

2024.10.11

RA-N2410-101

APPROVAL SHEET

MODEL : STEK
Antenna layout

Review	Consent	Approval

Messrs. SENA Technology Co.,Ltd



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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

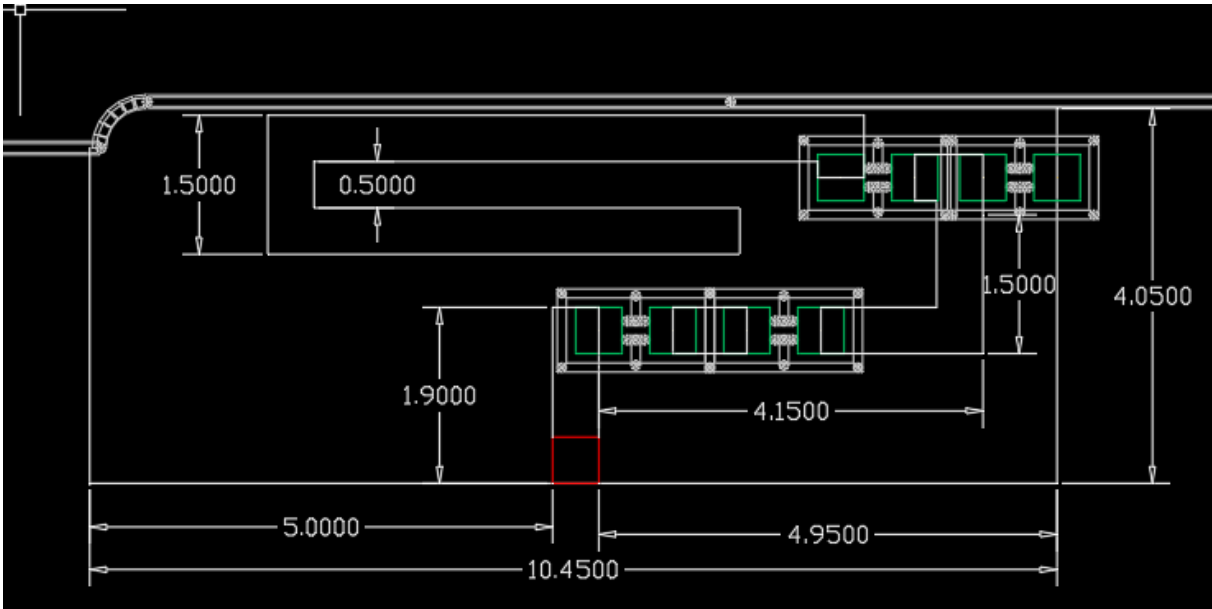
PART NUMBER	GradiANT
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	bluetooth

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	

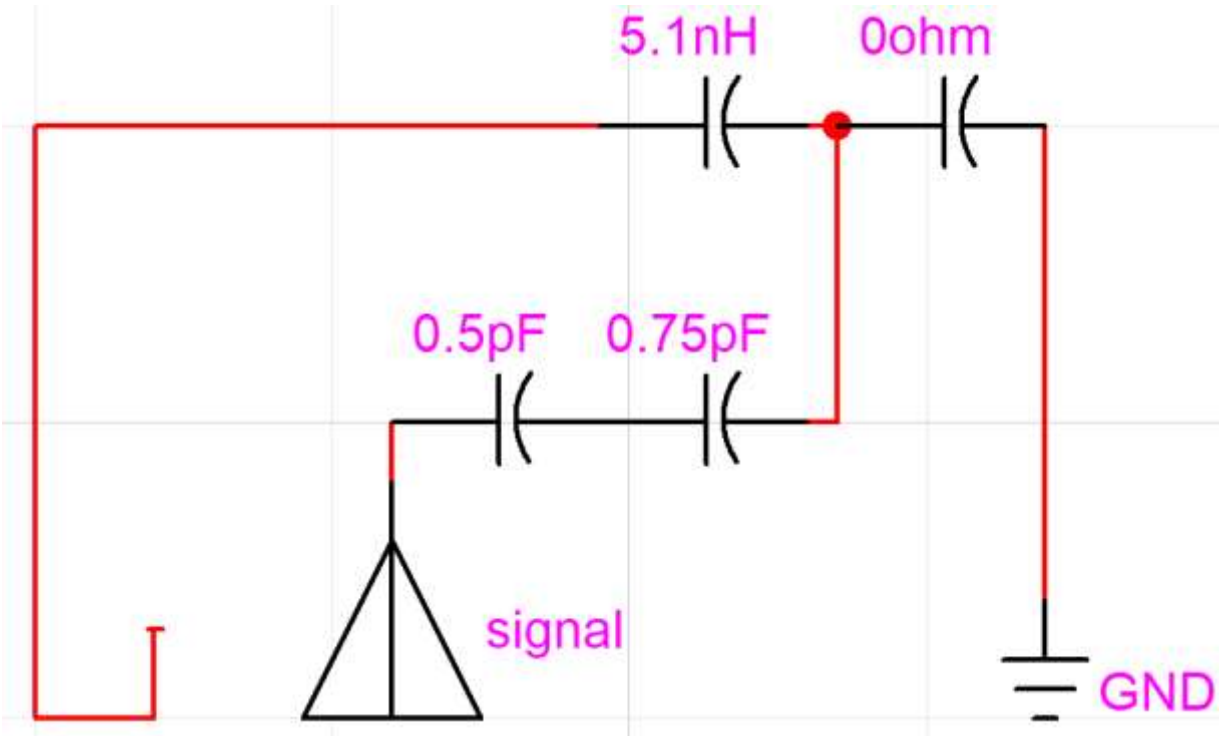
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3. Pattern Specifications



4. Matching Network

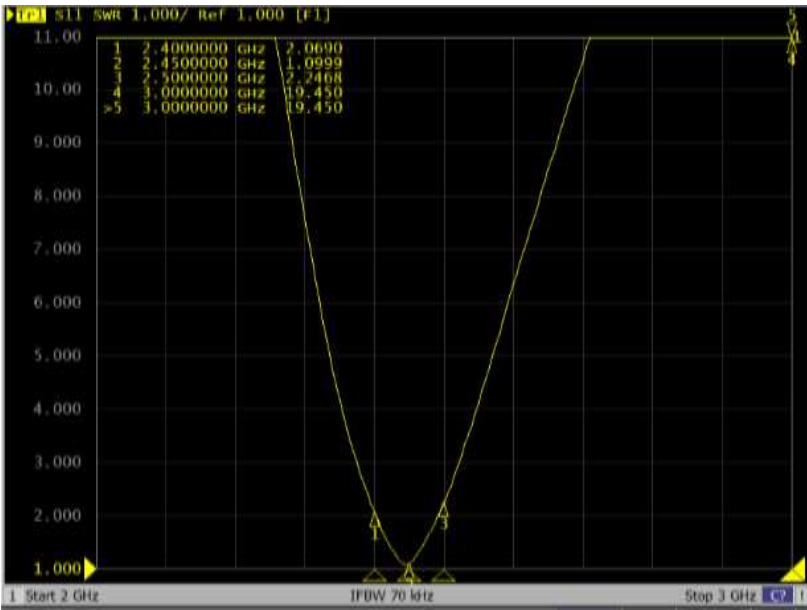
Capacitor value can be changed depending on different situation



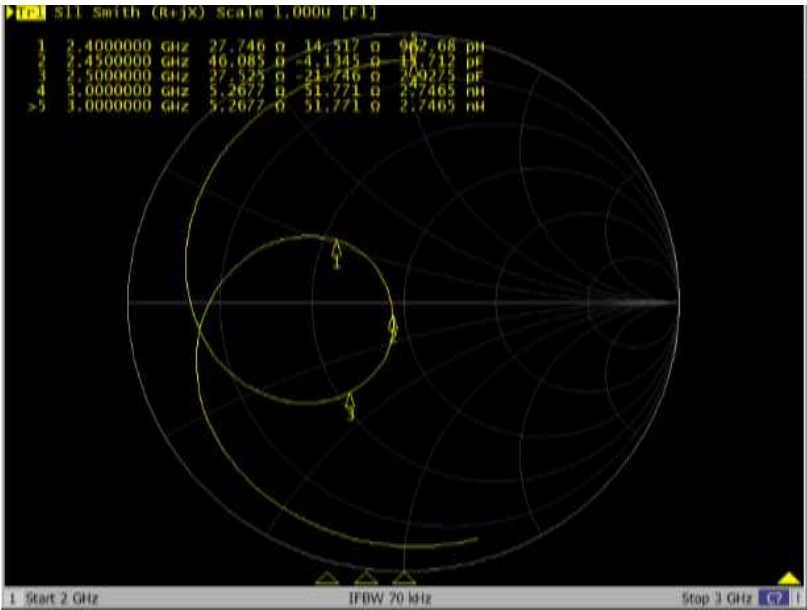
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5. Electrical Characterristics

5.1 VSWR

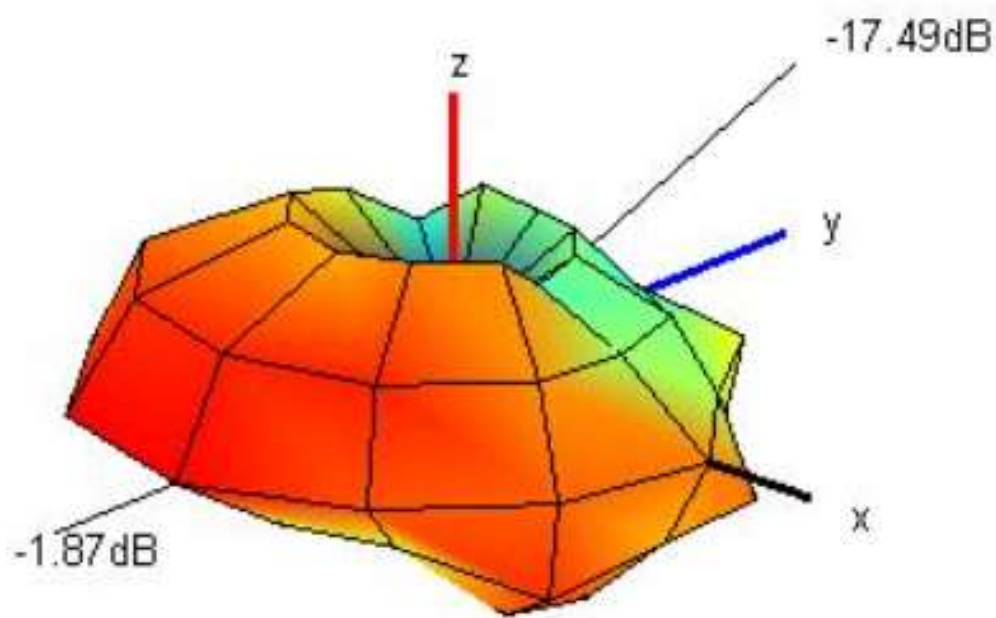


5.2 SMITH CHART

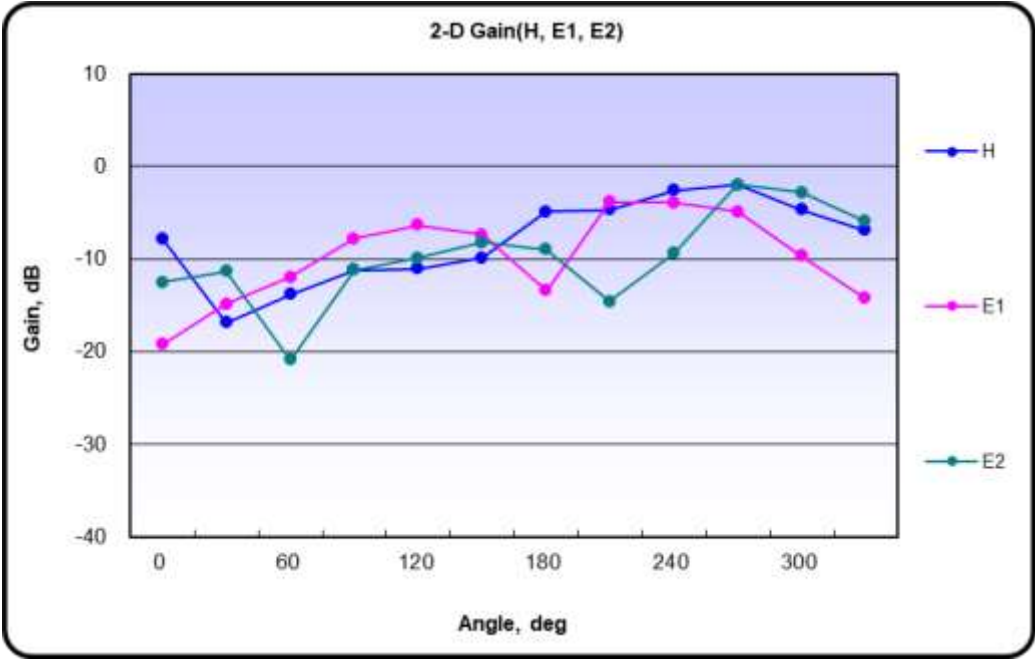


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5.3 3D-PLOTs



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]	-7.53	-7.35	-6.96	-6.87	-6.66	-6.48	-6.32	-6.12	-6.10	-5.84
Efficiency [%]	17.6	18.4	20.2	20.6	21.6	22.5	23.3	24.4	24.5	26.0
TRG _θ [dB]	-9.44	-9.16	-8.68	-8.63	-8.30	-8.17	-7.90	-7.69	-7.58	-7.26
Gain _{θ Peak} [dB]	-4.19	-3.59	-3.05	-3.15	-2.99	-2.47	-2.66	-2.43	-2.08	-1.97
Gain _{θ Min} [dB]	-25.49	-27.92	-21.04	-24.56	-21.64	-23.21	-24.06	-22.54	-22.51	-20.93
TRG _φ [dB]	-12.02	-12.01	-11.79	-11.64	-11.70	-11.39	-11.48	-11.28	-11.50	-11.41
Gain _{φ Peak} [dB]	-7.26	-6.67	-6.72	-6.94	-6.38	-6.42	-5.67	-6.34	-5.91	-6.56
Gain _{φ Min} [dB]	-34.87	-48.31	-25.87	-26.13	-29.01	-27.82	-27.51	-27.34	-30.05	-27.26
UHRG [dB]	-11.16	-10.81	-10.44	-10.30	-10.15	-9.80	-9.72	-9.38	-9.38	-9.21
UHRG/TRG [%]	43.4	45.1	44.8	45.4	44.8	46.5	45.7	47.1	47.0	46.1
H-Plane	-9.24	-8.80	-8.21	-8.12	-7.88	-7.31	-7.41	-6.95	-6.86	-6.21
E1-Plane, AVG [dB]	-9.88	-9.66	-9.24	-9.27	-8.96	-8.96	-8.44	-8.25	-8.22	-7.75
E2-Plane, AVG [dB]	-8.91	-8.58	-8.13	-8.33	-8.05	-7.60	-7.65	-7.64	-7.53	-7.46
Peak Gain [dB]	-3.53	-2.69	-2.81	-3.04	-2.36	-2.24	-2.36	-2.34	-1.91	-1.87
Directivity [dB]	4.01	4.66	4.14	3.83	4.31	4.24	3.96	3.78	4.19	3.97
Minimum Gain [dB]	-16.65	-19.96	-15.45	-18.50	-16.57	-16.61	-14.99	-16.09	-15.37	-17.49

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-5.91	-5.85	-5.88	-5.87	-5.90	-6.08	-6.18	-6.69	-6.83	-6.71
Efficiency [%]	25.7	26.0	25.8	25.9	25.7	24.6	24.1	21.4	20.8	21.4
TRG _θ [dB]	-7.26	-7.11	-7.18	-7.06	-7.06	-7.18	-7.26	-7.76	-7.82	-7.67
Gain _{θ Peak} [dB]	-2.31	-1.94	-2.03	-2.03	-1.74	-2.17	-1.76	-2.76	-3.11	-2.68
Gain _{θ Min} [dB]	-24.02	-29.29	-22.80	-19.76	-23.28	-22.82	-24.58	-19.20	-21.81	-21.60
TRG _φ [dB]	-11.63	-11.87	-11.76	-12.08	-12.21	-12.59	-12.77	-13.31	-13.71	-13.72
Gain _{φ Peak} [dB]	-6.80	-7.46	-6.86	-6.79	-7.50	-7.56	-7.62	-8.34	-8.70	-8.63
Gain _{φ Min} [dB]	-50.88	-30.27	-33.40	-33.08	-32.31	-33.86	-31.28	-25.66	-32.96	-52.65
UHRG [dB]	-9.24	-9.17	-9.14	-9.12	-9.19	-9.44	-9.56	-10.12	-10.20	-10.16
UHRG/TRG [%]	46.4	46.6	47.2	47.3	46.9	46.2	45.9	45.4	45.9	45.2
H-Plane	-6.25	-6.12	-6.07	-6.07	-5.73	-5.83	-6.08	-6.48	-6.46	-6.45
E1-Plane, AVG [dB]	-7.58	-7.58	-7.68	-7.97	-7.78	-7.76	-7.76	-8.34	-8.63	-8.16
E2-Plane, AVG [dB]	-7.39	-7.26	-7.51	-7.32	-7.22	-7.61	-7.67	-8.27	-8.34	-8.35
Peak Gain [dB]	-2.10	-1.85	-1.80	-1.77	-1.66	-1.86	-1.56	-2.49	-2.79	-2.37
Directivity [dB]	3.81	4.00	4.08	4.10	4.25	4.22	4.62	4.20	4.04	4.34
Minimum Gain [dB]	-15.92	-18.79	-17.07	-16.17	-14.71	-16.13	-18.20	-15.09	-16.49	-15.63

Average Efficiency	-6.38dBi	23.02%
Peak Gain	-1.56dBi	