

產品規格承認書

Specification For Approval

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承認廠商： 研華股份有限公司
Customer

製造廠商： 英碩科技股份有限公司
Manufacturer

型號品名： R-AN2400-5701RS
Part Number

Description 2.4GHz External Antenna

研華 P/N:1750000318

廠商審核：
Approved By

Invax

英碩科技股份有限公司
台北市忠孝東路五段 815 號 4 樓
Tel: (02)2788-5218 Fax: (02)2783-1658

Cortec

東莞康捷電子有限公司
廣東省東莞市長安鎮振安路
沙頭段咸西工業區
Tel: 86-769-5317599 Fax: 86-769-5317869

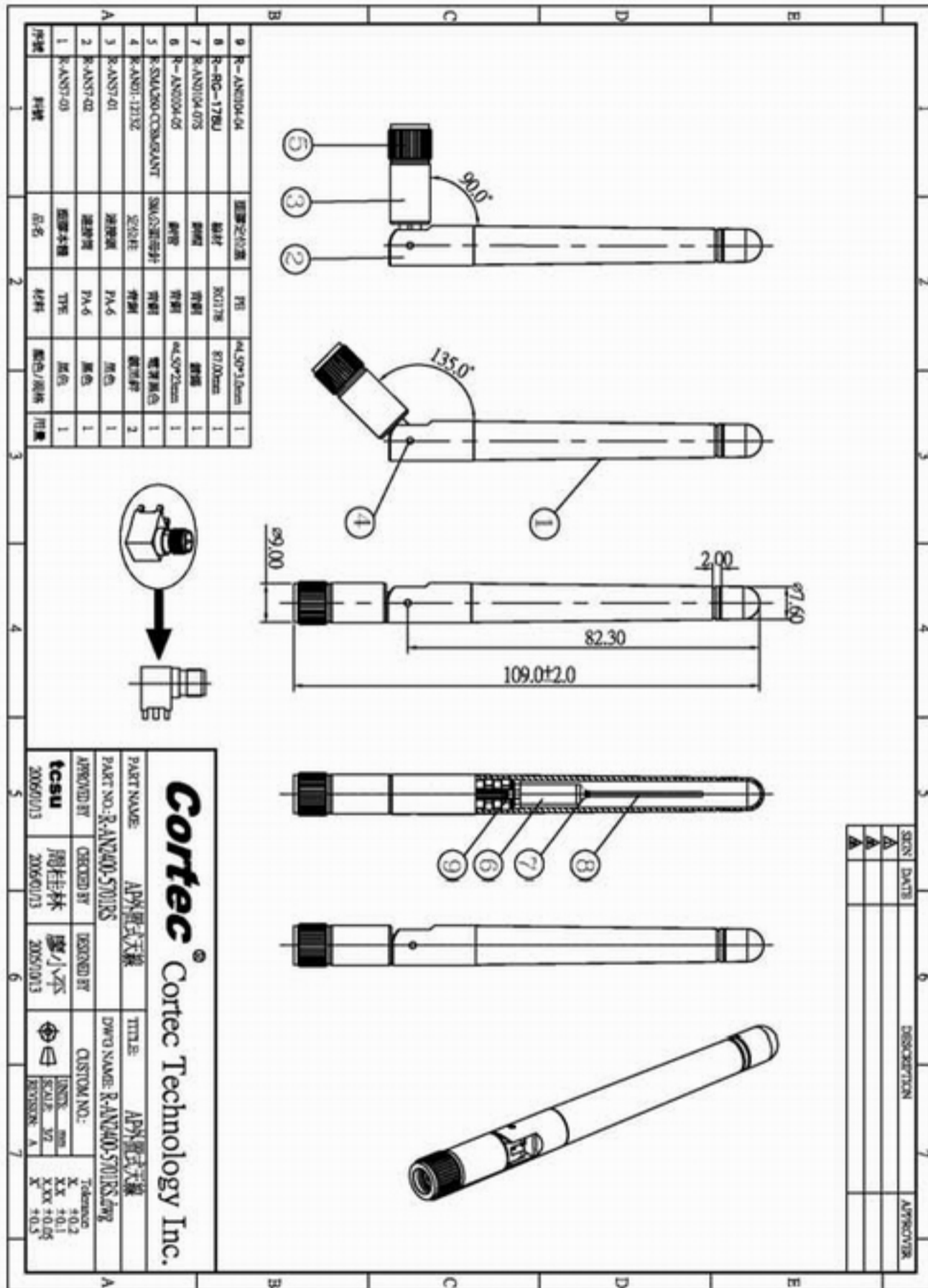
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Product Number: R-AN2400-5701RS
 Product Name: 2.4 GHz External Antenna



1. Mechanical Dimension Drawing



2. Feature and Application

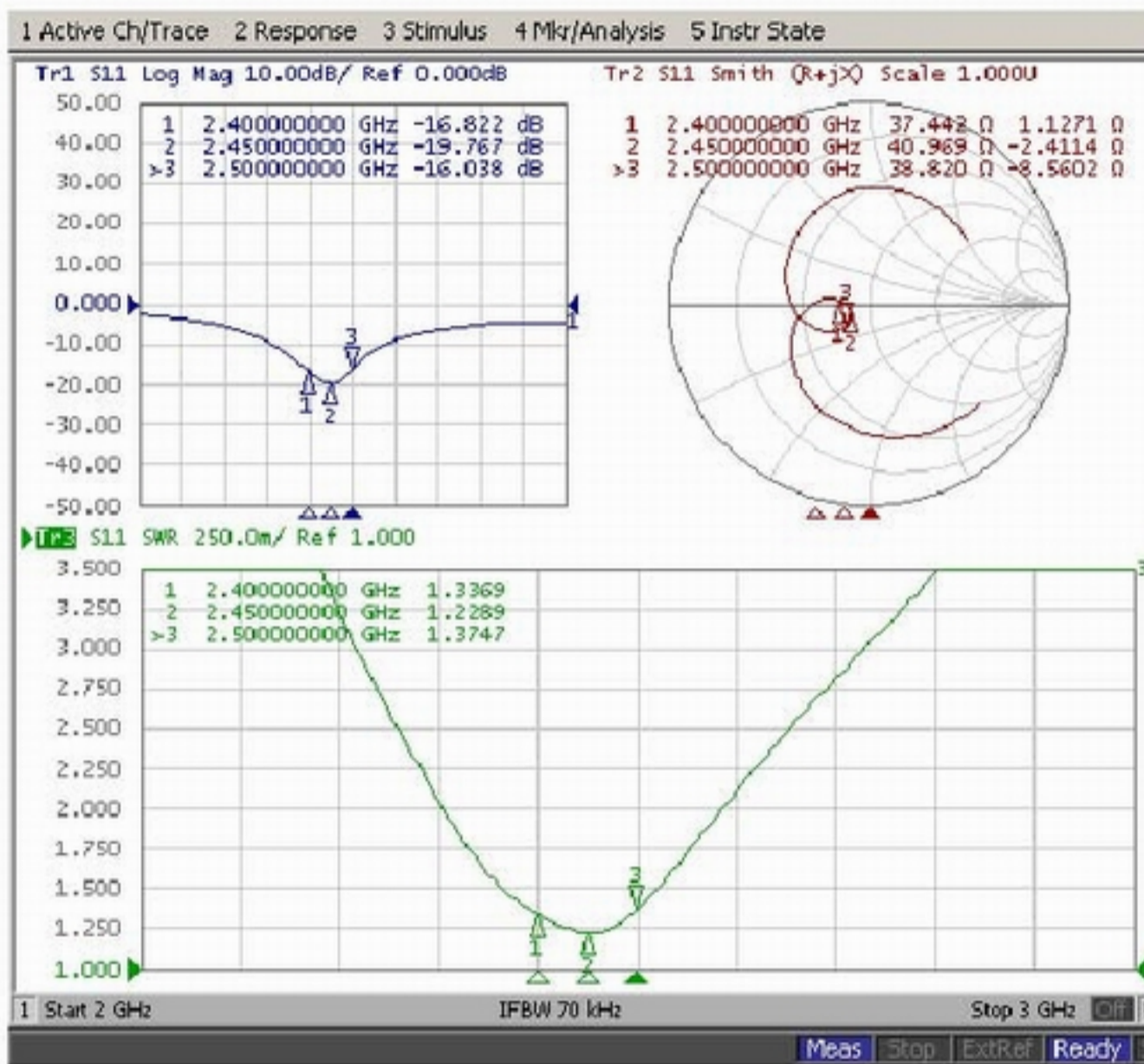
- . dipole antenna design
- . small size / high gain / omni-directional radiation pattern
- . IEEE 802.11 b / g WLAN AP (Access Point) application
- . Bluetooth / HomeRF / ISM Band and other 2.4 GHz wireless communication application

3. Technical Specification

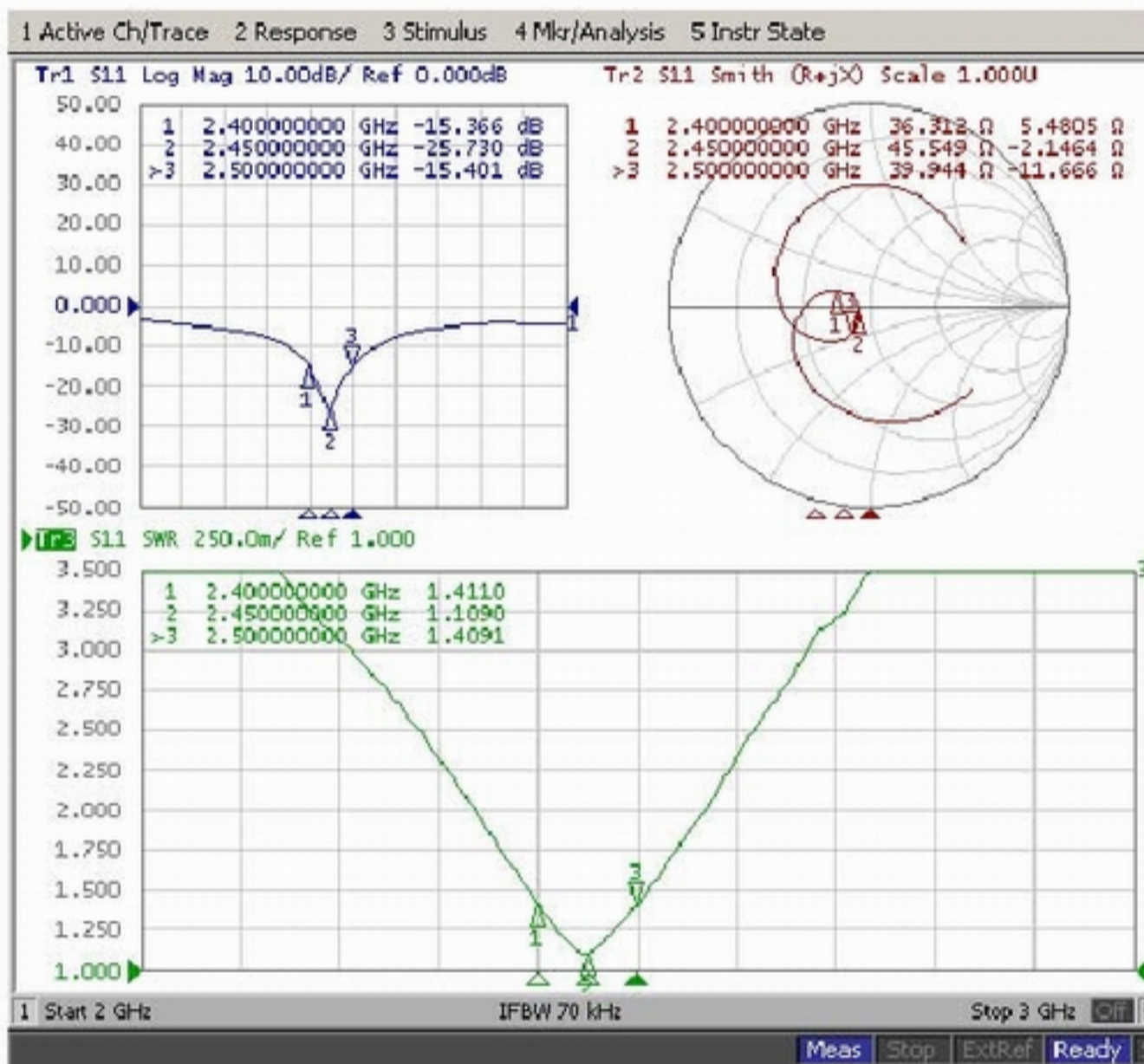
A. Electrical Characteristics	
Working Frequency Range	2400 ~ 2500 MHz
S.W.R.	< 2.0
Antenna Gain	2.0 dBi \pm 0.5dBi
Antenna Radiation Pattern	Omni-directional
Impedance	50 ohm
B. Material	
Color of Outer Cover	Black
Material of Outer Cover	TPE
Material of Hinge	PA-6
Material of Base	PA-6
Connector Type	50 Ohm SMA Male Reverse
Tube	Copper , Sn Plated
Total Length	109 mm
C. Environmental	
Operation Temperature	- 30 °C ~ + 85 °C
Storage Temperature	- 30 °C ~ + 85 °C

4. S11 Return Loss / S.W.R. / Impedance Testing Result

Antenna Hinge is 90 degree



Antenna Hinge is 180 degree



5. Antenna Radiation Pattern

Product Number: R-AN2400-5701RS
Product Name: 2.4 GHz External Antenna



Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

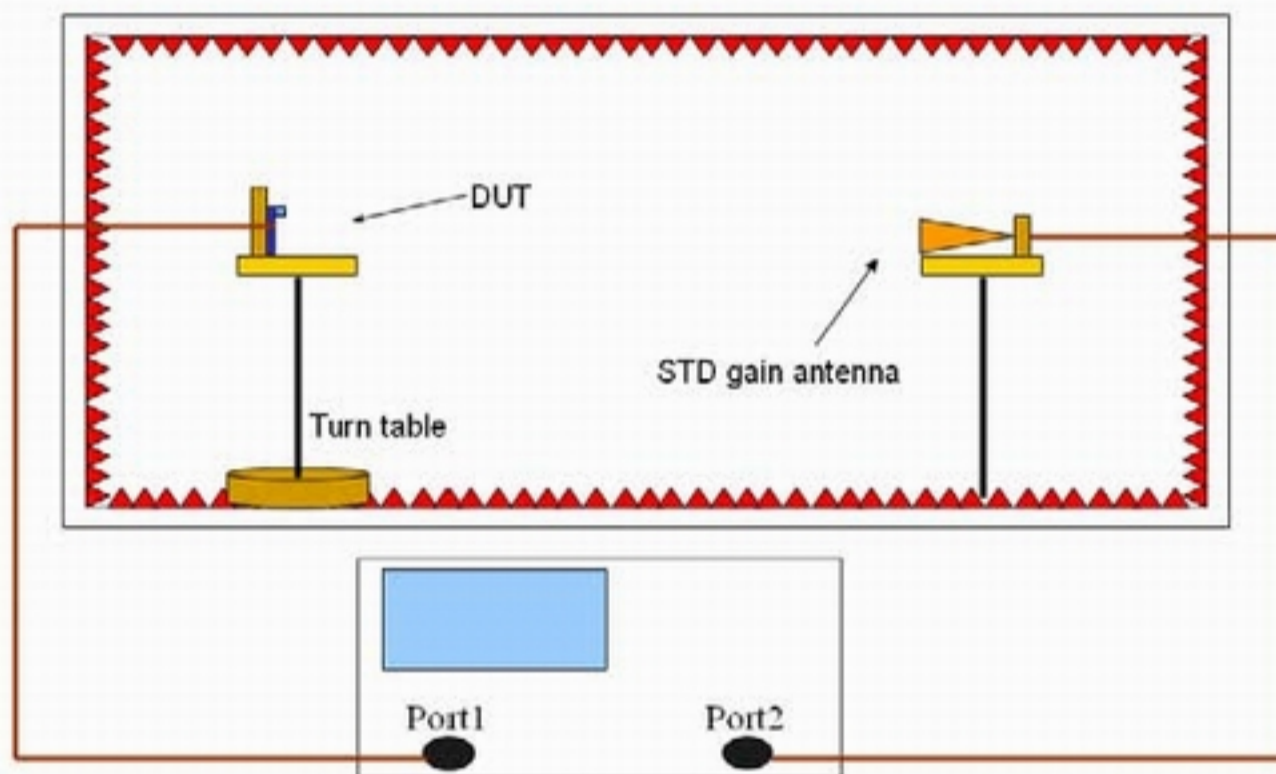
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

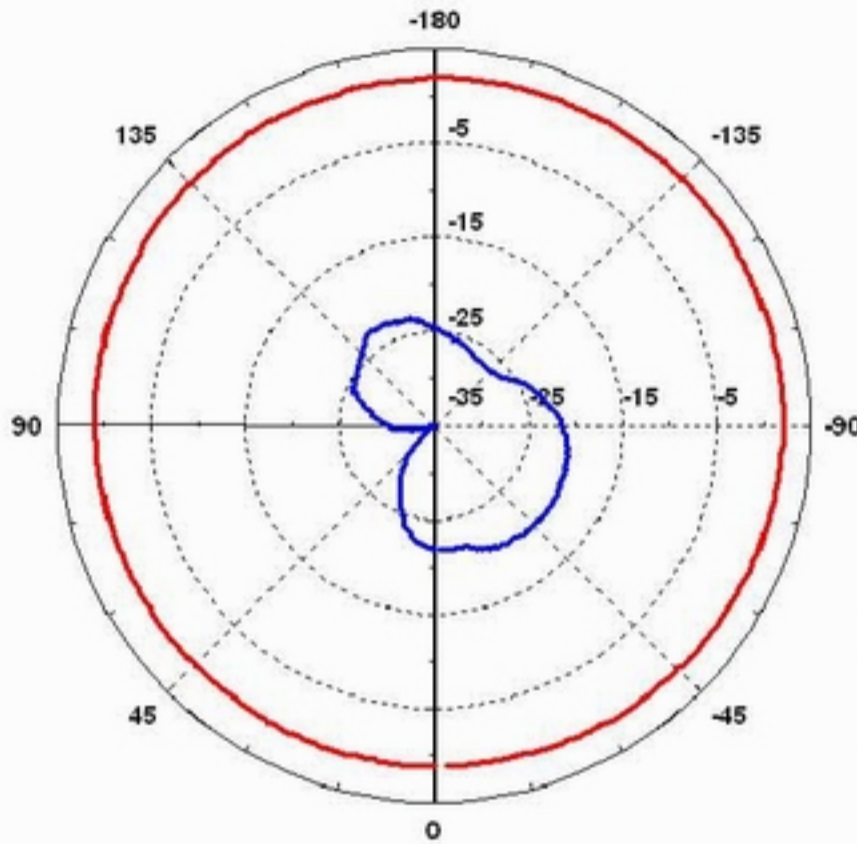
Testing Equipment: Agilent 8720D

Received Antenna: 0.7~6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



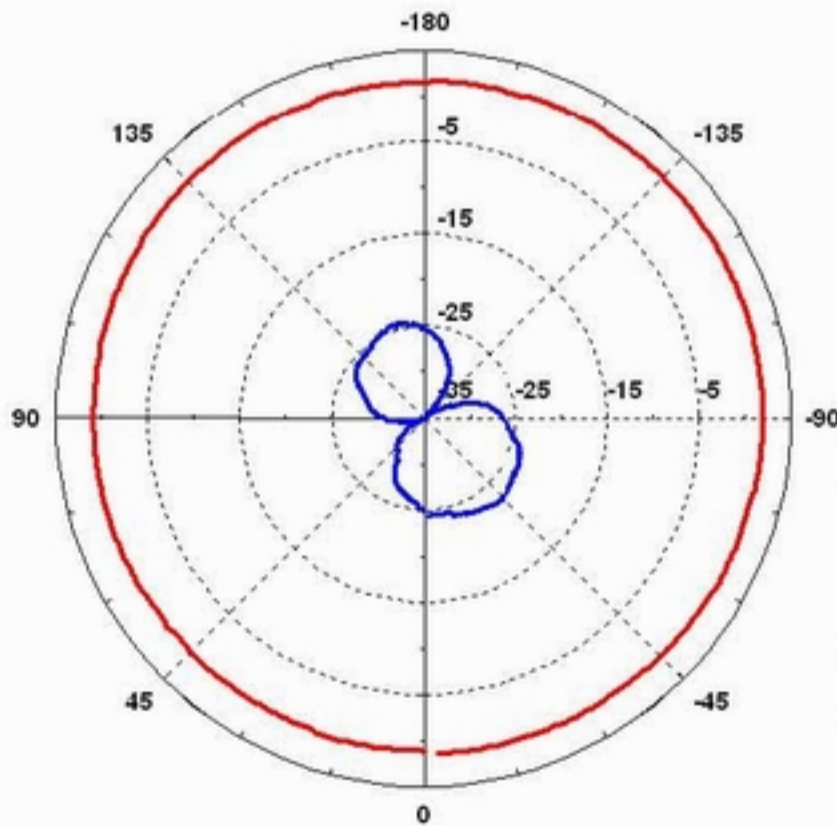
2400MHz Radiation Pattern



Ver. Pol (max.)=	2.2
Ver. Pol (avg.)=	1.6
Hor. Pol (max.)=	-19.9
Hor. Pol (avg.)=	-23.7
Tot. Gain (max.)=	2.2
Tot. Gain (avg.)=	1.6

Unit: dBi

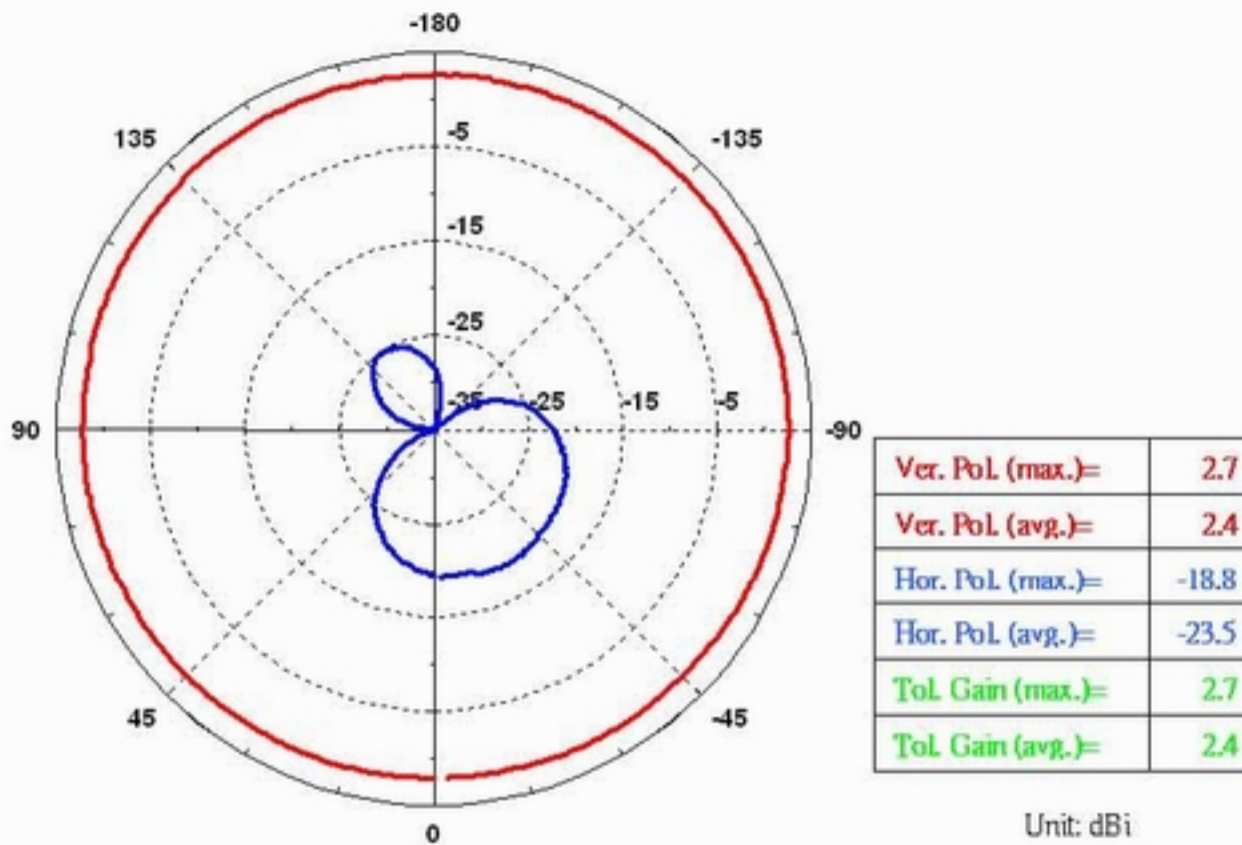
2450MHz Radiation Pattern



Ver. Pol (max.)=	1.9
Ver. Pol (avg.)=	1.4
Hor. Pol (max.)=	-22.8
Hor. Pol (avg.)=	-26.4
Tot. Gain (max.)=	1.9
Tot. Gain (avg.)=	1.4

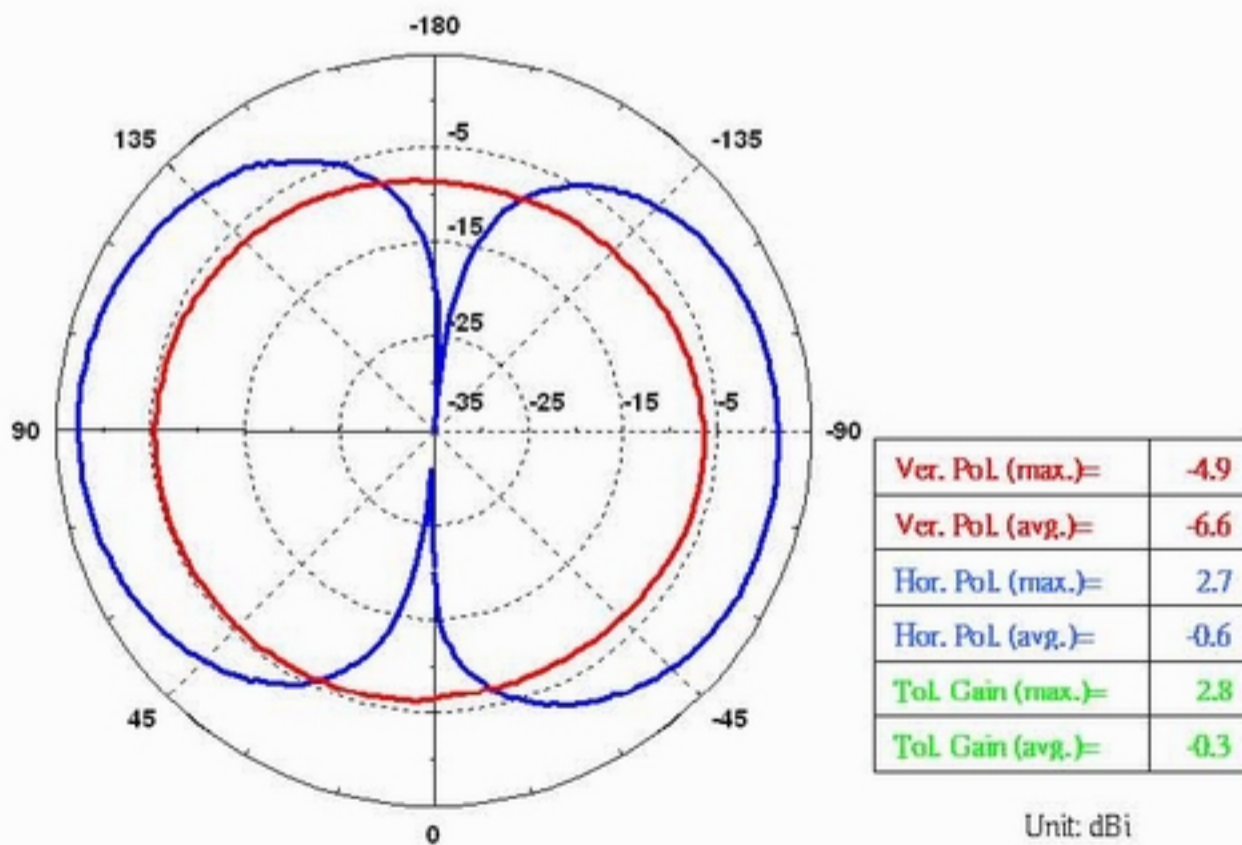
Unit: dBi

2500MHz Radiation Pattern

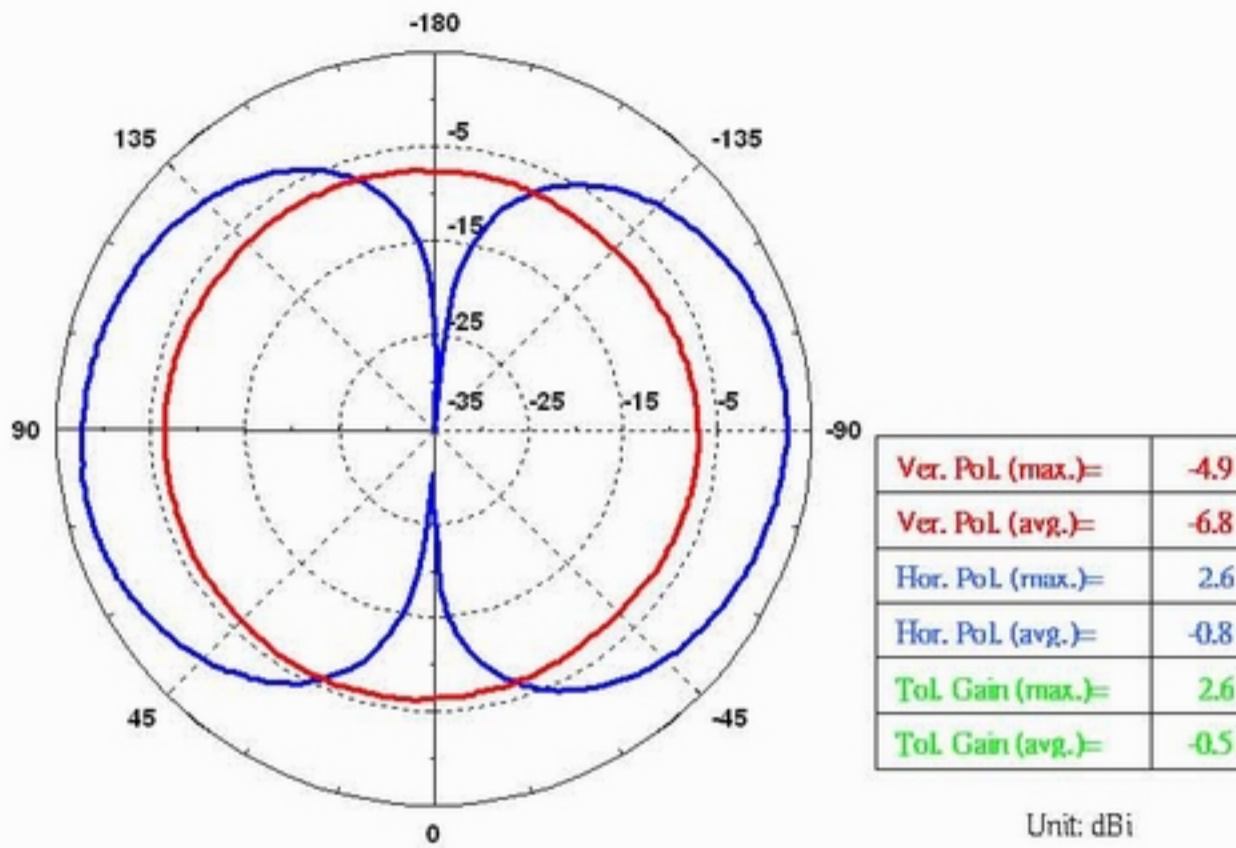


5-2. E-Plane

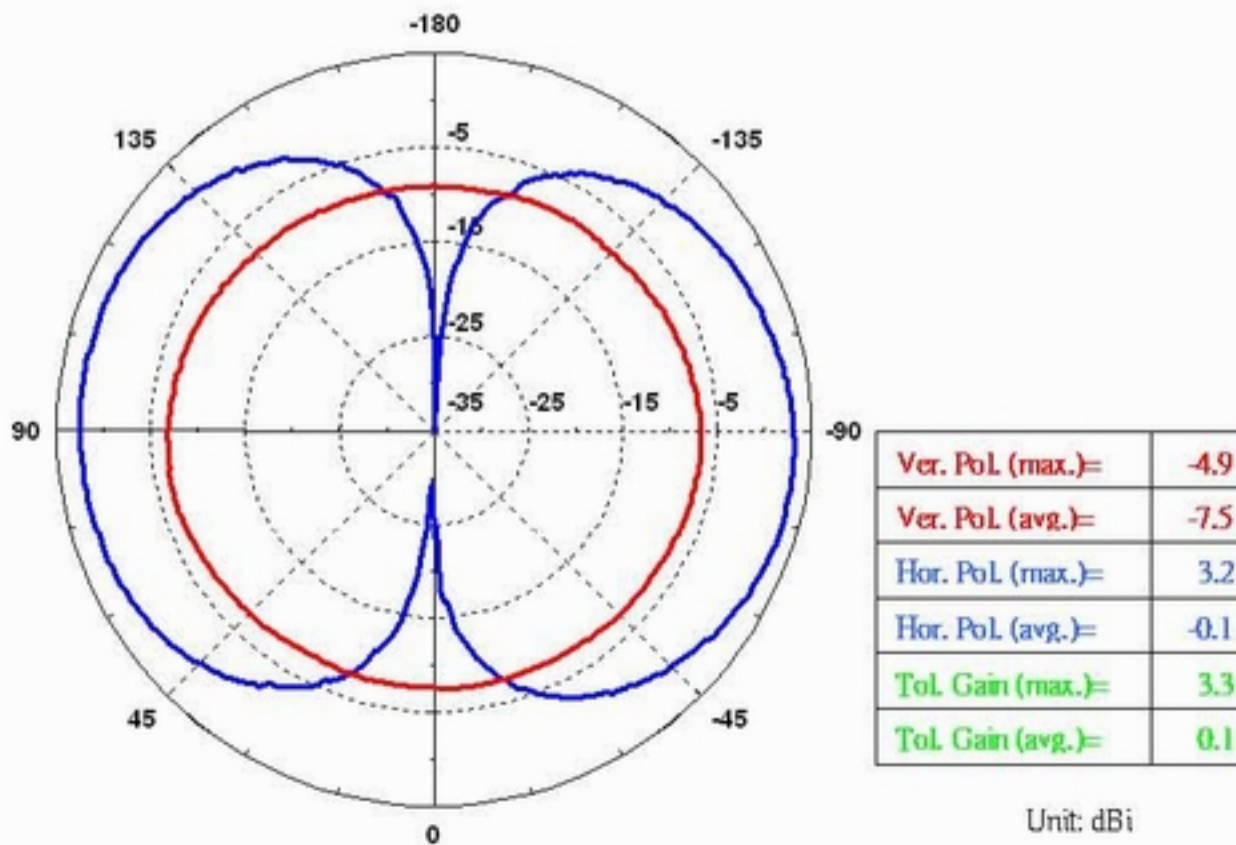
2400MHz Radiation Pattern



2450MHz Radiation Pattern



2500MHz Radiation Pattern



6. Plastic Parts Material Datasheet

TEIJIN POLYCARBONATE SINGAPORE PTE. LTD.

#01-01 111 SAKRA AVE. SINGAPORE 627881 SINGAPORE

Material Designation: L-1250#(f2), L-1250U#, L-1250V#, L-1250Z#

Product Description: Polycarbonate (PC)

Color	Min. thick. (mm)	Flame Class	HWI	HAI	RTL Elec.	RTL Imp.	RTL Str.
ALL	0.40	V-2	4	3	80	80	80
	0.84	V-2	4	3	80	80	80
	1.5	HB	4	0	125	115	125
	3.0	HB	1	0	125	115	125
	6.0	HB	1	0	125	115	125

CXT:2, HVTR:2, D495:5

Material designation may be suffixed with any one or two letters.

Subjected to one or more of the following tests; Ultraviolet Light, Water Exposure in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL Inc.

Report Date: 1999-07-29

物性項目 Property	單位 Unit	ASTM 試驗法 Test Method	TPE
比重 Specific Gravity	---	D792	0.88
模具收縮率 Shrinkage	%	D955	0.8-2.5
斷裂拉伸強度 Tensile Strength	Kg/ cm ³	D638	3.1
扭曲強度 Flexural Strength	Kg/ cm ³	D790	---
衝擊強度缺口 23°C Impact Strength	Kg om/om	D256	---
硬度 Hardness	A Shore	---	13
熱變形溫度 0.45 MPa Heat Deflection Temp.	°C	D648	80
熔融指數 Melt Flow Index	G/ min ²	D1238	10
燃燒性 Flammability	---	UL94	HB

Testing Data from

東莞市合春塑料有限公司 Tel:86-0769-2774772

台灣大雅國際股份有限公司 Tel:886-02-27775232

台灣台達化學工業股份有限公司
 ABS 通用級(一般用)規格性質一覽表

性 質 Properties	試驗 方法 ASTM	通用級 (一般用) General Purpose							
		3000H	3000D	3000	6000	1000	5000	5000s	
M E C H A N I C A L 機 械 質	ZOD 沖擊強度 (IZOD Impact Strength)	D256	34 50	30 38	25 33	23 30	21 27	17 21	13 16
	抗張強度-降伏點 (Tensile Strength at Yield)	D638	400	410	380	400	430	460	480
	抗張強度-斷裂點 (Tensile Strength at Break)		340	360	310	340	340	360	380
	伸張率-斷裂點 (Elongation at Break)	D638	60	40	40	30	30	20	20
	抗折強度 (Flexural Yield)	D790	620	600	580	640	700	750	800
	抗折系數 (Flexural Modulus)	D790	21,000	21,000	20,000	22,000	24,000	26,000	30,000
T H E R M A L 熱 性 質	熱變形溫度 (Heat Distortion Temp)	D648	87	86	85	86	87	88	89
	Vicat 軟化溫度 (Vicat Softening Temp)	D1525	102	101	100	101	102	103	104
	流動指數 (Melt Flow index)	D1238	0.5 6.0	1.0 10.0	1.2 12.0	1.6 16.0	1.8 18.0	2.2 20.0	2.1 19.0
	燃燒性 (Flammability)	UL-94	94HB	94HB	94HB	94HB	94HB	94HB	94HB
E L E C T R I C A L 電 氣 性	相對溫度指數 (Relative Temp index)	UL-746B	-	-	60	60	60	60	60
	抗熱線燃燒性 (High Current Arc ignition)	UL-746A	-	-	15	13	17	18	15
	抗電弧性 (High Current Arc ignition)	UL-746A	-	-	200	200	200	200	15
	電弧產生速率 (Arc Tracking Rate)	UL-746A	-	-	0	0	0	0	0
O T H E R S 其 他	比重 (Specific Gravity)	D792	1.03	1.03	1.03	1.03	1.03	1.03	1.04
	硬度 (Rockwell Hardness)	D785	103	102	100	107	110	115	119
	成型收縮 (Mold shrinkage)	D955	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	吸水率 (Water Absorption)	D570	0.3	0.3	0.3	0.3	0.3	0.3	0.3

7. Metal Parts Material Datasheet

Copper Datasheet

合金編號 Copper Alloy CN & JIS No.	化學成分 Composition (%)									
	銅 Cu	鉛 Pb	鐵 Fe	錫 Sn	鋅 Zn	鋁 Al	錳 Mn	鎳 Ni	磷 P	銅+鋁+鐵 +錳+鎳 Cu+Al+Fe +Mn+Ni
C3501	60.0-64.0	0.7-1.7	0.2以下 0.2max	Fe+Sn 0.4以下 0.4max	殘余 Rem					
C3601	59.0-63.0	1.8-3.7	0.3以下 0.3max	Fe+Sn 0.5以下 0.5max	殘余 Rem					
C3602	59.0-63.0	1.8-3.7	0.5以下 0.5max	Fe+Sn 1.2以下 1.2max	殘余 Rem					
C3603	57.0-61.0	1.8-3.7	0.35以下 0.35max	Fe+Sn 0.6以下 0.6max	殘余 Rem					
C3604	57.0-61.0	1.8-3.7	0.5以下 0.5max	Fe+Sn 1.2以下 1.2max	殘余 Rem					
C3605	57.0-60.0	3.5-4.5	0.5以下 0.5max	Fe+Sn 1.2以下 1.2max	殘余 Rem					
C3712	58.0-62.0	0.26-1.2	Fe+Sn 0.8 以下 0.8max		殘余 Rem					
C3771	57.0-61.0	1.0-2.5	Fe+Sn 1.0 以下 1.0max		殘余 Rem					
合金種類 Alloy CN & JIS No.	符號 Symbol	別類 Name	特性用途 Speciality and Utilities							
C3501	線(B)	Nipple 用黃銅 Nipple Using Brass	切削性・冷間鍛造性良好 機車・腳踏車・腳踏車用接頭螺帽 Excellent Cold Forging and Good Machine-ability Use Motorcycle and Bicycle Join Nut...							
C3601	(B)	快削黃銅 Free Cutting Brass	切削性良好・C3601,C3602 延展性也良好・電腦・電子・釣具・筆・燈飾・螺絲・小螺帽・齒輪・凡而・照相機各種五金零件 Excellent Machine-ability and C3601, C3602 Good Excellent to Use Computer, Electronic, Clock, Pen, Light and Fishing, Nut, Gear, Valve Camera Parts, Hardware Parts...							
C3602	(A)									
	(B)									
C3603	(B)									
C3604	(A)									
	(B)									
C3605	(A)									
	(B)									
C3712	(A)	Forging Brass	熱間性良好・精密鍛造亦適合機械零組件・ 熱間鍛造性和切削性均佳・凡而・表殼・機械零件等 Excellent Hot Forging Uses Precision Forging, Machine Parts, Excellent Hot Forging and Good Machine-ability . Using Value, Watch, Machine Parts...							
	(B)									
C3771	(A)									
	(B)									

8. Coaxial Cable Datasheet

RG-178 Coaxial Cable Specification		
1. Cable Type	MIL - C - 17 / RG-178	
2. Impedance	50 ± 3 ohm	
3. Inner Conductor	Material	silver-coated cooper
	Conductor Numbers	7
	Conductor Size	0.102 mm
	Outer Diameter	0.3 mm
4. Dielectric Layer	Material	FEP
	Color	Clear
	Average Thickness	0.28 mm
	Diameter	0.86 mm
5. Braid (Shielding)	Material	silver-coated cooper
	Construction	16-3-0.1 mm
	Coverage	95 %
6. Outer Cover	Material	FEP
	Color	Brown
	Average Thickness	0.25 mm
	Diameter	1.80 ± 0.05 mm
7. V.S.W.R Testing (DC ~ 6GHz)	< 1.3	
8. Attenuation (dB / 100 meter)	100 MHz	46
	900 MHz	155
	1800 MHz	295
	2400 MHz	340
	5200 MHz	505
	6000 MHz	550
9. Capacitance	97 ± 3 (pF / meter)	
10. Maximum Power	30 dBm	
11. Spark Test	2.0 KV	
12. Rating Temp. and Voltage	200°C / 30V	
13. Conductor Resistance	335 ohm / KM / 20°C max.	