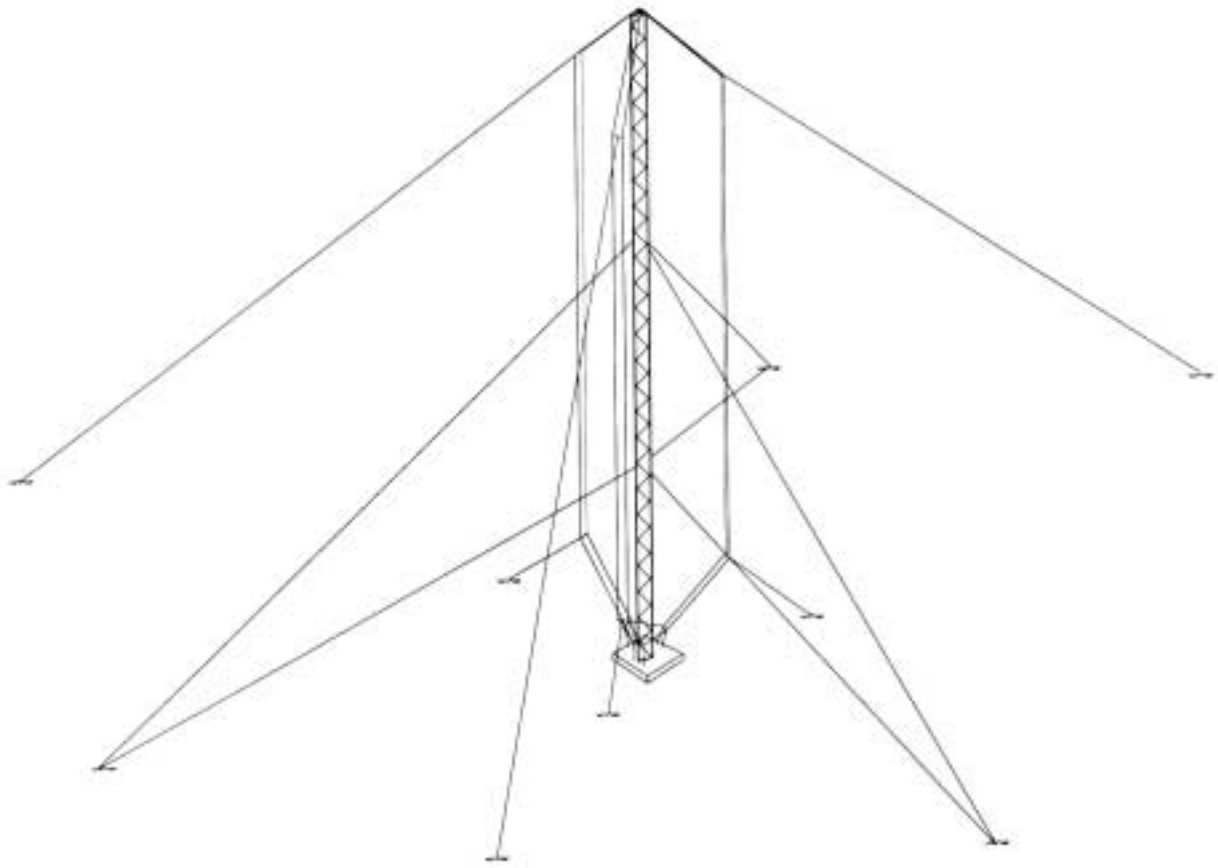
TCI
A Dielectric Company

MODEL

604 ST

Self Tuned Medium Wave Broadcast Antenna



The Shunt-Fed MF Antenna

The Model 604ST is TCI's answer to the medium wave broadcaster's need for a high-quality, low-maintenance medium wave antenna for up to 600 kW broadcast applications. The Model 604ST uses a shunt-fed guyed grounded mast which requires no antenna tuning unit (ATU). Tuning is performed by adjusting the shunt feed system at the time of installation.

The elimination of the ATU and the base insulator results in a simpler, lower cost configuration. The grounded tower design increase the antenna's resistance to lightning strikes and also means that the tower obstruction lights can be fed without the use of an isolation transformer, traditionally a high maintenance item.

Electrical Characteristics

The TCI Model 604ST is just under one-quarter wavelength in height. The radiation pattern is omnidirectional; a second mast can be added to the Model 604ST as a parasitic reflector to achieve a directional pattern. A full copper earth radial system is included with each Model 604ST.

The Model 604ST is available in fourteen frequency ranges, covering the medium wave broadcast band, marine and weather bands, and non-directional beacon frequencies from 450 to 1840 kHz. Six ranges of transmitter carrier power levels are available, from 10 kW to 600 kW.

- **No tuning unit required**
- **No base insulator**
- **Shunt fed**
- **Low maintenance**
- **Grounded steel mast**
- **Lightning resistant**
- **Alumoweld guys**
- **High quality insulators**
- **Low cost**

Materials
The same high quality materials are used in the Model 604ST as are used in all TCI antennas. The mast is hot dipped galvanized steel, with a triangular cross section. The guy wires are Alumoweld (aluminum coated steel) segmented as necessary by insulators.

The Model 604ST uses a combination of compression and long leakage path tension insulators. Insulator materials are glazed ceramic. No organic materials which could elongate or deteriorate over time are used in the Model 604ST.

Accessories
Optional accessories for the Model 604ST include an RF current meter, face-mounted ladder, safety climbing cable, rest platforms, ICAO obstruction lights and paint.

The Model 604ST is normally erected by experienced rigging crews. TCI can quote installation tools, equipment, and field engineering assistance. Where site details are known in sufficient detail, TCI can provide quotations for turnkey systems.

Specifications

Frequency ..... 450 to 1840 kHz

Power ..... Models available for transmitter carrier powers of 10, 50, 100, 200, 300, and 600 kW

VSWR ..... 1.05:1 at carrier frequency

Polarization ..... Vertical

Gain ..... 5 dBi directive gain

Azimuth Pattern ..... Omnidirectional (A two tower directional pattern is available with 7 dBi directive gain)

Elevation Pattern ..... Cosine of the elevation angle (over perfect ground)

Impedance ..... 50 ohms

Environment ..... 160 km/h (100 mi/h) wind, no ice per RS-222C, and 130 km/h (80 mi/h) base wind no ice per EIA-222C

Mast Height ..... 32 m (106 ft) to 112 m (367 ft)

Guy/Ground Screen Radius ..... Nominally equal to mast height

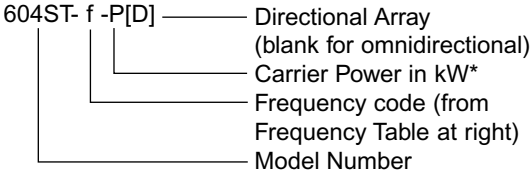
Matching Unit ..... None Required

Accessories ..... Ladder, mast lighting/paint, rest platforms, safety climbing cable, current meter, riggers tools

Frequency Table

Frequency (kHz)	Model Number	Mast Height (m)	(ft)
1551–1840	-1-P	32.3	106
1351–1550	-2-P	38.4	126
1180–1350	-3-P	44.6	146
1054–1179	-4-P	50.7	166
952–1053	-5-P	56.8	186
874–951	-6-P	63.0	207
795–873	-7-P	69.1	227
736–794	-8-P	75.2	247
685–735	-9-P	81.4	267
640–684	-10-P	87.5	287
605–639	-11-P	93.6	307
566–604	-12-P	99.8	327
536–565	-13-P	105.9	347
450–535	-14-P	112.0	367

Ordering Information



Example: a 100 kW directional array tuned to 990 kHz would be designated as a Model 604ST-5-100D.

* Specify transmitter nominal carrier power. Antenna will be rated for 125% positive modulation.

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