

2021.07.07

RA-N2106-07

APPROVAL SHEET

MODEL : ICON
Antenna layout

Review	Consent	Approval

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1. Revision History

NO.	Before	After	Reason	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

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2. Product Information

2.1 General Features

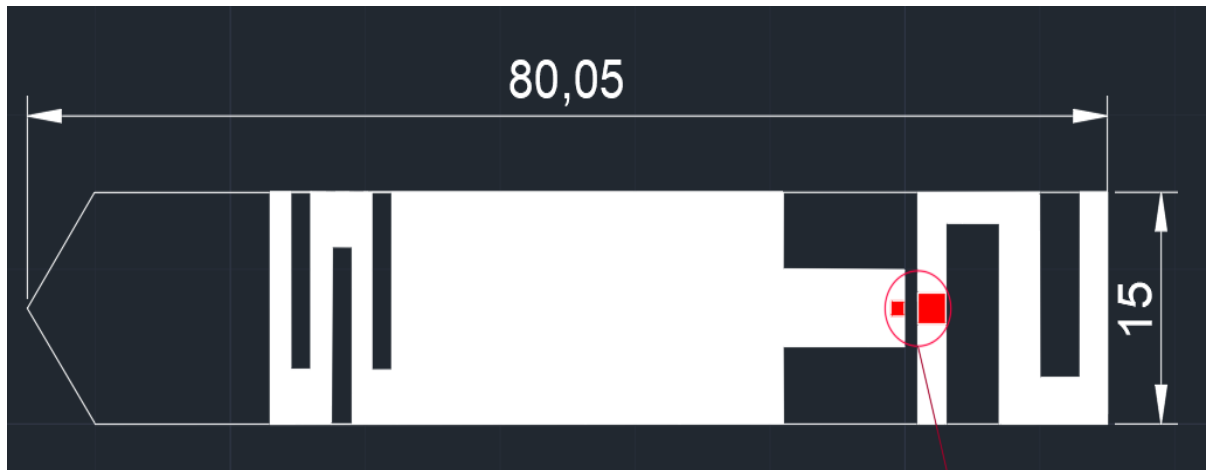
PART NUMBER	GradiANT
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	Bluetooth

2.2 Electrical Specifications

Frequency Range1 (TX)		2400MHz~2485MHz	
Frequency Range1 (RX)		2400MHz~2485MHz	
IMPEDANCE		50 Ω	
V.S.W.R	TX	2400MHz	2485MHz
		3 ↓	3 ↓
	RX	2400MHz	2485MHz
		3 ↓	3 ↓
RADIATION PATTERN		Omni-directional	
POLARIZATION		Linear	

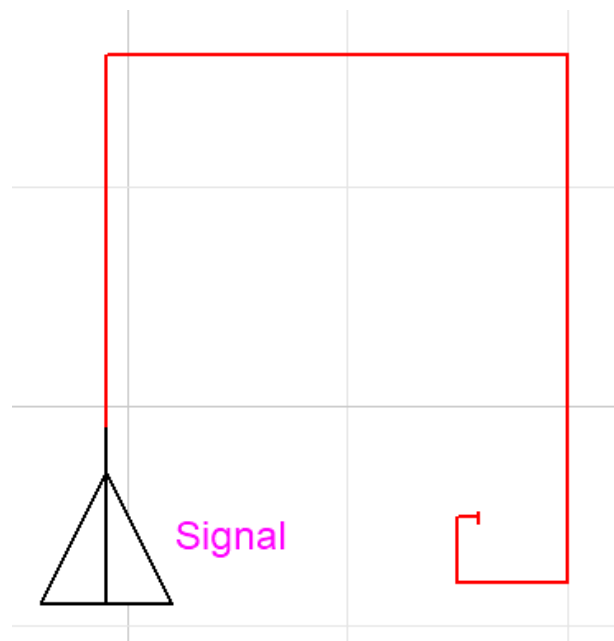
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3. Pattern Specifications



4. Matching Network

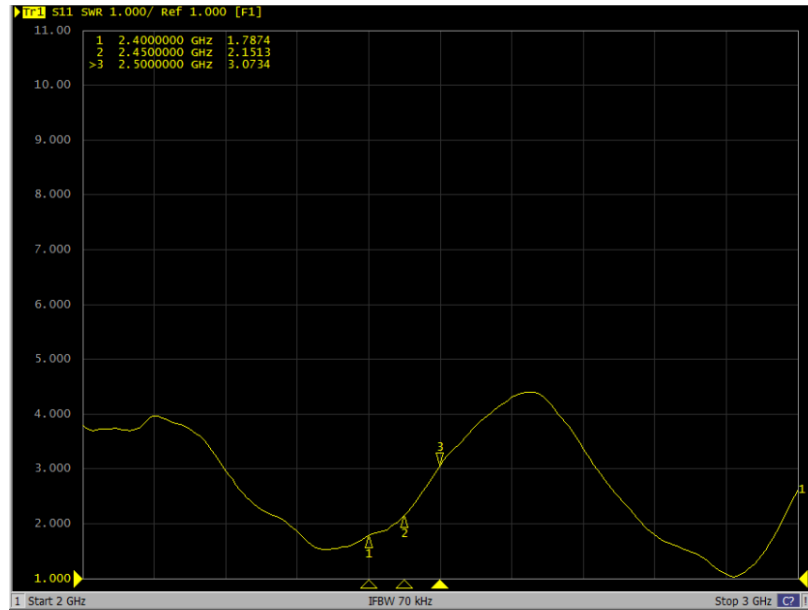
Capacitor value can be changed depending on different situation



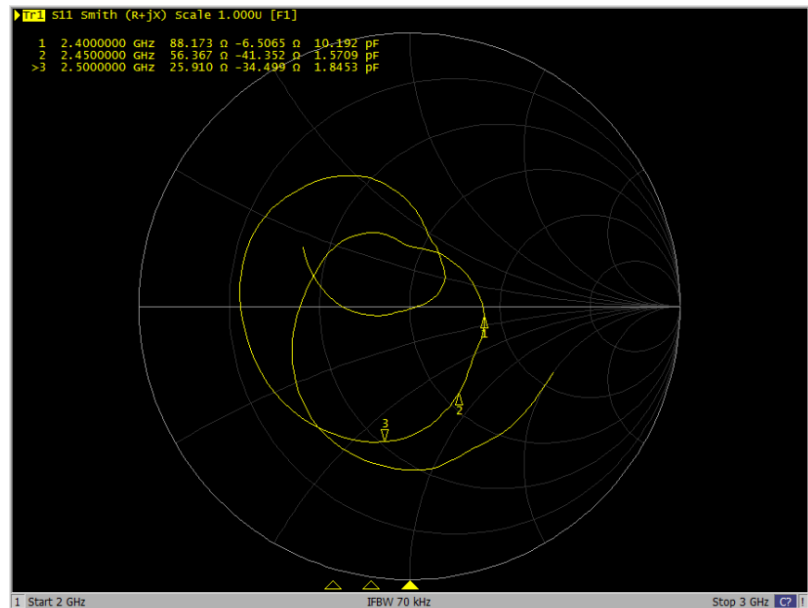
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5. Electrical Characteristics

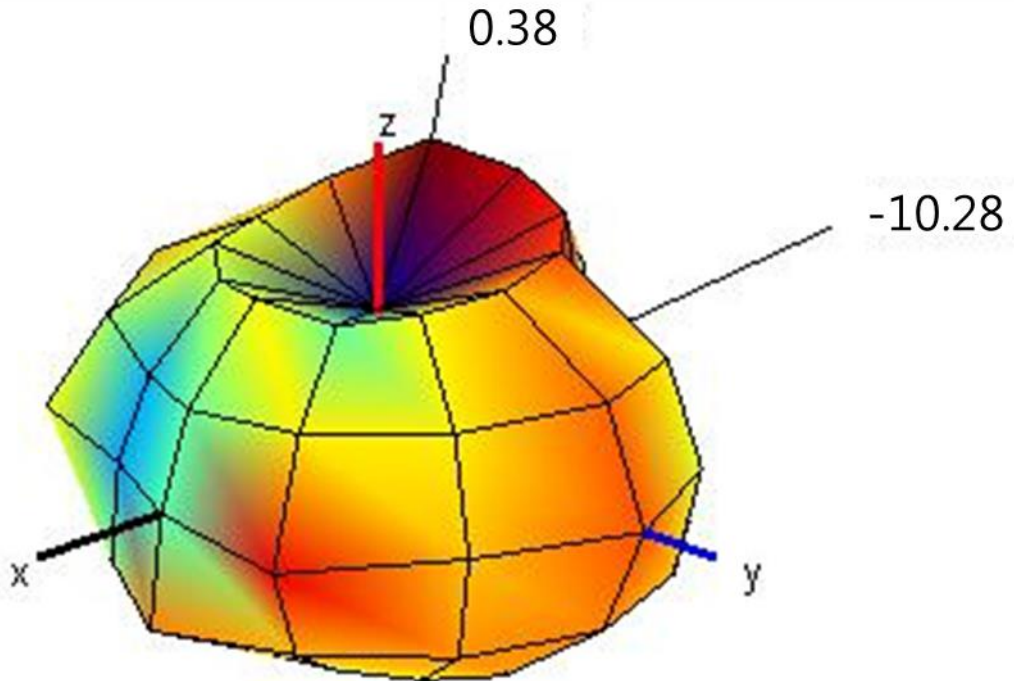
5.1 VSWR



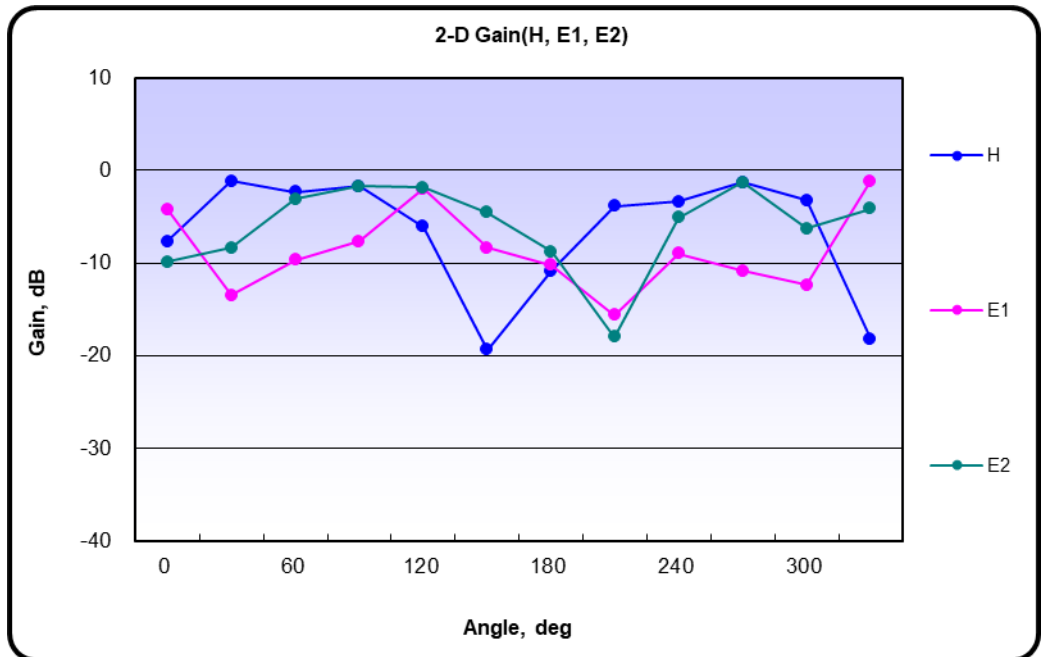
5.2 SMITH CHART



5.3 3D-PLOTS



5.4 2D-GAIN





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6. Passive Measurement

	1	2	3	4	5	6	7	8	9	10
Frequency [MHz]	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445
Efficiency [dB]	-2.45	-2.48	-2.58	-2.66	-2.71	-2.63	-2.37	-2.23	-2.27	-2.47
Efficiency [%]	56.8	56.5	55.2	54.2	53.6	54.6	58.0	59.9	59.3	56.6
TRG _θ [dB]	-4.90	-4.95	-5.05	-5.18	-5.23	-5.22	-4.90	-4.72	-4.84	-5.06
Gain _{θ Peak} [dB]	0.56	0.33	0.19	-0.01	-0.22	-0.17	0.08	0.45	0.19	0.06
Gain _{θ Min} [dB]	-27.42	-26.85	-25.17	-24.45	-22.89	-22.74	-21.53	-19.74	-19.45	-19.54
TRG _φ [dB]	-6.11	-6.11	-6.21	-6.22	-6.27	-6.10	-5.92	-5.83	-5.76	-5.95
Gain _{φ Peak} [dB]	0.33	0.24	0.17	0.14	0.25	0.59	0.71	0.88	0.89	0.66
Gain _{φ Min} [dB]	-18.97	-16.98	-15.05	-15.15	-14.60	-14.91	-14.77	-15.68	-15.75	-17.33
UHRG [dB]	-5.33	-5.35	-5.42	-5.47	-5.49	-5.39	-5.10	-4.94	-4.97	-5.15
UHRG/TRG [%]	51.6	51.6	52.0	52.4	52.7	53.0	53.3	53.6	53.6	54.0
H-Plane	-3.83	-3.94	-4.13	-4.23	-4.26	-4.26	-3.97	-3.83	-3.98	-4.12
E1-Plane, AVG [dB]	-6.47	-6.35	-6.38	-6.56	-6.55	-6.63	-6.27	-6.14	-6.22	-6.59
E2-Plane, AVG [dB]	-4.45	-4.44	-4.51	-4.55	-4.65	-4.61	-4.24	-4.16	-4.30	-4.52
Peak Gain [dB]	0.46	0.30	0.19	0.08	0.02	0.24	0.42	0.68	0.56	0.38
Directivity [dB]	2.91	2.77	2.77	2.74	2.73	2.87	2.79	2.91	2.83	2.85
Minimum Gain [dB]	-10.96	-10.30	-10.49	-10.81	-10.38	-10.23	-9.80	-9.92	-9.70	-10.28

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-2.85	-3.02	-3.03	-3.08	-3.05	-3.39	-3.80	-4.44	-4.61	-4.64
Efficiency [%]	51.9	49.9	49.7	49.1	49.5	45.8	41.7	36.0	34.6	34.4
TRG _θ [dB]	-5.46	-5.61	-5.70	-5.81	-5.75	-6.12	-6.48	-7.23	-7.42	-7.37
Gain _{θ Peak} [dB]	-0.19	-0.16	-0.37	-0.29	-0.15	-0.48	-0.79	-1.36	-1.45	-1.17
Gain _{θ Min} [dB]	-19.63	-22.64	-22.60	-23.36	-25.65	-27.01	-29.02	-34.75	-29.36	-25.07
TRG _φ [dB]	-6.30	-6.50	-6.41	-6.40	-6.40	-6.71	-7.17	-7.68	-7.83	-7.95
Gain _{φ Peak} [dB]	0.32	0.23	0.30	0.20	0.08	-0.14	-0.61	-1.34	-1.53	-1.70
Gain _{φ Min} [dB]	-17.22	-19.02	-19.12	-18.49	-18.83	-20.84	-20.55	-21.91	-23.47	-27.77
UHRG [dB]	-5.53	-5.69	-5.69	-5.72	-5.66	-5.97	-6.37	-6.99	-7.16	-7.16
UHRG/TRG [%]	53.9	54.1	54.3	54.6	54.9	55.2	55.3	55.5	55.6	56.0
H-Plane	-4.56	-4.79	-4.91	-4.99	-5.01	-5.42	-5.82	-6.57	-6.82	-6.91
E1-Plane, AVG [dB]	-6.97	-7.01	-7.10	-7.21	-7.02	-7.40	-7.67	-8.41	-8.48	-8.32
E2-Plane, AVG [dB]	-4.97	-5.06	-5.18	-5.30	-5.25	-5.64	-6.00	-6.73	-6.88	-6.85
Peak Gain [dB]	0.08	0.05	-0.01	-0.03	-0.02	-0.30	-0.69	-1.34	-1.48	-1.42
Directivity [dB]	2.93	3.07	3.02	3.06	3.03	3.09	3.11	3.10	3.13	3.22
Minimum Gain [dB]	-10.95	-11.42	-11.58	-12.42	-12.65	-13.98	-14.28	-15.21	-15.46	-17.21

Average Efficiency	-2.98dBi	50.37%
Peak Gain	0.68dBi	