

**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 Below 900 MHz and in the)	ET Docket No. 02-380
3 GHz Band)	

EX PARTE COMMENTS OF SHURE INCORPORATED

Shure Incorporated (“Shure”), by its undersigned counsel, hereby respectfully submits these brief *ex parte* Comments regarding Spectrum Bridge, Inc.’s recently filed “Trial Report” including “observations and conclusions” supposedly derived from demonstrations using radio transmitters operating in four (4) locations tuned to VHF/UHF broadcast TV frequencies.¹ Shure cautions that the Trial Report does not include adequate justification for Spectrum Bridge’s conclusions and proposals and should not be mistaken for technical, operational or scientific support for proposed rule changes.²

I. Spectrum Bridge’s “Trial Report” Is Not A Credible Technical Assessment Of Proposed White Space Device Operation

Throughout this proceeding, Shure has offered substantive technical and operational information and analyses of the impact on wireless microphone operations of various proposed white spaces requirements including the Commission’s Rules adopted in 2008. Shure fully

¹ *TV White Spaces Trial Report*, from Peter Stanforth, Spectrum Bridge, Inc. CTO, to Marlene H. Dortch, FCC Secretary, ET Docket No. 04-186, dated June 24, 2010 (“Trial Report”).

² At the outset, Shure notes that Spectrum Bridge’s proposal also should be rejected as an untimely request for reconsideration of the Commission’s order in *Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, Second Report and Order and Memorandum Opinion and Order, FCC 08-260 (2008) (“White Spaces Order”). Pursuant to Section 1.429(d) of the Commission’s Rules, petitions for reconsideration must be filed within 30 days of the Federal Register notice of an order. The rules adopted in this proceeding were published in the Federal Register on February 17, 2009. *See* 74 Fed. Reg. 7314 (Feb. 17, 2009). In this case, petitions were due on March 19, 2009.

supports the continued development of technical and operational data and evaluations bearing on the many complex issues raised by the prospect of new unlicensed devices operating in spectrum long used by incumbent services including TV and wireless microphones. This data-driven process will aid in the understanding of and the development of an appropriate regulatory environment for important interests at stake in this proceeding, including wireless microphone users who rely on interference-free spectrum for broadcast, news, music, sports, theater, religious, educational, commercial and many other productions. In this process, it is critical that verifiable substantive technical data and evaluations be clearly distinguished from pure advocacy positions and hoped-for future developments.³ To this end, it is important that the Commission recognize that although Spectrum Bridge styles its submission as a “Trial Report” with “observations and conclusions” based on its trials, the report is devoid of data and analysis and should not be accepted as a credible technical demonstration or justification for any of the rule changes it proposes.

II. Spectrum Bridge’s “Trial Report” Fails To Provide Data To Support Its Proposed Rule Changes

Spectrum Bridge claims that its “experiments” produced information and experience that justifies the following changes to the Commission’s Rules:

- elimination of the sensing requirement
- elimination of minimum and maximum antenna height requirements
- an increase of up to 20 W of transmit power when the 3rd adjacent channel is unoccupied
- relaxation of the out-of-band emission limits
- amendment of the rules to enable the database to modify TVBD operating characteristics⁴

³ This is wholly consistent with the Chairman’s stated commitment to adhere to a data-driven process in FCC policymaking. See Remarks of Chairman Julius Genachowski to the Staff of the Federal Communications Commission, June 30, 2009, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-291834A1.pdf (“Our policy decisions will be fact-based and data-driven.”).

⁴ Trial Report at 10, 14-17.

However, a review of the Trial Report reveals that it offers no specific data or scientific analysis supporting its stated “observations and conclusions.” In fact, Spectrum Bridge’s report contains

- NO substantive recorded data
- NO technical specifications for equipment
- NO transmission parameters

The Report lacks the most basic information expected of any experimental report offered up as justification for technical rule changes:

- What equipment was used?
- What incumbent equipment and operations (broadcast and wireless microphones) were involved?
- What TVBDs were communicating with the database?
- What frequencies, powers, antenna heights, configurations were used?
- How was the database registration and query process implemented?
- What environments were tested -- commercial, residential rural, remote?
- What experiments were run?
- What test procedures were used?
- How was information gathered?
- What choices were made regarding fundamental test parameters?
- What measures were taken to protect itinerant incumbents from interference?
- How can Spectrum Bridge be certain that no interference was created?
- How does the described demonstration prove that the Commission should make the specific changes advocated by Spectrum Bridge (sensing, antenna restrictions, out of band emission limits, greatly increased power, etc.)?

Spectrum Bridge appears to have done nothing beyond activating a very conventional point-to-point network in reasonably unpopulated areas with manually tuned radios that have been slightly adjusted to transmit over TV frequencies. With this, Spectrum Bridge has declared the “experiment” a success and “evidence” that the Commission should adopt substantial changes to the rules that Spectrum Bridge has been advocating. Spectrum Bridge urges the Commission to change the rule to permit significantly (5x) more power and significantly more antenna height than what is allowed under the current rules without providing any analysis on the likely adverse impact to other spectrum users. Spectrum Bridge also argues for a relaxed mask but provides no supporting analysis on the likely adverse impact on other users to justify a

change. Finally, although Spectrum Bridge's demonstrations do not involve sensing technology, it uses its report as a forum to argue for the elimination of this critical technology without any analysis of the consequence of rolling back needed interference protections.

III. The “Demonstrations” Did Not Involve Or Evaluate The Advanced Cognitive Radio Technology The FCC Requires For White Spaces Operation

Spectrum Bridge provides very few details regarding the radio equipment involved in its “demonstrations,” but what little information it does provide suggests its radios are far less advanced than required by the White Spaces Order. The White Spaces Order requires truly intelligent and dynamic radios that confirm channel availability before transmitting and then immediately detect and avoid itinerant incumbents not registered in a database. Unfortunately, Spectrum Bridge does not describe how this functionality was implemented.

Spectrum Bridge argues that spectrum sensing requirements should be eliminated from the rules on the basis that sensing is too costly and would be compromised by distant TV signals.⁵ The occasional presence of in-band emissions from distant TV stations is a well-known phenomenon arising from multiple causes in the VHF and UHF range, including tropospheric ducting caused by temperature inversions. These issues were considered early on in IEEE 802.22 discussions and no substantial impact on spectrum sensing was found. Spectrum Bridge dismisses sensing as inherently unreliable but fails to address ongoing developments⁶ in this form of cognitive technology.

Spectrum Bridge also argues that out-of-band emission limits should be relaxed because no commercial “off the shelf” compliant equipment currently exists.⁷ However, the

⁵ Report at 10, 15-16.

⁶ See, e.g., *Ex Parte* Presentation from David R. Siddall, Counsel to Philips Electronics North America, to Marlene H. Dortch, FCC, Secretary, ET Docket No. 04-186, dated April 30, 2010.

⁷ Trial Report at 17.

Commission has never made it a requirement or policy in this proceeding to fashion TVBD requirements that accommodate only “off the shelf” technology. The Commission has consistently recognized throughout this proceeding the need for innovative solutions and technology development to address the complexities raised by spectrum sharing. Shure supports this sensible approach and urges the Commission to reject Spectrum Bridge’s proposed rule changes, including the request to eliminate the sensing requirement and relax the out-of-band emissions requirements.

Respectfully submitted,

Catherine Wang
Timothy L. Bransford
Bingham McCutchen LLP
2020 K Street, N.W.
Washington, DC 20006
Tel (202) 373-6000
Fax (202) 373-6001
catherine.wang@bingham.com
timothy.bransford@bingham.com

Counsel to Shure Incorporated

Mark Brunner
Senior Director, Global Public Relations

Edgar C. Reihl, P.E.
Technology Director, Advanced Development

Shure Incorporated
5800 Touhy Avenue
Niles, IL 60714-4608