

DOWNLINK RECEIVE ANTENNA ARRAY - FOR 4 WAY DIVERSITY



DRAA225 system

Peak Antennas' new DRAA system is designed specifically for downlink reception where coverage is required from overhead to near the horizon.

Designed to be used with a 4-way diversity receiver, the system comprises three 9 dBi gain wide angle sector antennas and one 2 dBi hemispherical omni uplook antenna. They are mounted on a compact base plate, and feature a pole-mount bracket and U bolts.

The sector antennas are tilted back 7.5 degrees and in conjunction with the hemi-omni uplook provide optimised coverage at all elevation angles from overhead to near the horizon.

The system provides particularly good downlink gain budget when used in conjunction with Peak's WHO225-R-A antenna on the airframe.

Specifications:

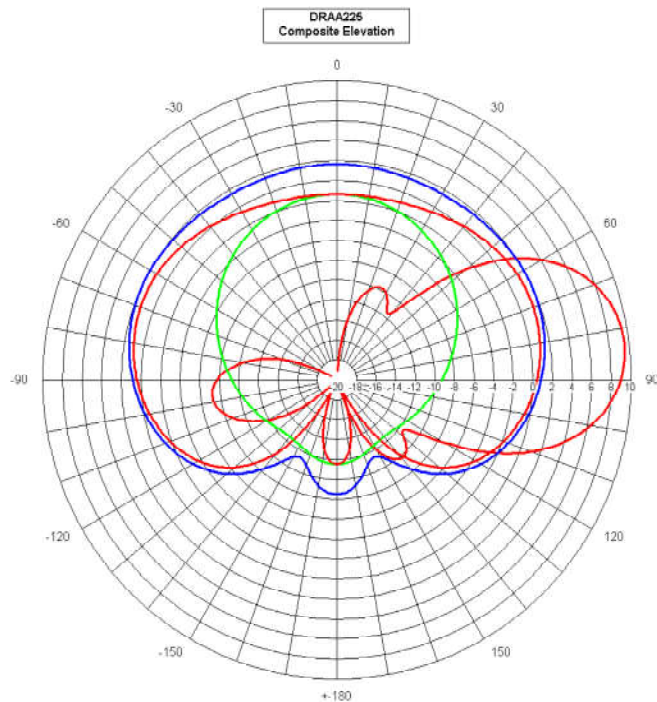
Designation: DRAA225
Frequency: 2.0-2.5 GHz
Gain: Sectors 9dBi
 WHO 2dBi
Polarization: Sectors Vertical
 WHO RHCP / Vertical
Connectors: N female (x4)
Height: 500mm (19.7") Overall
Width: 178mm (7.0") Base plate

PEAK ANTENNAS

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Composite elevation radiation pattern shows sector antenna gain dominates from horizon to 30 degrees elevation and hemi-omni antenna providing dominant gain from 30 degrees to overhead.

Blue: WHO total gain
Red: WHO and Sector vertical gain
Green: WHO horizontal gain.

Example Link Budget:

Airframe transmit antenna: WHO225-R-A (G1 is WHO total gain, G1v is WHO vertical gain)

Ground receive antenna: DRAA225 (G2 is Sector vertical gain)

Transmit power: 1W (+30dBm)

Frequency: 2.25GHz

Aircraft Height: 1,500 feet (457m)

Ground Range (m)	Link Range (m)	Elevation Angle (deg)	Path Loss (dB)	Antenna gains			Receive power levels	
				G1 (dBi)	G1v (dBi)	G2 (dBi)	WHO to WHO (dBm)	WHO to Sector (dBm)
0	457	90	92.8	1.5			-59.8	
264	528	60	93.8	1.5			-60.8	
457	646	45	95.7	1.5			-62.7	
792	914	30	98.5	2.0	1.5	4.0	-64.5	-63.0
980	1,081	25	100.0	2.0	1.5	6.5	-66.0	-62.0
1,256	1,336	20	101.8	2.0	1.5	7.8	-67.8	-62.5
1,706	1,766	15	104.3	2.0	1.5	8.5	-70.3	-64.3
2,592	2,632	10	107.7	1.5	1.0	9.0	-74.7	-67.7
5,223	5,243	5	113.7	1.5	1.0	9.0	-80.7	-73.7
10,467	10,477	2.5	119.7	1.0	0.5	8.5	-87.7	-80.7

Note: 90 degree elevation angle in table is overhead.

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