

## Band IV/V (UHF) TV Panel Arrays

## Product Description

The PHP series broadband panel is designed as a building block for integration into complex antenna arrays. It is specifically designed to operate on 4-sided structures.

## Features

- Fully re-engineered for Digital TV
- Corrosion resistant aluminium construction with fibreglass radome
- Horizontal polarization
- Low wind loading
- Cyclone rated
- Unprecedented pattern circularity
- Full band operation
- High power rating
- Affords greater array access for maintenance and staff safety
- Array design allows a variety of horizontal radiation patterns with or without vertical beam tilt and null fill, contact RFS for details
- Temperature range -40 to +60° C available



## Antenna Specifications

Product Type	Band IV/V (UHF) TV Panel Arrays
Frequency Range, MHz	470 - 860
Polarization	Horizontal
Number of Channels	Multichannel
Nominal Gain (Mid-band), dBd	11 - 13
Half Power Beamwidth Azimuth, degrees	60
Return Loss, dB	25
Input Connector	7-16 DIN; 7/8" EIA Flange
Power Rating, kW	2.5 Note # 1
Impedance, ohms	50 unbalanced
Weight, kg (lb)	11.5 (26)
Mounting (Standard), mm (in)	4 x 10mm (3/8) bolts
Effective Area Front (full antenna), sq m (sq ft)	0.55 (5.9)
Effective Area Side (full antenna), sq m (sq ft)	0.4 (4.28)
Design Wind Speed ( max), km/h (mph)	240 (150)
Colour	White radome standard, other upon request
Pressurization - Operational, kPa (psi)	20 - 35 (3 - 5) 7/8" EIA Version
Pressurization - Test, kPa (psi)	100 (15) 7/8" EIA Version
Material - Radome	Fibreglass
Material - Insulators	PTFE
Material - Radiators	Corrosion resistant aluminium (optional Stainless Steel)
Material - Reflecting Screen	Corrosion resistant aluminium
Note 1 Power rating is limited by input connector - 7-16 DIN version rated for 1.75kW	



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Antenna Array Specifications

Number of bays	1				2				3				4			
	1	2	3	4	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	1	2	3	4
Vertical Spacing between Bays (m)	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
HRP Directivity (dBd)	7.3	4.21	2.77	1.44	7.3	4.21	2.77	1.44	7.3	4.21	2.77	1.44	7.3	4.21	2.77	1.44
VRP Directivity (dBd)	4.6	4.6	4.6	4.6	7.7	7.7	7.7	7.7	9.3	9.3	9.3	9.3	10.1	10.1	10.1	10.1
Gain (dbd)	11.9	8.8	7.36	6.03	15	11.9	10.5	9.14	16.6	13.5	12.1	10.7	17.4	14.3	12.9	11.6
Gain (times)	15.5	7.6	5.4	4.0	31.6	15.5	11.1	8.2	45.7	22.4	16.1	11.9	55.1	27.0	19.4	14.3
Weight (kg)	13	54	71	88	26	108	142	176	111	162	213	264	148	216	284	352
Weight (lbs)	29	119	157	194	57	238	313	388	245	357	470	582	326	476	626	776
Antenna Aperture L (m)	1.2	1.2	1.2	1.2	2.3	2.3	2.3	2.3	3.5	3.5	3.5	3.5	4.6	4.6	4.6	4.6
Antenna Aperture L (ft)	3.8	3.8	3.8	3.8	7.5	7.5	7.5	7.5	11.3	11.3	11.3	11.3	15.1	15.1	15.1	15.1
Effective area (m2)	0.9	1.6	2.0	2.0	1.7	3.2	4.0	4.0	2.6	4.8	6.0	6.0	3.5	6.4	8.0	8.0
Effective area (ft2)	10	17	22	22	18	34	43	43	28	52	65	65	38	69	86	86
Windload @ 50m/s (kN)	1.3	2.4	3	3	2.6	4.8	6	6	3.9	7.2	9.0	9.0	5.2	9.6	12	12
Windload @ 50m/s (lbs)	292	540	674	674	585	1079	1349	1349	877	1619	2023	2023	1169	2158	2698	2698
Windload @ 44m/s (kN)	1.0	1.9	2.4	2.4	2.0	3.8	4.8	4.8	3.1	5.8	7.2	7.2	4.2	7.7	9.6	9.6
Windload @ 44m/s (lbs)	225	427	540	540	450	854	1079	1079	697	1304	1619	1619	944	1731	2158	2158

Number of bays	6				8				12				16			
	1	2	3	4	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	1	2	3	4
Vertical Spacing between Bays (m)	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
HRP Directivity (dBd)	7.3	4.21	2.77	1.44	7.3	4.21	2.77	1.44	7.3	4.21	2.77	1.44	7.3	4.21	2.77	1.44
VRP Directivity (dBd)	12.1	12.1	12.1	12.1	13.1	13.1	13.1	13.1	14.8	14.8	14.8	14.8	16.0	16.0	16.0	16.0
Gain (dbd)	19.4	16.3	14.8	13.5	20.4	17.3	15.8	14.5	22.1	19	17.6	16.2	23.3	20.3	18.81	17.48
Gain (times)	86.3	42.4	30.4	22.4	108.9	53.5	38.4	28.2	162.2	79.6	57.1	42.1	215.8	105.9	76.0	56.0
Weight (kg)	222	324	426	528	296	432	568	704	444	648	852	1056	592	864	1136	1408
Weight (lbs)	490	714	939	1164	653	953	1252	1552	979	1429	1879	2328	1305	1905	2505	3105
Antenna Aperture L (m)	6.9	6.9	6.9	6.9	9.2	9.2	9.2	9.2	13.8	13.8	13.8	13.8	18.4	18.4	18.4	18.4
Antenna Aperture L (ft)	22.6	22.6	22.6	22.6	30.2	30.2	30.2	30.2	45.3	45.3	45.3	45.3	60.4	60.4	60.4	60.4
Effective area (m2)	5.2	9.6	12.0	12.0	6.9	12.8	16.0	16.0	10.4	19.2	24.0	24.0	13.9	25.6	32.0	32.0
Effective area (ft2)	56	103	129	129	75	138	172	172	112	207	258	258	150	275	344	344
Windload @ 50m/s (kN)	7.8	14.4	18	18	10.4	19.2	24	24	15.6	28.8	36	36	20.8	38.4	48	48
Windload @ 50m/s (lbs)	1754	3237	4047	4047	2338	4316	5395	5395	3507	6474	8093	8093	4676	8633	10791	10791
Windload @ 44m/s (kN)	6.2	11.5	14.4	14.4	8.3	15.4	19.2	19.2	12.5	23	28.8	28.8	16.7	30.7	38.4	38.4
Windload @ 44m/s (lbs)	1394	2585	3237	3237	1866	3462	4316	4316	2810	5171	6474	6474	3754	6902	8633	8633

Note 1: Estimated wind loads are calculated for top mounted antennas from front and include 150 NB mounting pole for up to 2 levels and 640 mm square spine/column from 4 to 16 levels.

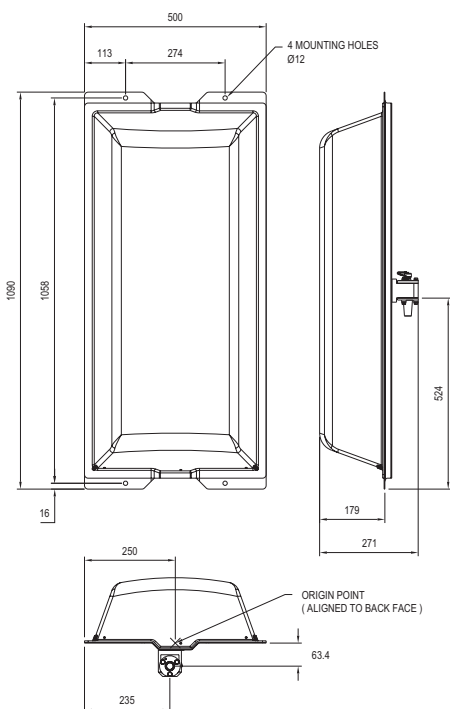
Note 2: For side mounted antennas, the estimated wind load will be 90% of the values in Note 1 and includes 60-100NB mounting pole in calculations.

Note 3: Interface steelwork (to connect antenna system and support tower) is not included in load calculations.

Note 4: Shielding due to existing support tower is not considered in the calculations.

Note 5: Weights do not include columns or mounting pole. Add 230kg (507lb) per level/bay for 640 x 640 mm square spine/column.

Antenna Panel Dimensions



Nomenclature

Equal Split



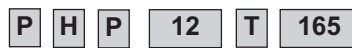
Number of faces: A=1, B=2, C=3, D=4, etc  
Total number of Panels: 2, 4, 8, 12, 16 etc  
PHP: Panel Horizontally Polarised

Unequal Split



Power ratio per face  
Unequal power ratio  
Total number of Panels: 2, 4, 8, 12, 16  
PHP: Panel Horizontally Polarised

Thinned array

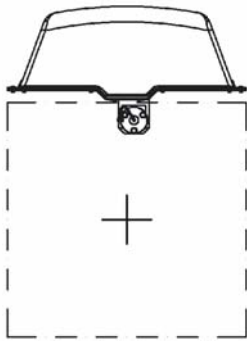


Panels per face  
Thinned array  
Total number of Panels: 2, 4, 8, 12, 16  
PHP: Panel Horizontally Polarised

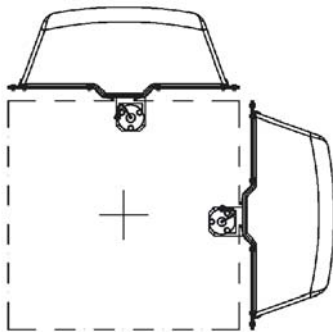
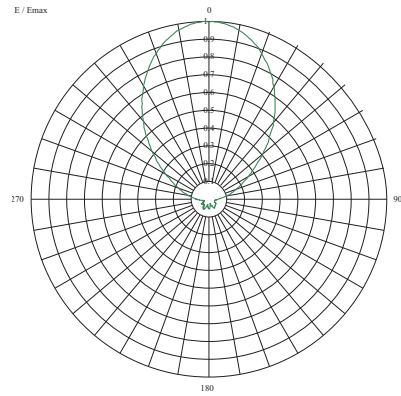
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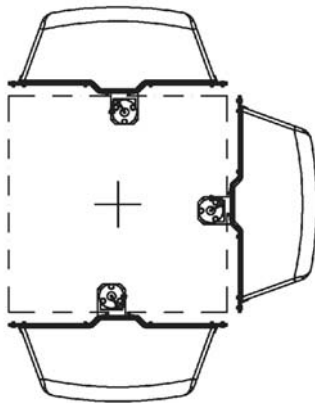
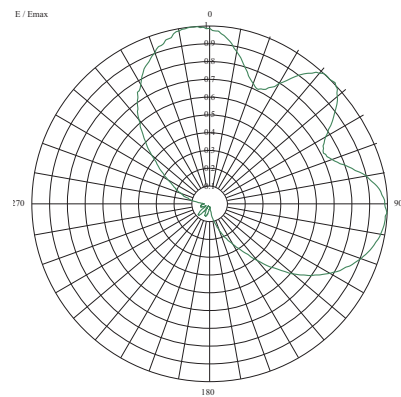
Horizontal patterns



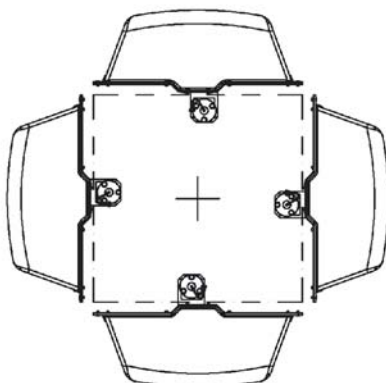
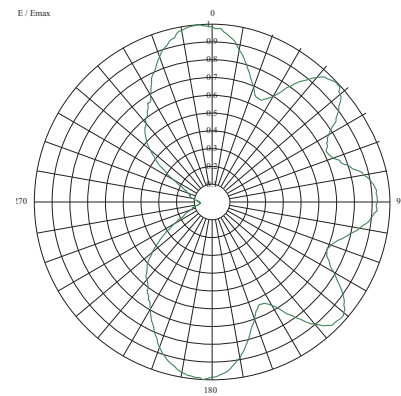
*HRP PHP-A 666MHz 7.3dBd*



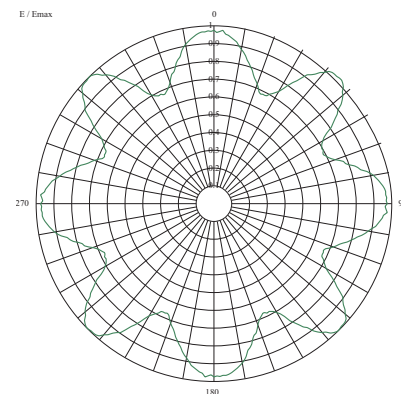
*HRP PHP-B 666MHz 4.21dBd*



*HRP PHP-C 666MHz 2.77dBd*



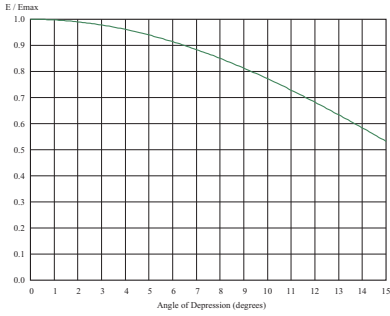
*HRP PHP-D 666MHz 1.44dBd*



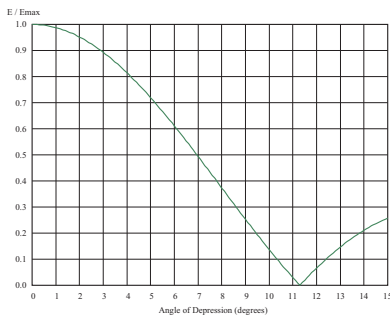
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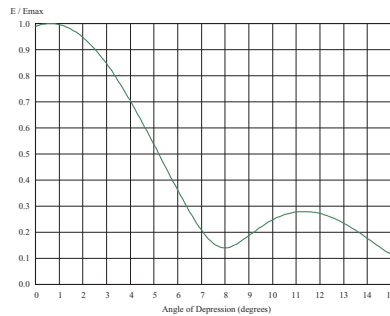
Vertical patterns



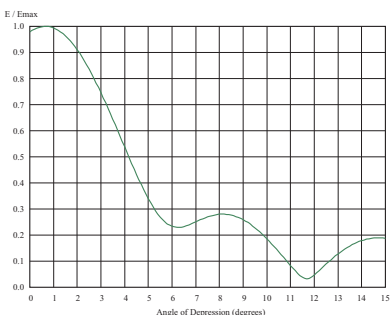
**VRP 1-level 666MHz 4.59dBd**



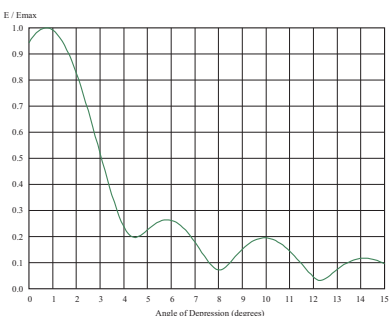
**VRP 2-level 666MHz 7.70dBd**



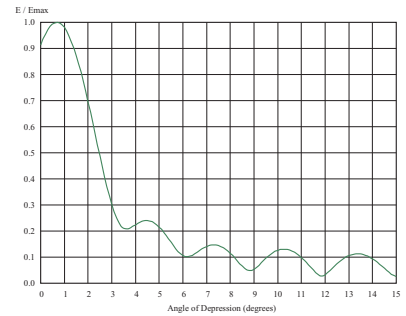
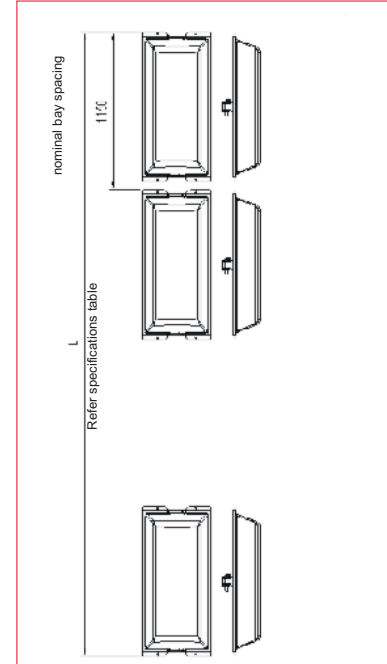
**VRP 3-level 666MHz 9.11dBd**



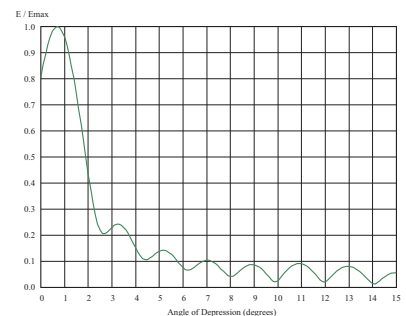
**VRP 4-level 666MHz 10.11dBd**



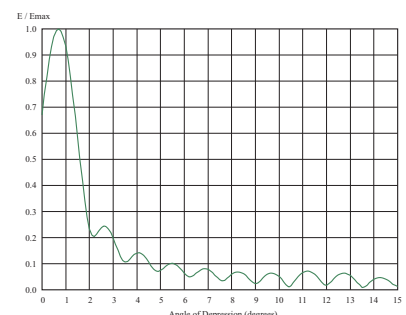
**VRP 6-level 666MHz 11.86dBd**



**VRP 8-level 666MHz 13.07dBd**



**VRP 12-level 666MHz 14.80dBd**



**VRP 16-level 666MHz 16.04dBd**

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