

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Proposals from Entities Seeking to Be Designated TV Band Device Database Managers)	DA 09-2479
)	
Unlicensed Operation in the TV Broadcast Bands)	ET Docket No. 04-186
)	

REPLY COMMENTS OF GOOGLE INC.

Google Inc. (“Google”), by its attorneys, hereby replies to comments filed regarding proposals submitted by various entities, including Google, seeking to be designated manager of a database for unlicensed operations in unused broadcast television spectrum (the “TV White Spaces” or “TVWS”).

INTRODUCTION

On January 4, 2010, Google submitted to the FCC Office of Engineering and Technology (“OET”) a complete proposal for an end-to-end TV White Spaces database management solution.¹ The Google Proposal fully and timely responded to the above-captioned Public Notice² soliciting proposals from prospective database managers. Eight other entities also submitted proposals seeking to be designated as a TVWS database manager.³ In these Reply Comments, Google responds to certain key issues raised in comments on the various proposals.

¹ ET Dkt. 04-186, Proposal By Google Inc. to Provide a TV Band Device Database Management Solution (Jan. 4, 2010) (“Google Proposal”).

² Public Notice, ET Dkt. 04-186, *Office of Engineering and Technology Invites Proposals from Entities Seeking to Be Designated TV Band Device Database Managers*, DA 09-2749 (Nov. 25, 2009) (“Public Notice”).

³ See ET Dkt. 04-186, Comsearch Proposal to Be Designated as a TV Band Device Database Manager (Jan. 4, 2010); Frequency Finder, Inc. Proposal to Be Named a Database Manager (Jan. 4, 2010); KB Enterprises and LS telcom TV Band Database Proposal (Jan. 4, 2010); Key Bridge Global LLC Proposal

I. COMPETITION WILL FOSTER DEVELOPMENT OF A ROBUST MARKETPLACE FOR DATABASE SERVICES

As discussed in its Proposal, Google believes the Commission should endorse an appropriately flexible and market-driven approach that avoids either limiting the number of database providers or mandating a single database architecture. Google is pleased that this recommended approach is broadly supported by other entities that, like Google, seek to be selected as competing providers of database services,⁴ as well as from other interested parties.⁵ There is widespread agreement that allowing a significant number of database service suppliers will best ensure a healthy and competitive environment that promotes innovation and competition in both basic and enhanced data services. Google, as described in its Proposal, is prepared to compete as one of multiple database providers.

Google agrees with Key Bridge that “a successful TV bands ecosystem can only thrive in ... a competitive environment,” one in which “emerging unlicensed products and services can be

to Administer a TV Bands Database (Jan. 4, 2010); NeuStar, Inc. Proposal for Designated TV Band Device Database Manager; Spectrum Bridge Inc. Proposal for Designated TV Band Database Manager (Jan. 4, 2010); Telcordia Technologies, Inc. Proposal Seeking to Be Designated as a TV Band Device Database Manager (Jan. 4, 2010); WSdb, LLC Proposal to Be Designated TV Band Device Database Manager (Jan. 4, 2010).

⁴ See, e.g., ET Dkt. 04-186, Comments of WSdb, LLC (“WSdb”) (Feb. 12, 2010) at 2-3 (noting broad consensus among all of the proposals for selection of multiple database administrators and for not mandating a single database architecture); Comments of Key Bridge Global LLC (“Key Bridge”) (Feb. 12, 2010) at 2 (competition among multiple database operators is a cornerstone of the FCC’s market-based strategy).

⁵ See, e.g., ET Dkt. 04-186, Comments of Nokia Inc. (“Nokia”) (Feb. 12, 2010) at 3 (urging FCC to adopt multiple database administrators to ensure openness and competition); Comments of Atheros Communications *et al.* (“TVWS Group”) (Feb. 12, 2010) at 2 (urging FCC to authorize multiple TVWS database vendors in order to encourage a high level of competition, innovation, and reliability in database services); Comments of IEEE 802.18 (Feb. 1, 2010) at 2 (recommending that FCC authorize multiple database providers and encourage multiple architectural approaches); Comments of Shure Incorporated (“Shure”) (Feb. 12, 2010) at 7 (supporting designation of multiple database operators to promote competition); Comments of Public Interest Spectrum Coalition (“PISC”) (Feb. 12, 2010) at 4 (FCC should permit competing database managers to provide retail services and should not dictate any single database architecture).

aggressively promoted.”⁶ Some commenters, however, ask the FCC to introduce artificial restrictions on competition, and to exclude otherwise qualified entities that do not satisfy an undefined test of “disinterestedness.” MSTV/NAB, for example, argue that TVWS database managers should be “unaffiliated with any party with an interest in the spectrum used by white space devices.”⁷ This standard is so vague that it would encompass all of the database manager proposals, because all of the entities seeking to be designated as managers legitimately have an interest in the success of the TVWS.

Proponents of “disinterested” database administration also claim that excluding certain parties, including Google, would prevent unspecified harm to device manufacturers and others.⁸ In particular, Key Bridge asks the Commission to reject the Google Proposal on the grounds that it “would create a powerful deterrent against other consumer electronics manufacturers to adopt and innovate in the TV bands.”⁹ The Commission must reject requests to adopt eligibility restrictions that would artificially limit competition, including Key Bridge’s attempt to foreclose participation by entities that potentially could provide WSDs. Key Bridge provides absolutely no support for preventing Google from participating in the TVWS database market. Notably, the many device manufacturers participating in this proceeding have expressed no concern about any

⁶ Comments of Key Bridge at 2-3.

⁷ Comments of Association for Maximum Service Television, Inc. and the National Association of Broadcasters (“MSTV/NAB”) (Feb. 12, 2010) at 8-9. *See also* Comments of Shure at 8; Comments of Key Bridge at 6.

⁸ *See, e.g.*, Comments of Key Bridge at 6 (“authorizing Google to be a TV bands administrator would create a powerful deterrent against other consumer electronics manufacturers to adopt and innovate in the TV bands.”). We note that in its pending Petition for Reconsideration of the *Second Report and Order*, Key Bridge asked the FCC to permit TVWS database administrators to negotiate commercial relationships for the registration and continuing support of Mode-II devices with WSD manufacturers, in order to recover costs associated with device registration and support. ET Dkt. 04-186, Petition for Reconsideration of Key Bridge (Mar. 19, 2009) at 6. Under a test of “disinterestedness” such as Key Bridge now proposes, it is not clear whether Key Bridge could enter into such a commercial relationship.

⁹ Comments of Key Bridge at 6.

potential WSD manufacturer serving as a database manager. Indeed, the TVWS Group, comprised of numerous TVWS equipment manufacturers,¹⁰ does not find fault with any of the proposed end-to-end database solutions, and specifically endorses Google's recommended "market-driven approach ... that avoids ... limiting the number of providers."¹¹

The FCC also must reject requests to exclude any potential database administrator based on unfounded speculation about whether it might perform its obligations. Shure, for example, claims that a WSD manufacturer will be "highly motivated to limit protections" required by FCC rules "and/or to give preferential channel assignments and other benefits to its own customers," and therefore should not be entitled to provide database services.¹² The FCC's rules address such concerns by requiring database administrators to make their services available to all unlicensed WSD users on a nondiscriminatory basis,¹³ and Google has committed to comply with this and other applicable FCC rules.¹⁴ Any party with evidence that a database administrator is not acting in compliance with its obligations may bring its concerns directly to the Commission. Requests that database administrators submit to any additional test of "disinterestedness" are nothing more than transparent attempts to limit the ability of qualified entities, including Google, to compete, and should be rejected.

¹⁰ TVWS Group members include Atheros, Broadcom, Dell, Microsoft, Motorola, Nokia, Philips, Marvell, Hewlett-Packard, and the Wireless Internet Service Providers Association. *See* Comments of TVWS Group at 1.

¹¹ *See* Comments of TVWS Group at 2, 5. *See also* Comments of Nokia at 9 ("industry will find a way to ensure a variety of compelling solutions for all consumers along the value chain. All actors involved should receive equal opportunity to develop the WS database and demonstrate their ability to maximize spectrum usage and on its own merits.").

¹² Comments of Shure at 8.

¹³ 47 C.F.R. § 15.715(f); *see In the Matter of Unlicensed Operation in the TV Broadcast Bands*, ET Docket No. 04-186, Second Report and Order, 23 FCC Rcd. 16807, ¶221 (2008) ("*Second Report & Order*").

¹⁴ *See* Google Proposal at 12.

Google agrees that robust competition, and the potential for additional future competition, will be key to innovation and user benefits in this space. We believe it would be premature for the Commission to establish a specific standard for initial entrants, and in the process somehow foreclose the possibility that other competitors will emerge. Thus, in addition to approving multiple providers, we encourage the FCC to expressly adopt an open door policy that would allow additional qualified database providers to enter the market at any point in the future.¹⁵

II. ADDITIONAL TESTING AND COMPLIANCE OVERSIGHT IS UNNECESSARY

Several commenters ask the Commission to adopt mechanisms that would serve no purpose other than to delay approval of database administrators and impede a thriving WSD marketplace. MSTV/NAB, for example, suggest that the FCC subject databases to “real world” testing before selecting a database manager,¹⁶ establish a technical advisory group to “develop procedures and appropriate tests to confirm the proper operation of the TVBD databases and TVBDs prior to their designation and commercial release,”¹⁷ and allow such an advisory group to “monitor continued performance and compliance.”¹⁸

In Google’s view, these proposals revisit issues that already have been decided and for which appropriate mechanisms already are in place. For example, MSTV/NAB claim that testing is necessary because implementing the database is complex and errors are likely to be

¹⁵ See Comments of TVWS Group at 2 (to ensure competition remains vibrant, FCC should allow for authorization of new database providers over time); Comments of PISC at 5 (FCC should provide an opportunity annually for new qualified applicants to apply to become database managers).

¹⁶ See Comments of MSTV/NAB at 17.

¹⁷ *Id.* at 19.

¹⁸ *Id.* at 19-20. See also ET Dkt. 04-186, Comments of National Cable & Telecommunications Association (Feb. 12, 2010) at 8 (requesting field testing of TVWS databases before WSDs enter the market).

made.¹⁹ The FCC has acknowledged the potential for database errors and omissions, and expects administrators to respond quickly to verify and/or correct data in the event that a party brings claims of inaccuracies in the database to its attention, and to advise the FCC of errors in its records.²⁰ Google intends to do so, and expects other administrators also will comply with their obligations. However, administrators cannot be held responsible for incorrect information entered by protected entities or other parties into CDBS, ULS, or any other database. Moreover, the FCC has authority to request that information that is inaccurate or not in compliance with the rules be removed from a database,²¹ and no party has demonstrated that this authority is not sufficient, or that the FCC cannot deal appropriately with any party that fails to comply with FCC directives. To the contrary, MSTV/NAB concede that the Communications Act gives the FCC sole responsibility for managing the use of the airwaves and enforcing its rules and policies.²²

Compliance testing and oversight boards such as proposed by MSTV/NAB also would increase the cost and complexity of white spaces devices and databases, and slow the introduction of valuable white spaces technology, to the detriment of consumers and competition. For example, the suggestion that a “technical advisory group” work with database managers to adapt to new technologies and “update the databases as industry practices evolve”²³ could force all databases to use the same technology, rather than allow the market to determine what technologies and database management practices best serve users. Competition will

¹⁹ Comments of MSTV/NAB at 17.

²⁰ *Second Report and Order* at ¶224.

²¹ *Id.*

²² See Comments of MSTV/NAB at 19 (citing 47 U.S.C. § 151).

²³ *Id.* at 20.

penalize any TVWS database that fails to adapt to technological advancements in this emerging market; the Commission should not allow an industry group to do so.

III. DATABASE ADMINISTRATORS ARE NOT REQUIRED TO VERIFY DEVICE CERTIFICATION

The proposals and comments reflect disagreement about whether the Commission requires TVWS database administrators to verify that WSDs have been certified by the FCC and received an FCC ID prior to transmitting available channel information. MSTV/NAB and Shure claim database managers must verify that personal/portable devices operating in Mode I are certified,²⁴ while the TVWS Group, Google, and others agree that database managers are not required to verify equipment authorization.²⁵ MSTV/NAB and Shure cite no rule, and MSTV/NAB refers only to the Public Notice soliciting database administrator proposals.²⁶ Key Bridge argues Google is “factually incorrect to state that the status of Mode I TVBDs need not be verified,” citing Section 15.715(j) of the rules.²⁷

The rules, the *Second Report and Order*, and the Public Notice do not support the contention that TVWS databases must verify the status of Mode I WSDs.²⁸ Section 15.715(j) requires that a TVWS database have the functionality, “upon request from the Commission,” to provide a no-channels-available response “when queried by a specific TVBD or model of TVBD.”²⁹ It plainly does not mandate a verification or enforcement role for the database. Moreover, the Public Notice clearly states that a prospective database administrator “should

²⁴ *Id.* at 13; Comments of Shure at 5-6.

²⁵ *See* Comments of TVWS Group at 4; Google Proposal at 11; Comsearch Proposal at 42.

²⁶ *See* Comments of MSTV/NAB at 13.

²⁷ Comments of Key Bridge at 8, n.23.

²⁸ *See* ET Dkt. 04-186, Letter from Richard S. Whitt, Google Inc., to Julius P. Knapp, FCC (Sept. 18, 2009).

²⁹ 47 C.F.R. § 15.715(j).

describe *whether* and how security methods will be used to verify that Mode I personal/portable devices that rely on another device for their geographic location information have received equipment authorization.³⁰ A TVWS database need only provide available channel information to a fixed device or Mode II personal/portable device that has provided the required information to the database; the database has no contact with Mode I operation devices. Mode I devices (*i.e.*, “client” devices that do not directly contact the database but rather operate based on a “master” device’s geographic location) receive their channel information from Mode II devices serving as “masters.” Mode II devices receive available channel information from a database that has no contact with the Mode I device.³¹ There is no requirement that TVWS database administrators verify the certification status of such devices.

IV. A CLEARINGHOUSE ARCHITECTURE OPTION IS CONSISTENT WITH A COMPETITIVE DATABASE SERVICE MARKETPLACE

Google has recommended that, “in the event the Commission decides to limit the number of database providers, and/or to mandate a specific architecture to manage the required collection and dissemination of data, the Commission should consider an open architecture model within a clearinghouse to provide the data repository functions.”³² Google has been clear that it is not requesting that the FCC appoint a single clearinghouse:³³ “Google encourages the Commission

³⁰ Public Notice at 3 (emphasis added).

³¹ See 47 C.F.R. §§ 15.703(h), 15.713(f), 15.713(g). No party requested reconsideration of the rules regarding this issue.

³² Google Proposal at 3.

³³ Key Bridge thus is obviously mistaken to claim, without justification, that Google “seek[s] to change the rules at the last minute and create structural competitive advantages for [itself] in the form of a ‘clearinghouse.’” Comments of Key Bridge at 9.

to approve multiple providers and multiple architectures including the clearinghouse architecture.”³⁴

While the various proposals and comments reflect both support for³⁵ and opposition to³⁶ particular clearinghouse models, much of the opposition treats the different clearinghouse proposals submitted by Google, Comsearch, and NeuStar uniformly.³⁷ In fact, Google suggested a unique form of clearinghouse model for FCC and industry consideration.³⁸ Google noted that the FCC could approve both multiple clearinghouses and multiple database service providers,³⁹ thus eliminating the potential risk of a single entity becoming a “choke-point” capable of limiting innovation or services.⁴⁰ Moreover, as the Google Proposal made clear, if the FCC approves a single clearinghouse, it should be operated not by Google but by a non-profit association.⁴¹

Google continues to believe that there are clear benefits to a clearinghouse model,⁴² including providing protected entities and others a single place to register and providing the FCC a centralized data repository. Again, Google does not request that such a model be mandatory

³⁴ Google Proposal at 16.

³⁵ See, e.g., Comsearch Proposal at 49; ET Dkt. 04-186, Comments of NeuStar, Inc. (“NeuStar”) (Feb. 3, 2010) at 2; Comments of PISC at 6, 8.

³⁶ See ET Dkt. 04-186, Comments of WSdb, LLC *et al.* (Feb. 12, 2010) at 1; Comments of TVWS Group at 2; Comments of Key Bridge at 3.

³⁷ See, e.g., Comments of WSdb at 4.

³⁸ Google Proposal at 14.

³⁹ *Id.* at 15; see also ET Dkt. 04-186, Letters from Richard S. Whitt, Google Inc., to Julius P. Knapp, FCC (Mar. 16, 2009 and Apr. 10, 2009).

⁴⁰ Compare Comments of TVWS Group at 2 (FCC should avoid any situation where there is a single choke-point; market-driven clearinghouses are fine provided they do not hinder efficient pricing, reliability, or innovation).

⁴¹ Google Proposal at 16. Compare Comments of Key Bridge at 3 (opposing a clearinghouse “run by Google”). See also Comments of NeuStar at 4 (NeuStar’s experience as the number portability administrator indicates that the nonprofit association approach recommended by Google is workable and has merit.).

⁴² See Comsearch Proposal at 49; Comments of NeuStar at 2.

but instead that it be allowed on a voluntary basis, as requested in our Proposal: “Google asks the Commission to make clear that approved database administrators may cooperate to form voluntary clearinghouse arrangements.”⁴³ Such a model would not be inconsistent with, but rather would complement, the Commission’s goal of promoting a competitive environment of TVWS database service providers (one of which Google seeks to be designated). The clearinghouse model also would not impose any burden on entities that do not want to participate in such a structure.

CONCLUSION

Google has amply demonstrated that it has the technical and financial qualifications necessary to manage a TVWS database in full compliance with the FCC’s rules,⁴⁴ as have other potential TVWS database administrators. Accordingly, the Commission should act promptly to approve Google and all other qualified administrators.

Respectfully submitted,



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⁴³ Google Proposal at 14.

⁴⁴ *See id.* at 3-13.