

客戶名稱：  
CUSTOMER

**Qisda**

Document No.: ENS000103820

Approval Sheet Rev.: A0

Spec. Rev. : P0

**承認書**

**APPROVAL SHEET**

產品品名/Product Model No. : WA-P-LB-02-485  
Model:PUCK

客戶料號/Customer No. : 2E.93Q70.001

發行日期/ Issue Date : 2017/09/29

承認日期/ Approved Date : \_\_\_\_\_

**Approved by customer: (signing or stamping here)**



佳邦科技股份有限公司  
INPAQ TECHNOLOGY CO., LTD.

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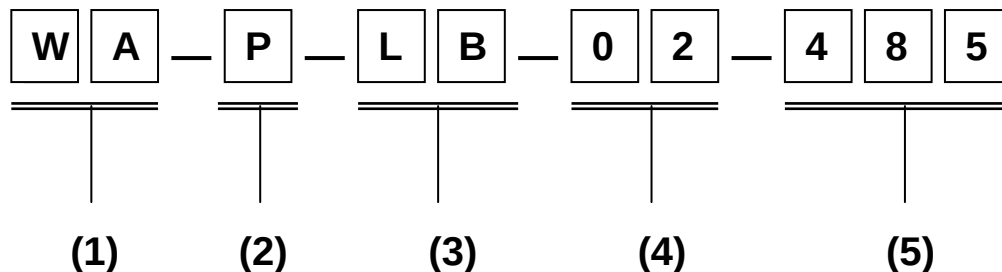
4F, No. 27, Keya Road, Daya Dist., Taichung City  
428, Taiwan, R.O.C.

Tel. : +886-4-25606555

Fax : +886-4-25605151

## Embedded WiFi-Band Antenna for WA-P-LB-02-485

### 1. Explanation of part number :



- (1) Product type : WIFI Antenna  
 (2) Antenna type : PCB type  
 (3) Frequency : 2400~2500 MHz 5150~5850 MHz  
 (4) Coaxial Cable Type : Black (length : 90 mm)  
 (5) Suffix : 485

### 2. Electrical Specification :

| Electrical Specification |                                  |
|--------------------------|----------------------------------|
| Frequency Range          | 2400~2500 MHz 5150~5850 MHz      |
| Antenna Type             | PCB                              |
| Impedance                | 50 ohm                           |
| Efficiency               | ≥ 40 %                           |
| Antenna Size             | 57.1 x12.3 x 0.8 mm <sup>3</sup> |
| Cable                    | I-PEX 1.13, Black, 90 mm         |

Those specifications were specially defined for model, and all characteristics were measured with the fixture.

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:吳政達

CHECKED BY:林純正

DESIGNED BY:林亨倫

APPROVED BY:陳彥銘

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TITLE : Embedded WiFi-Band Antenna for  
WA-P-LB-02-485

DOCUMENT  
NO.

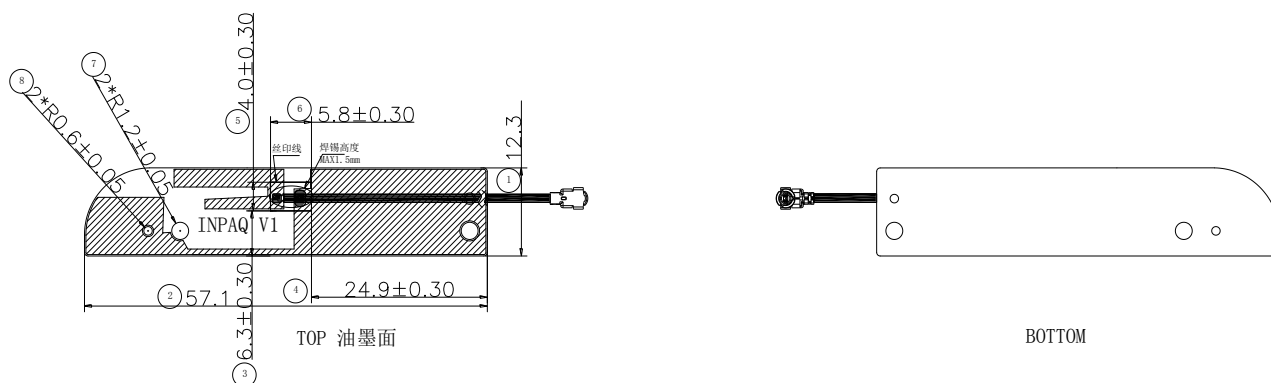
ENS000103820

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P0

### 3. Mechanical Specification :

### 3. Mechanical Configuration :

ASSY DRAWING(成品图, 球标尺寸为重点尺寸)

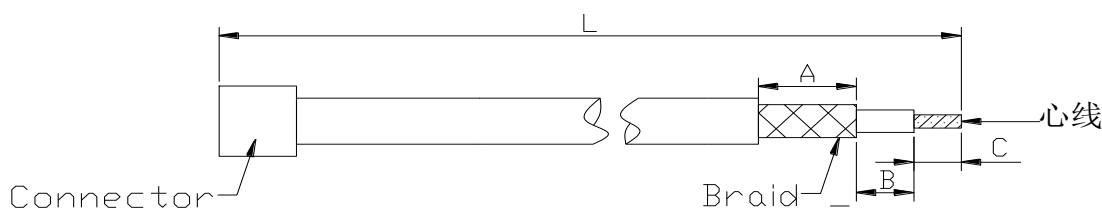


未标注公差±0.15mm

T=0.8±0.1mm

接头方向依图档

### Cable Length:



Connector : I-PEXMHF ; Cable : RF Cable 1.13 (黑色)

L : 90±2mm A : 1.5±0.5 mm B : 2.0±0.5mm C : 1.0±0.5m

| ITEM | DESCRIPTION | MATERIAL SPECIFICATION           | QUANTITY | UNIT |
|------|-------------|----------------------------------|----------|------|
| 1    | PCB         | 57.1 x12.3 x 0.8 mm <sup>3</sup> | 1        | PCS  |
| 2    | Cable       | φ 1.13                           | 1        | PCS  |
| 3    | Connector   | I-PEX MHF 1                      | 1        | PCS  |

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=N/A X.X=N/A X.XX=N/A

ANGLES=N/A HOLEDIA=N/A



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## 4. VSWR :



6/22/2017 9:44:01 AM  
1311.6010K42-106416-gr

Trc2 — S11 SWR 1 U/ Ref 1 U Cal int Offs

1



## 5. Gain and Radiation Pattern

### 5.1 Measure method

1. Using a coaxial cable to link a standard fixture
2. Fixed this fixture on chamber's rotator plane
3. Linking fixture into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=N/A      X.X=N/A      X.XX=N/A  
ANGLES=N/A      HOLEDIA=N/A



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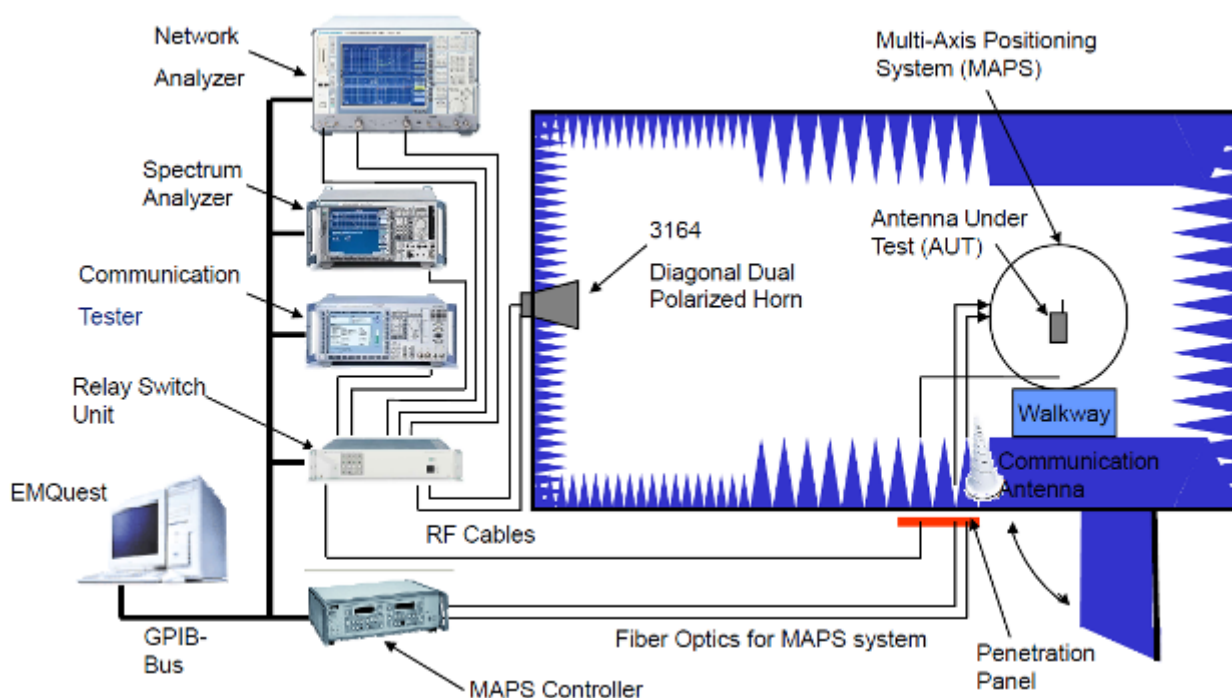
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## 5.2 Chamber definition :



1. An anechoic chamber (10mx3mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet room region is 50cmx50cmx50cm at the center of rotator
3. The distance between DUT and standard antenna is 9.14m
4. Two measurement antennas is 3164-06 (300MHz - 6GHz) and 3164-05 (2 - 18GHz)

UNLESS OTHER SPECIFIED TOLERANCES ON :  
 X=N/A      X.X=N/A      X.XX=N/A  
 ANGLES=N/A      HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

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### 5.3 Gain data and radiation pattern :

Antenna gain is marked [dBi] and is based on STANDARD HORN antenna. The data shows Peak-Gain and Average-Gain.

| Frequency(MHz) | Peak Gain(dBi) | Average Gain(dBi) | Efficiency (%) |
|----------------|----------------|-------------------|----------------|
| 2400           | 2.8            | -2.87             | 51.7           |
| 2410           | 2.71           | -2.82             | 52.26          |
| 2420           | 2.95           | -2.65             | 54.37          |
| 2430           | 3.26           | -2.45             | 56.86          |
| 2440           | 3.41           | -2.37             | 57.92          |
| 2450           | 3.38           | -2.41             | 57.46          |
| 2460           | 3.44           | -2.34             | 58.37          |
| 2470           | 3.68           | -2.12             | 61.34          |
| 2480           | 3.66           | -2.17             | 60.71          |
| 2490           | 3.43           | -2.30             | 58.83          |
| 2500           | 2.74           | -3.06             | 49.41          |
| 5150           | 3.13           | -2.37             | 57.92          |
| 5200           | 3.23           | -2.27             | 59.34          |
| 5250           | 2.39           | -3.16             | 48.34          |
| 5300           | 2.38           | -3.19             | 47.94          |
| 5350           | 3.35           | -2.37             | 57.92          |
| 5400           | 3.03           | -2.87             | 51.66          |
| 5450           | 3.17           | -2.69             | 53.83          |
| 5500           | 3.42           | -2.62             | 54.71          |
| 5550           | 3.5            | -2.65             | 54.27          |
| 5600           | 3.46           | -2.73             | 53.39          |
| 5650           | 3.7            | -2.42             | 57.3           |
| 5700           | 3.39           | -2.55             | 55.61          |
| 5750           | 3.66           | -2.20             | 60.31          |
| 5800           | 3.69           | -1.92             | 64.3           |
| 5850           | 3.63           | -1.99             | 63.28          |

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=N/A      X.X=N/A      X.XX=N/A

ANGLES=N/A      HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:吳政達

CHECKED BY:林純正

DESIGNED BY:林亨倫

APPROVED BY:陳彥銘

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TITLE : Embedded WiFi-Band Antenna for  
WA-P-LB-02-485

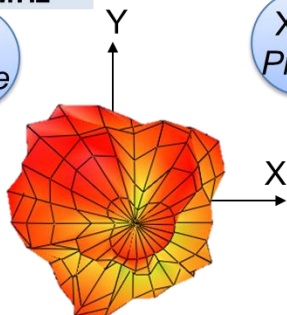
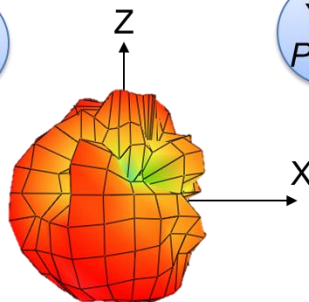
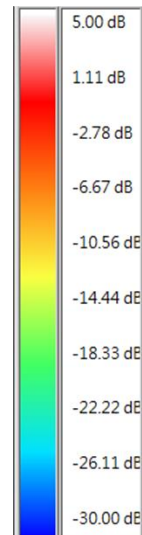
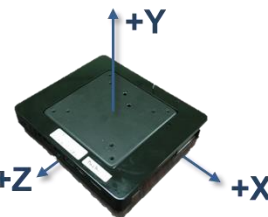
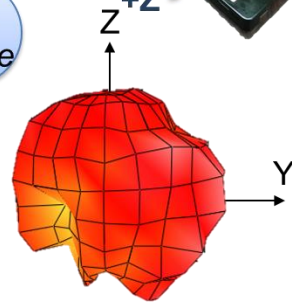
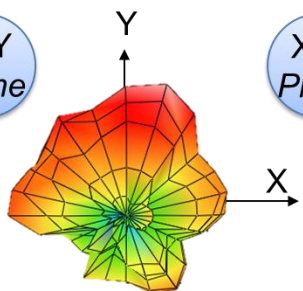
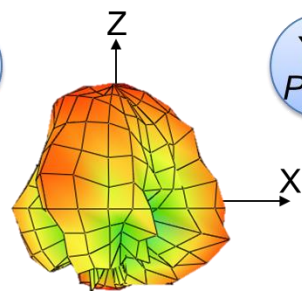
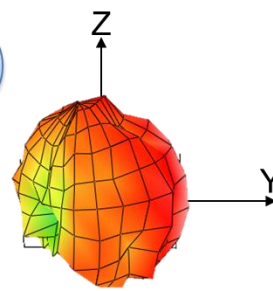
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## Radiation pattern

### PUCK WIFI ANTENNA DESIGN PERFORMANCE | RADIATION PATTERN

**2450 MHz**X-Y  
PlaneX-Y  
PlaneY-Z  
Plane**5500 MHz**X-Y  
PlaneX-Y  
PlaneY-Z  
Plane

UNLESS OTHER SPECIFIED TOLERANCES ON :  
X=N/A      X.X=N/A      X.XX=N/A  
ANGLES=N/A      HOLEDIA=N/A



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY:吳政達

CHECKED BY:林純正

DESIGNED BY:林亨倫

APPROVED BY:陳彥銘

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WA-P-LB-02-485

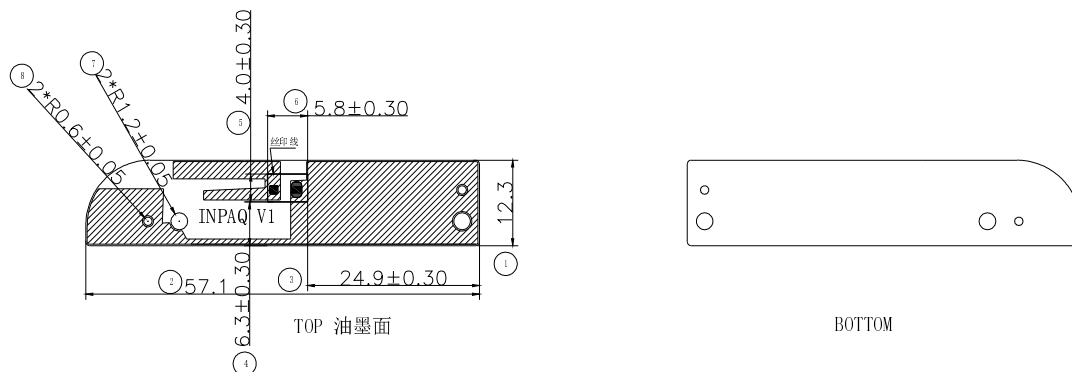
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NO.

ENS000103820

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P0

# PCB,T0.8MM,WA-P-LB-03-073

1. 品名: PCB, T0. 8MM, WA-P-LB-03-073
2. 檔名: PCB, T0. 8mm WA-P-LB-03-073 V1 20170221
3. 外观等级: Class2
4. 规格:



未标注公差±0.15mm

| 项次 | 项目       | 验收规格        |
|----|----------|-------------|
| A  | Item     | PCB         |
| B  | Material | FR4         |
| C  | Layer    | SS          |
| D  | Copper   | 0.5oz       |
| E  | W        | 12.3±0.15mm |
| F  | L        | 57±0.15mm   |
| G  | T        | 0.80±0.10mm |

备注 : 1. 表面为 OSP 处理 , 绿油油墨, 白字印字

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=±

X.X=±

X.XX=±

ANGLES=±

HOLE DIA=±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY : 余骏

CHECKED BY : 李志强

DESIGNED BY : 张冲

APPROVED BY : 胡志清

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TITLE: PCB,T0.8MM,WA-P-LB-03-073 材规

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NO.

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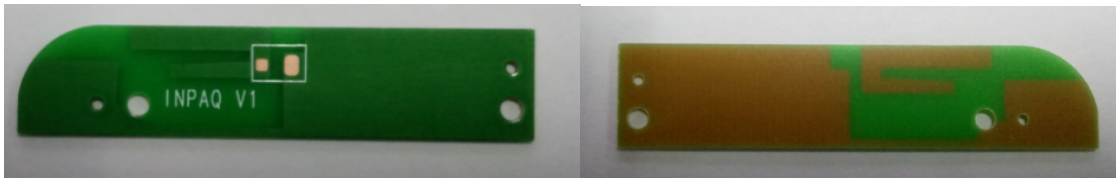
5. 储存条件:

- 5.1 储存环境: 5 ~ 30℃
- 5.2 有限期限: 一年

5.2.1 开封后限期缩短 ☒无 ☐有 \_\_ (拆封后剩余物料仍需继续真空包装)

5.2.2 暴露空气存储期限: 48 小时 (环境温度较高时需尽快用完)

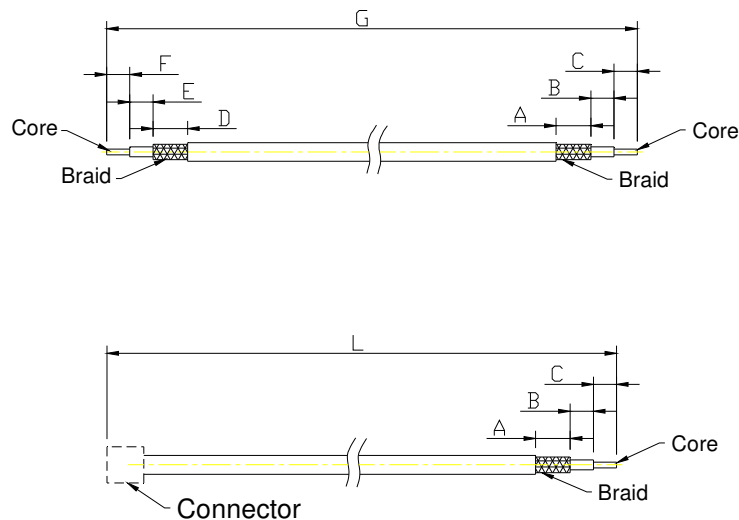
6. 实物图:



|                                                                                                                    |                   |                                                                                                                                                                                                       |                 |
|--------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| UNLESS OTHER SPECIFIED TOLERANCES ON :<br>X=±            X.X=±            X.XX=±<br>ANGLES=±            HOLE DIA=± |                   |  INPAQ TECHNOLOGY CO., LTD.                                                                                        |                 |
| SCALE : N/A                                                                                                        | UNIT : mm         | THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION |                 |
| DRAWN BY : 余骏                                                                                                      | CHECKED BY : 李志强  |                                                                                                                                                                                                       |                 |
| DESIGNED BY : 张冲                                                                                                   | APPROVED BY : 胡志清 |                                                                                                                                                                                                       |                 |
| TITLE: PCB,T0.8MM,WA-P-LB-03-073 材规                                                                                |                   | DOCUMENT NO.                                                                                                                                                                                          | PAGE REV.<br>A0 |

1. 品名: CNC I-PEX MHF+RF CABLE 1.13\_90mm ,1.5/2.0/1.0 (Black)

2. Cable Dimension :



Connector : I-PEX MHF , Cable : RF Cable 1.13 (Black)

|               |                 |
|---------------|-----------------|
| L : 90±2.0mm  | D : 0.84±0.2mm  |
| A : 1.5±0.5mm | E : 1.25±0.2mm  |
| B : 2.0±0.5mm | F : 1.16±0.2mm  |
| C : 1.0±0.5mm | G : 88.75±2.0mm |

3. 電性規格 :

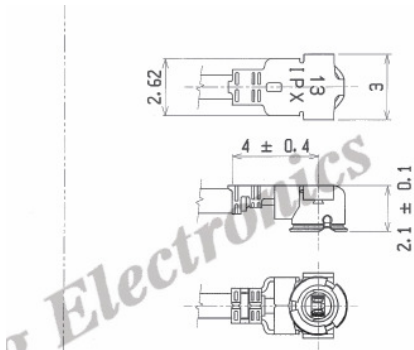
(1)

| 尺寸規格     | Signal Loss |
|----------|-------------|
| 90±2.0mm | ≤ 2.0dB     |

(2)短路/斷路測試：(使用三用電表量測)

- 心線與 Braidwires 間不可短路。
- Connector 之 Ground 與線路另一端之 Braidwires 間不可斷路。
- Connector 之心線與線路另一端之心線間不可斷路。

4. Connector appearance :



UNLESS OTHER SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX =  
ANGLES = ±      HOLE DIA = ±

SCALE : N/A

UNIT : mm

DRAWN BY:吳政達

CHECKED BY:林純正

DESIGNED BY:林亨倫

APPROVED BY:陳彥銘

TITLE : CNC I-PEX MHF+RF CABLE 1.13\_90  
mm ,1.5/2.0/1.0 (Balck)



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5. 儲存條件：

5.1 儲存環境：5 ~ 30℃，≤60%RH。

5.2 有限期限：一年

5.2.1 開封後限期縮短 ☒無 ☐有 \_\_\_\_\_

6. 過期重驗：

☒是：項次 3

☐否

UNLESS OTHER SPECIFIED TOLERANCES ON：

X = ±                  X.X = ±                  X.XX =  
A N G L E S = ±                  H O L E   D I A = ±



**INPAQ TECHNOLOGY CO., LTD.**

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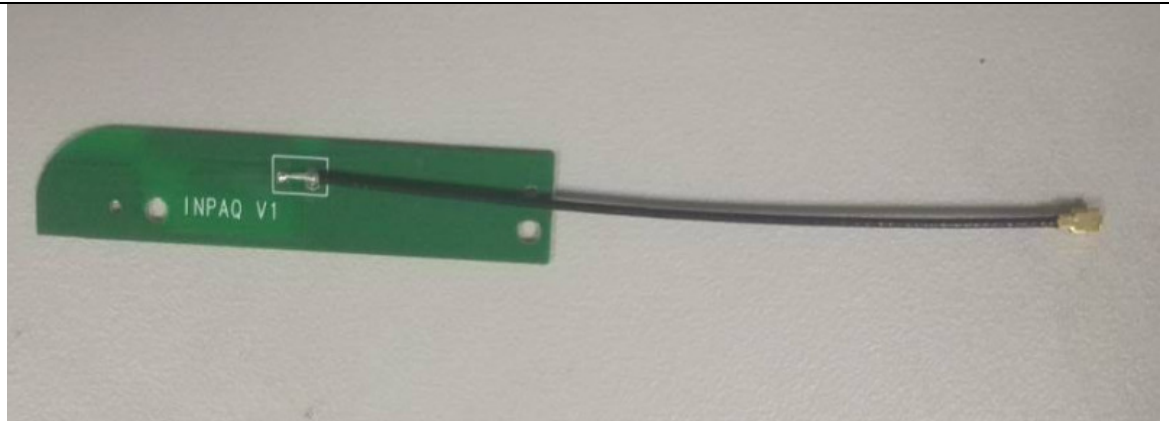
TITLE：CNC I-PEX MHF+RF CABLE 1.13\_90  
mm ,1.5/2.0/1.0 (Balck)

DOCUMENT  
NO.

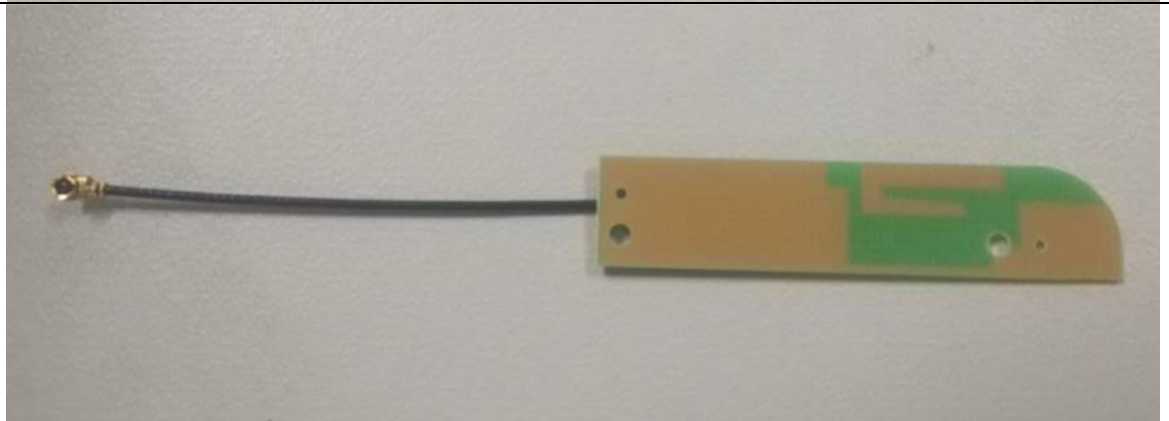
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正面  
圖片



反面  
圖片



**If you have any inquiry, please do not hesitate to ask.**