



HDR SERIES INTERLEAVED FM ARRAY

- Interleaved analog/HD Radio array for simultaneous transmission of both signals
- Efficient—no additional analog or digital system losses requiring higher TPO
- Ability to interleave within existing antenna
- High isolation requiring minimal supplemental filtering
- Transmitter operating cost reduced through efficient design
- Consistent azimuth and elevation patterns for both analog and digital
- Separate inputs allow redundancy for emergency operations
- Flexibility in radiator type and feed system design
- Common aperture — only 5'-7' (1.52 - 2.13m) of additional tower space required
- Designed for -10 dB IBOC signals
- Uses 33% less energy than common amplification
- >40 dB isolation

When considering cost, efficiency, coverage and tower space availability, many FM broadcasters will choose to interleave their digital antenna with either a new or existing analog antenna. Dielectric HDR Series antenna solutions provide extensive flexibility while maintaining high isolation between the digital and analog systems.

Two complete circularly polarized antenna arrays are interleaved at half wavelength intervals on a supporting structure. Each antenna array is typically composed of the same number of elements and is fed by a separate transmission line connected to the appropriate transmitter. By interleaving the digital left hand-polarized bays with the analog right hand polarized bays, coupling between the antenna systems is greatly reduced. No circulator is required, reducing systems complexity and expense for the broadcaster.

Since both antennas will have the same tower geometry adjacent to them, the azimuth and elevation patterns of both systems will be the same. This ensures that the system meets FCC and predicted pattern requirements.

HDR Series arrays are very cost-effective. The cost of the antenna, second run of low power transmission line and low power circulator is substantially less than the system cost of a 10 dB coupler and a transmitter large enough to compensate for additional system losses. Also, the associated operating costs are substantially reduced (as much as 10% for analog and as much as 90% for digital) due to the efficiency of the HDR Series array.

The HDR Series antenna is available in HDR-H, HDR-C and HDR-M versions depending on specific requirements. The Dielectric concept is flexible. Interleaving can be applied to any of Dielectric's side mounted circularly polarized antenna elements combined with any mixture of feed designs.

¹Patents: 6,972,731; 6,914,579; 7,102,589