

174-230MHz TV Panel Arrays

Product Description

This series of panel antennas has been designed for three sided arrays and provides a customized horizontally polarized coverage for single or multistation use in Band III. Model 657 has a nominal gain of 7dBd. Construction from thick walled tube and solid steel bar gives a heavy duty panel which is designed for operation in very harsh environments. This design also ensures ideal hot dip galvanizing for optimum corrosion protection. Colours are available for aviation visibility and even further corrosion protection.

The coaxial feed system can be fully pressurized and features twin 'O' ring seals on the feed point insulators. The panels are tolerant of light icing (radomes are available for use under heavy icing conditions down to -40 degrees C) and has a very low VSWR (typically less than 1.05:1) over the entire 174 - 230MHz band depending on the system configuration.

These panels are ideal array elements for triangular mast with a 1.2m face and can provide omnidirectional patterns with less than ± 1 dB variation. By varying the number and positions of panels and feed amplitude/phase, patterns can be customized to optimize coverage over a given service area. The use of three panels around the structure offers significant cost and wind load reduction over four sided arrangements.



Features

- Suitable for multiple channel use
- Three sided array design - lower cost
- Cyclone rated
- Rugged galvanized steel construction for maximum corrosion protection
- Low wind load
- Pressurizable coaxial feed
- Horizontal polarization
- Array design allows a variety of standard horizontal radiation patterns as well as customised patterns, contact RFS for details
- Medium power, unpressurized version available
- Temperature range -40 to +60 degrees C available

Antenna Specifications

Frequency Range, MHz	174 - 230
Operating Frequency Ranges, MHz	174 - 202, 202 - 230
Polarization	Horizontal
Number of Channels	Multichannel
Nominal Gain (Mid-band), dBd	7.0
Half Power Beamwidth Azimuth, degrees	77
Return Loss, dB	23
Input Connector	7-16 DIN; 7/8" EIA Flange
Power Rating, kW	3; 4
Impedance, ohms	50 unbalanced
Weight, kg (lb)	33 (73)
Mounting (Standard), mm (in)	4 x 12mm (1/2) bolts
Effective Area Front (full antenna), sq m (sq ft)	0.40 (4.30)
Effective Area Side (full antenna), sq m (sq ft)	0.50 (5.38)
Design Wind Speed (max), km/h (mph)	240 (150)
Pressurization Operational, kPa (psi)	7 - 21 (1 - 3) 7/8" EIA Version
Pressurization Test, kPa (psi)	100 (15) 7/8" EIA Version
Material - Insulators	PTFE
Material - Radiators	Hot Dipped Galvanised steel
Material - Reflecting Screen	Hot Dipped Galvanised steel



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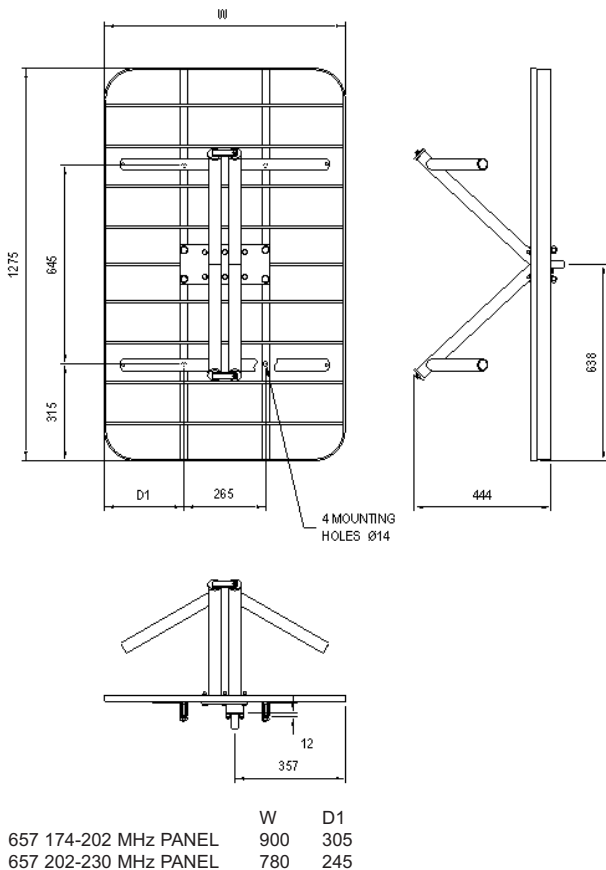
Antenna Array Specifications

	1			2			3		
Number of bays	1			2			3		
Panels per bay	1	2	3	1	2	3	1	2	3
Vertical Spacing between Bays (m)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
HRP Directivity (dBd)	6.3	3.3	1.5	6.3	3.3	1.5	6.3	3.3	1.5
VRP Directivity (dBd)	0.9	0.9	0.9	3.9	3.9	3.9	5.7	5.7	5.7
Gain (dbd)	7.2	4.2	2.4	10.3	7.2	5.5	12.0	9.0	7.2
Gain (times)	5.2	2.6	1.7	10.6	5.3	3.5	15.8	7.9	5.2
Weight (kg)	33	101	139	126	202	278	189	303	417
Weight (lbs)	73	223	306	278	445	613	417	668	919
Antenna Aperture L (m)	1.6	1.6	1.6	3.2	3.2	3.2	4.8	4.8	4.8
Antenna Aperture L (ft)	5.2	5.2	5.2	10.5	10.5	10.5	15.7	15.7	15.7
Effective area (m2)	0.5	0.9	1.4	1	1.8	2.8	1.5	2.7	4.2
Effective area (ft2)	5.4	9.7	15.1	10.8	19.4	30.1	16.1	29.1	45.2
Windload @ 50m/s (kN)	0.8	1.4	2.1	1.5	2.8	4.3	2.3	4.1	6.4
Windload @ 50m/s (lbs)	172	310	482	344	619	963	516	929	1445

	4			6			8		
Number of bays	1			2			3		
Panels per bay	1	2	3	1	2	3	1	2	3
Vertical Spacing between Bays (m)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
HRP Directivity (dBd)	6.3	3.3	1.5	6.3	3.3	1.5	6.3	3.3	1.5
VRP Directivity (dBd)	6.6	6.6	6.6	8.3	8.3	8.3	9.6	9.6	9.6
Gain (dbd)	12.9	9.9	8.1	14.6	11.6	9.9	15.9	12.9	11.1
Gain (times)	19.6	9.8	6.5	29.1	14.6	9.7	38.6	19.3	12.8
Weight (kg)	252	404	556	378	606	834	504	808	1112
Weight (lbs)	556	891	1226	833	1336	1839	1111	1782	2452
Antenna Aperture L (m)	6.4	6.4	6.4	9.6	9.6	9.6	12.8	12.8	12.8
Antenna Aperture L (ft)	21.0	21.0	21.0	31.5	31.5	31.5	42.0	42.0	42.0
Effective area (m2)	2	3.6	5.6	3	5.4	8.4	4	7.2	11.2
Effective area (ft2)	21.5	38.8	60.3	32.3	58.1	90.4	43.1	77.5	120.6
Windload @ 50m/s (kN)	3.1	5.5	8.6	4.6	8.3	12.9	6.1	11.0	17.1
Windload @ 50m/s (lbs)	688	1238	1926	1032	1857	2889	1376	2476	3852

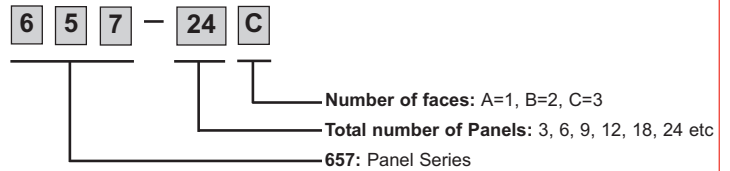
Note: Tower sections and interface steelwork antenna system to tower is not included in load calculations.

Antenna Panel Dimensions

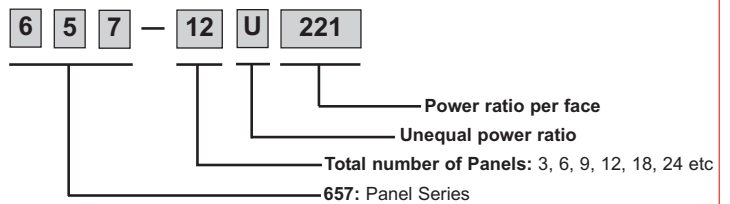


Nomenclature

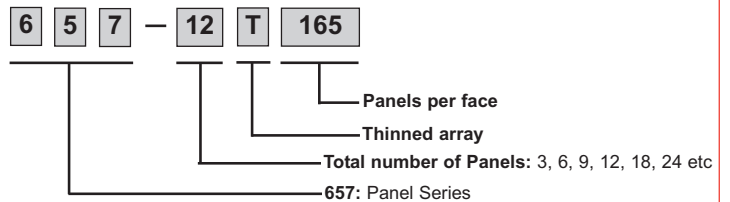
Equal Split



Unequal Split



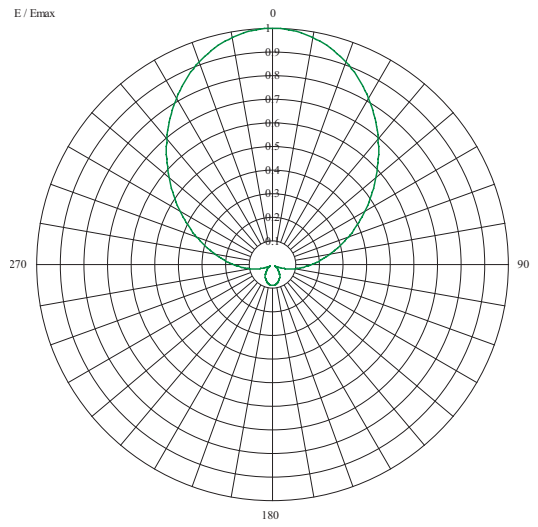
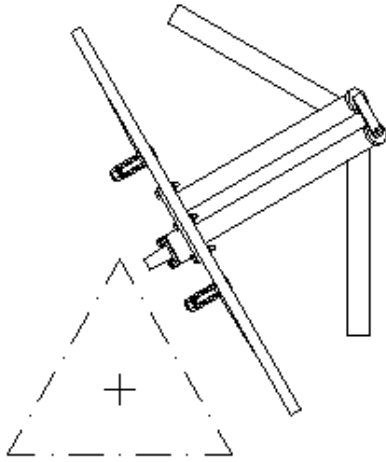
Thinned array



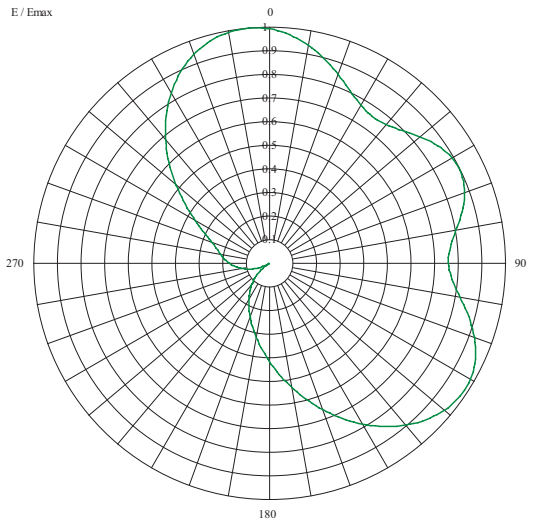
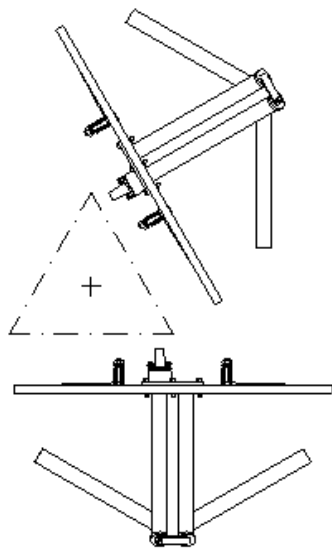
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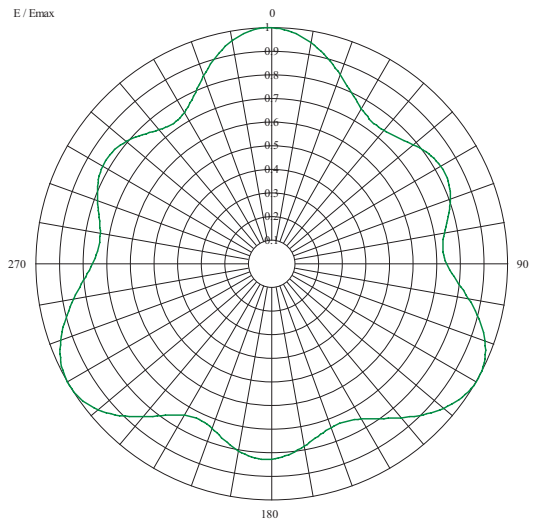
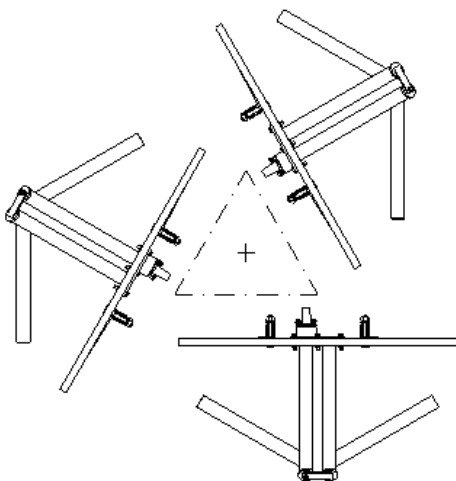
Horizontal patterns



HRP 657-A 202MHz 6.32dBd



HRP 657-A 202MHz 3.31dBd

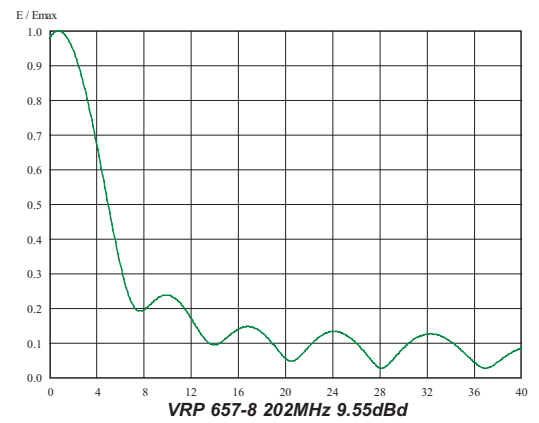
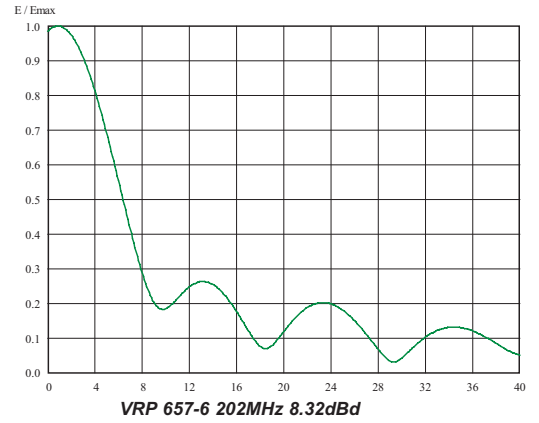
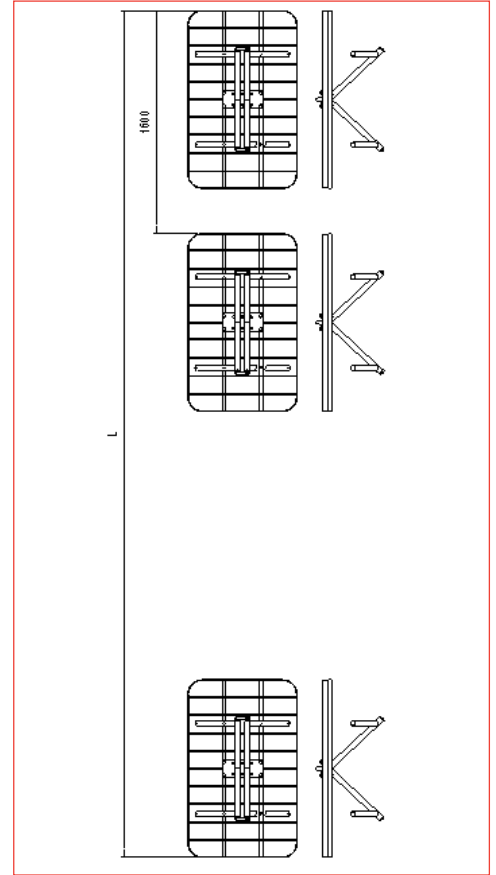
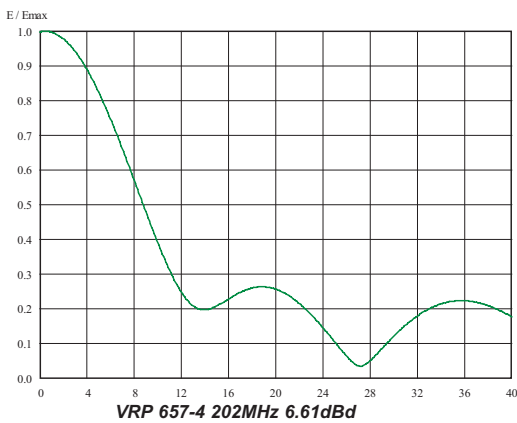
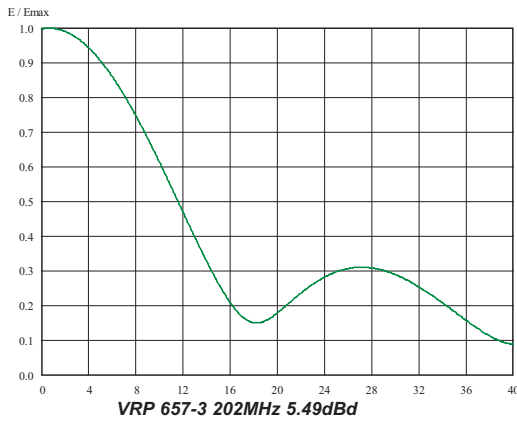
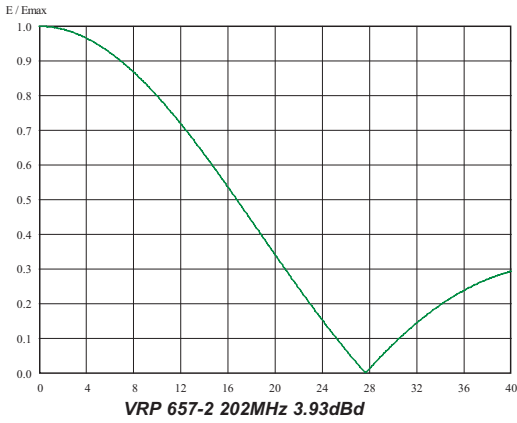
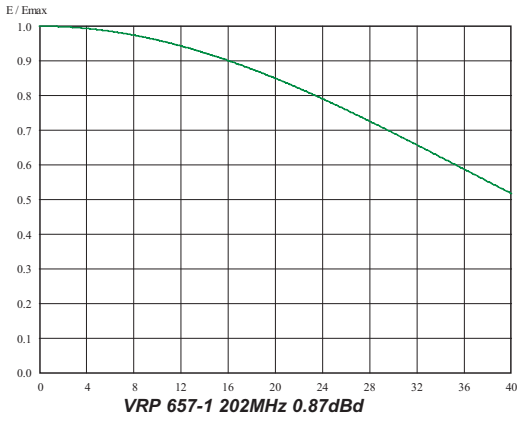


HRP 657-A 202MHz 1.53dBd

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Vertical patterns



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