

## 174-230MHz TV Panel Arrays

### Product Description

This series of panel antennas is ideal for four sided array design to provide a customized coverage for single or multistation use in Band III. Model 655 has a nominal gain of 8 dBd and can be used for horizontally polarized services.

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 have 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 having low sidelobes, low mutual couplings between panels and high power ratings across the full band. This results in complete antenna systems that have very wide VSWR and pattern bandwidth.

The ability to utilize larger tower cross sections allows support for a top mounted UHF antenna such as the PHP or PVP UHF antenna arrays. This provides a powerful combination for delivering DTV and/or DAB systems customized to suit the coverage requirements of the customer.



### Features

- Cyclone rated
- Rugged galvanized steel construction for maximum corrosion protection
- Stainless steel version available on request
- Low wind load
- Pressurizable coaxial feed
- Four sided array design
- Low VSWR full band operation
- Suitable for multistation use, DAB and DTV
- High power rating
- Ideal array element allowing for a variety of horizontal radiation patterns to suit most requirements, contact RFS for details
- Medium power, unpressurised version available
- Temperature range -40 to +60 degrees C available

### Antenna Specifications

<b>Model Number</b>	<b>655</b>
Frequency Range, MHz	174 - 230
Polarization	Horizontal
Number of Channels	Multichannel
Nominal Gain (Mid-band), dBd	8.0
Half Power Beamwidth Azimuth, degrees	66
Return Loss, dB	26
Input Connector	7-16 DIN; 7/8" EIA Flange
Power Rating, kW 3;	3; 4
Impedance, ohms	50 unbalanced
Weight, kg (lb)	35 (77)
Mounting (Standard), mm (in)	4 x 12mm (1/2) bolts
Effective Area Front (full antenna), sq m (sq ft)	0.41 (4.45)
Effective Area Side (full antenna), sq m (sq ft)	0.53 (5.69)
Design Wind Speed (max), km/h (mph)	240 (150)
Pressurization Operational, kPa (psi)	10 - 25 (1.5 -3.8) 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

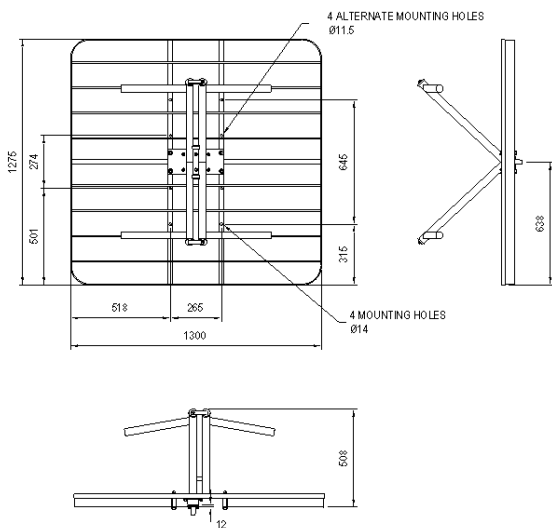
Number of bays	1				2				3			
	1	2	3	4	1	2	3	4	1	2	3	4
Panels per bay	1	2	3	4	1	2	3	4	1	2	3	4
Vertical Spacing between Bays (m)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
HRP Directivity (dBd)	7.0	4.5	2.7	1.8	7.0	4.5	2.7	1.8	7.0	4.5	2.7	1.8
VRP Directivity (dBd)	0.9	0.9	0.9	0.9	3.9	3.9	3.9	3.9	5.7	5.7	5.7	5.7
Gain (dbd)	7.9	5.4	3.6	2.7	11.0	8.5	6.6	5.8	12.7	10.2	8.4	7.5
Gain (times)	6.2	3.5	2.3	1.9	12.5	7.0	4.6	3.8	18.6	10.5	6.9	5.6
Weight (kg)	35	105	145	185	130	210	290	370	195	315	435	555
Weight (lbs)	77	232	320	408	287	463	639	816	430	695	959	1224
Antenna Aperture L (m)	1.6	1.6	1.6	1.6	3.2	3.2	3.2	3.2	4.8	4.8	4.8	4.8
Antenna Aperture L (ft)	5.2	5.2	5.2	5.2	10.5	10.5	10.5	10.5	15.7	15.7	15.7	15.7
Effective area (m2)	0.5	0.9	1.4	1.8	1	1.8	2.8	3.6	1.5	2.7	4.2	5.4
Effective area (ft2)	5.4	9.7	15.1	19.4	10.8	19.4	30.1	38.8	16.1	29.1	45.2	58.1
Windload @ 50m/s (kN)	0.8	1.4	2.1	2.8	1.5	2.8	4.3	5.5	2.3	4.1	6.4	8.3
Windload @ 50m/s (lbs)	172	310	482	619	344	619	963	1238	516	929	1445	1857

Number of bays	4				6				8			
	1	2	3	4	1	2	3	4	1	2	3	4
Panels per bay	1	2	3	4	1	2	3	4	1	2	3	4
Vertical Spacing between Bays (m)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
HRP Directivity (dBd)	7.0	4.5	2.7	1.8	7.0	4.5	2.7	1.8	7.0	4.5	2.7	1.8
VRP Directivity (dBd)	6.6	6.6	6.6	6.6	8.3	8.3	8.3	8.3	9.6	9.6	9.6	9.6
Gain (dbd)	13.6	11.2	9.3	8.4	15.4	12.9	11.0	10.2	16.6	14.1	12.3	11.4
Gain (times)	23.1	13.0	8.6	7.0	34.3	19.3	12.7	10.4	45.5	25.6	16.8	13.7
Weight (kg)	260	420	580	790	390	630	920	1160	520	840	985	1305
Weight (lbs)	573	926	1279	1742	860	1389	2029	2558	1147	1852	2172	2878
Antenna Aperture L (m)	6.4	6.4	6.4	6.4	9.6	9.6	9.6	9.6	12.8	12.8	12.8	12.8
Antenna Aperture L (ft)	21.0	21.0	21.0	21.0	31.5	31.5	31.5	31.5	42.0	42.0	42.0	42.0
Effective area (m2)	2	3.6	5.6	7.2	3	5.4	8.4	10.8	4	7.2	11.2	14.4
Effective area (ft2)	21.5	38.8	60.3	77.5	32.3	58.1	90.4	116.3	43.1	77.5	120.6	155.0
Windload @ 50m/s (kN)	3.1	5.5	8.6	11.0	4.6	8.3	12.9	16.5	6.1	11.0	17.1	22.0
Windload @ 50m/s (lbs)	688	1238	1926	2476	1032	1857	2889	3715	1376	2476	3852	4953

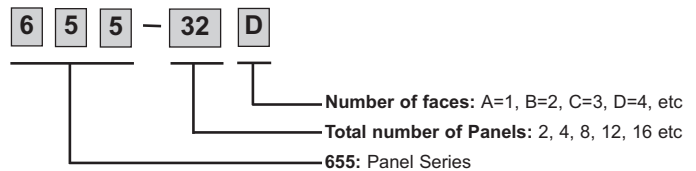
Note: Tower sections and interface steelwork antenna system to tower is not included in load calculations.

Antenna Panel Dimensions

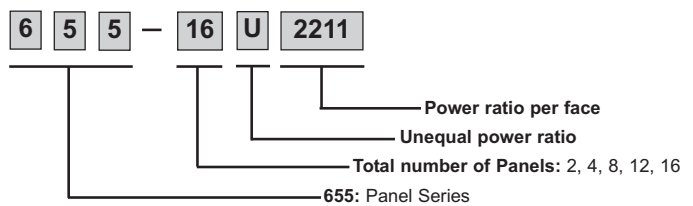


Nomenclature

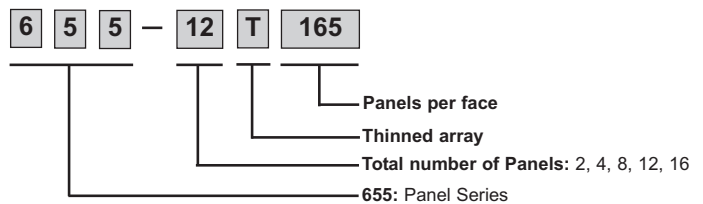
Equal Split



Unequal Split



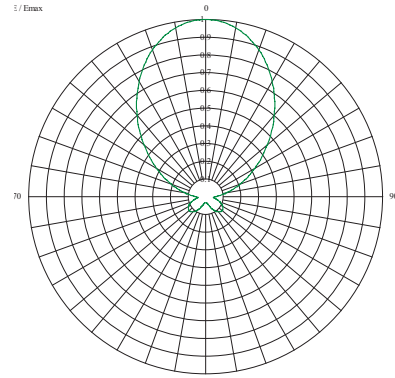
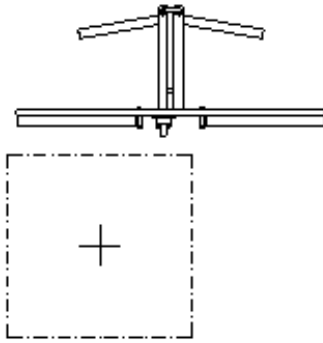
Thinned array



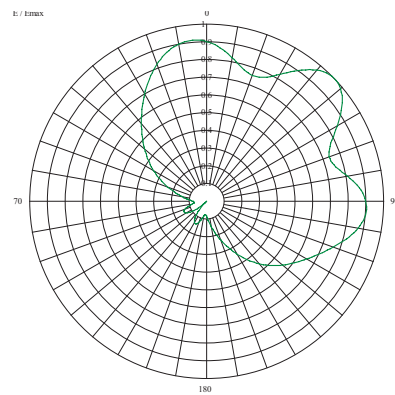
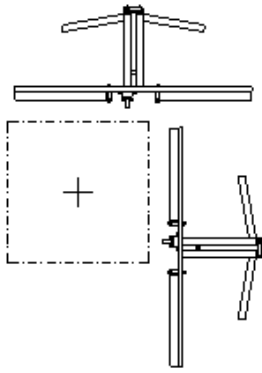
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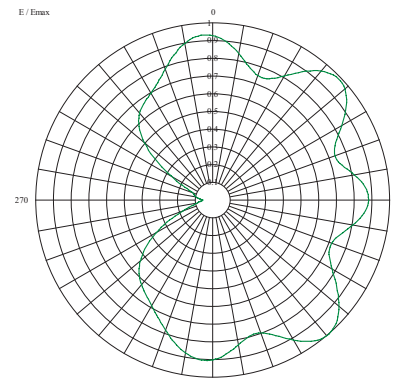
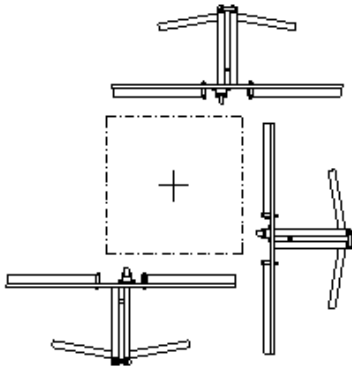
Horizontal patterns



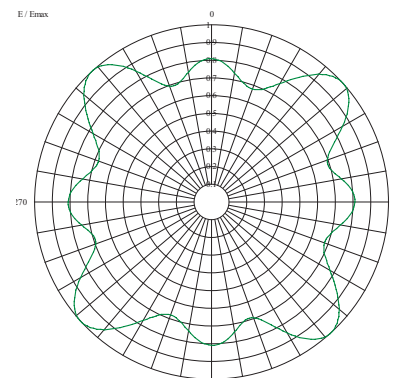
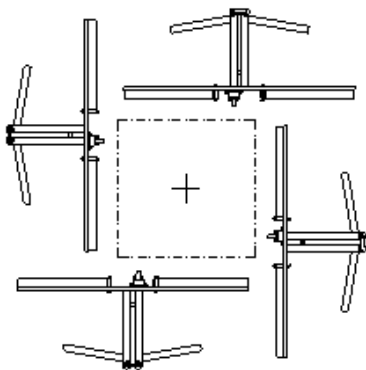
HRP 655-A 202MHz 7.03dBd



HRP 655-B 202MHz 4.54dBd



HRP 655-C 202MHz 2.71dBd

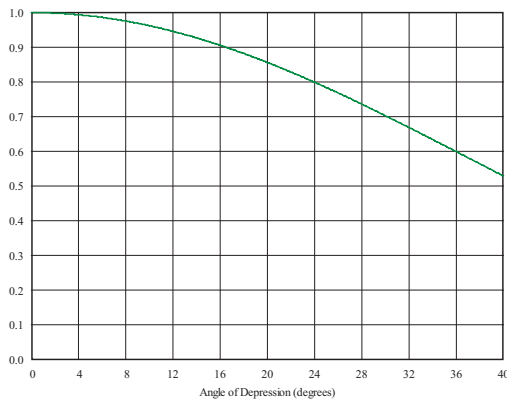


HRP 655-D 202MHz 1.83dBd

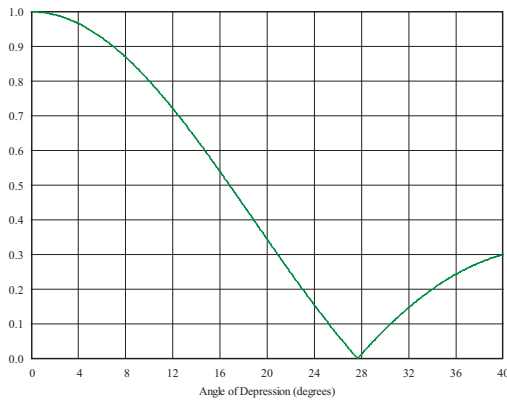
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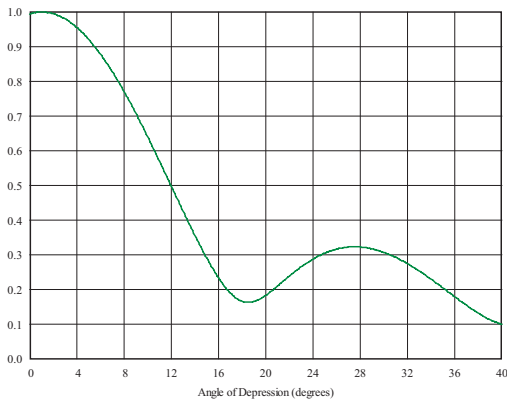
Vertical patterns



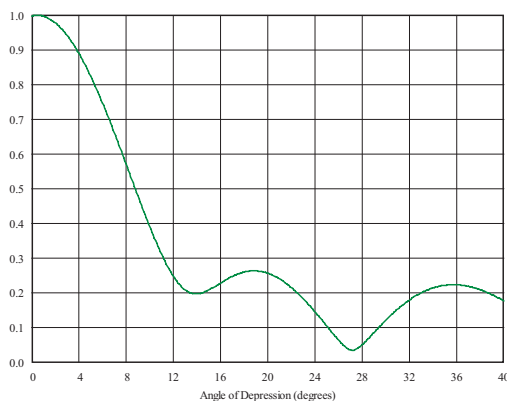
**VRP 655-1 202MHz 0.87dBd**



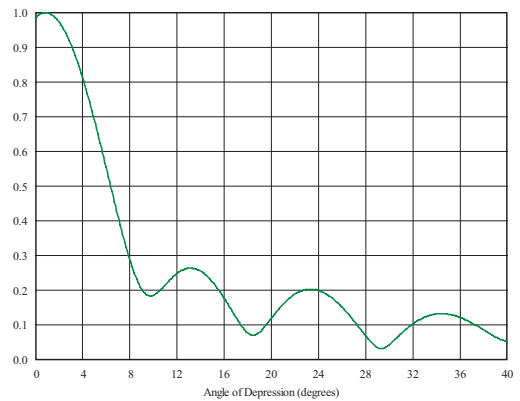
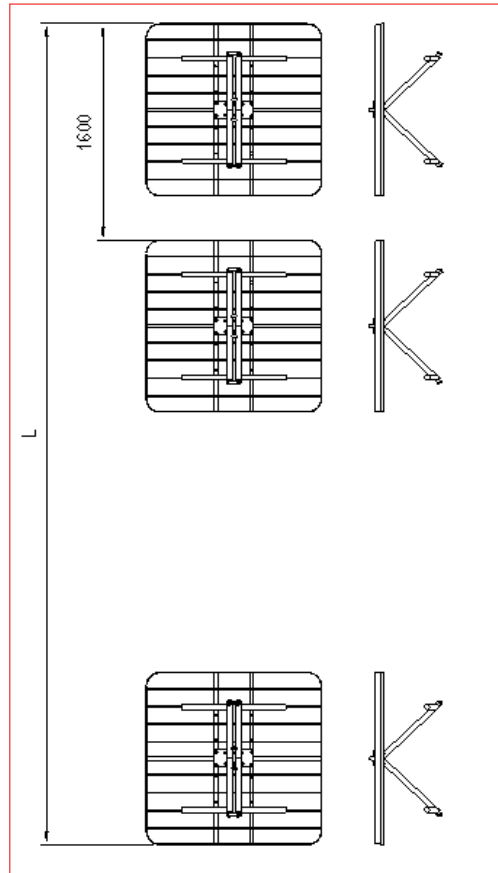
**VRP 655-2 202MHz 3.93dBd**



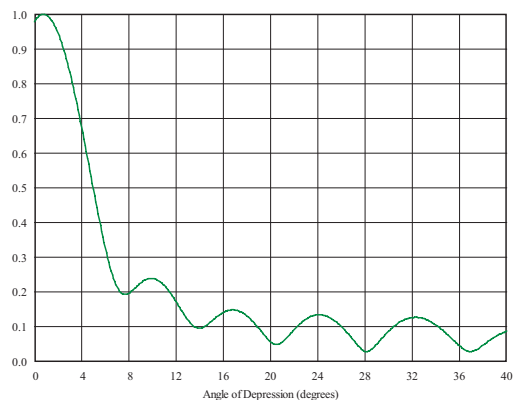
**VRP 655-3 202MHz 5.39dBd**



**VRP 655-4 202MHz 6.61dBd**



**VRP 655-6 202MHz 8.32dBd**



**VRP 655-8 202MHz 9.55dBd**

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