

Specifications for Approval

검 제	Electrical Engineer	Mechanical Engineer	Q.A	APPROVAL
				
	K.I.S	S.J.Y	J.B.H	L.S.H
	08/31	08/31	09/01	09/02

BUYER	Unneeds
MODEL	UM-1000
Part Name	CHIP ANTENNA
Part Code	-
Arro Code	ABP3015A2

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Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	2/13

— Table of Contents —

1. Approval History

2. Technical Properties

- 2.1 General Properties
- 2.2 Electrical Properties
- 2.3 Mechanical Properties

3. Electrical Requirements

- 3.1 VSWR & Smith chart
- 3.2 Efficiency & Gain & Radiation Pattern
- 3.3 VSWR & Smith chart Measurement method
- 3.4 Efficiency & Gain & Radiation Pattern Measurement method

4. Mechanical Specifications

- 4.1 Mechanical Drawing

5. Soldering Conditions

6. NOTICE

7. ROHS Report

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	3/13

1. Approval History

NO	DATE	Before a change	After a change	Reason	REV
1					
2					
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4					
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13					
14					
15					
16					
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Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	4/13

2. Technical Properties

2.1 General Properties

MODEL	UM-1000
ANTENNA TYPE	CHIP ANTENNA
APPLICATIONS	BLUETOOTH

2.2 Electrical Properties

FREQUENCY RANGE	2,400 ~ 2,483(MHz)
V.S.W.R	LESS THAN 3.5:1
AVERAGE GAIN(dBi)	-4.0 (3D MEASUREMENT)
IMPEDANCE(NOMINAL)	50(Ω)
POLARIZATION	LINEAR
RADIATION PATTERN	OMNIDIRECTIONAL

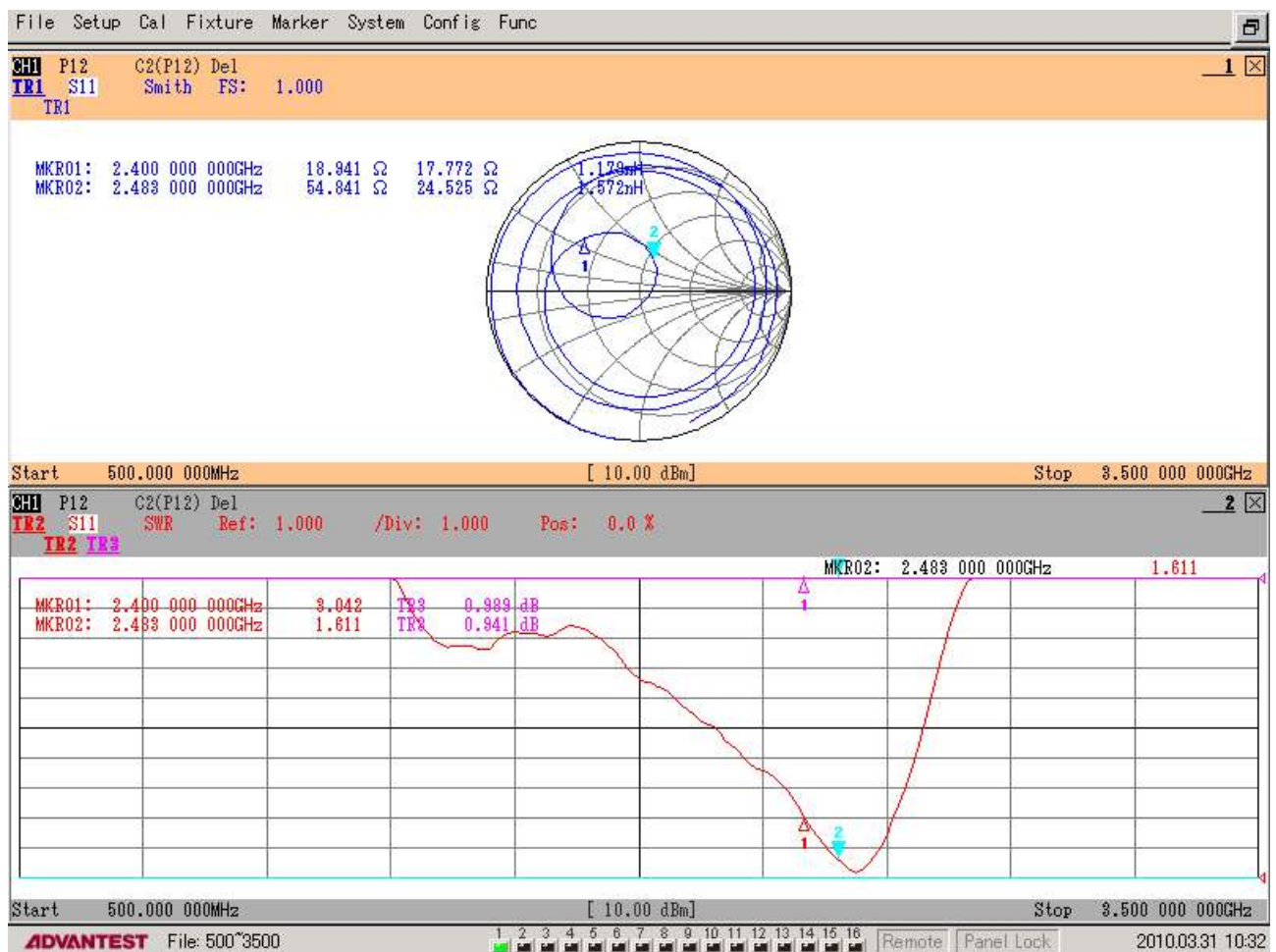
2.3 Mechanical Properties

CONNECTOR	N/A
LENGTH	REF DRAWING (No. 4.1)
TEMPERATURE	-20 ~ 70(℃)
WEIGHT	0.1(g)

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	5/13

3. Electrical requirements

3.1 VSWR & Smith chart



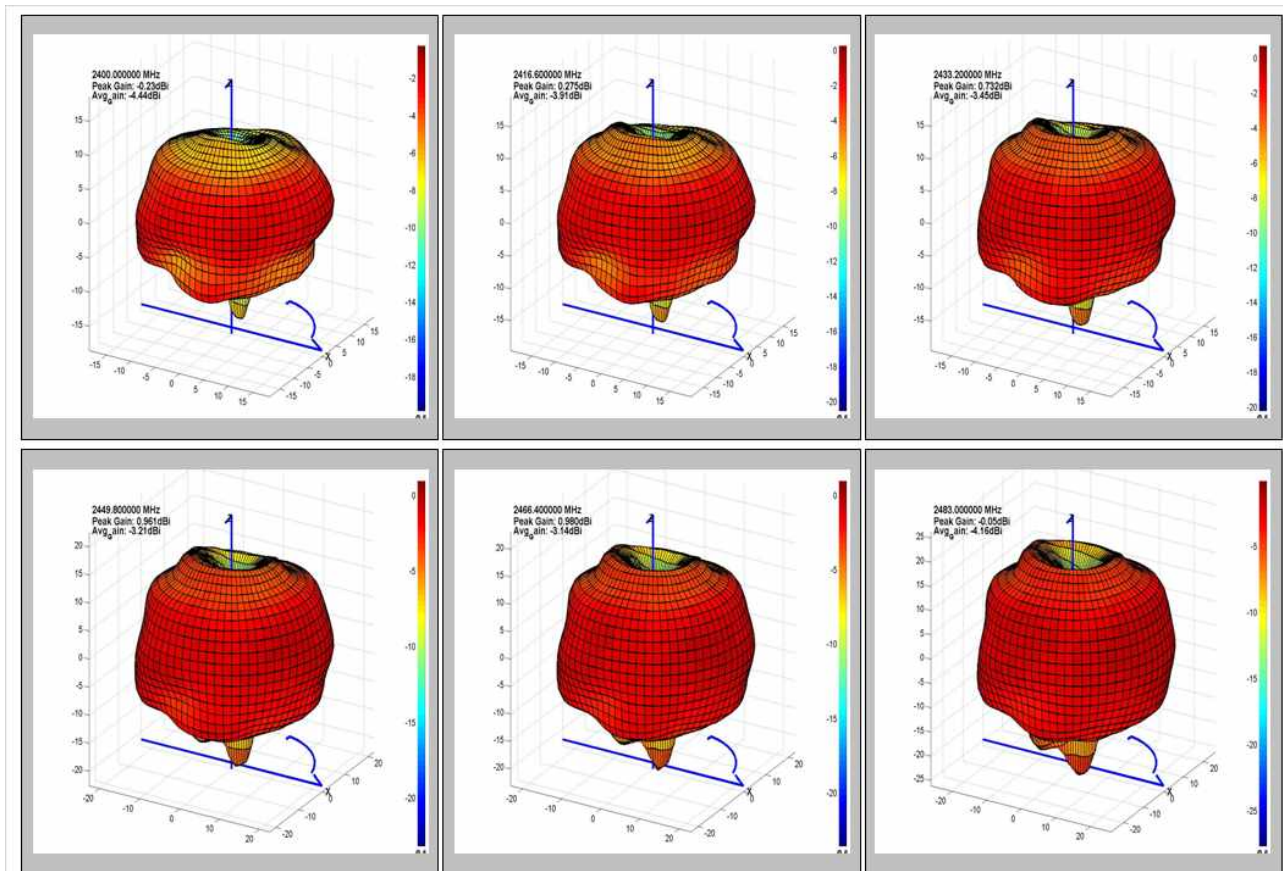
VSWR & Smith chart

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	6/13

3.2 3D Efficiency & Gain & Radiation Pattern

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400.000000 MHz	35.9 %	-14.2 dBi	-4.9 dBi	-4.4 dBi	-4.4 dBi	-0.3 dBi	-0.2 dBi
2416.600000 MHz	40.6 %	-13.9 dBi	-4.4 dBi	-3.9 dBi	-3.8 dBi	0.1 dBi	0.3 dBi
2433.200000 MHz	45.1 %	-13.5 dBi	-3.9 dBi	-3.5 dBi	-3.1 dBi	0.6 dBi	0.7 dBi
2449.800000 MHz	47.7 %	-13.2 dBi	-3.7 dBi	-3.2 dBi	-2.6 dBi	0.8 dBi	1.0 dBi
2466.400000 MHz	48.4 %	-13.1 dBi	-3.6 dBi	-3.1 dBi	-2.0 dBi	0.8 dBi	1.0 dBi
2483.000000 MHz	38.4 %	-14.0 dBi	-4.6 dBi	-4.2 dBi	-2.2 dBi	-0.3 dBi	-0.1 dBi

Efficiency & Gain (3D MEASUREMENT)

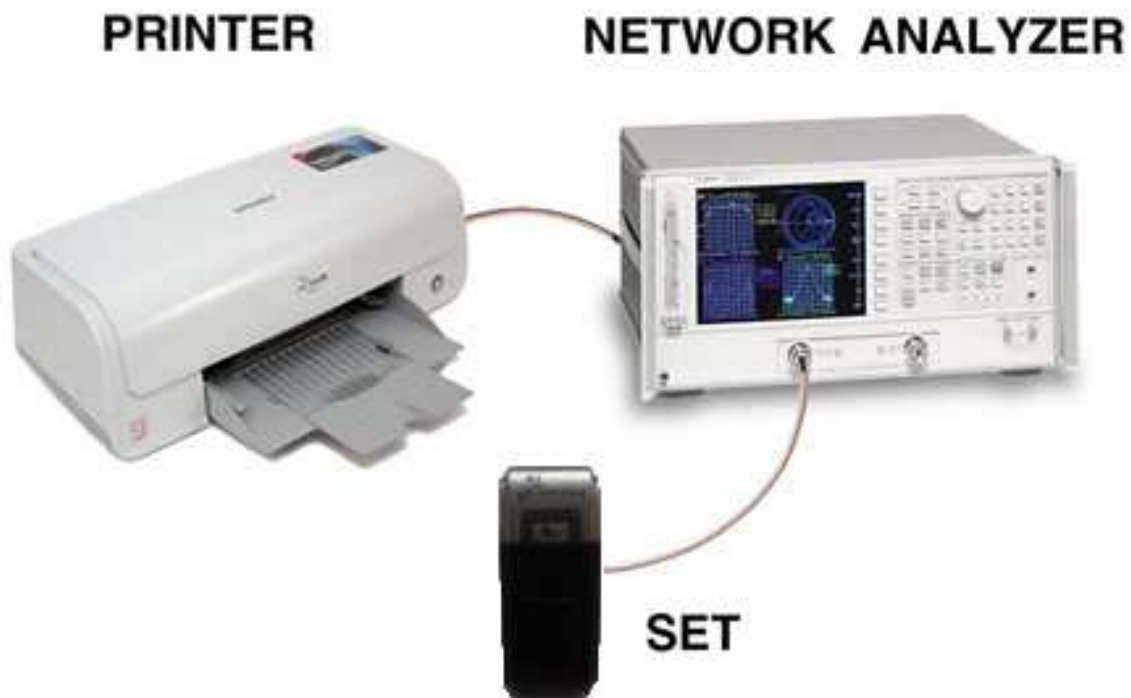


Radiation Pattern (3D MEASUREMENT)

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	7/13

3.3 VSWR & Smith chart Measurement Method

Measurement Method: Setting equipments as shown in fig. 3-1, connecting the hand set to the reflection port of the Network Analyzer, measure the impedance.

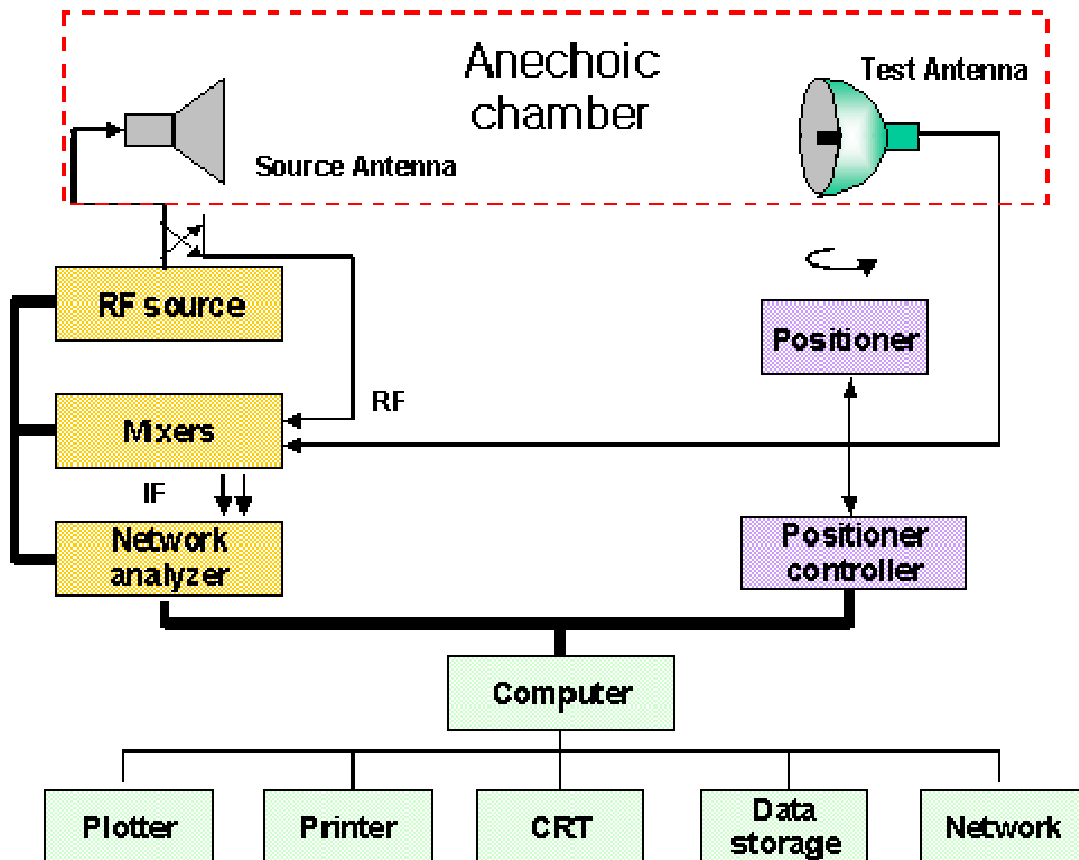


(Fig. 3-1)

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	8/13

3.4 Efficiency & Gain & Radiation Pattern Measurement Method

Measurement Method : As shown in fig.3-2, setting the horn antenna as standard antenna, measure the gain by [dBi].

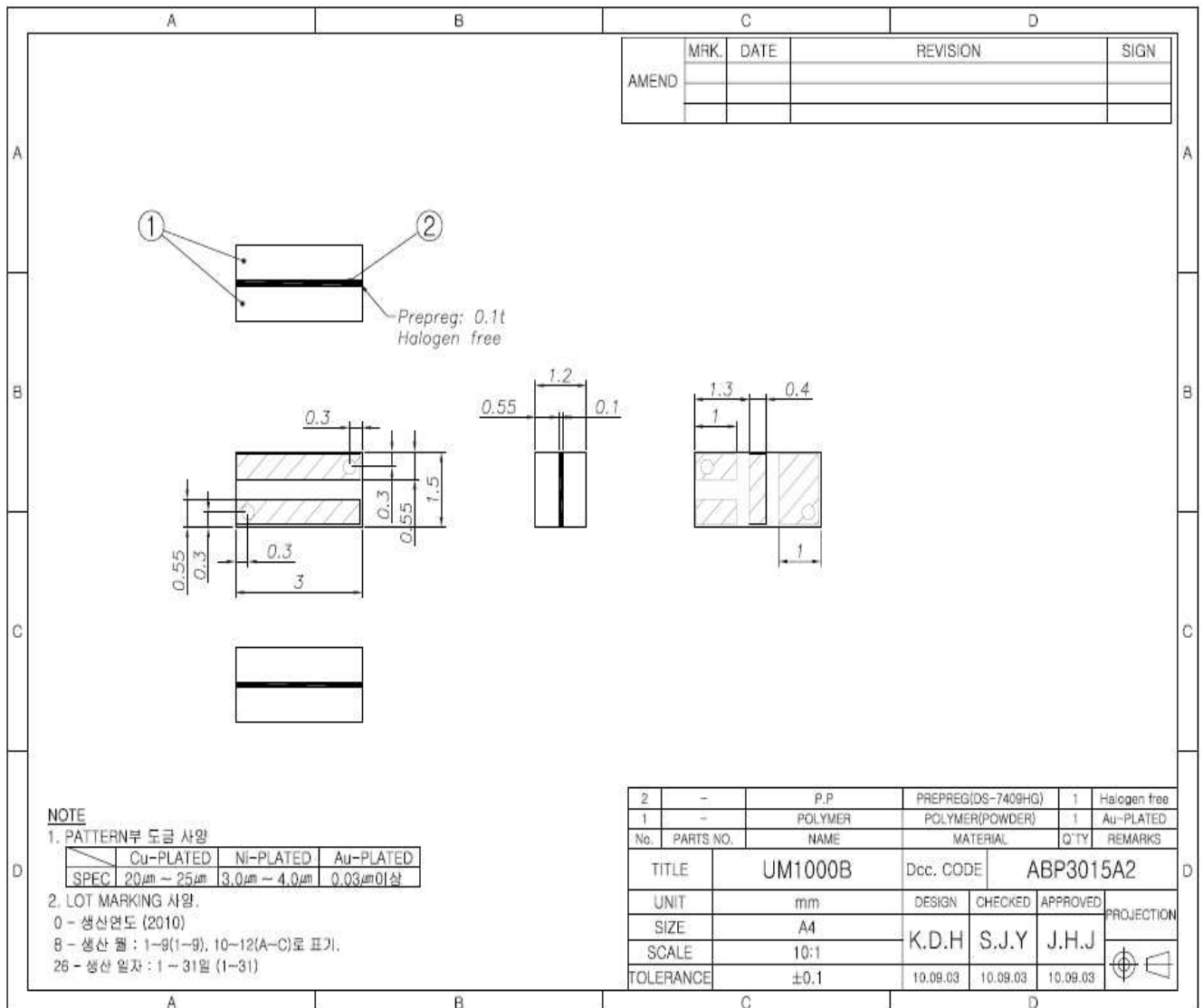


(Fig.3-2)

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	9/13

4. Mechanical Specifications

4.1 Mechanical Drawing

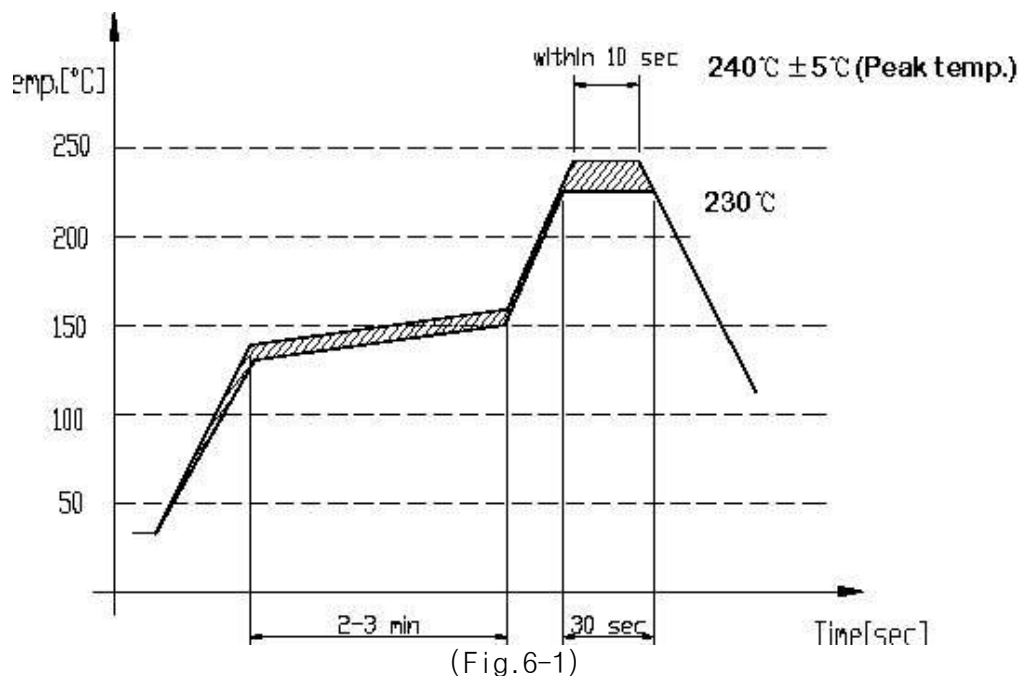


Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	10/13

5. Soldering Conditions (Pb Free)

- 1) To prevent deterioration of antenna performance, fellow conditions are satisfied.
 - Only reflow soldering process is available.
 - Inactive flux should be used.(Contents of CI is below 0.2%)
 - Reflow cycle must be under 3 times.

Solder paste : Ag/Sn/Cu:96.5/3.0/0.5



6. Notice

- 1) Specimens should be kept in environment of $-5 \sim 40^{\circ}\text{C}$ and under RH70% for standby.(MSL Level 1)
- 2) Working in high temperature or humidity, or environment of exposure to chlorine gas or sulfur can cause the dielectric chip antenna to deteriorate in ability of soldering on electrode.
- 3) Mechanical Impact should be avoided to prevent crack by the weight of Dielectric Chip Antenna itself.
- 4) Dielectric Chip Antenna should be soldered within 6months. The chip antenna over 6months should be checked about soldering availability

Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	11/13

7. RoHS Report



Test Report No. F690501/LF-CTSAYAA09-08322

Issued Date: March 27, 2009

Page 1 of 3

To: INTOPS
205-13, Anyang-7dong
Manan-gu
Anyang-city
Gyeonggi-do
Korea

The following merchandise was submitted and identified by the client as :

Product Name : Intenna
SGS File No. : AYAA09-08322
Received Date : March 23, 2009
Test Performing Date : March 24, 2009
Test Performed : SGS Testing Korea tested the sample(s) selected by applicant with following results
Test Results : For further details, please refer to following page(s)
Buyer(s) : SAMSUNG
Comments : By the applicant's specific request, the sampling and testing was performed only for the part indicated in the photo without disassembly.

Pluto Kim
Cindy Park
Jinee Song/ Testing Person

SGS Testing Korea Co. Ltd.

Jeff Jang / Chemical Lab Mgr

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Antenna Spoof float ions		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	12/13



Test Report No. F690501/LF-CTSAYAA09-08322

Issued Date: March 27, 2009

Page 2 of 3

Sample No. : AYAA09-08322.001

Sample Description : Intenna

Item No./Part No. : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321:2008, ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321:2008, ICP-OES	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008, ICP-OES	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	With reference to IEC 62321:2008, UV-VIS	1	N.D.

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

- NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) Negative = Undetectable / Positive = Detectable

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Antenna Specifications		DATE	2010. 09. 01	REV.	1.0
MODEL	UM-1000B	TYPE	CHIP ANTENNA	PAGE	13/13



Test Report No. F690501/LF-CTSAYAA09-08322

Issued Date: March 27, 2009

Page 3 of 3

Sample No. : AYAA09-08322.001

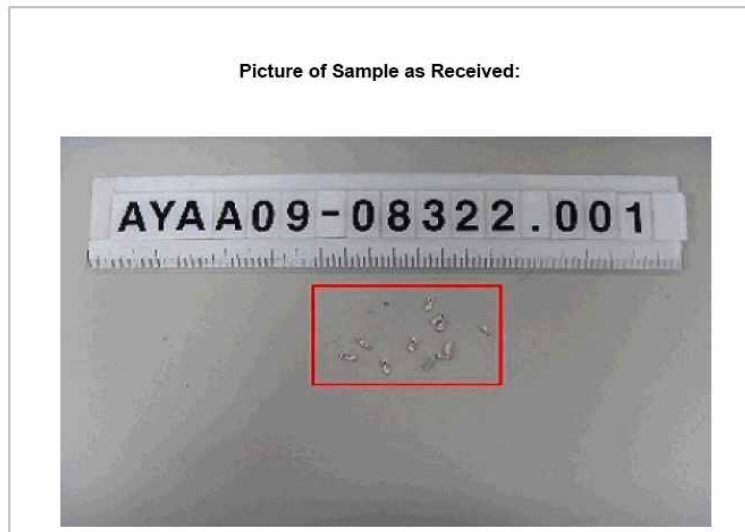
Sample Description : Intenna

Item No./Part No. : N/A

Halogen Contents

Test Items	Unit	Test Method	MDL	Results
Bromine(Br)	mg/kg	BS EN 14582:2007 , IC	30	N.D.
Chlorine(Cl)	mg/kg	BS EN 14582:2007 , IC	30	N.D.

Picture of Sample as Received:



*** End ***

- NOTE:
- (1) N.D. = Not detected.(<MDL)
 - (2) mg/kg = ppm
 - (3) MDL = Method Detection Limit
 - (4) - = No regulation
 - (5) ** = Qualitative analysis (No Unit)
 - (6) Negative = Undetectable / Positive = Detectable

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