

承 認 書  
SPECIFICATION FOR APPROVAL

|                         |                                                     |
|-------------------------|-----------------------------------------------------|
| 客 戶<br>CUSTOMER         | 亞旭科技股份有限公司                                          |
| 日 期<br>DATE             | 92 年 7 月 4 日                                        |
| 品 名<br>DESCRIPTION      | WPF001<br>2.4 GHz Wireless PIFA (L=120)<br>With MHF |
| 客 戶 料 號<br>CUSTOMER P/N | 3907-001100                                         |



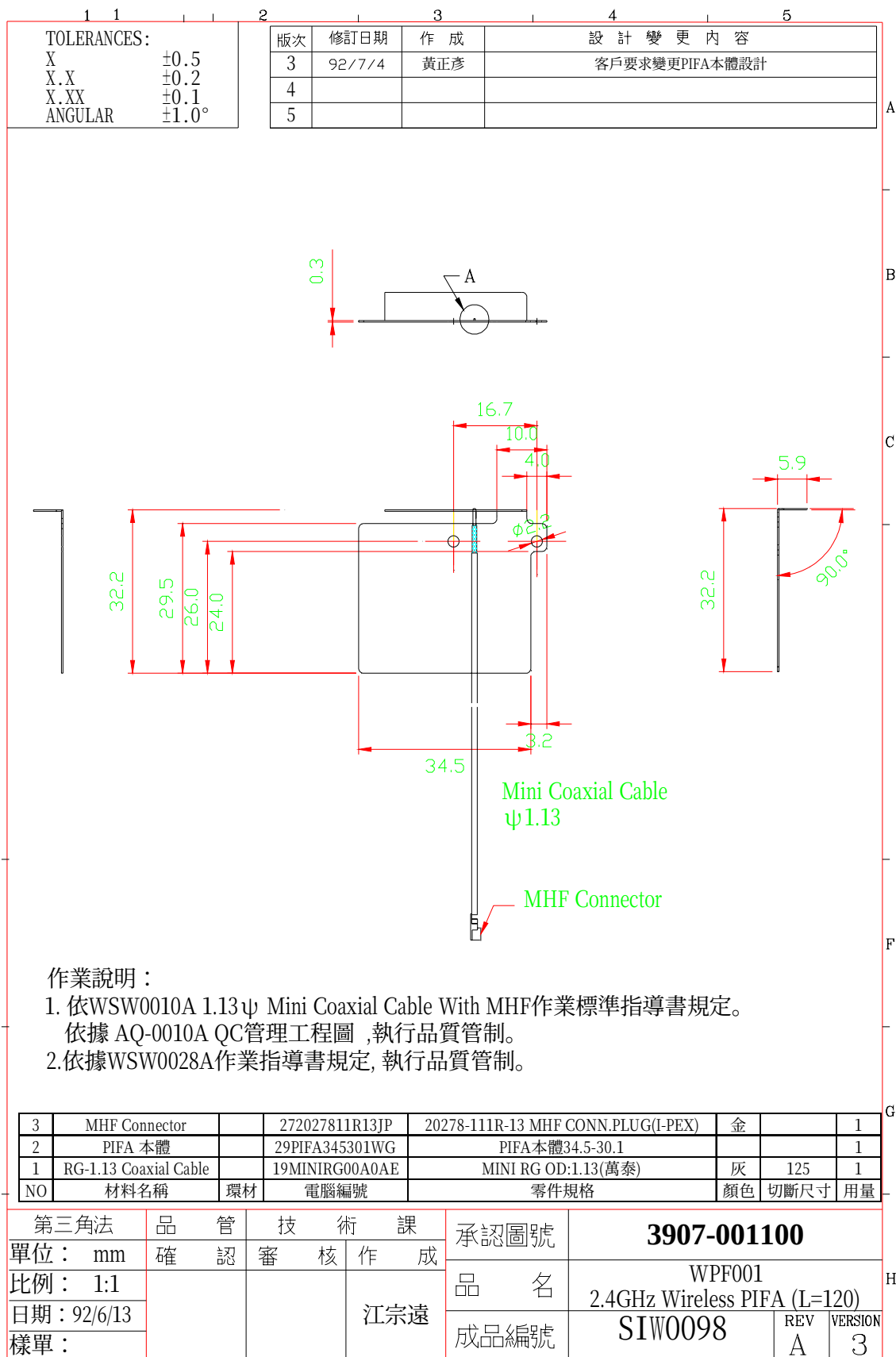
萬旭電業股份有限公司  
WANSHIH ELECTRONIC CO., LTD.  
台北縣五股鄉五工六路 72 號 3 樓  
3F 72 WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT  
TAIPEI HSIEN, TAIWAN, R.O.C.  
TEL : (02) 22988066 (5 LINE) FAX : (02)22981102

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## SPECIFICATION

- |     |                            |                                    |
|-----|----------------------------|------------------------------------|
| 1.  | Description                | : WPF001 2400MHz PIFA with MHF     |
| 2.  | Customer                   | : 亞旭科技股份有限公司                       |
| 3.  | Model No.                  | : WPF001                           |
| 4.  | Part No.                   | : SIW0098A                         |
| 5.  | Product Merits             | : IEEE 802.11b 11Mbps Wireless LAN |
| 6.  | Antenna Profile            | : 34.5*32.2*0.3 mm (see Drawing)   |
| 7.  | Color                      | : N/A                              |
| 8.  | Electrical Characteristics |                                    |
|     | Operating Frequency        | : 2.4~2.5Ghz                       |
|     | Antenna Type               | : PIFA                             |
|     | Polarization Type          | : Linear                           |
|     | Type of Radiation          | : Toroidal                         |
|     | Peak Gain                  | : 0 dBi Typical                    |
|     | Impedance                  | : 50 Ohm nominal                   |
|     | V.S.W.R.                   | : 2.0:1 Max.                       |
| 9.  | Mechanical Characteristics |                                    |
|     | Lead Length                | : 120 mm (see Drawing)             |
|     | Connector                  | : IPEX MHF                         |
|     | Core                       | : N/A                              |
|     | Polyethylene Foam          | : N/A                              |
|     | Acrylic Foam Tape          | : N/A                              |
| 10. | Raw Material               |                                    |
|     | Coaxial Cable              | : 3.2AWG*1C SP7/0.080 1.13MM       |
|     | Antenna Body               | : SPTE Per JIS G3303 SPTE MR T-38A |

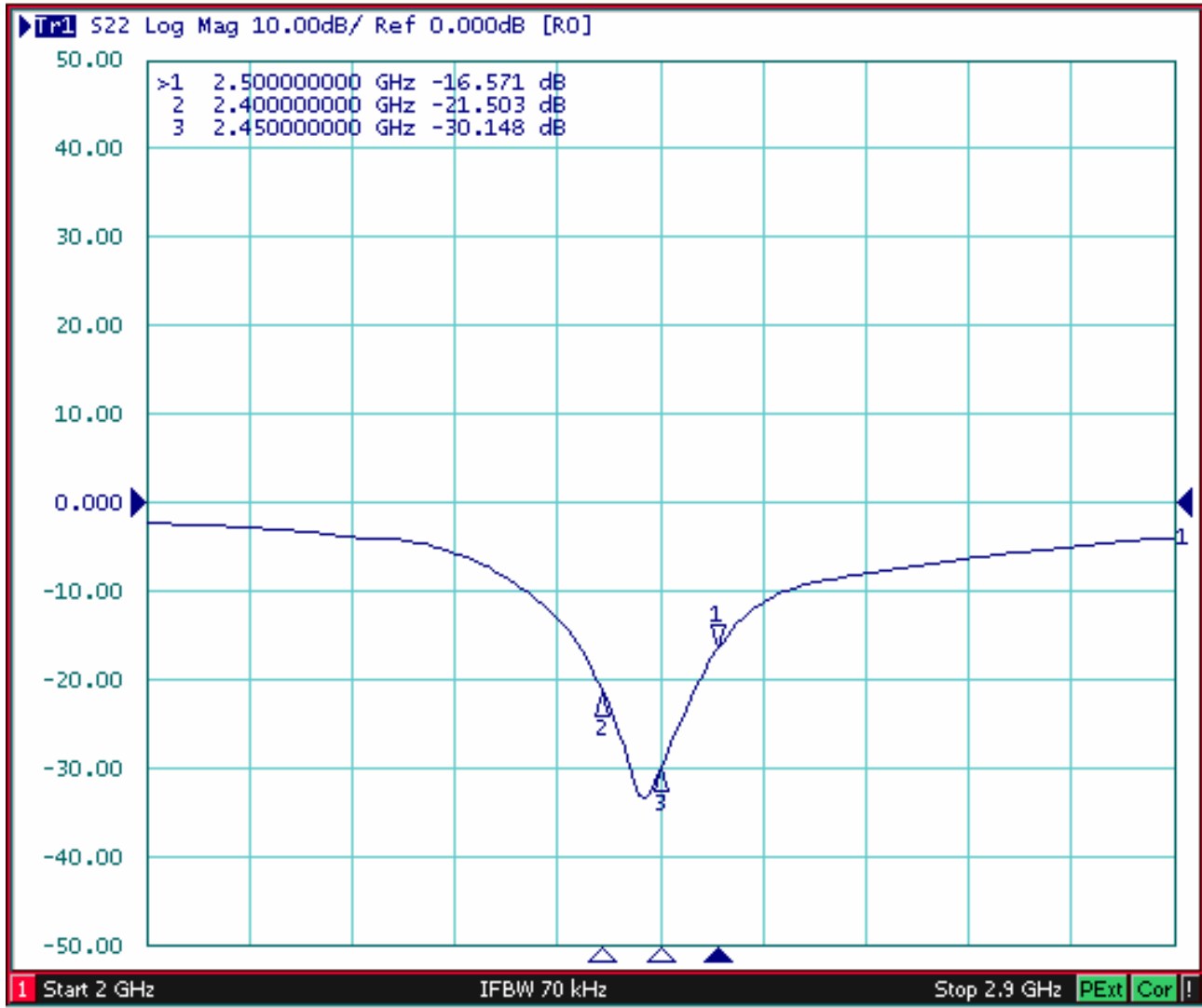


萬旭電業股份有限公司

文件編號：FMT-0513-B7

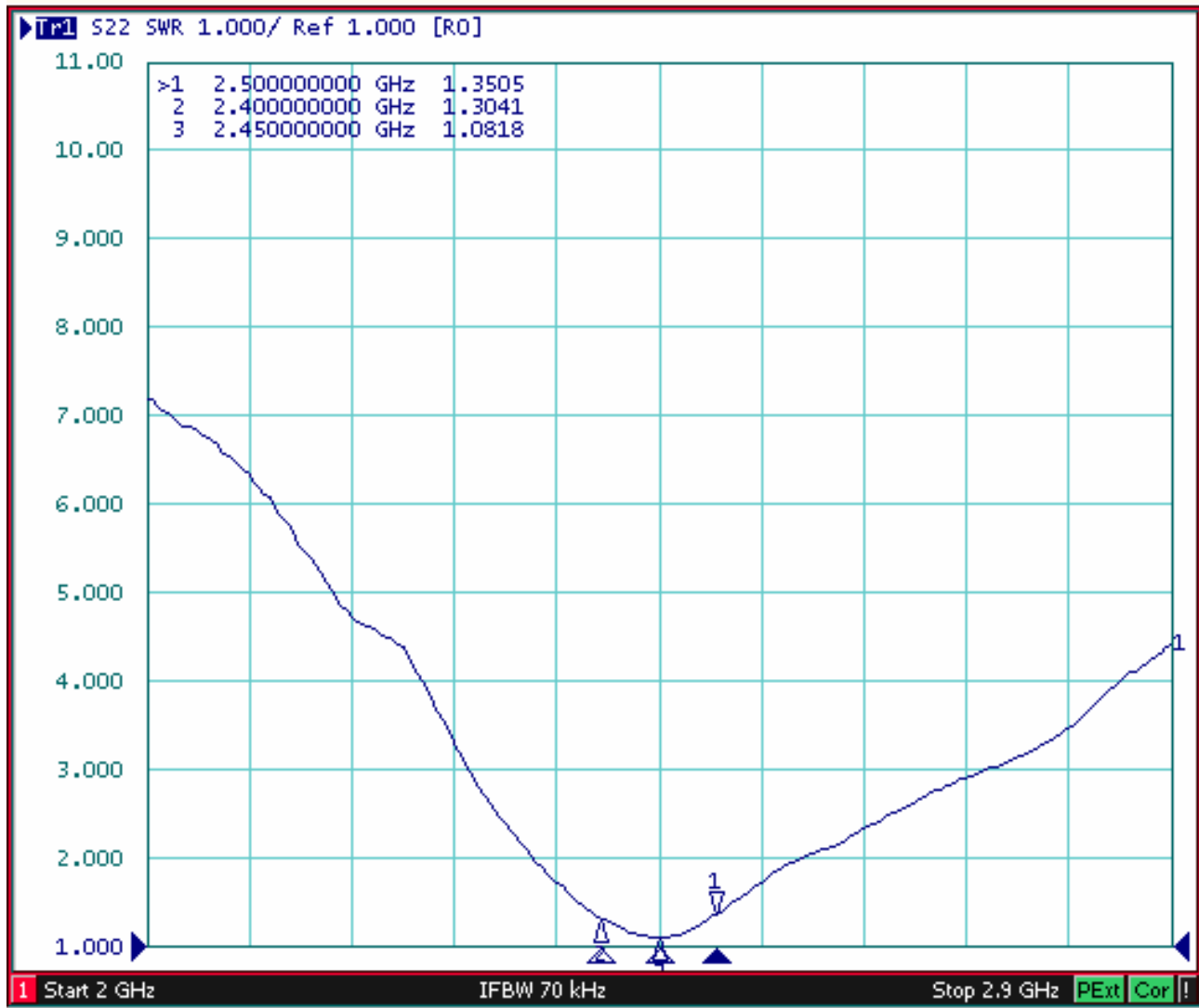
# Electrical Properties

## Return Loss



# Electrical Properties

## V.S.W.R



# Electrical Properties

## Radiation Pattern – YZ Plane(Horizontal)

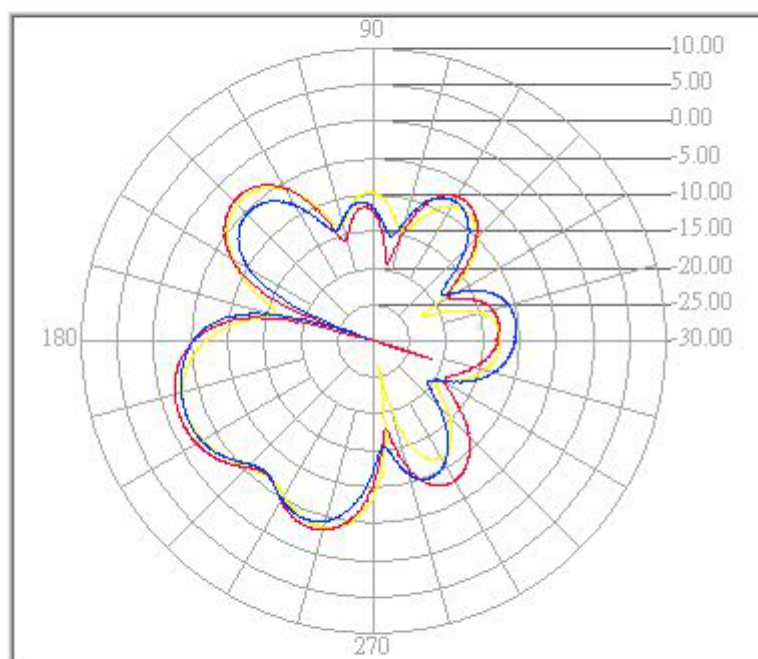


萬旭電業股份有限公司

**Model No:** PIFA 6

**Antenna Position:** Horizontal

**Test Mode:** YZ



| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
|-----------|-----------|----------|----------|
| 2400.00   | -2.48     | 201.72   | -7.91    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2450.00   | -1.54     | 202.03   | -7.22    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2490.00   | -2.45     | 202.34   | -8.14    |

Test engineer: \_\_\_\_\_

Test date: 2003/7/4      at PM 03:11

# Electrical Properties

## Radiation Pattern – YZ Plane (Vertical)

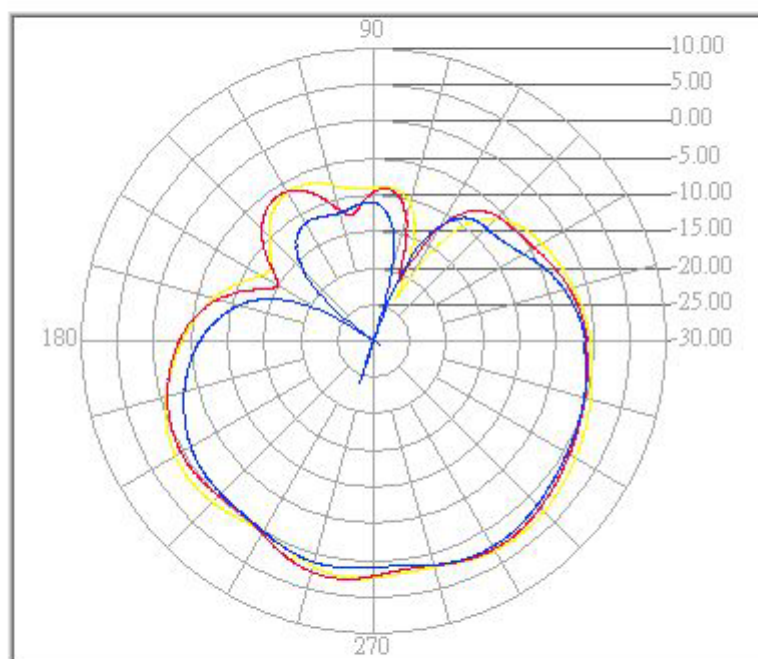


萬旭電業股份有限公司

Model No: PIFA 6

Antenna Position: Vertical

Test Mode: YZ



| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
|-----------|-----------|----------|----------|
| 2400.00   | 3.31      | 305.56   | -0.81    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2450.00   | 2.92      | 302.73   | -1.19    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2490.00   | 2.50      | 299.58   | -2.07    |

Test engineer: \_\_\_\_\_

Test date: 2003/7/4 at PM 03:08



# Electrical Properties

## Radiation Pattern – XY Plane (Horizontal)

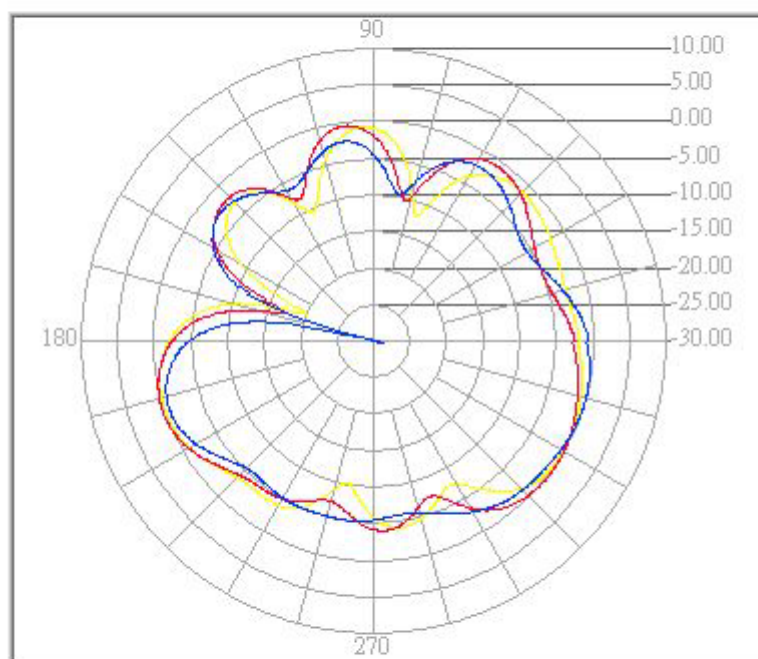


萬旭電業股份有限公司

Model No: PIFA 6

Antenna Position: Horizontal

Test Mode: XY



| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
|-----------|-----------|----------|----------|
| 2400.00   | 0.09      | 197.67   | -3.08    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2450.00   | 0.42      | 198.30   | -2.86    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2490.00   | 0.11      | 342.80   | -3.31    |

Test engineer: \_\_\_\_\_

Test date: 2003/7/4 at PM 02:53

# Electrical Properties

## Radiation Pattern – XY Plane (Vertical)

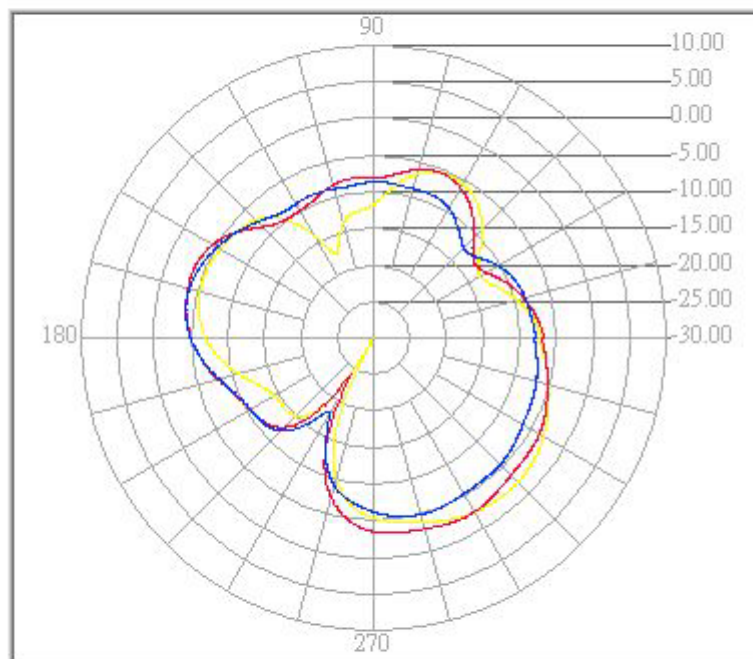


萬旭電業股份有限公司

Model No: PIFA 6

Antenna Position: Vertical

Test Mode: XY



| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
|-----------|-----------|----------|----------|
| 2400.00   | -2.03     | 312.27   | -6.84    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2450.00   | -2.46     | 297.61   | -6.20    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2490.00   | -3.90     | 166.59   | -7.49    |

Test engineer: \_\_\_\_\_

Test date: 2003/7/4 at PM 03:01

# Electrical Properties

## Radiation Pattern – XZ Plane (Horizontal)

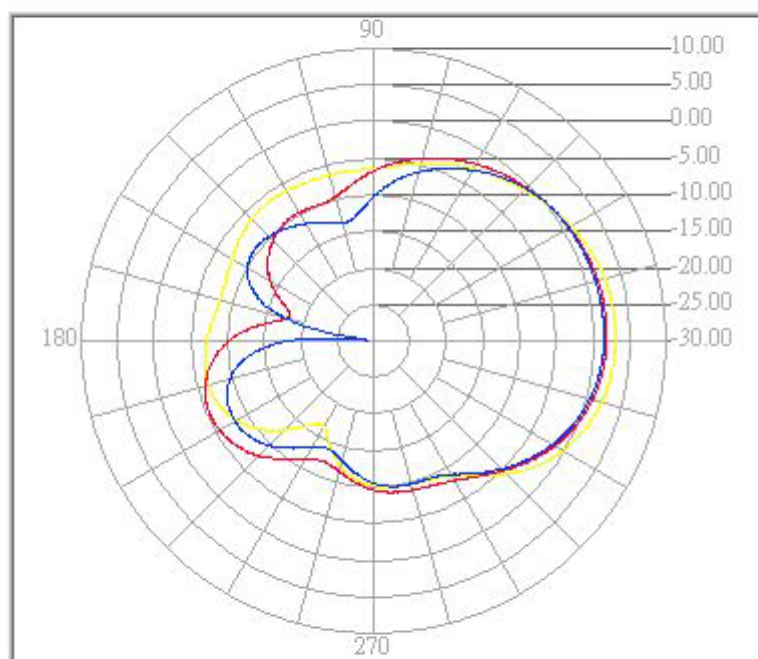


萬旭電業股份有限公司

Model No: PIFA 6

Antenna Position: Horizontal

Test Mode: XZ



| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
|-----------|-----------|----------|----------|
| 2400.00   | 3.09      | 3.41     | -2.92    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2450.00   | 1.91      | 6.83     | -3.63    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2490.00   | 1.54      | 7.76     | -4.26    |

Test engineer: \_\_\_\_\_

Test date: 2003/7/4 at PM 03:19

# Electrical Properties

## Radiation Pattern – XZ Plane (Vertical)

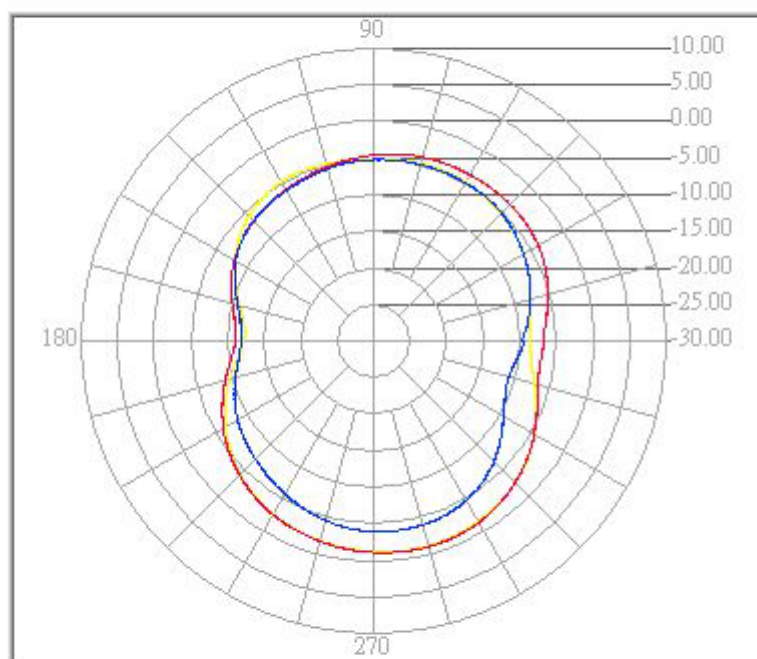


萬旭電業股份有限公司

Model No: PIFA 6

Antenna Position: Vertical

Test Mode: XZ



| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
|-----------|-----------|----------|----------|
| 2400.00   | -1.00     | 283.34   | -4.62    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2450.00   | -0.86     | 283.34   | -4.24    |
| Freq(MHz) | peak(dBi) | Angle(o) | Avg(dBi) |
| 2490.00   | -3.87     | 274.97   | -6.52    |

Test engineer: \_\_\_\_\_

Test date: 2003/7/4 at PM 03:23

# Material Data Sheet

## Mini-1.13 Coaxial Cable

### SPECIFICATION FOR APPROVAL

DOCUMENT: A3132SP001

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STYLE : 200°C 30V

---

SIZE: 32AWG×1C  
SP 7/0.080 1.13 mm

---

RECOGNIZED:

---

#### WONDERFUL HI-TECH CO.,LTD.

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

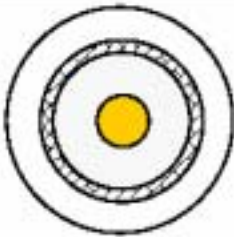
TEL : (02)22988033  
FAX : (02)22988031-2

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

TEL : (03)4527777  
FAX : (03)4517214

# WONDERFUL HI-TECH CO., LTD.

## SPECIFICATION

|            |                                                                                     |                                 |
|------------|-------------------------------------------------------------------------------------|---------------------------------|
| STYLE      | 200℃ 30V<br>COAXIAL                                                                 | DOCUMENT NO :<br>A3132SP001     |
| SIZE       | 32AWG                                                                               | ESTABLISHED DATE:<br>2003/01/16 |
| STANDARD : |                                                                                     |                                 |
| Conductor  | Size                                                                                | AWG 32                          |
|            | Material                                                                            | ---- Silver-Coated Copper       |
|            | Conductors No.                                                                      | ---- 7                          |
|            | Conductors Size                                                                     | mm 0.080                        |
|            | O.D.                                                                                | mm 0.240                        |
| Insulation | Average Thickness                                                                   | mm 0.22                         |
|            | Diameter                                                                            | mm $0.68 \pm 0.02$              |
|            | Material                                                                            | ---- FEP                        |
|            | Color                                                                               | ---- Clear                      |
| Braid      | Material                                                                            | ---- Silver-Coated Copper       |
|            | Construction                                                                        | mm 16 / 4 / 0.050               |
|            | Cross No.                                                                           | ---- 20                         |
|            | Coverage                                                                            | % 90                            |
| Jacket     | Average Thickness                                                                   | mm 0.13                         |
|            | Diameter                                                                            | mm $1.13 \pm 0.05$              |
|            | Material                                                                            | ---- FEP                        |
|            | Color                                                                               | ---- According to custom        |
| Marking    | NON                                                                                 |                                 |
| Drawing    |  |                                 |



# WONDERFUL HI-TECH CO., LTD.

## SPECIFICATION

| Electrical & Physical Properties |        |                      |                                             |        |        |        |
|----------------------------------|--------|----------------------|---------------------------------------------|--------|--------|--------|
| Item                             |        | 32AWG                |                                             |        |        |        |
| Rating Temp Voltage              |        | 200°C 30V            |                                             |        |        |        |
| Conductor Resistance             |        | 545 OHM/KM/20°C 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 <sup>2</sup> ) |        |        |        |
|                                  |        | 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 <sup>2</sup> ) |        |        |        |
|                                  |        | Elongation           | 200% MIN.                                   |        |        |        |
|                                  | Aged   | Tensile Strength     | UNAGED MIN.75%(168HRS×232°C)                |        |        |        |
|                                  |        | Elongation           | UNAGED MIN.75%(168HRS×232°C)                |        |        |        |
| Nom. Impedance                   |        | 50 ± 3 Ohms          |                                             |        |        |        |
| Nom. Capacitance                 |        | 96 ± 3 pF/m          |                                             |        |        |        |
| Nom. Vel. of Prop.               |        | 69%                  |                                             |        |        |        |
| VSWR Test (0 – 6 GHZ)            |        | Less 1.3             |                                             |        |        |        |
| Flame Test                       |        | VW-1 OK              |                                             |        |        |        |
| Attenuation (dB/1m)              |        | 100MHZ               | 400MHZ                                      | 1.8GHZ | 2.4GHZ | 5.2GHZ |
|                                  |        | 0.60                 | 1.25                                        | 2.23   | 2.70   | 4.15   |

# Material Data Sheet

SPTE

70: 長谷川

SHIPPING MARK  
品名: 鋼板

REFERENCE NO.:  
品名: 鋼板

CONTRACT NO.:  
品名: 鋼板

CUSTOMER: 統一實業股份有限公司  
CUSTOMER CONTROL NO.: 01121

SPECIFICATION: 315, 5 2503 5218 HL E2 - E2 2.4/2.5 C. 3.10 31.4 0.1.5

NOTE

品名: 鋼板  
MANUFACTURER: TONY INDUSTRIAL CORP.  
品名: 鋼板  
CERTIFICATE NO: 12612102  
品名: 鋼板  
DATE OF ISSUE: 2004.11.7

| 包號<br>PACKAGE NO. | 檢查號碼<br>INSPECTION NO. | 鋼板號碼<br>COR. NO. | 數量<br>LENGTH<br>CORRECT | 淨重<br>NET MASS | 毛重<br>GROSS MASS | COATING WEIGHT |     | CHEMICAL COMPOSITION (%) |     |     |      |  |
|-------------------|------------------------|------------------|-------------------------|----------------|------------------|----------------|-----|--------------------------|-----|-----|------|--|
|                   |                        |                  |                         |                |                  | TOP            | BOT | C                        | Mn  | P   | S    |  |
| 1                 | 121121012<br>121121    | 013183112<br>1   | 218.7<br>218.2          | 7201<br>7201   | 7601<br>7601     |                |     | 51.2                     | 5.2 | 1.1 | 0.02 |  |

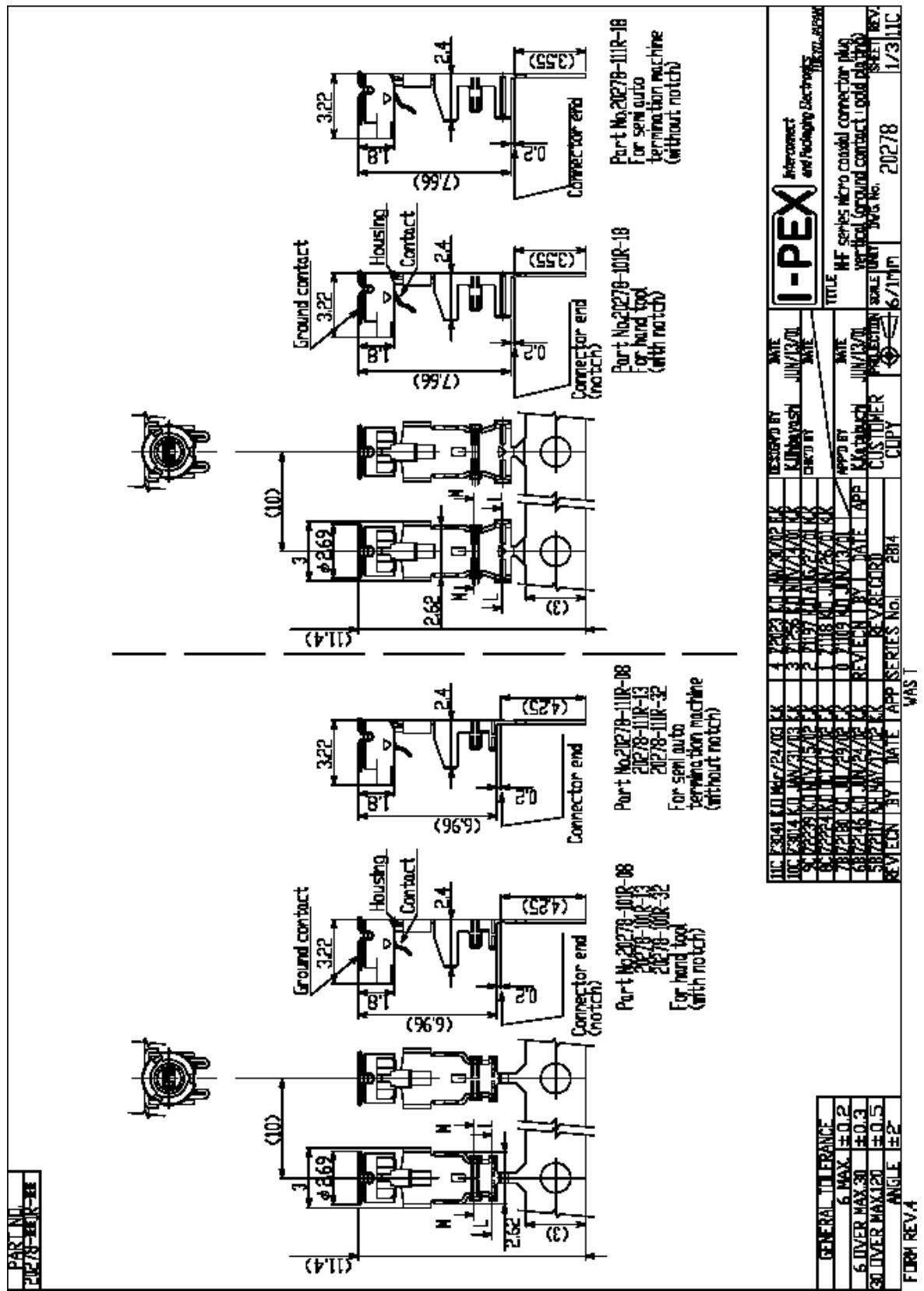


品名: 鋼板  
COR. LENGTH UNIT: Meter/Feet  
NET MASS UNIT: KG/LB  
GROSS MASS UNIT: KG/LB  
COR. NO. UNIT: Rockwell Superficial Hardness Test  
COATING WEIGHT UNIT: TENS: g/m<sup>2</sup>/m (0.001)

C. H. Lee  
MANAGER, INSPECTION



## MHF Connector



## MHF Connector

| Part No.                                   | 20270-100R-08<br>20270-100R-09                                                      | 20270-100R-13<br>20270-100R-13                                                               | 20270-100R-22<br>20270-100R-22                                                      | 20270-100R-38<br>20270-100R-38                                                      |
|--------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Applicable cable nominal dimension         | 2.09±0.1<br>1.25±0.1<br>1.16±0.1<br>φ0.81 Nominal<br>φ0.65<br>φ0.4<br>ANSI/ICEA-609 | 2.09±0.1<br>1.25±0.1<br>1.16±0.1<br>φ1.13 Nominal<br>φ0.93<br>φ0.68<br>φ0.4<br>ANSI/ICEA-609 | 2.09±0.1<br>1.25±0.1<br>1.16±0.1<br>φ1.12 Nominal<br>φ0.66<br>φ0.4<br>ANSI/ICEA-609 | 2.09±0.1<br>1.25±0.1<br>1.16±0.1<br>φ1.8 Nominal<br>φ1.35<br>φ0.84<br>ANSI/ICEA-609 |
| Jacket                                     |                                                                                     |                                                                                              |                                                                                     |                                                                                     |
| Insulated shield of outer conductor 外導体の被覆 |                                                                                     |                                                                                              |                                                                                     |                                                                                     |
| P/N of hand tool                           | 90187-008C                                                                          | 90187-013C                                                                                   | 90187-032C                                                                          | 90233-018                                                                           |
| P/N of semi auto termination machine       | 90213-008C                                                                          | 90213-013C                                                                                   | 90213-032C                                                                          | 90232-018                                                                           |
| Sect. M-M                                  |                                                                                     |                                                                                              |                                                                                     |                                                                                     |
| Sect. L-L                                  |                                                                                     |                                                                                              |                                                                                     |                                                                                     |
| Crimp Height                               | CH-1 1.34~1.40<br>CH-2 0.76~0.84<br>CH-3 0.85~0.97                                  | 1.34~1.40<br>1.06~1.14<br>1.15~1.35                                                          | 1.34~1.40<br>1.20~1.30<br>1.26~1.46                                                 | 1.34~1.40<br>1.41~1.49<br>1.70~1.80                                                 |

CH-1  
I-fit part  
Micrometer

CH-2  
Outer conductor part

CH-3  
Jacket part

## Crimp Height

**GENERAL TOLERANCE**

6 MAX ±0.2

6 OVER MAX ±0.3

30 OVER MAX ±0.5

ANGLE ±2°

DESIGNED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

REVIEW BY \_\_\_\_\_ DATE \_\_\_\_\_

RECORD BY \_\_\_\_\_ DATE \_\_\_\_\_

SERIES NO. 284

CUSTOMER COPY

Interconnect and Packaging Electronics

**I-PEX**

HF series micro coaxial connector plug

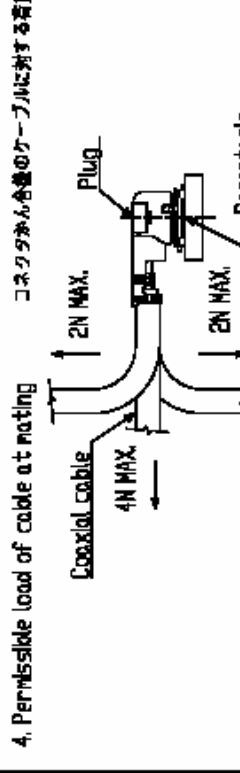
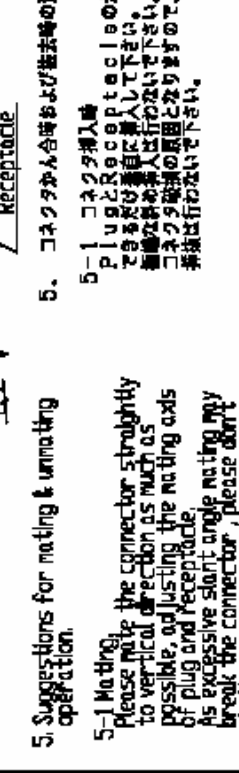
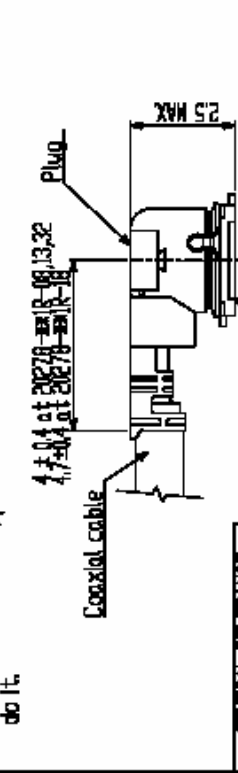
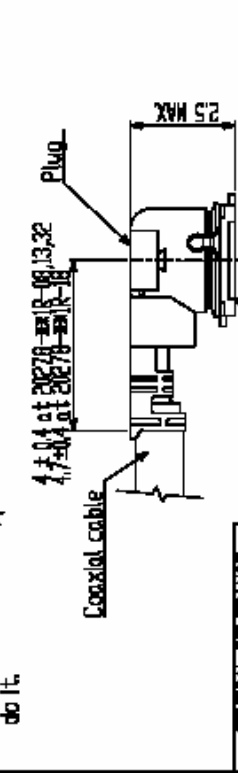
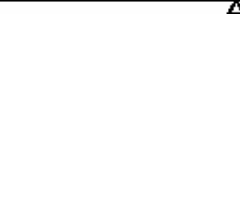
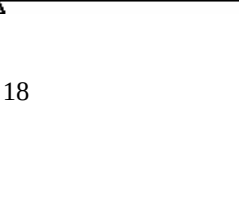
Vertical Ground Contact Loid plug

SCALE UNIT DIA No. 20278 2/3 MIC

FORM REV.4

# Material Data Sheet

## MHF Connector

|                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                          |                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Notes</p> <p>1. Material<br/>         (1) Housing: PBT, UL94V-0, black<br/>         (2) Contact<br/>         phosphor bronze<br/>         gold plating<br/>         (3) Ground contact<br/>         phosphor bronze, gold plating<br/>         2. Packing: reel<br/>         3. Mating part No.<br/>         120279-001E-01</p> | <p>1. 材質<br/>         (1) ハウジング: PBT, UL94V-0, 黒色<br/>         (2) コネクタ<br/>         : 金メッキ<br/>         (3) グランドコネクタ<br/>         : 金メッキ<br/>         2. 梱包 : リール<br/>         3. 対応する Mating part No.<br/>         : 20279-001E-01</p> | <p>4. Permissible load of cable at mating<br/>         コネクタから合装のケーブルに対する荷重</p>  | <p>5. Suggestions for mating &amp; unmating operation.<br/>         5-1 Mating:<br/>         Please mate the connector straightly to vertical direction as much as possible, adjusting the mating axis of plug and receptacle.<br/>         As excessive slant angle mating may break the connector, please don't do it.</p>  | <p>5-2 Unmating:<br/>         (1) In case of unmating by pulling tool.<br/>         Please use the pulling tool as the following drawing, and please pull plug to vertical direction as directly as possible.</p>  <p>(2) In case of unmating directly by hand.<br/>         Please catch the catching area of plug and please pull plug to vertical direction as directly as possible.</p>  | <p>5-2 コネクタ抜き時<br/>         (1) 抜きゾグを用いる場合<br/>         下図の図に従って下さい。<br/>         垂直に引き抜いて下さい。</p> <p>(2) 手で直接引き抜く場合<br/>         下の図の図に従って下さい。<br/>         捕捉部に手をかけ、垂直に引き抜いて下さい。</p> |
| <p>1. Material<br/>         (1) Housing: PBT, UL94V-0, black<br/>         (2) Contact<br/>         phosphor bronze<br/>         gold plating<br/>         (3) Ground contact<br/>         phosphor bronze, gold plating<br/>         2. Packing: reel<br/>         3. Mating part No.<br/>         120279-001E-01</p>              | <p>1. 材質<br/>         (1) ハウジング: PBT, UL94V-0, 黒色<br/>         (2) コネクタ<br/>         : 金メッキ<br/>         (3) グランドコネクタ<br/>         : 金メッキ<br/>         2. 梱包 : リール<br/>         3. 対応する Mating part No.<br/>         : 20279-001E-01</p> | <p>4. Permissible load of cable at mating<br/>         コネクタから合装のケーブルに対する荷重</p>  | <p>5. Suggestions for mating &amp; unmating operation.<br/>         5-1 Mating:<br/>         Please mate the connector straightly to vertical direction as much as possible, adjusting the mating axis of plug and receptacle.<br/>         As excessive slant angle mating may break the connector, please don't do it.</p>  | <p>5-2 Unmating:<br/>         (1) In case of unmating by pulling tool.<br/>         Please use the pulling tool as the following drawing, and please pull plug to vertical direction as directly as possible.</p>  <p>(2) In case of unmating directly by hand.<br/>         Please catch the catching area of plug and please pull plug to vertical direction as directly as possible.</p>  | <p>5-2 コネクタ抜き時<br/>         (1) 抜きゾグを用いる場合<br/>         下図の図に従って下さい。<br/>         垂直に引き抜いて下さい。</p> <p>(2) 手で直接引き抜く場合<br/>         下の図の図に従って下さい。<br/>         捕捉部に手をかけ、垂直に引き抜いて下さい。</p> |