

2017.12.28

RA-N0501-21

APPROVAL SHEET

MODEL :BCM-LN100AS

Antenna layout

Review	Consent	Approval

Messrs. BnCOM Co.,Ltd



RadiNa Co. ,Ltd

TEL :+82-2-463-0373

FAX :+82-2-463-0374

	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	2 / 10

Table of contents

1. Revision History

2. Product Information

2.1 General Features

2.2 Electrical Specifications

3. Pattern Specifications

4. Matching Network

5. Electrical Characteristics

5.1 VSWR

5.2 Smith Chart

5.3 3D-PLOT

5.4 2D-GAIN

6. Passive Measurement

7. Measurement Process

	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	3 / 10

1. Revision History

NO.	Before	After	Reason	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

RADINA. Co., LTD / CONFIDENTIAL

This Document contains confidential and proprietary information, cannot discourse to third party without the prior written Authorization.

	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	4 / 10

2. Product Information

2.1 General Features

PART NUMBER	GradiANT
ANTENNA TYPE	PCB Pattern Antenna
APPLICATIONS	Beacon

2.2 Electrical Specifications

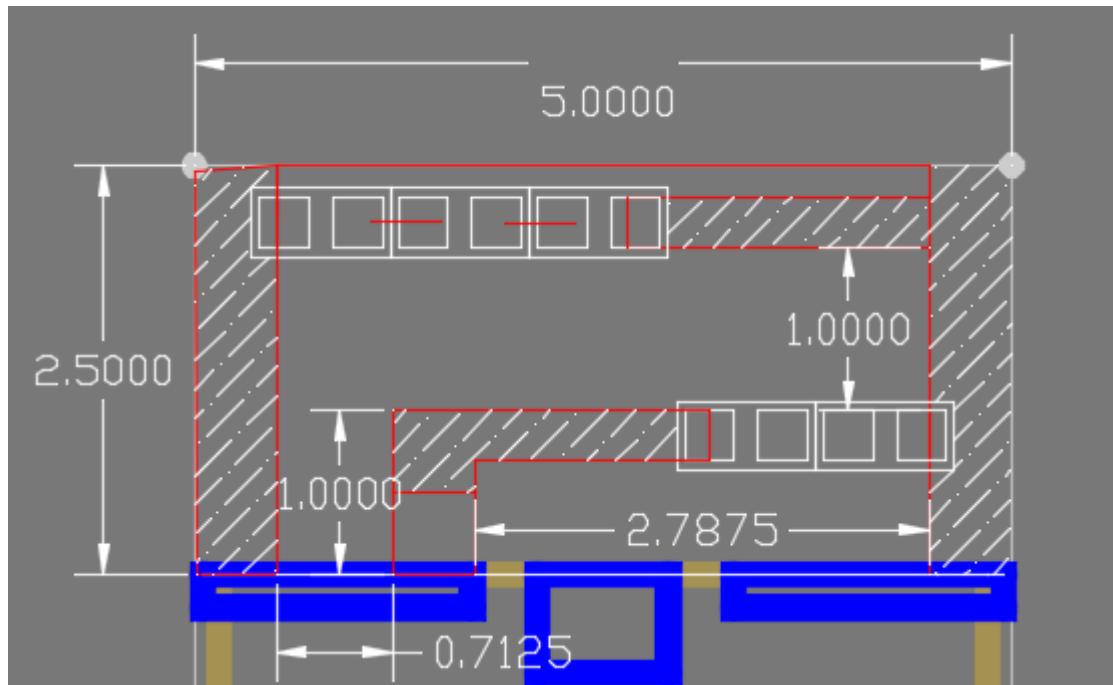
Frequency Range1 (TX)		2400MHz~2485MHz	
Frequency Range1 (RX)		2400MHz~2485MHz	
IMPEDANCE		50 Ω	
V.S.W.R	TX	2400MHz	2485MHz
		5 ↓	5 ↓
	RX	2400MHz	2485MHz
		5 ↓	5 ↓
RADIATION PATTERN		Omni-directional	
POLARIZATION		Linear	

RADINA. Co., LTD / CONFIDENTIAL

This Document contains confidential and proprietary information, cannot discourse to third party without the prior written Authorization.

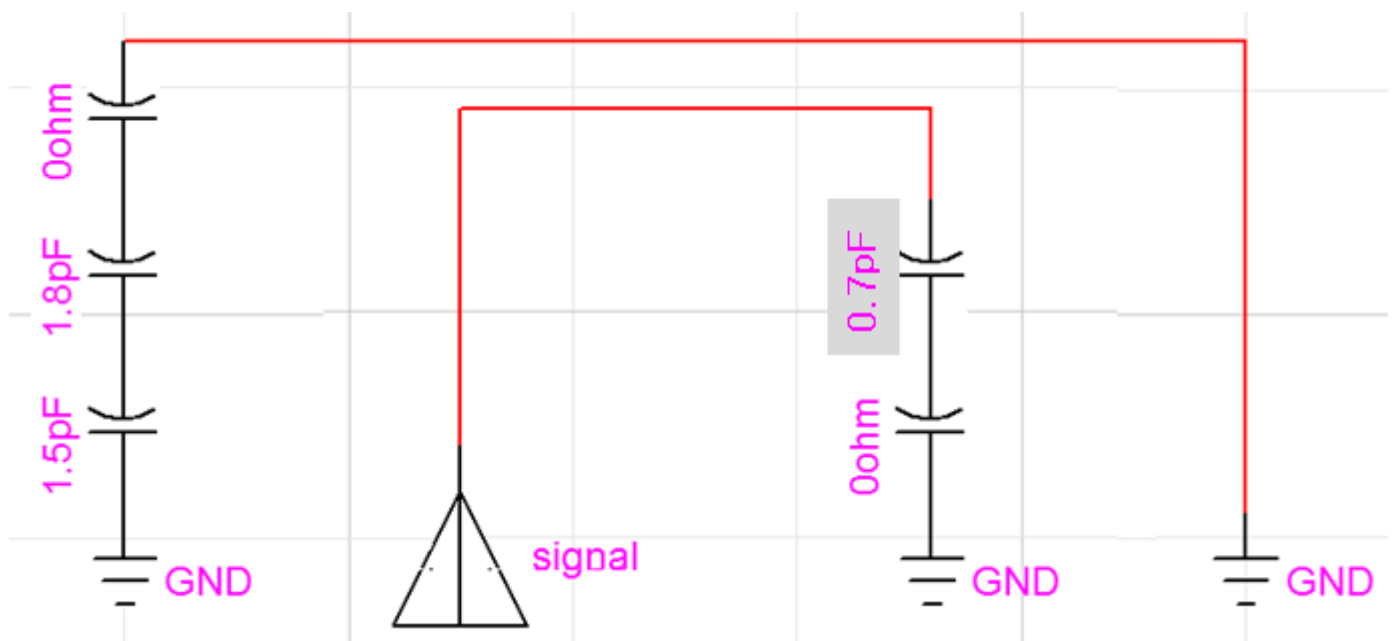
	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	5 / 10

3. Pattern Specifications



4. Matching Network

Capacitor value can be changed depending on different situation



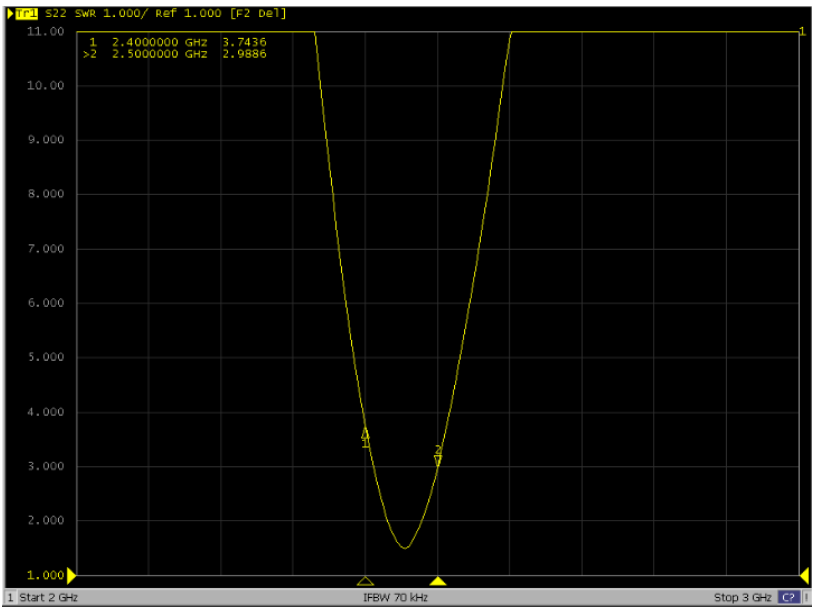
RADINA. Co., LTD / CONFIDENTIAL

This Document contains confidential and proprietary information, cannot discourse to third party without the prior written Authorization.

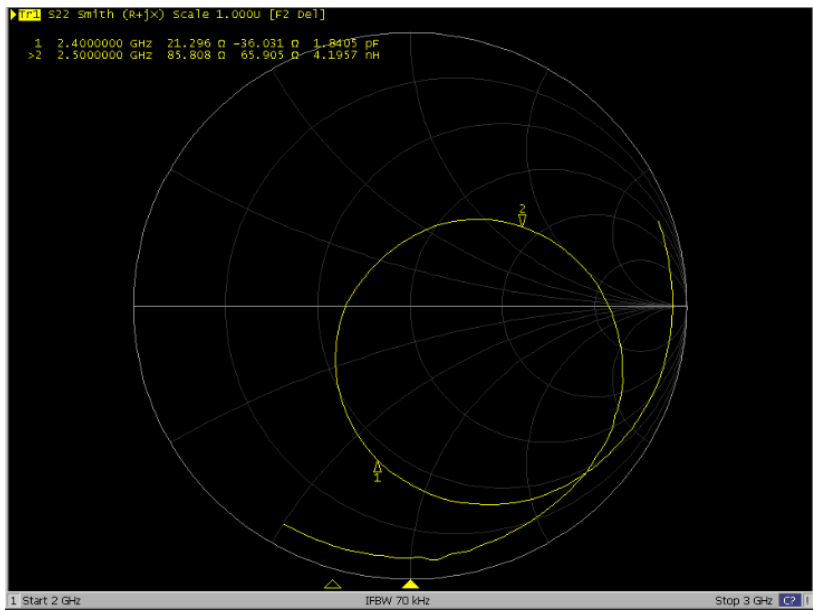
	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	6 / 10

5.Electrical Characteristics

5.1 VSWR

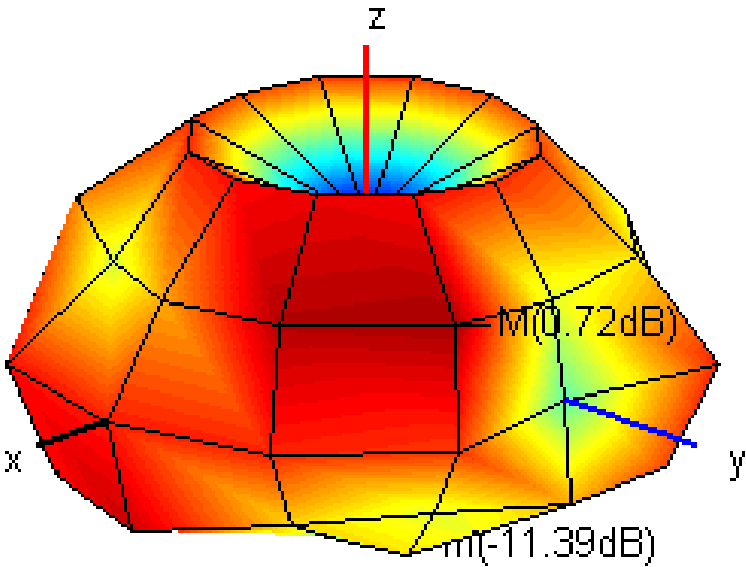


5.2 SMITH CHART

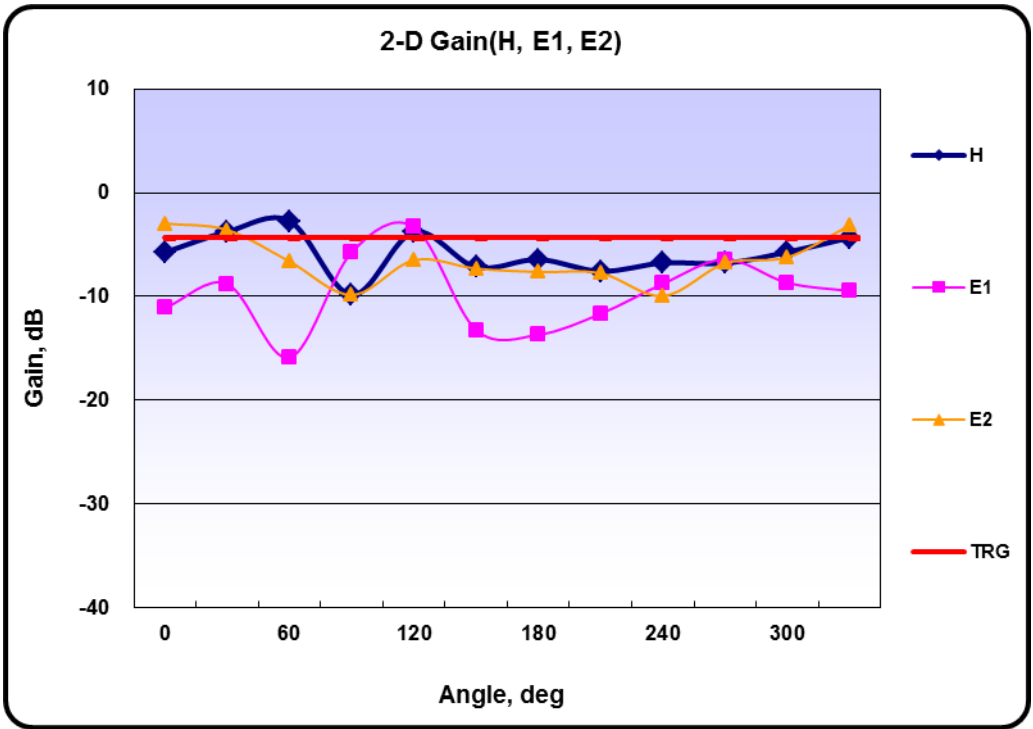


	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	7 / 10

5.3 3D-PLOTs



5.4 2D-GAIN



	PRODUCT APPROVAL SHEET				GRBII001001			
	MODEL NAME	BCM-LN100AS			REV.	1.0	Page	8 / 10

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)	-6.40	-6.41	-6.11	-5.72	-5.26	-5.08	-4.78	-4.60	-4.34	-4.33
Efficiency(%)	22.89	22.86	24.47	26.81	29.78	31.05	33.29	34.68	36.81	36.94
TRG(dB)	-6.40	-6.41	-6.11	-5.72	-5.26	-5.08	-4.78	-4.60	-4.34	-4.33
TRG _{Theta} (dB)	-8.88	-8.79	-8.45	-8.08	-7.57	-7.41	-7.01	-6.82	-6.56	-6.54
TRG _{Phi} (dB)	-10.02	-10.15	-9.92	-9.48	-9.11	-8.89	-8.74	-8.58	-8.32	-8.31
UHRG(dB)	-8.42	-8.47	-8.16	-7.79	-7.41	-7.22	-6.94	-6.78	-6.54	-6.53
UHRG/TRG(%)	62.84	62.25	62.39	62.00	61.01	61.14	60.80	60.57	60.25	60.20
H-Plane	-7.84	-7.63	-7.40	-6.94	-6.48	-6.22	-5.84	-5.62	-5.44	-5.49
E1-Plane, AVG(dB)	-11.01	-10.76	-10.43	-10.04	-9.45	-9.35	-8.92	-8.86	-8.48	-8.39
E2-Plane, AVG(dB)	-8.57	-8.37	-8.12	-7.63	-7.23	-7.00	-6.59	-6.40	-6.10	-5.95
Peak Gain(dB)	-2.55	-2.67	-2.22	-1.80	-1.61	-1.24	-1.07	-1.01	-0.82	-0.72
Directivity(dB)	3.85	3.73	3.89	3.92	3.65	3.84	3.71	3.59	3.52	3.60
Minimum Gain(dB)	-14.91	-14.49	-13.92	-13.56	-12.46	-12.52	-12.46	-11.47	-11.77	-11.39

	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency(dB)	-4.42	-4.33	-4.32	-4.48	-4.77	-4.79	-5.05	-5.17	-5.40	-5.73
Efficiency(%)	36.15	36.86	37.02	35.64	33.32	33.18	31.28	30.41	28.81	26.76
TRG(dB)	-4.42	-4.33	-4.32	-4.48	-4.77	-4.79	-5.05	-5.17	-5.40	-5.73
TRG _{Theta} (dB)	-6.54	-6.45	-6.46	-6.60	-6.88	-6.87	-7.15	-7.29	-7.52	-7.87
TRG _{Phi} (dB)	-8.55	-8.47	-8.41	-8.62	-8.92	-8.99	-9.21	-9.31	-9.54	-9.82
UHRG(dB)	-6.63	-6.57	-6.56	-6.73	-7.06	-7.07	-7.32	-7.47	-7.70	-8.00
UHRG/TRG(%)	60.04	59.81	59.65	59.53	59.03	59.19	59.26	58.91	58.94	59.16
H-Plane	-5.41	-5.48	-5.38	-5.78	-5.99	-6.17	-6.48	-6.71	-6.76	-7.37
E1-Plane, AVG(dB)	-8.47	-8.26	-8.24	-8.27	-8.62	-8.56	-8.74	-8.94	-9.09	-9.49
E2-Plane, AVG(dB)	-6.04	-5.94	-5.96	-6.01	-6.18	-6.24	-6.48	-6.65	-6.88	-7.29
Peak Gain(dB)	-0.76	-0.62	-0.74	-0.88	-1.26	-1.36	-1.79	-1.77	-2.34	-2.55
Directivity(dB)	3.66	3.71	3.58	3.60	3.51	3.43	3.26	3.40	3.06	3.18
Minimum Gain(dB)	-11.11	-11.76	-10.67	-10.89	-11.09	-10.62	-10.36	-10.35	-10.79	-11.23

Average Efficiency	-5.02dBi,	31.45%
Peak Gain	-0.62dBi	

RADINA. Co., LTD / CONFIDENTIAL

This Document contains confidential and proprietary information, cannot discourse to third party without the prior written Authorization.

	PRODUCT APPROVAL SHEET		GRBII001001			
	MODEL NAME	BCM-LN100AS	REV.	1.0	Page	9 / 10

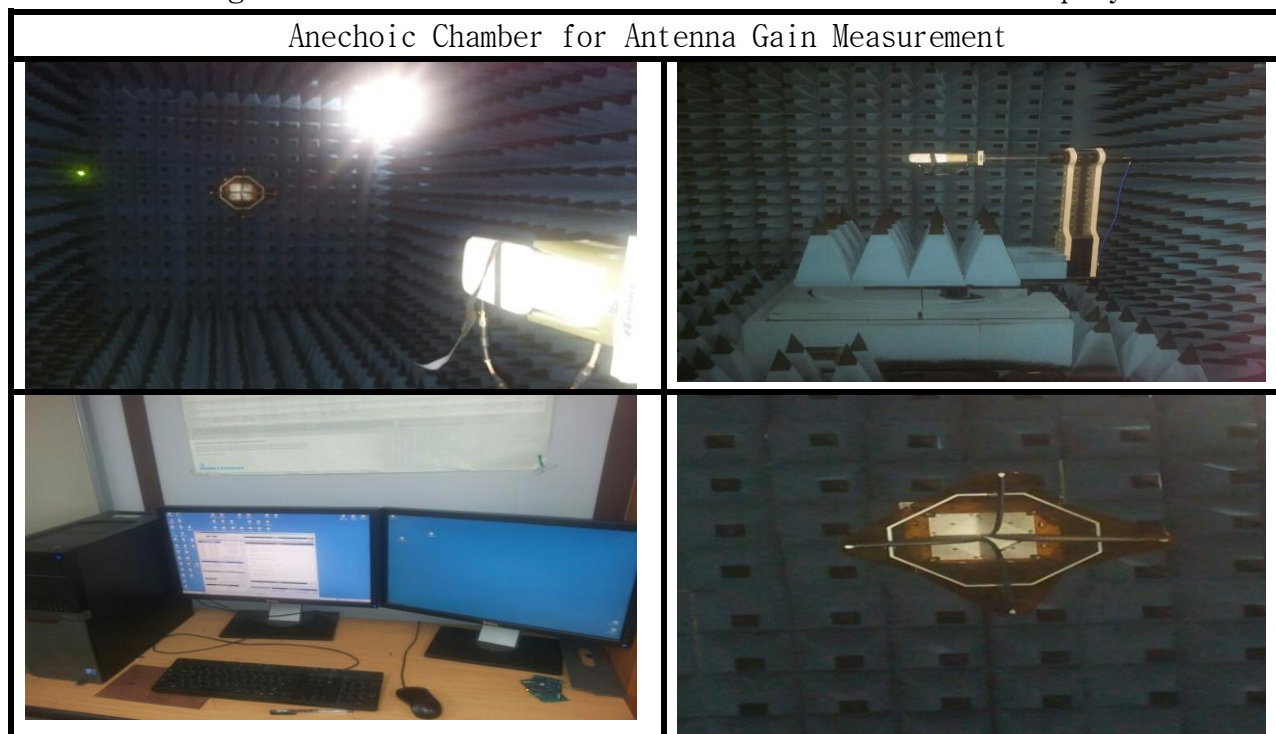
7. Measurement Process

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.



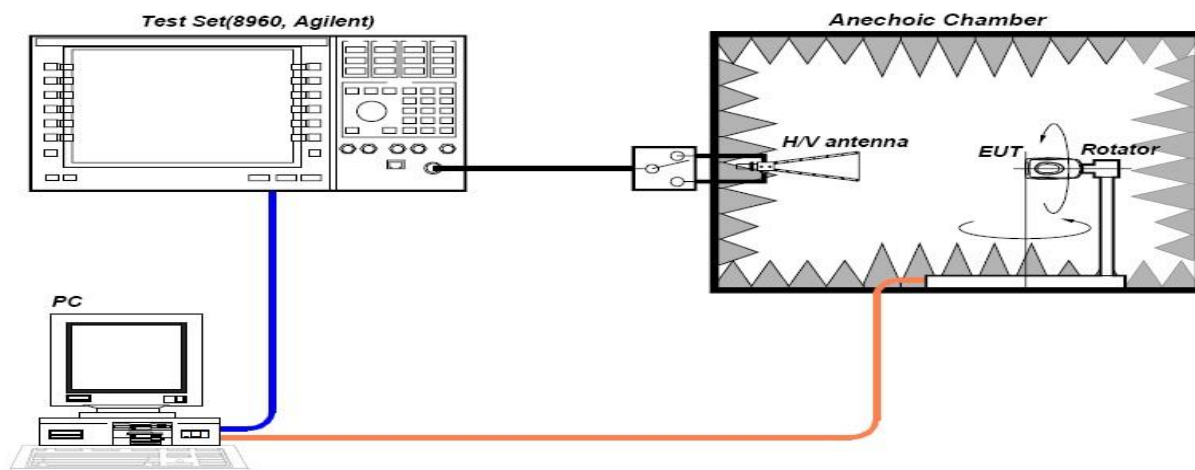
7.3 Gain test block diagram

RADINA. Co., LTD / CONFIDENTIAL

This Document contains confidential and proprietary information, cannot discourse to third party without the prior written Authorization.

Active test Sysetm

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



Passiver test Sysetm

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

