

承 認 書
SPECIFICATION FOR APPROVAL

客 戶
CUSTOMER

明泰科技股份有限公司

日 期
DATE

92 年 11 月 06 日

品 名
DESCRIPTION

Swivel Type
5dBi Monopole Antenna
With RP-N Type Male Connector

客 戶 料 號
CUSTOMER P/N



萬旭電業股份有限公司

WANSHIH ELECTRONIC CO., LTD.

台北縣五股鄉五工六路 72 號 3 樓

3F 72 WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT

TAIPEI HSIEN, TAIWAN, R.O.C.

TEL : (02) 22988066 (5 LINE) FAX : (02)22981102

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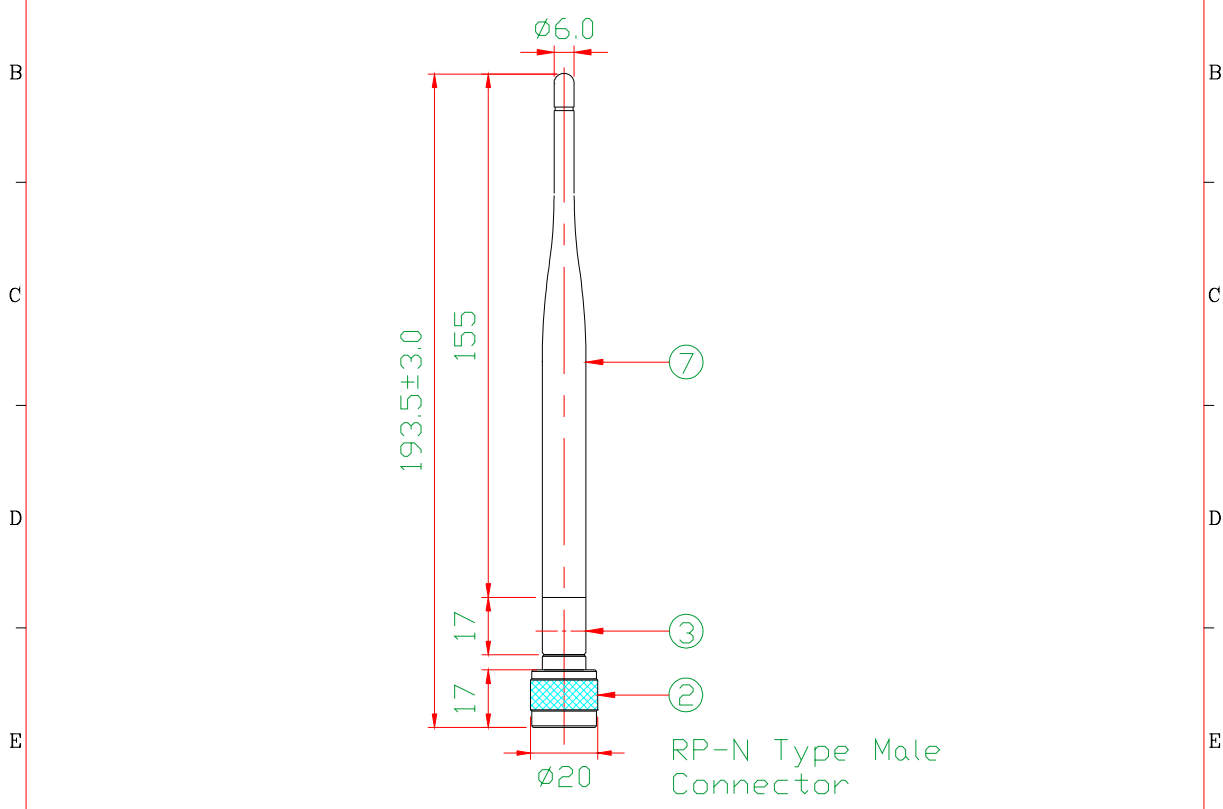
SPECIFICATION

1. Description : Swivel Type
5dBi Monopole Antenna
With RP-N Type Male Connector
2. Customer : 明泰科技股份有限公司
3. Model No. : WSS005
4. Part No. : THW0301A
5. Standard : IEEE 802.11b/g Wireless LAN
6. Antenna Profile : 193.5 mm length (see Drawing)
7. Color : Gray
8. Electrical Characteristics
 - Operating Frequency : 2.4~2.5 GHz
 - Antenna Type : 1/4 Monopole
 - Polarization Type : Linear
 - Type of Radiation : Toroidal
 - Antenna Gain : 5.0 dBi Typical
 - Impedance : 50 Ohm nominal
 - V.S.W.R. : 2.0:1 Max.
9. Mechanical Characteristics
 - Connector : RP-N Type Male Connector
 - EMI Sleeve Core : N/A
10. Raw Material
 - Coaxial Cable : MIL-C-17 RG-178 B/U
 - Housing : TPU
 - Hinge : Polycarbonate

TOLERANCES:

X	± 1
X.X	± 0.5
X.XX	± 0.2
ANGULAR	± 5.0°

版次	修訂日期	ECR NO.	作成	設計變更內容簡述

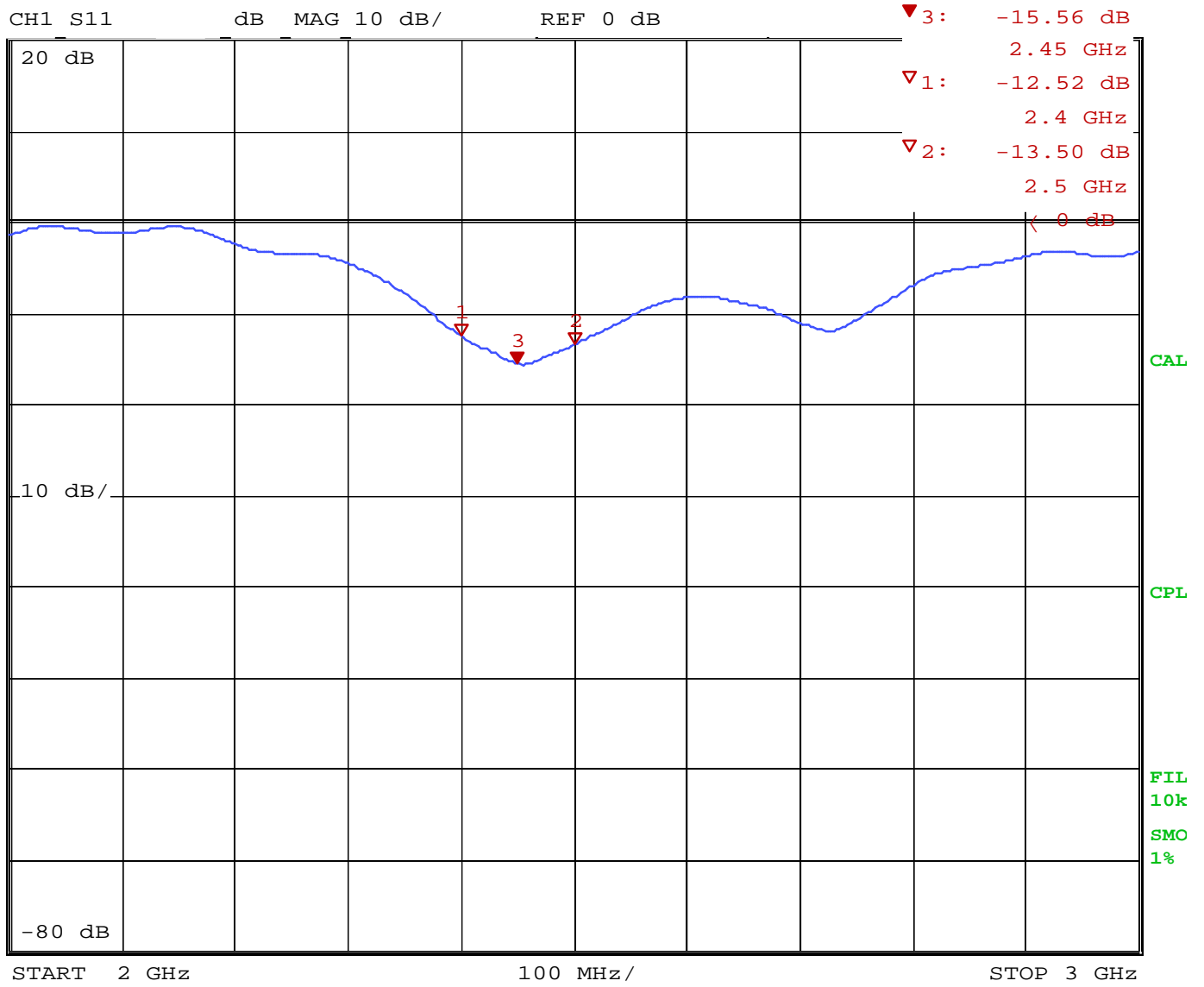


7	外套 L155 <灰>	6913L1550080WA	13	*L155 灰 外套<天線用>	灰(424U)	1	或同級品	
6	固定支撐桿 L42<黑>	6985L0420000WA	8.5	*L42 黑固定支撐桿天線用	黑	1	或同級品	
5	彈簧	69ZZG000000TWB		彈簧<G>天線用		1	或同級品	
4	銅管L28.5	B252L2850000SJ	5.2	*28.5L 銅管<平頭>		1	或同級品	
3	直式上座				灰	1	或同級品	
2	RP-N Type Male	B2161305552RSI		16-1305-552-75-3-1-R		1	或同級品	
1	RG-178 Coaxial Cable	19RG17800030AE		RG-178 CABLE 105SV(萬泰)	橙	65	1 或同級品	
NO	材料名稱	環材	電腦編號	零件規格	顏色	切斷尺寸	用量	備註

修訂日期:		制訂日期: 92/11/06		承認圖號			
頁數: 1/1	核准	審查	作成	品名			
第三角法	郭雅珍			SWIVEL TYPE 5dBi DIPOLE ANTENNA (Gray)			
單位: mm				成品編號		REV	VERSION
比例: FREE				THW0301		A	1

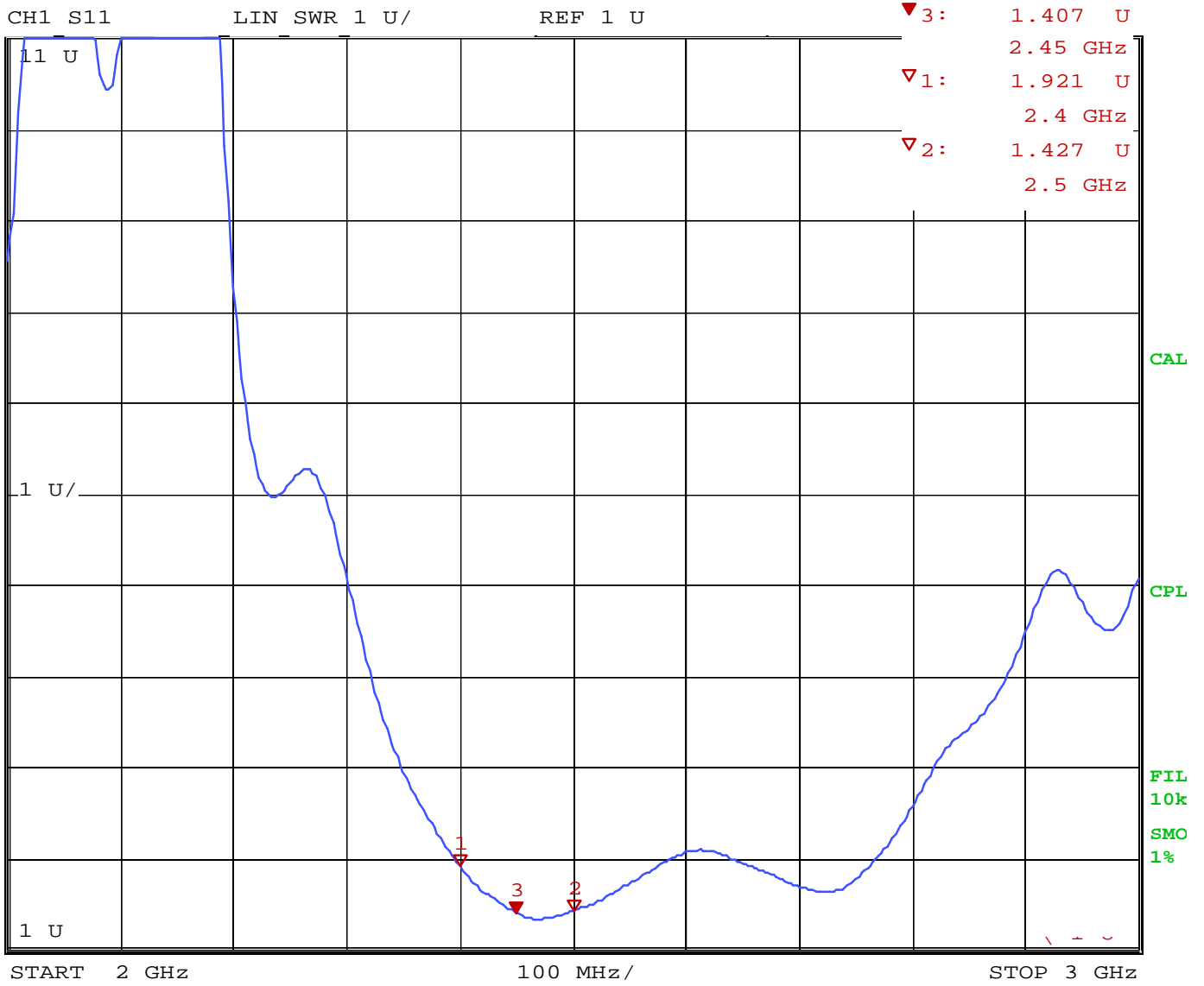
Electrical Properties

Return Loss



Electrical Properties

V.S.W.R



Electrical Properties

Radiation Pattern – H Plane

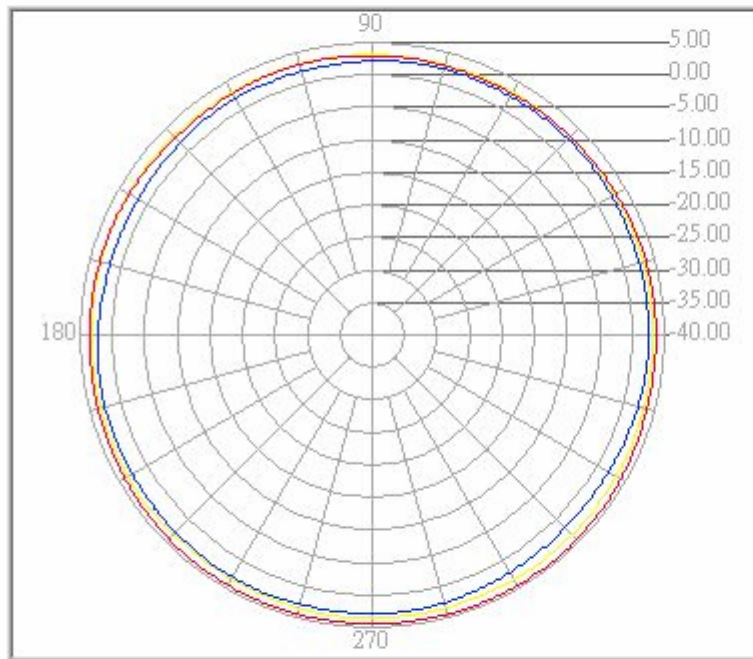


萬旭電業股份有限公司

Model No: 5dBi-N Type

Antenna Position: Vertical

Test Mode: H-PLANE



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	3.62	262.44	3.31
2450.00	4.60	298.25	3.75
2490.00	3.08	238.35	2.40

Test engineer: _____

Test date: 2003/11/6 at PM 01:56

Electrical Properties

Radiation Pattern – E Plane

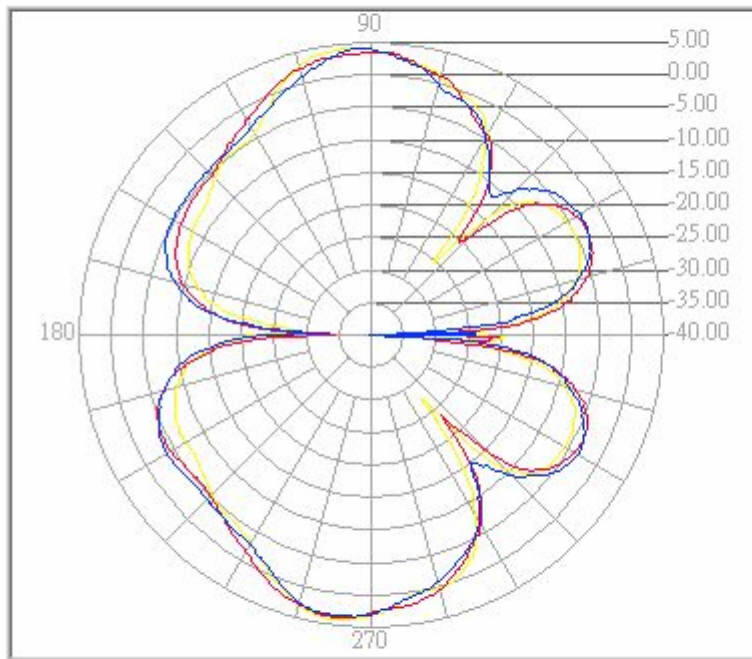


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Model No: 5dBi-N Type

Antenna Position: Horizontal

Test Mode: E-PLANE



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	4.19	94.48	-2.25
2450.00	3.85	262.44	-1.97
2490.00	4.15	92.62	-2.23

Test engineer: _____

Test date: 2003/11/6 at PM 01:49

Material Data Sheet

RG-178 Coaxial Cable

SPECIFICATION FOR APPROVAL

DOCUMENT: A30178B001

STYLE : 200 30V
RG-178B/U

SIZE: 7/0.102 SCCS

RECOGNIZED:

WONDERFUL WIRE CABLE CO.,LTD

OFFICE : 72WU KONG 6TH ROAD,
WU KU IND. DISTRICT
TAIPEI HSIEN,TAIWAN

FACTORY : 17 PEI YUAN ROAD,
CHUNG-LI IND. PARK
TAIWAN, R.O.C.

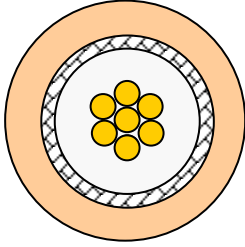
TEL : (02)22988033

TEL : (03)4527777

FAX : (02)22988031-2

FAX : (03)4517214

WONDERFUL WIRE CABLE CO., LTD SPECIFICATION

STYLE	200 30V COAXIAL	DOCUMENT NO : A30178B001	
SIZE	RG-178B/U	ESTABLISHED DATE: 2000/06/29	
STANDARD : MIL-C-17			
Conductor	Size	AWG	30
	Material	----	Silver-Coated Copper Clad Steel
	Conductors No.	----	7
	Conductors Size	mm	0.102
	O.D.	mm	0.30
Insulation	Average Thickness	mm	0.28
	Diameter	mm	0.86
	Material	----	FEP
	Color	----	Clear
Braid	Material	----	Silver-Coated Copper
	Construction	mm	16 / 3 / 0.10
	Coverage	%	95
Jacket	Average Thickness	mm	0.25
	Diameter	mm	1.80 ±0.05
	Material	----	FEP
	Color	----	Brown
Marking	M17/93-RG178B/U WONDERFUL		
Drawing			

AK001/210X297/1.0

PAGE : 1

EDITION : 1.0

REVISED DATE :

MAKER :

CONFIRM :

APPROVAL :

WONDERFUL WIRE CABLE CO., LTD SPECIFICATION

Electrical & Physical Properties						
Item		RG-178B/U				
Rating Temp Voltage		200 30V				
Conductor Resistance		838.0 OHM/KM/20 MAX.				
Insulation Resistance		100 MEGA OHM/KM MIN.				
Dielectric Strength		AC 1.0 KV/Minute				
Spark Test		0.5 KV				
Insulation	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / m m ²)			
		Elongation	200% MIN.			
	Aged	Tensile Strength	UNAGED MIN.75%(168HRS×232)			
		Elongation	UNAGED MIN.75%(168HRS×232)			
Jacket	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / m m ²)			
		Elongation	200% MIN.			
	Aged	Tensile Strength	UNAGED MIN.75%(168HRS×232)			
		Elongation	UNAGED MIN.75%(168HRS×232)			
Nom. Impedance		50 Ohms				
VSWR		MAX. 1.3 at 0.4G~3GHz				
Nom. Vel. of Prop.		69.5%				
Flame Test		VW-1 OK				
Attenuation (dB/100m)	50MHz	100MHz	400MHz	900MHz	1.8GHz	3GHz
	34.4	45.9	91.8	139.4	207.5	308.2

AK001/210X297/1.0

PAGE : 2

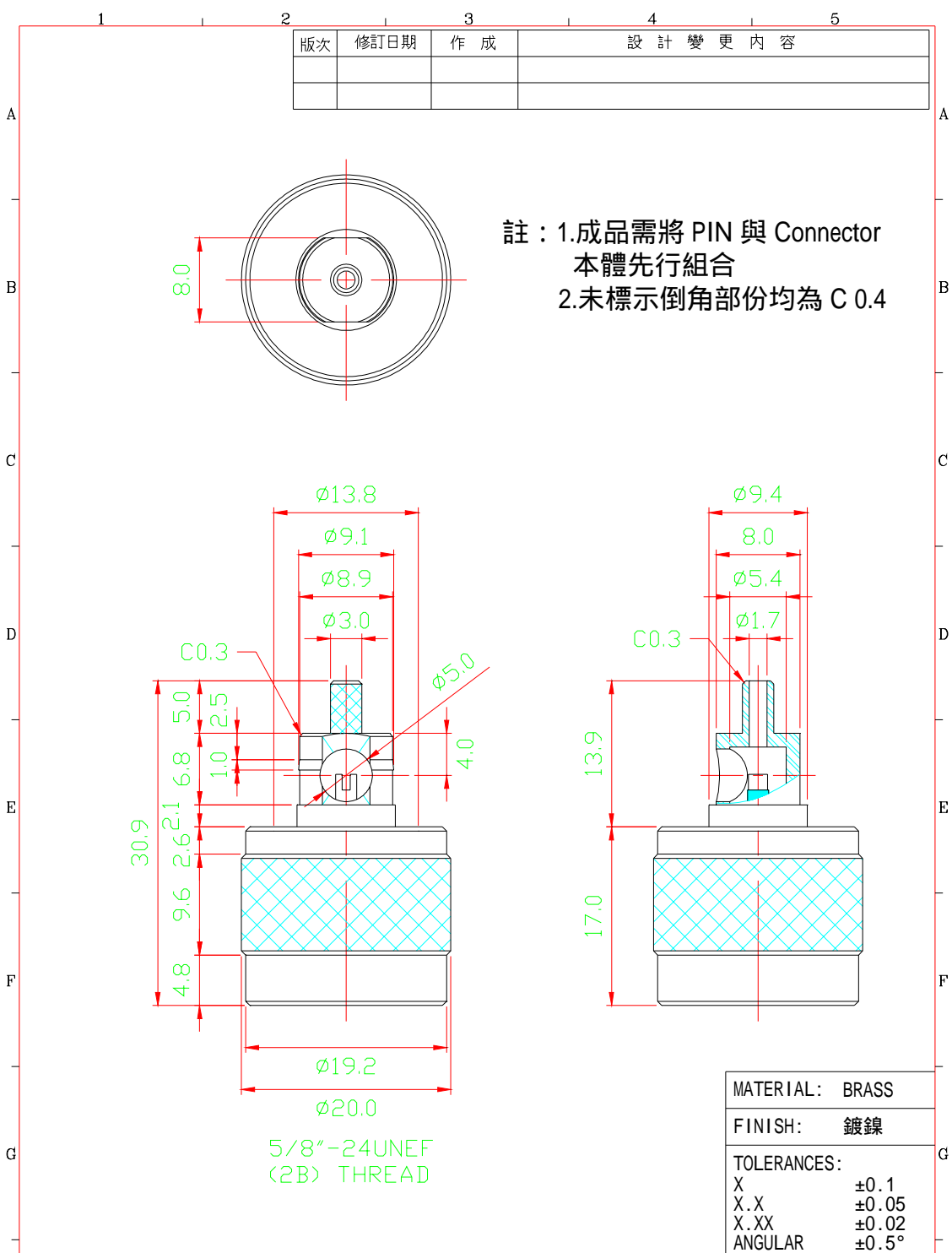
EDITION : 1.0

REVISED DATE :

MAKER :

CONFIRM :

APPROVAL :



第三角法	品管	技術課	承認圖號		
單位：mm	確認	審核	品名	RP-N Type Male	
比例：2/1			成品編號	REV	VERSION
日期：920312				A	1
樣單：					

萬旭電業股份有限公司

文件編號：FMT-0513-B7

Housing Material Data Sheet

- Housing(外套)- TPU
-

Elastogran GmbH
Geschäftsbereich TPU-Elastomere



Elastogran GmbH · Postfach 1140 · 49440 Lemförde · Germany
WGJ COMPANY LTD.

P.O. BOX 36 - 431
RC TAOYUAN HSIEN

BASF Gruppe

Date 18.07.2001
No. 62046

Inspection Certificate EN 10 204-3.1 B (DIN 50048)

Product :	ES 95 A 50 000	S	No. : 15002939
Batch :	207672		
Basic-Batch	207673		

Property	Test method	Unit	Value
Dichte	DIN 53479	g/cm ³	1,24
Shore-Haerte D	DIN 53505	-	50
Zugfestigkeit	DIN 53504	MPa	53
Reissdehnung	DIN 53504	%	550
Abrieb	DIN 53516	mm ³	22

Dichte = Density/Densité, Shore Härte = Shore hardness/Shore Dureté, Zugfestigkeit = Tensile strength/Resistance traction,
Reißdehnung = Elongation at break/Allongement rupture, Weißerißwiderstand = Tear strength, Abrieb = Abrasion loss/Abrasion

The stated values are measured from a representative batch (basic-batch) of every product campaign.

Test platters are injection moulded from dry granulate with less than 0,05 % water content. Test platters tempered 20 hrs. at 100 °C,
then cooled to 23 °C / 50 % RH before testing. Test specimen cut from test platters.

We hereby certify, that the material described above complies with the terms of the order contract

Hübner Schoote

Works inspector

The above information is derived from our quality checks. It does not relieve the purchaser from examining the product upon delivery
and gives no assurance of suitability of the product for any particular purpose.

Landwehrweg
49448 Lemförde
Deutschland
Telefon (0 54 43) 12-0
Telex (0 54 43) 12-25 55

Bankverbindung: Commerzbank AG, Osnabrück
(BLZ 265 400 70) Kto.-Nr. 53 5600100
IBAN: DE 36 2654 0070 0535 6001 00
S.W.I.F.T.-Code: Cobade33
Postbank München
(BLZ 700 100 80) Kto.-Nr. 1532 91 - 803

Sitz der Gesellschaft: 49448 Lemförde
Geschäftsführer:
Gerhard H.-J. Hellmann (Spracher)
Reinhard Leppkes
Registriergericht: Amtsgericht Diepholz
Eintragungsnummer: HRB 2183

- Hinge(上座/下座)- PC

DYNACHEM

TEIJIN POLYCARBONATE SINGAPORE PTE LTD.

152 BEACH ROAD #17-03/04
GATEWAY EAST SINGAPORE 189721

TELEPHONE: 298-8381
FAX : 298-6652

Date: OCT. 28, 2002

Att: To Whom it May Concern

CERTIFICATE OF ANALYSIS

COMMODITY: TEIJIN PANLITE (Polycarbonate Resin)

Grade No: L1250Y
Colour No: NAT
Lot No: S4E02911

ITEM	UNIT	TEST METHOD	TEIJIN POLYCARBONATE QUALITY STANDARD	TEST RESULT
IMPACT STRENGTH (IZOD NOTCHED 3.2mm thick)	K gfm / cm	ASTM D256	280	PASS
FLEXURAL MODULUS	K gf / cm ²	ASTM D790	22,700±1,500	PASS
TENSILE STRENGTH (AT BREAK)	K gf / cm ²	ASTM D638	830±140	PASS

NOTE: ALL FIGURES ENTERED IN THIS LIST ARE SUBJECT TO OUR STANDARD TEST METHOD AND MAY NOT BE APPLICABLE FOR PRODUCTS THAT ARE USED UNDER DIFFERENT CONDITIONS.

Teijin Polycarbonate Pte Ltd

Chris Ling Chen

Y. SUZUKI
LOGISTICS MANAGER (SALES)

High Gain Directional Panel Antenna

Version 1.0

for 2.4 GHz

Alpha-R002-009

Electrical Specification

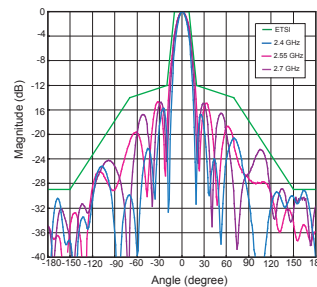
Frequency range	2400 MHz - 2700 MHz
Gain	16 dBi
VSWR	2.0 : 1 Max.
Polarization	Linear, vertical
HPBW / horizontal	25°
HPBW / vertical	25°
Front to back ratio	30 dB
Downtilt	0°
Power handling	20 W (cw)
Impedance	50 ohms
Connector	N Jack
Cable	RG-316, 30 cm
ETSI standard	EN 301 525 V1.1.1 (2000-03) CLASS TS2



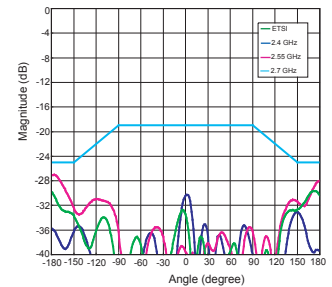
Environmental & Mechanical Characteristics

Survival wind speed	180 km/hr
Temperature	- 40° C to +80° C
Humidity	100% @ 25° C
Lightning protection	DC ground
Radome color	Gray-white
Radome material	Aluminum
Weight	1.5 kgw
Dimensions	305x 305 x 25 mm

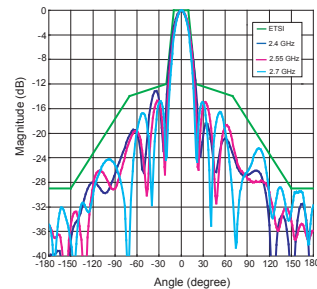
E-Plane Co-polarization radiation pattern



E-Plane Cross-polarization radiation pattern



H-Plane Co-polarization radiation pattern



H-Plane Cross-polarization radiation pattern

