

Dual-Band Omni-Directional Antenna

for 2.4 / 5.2 / 5.6 / 5.8 GHz

Version 3

SAA04-22008A

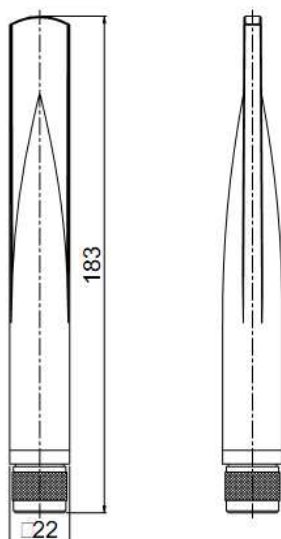
Electrical Specification

Frequency range	2400 MHz-2483 MHz	5150 MHz-5875 MHz
Peak Gain	4.5 dBi	7.0 dBi
Average Gain	2.5 dBi	5.0 dBi
VSWR	2.0 : 1 Max	
Polarization	Linear, vertical	
HPBW/horizontal	360°	360°
HPBW/vertical	30°	15°
Power handling	2 W (cw)	
Impedance	50 Ohms	
Connector	N Plug	

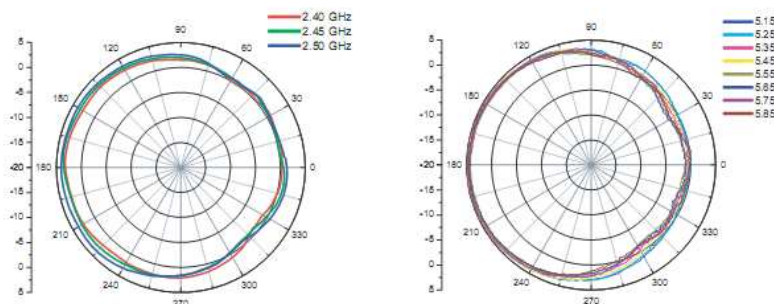


Environmental & Mechanical Characteristics

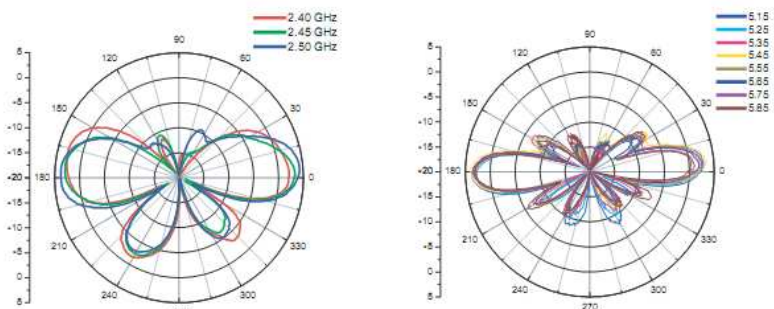
Survival wind speed	216 km/hr
Temperature	-40°C to +80°C
Humidity	95% @55°C
Radome color	Gray
Radome material	ABS
Weight	70 g
Dimensions	\varnothing 22 x 183 mm



H-plane Co-polarization pattern

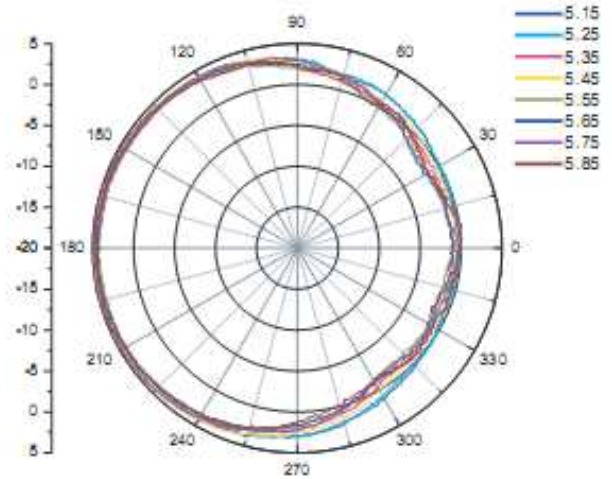
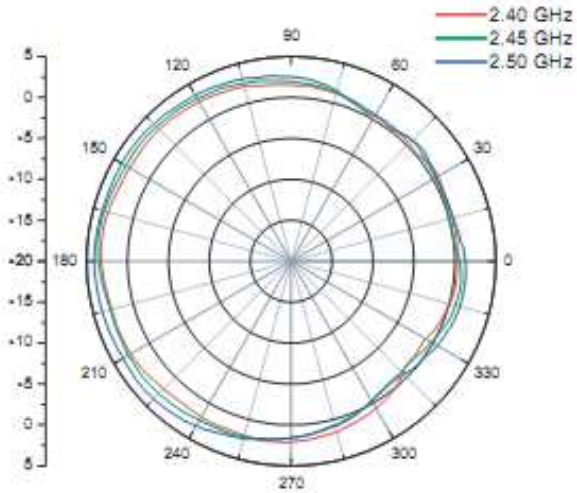


V-plane Co-polarization pattern

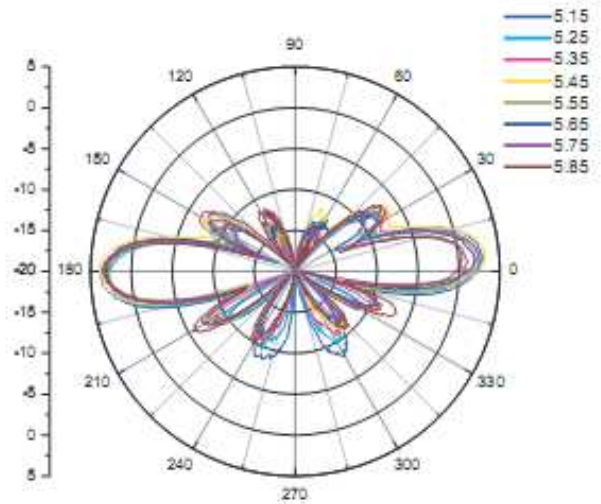
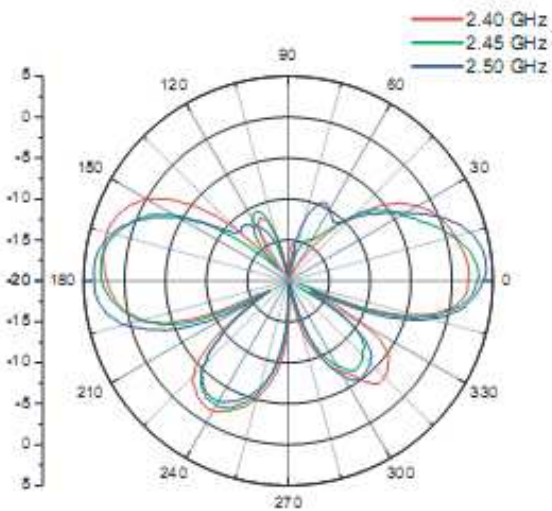


Radiation Pattern

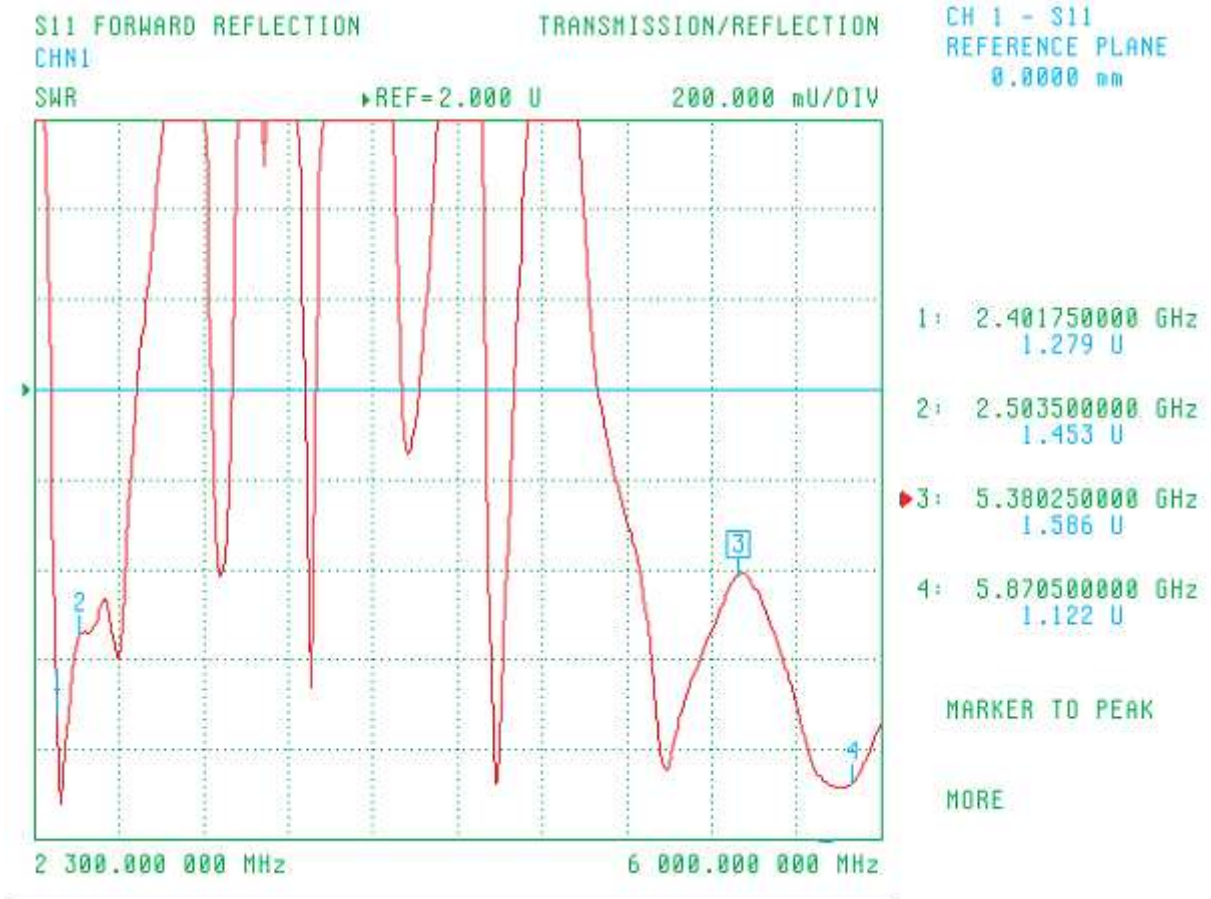
H-plane Co-polarization pattern



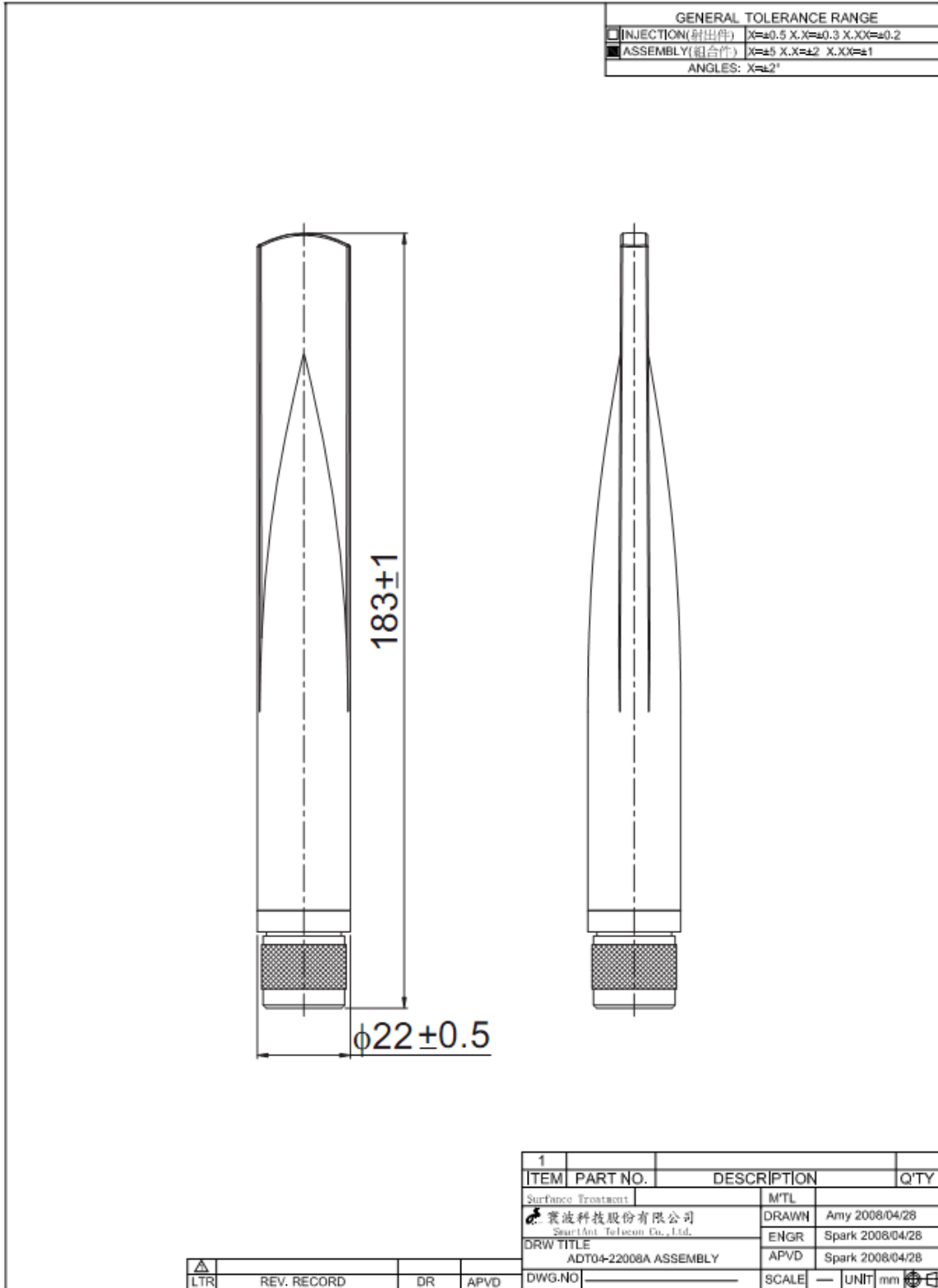
V-plane Co-polarization pattern



VSWR

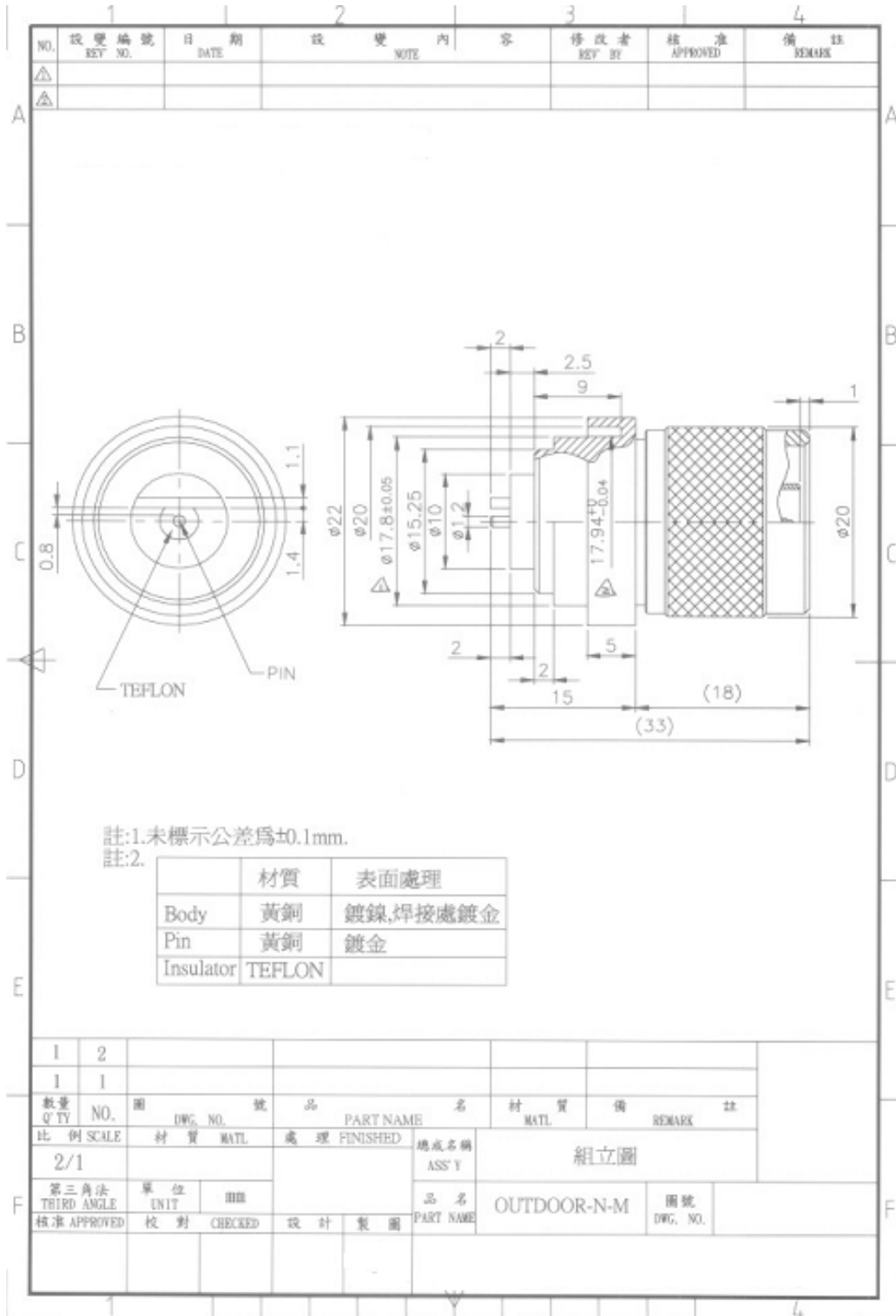


Product Drawing



Material Approval

Connector (1/4)



Material Approval


Connector (2/4)

宮前五金股份有限公司

檢驗報告表

箱號：900322

90年3月14日

客 戶	立宇盛工業有限公司			
品 名	FREE CUTTING BRASS ROD	六角8mm		
規 格	JIS H3250 C3604 BD			
數 據	標準值	實測值	備 註	
化 學 成 份 %	Cu	57.0 - 61.0	58.70	
	Pb	1.8 - 3.7	3.48	
	Fe	<0.5	-----	
	Sn+Fe	<1.2	0.74	
	Zn	REMAINDER	REMAINDER	
其 它				

桃園縣龜山鄉頂湖一街 24 號 TEL: (03) 3283068-70

Material Approval

Connector (3/4)

氰化亚金钾检验报告

编号: 00055 批号: 20060609-10 报告日期 2006 年 06 月 11 日

符合: Q / NJX 05—2004


检验者: 陈婷蕾

检验项目	指标值	实测值	结论
金含量%	68.30±0.10	68.25	合格
外观	白色或无色晶状粉末,无黄,黑,暗色颗粒	目测: 白色或无色晶体,无其它颗粒。	合格
浊度	水溶液清澈无色,无混浊乳化现象,无沉淀物。	水溶液清澈透明,无色,无其它现象及沉淀物。	合格
不溶物	≤ 0.1	0.035	合格
水份	≤ 0.25	0.15	合格
杂质%(≤0.01)	Ag	0.0020	合格
	Cu	0.0010	合格
	Fe	0.0010	合格
	Ni	0.0010	合格
	Pb	0.0010	合格
	Cr	0.0010	合格

核验结论: 合格

复核者: 秦凌芝

审核者: 周

质监科盖章: 

Material Approval

Connector (4/4)

APPENDIX

Fluo-Tech PTFE is manufactured with virgin PTFE powder by ram extrusion or compression molding and is conformed to meet the requirement of ASTM 1710 (Standard Specification for TFE FLUOROCARBON) described in following table and JIS K 6889 (JAPANESE INDUSTRIAL STANDARD POLYTETRAFLUOROETHYLENE).

TABLE 1 Detail Specification for PTFE

ITEM	PROPERTY	ASTM TEST METHOD	VALUE
1	Specific gravity	D792	2.15-2.2
2	Tensile strength	D638	280-350 kg/cm ²
3	Elongation	D638	200-400%
4	Dielectric strength	D149	30KV/mm
5	Deformation under load. 6.9Mpa, 50C, %	D621	3.5 - 6
6	Dissipation factor 1 KHz	D150	Less than 0.0005
7	Dielectric constant 1 KHz	D150	2.0 - 2.1
8	Volume resistivity	D257	> 10 ¹⁶
9	Surface resistivity	D257	10 ¹⁷
10	Flexural modulus	D790	430-500Mpa
11	Compressibility	D1147	16-20%
12	Hardness, durometer	D2240	D53 - D60
13	Impact strength	D256	16kg-cm/cm
14	Coefficient of linear thermal expansion, per C. 30C to 80C, 10 ⁻⁵ C	D696	12.3 to 11.6

Material Approval

Radome (1/2)

耐熱級 ABS, POLYLAC[®] PA-777B

VIW

材料特性

特性(Properties)	測試方法(Test Method)	測試條件(Test Condition)	單位(Unit)	PA-777B
引張強度 Tensile Strength	ASTM D638	1/8", 6 mm/min	Kg/cm ² (lb/in ²)	430(6100)
延伸率 Tensile Elongation	ASTM D638	1/8", 6 mm/min	%	15
彎曲強度 Flexural Strength	ASTM D790	1/4", 2.8 mm/min	Kg/cm ² (lb/in ²)	700(9920)
彎曲彈性率 Flexural Modulus	ASTM D790	1/4", 2.8 mm/min	Kg/cm ² (lb/in ²)	24000(340000)
IZOD 衝擊強度 Izod Impact Strength	ASTM D256(Notched)	1/4", 23°C 1/8", 23°C	Kg-cm/cm(ft-lb/in) Kg-cm/cm(ft-lb/in)	20(3.7) 23(4.3)
流動係數 Melt Flow Index	ASTM D1238	220°C, 10Kg	g/10min	6.5
硬度 Hardness	ASTM D785	1/2"	R Scale	112
比重 Specific Gravity	ASTM D792	23°C	-	1.04
軟化點 Vicat Softening Temp	ASTM D1525	1/8", 50°C/hr	°C (°F)	115(239)
熱變形溫度 H.D.T Annealed(85°C, 8hr) Unannealed	ASTM D648	1/4", 120°C/hr	°C (°F)	107(225) 97(207)
燃燒率 Flammability	UL 94	-	-	1/16"HB

以上數據僅代表一般通用數據，不代表每一產品的規格值

Material Approval

Radome (2/2)

QMFZ2 Component - Pla

Friday, July 10, 1998

E56070

CHI MEI CORPORATION

59-1 SAN CHIA JEN TE TAINAN HSIEN TAIWAN

Material Designation: PA-777B

Product Description: Acrylonitrile Butadiene Styrene (ABS), designated "Polylac" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	1.5	HB	4	0	60	60	60	-	-
	CTI: 1		HVTR: 0		D495: 7		IEC BP: -		

Report Date: 06/23/1983

Underwriters Laboratories Inc®

267295002

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULL.

Material Approval

PCB (1/2)



Advanced Circuit Materials

100 South Roosevelt Avenue / Chandler, AZ 85226-3415 / 480.961.1382 / Fax: 480.961.4533

Statement on WEEE and RoHS Directives

Rogers Corporation, as a supplier of High Frequency Circuit Materials, through its Advanced Circuit Materials Division, is committed to providing materials which are safe with respect to the environment and human health. In that regard, Rogers takes note of the European Union WEEE and ROHS directives, which prohibit the following substances in electrical and electronic equipment by 1 July 2006:

- Lead
- Mercury
- Cadmium
- Hexavalent chromium,
- polybrominated biphenyls (PBBs)
- polybrominated diphenyl ethers (PBDEs)

Rogers is able to advise that all our High Frequency Circuit Materials* are in compliance with WEEE and RoHS directives on these substances.

A brominated flame retardant: brominated aromatic imide is used in ³⁴⁴⁰RO4350B, RO4350ENZ, RO4450B, RO4403. This flame retardant has not been implicated in the possible production of dioxins, as have some other brominated flame retardants; and there are no restrictions on its use.

*(RO2800, RO3003, RO3003M, RO3003Q, RO3003 60Q, RO3006, RO3010, RO3203, RO3206, RO3035 M, RO3210, RO3263, RO4003B, RO4003C, RO4232, RO4233, RO4350B, RO4350BIA, RO4403, RO4450, RT5870, RT5880, RT6002, RT6006, RT6010.2, RT6010.2LM, RT6010.5, RT6010.5LM, RT6010.8, RT6010.8LM, RT6202, TMM3, TMM4, TMM5, TMM6, TMM10I, TMM13I, TMM4I, UL DK2.40, UL DK2.43, UL DK2.45, UL DK2.48, UL DK2.50, UL DK2.55, UL DK2.60, UL22, Rflex 36BP, Rflex 3850, Rflex 38BP)

Frank Gillern
Division Vice President

Vince Landi
Development Manager

Kelly O'Brien
EHS Specialist

The world runs better with Rogers.

www.rogerscorporation.com

Material Approval

PCB (2/2)



Advanced Circuit Materials

Advanced Circuit Materials Division
100 S. Roosevelt Avenue
Chandler, AZ 85226
Tel: 480-961-1382, Fax: 480-961-4533
www.rogerscorporation.com

Data Sheet
RO1.4000

RO4000® Series High Frequency Circuit Materials

PROPERTY	TYPICAL VALUE		DIRECTION	UNITS	CONDITION	TEST METHOD
	RO4003C	RO4350B ⁽¹⁾				
Dielectric Constant, ϵ_r	3.38±0.05	3.48±0.05 ⁽²⁾	Z	--	10 GHz/23°C 2.5 GHz/23°C	IPC-TM-650 2.5.5.5
Dissipation Factor tan, δ	0.0027 0.0021	0.0037 0.0031	Z	--	10 GHz/23°C 2.5 GHz/23°C	IPC-TM-650 2.5.5.5
Thermal Coefficient of ϵ_r	+40	+50	Z	ppm/°C	-100°C to 250°C	IPC-TM-650 2.5.5.5
Volume Resistivity	1.7 X 10 ¹⁰	1.2 X 10 ¹⁰		M Ω •cm	COND A	IPC-TM-650 2.5.17.1
Surface Resistivity	4.2 X 10 ⁹	5.7 X 10 ⁹		M Ω	COND A	IPC-TM-650 2.5.17.1
Electrical Strength	31.2 (780)	31.2 (780)	Z	KV/mm (V/mil)	0.51mm (0.020")	IPC-TM-650 2.5.6.2
Tensile Modulus	26,889 (3900)	11,473 (1664)	Y	MPa (kpsi)	RT	ASTM D638
Tensile Strength	141 (20.4)	175 (25.4)	Y	MPa (kpsi)	RT	ASTM D638
Flexural Strength	276 (40)	255 (37)	-	MPa (kpsi)		IPC-TM-650 2.4.4
Dimensional Stability	<0.3	<0.5	X,Y	mm/m (mils/inch)	after etch +E2/150°	IPC-TM-650 2.4.39A
Coefficient of Thermal Expansion	11	14	X	ppm/°C	-55 to 288°C	IPC-TM-650 2.1.41
	14	16	Y			
	46	50	Z			
Tg	>280	>280	-	°C	A	IPC-TM-650 2.4.24
Thermal Conductivity	0.64	0.62	-	W/m/°K	100°C	ASTM F433
Moisture Absorption	0.04	0.04	-	%	48 hrs immersion 0.060" sample Temperature 50°C	ASTM D570
Density	1.79	1.86	-	gm/cm ³	23°C	ASTM D792
Copper Peel Strength	1.05 (6.0)	0.88 (5.0)		N/mm (pli)	after solder float 1 oz. EDC Foil	IPC-TM-650 2.4.8
Flammability	N/A	94V-0				UL

STANDARD THICKNESS:	STANDARD PANEL SIZE:	STANDARD COPPER CLADDING:
RO4003C®: 0.008" (0.203mm), 0.020" (0.508mm) 0.032" (0.813mm), 0.060" (1.524mm)	12" X 18" (305 X 457 mm) 24" X 18" (610 X 457 mm) 24" X 36" (610 X 915 mm) 48" X 36" (1.224 m X 915 mm)	½ oz. (17µm), 1 oz. (34µm) and 2 oz. (70µm) electrodeposited copper foil.
RO4350B: 0.004" (0.101mm), 0.0066" (0.168mm) 0.010" (0.254mm), 0.020" (0.508mm) 0.030" (0.762mm), 0.060" (1.524mm)		

(1) Dielectric constant and loss tangent are reported based on IPC-TM-2.5.5.5 @ GHz (stripline resonator). Departure from this test method or frequency may yield different values. It has been reported that in some microstrip applications, a Delta (Δ) of 0.2 in dielectric constant has been observed for both RO4003 and RO4350B based on actual circuit measurement and circuit modeling comparisons. It is up to the user to determine which value best fits the application and modeling software used during the design process while Rogers ensures the repeatability of the product received.

(2) Dielectric constant typical value does not apply to 0.004 (0.101mm) laminates. Dielectric constant specification value for 0.004 RO4350B material is 3.36 ± 0.05.

Material Approval O-Ring (1/1)

YOUN SHIN ENTERPRISE CO., LTD.		EA14 Water Resistance: 100 °C* 70 hr	
TEST REPORT		D491	
MATERIAL: <u>EP 60A</u>		Hardness Change	-2
		Tensile Strength Change	+1
		Elongation Change	-10
		Volume Change	+3
Press Cure	Post Cure	EO ASTM Oil: °C* hr	
Sheet: 8 min 170 °C	Sheet: _____ min _____ °C	Hardness Change	
Button: 10 min 170 °C	Button: _____ min _____ °C	Tensile Strength Change	
		Elongation Change	
		Volume Change	
Spec: <u>ASTM D2000</u>		EO ASTM Oil: °C* hr	
Original Properties:	no post Spec.	Hardness Change	
Hardness (Shore A)	D2240 63	Tensile Strength Change	
Tensile Strength (kg/cm ²)	D412 328	Elongation Change	
Elongation, %		Volume Change	
Tear resistance (kg/cm)			
Modulus at 100% (kg/cm ²)		EO ASTM Oil: °C* hr	
Modulus at 200%		Hardness Change	
Modulus at 300%		Tensile Strength Change	2 信新
Specific Gravity		Elongation Change	9 利莊
		Volume Change	9 模他
A Heat Resistance: 125 °C* 70 hr	D573	BF Fuel Resistance: 23 °C* 70 hr	3 膠成
Hardness Change A		Hardness Change	2 有路
Tensile Strength Change %		Tensile Strength Change	6 限港
Elongation Change %		Elongation Change	0 公6
Volume Change %		Volume Change	2 司號
A Heat Resistance: 100 °C* 70 hr	D573	BF Fuel Resistance: 23 °C* 70 hr	
Hardness Change A		Hardness Change	
Tensile Strength Change %		Tensile Strength Change	
Elongation Change %		Elongation Change	
Volume Change %		Volume Change	
B Compression Set: 125 °C* 22 hr	D195	BF Fuel Resistance: 23 °C* 70 hr	
Compression Set		Hardness Change	
B Compression Set: 100 °C* 70 hr		Tensile Strength Change	
Compression Set		Elongation Change	
B Compression Set: _____ °C* _____ hr		Volume Change	
C 12.50 ppbpa 40 °C* 72 hr	D1171 No Check	P Low Temperature: °C* min	

Material Approval Carton (1/1)

山健包裝股份有限公司 材質證明書

日期:

料號:

數量:

PO/NO.:

材質: AB 楞 18 kg/m²

	基重(g/m ²)	等級	破裂強度(kgf/m ²)
面紙	230	A	8.5
B 楞	100	A	0
芯紙	100	A	1.5
A 楞	100	A	0
底紙	230	A	8.5

單位主管: 謝森芳

品管員: 袁秋蓮

Material Approval Box (1/1)



TRICAN CO., LTD

Dimension Approval Sheet

Model Name:	Sample Appr. Sheet No.:
Part Name: BOX	Material: E/F,單白 8kg
Part Number: 8404-0035	Color:
Vendor: TRI CAN CO., LTD (山健包裝股份有限公司)	Date: 9.27.2005

Inspection Gauge:

Caliper----- (C) Thickness Gauge----- (T) Gauge Block----- (B)
 Micrometer----- (M) Height Gauge----- (H) Go.No-Go----- (G)
 Opt.Comparator----- (O) Dial Indicator----- (D) Microscope----- (S)
 Pin Gauge----- (P) Flexible Rule----- (F)

Distribution

R&D	<input type="checkbox"/>
QC	<input type="checkbox"/>
Purchase	<input type="checkbox"/>
Vendor	<input type="checkbox"/>

Item	Check Code	Part Portion	Specification	Cav. No.	Part Reading/Condition				Status	Gauge Code
					Sample:	Sample:	Sample:	Sample:		
1			173.5		173.5	173.5	173.5	173.5	O K	F
2			281		281	281	281	281	O K	F
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

Initiator Chelsea Lu 9.27.2005 Reviewed By Johnny Tsai 9.27.2005 Approved By Tony Hsu 9.27.2005

- White (1st copy) : Originating Department (after R& D's approval).
- Red (2nd copy) : Quality Control Department (after SmartAnt approval; if sample does not pass Quality Control, this form is not enclosed with sample).
- Yellow(3rd copy) : Vendor.
- Blue (4th copy) : Documentation Office.