

Measurement of Maximum Permissible Exposure

1. Foreword

In adopt with the Human Exposure IEEE C95.1, and according to the FCC 1.1310. The *Maximum Permissible Exposure (MPE)* is obligated to measure in order to prove the safety of radiation harmfulness to the human body.

The *Gain* of the antenna used is measured in an *Anechoic chamber*. The *maximum total power to the antenna* is to be recorded. By adopting the *Friis Transmission Formula* and the *power gain of the antenna*, we can find the distance right away from the product, where the limit of the MPE is.

2. Description of EUT

- FCC ID** : MSQWLHDD25
- Product name** : Wireless Hard Drive Box
- Model name** : WL-HDD2.5
- Classification** : Mobile Device
- (i) Under normal use condition, the antenna is at least 20cm away from the user;
 - (ii) Warning statement for keeping 20cm separation distance and the prohibition of operating next to the person has been printed in the user's manual
- Frequency Range** : 2.412 GHz ~ 2.462GHz
- Supported Channel** : 11 Channels
- Modulation Skill** : DBPSK, DQPSK, CCK, OFDM
- Power Type** : Powered by the adapter,
Model: ADP-15GH B Mfg.: DELTA Electronics, Inc.
I/P: 100-240VAC, 50-60Hz, 0.5A; O/P: 5VDC, 3A
188cm length, non-shielded, no ferrite core

3. Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	100	6
3.0-30	1842/f	4.89/f	900/f ²	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	100	30
1.34-30	824/f	2.19/f	180/f ²	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

[The EUT is tested in transmit and receive modes and in the first, middle and the last channel separately. The following shows only our observation have the greatest emissions.]

According to OET BULLETIN 56 Fourth Edition/August 1999, Equation for Predicting RF Fields:

$$\text{Friis Transmission Formula: } S = \frac{PG}{4\pi R^2} = \frac{67.45 \times 1.452}{4\pi(20)^2} = 0.01949 \text{ mW} / \text{cm}^2$$

$$\text{Estimated safe separation: } R = \sqrt{\frac{PG}{4\pi}} = \sqrt{\frac{67.45 \times 1.452}{4\pi}} = 2.792 \text{ cm}$$

Remarks: "The safe estimated separation that the user must maintain from the antenna is at least 4.512 cm."

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

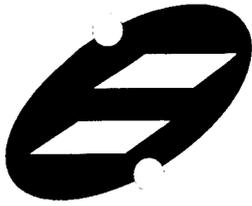
The Numeric gain G of antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} (\text{dB antenna gain} / 10)$$

$$G = \text{Log}^{-1} (1.62 / 10) = 1.452$$

Appendix

Antenna Specification



WHA YU INDUSTRIAL CO., LTD. (HEAD OFFICE)
TAI HWA ELECTRONIC CO., LTD.(CHINA)
SHANGHAI HUA YU ELECTRONIC CO., LTD.(CHINA)
AEON TECH CO., LTD. (CHINA)

SPECIFICATION FOR APPROVAL

CUSTOMER: 華碩科技股份有限公司

PART NAME: RF Antenna Assembly

PART NO.:

REVISION:

W. Y. P/NO.: C660-510012-A

REV.: X1

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :	2004/6/15	

WHA YU GROUP

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譚裕實業股份有限公司

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TAI HWA ELECTRONIC CO., LTD. (CHINA)

台樺電業製品廠

Address: Pak Ho District, Hiu Street Town, Dong Guan City, Guangdong, China

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Fax: + 86-769-5599376

HUA HONG INTERNATIONAL LTD.

華弘國際有限公司

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SHANGHAI HUA YU ELECTRONIC CO., LTD. (CHINA)

上海譚裕電子有限公司

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SU ZHOU AEON TECH CO., LTD. (CHINA)

蘇州華廣電通有限公司

Address:Limin North Road, LiLi Town,LiLi Industrial Park,LinHu Economic Zone

Wujiang City,Jiangsu Province,China

Tel: + 86-512-63627980

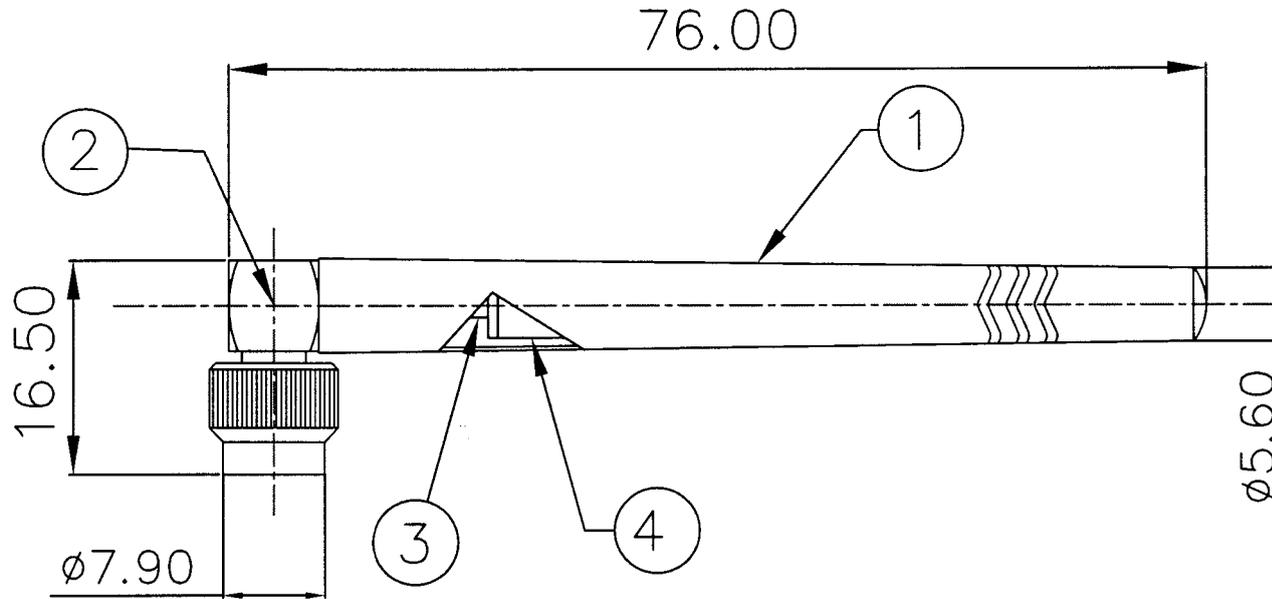
Fax: + 86-512-63627981

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CG-

REV	DATE	DESCRIPTION
X1	06/15-2004	New Issue



4	Ground Tube	Brass ,Ni Plated	1	
3	Cable	RG-178 ,50Ω ,Translucent Brown	1	
2	Connector	SMA Plug R/A Reverse ,Ni Plated	1	
1	Antenna Body	TPR TS-95 ; Color : Black	1	
NO	DESCRIPTION		QTY	REMARK

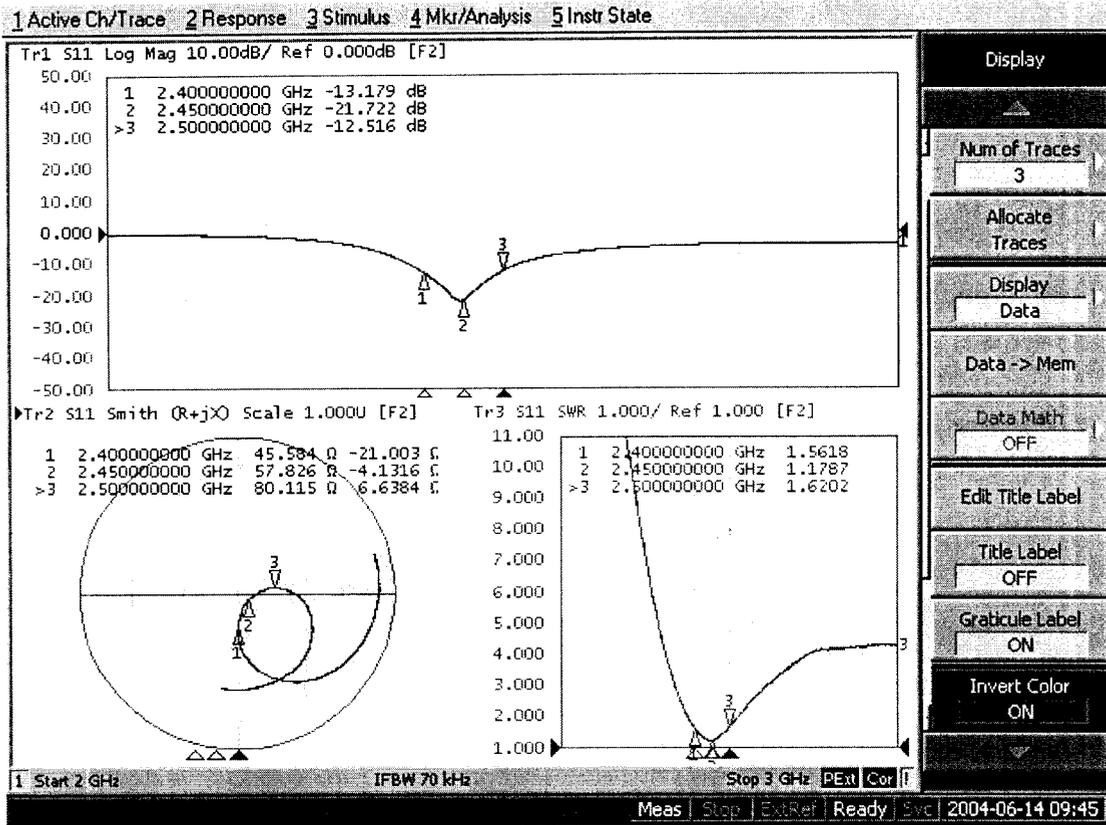
CUSTOMER'S SINGATURE	XX.	±3.0	APPROVED	CUSTOMER: 華碩科技股份有限公司		
	X.	±2.0	<i>W. J. S. / 6/18</i>		PART NO :	
	.X	±1.0	CHECKED	PARTNAME: SMA RF Antenna		
	.XX	±0.5	<i>[Signature]</i>	W.Y P/NO : C660-510012-A		
	.XXX	±0.1	DRAWING	REV	UNIT	FILE :
			<i>昆宏 4/15</i>	X1	m/m	SHEET : 1/1

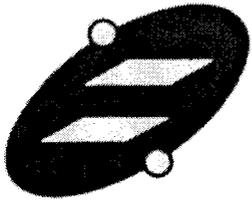

Wha Yu
 INDUSTRIAL CO.,LTD.
 譚裕實業股份有限公司
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RF Antenna Assembly

P/NO : C660-510012-A SPEC : 2.4 GHz



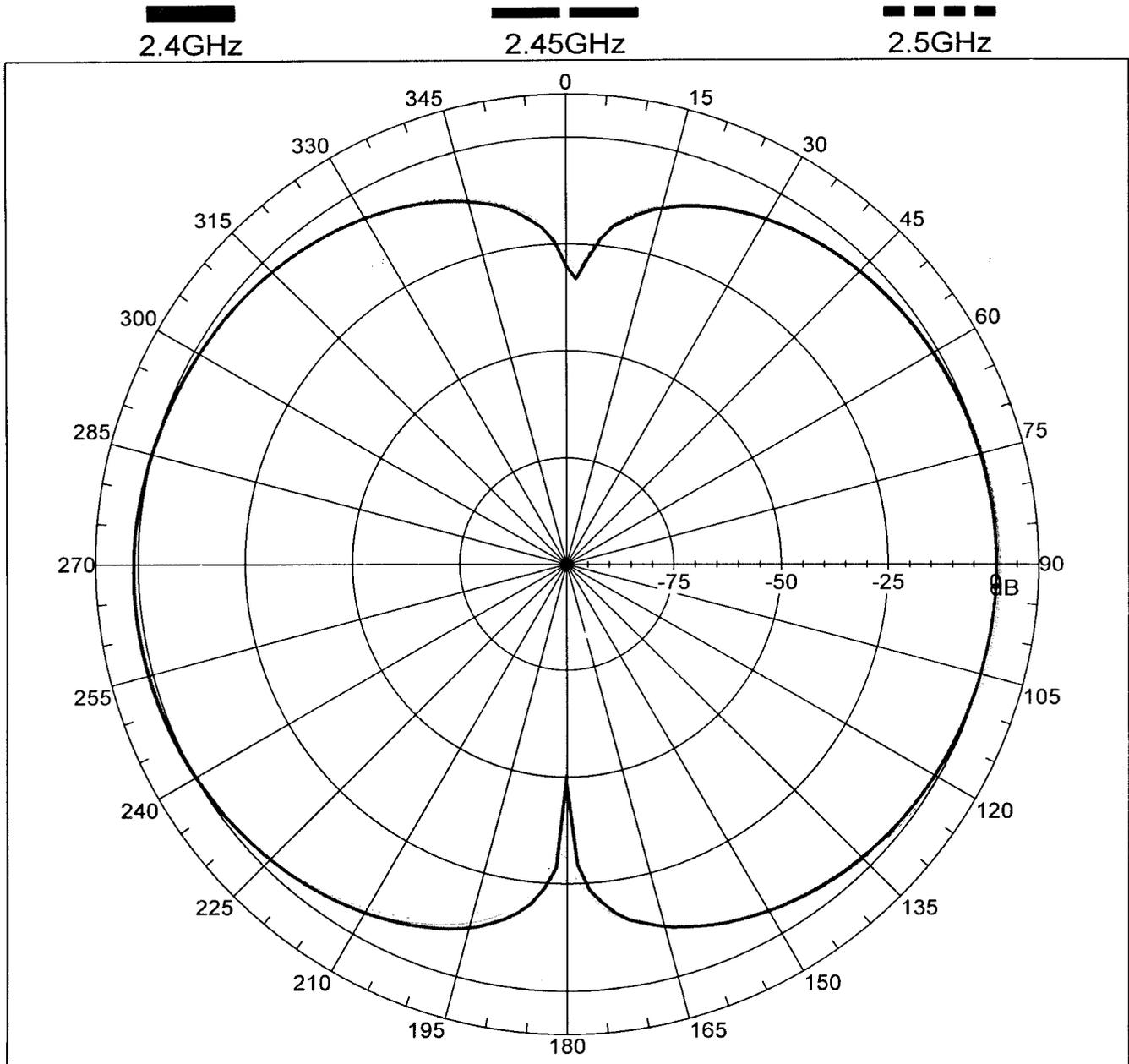


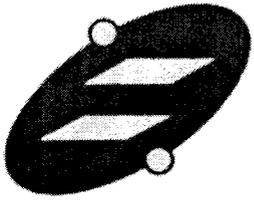
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WHA YU INDUSTRIAL CO., LTD

C660-510012-A

Far-field amplitude of 2.4GHz small dipole antenna-E-plane.nsi



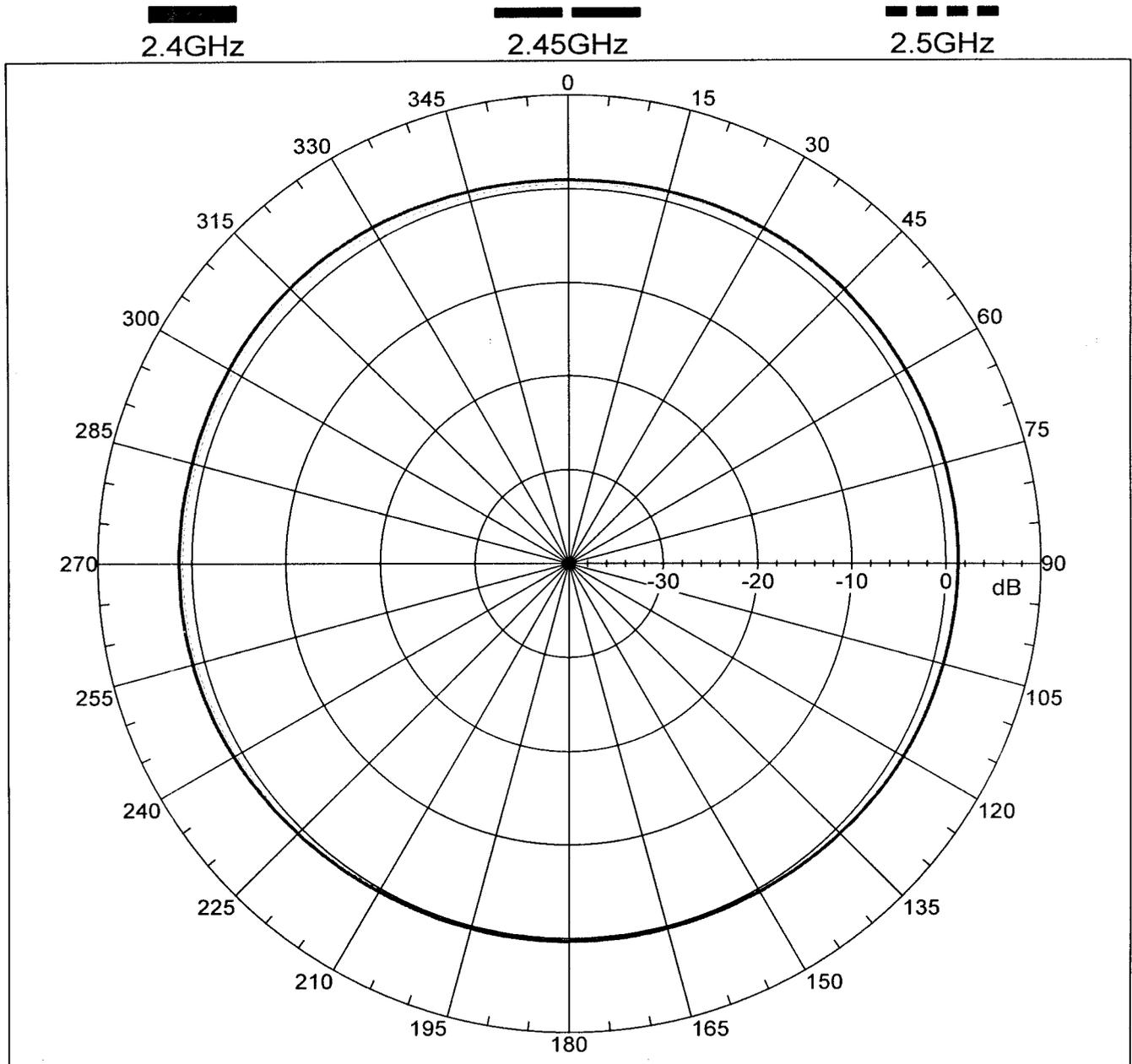


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WHA YU INDUSTRIAL CO., LTD

C660-510012-A

Far-field amplitude of 2.4GHz small dipole antenna-H-plane.nsi



Nizing Electric Co., Ltd.

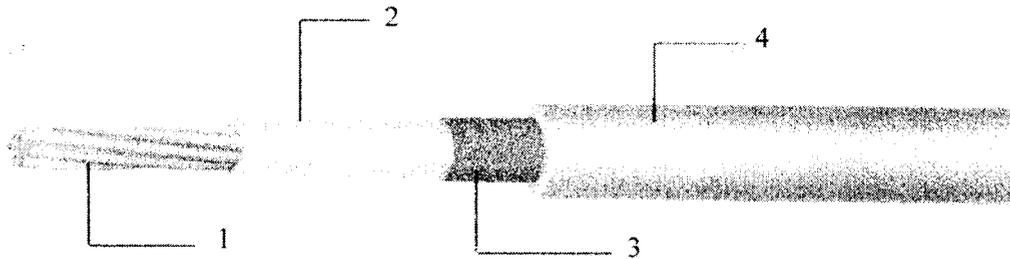
11-15 Santai Rd., Hsinchuang, Taipei Hsien, 242, Taiwan, R.O.C
 Tel: 02-29016164 Fax: 29050644 E-mail: shenbinnizing@yahoo.com.tw

RG 178 B/U	FEP INSULATED HIGH-FREQUENCY COAXIAL CABLE	PAGE	1 / 2
PRODUCT STANDARD		ISSUED	21. Oct. 2003
		REVISED	

I - Scope

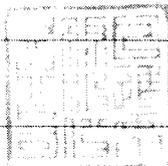
This specification presents a FEP insulated high-frequency coaxial cable AWG 30, 1.8 mm O.D. for internal wiring of electronic equipment, such as Computer / Notebook with wireless communication systems.

II - Construction



Item	Unit	Details
1. Inner Conductor	Material	— CP-AG
	Composition	No./mm AWG 30 or 7 × 0.1
	Dia. (approx.)	mm 0.305
2. Dielectric	Material	— Extruded FEP
	Nom. O.D.	mm 0.84 ± 0.05
	Color	— Natural
3. Outer Conductor	Material	— Silver coated copper
	Composition	— Braided (16 / 3 / 0.1)
	Dia. (approx)	mm 1.29 ± 0.07
4. Jacket	Material	— Extruded FEP
	Dia.	mm 1.80 ± 0.08
	Color	— Standard color is Light Orange

Note :



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Shen Bin Chao
Shen Bin Chao

Nizing Electric Co., Ltd.

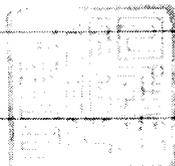
11-15 Santai Rd , Hsinchuang, Taipei Hsien, 242, Taiwan, R.O.C.
 Tel: 02-29016164 Fax: 29050644 E-mail: shenbinnizing@yahoo.com.tw

RG 178 B/U	FEP INSULATED HIGH-FREQUENCY COAXIAL CABLE	PAGE	2 / 2
PRODUCT STANDARD		ISSUED	21. Oct. 2003
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III – Characteristics

Item	Unit	Specified Value	Note
Temperature Rating	°C	-55 ~ +200	
Voltage Lasting	V	1000	
Dielectric strength	—	Dielectric core: No breakdown at AC 3 kv for 0.2 sec.	Spark test
		Jacket: No breakdown at AC 3 kv for 0.2 sec.	Spark test
Characteristic Impedance	Ω	50 ± 2	TDR method
Capacitance	pF / ft	29.4	
Attenuation. (Max.)	dB/100ft	16.0	100.0 MHz
		33.0	400.0 MHz
		52.0	1.0 GHz
		94.0	3.0 GHz
Approx. Weight	g / m	7.68	

Note :



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Cable Specification

Cable : Mil-C-17 Coaxial Cable RG-178

1. Construction :

- 1 Conductor..... 30AWG 7/38 SCCS
- 2 Dielectric..... PTFE OD : 0.033"±0.002"
- 3 Shielded..... 38AWG SPC OD : 0.051" Nominal
- 4 Jacket..... FEP OD : 0.071"±0.004"

2. Physical Properties :

- 1 Weight per 1000ft..... 6.3 lbs Maximum
- 2 Bend Radius..... 0.35" Minimum
- 3 Operating Temperature Range -55°C ~ 200°C

3. Electrical Properties:

- 1 Impedance..... 50±2 ohms
- 2 Capacitance..... 32 pF/ft Maximum
- 3 Cut off Frequency..... 116 GHz
- 4 Attenuation..... 45.0 dB/100ft @ 1GHz
64.4 dB/100ft @ 2GHz
79.7 dB/100ft @ 3GHz
92.7 dB/100ft @ 4GHz
104.3 dB/100ft @ 5GHz
115.0 dB/100ft @ 6GHz

Mil-C-17 Coaxial Cable QPL Approved

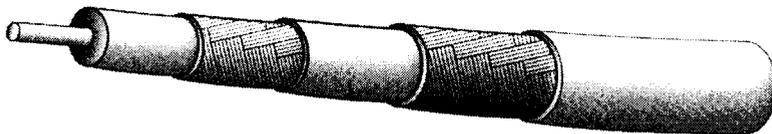
Single braid



Double braid



Triax



Twinax



Harbour supplies a complete line of high temperature, high performance QPL approved MIL-C-17 coax cables for the military, commercial and industrial applications. The specific M17 constructions referenced are manufactured in accordance with the most recent revision of the MIL-C-17 specification. The MIL-C-17 specification defines complete physical and electrical characteristics for each M17 part number, including dimensional parameters, dielectric materials, shield construction, maximum attenuation, and VSWR levels.

VSWR Sweep Testing

When selecting a 50 ohm coaxial cable, constructions with VSWR requirements are recommended. Manufacturing and sweep testing cables with concern for VSWR ensures a quality cable free of spikes over the referenced frequency range. (Note the test frequencies specified in the electrical characteristics section.)

Precision PTFE Dielectrics

All of the high temperature, high performance coax cables listed have PTFE dielectrics with high dielectric strength and low capacitance in proportion to the dielectric constant. All PTFE dielectrics are manufactured with tolerances tighter than the MIL-C-17 specification to ensure uniformity of electrical characteristics, especially impedance, attenuation and VSWR.

Tape wrapped PTFE Constructions

Harbour also manufactures PTFE tape wrapped cables to a previous revision of the MIL-C-17 specification. These constructions can withstand operating temperatures up to 250° C. versus 200° C. for FEP jacketed cables. Also, PTFE tape wrapped cables are generally more flexible than their FEP jacketed counterparts.

UL Approvals

All of Harbour's M17 part numbers manufactured to the MIL-C-17 specification may be ordered with UL and FT4 approvals.

Mil-C-17 Coaxial Cables

Physical Characteristics:

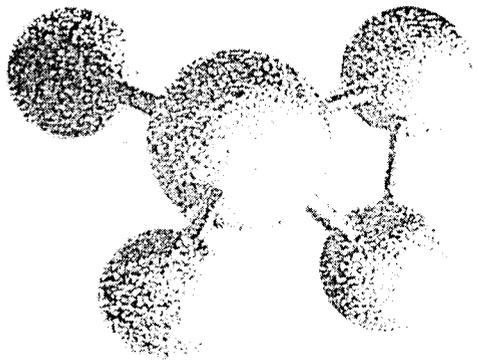
M17 Number	Center Conductor	PTFE Dielectric Diameter	Shield	Jacket	Overall Diameter	Minimum Recommended Bend Radius	Operating Temp. (%C)	Weight (lbs./MFT)	Comments
M17/60-RG142	.037" SCCS	.116"	SPC(2)	FEP	.195"	1.0"	-55 +200	43.0	
M17/93-RG178	.0120"(7/004")SCCS	.033"	SPC	FEP	.071"	0.4"	-55 +200	6.3	
M17/93-00001	.0120"(7/004")SCCS	.033"	SPC	PFA	.071"	0.4"	-55 +230	6.3	M17/93-RG178 w/ extended temp. range
M17/94-RG179	.0120"(7/004")SCCS	.063"	SPC	FEP	.100"	0.4"	-55 +200	10.8	
M17/95-RG180	.0120"(7/004")SCCS	.102"	SPC	FEP	.141"	0.7"	-55 +200	19.8	
M17/110-RG302	.0253"SCCS	.146"	SPC	FEP	.202"	1.0"	-55 +200	40.0	
M17/111-RG303	.037"SCCS	.116"	SPC	FEP	.170"	0.9"	-55 +200	31.0	
M17/112-RG304	.059"SCCS	.185"	SPC(2)	FEP	.280"	1.4"	-55 +200	94.0	
M17/113-RG316	.0201"(7/0067")SCCS	.060"	SPC	FEP	.098"	0.5"	-55 +200	12.2	
M17/127-RG393	.094"(7/0312")SC	.285"	SPC(2)	FEP	.390"	2.0"	-55 +200	165.0	
M17/128-RG400	.0384"(19/008")SC	.116"	SPC(2)	FEP	.195"	1.0"	-55 +200	50.0	
M17/131-RG403	.0120"(7/004")SCCS	.033"	SPC(2)	FEP(2)	.116"	0.6"	-55 +200	15.0	Triaxial M17/93-RG178
M17/152-00001	.0201"(7/0067")SCCS	.060"	SPC(2)	FEP	.114"	0.6"	-55 +200	18.5	Double shielded M17/113-RG316
M17/158-00001	.037"SCCS	.116"	SPC(2)	FEP	.195"	1.0"	-55 +200	56.0	Unswept M17/60-RG142
M17/169-00001	.0120"(7/004")SCCS	.033"	SPC	FEP	.071"	0.4"	-55 +200	6.3	Unswept M17/93-RG178
M17/170-00001	.037"(SCCS)	.116"	SPC	FEP	.170"	0.9"	-55 +200	39.0	Unswept M17/111-RG303
M17/172-00001	.0201"(7/0067")SCCS	.060"	SPC	FEP	.098"	0.5"	-55 +200	11.5	Unswept M17/113-RG316
M17/174-00001	.094"(7/0312")SCCS	.285"	SPC(2)	FEP	.390"	2.0"	-55 +200	175.0	Unswept M17/127-RG393
M17/175-00001	.0384"(19/008")SC	.116"	SPC(2)	FEP	.390"	1.0"	-55 +200	50.0	Unswept M17/128-RG400
M17/176-00002	.0235"(19/005")SPA(2)	.042"	SPA	PFA	.129"	0.6"	-55 +230	18.0	Controlled impedance twinax
PTFE Tape Wrap Jacketed RG Cables									
RG 187 A/U	.0120"(7/004")SCCS	.063	SPC	PTFE	.100"	0.5"	-55 +250	10.0	Flexible, 250° C. rated
RG 188 A/U	.0201"(7/0067")SCCS	.060	SPC	PTFE	.100"	0.5"	-55 +250	11.0	Flexible, 250° C. rated
RG 195 A/U	.0120"(7/004")SCCS	.102	SPC	PTFE	.141"	0.7"	-55 +250	18.0	Flexible, 250° C. rated
RG 196 A/U	.0120"(7/004")SCCS	.034	SPC	PTFE	.067"	0.4"	-55 +250	6.0	Flexible, 250° C. rated

Electrical Characteristics:

M17 Number	Impedance (ohms)	Capacitance (pF/ft)	Max. Operating Voltage (RMS)	Maximum attenuation (dB/100ft) @						Max Frequency (GHz)
				100 MHz	400 MHz	1 GHz	3 GHz	5 GHz	10 GHz	
M17/60-RG142	50 +/- 2	29.4	1900	5.5	11.7	19.0	35.0	48.0	-	17.4
M17/93-RG178	50 +/- 2	29.4	1000	16.0	33.0	52.0	94.0	-	-	3.0
M17/93-00001	50 +/- 2	29.4	1000	16.0	33.0	52.0	94.0	-	-	3.0
M17/94-RG179	75 +/- 3	19.4	1200	-	21.0	-	-	-	-	-
M17/95-RG180	95 +/- 5	16.4	1500	-	17.0	-	-	-	-	-
M17/110-RG302	75 +/- 3	19.4	2300	-	8.0	-	26.0	-	-	-
M17/111-RG303	50 +/- 2	29.4	1900	3.9	8.0	15.0	28.0	-	-	-
M17/112-RG304	50 +/- 3	29.4	3000	2.7	6.4	11.1	22.0	30.0	-	8.0
M17/113-RG316	50 +/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3.0
M17/127-RG393	50 +/- 2	29.4	2500	2.4	5.0	8.8	18.0	24.6	37.0	11.0
M17/128-RG400	50 +/- 2	29.4	1900	4.5	10.5	17.0	38.0	50.0	78.0	12.4
M17/131-RG403	50 +/- 2	29.4	1000	-	37.0	-	-	-	-	10.0
M17/152-00001	50 +/- 2	29.4	1200	11.5	24.0	40.0	75.0	110.0	170.0	12.4
M17/158-00001	50 +/- 2	29.4	1900	-	9.5	-	-	-	-	-
M17/169-00001	50 +/- 2	29.4	1000	-	29.0	-	-	-	-	-
M17/170-00001	50 +/- 2	29.4	1900	-	8.6	-	-	-	-	-
M17/172-00001	50 +/- 2	29.4	1200	-	21.0	-	-	-	-	-
M17/174-00001	50 +/- 2	29.4	2500	-	5.0	-	-	-	-	-
M17/175-00001	50 +/- 2	29.4	1900	-	10.5	-	-	-	-	-
M17/176-00001	77 +/- 7	19.0	1000	-	-	-	-	-	-	-
PTFE Tape Wrap Jacketed RG Cables										
RG 187 A/U	75 +/- 3	19.4	1200	-	21.0	-	-	-	-	3
RG 188 A/U	50 +/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3
RG 195 A/U	95 +/- 5	16.4	1500	-	17.0	-	-	-	-	3
RG 196 A/U	50 +/- 2	29.4	1000	-	29.0	-	-	-	-	-

"Maximum frequencies" are those as referenced on individual slant sheets of the Mil-C-17 specification. No values are given for unswept constructions as the specification recommends these cables should not be used above 400 MHz. (All figures referenced above are nominal unless otherwise specified.)

Two-part adhesive		1590	High Super 5	EP-330 (HighSuper30)	EP-331	1500	Super
Feature		curing for 5 min type		curing for 30 min type	curing for 30min type Low- viscosity	Standard type	
Appearance	Base	Clear, blue	Translucent, blue	Translucent, pink	Clear, light yellow	Clear, light yellow	Translucent
	Hardener	Clear ight yellow	Translucent, light yellow	Translucent, milk white	Clear, light yellow	Clear, light brown	Light yellow
Viscosity (Pa · S/20°C)	Base	8	120	80	7	25	100
	Hardener	12	70	170	7	60	50
Specific gravity (g/cm ²)	Base	1.17	1.17	1.17	1.16	1.16	1.14
	Hardener	1.11	1.15	1.14	1.16	0.97	0.99
Mixing ratio(Base : Hardener)		1 : 1	1 : 1	1 : 1	1 : 1	1 : 1	1 : 1
Pot life		Within 5 min	Within 5 min	Within 30 min	Within 30 min	Within 1 hr	Within 1 hr
Tensile shear stength(N/mm ²)		19.0	18.0	17.5	17.6	15.7	15.1
T-Formed peeling adhesion (N/mm)		2.71	0.31	0.47		0.40	
Hardness(shore D)		77	77	82	71	82	
Coefficient of linear expansion (× 10 ⁻⁵)		8.6	10.7	6.7	4.1	7.1	
Tg(°C)			47	43		53.7	
Volume resistivity(Ω · cm)			4.9 × 10 ¹⁵	3.8 × 10 ¹¹	3.6 × 10 ¹¹	1.1 × 10 ¹⁶	
Coefficient of water absorption(%)			2.5	2.3		0.8	
Capacity standards		Base 1 kg Hardener 1 kg	6 g set 15 g set 25 g set 80 g set	320 ml set Base 3 kg Hardener 3 kg 6 g set, 15 g set, 80 g set	Base 1 kg Hardener 1 kg	Base 500 g, 1 kg, 3 kg, 15 kg Hardener 500 g, 1 kg, 3 kg, 15 kg	15 g set 40 g set 110 g set



施敏打硬 CEMEDINE 1500

〔一般性質〕

	主 劑	硬 化 劑
主要成分	環氧 (Epoxy) 樹脂 的中間體從黃色透明 液體	聚醯胺 (Poly- Amido) 樹脂棕 色透明液體
顏色 常態		
揮發率 (%)	99.6	99.4
黏度 (9/20°C)	350	600
比重 (20/20°C)	1.16	0.97
溶 劑	無	
硬化劑混合比例 phr	60~110	
保持粘度時間	參照混合硬化劑後的粘度變化表	
膠 化 時 間	3 小時	
硬化所需時間	6 小時 10 分鐘	
可保存時間 (20°C)	2 年	

〔特性〕

由兩種液體混合而成的環氧 (Epoxy) 樹脂系粘着劑，能在常溫下硬化，應用範圍至為廣泛，可穩定粘着金屬、塑膠以及其他各種物質。而由於此粘着劑，通常以聚醯胺 (Poly-Amido) 樹脂為其硬化劑，具有下列各優點：

1. 能在常溫下硬化。
2. 縱使所使用的硬化劑份量不同，也不影響其特性。
3. 由於能產生比一般粘着劑富有彎曲性的粘着層，即使粘着不同材質的物品，也能以粘着層緩和熱膨脹的差別所引起之兩物品彎曲，對機械學的衝擊也能顯示較為良好的性能。
4. 由於能形成透明的粘着層，可以粘着透明的物質，如玻璃等等。

〔用 途〕

由於能強力粘着各種物質，如金屬、熱硬化塑膠、玻璃、飛機黏配以及一般家庭器具等等，應用範圍至為廣泛。縱然是核聚乙稀 (Polythylene)，聚酯 (Polyester)，天然以及人造橡膠等，以一般的粘着根本無法粘着的物質，如果加以適當的表面處理，即可強力粘着。

〔實 例〕

汽車、火車、船隻、飛機…… (將金屬把手粘着於玻璃窗/可以粘着鋁製品，三聚環胺 (Melamine) 裝飾板等，於內部以增加強度/不同金屬間為兼防止電阻且加黏之/當作防銹塗料亦可)。

電器製品…… (由於是一種優秀的粘着劑，使用於高壓擴音器、音響機座的粘着/電阻器或外殼的粘着/抽風機的粘着/鐵粉筒的粘着/馬達機座的粘着等等)。

建築…… (於牆、窗或門或將文字板粘於洋風粘土把手/透明設備以及其油型厚玻璃的加黏以及視立/不透明製品、鑲製建材、陶器或大理石等需要強力粘劑的品之加黏)。

高級裝飾品，玻璃以及塑膠製工藝品，精密機械…… (照像機，攝影距離儀/分光儀等等的加黏)，其他諸如鐘錶，運動器材，公路標誌等等的加黏。除上述各種加黏外，也可以使用作填充劑，鑄模用，敷層用以及浸漬用。

溫度 (°C)	時間 (小時)	黏度 (Poise)
20	1	1000
30	1	600
100	1	30
150	1	20

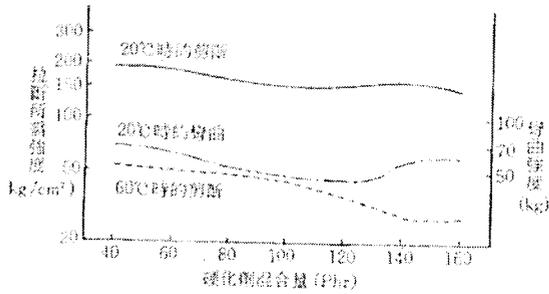


圖 II 2.1
硬化劑混合量和粘合力強度
(在20°C七天的硬化)
試驗片：軟鋼板 (25×100×1.6mm)
(Over-lap)12.5mm

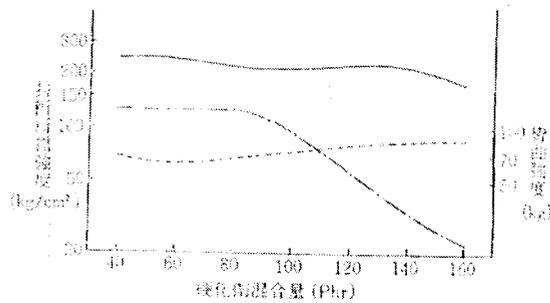


圖 II 2.2
硬化劑混合量和粘合力強度
(在80°C一小時的硬化)
試驗片：以及其他同圖 II 2.1

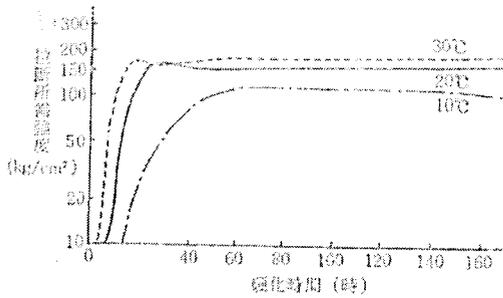


圖 II 2.3
常溫時的硬化特性 硬化劑混合率 100phr

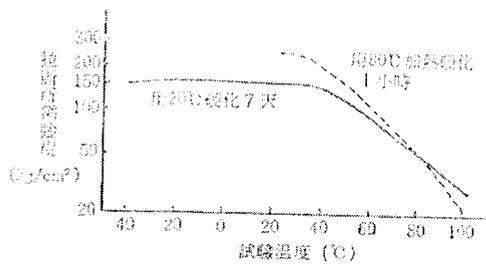


圖 II 2.5
耐熱特性 硬化劑混合率為 100phr

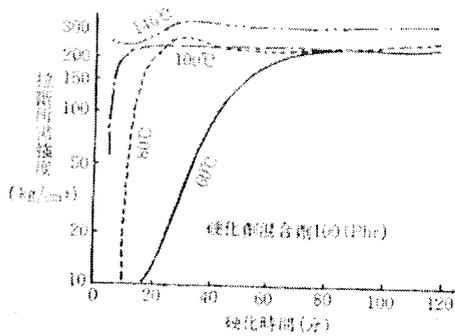


圖 II 2.4
加熱硬化特性 硬化劑混合率為 100phr

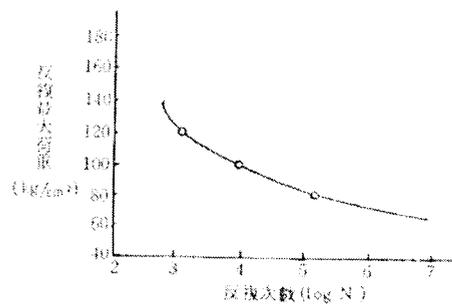


圖 II 2.6
老化特性

表 II 2.1 物理特性

抗張力 (kg/mm ²)	5.01	硬度 { ワックセル M ビーム シロアー D	63
抗折力 (kg/mm ²)	7.40		67
撓曲彈性率 (kg/mm ²)	214		82
伸張強度 (kg/mm ²)	11.6	表面固定電阻 (Ω)	5.6×10 ¹³
壓縮強度 (kg/mm ²)	15.10(6.41)(D)	體積固有電阻 (Ω-cm)	10.5×10 ¹³
熱變形溫度 (°C)	47	誘電率 (10 ⁶ cycle)	2.94
		電線破壞 (kv/mm)	19

表II 2.2 拉斷所需強度

被粘體	拉斷所需強度	被粘體	拉斷所需強度 (20°C)
樟樹皮	83	多元無炭	22
馬來西亞杉木	106 *	苯乙稀樹脂	19
針葉樹木	99 < *	雙克力樹脂	30
杉木	66	硬質鹽類樹脂	36
楓	158	三聚氰胺裝飾板 (表面)	55
松	61	三聚氰胺裝飾板 (背面)	45
黃銅	80	F R P	125
鋼	80		
冷電線	71		
冷電線	50		

[註] 1. 粘着條件: 20°C, 硬化7天, 硬化劑混合比 100phr(接合部over-lap)12.5mm。

2. *記號者表示材料拉斷。

表II 2.3 促進劣化特性

試驗	未試驗前的粘力強度 (kg/cm ²)	比較調整試驗片的粘力強度(1個月) (kg/cm ²)	經過各試驗1個月後的粘力強度 (kg/cm ²)	經過各試驗1,000小時後的粘力強度 (kg/cm ²)
利用測候儀所做的耐濕試驗	143	150	—	166
利用噴射鹽水的促進試驗	143	150	100	—
利用高溫高濕的促進試驗(2)	143	150	143	—
利用反復冷卻的促進試驗(3)	143	150	183	—

[註] (1) 20±1°C, 65±5%RH 各保持1個月的試驗片; (2) 50°C/100%RH; (3) -5°C 8小時~50°C 16小時。

表II 2.4 耐候性

拉斷所需強度 (kg/cm²)

暴露前的粘力強度				147
比較調整試驗片的粘力強度 (6個月)	※	156	在戶外暴露6個月的粘力強度	147
" (1年)	※	138	" 1年 "	152
" (2年)	※	130	" 2年 "	133
" (3年)	※	123	" 3年 "	137
" (10年)	※	111	" 10年 "	139

[註] ※20±1°C, 65±5%RH 保持各期間的試驗片。

表II 2.5 耐水性 (20°C, 7天硬化)

拉斷所需強度 (kg/cm²)

時間	0	3個月	6個月	1年
常態試驗	120	106	123	120
耐水試驗		109	117	109

[註] 硬化劑混合比為 100phr
試驗片: 丁腈膠 (100×25×1.5mm)
(接合部Over-lap)12.5mm。

表II 2.6 耐水性 (60°C, 2小時硬化)

拉斷所需強度 (kg/cm²)

時間	0	3個月	6個月	1年
常態試驗	157	150	169	163
耐水試驗		133	108	116

[註] 同表II 2.5

表II 2.7 耐油性

拉斷所需強度 (kg/cm²)

放置日數	1天	3天	5天	10天	30天	1個月
放置於20°C室溫	--	--	--	80.0	--	79.0
0°C油中	--	--	77.5	87.5	--	80.0
20°C油中	--	--	82.5	77.6	--	89.5
70°C油中	77.6	75.3	80.0	71.3	--	71.0
循環油中 (cycle)	--	--	79.0	78.0	89.0	76.0

放置日數	40天	2個月	3個月	6個月	1年	10年
放置於 20°C室溫	--	--	73.0	65.9	76.3	95.4
0°C油中	--	86.5	71.5	80.5	80.2	--
20°C油中	--	70.5	79.5	78.7	79.7	--
70°C油中	--	75.5	--	75.1	68.3	--
循環油中 (cycle)	71.5	--	--	--	--	--

[註] 1. 硬化劑混合比為80phr，試驗片厘米片 (100×25×3mm)接合部(Over-lap)12.5mm 2. 油為機壓油。
3. 試驗片全部破裂。

表II 2.8 耐溶劑、耐藥品性

種 類	浸漬7天後的黏力保持率 (%)		浸漬1個月後的黏力保持率 (%)			
	以20°C硬化7天 的試驗片	以80°C硬化1小 時的試驗片	以20°C硬化7天 的試驗片	以80°C硬化1小 時的試驗片		
溶 劑	已 烷	107.0	80.6	94.1	78.8	
		85.5	63.8	51.7	66.8	
		88.8	69.5	93.4	70.8	
		89.5	71.3	97.4	68.7	
		90.2	64.7	101.3	69.1	
油	三 氯 化 碳	91.5	72.7	65.0	69.5	
		植 物 油	102.7	90.8	107.3	90.3
藥 品	礦 物 油	96.2	87.8	98.1	84.2	
		蒸 餾 水	93.4	72.3	96.3	69.3
		10% 硝酸溶液	93.4	72.8	79.8	69.8
		10% 硫酸溶液	74.7	67.8	70.8	57.2
		10% 苛性蘇打溶液	97.2	74.3	83.8	71.3
		10% 食鹽水溶液	89.6	71.8	91.0	69.8
	10% 醋酸溶液	91.2	77.8	78.4	64.2	

[註] 黏劑混合率=1:1，試驗片：軟銅片 (25×100×1.6mm) 但是耐藥試驗時使用了SUS-27，接合部 (Over-lap) 為 12.5mm。

容量規格 (主)、(硬) 110g、1kg、15kg (組)



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