

Antenna Spec:

Antenna size	40x10.4mm
Freq range	2.405GHz-2.475GHz
VSWR	2 Max
Gain	0dBi max
Impedance	50ohm
Antenna type	Printed antenna
Polarization	Linear
Max Power	200mW
Operating temp	-20 to +55 deg celcius
Interconnection and cable assembly	MMCX RF cable connector
Manufacturer:	RadiNa Co. LTD.
PN:	GradiANT
Testing LAB	Hermon labs - https://hermonlabs.com/

Manufacturer and address:

Cardo Systems Ltd
101 E Park Blvd Suite 600, Plano. TX75074
United States

Antenna testing laboratory:

Hermon Laboratories Ltd.
66 Hatachana St., POB 23
Binyamina 3055001, Israel

Tester:

Stanislav Sugatov Test Engineer EMC & Radio

stanislav.s@hermonlabs.com

Phone: +972 4 628 8001

Antenna Horn:	HL2432
Manufacturer:	EMC Test Systems
Model:	3115
Date of Calibration:	12-July-24
Calibration Service Provided:	Hermon Laboratories
Calibration Period:	1 year

EXA Signal Analyzer:	HL5376
Manufacturer:	Keysight Technologies
Model:	N9010B
Date of Calibration:	8-Jan-24
Calibration Service Provided:	Hermon Laboratories
Calibration Period:	1 year

Cable:	HL5668
Manufacturer:	Huber-Suhner
Model:	SF126EA
Date of Calibration:	22-Jun-24
Calibration Service Provided:	Hermon Laboratories
Calibration Period:	1 year

Antenna Horn:	HL5673
Manufacturer:	Huber-Suhner
Model:	SF126EA
Date of Calibration:	19-May-24
Calibration Service Provided:	Hermon Laboratories
Calibration Period:	1 year

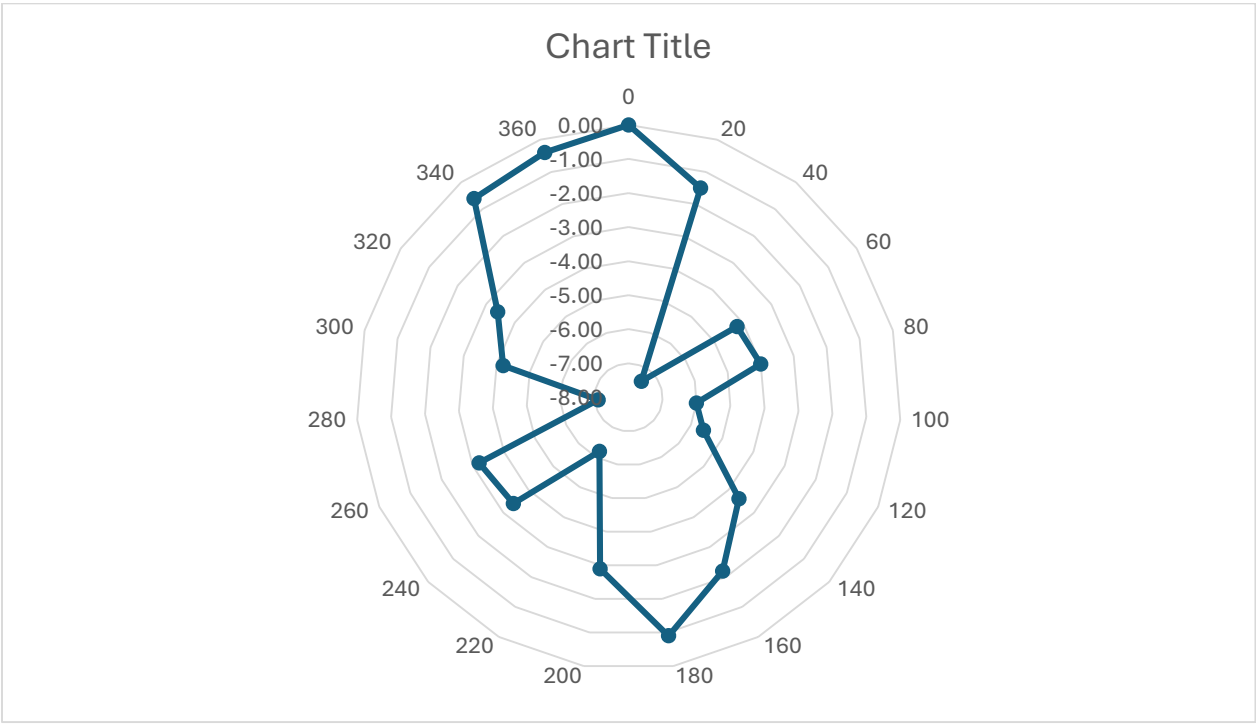
	Name and Title	Date	Signature
Tested by:	Mr. S. Sugatov, test engineer, EMC & Radio	19-Jan-25	
Reviewed by:	Mrs. S. Peysahov Sheynin, certification specialist, EMC & Radio	19-Jan-25	

2405 MHz vertical poz. Y:

Frequency:	2480	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dB
0	93.6	-1.04	0.00
20	92.1	-2.54	-1.50
40	86.2	-8.44	-7.40
60	89.4	-5.24	-4.20
80	89.6	-5.04	-4.00
100	87.6	-7.04	-6.00
120	88	-6.64	-5.60
140	90	-4.64	-3.60
160	91.4	-3.24	-2.20
180	92.7	-1.94	-0.90
200	90.7	-3.94	-2.90
220	87.4	-7.24	-6.20
240	90.2	-4.44	-3.40
260	90.4	-4.24	-3.20
280	86.5	-8.14	-7.10
300	89.4	-5.24	-4.20
320	90.2	-4.44	-3.40
340	93	-1.64	-0.60
360	93.2	-1.44	-0.40

Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2480	MHz	
SA reading	103.87	dBuV/m	
AG, dBi	10.3	dB	
Cable Loss	3.17	dB	
Antenna polarization Vertical			Antenna Horn HL 4474

Gain measurement calculation:
=- (Refernce SA reading)+(SA reading of Antenna Power)+(Refernce Signal Generator RF Power)+(Ref Antenna gain)-(Refrence Antenna cable loss)



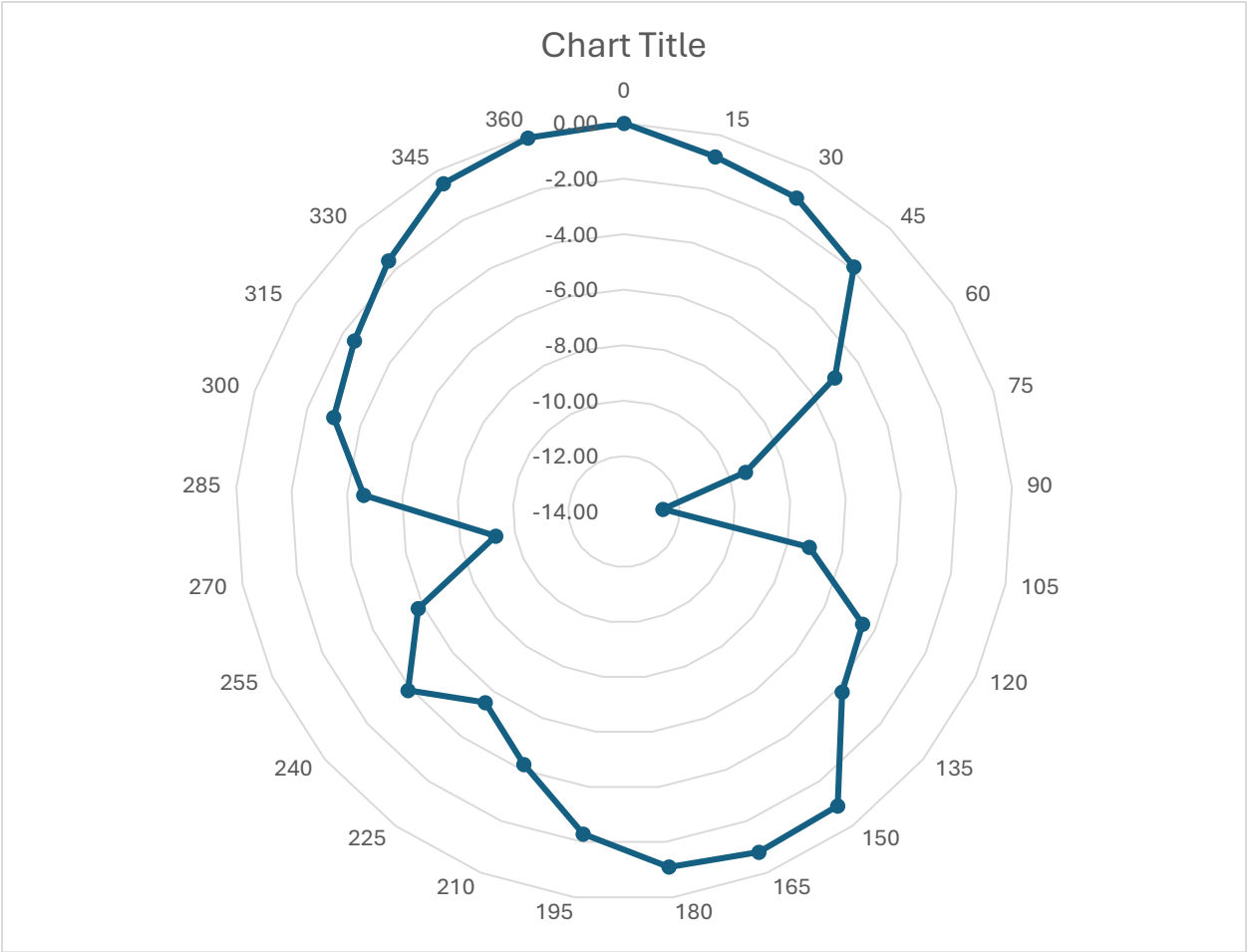
2405 MHz horizontal poz. X

Frequency:	2402	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dB
0	93.8	-0.84	0.00
15	93	-1.64	-0.80
30	92.7	-1.94	-1.10
45	91.9	-2.74	-1.90
60	88.8	-5.84	-5.00
75	84.4	-10.24	-9.40
90	81.2	-13.44	-12.60
105	86.6	-8.04	-7.20
120	89.3	-5.34	-4.50
135	90	-4.64	-3.80
150	92.9	-1.74	-0.90
165	93	-1.64	-0.80
180	92.7	-1.94	-1.10
195	91.5	-3.14	-2.30
210	89.6	-5.04	-4.20
225	88.3	-6.34	-5.50
240	89.9	-4.74	-3.90
255	88	-6.64	-5.80
270	84.5	-10.14	-9.30
285	89.2	-5.44	-4.60
300	90.8	-3.84	-3.00
315	91.3	-3.34	-2.50
330	92.2	-2.44	-1.60
345	93.3	-1.34	-0.50
360	93.7	-0.94	-0.10

Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2480	MHz	
SA reading	103.87	dBuV/m	
AG, dBi	10.3	dBi	
Cable Loss	3.17	dB	
Antenna polarization Vertical			Antenna Horn HL 4474

Gain measurement calculation:

$$=-(\text{Reference SA reading})+(\text{SA reading of Antenna Power})+(\text{Reference Signal Generator RF Power})+(\text{Ref Antenna gain})-(\text{Refrence Antenna cable loss})$$

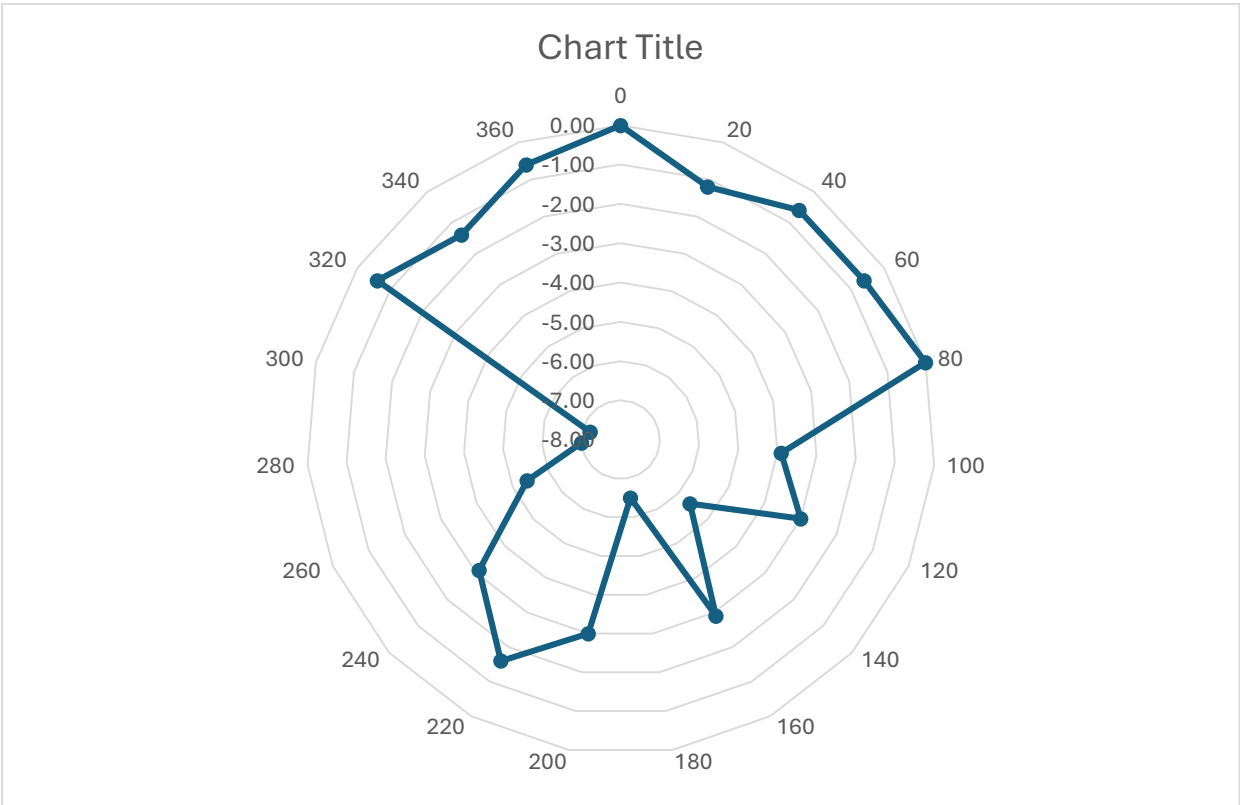


2440 MHz vertical poz.Y

Frequency:	2480	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dB
0	91.6	-3.29	0.00
20	90.4	-4.49	-1.20
40	91	-3.89	-0.60
60	91	-3.89	-0.60
80	91.6	-3.29	0.00
100	87.7	-7.19	-3.90
120	88.6	-6.29	-3.00
140	86	-8.89	-5.60
160	88.7	-6.19	-2.90
180	85.1	-9.79	-6.50
200	88.6	-6.29	-3.00
220	90	-4.89	-1.60
240	88.5	-6.39	-3.10
260	86.2	-8.69	-5.40
280	84.6	-10.29	-7.00
300	84.4	-10.49	-7.20
320	91	-3.89	-0.60
340	90.2	-4.69	-1.40
360	91	-3.89	-0.60

Spectrum Analyzer Data			sweep time 20 ms
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2440	MHz	
SA reading	103.5	dBuV/m	
AG, dBi	10.2	dBi	
Cable Loss	3.12	dB	Substitution
Antenna polarization Vertical			
Antenna Horn HL 4474			

Gain measurement calculation:
 =-(Reference SA reading)+(SA reading of Antenna Power)+(Refernce Signal Generator RF Power)+(Ref Antenna gain)-(Refrence Antenna cable loss)

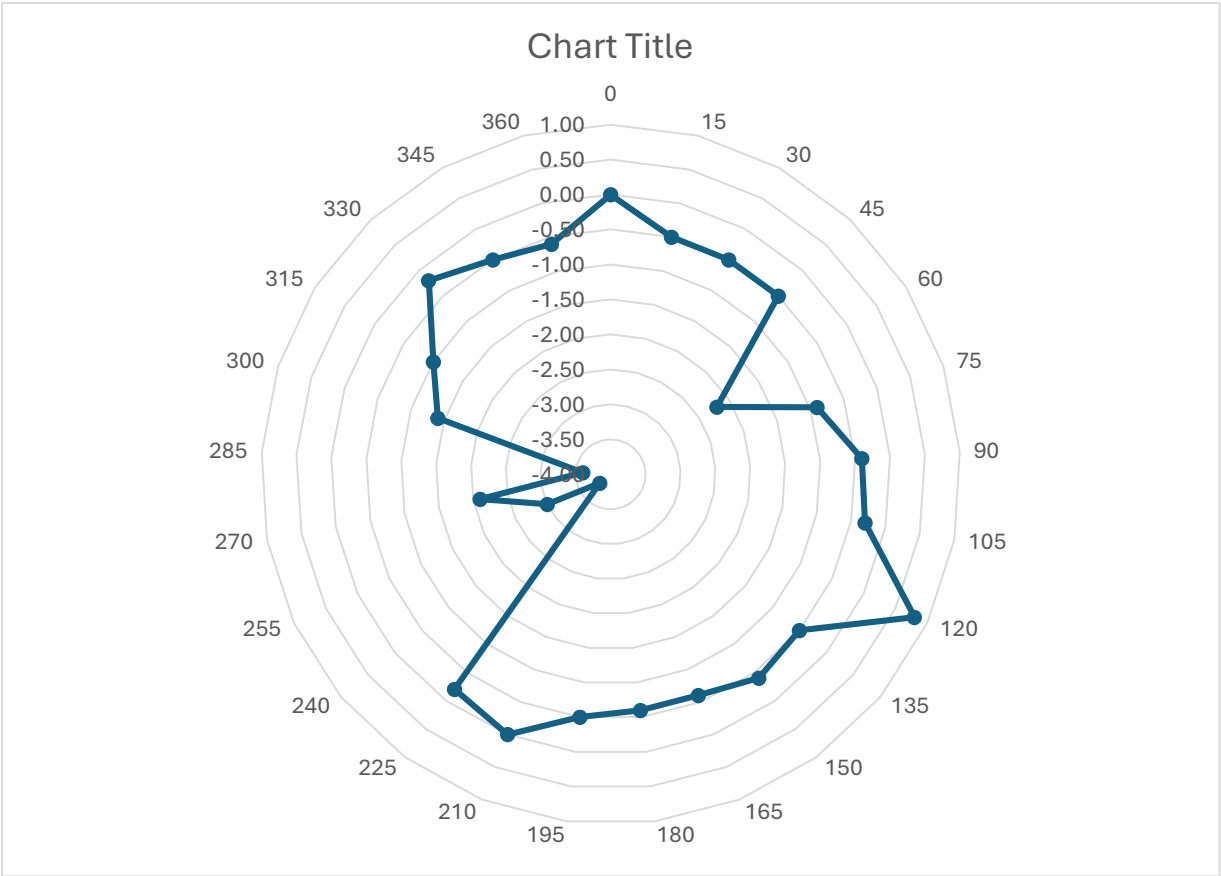


2440 MHz horizontal poz.X

Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dB
0	91.5	-3.39	0.00
15	91	-3.89	-0.50
30	91	-3.89	-0.50
45	91	-3.89	-0.50
60	89.3	-5.59	-2.20
75	90.6	-4.29	-0.90
90	91.1	-3.79	-0.40
105	91.2	-3.69	-0.30
120	92.3	-2.59	0.80
135	91	-3.89	-0.50
150	91.1	-3.79	-0.40
165	90.9	-3.99	-0.60
180	90.9	-3.99	-0.60
195	91	-3.89	-0.50
210	91.5	-3.39	0.00
225	91.3	-3.59	-0.20
240	87.7	-7.19	-3.80
255	88.5	-6.39	-3.00
270	89.4	-5.49	-2.10
285	87.9	-6.99	-3.60
300	90.1	-4.79	-1.40
315	90.5	-4.39	-1.00
330	91.3	-3.59	-0.20
345	91	-3.89	-0.50
360	90.9	-3.99	-0.60

Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2440	MHz	
SA reading	103.5	dBuV/m	
AG, dBi	10.2	dBi	
Cable Loss	3.12	dB	
Antenna polarization Vertical			
Antenna Horn HL 4474			

Gain measurement calculation:
 =-(Refernce SA reading)+(SA reading of Antenna Power)+(Refernce Signal Generator RF Power)+(Ref Antenna gain)-(Refrence Antenna cable loss)

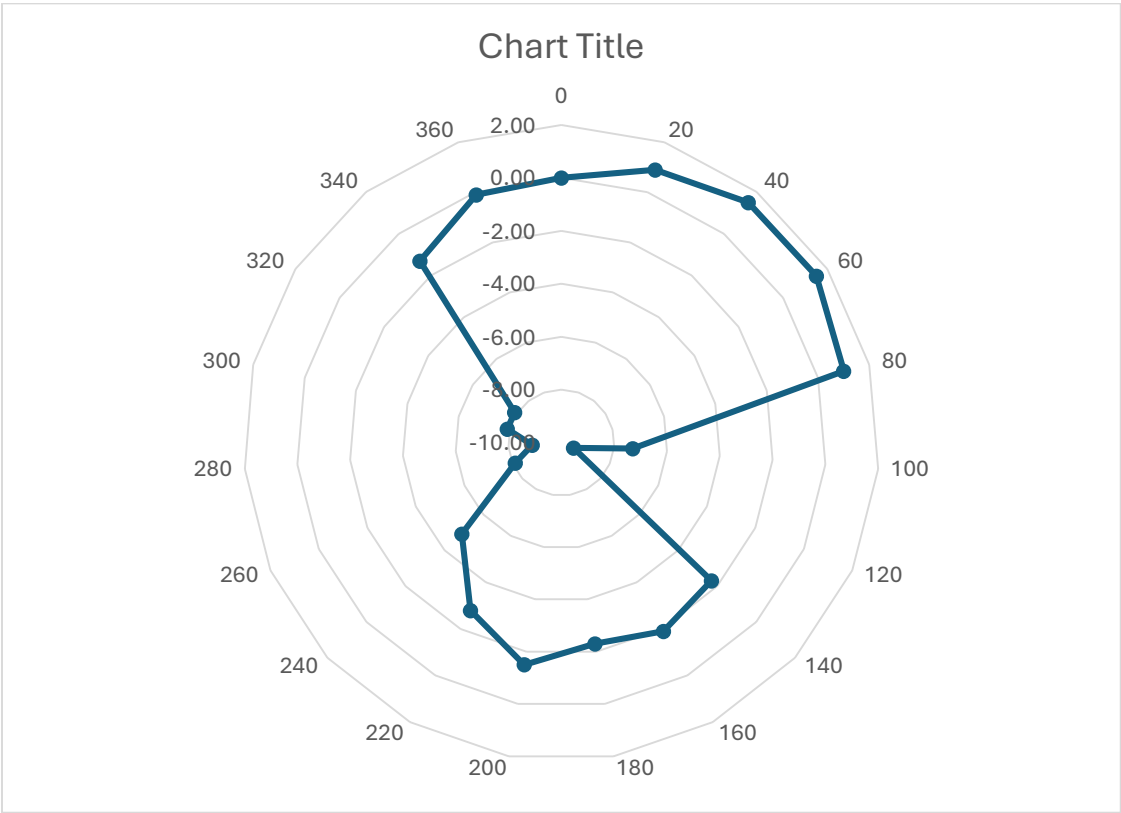


2475 MHz vertical poz.Y

Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dB
0	90.5	-4.75	0.00
20	91.4	-3.85	0.90
40	90.5	-4.75	0.00
60	90.5	-4.75	0.00
80	89	-6.25	-1.50
100	83.2	-12.05	-7.30
120	81	-14.25	-9.50
140	88.2	-7.05	-2.30
160	88.6	-6.65	-1.90
180	88.2	-7.05	-2.30
200	89	-6.25	-1.50
220	87.7	-7.55	-2.80
240	85.6	-9.65	-4.90
260	82.4	-12.85	-8.10
280	81.6	-13.65	-8.90
300	82.6	-12.65	-7.90
320	82.6	-12.65	-7.90
340	89.2	-6.05	-1.30
360	90.4	-4.85	-0.10

Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2405	MHz	
SA reading	103.2	dBuV/m	
AG, dBi	9.9	dBi	
Cable Loss	3.09	dB	
Antenna polarization Vertical			
Antenna Horn HL 4474			

Gain measurement calculation:
 =-(Refernce SA reading)+(SA reading of Antenna Power)+(Refernce Signal Generator RF Power)+(Ref Antenna gain)-(Refrence Antenna cable loss)



2475 MHz horizontal poz.X

Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dB
0	91.9	-3.35	0.00
20	91.7	-3.55	-0.20
40	91.8	-3.45	-0.10
60	91.9	-3.35	0.00
80	91.5	-3.75	-0.40
100	91.4	-3.85	-0.50
120	89.7	-5.55	-2.20
140	88.4	-6.85	-3.50
160	85.9	-9.35	-6.00
180	89.1	-6.15	-2.80
200	91.6	-3.65	-0.30
220	91.8	-3.45	-0.10
240	91.1	-4.15	-0.80
260	86.5	-8.75	-5.40
280	88.4	-6.85	-3.50
300	81.7	-13.55	-10.20
320	87.3	-7.95	-4.60
340	86.9	-8.35	-5.00
360	91.6	-3.65	-0.30

Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2405	MHz	
SA reading	103.2	dBuV/m	
AG, dBi	9.9	dBi	
Cable Loss	3.09	dB	
Antenna polarization Vertical			Antenna Horn HL 4474

Gain measurement calculation:
=-(Reference SA reading)+(SA reading of Antenna Power)+(Reference Signal Generator RF Power)+(Ref Antenna gain)-(Reference Antenna cable loss)

