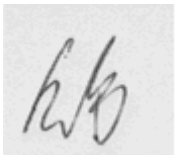
| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
|---|---|---|---|---|---|
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 1/29 |

# ANTENNA SPECIFICATION

| | Prepared by | Reviewed by | Check by | Approved by |
|---|---|---|---|---|
| R F |  | |  |  |
| | 09/05/28 | | | |
| R & D |  | |  | |
| | 09/05/28 | | | 09/05/28 |

| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
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8.1. Electrical Data (V.S.W.R & GAIN)

8.2. Antenna Drawing

8.3. Packing Spec Drawing

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8.5. Environment Test Report

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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 4/29 |

# 1. Approval Check List

| Approval Check List | | | | |
|---|---|---|---|---|
| No | Date | Change Contents | Change Cause | Rev |
| 1 | 2009.05.28 | ANTENNA SPECIFICATION | | A |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 5/29 |

## 2. Material Certification

| No | Part material | Raw material | Processing | Finishing | EA | Raw material company | Processing Plant | Etc |
|---|---|---|---|---|---|---|---|---|
| 1 | CARRIER | PC(141R-701) | MOLD | - | 1 | GE | SINA | - |
| 2 | PATTERN | STS301(0.12t) | PRESS | - | 1 | YENAN | YUHAN Precision Co. | - |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 6/29 |

# 3. Technical Specifications

## 3.1 Electrical Specifications.

- Pivot State

| Electrical Spec. | | | | |
|---|---|---|---|---|
| Frequency Range (MHz) | CDMA(824~894MHz) | | US-PCS(1850~1990MHz) | |
| V.S.W.R (Max.) | 824 MHz | 894 MHz | 1850 MHz | 1990 MHz |
| | 2.7 :1 below | 2.1 :1 below | 3.3 :1 below | 3.0 :1 below |
| PEAK GAIN (Min., E2-Plane) | CDMA | | US-PCS | |
| | Tx | Rx | Tx | Rx |
| | -3.2 dBi | -2.3 dBi | -1.6 dBi | 0.8 dBi |
| AVERAGE GAIN (Min., H-Plane) | CDMA | | US-PCS | |
| | Tx | Rx | Tx | Rx |
| | -3.0 dBi | -3.8 dBi | -13 dBi | -9.3 dBi |

| | |
|---|---|
| Impedance(Nominal) | 50 ohms |
| Polarization | VERTICAL |
| Radiation Pattern | OMNI-DIRECTIONAL |
| Maximum Power | 2 W |

## 3.2 Mechanical Specifications

| Mechanical Spec. | |
|---|---|
| Connector | Board contact pin type |
| Overall length | See drawing |
| Operating Temperature | -30℃ ~+80 ℃ |
| Weight | About 1.24g (Unit) |

## 3.3 Packing Specifications

| Packing Spec. | | |
|---|---|---|
| PRODUCT | QUANTITY (Antenna) | MATERIAL |
| TRAY | 1/40EA | P.S (0.8t) |
| TRAY INNER PAD | 2/800EA | SW 2 type (B corrugated paper) |
| CARTON BOX | 800EA/1BOX | DW 2 type (AB corrugated paper) |

# 4. Test Equipment

The equipment for antenna test is as follows,

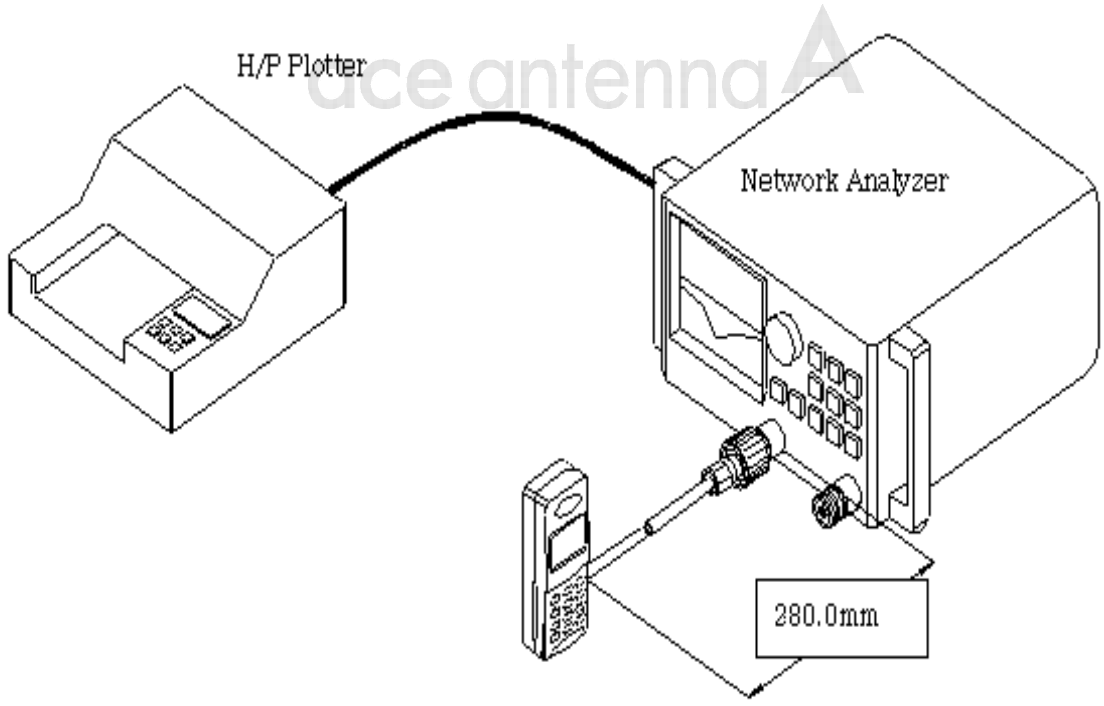
- ♦ Network Analyzer (E5071C) to measure the V.S.W.R., Standing wave ratio(SWR) and impedance bandwidth of antenna
- ♦ Standard horn antennas adjustable to the CDMA/US-PCS bands
- ♦ Anechoic Chamber installed the cables, connectors and equipments for measurements
- ♦ Digital Caliper to measure the dimensions
- ♦ Torque Driver to measure the torque force of the helix
- ♦ Push/Pull gauge to measure the pulling forces
- ♦ Climatic Chamber for environmental tests

# 5. Electrical Demands

## 5.1 V.S.W.R

The V.S.W.R characteristics must be satisfied the electrical demands in the below table.

| Frequency Range (MHz) | CDMA (824~894MHz) | | US-PCS (1850~1990MHz) | |
|---|---|---|---|---|
| V.S.W.R (Pivot State) | 824 MHz | 894 MHz | 1850 MHz | 1990 MHz |
| | 2.7 :1 below | 2.1 :1 below | 3.3 :1 below | 3.0 :1 below |



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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 10/29 |

## 5.2 Radiation Pattern

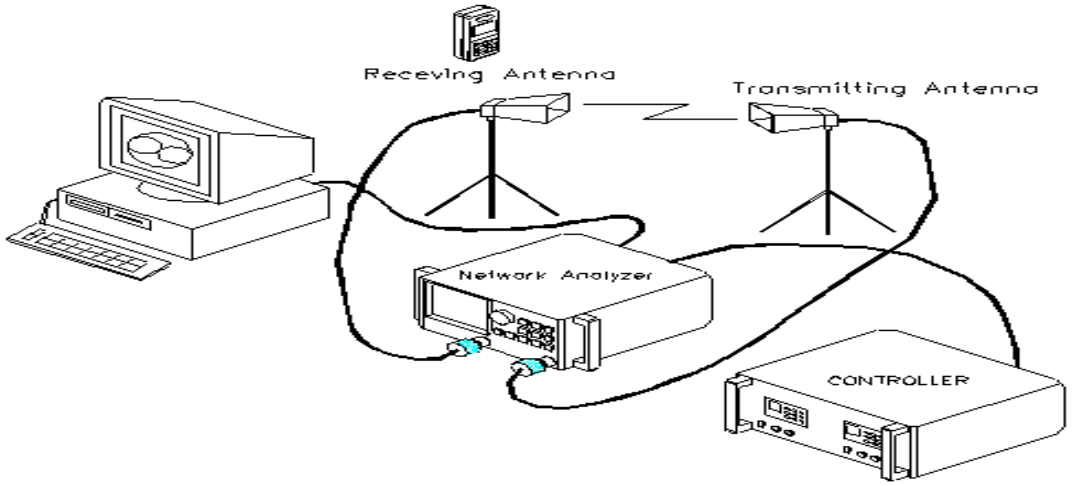
The radiation pattern must have the omni-directional characteristic in CDMA/US-PCS band.

## 5.3 Gain

The gain is expressed as dBi. with condition (E2, H-Plane), the minimum Gain of antenna must be satisfied the electrical demands in the below table.

- Pivot State

| Electrical Spec. | | | | |
|---|---|---|---|---|
| Frequency Range (MHz) | CDMA(824~894MHz) | | US-PCS(1850~1990MHz) | |
| PEAK GAIN (Min., E2-Plane) | CDMA | | US-PCS | |
| | Tx | Rx | Tx | Rx |
| | -3.2 dBi | -2.3 dBi | -1.6 dBi | 0.8 dBi |
| AVERAGE GAIN (Min., H-Plane) | CDMA | | US-PCS | |
| | Tx | Rx | Tx | Rx |
| | -3.0 dBi | -3.8 dBi | -13 dBi | -9.3 dBi |



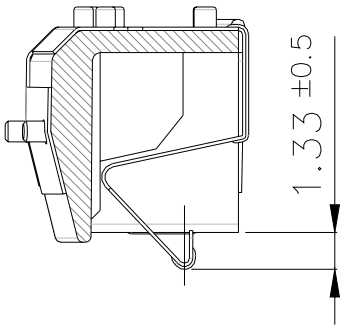
# 6. Mechanical Demands

## 6.1. Contact Pin Force Test

Contact pin of antenna must keep 200g/f ±150 in operation distance.

(Operation distance of antenna is same to under drawing.

(PCB overlap : 0mm~1.83mm)






## 6.2. Contact Pin Resistance Test.

After assemble antenna to test equipment, Contact pins are pressed to nominal assembly position 500 times. The antenna contact force must satisfy of (6.1) operation force. (Cycle time: 60 times/min )

## 6.3 Drop Test

The antenna is attached to the handset. The handset is dropped with the antenna downward onto a concrete surface at 1.5 m height and 6 plane.

The number of drop is 2 times.

After the test, the original shape shall be possible to restore. The antenna shall satisfy the electrical demands.

# 7.Environmental Demands

## 7.1 Operation Temperature Test

- Test A: Place the antennas for testing in chamber. The chamber condition should be as follows: 1hours at -20℃.
- Final measurements: The antenna shall be visually inspected and electrically and also mechanically checked as required by products standard.
- Test B: Place the antennas for testing in chamber. The chamber condition should be as follows: 1hours at 70℃.
- Final measurements: The antenna shall be visually inspected and electrically and also mechanically checked as required by products standard.



## 7.2 Temperature Change Test

The object of temperature test is to evaluate the reliability of antenna component at temperature change.

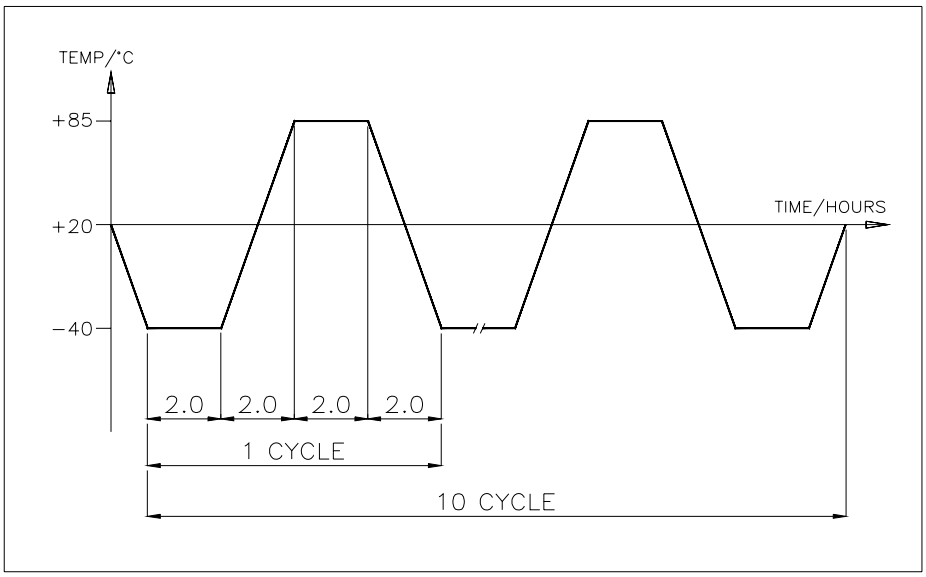
Test: Temperature cycle is as follows. 2 hours at -40℃.

2 hours at +85℃.

Temperature increase/decrease time (Temperature change time) is

2 hours. 10 cycles.

Final measurements: The antenna shall be visually inspected and electrically and mechanically checked as required by products standard.




## 7.3 High Humidity Test

Test: Place the antennas for testing in chamber. The chamber condition should be as follows: 24hours at +55℃, Relative humidity is 95%.

Final measurements: The antenna shall be visually inspected and electrically and also mechanically checked as required by products standard.

## 7.4 Vibration Test

After assemble antenna to test equipment, Do test in X, Z direction per 1hour as a under spec. The antenna shall be visually inspected and electrically and mechanically checked as required by products standard. The test must satisfy to IEC 68-2-6 spec

| | |
|---|---|
| Vibration frequency | F=5~55~5Hz(1cycle) |
| Sweeping Rate | 0.5 octave/min |
| Maximum displacement | 1.5mm |
| Maximum acceleration | 2 g |
| Crossover Frequency | 18.0Hz |

### 7.5 Salt spray Test

Sprayed with the salt spray solution for a period of 96 hours at a temperature of+35℃.

The antenna shall be visually inspected and electrically and mechanically checked as required by products standard. The test must satisfy to IEC 68-2-11 spec .



### 7.6 Storage temperature Test

After antenna are stored for a period of 96 hours at a temperature of -30 °C and a relative humidity of 95 %. Stored for a period of 96 hours at a temperature of +80 °C and a relative humidity of 95 % (total: 192 hour)

The antenna shall be visually inspected and electrically and mechanically checked as required by products standard.

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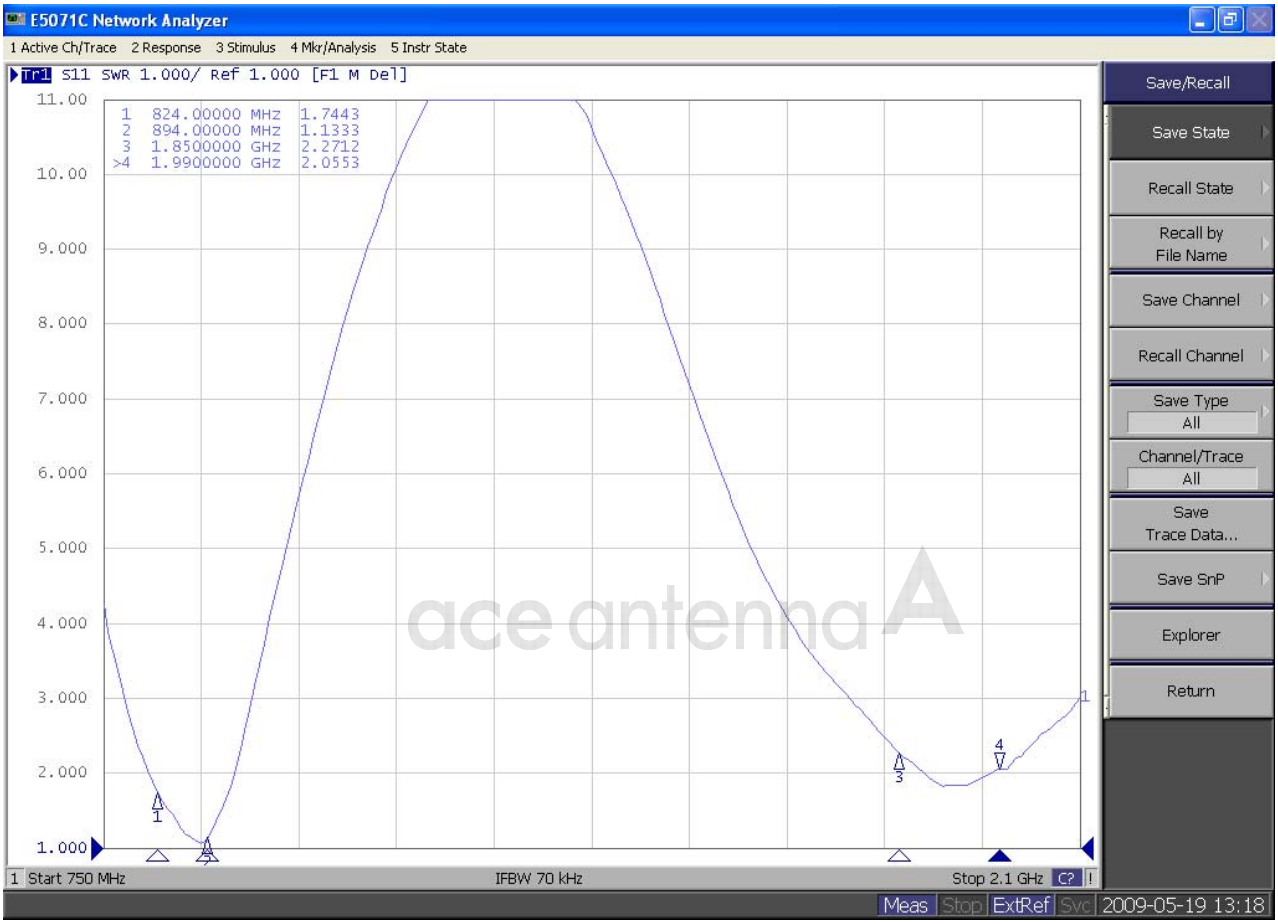
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 15/29 |

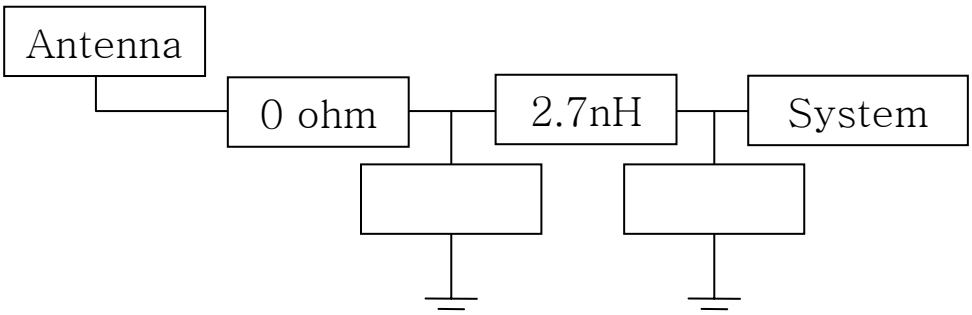
# 8. Antenna data

## 8.1. Electrical data(V.S.W.R & GAIN)

→ V.S.W.R (Pivot State)




→ Matching Circuit Diagram



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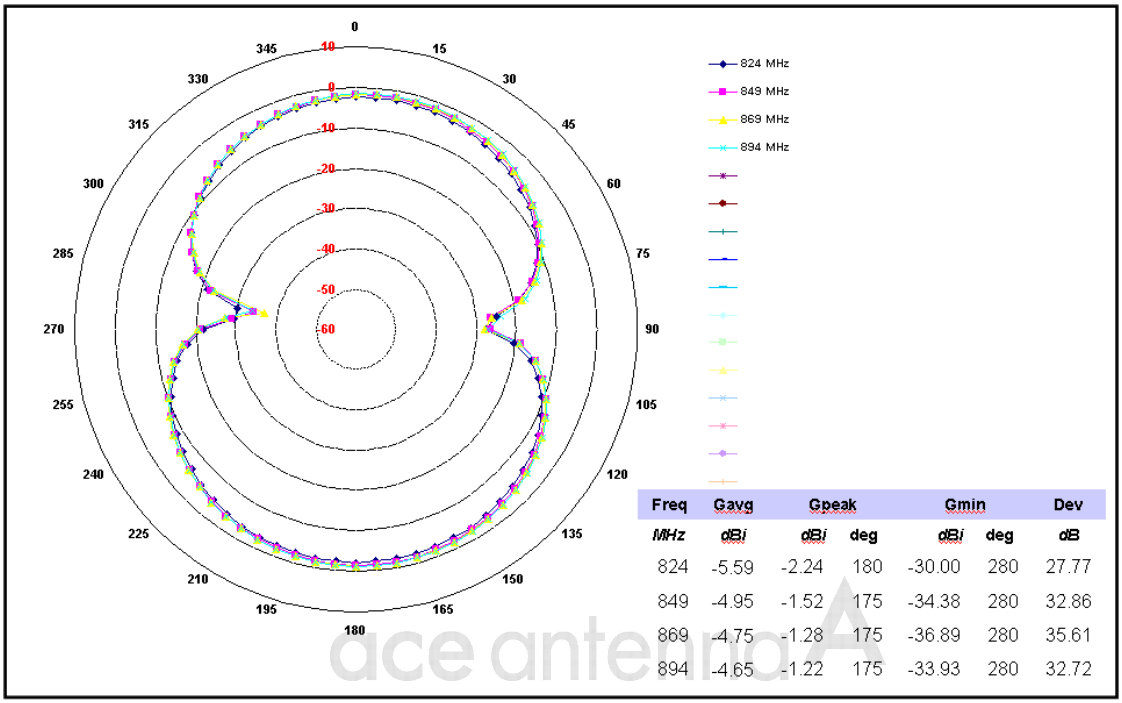
|---|---|---|---|---|---|
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 16/29 |

- GAIN (with Matching Circuit)

  - E2-Plane

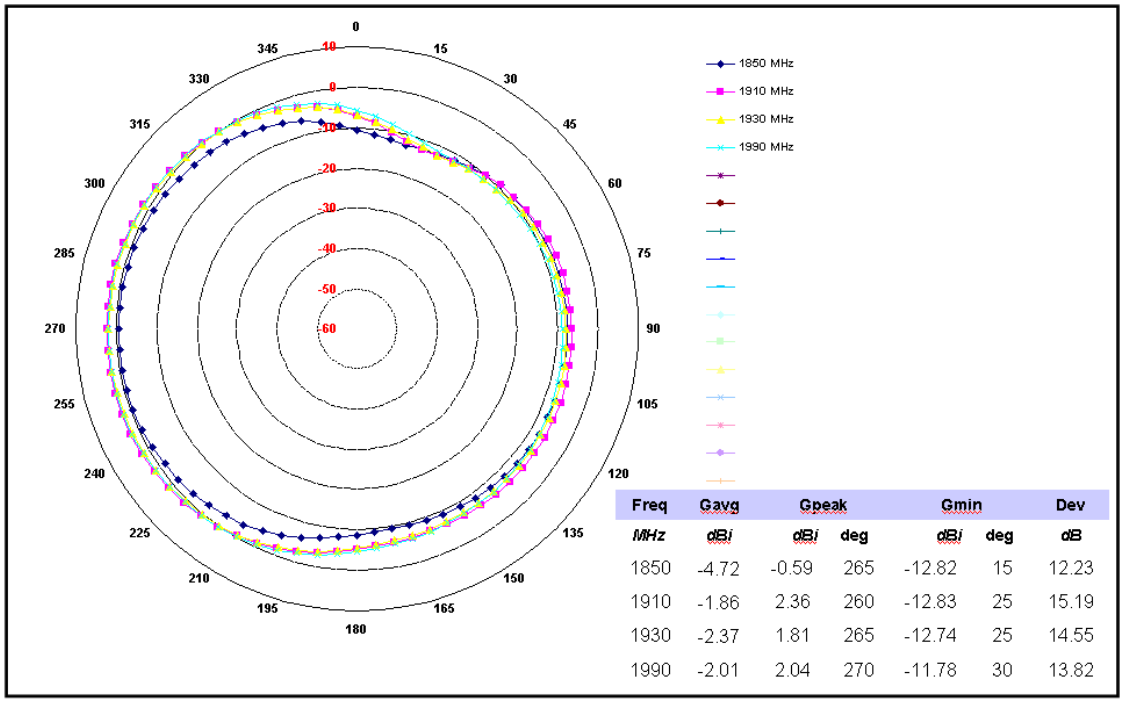
→ [CDMA]




| Freq | Gavg | Gpeak | | Gmin | | Dev |
|---|---|---|---|---|---|---|
| MHz | dBi | dBi | deg | dBi | deg | dB |
| 824 | -5.59 | -2.24 | 180 | -30.00 | 280 | 27.77 |
| 849 | -4.95 | -1.52 | 175 | -34.38 | 280 | 32.86 |
| 869 | -4.75 | -1.28 | 175 | -36.89 | 280 | 35.61 |
| 894 | -4.65 | -1.22 | 175 | -33.93 | 280 | 32.72 |



→ [US-PCS]




| Freq | Gavg | Gpeak | | Gmin | | Dev |
|---|---|---|---|---|---|---|
| MHz | dBi | dBi | deg | dBi | deg | dB |
| 1850 | -4.72 | -0.59 | 265 | -12.82 | 15 | 12.23 |
| 1910 | -1.86 | 2.36 | 260 | -12.83 | 25 | 15.19 |
| 1930 | -2.37 | 1.81 | 265 | -12.74 | 25 | 14.55 |
| 1990 | -2.01 | 2.04 | 270 | -11.78 | 30 | 13.82 |

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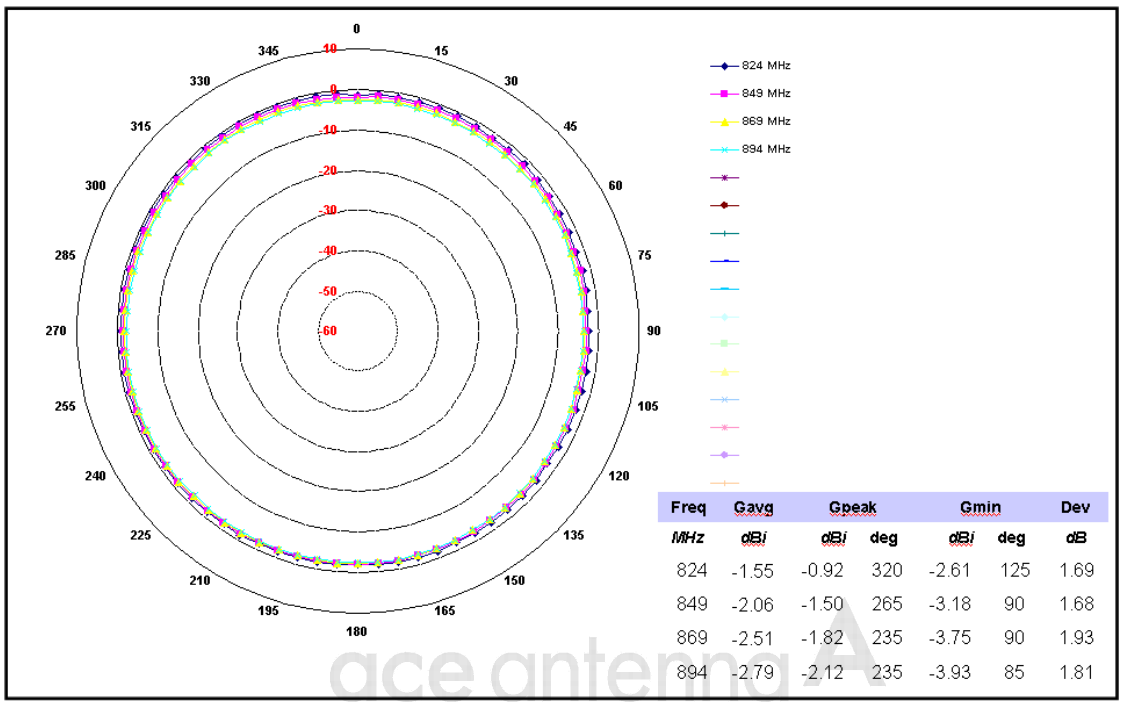
|---|---|---|---|---|---|
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 17/29 |

- H-Plane

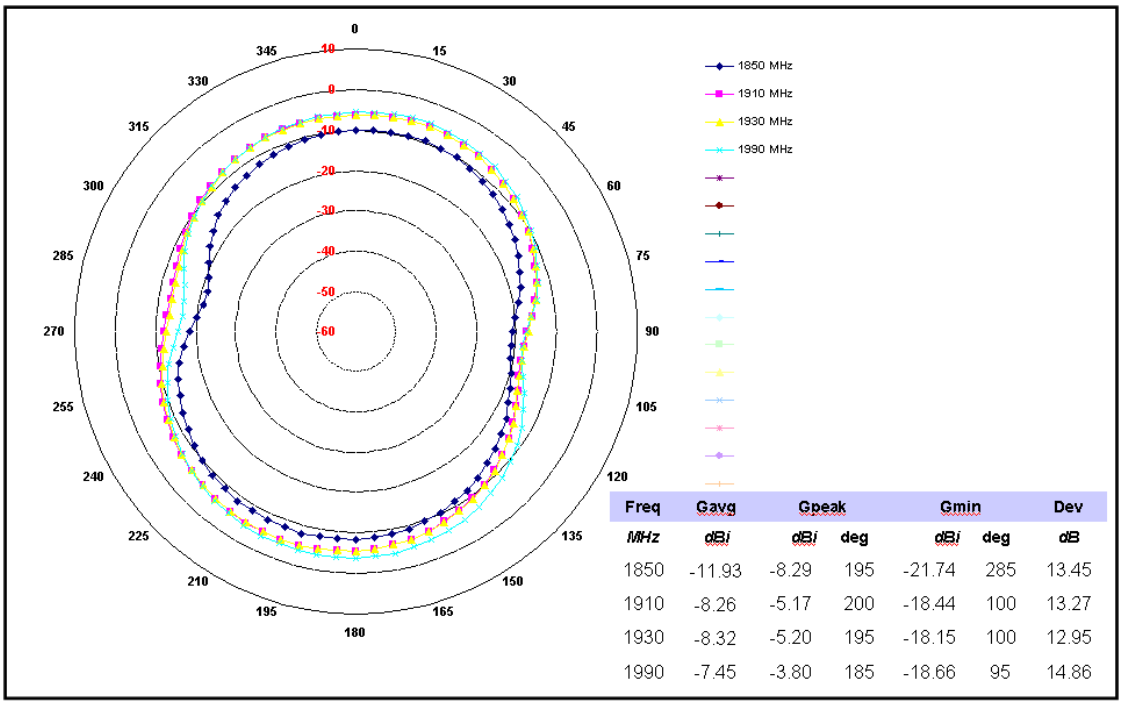
→ [CDMA]




| Freq | Gavg | Gpeak | | Gmin | | Dev |
|---|---|---|---|---|---|---|
| MHz | dBi | dBi | deg | dBi | deg | dB |
| 824 | -1.55 | -0.92 | 320 | -2.61 | 125 | 1.69 |
| 849 | -2.06 | -1.50 | 265 | -3.18 | 90 | 1.68 |
| 869 | -2.51 | -1.82 | 235 | -3.75 | 90 | 1.93 |
| 894 | -2.79 | -2.12 | 235 | -3.93 | 85 | 1.81 |



→ [US-PCS]




| Freq | Gavg | Gpeak | | Gmin | | Dev |
|---|---|---|---|---|---|---|
| MHz | dBi | dBi | deg | dBi | deg | dB |
| 1850 | -11.93 | -8.29 | 195 | -21.74 | 285 | 13.45 |
| 1910 | -8.26 | -5.17 | 200 | -18.44 | 100 | 13.27 |
| 1930 | -8.32 | -5.20 | 195 | -18.15 | 100 | 12.95 |
| 1990 | -7.45 | -3.80 | 185 | -18.66 | 95 | 14.86 |

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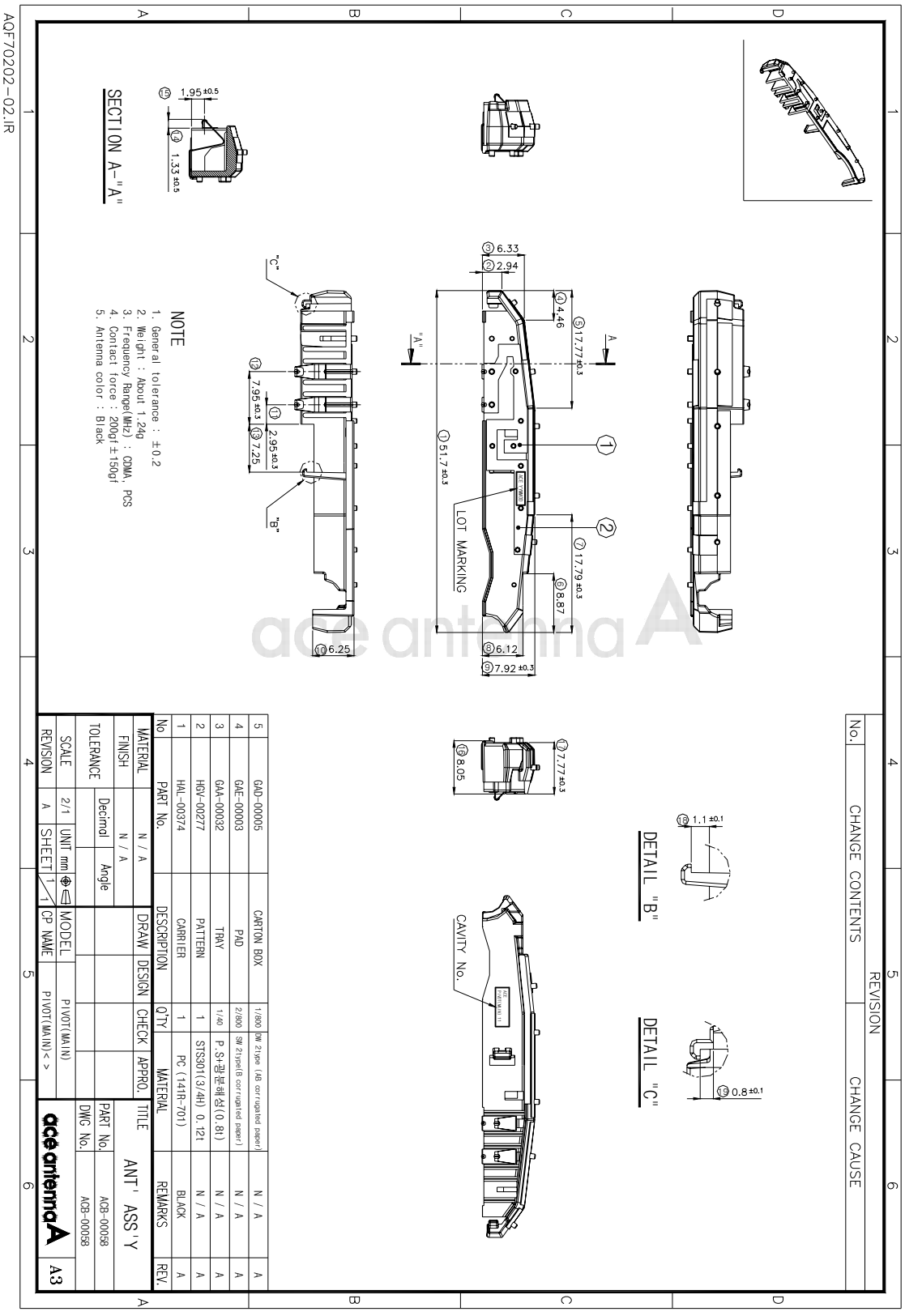
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 18/29 |

## 8.2. Antenna Drawing




| No | PART No. | DESCRIPTION | QTY | MATERIAL | REMARKS | REV. |
|---|---|---|---|---|---|---|
| 5 | GAD-00005 | CARTON BOX | 1/800 | DW 21ppe (AB corrugated paper) | N / A | A |
| 4 | GAE-00003 | PAD | 2/800 | SW 21ppe(B corrugated paper) | N / A | A |
| 3 | GAA-00032 | TRAY | 1/40 | P.S+괄분해성(0.8t) | N / A | A |
| 2 | H6V-00277 | PATTERN | 1 | STS301(3/4H) 0.12t | N / A | A |
| 1 | HAL-00374 | CARRIER | 1 | PC (141R-701) | BLACK | A |

| MATERIAL | N / A | DRAW | | MODEL | PIVOT(MAIN) | TITLE | ANT' ASS'Y |
|---|---|---|---|---|---|---|---|
| FINISH | N / A | DESIGN | | CP NAME | PIVOT(MAIN)< > | PART No. | ACB-00058 |
| TOLERANCE | Decimal | CHECK | | SCALE | 2/1 | DWG No. | ACB-00058 |
| | Angle | APPRO. | | REVISION | A | SHEET | 1 / 1 |
| ace antenna A | | | | | | UNIT | mm |
| | | | | | | A3 | |

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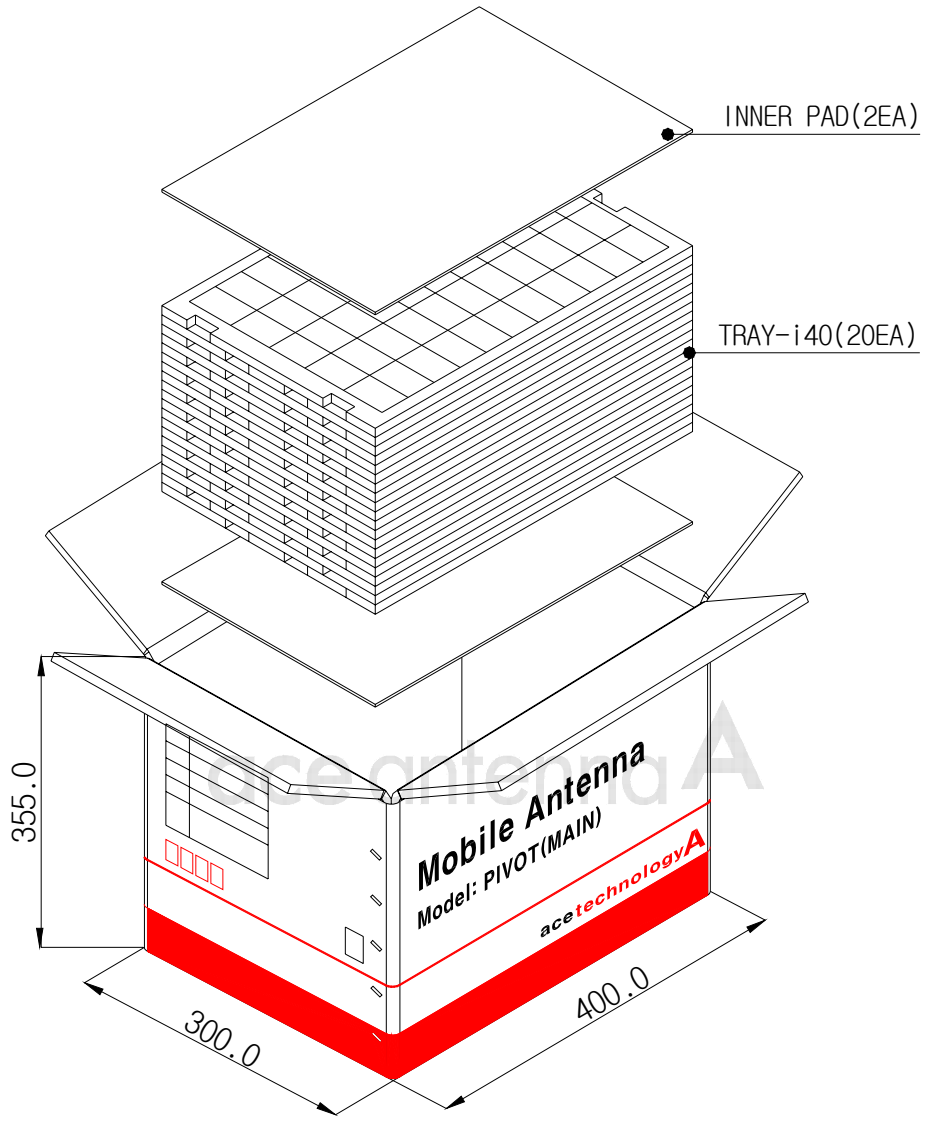
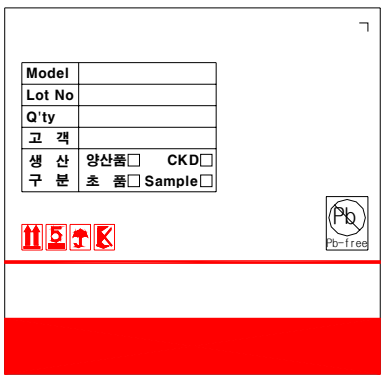
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 19/29 |

## 8.3. Packing Spec Drawing.




좌측면 인쇄 사양


양쪽 전면 인쇄 사양

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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 20/29 |

## 8.4 Reliability Test.

## 8.5. Environment test report

### 8.5.1 CARRIER [ 141R-701 ]

Intertek Testing Center
340-2, Yongam-ri, Chongryang-myun,
Ulju-gun, Ulsan, 689-865 Korea
Tel : 052-257-6754, Fax : 052-276-6792

# TEST REPORT

Applicant : GE Plastics Korea
Address : 240-18, Mokhang-Dong, Chungju-Si,
Chungcheongbuk-Do, Korea

Page: 1 of 5
Report No. UT07R-0872 Date: Jul. 13, 2007

Sample Description : The following submitted sample(s) said to be:-

Name/Type of Product : 141R-701
Sample ID No. : UT07R-0872
Manufacturer/Vender : GE Plastics Korea



Sample received : Jul. 11, 2007
Testing Date : Jul. 11, 2007 ~ Jul. 13, 2007
Testing Laboratory : Intertek Testing Center
Testing Environment : Temperature : 22℃ Relative Humidity: 51 %

Test Method(s) : Please see the following page(s).
Test Result(s) : Please see the following page(s).

* Note 1 : The test results presented in this report relate only to the object tested.
* Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.

Tested by,

E.Y.Lee / Chemist

Authorized by,

H.W.Yoo / Lab Manager

Intertek Testing Center
340-2, Yongam-ri, Chongryang-myun,
Ulju-gun, Ulsan, 689-865 Korea
Tel : 052-257-6754, Fax : 052-276-6792

# TEST REPORT


Report No. UT07R-0872 Date: Jul. 13, 2007

Sample ID No. : UT07R-0872
Sample Description : 141R-701

| Test Items | Unit | Test Method | MDL | Results |
|---|---|---|---|---|
| Cadmium (Cd) | mg/kg | With reference to BS EN 1122, by acid digestion and determined by ICP-OES | 0.5 | N.D |
| Lead (Pb) | mg/kg | With reference to US EPA 3052, by acid digestion and determined by ICP-OES | 5 | N.D |
| Mercury (Hg) | mg/kg | With reference to US EPA 3052, by acid digestion and determined by ICP-OES | 2 | N.D |
| Hexavalent Chromium ($Cr^{6+}$) | mg/kg | US EPA 3060A and determined by UV-visible | 1 | N.D |
| Polybrominated Biphenyl (PBBs) | | | | |
| Monobromobiphenyl | mg/kg | With reference to US EPA 3540C, by solvent extraction and determined by GC/MS Analysis | 5 | N.D |
| Dibromobiphenyl | mg/kg | | 5 | N.D |
| Tribromobiphenyl | mg/kg | | 5 | N.D |
| Tetrabromobiphenyl | mg/kg | | 5 | N.D |
| Pentabromobiphenyl | mg/kg | | 5 | N.D |
| Hexabromobiphenyl | mg/kg | | 5 | N.D |
| Heptabromobiphenyl | mg/kg | | 5 | N.D |
| Octabromobiphenyl | mg/kg | | 5 | N.D |
| Nonabromobiphenyl | mg/kg | | 5 | N.D |
| Decabromobiphenyl | mg/kg | | 5 | N.D |
| Polybrominated Diphenyl Ether (PBDEs) | | | | |
| Monobromodiphenyl ether | mg/kg | With reference to US EPA 3540C, by solvent extraction and determined by GC/MS Analysis | 5 | N.D |
| Dibromodiphenyl ether | mg/kg | | 5 | N.D |
| Tribromodiphenyl ether | mg/kg | | 5 | N.D |
| Tetrabromodiphenyl ether | mg/kg | | 5 | N.D |
| Pentabromodiphenyl ether | mg/kg | | 5 | N.D |
| Hexabromodiphenyl ether | mg/kg | | 5 | N.D |
| Heptabromodiphenyl ether | mg/kg | | 5 | N.D |
| Octabromodiphenyl ether | mg/kg | | 5 | N.D |
| Nonabromodiphenyl ether | mg/kg | | 5 | N.D |
| Decabromodiphenyl ether | mg/kg | | 5 | N.D |

Notes : mg/kg = ppm = parts per million
< = Less than
N.D = Not detected ( <MDL )
MDL = Method detection limit

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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 22/29 |

Intertek Testing Center
340-2, Yongam-ri, Chongryang-myun,
Uiju-gun, Ulsan, 689-865 Korea
Tel : 052-257-6754, Fax : 052-276-6792

# TEST REPORT


Report No. UT07R-0872 Date: Jul. 13, 2007

Sample ID No. : UT07R-0872
Sample Description : 141R-701

* View of sample as received;-

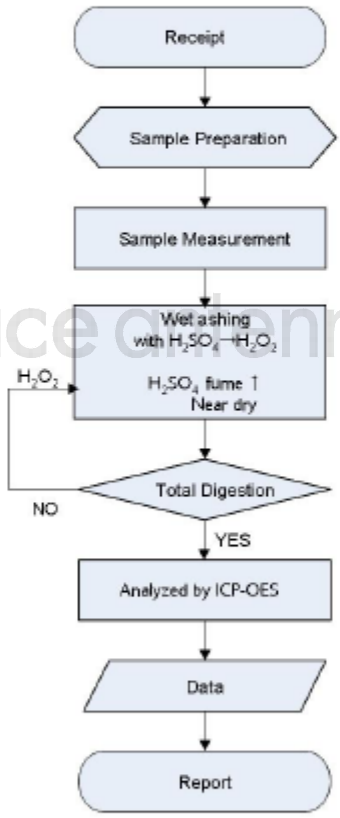
Intertek Testing Center
340-2, Yongam-ri, Chongryang-myun,
Uiju-gun, Ulsan, 689-865 Korea
Tel : 052-257-6754, Fax : 052-276-6792

# TEST REPORT


Report No. UT07R-0872 Date: Jul. 13, 2007

Sample ID No. : UT07R-0872
Sample Description : 141R-701

## Flow Chart Of Digestion ( EN 1122 for Cd )






** Remarks : The samples were dissolved totally by pre-conditioning method according to above flow chart.

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| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 24/29 |

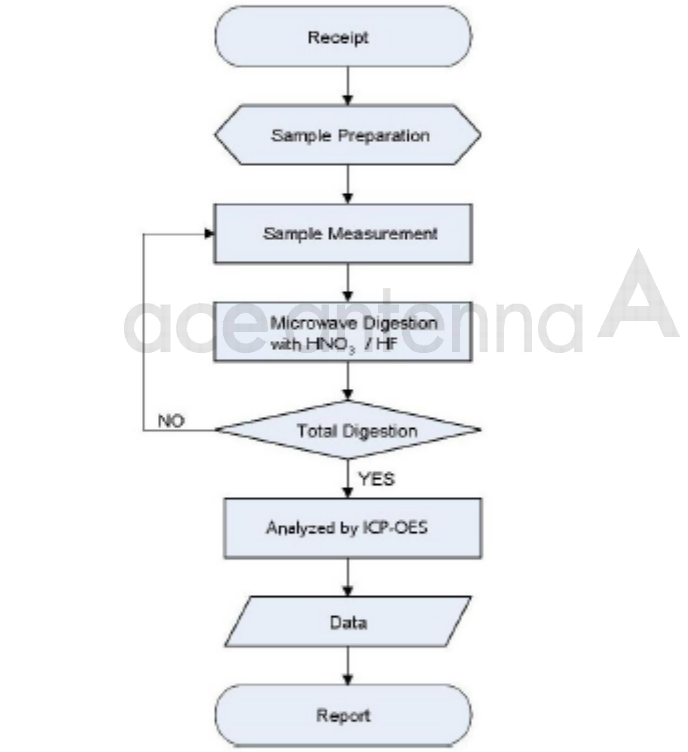
Intertek Testing Center
340-2, Yongam-ri, Chongryang-myun,
Ulju-gun, Ulsan, 689-865 Korea
Tel : 052-257-6754, Fax : 052-276-6792

# TEST REPORT


Report No. UT07R-0872 Date: Jul. 13, 2007

Sample ID No. : UT07R-0872
Sample Description : 141R-701

## Flow Chart Of Digestion ( EPA 3052 for Cd, Pb )






** Remarks : The samples were dissolved totally by pre-conditioning method according to above flow chart.

Prepared by Eung Yong Lee, Chemist
Confirmed by Sang Chul Park, Senior Researcher

***** End of Report *****

| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
|---|---|---|---|---|---|
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 25/29 |

8.5.2 PATTERN [ STS301 ]

| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
|---|---|---|---|---|---|
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 26/29 |

SGS

**Test Report No.** F690501/LF-CTSAYAA08-30908C Issued Date: November 24, 2008 Page 1 of 4

**To:** **TAIHAN STAINLESS STEEL CO., LTD**
603 Seonggok-dong
Danwon-gu
Ansan-city
GYEONGGI-DO
Korea

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

| | |
|---|---|
| **Product Name** | : STS 301 |
| **SGS File No.** | : AYAA08-30908C |
| **Received Date** | : November 18, 2008 |
| **Test Performing Date** | : November 19, 2008 |
| **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) |



**SGS Testing Korea Co. Ltd.**

**Pluto Kim**
**Monet Jeong**
**Billy Oh / Testing Person**

**Jeff Jang / Chemical Lab Mgr**





SGS Testing Korea Co.,Ltd.
322, The O valley, 656-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080
t+82 (0)31 428 5700 f+82 (0)31 428 5149 http://www.sgslab.co.kr /www.kr.sgs.com/greenlab
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**Test Report No.** F690501/LF-CTSAYAA08-30908C Issued Date: November 24, 2008 Page 2 of 4

**Sample No.** : AYAA08-30908C.001
**Sample Description** : STS 301
**Item No./Part No.** : N/A
**Comments** : Material is stainless steel.

**Heavy Metals**

| Test Items | Unit | Test Method | MDL | Results |
|---|---|---|---|---|
| Cadmium (Cd) | mg/kg | US EPA 3052(1996), US EPA 6010B(1996), ICP | 0.5 | N.D. |
| Lead (Pb) | mg/kg | US EPA 3052(1996), US EPA 6010B(1996), ICP | 5 | N.D. |
| Mercury (Hg) | mg/kg | US EPA 3052(1996), US EPA 6010B(1996), ICP | 2 | N.D. |
| Hexavalent Chromium (Cr VI) | mg/kg | US EPA 3060A(1996), US EPA 7196A(1992), UV | 1 | N.D. |

**Flame Retardants-PBBs/PBDEs**

| Test Items | Unit | Test Method | MDL | Results |
|---|---|---|---|---|
| Monobromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Dibromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Tribromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Tetrabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Pentabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Hexabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Heptabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Octabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Nonabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Decabromobiphenyl | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Monobromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Dibromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Tribromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Tetrabromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Pentabromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Hexabromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Heptabromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Octabromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Nonabromodiphenyl ether | mg/kg | US EPA 3540C, GC/MS | 5 | N.D. |
| Decabromodiphenyl ether | mg/kg | US EPA 3540C, 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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ace antenna

| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
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**Picture of Sample as Received:**




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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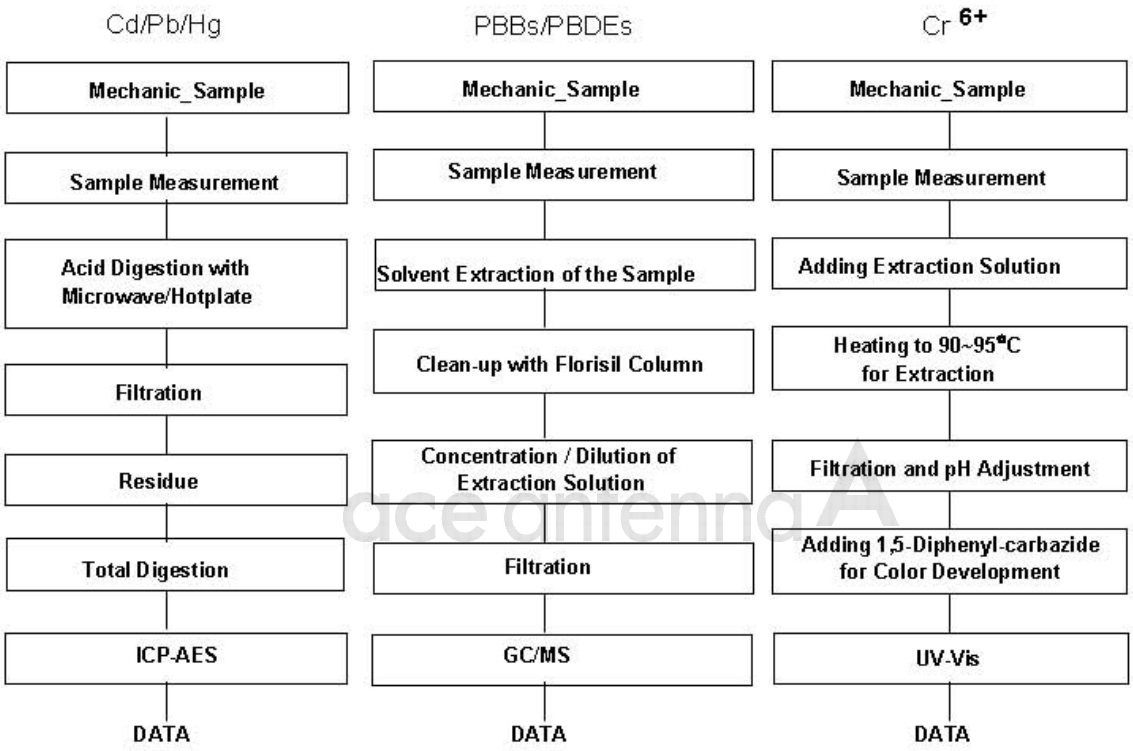
| ANTENNA SPECIFICATION | | DATE | 2009-05-28 | REV. | A |
|---|---|---|---|---|---|
| MODEL | PIVOT(MAIN) | TYPE | Main antenna | PAGE | 29/29 |



## Testing Flow Chart for RoHS:Cd/Pb/Hg/$Cr^{6+}$/PBBs&PBDEs Testing




The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.

Operator Dami Yeom

Section Chief Jeff Jang

*** 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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