

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

In the Matter of	)	
	)	
Unlicensed Operation in the TV Broadcast Bands	)	ET Docket No. 04-186
	)	
Additional Spectrum for Unlicensed Devices	)	ET Docket No. 02-380
Below 900 MHz and in the 3 GHz Band	)	

To: The Commission

**JOINT REPLY TO OPPOSITIONS TO PETITION FOR RECONSIDERATION**

The Wireless Internet Service Providers Association, the Federation of Internet Solution Providers of the Americas, the Native American Broadband Association, Spectrum Bridge, Inc., Comsearch and Carlson Wireless Technologies Inc. (collectively, “Joint Petitioners”), by counsel and pursuant to Section 1.429(g) of the Commission’s Rules, hereby reply to certain of the Oppositions to the Joint Petition for Partial Reconsideration (“Petition”) that the Joint Petitioners filed in this proceeding.<sup>1</sup> First, in response to concerns raised by the Association for Maximum Service Television and the National Association of Broadcasters (“MSTV/NAB”), Cellular South, Inc. (“Cellular South”)<sup>2</sup> and others, the Joint Petitioners modify their proposal for increased tower location heights to further reduce the potential for interference to TV stations yet allow sufficient flexibility for fixed wireless Internet service providers (“WISPs”) to efficiently serve the public. Specifically, the Joint Petitioners maintain their proposal for a 250-

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<sup>1</sup> See *Second Memorandum Opinion and Order*, ET Docket Nos. 04-186 and 02-380, FCC 10-174 (rel. Sept. 23, 2010) (“*Order*”). Wireless Strategies, Inc., one of the Joint Petitioners that filed the Petition, is not participating in this Reply.

<sup>2</sup> See MSTV/NAB Opposition to Petitions for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“MSTV/NAB Opposition”) at 9-10; Cellular South Opposition to Petitions for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed Feb. 25, 2011 (“Cellular South Opposition”) at 7-8. The Public Interest Spectrum Coalition (“PISC”) supported without reservation the Joint Petitioners’ proposal for a 250-meter HAAT limit. See PISC Opposition and Response to Petitions for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“PISC Response”) at 9-10.

meter maximum height above average terrain (“HAAT”) antenna height limit but propose a 75-meter maximum height above ground level (“AGL”) for antennas, with two further conditions to mitigate interference potential: (1) the maximum combined height (ground elevation plus antenna height) will not exceed 250 meters HAAT, and (2) fixed devices will not communicate with Mode I personal/portable devices, as suggested by MSTV/NAB. In proposing these modifications, the Joint Petitioners appreciate the willingness of other parties, particularly MSTV/NAB, to acknowledge the substantial benefits the public will receive from having greater operational flexibility. Second, the Joint Petitioners believe that the Commission should authorize two classes of out-of-band emission criteria to enable WISPs to take advantage of a relaxed spectrum mask where appropriate, and to impose specific conditions on operations where necessary to protect incumbents. Any such conditions should be the least restrictive means to ensure interference protection.

By quickly making these reasonable and balanced rule changes – which address the problems, proposals and objections raised on reconsideration – WISPs and equipment vendors can proceed with the business of providing affordable and ubiquitous fixed broadband services to the public.

### **Discussion**

#### **I. THE COMMISSION SHOULD AMEND ITS RULES TO INCREASE THE MAXIMUM HEIGHT OF ANTENNA LOCATIONS TO 250 METERS, WITH CERTAIN SAFEGUARDS TO MITIGATE INTERFERENCE POTENTIAL.**

In their Petition, the Joint Petitioners demonstrated the preclusive effects that a 76-meter HAAT restriction would have on the ability of consumers residing in large parts of the country to receive the benefits of fixed broadband service via TV white space

spectrum.<sup>3</sup> The Joint Petitioners included nationwide maps showing the areas precluded by the 76-meter limit as contrasted with the vastly smaller areas that would be precluded by raising the HAAT maximum to 250 meters.<sup>4</sup> In recognizing that operation from higher elevations could increase the potential for interference to TV stations and other incumbents entitled to protection, the Joint Petitioners proposed corresponding increases to co- and adjacent-channel distance separations.

Parties generally acknowledged that the rules adopted in the *Order* are deficient and should be amended to enable expanded fixed white space operations. In noting the “compelling data” presented by the Joint Petitioners, Motorola Solutions agreed that the current HAAT limit “would preclude deployment in many rural areas with varying terrain and thus increase the costs of WISPs seeking to provide rural broadband service over TVBDs.”<sup>5</sup> StratusWave Communications, a WISP operating in West Virginia and Ohio with plans to deploy fixed services on white space spectrum, demonstrated that under the current HAAT rules it would be unable to affordably provide broadband service to large parts of West Virginia – a hilly, rural state with many unserved and underserved areas – estimating that the deployment costs would be three times higher if the existing HAAT limit were retained, and that deployments would be delayed by a year.<sup>6</sup> PISC agreed with the Joint Petitioners, stating that the Commission should change its HAAT rules “if the Commission were to find that permitting higher fixed antenna heights can be accommodated without unduly increasing the likelihood of harmful interference for the

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<sup>3</sup> See Petition at 3-4.

<sup>4</sup> See *id.* at Appendix B and Appendix D.

<sup>5</sup> Comments of Motorola Solutions, Inc. to Petitions for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“Motorola Comments”) at 5.

<sup>6</sup> See Comments of Gateway Telecom LLC dba StratusWave Communications, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“StratusWave Comments”) at 2.

viewing of local television programming.”<sup>7</sup> MSTV/NAB, representing the interests of TV broadcasters, “recognize these terrain limitations and agree that the current HAAT limitation of 76 meters may be too restrictive.”<sup>8</sup> Cellular South acknowledged that there is “some merit” to the Joint Petitioners’ proposal and acknowledged the preclusive effect that the 76-meter limit would have in some portions of the country.<sup>9</sup> Google stated that raising the HAAT “could yield some benefits.”<sup>10</sup>

Though parties agree with the Joint Petitioners on the problems the 76-meter HAAT limit will create to broadband deployment, they vary in how the Commission should modify its rules. Motorola Solutions and StratusWave supported the Joint Petitioners’ proposal without modification.<sup>11</sup> MSTV/NAB did not oppose a 250-meter HAAT, but would cap antenna heights at 30 meters AGL.<sup>12</sup> MSTV/NAB also asked the Commission to prohibit fixed stations from providing channel lists to low power Mode I devices because Mode I devices lack geolocation capability and if located near the edge of the expanded white space coverage area could interfere with primary TV station operations.<sup>13</sup> Cellular South, a 700 MHz Block A licensee (Channel 52), would apparently allow unlimited HAAT, so long as antenna heights are limited to 30 meters AGL.<sup>14</sup> Google suggested that the Commission simply eliminate the 76-meter HAAT

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<sup>7</sup> PISC Response at 10.

<sup>8</sup> MSTV/NAB Opposition at 9.

<sup>9</sup> Cellular South Opposition at 7.

<sup>10</sup> Response to Petitions for Reconsideration of Google Inc., ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“Google Response”) at 3.

<sup>11</sup> See Motorola Comments at 5; StratusWave Comments at 1-2.

<sup>12</sup> See MSTV/NAB Opposition at 9-10.

<sup>13</sup> See *id.*

<sup>14</sup> See Cellular South Opposition at 8. As discussed in WISPA’s Opposition to Cellular South’s Petition for Reconsideration, Cellular South’s positions appear overly broad given that its interest lies only with respect to the potential for interference to Block A. See WISPA Opposition to Petition for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“WISPA Opposition”).

restriction and retain the 30-meter AGL limit, but indicated support for the Joint Petitioners' approach as a fallback position.<sup>15</sup>

Notwithstanding this overwhelming support – which includes the predominant associations representing TV stations – only Shure fails to acknowledge the need to increase the maximum height at which fixed TVBDs can be deployed.<sup>16</sup> In attempting to make its case, Shure incredibly ignores the compelling evidence that the Joint Petitioners submitted in the record, most notably the maps showing the preclusive effects of the 76-meter HAAT restriction and the meaningful effect that adjusting the distance separation criteria would have in accommodating the interests of incumbent stations. Shure disingenuously accuses the Joint Petitioners of taking a “second bite at the apple” when, in fact, the Commission did not impose *any* tower location limit until it adopted the *Order*.<sup>17</sup> Shure indicates that the Joint Petitioners' proposal to impose no tower height limit could increase interference from tall towers located “in flat areas with uniform HAAT.”<sup>18</sup>

There can be little doubt that there is a “compelling public need”<sup>19</sup> to significantly raise the maximum HAAT to enable consumers living in hilly and mountainous areas of the country to receive broadband service, and the Commission thus should adopt the Joint Petitioners' unopposed proposal for a 250-meter HAAT limit. While any antenna height limitation may preclude fixed white space operations in some areas, the Joint Petitioners do not object to a reasonable AGL limit to accommodate the legitimate concerns of

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<sup>15</sup> See Google Response at 4.

<sup>16</sup> See Opposition to Petitions for Reconsideration of Shure Incorporated, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011 (“Shure Opposition”) at 13-15.

<sup>17</sup> *Id.* at 13.

<sup>18</sup> *Id.* at 14.

<sup>19</sup> PISC Response at 10.

MSTV/NAB and Shure and, with respect to Block A, Cellular South. However, a 30-meter AGL limit is too restrictive, even for flat areas of the country. The Joint Petitioners thus propose a 75-meter AGL limit with the additional safeguard that the combination of the ground elevation (measured in HAAT) and the antenna height (measured in AGL) does not exceed 250 meters HAAT. Thus, if the ground elevation is 10 meters HAAT, the maximum height of the antenna would be 75 meters AGL. And if the ground elevation is 240 meters HAAT, the maximum antenna height would be 10 meters AGL.

This modified proposal will enable a larger number of WISPs in both hilly and flat areas to meet their service objectives in an affordable, responsible and cost-efficient manner. The Joint Petitioners believe that 75 meters is an appropriate cap on the height of towers and will afford WISPs in flat areas the opportunity to cover larger areas while avoiding interference. Broadcasters and wireless microphone users can be assured that no antenna will be located more than 250 meters above average terrain, and that no antenna will be mounted more than 75 meters above ground. When coupled with greater distance separation criteria, incumbents will be protected from interference from high-site antennas, regardless of the surrounding terrain.

Further, the Joint Petitioners do not object to MSTV/NAB's proposal to prohibit fixed devices from communicating with Mode I devices that do not have geo-location capability.<sup>20</sup> This additional safeguard will, as MSTV/NAB states, help avoid interference from Mode I devices inside TV contours.

The Joint Petitioners believe that their approach can be easily implemented into the databases.<sup>21</sup> The Commission should act expeditiously to adopt these proposals.

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<sup>20</sup> See MSTV/NAB Opposition at 10.

<sup>21</sup> Spectrum Bridge has indicated that this approach will not present problems for its white spaces database.

**II. THE COMMISSION SHOULD ALLOW DEVICES THAT EMPLOY A RELAXED EMISSION MASK, AND EMPLOY THE LEAST RESTRICTIVE MEANS TO PREVENT HARMFUL INTERFERENCE.**

Several parties commented on the proposals of the Joint Petitioners and Motorola to add a new class of TVBDs that would have the ability to employ a relaxed OOB mask subject to corresponding changes in the distance separation criteria.<sup>22</sup> In acknowledging the potential for interference to other interests entitled to protection, Motorola stated that “if data is presented that demonstrates that an increased potential for interference, these services and devices could be similarly protected by slightly increasing the separation or keep-out zones around those services for adjacent channel TVBD usage in the geo-location database.”<sup>23</sup>

Concerns about the increased potential for interference were raised by NCTA regarding cable head-ends,<sup>24</sup> Shure regarding wireless microphones,<sup>25</sup> MSTV/NAB regarding TV stations<sup>26</sup> and Cellular South with respect to Channel 52 (700 MHz Block A).<sup>27</sup> To the extent these concerns are legitimate, the Joint Petitioners suggest that the Commission use the least restrictive measures to address them. For instance, to address Cellular South’s concerns, the Commission could retain the existing OOB mask for Channel 51 and require 700 MHz Block A licensees to register in the geo-location database, as the Wireless Internet Service Providers Association recommended in its

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<sup>22</sup> See Petition at 8-9; Petition for Reconsideration of Motorola Solutions, Inc., ET Docket Nos. 04-186 and 02-380, filed Jan.5, 2011 (“Motorola Petition”) at 4-9.

<sup>23</sup> *Id.* at 9.

<sup>24</sup> See NCTA Opposition to Petitions for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed Feb. 24, 2011, at 7-10.

<sup>25</sup> See Shure Opposition at 5-11.

<sup>26</sup> See MSTV/NAB Opposition at 3-8.

<sup>27</sup> See Cellular South Opposition at 4-7.

opposition.<sup>28</sup> The Commission also could enlarge the 1 km keep-out zone for wireless microphones, or create a larger buffer zone to protect cable head-ends. Any such additional interference protection measures should, however, be applicable only to those channels or circumstances that are specifically presented, and across-the-board solutions that unnecessarily reduce flexibility should be rejected. The Joint Petitioners look forward to participating in the ongoing discussion regarding the OOBE rules that will be necessary to strike the appropriate balance between interference protection and affordable and efficient use of white space spectrum for fixed broadband.

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<sup>28</sup> See WISPA Opposition.

**Conclusion**

The Joint Petitioners urge the Commission to adopt the rule changes discussed herein to hasten the deployment of affordable fixed white space broadband services throughout the country.

Respectfully submitted,

March 7, 2011

**WIRELESS INTERNET SERVICE  
PROVIDERS ASSOCIATION**

**FEDERATION OF INTERNET SOLUTION  
PROVIDERS OF THE AMERICAS**

**NATIVE AMERICAN BROADBAND  
ASSOCIATION**

**SPECTRUM BRIDGE, INC.**

**COMSEARCH, A COMMSCOPE COMPANY**

**CARLSON WIRELESS TECHNOLOGIES INC.**

By: /s/ Stephen E. Coran

Stephen E. Coran

Rini Coran, PC

1140 19<sup>th</sup> Street, NW, Suite 600

Washington, DC 20036

(202) 463-4310

*Counsel to the Wireless Internet Service Providers  
Association and Special Counsel to other  
Joint Petitioners*

## CERTIFICATE OF SERVICE

I, Kenn Wolin, a legal assistant with the law firm of Rini Coran, P.C., hereby certify that I have caused a copy of the foregoing "Joint Reply To Oppositions to Petitions For Reconsideration" to be submitted to the FCC in ET Docket Nos. 04-186 and 02-380 via ECFS and sent US Mail, this 7th day of March 2011, to:

Edgar Figueroa, CEO  
Wi-Fi Alliance  
10900-B Stonelake Blvd., Suite 126  
Austin, TX 78759

David L. Donovan  
Victor Tawil  
Bruce Franca  
Association For Maximum Service Television, Inc.  
4100 Wisconsin Avenue, N.W.  
Washington, D.C. 20016

Jonathan D. Blake  
Eve R. Pogoriler  
Covington & Burling LLP  
1201 Pennsylvania Avenue, N.W.  
Washington, DC 20004-2401  
Counsel for the Association of Maximum Service Television, Inc.

David L. Nace  
George L. Lyon, Jr.  
Lukas, Nace, Gutierrez & Sachs, LLP  
8300 Greensboro Drive, Suite 1200  
McLean, Virginia 22102  
Counsel to Cellular South, Inc.

Richard S. Whitt  
Director/Managing Counsel,  
Telecom and Media Policy  
GOOGLE Inc.  
1101 New York Avenue, N.W., Second Floor  
Washington, DC 20005

Chuck Powers  
Director Engineering and Technology Policy  
Motorola Solutions, Inc.  
1455 Pennsylvania Avenue, N.W.  
Washington, DC 20004

Rick Chessen  
Loretta P. Polk  
National Cable & Telecommunications Association  
25 Massachusetts Avenue, N.W., Suite 100  
Washington, D.C. 20001-1431

Michael Calabrese  
Wireless Future Project/  
Open Technology Initiative  
New America Foundation  
1899 L Street, N.W., 4th Floor  
Washington, DC 20036

Matthew F. Wood  
Media Access Project  
1625 K Street, N.W., Suite 1000  
Washington, DC 20006

Catherine Wang  
Timothy Bransford  
Bingham McCutchen LLP  
2020 K Street, N.W.  
Washington, DC 20006  
Counsel to Shure Incorporated

John P. Malyar  
Chief Architect, Interconnection Solutions  
Adam C. Newman  
Sr. Manager, Interconnection Solutions  
Telcordia Technologies, Inc.  
1 Telcordia Dr.  
Piscataway, NJ 08854



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Kenn Wolin