

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

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

**REPLY COMMENTS OF T-MOBILE USA, INC.**

T-Mobile USA, Inc. (“T-Mobile”) submits these reply comments in the above-referenced proceeding regarding the Office of Engineering and Technology’s (“OET”) update to its two-decade-old OET-69 software, which is used to identify broadcast television license contours and predict likely interference. The initial comments in this proceeding show that the Commission has ample authority to update this software and that doing so is critical for the Commission to be able to conduct the type of real-time repacking analysis essential to a successful and timely broadcast incentive auction.<sup>1</sup>

**I. INTRODUCTION**

The new software, called *TVStudy*, takes the existing OET-69 guidelines for identifying broadcast television license areas and uses modern software coding techniques to produce more reliable, consistent results than the current software.<sup>2</sup> Whereas the Commission’s current

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<sup>1</sup> See Comments of CTIA – The Wireless Association, ET Docket No. 13-26 and GN Docket No. 12-268 (filed Mar. 21, 2013) (“CTIA Comments”); Comments of the Consumer Electronics Association, ET Docket No. 13-26 and GN Docket No. 12-268 (filed Mar. 21, 2013) (“CEA Comments”); Comments of Communications Technologies, Inc., ET Docket No. 13-26 and GN Docket No. 12-268 (filed Mar. 21, 2013).

<sup>2</sup> See CEA Comments at 3 (“The *TVStudy* software is capable of producing a much more accurate prediction of broadcast coverage and interference than the previous software because

software analyzes each station individually with results that can vary depending on the assumptions used, the new software allows for parallel analysis of multiple stations and eliminates ambiguities that can produce different boundary contours and interference zones for the same station. As the Commission explains, “the new *TVStudy* software is designed for making rapid coverage and interference calculations involving many stations and provides highly-detailed outputs.”<sup>3</sup> The *TVStudy* software also allows the Commission to create a database of interference conditions that broadcast stations face so that repacked broadcasters receive no more interference protection after the incentive auction than they do today.<sup>4</sup>

If the incentive auction is to succeed, the Commission and the wireless industry must understand what licenses broadcasters hold and quickly identify how those licenses might fit together under an enormous number of interference scenarios that will emerge during the auction.<sup>5</sup> Running twenty-year-old software that relies on an iterative, station-by-station analysis and produces results that can vary depending on the assumptions used seems highly unlikely to meet the needs of the incentive auction administration function that the Commission must assume.<sup>6</sup>

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*TVStudy* uses better data and more accurate measurements, [and] corrects implementation errors.”); CTIA Comments at 4 (same).

<sup>3</sup> *Id.*

<sup>4</sup> See CEA Comments at 7.

<sup>5</sup> CEA Comments at 8 (“The accuracy and flexibility of the *TVStudy* software is critical to an effective repacking process, which, in turn, is crucial to reallocating as much spectrum as possible to wireless broadband use.”).

<sup>6</sup> CEA Comments at 2, 8; CTIA Comments at 3-5.

## II. DISCUSSION

Despite the substantial improvements that OET has introduced with its updated software, and despite the importance of this software to the incentive auction, several broadcast licensees and their representatives, including the National Association of Broadcasters (“NAB”), have opposed the Commission’s efforts.<sup>7</sup> NAB cites three primary reasons to oppose the Commission’s proposed software update.<sup>8</sup> First, NAB portrays the software update as a change to the boundary definition criteria found in OET-69, an action NAB asserts the Spectrum Act prohibits.<sup>9</sup> Second, NAB objects to Bureau-level consideration of the proposal and seeks a full, Commission-level, notice-and-comment rulemaking change on the software update.<sup>10</sup> Third, NAB claims that new software will create uncertainty for broadcasters that could prove damaging for the incentive auction.<sup>11</sup>

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<sup>7</sup> See Comments of the National Association of Broadcasters, Fox Entertainment Group, CBS Corporation, NBCUniversal, LLC, ABC Owned Television Stations, ABC Television Affiliates Association, CBS Television Network Affiliates Association, FBC Television Affiliates Association, and NBC Television Affiliates, ET Docket No. 13-26 and GN Docket No. 12-268 (Mar. 21, 2013) (“NAB Comments”); Comments of Sinclair Broadcast Group, Inc., ET Docket No. 13-26 and GN Docket No. 12-268 (filed Mar. 21, 2013); Comments of the School Board of Miami-Dade County, Florida, GN Docket No. 12-268 and ET Docket No. 13-26 (filed Mar. 19, 2013); Comments of Lima Communications Corporation, Independence Television Company, WAND(TV) Partnership, Idaho Independent Television, Inc., and West Central Ohio Broadcasting, Inc., ET Docket No. 13-26 and GN Docket No. 12-268 (filed Mar. 12, 2013); Comments of Cohen, Dippell, and Everist, P.C., ET Docket No. 13-26 and GN Docket No. 12-268 (filed Mar. 21, 2013); see also National Association of Broadcasters, *Ex Parte Notice*, GN Docket No. 12-268 (filed Feb. 8, 2013) (“NAB *Ex Parte*”).

<sup>8</sup> See NAB *Ex Parte*; NAB Comments. *But see* CTIA Comments at 17 (“NAB has fundamentally mistaken a tool implementing the [OET-69] methodology with the methodology itself.”).

<sup>9</sup> NAB Comments at 3-17; NAB *Ex Parte* at 2.

<sup>10</sup> NAB Comments at 17-23; NAB *Ex Parte* at 3.

<sup>11</sup> NAB *Ex Parte* at 3; see also, e.g., NAB Comments at 16 (“Not knowing how a licensee’s coverage area and population served will be calculated, much less how those calculations will be valued in the incentive auction, is a significant harm to all members of the industry.”).

NAB's arguments do not withstand scrutiny.

The software update that the Bureau proposes to adopt changes the tools used to “faithfully implement OET-69 so that [the process] is more accurate, consistent and efficient in implementation” – what it does not do is change the criteria found in OET-69.<sup>12</sup> Today, the Bureau relies on Fortran software to perform its calculations. As OET-69 indicates, the Fortran language is “complex, and many of its options are available only by recompilation for each case of interest.”<sup>13</sup> IBM first developed Fortran in 1958. And while Fortran still has applications in the scientific community, other software languages that are more widely used, accessible and reliable than Fortran are available today.<sup>14</sup> Even more importantly, some of the reference materials that the current Fortran-based software uses in performing its calculations are woefully out of date. In its public notice, for example, the Bureau proposes to use 2010 Census data instead of 1990 data and to incorporate a terrain database that has increased accuracy and granularity compared to older resources.<sup>15</sup> The Bureau also proposes to fix an error in the

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<sup>12</sup> CTIA Comments at 19; *see also* CEA Comments at 11 (“Consistent with the statute, the *TVStudy* software follows the methodology described in OET-69 – it uses as inputs to that methodology updated and more accurate data.”).

<sup>13</sup> Federal Communications Commission, OET Bulletin No.69: Longley-Rice Methodology for Evaluating TV Coverage and Interference 10 (2004), *available at* [http://transition.fcc.gov/Bureaus/Engineering\\_Technology/Documents/bulletins/oet69/oet69.pdf](http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet69/oet69.pdf) (“OET-69”). The individual using Fortran is expected to have “computer programming skills and experience as a system administrator of the computer system on which it is to be installed because linking the data files, which occupy 1.6 gigabytes of disk space, will be a site-specific task.”

<sup>14</sup> *See* CTIA Comments at 4 (“[T]he existing OET-69 software is ‘based fundamentally on source code and data from the 1990s and earlier’ and the intervening years since the previous software update have provided the Commission with valuable information it can use to improve the software.”).

<sup>15</sup> *Public Notice* at 3-4; *see also* CEA Comments at 3-4 (explaining that in the two decades since the last Census, there has been a 24 percent increase and a significant geographic shift in

current program that has the propensity to produce inaccurate depression angle calculations and, ultimately, inaccurate boundary areas.<sup>16</sup> While there are many minor changes contemplated by the Bureau, the software update as a whole is quite modest: the software update will improve the accuracy and reliability of the service-area and interference calculations OET-69 calls on broadcasters to perform but will not alter OET-69’s model for making predictions. The new software will continue to predict radio field strength at specific geographic points based on the elevation profile of terrain between the transmitter and each specific reception point, and it will use that information to detect the presence or absence of interference in grid cells that comprise the broadcast service area subject to calculation.<sup>17</sup>

The Bureau also has wide discretion to adopt technical changes to its rules.<sup>18</sup> The Commission’s regulations direct the Wireless Telecommunications Bureau to “develop[] and recommend[] policies, programs, and rules to ensure interference-free operation of wireless telecommunications equipment and networks” and coordinate with other bureaus and offices on interference issues.<sup>19</sup> The Chief of the Wireless Telecommunications Bureau is delegated authority to perform all of the functions of the Bureau, including those described above.<sup>20</sup> Any official with delegated authority is authorized to “issue orders (including rulings, decisions, or

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population, and thus, using the old Census data “would be unreasonable and poor engineering”); CTIA Comments at 7 (same).

<sup>16</sup> *Id.* at 5; *see also* CEA Comments at 12.

<sup>17</sup> *See* OET-69.

<sup>18</sup> *See* CTIA Comments at 19 (“The implementation of software that predicts signal strength, interference effects and coverage based on OET-69 methodology is clearly an area that is (and should) be left to the Commission’s discretion to determine under the *Chevron* doctrine.”); *see also* CEA Comments at 12 (“While the Spectrum Act requires the FCC to follow the methodology described in OET-69, it does not specify how the FCC must act with regard to certain unspecified parameters.”).

<sup>19</sup> 47 C.F.R. §0.131(h).

<sup>20</sup> 47 C.F.R. §0.331.

other action documents) pursuant to such authority and to enter into general correspondence concerning any matter for which he is responsible.”<sup>21</sup>

Finally, the software update will reduce uncertainty for broadcasters, not increase it.<sup>22</sup> The current software contains many undefined terms and reference points that, as the Bureau explained, can produce variable results depending on how any given analysis addresses the omissions. The proposed software update provides greater specificity and, in so doing, offers more reliable and more consistent guidance than the current software allows. Moreover, beyond correcting systematic errors in the old software, the Commission also plans to make the *TVStudy* software and the databases it uses available to the public, thereby further reducing broadcaster uncertainty.<sup>23</sup>

### **III. CONCLUSION**

Commenters agree that an update to the software implementing OET-69 is long overdue. With incentive auctions scheduled to occur as early as next year, continued use of decades-old software used to calculate broadcast television contours simply will not meet the needs of forward auction bidders, reverse auction participants, or the Commission. While the OET-69

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<sup>21</sup> 47 C.F.R. §0.204.

<sup>22</sup> CEA Comments at 2 (“By releasing the software now, OET also is increasing certainty about the methods the Commission will use in the repacking process, which will help all parties better evaluate their potential participation.”).

<sup>23</sup> *Public Notice* at 2.

software update should continue to be refined, reflexive opposition to this modest, but critical, technology update finds no basis in law or policy.

Respectfully submitted,

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