



# Appendix E – FM IBOC system evaluation criteria

 <b>CEA</b> Consumer Electronics Association 2049 Wilson Boulevard Falls Church, VA 22041-3834 (703) 692-7388 1-800-475-7881	<b>NATIONAL RADIO SYSTEMS COMMITTEE</b>	 <b>NAB</b> National Association of Broadcasters 1275 K Street, NW Washington, D.C. 20004-2048 (202) 429-6300 FAX (202) 775-4001
<b>DAB Subcommittee Evaluation of the iBiquity Digital Corporation IBOC System</b>		
<b>Part 1 – FM IBOC</b>		

## **EVALUATION CRITERIA - DIGITAL PERFORMANCE<sup>1</sup>:**

Unimpaired audio quality – the fundamental audio quality of the IBOC system. This assessment is to be made with respect to the audio quality of the existing analog broadcasting service compared to the appropriate analog reference.

Service area – the geographical area surrounding the transmit station which can be expected to receive a listenable (usable) radio signal. The service area should take into account the impact of interference from co-channel, 1st-adjacent, and 2nd-adjacent channel signals.

Durability – characterized by an IBOC system design’s ability to withstand impairments to the RF channel.

Acquisition performance – the characteristics of how a receiver “locks on” to a radio signal, primarily acquisition time (the elapsed time between tuning to a channel and when the audio on that channel is first heard).

Auxiliary data capacity<sup>2</sup> – characteristics of the data capacity supported by an IBOC system in excess of that needed to deliver the IBOC audio signal, including available throughput, nature of capacity (opportunistic versus continuously available), and transmission quality and durability through the channel (bit error rate and/or other relevant digital data transmission metrics as a function of impairments).

Behavior as signal degrades – how an IBOC system’s blend function is able to prevent abrupt loss of the signal at the edge of coverage. Note that, due to the complexities of RF signal propagation, “edge of coverage” performance may be experienced throughout a station’s service area and is not restricted simply to regions near or beyond the theoretical protected contour.

Stereo separation – the amount of stereo separation present in the IBOC audio signal, and how it varies as a function of channel and received signal conditions.

Flexibility<sup>3</sup> – represents the potential of an IBOC system to be adapted by broadcasters and manufacturers to meet the needs of listeners and consumers, both present and future.

## **EVALUATION CRITERIA - COMPATIBILITY:**

Host analog signal impact – changes in performance of a host analog signal (main channel audio and any subcarriers) as a result of the presence of the IBOC digital signal energy associated with that host.

Non-host analog signal impact – changes in the performance of a (desired) analog signal (main channel audio and any subcarriers) as a result of the presence of interfering IBOC signals. Interfering signals of interest include co-channel, 1st, and 2nd adjacent channel signals, individually and in combinations.

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<sup>1</sup> All digital performance criteria should assess the relative audio quality of the digital system versus existing analog audio quality.

<sup>2</sup> Not currently being tested.

<sup>3</sup> Primarily addressed in system description portion of submission; test results not expected to provide direct evidence of system flexibility.