

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
Washington D.C. 20554**

In the Matter of	)	
	)	
A National Broadband Plan	)	GN Docket No. 09-51
For Our Future	)	

**REPLY COMMENTS OF SHURE INCORPORATED**

Shure applauds the Commission's efforts to develop a National Broadband Plan and promote the development of a ubiquitous, technology-neutral broadband infrastructure in the United States. However, Shure strongly cautions that this Plan and this proceeding must not become a vehicle for eliminating interference protections for existing spectrum users and in particular for disrupting existing uses of the television "white spaces" spectrum, including wireless microphone operations.

Wireless microphone technology is an integral part of high quality productions in television, motion pictures, news, entertainment, sports, religious worship, educational, business and governmental institutions that are fundamental components of American daily life. Innovative and flexible use of wireless microphone audio technology is present in every newscast, music concert, TV and theater production. Wireless microphones are commonplace in our Nation's churches, large and small, at sporting events, as well as in hotels hosting business and government conferences and entertainment productions. American consumers demand high-quality audio (*i.e.*, interference free, crystal clear real-time transmission) in these events and in the media coverage of these events. The American standard of excellence in video and audio

production is a foundation for this country's global leadership in content creation.<sup>1</sup> High quality wireless microphone audio technology is an essential component of the content being distributed online today. It is relevant to note that, in many respects, it is the greater access to *content* that is the ultimate objective of the efforts to expand broadband access across all populations and areas in the United States -- an objective that Shure shares.

Developing a plan for greater access to broadband is a key policy goal, but it should not be mistaken for a justification to eliminate radio interference protections of existing spectrum users. In that respect, Shure wishes to correct patently false assertions put forth in the initial comments suggesting that rolling back carefully developed interference protections for wireless microphone audio operations in the television broadcast bands is somehow necessary to promote broadband deployment in the United States.<sup>2</sup> In particular, the Commission's cognitive radio requirement as it pertains to sensing wireless microphone operations in the TV "white spaces" comes under attack, as does the Commission's power level requirements for new unlicensed devices entering the TV spectrum.<sup>3</sup>

After a long and arduous proceeding, the Commission rightly determined that a combination of protections is necessary to ensure that incumbents, including wireless microphones, in the core television bands are protected from harmful interference created by new

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<sup>1</sup> American content is not only an important export to the rest of the world representing not only a significant economic sector, but also an important channel for American culture and democracy.

<sup>2</sup> See *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, 23 FCC Rcd 16807 (2008) ("White Spaces Order").

<sup>3</sup> See Comments of Google Inc., GN Docket No. 09-51, 41-42 (Jun. 8, 2009) ("*Google Comments*") (seeking to eliminate cognitive radio sensing obligations for wireless microphones and an unspecified increase in cognitive radio power levels); Comments of Motorola, Inc., GN Docket No. 09-51, 10 (Jun. 8, 2009) ("*Motorola Comments*") (asking the Commission to adopt previously proposed recommendations including increased cognitive radio power levels and the elimination of sensing obligations); Comments of Public Knowledge, Media Access Project, The New America Foundation, and U.S. PIRG, GN Docket No. 09-51, 32 (Jun. 8, 2009) ("*Public Knowledge Comments*") (seeking an unspecified increase in cognitive radio power levels).

unlicensed devices. The text of the November 4, 2008, FCC Rules states that new devices may operate in the TV “white spaces” but must use cognitive radio techniques (*i.e.*, spectrum sensing), as well as a geolocation database of occupied frequencies to avoid interfering with wireless microphone operations. Additionally, the devices must abide by certain power limits and frequency designations, along with other requirements, to avoid disrupting the many existing operations in this complex spectrum environment. These carefully established technical and operational rules enable new devices, including broadband access devices, to use unoccupied TV band spectrum without causing interference to existing spectrum users and services -- the core objective of the Commission’s initiative throughout the “white spaces” proceeding.

These requirements in no way hinder the deployment of broadband access and the Commission should not be lured into eliminating cognitive radio requirements or other critical interference protections under the guise of enabling future broadband development. Protection of important incumbent radio operations is not inconsistent with expanded deployment of broadband. Cognitive radio spectrum sensing requirements provide critical protections to itinerant microphone operations, such as on the scene news reporting, and wireless microphone users that cannot be protected through other means, such as productions that are required to change channels to avoid local interference not previously detected.<sup>4</sup> Cognitive radio techniques will also allow new portable TV band devices to operate without being “tethered” to a geolocation database and avoid interfering with each other.

Generous power levels have already been set by the Commission -- levels that allow new broadband access devices to operate in the TV spectrum, such as fixed device with signals that

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<sup>4</sup> This is a very common occurrence in music, live TV, sporting events, theater and other productions.

can propagate for many miles over rural terrain.<sup>5</sup> The even higher power levels being advocated are not only problematic when viewed against the technical and operational findings in other Commission proceedings, they raise significant new policy questions about the basic terms of the Commission's unlicensed "low power" Part 15 regulations that will govern new broadband devices in the television "white spaces."<sup>6</sup> If power levels are increased, the resulting interference from new devices will harm important incumbent uses including television, cable TV head ends, and wireless microphones.<sup>7</sup>

These interference protections were developed after nearly five (5) years of consideration by the FCC and comment from hundreds of stakeholders, including incumbent spectrum users. Multiple rounds of technical testing, significant input from various legislators, and countless hours of deliberations by both Commission staff and private industry have resulted in thousands of pages on the record. Cognitive radio requirements and higher power levels for new devices in the TV "white spaces" should not be points of contention in this proceeding given the voluminous record at the FCC. Within the complex environment of the TV "white spaces," eliminating any of these core protections under the banner of the National Broadband Plan will do little to advance the Commission's public interest objective in this proceeding and will disrupt wireless microphone operations important to many American consumers and businesses, jeopardizing the quality of U.S. media content that is distributed both domestically and worldwide -- in many cases over broadband connections.

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<sup>5</sup> If anything, TVBD power levels should be decreased to protect both incumbents and the utility of the core TV bands for broadband access.

<sup>6</sup> See, e.g., *Public Knowledge Comments* at 32 (seeking an unspecified increase in power for fixed TVBDs already capable of creating harmful interference for higher priority incumbent operations).

<sup>7</sup> Increased power levels would also result in TVBDs that provide broadband access frequently creating co-channel interference for *other TVBDs*. Propagation characteristics in the core TV bands require modest power levels to ensure that the frequencies can be reused.

Respectfully submitted,

/s/

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Dated July 21, 2009