Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Separate Antennas	)	MM Docket No. 99-325
For IBOC	)	
	)	

To: The Commission

COMMENTS OF
DIELECTRIC COMMUNICATIONS - SPX CORPORATION

Dielectric Communications, a division of SPX, has designed and manufactured FM and Television antennas and broadcast components since 1942. We have worked with iBiquity and their licensed partners in developing In-Band On-Channel (IBOC) solutions.

HD Radio offers an exciting enhancement to traditional analog AM and FM service. Customers we have met at both National and State Association Trade Shows are encouraged by the benefits this service will provide. However, in a day where every expense must be analyzed for its return on investment (ROI), the cost of conversion to HD Radio is foremost on the minds of the engineers, managers, and station owners to which we have spoken.

Initial methods of transmitting the HD Radio signal, using both High-Level and Low-Level combining, are very costly. In the High-Level combining approach 90% of the digital transmitter output and 10% of the analog transmitter output is lost into a load and dissipated as heat. Although Low-Level combining transmission averts this loss, the transmitter output is nonetheless de-rated, requiring a new higher power solid state Analog/HD Radio transmitter to be purchased.

Despite the costs, a number of broadcasters have made the investment in this new equipment, and should be applauded for "blazing the trail" of HD Radio. Now come the realities of conversion. Many stations do not have the budget for High Level Combining. Transmitter building space, cooling, and electrical capacity concerns also enter the mix. A more cost-effective and efficient method needed to be developed, to round out the alternatives for converting to the new service.

The use of separate antennas for IBOC/HD Radio transmission is a reasonable solution when considering cost, efficiency, and coverage concerns. The separate antenna transmission method also offers redundancy. Since there are now two separate antenna systems fed from the same transmitter room, broadcast engineers are including RF switching or patching arrangements to permit using either antenna should the other fail. Although one of the transmitters would have to be turned off during such emergency operation, this method still gives the broadcaster the ability to continue serving the public with a signal, in the event of a catastrophic failure.

In addition to the use of physically separate antennas, Dielectric Communications recommends that an interleaved Analog/Digital antenna be added to the Separate

Antenna operating criteria. Our tests demonstrate that adding additional "digital" bays – spaced one half wavelength between the bays of an existing full-wavelength-spaced analog antenna - provides coverage symmetry as well as isolation between the analog and digital signals. The interleaved antenna approach duplicates analog coverage by the digital signal since both antennas are mounted in essentially the same aperture on the tower. Dielectric's HD Interleaved Antenna[1] design, when used with a low cost circulator on the output of the Digital transmitter, achieves the required isolation between the analog and digital signals.

The concerns associated with the separate antenna approach are mitigated through interleaving. Although the interleaving concept is based on two separate antennas, they occupy common aperture space. Since both antenna have the same number of elements, are essentially the same height above average terrain along with having the same tower geometry adjacent to them, the azimuth and elevation patterns remain consistent for both the analog and digital antennas. This will minimize the administrative burden placed on the Commission during the IBOC implementation.

Given the greatly reduced possibility of complications when operating HD Radio from separate antennas, as well as the reduced implementation costs, Dielectric Communications encourages the Commission to adopt a policy permitting Separate Analog/Digital antenna operation for stations desiring to transition to this new technology.

[1] HD Interleaved Antenna, Patent Pending.

Respectfully Submitted,

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