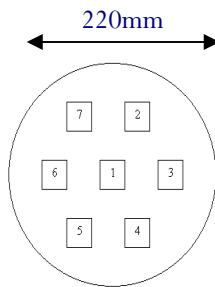


Controlled Radiation Pattern Antenna

(GPS-CRPA5/14-L1/L1L2-XX)

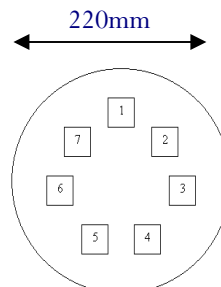
COVERING L₁ AND L₂ BAND



L1		L2	
N	S _{IN} [dB]	N	S _{IN} [dB]
1	-13.78	1	-13.45
2	-17.53	2	-19.31
3	-25.59	3	-28.27
4	-33.33	4	-36.09
5	-29.92	5	-34.72
6	-23.94	6	-27.48
7	-17.06	7	-23.19

Type 1

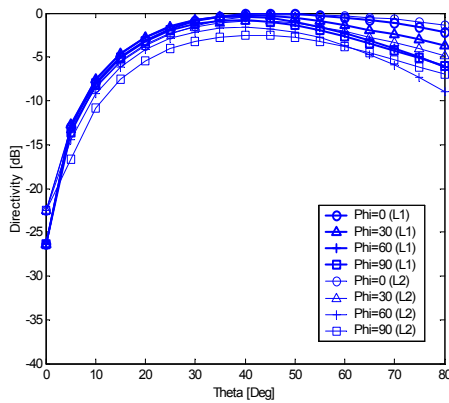
Type1: Gain = 8.5dBic (L₁), 5.0dBic (L₂)



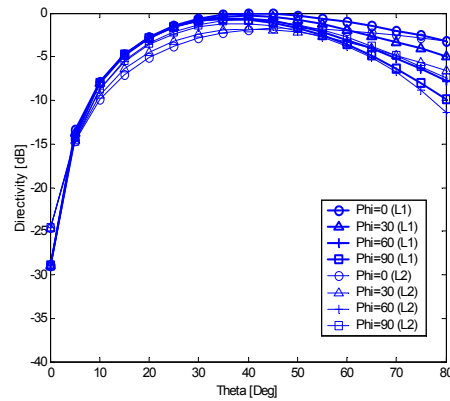
L1		L2	
N	S _{IN} [dB]	N	S _{IN} [dB]
1	-13.38	1	-15.36
2	-17.05	2	-16.03
3	-18.69	3	-38.35
4	-15.05	4	-19.40
5	-16.91	5	-15.87
6	-18.75	6	-35.58
7	-15.23	7	-19.68

Type 2

Type2: Gain = 8.6dBic (L₁), 5.4dBic (L₂)



Type 1



Type 2

Null Performance

CRPA

CRS has developed Controlled Radiation Pattern Arrays for GPS applications with anti-jamming capability to be installed on vehicles or aircrafts. The key factor in the array performance is the number of antenna elements. CRS CRPAs are 7-element active phase arrays capable of nulling 6 jammers. CRS CRPAs use a full polarization scheme (RHCP - LHCP, Vertical-Horizontal or combination of both) that significantly increases the effectiveness of nulling for a variety of jammers. It is possible by providing all types of polarizations for each element, i.e. linear (V/H), circular (RHCP/LHCP), and elliptical.

Spatial correlation is a negative factor in CRPA, the array elements in a conventional array must be placed far enough (at least half wavelength apart). CRS CRPAs utilize a novel EBG (Electromagnetic Band-Gap) substrates to mitigate the mutual coupling effects between the array elements. This allows the 7-element CRPA of less than 200 mm diameter (conventional CRPA occupies 360 mm diameter). The reduced size CRPA can replace current FPGA in many DoD applications that currently cannot provide A/J capabilities. This antenna is also well suited for commercial applications where digital beam forming is needed.