

# APPROVAL SHEET

CUSTOMER：突破通訊股份有限公司

MODEL NO.：IWF-242I-319

DESCRIPTION：2.4GHz Flying Lead  
Swivel Antenna

Customer Approval

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士誼科技事業股份有限公司  
**JOYMAX ELECTRONICS CO.,LTD.**

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**1. Description:**

The antenna is a flying lead swivel and  $1/4 \lambda$  dipole antenna. It's useful for the ISM Band of 2.4~2.5 GHz.

**2. Electrical Properties**

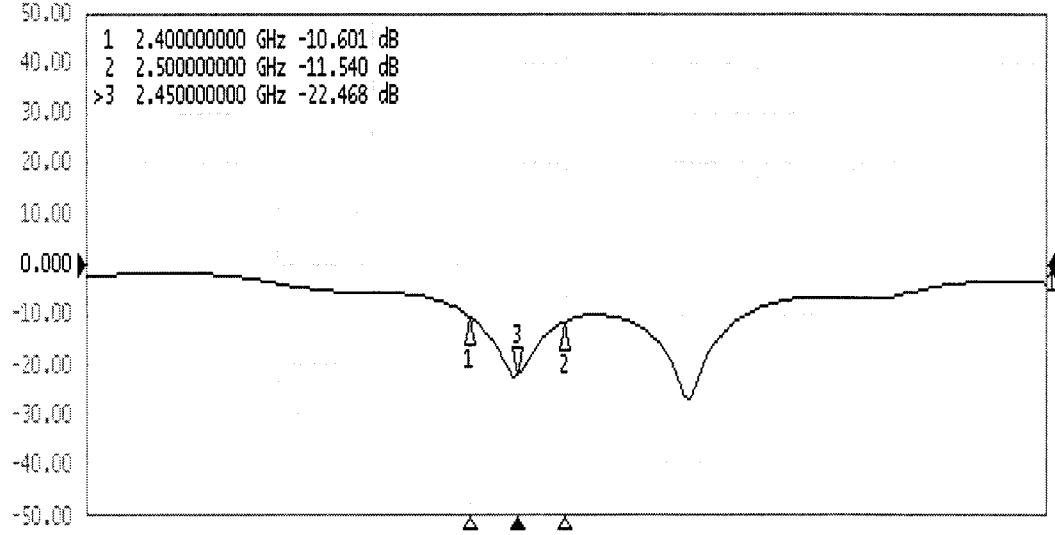
2-1 Frequency Range.....	2.4~2.4835GHz
2-2 Impedance.....	50 Ohms nominal
2-3 SWR.....	$\leq 2.0$
2-4 Return Loss.....	$\leq -10$ dB
2-5 Gain.....	2.0 dBi
2-6 Polarization.....	Vertical
2-7 Admitted Power.....	1W
2-8 Electrical Wave.....	$1/4 \lambda$ Dipole

**3. Mechanical Properties :**

3-1 Connector.....	MMCX PLUG
3-2 Cable.....	M17/93-RG178
3-3 Ferrite Core.....	RH04
3-4 Antenna Cover.....	Polyurethane
Antenna Base.....	Polycarbonate
3-5 Rotating Test.....	1.0 Kg-cm, After 2000 cycles with the rate of 30 cycles/minute(max.). It shall be possible to remain it's position.
3-6 Attachment Strength.....	2.0 Kg-cm

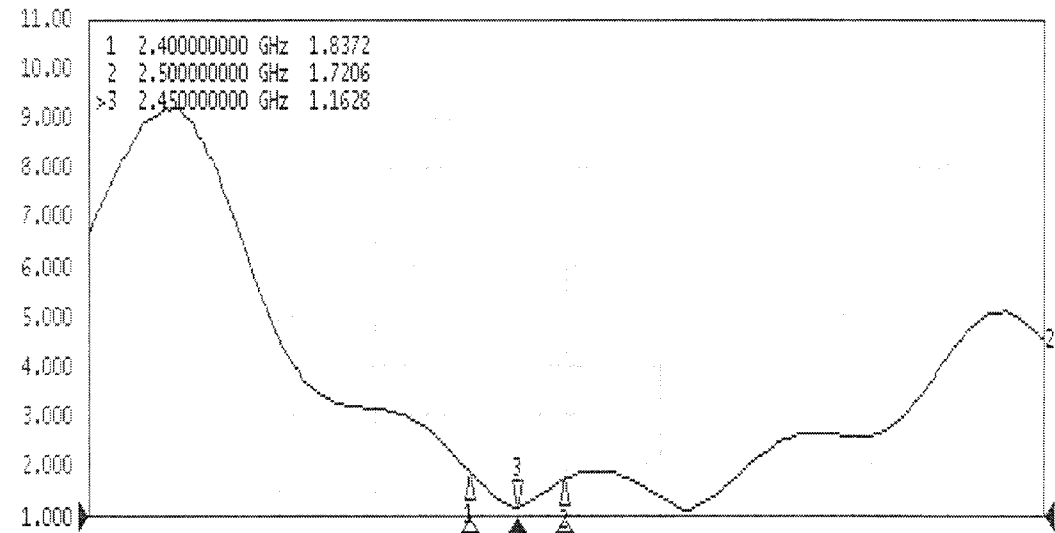
**Return Loss**

Tr1 S22 Log Mag 10.00dB/ Ref 0.000dB [R0]



**SWR**

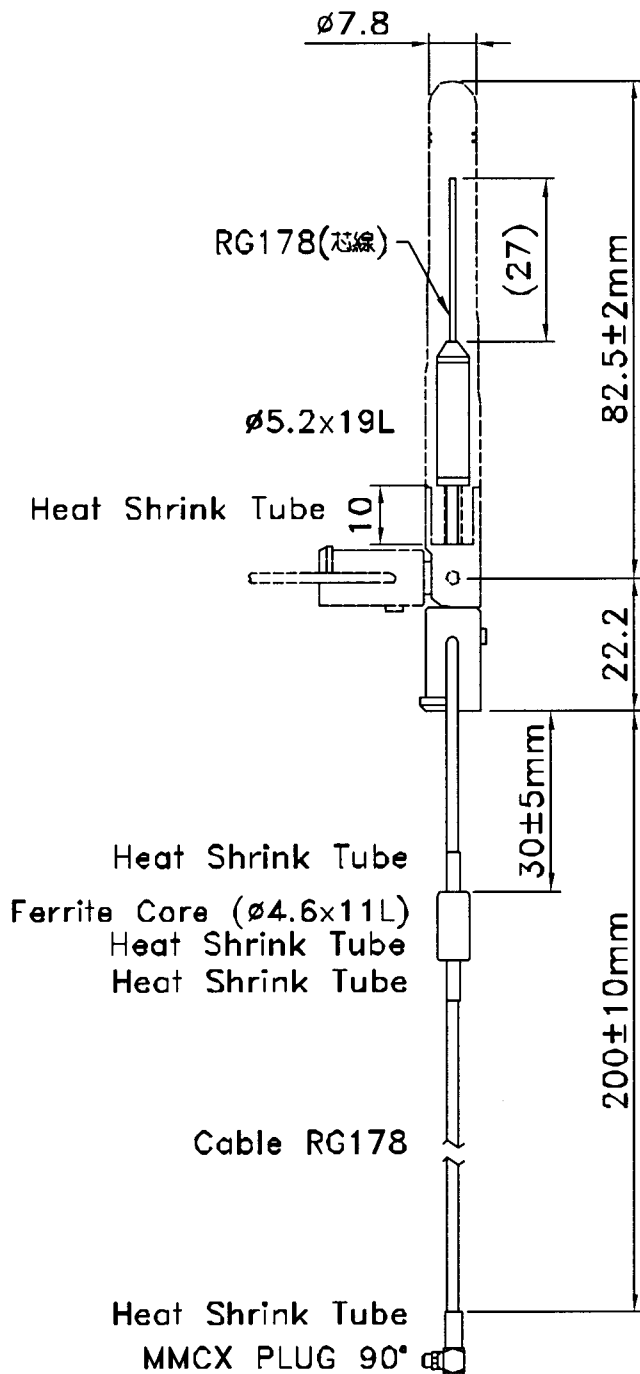
Tr2 S22 SWR 1.000/ Ref 1.000 [R0]



Start 2 GHz IFBW 70 kHz Stop 3 GHz Cor



工程 / 部品圖

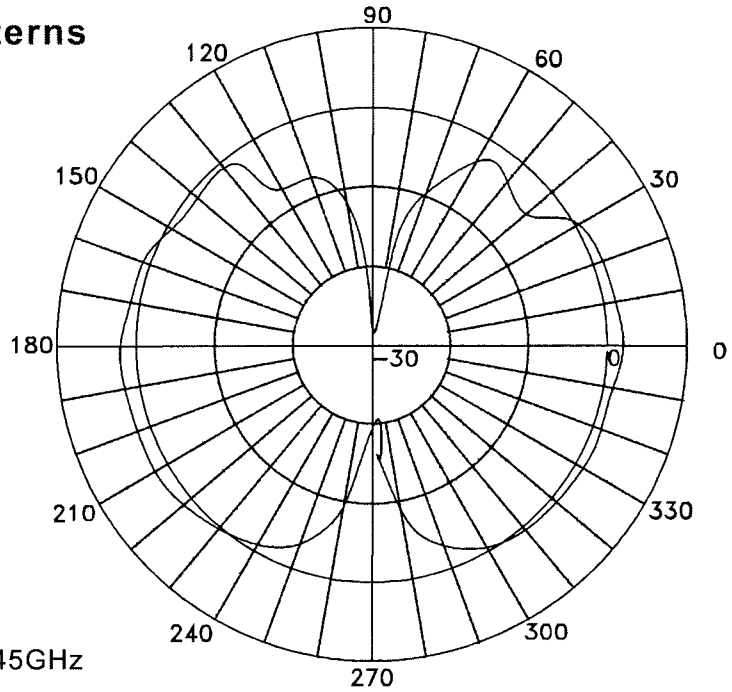


TOLERANCES:	
X	$\pm 1$
X.X	$\pm 0.5$
X.XX	$\pm 0.25$
ANG.	$\pm 2.0^\circ$

REV DESCRIPTION	MATERIAL	MODEL: IWF-242I-319		
	FINISH	NAME: Swivel Antenna		
	UNIT: mm	PART No: IWF-242I-319		
	SCALE: 1/ 1.2	DESIGN	APPROVE	REV
	DATE: 02/25/2003	K.Y.Liu		00

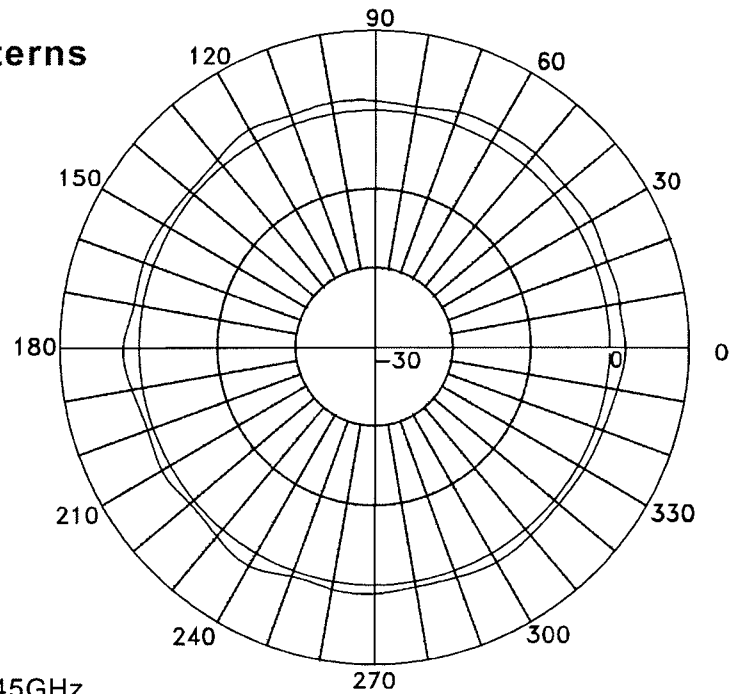
QP0502-01-02

**E-Plane Field Patterns**



Frequency: 2.45GHz

**H-Plane Field Patterns**



Frequency: 2.45GHz

**1. Description:**

The connector is a MMCX right angle plug crimp for RG178 cable.

**2. Electrical Properties**

2-1 Impedance.....	50 Ohms
2-2 Frequency Range.....	0~6 GHz
2-3 SWR.....	1.30 (Max.)
2-4 Working Voltage.....	170 V rms (Max.)
2-5 Dielectric Withstanding Voltage.....	500 V rms (Min.)
2-6 Insulation Resistance.....	1000 Megohms
2-7 Contact Resistance.....	Center contact: 5.0 Milliohms (Max.) Outer contact: 2.5 Milliohms (Max.)
2-8 Insertion Loss.....	0.3 dB

**3. Mechanical Properties :**

3-1 Engagement Force.....	8 lbs. (Max.)
3-2 Disengagement Force.....	1.4 lbs. (Min.)
3-3 Contact Retention.....	2.0 lbs. (Min.) axial force
3-4 Durability.....	500 Cycles (Min.)

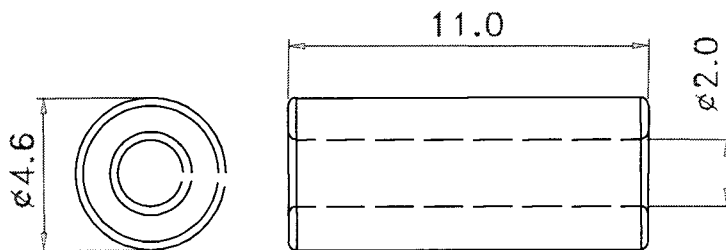
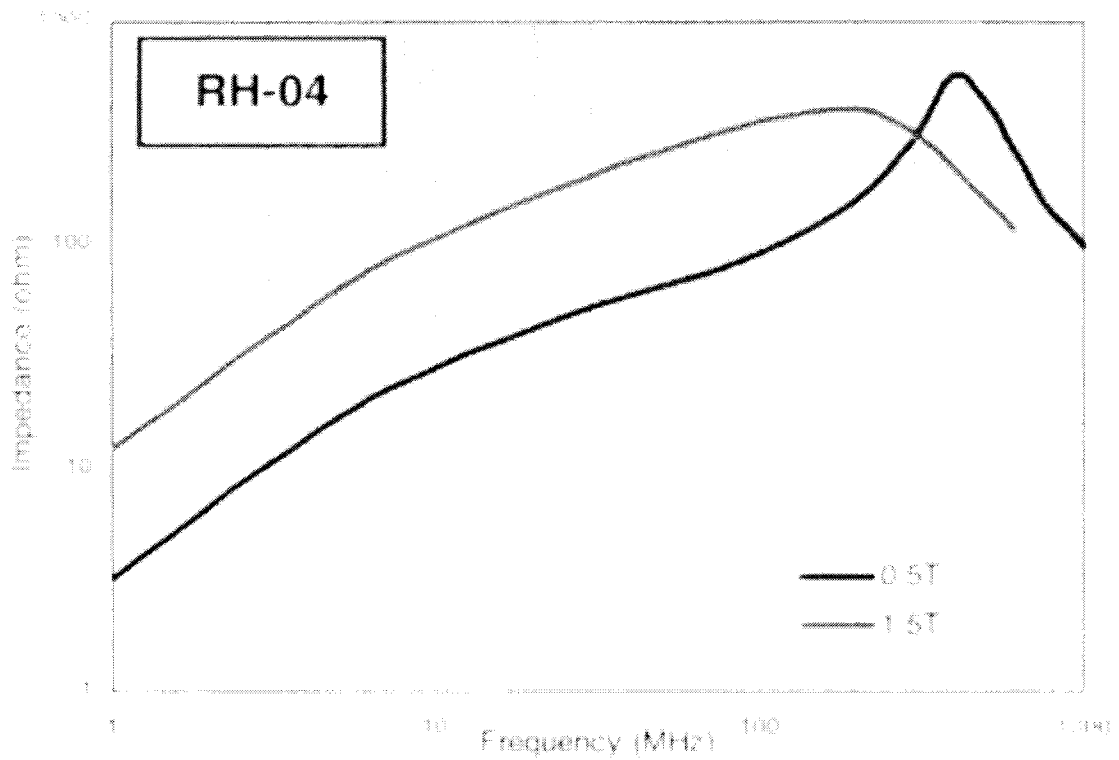
**4. Environmental Ratings**

4-1 Operating Temperature.....	-65°C ~ +165°C
4-2 Thermal Shock.....	MIL-STD-202, Method 107, Condition C, Except -55°C ~ +155°C
4-3 Corrosion.....	MIL-STD-202, Method 101, Condition B
4-4 Shock.....	MIL-STD-202, Method 213, Condition B
4-5 Vibration.....	MIL-STD-202, Method 204, Condition D
4-6 Moisture Resistance.....	MIL-STD-202, Method 106

**5. Material Specifications**

5-1 Body.....	Brass Per JIS H3250 C3604 BD, Gold Plated Per MIL-G-45204
5-2 Contact.....	Beryllium Copper Per QQ-C-530, Gold Plated Per MIL-G-45204
5-3 Insulator.....	PTFE Fluorocarbon Per ASTM D 1710
5-4 C-Ring.....	Beryllium Copper Per QQ-C-530, Gold Plated Per MIL-G-45204

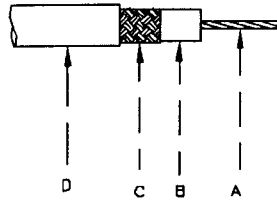




RH-04-Core

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Rev	Change	Date



Construction:

- A) Center Conductor:  
30 7/38 SPCW  
OD .012" ± .001"
- B) Dielectric:  
Extruded PTFE  
OD .033" ± .002"
- C) Shield:  
38 AWG SPC  
OD .051" Nom.
- D) Jacket:  
FEP - Brown Tint  
OD .071" ± .004"  
Surface Printed: "RG178HF HARBOUR INDUSTRIES 27478"

Electricals:

Impedance: 50 ± 2 Ohms  
 Capacitance: 32 pF/ft Max.  
 Velocity of Prop.: 70% Nom.  
 Cut off Frequency: 116 GHz

Physical Properties:

Weight per 1000 ft: 6.3 lbs Max.  
 Minimum Bend Radius: .35"  
 Operating Temperature Range: -55°C to 200°C

Attenuation:

1.0 GHz 45.0 dB/100ft.  
 2.0 GHz 64.4 dB/100ft.  
 3.0 GHz 79.7 dB/100ft.  
 4.0 GHz 92.7 dB/100ft.  
 5.0 GHz 104.3 dB/100ft.  
 6.0 GHz 115.0 dB/100ft.

<i>Harbour Industries</i>		
Date: 12/17/01	Scale: None	Drawn By: MTPiner
Drawing Name: RG178HF		Approved By: TLL/Amn
Part Number: TBD		Rev: Sheet 1 of 1
Drawing Number: 121701_1		