



SPECIFICATIONS

Frequency Range

- 20-8000 MHz in two switched bands

Array Element Types

- Nine V/UHF fan elements (DF), nine C-Band fans
- One V/UHF/C-Band bicone (monitor and DF Ref)

RF Switch

- Internal high dynamic range solid-state switch with broadband RF preamps
- Includes test and DF calibration circuits

Antenna RF Outputs

- 50 ohm
- Two: Sample, reference (for DF reference and monitor)
- Additional omni antenna RF output, optional
- Type N connectors

FEATURES

- Vertical polarization
- 20–8000 MHz broadband antenna for DF Monitoring and Monitoring Metrics
- Unique design provides high sensitivity over entire frequency range
- Rugged, lightweight construction for easy installation and long life
- Available in two configurations for fixed and mobile applications

The TCI **Model 647 VHF/UHF/C-BAND Antenna** is designed for applications requiring an antenna capable of handling a wide range of frequencies. The Model 647 provides broadband operation from 20-8000 MHz for both DF and signal monitoring. Typical DF accuracy is 2 degrees (RMS)*. The Model 647 supports calibrated signal amplitude measurements over the full frequency range and includes built-in test equipment (BITE) for automatic testing and verification of the operational status of the antenna.

The DF array in the Model 647 consists of two arrays, each of nine fan elements, that are housed in a plastic radome. The radome includes a broadband monitoring antenna and a broadband RF switch. In a spectrum monitoring system, the RF switch commutes signals from the DF elements to an external two-channel receiver and generates test signals for DF calibration and automatic system test. A block converter is used for frequencies between 3GHz and 8GHz, converting these frequencies down to a range compatible with the standard TCI DF receiver (20 MHz to 3GHz).

DF SYSTEM SENSITIVITY**			
Low Band Frequency (MHz)	Field Strength (dBµV/m)	High Band Frequency (GHz)	Field Strength (dBµV/m)
20	-12		
40	-16	3	-7
100	-21	4	-5
200	-23	5	-4
500	-21	6	-3
1000	-15	7	+1
2000	-10	8	+3
2700	-8		

*Typical DF accuracy when 647 antenna is used with TCI DF/SMS systems in a reflection-free environment.

**System sensitivity is the field strength required to provide specified DF accuracy when the Model 647 antenna is installed in a typical TCI 725 or 745 SMS system, including antenna noise figure, coax cable losses, and receiver noise figure; referenced to 1 Hz bandwidth and with 1-second DF averaging. Local installation conditions may affect sensitivity and DF accuracy.



647 Fixed Antenna



647 Mobile Antenna

