

Specifications for Approval

결 재	Electrical Engineer	Mechanical Engineer	Q.A	APPROVAL
				
	C.W.H	S.J.Y	J.B.H	L.S.H
	08/26	08/26	08/26	08/26

BUYER	CLIPCOMM
MODEL	HBM-905
Part Name	WIRE ANTENNA
Part Code	-
Arro Code	IBS-0332

205-11, Anyang 7-Dong, Manan-Gu, Anyang-Si, Gyeonggi-Do, Korea
TEL : (031)441-4181, FAX : (031)448-4194

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1. Approval LIST

Approval LIST					
NO	DATE	Before a change	After a change	Reason	REV
1					
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※ ※ A change of REV can be changed about mass producing antennas after the approval.

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2. Technical Properties

2.1 Electrical Properties

FREQUENCY BW	2,400 ~ 2,483 MHz
Min VSWR	Less than 2 : 1
Max gain(dBi)	0.2 (3D test)
Input IMPEDANCE	50Ω
POLARIZATION	VERTICAL
RADIATION PATTERN	OMNI-DIRECTIONAL

2.2 Mechanical Properties

CONNECTOR TYPE	N/A
SIZE	Reference Drawings(7.2 Reference)
Operating temperature	-20 °C ~ +70 °C
Weight	0.01g

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3. TEST CONDITION

3.1 Examination Environmental Condition

The antenna is placed at temperature $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and humidity 25%~80%(Under 55% RH) for executing all testes (Electrical, Mechanical and Environmental Tests).

3.2 TEST Equipments

We need equipments for the antenna measurement

Equipments	Purpose	Remarks
Network analyzer	Measurement for VSWR & IMPEDANCE	
Standard(Horn)antenna	BT Frequency spec	
Anechoic Chamber	Measurement for antenna gain	cable, connector
Projector and Vernier calipers	Measurement For Dimension	
Measurement tester for Plating thickness	Measurement for Plating thickness	

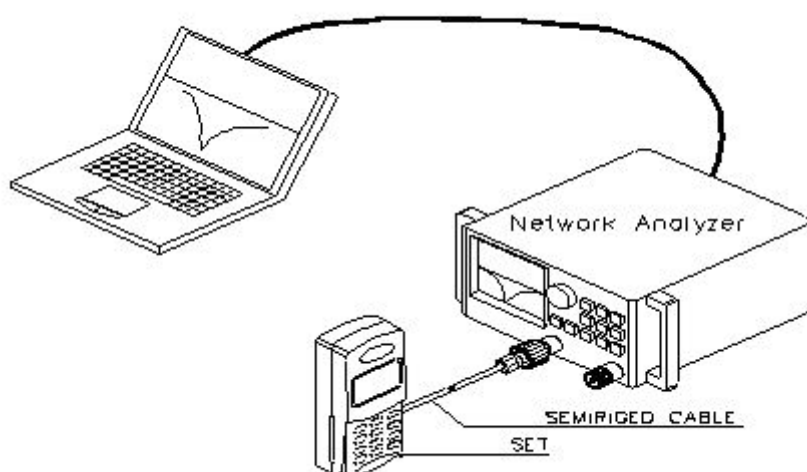
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4. ELETRICAL PROPERTIES

4.1 V S W R

Antenna must be satisfied with electrical specifications by indicated VSWR requirements.

FREQUENCY BW	2,400 ~ 2,483 MHz
MIN VSWR	2 : 1



4.2 Radiation Pattern

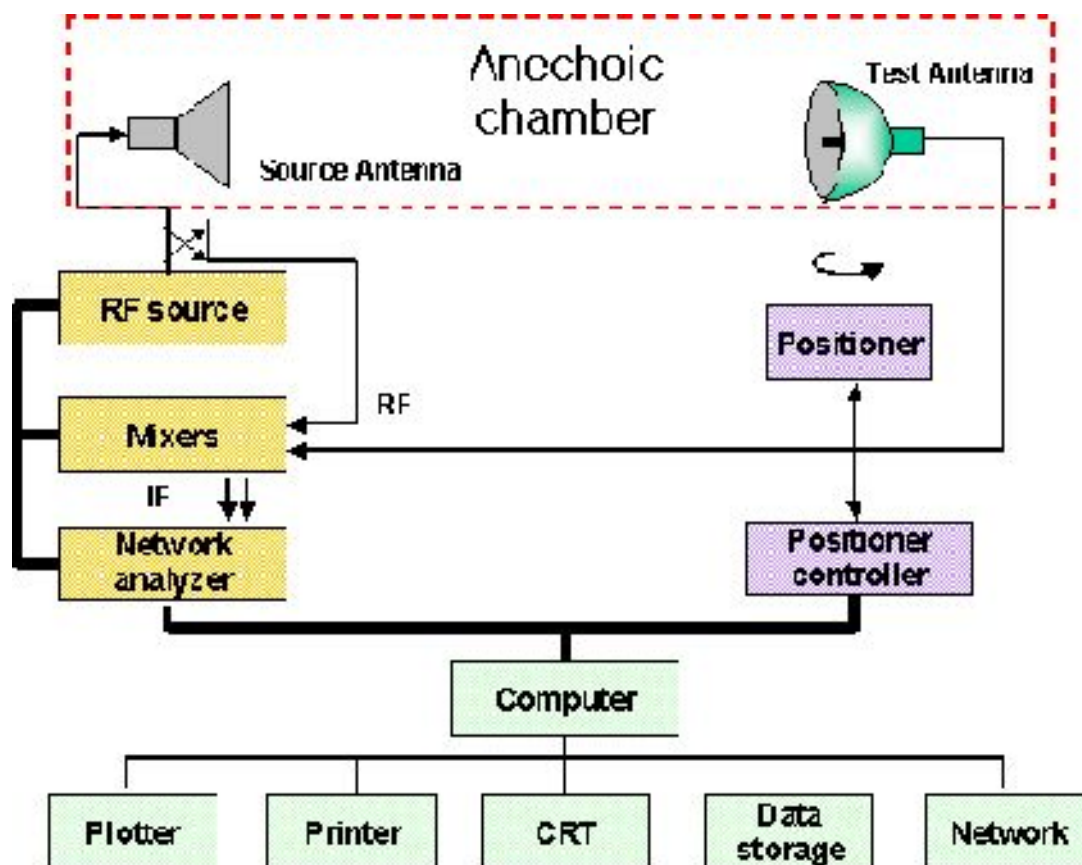
This radiation of antenna pattern must have Omni-directional Patterns

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4.3 Antenna gain

Measurement Method : As shown in fig , setting the horn antenna as standard antenna, measure the gain by [dBi].

FREQUENCY BW	2,400 ~ 2,483 MHz
MAX gain(dBi)	0.2 (3D test)



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5. Structural requirement pacts

5.1 Plating thickness test

Shall meet the specified plating thickness.

Ni	3 ~ 6 um
Au	More than 0.03um

6. . Environmental requirement

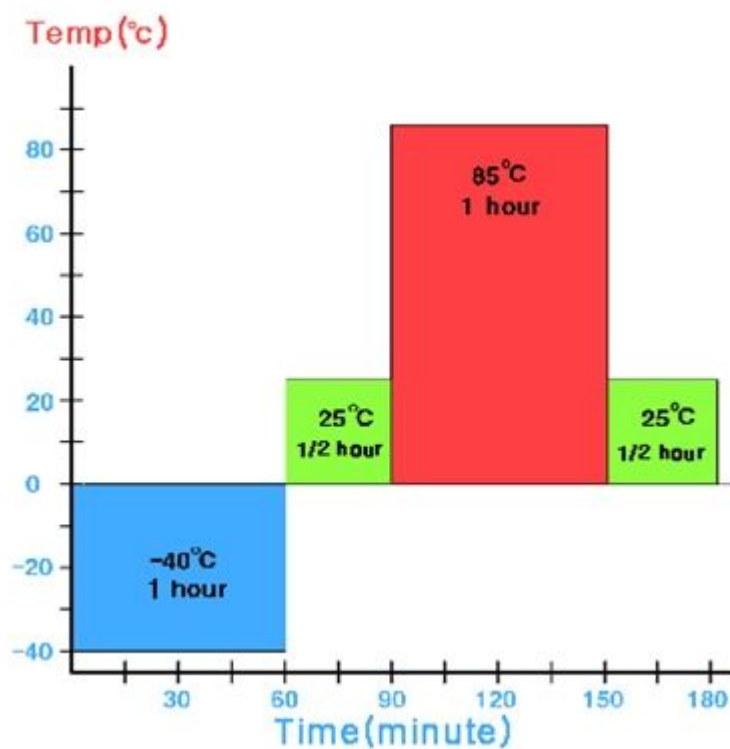
6.1 Salt spray test

- Antenna Temperature +35℃, Spray conditions of 5% salt concentration in 72 hours in the equipment to testing.
- After a testing, Appearance should not caused air bubbles, After tested measure the electrical characteristics meet requirement, external damage will not.

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6.2 Temperature Cycling

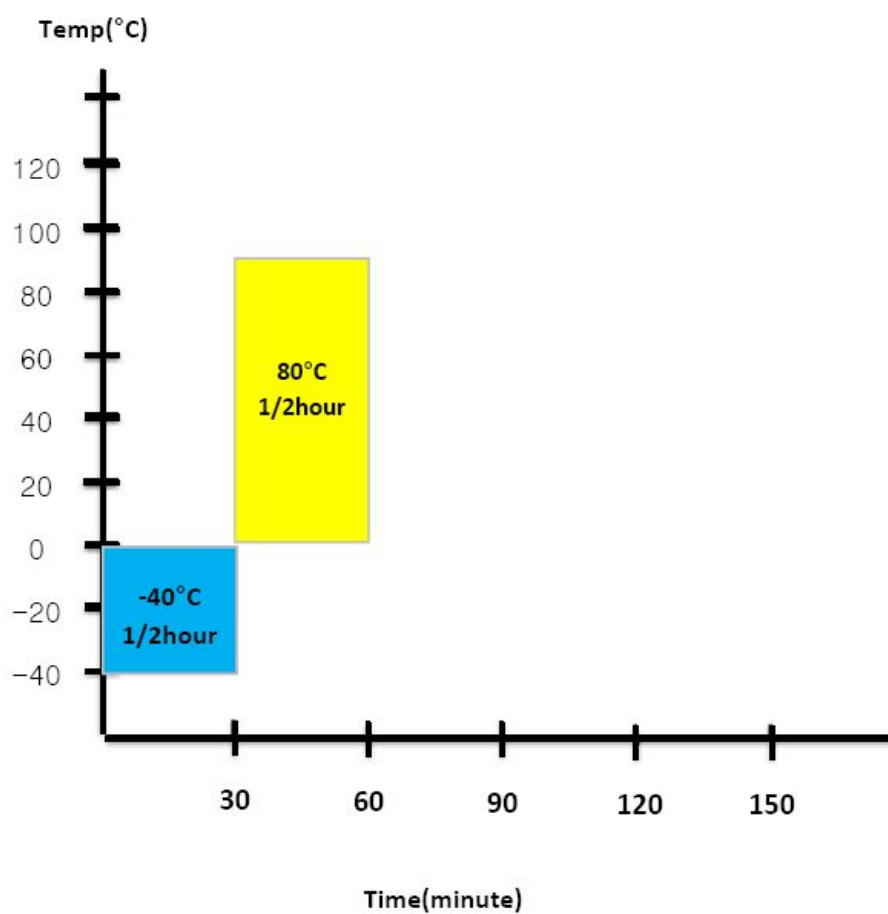
- The antenna is placed in a climate chamber. The temperature is cycled as follows:
 - The temperature is kept constant at -40°C for 1 hour, kept constant at $+25^{\circ}\text{C}$ for 1/2 hour, kept constant at $+85^{\circ}\text{C}$ for 1 hour, kept at $+25^{\circ}\text{C}$ for 1/2 hour.
- This procedure is repeated 5 times. The procedures are executed based on KSC-0222.



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6.3 Temperature Impact Test

- The antenna is placed in a climate chamber. The temperature is cycled as follows:
- The temperature is kept constant at -40°C for 1/2 hour, kept constant at $+85^{\circ}\text{C}$ for 1/2 hour.
4 hour Leaving.
- This procedure is repeated 30 times . The procedures are executed based on KSC-0222.
- It not must be above in appearance and function.



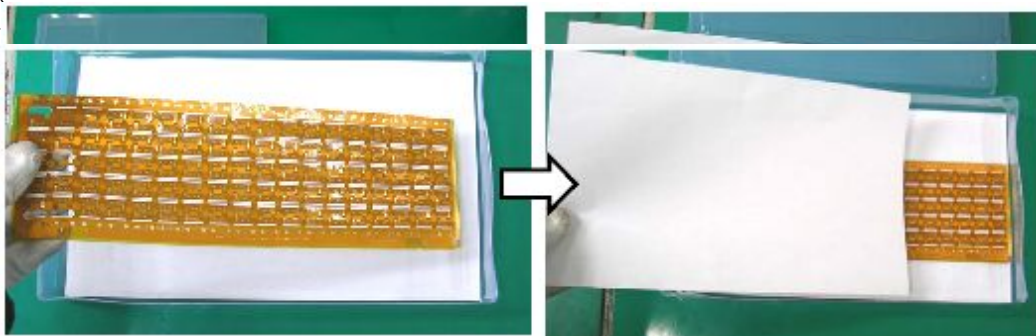
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7. Other Documents

7.1 Packing Conditions

1) Place sheet in the case.

2)



3) After packaging and covered cover

4)



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7.2 Mechanical Specifications

Rev.	Mark	CONTENTS	DATE	SIGN
		New Drawing	10.08.26	JY Shift

	TOP	BOTTOM
ALL		
OUTLINE		
Me+1L		
CONTACT		
Me+1		
TAPE		
3M 167		

F-PCB LAYER (S=1:1)

Note.

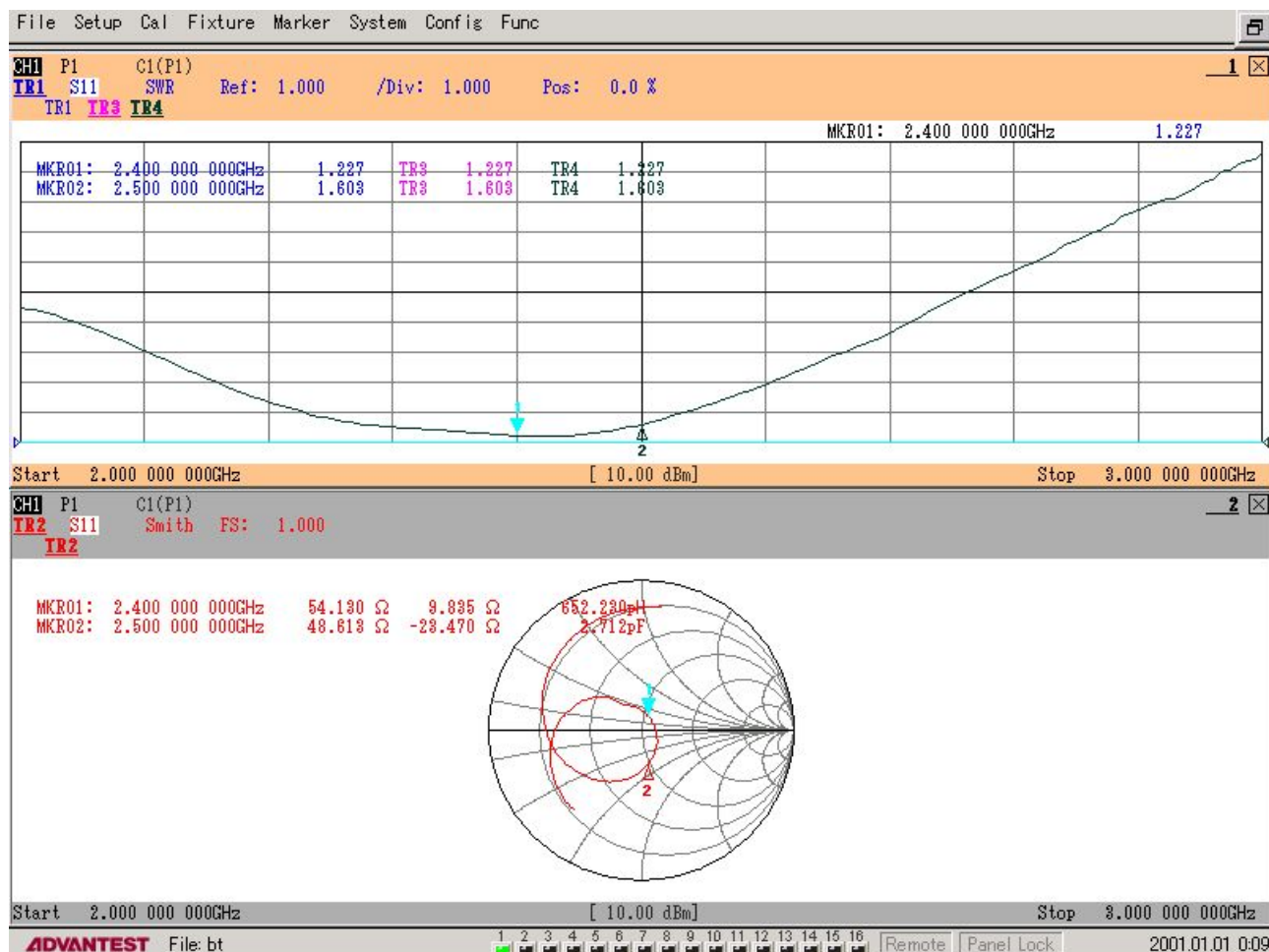
1. BASE Raw Materials : P.1 (1M)
2. An Electric Conductor Materials : Cu(1/2 Oz)
3. PLATED : LOWER Ni (3~6um)
UPPER Au (Min 0.03um)
4. External appearance of this product acts on in limit sample.
5. Not specified dimensions and General Tolerance : ± 0.1

2	IBS-0332-3	RELEASE PAPER	PAPER	-	1	-
1	IBS-0332-2	FPCB	MATERIAL	Note.3	1	-
NO.	CODE	NAME	MATERIAL (FIN.COOL.)	QTY	REMARK	
TITLE HBM-905 / FPCB ANTENNA						
UNIT	mm	DESIGN	CHECKED	APPROVED	PROJECTION	
SIZE	A4	SJY	JHJ	LSH		
SCALE	1/1					
TOLERANCE	± 0.1	10.08.26	10.08.26	10.08.26		
		Doc. CODE	IBS-0332-1			

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7.3 Electrical characteristic data

7.3.1 VSWR & SMITH chart



7.3.2 Passive gain

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400.000000 MHz	44.0 %	-8.0 dBi	-5.5 dBi	-3.6 dBi	-1.3 dBi	-0.8 dBi	0.1 dBi
2416.600000 MHz	41.1 %	-8.4 dBi	-5.8 dBi	-3.9 dBi	-1.3 dBi	-1.0 dBi	-0.1 dBi
2433.200000 MHz	39.7 %	-8.6 dBi	-5.9 dBi	-4.0 dBi	-1.0 dBi	-0.8 dBi	0.0 dBi
2449.800000 MHz	39.5 %	-8.6 dBi	-5.9 dBi	-4.0 dBi	-0.3 dBi	-0.6 dBi	0.2 dBi
2466.400000 MHz	34.0 %	-9.2 dBi	-6.6 dBi	-4.7 dBi	-0.4 dBi	-0.9 dBi	-0.3 dBi
2483.000000 MHz	39.8 %	-8.4 dBi	-6.0 dBi	-4.0 dBi	0.8 dBi	0.1 dBi	1.0 dBi

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7.4 Manufacture Process chart

DATE			Amendment #	Page #	QC Process Chart										Management #	Department in charge	Draft	Review	Approval			
2010.08.26			0	1/1											QC-29	ARRO	L.J.S	S.J.Y	J.B.H			
MODEL			HBM-905																			
Materials, part				FLOW CHART				Process Name		Applicable Standards		Factor Management				Property Management				Defect		Managed by
Material/ part	Material/ part	production Process	QC					Facility Tool	Item	Management Frequency	Recording Method	Inspection items	Measuring Tool	Inspection Frequency	Recording Method							
FPCB																						

*. Factory : Anyang Factory(ARRO.co.Ltd)

7.5 Plating Specification by component

Model name	Name	Material	Plating		Remarks
			Lower	Upper	
HBM-905	ANTENNA	FPCB	Ni : 3~6um	Au : Less Than 0.03um	Terminal part plating

7.6 PART_LIST

HBM-905 PART LIST

NO	Part name	Spec	Maker	Code	Remarks
1	FPCB	P. I	KJ FLEX	IBS-0332-2	Double-sided TAPE
2	RELEASE PAPER	pulp	KJ FLEX	IBS-0332-3	-