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615 Short-Range Broadcast Antenna

A properly chosen antenna can greatly enhance the quality of short-range shortwave broadcasting. Ideally, the antenna should handle high power to ensure high signal-to-noise ratio at the receiver, have a wide frequency bandwidth for selection of the appropriate frequency, allow diplexing of two transmitters on one antenna, and produce radiation at high elevation angles.

The Model 615 exhibits all the features of this ideal short-range broadcast antenna. Power-handling capability is 100 kW or 250 kW AM carrier power. The frequency bandwidth is either 2.3–18 MHz or 3.2–18 MHz, and the radiation pattern is essentially omnidirectional with the majority of the energy directed overhead. Broadcast coverage is in the approximate range 0 to 1,500 kilometers from the transmitter station (see data in Signal Strength table in the Model 615 datasheet).

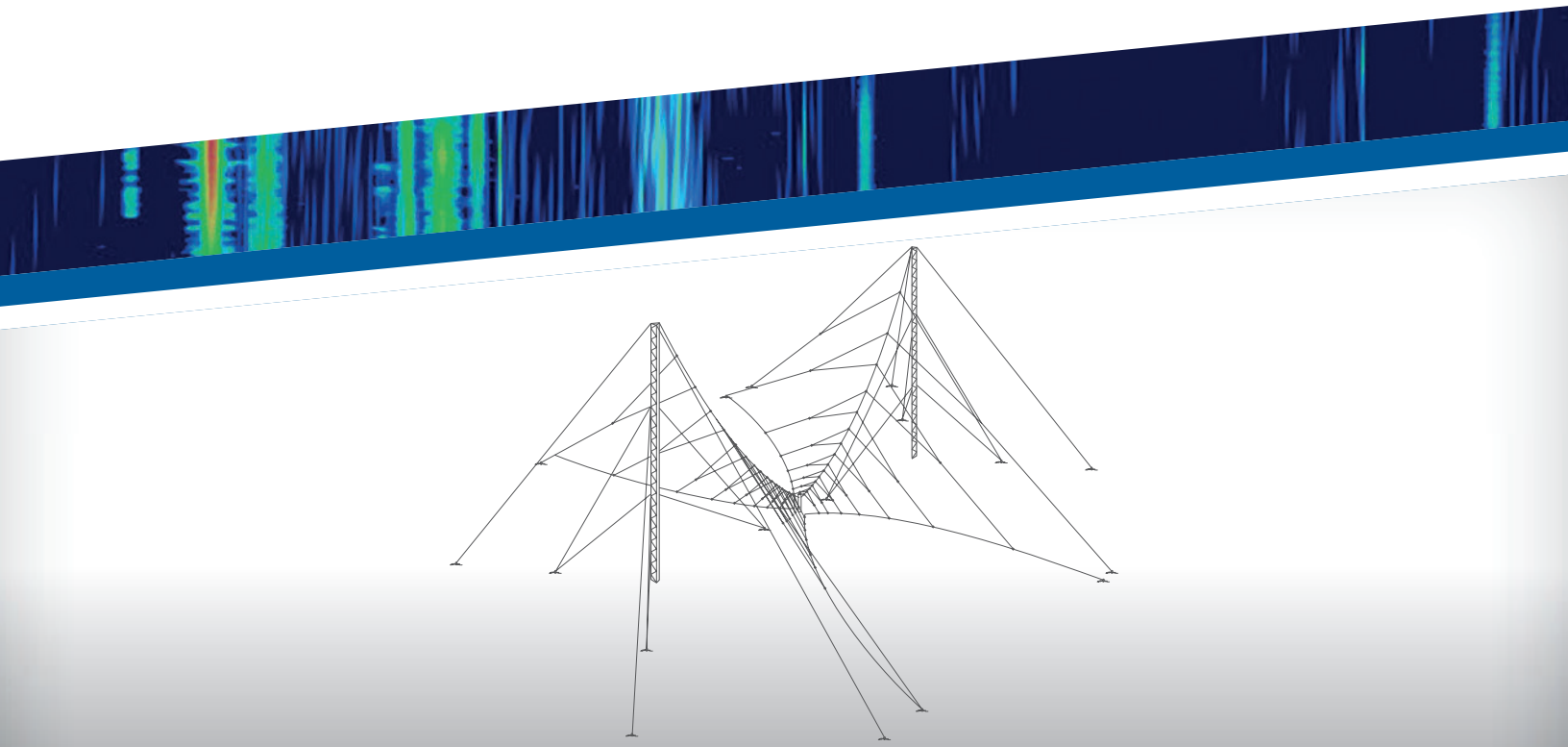
The 615 is truly a wideband antenna and not merely high efficiency and low VSWR at any frequency within its operating range.

The 615 employs the same high-quality, exhaustively tested components and materials as all TCI antennas. Feedlines and catenaries are composed of a high-strength steel core and a highly conductive, corrosion-resistant, welded coating of aluminum. All feedline and radiator tip insulators are made of high-strength glazed alumina, a material with an extremely low loss tangent (.001), which is virtually impervious to the effects of ultraviolet radiation, dirt, and salt spray.

Fiberglass material is not used anywhere in the antenna. Complete fabrication and preassembly are accomplished in the factory. Installation consists of only the tower erection and hoisting the preassembled curtains. The few connections required are accomplished with nuts and bolts.

KEY FEATURES

- Short range, high take-off angle
- Coverage optimized for ranges up to 1,500 km
- 2.3–18 MHz or 3.2–18 MHz
- 100 kW or 250 kW carrier
- Rugged construction
- Factory preassembled

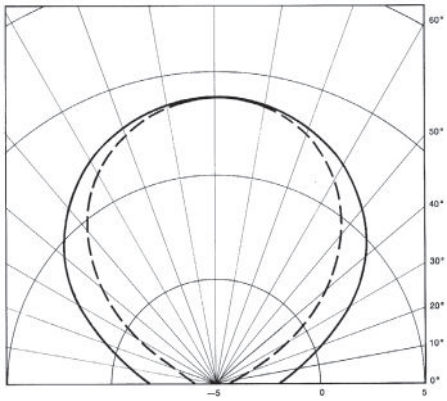


615 Short-Range Broadcast Antenna Specifications

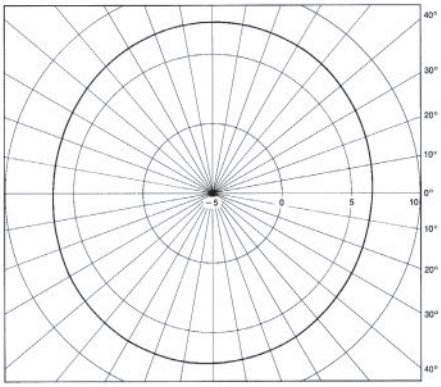
Model 615 Specifications		
Polarization	Horizontal	
Frequency	615-1 2.3–18 MHz 615-2 3.2–18 MHz	
VSWR	2.0:1 maximum 1.8:1 or lower over most of the band	
Input Impedance	300 ohms balanced, nominal	
Power	615-1-250 and 615-2-250: 250 kW AM carrier (375 kW average/1,000 kW peak) 615-1-100 and 612-2-100: 100 kW AM carrier (150 kW average/400 kW peak) 615-1-50 and 615-2-50: 50 kW AM carrier (75 kW average/200 kW peak)	
Diplexing	The 615-1-100 or 615-2-100 can be used with two 25 kW AM carrier transmitters operating at two fixed adjacent broadcast bands	
Gain	9 dBi	
Size	615-1	615-2
Height	132 ft (40.2 m)	96 ft (29.3 m)
Length	330 ft (100.6 m)	330 ft (100.6 m)
Width	318 ft (97 m)	234 ft (71.3 m)
Environmental Performance	Designed in accordance with TIA / EIA Specification RS-222C for loading of 160 km/h (100 mi/h) wind, no ice	

Signal Strength				
Range (km)	50 kW Transmitter		100 kW Transmitter	
	Dec SSN 10	June SSN 110	Dec SSN 10	June SSN 110
100	66 dBu	65 dBu	69 dBu	68 dBu
500	62 dBu	61 dBu	65 dBu	64 dBu
1000	53 dBu	53 dBu	56 dBu	56 dBu
1500	48 dBu	48 dBu	51 dBu	51 dBu

› ELEVATION PLANE PATTERN (Typical elevation patterns) gain in dBi



› AZIMUTH PATTERN (Typical azimuth patterns at 60° elevation) gain in dBi



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