

2024.05.16

RA-N2405-92

APPROVAL SHEET

**MODEL : BRP VIBE –
UNIVERSAL
Antenna layout**

Review	Consent	Approval

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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

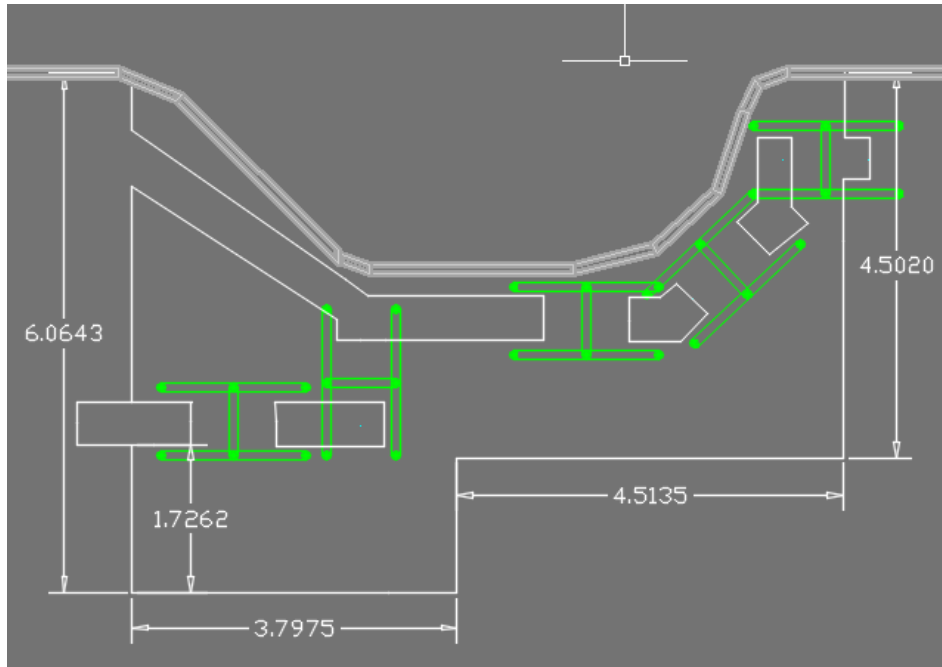
PART NUMBER	GRSN24052BT92
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	Bluetooth

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	

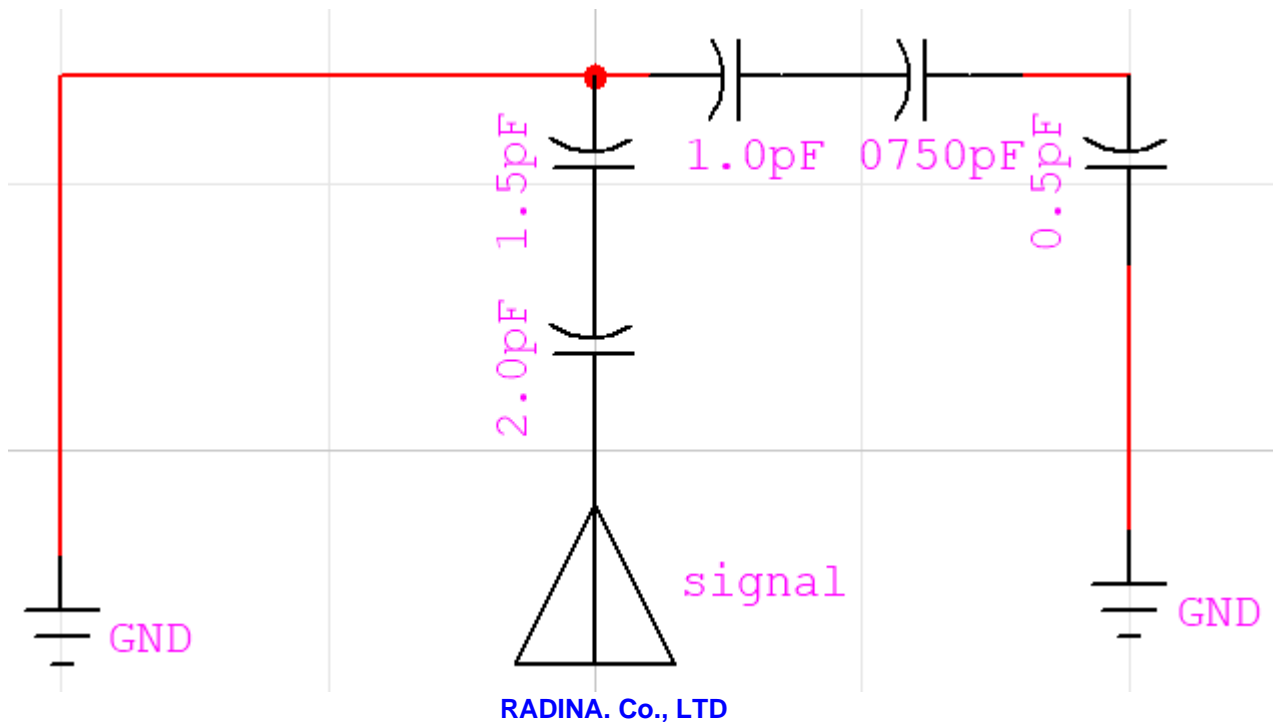
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3. Pattern Specifications



4. Matching Network

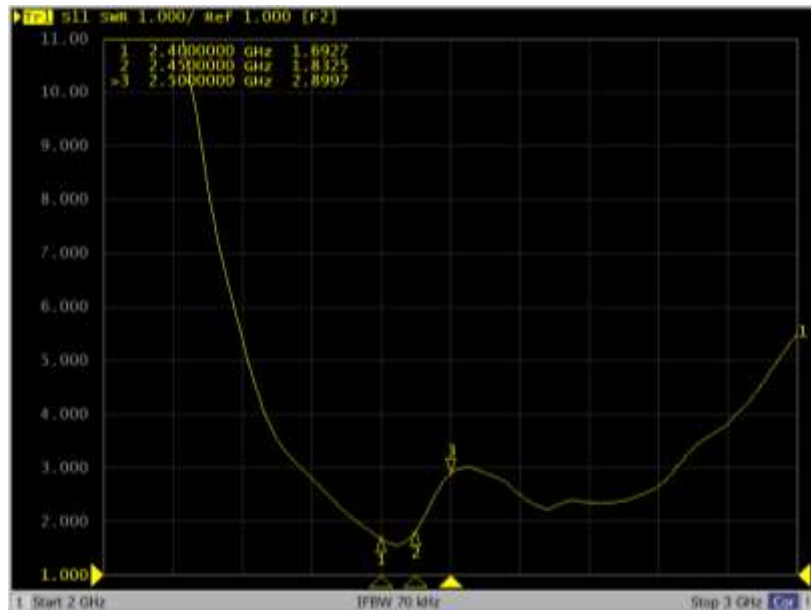
Capacitor value can be changed depending on different situation



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5. Electrical Characteristics

5.1 VSWR

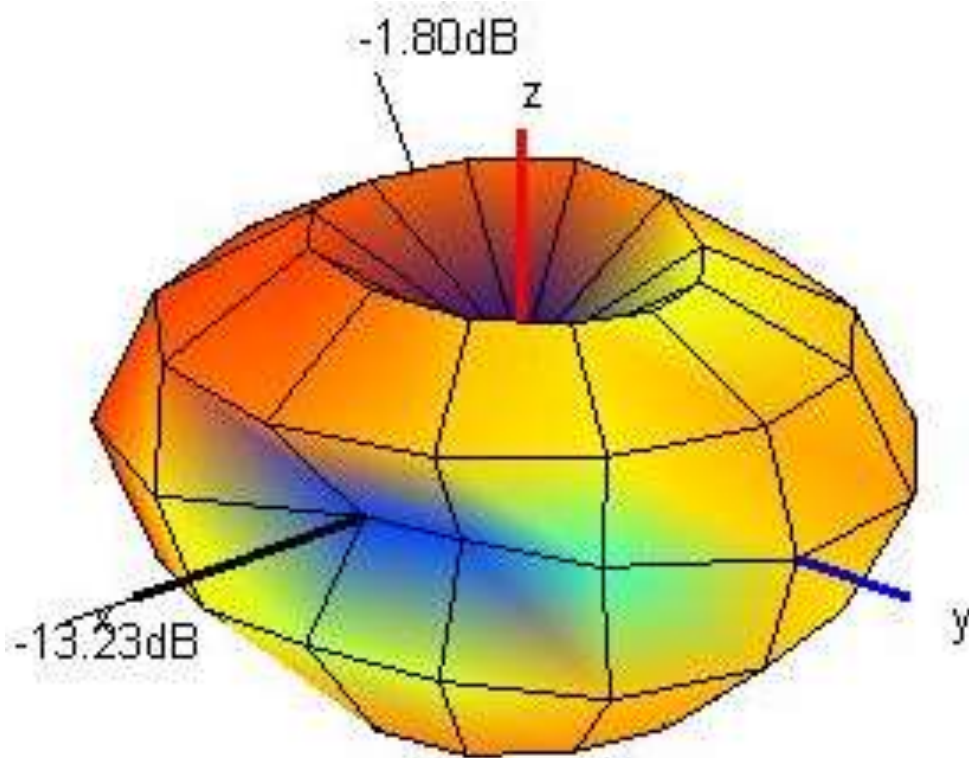


5.2 SMITH CHART

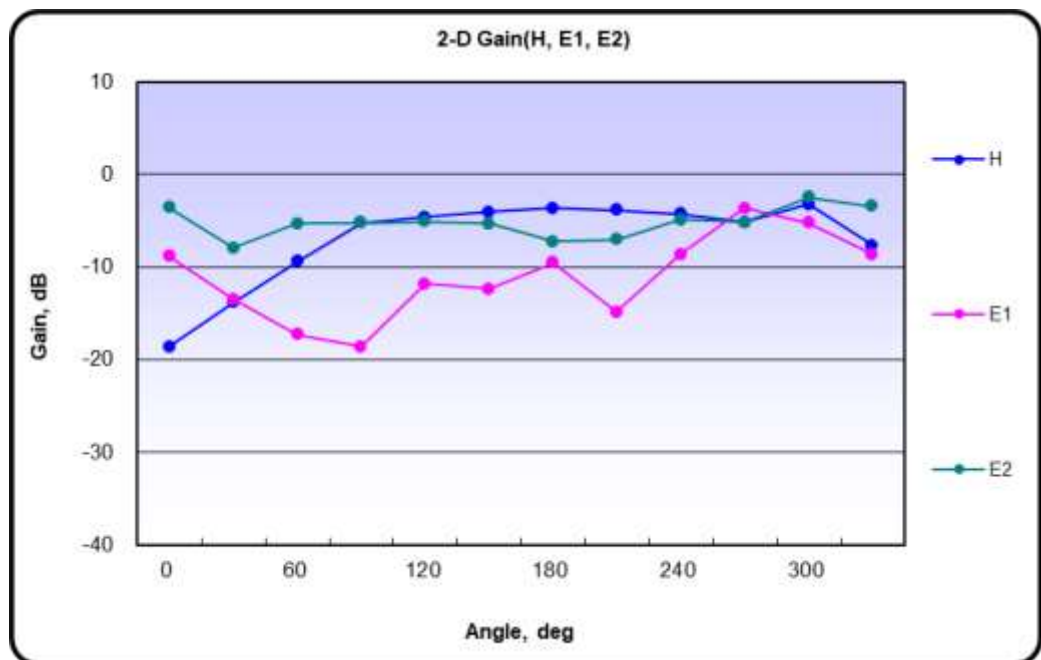



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5.3 3D-PLOTS



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]	-4.51	-4.47	-4.46	-4.42	-4.47	-4.64	-4.59	-4.62	-4.66	-4.52
Efficiency [%]	35.4	35.8	35.8	36.1	35.7	34.4	34.7	34.5	34.2	35.3
TRG _θ [dB]	-5.60	-5.58	-5.62	-5.64	-5.79	-6.01	-6.02	-6.10	-6.25	-6.19
Gain _{θ Peak} [dB]	-0.28	-0.57	-0.71	-0.98	-1.37	-1.91	-2.29	-2.86	-2.79	-2.46
Gain _{θ Min} [dB]	-21.90	-22.62	-18.90	-18.42	-22.32	-20.80	-21.94	-24.73	-22.84	-22.07
TRG _φ [dB]	-11.03	-10.91	-10.75	-10.55	-10.29	-10.31	-10.11	-9.99	-9.80	-9.48
Gain _{φ Peak} [dB]	-4.96	-4.93	-4.79	-4.02	-4.10	-4.25	-4.03	-4.16	-3.86	-3.56
Gain _{φ Min} [dB]	-23.43	-23.13	-25.44	-21.04	-21.14	-21.06	-26.50	-23.35	-23.87	-22.78
UHRG [dB]	-7.05	-7.06	-7.02	-6.97	-7.06	-7.19	-7.18	-7.17	-7.27	-7.13
UHRG/TRG [%]	55.7	55.1	55.4	55.6	55.1	55.5	55.2	55.5	54.8	54.8
H-Plane	-3.76	-3.79	-3.96	-3.98	-4.26	-4.58	-4.75	-5.11	-5.38	-5.53
E1-Plane, AVG [dB]	-6.55	-6.67	-6.89	-6.94	-7.32	-7.59	-7.91	-8.40	-8.74	-9.10
E2-Plane, AVG [dB]	-6.88	-6.75	-6.45	-6.29	-6.25	-6.23	-5.87	-5.54	-5.39	-4.97
Peak Gain [dB]	-0.13	-0.55	-0.70	-0.79	-1.16	-1.75	-2.16	-2.35	-2.48	-1.80
Directivity [dB]	4.38	3.92	3.76	3.64	3.31	2.88	2.44	2.26	2.19	2.72
Minimum Gain [dB]	-12.46	-10.64	-11.03	-11.02	-11.58	-11.30	-12.37	-12.82	-14.51	-13.23

	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-4.67	-4.89	-5.19	-5.22	-5.06	-5.07	-5.25	-5.70	-6.16	-5.85
Efficiency [%]	34.1	32.4	30.3	30.1	31.2	31.1	29.9	26.9	24.2	26.0
TRG _θ [dB]	-6.42	-6.70	-7.05	-7.14	-6.98	-6.91	-7.02	-7.47	-7.89	-7.37
Gain _{θ Peak} [dB]	-2.40	-2.38	-2.52	-2.29	-2.25	-2.07	-2.24	-2.95	-3.42	-2.92
Gain _{θ Min} [dB]	-19.95	-21.29	-20.72	-21.28	-21.78	-19.76	-21.13	-27.23	-27.72	-31.23
TRG _φ [dB]	-9.47	-9.57	-9.78	-9.68	-9.53	-9.70	-9.99	-10.46	-11.00	-11.16
Gain _{φ Peak} [dB]	-3.25	-3.44	-2.99	-2.95	-2.39	-2.73	-2.76	-2.92	-3.95	-3.69
Gain _{φ Min} [dB]	-24.17	-23.54	-22.08	-25.53	-24.14	-25.65	-25.33	-32.41	-26.34	-23.33
UHRG [dB]	-7.26	-7.51	-7.85	-7.96	-7.80	-7.89	-8.11	-8.61	-9.13	-8.79
UHRG/TRG [%]	55.1	54.6	54.2	53.3	53.2	52.3	51.7	51.3	50.5	50.8
H-Plane	-6.06	-6.52	-7.16	-7.56	-7.37	-7.35	-7.45	-7.57	-8.01	-7.17
E1-Plane, AVG [dB]	-9.88	-10.46	-11.50	-11.85	-11.84	-11.86	-11.84	-11.73	-11.87	-11.08
E2-Plane, AVG [dB]	-4.91	-4.85	-5.02	-4.83	-4.60	-4.45	-4.65	-5.18	-5.72	-5.51
Peak Gain [dB]	-2.07	-2.10	-1.91	-1.74	-1.45	-1.43	-1.84	-1.86	-2.30	-2.16
Directivity [dB]	2.60	2.78	3.28	3.48	3.61	3.64	3.40	3.85	3.86	3.70
Minimum Gain [dB]	-15.75	-15.24	-16.26	-15.95	-15.89	-16.05	-15.79	-15.08	-14.98	-17.99

Average Efficiency	-4.89dBi	32.46%
Peak Gain	-0.13dBi	