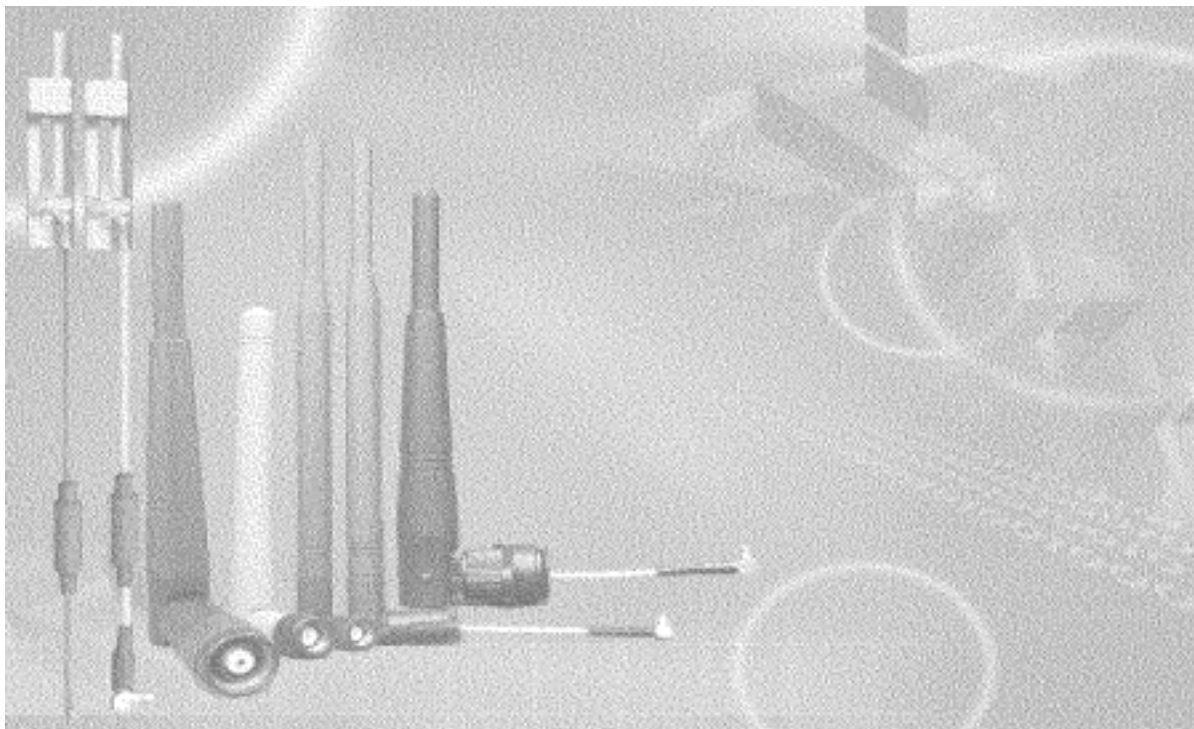


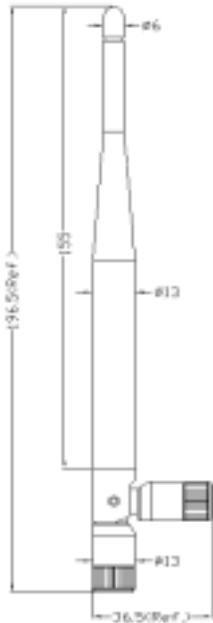
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SPECIFICATION

Part Name 2.4/5.xGHz Dual-Band Antenna
 Part Number 200SPR-D



Electrical Properties

Frequency Range

- a. 2.4~2.5GHz
- b. 5.15~5.35GHz
- c. 5.725~5.85GHz

Impedance

50 Ohms nominal

V.S.W.R

2.0

Gain 2.4~2.5GHz

2 dBi

5.15~5.35GHz

3 dBi

5.725~5.85GHz

3 dBi

Mechanical Properties:

Cable

RG-178

Antenna Cover

Polyurethane (TPE)

Antenna Base

Polyurethane (ABS)

Connector

N Type connector

Color

Black

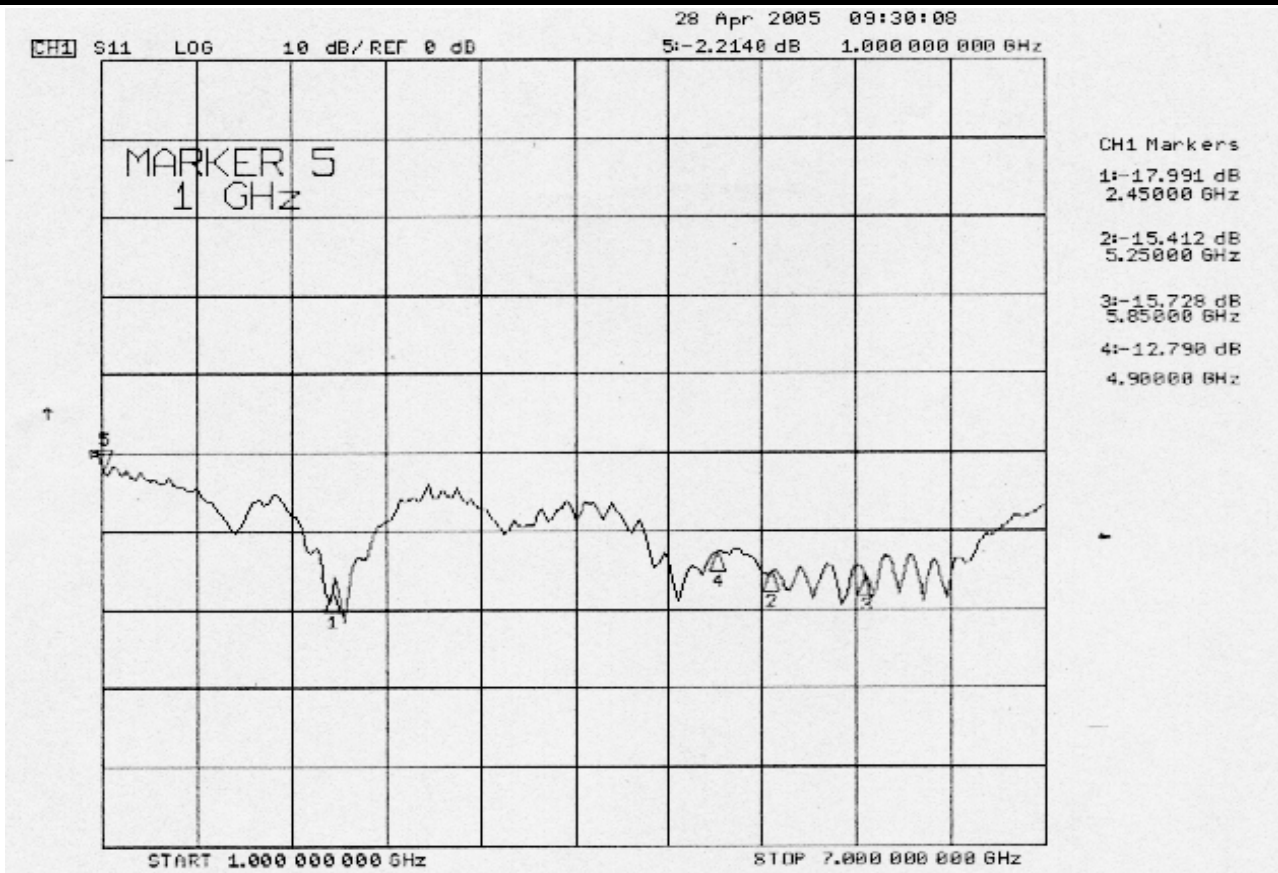
Operation Temperature

-20 ~+65

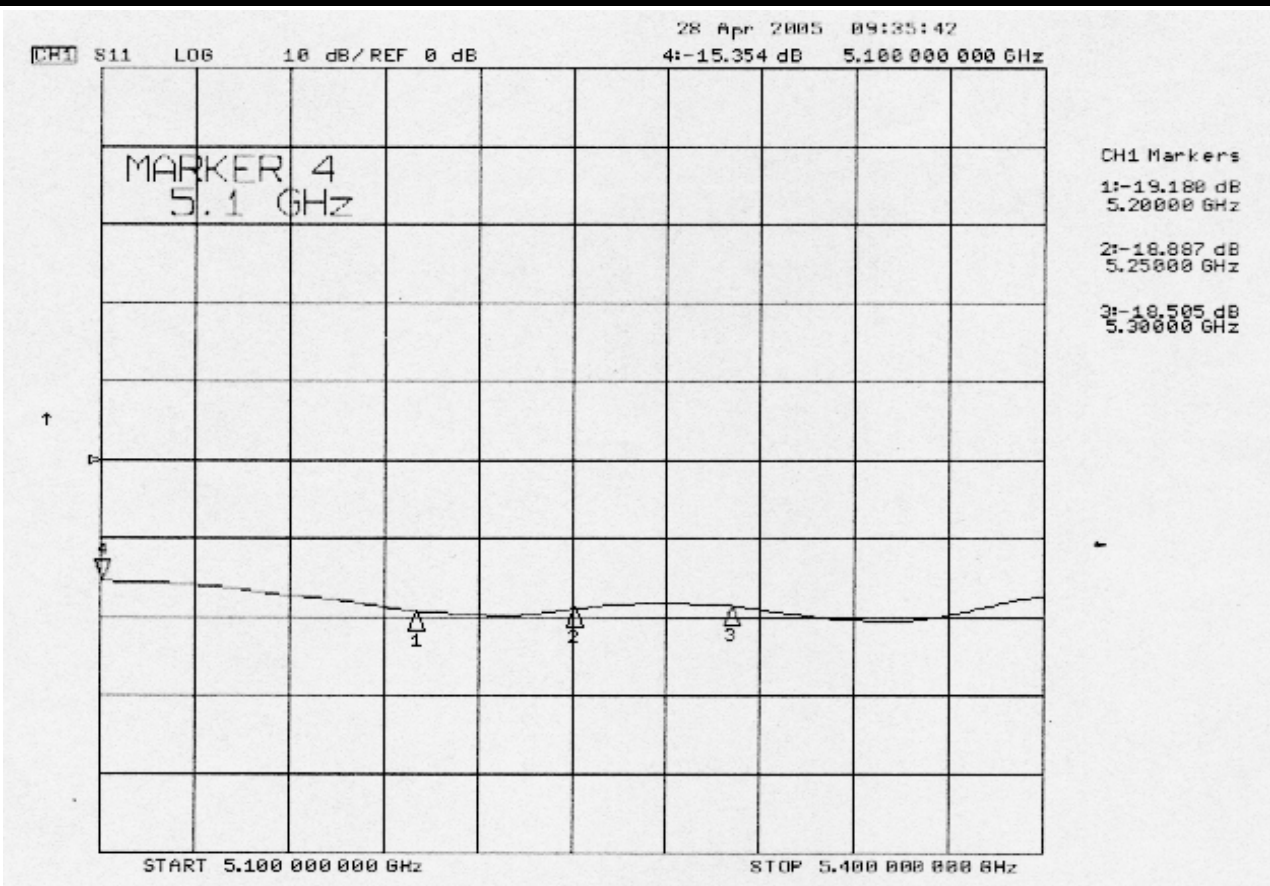
Storage Temperature

-30 ~+75

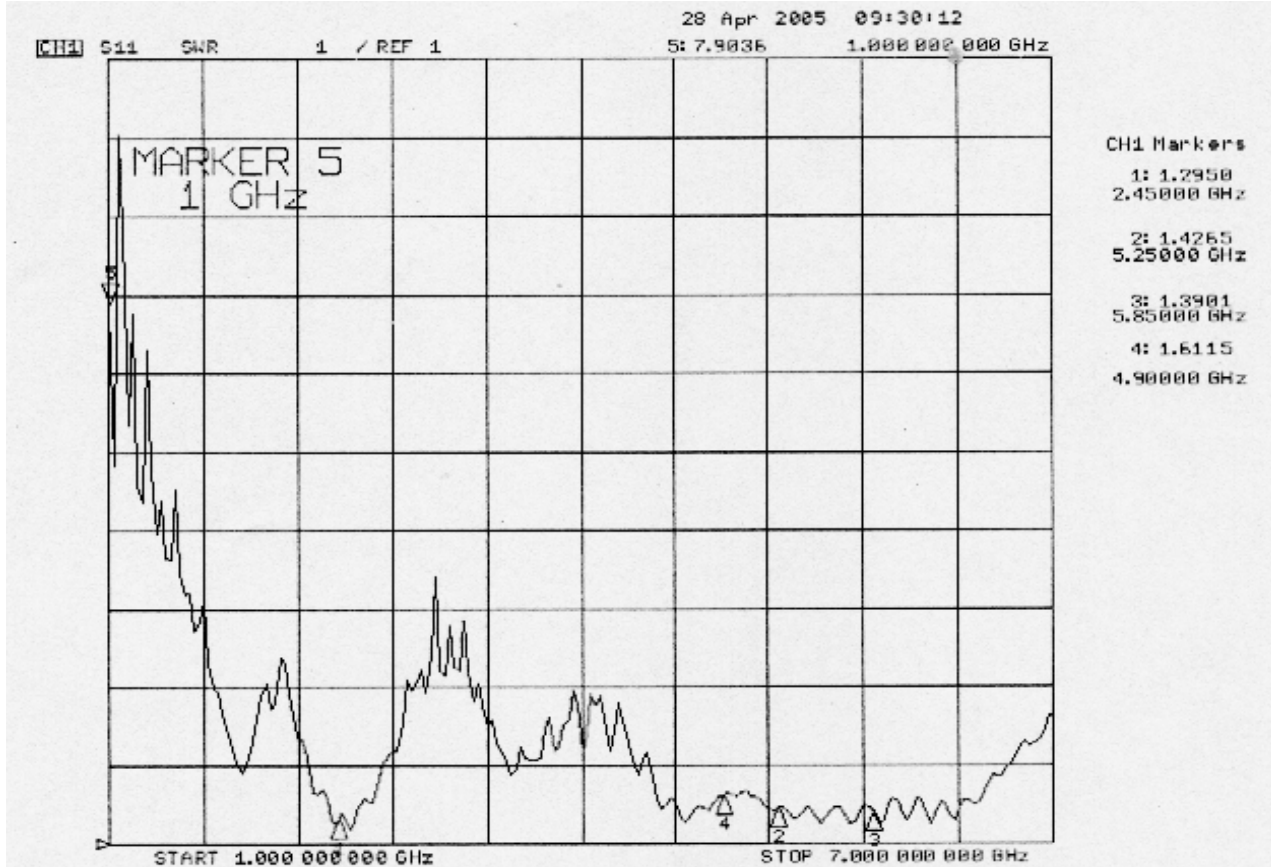
RETURN LOSS :Frequency Range-1GHz~7GHz



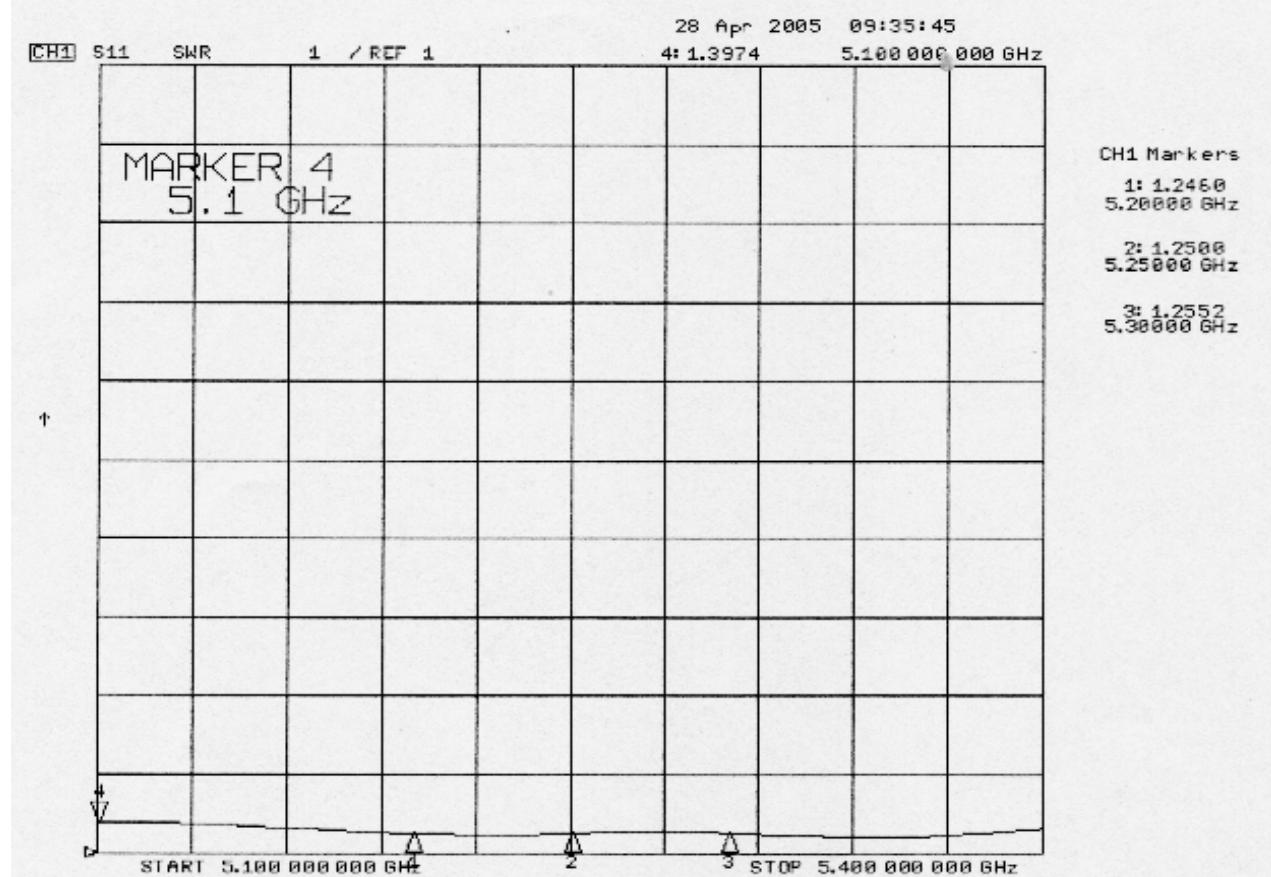
RETURN LOSS :Frequency Range-5.1GHz~5.4GHz



V.S.W.R :Frequency Range-1GHz~7GHz



V.S.W.R :Frequency Range-5.1GHz~5.4GHz

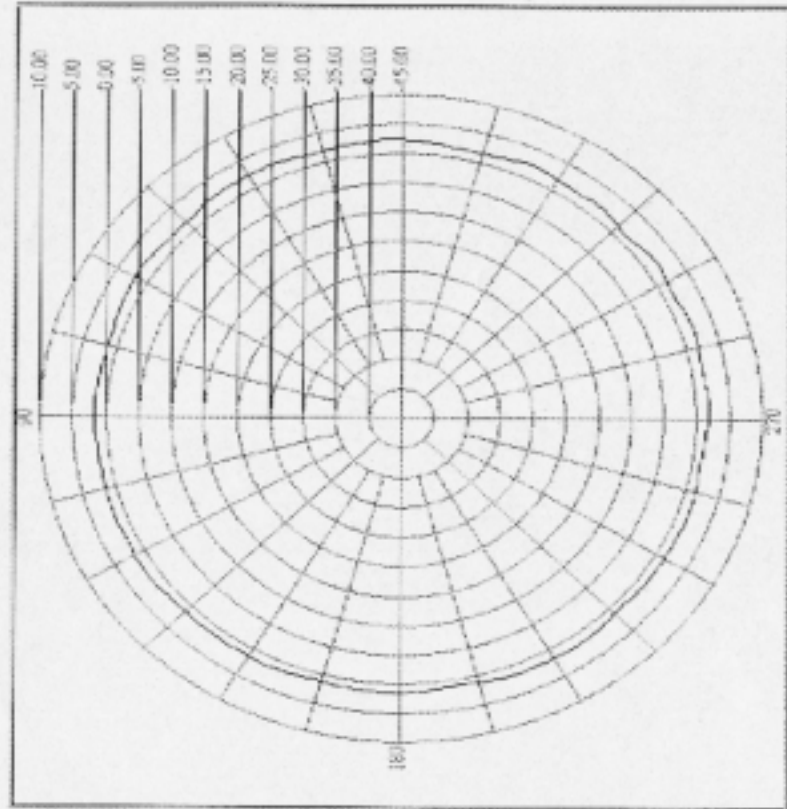




CCS WUGU Antenna Pattern

Job No.: 4-28-2450-名機_T2
Date: 2005/4/28
Tested by: ERIC

Time: 下午 04:13
Temp.(C)/Hum.(%): 25°C/60%



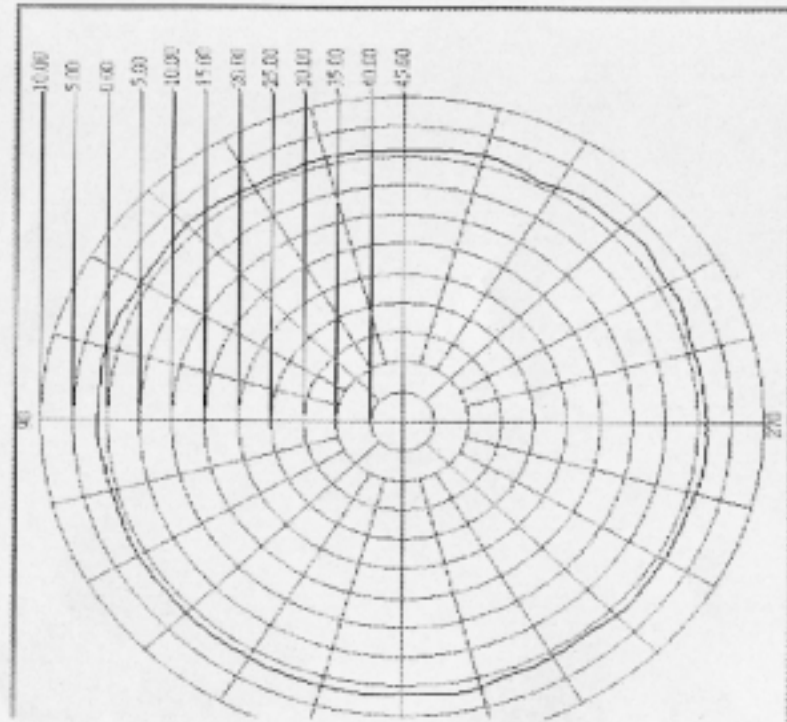
Center freq.(MHz): 2450
Max gain(dBi): 2.44
Min gain(dBi): 0.93
Avg gain(dBi): 1.58



CCS WUGU Antenna Pattern

Job No.: 4-28-2400-名機_T2
Date: 2005/4/28
Tested by: ERIC

Time: 下午 04:15
Temp.(C)/Hum.(%): 25°C/60%

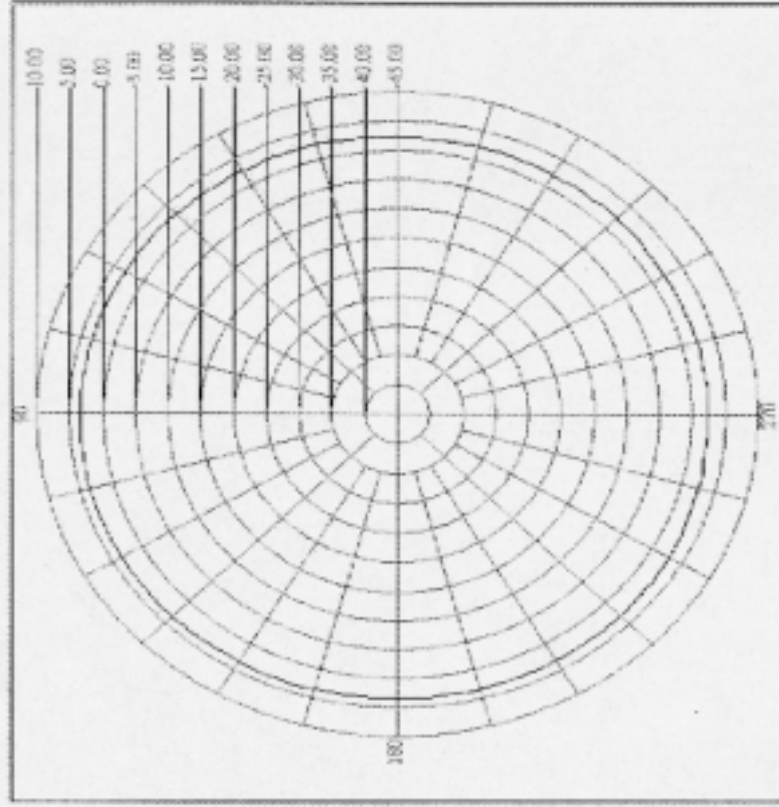


Center freq.(MHz): 2400
Max gain(dBi): 2.31
Min gain(dBi): 0.58
Avg gain(dBi): 1.24



CCS WUGU Antenna Pattern

Job No.: 4-28-5250-名機_T2
 Date: 2005/4/28
 Time: 下午 04:21
 Temp.(C) Hum.(%) : 25°C / 60%
 Tested by: ERIC
 ERIC

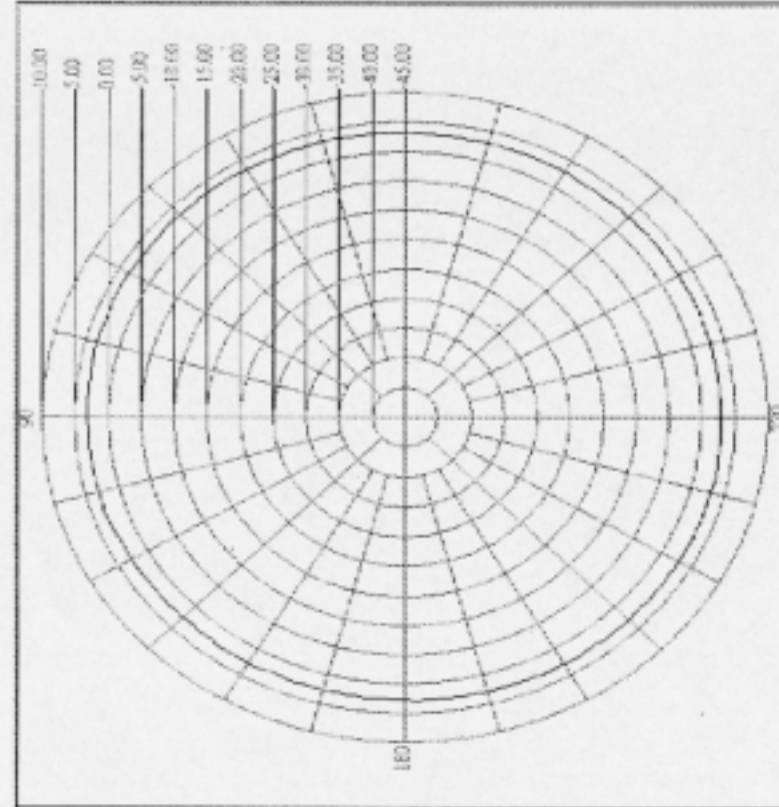


Center freq.(MHz): 5250
 Max gain(dBi): 3.63
 Min gain(dBi): 1.89
 Avg gain(dBi): 2.91
 Polarization : H Plane



CCS WUGU Antenna Pattern

Job No.: 4-28-5850-名機_T2
 Date: 2005/4/28
 Time: 下午 04:25
 Temp.(C) Hum.(%) : 25°C / 60%
 Tested by: ERIC
 ERIC



Center freq.(MHz): 5850
 Max gain(dBi): 3.43
 Min gain(dBi): 2.44
 Avg gain(dBi): 2.95
 Polarization : H Plane

Amitel EL630

TPE E

63 Shore D polyether-ester elastomer

<i>properties</i>	<i>Units SI</i>	<i>Typical data Dry</i>	<i>Test methods</i>
Physical properties			
Density	<i>g/cm³</i>	1,23	ISO 1183
Flammability			
burring rate	<i>mm/min</i>	-	ISO 1210/A
classification	-	FH-1	
Moisture absorption			
at equilibrium in air (23°C/50%RH)	%	0,2	ISO 62
after saturation in water 23°C	%	0,6	
Mechanical properties			
Hardness Shore D	-	63	ISO 868
Tensile modulus (at 1mm/min)	<i>MPa</i>	330	ISO 527-1
Tensile strength (at 50 mm/min)	<i>MPa</i>	30	
Nominal strain at break	%	350	ISO 527-1
Tensile stress at 5% strain	<i>MPa</i>	11,5	ISO 527-1
Tensile stress at 10% strain	<i>MPa</i>	15,9	ISO 527-1
Tensile stress at 50% strain	<i>MPa</i>	17,3	ISO 527-1
Tear strength Graves	<i>kN/m</i>	145	DIN 53515
Izod notched impact strength 23°C	<i>kJ/m²</i>	NB	ISO 180-1A
Izod notched impact strength -30°C	<i>kJ/m²</i>	4	ISO 180-1A
Charpy notched impact strength 23°C	<i>kJ/m²</i>	NB	ISO 179/1eA
Charpy notched impact strength -30°C	<i>kJ/m²</i>	12	ISO 179/1eA
Tensile impact strength	<i>kJ/m²</i>	-	ISO 8256
Thermal properties			
Melting temperature	°C	212	ISO 3146
Melt mass-flow rate (240°C/2160g)		-	
Vicat softening temperature - 10 N	°C	200	ISO 306
Vicat 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)	<i>E-4/K</i>	1,4	DIN 33752
Electrical properties			
Electric strength	<i>kV/mm</i>	22	IEC 60243-1
Relative permittivity at 1kHz	-	4,4	IEC 60250
Loss factor at 1 kHz	<i>E-4</i>	160	IEC 60250
Comparative tracking index	<i>V</i>	600	IEC 60112
Volume resistivity	<i>Ohm.cm</i>	1E+14	IEC 60093
Surface resistivity	<i>Ohm</i>	1E+14	IEC 60093

NB No Break (ductile fracture)

1) Specimen according to ISO 14910 (Campus®).

2) Typical values for nature' coloured materials (unless indicated otherwise).

Amitel is a registered trademark of DSM

DSM 



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 perlets

Color	Min. Thick (mm)	Flame Class	HWI	NAI	RTI Elec.	RTI IMP	RTI Str	IEC GWIT	IEC GWFI
NC.BK	1.5	HB	-	-	-	-	-	-	-
	CTI:-		HVTR:-		D495:-		IEC BP:-		
			Underwriters Laboratories Inc®						75932:001

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 ULI.



CHI MEI CORPORATION

ORIGINAL

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Taipei, Taiwan.

TEL: (06)2663000

FAX: (06)2665555-7

TEL: (02)23148841

FAX: (02)23618800

033271860

4LA05137

Physical Properties

✓ PA-765A	I,01 M1 4Q56J021	Test Method	
		ASTM	
Tensile Strength (kg/cm ²)	Break	D 638	300.00
Tensile Strength (kg/cm ²)	Yield	D 638	390.00
Tensile Elongation (%)		D 638	36.00
Izod Impact Strength (kg.cm/cm)		D 256	16.40
Melt Index (g/10 min)*		D 1238	5.48



Coaxial Cable Data Sheet
RG-178

SPECIFICATION FOR APPROVAL

DOCUMENT: A30178B001

STYLE : 200°C 30V
RG-178B/U

SIZE: 7/0.102 SCCS

RECOGNIZED:

WONDERFUL HI-TECH 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

FAX : (02)22988031-2

TEL : (03)4527777

FAX : (03)4517214

**WONDERFUL HI-TECH CO., LTD
SPECIFICATION**

STYLE	200°C 30V COAXIAL	DOCUMENT NO : A30178B001	
SIZE	RG-178B/U	ESTABLISHED DATE: 2003/02/13	
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			
Drawing			

AK001/210X297/1.0

PAGE : 1

EDITION : 1.1

REVISED DATE :

MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG

WONDERFUL HI-TECH CO., LTD SPECIFICATION

Electrical & Physical Properties						
Item		RG-178B/U				
Rating Temp Voltage		200°C 30V				
Conductor Resistance		838 OHM/KM/20°C MAX.				
Insulation Resistance		3000 MEGA OHM/KM MIN.				
Dielectric Strength		AC 1.0 KV/Minute				
Spark Test		2.0 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°C)			
		Elongation	UNAGED MIN 75%(168HRS×232°C)			
Jacket	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / m m ²)			
		Elongation	200% MIN.			
	Aged	Tensile Strength	UNAGED MIN.75%(168HRS×232°C)			
		Elongation	UNAGED MIN.75%(168HRS×232°C)			
Nom. Impedance		50 Ohms				
Nom. Capacitance		95.8 pF/m				
Nom. Vel. of Prop.		69.5%				
VSWR (0 – 6 GHZ)		UNDER 1.3				
Attenuation (dB/100m)	100MHz	1GHz	1.8GHz	2.4GHz	5.2GHz	6GHz
	46	155	295	340	505	550

AK001/210X297/1.0

PAGE : 2

EDITION : 1.1

REVISED DATE :

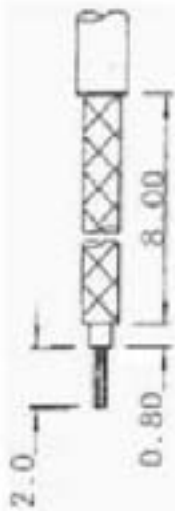
MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

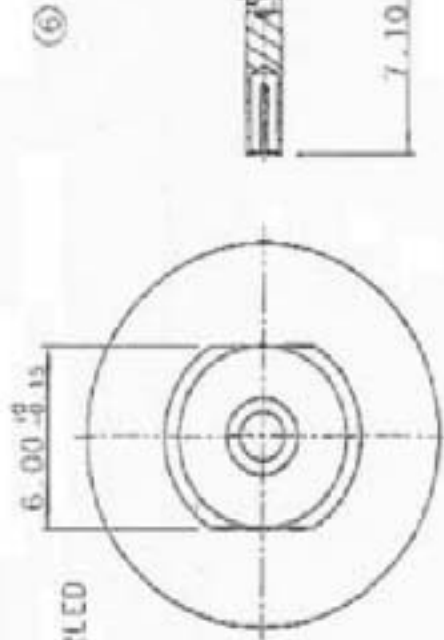
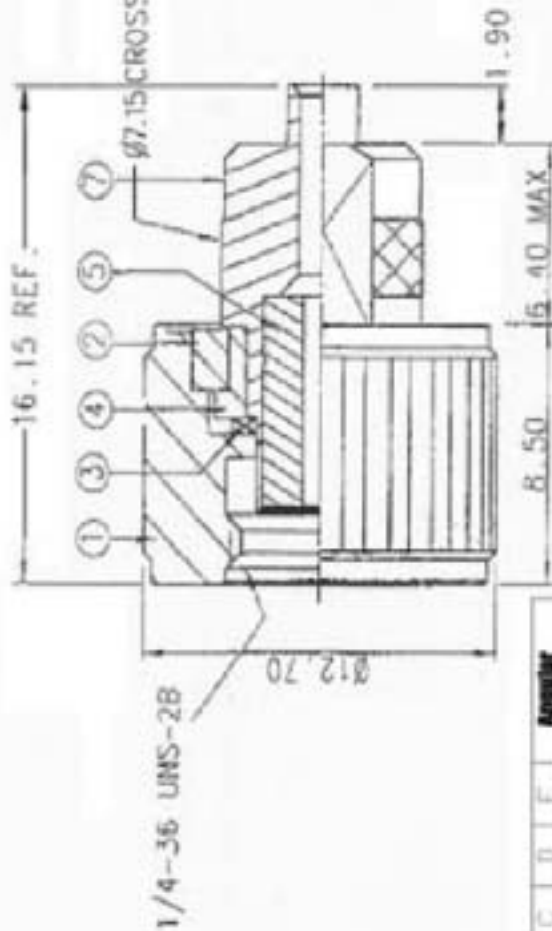
APPROVAL : W.J.WANG

B.O.M

NO	DESCRIPTION	MATERIAL	QTY	FINISHED	NOTE
1	SHELL	BRASS	1	Bcr	
2	RING	BRASS	1	Nickle	
3	CASKET	SILICONE	1	None	
4	RING	BRASS	1	Nickle	
5	INSULATOR	TEFLON	1	None	
6	CONTACT PIN	COPPER	1	flu.	
7	BODY	BRASS	1	Nickle.	



STRIPPING DIM.



NOTE:

FREQ. DC- 6 GHz
TORQUE FORCE 200-500 g-cm
I.R. < -1.3 dB @DC TO 6.0 GHz
VSWR < 1.5 @DC TO 6.0 GHz

Tolerance	B	C	D	E	Angular Tolerance
104	4020	4020	402	4025	±3°
10-23	4000	4006	4023	4023	
26-48	4004	4009	4026	4024	100 ± ±0.0
40-80	4006	4011	4022	4025	
80-16	4006	4023	4025	4026	50-100 ±0.3
16-31.5	4008	4016	4023	4028	
31.5-50	4011	4022	4024	4023	5-50 ±0.3
50-87.5	4013	4025	4025	4025	
125-200	4016	4023	4026	4028	5 ↓ ±0.2
200-500	4020	4024	4028	4028	
500+	4025	4025	4028	4025	

Material	Unit	mm	Material Finished	Version	Version	Description	Drawn by	Checked by
P/N	SMA-PB-178	Scale	Date	Dwg. by	Ver.	Date		
Name	Sup. Plng Reserve for Mt. 178	Tolerance	Date	2004/10/24	Ckd. by			
Customer						Revisions		

SMA Series

ELECTRICAL

* Impedance	50 ohm
* Frequency	0-12.4 GHz on Flexible cable. 0-18 GHz 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 Contact: 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

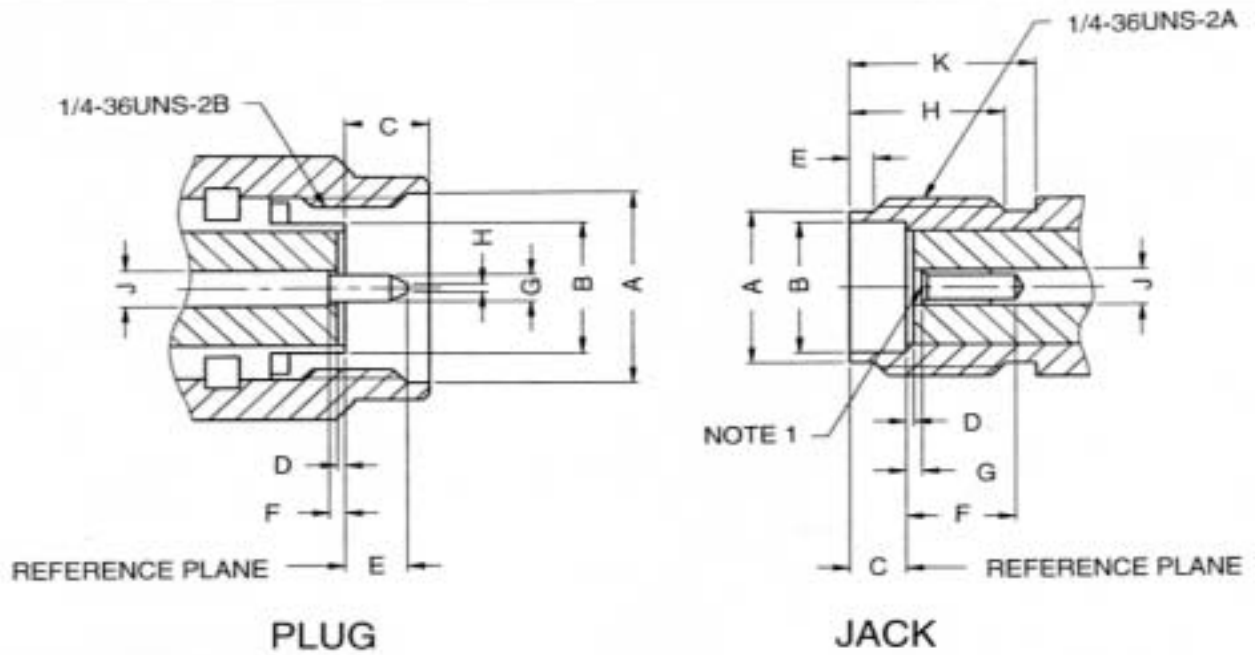
Note: Other Material / Finish is Available on Request.

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	6 lbs. Min.
* Durability (Mating)	500 cycles min.

SMA COAXIAL CONNECTOR

INTERFACE MATING DIMENSIONS



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

Letter	Millimeters	
	Minimum	Maximum
A	5.28	5.49
B	4.60	4.67
C	1.88	1.98
D	0.00	0.25
E	0.38	1.14
F	2.92	-
G	0.00	0.25
H	4.32	-
J	1.24	1.30
K	5.54	-

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 COMPOSITION %			
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 & PHYSICAL PROPERTIES			
Tensile strength : 360 N/mm ²			
Heated/material Hardness or stability, HB or HV :(90)			
REMARK: ASTM Standard: CA 360 Free cutting brass.			

Customer			
Material	Phosphor Bronze Bars		
Stability-class:	JIS H 3270 C 5441		
CHEMICAL COMPOSITION %			
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 & PHYSICAL PROPERTIES			
Tensile strength : 570 min. N/mm ²			
Heated/material Hardness or stability, HB or HV :			
REMARK:			

THE MATERIAL CERTS OF TEFLON

Customer		
Material	TEFLON	
Physical Properties		%
Physical Properties	Density g/cm ³	2.14-2.2
	Water absorption %	>0.01
Mechanical Properties	Tensile strength kg/cm ²	140-350
	Flexural strength kg/cm ²	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
	Thermal conductivity kcal/m. Hr. °C	6.0
	Heat distortion temperatures °C	
	Heat resistance °C	260-278
Electrical Properties	Dielectric breakdown strengths KV/mm	43-50
	Coefficient of volume resistance Ω-cm	10- ⁹
REMARK:		



PREEMINENT INDUSTRIAL CO., LTD.

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

FISCHERSCOPE X - R A Y TEST RECORD

(SPECIFICATION):

Au U* SAMPLE 5 PCS

(REMARK):

N = 1	THICKNESS=	3.82	=	130.3
N = 2	THICKNESS=	3.93	=	137.1
N = 3	THICKNESS=	4.23	=	106.2
N = 4	THICKNESS=	4.02	=	113.9
N = 5	THICKNESS=	3.50	=	120.0

(RESULT):

F I N A L R E S U L T

DOUBLE COATING MEASUREMENT
APPLICATION No. = 5

Au / Ni / Cu (u*) = Coll.2

	TOP COAT.	INT.COAT.
M E A N VALUE	= 3.902	= 121.52
STD. DEVIATION	= 0.2713	= 12.389
V meas. (%)	= 6.952	= 10.195
LOWEST READING	= 3.500	= 106.23
HIGHEST READING	= 4.234	= 137.10
No. OF MEAS.	= 5	= 5
MEASURING TIME (s)	=	= 30

M E A N T H I C K N E S S

APPLICATION No. = 1

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

M E A N T H I C K N E S S	= 1.735
STD. DEVIATION	= 0.0695
LOWEST READING	= 1.686
HIGHEST READING	= 1.784
No. OF MEAS.	= 2
MEASURING TIME (s)	= 10

	QC		MANAGER	 (ACCEPT) 合格 出廠 APPROVE
--	----	--	---------	----------------------------------

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 no-odor, non-blooming characteristics while maintaining excellent bond strengths. **APOLLO 5008** may eliminate the need for special ventilation.

PHYSICAL PROPERTIES

MONOMER (Liquid)

Base Compound	Ethoxyethyl
Appearance	Colorless Liquid
Viscosity (cps @ 68F)	80 cPs
Specific Gravity (g/cc)	1.06
Flash Point (TCC)	176F
Shelf Life @ 40F	One year in unopened containers
Setting Time:(68F, 65%R.H.)	

Metal/Metal	40 Seconds
Plastic/Plastic	15 Seconds
Rubber/Rubber	10 Seconds

POLYMER (Cured)

Appearance	Colorless Solid
Service Temperature Range	-65F to 200F
Softening Point	293F
Refractive Index (ND 20)	1.49
Full Cure Time	24 Hours
Dielectric Strength KV/mm	12.6
Dielectric Constant @ 1Kc	5.4
Coefficient of Thermal Expansion (in./in./F)	.000126
Tensile Strength: Steel / Steel	2600 psi
Solubility	Nitromethane, Acetone, Dimethylformamide

The data contained herein are furnished 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 suitability for the product or of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Cyberbond L.L.C. specifically disclaims all warranties of merchantability or fitness for a particular purpose arising from sale or use of Cyberbond L.L.C. products. Cyberbond L.L.C. specifically disclaims any liability for consequential or incidental damages of any kind, including loss of profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Cyberbond patents which may cover such processes or compositions. We recommend that each prospective user test 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

1. *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/mm ²)
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