

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: 啓碁科技股份有限公司

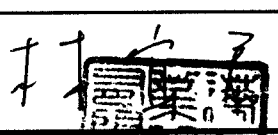

PART NAME: RF Antenna Assembly

PART NO.:

REVISION:

W. Y. P/NO.: C478-510028-A

REV.: X1

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :		

WHA YU GROUP

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

譚裕實業股份有限公司

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TAI HWA ELECTRONIC CO., LTD. (CHINA)

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HUA HONG INTERNATIONAL LTD.

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

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Wujiang City,Jiangsu Province,China

Tel: + 86-512-63627980

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3.	測試報告 3~7
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5.	Connector 材質特性 12
6.	SGS 測試 13~28

RF Antenna Cable Assembly

Specification

1. Electrical Properties :

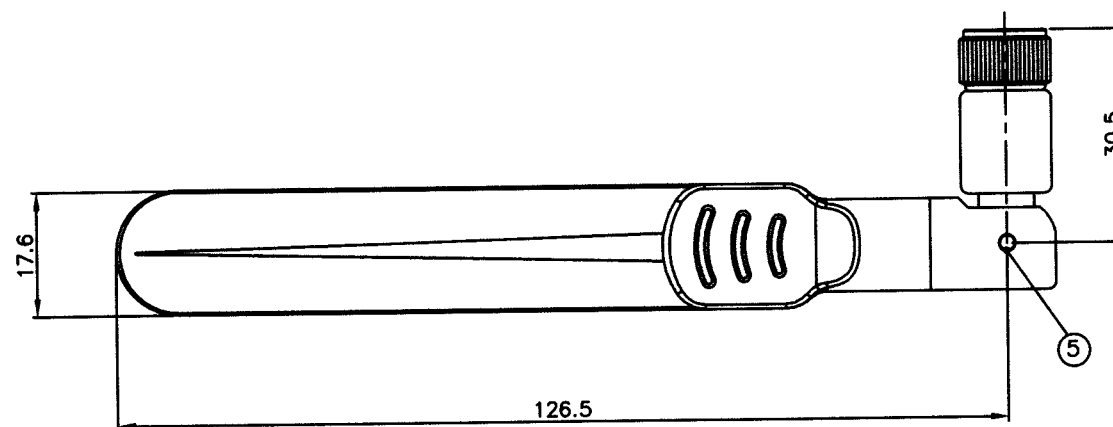
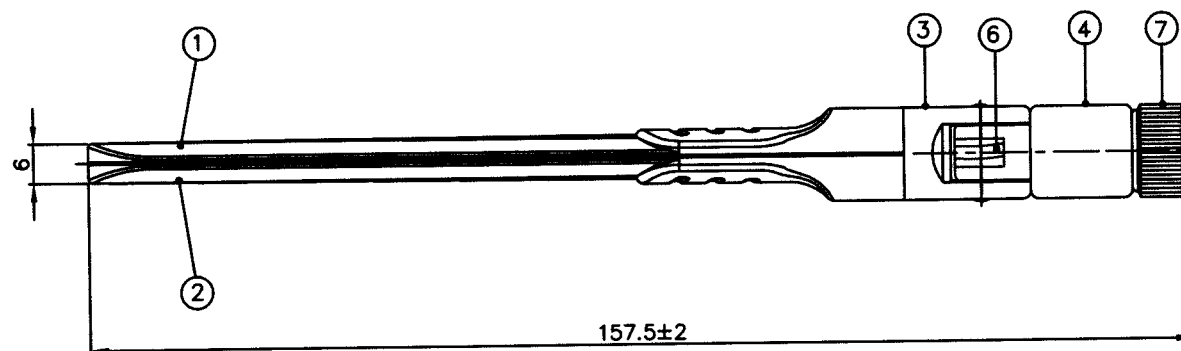
- 1.1 Frequency Range..... 2.4GHz ~ 2.5GHz ; 5.15GHz ~ 5.825GHz
- 1.2 Impedance 50Ω Nominal
- 1.3 VSWR 1.92 Max.
- 1.4 Return Loss..... -10 dB Maximum
- 1.5 Electrical Wave..... $1/2\lambda$ Dipole
- 1.6 Gain(peak)..... 2.5dBi @ 2.4GHz~2.5GHz
5dBi @ 5.15GHz~5.825GHz

2. Physical Properties :

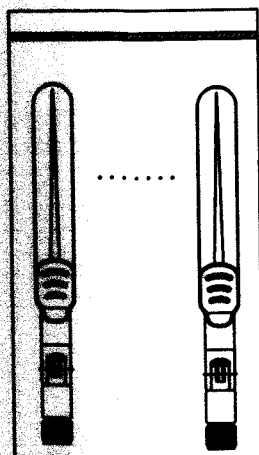
- 2.1 Cable..... RG-178 Coaxial Cable
- 2.2 Antenna Cover..... ABS+PC
- 2.3 Antenna Base..... ABS+PC
- 2.4 Antenna Base..... PBT
- 2.5 Operating Temp. -20°C ~ +55°C
- 2.6 Storage Temp. -30°C ~ +60°C
- 2.7 Color Black
- 2.8 Connector..... SMA Plug Reverse

CG-

REV	DATE	DESCRIPTION
X1	8/24-2005	New Issue



PE Bag
Shrink Line



Packing : 10 pcs/bag

7	Connector	SMA Plug Straight Reverse	1	
6	Cable	RG-178 Cable	1	
5	Rivet	POM ; Black	2	
4	Antenna Base	PBT Color : Black	1	
3	Antenna Base	PC+ABS ; Color : Black	1	
2	Antenna Housing(S)	PC+ABS ; Color : Black	1	
1	Antenna Housing(M)	PC+ABS ; Color : Black	1	
NO	DESCRIPTION		QTY	REMARK

CUSTOMER'S SINGATURE

XX	±3.0
X	±2.0
X	±1.0
XX	±0.5
XXX	±0.1
⊕	⊖

APPROVED
CHECKED
DRAWING
程淑娟

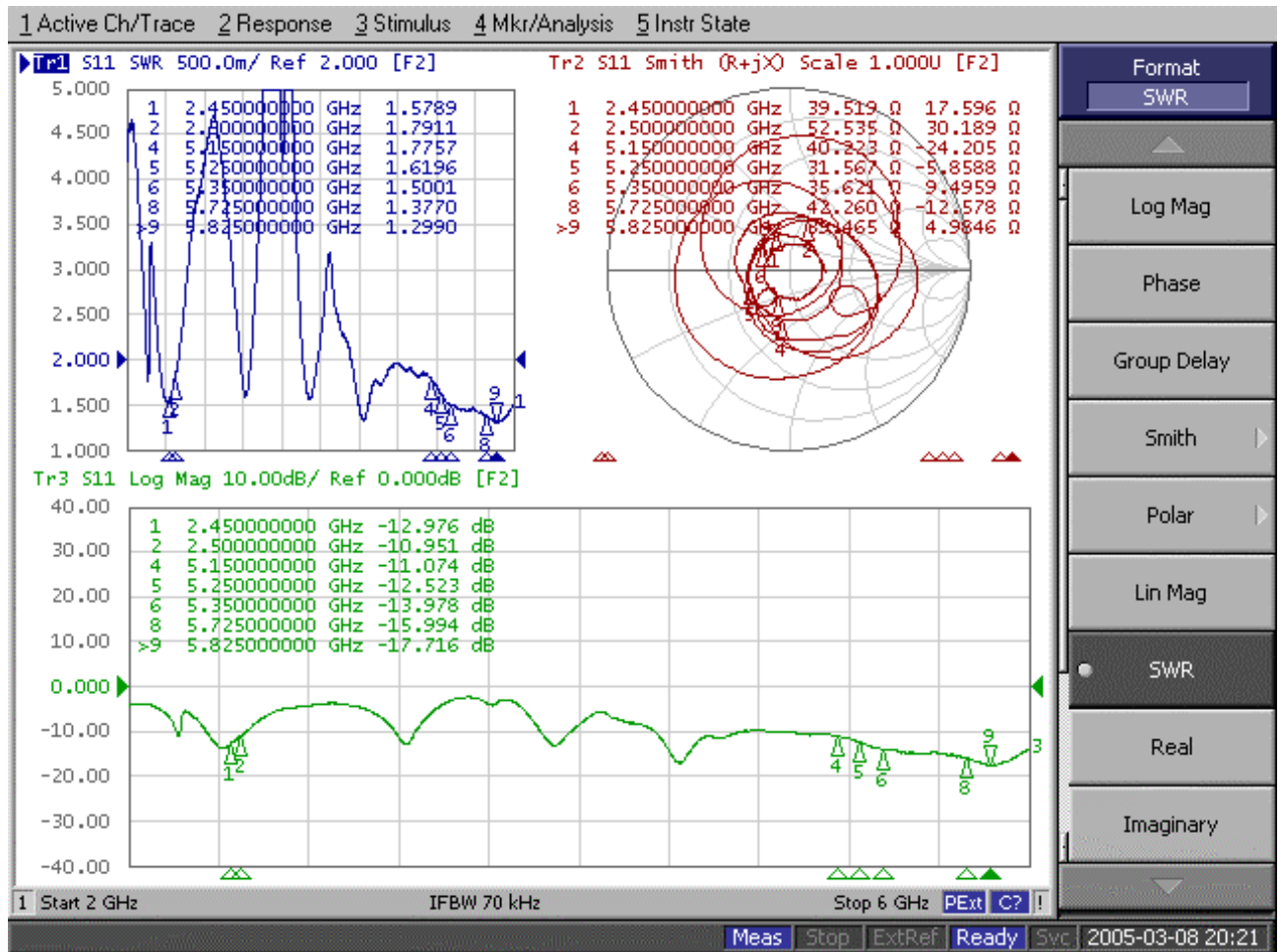
CUSTOMER: 啓基科技股份有限公司
PART NO :
PARTNAME: RF Antenna Assembly
W.Y PNO : C478-510028-A
REV X1 UNIT m/m FILE : SHEET : 1/1



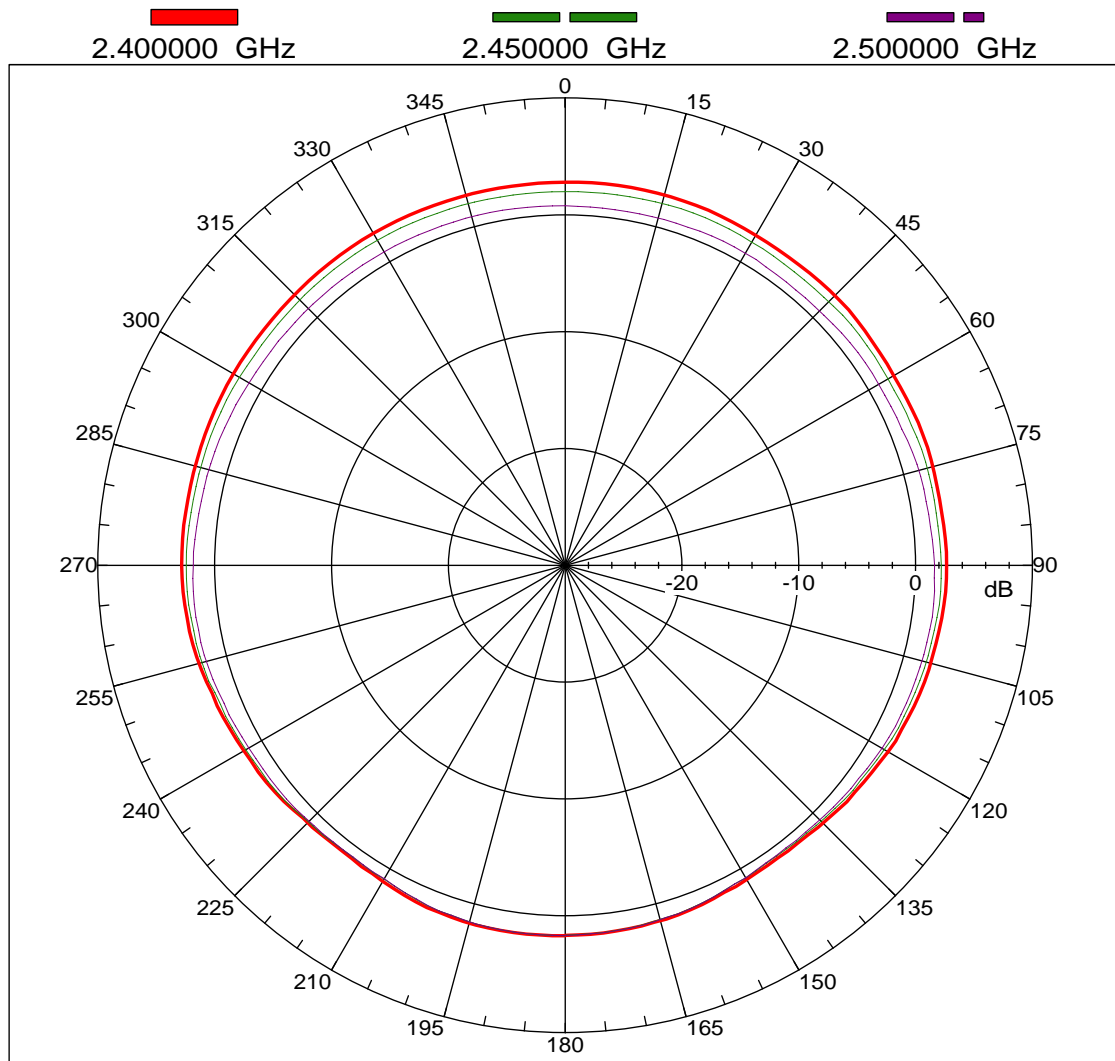
Wha Yu
INDUSTRIAL CO.,LTD.
譯裕實業股份有限公司

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RF Antenna Assembly
P/NO :C478-510028-A SPEC : Dual Band

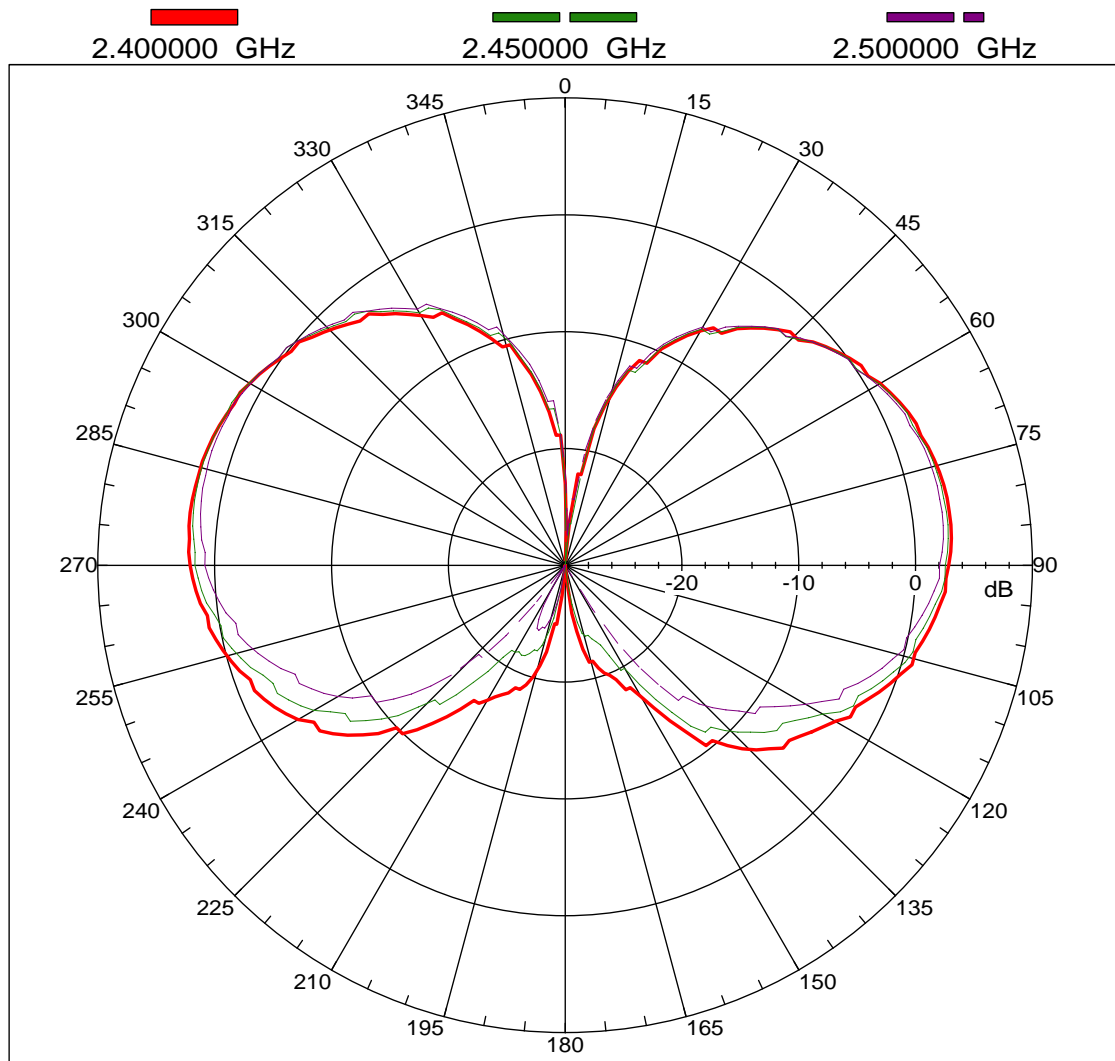


Far-field amplitude of C478-510028-A-V.nsi



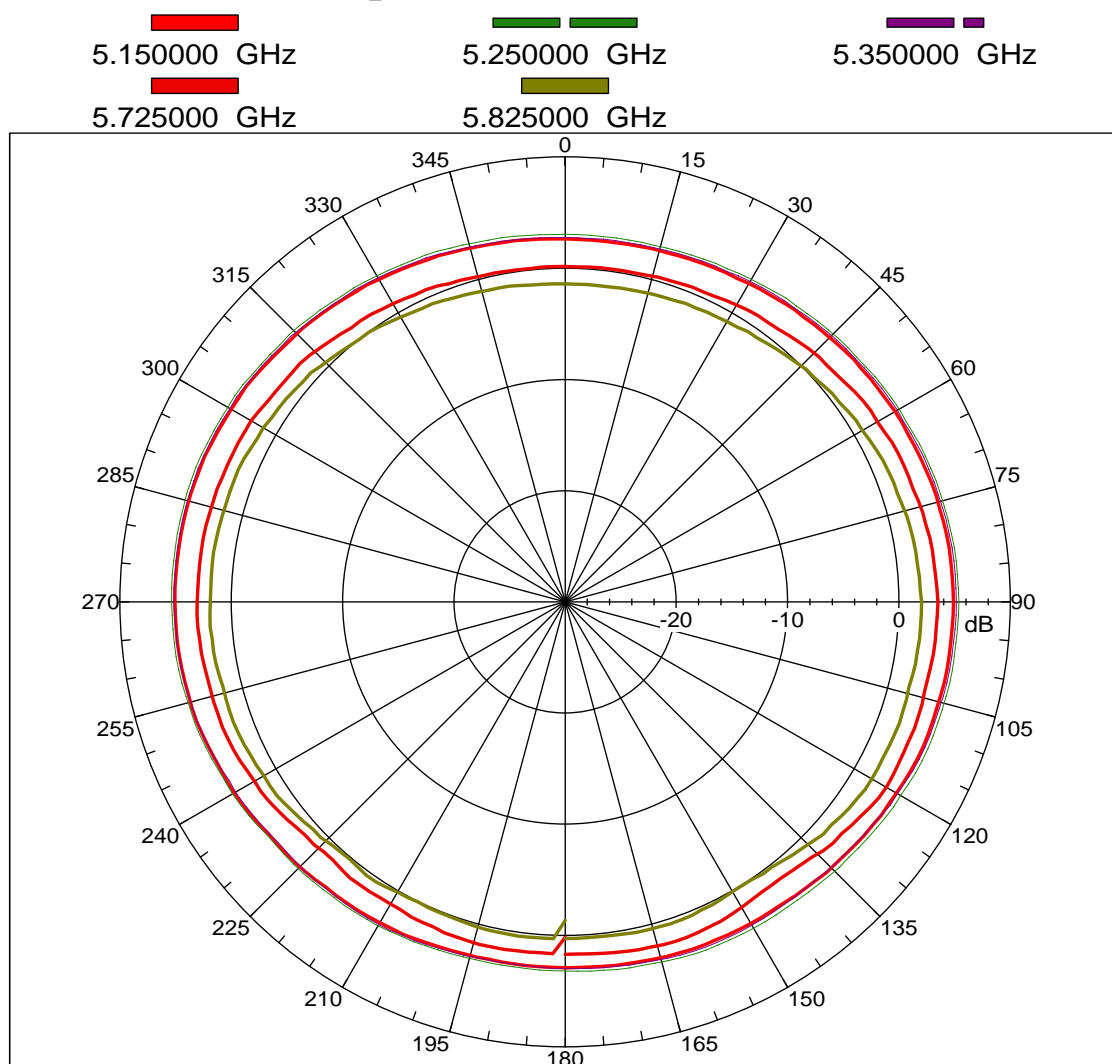
3/8/2005

Far-field amplitude of C478-510028-A-H.nsi



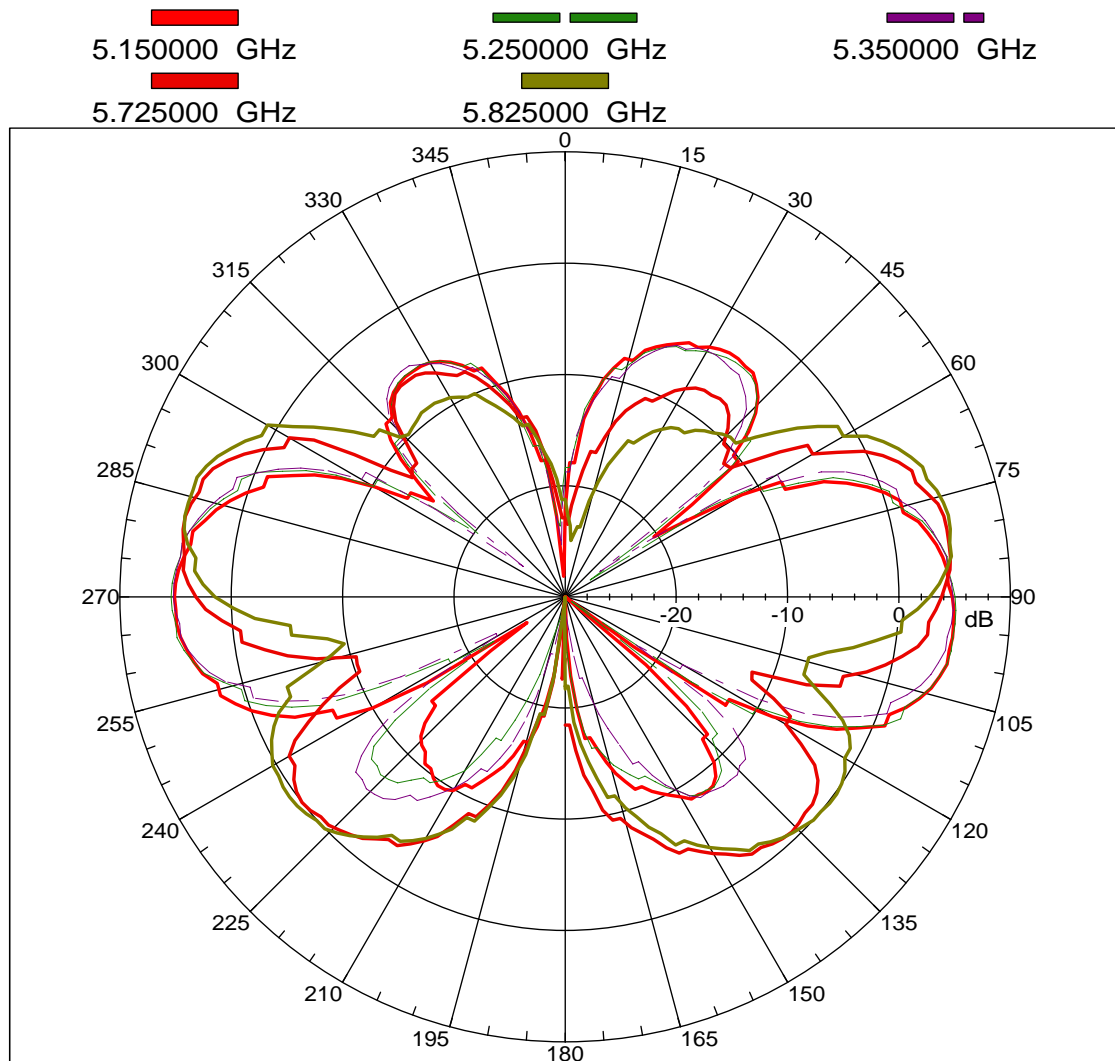
3/8/2005

Far-field amplitude of C478-510028-A-V.nsi



3/8/2005

Far-field amplitude of C478-510028-A-H.nsi



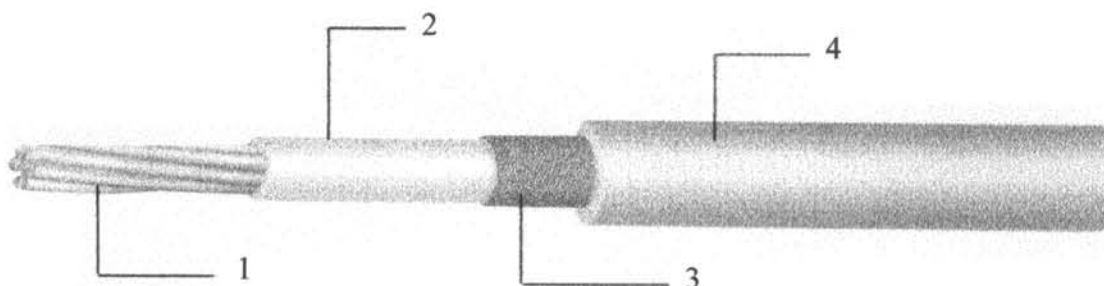
3/8/2005

RG 178 B/U	FEP INSULATED HIGH-FREQUENCY COAXIAL CABLE	PAGE	1 / 2
PRODUCT STANDARD		ISSUED	21. Oct. 2003
		REVISED	

I - Scope

This specification presents a FEP insulated high-frequency coaxial cable AWG 30, 1.8 mm O.D. for internal wiring of electronic equipment, such as Computer / Notebook with wireless communication systems.

II - Construction



Item		Unit	Details
1. Inner Conductor	Material	—	CP-AG
	Composition	No./mm	AWG 30 or 7 × 0.1
	Dia. (approx.)	mm	0.305
2. Dielectric	Material	—	Extruded FEP
	Nom. O.D.	mm	0.84 ± 0.05
	Color	—	Natural
3. Outer Conductor	Material	—	Silver coated copper
	Composition	—	Braided (16 / 3 / 0.1)
	Dia. (approx)	mm	1.29 ± 0.07
4. Jacket	Material	—	Extruded FEP
	Dia.	mm	1.80 ± 0.08
	Color	—	Standard color is Light Orange

Note :


 MADE BY
APPROVALS

Shen Bin Chao
Shen Bin Chao

RG 178 B/U	FEP INSULATED HIGH-FREQUENCY COAXIAL CABLE	PAGE	2 / 2
PRODUCT STANDARD		ISSUED	21. Oct. 2003
		REVISED	

III – Characteristics

Item	Unit	Specified Value	Note
Temperature Rating	°C	-55 ~ +200	
Voltage Lasting	V	1000	
Dielectric strength	—	Dielectric core: No breakdown at AC 3 kv for 0.2 sec.	Spark test
		Jacket: No breakdown at AC 3 kv for 0.2 sec.	Spark test
Characteristic Impedance	Ω	50 ± 2	TDR method
Capacitance	pF / ft	29.4	
Attenuation. (Max.)	dB/100ft	16.0	100.0 MHz
		33.0	400.0 MHz
		52.0	1.0 GHz
		94.0	3.0 GHz
Approx. Weight	g / m	7.68	

Note :



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Hebe Lin
Shen Bin Chao

Mil-C-17 Coaxial Cable

QPL Approved

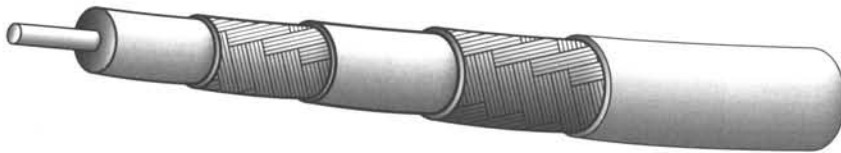
Single braid



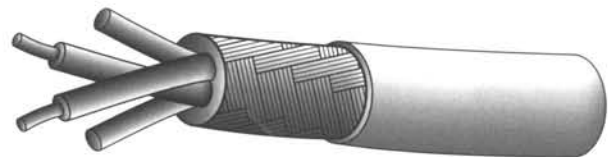
Double braid



Triax



Twinax



Harbour supplies a complete line of high temperature, high performance QPL approved MIL-C-17 coax cables for the military, commercial and industrial applications. The specific M17 constructions referenced are manufactured in accordance with the most recent revision of the MIL-C-17 specification. The MIL-C-17 specification defines complete physical and electrical characteristics for each M17 part number, including dimensional parameters, dielectric materials, shield construction, maximum attenuation, and VSWR levels.

VSWR Sweep Testing

When selecting a 50 ohm coaxial cable, constructions with VSWR requirements are recommended. Manufacturing and sweep testing cables with concern for VSWR ensures a quality cable free of spikes over the referenced frequency range. (Note the test frequencies specified in the electrical characteristics section.)

Precision PTFE Dielectrics

All of the high temperature, high performance coax cables listed have PTFE dielectrics with high dielectric strength and low capacitance in proportion to the dielectric constant. All PTFE dielectrics are manufactured with tolerances tighter than the MIL-C-17 specification to ensure uniformity of electrical characteristics, especially impedance, attenuation and VSWR.

Tape wrapped PTFE Constructions

Harbour also manufactures PTFE tape wrapped cables to a previous revision of the MIL-C-17 specification. These constructions can withstand operating temperatures up to 250° C. versus 200° C. for FEP jacketed cables. Also, PTFE tape wrapped cables are generally more flexible than their FEP jacketed counterparts.

UL Approvals

All of Harbour's M17 part numbers manufactured to the MIL-C-17 specification may be ordered with UL and FT4 approvals.

Mil-C-17 Coaxial Cables

Physical Characteristics:

M17 Number	Center Conductor	PTFE Dielectric Diameter	Shield	Jacket	Overall Diameter	Minimum Recommended Bend Radius	Operating Temp. (%C)	Weight (lbs./MFT)	Comments
M17/60-RG142	.037" SCCS	.116"	SPC(2)	FEP	.195"	1.0"	-55 +200	43.0	
M17/93-RG178	.0120"(7/.004")SCCS	.033"	SPC	FEP	.071"	0.4"	-55 +200	6.3	
M17/93-00001	.0120"(7/.004")SCCS	.033"	SPC	PFA	.071"	0.4"	-55 +230	6.3	M17/93-RG178 w/extended temp. range
M17/94-RG179	.0120"(7/.004")SCCS	.063"	SPC	FEP	.100"	0.4"	-55 +200	10.8	
M17/95-RG180	.0120"(7/.004")SCCS	.102"	SPC	FEP	.141"	0.7"	-55 +200	19.8	
M17/110-RG302	.0253"SCCS	.146"	SPC	FEP	.202"	1.0"	-55 +200	40.0	
M17/111-RG303	.037"SCCS	.116"	SPC	FEP	.170"	0.9"	-55 +200	31.0	
M17/112-RG304	.059" SCCS	.185"	SPC(2)	FEP	.280"	1.4"	-55 +200	94.0	
M17/113-RG316	.0201"(7/.0067")SCCS	.060"	SPC	FEP	.098"	0.5"	-55 +200	12.2	
M17/127-RG393	.094"(7/.0312")SC	.285"	SPC(2)	FEP	.390"	2.0"	-55 +200	165.0	
M17/128-RG400	.0384"(19/.008")SC	.116"	SPC(2)	FEP	.195"	1.0"	-55 +200	50.0	
M17/131-RG403	.0120"(7/.004")SCCS	.033"	SPC(2)	FEP(2)	.116"	0.6"	-55 +200	15.0	Triaxial M17/93-RG178
M17/152-00001	.0201"(7/.0067")SCCS	.060"	SPC(2)	FEP	.114"	0.6"	-55 +200	18.5	Double shielded M17/113-RG316
M17/158-00001	.037"SCCS	.116"	SPC(2)	FEP	.195"	1.0"	-55 +200	56.0	Unswpt M17/60-RG142
M17/169-00001	.0120"(7/.004")SCCS	.033"	SPC	FEP	.071"	0.4"	-55 +200	6.3	Unswpt M17/93-RG178
M17/170-00001	.037"(SCCS	.116"	SPC	FEP	.170"	0.9"	-55 +200	39.0	Unswpt M17/111-RG303
M17/172-00001	.0201"(7/.0067")SCCS	.060"	SPC	FEP	.098"	0.5"	-55 +200	11.5	Unswpt M17/113-RG316
M17/174-00001	.094"(7/.0312")SCCS	.285"	SPC(2)	FEP	.390"	2.0"	-55 +200	175.0	Unswpt M17/127-RG393
M17/175-00001	.0384"(19/.008")SC	.116"	SPC(2)	FEP	.390"	1.0"	-55 +200	50.0	Unswpt M17/128-RG400
M17/176-00002	.0235"(19/.005")SPA(2)	.042"	SPA	PFA	.129"	0.6"	-55 +230	18.0	Controlled impedance twinax
PTFE Tape Wrap Jacketed RG Cables									
RG 187 A/U	.0120"(7/.004)SCCS	.063	SPC	PTFE	.100"	0.5"	-55 +250	10.0	Flexible, 250° C. rated
RG 188 A/U	.0201"(7/.0067)SCCS	.060	SPC	PTFE	.100"	0.5"	-55 +250	11.0	Flexible, 250° C. rate
RG 195 A/U	.0120"(7/.004)SCCS	.102	SPC	PTFE	.141"	0.7"	-55 +250	18.0	Flexible, 250° C. rate
RG 196 A/U	.0120"(7/.004)SCCS	.034	SPC	PTFE	.067"	0.4"	-55 +250	6.0	Flexible, 250° C. rated

Electrical Characteristics:

M17 Number	Impedance (ohms)	Capacitance (pF/ft)	Max. Operating Voltage (RMS)	Maximum attenuation (dB/100ft) @						Max Frequency (GHz)
				100 MHz	400 MHz	1 GHz	3 GHz	5 GHz	10 GHz	
M17/60-RG142	50 +/- 2	29.4	1900	5.5	11.7	19.0	35.0	48.0	-	17.4
M17/93-RG178	50 +/- 2	29.4	1000	16.0	33.0	52.0	94.0	-	-	3.0
M17/93-00001	50 +/- 2	29.4	1000	16.0	33.0	52.0	94.0	-	-	3.0
M17/94-RG179	75 +/- 3	19.4	1200	-	21.0	-	-	-	-	-
M17/95-RG180	95 +/- 5	16.4	1500	-	17.0	-	-	-	-	-
M17/110-RG302	75 +/- 3	19.4	2300	-	8.0	-	26.0	-	-	-
M17/111-RG303	50 +/- 2	29.4	1900	3.9	8.0	15.0	28.0	-	-	-
M17/112-RG304	50 +/- 3	29.4	3000	2.7	6.4	11.1	22.0	30.0	-	8.0
M17/113-RG316	50 +/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3.0
M17/127-RG393	50 +/- 2	29.4	2500	2.4	5.0	8.8	18.0	24.6	37.0	11.0
M17/128-RG400	50 +/- 2	29.4	1900	4.5	10.5	17.0	38.0	50.0	78.0	12.4
M17/131-RG403	50 +/- 2	29.4	1000	-	37.0	-	-	-	-	10.0
M17/152-00001	50 +/- 2	29.4	1200	11.5	24.0	40.0	75.0	110.0	170.0	12.4
M17/158-00001	50 +/- 2	29.4	1900	-	9.5	-	-	-	-	-
M17/169-00001	50 +/- 2	29.4	1000	-	29.0	-	-	-	-	-
M17/170-00001	50 +/- 2	29.4	1900	-	8.6	-	-	-	-	-
M17/172-00001	50 +/- 2	29.4	1200	-	21.0	-	-	-	-	-
M17/174-00001	50 +/- 2	29.4	2500	-	5.0	-	-	-	-	-
M17/175-00001	50 +/- 2	29.4	1900	-	10.5	-	-	-	-	-
M17/176-00001	77 +/- 7	19.0	1000	-	-	-	-	-	-	-
PTFE Tape Wrap Jacketed RG Cables										
RG 187 A/U	75 +/- 3	19.4	1200	-	21.0	-	-	-	-	3
RG 188 A/U	50 +/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3
RG 195 A/U	95 +/- 5	15.4	1500	-	17.0	-	-	-	-	3
RG 196 A/U	50 +/- 2	29.4	1000	-	29.0	-	-	-	-	-

"Maximum frequencies" are those as referenced on individual slant sheets of the MIL-C-17 specification. No values are given for unswept constructions as the specification recommends these cables should not be used above 400 MHz. (All figures referenced above are nominal unless otherwise specified.)



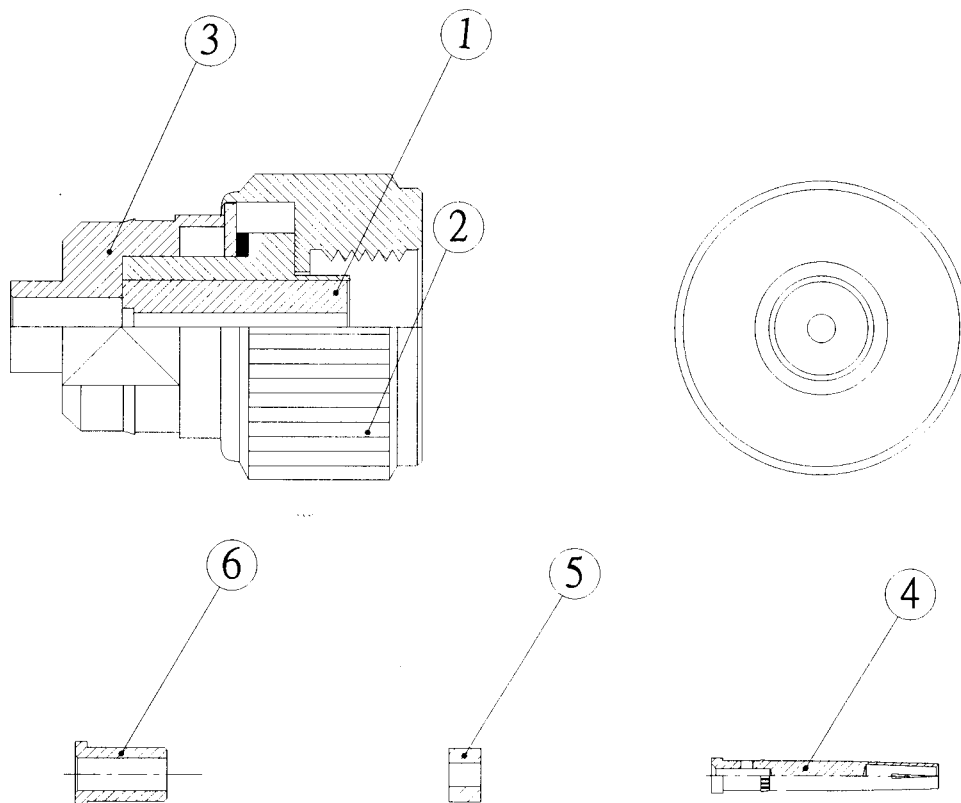
譚裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

Connector 材質證明書

譚裕料號 Whayu P/N	100-2001069-AZ	產品名稱 Product Name	Big SMA Plug Reverse Straight For RG-178
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結構圖面



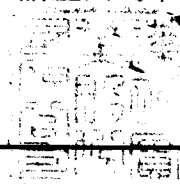
材質成份

表面處理

1	絕緣	Teflon	PTFE						N/A
2	外殼	Brass	Cu	Pb	Fe	Fe+Sn	Zn		電著
3	本體	Brass	Cu	Pb	Fe	Fe+Sn	Zn		鍍金
4	中心針	Phosphor Bronze	Cu	Sn	P	Zn	Pb		鍍金
5	絕緣	Teflon	PTFE						N/A
6	尾管	Brass	Cu	Pb	Fe	Fe+Sn	Zn		鍍鎳

Remark :

請蓋公司章



ET-QA-0017-A2

SGS Test Report

Product : RF Antenna

Contents

No	Description		Report No.	Page
1	Cable	RG-178 Cable	CE/2004/C1640	P.14~16
2	Antenna Housing Upper Base	PC+ABS	CE/2005/41836	P.17~20
3	Bottom Base	PBT	CE/2005/30689A	P.21~23
4	Rivet	POM	CE/2005/50700	P.24~27
5	Connector	SMA Plug Reverse	GZSCR041250485/LP	P.28

Result for RoHS : PASS



Test Report

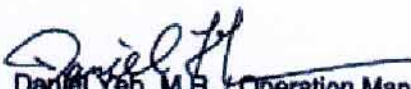
Report No. : CE/2004/C1640
Date : 2004/12/16
Page : 1 of 3

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

Type of Product : RG-178 B/U SERIES
Sample Received : 2004/12/09
Testing Date : 2004/12/09 TO 2004/12/16

=====

Test Result : - Please see the next page -


Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

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Test Report

Report No. : CE/2004/C1640

Date : 2004/12/16

Page : 2 of 3

Test Result

PART NAME NO.1 : TRANSPARENT FEP JACKET(PLEASE REFER TO THE PHOTO ATTACHED)

Test Item (s):	Unit	Method	MDL	Result			
				No.1			
PBBs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	With reference to USEPA3540 or USEPA3550. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.			
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	With reference to USEPA3540 or USEPA3550. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.			

Test Item (s):	Unit	Method	MDL	Result			
				No.1			
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	N.D.			
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.			
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.			
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	N.D.			

NOTE • (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit

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Report No. : CE/2004/C1640

Date : 2004/12/16

Page : 3 of 3



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Test Report

JIN CHI PLASTIC MATERIALS CO., LTD.
2F, NO. 161. JHONG SHAN RD., LUJHU TOWNSHIP,
TAOYAN COUNTRY 338, TAIWAN

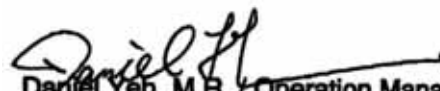
Report No. : CE/2005/41836
Date : 2005/04/18
Page : 1 of 4

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

Type of Product : POLYCARBONATE / ACRYLONITRILE BUTADIENE
STYRENE
Style/Item No : BAYER PC / ABS FR 2010
Sample Received : 2005/04/11
Testing Date : 2005/04/11 TO 2005/04/18

=====

Test Result : - Please see the next page -


Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.



Test Report

JIN CHI PLASTIC MATERIALS CO., LTD.
2F, NO. 161. JHONG SHAN RD., LUJHU TOWNSHIP,
TAOYAN COUNTRY 338, TAIWAN

Report No. : CE/2005/41836
Date : 2005/04/18
Page : 2 of 4

Test Result

PART NAME NO.1 : BLACK PLASTIC PELLETS (PLEASE REFER TO THE PHOTO ATTACHED)

Test Item (s):	Unit	Method	MDL	Result
				No.1
Monobromobiphenyl	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Pentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs(Polybrominated biphenyls)/Sum of above	%		-	N.D.
Monobromobiphenyl ether	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
Total PBBEs(PBDEs)(Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.



Test Report

JIN CHI PLASTIC MATERIALS CO., LTD.
2F, NO. 161. JHONG SHAN RD., LUJHU TOWNSHIP,
TAOYAN COUNTRY 338, TAIWAN

Report No. : CE/2005/41836
Date : 2005/04/18
Page : 3 of 4

Test Item (s):	Unit	Method	MDL	Result
				No. 1
Chromium VI (Cr+6)	ppm	UV-VIS after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.

NOTE : (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) " --- " = Not Applicable
(5) " - " = No Regulation

Test Report

JIN CHI PLASTIC MATERIALS CO., LTD.
2F, NO. 161. JHONG SHAN RD., LUJHU TOWNSHIP,
TAOYAN COUNTRY 338, TAIWAN

Report No. : CE/2005/41836
Date : 2005/04/18
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Test Report

HUEI SUN PLASTIC CO., LTD.

NO. 17, LANE 679, PIN-TUNG ROAD, PIN-CHENG CITY,
TAOYUAN HSIEN, TAIWAN

Report No. : CE/2005/30689A


Date : 2005/03/10

Page : 1 of 3

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

Type of Product : 塑膠射出零件
Sample Received : 2005/03/03
Testing Date : 2005/03/03 TO 2005/03/10

=====
Test Result : - Please see the next page -


Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.



Test Report

HUEI SUN PLASTIC CO., LTD.
NO. 17, LANE 679, PIN-TUNG ROAD, PIN-CHENG CITY,
TAOYUAN HSIEN, TAIWAN

Report No. : CE/2005/30689A
Date : 2005/03/10
Page : 2 of 3

Test Result

PART NAME NO.1 : DEEP GRAY PLASTIC (PLEASE REFER TO THE PHOTO ATTACHED)

Test Item (s):	Unit	Method	MDL	Result
				No.1
PBBs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	20.9

NOTE : (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit

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Test Report

HUEI SUN PLASTIC CO., LTD.

NO. 17, LANE 679, PIN-TUNG ROAD, PIN-CHENG CITY,
TAOYUAN HSIEN, TAIWAN

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Test Report

REN-YUH ENTERPEISE CO., LTD.
NO. 3, LANE 36, DONG-SHUN ST., SHE-LIN, TAIPEI,
TAIWAN, R. O. C.

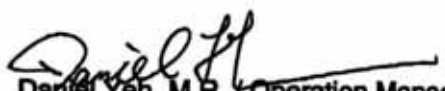
Report No. : CE/2005/50700
Date : 2005/05/12
Page : 1 of 4

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

Type of Product : BLACK POM
Sample Received : 2005/5/5
Testing Date : 2005/5/5 TO 2005/05/12

=====

Test Result : - Please see the next page -


Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.



Test Report

REN-YUH ENTERPEISE CO., LTD.
NO. 3, LANE 36, DONG-SHUN ST., SHE-LIN, TAIPEI,
TAIWAN, R. O. C.

Report No. : CE/2005/50700
Date : 2005/05/12
Page : 2 of 4

Test Result

PART NAME NO.1 : BLACK PLASTIC PELLETS (PLEASE REFER TO THE PHOTO ATTACHED)

Test Item (s):	Unit	Method	MDL	Result
				No.1
Monobromobiphenyl	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Pentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	N.D.
Monobromobiphenyl ether	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
Total PBBEs (PBDEs)(Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.



Test Report

REN-YUH ENTERPEISE CO., LTD.
NO. 3, LANE 36, DONG-SHUN ST., SHE-LIN, TAIPEI,
TAIWAN, R. O. C.

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Date : 2005/05/12
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Test Item (s):	Unit	Method	MDL	Result
				No. 1
Chromium VI (Cr+6)	ppm	UV-VIS after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.

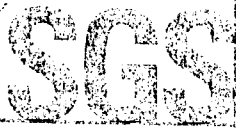
NOTE : (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) " - " = No Regulation

Test Report

REN-YUH ENTERPEISE CO., LTD.
NO. 3, LANE 36, DONG-SHUN ST., SHE-LIN, TAIPEI,
TAIWAN, R. O. C.

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电着黑 SGS证明
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Test Report

No. GZSCR041250485/LP

Date: DEC 24, 2004

Page 1 of 1

HWANG CHIANG ELECTRONICS FACTORY
LANG XIA NO.3 INDUSTRY, SONGGANG, BAOAN, SHENZHEN

Report on the submitted sample said to be 黑色镀层

SGS Ref No. : SZ041215896EC
Buyer : SONY
Manufacture/Supplier : HWANG CHIANG
Sample Receiving Date : DEC 20, 2004
Testing Period : DEC 20, 2004 TO DEC 24, 2004

Test Requested : As specified by client, to determine the Lead, Cadmium, Mercury & Hexavalent Chromium content in the submitted sample.

Test Method : Lead content - With reference to EPA method 3050B: 1996.
Cadmium content - With reference to BS EN1122: 2001 method B.
Mercury content - With reference to EPA 3052: 1996.
Hexavalent Chromium content - With reference to EPA 3060A: 1996 & EPA 7196A: 1992.
Analysis was performed by Atomic Absorption Spectrometer and Inductively Coupled Plasma Atomic Emission Spectrometer (ICP-AES) / UV-VIS Spectrophotometer.

RESULTS

Lead Content (Pb)
Cadmium Content (Cd)
Mercury Content (Hg)
Hexavalent Chromium Content [Cr(VI)]

Black liquid

N.D.
N.D.
N.D.
N.D.

Note : - N.D. = Not Detected (< 2 ppm)
- ppm = mg/kg

*** End of Report ***

Signed for and on behalf of
SGS-CSTC Ltd.

He Xiaoyan, Jane
Tech. Manager

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