



## CBR

- Ideal for multi-station operation
- Designed for common amplification or high level combining
- High-power handling
- Very low VSWR
- Minimal windloading
- Superb horizontal circularity and vertical pattern control to ensure uniform coverage
- Available in one, two, three or four around configurations
- Full assembly and testing available at our full capability antenna test range to ensure top performance.
- Designed for -10 dB IBOC signals
- >40 dB isolation

The CBR (Cavity Backed Radiator) antenna offers ideal characteristics for FM stations desiring the advantages of combined station operation or to stations requiring special directional coverage.

The Dielectric Cavity Backed Radiator consists of a crossed dipole radiator fed in phase quadrature and mounted within a circular cavity. Rotating RF energy is produced when the cavity is excited by the dipole elements. The signal emanating from the cavity is right-hand circular. The field rotates clockwise as viewed in the direction of propagation. Cavity size is principally determined by beamwidth requirements. A beamwidth of 90 degrees is required for a 4-around array and 120 degrees is required for a 3-around array (measured at the half-voltage coordinates). When operating in dual mode (IBOC/analog) this antenna is designed for common amplification or high level combining.

## Grid Cavity

The cavity used in the Dielectric circularly polarized FM antenna is a welded steel galvanized grid. The cavity grid is supported from a center mounting plate, which also serves as a mounting for the dipole assembly and for attachment of the unit to the supporting structure. The use of grid cavities and aerodynamic design significantly reduces weight and windload requirements of the supporting structure. This often represents substantial savings in support structure cost compared with other panel style antenna designs.

## Multi-Station Operation

Multi-station FM operation where two or more stations share the same antenna has increased in popularity due to the inherent cost savings which can be realized. Multi-station operation can be achieved only with the wide bandwidth characteristics the Dielectric CBR antenna offers.

These characteristics are achieved through the use of a broadband radiating element in conjunction with high-power hybrid junctions.

Dielectric also offers the associated combining equipment necessary for multi-station operation. Dielectric's experience with multiplexer installations ensures proper combiner operation to optimize the system operation.

## Azimuth Circularity

For omnidirectional operation, the shape of the standard azimuth pattern will vary from omni by less than  $\pm 2.0$  dB for three-sided tower configurations. With a four-around antenna array, the typical circularity will be comparable.

Stations employing directional arrays will find one of the several patterns available to be ideally suited to their specific needs.

## Elevation Pattern

The unique design of the CBR antenna offers precise control of the elevation pattern which is critical in auto receiver reception. Vertical pattern contouring to introduce beam tilt and null fill may be provided by means of standard phase and power distribution techniques.

## High-Power Capabilities

The Dielectric CBR antenna is designed for high-power operation enabling station flexibility in transmission system design. Our conservative power rating ensures adequate design headroom for long term reliability.

The Dielectric CBR antenna can be configured with one or two input ports. This feature allows the top and bottom six bays of a typical twelve-bay antenna to be fed by two independent transmission lines. Should standby operation be necessary, one half of the system may be used at reduced power.

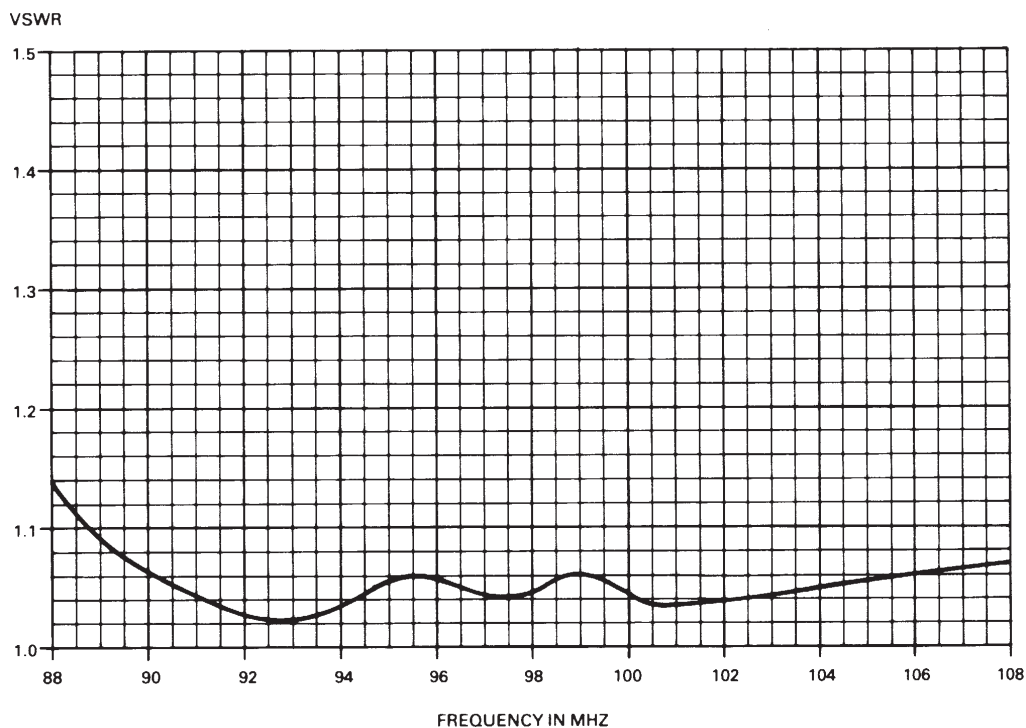
## Full Range Testing

The Dielectric antenna test range is one of the few facilities in existence capable of complete antenna testing. Two test transmitters are located adjacent to the range. This unique geographical setting offers ideal conditions for testing approaching the "free space" situation of an installed antenna.

Here the computer-plotted azimuth and elevation patterns of a Dielectric antenna can be proven out with highly accurate and sophisticated test equipment – translating the theory of calculated patterns into the reality of actual antenna performance.

## Meeting Precise Requirements

The Dielectric CBR antenna can meet the exacting requirements of FM broadcasters. Your Dielectric representative can provide you with additional information for your review and consideration.



Measured VSWR Characteristics of Multiplexed CBR at antenna input port