

承認書

APPROVAL SHEET

客戶名稱

CUSTOMER : 捷易訊科技股份有限公司

品名

DESCRIPTION : 2.4G High Gain Antenna

型號

: 170SPR-HA PART NO.

客戶料號

PART NO.

變更項目

名晨(電子)股份有限公司		APPROVALED NO:
DOCU. NO:	S04072	客戶承認簽章 APPROVED SIGNATURES
工程出圖	楊浩	
業務	呂英蔚	
核准 Approved By	JOHNNY	
日期 DATE:	2004/09/21	日期 DATE:

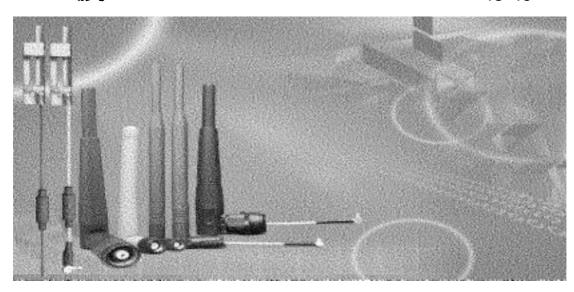
名晨(電子)股份有限公司

MY-CHANCE ELECTRONIC CO., LTD. 桃園縣蘆竹鄉龍安街二段 185 號

TEL:886-3-3699978 FAX:886-3-3608382

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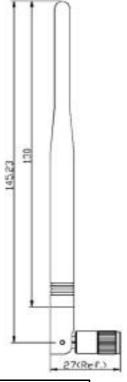
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SPECIFICATION

Part Name2.4GHz Antenna

Part Number170SPR-HA



Electrical Properties

Frequency Range

Impedance

V.S.W.R

Gain

Polarization

Radiation

Electrical Wave

Mechanical Properties:

Cable

Antenna Cover Antenna Base

Color

Operation Temperature

Storage Tempersture

2.4~2.5GHz

50 Ohms nominal

2.0 (Max.)

4 dbi

Vertical

0mni

 $1/4 \lambda$ Dipole

RG-178

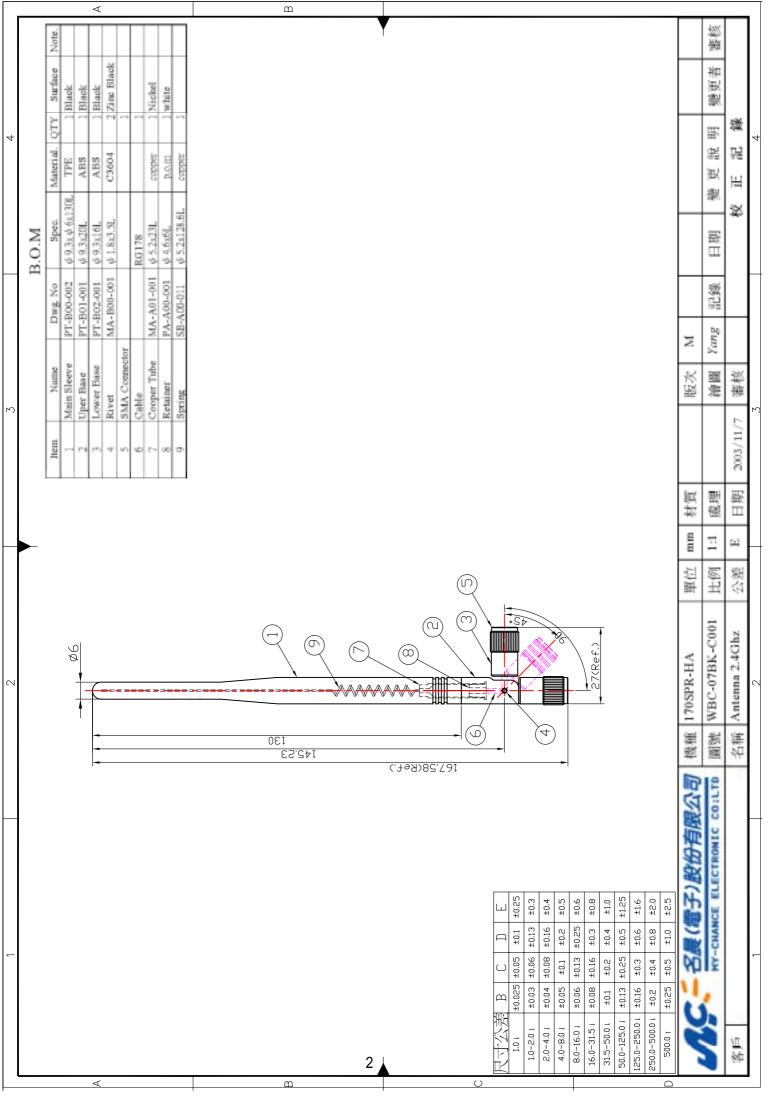
Polyurethane (TPE)

Polyurethane (ABS)

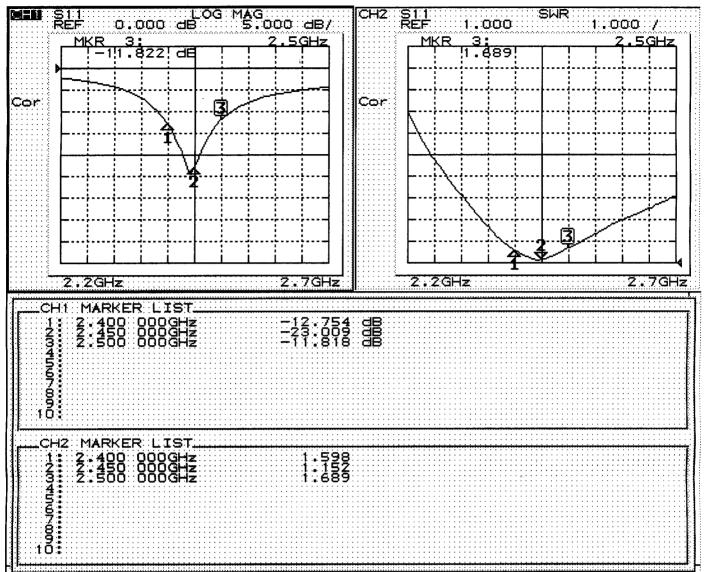
Black

-20 ~+65

-30 ~+75



2004/09/16 Thr 12:34:12



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Advance Data Technology Corporation Hwa Ya Lab : No.19, Hwa Ya 2nd RD, Kueishan, Taoyuan, Taiwan, R.O.C.

誠信科技股份有限公司

Tel (03) 318-3232 Fax (03) 318-5050 Tel (03) 327-0910 Fax (03) 327-0892

Tayuan Lab: 13-1 Lane 19, Wen Shan 3rd St., Kueishan, Taoyuan, Taiwan, R.O.C. Hsinchu Lab: 81-1 Luliaokeng, 9th Lin, Wulung Tsuen, Chlunglin, Hsinchu, Taiwan, R.O.C.

Tel (03) 593-5343 Fax (03) 593-5342

Brand / Model : WBC-07BK-C001

Remark:

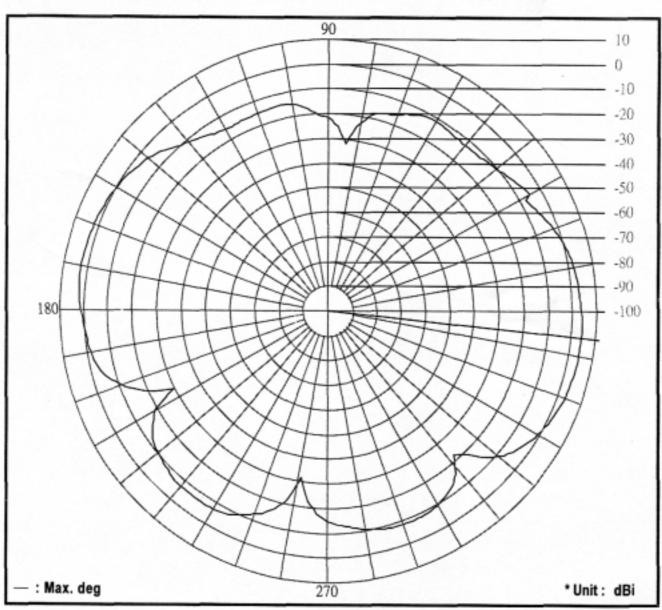
Tested by : SHELLY EUT description : VER

Location: RF Chamber 3

Temperatuer (°C):

Humidity (%): 75

Approved by:



2450.00 Frequency (MHz): Antenna Polarity: Horizontal Average Gain (dB): -2.60

Maximum Gain (dB): 4.68 Maximum Gain (degree):

Minimum Gain (dB): -31.71 Minimum Gain (degree): 84

C:\Antenna Pattern V5.0\Graph\0707\07070006.png

c-07-c001-h (1520x2247x256 jpeg)

Advance Data Technology Corporation

Hwa Ya Lab: No.19, Hwa Ya 2nd RD, Kueishan, Taoyuan, Taiwan, R.O.C.

誠信科技股份有限公司

Tel (03) 318-3232 Fax (03) 318-5050 Tel (03) 327-0910 Fax (03) 327-0892 Tel (03) 593-5343 Fax (03) 593-5342



Tayuan Lab : 13-1 Lane 19, Wen Shan 3rd St., Kueishan, Taoyuan, Talwan, R.O.C.

Hsinchu Lab: 81-1 Luliackeng, 9th Lin, Wulung Tsuen, Chlunglin, Hsinchu, Taiwan, R.O.C.

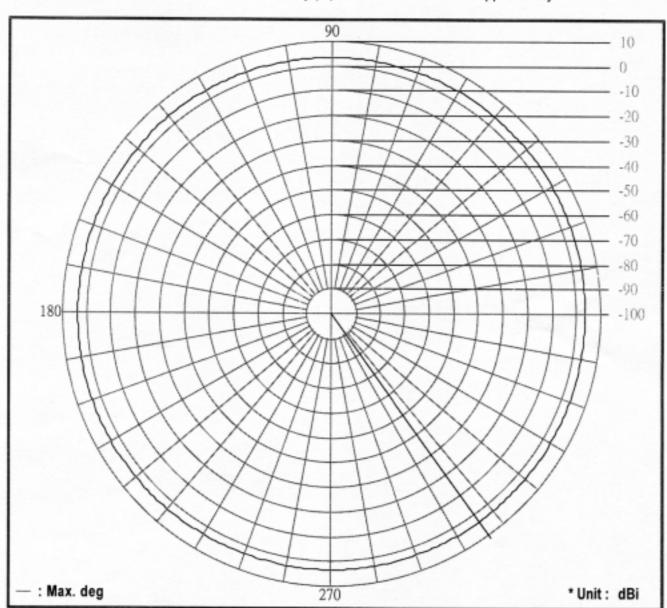
Brand / Model : WBC-07BK-C001

Remark:

Tested by : SHELLY EUT description : VER

Location: RF Chamber 3

Temperatuer (°C): Humidity (%): 75 Approved by:



Frequency (MHz): 2450.00 Antenna Polarity: Vertical Average Gain (dB): 3.78

Maximum Gain (dB): 4.00 Maximum Gain (degree):

Minimum Gain (dB): 3.46 Minimum Gain (degree): 138

C:\Antenna Pattern V5.0\Graph\0707\07070005.png

Amitel EL630

TPE E 63 Shore D polyether-ester elastomer

properties	Units SI	Typical data Dry	Test methods
Physical properties		Diy	
Density	glcm*	1,23	ISO 1183
Flammability			ISO 1210/A
burring rate	mm/min		100 121014
classification	5	FH-1	
Moisture absorption			ISO 62
at equilibrium in air (23°C/50%RH)	%	0,2	100 02
after saturation in water 23°C	%	0,6	
Mechanical properties			
Hardness Shore D		63	ISO 868
Tensile modulus (at 1mm/min)	MPa	330	ISO 527-1
Tensile strength (at 50 mm/min)	MPa	30	
Nominal strain at break	96	350	ISO 527-1
Tensile stress at 5% strain	MPa	11,5	ISO 527-1
Tensile stress at 10% strain	MPa	15,9	ISO 527-1
Tensile stress at 50% strain	MPa	17,3	ISO 527-1
Tear strength Graves	kNIm	145	DIN 53515
zod notched impact strength 23°C	kJlm²	NB	ISO 180-1A
zod notched impact strength -30°C	kJlm ^z	4	ISO 180-1A
Charpy notched impact strength 23°C	kJlm ²	NB	ISO 179/1eA
Charpy notched impact strength -30°C	kJlm²	12	ISO 179/1eA
Tensile impact strength	kJlm ^z		ISO 8256
Thermal properties			
Melting temperature	°C	212	ISO 3146
Melt mass-flow rate (240°C/2160g)			0.000
/icat softening temperature - 10 N	°C	200	ISO 306
/icat softening temperature -50 N	°C	125	ISO 306
Deflection temp. under load - HDT-B	°C	115	ISO 75-2
Coeff.of lin. therm. expansion (parallel)	E-4IK	1,4	DIN 33752
electrical properties			
lectric strength	kV/mm	22	IEC 60243-1
Relative permittivity at 1kHz		4,4	IEC 60250
oss factor at 1 kHz	E-4	160	IEC 60250
Comparative tracking index	V	600	IEC 60112
olume resistivity	Ohm.cm	1E+14	IEC 60093
Surface resistivity	Ohm	1E+14	IEC 60093

NB No Break (ductile fracture)

DSM 😥

Amitel is a registered trademark of DSM

Specimen according to ISO 14910 (Campus®).
 Typical values for nature' coloured materials (unless indicated otherwise).



QMFZ2 Component -Plastics E47960

DSM ENGINEERING PLASTICS B V POSTBUS 43 6130 AA SITTARD THE NETHERLANDS

Material Designation: EL630, EM630

Product Description: Thermoplastic Elastome' (TPE), Polyester, designated "Amitel" furnished as periets

Color	Min. Thick (mm)	Flame Class	HWI	NAI	RTI Elec.	RTI	Str	GWIT	IEC GWFI
NC.BK	1.5	нв		*					
	CTI:-		HVT	R:-	D49	5:-	IE	BP:-	
			Underw	riters Lob	oratories 1	(Bon)			75932:001

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



奇美實業股份有限公司

CHI MEI CORPORATION ORIGINAL

☐ Head Office: 59-1, San Chia, Jen Te

Tainan County, Taiwan

☐ Taipei Office: 8th F1., Chi Mei Cldg.

No. 9, Ai-Kuo West Road Taipei, Taiwari.

TEL: (06)2663000

FAX: (06)2565555-7

TEL: (02)23148841

FAX: (02)23618800

033271860

4LA05137

物性測定結果 Physical Properities

客戶名樹: P40538

V PA-765A 4056J021	項目	Test Method ASTM	檢測值
V FA-703A 4Q303021	Tensile Strength (kg/cm2) Break	D 638	300.00
	引張強度 Tensile Strength (kg/cm2) Yield	D 638	390.00
90	引張強度 Tensile Elongation (%)	D 638	36.00
	延伸率 Izod Impact Strength (kg.cm/cm)	D 256	16.40
	衝撃強度 Melt ladex (g/10 min)* 流動係數	D 1238	5.48



CN (Communication Network) Coaxial Cable - Single Braid

tower cost M17 alternatives • improved shielding characteristics
 PTFE dielectrics for power transmission • flexible, flame retardant PVC jacket



Harbour has designed a number of special 50 and 75 ohm coax cables for the communications market. Some of the constructions are lower cost alternatives with the same shielding characteristics as standard MIL-C-17 cables, while other designs offer improved shielding characteristics compared to their mil spec counterparts. All cables have been designed with flame retardant PVC jackets for flexibility and for use with standard MIL-C-17 connectors. UL approved constructions are available.

Single Braid Designs

CN178, CN316, and CN179 cables have been designed with both tin plated copper and silver plated copper braids. The maximum attenuation levels for both versions are the same as the MIL-C-17 requirements. The tin plated copper braided versions provide the lower cost alternative; however, in some applications, silver plated copper braids may be required.

Physical Characteristics: SCC5 Center Conductor Diameter

PTFE Dielectric Diameter Diameter over Braid Overall Diameter

Weight (lbs./MFT)

Operating temperature range (* C)

Min. recommended bend radius

Electrical Characteristics: Impedance (Dhms) Capacitance (pF/ft.) Velocity of propagation (%)

Attenuation (dB/100 ft)

9 100 MHz

1 GHz 2 GHz 2 GHz 3 GHz 3 GHz

CN178TC	CN178SC	CN316TC	CN316SC	CN179TC	CN179SC
.0120° (7/.0040°)	.0120° (7/.0040°)	.0201" (7/.0067")	.0201** (7/.0067*)	.0120" (7/.0040")	.0120° (7/.0040°)
.033"	.033"	.060"	.060"	.063**	.063*
.051"	.051"	.076"	.076*	.079**	.079"
.072"	.072**	.098"	.098"	.100"	.100°
6	6	12	12	10	10
-55 +105	-55 +105	-55 +105	-55 +105	-55 +105	-55 +105
0.4"	0.4"	0.5"	0.5"	0.5"	0.5"
50	50	50	50	75	75
29.4	29.4	29.4	29.4	19.5	19.5
70	70	70	70	70	70
Typ / Max	Typ / Max	Typ / Max	Typ / Max	Typ / Max	Typ / Max
13.2 / 16.2	13.0 / 16.0	7.7 / 11.1	7.6 / 11.0	81/93	8.0 / 9.2
27.5 / 33.4	27.2 / 33.0	16.2 / 21.3	16.0 / 21.0	15.7 / 21.3	15.5 / 21.0
44.7 / 53.2	44.2 / 52.0	26.5 / 36.1	26.2 / 38.0	27.0 / 31.1	267 / 307
64.1 / 76.0	63.3 / 75.1	38.1 / 51.1	37.5 / 50.5	38.5 / 44.5	383 / 44.0
70.2 / 83.2	69.4 / 82.3	41.7 / 56.1	41.2 / 55.4	. / -	. 1.
79.6 / 95.1	78.7 / 94.0	47.5 / 54.6	46.9 / 58.0	-/-	- 1 -

All figures referenced above are nominal unless otherwise specified.

Harbour Industries, Inc. High Performance Wire & Cable P.C. Box 165 Shebume, VT. 05482 Telephone: 802-955-3311 FAX: 802-985-9534 Quality Conformance M17/93-RG178 ML-C-17G

Lot Number Menufactured 612369

Examination or Test	Requirement	Test Results

	Examination or Test	Requirement	lest Kesuits
1	AWG Size	30.7/38	30.7/36
2	ConductorMaterial	SPCW	SPCW
3	ConductorDiameter	.012 +001	.112
4	DielectricDiameter	.003+002	.033
5	Eccentricity	10% Max	Conforms
6	Adhesion	0 - 4 lbs	Conforms
7	Shield Size/Type	6 Ends 38AWG SPC	3 Ends 38 AWG SPC
8	ShieldDiameter	0.54 Max	.052
9	Shield PPI&Coverage	25 +- 10%95.9%	25 +- 10% 95.9%
10	Jacket Type&Color	Type1X, Brown Tint	Type IX,Brown Tint
11	Jacket Diameter	.071 +004	.071
12	Continuity test	Pat 3.7-1	Conforms
13	SparkTest	2.0 KV RMS	2.0 KV RMS
14	Votage Withstand	2.0 KV RMS	2.0 KV RMS
15	InsulationResistance	N/A	N/A
16	Marking	Par 3.8	Conforms
17	Workmanship	Par. 3.10	Conforms
18	Out of Roundness	N/A	N/A
19	Characteristic Impedance	50 +- 2 ohms	49.70
20	Atianuation	Figure 2,MIL-C-17	Conforms
21	ReturnLoss	Figure 3,MIL-C-17	Conforms
22	CoronaExtinction	1000V RMS	1200
23	Capacitance	32 pt/FT,Max	24.4
24	CapacitanceUnbalance	N/A	N/A
25	TransmissionUnbalance	N/A	N/A
26	Noise	N/A	N/A
27	TimeDelay	N/A	N/A
28	ColdBend	-55 C+-2 C,No Cracks	No Cracks Passes Dielectric
29	Weight	.625 lbs./100 FT. MAX	.525
30	TearStrength	N/A	N/A

Certificate Of Compliance

It is hereby certified that the wire furnished on the above purchase order was manufacured to conform with the applicable specifications or requirements as indicated above. All of Harbour Industries products and raw materials utilized are Mercury free.

MII-C-17

Revision: G

Certificate Of Origin

This is to certify that the products supplied by Harbour Industries Inc. were menufactured in the USA and/or Canada.

Quality Assurance Manager

Inspectors

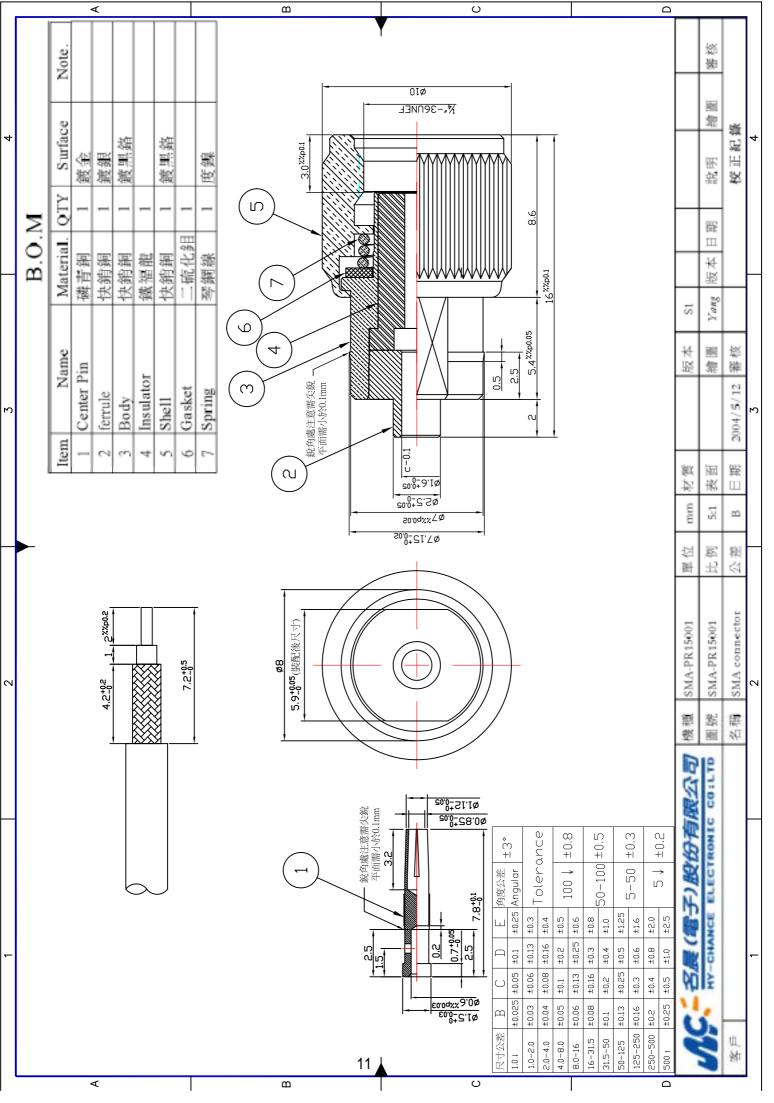
Date:

Quantity:

Kim Quenist

R

HBR.10.133.A



SMA Series

ELECTRICAL

* Impedance 50 ohm

* Frequency 0-12.4 GHz on Flexible cable.

0-18 GH2 on Semi-rigid cable

Working Voltage RG-178:170 VRMS max. at see level

RG316, 0.085": 250 VRMS max. at see level RG-142, 0.141": 335 VRMS max. at see level

Dielectric Withstanding Voltage
 RG-178: 500 VRMS min. at see level

RG316, 0.085": 750 VRMS min. at see level RG-142, 0.141": 1000 VRMS min. at see level

VSWR Straight: 1.3 max.

Right Angle: 1.5 max.

* Contact resistance Center Centact: 6 Milliohms Max.

Outer Contact: 2 Milliohms Max.

Insulator Resistance 5000 megohms min.

MATERIAL

	Parts Name	Material	Finish
*	Body, metal parts	Brass per QQ-B-626 or Non- magnetic stainless steel per QQ-S-764 # 303	Nickel or BCr. per requirement
*	Center Contacts	Male: Brass per QQ-B-626 Female: Phosphor Bronze Bars QQ-C-530	Gold plated Gold plated
*	Insulators	PTFE	None
*	Gasket	Silicone Rubber	None
*	Crimp Ferrules	Annealed copper	Nickel or per requirement

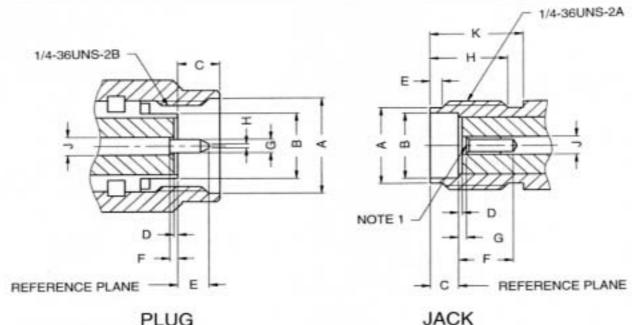
Note: Other Material / Finish is Available on Request.

MECHANICAL

*	Engagement Force		2 in- lbs. Max.
*	Disengagement Force		2 in- lbs. Max
*	Coupling Nut Retention		60 lbs. Min.
*	Coupling Proof Torque		15 in-lbs. Min.
*	Contact Retention	15	6 lbs. Min.
*	Durability (Mating)		500 cycles min.

SMA COAXIAL CONNECTOR

INTERFACE MATING DIMENSIONS



 10
 11.
11

Letter A В C D E F G H

J

K

Millimeters

Maximum

5.49 4.67

1.98

0.25

1.14

0.25

1.30

Minimum

5.28

4.60

1.88

0.00

0.38

2.92

0.00

4.32

1.24

5.54

Letter	Millimeters		
Letter	Minimum	Maximum	
A	6.35	6.73	
В	4.53	4.59	
С	2.54	3.43	
D	0.00	0.25	
E	1.91	2.54	
F	0.00	0.25	
G	0.90	0.94	
Н	0.00	0.38	
J	1.24	1.30	

NOTE:	1. I.D. TO MEET VSWR AND CONTACT RESISTANCE
	WHEN MATED WITH 9/ 94MM DIA PIN

Customer				
Material	Free cutting brass			
Stability-class:	JIS H 3250 C3604 BD			
	CHEMICAL CON	MPOSITION %		
Taster	X-RAY ANALYSIS			
Measurement	VACUUM X RAY SPECTROGRAPH			
ELEMENT	STANDARD VALUE	ACTUAL VALUE	REMARK	
Cu	57.0-61.0 %	58.43 %		
Pb	1.8-3.7 %	3.36 %		
Fe	< 0.5 %			
Sn+Fe	< 1.2 %	0.71 %		
Zn	REMAINDER	REMAINDER		
Other				
	MECHANICAL & PHY	SICAL PROPERTIES		
Tensile strengt	n: 360 N/mm²			
Heated/materia	l Hardness or stability, HB	or HV :(90)		
		i		
REMARK:	STM Standard: CA 360 Free	cutting brass.		

Customer				
Material	Phosphor Bronze Bars			
Stability-class:	ЛS H 3270 С 5441			
	CHEMICAL CO	MPOSITION %		
Taster	X-RAY ANALYSIS			
Measurement	VACUUM X RAY SPECTROGRAPH			
ELEMENT	STANDARD VALUE	ACTUAL VALUE	REMARK	
Cu	Bal-	Bal-		
Sn	3.0 – 4.5 %	4.06 %		
P	0.01 - 0.05 %	0.19 %		
Zn	1.5 – 4.5 %	4.31 %		
Pb	3.5 – 4.5 %	4.01 %		
Cu+Sn+P+Zn +Pb	99.5 Min.	99.99 %		
	MECHANICAL & PH	YSICAL PROPERTIES		
Tensile strengt	h: 570 min. N/mm²	11.		
Heated/materia	l Hardness or stability, HB	or HV:		
REMARK:				
12.5				
			1	

THE MATERIAL CERTS OF TEFLON

Customer			
Material	TEFLON		
	Physical Properties		
Physical Properties	Density g/cm*	2.14-2.2	
	Water absorption %	>0.01	
Mechanical Properties	Tensile strength kg/cm*	140-350	
	Flexural strength kg/cm²	16.4	
	Rockwell hardness	D55	
	Izod impact strength kg cm/cm with notch	2.5-2.7	
	Taper wears mg/1000 Times		
	Friction coefficients	0.1-0.04	
Heat Properties	Coefficient of linear thermal expansion x 10 /°C	7.0-10.0	
	Tehermal conductivity kcal/m. Hr. °C	6.0	
	Heal distortion temperatures ℃		
	Heat resistance ℃	260-278	
Electrical Properties	Dielectric breakdown strengths KV/mm	43-50	
	Coefficient of volume resistance Ω-cm	10-	



品越工業股份有限公司 PREEMINENT INDUSTRIAL CO., LTD.

地址: 台北藝新莊市民樂街 60.62.64.66 號 ADD: 60,62.64.66 MIN LO ST. HSIN CHUANG CITY, TAIPEI HSIEN, TAIWAN, R. O. C. TEL: (02) 29924567, 29933767, 29977355 FAX: (02) 29947004

鍍 層 厚 度 報 告 單

FISCHERSCOPE X - R A Y TEST RECORD

品名規格 (SPECIFICATION): Au U*SAMPLE 5 PCS 註 (REMARK): 1 THICKNESS= 1.82 130.3 N = 2 THICKNESS= 3.93 137.1 N = 3 THICKNESS= 4.23 106.2 N = 4 THICKNESS= 4.02 113.9 = 5 THICKNESS= N = -3.50 120.0

檢測結果 (RESULT):

FINAL RESULT

DOUBLE COATING MEASUREMENT APPLICATION No. 5 Au / Ni / Cu Col1.2 (u*) TOP COAT. INT.COAT. M E A N VALUE 3.902 -121.52 STD. DEVIATION 0.2713 12.389 = V meas. (%) LOWEST READING 6.952 = = 10.195 3.500 106.23 HIGHEST READING 4.234 --137.10 No. OF MEAS. 5 5 MEASURING TIME (s) 30

M E A N THICKNESS

APPLICATION No. = 1

Au / Ni (u*) STD. Coll.2

M E A N THICKNESS = 1.735
STD. DEVIATION = 0.0695
LOWEST READING = 1.686
HIGHEST READING = 1.784
No. OF MEAS. = 2
MEASURING TIME (s) = 10



品 質 QC



主管 MANAGER



合格章

APOLLO 5008 Cyanoacrylate Adhesive

Cyberbond APOLLO 5008 is a fast setting, medium viscosity general purpose adhesive.

APOLLO 5008 is a user friendly, cosmetically pleasing formulation that incorporates noodor, non-blooming characteristics while maintaining excellent bond strengths. APOLLO
5008 may eliminate the need for special ventilation.

PHYSICAL PROPERTIES

MONOMER (Liquid)

Base Compound
Appearance
Viscosity (cps @ 68F)
Specific Gravity (g/cc)
Flash Point (TCC)
Shelf Life @ 40F

Setting Time:(68F, 65%R.H.)

Metal/Metal Plastic/Plastic Rubber/Rubber Ethoxyethyl Colorless Liquid 80 cPs 1.06 176F One year in unopened containers

40 Seconds 15 Seconds 10 Seconds

POLYMER (Cured)

Appearance Service Temperature Range Softening Point Refractive Index (ND 20) Full Cure Time Dielectric Strength KV/mm Dielectric Constant @ 1Kc

Coefficient of Thermal Expansion (in./in./F)

Tensile Strength: Steel / Steel

Solubility

Colorless Solid -65F to 200F 293F 1.49 24 Hours 12.6

.000126

5.4

2600 psi

Nitromethane, Acetone, Dimethylformamide

The data contained herein are farmished for information only and are believed to be reliable. Cyberbond L.L.C. cannot assume responsibility for the results obtained by others over whose method Cyberbond L.L.C. does not control. It is the user's responsibility to determine suprathility for the product or of any perduction methods mentioned herein and to adopt such presentions at many be advisable for the protection of property and of persons against key heareds that may be involved in the handling and use thereof. In light of the foregoing. Cyberbond L.L.C. specifically disclaims all warrestbest of merchantability or fitness for a particular purpose arising from size or light of the foregoing. Cyberbond L.L.C. specifically disclaims any labelity for consequential or includestal damages of any kind, including loss of profits. The discussion herein of various processes of compositions in not to be interpreted as representation that they are light from domination of patients owned by others or as a loop of under any cyberbond patients which may other such processes or compositions. We recommend that each prospective user tent the proposed application to determine its suitability for the purpose intended prior to incorporating any product or application in its manufacturing process using the data as a guide.

A. NEW CYANOACRYLATE ADHESIVE APOLLO 5008

- APOLLO 5008 is a NON BLOOMING and NO ODOR cyanoacrylate adhesive. The whitening phenomenon of the bonding area is eliminated.
- 2. APOLLO 5008 can be used for bonding a variety of metals, plastics, rubber, etc.

(Setting Time and Strength)		
Substrate	Setting time (sec.)	Tensile Shear Strength (N/mm2)
Steel/Steel	20	19.6
Aluminum/Aluminum	20	11.8
Stainless Steel/Stainless Steel	20	19.6
Copper/Copper	20	11.8
ABS/ABS	30	*5.9
Acrylic/Acrylic	100	*3.9
Rigid PVC/Rigid PVC	40	2.9
Phenol/Phenol	40	*6.9
Polycarbonate/Polycarbonate	60	*8.8
CR/CR	5	*0.5
NBR/NBR	5	*0.5
Steel/Rigid PVC	40	2.9
Steel/CR	10	*0.5

· Substrate Failure

Test conditions: 23°C, 60%RH

Setting time, tensile shear strength apply correspondingly

to JIS K 6861