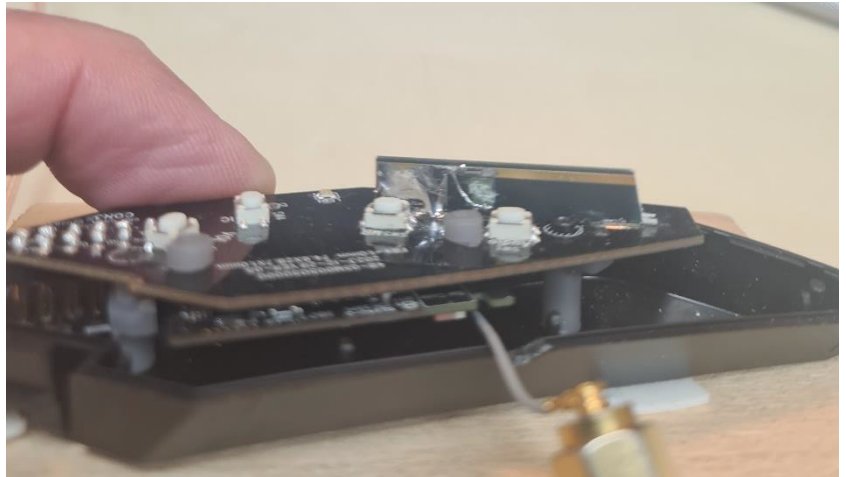


Antenna Spec:

Antenna size	56.6x24.96mm
Freq range	2.4GHz-2.48GHz
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	Spring connector
Manufacturer:	Cardo
PN:	Ruroc antenna
Testing LAB	Hermon labs - https://hermonlabs.com/

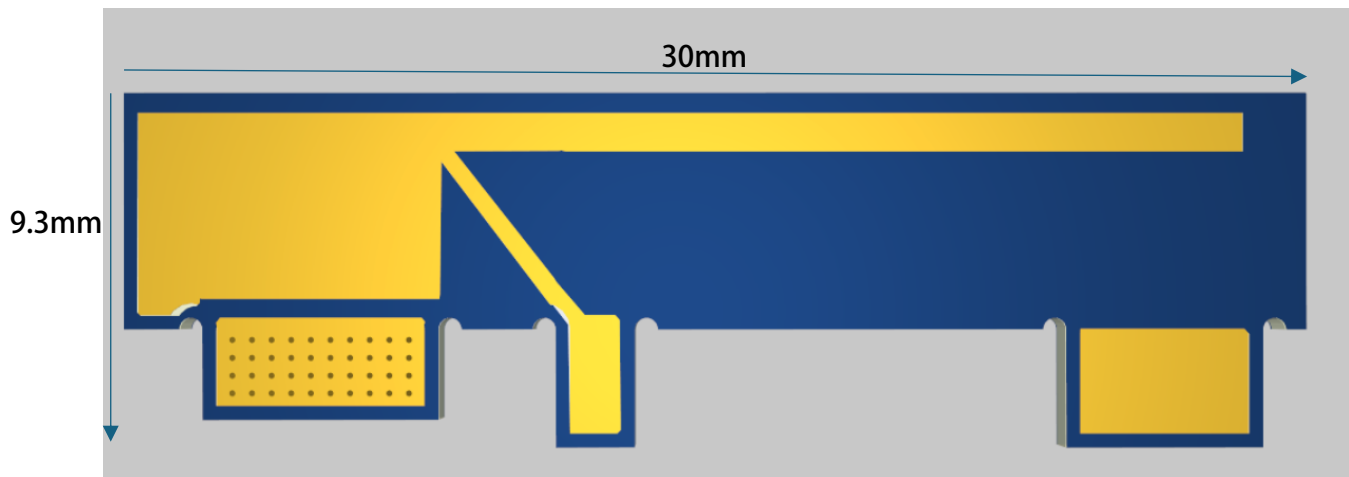
- Antenna position in the product



- Antenna soldered to Host PCB.
- Main PCB connects to antenna via spring connector
- Position on the Helmet:



- Antenna size:



Manufacturer and address:

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

Antenna testing laboratory:

HermonLaboratories Ltd.
66 Hatachana St., POB 23
Binyamina3055001, 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

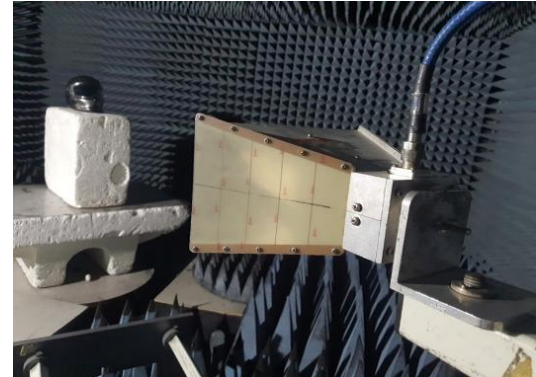
Cable:	HL5668
Manufacturer:	Huber-Suhner
Model:	SF126EA
Date of Calibration:	22-Jun-24
Calibration Service Provided:	Hermon Laboratories
Calibration Period:	1 year

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-Jun-24	
Reviewed by:	Mrs. S. Peysahov Sheynin, certification specialist, EMC & Radio	18-Jul-24	

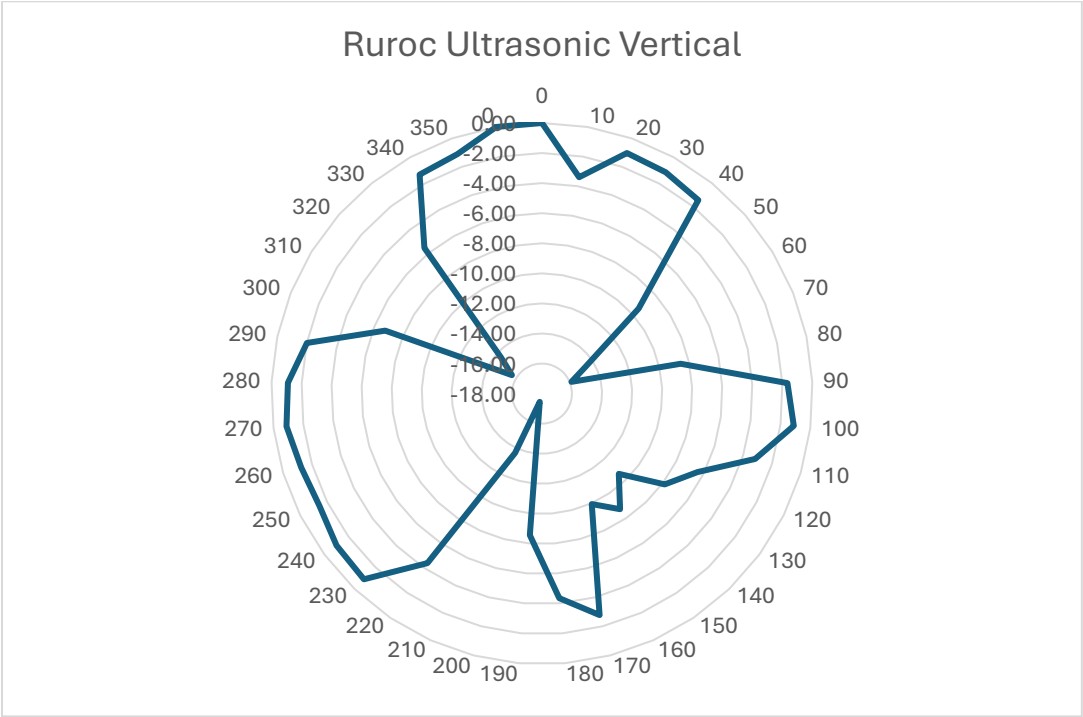
2405 MHz vertical poz. Y:

Frequency:	2405	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dBi
0	89.54	-5.69	0.00
10	86.15	-9.08	-3.39
20	88.51	-6.72	-1.03
30	88.41	-6.82	-1.13
40	88.09	-7.14	-1.45
50	80.11	-15.12	-9.43
60	74.96	-20.27	-14.58
70	73.65	-21.58	-15.89
80	80.98	-14.25	-8.56
90	87.89	-7.34	-1.65
100	88.43	-6.80	-1.11
110	86.37	-8.86	-3.17
120	83.13	-12.10	-6.41
130	81.70	-13.53	-7.84
140	78.93	-16.30	-10.61
150	80.82	-14.41	-8.72
160	79.60	-15.63	-9.94
170	86.76	-8.47	-2.78
180	85.19	-10.04	-4.35
190	80.99	-14.24	-8.55
200	72.10	-23.13	-17.44
210	75.87	-19.36	-13.67
220	85.15	-10.08	-4.39
230	88.65	-6.58	-0.89
240	88.53	-6.70	-1.01
250	88.12	-7.11	-1.42
260	88.29	-6.94	-1.25
270	88.67	-6.56	-0.87
280	88.45	-6.78	-1.09
290	87.53	-7.70	-2.01
300	82.77	-12.46	-6.77
310	73.89	-21.34	-15.65
320	75.17	-20.06	-14.37
330	83.99	-11.24	-5.55
340	88.23	-7.00	-1.31
350	88.43	-6.80	-1.11
360	89.54	-5.69	0.00



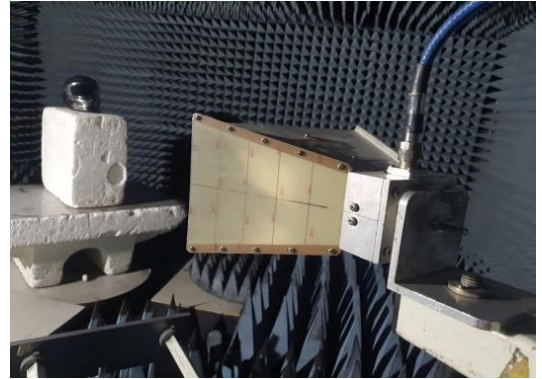
Spectrum Analyzer Data			sweep time 20 ms
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	Substitution
SG	0	dBm	
F, MHz	2480	MHz	
SA reading	103.87	dBuV/m	
AG, dBi	10.3	dB	
Cable Loss	3.17	dB	
Antenna polarization Vertical			
Antenna Horn HL 4474			

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

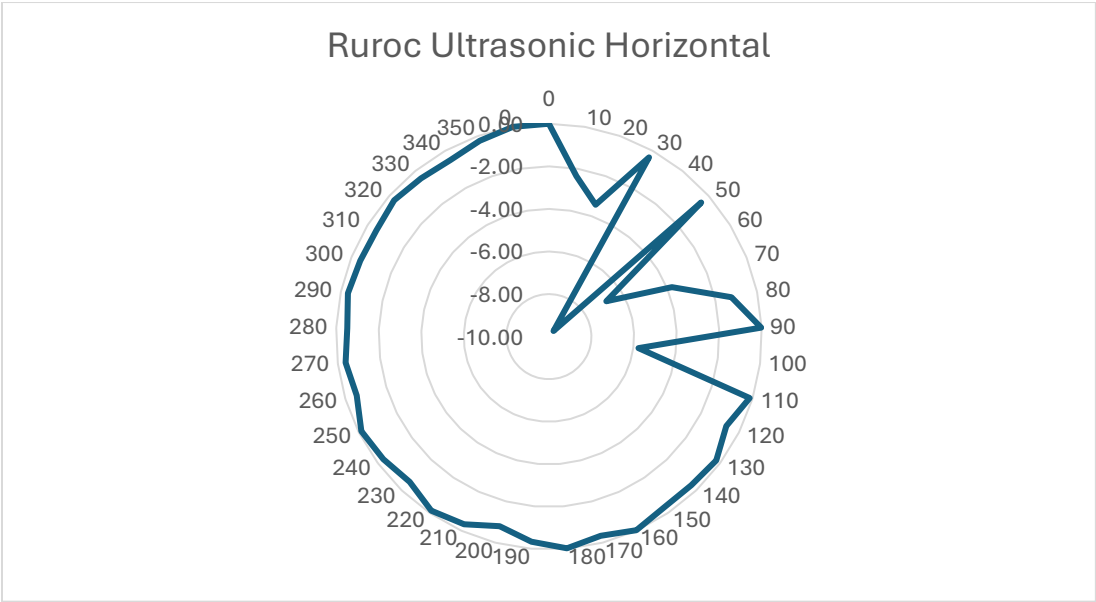
Frequency:	2405	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dBi
0	88.67	-6.56	0.00
10	86.32	-8.91	-2.35
20	85.24	-9.99	-3.43
30	88.31	-6.92	-0.36
40	79.01	-16.22	-9.66
50	88.20	-7.03	-0.47
60	81.84	-13.39	-6.83
70	84.90	-10.33	-3.77
80	87.44	-7.79	-1.23
90	88.65	-6.58	-0.02
100	82.91	-12.32	-5.76
110	88.53	-6.70	-0.14
120	88.00	-7.23	-0.67
130	88.45	-6.78	-0.22
140	88.34	-6.89	-0.33
150	88.35	-6.88	-0.32
160	88.65	-6.58	-0.02
170	88.34	-6.89	-0.33
180	88.65	-6.58	-0.02
190	88.34	-6.89	-0.33
200	87.87	-7.36	-0.80
210	88.34	-6.89	-0.33
220	88.54	-6.69	-0.13
230	88.12	-7.11	-0.55
240	88.35	-6.88	-0.32
250	88.54	-6.69	-0.13
260	88.11	-7.12	-0.56
270	88.30	-6.93	-0.37
280	88.15	-7.08	-0.52
290	88.33	-6.90	-0.34
300	88.22	-7.01	-0.45
310	88.19	-7.04	-0.48
320	88.36	-6.87	-0.31
330	88.23	-7.00	-0.44
340	88.17	-7.06	-0.50
350	88.43	-6.80	-0.24
360	88.67	-6.56	0.00



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			

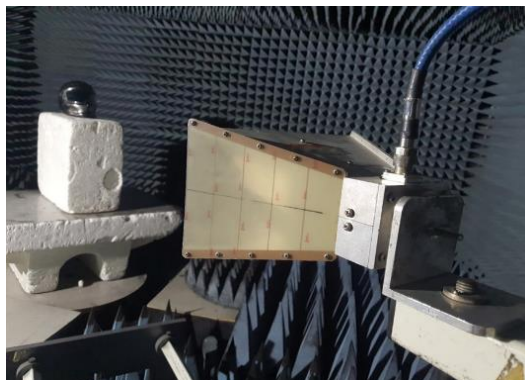
Gain measurement calculation:

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



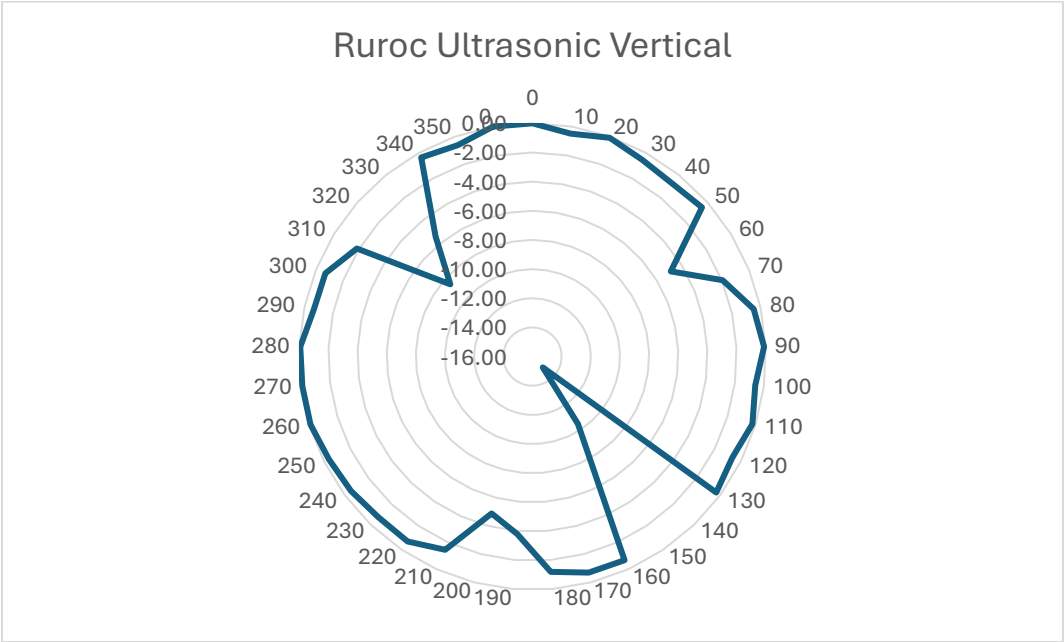
2440 MHz vertical poz.Y

Frequency:	2440	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dBi
0	85.31	-9.92	0.00
10	84.83	-10.40	-0.48
20	85.22	-10.01	-0.09
30	84.77	-10.46	-0.54
40	84.57	-10.66	-0.74
50	84.8	-10.43	-0.51
60	80.45	-14.78	-4.86
70	83.37	-11.86	-1.94
80	84.83	-10.40	-0.48
90	85.21	-10.02	-0.10
100	84.72	-10.51	-0.59
110	85.09	-10.14	-0.22
120	84.67	-10.56	-0.64
130	84.99	-10.24	-0.32
140	70.33	-24.90	-14.98
150	74.89	-20.34	-10.42
160	84.64	-10.59	-0.67
170	84.62	-10.61	-0.69
180	84.13	-11.10	-1.18
190	81.53	-13.70	-3.78
200	80.43	-14.80	-4.88
210	83.85	-11.38	-1.46
220	84.61	-10.62	-0.70
230	84.58	-10.65	-0.73
240	84.8	-10.43	-0.51
250	84.95	-10.28	-0.36
260	85.23	-10.00	-0.08
270	85.22	-10.01	-0.09
280	85.25	-9.98	-0.06
290	84.65	-10.58	-0.66
300	84.62	-10.61	-0.69
310	83.45	-11.78	-1.86
320	76.81	-18.42	-8.50
330	79.89	-15.34	-5.42
340	84.95	-10.28	-0.36
350	84.69	-10.54	-0.62
360	85.31	-9.92	0.00



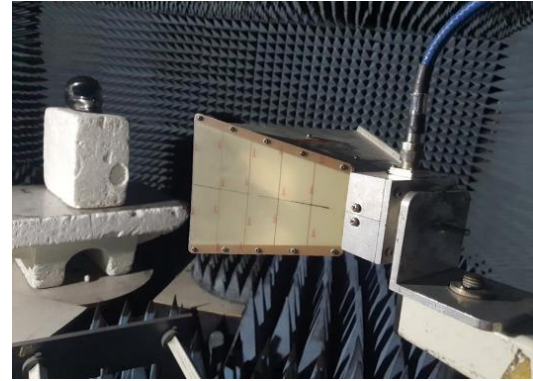
Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2440	MHz	
SA reading	103.5	dBuV/m	
AG, dBi	10.2	dBi	
Cable Loss	3.12	dB	
Antenna polarization Vertical			
Antenna Horn HL 4474			

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



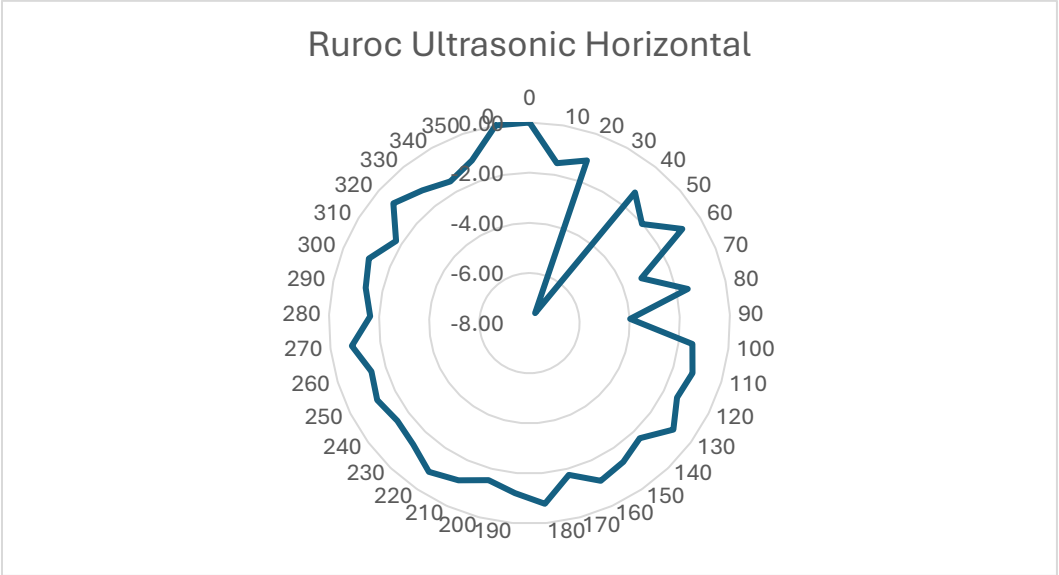
2440 MHz horizontal poz.X

Frequency:	2440	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dBi
0	88.75	-6.48	0.00
10	87.22	-8.01	-1.53
20	87.63	-7.60	-1.12
30	81.21	-14.02	-7.54
40	87.45	-7.78	-1.30
50	86.73	-8.50	-2.02
60	87.91	-7.32	-0.84
70	85.56	-9.67	-3.19
80	87.21	-8.02	-1.54
90	84.77	-10.46	-3.98
100	87.3	-7.93	-1.45
110	87.55	-7.68	-1.20
120	87.34	-7.89	-1.41
130	87.89	-7.34	-0.86
140	87.11	-8.12	-1.64
150	87.43	-7.80	-1.32
160	87.65	-7.58	-1.10
170	87	-8.23	-1.75
180	87.98	-7.25	-0.77
190	87.55	-7.68	-1.20
200	87.22	-8.01	-1.53
210	87.63	-7.60	-1.12
220	87.91	-7.32	-0.84
230	87.45	-7.78	-1.30
240	87.3	-7.93	-1.45
250	87.55	-7.68	-1.20
260	87.34	-7.89	-1.41
270	87.89	-7.34	-0.86
280	87.11	-8.12	-1.64
290	87.43	-7.80	-1.32
300	87.65	-7.58	-1.10
310	87	-8.23	-1.75
320	87.98	-7.25	-0.77
330	87.55	-7.68	-1.20
340	87.22	-8.01	-1.53
350	87.63	-7.60	-1.12



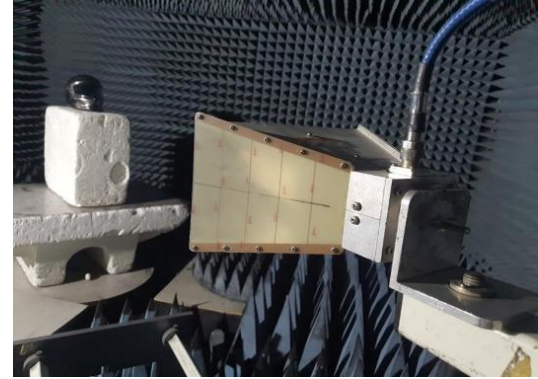
Spectrum Analyzer Data			sweep time 20 ms
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2440	MHz	
SA reading	103.5	dBuV/m	
AG, dBi	10.2	dB	
Cable Loss	3.12	dB	
Antenna polarization Vertical			Substitution
Antenna Horn HL 4474			

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



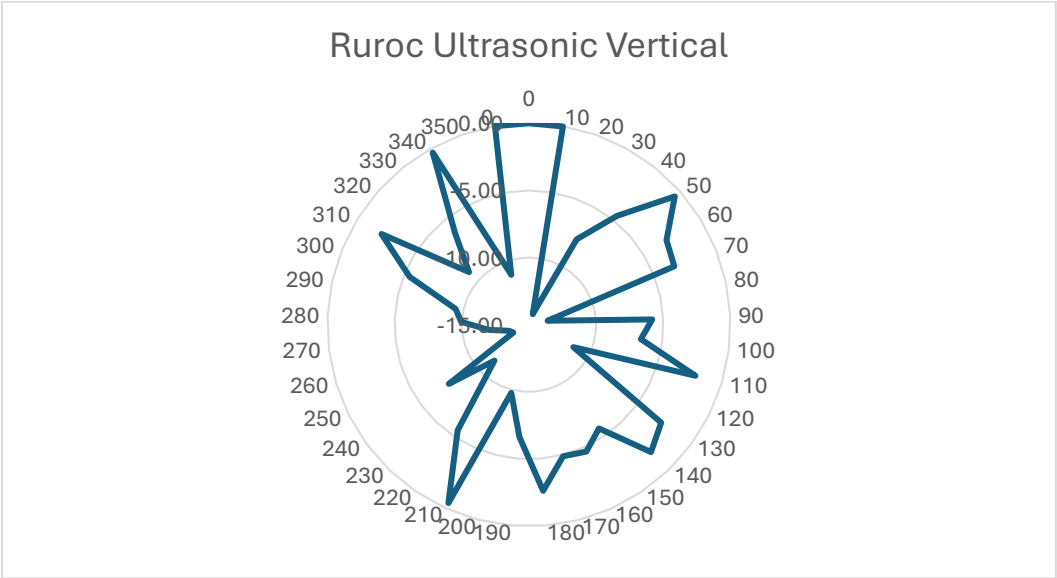
2480 MHz vertical poz.Y

Frequency:	2480	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dBi
0	84.80	-10.43	0.00
10	84.78	-10.45	-0.02
20	70.63	-24.60	-14.17
30	77.09	-18.14	-7.71
40	80.22	-15.01	-4.58
50	84.26	-10.97	-0.54
60	81.82	-13.41	-2.98
70	81.47	-13.76	-3.33
80	71.22	-24.01	-13.58
90	78.99	-16.24	-5.81
100	78.2	-17.03	-6.60
110	82.76	-12.47	-2.04
120	73.51	-21.72	-11.29
130	82.05	-13.18	-2.75
140	82.93	-12.30	-1.87
150	79.12	-16.11	-5.68
160	80.16	-15.07	-4.64
170	79.92	-15.31	-4.88
180	82.21	-13.02	-2.59
190	78.19	-17.04	-6.61
200	75.04	-20.19	-9.76
210	84.37	-10.86	-0.43
220	79.28	-15.95	-5.52
230	73.5	-21.73	-11.30
240	77.21	-18.02	-7.59
250	71.1	-24.13	-13.70
260	71.34	-23.89	-13.46
270	72.83	-22.40	-11.97
280	74.85	-20.38	-9.95
290	75.39	-19.84	-9.41
300	79.37	-15.86	-5.43
310	82.69	-12.54	-2.11
320	75.74	-19.49	-9.06
330	78.54	-16.69	-6.26
340	84.49	-10.74	-0.31
350	73.74	-21.49	-11.06
360	84.80	-10.43	0.00



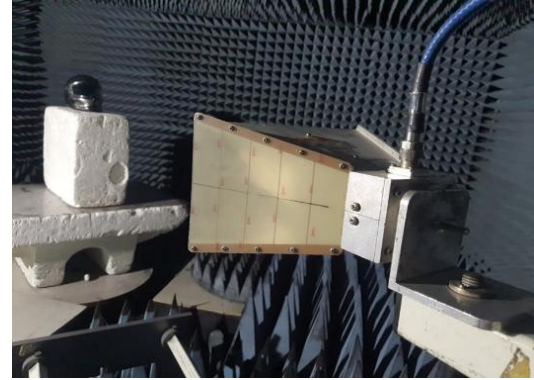
Spectrum Analyzer Data			sweep time 20 ms Substitution
Span	10	MHz	
RBW	1000	kHz	
VBW	3000	kHz	
Ref Level	120	dBuV/m	
SG	0	dBm	
F, MHz	2405	MHz	
SA reading	103.2	dBuV/m	
AG, dBi	9.9	dBi	
Cable Loss	3.09	dB	
Antenna polarization Vertical			
Antenna Horn HL 4474			

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



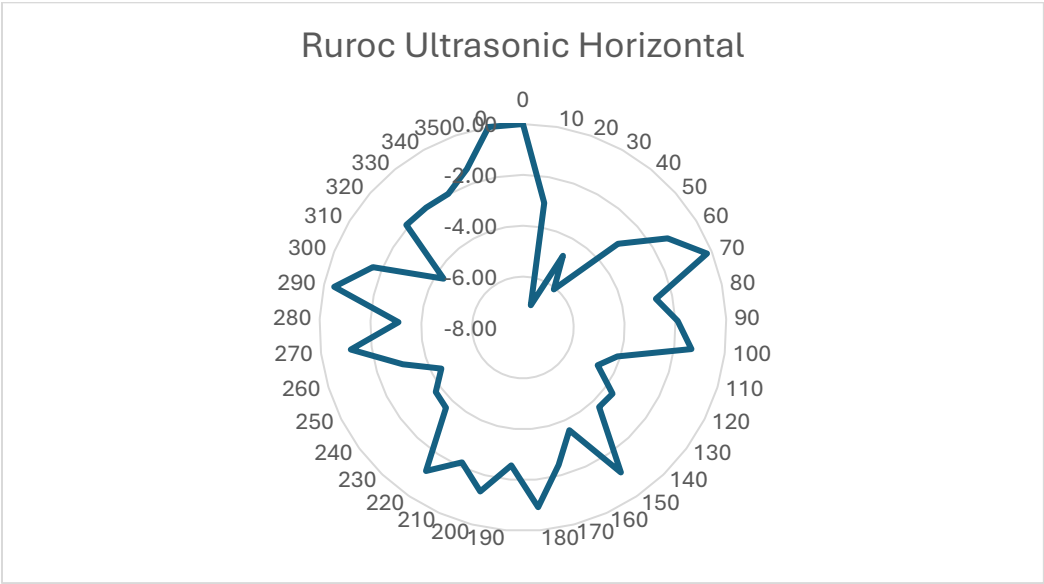
2480 MHz horizontal poz.X

Frequency:	2480	MHz	
Angle (deg)	Spectrum Analyzer reading (dBuV/m)	EIRP, dBm	Antenna Pattern, dBi
0	88.75	-6.48	0.00
10	85.72	-9.51	-3.03
20	81.68	-13.55	-7.07
30	83.98	-11.25	-4.77
40	82.68	-12.55	-6.07
50	85.73	-9.50	-3.02
60	87.43	-7.80	-1.32
70	88.55	-6.68	-0.20
80	86.1	-9.13	-2.65
90	86.84	-8.39	-1.91
100	87.43	-7.80	-1.32
110	84.63	-10.60	-4.12
120	84.04	-11.19	-4.71
130	85.13	-10.10	-3.62
140	85.08	-10.15	-3.67
150	87.63	-7.60	-1.12
160	85.18	-10.05	-3.57
170	86.33	-8.90	-2.42
180	87.84	-7.39	-0.91
190	86.19	-9.04	-2.56
200	87.41	-7.82	-1.34
210	86.57	-8.66	-2.18
220	87.56	-7.67	-1.19
230	85.12	-10.11	-3.63
240	85.01	-10.22	-3.74
250	84.34	-10.89	-4.41
260	85.69	-9.54	-3.06
270	87.57	-7.66	-1.18
280	85.65	-9.58	-3.10
290	88.34	-6.89	-0.41
300	87.11	-8.12	-1.64
310	84.41	-10.82	-4.34
320	86.86	-8.37	-1.89
330	86.81	-8.42	-1.94
340	86.77	-8.46	-1.98
350	87.36	-7.87	-1.39
360	88.75	-6.48	0.00



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)



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- Top view of the PCB layout. Dimensions are indicated: 74.6mm (width) and 7.82mm (height). The layout shows various components including resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), and other components like ICs (U1, U2, U3, U4, U5, U6, U7, U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U18, U19, U20, U21, U22, U23, U24, U25, U26, U27, U28, U29, U30, U31, U32, U33, U34, U35, U36, U37, U38, U39, U40, U41, U42, U43, U44, U45, U46, U47, U48, U49, U50, U51, U52, U53, U54, U55, U56, U57, U58, U59, U60, U61, U62, U63, U64, U65, U66, U67, U68, U69, U70, U71, U72, U73, U74, U75, U76, U77, U78, U79, U80, U81, U82, U83, U84, U85, U86, U87, U88, U89, U90, U91, U92, U93, U94, U95, U96, U97, U98, U99, U100), diodes (D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100), and connectors (CON1, CON2, CON3, CON4, CON5, CON6, CON7, CON8, CON9, CON10, CON11, CON12, CON13, CON14, CON15, CON16, CON17, CON18, CON19, CON20, CON21, CON22, CON23, CON24, CON25, CON26, CON27, CON28, CON29, CON30, CON31, CON32, CON33, CON34, CON35, CON36, CON37, CON38, CON39, CON40, CON41, CON42, CON43, CON44, CON45, CON46, CON47, CON48, CON49, CON50, CON51, CON52, CON53, CON54, CON55, CON56, CON57, CON58, CON59, CON60, CON61, CON62, CON63, CON64, CON65, CON66, CON67, CON68, CON69, CON70, CON71, CON72, CON73, CON74, CON75, CON76, CON77, CON78, CON79, CON80, CON81, CON82, CON83, CON84, CON85, CON86, CON87, CON88, CON89, CON90, CON91, CON92, CON93, CON94, CON95, CON96, CON97, CON98, CON99, CON100).