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

In the Matter of	)	
	)	
Digital Audio Broadcasting Systems	)	MM Docket No. 99-325
And Their Impact On the Terrestrial Radio	)	
Broadcast Service	)	
	)	

COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS

The National Association of Broadcasters (NAB)[1] hereby files this response to the *Public Notice*[2] soliciting public comment on certain issues related to the pending digital audio broadcasting proceeding. Specifically, in this *Notice*, the Media Bureau of the Federal Communications Commission (FCC) is seeking further comment on two technical studies concerning a request by 18 radio broadcasters (representing over 1200 FM radio stations) and the four largest manufacturers of broadcast transmission equipment (Joint Parties) to permit a voluntary increase in digital power for FM digital broadcasters, up to a maximum of 10 percent of a station's authorized analog power.[3]

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[1] The National Association of Broadcasters is a trade association that advocates on behalf of more than 8,300 free, local radio and television stations and also broadcast networks before Congress, the Federal Communications Commission and the Courts.
[2] *Public Notice*, DA 09-1127, MM Docket No. 99-325, May 22, 2009.
[3] Joint Parties *Ex Parte* letter, filed in MM Docket No. 99-325, June 10, 2008 (Joint Parties request).

Introduction and Background

NAB previously filed comments and reply comments[4] in this proceeding that noted the benefits of permitting FM broadcasters to optionally increase digital power.[5] We herein re-iterate our support for the Joint Parties' request and urge quick FCC action.

As we explained in our comments,[6] initial power levels for the new digital radio service were set at a low level to conservatively introduce the new service. Since then, there have been virtually no reports of harmful interference from HD Radio broadcasts to existing analog FM programming. Real-world experience, however, has shown a need to extend coverage within stations' protected contours and boost reliability to improve coverage shortfalls within analog service areas, bolster reception for gaps and fade situations and strengthen signals for building penetration. The iBiquity Test Report and the CBS Study showed that, with a 10 dB increase in digital power, coverage, building penetration and reception reliability were markedly improved.[7] Critically, the iBiquity tests showed that coverage and reliability were improved with 10 dB of

[4] Comments of the National Association of Broadcasters in MM Docket No. 99-325, filed December 5, 2008 (NAB Comments); Reply Comments of the National Association of Broadcasters in MM Docket No. 99-325, filed January 12, 2009 (NAB Reply Comments). NAB requests that these previously-filed comments be incorporated by reference in this phase of the proceeding.
[5] iBiquity Digital*, HD Radio System Test Report, Compatibility and Performance Tests at Elevated FM Digital Power Level*, September 2007, filed in MM Docket No. 99-325, June 10, 2008 (iBiquity Test Report; iBiquity study); CBS Radio, *FM IBOC Building Penetration Tests At Elevated Digital Subcarrier Levels*, filed in MM Docket No. 99-325, June 10, 2008 (CBS Radio study).
[6] NAB Comments at 8.
[7] iBiquity study at 3; CBS Radio study at 5.

increased power without creating a meaningful increase in the risk of interference to analog broadcasts in the vast majority of cases.[8]

An evaluation commissioned by NAB and included in our earlier comments generally confirmed the conclusions of the iBiquity Test Report and found that a 10 dB power increase would improve digital population coverage within stations' protected contours by a significant amount.[9] Importantly, we explained that a power increase would enable listeners to better receive digital multicast channels and the benefits of digital sound throughout service areas. *Id*.

Several Recent Developments Further Support Approval of the Joint Parties' Request

In response to the *Public Notice*, NAB notes that recent developments support swift issuance of the requested digital power increase and militate against further delay in acting on the Joint Parties' request, which has been pending for more than one year.

First, new, portable hand-held digital radio devices with HD Radio integrated circuits scheduled to be introduced later this year[10] require sufficient power to ensure

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[8] iBiquity study at 2, 8. Also supporting these findings were the experiences of two digital stations that have been on air, under experimental authorizations, with the full 10 dB digital power increase for many months with *no* reports of interference, despite both stations' having short-spaced situations. NAB Comments at 8.

[9] NAB Comments at 5, 6.

[10] Recent press announcements and trade press articles indicate that the debut of portable devices is imminent. iBiquity has indicated that the availability of advanced hardware and software solutions which support portable HD Radio implementations is increasing. *See* iBiquity press releases, April 15, 2009: *KRS Electronics to Supply Small-Sized, Low-Cost HD Radio Modules for Portable Devices*, www.ibiquity.com/press_room/news_releases/2009/1337; *iBiquity Digital Releases Portable HD Radio Reference Design 2.0*, www.ibiquity.com/press_room/news_releases/2009/1336. Regarding one recent improvement, iBiquity indicates that "[t]he new firmware dramatically decreases overall power consumption down to as low as 165 mW, enabling the chipset to be used in a wide range of portable devices." *iBiquity Releases New Low-Power Firmware Load for*

strong reception of digital signals . These devices will provide a new exciting extension of the digital radio service and more service for audiences. Portable HD Radio receiver technology appears to be at a critical threshold and the requested power increase can play an important role in improving the benefits consumers will receive from these devices. Portable receivers are constrained, unavoidably, in a number of important aspects, unlike other types of receivers such as automotive, tabletop, and home hi-fi. To be small and lightweight, portable receivers must, by design, be able to operate with minimal power consumption and cannot have the relatively large antenna systems typically used by other receiver types. Because of the constraints on power consumption, compromises are often necessary in the circuit design of portable radios compared to larger implementations, resulting in reduced performance. All of these constraints will be mitigated to some degree by the increase in available digital signal power afforded by a grant of the Joint Parties' request.

Samsung Chipset, April 15, 2009, www.ibiquity.com/press_room/news_releases/2009/1331.

In May, 2009 Microsoft announced that the new Zune HD portable music device will include an HD Radio receiver, and with availability anticipated in the fall of this year, the Zune HD will likely be the first of many HD Radio portable devices to become available to consumers in the coming months. *See, Microsoft announces the expansion of the Zune entertainment service to new platform and markets; confirms new Zune HD portable media player*, May 26, 2009, www.zune.net/en-us/press/2009/0526-zunehd.htm. Also, *Broadcast Community Applauds Microsoft for Featuring HD Radio™ Technology on the New Zune HD*, May 27, 2009, www.ibiquity.com/press_room/news_releases/2009/1349.

Another, "walkman-style" portable HD Radio receiver was demonstrated at this year's International Consumer Electronics Show and the 2009 NAB Show, and is reportedly becoming available this summer for a cost of $50. *Portable HD Radio prototype gets pictured, coming this summer for under $50*, Engadget, May 13, 2009, www.engadget.com/2009/05/13/portable-hd-radio-prototype-gets-pictured-coming-this-summer-fo/.

Second, digital radio multicasting is quickly becoming more than an experimental feature on HD radio. This potential to multicast improves the ability of terrestrial radio to serve consumers effectively. Currently, stations operating with HD Radio technology are broadcasting more than one thousand digital multicast streams. Stations are using their HD Radio multicast channels to experiment with new music and news formats, showcase young artists and local bands, offer non-English language programming, and more. The HD Digital Radio Alliance reports that the availability of multicast programming is the most important selling point for HD Radio receivers.[11] But multicasting, unaided by the "blend-to-analog" feature backing up the main digital radio channel, requires higher power to be reliably received throughout many service areas.[12] As HD Radio receivers proliferate, multicasting will be important to future digital radio service to the public.

Third, terrestrial digital radio (and its multicast programming) is becoming more present in the public eye, with more brands of digital radios on store shelves and digital radios available in more new automobiles. Thus, the perceived reliability and user experience of digital radio service is at a critical juncture.

Specifically, a wide range of choice is now available in table top radios, stereo component systems, home theater and in-dash automotive and marine radios. iBiquity

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[11] *See* www.hdradioalliance.com/local_market_commercials/.

[12] As discussed *infra*, recent experimental operations with a range of digital operating powers by a Boston area HD Radio station showed persistent loss of the digital signal (including the multicast programming) due to terrain and man-made obstacles while traveling Boston's beltway and other routes within 25 miles of the station's transmitter site. All of these problems disappeared while the station was operating with a 10 dB power increase.

has now licensed scores of manufacturers to build receivers or receiver components incorporating HD Radio technology.[13]

In addition, the HD Digital Radio Alliance, a member group devoted to promoting and marketing HD Radio, makes available for downloading to member HD Radio stations scores of station and Alliance produced 30-second radio commercials promoting multicast channels. Hundreds of such station ads were submitted to the Alliance.[14] It is vital that coverage and reception reliability of the new digital service, in cars and homes (and soon with hand-held devices), must increase to match these increasing expectations of consumers, auto makers and others for the new service to continue its growth in today's competitive digital marketplace.

Finally, NAB believes it is important for the FCC to consider recent experimental data showing that digital coverage is substantially improved operating with a 10 dB digital power increase, without engendering harmful interference. A report filed with the Commission this May detailed the results of experimental testing by Greater Media's WKLB-FM in the Boston area at higher digital power levels.[15] That testing showed that, with a 10 dB increase in digital power, areas within the stations' protected contour with marginal digital reception were significantly improved. *Id.* at 1. Importantly, WKLB

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[13] Currently, as HD Radio licensees, there are 16 manufacturers of automotive (after market and factory installed) products, eight A/V component manufacturers; eight manufacturers of "custom" receiver implementations, 16 full consumer electronics manufacturers, 16 manufacturers of modules/components and 23 manufacturers of OEM/ODM products. http://www.ibiquity.com/manufacturers/receiver_manufacturers.

[14] *See* http://www.hdradioalliance.com/local_market_commercials/.

[15] Interim Report, Station WKLB-FM, Waltham, Massachusetts, Experimental Operations with IBOC Power Levels Above the Currently Permitted Value of -20 dB Relative to Analog Power, May 5, 2009, submitted as an attachment to Request for Extension of Experimental Authorization Station WKLB-FM, Waltham, Massachusetts, FCC File No. -20081031ACO.

found no incidents of cognizable interference within the protected contours of adjacent channel stations resulting from its higher power experimental operations.[16]

Another Greater Media station has reported to the FCC on observations of WRAT(FM) during five months of recent operations at authorized power levels and with a 10 dB increase, pursuant to experimental authorization.[17] Since 2005, WRAT(FM), with its studio and transmitter in the coastal region of New Jersey, has observed a significant abbreviation of its digital coverage, compared to its analog coverage, during normal operation at authorized digital power. *Id.* at 1. However, during experimental operation with its digital power elevated by 10 dB, WRAT reports significant improvement in digital coverage, with preliminary results showing reliable reception of the digital signal more closely replicating its protected contour. *Id.* at 2. WRAT also reports that the digital signal was able to penetrate a building at an annual remote broadcast venue approximately five miles from the station. In years' past, the station's digital signal was not receivable in the venue without utilizing an external antenna. With digital power elevated by 10 dB, the signal could be received inside without an external antenna. *Id*. 4. WRAT concludes that an increase in digital power of 10 dB greatly improves the coverage for a Class A station in relatively flat terrain, both in terms of coverage area and the quality and robustness of that coverage. *Id*. at 5. Critically, WRAT reports that no interference to any FM station was reported or observed during its extended period of operation at the elevated digital power level, including to short-spaced sister station WBEN-FM, Philadelphia.

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[16] Request for Extension of Experimental Authorization Station WKLB-FM, Waltham, Massachusetts, filed May 5, 2009, FCC File No. -20081031ACO.
[17] Request for Extension of Experimental Authorization, Station WRAT(FM), Point Pleasant, NJ, Facility ID No. 59530, File No. -20090108APJ, filed June 22, 2009.

The combination of this recent experimental data with the iBiquity testing discussed in earlier comments suggests that digital radio operations with a 10 dB digital power increase can in fact ameliorate coverage shortfalls currently experienced at authorized power levels without engendering meaningful interference to adjacent stations.

The Commission Should Approve a Digital Power Increase Expeditiously

That elevated digital power does not cause significant or harmful interference to analog reception of adjacent stations, especially within protected contours, is particularly important to NAB as well as to potentially-affected stations and the Commission. The Joint Parties have maintained that the listener audio evaluation study in the iBiquity tests does not show a significant effect on analog compatibility, and the recent experimental tests discussed above, as well as earlier tests, reflect that conclusion as well.[18]

NAB is thus assured that interference within the protected contours of adjacent analog operations from elevated power operations of digital stations will not be a widespread occurrence and would occur, if at all, primarily at the edge of service areas. Moreover, the gradual transition of stations to both digital and elevated power operations will afford ample opportunity for digital operators and the FCC to address instances of interference as they might arise.

In that regard, the *Public Notice*, at 2, asks whether the FCC, if it adopts a power increase, should establish interference standards or more explicit procedures to resolve interference. Interference standards are not possible now, however, because

[18] *See* NAB Comments at 7-8.

information to set specific standards is not available at this time. The FCC's existing methods to resolve interference complaints should be sufficient, and given the expected gradual implementation of elevated power operations, the Commission can always institute additional complaint resolution procedures, should developments warrant them.

NAB urges the Commission adopt a digital power increase without further delay. Strengthening the terrestrial radio service as a viable digital competitor should occur now, so that broadcasters, consumers and manufacturers can have confidence in the future of this potentially transformative new service.[19]

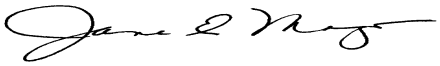
Conclusion

For these reasons, as discussed herein, and on the basis of NAB's previous comments and the record in this proceeding, the FCC should proceed to authorize the proposal of the Joint Parties. NAB believes that implementation of increased digital power will occur only gradually and that the Commission has sufficient tools to monitor and address instances of interference that might occur. NAB strongly supports such

[19] Should the Commission determine that only an interim power increase should be adopted at this time, NAB urges that it be a meaningful increase, so that stations can extend their digital (and multicast) coverage throughout their service areas, achieve reliable digital service within buildings and to new portable devices, and thereby assure consumers of the strength of the new, free digital radio service.

action by the Commission, as it will enable free over-the-air radio stations to serve their listeners and communities more effectively.

Respectfully submitted,



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