

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
)	
Digital Audio Broadcasting Systems And Their)	
Impact On the Terrestrial Radio Broadcast Service)	MM Docket No. 99-325
)	DA 01-2932
Comment Sought on National Radio Systems)	
Committee DAB Subcommittee's "Evaluation)	
of the iBiquity Digital Corporation IBOC System")	

**Comments of the International Association of Audio Information Services (IAAIS) on
National Radio Systems Committee DAB Subcommittee's "Evaluation of the iBiquity
Digital Corporation IBOC System"**

The International Association of Audio Information Services (IAAIS) appreciates the opportunity to comment on the Report by the National Radio Systems Committee, (NRSC) in the matter of iBiquity's In Band On Channel (IBOC) digital FM system now before the commission.

IAAIS is the all-volunteer organization of information access services whose more than 120 member stations are reading and information access services for the blind, visually impaired, or otherwise print disabled populations. Those populations are growing in size as the general US population ages. IAAIS has enjoyed working with iBiquity and other members of the NRSC. Furthermore, IAAIS wishes to thank iBiquity for its proactive and inclusive corporate attitude that has enabled reading services for the blind to have voice in the development of the new system.

These comments reflect our careful consideration of the NRSC Report filed on December 3, 2001. We hope our comments here will further clarify the areas of interest of IAAIS member stations and their listeners regarding IBOC.

We are pleased that the system has the technological possibility of helping reading services for the blind leave the stand alone SCA receiver in our past. We do not look for a digital FM system that maintains the requirement of an auxiliary or specialty device to tune in the reading service. With a totally digital FM system, an IBOC receiver right from the retail store can be made to both allow and disallow the processing of additional data services. The additional data service can be used in a manner similar to the way some subcarriers are used today.

This could, in the case of a private service such as reading services, maintain the required subscription, or point to point nature of the transmissions, while making it possible for anyone who owns a IBOC digital FM radio to access the special programming without additional costs for specialty radios. In effect the new digital FM radios will be programmable, encryptable, and addressable telecommunications devices rather than simply one-way receivers. Consequently, we believe that such radios would fall under the provisions of Section 255(B) of the Telecommunications Act of 1996, requiring manufacturers to make their features accessible to and usable by disabled persons. Such accessibility would go a long way toward enabling blind,

visually impaired, and other print-handicapped persons to be able to take advantage of the additional data capacity offered by the proposed IBOC DAB system.

Furthermore, we appreciate the increase in audio fidelity to become available on an auxiliary data stream in an all-digital mode. The NRSC Report suggests that neighboring analog signals will have a lesser effect on the digital signal than they now do on analog signals. This is extremely important to IAAIS. The most challenging obstacle to every reading service operator is providing a person who is blind or visually impaired with a receiver that clearly tunes the fragile subcarrier and holds onto the signal. Adjacent signals, crosstalk from the main channel stereo subcarrier, RBDS subcarriers, and multipath from a wide variety of atmospheric and environmental conditions all impair the ability of a listener to make use of what is otherwise an excellent community service.

In the all-digital world, the proposed system promises great improvement in fidelity and robustness for audio delivered via IBOC's additional data capacity in the untested extended hybrid mode. Such services would be as resistant to multipath interference and other problems as is the FM main carrier signal, unlike the current situation with analog subcarriers. Therefore, we hope for a short and predetermined transition period.

- **Our primary concern is the apparent rush to adopt a system that by its nature benefits every FM broadcast service except for subcarrier users.**

Currently, there is no industry-wide plan to bring reading services from analog subcarriers into the digital transition until the end of the "hybrid" phase. Attempts to discuss the matter are deferred until further tests are completed. With no discussion on inclusion in the digital stream, nor on a specific end to the hybrid phase, all reading services for the blind as well as any other subcarrier service (foreign language, ethnic broadcasters, background and religious music distributors, etc.) must accept more impairment to reception until such time as the analog subcarrier is included as a part of the total digital conversion.

There is information in the report to suggest that FM broadcasters could choose to utilize a slightly smaller portion of the bit-stream in order to accommodate sending the reading service signal as a digital stream. However, there is no testing scheduled for the extended hybrid mode. Therefore, we call on the Commission to require testing of a digital subchannel in "extended hybrid mode" and for tests that will provide information about reducing the guard band so as to include expanded subchannel capacity in a digital stream.

This effort should parallel an assessment of the audio quality that could be achieved by provisioning the digital version of the main channel signal at a reduced data rate. For example, within the pure hybrid 96 kb/s datastream, the main channel could utilize 80 kb/s with 16kb/s allocated for a reading service. We submit that assessing these levels of service quality against the quality achieved by the existing analog service counterparts would provide extremely useful information for both main channel and reading service broadcasters alike. The resulting quality of increments of service options should be documented using the proposed PAC algorithm in making informed datastream allocation decisions as services migrate to the new, digital environment.

The other areas of concern to IAAIS are:

- The unknown level of impact and impairment to existing subcarrier reception in the IBOC system.
 - Benefits of the proposed IBOC system to subcarrier users
 - Testing and implementation
- **The unknown level of impact and impairment to existing subcarrier reception in the IBOC system.**

The NRSC Report does not provide compelling evidence that subcarrier receivers used by blind and visually impaired listeners will be usable if the proposed iBiquity system is adopted. In fact, the report acknowledges that some loss of fidelity and signal clarity will occur to the analog subcarrier signal in the presence of a digital carrier. The extent of the loss of coverage area, and signal interference levels within that reduced coverage area has yet to be ascertained. IAAIS is pleased to have the support of iBiquity in conducting further tests to SCA receivers and hopes the results will help resolve our concerns that listeners will continue to be able to receive the radio reading service as they did before the digital system was employed. Until such testing is complete and the data carefully studied, IAAIS reserves comment on the compatibility of the proposed IBOC system with subcarrier radios employed by reading services and the listeners to those services.

• **Benefits of the proposed IBOC system to subcarrier users**

For IAAIS members on FM subcarriers there will be no benefit in the proposed system unless the subcarriers are digitized during the hybrid mode. Furthermore, it is likely that subcarriers at 92khz may be substantially and negatively impacted by the presence of an IBOC signal on the host station. Therefore, we urge the Commission to require testing of the auxiliary data capacity of the proposed IBOC system to allow reading services as well as other community services on the analog subcarriers to migrate with main channel broadcasters in serving their communities as a digital stream. This will encourage the manufacture of more versatile digital radios, and will help to eliminate existing concerns about interference to analog subcarriers.

• **Testing and implementation**

To date, tests have not resolved the severity of impact that both static and dynamic multipath interference has on an already fragile subcarrier when it is additionally weakened by the digital carrier's presence. We understand that multipath's effect on the main channel signal in an IBOC environment is not a major concern to broadcasters not using or leasing the use of the subcarrier. However, we have learned from 30 years of practical use in the field that multipath can prevent the service from being delivered anywhere in the signal contour.

We applaud iBiquity for persevering with IAAIS to seek meaningful data on damaged subcarrier reception in the event that the Commission moves forward with a digital FM system in which reading service listeners do not benefit until an undefined hybrid mode period is concluded. IAAIS is not in favor of a hybrid mode system wherein listeners are cut off from service regardless of distance from the transmitter. Reading services are not music services for pure entertainment, nor are they redundant to markets. They are sole-service providers of vital information for the subscribers.

- **Conclusion**

IAAIS calls on the Commission to give full consideration to this historic opportunity to eliminate future “adjacent signal invasion” issues to subcarriers and to minimize multipath issues by the use of a successfully tested extended hybrid mode or shared bit-rate system. Without such use of the digital system, all subcarrier delivered services will first suffer signal degradation during hybrid mode and second, will be forced to wait an indefinite period of time until the benefits of the technology can be made available to them in all digital mode.

The Commission has correctly characterized the transfer to a digital FM system as a replacement service initiative that should accommodate existing broadcasters. Radio reading services have been broadcasting continuously for more than 30 years to a community whose special needs must be accommodated in this next generation of broadcast technology. This includes making reading services an equal participant in the new system’s benefits as we have commented here, as well as extending existing accommodations into the new digital system. Therefore, IAAIS calls on the Commission to extend the same protections of 82-1 and 82-536 to reading services in the new digital environment.

The US Census Bureau projects that the number of seniors (the primary population segment that become reading service users) will continue to increase through the year 2025. IAAIS member stations throughout the United States look forward to a digital FM environment where more than 10 to 11 million blind and visually impaired US residents will be able to receive the vital information access they enjoy today – with much greater fidelity and robustness to the signal. All of this on a radio they not only can operate independently, but which delivers the full range of FM digital service capabilities.

Respectfully submitted by:

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