

# APPROVAL SHEET

**Dipole ANTENNA**  
**802.11 ac/b/g/n Series**  
**2.4/5.x GHz Dual Band Working Frequency**  
**Halogens Free Product**  
**P/N: RFDPA171320EMLB301**

Customer : \_\_\_\_\_  
Customer 's Part No. : \_\_\_\_\_  
Approval No. : \_\_\_\_\_  
Issue Date : \_\_\_\_\_

\*Contents in this sheet are subject to change without prior notice.



**ELECTRICAL CHARACTERISTICS**

Item	Specification
Working Frequency Range	2.4 ~ 2.5 / 5.15 ~ 5.85 GHz (Note-1)
Gain	2.4 ~ 2.5 GHz : 3.14 dBi 5.15 ~ 5.85GHz : 5.00 Bi
Return Loss	-10dB(Max)
VSWR	2 max.
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω

\*Note 1. Central Frequency should be defined after customers' application approval.

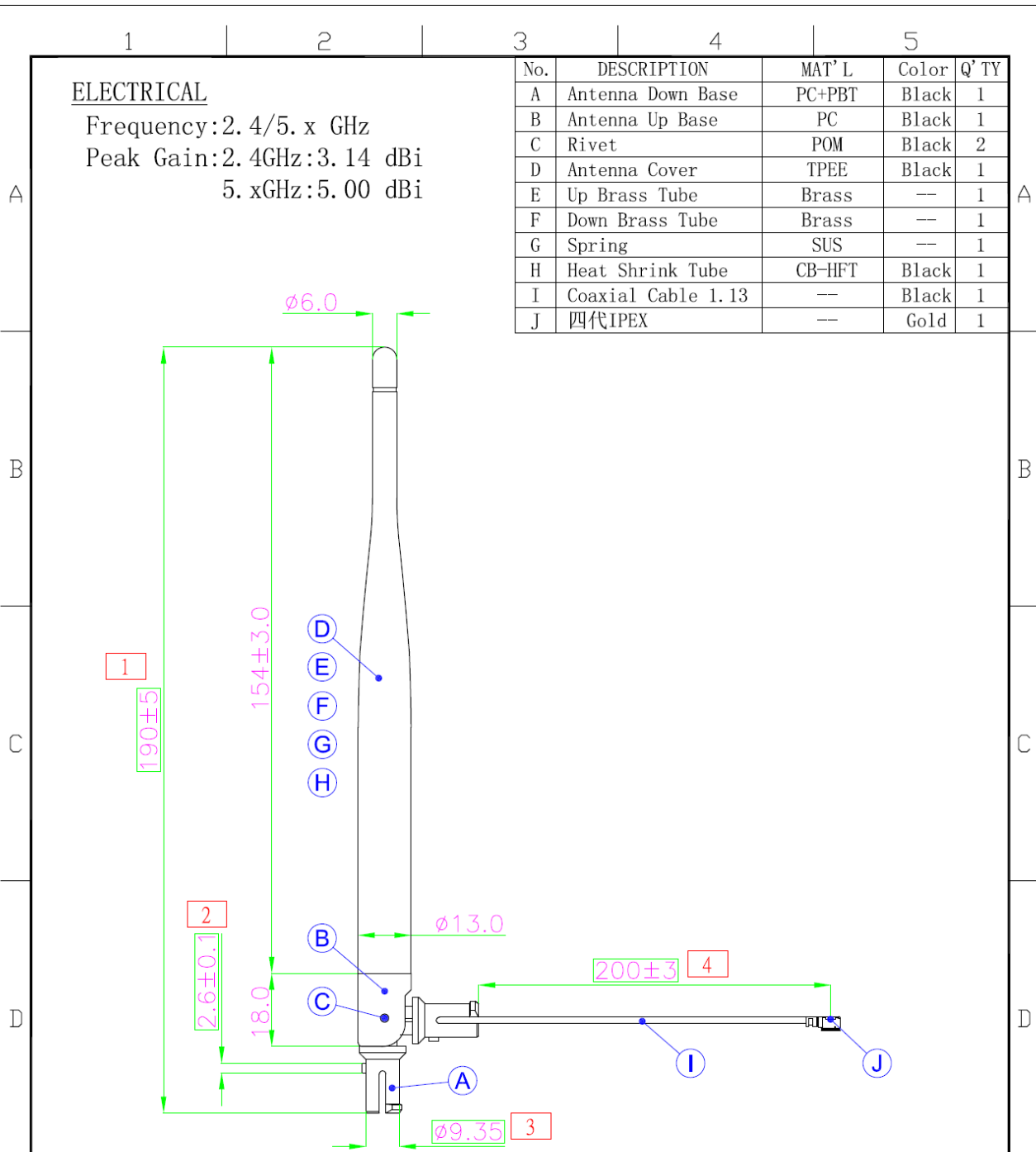
**MATERIAL TABLE**

Items	Description
Cable	Coaxial Cable Ø1.13 (Black)
Antenna Cover	TPEE
Antenna Base	PC/PBT
Connector	IPEX四代
Color	Black
Brass Tube	Brass
Heat Shrink Tube	Black

**ORDERING RULE**

RF	DPA	1713	20	E	M	L	B	3	01
Type Code	Product Code	Dipole Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	DPA: Dipole Antenna	Per 2 digits of length, width e.g.: 1713 Length 172mm, Width φ 13mm	2 digits for cable length e.g.: 20 Cable Length:20cm	A: N C:MCX D:IPEX III E: IPEX IV F: IPEX A13 H: Hirose I: IPEX M: MMCX S: SMA T: TNC U:MURATA N: None	A: Reverse Female B: Reverse Male F: Female M: Male N: None	0: 0GHz 3: 3GHz 5: 5 GHz 6: 6GHz A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band N: NFC T:LTE band W: WCDMA band	B: MP T:During Test X: Pile Run	0:None 1: 0.81 3: 1.13 6:RG316 7: 1.37 8:RG178	01~99 series number

**DIMENSIONS**



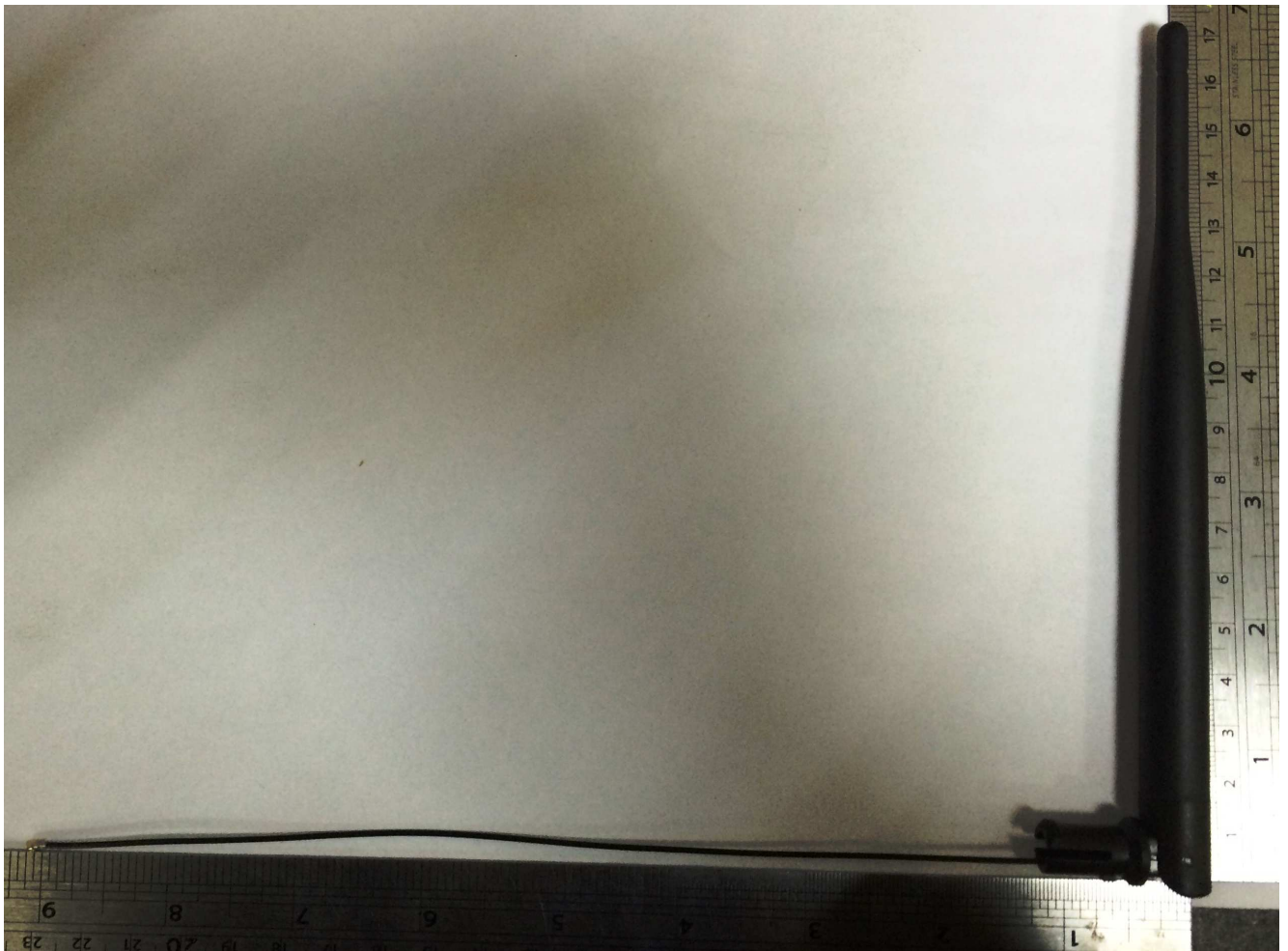
ELECTRICAL

Frequency: 2.4/5. x GHz  
Peak Gain: 2.4GHz: 3.14 dBi  
5. xGHz: 5.00 dBi

No.	DESCRIPTION	MAT'L	Color	Q'TY
A	Antenna Down Base	PC+PBT	Black	1
B	Antenna Up Base	PC	Black	1
C	Rivet	POM	Black	2
D	Antenna Cover	TPEE	Black	1
E	Up Brass Tube	Brass	--	1
F	Down Brass Tube	Brass	--	1
G	Spring	SUS	--	1
H	Heat Shrink Tube	CB-HFT	Black	1
I	Coaxial Cable 1.13	--	Black	1
J	四代IPEX	--	Gold	1

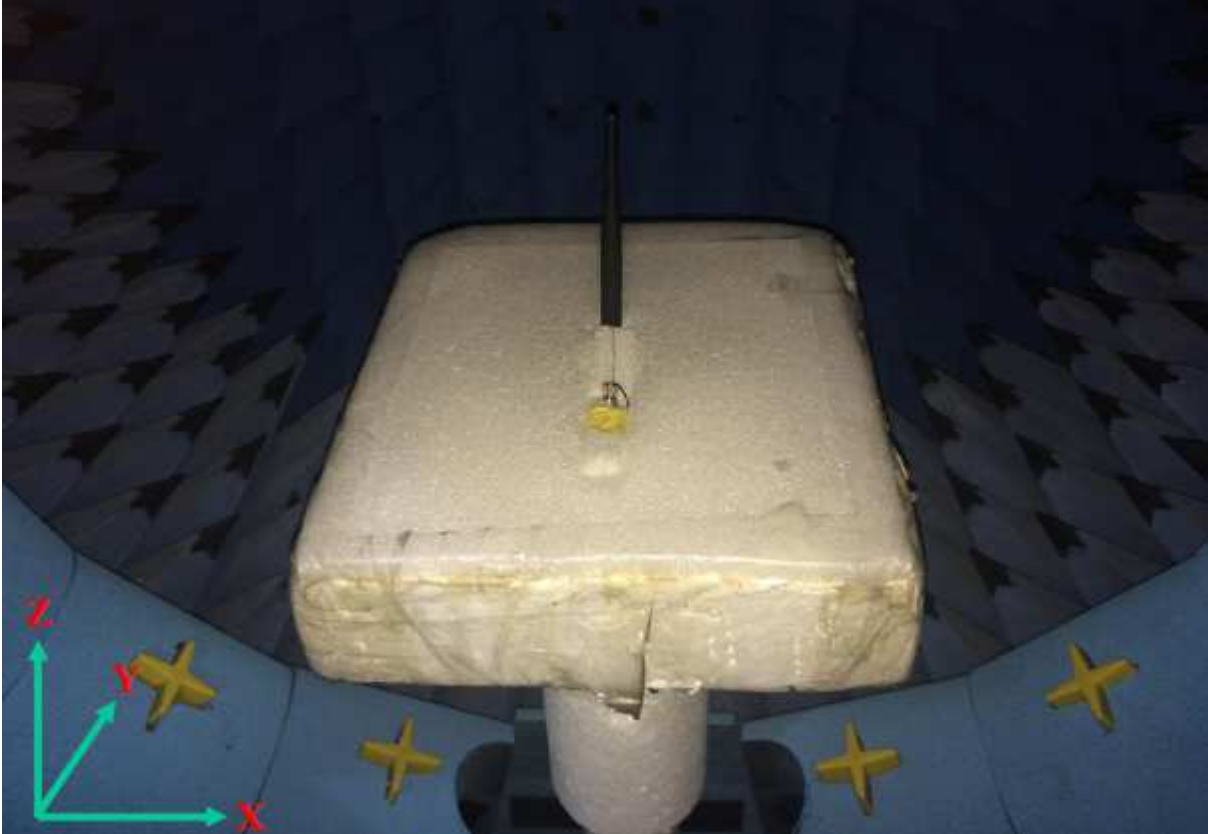
※標記□記號者, 為重點檢驗尺寸

設計 DR. HWCHAN		2015.11.30		品名		版本 REV.	
核准 APP. Marco				ARTICLE		A	
容許公差 TOLERANCE				RFDPA171320EMLB301			
6以下.....±0.2				單位 UNIT			
6以上~30.....±0.5				mm			
30以上~120.....±0.8				比例 SCALE			
120以上~315.....±1.2				****			
315以上~1000.....±2.0				張數 SHEET			
1000以上~2000.....±3.0				1			



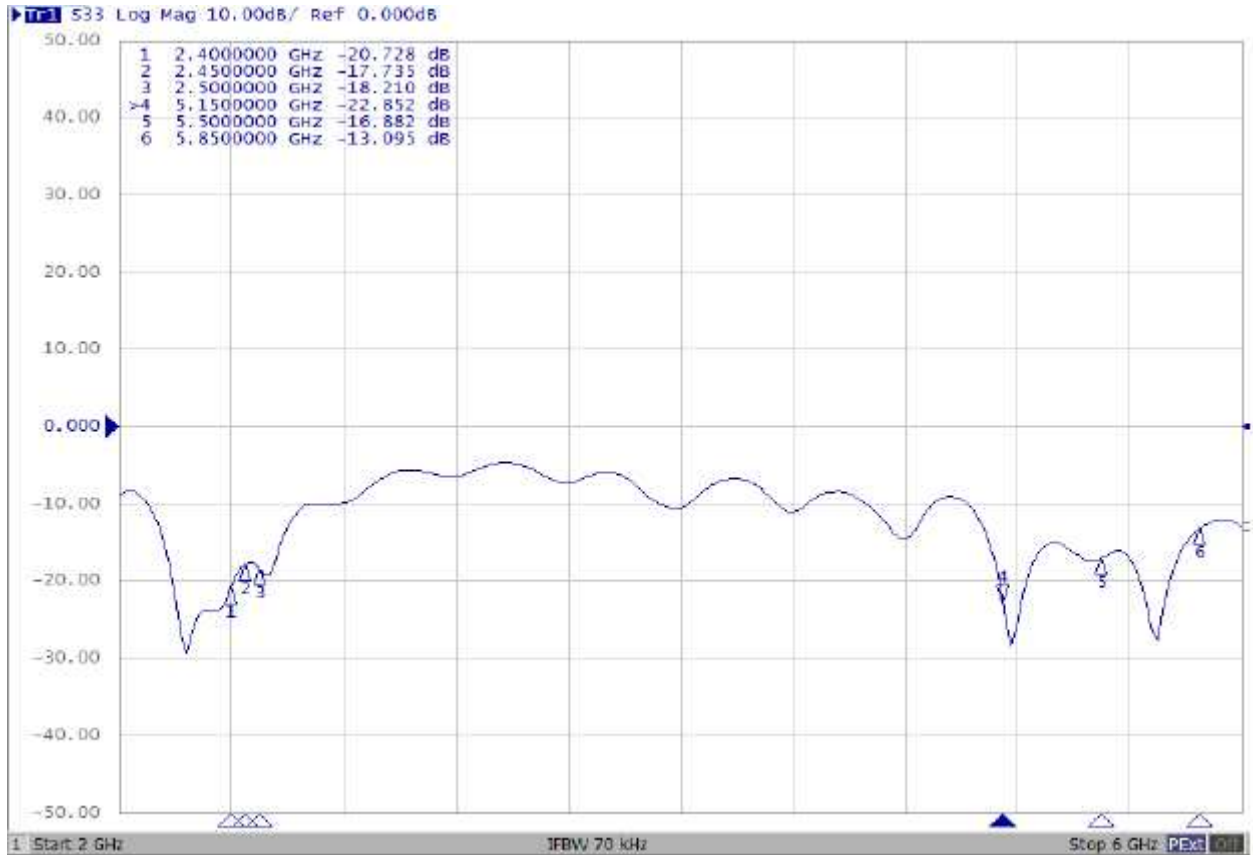
# Test Report

## ■ Experimental Setup



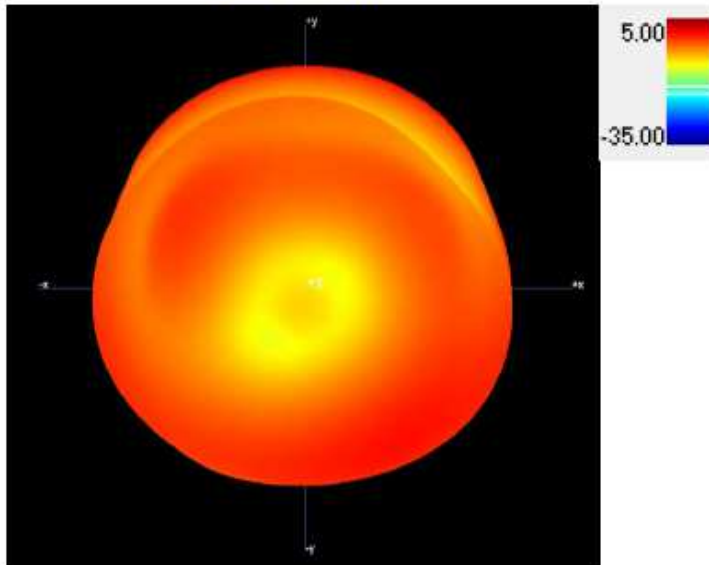
## ELECTRICAL CHARACTERISTICS

### Return Loss



## ■ Antenna Efficiency & Peak Gain 2GHz

2450 MHz



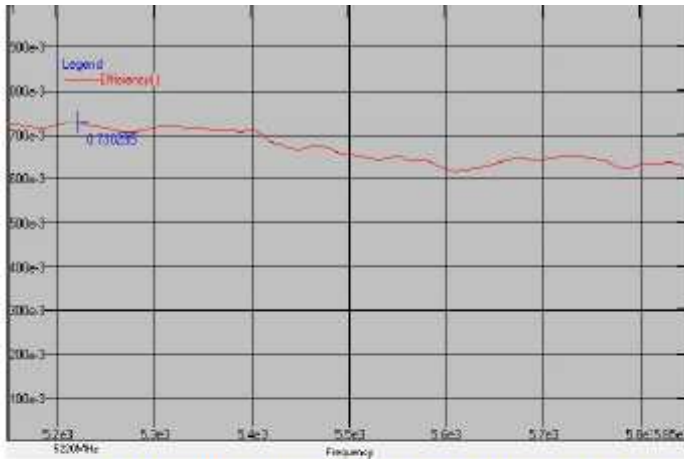
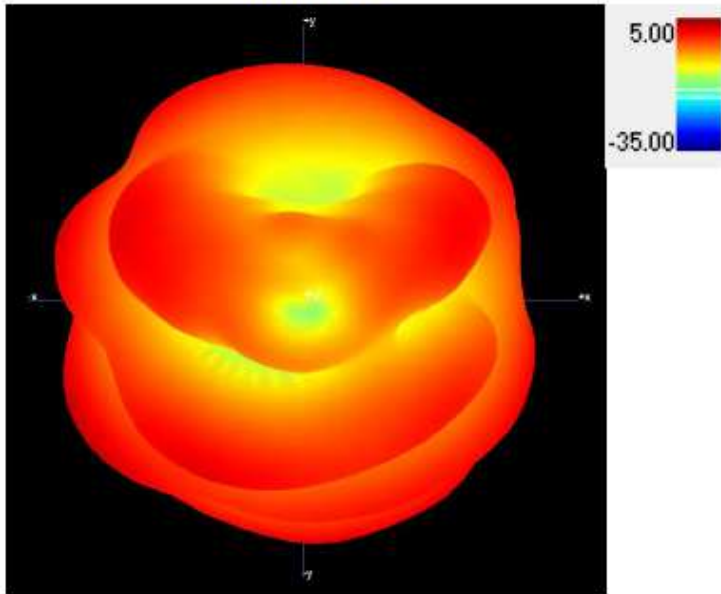
Maximum Efficiency at 2400 MHz : 70.72%



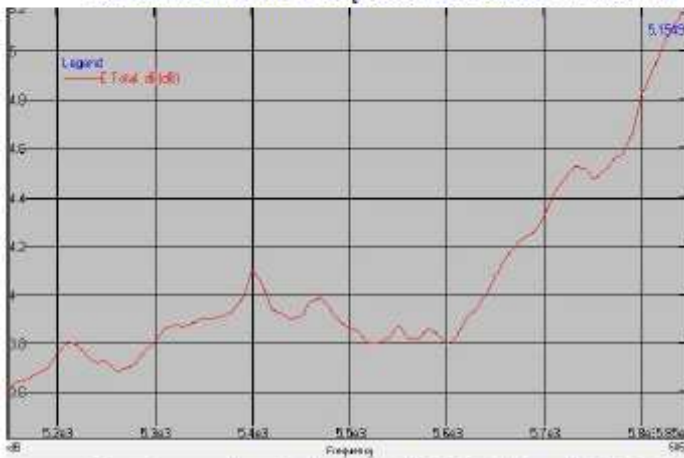
Maximum Peak Gain at 2400 MHz : 3.14 dBi

### 5GHz

5500 MHz



**Maximum Efficiency at 5220 MHz : 73.03 %**



**Maximum Peak Gain at 5850 MHz : 5.15 dBi**

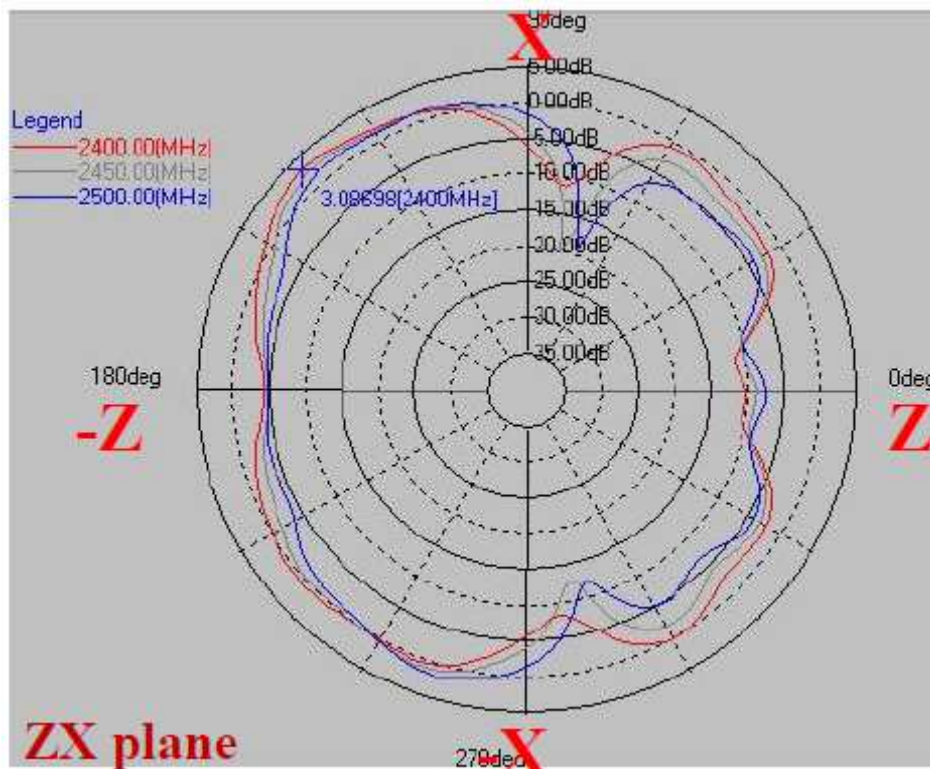
## RADIATION PATTERN

2400~2500 MHz

X-Z Plane

Phi=0.00deg

Gain . dB

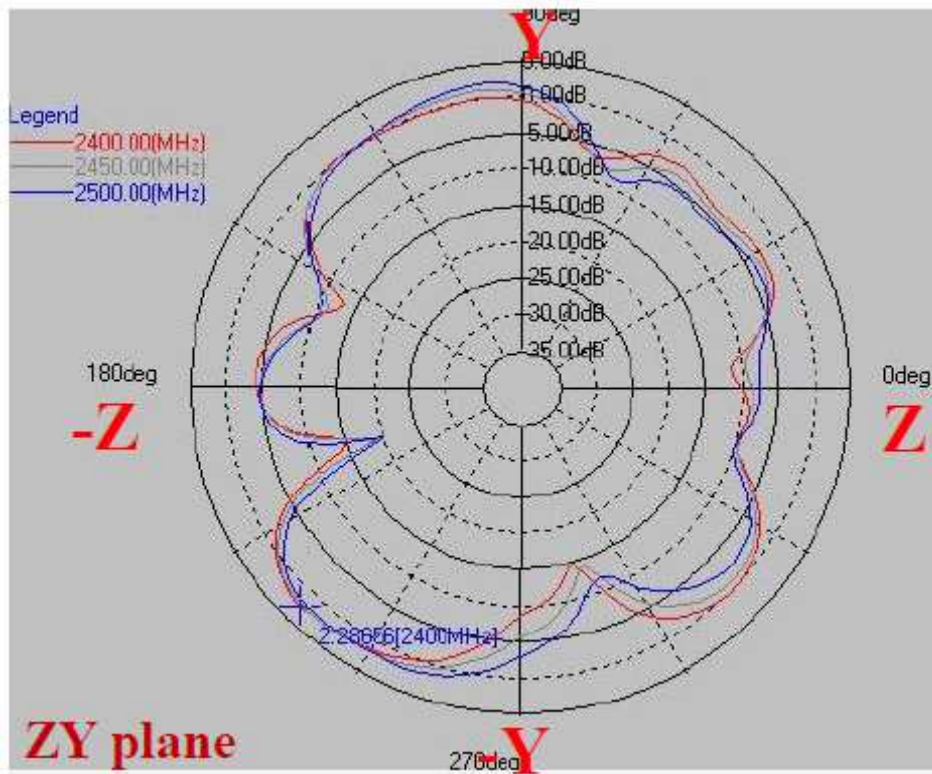


	ZX plane	
Frequency [MHz]	Max Value [dB]	Average [dB]
2400	3.09	-1.48
2450	2.24	-2.22
2500	1.52	-2.70

**Y-Z Plane**

**Phi=90.00deg**

**Gain . dB**

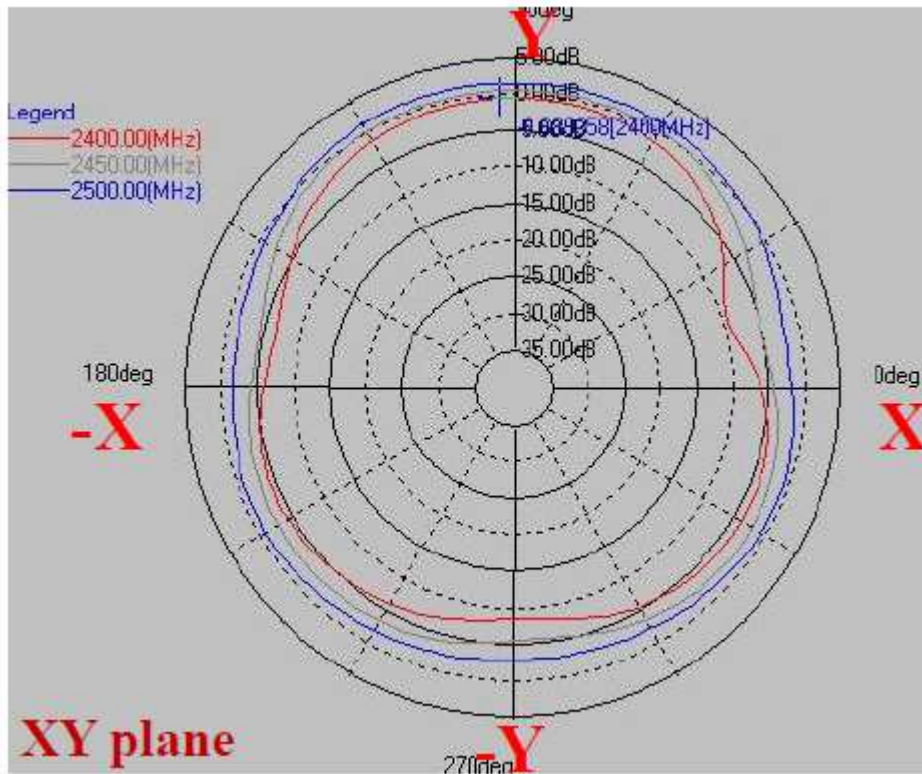


	ZY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]
2400	2.29	-2.65
2450	2.17	-2.63
2500	1.84	-2.60

**X-Y Plane**

**Theta=90.00deg**

**Gain . dB**



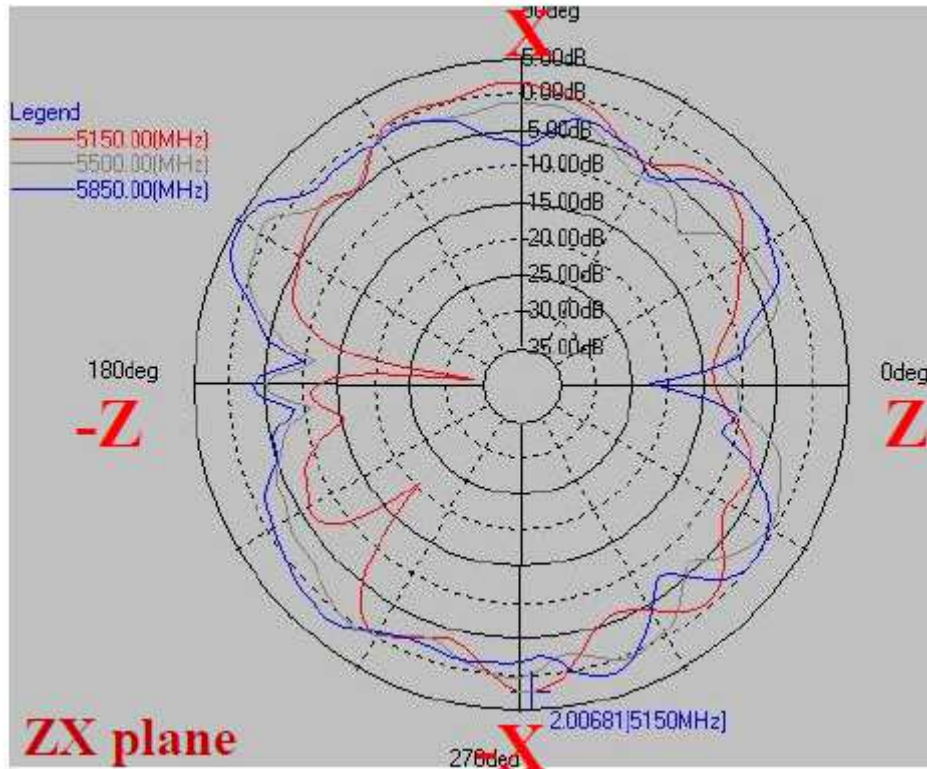
	XY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]
2400	-0.69	-4.05
2450	0.37	-2.23
2500	1.30	-0.62

**5150~5850 MHz**

**X-Z Plane**

**Phi=0.00deg**

**Gain . dB**

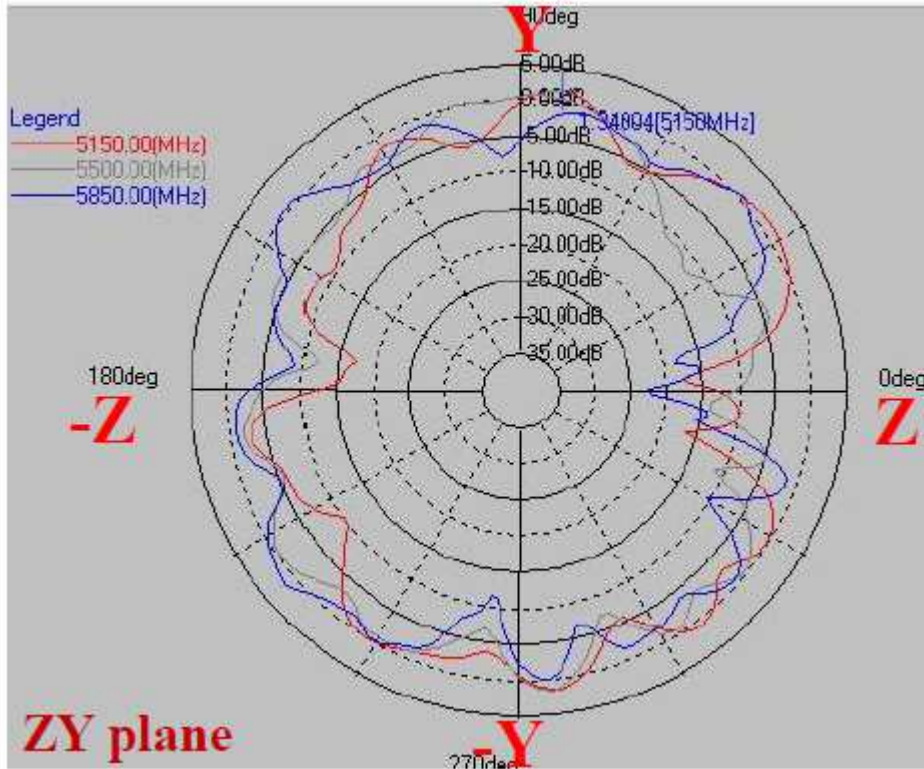


	ZX plane	
Frequency [MHz]	Max Value [dB]	Average [dB]
5150	2.01	-3.35
5500	1.37	-2.68
5850	4.16	-1.72

**Y-Z Plane**

**Phi=90.00deg**

**Gain . dB**

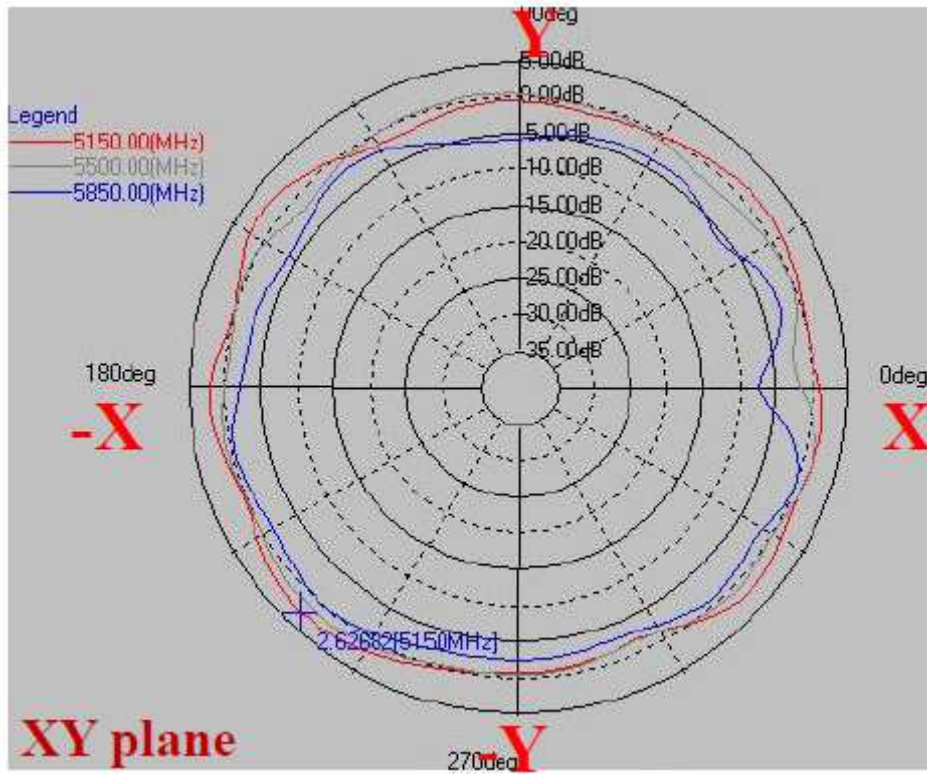


	ZY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]
5150	1.34	-2.82
5500	1.29	-3.21
5850	1.51	-2.80

**X-Y Plane**

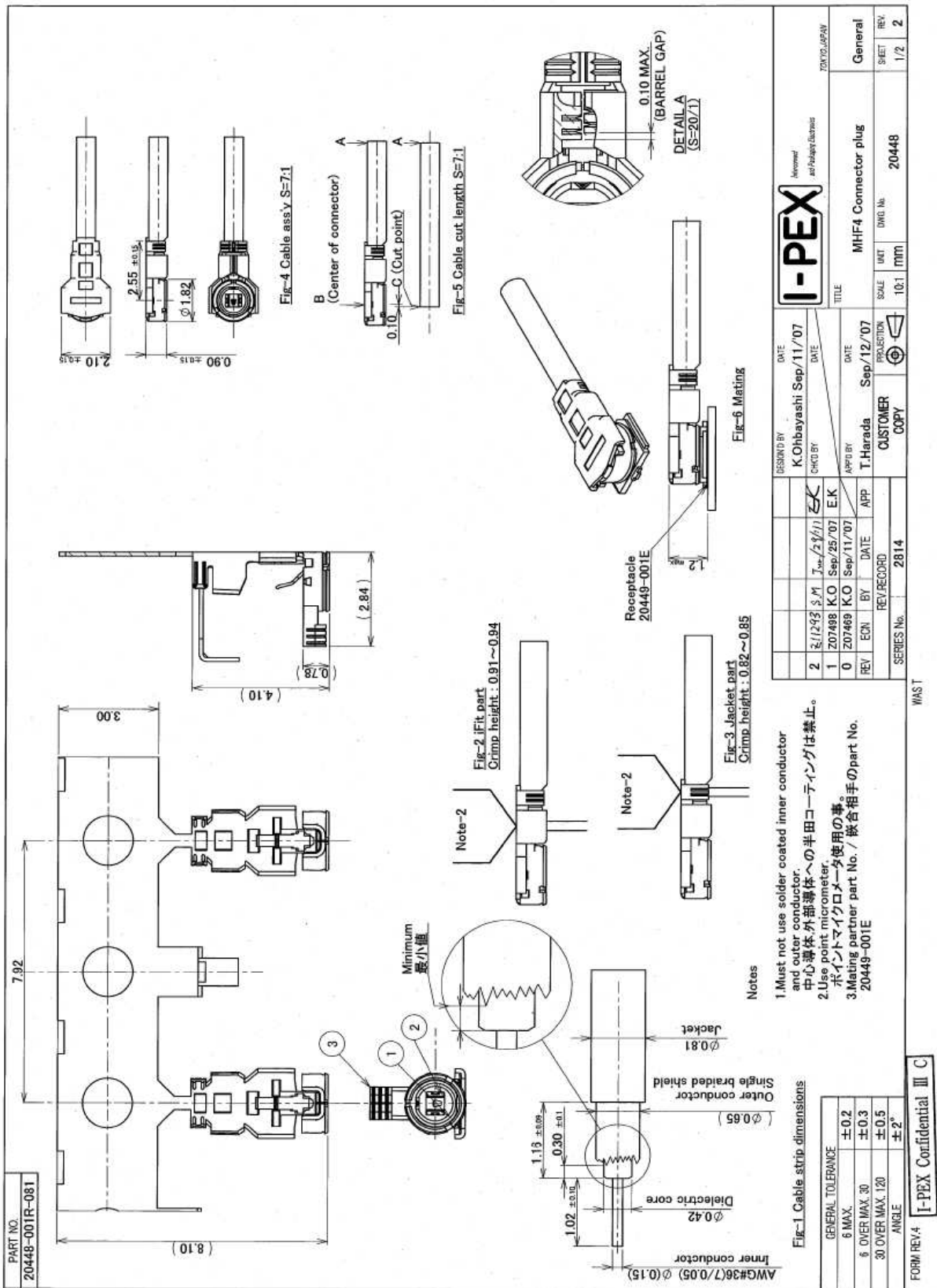
**Theta=90.00deg**

**Gain . dB**



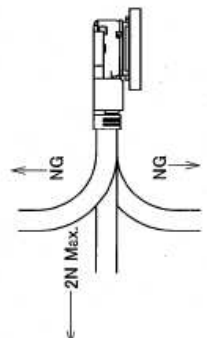
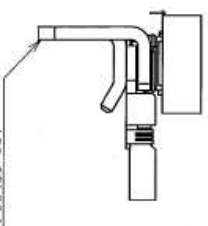
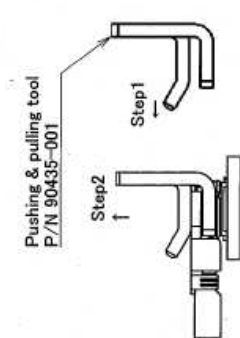
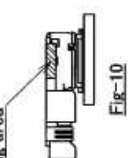



	XY plane	
Frequency [MHz]	Max Value [dB]	Average [dB]
5150	2.63	0.64
5500	1.46	-0.21
5850	-0.03	-2.59

# Connector Specification



DESIGNED BY K. Ohbayashi		DATE Sep/11/07	<b>I-PEX</b>	TITLE MHF4 Connector plug	SCALE 10:1 mm	DWG No. 20448	SHEET 1/2	REV. 2
CHECKED BY E.K.		DATE Sep/25/07						
APPROVED BY T. Harada		DATE Sep/11/07	PROJECTION CUSTOMER COPY					
REV. ECN. BY DATE		REV. RECORD		SERIES No. 2814				
2 2/12/03 S.M. T.M. / 2/1/11								
1 207498 K.O. Sep/25/07								
0 207469 K.O. Sep/11/07								

FORM REV.4 I-PEX Confidential III C

PART NO. 20448-001R-081	Notes 1. Material ① Housing : PBT, black, UL94V-0 ② Contact Phosphor bronze Gold 0.3 μm Min. over nickel 1 μm Min. ③ Ground contact Phosphor bronze Gold 0.05 μm Min. over nickel 1.27 μm Min. 2. Packing Reel 3. Permissible load of cable at mating as Fig-7 4. Suggestions for mating & unmating 4-1 Mating 4-1-1 In case of unmating by pushing tool, Please mate the connector straightly as Fig-8 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 mate at excessive slant angle. 4-1-2 In case of unmating by hand, 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 mate at excessive slant angle. 4-2 Unmating 4-2-1 In case of unmating by pulling tool, Please use the pulling tool as Fig-9, and pull plug to vertical direction as directly as possible. 4-2-2 In case of unmating directly by hand, Please catch the catching (as Fig-10) area of plug, and pull to vertical direction as directly as possible.	1. 材質 (1)ハウジング:PBT, 黒, UL94V-0 (2)コンタクト リン青銅 ギメつき0.3 μm Min., 下地 ニッケル 1 μm Min. (3)グラウンドコンタクト リン青銅 ギメつき0.05 μm Min., 下地 ニッケル 1.27 μm Min. 2. 梱包 リール梱包 3. コネクタ嵌合時のケーブルに対する荷重 Fig-7参照 4. コネクタ嵌合時 抜去時の注意 4-1 コネクタ嵌合の注意 4-1-1 挿入ジグを用いる場合 プラグとリセプタクルの嵌合軸を合わせ、Fig-8のようにできる 限り垂直に挿入して下さい。 種々な斜め挿入は行わないでください。 4-1-2 手で直接嵌合する場合 プラグとリセプタクルの嵌合軸を合わせ、できる限り垂直に 挿入して下さい。 種々な斜め挿入は行わないでください。 4-2 コネクタ抜去時の注意 4-2-1 抜去ジグを用いる場合 Fig-9のようにできる限り垂直に抜去して下さい。 4-2-2 手で直接抜去する場合 Fig-10の“Catching area”をつかみ、できる限り垂直に 抜去して下さい。	Pushing & pulling tool P/N 90435-001  Fig-7 Pushing & pulling tool P/N 90435-001  Fig-8 Pushing & pulling tool P/N 90435-001  Fig-9 Catching area  Fig-10	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;"><b>I-PEX</b> Microconnect and Plug-in-Connectors</td> <td style="text-align: right;">TM/PS/024W</td> </tr> <tr> <td>DESIGNED BY</td> <td>DATE</td> <td rowspan="3" style="text-align: center;">                 TITLE  <b>MHF4 Connector plug</b> </td> </tr> <tr> <td>CHK'D BY</td> <td>DATE</td> </tr> <tr> <td>APP'D BY</td> <td>DATE</td> </tr> <tr> <td>REV</td> <td>ECN</td> <td>BY</td> <td>DATE</td> <td>APP</td> <td rowspan="2" style="text-align: center;">                 PROJECTION   </td> </tr> <tr> <td colspan="5" style="text-align: center;">CUSTOMER COPY</td> </tr> <tr> <td colspan="5" style="text-align: center;">SERIES No. 2814</td> </tr> <tr> <td colspan="5" style="text-align: center;">SCALE: INT: mm</td> </tr> <tr> <td colspan="5" style="text-align: center;">DWG No. 20448</td> </tr> <tr> <td colspan="5" style="text-align: center;">SHEET 2/2</td> </tr> <tr> <td colspan="5" style="text-align: center;">REV. 2</td> </tr> </table>	<b>I-PEX</b> Microconnect and Plug-in-Connectors		TM/PS/024W	DESIGNED BY	DATE	TITLE <b>MHF4 Connector plug</b>	CHK'D BY	DATE	APP'D BY	DATE	REV	ECN	BY	DATE	APP	PROJECTION 	CUSTOMER COPY					SERIES No. 2814					SCALE: INT: mm					DWG No. 20448					SHEET 2/2					REV. 2				
<b>I-PEX</b> Microconnect and Plug-in-Connectors		TM/PS/024W																																																
DESIGNED BY	DATE	TITLE <b>MHF4 Connector plug</b>																																																
CHK'D BY	DATE																																																	
APP'D BY	DATE																																																	
REV	ECN	BY	DATE	APP	PROJECTION 																																													
CUSTOMER COPY																																																		
SERIES No. 2814																																																		
SCALE: INT: mm																																																		
DWG No. 20448																																																		
SHEET 2/2																																																		
REV. 2																																																		

FORM REV.4 I-PEX Confidential III C

# Cable Specification

## 江苏源达线缆科技有限公司

JIANGSU YUANDA OF CABLE TECHNOLOGY CO., LTD.

中国江苏省建湖县航空路5号  
Aviation Road No. 5 Jianhu, Jiangsu, China

1. 适用范围:

Scope

本规格书制定了 50Ω FEP 绝缘射频电缆 YD113 系列的结构和电气特性。

This specification covers the construction and the electrical properties of YD113 series of 50Ω FEP Insulation Coaxial Cable.

2. 结构/Construction:

单位/Unit:mm

项目/Item		详细资料/Details
导体/Conductor	材料/Material	镀银铜线/Silver-coated Copper Wire
	构成(根/mm) Composition(No./mm)	7/0.080
	标称直径/NOM. O. D	0.24±0.03
绝缘层 /Insulation	材料/Material	聚全氟乙丙烯(自然色) /FEP(Natural)
	标称绝缘厚度/Nom. Thick. (mm)	0.23
	标称外径/NOM. O. D	0.70±0.03
屏蔽层/Shield	材料/Material	镀锡铜线/Tinned annealed copper wire
	构成/Composition	16*4/0.05
	编织密度/Coverage (%)	90±5
	标称外径/NOM. O. D	0.92±0.03
护套/Jacket	材料/Material	聚全氟乙丙烯/FEP
	标称护套厚度/ Nom. Thick (mm)	0.10
	标称外径/Nom. O. D (mm)	1.13±0.05
	颜色/Color	按与客户确认的颜色/According to corresponding have approved by the suppliers and customers

3. 电气特性(20℃时)/Electrical Properties(at 20℃)

项目/Item	单位/Unit	详细资料/Details
导体电阻/Conductor Resistance	Ω/km	Max. 581
绝缘电阻/Insulation Resistance	MΩ.km	Min. 200
耐压强度/Dielectric Strength	V(AC)/min	1000
静电容/Capacitance	pF/m	105
特性阻抗/Characteristic Impedance	Ω	50±2.0

江苏源达线缆科技有限公司

JIANGSU YUANDA OF CABLE TECHNOLOGY CO., LTD.

中国江苏省建湖县航空路5号  
Aviation Road No. 5 Jianhu, Jiangsu, China

衰减/Attenuation	dB/m	1GHz	2.20
		2GHz	3.10
		3GHz	3.90
		4GHz	4.50
		5GHz	5.00
		6GHz	5.50
驻波比/Standing wave (0-6GHz)	/	≤1.35	

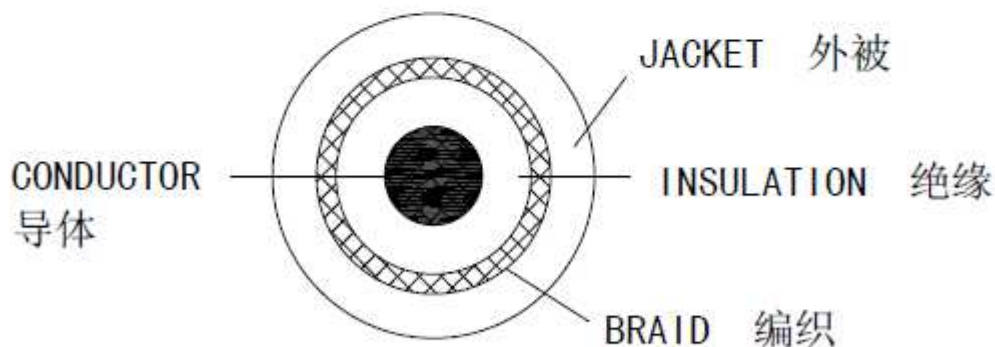
4. 可靠性 Dependability

项目 Item	单位 Unit	标准值 Standard value
最小弯曲半径 (一次) Min.bending static	mm	4.2
工作温度范围 Operating temperature	℃	-55 to +200

5. 包装 Packing

标准单位包装长度为 1000 米/盘, 每盘最多允许 5 个接头, 接头最短长度 20 米, 在搬运过程中不能损坏包装。

Standard unit length of finished cable shall be 1000m on reel, frequency of joint max.5/reel, the mini length is 20m. The finished cable shall be packed not be damaged during transportation



\*\*\*\*\*  
 本产品有时不适合车载用途的情况也有,所以使用前请先和本公司业务部门进行商谈。  
 This product is not suitable for automobile application in some cases.Please contact with our sales department before you use this product.  
 \*\*\*\*\*

规格书完  
End of specification