

东莞市森岭智能科技有限公司  
DONGGUAN SLEing INTEL-TECH.CO.,LTD

规格承认书

SPECIFICATION FOR APPROVAL

客 户  
CUSTOMER: \_\_\_\_\_

客 户 料 号  
CUSTOMER NO: \_\_\_\_\_

品 名  
PART NAME: 2.4~2.5GHz WIFI Antenna L=25mm(Ø1.13+IPEX)  
供 方 料 号  
SUPPLIER NO: SLB-100390025

送样日期Date: 2017.06.23

版本Revision: X2

客户确认 CUSTOMER APPROVED BY		
APPROVAL	CHIEF	SUPERVISOR

供方确认 SUPPLIER SIGNATURE		
APPROVAL	CHECK	DESIGN
Sandy	Jongrei	Xiang 2017.06.23



# 东莞市森岭智能科技有限公司

DONGGUAN CITY SLEING INTELLIGENCE TECHNOLOGY CO.,LTD

## 承认书项目表

### Spec Item

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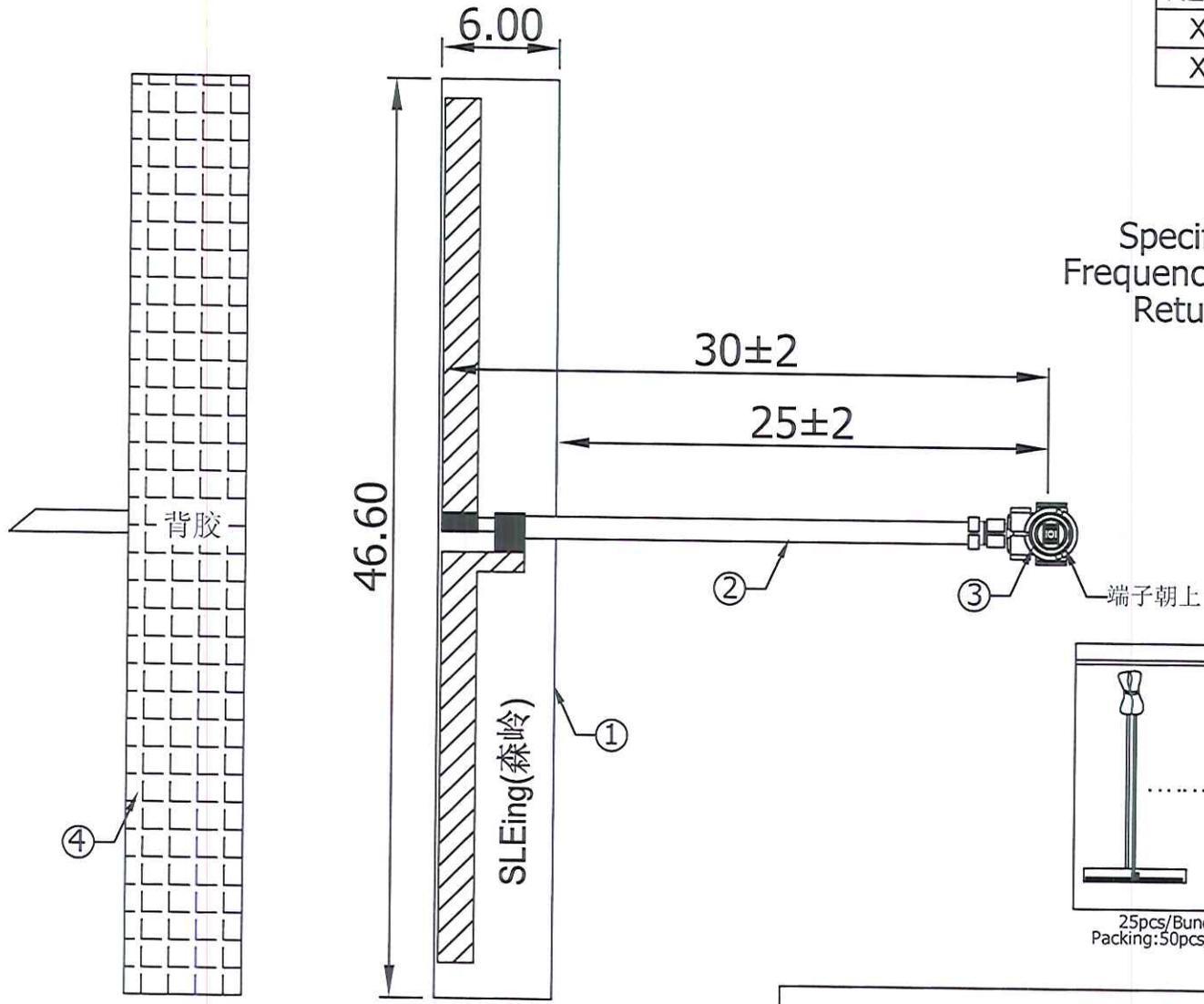
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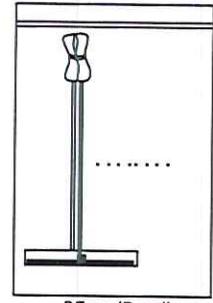
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电话：0769-89208968 传真：0769-89208969

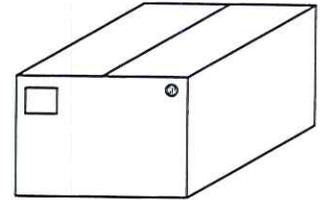
REV.	CONTENT	DATE
X1	First Sample	2017.06.09
X2	更改线材颜色	2017.06.23



Specification:  
 Frequency Rang:2.4~2.5GHz(带机测试)  
 Return Loss:-10dB or less  
 VSWR:1.92 Max



25pcs/Bundle  
 Packing:50pcs/bag



外箱须贴GP标签与物料标签各1PCS

<b>SLEing® 森岭</b> 东莞市森岭智能科技有限公司 DONGGUAN SLEing INTEL-TECH CO.,LTD				CUSTOMER					
				PART NO					
		TITLE		WIFI ANTENNA CABLE ASSEMBLY					
		S.L P/NO		SLB-100390025					
4	Paster	3M,L46*W5.5*T0.1mm	1	TOLERANCE UNLESS OTHERWISE SPECIFIED	SIZE	DRAWN	CHECKED	APPROVED	
3	Connector	MHF Plug for Φ1.13 Cable	1		UNIT:mm	ANGLES ±0.5°	X.	±0.3	A4 Xiang Jongrei Sandy
2	Cable	Φ1.13mm Cable,Gray,50Ω	1		SHEET: 1/1	.XX ±0.05	XX.	±0.5	
1	PCB	PCB,L46.6*W6.0*T0.8mm ,Color:Black	1		SCALE: 1/1		XXX.	±2.0	
NO	PART NAME	DESCRIPTION	REMARK	Q'TY					

8 7 6 5 4 3 2 1

E D C B A

8 7 6 5 4 3 2 1

# 东莞市森岭智能科技有限公司

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## 电性测试报告

## Test Reports

<b>Electrical Properties</b>	
Frequency	2.4~2.5GHz(带机测试)
Impedance	50 Ohm Nominal
V.S.W.R	≤1.92
Return Loss	-10 dB Max
Radiation	Omni-directional
Gain (Peak)	1.99 dBi
Polarization	Linear, Vertical
Admitted Power	2 W
Connector	IPEX
<b>Physical Properties</b>	
Antenna Material	PCB
Cable Type	Φ1.13mm Gray
Operating Temp.	-40~+85 °C
Storage Temp.	-40~+85 °C

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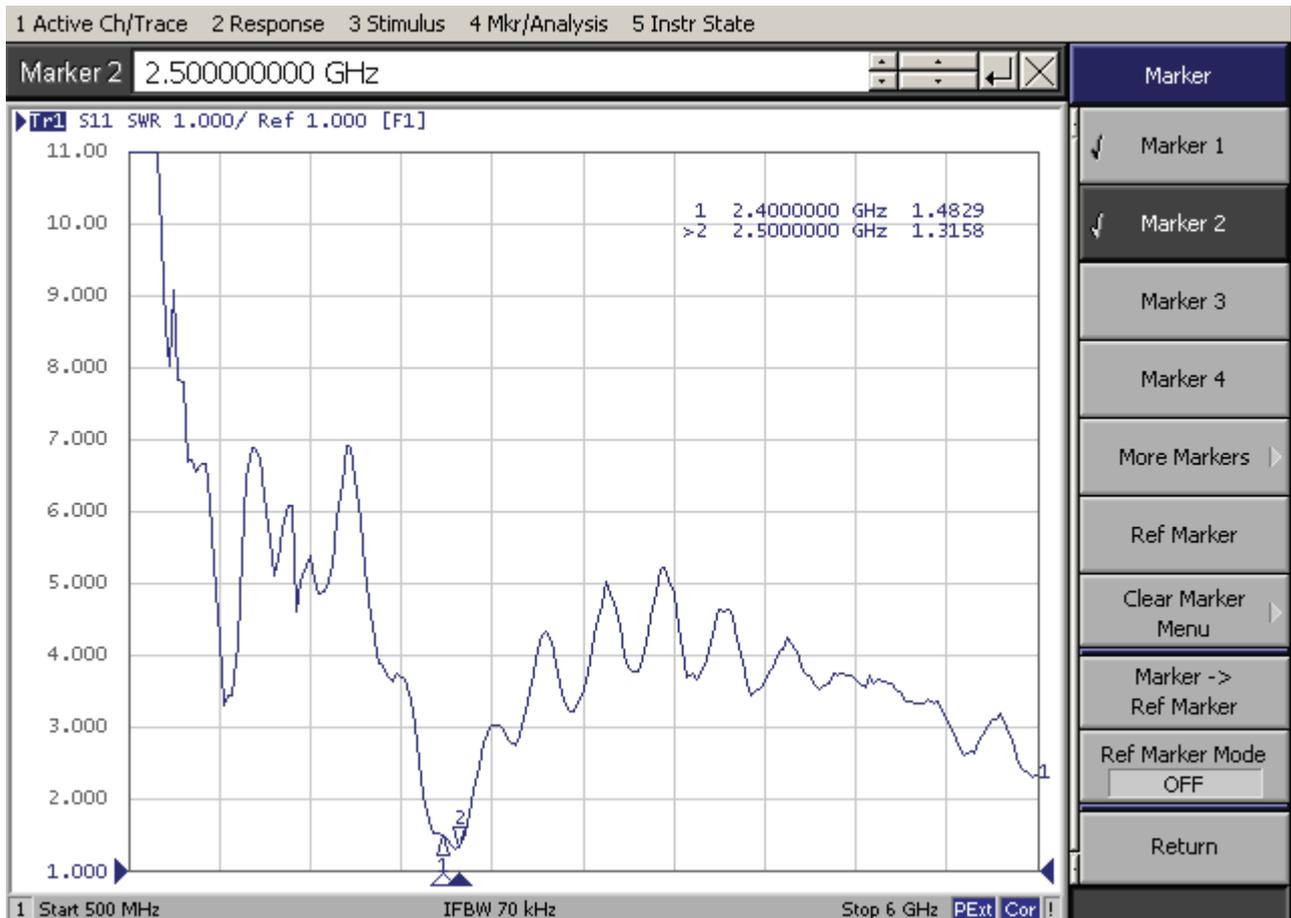
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## S 参数测试 S Parameter Test

Agilent E5071C Network Analyzer



WIFI Antenna (NO.1)



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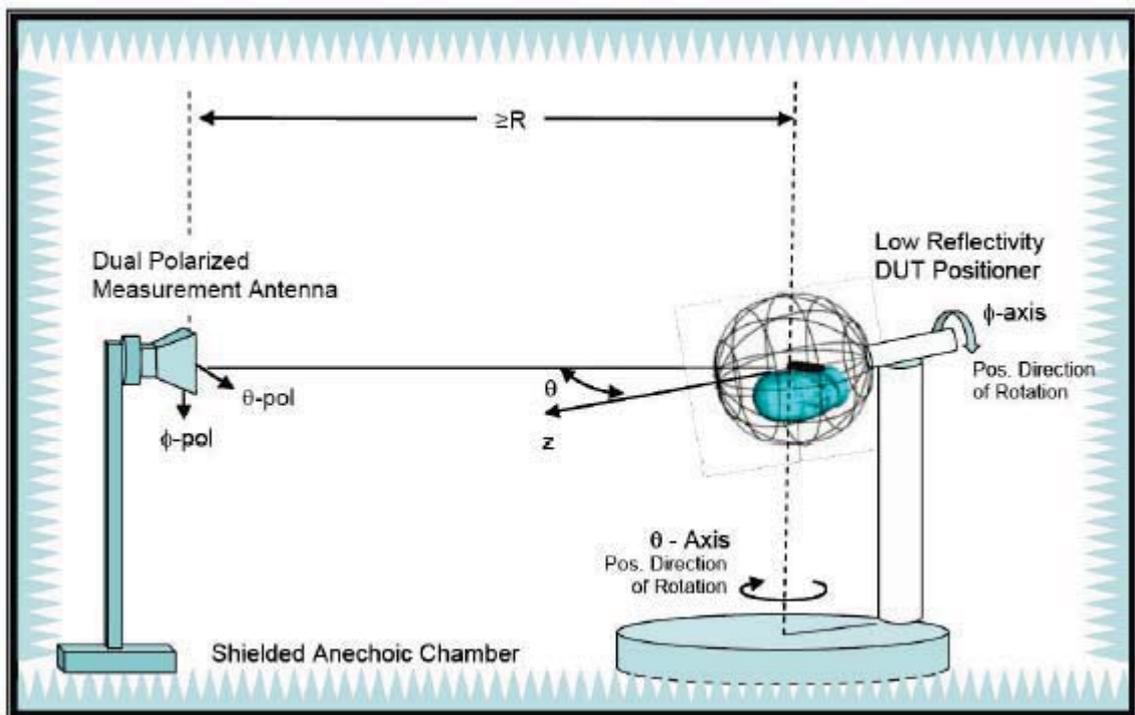
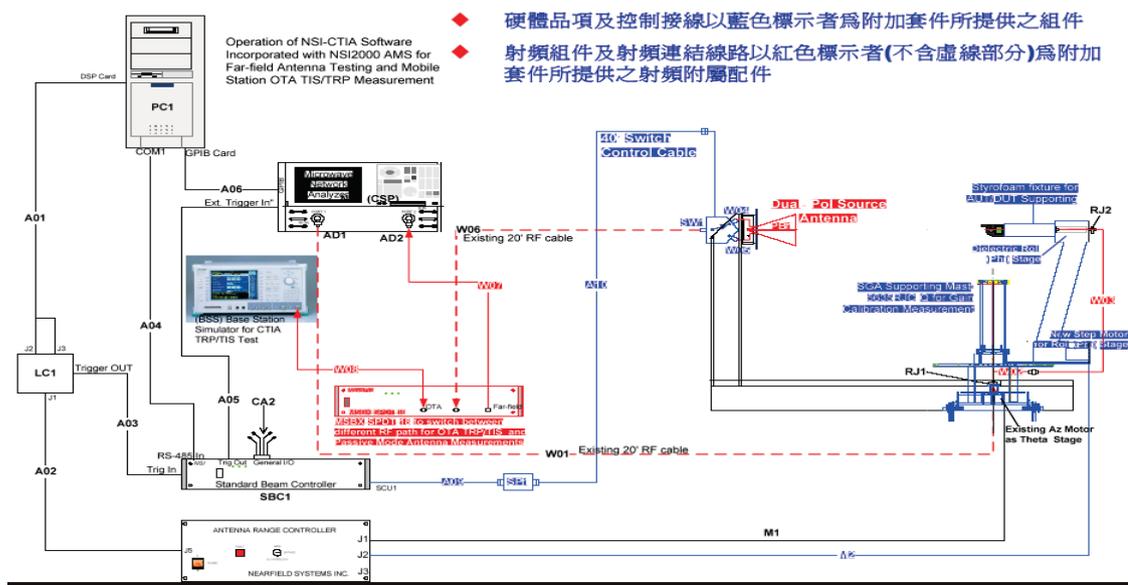
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## 测试设备 Test Setup

### NFC-500S 3D Chamber Coordinate System Definition



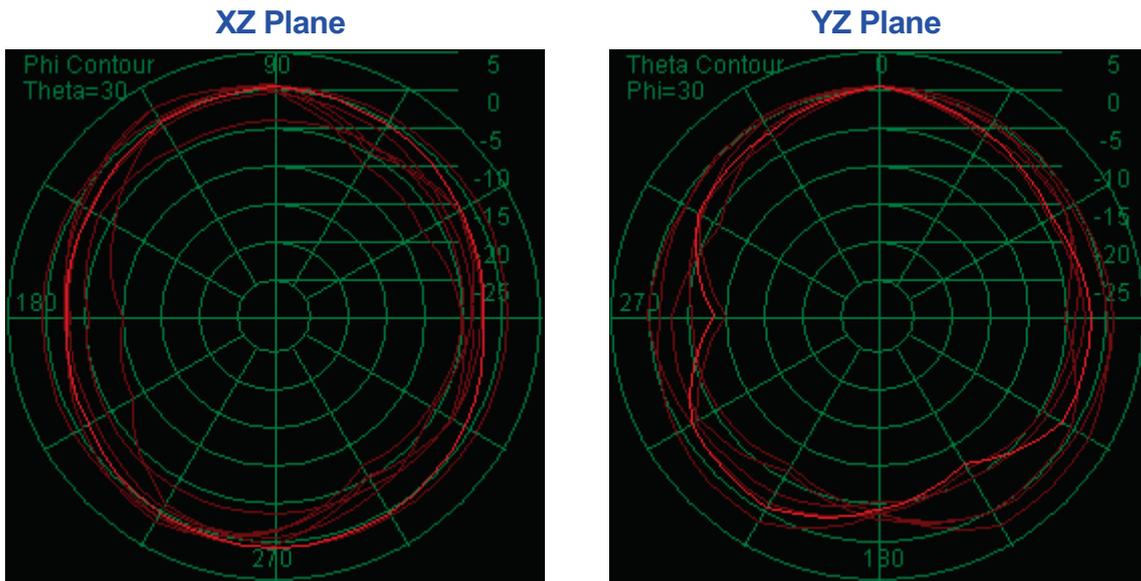
Configuration of 3D Chamber

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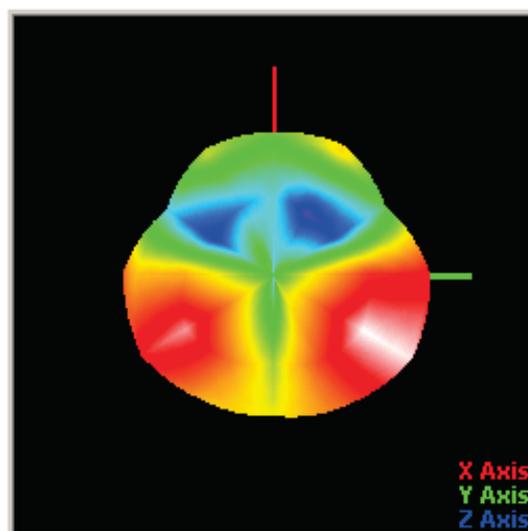
## 方向图 Patten

### 1.3 2D Radiation patterns test results (Passive Antenna)



### 1.5 3D Radiation patterns test results (Passive Antenna)

#### 3D



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## 测试效率

## Test Efficiency

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	2412.0	2412.00	1.99	3.49	70.8%	-1.50	1.99	150	120	-9.97	90	180	-1.63	11.96	3.62	-8.34
2	2417.0	2417.00	1.95	3.54	69.3%	-1.59	1.95	120	120	-10.04	90	180	-1.69	11.98	3.64	-8.35
3	2422.0	2422.00	1.86	3.43	69.7%	-1.57	1.86	150	120	-11.29	90	180	-1.72	13.15	3.58	-9.57
4	2427.0	2427.00	1.60	3.15	70.1%	-1.54	1.60	150	120	-11.08	90	180	-1.86	12.69	3.47	-9.22
5	2432.0	2432.00	1.32	3.08	66.6%	-1.76	1.32	120	120	-11.05	90	180	-2.09	12.37	3.41	-8.96
6	2437.0	2437.00	1.61	3.26	68.4%	-1.65	1.61	150	120	-10.48	90	180	-1.85	12.10	3.46	-8.64
7	2442.0	2442.00	1.40	3.17	66.6%	-1.76	1.40	150	120	-11.37	90	180	-1.88	12.77	3.28	-9.49
8	2447.0	2447.00	1.43	3.38	63.8%	-1.95	1.43	150	120	-11.11	90	180	-2.17	12.54	3.60	-8.94
9	2452.0	2452.00	1.46	3.44	63.5%	-1.97	1.46	120	120	-10.08	90	180	-2.14	11.54	3.60	-7.94
10	2457.0	2457.00	1.00	3.28	59.1%	-2.28	1.00	150	120	-10.58	90	180	-2.25	11.58	3.24	-8.33
11	2462.0	2462.00	1.40	3.73	58.4%	-2.33	1.40	120	120	-9.82	90	210	-2.28	11.22	3.68	-7.54
12	2467.0	2467.00	1.31	3.39	62.0%	-2.07	1.31	150	120	-11.09	90	180	-2.22	12.40	3.54	-8.86
13	2472.0	2472.00	1.42	3.31	64.8%	-1.89	1.42	150	120	-10.40	90	210	-2.11	11.82	3.53	-8.29
14	2484.0	2484.00	1.89	3.73	65.4%	-1.84	1.89	150	120	-9.26	90	180	-1.91	11.15	3.79	-7.36
15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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# 东莞市森岭智能科技有限公司

## 样品检验记录表

料号		SLB-100390025		品名/规格		WIFI Antenna L=25mm				数量	5PCS		日期	2017.06.09		
检验项目	Item	公差	样品编号										量测工具	判定		
			1	2	3	4	5	6	7	8	9	10		PASS		
尺寸	1	25.0	±2	25.0	25.0	25.0	25.0	25.0						b	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	2	46.60	±0.5	46.60	46.60	46.61	46.62	46.61						a	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	3	6.00	±0.5	6.00	6.02	6.00	6.02	6.00						a	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	4															<input type="checkbox"/> OK <input type="checkbox"/> NG
	5															<input type="checkbox"/> OK <input type="checkbox"/> NG
	6															<input type="checkbox"/> OK <input type="checkbox"/> NG
	7															<input type="checkbox"/> OK <input type="checkbox"/> NG
外观	1	咬花	样品或规格											目视	<input type="checkbox"/> OK <input type="checkbox"/> NG	
	2	配色	样品或规格	OK										目视	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	3	印刷	样品或规格											目视	<input type="checkbox"/> OK <input type="checkbox"/> NG	
	4	亮雾度	样品或规格	OK										目视	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	1	VSWR		≤1.92										NA	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	2	S11												NA	<input type="checkbox"/> OK <input type="checkbox"/> NG	
	3	S22												NA	<input type="checkbox"/> OK <input type="checkbox"/> NG	
零件组配性		各零件组配性状况	样品或规格	OK										chamber	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
		是否依照成品图之材料		OK											<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
备注:																

※量测工具: a游标卡尺 b钢尺 c塞规 d深度规 e工具显微镜 f厚薄规 g分厘卡 h扭力计 i拉拔测试机 j组配

尺寸检验: 标注在附图Mark表示

核准: Sandyg

审核: \_\_\_\_\_

工程师: 何仲世



# 东莞市森岭智能科技有限公司

DONGGUAN CITY SLEING INTELLIGENCE TECHNOLOGY CO.,LTD

## SFF-50-0.6 (1.13)



型号 Cable Type **SFF-50-0.6** (1.13)

### 结构 Structure

1 内导体 Inner conductor	Cu-silverplated 7×0.08mm $\varnothing$ 0.24mm
2 绝缘体 Dielectric	FEP $\varnothing$ 0.68±0.05mm
3 纺织层 Braid conductor	Tinned copper 16/4/0.5 $\varnothing$ 0.93mm
4 护套 Jacket (Gray)	FEP $\varnothing$ 1.13±0.06mm

### 电性能参数 Electrical Characteristics

电容 Capacitance(pF/m)	98
阻抗 Impedance(ohm)	50±2.0
速率 Velocity(%)	70
直流电阻 Conductor Resistance( $\Omega$ /km)	≠597
检验电压 Working voltage (KVMS)	1.0
工作温度范围 Operating Temp. (°C)	105

### 衰减(典型值) Attenuation(Typical)(≠dB/m)

频率 Frequency	
1 GHz	2.0
2 GHz	2.9
3 GHz	3.7
4 GHz	4.3
5 GHz	4.8
6 GHz	5.3

### 应用 Application

应用于高频传输，特别是发报机、接收器、电脑、无线电设备、视频信号、射频信号传输。同轴电缆保证各式机械、热力、电子设备中能达到GHz高频层次的应用。

Coaxial cables are used in high frequency transmission, especially for transmitters and receivers, computers, radio and TV transmissions. The varied mechanical, thermal and electronic properties of Coaxial cables mean that they can be used up into the GHz levels, as pes cable type.



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## 物质成份表

### MATERIAL COMPOSITION SHEET

XT 的 FR-4 产品主要由树脂、铜箔、玻璃布组成，现将这些材料的成份列表如下

Ingredients of FR-4 XT are: Epoxy Resin、Copper Foil、Fibcr Glass as listed blow.

NO.	成分名称 Ingredients	所占板材 百分比 (%)	主要构成 Main Composition	
			物质名称 Material	百分比 (%)
1	环氧树脂 Epoxy Resin	37-40%	溴化环氧树脂 Epoxy Resin	99.97%
			水解氯 Cl	0.02-0.035%
2	电解铜箔 Copper Foil	15-20%	铜 Cu	99.9%
			钴 Co	0.028%
			锰 Mn	0.018%
			铬 Cr	0.004%
			锌 Zn	0.01%
3	电子级玻璃布 Fibcr Glass	40-45%	SiO <sub>2</sub>	52-56%
			CaO	16-25%
			Al <sub>2</sub> O <sub>3</sub>	12-16%
			MgO	0-5%
			B <sub>2</sub> O <sub>3</sub>	5-10%
			Na <sub>2</sub> O&K <sub>2</sub> O	0-2%
			Fe <sub>2</sub> O <sub>3</sub>	0.05-0.4%
			TiO <sub>2</sub>	0-0.8%
F <sub>2</sub>	0-1.0%			

注：1. 以上成份均为重量百分比 (Weight Percentage) .

2. 溴化环氧树脂中溴的含量占 17-21%

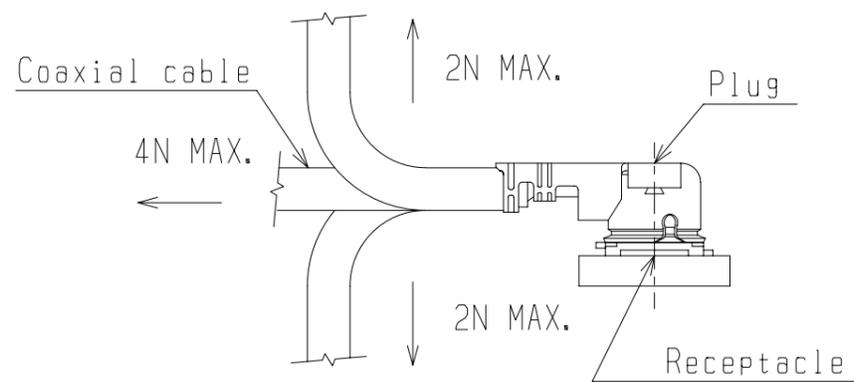
Notes

1. Material  
 (1) Housing : PBT , UL94V-0 , black  
 (2) Contact  
     phosphor bronze  
     gold plating  
 (3) Ground contact  
     phosphor bronze , gold plating  
 2. Packing : reel  
 3. Mating partner part No.  
    : 20279-001E-01

1. 材 料  
 (1) ハウジング:PBT, UL94V-0, 黒色  
 (2) コンタクト  
     :りん青銅  
     :金メッキ  
 (3) グランドコンタクト  
     :りん青銅, 金メッキ  
 2. 梱包 : リール  
 3. かん合相手 part No.  
    : 20279-001E-01

4. Permissible load of cable at mating

コネクタかん合後のケーブルに対する荷重



5. Suggestions for mating & unmating operation.

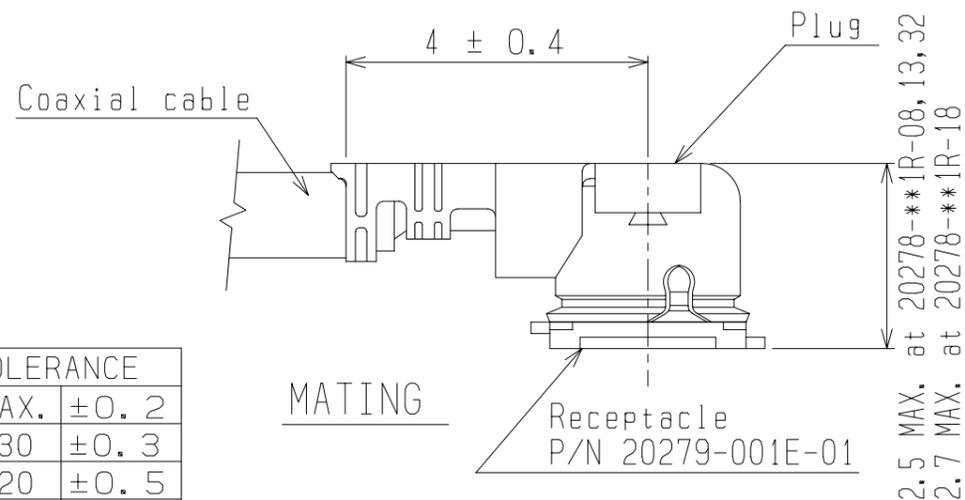
5. コネクタかん合時および抜去時の注意

5-1 Mating.

Please mate the connector straightly to vertical direction as much as possible, adjusting the mating axis of plug and receptacle. As excessive slant angle mating may break the connector , please don't do it.

5-1 コネクタ挿入時

PlugとReceptacleのかん合軸を合わせ、できるだけ垂直に挿入して下さい。極端な斜め挿入は行わないで下さい。コネクタ破損の原因となりますので、過度なこじり挿抜は行わないで下さい。

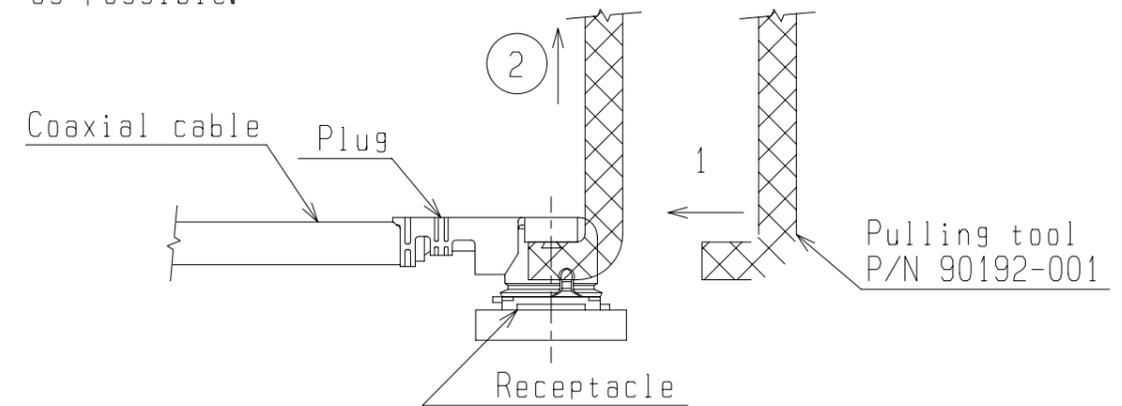


5-2 Unmating.

5-2 コネクタ抜去時

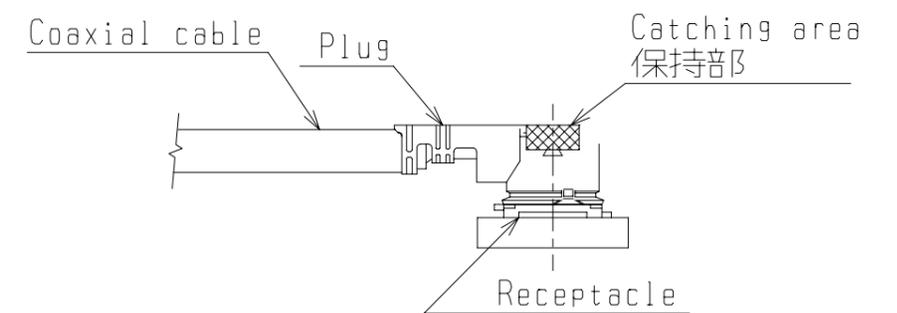
(1) In case of unmating by pulling tool.  
 Please use the pulling tool as the following drawing, and please pull plug to vertical direction as directly as possible.

(1) 抜去ジグを用いる場合  
 下図のようにできるだけ垂直に引き抜いて下さい。



(2) In case of unmating directly by hand  
 Please catch the catching area of plug , and please pull plug to vertical direction as directly as possible.

(2) 手で直接引き抜く場合  
 下図の保持部をつかみ、できるだけ垂直に引き抜いて下さい。



GENERAL TOLERANCE	
6 MAX.	±0.2
6 OVER MAX. 30	±0.3
30 OVER MAX. 120	±0.5
ANGLE	±2°

DESIGN' D BY	DATE	<b>I-PEX</b> Interconnect and Packaging Electronics TOKYO, JAPAN	TITLE MHF series micro coaxial connector plug vertical			
CHK' D BY	DATE					
APP' D BY	DATE					
CUSTOMER COPY	PROJECTION 	SCALE -/-	UNIT mm	DWG. No. 20278	SHEET 3/3	REV. 5B