

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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

Reply Comments of iBiquity Digital Corporation

iBiquity Digital Corporation (“iBiquity”), by its attorneys, hereby submits these Reply Comments in the above referenced proceeding. The Commission’s recent Public Notice¹ sought comment on the National Radio System Committee’s IBOC standard entitled NRSC-5. As iBiquity noted in its initial comments, the NRSC-5 standard was the product of many years of effort by the broadcast and consumer electronics industries. The comments in this proceeding reflect a consensus that a standard is appropriate for AM and FM digital radio in order to provide greater certainty for the broadcasters and equipment manufacturers investing in the transition to digital broadcasting.² Furthermore, commenters support the adoption of NRSC-5 as the U.S. transmission standard for AM and FM radio. As iBiquity noted in its initial comments, the NRSC-5 standard will ensure uniformity for AM and FM digital broadcasts and will serve the public interest by promoting the efficient adoption of HD Radio™ technology. iBiquity encourages the Commission to adopt NRSC-5 for any radio stations that choose to convert to digital broadcasts.

¹ *Comment Sought on National Radio System Committee’s (“NRSC”) In-Band On-Channel Digital Radio Broadcasting Standard NRSC-5*, DA 05-1661, MM Docket No. 99-325 (rel. June 16, 2005).

² *See e.g.* Comments of The Walt Disney Company and ABC, Inc., MM Docket No. 99-325 dated July 18, 2005.

I. Background

2005 has represented a transformational year in the rollout of HD Radio technology. At the beginning of 2005, there were several broadcasters beginning the transition to digital broadcasts and three automobile aftermarket receivers available. 2005 began with an announcement at the Consumer Electronics Show that the largest broadcast groups had made a commitment to accelerate their deployment of HD Radio technology.³ Since that time, there has been a dramatic increase in the conversion process and awareness of the benefits of HD Radio technology. The number of stations broadcasting digitally increases daily. As of the beginning of August, there were more than 500 stations broadcasting digitally and a total of 900 stations licensed to use HD Radio technology. More than 2,000 stations in total have committed to convert to digital broadcasting in the next few years. iBiquity anticipates more than 600 stations will be on air by the end of this year.

There has been a similar transformation in the receiver marketplace. The initial three automobile aftermarket receivers have been supplemented by several new models from the same manufacturers as well as new brands offering HD Radio solutions. In 2005, Kenwood Corporation introduced the first HD Radio receiver capable of offering multicasting capabilities. 2005 also brought the introduction of new market segments supporting HD Radio technology. Yamaha introduced a home unit including multicasting features. This trend will continue during the next several months with the introduction of multiple tabletop units offering multicasting functionality. In addition, BMW will offer the first OEM auto HD Radio solution with the introduction of HD Radio technology in the 2006 model year BMW 7 Series vehicle.⁴

³ Historic Agreement Propels Digital HD Radio™ Broadcasting Forward, iBiquity Press Release dated January 5, 2005 available at <http://www.ibiquity.com/press/pr/010505RadioGroups.htm>.

⁴ BMW Offers Digital Radio Option on 7 Series, Automotive News (Aug. 1, 2005).

The excitement in the marketplace about HD Radio technology is not reflected in a simple analysis of the conversion statistics. The promotional efforts and the attention being focused on the rollout of this technology by broadcasters across the country best reflect the level of commitment to the digital transition. In recent months, several broadcasters have launched creative approaches to multicasting. In June, Infinity Broadcasting launched “new country” on WUSN in Chicago.⁵ Other stations, such as WRAL in Raleigh, North Carolina, have begun to experiment with new formats and offerings using multicasting.⁶ Recently, Greater Media, Inc. announced the launch of multicasting on its three Detroit stations. Building on the existing formats of these stations, Greater Media will offer RIFF2, “a made in Detroit mix of alternative and Indie rock”, WCSX “Deep Trax HD2” and “More Magic” on WMGC/Magic 105.1.⁷ iBiquity is confident the Commission will continue to see broadcasters experimenting with new formats, services and creative solutions that will provide great benefits to listeners, increase consumer choice and promote diversity in broadcasting.

II. The Commission Should Adopt NRSC-5

iBiquity agrees with the many broadcasters that support Commission adoption of NRSC-5 as the U.S. standard for digital AM and FM radio in the United States.⁸ As iBiquity has stated repeatedly throughout this proceeding, the adoption of a standard for digital AM and FM broadcasts will remove regulatory uncertainty and promote the investment in time, money and

⁵ *Infinity Broadcasting's WUSN-FM in Chicago is Nation's First Commercial Station to Unveil Continuously Programmed HR Radio Multicast Channel*, Press Release dated May 12, 2005 available at http://www.viacom.com/view_brand_archive.jhtml?inID=18§ionid=4.

⁶ Taylor, *WRAL Raleigh Adopts Multicasting*, Billboard Radio Monitor (June 30, 2005).

⁷ *Greater Media Detroit Radio Begins Broadcasting in HD Radio. Launches Three All-New Multicast Radio Stations*, Greater Media, Inc. Press Release dated July 29, 2005 available at <http://www.greatermedia.com/press/detail.php?ID=77>.

⁸ *See Joint Comments of Entercom Communications Corp., Greater Media, Inc. and Infinity Broadcasting Corp.*, MM Docket 99-325 dated July 18, 2005.

resources by manufacturers and broadcasters that will be necessary to stimulate an expeditious conversion to digital broadcasts. Currently, broadcasters are spending millions of dollars to complete digital conversions and establish the infrastructure necessary for broad consumer adoption of the HD Radio system. Even without FCC action, equipment manufacturers have brought to market initial digital receivers and have begun to seed the market with HD Radio technology. They are now preparing to make substantial additional investments to create digital radio product lines. Commission adoption of NRSC-5 as the transmission standard for AM and FM broadcasting will build upon these early successes and encourage continued investment in the digital transition by removing regulatory uncertainty about IBOC technology.

Throughout this proceeding the Commission has looked to the NRSC as the most appropriate body to develop a transmission standard for digital radio.⁹ The NRSC has the procedures in place to develop standards and the technical expertise to determine the appropriate standard for digital radio. With the FCC's encouragement, all parties with an active interest in the development of digital radio have participated in the NRSC process during the last six years. This process reached an important milestone earlier this year when the NRSC adopted without any objections the AM and FM digital radio standard. The Commission can now move forward with adoption of NRSC-5 with full confidence in the integrity of the NRSC process. The NRSC afforded all interested parties a public and open process for full discussion of the attributes of the IBOC system, the text of NRSC-5 and the documents the standard references. Furthermore, to insure that there would be no questions regarding the availability of HD Radio technology, iBiquity provided the NRSC with appropriate assurances that iBiquity would license its

⁹ See Digital Audio Broadcasting Services, Notice of Proposed Rulemaking, 15 FCC Rcd 1722 (1999) at paras 54-58, First Report and Order, 17 FCC Rcd 19990 (2002) at para 44, and Further Notice of Proposed Rulemaking and Notice of Inquiry, 19 FCC Rcd 7505 (2004) at para 56.

technology on reasonable terms and conditions that are demonstrably free of any unfair discrimination.¹⁰

Given the open and public nature of the proceedings and iBiquity's licensing commitments, claims of dominance by iBiquity in a few of the comments submitted to the Commission must be rejected.¹¹ The NRSC process leading up to the adoption of NRSC-5 did not involve multiple competitors proposing competing solutions. Instead, iBiquity is the sole developer of IBOC technology and its reference documents served as the sole basis for NRSC-5. The absence of input or documentation from any other party should not be misinterpreted as a form of dominance by iBiquity. In fact, iBiquity responded to all of the questions and comments presented by the NRSC's IBOC Standards Development Working Group ("ISDWG"), supplying additional information and making modifications to resolve concerns of the group. Based on demands from the NRSC, iBiquity made significant system modifications, such as replacement of the system audio compression system in 2002, and disclosed proprietary information, such as the "starting state" for the scrambler. The NRSC meetings were public and any party concerned about its deliberations could have attended the meetings and provide his or her input. Given this process, the fact that NRSC-5 was adopted without dissent is a testament to the strong industry-wide support for this standard.

¹⁰ Letter from Albert Shuldiner to Messrs. Paul Feinberg, H. Donald Messer, Michael Bergman and Milford Smith dated April 13, 2005 at 2.

¹¹ See e.g. Comments of Impulse Radio On National Radio Systems Committee's In-Band/On-Channel Digital Radio Broadcasting Standard NRSC-5, MM Docket No. 99-325 dated July 18, 2005 at 9.

III. The NRSC Has Addressed Concerns about Datacasting

Both Impulse Radio and Microsoft Corporation assert that the NRSC's failure to include a transport for ancillary data in NRSC-5 renders the standard incomplete.¹² As discussed below, this concern is misplaced. The NRSC is in the final stages of amending NRSC-5 to include a datacasting transport for the IBOC system, rendering moot the comments on this subject. At its meeting in April 2005 adopting the NRSC-5 standard, the NRSC included in the standard a "placeholder" referencing the need for an ancillary data transport.¹³ Moreover, the ISDWG assured the DAB Subcommittee that it would give the highest priority to the completion of the ancillary data transport.¹⁴ Both Microsoft and Impulse Radio are active participants in the activities of the ISDWG and are well aware that the ISDWG recently completed work on an amended version of NRSC-5 that fully defines the transport for ancillary data. That amended version of NRSC-5 recently was distributed to the DAB Subcommittee for comment and is expected to be adopted at the NRSC DAB Subcommittee's next meeting. Based on this work to fully define the data transport and to replace the "placeholder" in NRSC-5, the Commission should set aside any concerns that have been raised about this issue.

IV. NRSC-5 Does Not Need to Specify the System Codec

The NRSC-5 standard is sufficiently complete in its current form for the FCC to designate NRSC-5 the transmission standard for digital AM and FM broadcasting. The attempt by Microsoft Corporation, the developer of its own proprietary audio compression technology

¹² Comments of Impulse Radio On National Radio Systems Committee's In-Band/On-Channel Digital Radio Broadcasting Standard NRSC-5, MM Docket No. 99-325 dated July 18, 2005; Comments on National Radio Systems Committee's In-Band/On-Channel Digital Radio Broadcasting Standard NRSC-5, MM Docket No. 99-325 dated July 18, 2005.

¹³ National Radio Systems Committee In-Band/On-Channel Digital Radio Broadcasting Standard NRSC-5, April, 2005.

¹⁴ National Radio Systems Committee DAB Subcommittee, Minutes of April 16, 2005 Meeting at 4.

and a participant in the NRSC proceedings, to substitute its judgment for the collective judgment of the members of the NRSC should be rejected.

Several of the comments before the Commission correctly highlight that NRSC-5 does not specify the audio codec used for the IBOC system.¹⁵ As the Consumer Electronics Association noted, even if the absence of a codec is not optimal, the NRSC collectively made a determination that the codec did not need to be specified in order to have a complete modulation and transmission standard for IBOC service. The Commission should not attempt to overturn the consensus developed at the NRSC by mandating the extension of NRSC-5 into new areas.

iBiquity submits that it has taken appropriate steps to address any competitive concerns raised by the absence of the codec from NRSC-5. At the request of the NRSC, iBiquity committed to license on reasonable terms and conditions that are demonstrably free of any unfair discrimination the object code to the HDC codec independently from the HD Radio system software.¹⁶ This would allow a developer of a competing IBOC system that is compliant with NRSC-5 but that does not rely on iBiquity's software implementation to obtain access to the HDC codec for use in independent implementations. This commitment will ensure that independent implementations are not disadvantaged due to an inability to use the HDC codec that is already in use in the marketplace. Similarly, iBiquity committed to license on reasonable terms and conditions that are demonstrably free of any unfair discrimination the object code to the HD Radio system without the HDC codec embedded in the system software.¹⁷ This will

¹⁵ *E.g.* Comments of the Consumer Electronics Association, MM Docket No. 99-325 dated July 18, 2005 at 2.

¹⁶ Letter from Albert Shuldiner to Messrs. Paul Feinberg, H. Donald Messer, Michael Bergman and Milford Smith dated April 13, 2005 at 3.

¹⁷ *Id.*

allow independent implementations that are compliant with NRSC-5 to proceed even if the system implementer chooses to use a competing audio compression technology.

The issue of codec designation is much more relevant to the system multicasting channels than to the main channel program simulcasting the station's existing analog broadcast. Even though iBiquity has committed to offer access to its system software without the HDC codec, it is unlikely that there will be significant marketplace demand to use other codecs for main channel digital broadcasts. On the multicasting channels, however, it is likely that broadcasters will want to use alternate codecs, particularly for very low bit rate voice programming. Vocoders may offer higher quality options for these types of broadcasts. Contrary to the comments presented to the Commission,¹⁸ iBiquity has provided a technical solution to support this level of flexibility within the IBOC system. Multicast channels that use the HDC codec are designated as "Supplemental Program Service" or "SPS" and rely on the SPS transport defined in NRSC-5. Broadcasters have every option to use a different codec for multicast channels. In those cases, the multicast audio becomes part of the Advanced Application Service ("AAS") and relies on the AAS transport defined in the newly revised version of NRSC-5 awaiting final NRSC approval. The assertions in the comments that all multicast broadcasts must use HDC are simply untrue.

Finally, Microsoft and the other commenters ignore the ongoing work of the NRSC. The ISDWG continues to examine the codec identification issue. There has been no consensus within the NRSC that there is any need to modify NRSC-5 to address Microsoft's concerns. Nevertheless, iBiquity intends to continue to work with the NRSC to analyze this issue and

¹⁸ See Comments of Microsoft Corp. and Impulse Radio in MM Docket 99-325 dated July 18, 2005.

develop a necessary response. Microsoft's attempt to use this proceeding to leverage the NRSC process is inappropriate given the NRSC's continued work in this area.

V. The Commission's Public Notice did not Seek Comments on IBOC Performance and the Claims of IBOC Interference Should be Ignored

iBiquity submits that the comments concerning IBOC testing and IBOC operation are outside the scope of the Commission's request for public comment and should be set aside. The comments raise few if any new issues and have largely been addressed by the Commission's decision in 2002 to authorize digital broadcasts. As the Commission correctly determined in 2002, the NRSC had conducted exhaustive tests of both the AM and FM system prior to endorsing IBOC.¹⁹ With more than 500 stations operating digitally, demands for further testing seems irrelevant. iBiquity has repeatedly informed the NRSC and the Commission that there will be instances of interference from IBOC but those instances will be minimal and manageable. Complaints about IBOC interference to Mexican broadcasts attempting to serve the Los Angeles market 120 miles from the transmitter and well beyond any expected service area for the analog broadcast should not give rise to further Commission inquiry.²⁰

iBiquity also notes that the complaints about AM IBOC are largely from skywave enthusiasts and proponents of what is asserted to be the "CAM-D System". CAM-D, which has never been detailed to the Commission, demonstrated publicly or shown to work, builds upon the failed legacy of AM stereo broadcasting. The Commission has received sufficient comment from the broadcast industry about the feasibility of nighttime digital service and the benefits of

¹⁹ Since this proceeding was initiated in 1999, the FCC has looked to the NRSC as the appropriate body to test IBOC technology and develop a transmission standard for digital AM and FM radio. *See* n.9 *supra*.

²⁰ Comments of Broadcast Company of the Americas, LLC, MM Docket No. 99-325 dated July 18, 2005.

AM IBOC for ensuring the continued viability of the AM service. iBiquity encourages the Commission to put aside these comments that distract from the analysis of NRSC-5.

VI. Conclusion

For the foregoing reasons, iBiquity Digital Corporation encourages the Commission to expeditiously adopt NRSC-5 as the transmission standard for AM and FM digital radio.

Respectfully submitted,

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