

2018.04.17

RA-N0211-13

APPROVAL SHEET

MODEL :
Antenna layout

Review	Consent	Approval

Messrs. SENA Technology Co.,Ltd



RadiNa Co. ,Ltd

TEL:+82-2-463-0373

FAX:+82-2-463-0374



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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

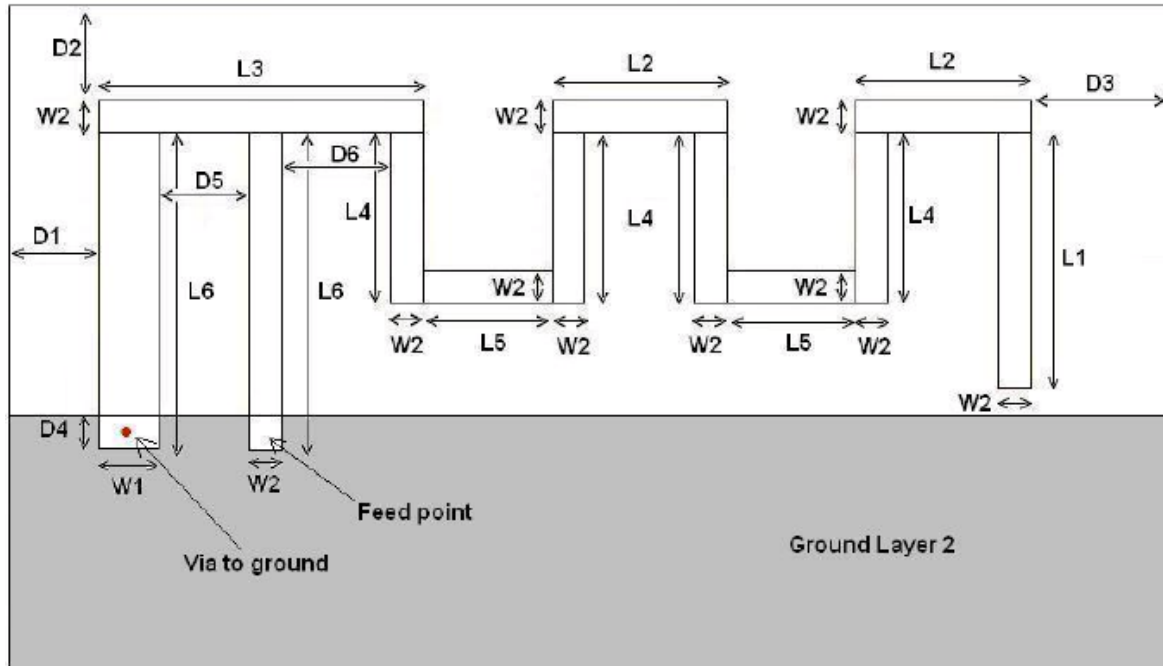
PART NUMBER	GradiANT
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	Bluetooth

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

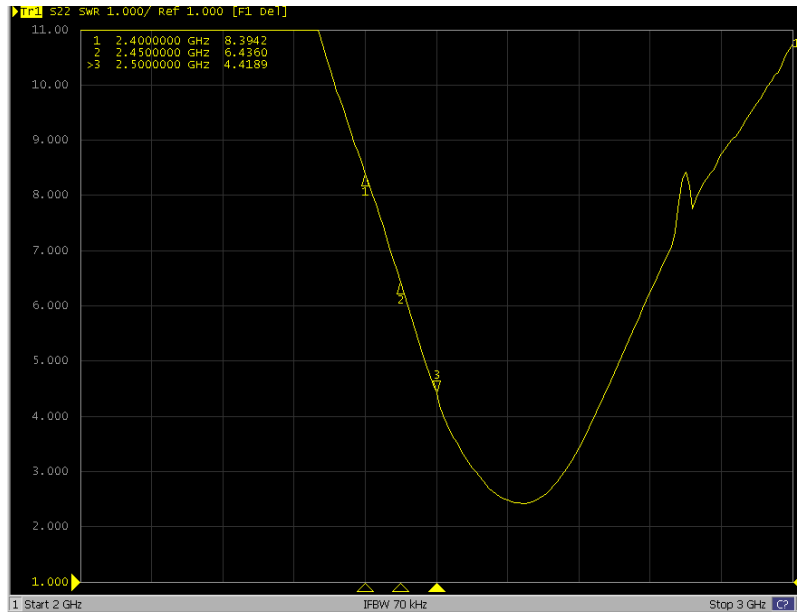


L1	3.94 mm
L2	2.70 mm
L3	5.00 mm
L4	2.64 mm
L5	2.00 mm
L6	4.90 mm
W1	0.90 mm
W2	0.50 mm
D1	0.50 mm
D2	0.30 mm
D3	0.30 mm
D4	0.50 mm
D5	1.40mm
D6	1.70 mm

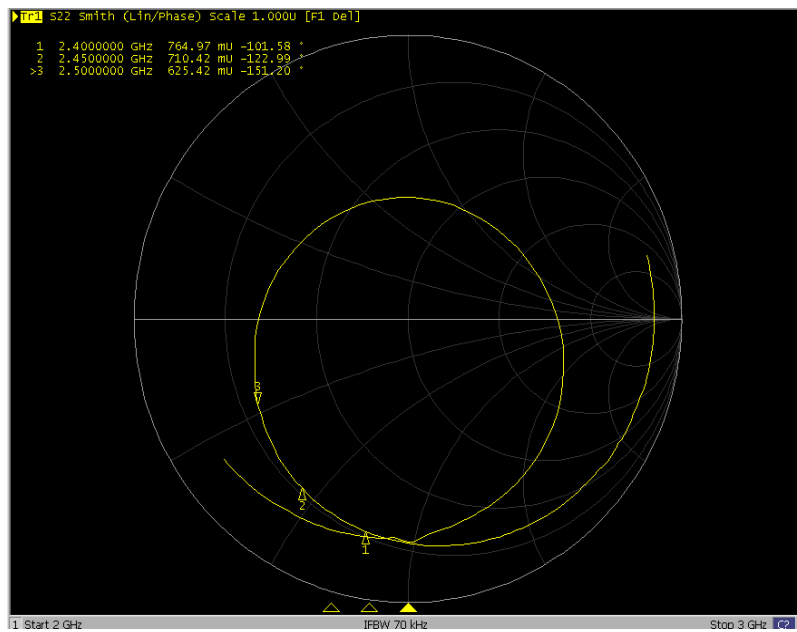
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4. Electrical Characteristics

4.1 VSWR



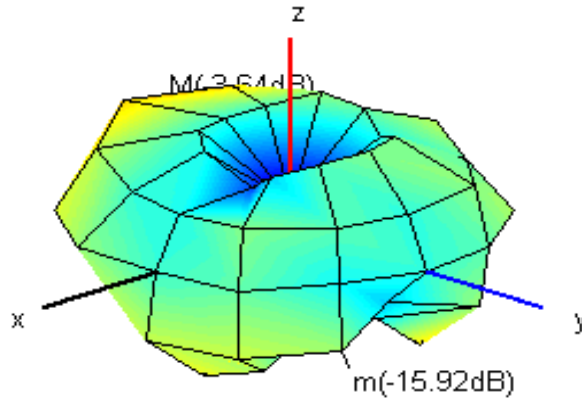
4.2 SMITH CHART



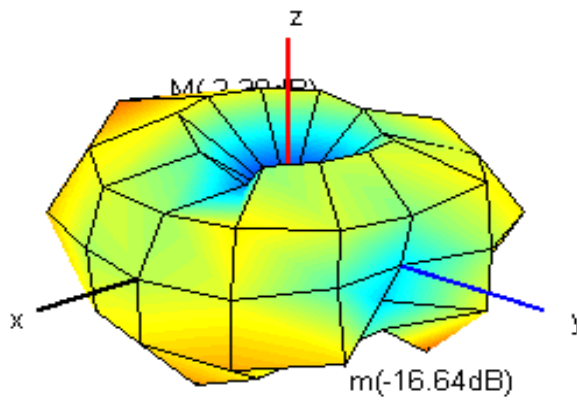
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4.3 3D-PLOTS

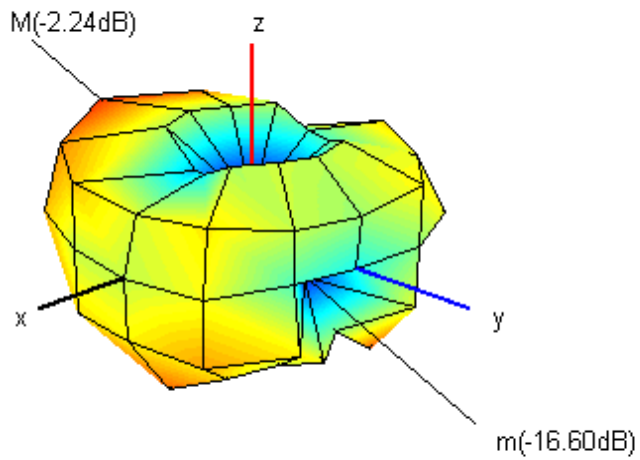
2400MHZ



2445MHZ



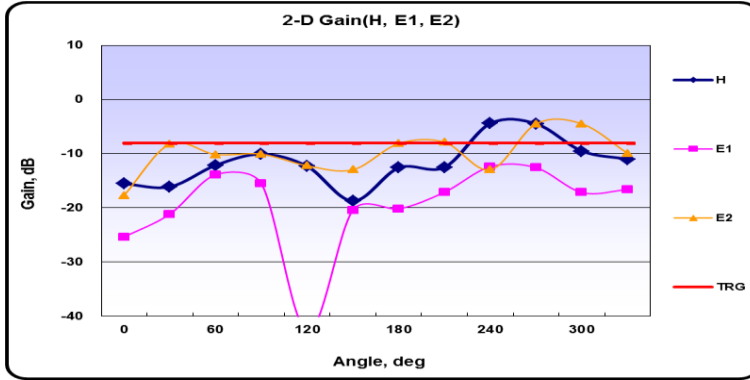
2485MHZ



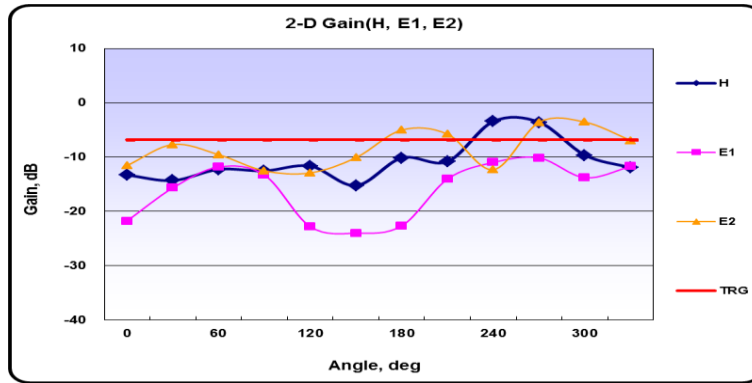


4.4 2D-GAIN

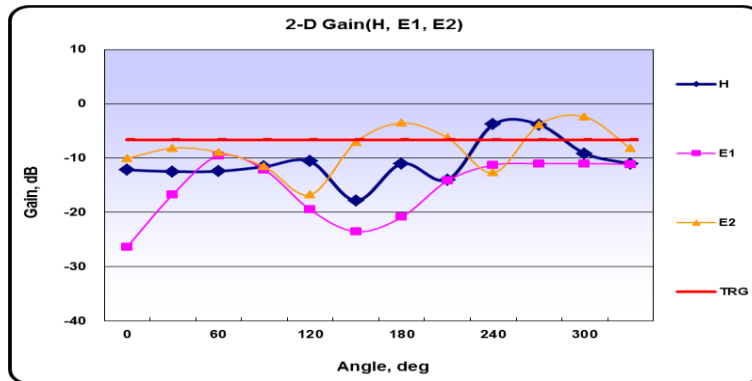
2400MHZ




2445MHZ



2485MHZ



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5. 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)	-3.10	-3.05	-2.79	-2.56	-2.64	-2.59	-2.35	-2.28	-2.19	-2.12
Efficiency(%)	48.94	49.57	52.56	55.44	54.45	55.04	58.20	59.17	60.36	61.41
TRG(dB)	-3.10	-3.05	-2.79	-2.56	-2.64	-2.59	-2.35	-2.28	-2.19	-2.12
TRG _{Theta} (dB)	-3.28	-3.22	-2.96	-2.73	-2.81	-2.76	-2.51	-2.44	-2.36	-2.28
TRG _{Phi} (dB)	-17.05	-17.08	-16.99	-16.79	-16.89	-16.77	-16.84	-16.71	-16.55	-16.47
UHRG(dB)	-6.29	-6.24	-5.99	-5.78	-5.88	-5.84	-5.62	-5.55	-5.48	-5.41
UHRG/TRG(%)	48.04	48.00	47.85	47.64	47.47	47.30	47.12	47.06	46.96	46.81
H-Plane	-1.33	-1.24	-0.96	-0.72	-0.79	-0.75	-0.50	-0.43	-0.35	-0.28
E1-Plane, AVG(dB)	-4.54	-4.46	-4.19	-3.94	-4.00	-3.95	-3.67	-3.59	-3.50	-3.43
E2-Plane, AVG(dB)	-4.61	-4.54	-4.27	-4.03	-4.10	-4.06	-3.81	-3.74	-3.66	-3.59
Peak Gain(dB)	-0.16	-0.05	0.04	0.20	0.12	0.15	0.28	0.35	0.42	0.51
Directivity(dB)	2.94	3.00	2.83	2.76	2.75	2.74	2.63	2.63	2.61	2.63
Minimum Gain(dB)	-9.52	-9.60	-9.61	-9.61	-9.85	-9.80	-9.72	-9.83	-9.91	-9.86

	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency(dB)	-2.12	-2.09	-2.06	-2.21	-2.25	-2.17	-2.37	-2.63	-2.54	-2.56
Efficiency(%)	61.32	61.74	62.28	60.19	59.63	60.71	57.91	54.63	55.70	55.42
TRG(dB)	-2.12	-2.09	-2.06	-2.21	-2.25	-2.17	-2.37	-2.63	-2.54	-2.56
TRG _{Theta} (dB)	-2.28	-2.26	-2.22	-2.38	-2.42	-2.34	-2.56	-2.81	-2.73	-2.75
TRG _{Phi} (dB)	-16.54	-16.48	-16.26	-16.28	-16.32	-16.16	-16.18	-16.36	-16.37	-16.25
UHRG(dB)	-5.44	-5.41	-5.39	-5.56	-5.61	-5.55	-5.77	-6.04	-5.96	-5.99
UHRG/TRG(%)	46.63	46.58	46.38	46.19	46.04	45.90	45.74	45.55	45.49	45.39
H-Plane	-0.30	-0.29	-0.29	-0.47	-0.54	-0.48	-0.72	-0.99	-0.94	-0.99
E1-Plane, AVG(dB)	-3.43	-3.41	-3.39	-3.55	-3.60	-3.53	-3.75	-4.02	-3.94	-3.98
E2-Plane, AVG(dB)	-3.60	-3.58	-3.54	-3.69	-3.70	-3.63	-3.83	-4.09	-4.00	-4.02
Peak Gain(dB)	0.51	0.55	0.56	0.48	0.46	0.46	0.38	0.24	0.24	0.22
Directivity(dB)	2.63	2.64	2.62	2.68	2.71	2.63	2.76	2.86	2.78	2.78
Minimum Gain(dB)	-9.91	-9.71	-9.61	-9.62	-9.63	-9.44	-9.56	-9.72	-9.82	-10.03

Average Efficiency	-2.42dBi,	57.23%
Peak Gain	0.56dBi	