public Notice, 29 FCC Rcd 5687, 5687 (June 2, 2014) ("*Aggregate Interference PN*").

<sup>7</sup> *Auction 1000 Comment PN*, 29 FCC Rcd at 15753-54, para. 7.

<sup>8</sup> We emphasize that this proposal remains pending and has not been adopted by Industry Canada. We also note that, although Canada's *Consultation* indicates it is considering pursuing a joint repacking plan with the United States, for purposes of the simulations we do not assume a joint repacking plan. *See Consultation on Repurposing the 600 MHz Band, Spectrum Management and Telecommunications*, Industry Canada, SLPB-005-14, para. 41 (rel. December 18, 2014), <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10891.html> ("*Consultation on Repurposing the 600 MHz Band*").

<sup>9</sup> *See Incentive Auction R&O*, 29 FCC Rcd at 6677-80, paras. 246-57.

<sup>10</sup> We anticipate the Commission will have the data necessary to make these calculations in advance of the incentive auction, however. We note that including the predicted interference from Mexican stations would increase the impairment level in each of the scenarios. The simulations do reflect predicted interference from Canadian TV stations into the United States.

license category (including totals nationwide, in the high-demand markets,<sup>11</sup> and by Partial Economic Area or “PEA”), and the same breakdown showing the total weighted-pops for the licenses in each category. Under each scenario, the Appendix also shows results based on two approaches to assigning impairing stations to the 600 MHz Band: (1) the approach proposed in the *Comment PN*, under which the optimization software assigns stations within the 600 MHz Band so as to minimize impaired weighted-pops; and (2) an alternative approach that minimizes impaired weighted-pops but restricts the software from assigning stations to channels that could impair the duplex gap.<sup>12</sup>

6. The simulations indicate that the procedure proposed in the *Comment PN* for setting the initial clearing target, with the modifications described above, results in the selection of an initial clearing target of 84 megahertz in a scenario where 40 to 50 percent of broadcasters participate in the reverse auction (Scenario 1); an initial clearing target of 114 megahertz in a scenario where 50 to 60 percent participate (Scenario 2); and an initial clearing target of 126 megahertz in a scenario where 60 to 70 percent participate (Scenario 3). Under each scenario, the vast majority of the licenses offered in the band plan associated with each clearing target are Category 1 licenses.<sup>13</sup> In Scenario 1, of the 2842 possible licenses,<sup>14</sup> only 46 are Category 2 licenses. For Scenario 2, of the 3654 possible licenses, only 50 are Category 2 licenses. And for Scenario 3, of the 4060 possible licenses, only 48 are Category 2 licenses. In all three scenarios, 88 to 93 percent of the licenses in the high-demand markets are Category 1 licenses and 84 to 88 percent of PEAs contain *only* Category 1 licenses.<sup>15</sup> The results also reflect that, in lower broadcaster participation scenarios, excluding stations altogether from the duplex gap would increase the number of Category 2 licenses and heavily impaired licenses that the Commission proposed not to offer in the incentive auction.<sup>16</sup>

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<sup>11</sup> “High-demand markets” is defined as the 40 largest PEAs by population. *Auction 1000 Comment PN*, 29 FCC Rcd at 15770, para. 51. These markets are considered high demand because the geographic areas they cover have usually generated the highest average prices per MHz-pop in prior spectrum license auctions and accounted for a substantial fraction of total auction revenues. *Id.*

<sup>12</sup> *Auction 1000 Comment PN*, 29 FCC Rcd at 15765-66, paras. 35-36. The Appendix refers to (1) as “protecting the duplex gap” and the alternative approach as “not protecting the duplex gap.”

<sup>13</sup> In each of the simulations, at least 93.4 percent of licenses are Category 1 licenses, and Category 2 licenses comprise at most 1.3 percent of total possible licenses. Under the *Comment PN* proposal, “Category 1” licenses are licenses that contain impairments affecting between zero and 15 percent of the population in a PEA, “Category 2” licenses are licenses that contain impairments affecting greater than 15 percent but less than or equal to 50 percent of the population, and licenses with impairments affecting more than 50 percent of the population would not be offered in the auction. *See Auction 1000 Comment PN*, 29 FCC Rcd at 15797-98, paras. 145-46.

<sup>14</sup> We note that for purposes of this impairment analysis, the total number of licenses analyzed at each clearing target level includes only those licenses that could be offered in the continental United States.

<sup>15</sup> For example, out of 406 PEAs, all but 62 will have only Category 1 licenses in the 84 megahertz initial clearing target scenario. The same is true for all but 53 in the 114 megahertz scenario and all but 47 in the 126 megahertz scenario. The total number of PEAs is 416, but the simulations results evaluate only impairments that affect the 406 PEAs in the continental United States. *See generally Wireless Telecommunications Bureau Provides Details About Partial Economic Areas*, GN Docket No. 12-268, Public Notice, 29 FCC Rcd 6491 (June 2, 2014). Further, under this scenario, of the 2654 Category 1 licenses, 2535 are entirely free of impairments (i.e. zero percent of the weighted-pops in the PEA are impaired). In Scenario 2, of the 3469 Category 1 licenses, 3334 are entirely free of impairments and in Scenario 3, of the 3886 Category 1 licenses, 3753 are entirely free of impairments. Once again, these totals reflect only those licenses that would be offered in the continental US that are subject to impairments.

<sup>16</sup> In addition, the simulation results reflect that protecting the duplex gap at lower participation scenarios would result in the selection of lower clearing targets.

7. 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. Information 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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8. 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 Wireless Telecommunications Bureau and the Incentive Auction Task Force.<sup>17</sup> 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.<sup>18</sup> When filing comments, please reference AU Docket No. 14-252 and GN Docket No. 12-268.

9. To request materials in accessible formats (Braille, large print, electronic files, audio format) for people with disabilities, send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer and Government Affairs Bureau at (202) 418-0530 or (202) 418-0432 (TTY).

10. For further information, contact Madelaine Maior at 202-418-1466, or via e-mail at [Madelaine.Maior@fcc.gov](mailto:Madelaine.Maior@fcc.gov).

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<sup>17</sup> 47 C.F.R. §§ 0.31, 0.51, 0.61, 0.131.

<sup>18</sup> See 47 C.F.R. § 1.1206(b)(2).