

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

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

RESPONSE TO PETITIONS FOR RECONSIDERATION

Google Inc., pursuant to Section 1.4(b)(1) of the Commission’s rules,¹ hereby responds to the Petitions for Reconsideration of the Commission’s *Second Memorandum Opinion and Order*² in the above-captioned proceedings.

I. TV White Spaces Use Will Promote Innovation and Bring Other Benefits

In the *Second MO&O*, the Commission finalized rules that will enable unlicensed wireless devices to operate in television “white spaces,” or unused spectrum between television channels. Five petitions for reconsideration were filed to amend those rules.³ The proposed amendments include raising the height above average terrain (“HAAT”) limit above 76 meters,⁴

¹ 47 C.F.R. § 1.4(b)(1).

² *In the Matter of Unlicensed Operation in the TV Broadcast Bands, Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, Second Memorandum Opinion and Order*, 25 FCC Rcd. 18661 (2010) (“*Second Memorandum Opinion and Order*” or “*Second MO&O*”).

³ *Unlicensed Operation in the TV Broadcast Bands*, Public Notice, ET Dkt. 04-186 (rel. Feb. 2, 2011) (noticing petitions for reconsideration filed by Cellular South, Inc.; Motorola Solutions, Inc.; National Cable & Telecommunications Association; Wi-Fi Alliance; and Wireless Internet Service Providers Association, Federation of Internet Solution Providers of the Americas, Native American Broadband Association, Spectrum Bridge, Inc., Comsearch, Carlson Wireless Technologies Inc., and Wireless Strategies, Inc.).

⁴ Petition for Reconsideration of Motorola Solutions, Inc., ET Dkt. 04-186, at 2 n.5 (filed Jan. 5, 2011) (“*Motorola Petition*”); Joint Petition for Partial Consideration of Wireless Internet Service Providers

imposing broad security measures on the information transmitted between databases and TVBDs,⁵ and relaxing strict out-of-band emission (“OOBE”) limits for fixed television band white space devices (“TVBDs”).⁶

Google supports petitioners’ efforts to speed deployment of products and services in the television white spaces. We have long supported and promoted use of unlicensed spectrum as a platform for wireless innovation.⁷ As a founding member of both the White Spaces Coalition and the Wireless Innovation Alliance (“WIA”), we have worked with industry partners, public interest representatives, and Commission staff to establish reasonable rules-of-the-road for unlicensed white space devices.⁸ We also co-founded the White Spaces Databases Group with Comsearch, Dell, HP, Microsoft, Motorola, and Neustar, taking the lead to help create an interoperable system of geolocation databases that will lay the foundation for the white spaces ecosystem.

As the Commission pointed out in the *Second MO&O*, a number of TVBD applications already have begun operating on an experimental basis.⁹ In Logan, Ohio, Google and Spectrum Bridge teamed up to deploy a first-of-its-kind wireless broadband network for the Hocking

Association, Federation of Internet Solution Providers of the Americas, Native American Broadband Association, Spectrum Bridge, Inc., Comsearch, Carlson Wireless Technologies Inc., and Wireless Strategies, Inc., ET Dkt. 04-186, at 3-7 (filed Jan. 5, 2011) (“WISPA Petition”).

⁵ Petition for Reconsideration of National Cable & Telecommunications Association, ET Dkt. 04-186 (filed Jan. 5, 2011) (“NCTA Petition”).

⁶ Motorola Petition at 6-9; WISPA Petition at 7-9; Petition for Reconsideration of Wi-Fi Alliance, ET Dkt. 04-186, at 2 (filed Jan. 4, 2011) (“Wi-Fi Alliance Petition”).

⁷ See Comments of Dell Inc., Google Inc., The Hewlett-Packard Company, Intel Corp., Microsoft Corp., and Philips Electronics North America Corp., ET Dkt. 04-186 (filed Jan. 31, 2007).

⁸ The White Spaces Coalition consists of Dell Inc., Google Inc., The Hewlett-Packard Company, Intel Corp., Microsoft Corp., and Philips Electronics North America Corp.

⁹ See *Second MO&O* at ¶ 14.

Valley Community Hospital, demonstrating the potential of the TV white spaces to improve broadband and spark new applications in healthcare. In Plumas County, California, Google assisted the county in deploying a smart grid network. Successful white space deployments by other parties include the “Smart City” initiative undertaken by the city of Wilmington, North Carolina, and the high-speed Internet demonstration project in Claudville, Virginia.¹⁰ In addition to these trials, the rapid proliferation of devices using unlicensed Wi-Fi spectrum – more than one billion to date – provides further evidence of the enormous economic and social value that could arise from white space products and services.

II. Retaining the 76 Meter HAAT Requirement Would Result in Significant Limitations

In the *Second MO&O*, the Commission limited the antenna HAAT of a fixed TVBD to 76 meters.¹¹ WISPA argues that this height limit is too low to permit fixed stations to be installed at higher elevations, resulting in large areas of the country where fixed operations cannot be deployed.¹² Further, WISPA provides new information demonstrating an inability to install stations in mountainous, hilly areas - primarily rural regions - without violating the height restriction.¹³ WISPA urges the Commission to raise the HAAT limit to 250 meters.

While raising the HAAT as WISPA suggests could yield some benefits, we instead support reinstating a straightforward 30 meter above ground level (“AGL”) limit and eliminating the use of HAAT altogether. WISPA’s observations about the significant limitations of the 76 meter requirement underscore the shortcomings of HAAT and the advantages of AGL. We

¹⁰ See Letter from S. Roberts Carter, Wiltshire & Grannis LLP to Marlene H. Dortch, Secretary, FCC, ET Dkt. 04-186, at 2 (filed Feb. 19, 2010). See also *Second MO&O* at ¶ 14.

¹¹ See *Second MO&O* at ¶ 66.

¹² WISPA Petition at 3.

¹³ See *id.*, Appendix B.

previously expressed our concern that HAAT requirements would effectively thwart all TVBD deployment in elevated locations.¹⁴ For instance, a HAAT requirement would be expensive to implement, difficult to enforce, and lead to more disputes between service providers.¹⁵ By foreclosing TVBD deployment in mountainous, hilly areas, HAAT limits would reinforce the digital divide, not narrow it. Therefore, the Commission should eliminate the HAAT requirement and reinstate the 30 meter AGL limit to simplify and speed deployment of TVBDs. Should the Commission opt not to adopt the AGL measurement that we suggest, we would support increasing the HAAT as requested by WISPA and Motorola.¹⁶

III. Database Security Measures Should Both Protect Sensitive Data and Promote Innovation

According to the Commission's rules, "all information in a TVBD database must be made publicly available, including fixed TVBD registration and voluntarily submitted protected entity information."¹⁷ NCTA argues that this requirement unnecessarily exposes critical communications infrastructure to national security risks.¹⁸ To remedy this situation, NCTA proposes amending the rules to limit access to database information to only registered device

¹⁴ Opposition and Comments of Google Inc., ET Dkt. 04-186, at 14 (filed May 8, 2009).

¹⁵ *Id.*

¹⁶ See WISPA Petition at 4; Motorola Petition at 2 n. 5.

¹⁷ *Second MO&O* at ¶ 119 (noting that the Commission "will not require the public disclosure of information that a database manager may collect to support additional services . . . provided that this information also is not required to be provided by our rules.").

¹⁸ See NCTA Petition at 2-3 (arguing that "The [*Second MO&O*] would deliver this sensitive headend and tower information in a readily-accessible format, available online worldwide on an anonymous basis, to anyone who wants to see it for any purpose - including terrorists and saboteurs.").

manufacturers and operators, and to limit the information that is exchanged to just a list of available channels.¹⁹

The vast majority of the information that will be contained in the white spaces databases poses no threat to security; indeed, most of the data will come from Commission databases that are already available to the public.²⁰ Further, availability of protected entity registration information is essential for the detection and correction of errors, including interference.²¹ Google acknowledges, however, that some information in the database may be sensitive in nature and require protection from public disclosure.²² Communications and data storage must be sufficiently secure to ensure the integrity of the system, and security measures should protect against data being compromised during the transmission between authorized TVBDs and legitimate databases.²³

However, the Commission should not limit the information exchanged between a database and a TVBD to just a list of channels.²⁴ Such a narrow scope is likely to inhibit innovation, including the development of future value-added services in TV white spaces. A database is capable of performing a variety of functions – such as ranking available channels, estimating the likelihood of other users on a given channel at a given time, and providing other

¹⁹ *Id.* at 7.

²⁰ *Second MO&O* at ¶ 119.

²¹ *Id.* (observing that “errors could result from the inadvertent entry of incorrect data . . . as a result of a party deliberately entering false data,” and that data availability could “assist parties in locating the source of interference that occurs and contacting the device operator to correct it”).

²² *Cf. id.* (stating that the Commission “will not require the public disclosure of information that a database manager may collect to support additional services . . . provided that this information also is not required to be provided by our rules.”).

²³ *See Second MO&O* at ¶¶ 204, 224.

²⁴ *See NCTA Petition* at 7 (recommending that “each party that receives TV band database information shall limit the use of the information to obtaining lists of channels available for that device to use . . .”).

location-based-information – in addition to simply responding to queries with mandatory information.²⁵ In crafting a tailored approach, the Commission should acknowledge that flexibility will help foster continued innovation in unlicensed spectrum.

IV. Adjusting OOB Limits Could Speed Deployment of White Space Products and Services

Motorola, the Wi-Fi Alliance, and WISPA propose amending out-of-band emission levels for TVBDs to facilitate innovation and deployment in such devices.²⁶ We urge the Commission to carefully consider the costs and benefits of such a change. A too-conservative approach will increase the costs of developing and manufacturing TVBDs, particularly for consumer applications. However, to the extent relaxed OOB limits may advance the Commission's interest in cost-effective broadband deployment and make it easier for TVBD manufacturers to build and bring their products to market, while protecting incumbent operations, they should be considered.

²⁵ See Proposal by Google Inc. to Provide a TV Band Device Database Management Solution, ET Dkt. 04-186, at 16 (filed Jan. 4, 2010).

²⁶ See Motorola Petition at 6-9; WISPA Petition at 7-9; Wi-Fi Alliance Petition at 2.

V. Conclusion

Google urges the Commission to consider the proposed modifications to its rules as discussed above to expedite deployment of products and services in the television white spaces.

Respectfully submitted,



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CERTIFICATE OF SERVICE

I hereby certify that on February 24, 2011, I caused a copy of the foregoing Response to Petitions for Reconsideration to be sent via United States mail, first-class postage prepaid, to:

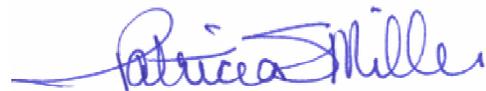
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