

2021.03.26

RA-N2103-08

APPROVAL SHEET

**MODEL : STIHL
ADVANCE PROCOM
BT 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				
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10				
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12				
13				

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2.Product Information

2.1 General Features

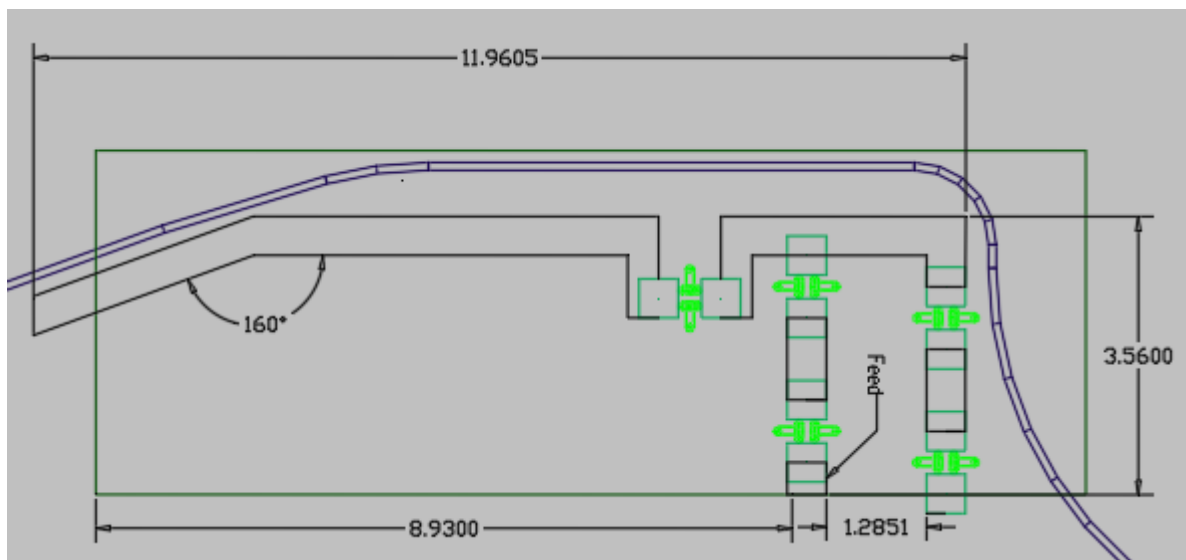
PART NUMBER	GRSN21036BT81
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	BLUETOOTH

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	

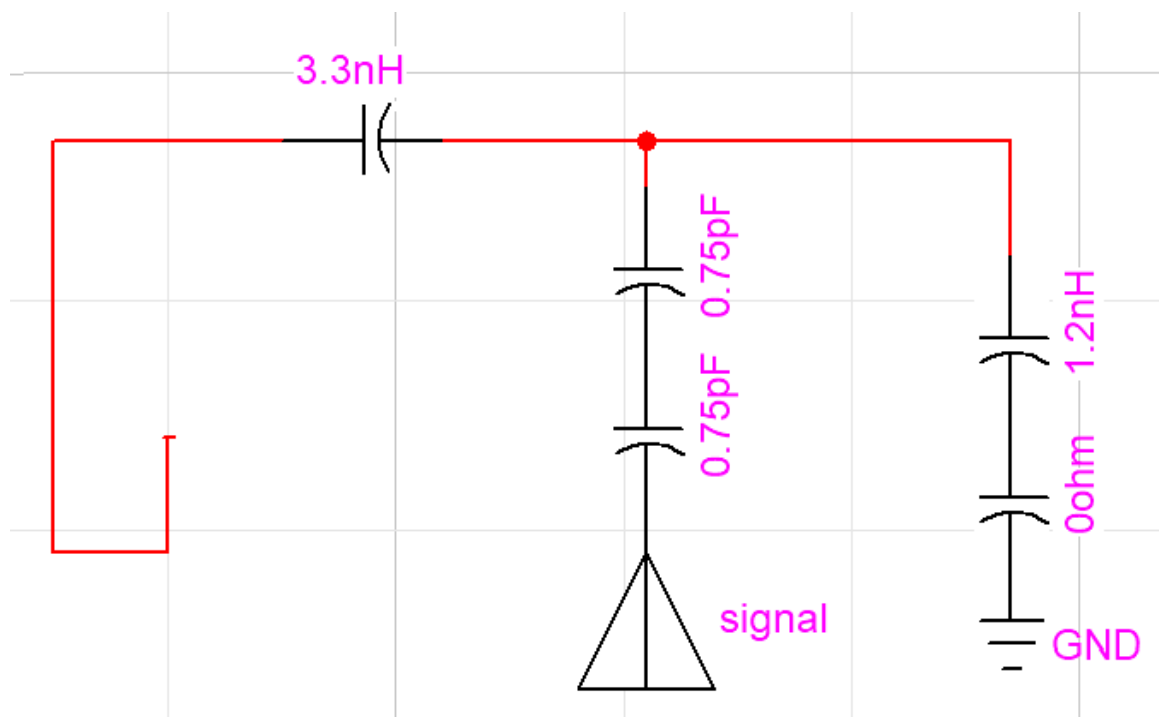
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3. Pattern Specifications



4. Matching Network

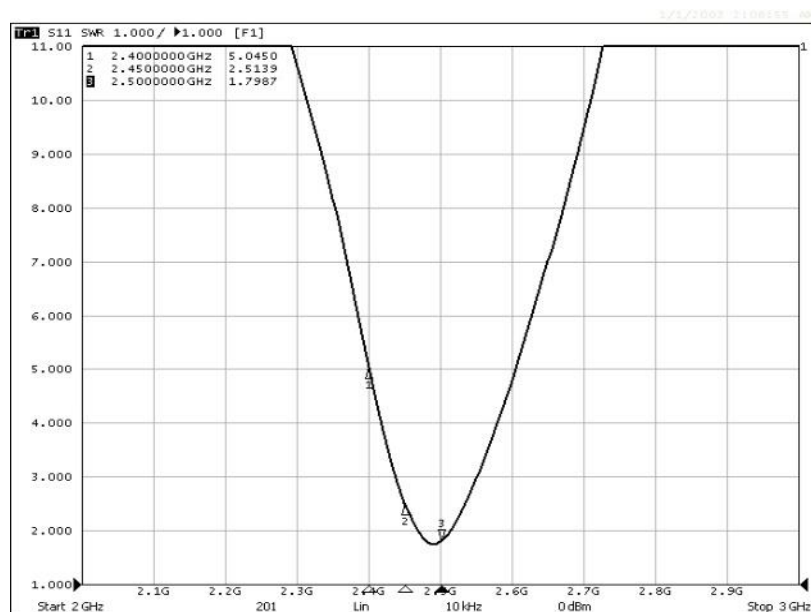
Capacitor value can be changed depending on different situation



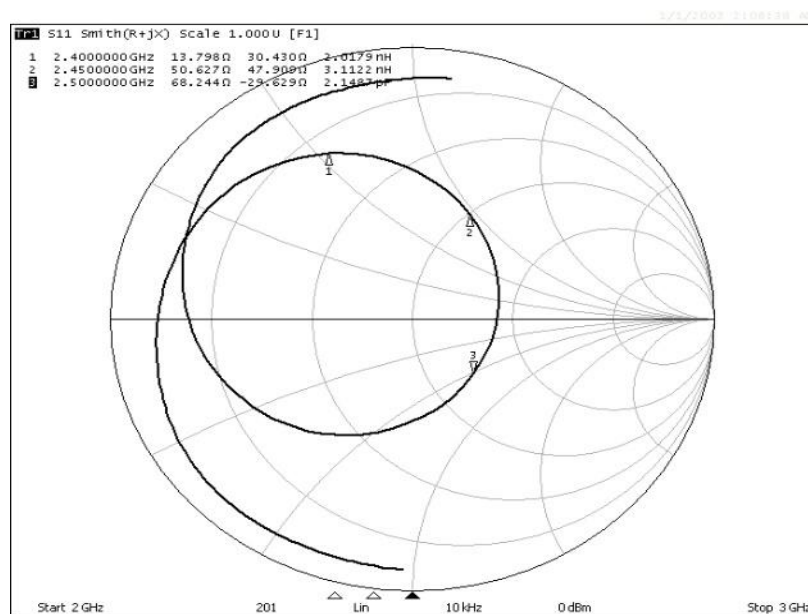
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5. Electrical Characteristics

5.1 VSWR

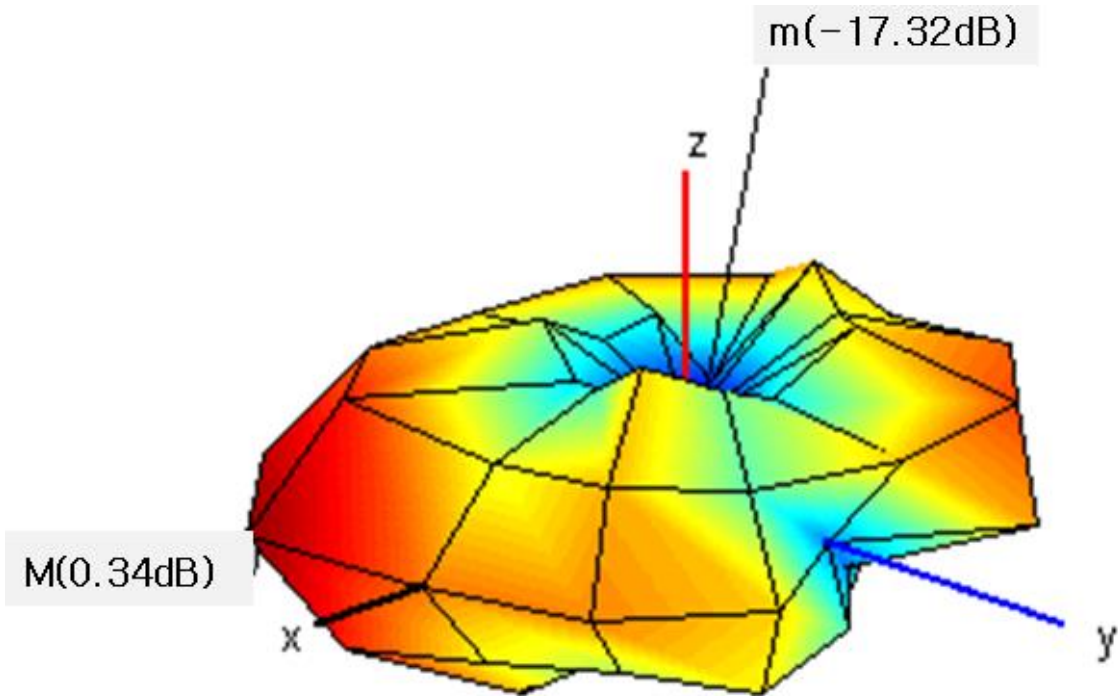


5.2 SMITH CHART

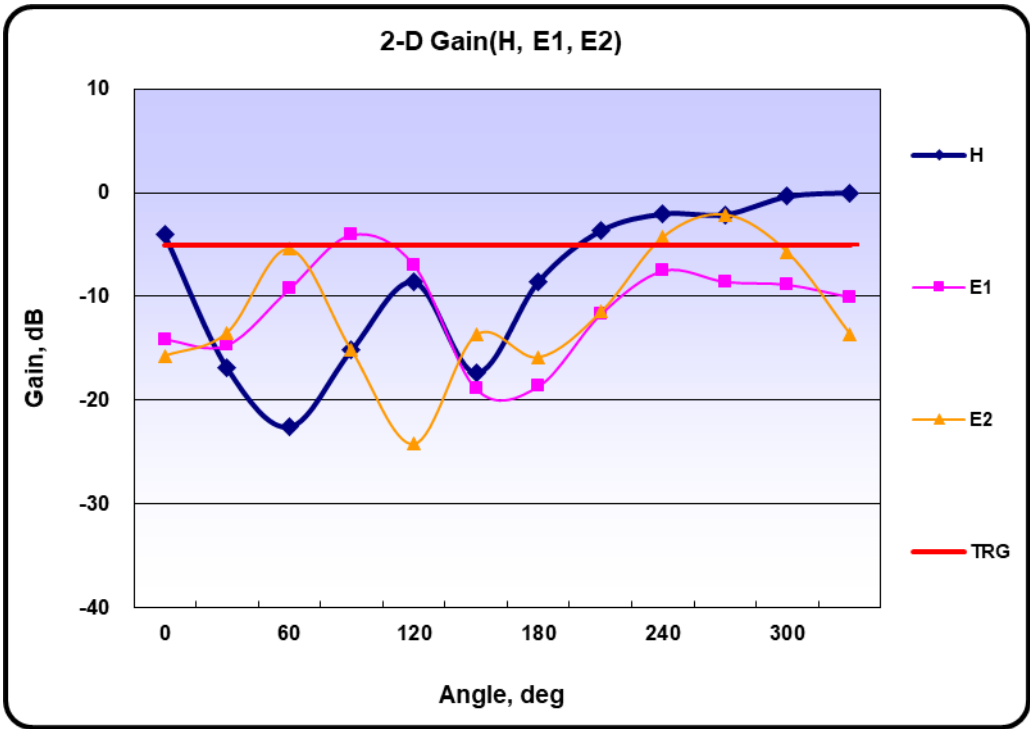


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5.3 3D-PLOTs



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)	-7.34	-7.16	-7.12	-6.52	-6.34	-5.94	-5.53	-5.06	-5.19	-5.01
Efficiency(%)	18.44	19.25	19.39	22.31	23.24	25.47	28.00	31.17	30.27	31.58
TRG(dB)	-7.34	-7.16	-7.12	-6.52	-6.34	-5.94	-5.53	-5.06	-5.19	-5.01
TRG _{Theta} (dB)	-9.89	-9.47	-9.16	-8.64	-8.56	-7.98	-7.44	-7.12	-7.17	-6.92
TRG _{Phi} (dB)	-10.87	-10.99	-11.40	-10.64	-10.32	-10.21	-10.02	-9.29	-9.55	-9.48
UHRG(dB)	-9.83	-9.73	-9.91	-9.20	-8.90	-8.68	-8.23	-7.70	-7.88	-7.70
UHRG/TRG(%)	56.45	55.30	52.67	53.88	55.46	53.20	53.67	54.49	53.77	53.78
H-Plane	-7.66	-7.05	-6.86	-6.29	-6.18	-5.65	-5.08	-4.76	-4.66	-4.43
E1-Plane, AVG(dB)	-11.55	-11.45	-11.60	-10.71	-10.79	-10.18	-9.65	-9.51	-9.65	-9.24
E2-Plane, AVG(dB)	-10.78	-10.72	-9.84	-9.52	-9.62	-9.17	-8.50	-8.30	-8.37	-8.16
Peak Gain(dB)	-3.55	-3.05	-2.80	-2.27	-2.02	-1.34	-1.00	-0.39	-0.05	0.34
Directivity(dB)	3.80	4.11	4.33	4.25	4.32	4.60	4.53	4.67	5.14	5.35
Minimum Gain(dB)	-15.79	-15.82	-16.63	-16.53	-15.34	-15.79	-16.71	-16.65	-15.80	-17.33

	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency(dB)	-4.80	-4.65	-4.81	-4.78	-4.78	-4.82	-4.94	-5.23	-5.31	-5.23
Efficiency(%)	33.15	34.26	33.01	33.27	33.23	32.94	32.05	30.00	29.44	29.98
TRG(dB)	-4.80	-4.65	-4.81	-4.78	-4.78	-4.82	-4.94	-5.23	-5.31	-5.23
TRG _{Theta} (dB)	-6.84	-6.64	-6.69	-6.79	-6.71	-6.62	-6.96	-7.09	-7.03	-6.99
TRG _{Phi} (dB)	-9.05	-9.01	-9.37	-9.10	-9.24	-9.52	-9.25	-9.81	-10.17	-10.02
UHRG(dB)	-7.40	-7.27	-7.50	-7.31	-7.32	-7.51	-7.51	-7.71	-7.88	-7.82
UHRG/TRG(%)	54.87	54.77	53.91	55.78	55.80	53.87	55.35	56.51	55.36	55.13
H-Plane	-4.35	-4.13	-4.05	-4.19	-4.15	-4.03	-4.43	-4.51	-4.52	-4.53
E1-Plane, AVG(dB)	-9.18	-8.97	-9.16	-9.06	-9.28	-9.10	-9.37	-9.58	-9.35	-9.41
E2-Plane, AVG(dB)	-8.00	-7.89	-7.82	-8.02	-7.90	-7.88	-8.07	-8.42	-8.27	-8.33
Peak Gain(dB)	0.18	0.41	0.56	0.39	0.59	0.62	0.25	0.44	0.45	0.42
Directivity(dB)	4.98	5.06	5.37	5.17	5.37	5.44	5.19	5.67	5.77	5.65
Minimum Gain(dB)	-16.69	-18.75	-16.11	-15.32	-16.70	-16.45	-20.82	-18.83	-18.54	-22.99

Average Efficiency	-5.45dBi,	28.52%
Peak Gain	0.62dBi,	