2018.04.24

RA-N0211-16

APPROVAL SHEET

MODEL: SENA_10A
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

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2. Product Information

2.1 General Features

PART NUMBER	GradiANT
ANTENNA TYPE	Dipole Antenna
APPLICATIONS	Bluetooth

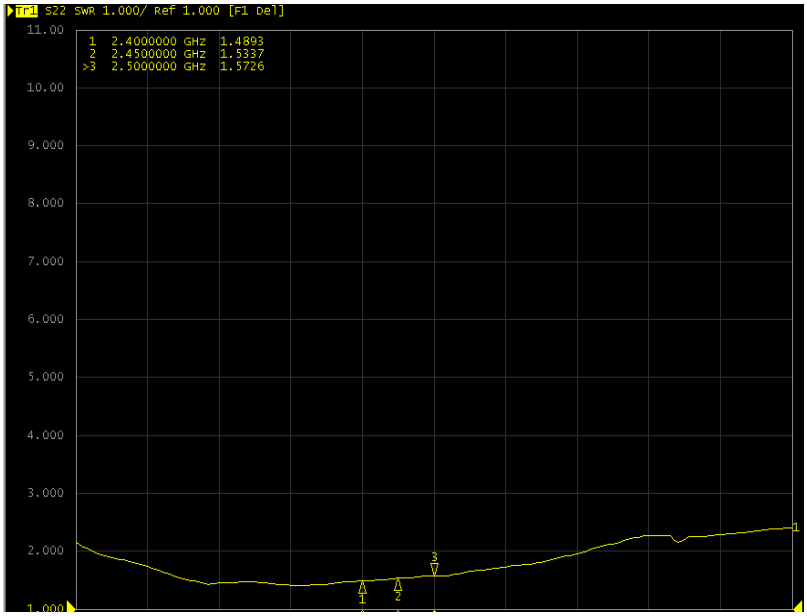
2.2 Electrical Specifications

Frequency Range1 (TX)		2400MHz~2485MHz	
Frequency Range1 (RX)		2400MHz~2485MHz	
IMPEDANCE		50 Ω	
V.S.W.R	TX	2400MHz	2485MHz
		5↓	5↓
	RX	2400MHz	2485MHz
		5↓	5↓
RADIATION PATTERN		Omni-directional	
POLARIZATION		Linear	

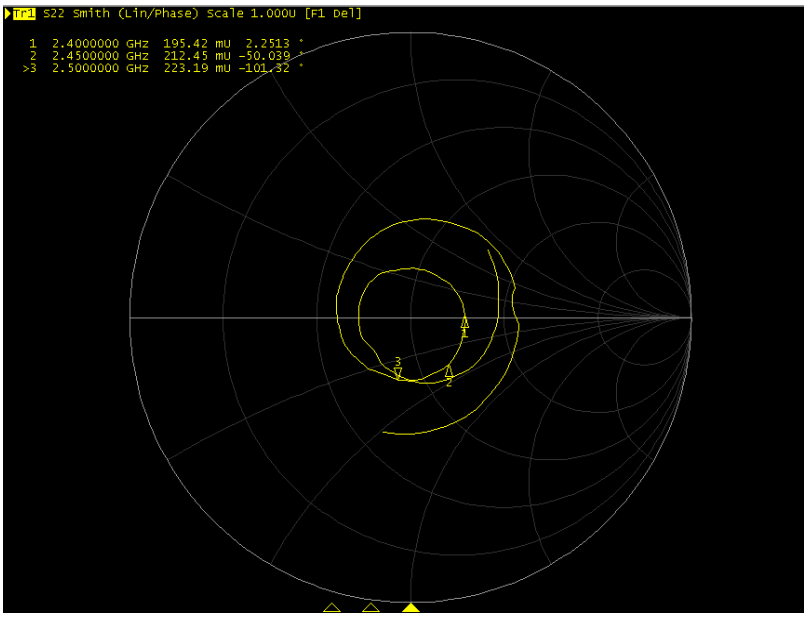
3. Pattern Specifications

4. Electrical Characterristics

4.1 VSWR

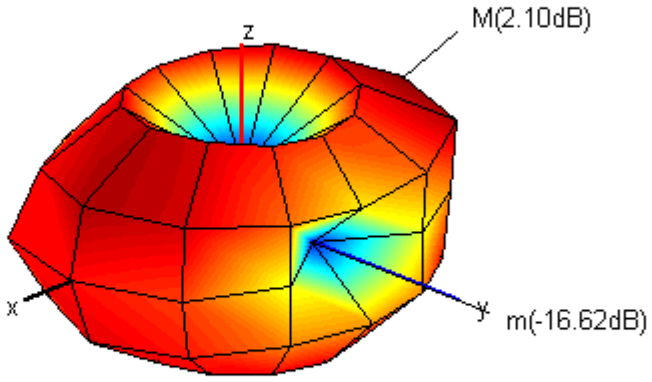


4.2 SMITH CHART

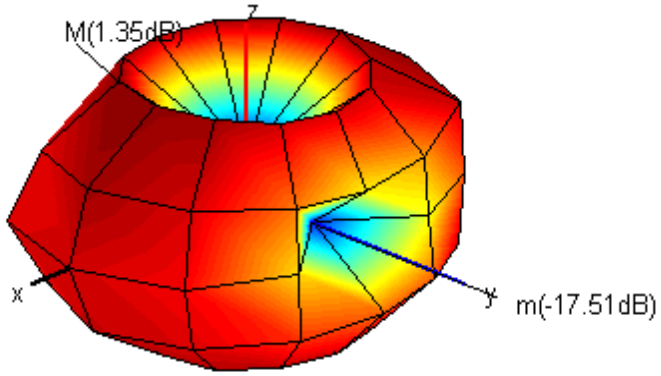


4.3 3D-PLOTs

2400MHZ



2445MHZ



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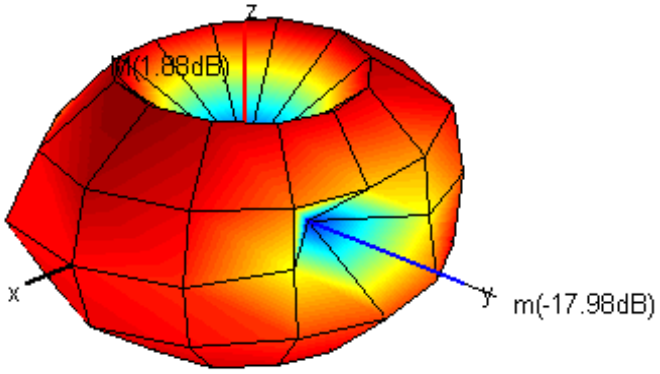
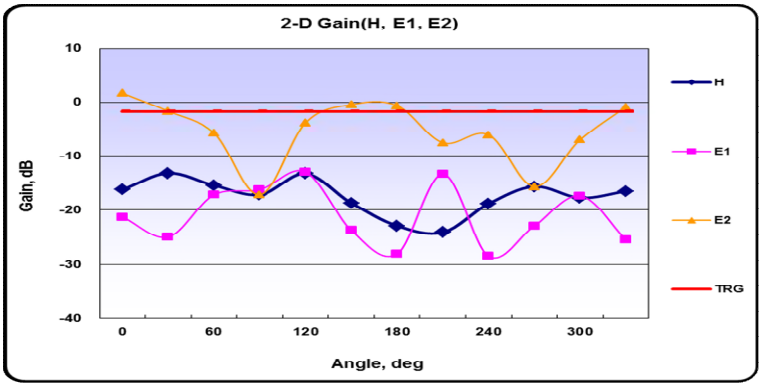


4.4 2D-GAIN

2400MHZ



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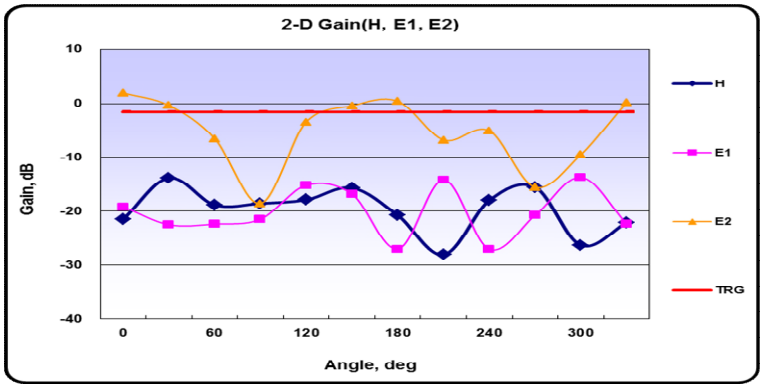

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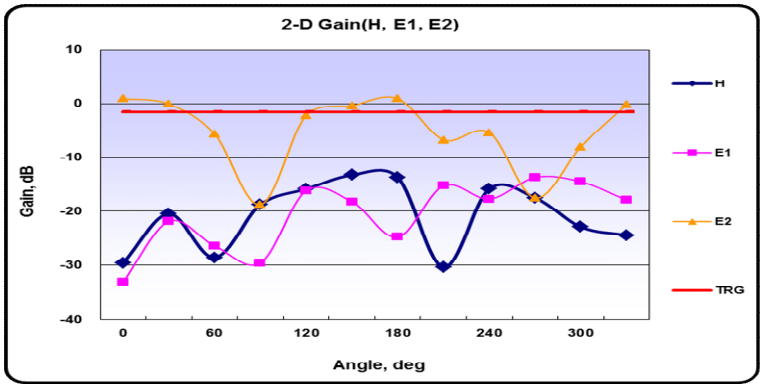

5. Passive Measurement

	1	2	3	4	5	6	7	8	9	10
Frequency(MHz)	**2400**	**2405**	**2410**	**2415**	**2420**	**2425**	**2430**	**2435**	**2440**	**2445**
Efficiency(dB)	**-1.68**	**-1.80**	**-1.94**	**-1.86**	**-1.90**	**-1.74**	**-1.75**	**-1.73**	**-1.75**	**-1.59**
Efficiency(%)	**67.89**	**66.09**	**64.01**	**65.12**	**64.64**	**66.94**	**66.82**	**67.21**	**66.85**	**69.31**
TRG(dB)	**-1.68**	**-1.80**	**-1.94**	**-1.86**	**-1.90**	**-1.74**	**-1.75**	**-1.73**	**-1.75**	**-1.59**
TRG_{Theta}(dB)	-7.75	-7.86	-7.96	-7.93	-7.94	-7.74	-7.63	-7.59	-7.55	-7.37
TRG_{Phi}(dB)	-2.92	-3.04	-3.19	-3.10	-3.14	-3.00	-3.05	-3.03	-3.07	-2.92
UHRG(dB)	-4.25	-4.42	-4.61	-4.57	-4.66	-4.54	-4.56	-4.58	-4.58	-4.40
UHRG/TRG(%)	55.36	54.66	54.08	53.61	52.92	52.47	52.32	51.77	52.16	52.41
H-Plane	-16.43	-16.82	-17.16	-16.92	-17.80	-17.65	-17.12	-18.21	-17.86	-18.24
E1-Plane, AVG(dB)	-18.08	-18.72	-18.99	-18.12	-18.40	-17.95	-17.92	-18.05	-17.95	-18.26
E2-Plane, AVG(dB)	-2.94	-3.13	-3.04	-3.08	-3.02	-2.80	-2.64	-2.60	-2.69	-2.43
Peak Gain(dB)	2.10	1.82	1.51	1.51	1.47	1.56	1.27	1.13	1.27	1.35
Directivity(dB)	3.78	3.62	3.44	3.37	3.36	3.30	3.02	2.86	3.02	2.94
Minimum Gain(dB)	-16.63	-16.38	-17.22	-17.64	-16.71	-17.63	-18.36	-20.13	-19.16	-17.51

	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	**2450**	**2455**	**2460**	**2465**	**2470**	**2475**	**2480**	**2485**	**2490**	**2497**
Efficiency(dB)	**-1.63**	**-1.53**	**-1.53**	**-1.53**	**-1.56**	**-1.45**	**-1.55**	**-1.57**	**-1.49**	**-1.41**
Efficiency(%)	**68.78**	**70.31**	**70.38**	**70.38**	**69.75**	**71.57**	**69.94**	**69.67**	**71.03**	**72.22**
TRG(dB)	**-1.63**	**-1.53**	**-1.53**	**-1.53**	**-1.56**	**-1.45**	**-1.55**	**-1.57**	**-1.49**	**-1.41**
TRG_{Theta}(dB)	-7.31	-7.16	-7.20	-7.11	-7.04	-6.96	-7.15	-7.13	-6.95	-6.87
TRG_{Phi}(dB)	-2.99	-2.92	-2.90	-2.93	-3.01	-2.89	-2.95	-2.98	-2.94	-2.87
UHRG(dB)	-4.44	-4.30	-4.33	-4.30	-4.31	-4.18	-4.23	-4.24	-4.12	-3.99
UHRG/TRG(%)	52.31	52.85	52.42	52.78	53.12	53.38	53.95	54.09	54.51	55.19
H-Plane	-17.93	-18.53	-17.86	-17.91	-18.29	-17.68	-18.03	-17.86	-18.38	-17.21
E1-Plane, AVG(dB)	-17.62	-17.53	-17.37	-17.48	-17.12	-17.14	-17.82	-17.86	-17.59	-17.27
E2-Plane, AVG(dB)	-2.34	-2.18	-2.27	-2.29	-2.24	-2.18	-2.31	-2.44	-2.33	-2.27
Peak Gain(dB)	1.49	1.64	1.61	1.81	1.65	1.86	1.76	1.89	1.99	2.20
Directivity(dB)	3.12	3.17	3.13	3.33	3.21	3.31	3.32	3.46	3.48	3.62
Minimum Gain(dB)	-21.04	-20.55	-19.59	-18.15	-18.18	-19.91	-19.49	-17.99	-19.05	-16.16

Average Efficiency	**-1.65dBi,**	**68.44%**
Peak Gain	**2.10dBi**	