

Measurement of Maximum Permissible Exposure

1. Foreword

In adopt with the Human Exposure IEEE C95.1, and according to the FCC 1.1310. The *Maximum Permissible Exposure (MPE)* is obligated to measure in order to prove the safety of radiation harmfulness to the human body.

The *Gain* of the antenna used is measured in an *Anechoic chamber*. The *maximum total power to the antenna* is to be recorded. By adopting the *Friis Transmission Formula* and the *power gain of the antenna*, we can find the distance right away from the product, where the limit of the MPE is.

2. Description of EUT

FCC ID	:	VUIAWM6018P
Product name	:	WIFI module
Model	:	AWM6018-P
Classification	:	Mobile Device (i) Under normal use condition, the antenna is at least 20cm away from the user; (ii) Warning statement for keeping 20cm separation distance and the prohibition of operating next to the person has been printed in the user's manual
Frequency Range	:	2.412 GHz ~ 2.462GHz
Supported Channel	:	11 Channels
Modulation Skill	:	DBPSK, DQPSK, CCK, OFDM
Power Type	:	Powered by mini-PCI interface

3. Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	100	6
3.0-30	1842/f	4.89/f	900/f ²	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	100	30
1.34-30	824/f	2.19/f	180/f ²	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

[The EUT is tested in transmit and receive modes and in the first, middle and the last channel separately. The following shows only our observation have the greatest emissions.]

According to OET BULLETIN 56 Fourth Edition/August 1999, Equation for Predicting RF Fields:

Friis Transmission Formula:
$$S = \frac{PG}{4\pi R^2} = \frac{312.61 \times 1.51}{4\pi (20)^2} = 0.094 \text{ mW} / \text{cm}^2$$

Estimated safe separation:
$$R = \sqrt{\frac{PG}{4\pi}} = \sqrt{\frac{312.61 \times 1.51}{4\pi}} = 6.13 \text{ cm}$$

Remarks: "The safe estimated separation that the user must maintain from the antenna is at least 5.8cm"

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

The Numeric gain G of antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} (\text{dB antenna gain} / 10)$$

$$G = \text{Log}^{-1} (1.80 / 10) = 1.51$$

Appendix

Antenna Specification

Antenna#1 (MAIN RF Output)

納入仕様書

《新規・變更》

客戶 unihancorp

制 定	2008 年 09 月 12 日
部品番號	14G156012330
品 名	WPB090-R Mini 1.13(Black) with MHF L95mm
公司番號	HY1A-15392-A1

[驗收印欄]

蘇州萬旭電子元件有限公司
江蘇省蘇州市相城區望亭鎮問渡路68號

PC:215155

TEL:86-512-66701912

FAX:86-512-65381104

作 成	檢 圖	確 認	核 準
沈天華	張永明	白 娜	衛壽文

SPECIFICATION

1. Description.....:WPB090-R Mini 1.13(Black)

With MHF L95mm

2.Customer.....:unihancorp

3.Part No.....:14G156012330

4.Coaxial Lenght.....:95mm(see Drawing)

5.Electrical Characteristics

Operating Frequency.....:1~6GHz

Impedance.....:50 Ohm nominal

6.Mechanical Chararacteristics

Connector.....: MHF

7.Raw Material

Coaxial Cable.....: Mini 1.13

Core.....: N/A

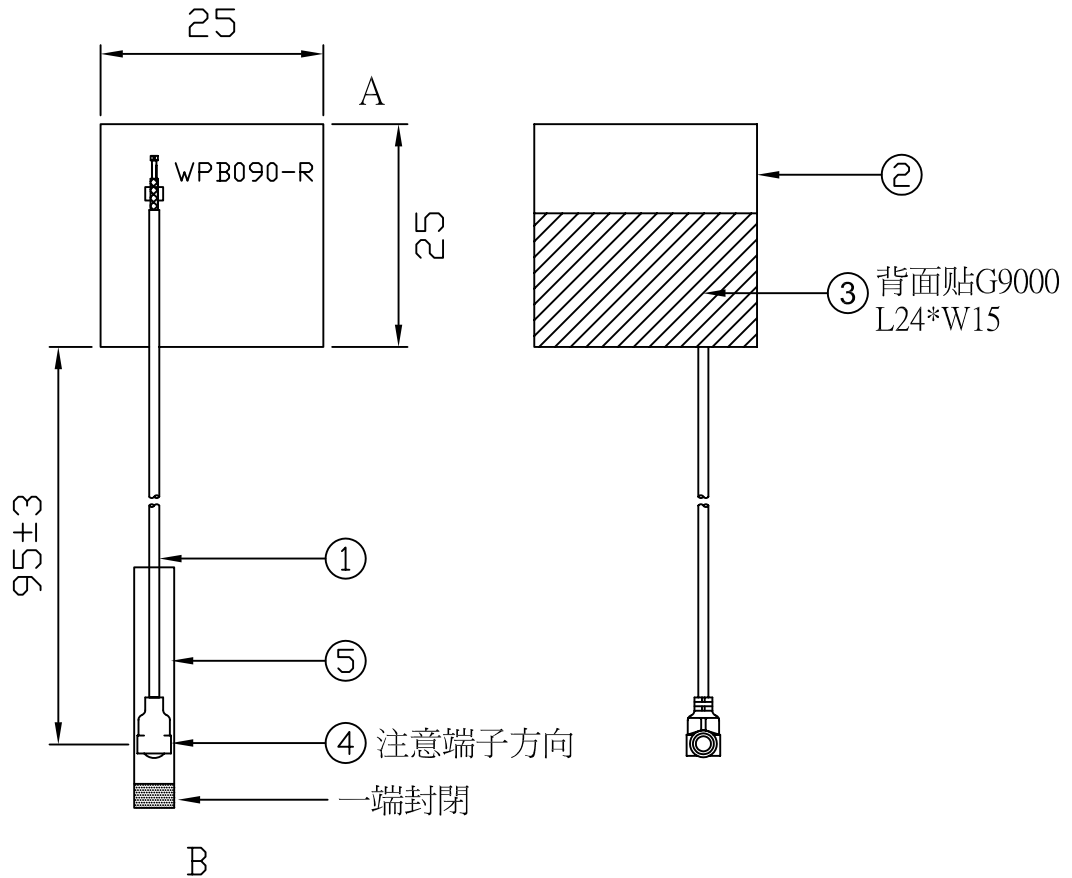
變更記錄 1.

2.

3.

4.

TOLERANCES:	
X	±1.0
X.X	±0.6
X.XX	±0.2
ANGULAR	±5.0°



作業說明：

- 天線組立依據天線組立作業指導書規定製作。
依據QC管理工程圖，執行品質管制。
- 測試要求: START: 2GHz; STOP: 6GHz
MARKER點為: 2.4GHz; 2.45GHz; 2.5GHz; 5.15GHz;
5.25GHz; 5.35GHz; 5.725GHz; 5.85GHz;
以上8點有波形即可。

5	透明管	V	3.6/3.0 (φ2.5)透明管 LF	透明	15	1
4	MHF Connector	V	20278-111R-13(I-PEX) LF	金		1
3	双面背膠	V	SONY G9000 (15*24) 貼紙 HF (卓文or恆得)	白		1
2	PCB	V	WPB090-R 25*25*0.8 HF (萬正)			1
1	MINI 1.13 Coaxial Cable	V	MINI RG OD:1.13 黑色 LF-Sn LF (萬泰)	黑	113	1

NO	部 品 名	環材	部	番	顏色	切斷尺寸	用量
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第3角法	圖 面 不 用 實 測				部品番號	14G156012330	
比例 FREE	作 成	檢 圖	確 認	核 准	品 名	WPB090-R Mini 1.13(Black) with MHF L95mm	
單位: mm	沈天華	張永明	白 娜	衛壽文	公司番號	HY1A-15392-A1	
08年 09月 12日							

成品電腦編號: HY1A15392A



蘇州萬旭電子元件有限公司

頁次: 1/1

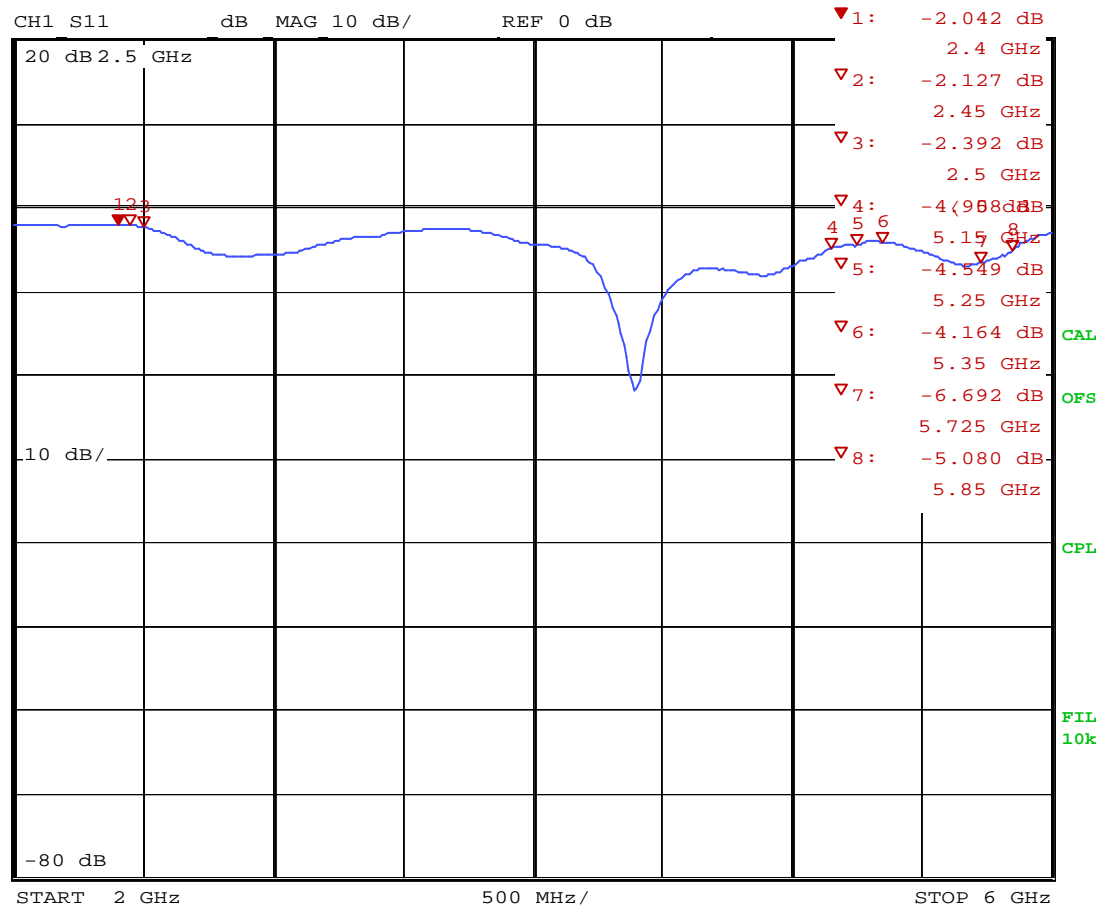
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Electrical Properties

Return Loss



Suzhou Wanshih Electronic Element Co., Ltd.



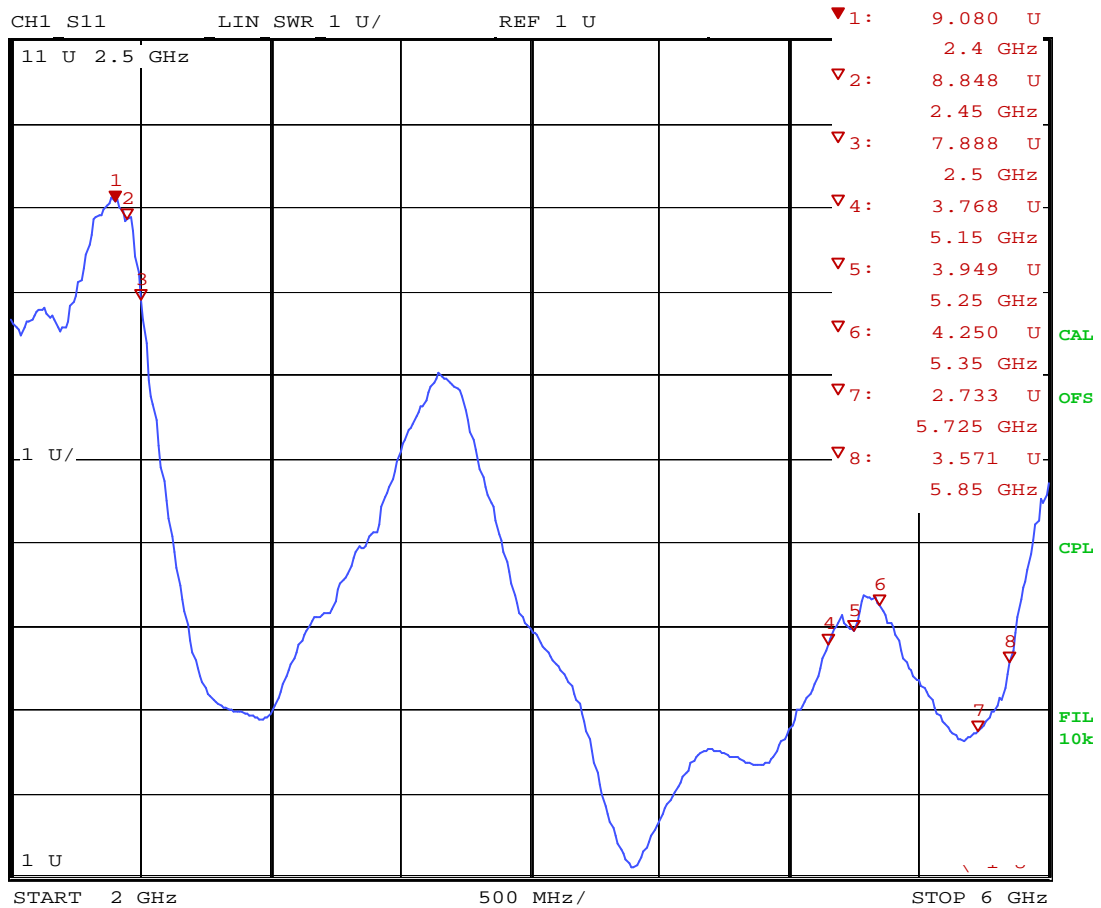
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Electrical Properties

V.S.W.R



Suzhou Wanshih Electronic Element Co., Ltd.



Electrical Properties

2.4~2.5 H-Plane Test on board



Suzhou Wanshih Electronic Element Co., Ltd.

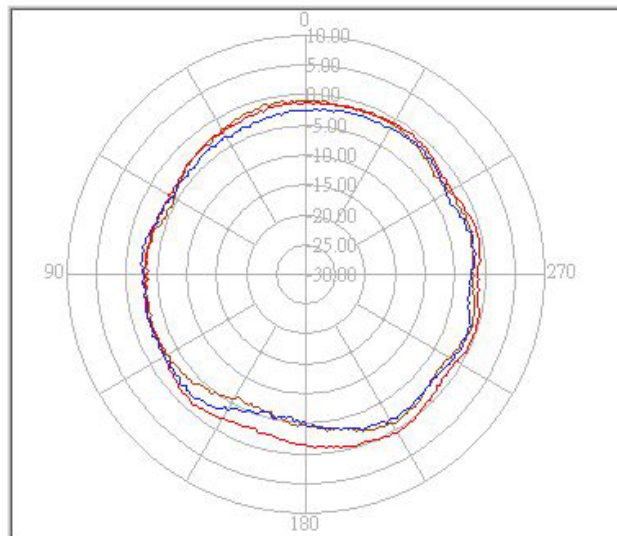


萬旭電業股份有限公司

Model No: 2.4-2.5

Antenna Position: Vertical

Test Mode: H-PLANE



Freq (MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	-0.70	23.19	-2.46
2450.00	0.56	147.66	-1.50
2500.00	-1.03	107.39	-2.68

Test engineer: _____

Test date: 2008/8/22 at PM 04:07

Electrical Properties

2.4~2.5 E-Plane Test on board



Suzhou Wanshih Electronic Element Co., Ltd.

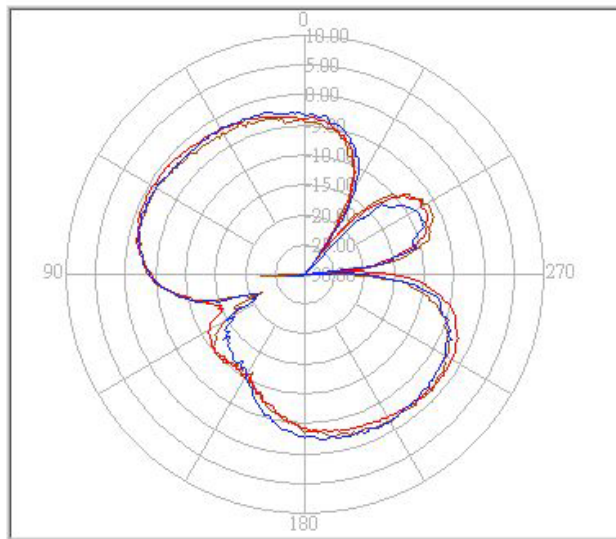


萬旭電業股份有限公司

Model No: 2.4-2.5

Antenna Position: Horizontal

Test Mode: E-PLANE



Freq (MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	-1.12	295.10	-4.74
2450.00	-0.48	296.33	-4.38
2500.00	-0.91	288.98	-4.48

Test engineer: _____

Test date: 2008/8/22 at PM 04:12

Electrical Properties

5.15~5.85 H-Plane Test on board



Suzhou Wanshih Electronic Element Co., Ltd.

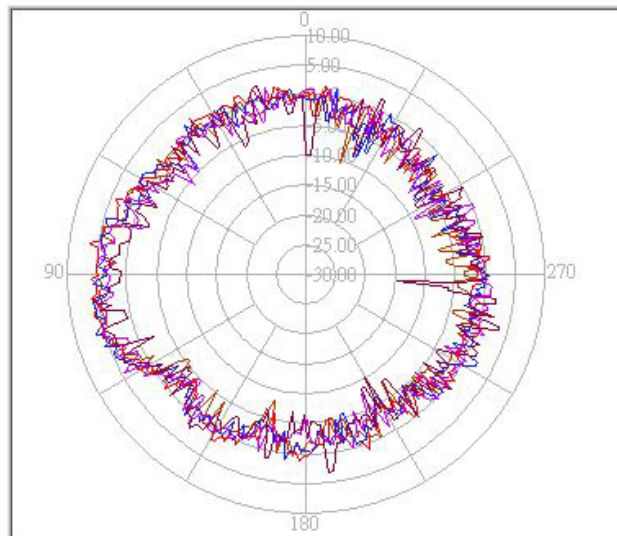


萬旭電業股份有限公司

Model No: 5.15-5.85

Antenna Position: Vertical

Test Mode: H-PLANE



Freq (MHz)	peak(dBi)	Angle(o)	Avg(dBi)
5150.00	5.58	252.61	-0.43
5250.00	6.53	278.24	0.46
5350.00	6.47	253.83	0.05
5725.00	5.20	253.83	-0.30
5850.00	5.97	262.37	-0.70

Test engineer: _____

Test date: 2008/8/22 at PM 03:34

Electrical Properties

5.15~5.85 E-Plane Test on board



Suzhou Wanshih Electronic Element Co., Ltd.

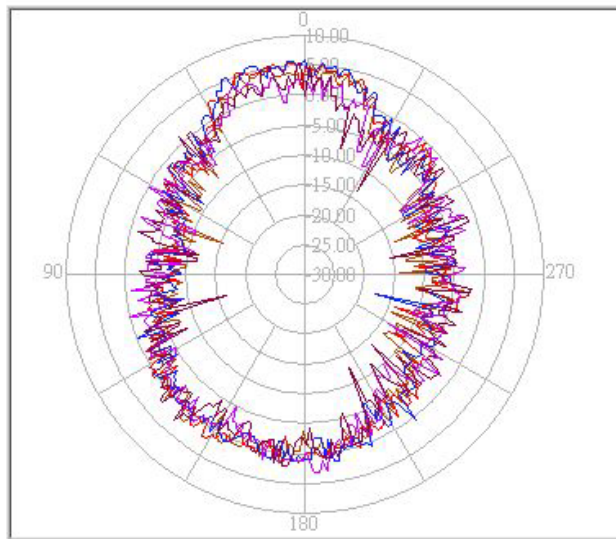


萬旭電業股份有限公司

Model No: 5.15-5.35

Antenna Position: Horizontal

Test Mode: E-PLANE













Freq (MHz)	peak(dBi)	Angle(o)	Avg(dBi)
5150.00	5.13	2.44	-1.63
5250.00	5.53	4.88	-0.80
5350.00	5.94	344.14	-0.78
5725.00	3.27	338.03	-1.80
5850.00	5.25	350.24	-1.87

Test engineer: _____

Test date: 2008/8/22 at PM 04:15

零件成分表及第三公正單位測試報告

Composition table and 3'rd party test report

組成成份 Composition				模組類(04G/17G/18G,07G Battery pack)			
使用部位 The position for use	原材料名 Raw materials	原材料料號 Material No.	原物料生產廠家 Vendor of Raw material	第三公正單位測試報告 3'rd party test report	原材料顏色 (塑膠、油墨及漆料必填) The color of raw material (Required for plastic, ink and paint)	鍍層存在與否/鍍層材質說明 If the plating layer exist or not?(Y/N)/If yes, please describe the material of the plating layer	是否為組裝到系統後之外露部位 If the module will be exposed outside after system assembly?(Y/N)
wire	copper	MINI1.13	万泰	 D:\天線\ SGS材質報告\材料		Y,鍍錫	N
wire	copper	MINI1.13	万泰			Y,鍍錫	N
wire	plastic	MINI1.13	万泰		浅灰	N	N
wire	plastic	MINI1.13	万泰		浅灰	N	N
G9000	ADHESIVE	G9000	卓文			N	N
G9000	GLUE	G9000	卓文			N	N
PCB	化金	PT-505	方正		绿色	N	N
PCB	油墨	S-200Y			黄色	N	N
PCB	油墨	S-411WA/HD-C			白色	N	N
PCB	板	NPG-TL				N	N
连接器	HOUSING	20278	I-PEX	 G:\天線\ SGS材質報告\材料	黑	N	N
连接器	CONTACT	20278			金	Y,鍍金	N
连接器	CONTACT	20278			金	Y,鍍金	N
套管	TUBE	CB-101	长园		透明	N	N
錫絲	無鉛錫絲	Sn3.0 Ag Cu	宏嘉		銀色	N	N



請附上該零件拆解至原物料階之測試報告或各原物料相對應之第三公正單位測試報告

Please attach the 3'rd party test report of this component by homogeneous level or provide the 3'rd party test report of each raw materials.

Certificate of the Non-Use Hazardous Substances

Please fill in below information 請填寫以下資訊

Date 日期: 2008 / 9 / 15

Vendor code 供應商代號: HY1

Company name 公司名稱: 苏州万旭电子元件有限公司

Company Representative 公司代表人: 詹进和

Company Representative Title 公司代表人職稱: 副总

Please Select Warranty Application 請勾選適用保證範圍:

All "Products" we sold to ASUS 所有我方售予華碩之"產品"

ASUS Part number 華碩料號: 14G156012330

Vender PN 供應商料號: HY1A-15392-A1

ASUS Model name 華碩機種名稱: WPB090-R Mini L13(Black) with MHL95mm (OEM/ODM/EMS vendor)

fill out ONLY 外包商填寫專用)

To ASUSTek Computer Inc. and it's affiliates ("ASUS Group") :

We hereby represent and warrant that the products and components ("Products") we sold to ASUS Group do not contain the level 1 hazardous substances listed in the then current ASUS S-AT2-001 document*, as well as shall comply with all requirements listed in the then current ASUS P-GA2-017 document, including but not limited to design, modification, purchasing, and manufacturing management, as well as the confirming and judging of the test, which the ASUS Group reserves the right to modify these documents at any time. The aforementioned Products include: [1] Products and all materials of the Products; [2] packaging materials; and [3] all materials used in design, manufacturing and reworking processes. In addition, the information of hazardous substances classified at level 3 should be disclosed when these substances are intentionally used in the said Products.

此致華碩電腦公司及其關係企業("華碩集團"):

我們特此代表並保證所有售予華碩集團之產品及零組件("產品"),皆不含有當時華碩 S-AT2-001 文件中所列的一級有害物質* 並且遵守當時華碩 P-GA2-017 文件中所列之各項要求,包括但不限於設計、變更、採購、生產管理及確認測定及判定,上述文件華碩集團保留隨時修改的權利。前述所提及的產品包含:[1]產品或產品所使用到的所有原物料; [2]包裝材料; [3]設計、生產及重工過程中所使用到的所有原物料;此外,若前述提及之產品中刻意添加三級有害物質,則須揭露資訊。

We further agree to indemnify and hold ASUS Group and its officers, directors, employees, successors and assigns, harmless from and against any losses, damages, claims, demands, suits, liabilities and expenses (including reasonable attorneys' fees and court costs) arising out of or resulting from any lawsuit, judicial action, or similar proceeding for any breach of the foregoing warranty.

我們進一步同意賠償和使華碩集團及其集團人員,包括高級主管、董事、員工、代理人、繼承者和受讓人,不受任何起因於我方違反前項保證所致之任何訴訟、司法上行為或類似行為而受有損失、損害、求償、請求、訴訟、責任及費用(包括合理的律師費用和法院費用)

* If the Product contain the hazardous substances defined as the exemptions in S-AT2-001, please check the appropriate box in the Appendix. (OEM/ODM/EMS vendor fill out ONLY)

*若您是外包商且產品所含有害物質屬於 S-AT2-001 所定義之除外項目,請勾選附件之選項(零件供應商免填)。

Remarks 備註:

Appendix 附件

1. Cadmium in electrical contacts and the plating of electrical contacts, for which high reliability is required and which has no substitute materials. 鎘用於有高度安全標準或高度可靠度需求之電性接點與鎘鍍層。
2. Cadmium in optical glass, filter glass. 鎘用於光學玻璃及濾光玻璃。
3. Lead in high-melting temperature type solder for internal connections used for modules, parts and devices. (i.e. lead based alloys containing 85wt% or more) 鉛用於高熔點用途之鉛錫(含鉛量在 85 wt% 以上之鉛錫)。
4. Lead in solder for server, storage and storage array system, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. 鉛用於伺服器、儲存器與存取陣列系統和交換、信號產生和傳輸，以及電信網路管理的網路基礎建構設備之鉛錫。
5. Lead in electronic ceramic parts. (e.g. piezoelectric elements, dielectric ones, and magnetic ones [ferrites]) 鉛用於電子陶瓷零部件，如壓電元件、介電元件及磁性(鐵氧材質)元件等。
6. Lead in optical glass, filter glass. 鉛用於光學玻璃、濾光玻璃。
7. Lead in glass materials used for modules, electrical parts, cathode-ray tubes, or vacuum fluorescent displays. The glass materials include adhesives, resistor elements, glass frit, conductive pastes (silver or copper ones), and sealing materials. 鉛使用於外購模組、電子零件、陰極射線管或真空螢光顯示器的玻璃材料，包含黏著劑、電阻體、玻璃材質、導電膏(銀膏或銅膏)與密封材料。
8. Lead in solder consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80wt% and less than 85wt%. 鉛用於微處理器構裝與接腳間之連接用(含有兩種元素以上)鉛錫(鉛含量為 80wt%-85wt%)。
9. Lead in solder to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages. (e.g. solder pastes used under C4 [Controlled Collapse Chip Connection] bumps) 鉛用於覆晶構裝中半導體晶片與承載電路板間電性訊號連接用之鉛錫(包含如 C4- Controlled Collapse Chip Connection 鉛錫凸塊之錫膏)。
10. Lead in lead-bronze bearing shells and bushes. 鉛用於青銅材質之軸承殼及軸襯。
11. Lead in a coating material for the thermal conduction module C-ring. 鉛用於熱傳導模組之 C-ring 環組的鍍層材料。
12. Lead in the compliant pin connector systems. 鉛用於插接式連接器系統(銲接式連接器除外)，如插接腳之表面鍍層。
13. Lead as an alloying element in steel should less than 0.35 wt%. 鋼合金中的鉛允許濃度需在 0.35% 以下。
14. Lead as an alloying element in aluminum should less than 0.4 wt%. 鋁合金中的鉛允許濃度需在 0.4% 以下。
15. Lead as an alloying element in copper (including brass and phosphor bronze) should less than 4 wt%. 銅合金(包含黃銅及磷青銅)中的鉛允許濃度需在 4% 以下。
16. Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD). LCD 中用於保護平面螢光燈之前後支撐物的玻璃中可含氧化鉛。
17. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors. 通孔盤狀及平面陣列陶瓷多層電容器焊料所含的鉛。
18. Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers. 在大功率揚聲器中作為轉換器焊料的鉛合金。

19. Mercury in lamps other than small-sized fluorescent lamps and straight-tube ones. (e.g. High-pressure mercury lamps). 汞用於小型及直式螢光燈管以外的其他燈管，如高壓汞燈、液晶顯示器背光燈。
20. PVC in binders made of resin. PVC 用於樹脂作成之黏合劑。
21. PVC in polyvinyl electrical wires for high voltage. PVC 用於高電壓使用聚乙烯電線材。
22. PVC in insulating tapes. PVC 用於絕緣膠帶。
23. PVC in speaker grilles. PVC 用於揚聲器拖架。
24. PVC in power supply cords for import into EU countries. PVC 用於出口至歐洲之電源供應線材。
25. PVC in transformer leads of which the joint is fixed by varnish impregnation. PVC 用於接腳部位經清漆浸漬之變壓器。
26. PVC in curl cords. PVC 用於捲線。
27. PVC in extra fine electrical wires that are AWG (American Wire Gauge) 36 or more. PVC 用於高於 AWG(American Wire Gauge) 36 規格之極細式電線材。
28. Use of PVC and PVC blends in the professional-use cables, to which general-purpose ones cannot be applied (e.g. cables for broadcast cameras and microphones). PVC 用於使用聚氯乙烯或聚氯乙烯混合物之專業用途線材(普通線材無法其應用要求)，如廣播電視所使用之攝影機電線材、麥克風電線材等。
29. PFOS in mist suppressants for nondecorative hard chromium (VI) plating and wetting agents for use in controlled electroplating systems. 全氟辛烷硫磺酸(PFOS)用於電鍍鉻抑制劑及濕潤劑。
30. Cadmium, lead, mercury and hexavalent chromium in cartons for returnable boxes owed by modules and parts suppliers. 鎘、鉛、汞及六價鉻用於外購模組及零部件供應商使用之可回收產品搬運箱。

Certificate of the Non-Use Hazardous Substances

Please fill in below information 請填寫以下資訊：

Date 日期： 2008 / 9 / 15

Vendor code 供應商代號： HY1

Company name 公司名稱： 苏州万旭电子元件有限公司

Company Representative 公司代表人： 詹进和

Company Representative Title 公司代表人職稱： 副总

Please Select Warranty Application 請勾選適用保證範圍：

- All "Products" we sold to Pegatron/Unihan 所有我方售予和聯/永碩之"產品"
- Pegatron/Unihan Part number 和聯/永碩料號： 14G156012330

Vender PN 供應商料號： HY1A-15392-A1

Pegatron/Unihan Model name 和聯/永碩機種名稱： WPB090-R Mini 1.13(Black) with MHF L95mm (OEM/ODM/EMS vendor fill out ONLY 外包商填寫專用)

To Pegatron Corp., Unihan Corp., and their affiliates (collectively "Pegatron/Unihan Group") :

We hereby represent and warrant that the products and components ("Products") we sold to Pegatron/Unihan Group do not contain the level 1 hazardous substances listed in the then current Pegatron/Unihan SPT-00001 document*, as well as shall comply with all requirements listed in the then current Pegatron/Unihan GP2-00017 document, including but not limited to design, modification, purchasing, and manufacturing management, as well as the confirming and judging of the test, which the Pegatron/Unihan Group reserves the right to modify these documents at any time. The aforementioned Products include : [1] Products and all materials of the Products; [2] packaging materials; and [3] all materials used in design, manufacturing and reworking processes. In addition, the information of hazardous substances classified at level 3 should be disclosed when these substances are intentionally used in the said Products.

此致和碩聯合科技(股)公司/永碩聯合國際(股)公司及其關係企業("和聯/永碩集團")：

我們特此代表並保證所有售予和聯/永碩集團之產品及零組件("產品")，皆不含有當時和聯/永碩 SPT-00001 文件中所列的一級有害物質* 並且遵守當時和聯/永碩 GP2-00017 文件中所列之各項要求，包括但不限於設計、變更、採購、生產管理及確認測定及判定，上述文件和聯/永碩集團保留隨時修改的權利。前述所提及的產品包含：[1]產品或產品所使用到的所有原物料；[2]包裝材料；[3]設計、生產及重工過程中所使用到的所有原物料；此外，若前述提及之產品中刻意添加三級有害物質，則須揭露資訊。

We further agree to indemnify and hold Pegatron/Unihan Group and their officers, directors, employees, successors and assigns, harmless from and against any losses, damages, claims, demands, suits, liabilities and expenses (including reasonable attorneys' fees and court costs) arising out of or resulting from any lawsuit,

judicial action, or similar proceeding for any breach of the foregoing warranty.

我們進一步同意賠償和使和聯/永碩集團及其集團人員，包括高級主管、董事、員工、代理人、繼承者和受讓人，不受任何起因於我方違反前項保證所致之任何訴訟、司法上行為或類似行為而受有損失、損害、求償、請求、訴訟、責任及費用(包括合理的律師費用和法院費用)

* If the Product contain the hazardous substances defined as the exemptions in SPT-00001, please check the appropriate box in the Appendix.

(OEM/ODM/EMS vendor fill out ONLY).

*若您為外包商且產品所含有害物質屬於 SPT-00001 所定義之除外項目，請勾選附件之選項(零件供應商免填)。

Remarks 備註：


(Authorized-person Sign or Seal)
(負責人簽名或蓋章)



Appendix 附件

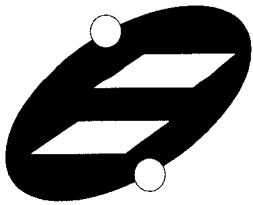
1. Cadmium in electrical contacts and the plating of electrical contacts, for which high reliability is required and which has no substitute materials. 鎘用於有高度安全標準或高度可靠度需求之電性接點與鎘鍍層。
2. Cadmium in optical glass, filter glass. 鎘用於光學玻璃及濾光玻璃。
3. Lead in high-melting temperature type solder for internal connections used for modules, parts and devices. (i.e. lead based alloys containing 85wt% or more) 鉛用於高熔點用途之鉛錫(含鉛量在 85 wt% 以上之鉛錫)。
4. Lead in solder for server, storage and storage array system, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications. 鉛用於伺服器、儲存器與存取陣列系統和交換、信號產生和傳輸，以及電信網路管理的網路基礎建構設備之鉛錫。
5. Lead in electronic ceramic parts. (e.g. piezoelectric elements, dielectric ones, and magnetic ones [ferrites]) 鉛用於電子陶瓷零部件，如壓電元件、介電元件及磁性(鐵氧材質)元件等。
6. Lead in optical glass, filter glass. 鉛用於光學玻璃、濾光玻璃。
7. Lead in glass materials used for modules, electrical parts, cathode-ray tubes, or vacuum fluorescent displays. The glass materials include adhesives, resistor elements, glass frit, conductive pastes (silver or copper ones), and sealing materials. 鉛使用於外購模組、電子零件、陰極射線管或真空螢光顯示器的玻璃材料，包含黏著劑、電阻體、玻璃材質、導電膏(銀膏或銅膏)與密封材料。
8. Lead in solder consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80wt% and less than 85wt%. 鉛用於微處理器構裝與接腳間之連接用(含有兩種元素以上)鉛錫(鉛含量為 80wt%-85wt%)。
9. Lead in solder to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages. (e.g. solder pastes used under C4 [Controlled Collapse Chip Connection] bumps) 鉛用於覆晶構裝中半導體晶片與承載電路板間電性訊號連接用之鉛錫(包含如 C4- Controlled Collapse Chip Connection 鉛錫凸塊之錫膏)。
10. Lead in lead-bronze bearing shells and bushes. 鉛用於青銅材質之軸承殼及軸襯。
11. Lead in a coating material for the thermal conduction module C-ring. 鉛用於熱傳導模組之 C-ring 環組的鍍層材料。
12. Lead in the compliant pin connector systems. 鉛用於插接式連接器系統(銲接式連接器除外)，如插接腳之表面鍍層。
13. Lead as an alloying element in steel should less than 0.35 wt%. 鋼合金中的鉛允許濃度需在 0.35% 以下。
14. Lead as an alloying element in aluminum should less than 0.4 wt%. 鋁合金中的鉛允許濃度需在 0.4% 以下。
15. Lead as an alloying element in copper (including brass and phosphor bronze) should less than 4 wt%. 銅合金(包含黃銅及磷青銅)中的鉛允許濃度需在 4% 以下。
16. Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD). LCD 中用於保護平面螢光燈之前後支撐物的玻璃中可含氧化鉛。
17. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors. 通孔盤狀及平面陣列陶瓷多層電容器焊料所含的鉛。
18. Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers. 在大功率揚聲器中作為轉換器焊料的鉛合金。

19. Mercury in lamps other than small-sized fluorescent lamps and straight-tube ones. (e.g. High-pressure mercury lamps). 汞用於小型及直式螢光燈管以外的其他燈管，如高壓汞燈、液晶顯示器背光燈。
20. PVC in binders made of resin. PVC 用於樹脂作成之黏合劑。
21. PVC in polyvinyl electrical wires for high voltage. PVC 用於高電壓使用聚乙烯電線材。
22. PVC in insulating tapes. PVC 用於絕緣膠帶。
23. PVC in speaker grilles. PVC 用於揚聲器拖架。
24. PVC in power supply cords for import into EU countries. PVC 用於出口至歐洲之電源供應線材。
25. PVC in transformer leads of which the joint is fixed by varnish impregnation. PVC 用於接腳部位經清漆浸漬之變壓器。
26. PVC in curl cords. PVC 用於捲線。
27. PVC in extra fine electrical wires that are AWG (American Wire Gauge) 36 or more. PVC 用於高於 AWG(American Wire Gauge) 36 規格之極細式電線材。
28. Use of PVC and PVC blends in the professional-use cables, to which general-purpose ones cannot be applied (e.g. cables for broadcast cameras and microphones). PVC 用於使用聚氯乙烯或聚氯乙烯混合物之專業用途線材(普通線材無法其應用要求)，如廣播電視所使用之攝影機電線材、麥克風電線材等。
29. PFOS in mist suppressants for nondecorative hard chromium (VI) plating and wetting agents for use in controlled electroplating systems. 全氟辛烷硫磺酸(PFOS)用於電鍍鉻抑制劑及濕潤劑。
30. Cadmium, lead, mercury and hexavalent chromium in cartons for returnable boxes owed by modules and parts suppliers. 鎘、鉛、汞及六價鉻用於外購模組及零部件供應商使用之可回收產品搬運箱。

Appendix

Antenna Specification

Antenna#2 (AUX RF Output)



WHA YU INDUSTRIAL CO., LTD. (HEAD OFFICE)
 TAI HWA ELECTRONIC CO., LTD.(CHINA)
 SHANGHAI HUA YU ELECTRONIC CO., LTD.(CHINA)
 AEON TECH CO., LTD. (CHINA)

SPECIFICATION FOR APPROVAL

CUSTOMER: 華碩科技股份有限公司

PART NAME: RF Antenna Assembly

PART NO.:

REVISION:

W. Y. P/NO.: C660-510003-A

REV.: X1

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :		

WHA YU GROUP

WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

謙裕實業股份有限公司

Address: #70 Shui Li Road, Hsin Chu City, Taiwan, R.O.C.

Tel:+886-3-5714225(REP.)

Fax:+ 886-3-5713853 · + 886-3-5723600

TAI HWA ELECTRONIC CO., LTD. (CHINA)

台樺電業製品廠

Address: Pak Ho District, Hiu Street Town, Dong Guan City, Guangdong, China

Tel: + 86-769-5599375 · + 86-769-5912375

Fax: + 86-769-5599376

HUA HONG INTERNATIONAL LTD.

華弘國際有限公司

Rm.1103A,President Commercial Centre,608 Nathan Road,Mong Kok,Kowloon,Hong Kong

Tel: + 86-852-27712210

Fax: + 86-852-23843747

SHANGHAI HUA YU ELECTRONIC CO., LTD. (CHINA)

上海謙裕電子有限公司

Address:3586,Wai Qing Song Road, Qing Pu County, Shanghai China

Tel: + 86-21-59741348 · + 86-21-59744101~4

Fax: + 86-21-59741347

SU ZHOU AEON TECH CO., LTD. (CHINA)

蘇州華廣電通有限公司

Address:Limin North Road, LiLi Town,LiLi Industrial Park,LinHu Economic Zone

Wujiang City,Jiangsu Province,China

Tel: + 86-512-63627980

Fax: + 86-512-63627981

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RF Antenna Cable Assembly

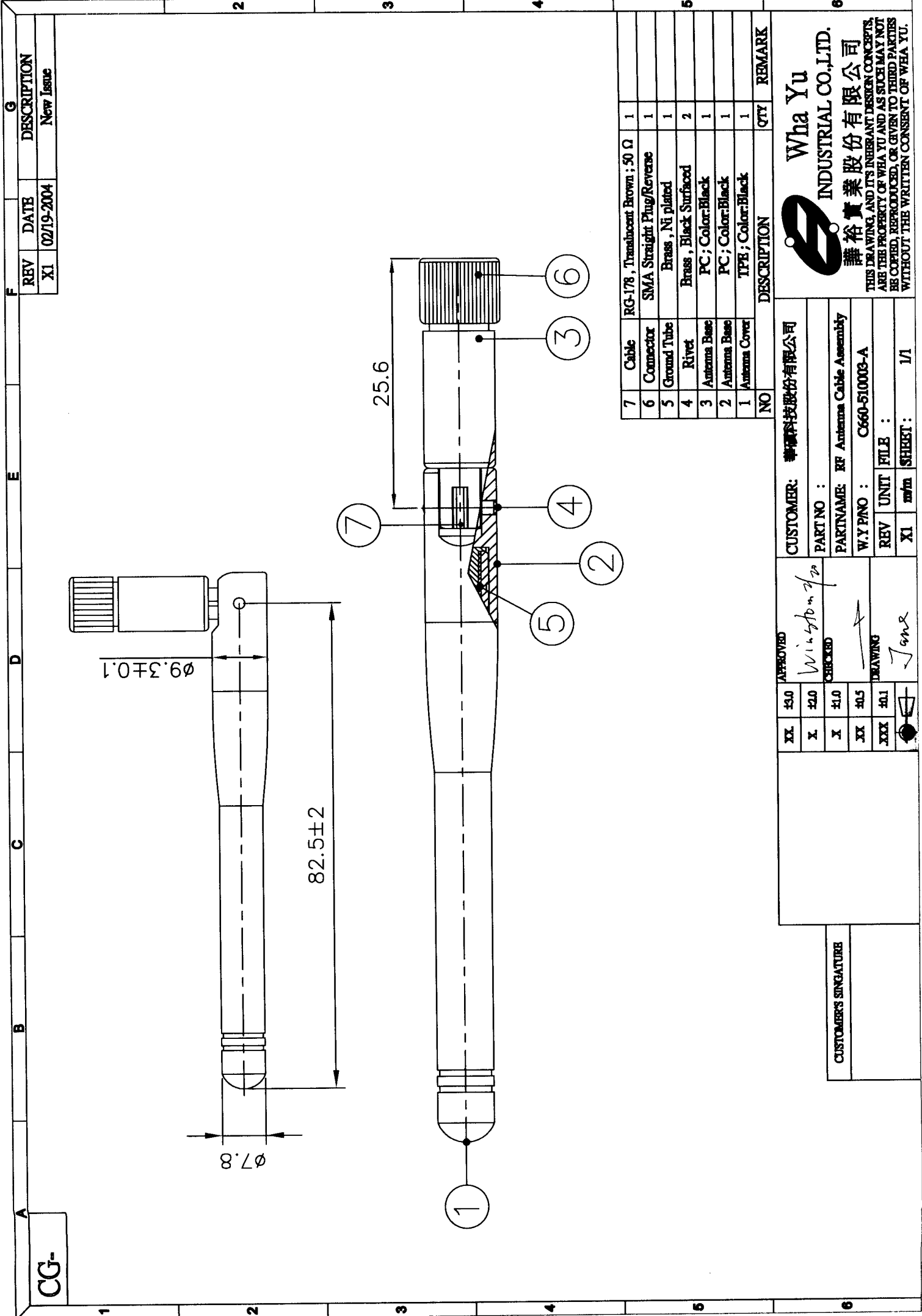
Specification

1. Electrical Properties :

- 1.1 Frequency Rang..... 2.4GHz ~ 2.5GHz
- 1.2 Impedance 50 Ω Nominal
- 1.3 VSWR 1.92 Max.
- 1.4 Return Loss..... -10dB Maximum
- 1.5 Electrical Wave..... 1/2 λ Diople
- 1.6 Gain..... 1.8 dBi
- 1.7 Admitted Power..... 1W

2. Physical Properties :

- 2.1 Cable..... RG-178 Cable
- 2.2 Antenna Cover..... TPE
- 2.3 Antenna Base..... PC
- 2.4 Operating Temp. -20 $^{\circ}$ C ~ +65 $^{\circ}$ C
- 2.5 Storage Temp. -30 $^{\circ}$ C ~ +75 $^{\circ}$ C
- 2.6 Color Black
- 2.7 Connector..... SMA Plug Reverse



NO	DESCRIPTION	QTY	REMARK
7	Cable RG-178, Translucent Brown; 50 Ω	1	
6	Connector SMA Straight Plug/Reverse	1	
5	Ground Tube Brass, Ni plated	1	
4	Rivet Brass, Black Surfaced	2	
3	Antenna Base PC; Color:Black	1	
2	Antenna Base PC; Color:Black	1	
1	Antenna Cover TPE; Color:Black	1	

Wha Yu INDUSTRIAL CO.,LTD.
講裕實業股份有限公司

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CUSTOMER: 華研科技股份有限公司	
PART NO :	
PARTNAME: RF Antenna Cable Assembly	
W.Y.P/NO : C660-510009-A	
REV	UNIT FILE :
XI	mm SHEET: 1/1

APPROVED	Wingston
CHECKED	
DRAWING	Jane

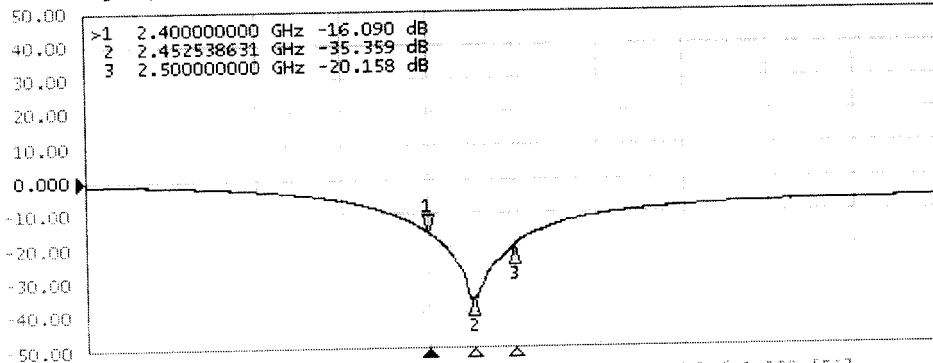
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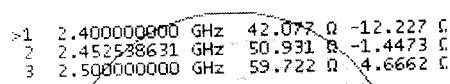
CG-

1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State

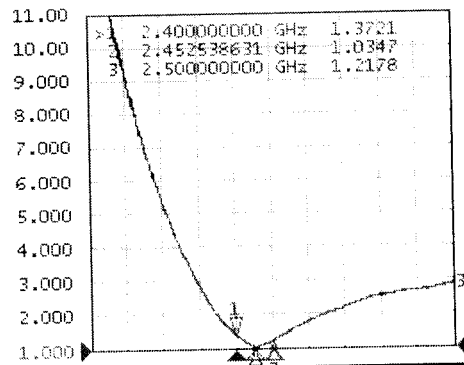
Tr1 S22 Log Mag 10.00dB/ Ref 0.000dB [F2]



Tr2 S22 Smith (R+jX) Scale 1.000U [F2]



Tr3 S22 SWR 1.000/ Ref 1.000 [F2]



1 Start 2 GHz

IFBW 70 kHz

Stop 3 GHz

PEP Co

Meas

Stop

End Ref

Ready

Svc

2004-02-19 15:59

Display

Data -> Mem

Edit Title Label

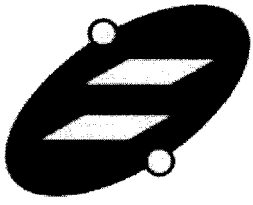
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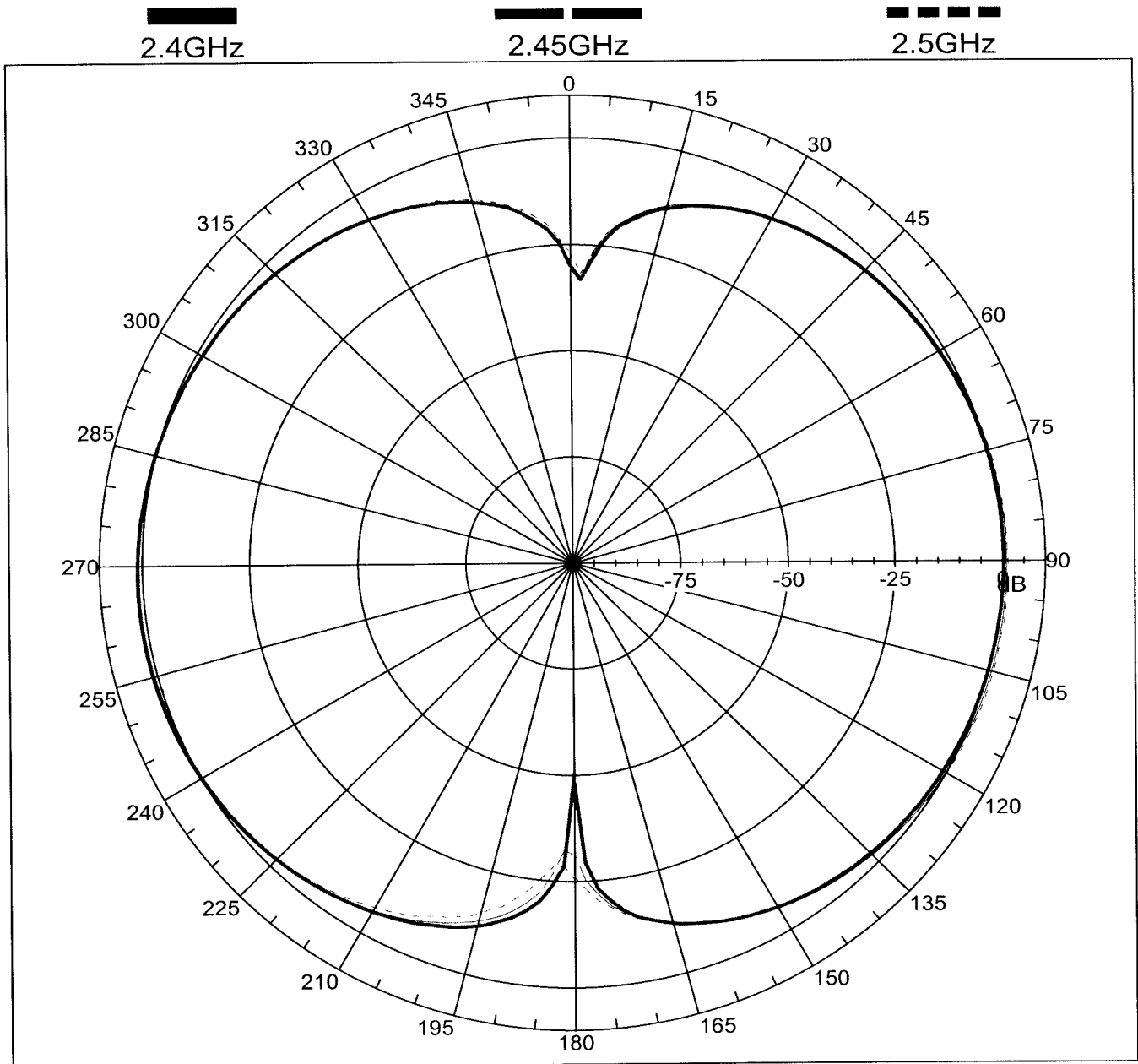
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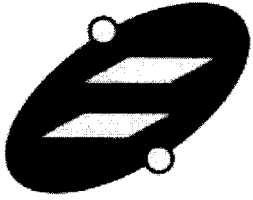


譚裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

Far-field amplitude of 2.4GHz small dipole antenna-E-plane.nsi





譚裕實業股份有限公司

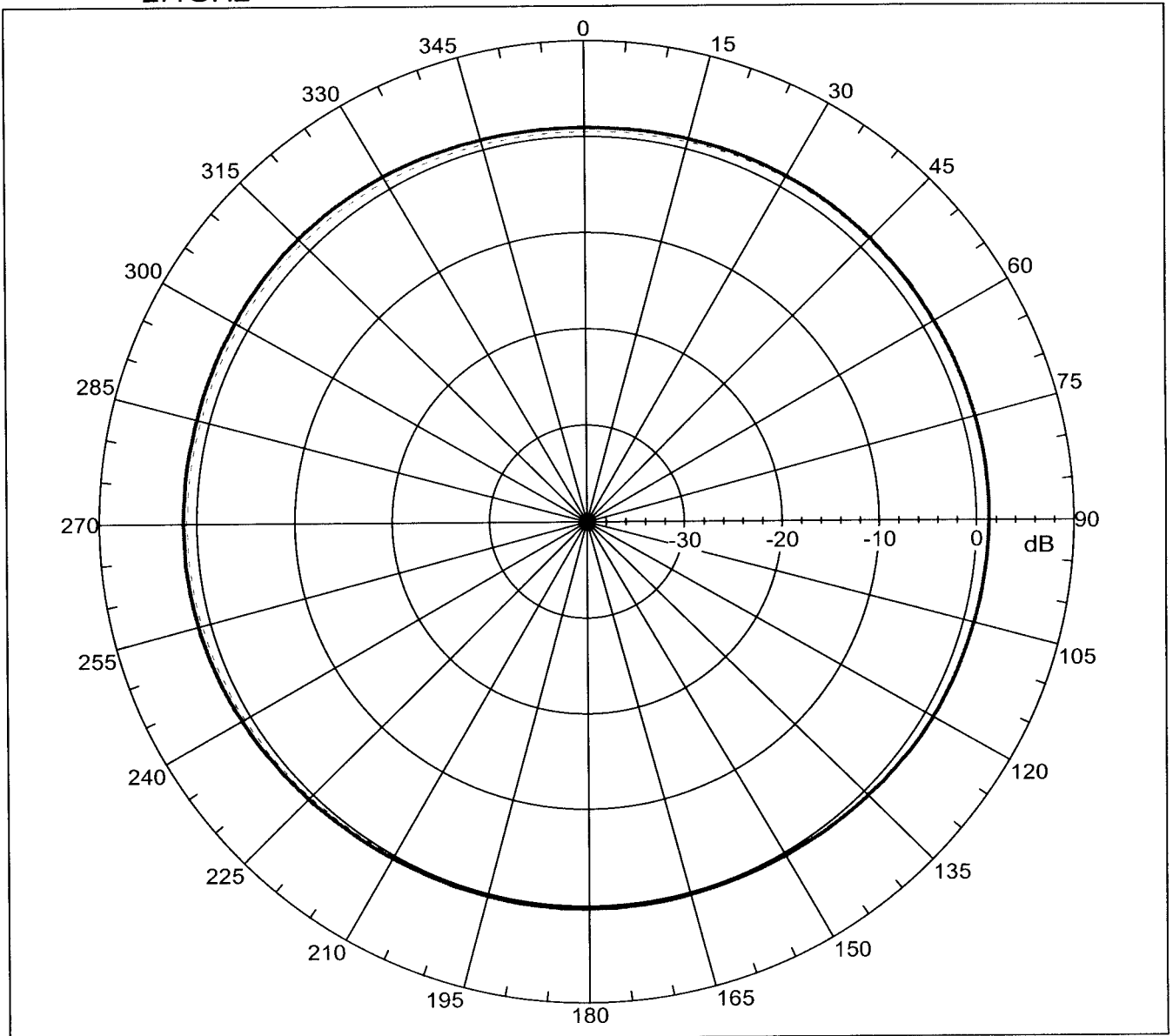
WHA YU INDUSTRIAL CO., LTD

Far-field amplitude of 2.4GHz small dipole antenna-H-plane.nsi

2.4GHz

2.45GHz

2.5GHz



Cable Specification

Cable : Mil-C-17 Coaxial Cable RG-178

1. Construction :

- 1 Conductor..... 30AWG 7/38 SCCS
- 2 Dielectric..... PTFE OD : 0.033"±0.002"
- 3 Shielded.....38AWG SPC OD : 0.051" Nominal
- 4 Jacket.....FEP OD : 0.071"±0.004"

2. Physical Properties :

- 1 Weight per 1000ft..... 6.3 lbs Maximum
- 2 Bend Radius.....0.35" Minimum
- 3 Operating Temperature Range -55°C ~ 200°C

3. Electrical Properties:

- 1 Impedance..... 50±2 ohms
- 2 Capacitance..... 32 pF/ft Maximum
- 3 Cut off Frequency..... 116 GHz
- 4 Attenuation.....45.0 dB/100ft @ 1GHz
64.4 dB/100ft @ 2GHz
79.7 dB/100ft @ 3GHz
92.7 dB/100ft @ 4GHz
104.3 dB/100ft @ 5GHz
115.0 dB/100ft @ 6GHz