

APPROVAL SHEET

MODEL :BCM-DA100AS

Antenna layout

Review	Consent	Approval

Messrs. BnCOM Co.,Ltd



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1. Revision History

NO.	Before	After	Reason	Date
1				
2				
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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

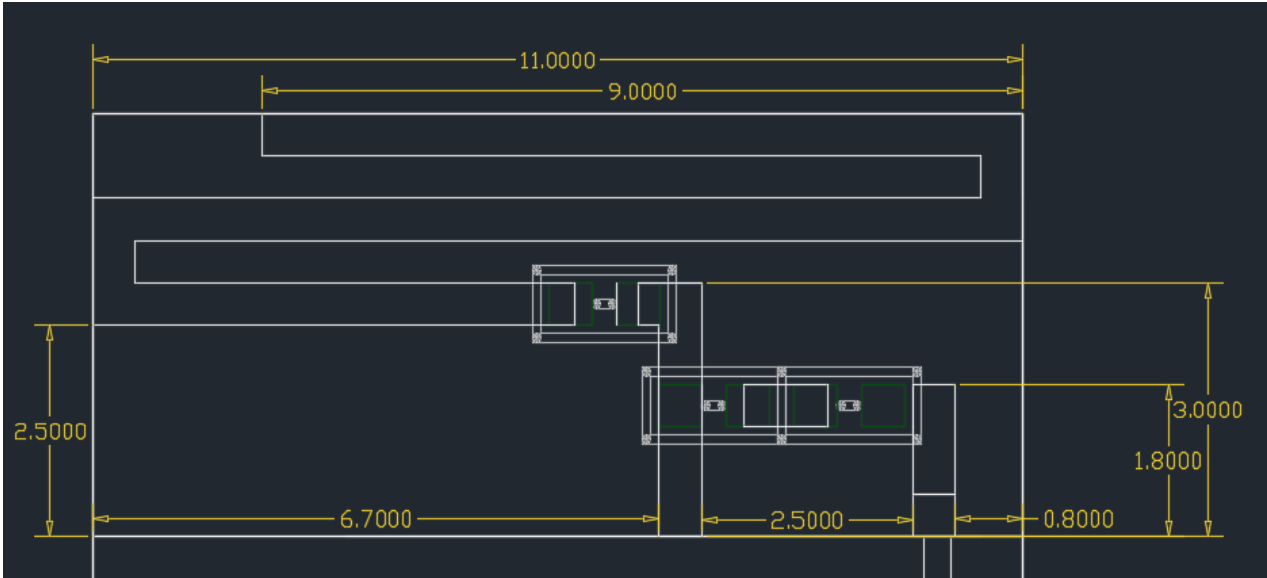
Frequency Range1 (TX)		2400MHz~2485MHz	
Frequency Range1 (RX)		2400MHz~2485MHz	
IMPEDANCE		50 Ω	
V.S.W.R	TX	2400MHz	2485MHz
		5 ↓	5 ↓
	RX	2400MHz	2485MHz
		5 ↓	5 ↓
RADIATION PATTERN		Omni-directional	
POLARIZATION		Linear	

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3. Pattern Specifications



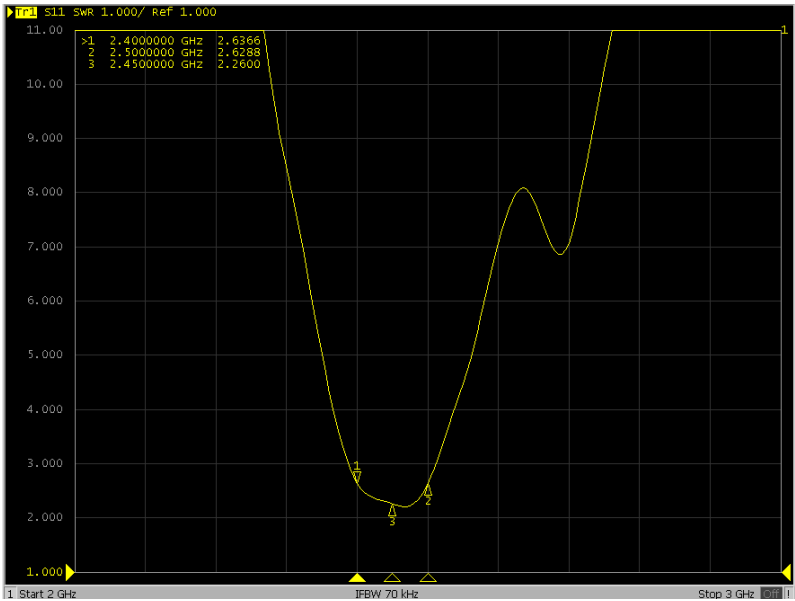
4. Matching Network

Capacitor value can be changed depending on different situation

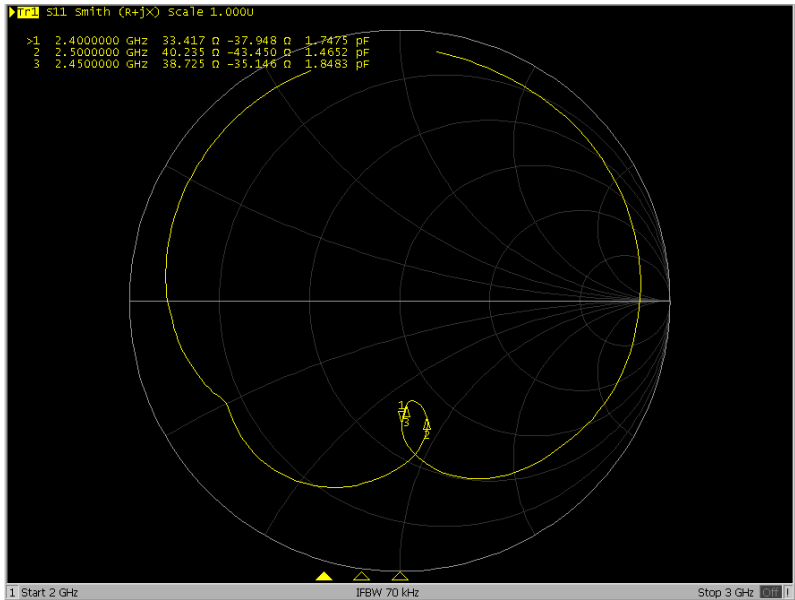
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5.Electrical Characteristics

5.1 VSWR

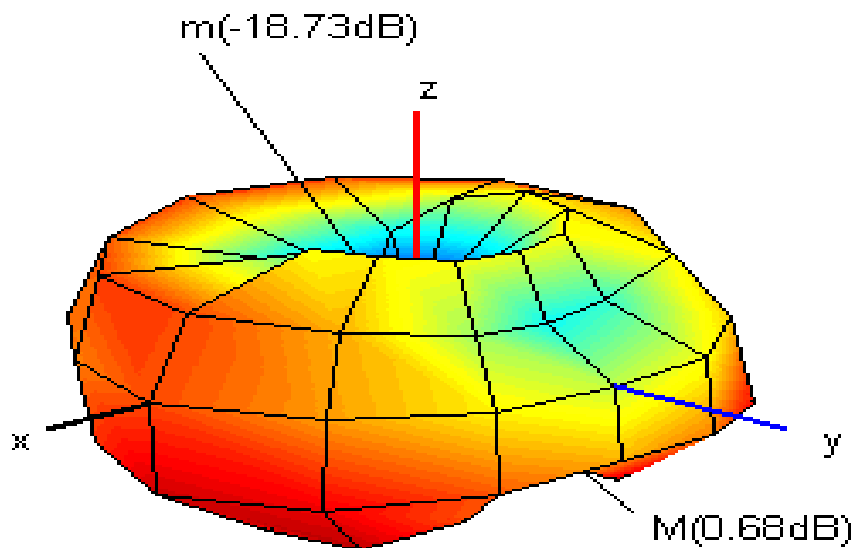


5.2 SMITH CHART

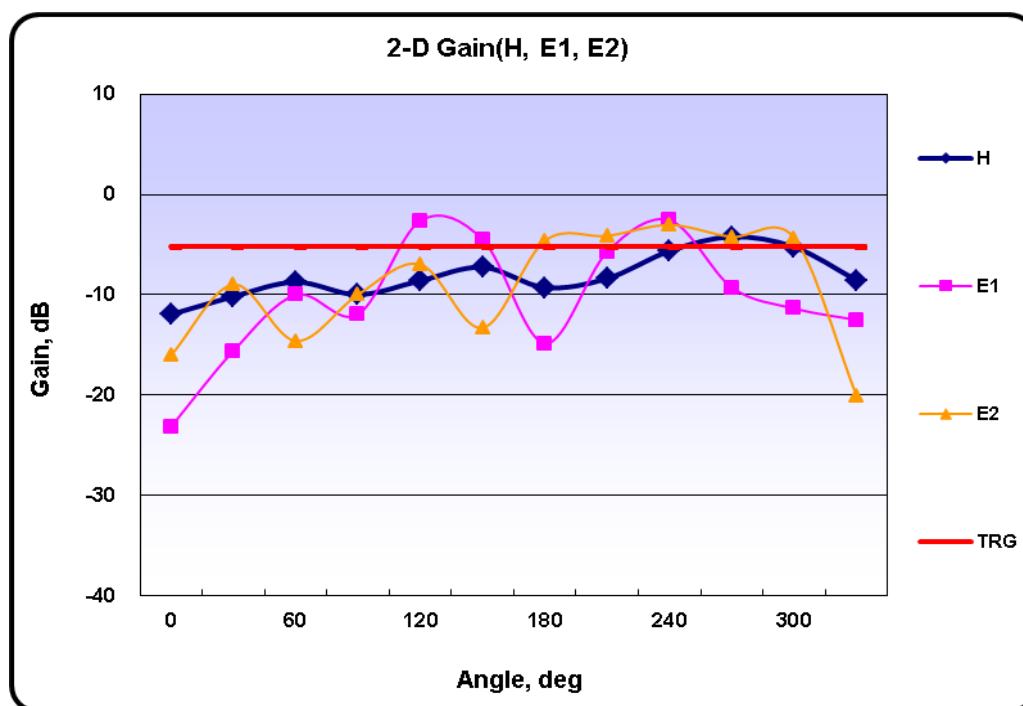


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5.3 3D-PLOTs



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)	-5.16	-5.17	-5.11	-4.90	-4.60	-4.46	-4.34	-4.32	-4.15	-3.93
Efficiency(%)	30.51	30.44	30.82	32.37	34.68	35.80	36.83	36.95	38.42	40.44
TRG(dB)	-5.16	-5.17	-5.11	-4.90	-4.60	-4.46	-4.34	-4.32	-4.15	-3.93
TRG _{Theta} (dB)	-9.14	-9.14	-9.07	-8.90	-8.64	-8.56	-8.40	-8.40	-8.30	-8.13
TRG _{Phi} (dB)	-7.37	-7.38	-7.34	-7.10	-6.78	-6.60	-6.50	-6.48	-6.27	-6.01
UHRG(dB)	-8.81	-8.77	-8.71	-8.49	-8.16	-7.97	-7.81	-7.77	-7.49	-7.20
UHRG/TRG(%)	43.11	43.56	43.64	43.79	44.07	44.58	44.96	45.19	46.43	47.08
H-Plane	-15.58	-15.54	-15.01	-14.95	-14.76	-14.49	-14.33	-14.35	-14.30	-14.02
E1-Plane, AVG(dB)	-7.19	-7.19	-7.02	-6.88	-6.42	-6.44	-6.19	-6.15	-6.00	-5.70
E2-Plane, AVG(dB)	-12.17	-12.22	-11.99	-11.96	-11.65	-11.45	-11.17	-11.16	-11.22	-10.95
Peak Gain(dB)	-1.35	-1.35	-1.53	-1.34	-1.03	-0.80	-0.89	-0.85	-0.90	-0.86
Directivity(dB)	3.81	3.81	3.59	3.56	3.57	3.66	3.45	3.47	3.25	3.07
Minimum Gain(dB)	-16.30	-15.00	-16.86	-15.55	-15.58	-15.38	-14.78	-15.03	-15.24	-13.84

	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency(dB)	-3.91	-3.93	-3.90	-3.90	-3.90	-3.94	-4.04	-4.24	-4.30	-4.35
Efficiency(%)	40.64	40.42	40.78	40.75	40.70	40.39	39.46	37.63	37.15	36.70
TRG(dB)	-3.91	-3.93	-3.90	-3.90	-3.90	-3.94	-4.04	-4.24	-4.30	-4.35
TRG _{Theta} (dB)	-8.13	-8.25	-8.24	-8.19	-8.14	-8.21	-8.33	-8.51	-8.57	-8.54
TRG _{Phi} (dB)	-5.97	-5.94	-5.89	-5.92	-5.96	-5.97	-6.06	-6.28	-6.34	-6.44
UHRG(dB)	-7.14	-7.09	-6.97	-6.93	-6.94	-6.94	-7.02	-7.20	-7.26	-7.30
UHRG/TRG(%)	47.55	48.33	49.24	49.71	49.75	50.05	50.31	50.64	50.62	50.75
H-Plane	-14.21	-13.96	-13.98	-13.71	-13.39	-13.53	-13.63	-13.57	-13.68	-13.60
E1-Plane, AVG(dB)	-5.63	-5.66	-5.59	-5.51	-5.48	-5.54	-5.58	-5.70	-5.79	-5.73
E2-Plane, AVG(dB)	-10.81	-11.12	-11.07	-11.14	-10.92	-11.08	-11.42	-11.71	-11.64	-11.79
Peak Gain(dB)	-0.88	-0.63	-0.92	-0.79	-0.80	-0.77	-0.80	-1.09	-0.94	-1.19
Directivity(dB)	3.03	3.30	2.97	3.11	3.11	3.17	3.24	3.15	3.36	3.17
Minimum Gain(dB)	-13.97	-13.90	-15.51	-14.57	-14.49	-14.93	-15.91	-16.63	-16.17	-15.92

Average Efficiency	-4.31dB,	37.09%
Peak Gain	-0.63dBi	

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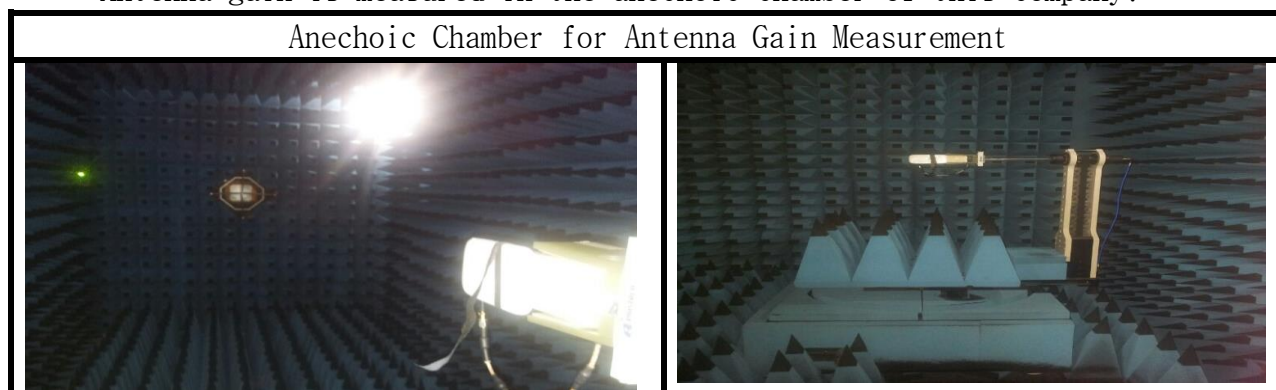
7. Measurement Process

7.1 SWR / Return loss

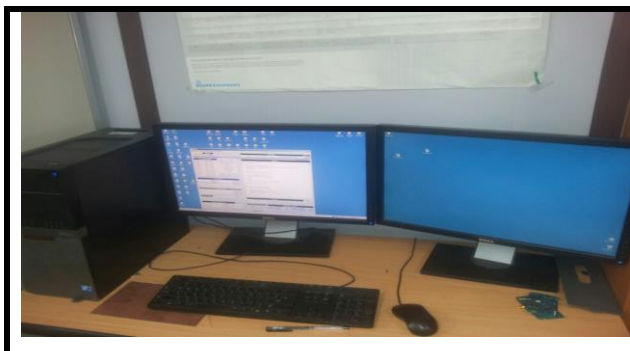
	Set Condition
Network Analyzer	Agilent 8753ES
Cable	Semi-rigid (40mm, 60mm)
Test condition	

7.2 Gain

Antenna gain is measured in the anechoic chamber of this company.



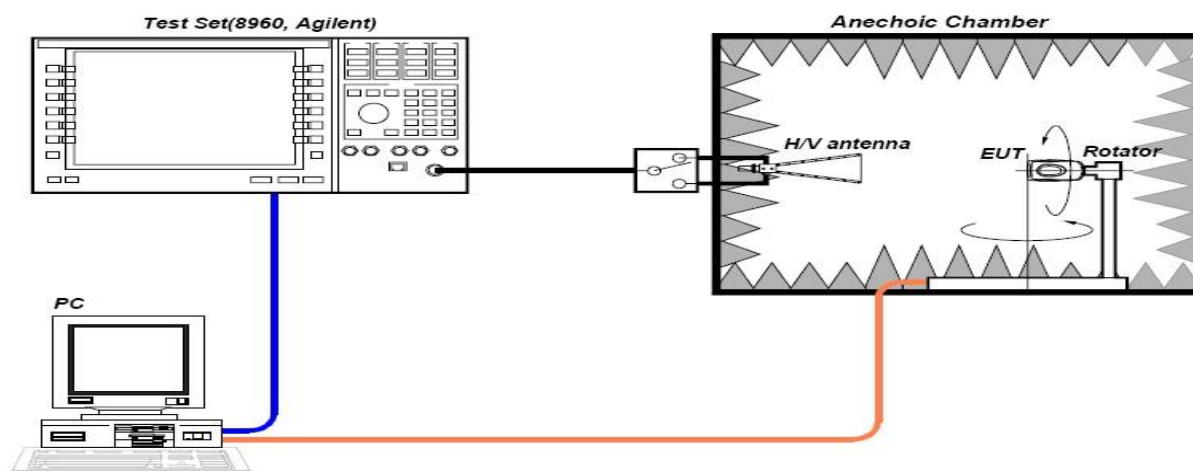
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7.3 Gain test block diagram

Active test Sysetm

- TRP, NHPRP, UHRP
- TIS, NHPIS, UHIS
- Relative Sensitivity



Passiver test Sysetm

- Efficiency
- Peak Gain, Avg, Gain
- Min, Max PWR

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