



FCC Endorses iBiquity's IBOC Digital Audio Broadcasting Technology and Announces Notification Procedures for Interim Operation of AM and FM IBOC

The Commission recently issued a First Report and Order (the “*Order*”) in which it selected in-band, on-channel (“*IBOC*”) technology as the exclusive standard for digital services for terrestrial AM and FM broadcasters. The FCC has authorized the immediate commencement of “hybrid” transmissions – simultaneous transmissions in both analog and digital – pending the adoption of formal licensing and service rules, using iBiquity Digital Corporation’s IBOC systems, and has deferred consideration of formal standard-setting procedures and related broadcast licensing and service rule changes to a future *Further Notice of Proposed Rule Making*.

In the *Order*, the Commission generally supported IBOC technology, but also expressed some concern that IBOC might interfere with subcarrier programming, such as GPS services, utility load management, foreign language programming, traffic information, and reading services for the blind, and therefore will seek specific comment on measures to protect established subsidiary communications authorization, or “SCA,” services in a future *Further Notice of Proposed Rule Making*. The Commission also noted, however, that the potential for interference might be minimized during the interim operating period with the replacement of susceptible receivers with better models, and by encouraging broadcasters to work closely with complainants to alleviate interference, especially to radio reading services.

In addition, the Commission expressed concern that AM IBOC operations might cause inter-station interference at night, since after sunset, changes in the upper atmosphere cause the reflection of AM signals back to earth, resulting in the transmission of “skywave” signals over paths that extend potentially for thousands of miles. For this reason, the National Radio Systems Committee (“*NRSC*”), an industry group that has extensively tested IBOC systems, recommended, and the Commission agreed, that interim hybrid AM IBOC operations be limited to daytime hours, and that further testing be undertaken to evaluate the nighttime compatibility of hybrid AM IBOC. During winter months, when daytime operations are considered to begin after morning drive and to end before evening drive, AM stations authorized to operate in analog mode during pre-sunrise and/or post-sunset periods may also transmit hybrid IBOC signals during those times.

During the AM IBOC proceedings, some commenters expressed concern that IBOC signals might cause interference to the reception of first-adjacent analog AM stations, and proposed that IBOC operations be conducted with the primary digital carriers at reduced power of 6 dB from the level employed in the IBOC tests. In the *Order*, the Commission struck a balance between these concerns and the desire to maximize digital audio broadcasting (“*DAB*”) coverage, and adopted a three-pronged approach to deal with the issue of primary sideband



power levels for AM IBOC operation. First, AM stations may operate at the power levels tested by the NRSC, which will vary from station to station based on analog power levels. Second, where interference problems are anticipated prior to commencement of interim IBOC operations, or when actual interference occurs, upon notice to the Commission a licensee may adjust the power level of the primary digital subcarrier down by as much as 6 dB; any power reduction greater than 6 dB will require specific prior approval from the Commission, to be requested by filing an informal letter that sets forth the justification for non-standard operation. Third, when hybrid AM IBOC operations of one station result in complaints of actual interference within another station's protected service contour, and the respective licensees fail to reach agreement on a voluntary power reduction, the Commission staff may order power reductions for the primary digital carrier, or, in the worst case, termination of interim IBOC operation.

In adopting the hybrid IBOC platform, the Commission concluded that IBOC best advances the Commission's DAB policy goals, that it enjoys strong support from the broadcast industry, and that IBOC is the only approach that could be implemented in the near future. The Commission noted that iBiquity's system is spectrum-efficient and offers enhanced audio fidelity and increased robustness to interference and other signal impairments for both AM and FM operations, and concluded that the potential for new interference from IBOC operations is insignificant when compared with the advantages and opportunities inherent in DAB technology. As a consequence, the Commission will no longer entertain proposals for a digital radio broadcasting platform other than IBOC.

Once the digital service is introduced and established via hybrid IBOC operation, it is intended that AM and FM stations eventually will operate exclusively digitally. Although iBiquity requested the Commission to endorse its all-digital systems, as well as its hybrid systems, the Commission stated that while an all-digital terrestrial radio service is the ultimate goal, it would be premature to endorse systems that have not been subject to comprehensive and impartial testing and thus deferred any conclusions on the all-digital system until a complete record has been developed.

Interim IBOC Operations

Until formal rules regarding IBOC DAB operations are adopted by the Commission, stations may operate with hybrid IBOC facilities in accordance with the interim AM and FM technical specifications released with the Order, subject to the following special temporary authorization ("*STA*") and notification requirements:

- During the period prior to the release by the Media Bureau of a Public Notice announcing that the Office of Management and Budget ("*OMB*") has approved the Commission's procedures, stations wishing to implement IBOC transmissions must first file, and the FCC must grant, an *STA* request, accompanied by the requisite certification pursuant to the Anti-Drug Act of 1988, a completed FCC Form 159 remittance advice, and the appropriate *STA* filing fee. The *STA* request must be submitted at least 10 days prior to the date on which a station intends to initiate IBOC transmissions;
- Once the Media Bureau has issued a Public Notice announcing that the *OMB* has approved the Commission's procedures, AM and FM broadcasters will be



permitted to commence interim IBOC operations by notifying the Commission by letter, within 10 days after IBOC operations have commenced.

The STA request or notification, as the case may be, must provide the following information:

- (i) the date that interim operation will commence or has commenced;
- (ii) a certification that the IBOC facilities conform to the iBiquity hybrid specifications;
- (iii) the name and telephone number of a technical representative the Commission can call in the event of interference;
- (iv) the transmitter power output;
- (v) a certification that analog effective radiated power remains as authorized;
- (vi) a certification that the interim operation would not cause human exposure to levels of radiofrequency radiation in excess of the Commission's rules; and
- (vii) if applicable, any power reduction in an AM station's primary digital carriers.

A copy of the respective STA or notification letter must be posted with the station's license, and a copy retained in the station's public inspection file. During interim IBOC operations, stations are required to broadcast the same main channel programming material in both analog and digital modes, using the station's authorized antenna system. For technical reasons, the FCC requires that AM stations implementing IBOC DAB not simultaneously transmit analog C-QUAM AM stereo, and AM expanded band stations that implement IBOC are released from their commitment to operate in analog stereo.

FM stations needing to increase transmitter power output to compensate for losses associated with analog/digital combiner networks must, as part of the notification process, indicate transmitter power output for both analog and digital transmitters, and must certify that the analog effective radiated power remains consistent with the station's authorization. Calculations used to determine transmitter power must be retained and made available to the Commission, upon request.