

DIRECTIONAL HF ANTENNAS-FIXED

CST-HFD-0303-015 - 060 (1.5 - 30 MHz)

The antenna series CST-HFD-0303-015 to -060 are LOG-PERIODIC antennas for stationary use.

The antennas are dimensioned that the vertical radiation characteristics are adapted for the special propagation conditions in the HF frequency range, i.e. high elevation radiation angle, short and medium distances. The antenna can also be designed as One-Mast configuration.

TECHNICAL DATA

Electrical	:	Frequency range	1.5 - 30 MHz CST-HFD-0303-015	4.0 - 30 MHz CST-HFD-0303-040
			2.0 - 30 MHz CST-HFD-0303-020	5.0 - 30 MHz CST-HFD-0303-050
			2.5 - 30 MHz CST-HFD-0303-025	6.0 - 30 MHz CST-HFD-0303-060
			3.0 - 30 MHz CST-HFD-0303-030	
		Gain	typ. 9 – 12 dBi	
		Polarization	Horizontal	
		Horizontal beam width	typ. 60°	
		Nominal impedance	50 Ω	
		VSWR	2.0: 1 (above 5.0 MHz) 2.5: 1 (below 5.0 MHz)	
		RF input power	Up to 10 kW Average, receive only	
		Available RF connectors	N, 7-16, 7/8" EIA, 1 5/8"-EIA, depending on RF input power	
Environment	:	Wind speed	Operational: 160 km/h without ice 120 km/h with with 1.2 cm radial ice	
		Temperature range	-35° C to +55°C	
		Lightning protection	All metallic parts are grounded	

MECHANICAL DATA

Type	L	B	D	H
CST-HFD-0303-01	160	160	140	50
CST-HFD-0303-02	125	105	95	42
CST-HFD-0303-025	115	100	85	30
CST-HFD-0303-03	100	90	75	28
CST-HFD-0303-04	75	68	56	20
CST-HFD-0303-05	60	54	45	18
CST-HFD-0303-06	50	45	38	15

Dimensions in meters which subject to be arranged to site conditions (see Figure 1)

The masts are made of hot dipped galvanized (thickness 80 micron) steel (comply with EN 10025, 1090, 14732/9606). The radiator wires are made of Copper-Bronze or Aluminum Clad-Steel Wire (Alumoweld), depending on input power, and are spanned between two catenaries. Tension ropes are Galvanized/Stainless Steel. Solar Obstruction Lights (ICAO) can also be provided.

All bolts and screws are made of stainless steel (ISO 8.8)

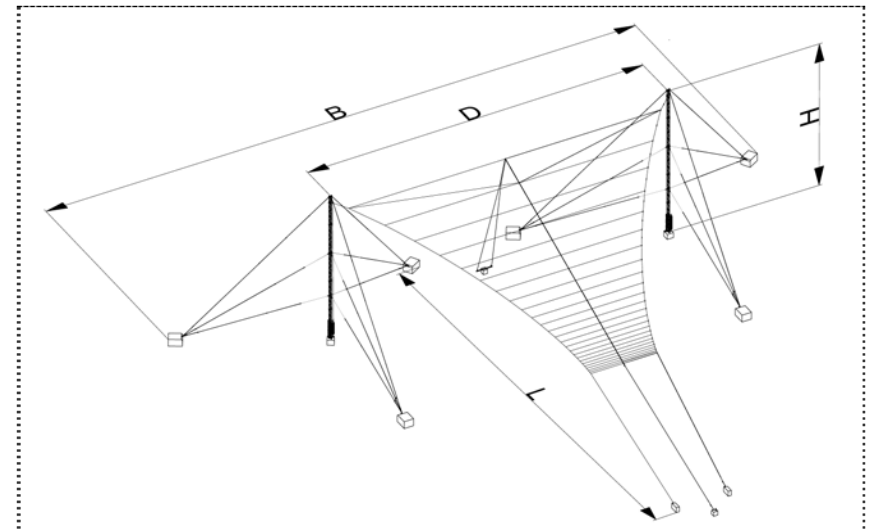


Figure 1: Main dimensions and view of antenna

ELECTRICAL DATA

The following diagrams show the electrical properties of typical antenna over real ground (blue) and ideal ground (red). The results are based on simulations

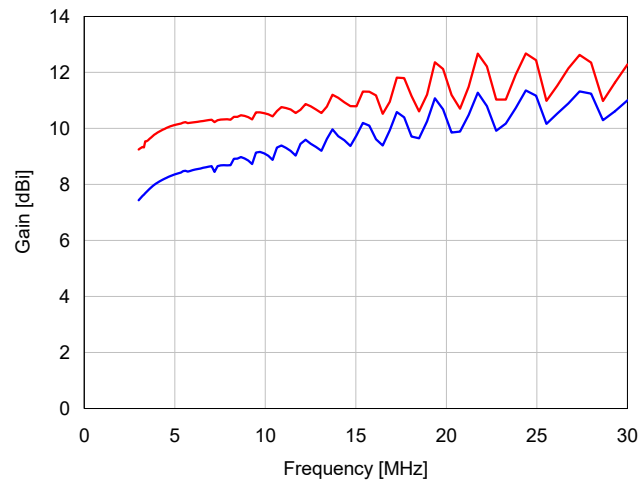


Figure 2: Gain (typical)

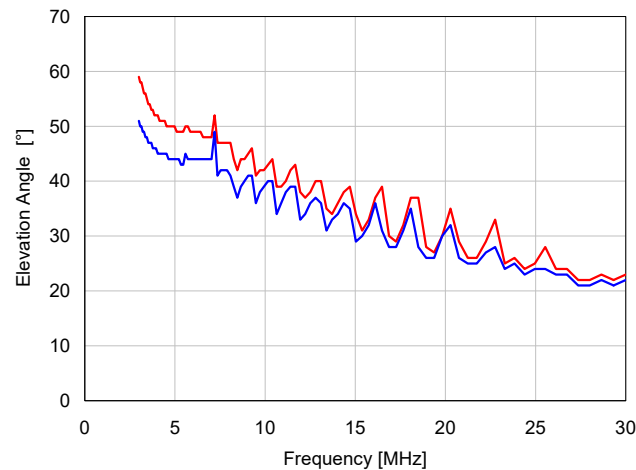


Figure3: Elevation Angle (typical)

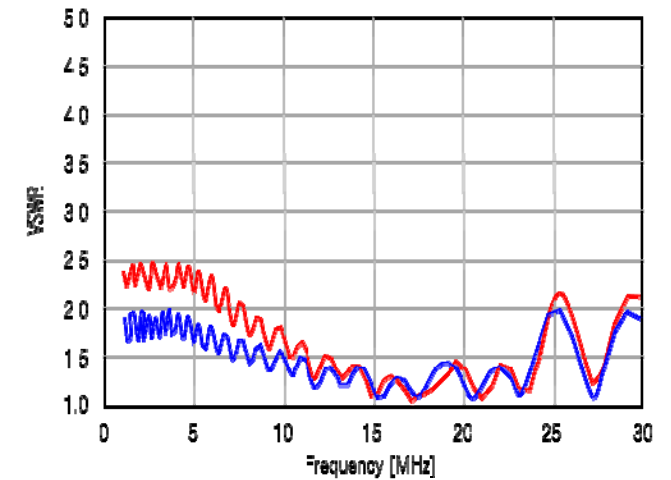


Figure4: VSWR (typical)

Radiation patterns:

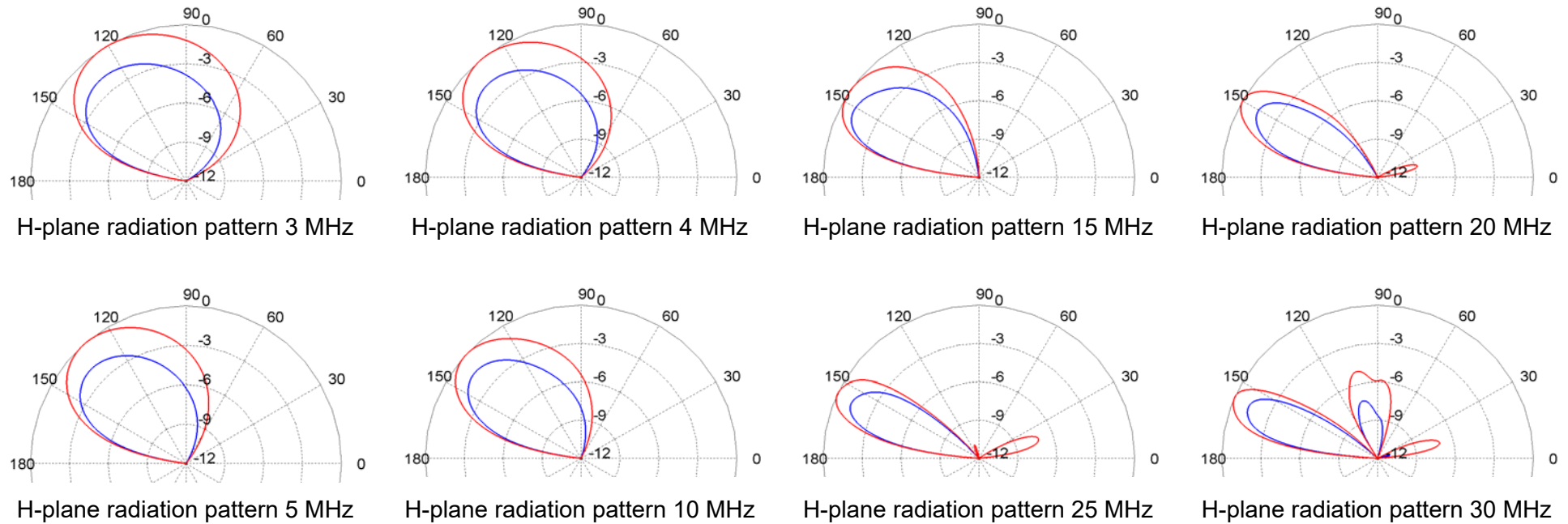
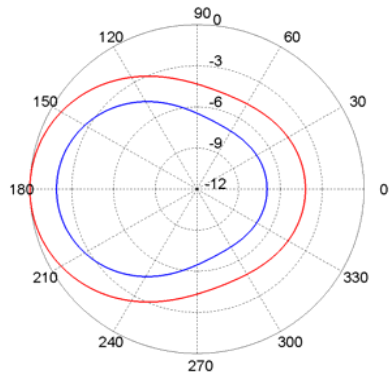
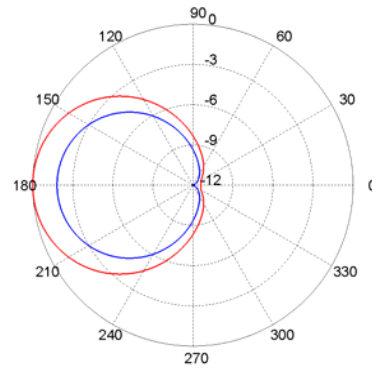


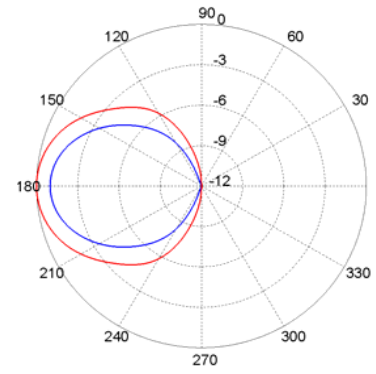
Figure 5: Normalized H-plane Radiation Patterns



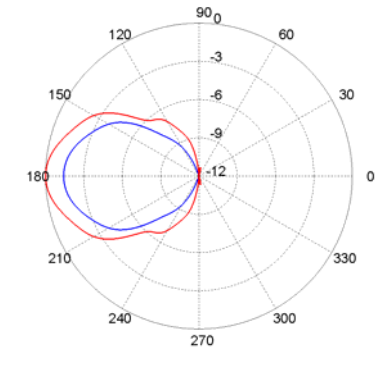
E-plane radiation pattern 3 MHz



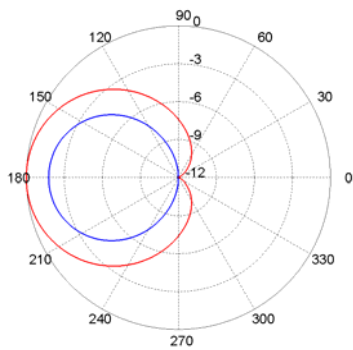
E-plane radiation pattern 4 MHz



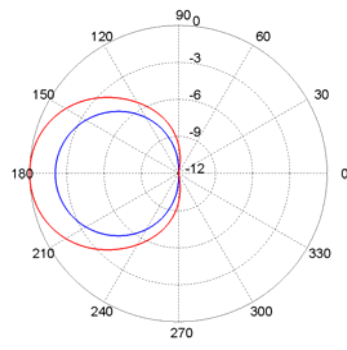
E-plane radiation pattern 15 MHz



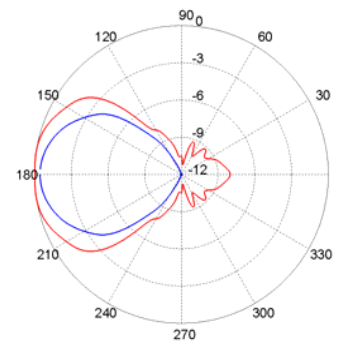
E-plane radiation pattern 20 MHz



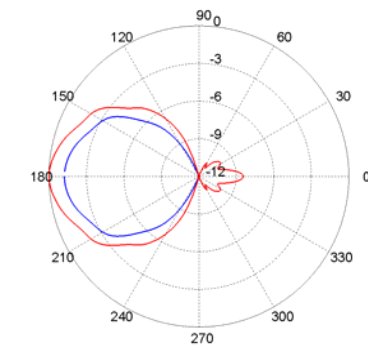
E-plane radiation pattern 5 MHz



E-plane radiation pattern 10 MHz



E-plane radiation pattern 25 MHz



E-plane radiation pattern 30 MHz

Figure 6: Azimuth Patterns