

25.01.13

RA-N2601-23

APPROVAL SHEET

MODEL : 60X
MESH SUB
Antenna layout

Review	Consent	Approval

Messrs. SENA Technology Co.,Ltd



RadiNa Co. ,Ltd

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1. Revision History

NO.	Before	After	Reason	Date
1				
2				
3				
4				
5				
6				
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12				
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2.Product Information

2.1 General Features

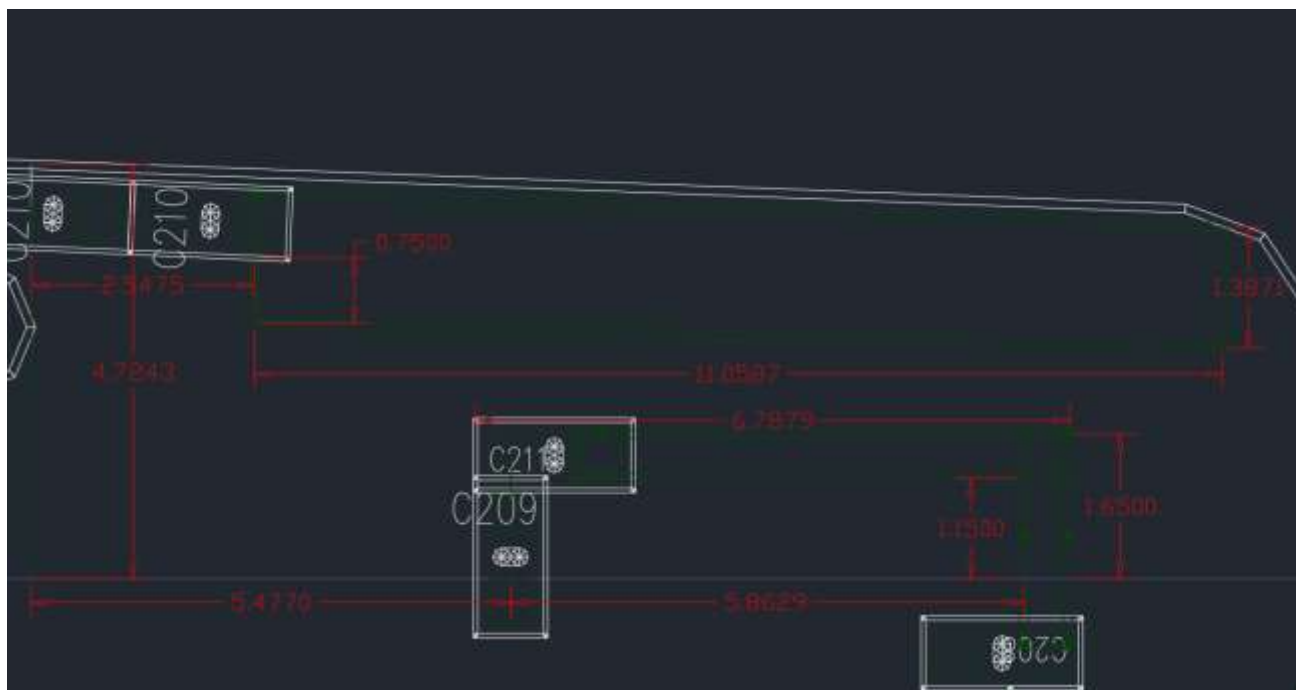
PART NUMBER	GradiANT
ANTENNA TYPE	PCB pattern Antenna
APPLICATIONS	MESH

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	

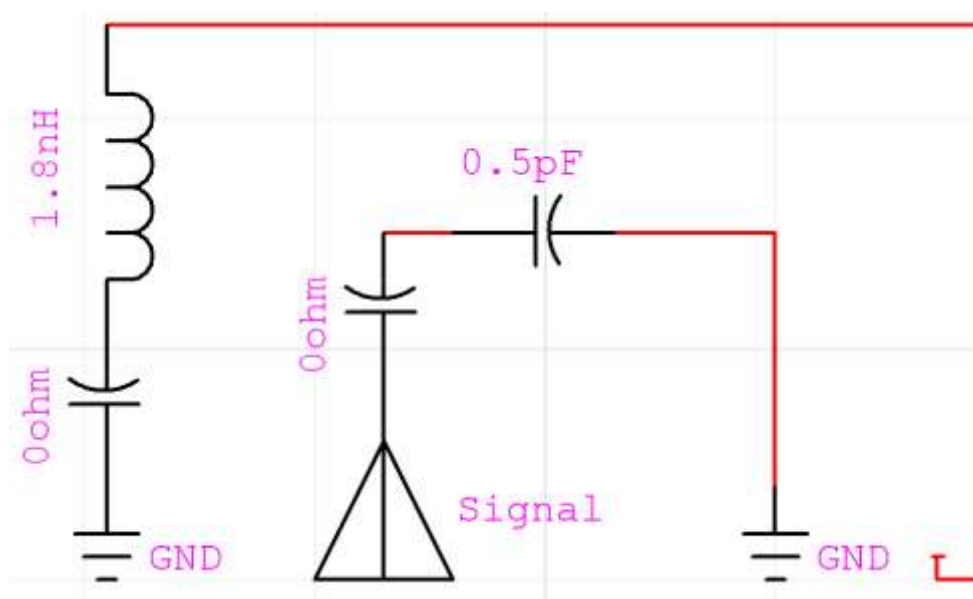
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3. Pattern Specifications



4. Matching Network

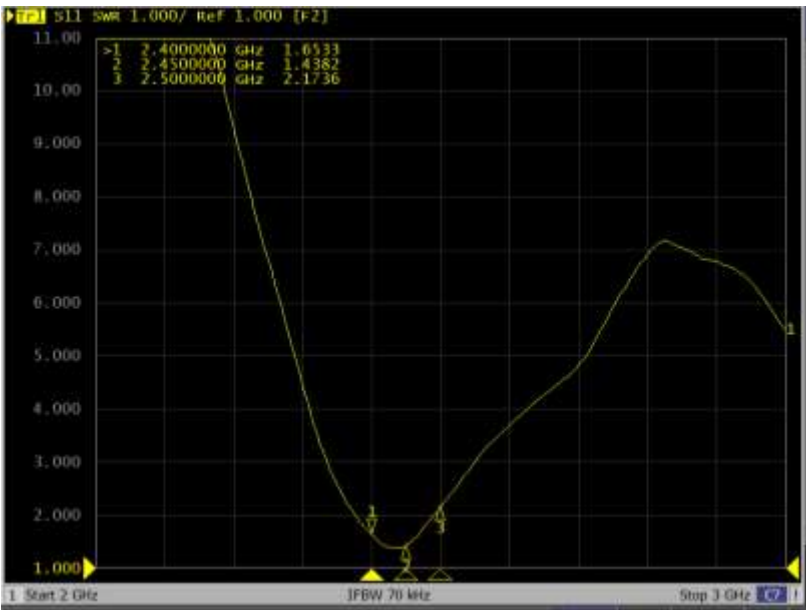
Capacitor value can be changed depending on different situation



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5. Electrical Characterristics

5.1 VSWR

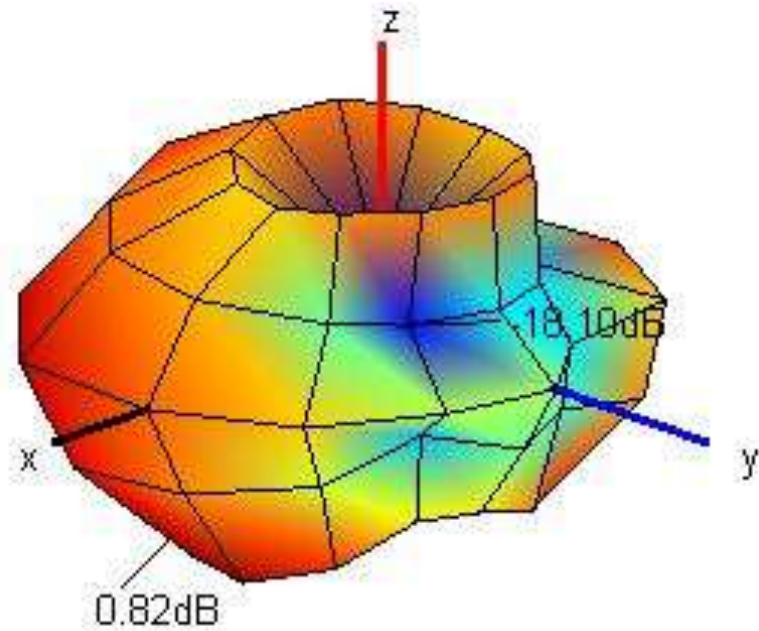


5.2 SMITH CHART

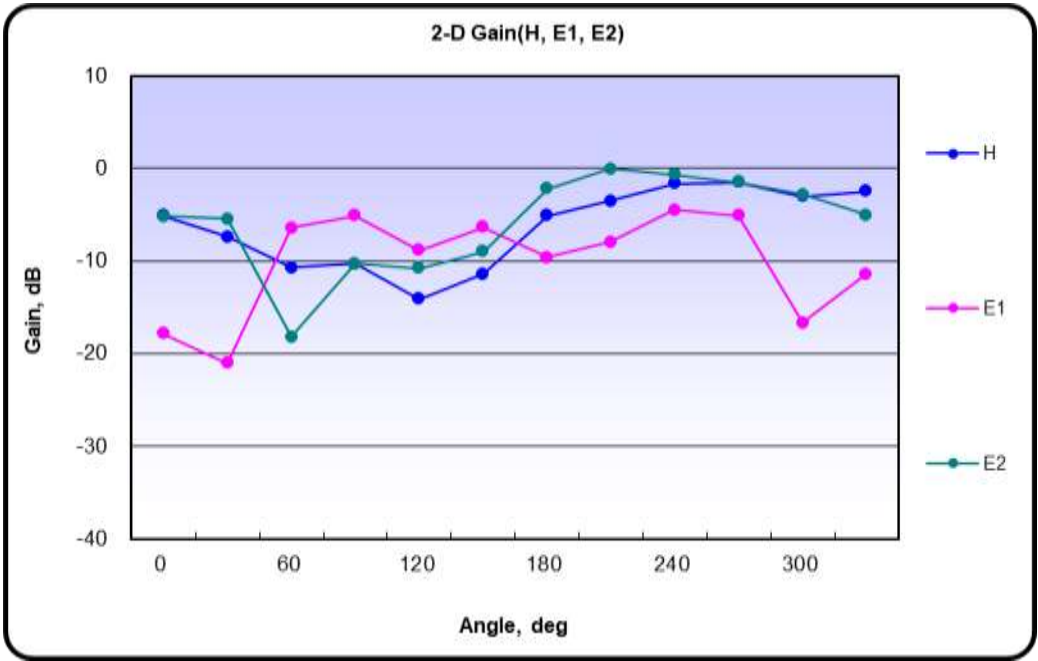


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5.3 3D-PLOTs



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]	-3.62	-3.65	-3.70	-3.65	-3.73	-3.73	-3.68	-3.70	-3.97	-3.95
Efficiency [%]	43.4	43.1	42.6	43.2	42.4	42.4	42.8	42.7	40.1	40.3
TRG _θ [dB]	-5.37	-5.39	-5.44	-5.33	-5.48	-5.53	-5.41	-5.40	-5.74	-5.68
Gain _{θ Peak} [dB]	0.12	0.44	0.23	0.34	0.45	0.41	0.44	0.45	0.32	0.49
Gain _{θ Min} [dB]	-24.78	-25.62	-25.74	-21.39	-24.90	-21.60	-24.82	-25.65	-24.16	-29.88
TRG _φ [dB]	-8.43	-8.46	-8.52	-8.57	-8.50	-8.43	-8.52	-8.59	-8.71	-8.77
Gain _{φ Peak} [dB]	-1.05	-0.88	-1.50	-0.98	-0.65	-0.60	-1.24	-0.53	-1.33	-1.06
Gain _{φ Min} [dB]	-28.11	-28.50	-26.45	-24.63	-28.35	-24.37	-52.65	-26.00	-36.58	-27.33
UHRG [dB]	-8.06	-8.18	-8.26	-8.17	-8.25	-8.29	-8.28	-8.30	-8.66	-8.61
UHRG/TRG [%]	36.0	35.2	35.0	35.3	35.3	35.0	34.7	34.7	33.9	34.2
H-Plane	-4.23	-4.19	-4.34	-4.20	-4.42	-4.37	-4.28	-4.32	-4.75	-4.78
E1-Plane, AVG [dB]	-7.37	-7.37	-7.65	-7.41	-7.74	-7.74	-7.62	-7.68	-8.10	-7.89
E2-Plane, AVG [dB]	-3.78	-3.87	-3.68	-3.66	-3.89	-3.90	-3.70	-3.73	-4.16	-3.89
Peak Gain [dB]	1.14	1.27	1.12	1.23	1.17	1.32	1.00	1.24	1.06	0.82
Directivity [dB]	4.76	4.92	4.82	4.88	4.90	5.05	4.68	4.94	5.02	4.77
Minimum Gain [dB]	-14.70	-15.34	-14.75	-15.26	-16.86	-18.11	-18.94	-20.89	-18.39	-18.10

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-4.03	-3.75	-3.98	-4.10	-4.34	-4.35	-4.21	-4.61	-4.56	-4.52
Efficiency [%]	39.6	42.2	40.0	38.9	36.8	36.8	38.0	34.6	35.0	35.4
TRG _θ [dB]	-5.81	-5.43	-5.71	-5.85	-6.08	-6.02	-5.81	-6.29	-6.19	-6.07
Gain _{θ Peak} [dB]	0.62	0.72	0.14	0.29	0.00	-0.08	0.10	-0.17	-0.16	-0.07
Gain _{θ Min} [dB]	-25.51	-27.27	-32.86	-23.68	-24.06	-32.68	-34.13	-27.73	-42.21	-28.16
TRG _φ [dB]	-8.76	-8.67	-8.82	-8.89	-9.18	-9.29	-9.30	-9.54	-9.60	-9.74
Gain _{φ Peak} [dB]	-1.03	-0.76	-1.05	-1.20	-1.19	-1.94	-1.56	-1.34	-2.39	-1.40
Gain _{φ Min} [dB]	-33.81	-30.12	-34.78	-24.16	-31.88	-35.98	-30.19	-41.62	-33.88	-28.22
UHRG [dB]	-8.78	-8.43	-8.64	-8.84	-9.14	-9.16	-9.04	-9.61	-9.48	-9.50
UHRG/TRG [%]	33.5	34.0	34.2	33.5	33.2	33.0	32.8	31.6	32.2	31.7
H-Plane	-4.94	-4.45	-4.81	-4.85	-5.02	-4.97	-4.78	-5.49	-5.25	-5.20
E1-Plane, AVG [dB]	-8.08	-7.58	-7.85	-8.08	-8.19	-7.86	-7.81	-8.59	-8.25	-8.15
E2-Plane, AVG [dB]	-4.22	-3.86	-4.08	-4.29	-4.51	-4.49	-4.61	-4.79	-4.61	-4.59
Peak Gain [dB]	0.92	1.53	0.98	0.69	0.55	0.48	1.37	0.53	0.41	0.42
Directivity [dB]	4.95	5.27	4.96	4.79	4.89	4.82	5.57	5.14	4.97	4.93
Minimum Gain [dB]	-18.79	-25.45	-20.90	-18.81	-23.40	-16.67	-17.33	-18.78	-17.98	-20.46

Average Efficiency	-3.98dBi	40.01%
Peak Gain	1.53dBi	