

25.06.25

RA-N2506-10

APPROVAL SHEET

MODEL : SRL3+
Bluetooth
Antenna layout

Review	Consent	Approval

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1. Revision History

NO.	Before	After	Reason	Date
1				
2				
3				
4				
5				
6				
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12				
13				

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2.Product Information

2.1 General Features

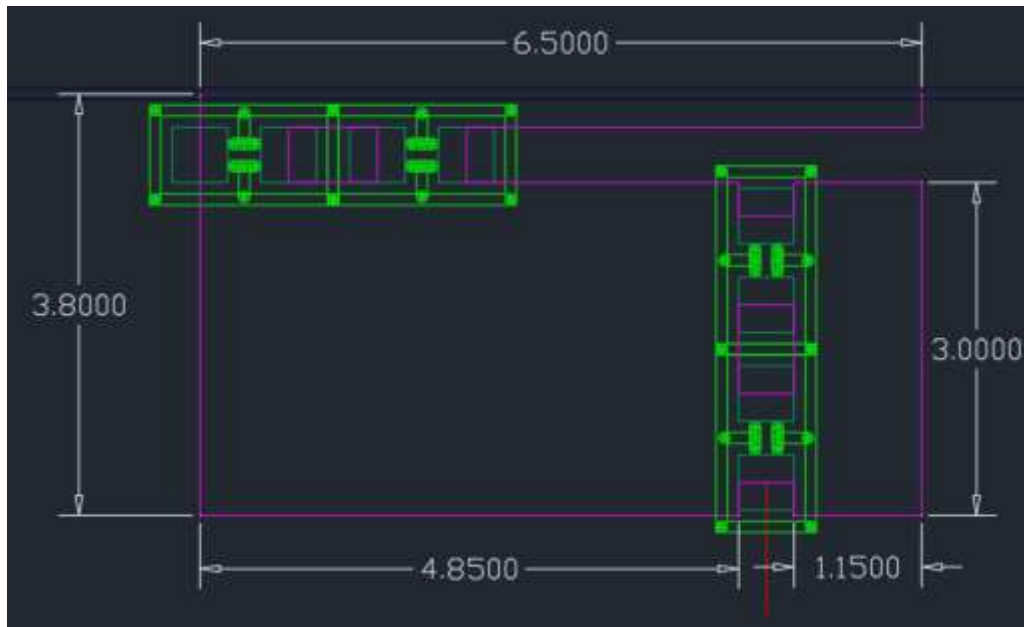
PART NUMBER	GradiANT
ANTENNA TYPE	PCB pattern Antenna
APPLICATIONS	Bluetooth

2.2 Electrical Specifications

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

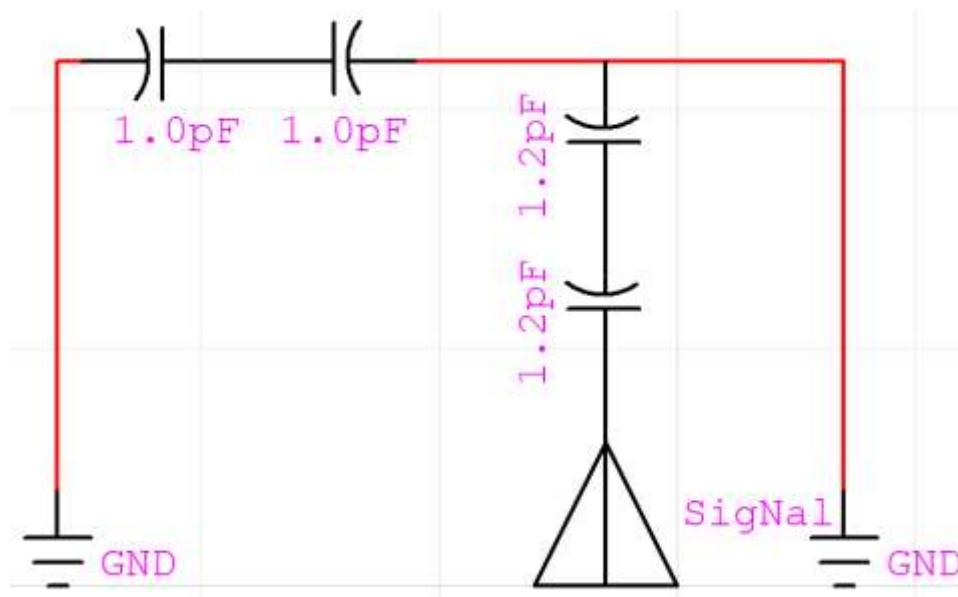
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3. Pattern Specifications



4. Matching Network

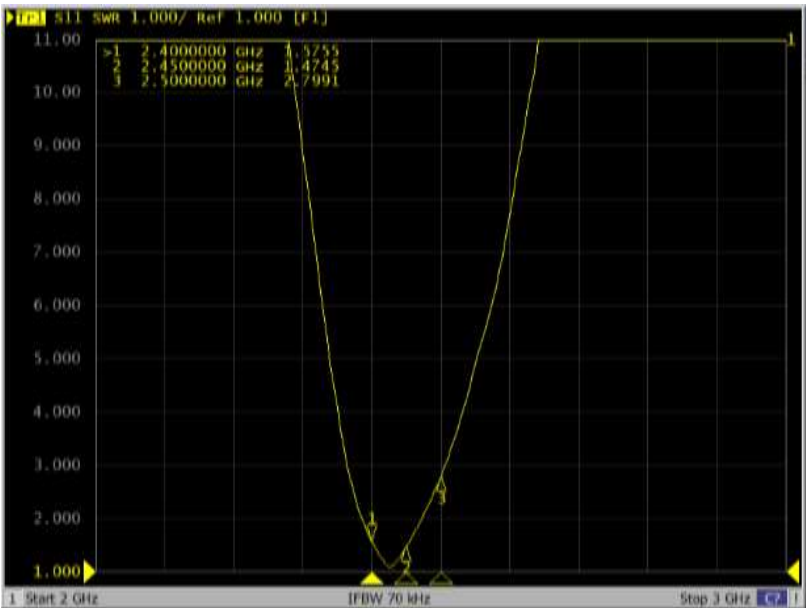
Capacitor value can be changed depending on different situation



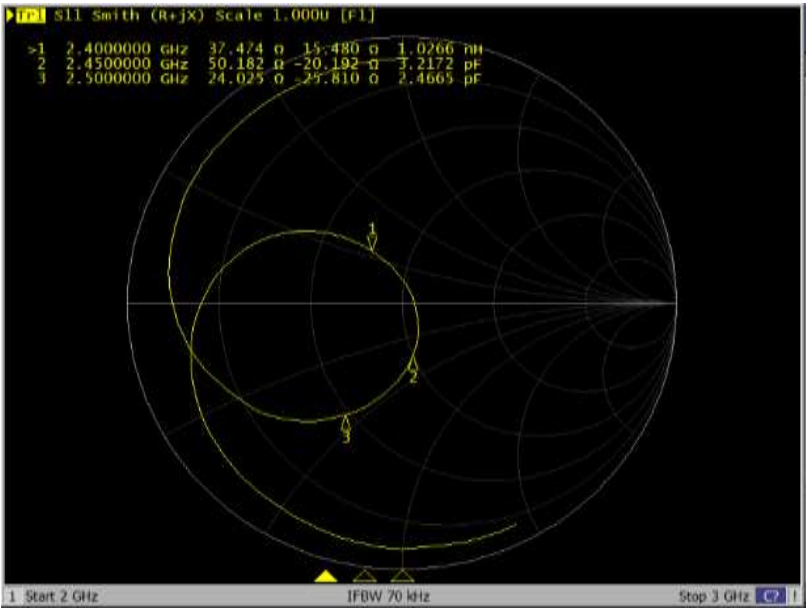
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5. Electrical Characterristics

5.1 VSWR

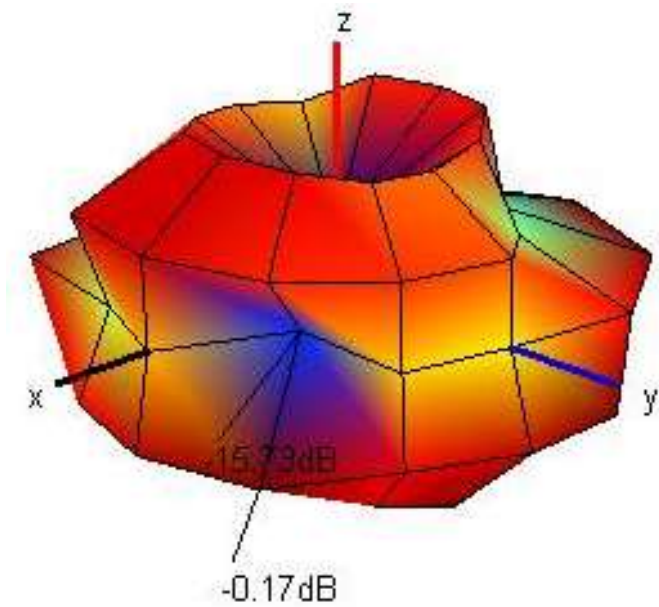


5.2 SMITH CHART

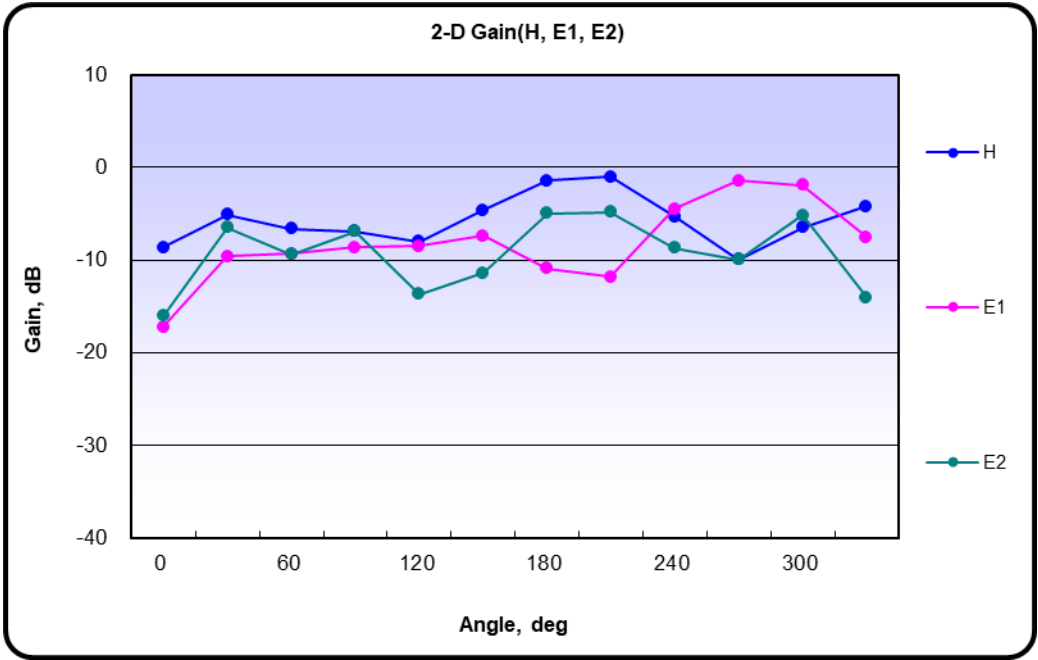


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5.3
3D-PLOTs (2445MHz)



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]	-4.57	-4.44	-4.29	-4.35	-4.20	-4.13	-3.90	-3.79	-3.95	-3.98
Efficiency [%]	34.9	36.0	37.2	36.7	38.0	38.6	40.7	41.8	40.3	40.0
TRG _θ [dB]	-7.54	-7.40	-7.32	-7.29	-7.23	-7.17	-6.82	-6.68	-7.01	-6.77
Gain _{θ Peak} [dB]	-0.75	-0.21	-0.78	-0.42	-0.59	-0.47	-0.46	-0.35	-0.71	-0.84
Gain _{θ Min} [dB]	-25.17	-20.03	-19.40	-20.30	-18.83	-19.87	-18.33	-23.06	-21.17	-20.36
TRG _φ [dB]	-7.63	-7.51	-7.28	-7.43	-7.19	-7.12	-7.01	-6.92	-6.90	-7.21
Gain _{φ Peak} [dB]	-2.09	-2.03	-1.83	-1.38	-1.60	-1.01	-1.07	-1.17	-1.06	-1.13
Gain _{φ Min} [dB]	-25.04	-28.92	-24.70	-28.40	-44.89	-41.98	-23.52	-21.79	-22.66	-26.86
UHRG [dB]	-8.04	-7.97	-7.74	-7.94	-7.73	-7.57	-7.36	-7.26	-7.43	-7.43
UHRG/TRG [%]	44.9	44.3	45.2	43.7	44.3	45.4	45.1	45.0	44.9	45.1
H-Plane	-8.51	-8.39	-7.91	-7.92	-7.66	-7.34	-6.84	-6.72	-6.98	-6.37
E1-Plane, AVG [dB]	-5.79	-6.11	-5.80	-5.89	-5.92	-6.25	-5.71	-5.68	-6.05	-5.75
E2-Plane, AVG [dB]	-8.12	-8.08	-7.97	-8.06	-8.08	-8.25	-7.72	-7.59	-7.58	-7.26
Peak Gain [dB]	-0.16	0.21	-0.27	0.11	-0.03	-0.09	0.05	0.02	-0.13	-0.17
Directivity [dB]	4.41	4.65	4.02	4.46	4.17	4.04	3.95	3.80	3.82	3.81
Minimum Gain [dB]	-14.44	-14.72	-12.77	-15.10	-16.76	-16.11	-14.36	-13.43	-14.43	-15.73

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-4.20	-4.31	-4.34	-4.30	-4.41	-4.78	-5.03	-5.76	-5.53	-5.71
Efficiency [%]	38.0	37.0	36.8	37.2	36.2	33.3	31.4	26.5	28.0	26.8
TRG _θ [dB]	-7.04	-7.16	-7.24	-7.12	-7.22	-7.60	-7.80	-8.59	-8.28	-8.37
Gain _{θ Peak} [dB]	-1.01	-1.08	-1.31	-1.38	-1.24	-1.36	-1.59	-2.65	-1.66	-1.80
Gain _{θ Min} [dB]	-24.78	-19.42	-23.69	-22.71	-26.35	-22.53	-22.71	-22.82	-26.78	-26.82
TRG _φ [dB]	-7.39	-7.49	-7.47	-7.50	-7.63	-7.99	-8.30	-8.96	-8.83	-9.11
Gain _{φ Peak} [dB]	-1.81	-1.33	-0.83	-1.67	-1.59	-1.88	-1.77	-2.12	-2.59	-2.55
Gain _{φ Min} [dB]	-29.20	-32.12	-34.26	-32.16	-30.23	-22.74	-20.51	-20.81	-24.77	-21.08
UHRG [dB]	-7.73	-7.87	-7.90	-7.96	-8.05	-8.40	-8.86	-9.69	-9.37	-9.77
UHRG/TRG [%]	44.4	44.1	44.1	43.0	43.3	43.5	41.4	40.5	41.4	39.3
H-Plane	-6.58	-6.57	-6.58	-6.51	-6.47	-6.73	-6.76	-7.81	-7.09	-7.51
E1-Plane, AVG [dB]	-6.28	-5.96	-6.42	-6.18	-6.22	-6.40	-6.90	-7.93	-7.20	-7.17
E2-Plane, AVG [dB]	-7.82	-7.74	-7.83	-7.42	-7.53	-7.67	-7.99	-8.91	-8.14	-8.55
Peak Gain [dB]	-0.49	-0.09	-0.20	0.09	-0.27	-0.53	-0.21	-0.61	-0.84	-0.59
Directivity [dB]	3.72	4.22	4.14	4.39	4.14	4.24	4.82	5.16	4.69	5.12
Minimum Gain [dB]	-17.64	-14.40	-13.51	-16.20	-16.02	-17.01	-18.46	-15.95	-17.07	-16.18

Average Efficiency	-4.46dBi	35.78%
Peak Gain	0.21dBi	