

# APPROVAL SHEET

**FPCB ANTENNA**

**802.11 ac/b/g/n Series**

**2.4 / 5.x GHz Band Working Frequency**

**Halogens Free Product**

**P/N: RFFPA301213IMLB401**

Customer : 光寶科技股份有限公司

Customer 's Part No. : \_\_\_\_\_

Approval No. : \_\_\_\_\_

Issue Date : \_\_\_\_\_

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





### 1.Explanation of part number :

RF	FPA	3012	13	I	M	L	B	4	01
Type Code	Product Code	FPCB Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	FPCB Antenna	Per 2 digits of length, width e.g.: 3012 Length 30.16mm, Width12.0mm	2 digits for cable length e.g.:13 Length 13.0cm	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>B: Reverse Male</b> F: Female M: Male N: None	<b>0: 0GHz</b> <b>3: 3GHz</b> <b>6: 6GHz</b> <b>5: 5GHz</b> A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band <b>N: NFC</b> <b>T: LTE band</b> W: WCDMA band	B: MP <b>T:During Test</b> X: Pile Run	0:None 1:∅ 0.81 2:∅ 1.32 3:∅ 1.13 4:Low Loss ∅ 1.13 5:∅ 0.5 6:RG316 7: ∅ 1.37 8:RG178 9:Low Loss ∅ 1.37	01~99 series number

### 2.Electrical Specification :

Item	Specification
Working Frequency Range	2400 ~2500 / 5150 ~ 5850 MHz
Return Loss	-10 dB
VSWR	2 max.
Peak Gain	4.04 dBi(@2400 ~2500 MHz) 4.75 dBi(@5150 ~ 5850 MHz)
Polarization	Linear Vertical
Radiation Pattern	Directional
Impedance	50Ω
Operation Temperature	-20℃ ~ +65℃

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.**

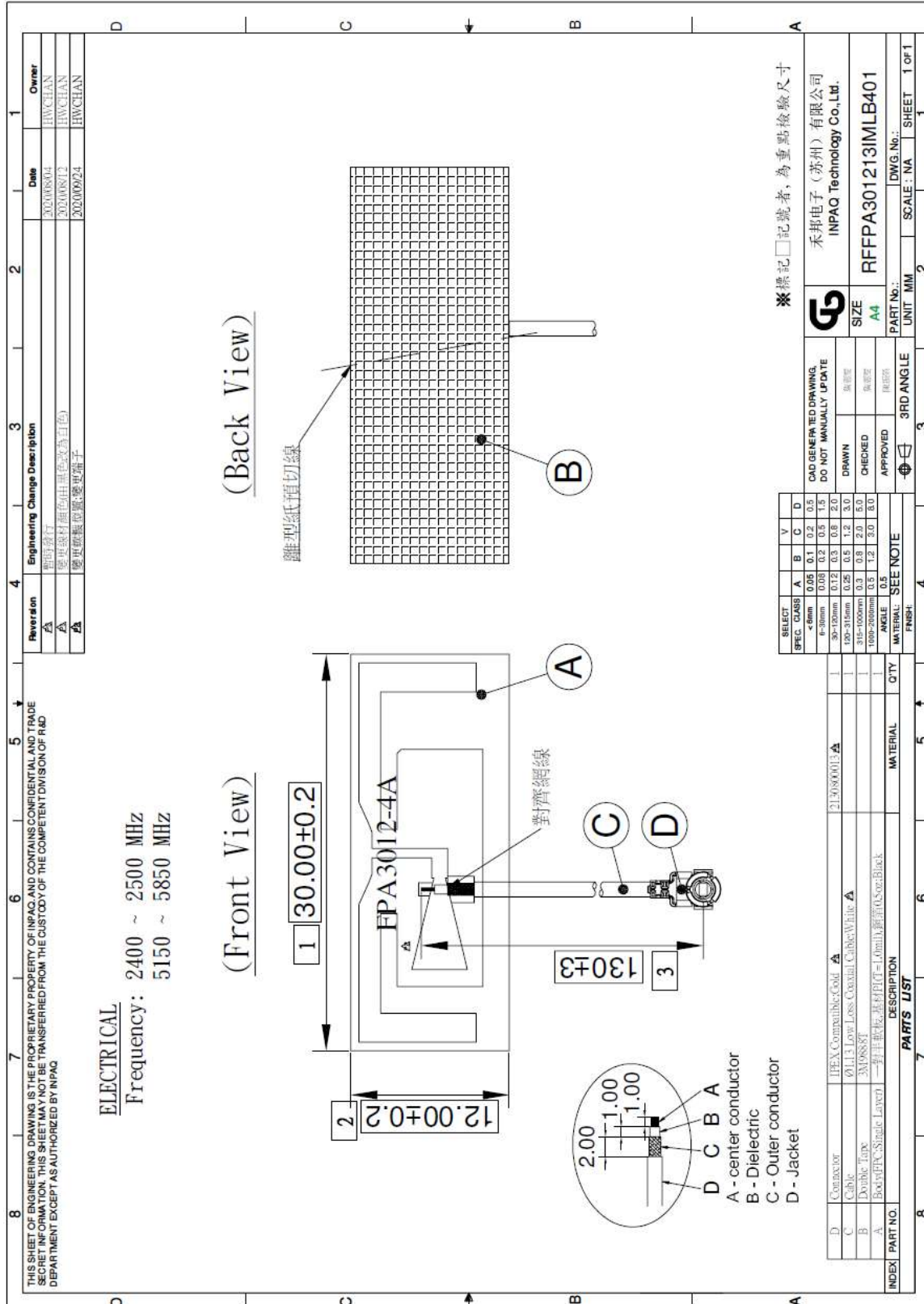
SCALE : N/A      UNIT : mm  
 DRAWN BY : 詹惠雯      CHECKED BY : 詹惠雯  
 DESIGNED BY : 黃瑞郎      APPROVED BY : 陳振榮

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TITLE : RFFPA301103IMLB401

DOCUMENT NO.      ENS070005880-000803538573      SPEC REV. P0

1. Antenna Drawing :



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 : 詹惠愛      CHECKED BY : 詹惠愛  
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TITLE : RFFPA301103IMLB401

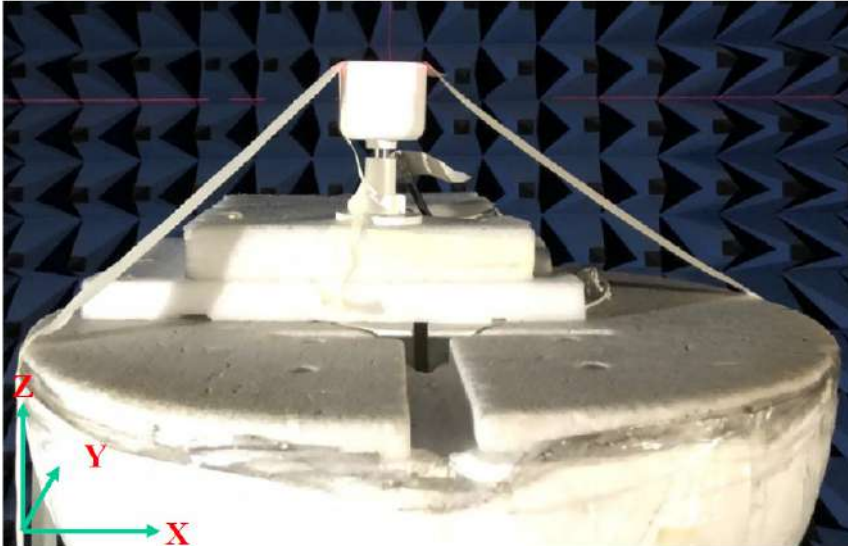
DOCUMENT NO. ENS070005880-000803538573

SPEC REV. P0

2. Performance Report :


**Test Report**

**Experimental Setup**



**ANT1 : RFFPA301205IMLB401**

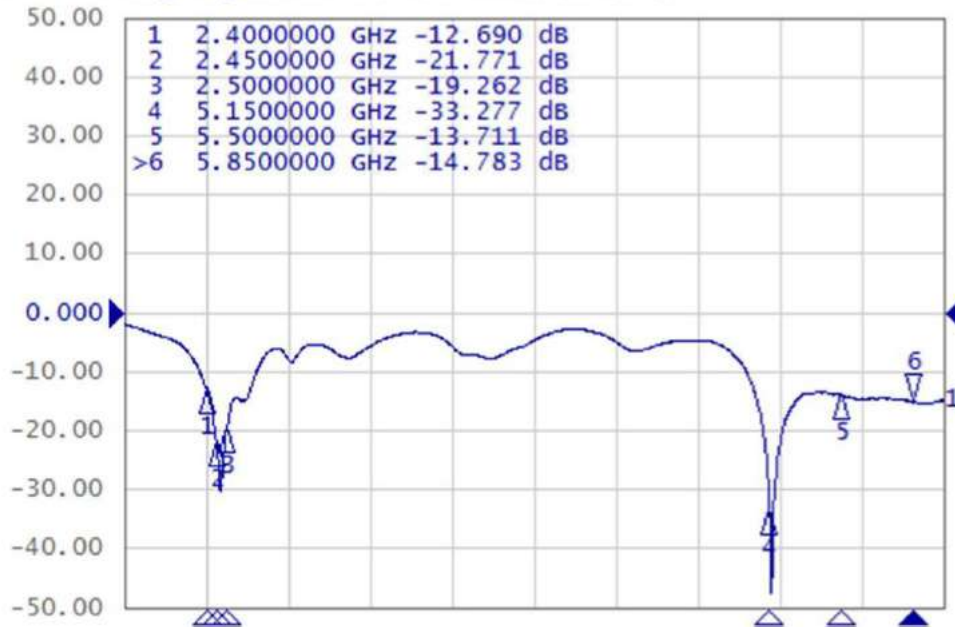
**ANT2 : RFFPA301213IMLB401**


UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm	
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	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
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮	
TITLE : RFFPA301103IMLB401		DOCUMENT NO. ENS070005880-000803538573
		SPEC REV. P0

# ELECTRICAL CHARACTERISTICS

## Return Loss

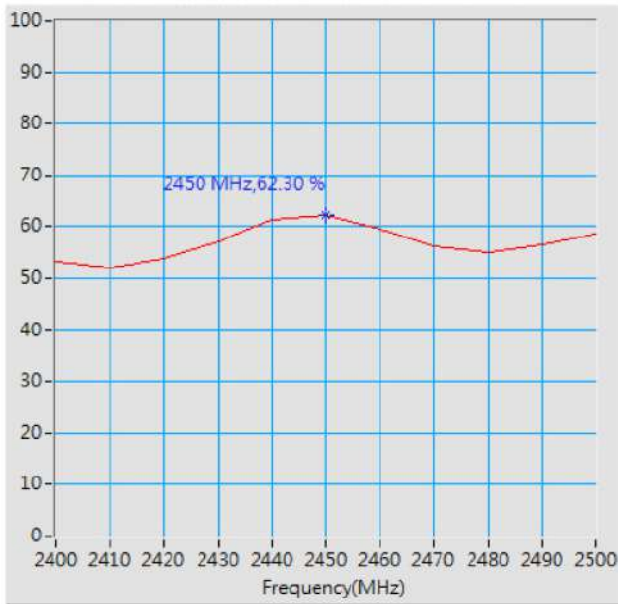
Tr1 S11 Log Mag 10.00 dB/ Ref 0.000 dB [F2]



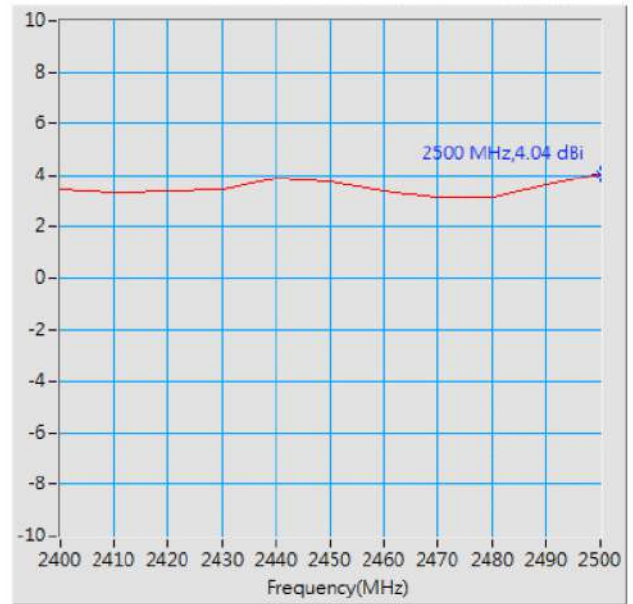
UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
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TITLE : RFFPA301103IMLB401		DOCUMENT NO.	ENS070005880-000803538573
			SPEC REV. P0

## Efficiency & Peak Gain

### ANT2@2G

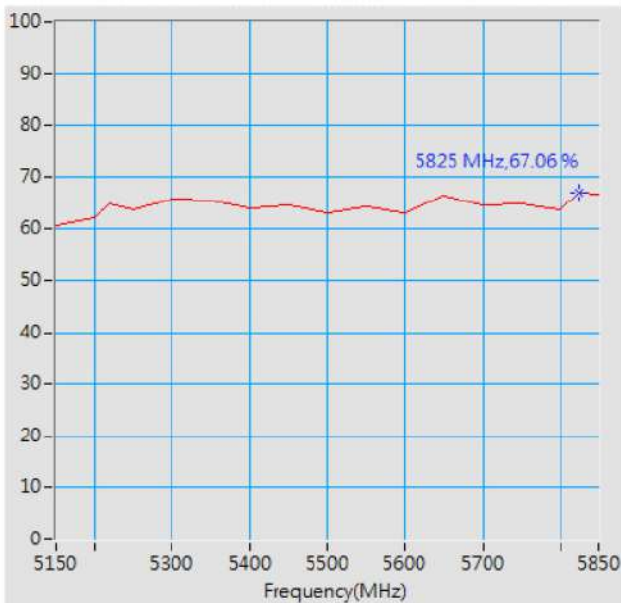


Maximum Efficiency at 2450 MHz : 62.30 %

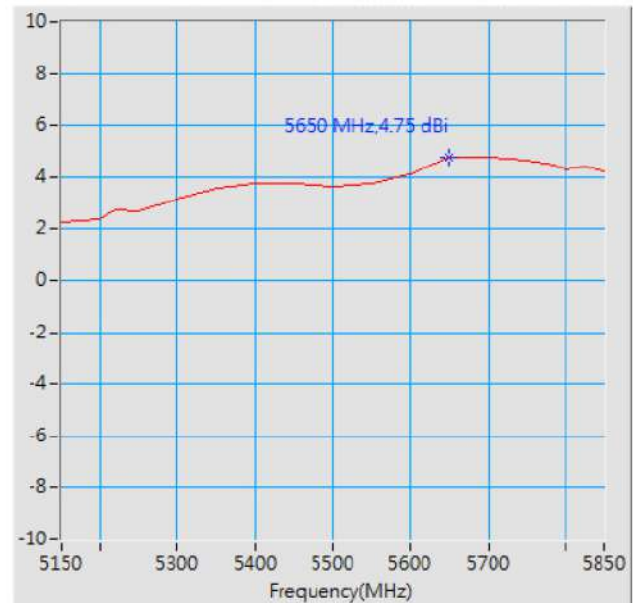


Maximum Peak Gain at 2500 MHz : 4.04 dBi

### ANT2@5G



Maximum Efficiency at 5825 MHz : 67.06 %



Maximum Peak Gain at 5650 MHz : 4.75 dBi

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 : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

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ENS070005880-000803538573

SPEC REV. P0



	ANT1		ANT2	
Frequency (GHz)	Efficiency (%)	Peak gain (dBi)	Efficiency (%)	Peak gain (dBi)
2412	51.76	3.79	52.23	3.33
2437	54.71	3.94	60.22	3.78
2462	53.06	2.89	58.85	3.34
5220	72.15	3.63	64.96	2.72
5300	73.10	4.23	65.49	3.55
5785	72.26	5.12	63.62	4.28
5825	74.74	5.30	66.64	4.24

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A			<b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm		
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			SPEC REV. P0

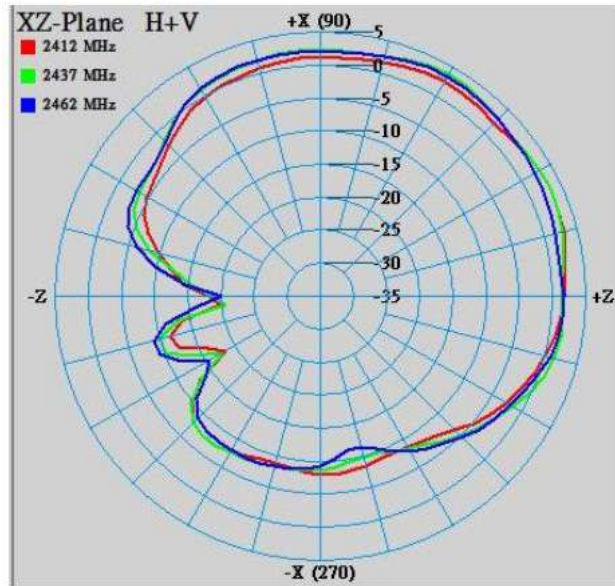
# Radiation Patterns


ANT2@2G

X-Z Plane

Phi=0.00deg

Gain . dB

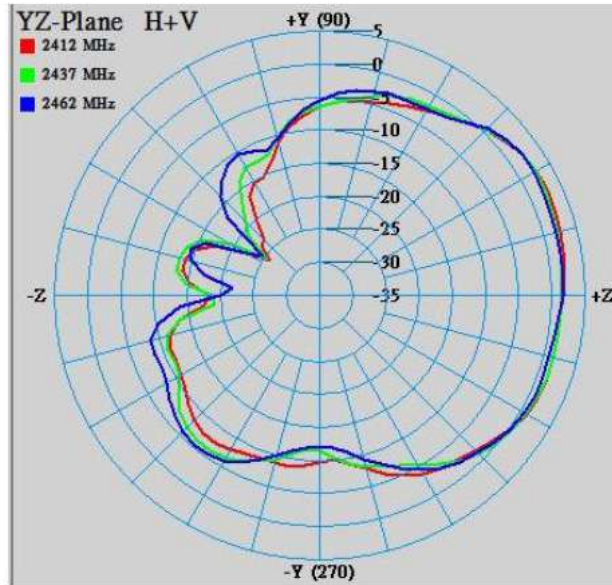



UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A      X.XX = N/A		
ANGLES = N/A		HOLEDIA = N/A	
SCALE : N/A	UNIT : mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
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		SPEC REV. P0	

Y-Z Plane

Phi=90.00deg

Gain . dB

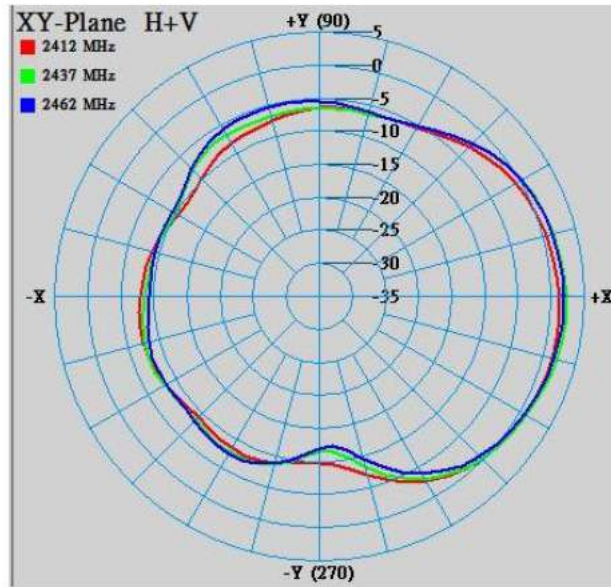


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DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮	DOCUMENT NO. <b>ENS070005880-000803538573</b>	
TITLE : RFFPA301103IMLB401			


# X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2412	3.28	-1.36	2.77	-2.99	1.45	-3.63
2437	3.71	-0.65	2.60	-2.96	2.43	-3.07
2462	3.34	-0.90	2.39	-3.02	2.02	-3.24

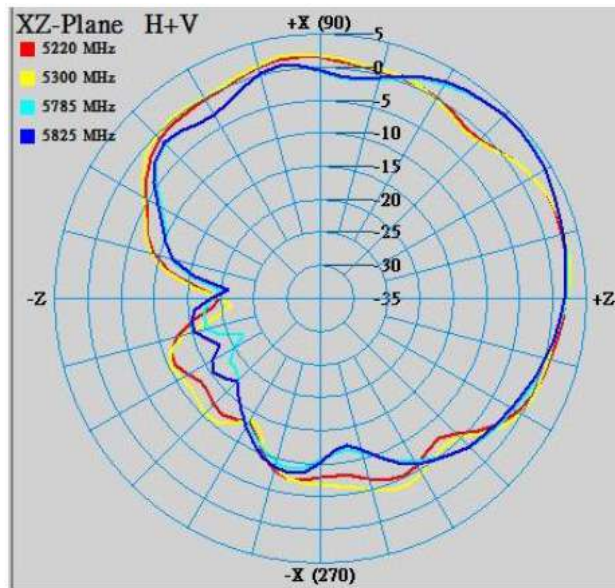
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		SPEC REV. P0	


ANT2@5G

X-Z Plane

Phi=0.00deg

Gain . dB

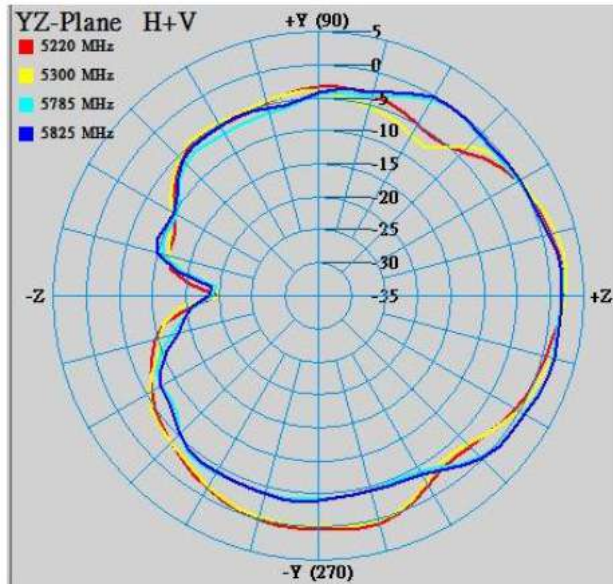



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Y-Z Plane

Phi=90.00deg

Gain . dB

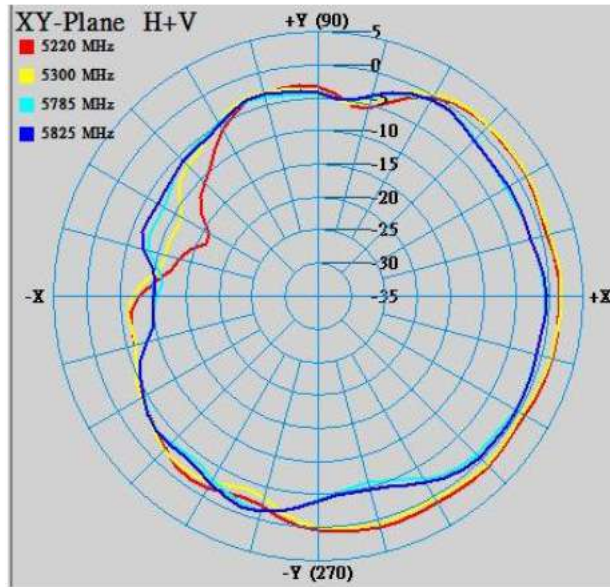


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HOLEDIA = N/A			
SCALE : N/A	UNIT : mm		
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯		
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		SPEC REV. <b>P0</b>	

# X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
5220	2.63	-1.73	2.08	-2.20	1.65	-1.19
5300	2.99	-1.47	2.58	-2.16	1.80	-1.25
5785	4.45	-1.43	2.07	-2.65	-0.58	-3.17
5825	4.30	-1.40	1.92	-2.47	-0.45	-2.94

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



**INPAQ TECHNOLOGY CO., LTD.**

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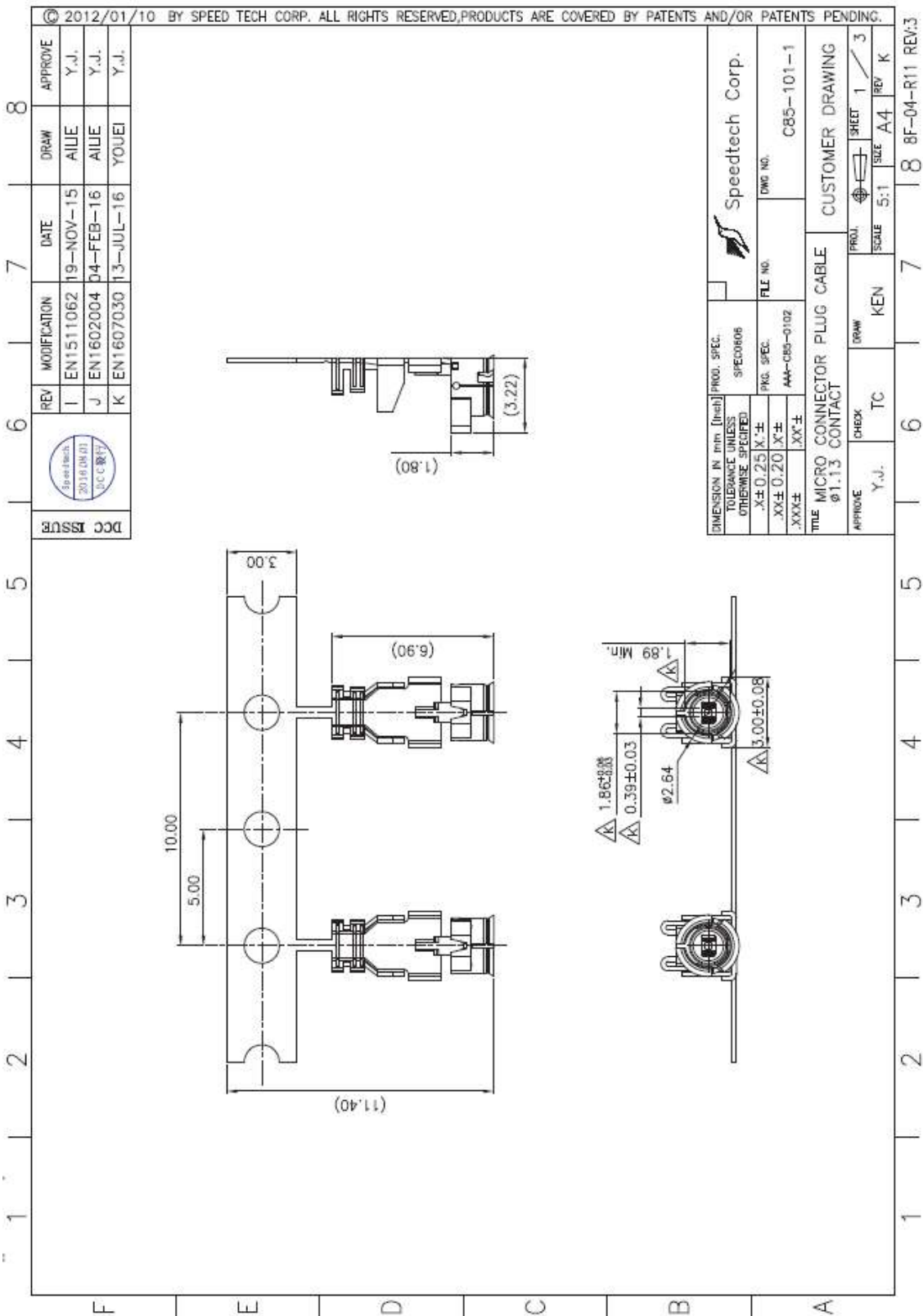
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TITLE : RFFPA301103IMLB401

DOCUMENT NO. ENS070005880-000803538573

SPEC REV. P0


# Connector Specification

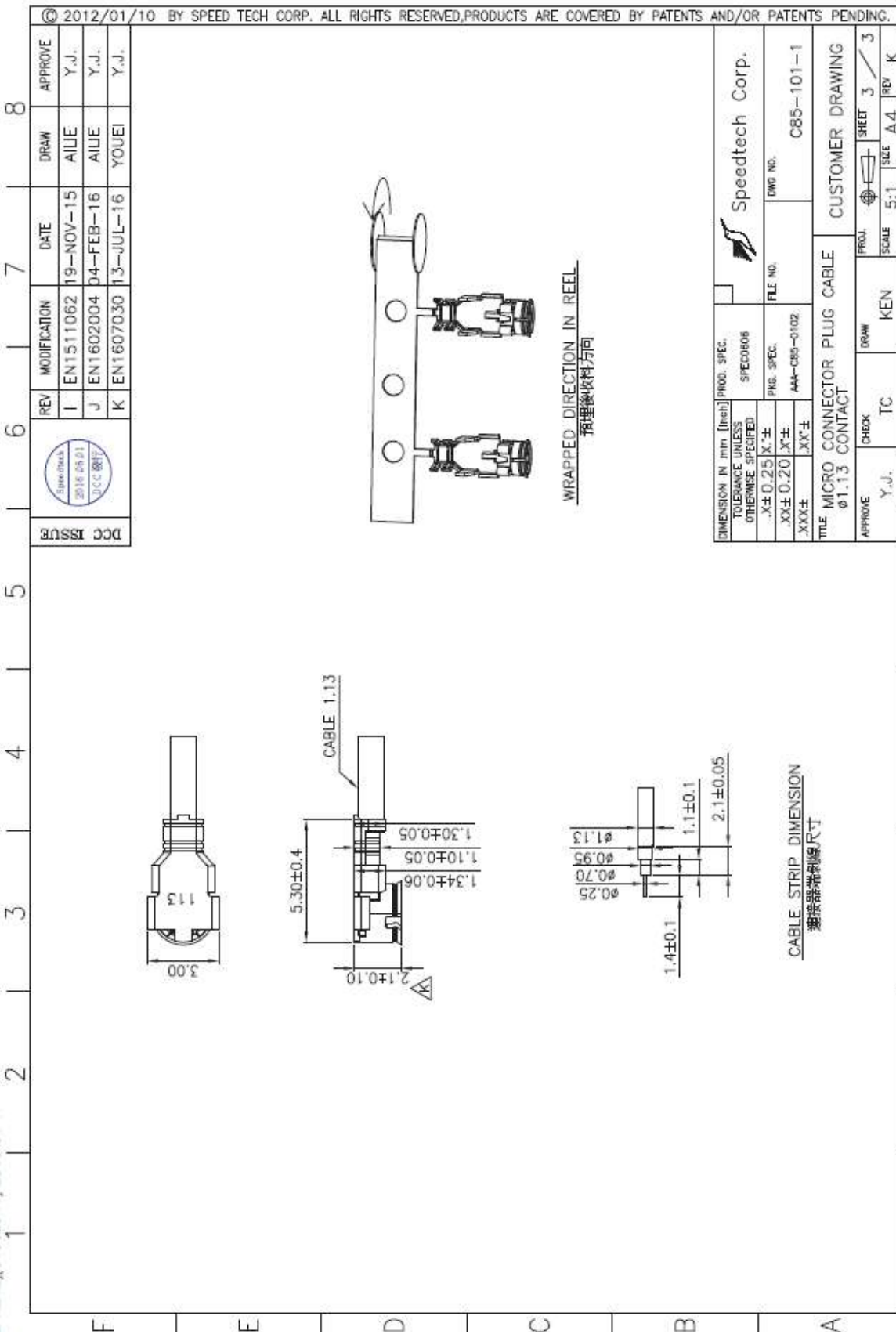


UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X=N/A	X.X=N/A      X.XX=N/A		
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			SPEC REV. P0



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DCC ISSUE		REV		MODIFICATION		DATE	
Speedtech 2018.08.01 VCC 發行		I	EN1511062	19-NOV-15	AIUE		Y.J.
		J	EN1602004	04-FEB-16	AIUE		Y.J.
		K	EN1607030	13-JUL-16	YOUJEI		Y.J.
1		2		3		4	
5		6		7		8	
<p>NOTES:</p> <p>1. MATERIAL                  1-1. HOUSING: HIGH TEMPERATURE THERMOPLASTIC, COLOR IN BLACK.                  1-2. SIGNAL CONTACT: HIGH PERFORMANCE COPPER ALLOY.                  1-3. GROUND CONTACT: HIGH PERFORMANCE COPPER ALLOY.</p> <p>2. FINISH                  2-1. SIGNAL CONTACT                  50u"MIN. NICKEL UNDERPLATING OVER ALL.                  GOLD 1u"MIN. PLATING OVER ALL.                  2-2. GROUND CONTACT                  PLATING SEE ORDER INFORMATION.</p> <p>3. PACKAGE REEL: 2.5 KPCS/REEL                  4. HALOGEN FREE                  C85P101-000XX-H</p> <p>GROUND CONTACT PLATING                  01:50 MIN. NICKEL OVER ALL                  02:50 MIN. NICKEL OVER ALL &amp; GOLD FLASH</p>							
<p>註記:</p> <p>1. 材質:                  1-1. 塑膠本體: 高溫熱塑性塑膠, 塑膠顏色: 黑色                  1-2. 訊號端: 高性能銅合金                  1-3. 接地端: 高性能銅合金</p> <p>2. 電鍍:                  2-1. 訊號端:                  全端子鍍線區最少50 微米吋                  全端子鍍金最少1 微米吋                  2-2. 接地端:                  鍍金規格如下敘述                  3. 捲裝包裝: 2.5KPCS/ 捲                  4. 無鹵料號                  C85P101-000XX-H</p> <p>接地端子電鍍規格:                  01: 全端子鍍線最少50 微米吋                  02: 全端子鍍線最少50 微米吋及鍍薄金。</p>							
DIMENSION IN mm [Inch]		PROD. SPEC.		SPEED TECH CORP.		DWG NO.	
TOLERANCE UNLESS OTHERWISE SPECIFIED		SPEC0806		FILE NO.		C85-101-1	
.X ± 0.25 X ± .1		PKG. SPEC.		AAA-C85-0102			
.XX ± 0.20 X ± .1		XXX ± .XX ±					
.XXX ±		TC		KEN		SHEET 2 / 3	
TITLE MICRO CONNECTOR PLUG CABLE		DRAW		SCALE 5:1		REV A4 REV K	
Ø1.13 CONTACT		CHECK		FROU.		CUSTOMER DRAWING	
APPROVE Y.J.		TC		KEN		18 8F-04-R11 REV.3	

UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X=N/A      X.X=N/A      X.XX=N/A			
ANGLES=N/A      HOLEDIA=N/A		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	
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DRAWN BY : 詹惠愛	CHECKED BY : 詹惠愛		
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFFPA301103IMLB401		DOCUMENT NO.	ENS070005880-000803538573
		SPEC REV. P0	



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REV	MODIFICATION	DATE	DRAW	APPROVE
I	EN1511062	19-NOV-15	AIIUE	Y.J.
J	EN1602004	04-FEB-16	AIIUE	Y.J.
K	EN1607030	13-JUL-16	YOUJEI	Y.J.

Speed Check  
2016.05.01  
DCC 8877

DCC ISSUE

DIMENSION IN mm [inch]	PROD. SPEC.	SPEEDTECH CORP.
TOLERANCE UNLESS OTHERWISE SPECIFIED	SPEC. 0106	
.X±0.25 [X±]	PKG. SPEC.	Speedtech Corp.
.XX±0.20 [X±]	AAA-C85-0102	FILE NO.
.XXX± [X±]		ENG. NO. C85-101-1

TITLE MICRO CONNECTOR PLUG CABLE  
Ø 1.13 CONTACT

APPROVE	CHECK	TC	DRAW	KEN
Y.J.				

PROJ. SHEET 3 / 3  
SCALE 5:1 SIZE A4 REV. K

UNLESS OTHER SPECIFIED TOLERANCES ON :

X=N/A      X.X=N/A      X.XX=N/A

ANGLES=N/A      HOLEDIA=N/A

SCALE : N/A      UNIT : mm

DRAWN BY : 詹惠愛      CHECKED BY : 詹惠愛

DESIGNED BY : 黃瑞郎      APPROVED BY : 陳振榮

TITLE : RFFPA301103IMLB401

DOCUMENT NO.	ENS070005880-000803538573	SPEC REV.
		P0

# 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 绝缘低损耗射频电缆 YD113L 系列的结构和电气特性。  
This specification covers the construction and the electrical properties of YD113L series of 50Ω FEP Insulation Low Loss 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)	7/0.083
	标称直径/Nom. O. D(mm)	0.245±0.02
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)	0.24
	标称外径/Nom. O. D(mm)	0.73±0.03
屏蔽层/Shield	材料/Material	铜箔+镀锡铜线/Copper Mylar Tape+Tinned annealed copper wire
	构成/Composition(mm)	0.015 铜箔纵包/Vertical Wrapping the Copper Mylar Tape of 0.015 0.05 单线编织/Single Braid of 0.05
	标称外径/Nom. O. D(mm)	0.95±0.05
护套/Jacket	材料/Material	聚全氟乙丙烯(*颜色)/FEP(*color)
	标称护套厚度/Nom. Thick(mm)	0.10
	标称外径/Nom. O. D(mm)	1.18±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. 500
耐压强度/Dielectric Strength	V(AC)/min	500
静电容/Capacitance	pF/m	98 (1kHz)

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 : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黄瑞郎

APPROVED BY : 陈振荣

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TITLE : RFFPA301103IMLB401

DOCUMENT NO.

ENS070005880-000803538573

SPEC REV. P0

# 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

特性阻抗 /Characteristic Impedance	Ω	50±2.0	
衰减/Attenuation	dB/m	1GHz	≤1.75
		2GHz	≤2.35
		2.45GHz	≤2.55
		3GHz	≤2.90
		4GHz	≤3.45
		5GHz	≤3.80
		5.2GHz	≤3.95
		5.8GHz	≤4.15
6GHz	≤4.35		
驻波比/Standing wave(0-6GHz)	/	≤1.30	

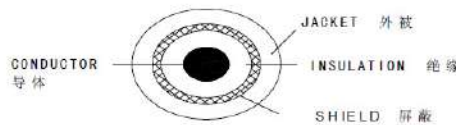
4. 可靠性 Dependability

项目 Item	单位 Unit	标准值 Standard value
最小弯曲半径 (一次) Min.bending static	mm	4.5
工作温度范围 Operating temperature	°C	-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

UNLESS OTHER SPECIFIED TOLERANCES ON : X = N/A      X.X = N/A      X.XX = N/A ANGLES = N/A      HOLEDIA = N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm	
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	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
DESIGNED BY : 黄瑞郎	APPROVED BY : 陳振榮	
TITLE : RFFPA301103IMLB401		DOCUMENT NO. ENS070005880-000803538573
		SPEC REV. P0

# Package

RFFPA301213IMLB401包規		頁次： 1 之 1	
		規章編號：	版次： A0
		制修訂日期： 2020/8/11	
產品包裝圖示：			
圖一			
	⇒		⇒
單pcs產品		PE袋	⇒
			
		每25pcs一扎, 100pcs/袋	
圖二			
	⇒		⇒
珍珠棉		外箱	⇒
			
		珍珠棉放入外箱	
圖三			
	⇒		⇒
			⇒
			
產品包裝規範：			
1. 將每25pcs產品使用珍珠棉將端子端用白色橡皮筋包扎,然後裝入PE袋內, 每PE袋100pcs, PE袋需封口, 如圖示(一)			
2. 將珍珠棉放入外箱中(如圖示二)			
3. 將裝好的成品(如圖示三)放入外箱中, 每箱放4000pcs產品, 上下各放1片珍珠棉, 將包裝好的外箱左上方貼製造標籤			
4. 製造標籤需貼到最小包裝。			
核准:	何耀輝	審核:	童明輝
			制定:
			李連杰

UNLESS OTHER SPECIFIED TOLERANCES ON :			INPAQ TECHNOLOGY CO., LTD.	
X=N/A	X.X=N/A			
ANGLES=N/A	HOLEDIA=N/A			
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 : 詹惠雯	CHECKED BY : 詹惠雯			
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮			
TITLE : RFFPA301103IMLB401		DOCUMENT NO.	ENS070005880-000803538573	SPEC REV.
				P0

# APPROVAL SHEET

**FPCB ANTENNA**

**802.11 ac/b/g/n Series**

**2.4 / 5.x GHz Band Working Frequency**

**Halogens Free Product**

**P/N: RFFPA301205IMLB401**

Customer : 光寶科技股份有限公司

Customer 's Part No. : \_\_\_\_\_

Approval No. : \_\_\_\_\_

Issue Date : \_\_\_\_\_

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







### 1.Explanation of part number :

RF	FPA	3012	05	I	M	L	B	4	01
Type Code	Product Code	FPCB Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	FPCB Antenna	Per 2 digits of length, width e.g.: 3012 Length 30.16mm, Width12.0mm	2 digits for cable length e.g.:05 Length 5.0cm	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>B: Reverse Male</b> F: Female M: Male N: None	<b>0: 0GHz</b> <b>3: 3GHz</b> <b>6: 6GHz</b> <b>5: 5GHz</b> A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band <b>N: NFC</b> <b>T: LTE band</b> W: WCDMA band	B: MP <b>T:During Test</b> X: Pile Run	0:None 1:∅ 0.81 2:∅ 1.32 3:∅ 1.13 4:Low Loss ∅ 1.13 5:∅ 0.5 6:RG316 7: ∅ 1.37 8:RG178 9:Low Loss ∅ 1.37	01~99 series number

### 2.Electrical Specification :

Item	Specification
Working Frequency Range	2400 ~2500 / 5150 ~ 5850 MHz
Return Loss	-10 dB
VSWR	2 max.
Peak Gain	4.04 dBi(@2400 ~2500 MHz) 5.63 dBi(@5150 ~ 5850 MHz)
Polarization	Linear Vertical
Radiation Pattern	Directional
Impedance	50Ω
Operation Temperature	-20℃ ~ +65℃

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 : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

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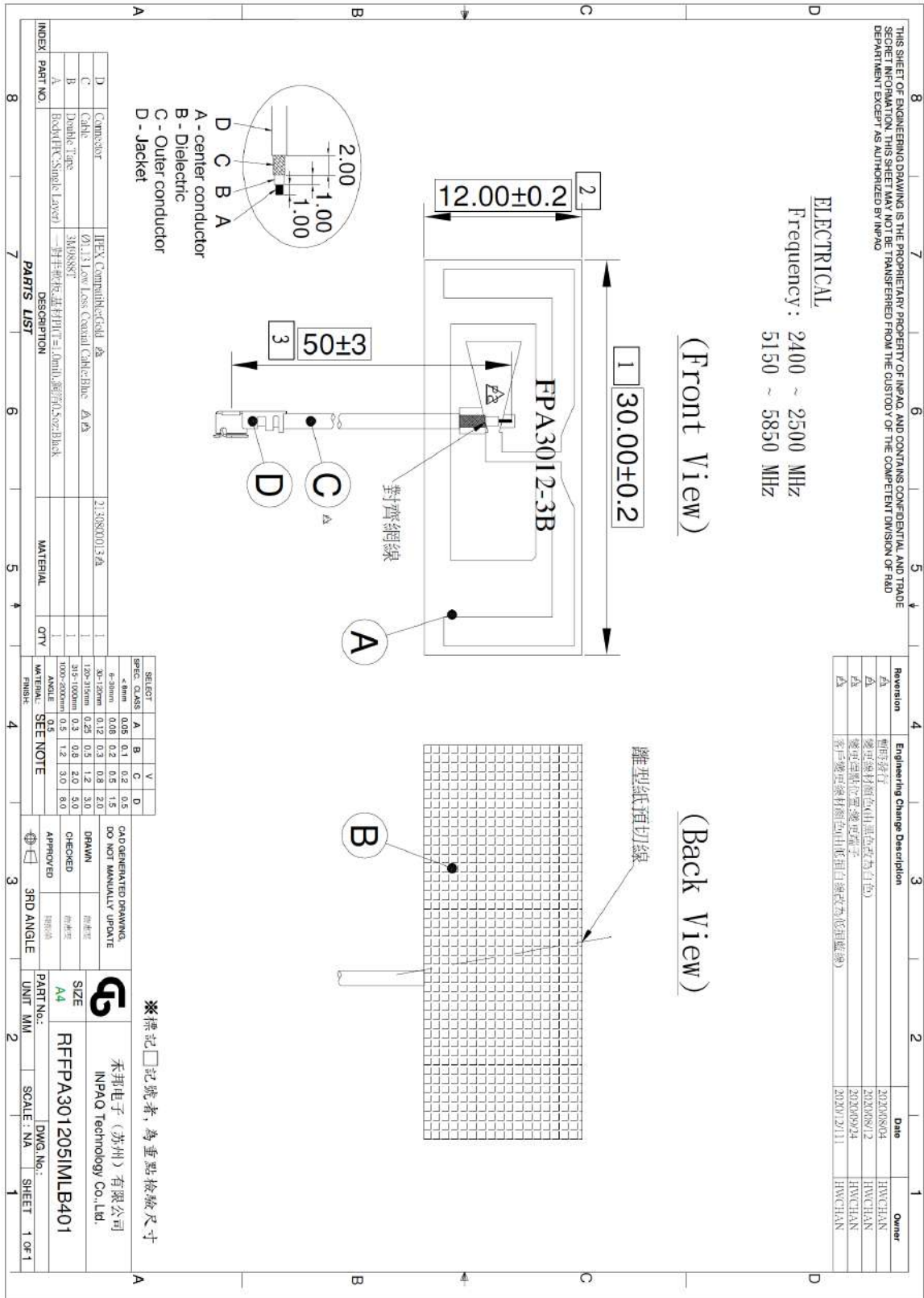
TITLE : RFFPA301205IMLB401


DOCUMENT NO.

ENS070008870-000803568916

SPEC REV. A1

### 3. Antenna Drawing :

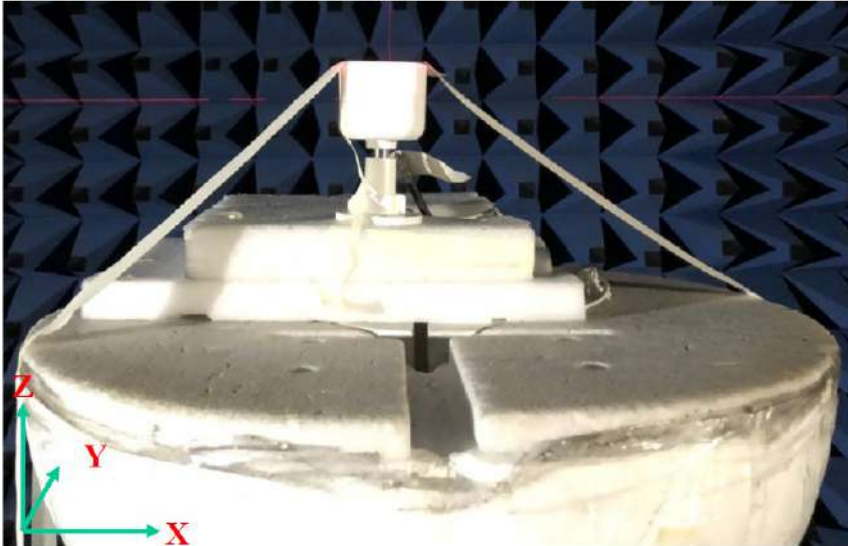


UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm	
DRAWN BY : 詹惠愛	CHECKED BY : 詹惠愛	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮	
TITLE : RFFPA301205IMLB401		DOCUMENT NO. ENS070008870-000803568916
		SPEC REV. A1

4. Performance Report :


**Test Report**

**Experimental Setup**



**ANT1 : RFFPA301205IMLB401**

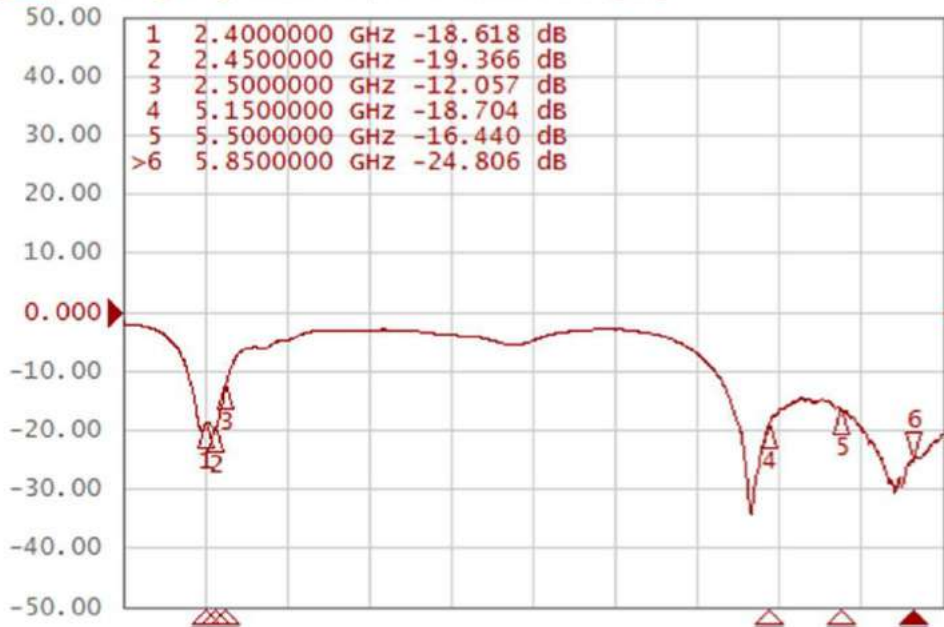
**ANT2 : RFFPA301213IMLB401**


UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm	
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	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
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TITLE : RFFPA301205IMLB401		DOCUMENT NO. ENS070008870-000803568916
		SPEC REV. A1

# ELECTRICAL CHARACTERISTICS

## Return Loss

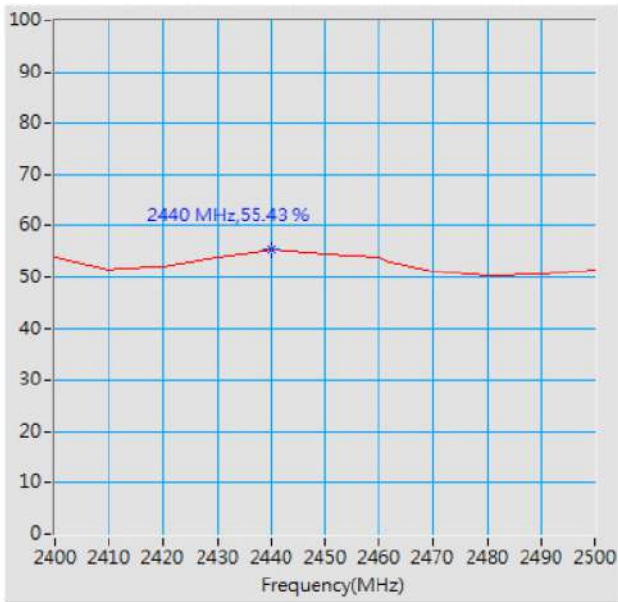
▶ **IT2** S22 Log Mag 10.00 dB/ Ref 0.000 dB [F2]



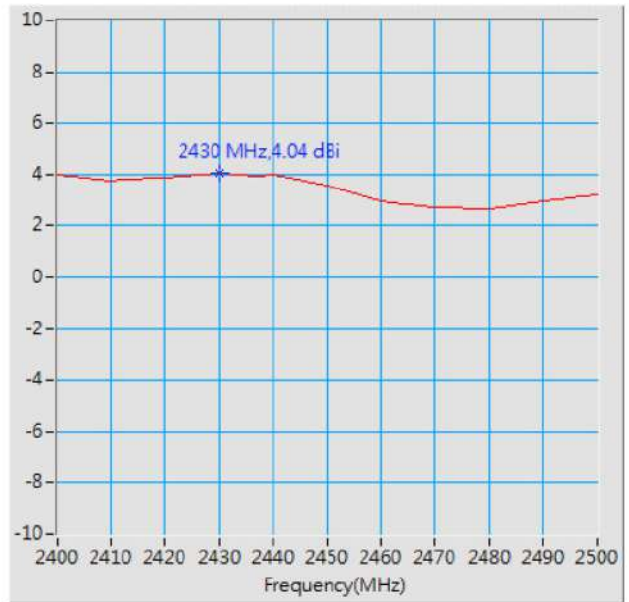
UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A		 <b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm	
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION
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TITLE : RFFPA301205IMLB401		DOCUMENT NO. ENS070008870-000803568916
		SPEC REV. A1

## Efficiency & Peak Gain

### ANT1@2G

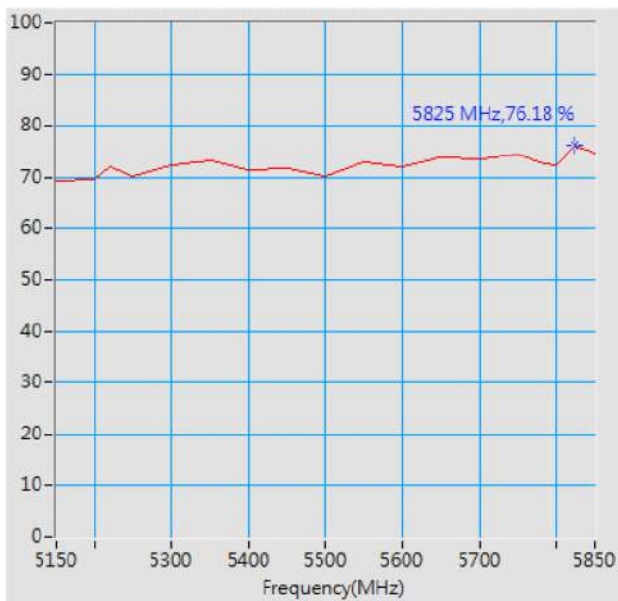


Maximum Efficiency at 2440 MHz : 55.43 %

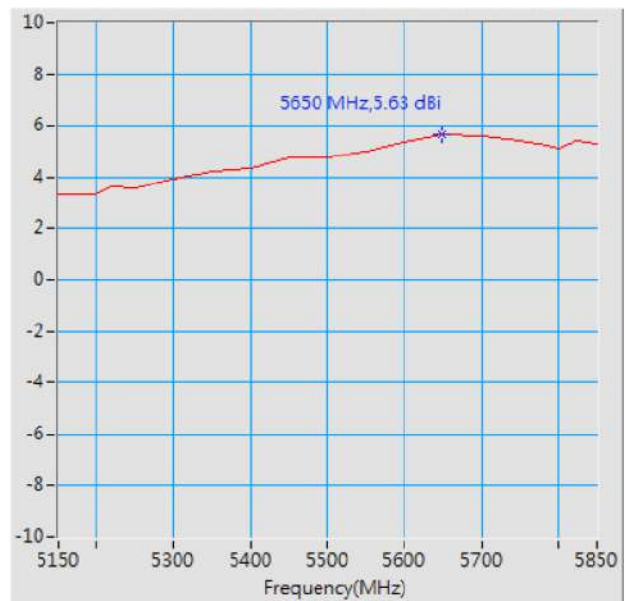


Maximum Peak Gain at 2430 MHz : 4.04 dBi

### ANT1@5G



Maximum Efficiency at 5825 MHz : 76.18 %



Maximum Peak Gain at 5650 MHz : 5.63 dBi

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 : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY : 黃瑞郎

APPROVED BY : 陳振榮

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TITLE : RFFPA301205IMLB401

DOCUMENT NO.

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SPEC REV.  
A1

	ANT1		ANT2	
Frequency (GHz)	Efficiency (%)	Peak gain (dBi)	Efficiency (%)	Peak gain (dBi)
2412	51.76	3.79	52.23	3.33
2437	54.71	3.94	60.22	3.78
2462	53.06	2.89	58.85	3.34
5220	72.15	3.63	64.96	2.72
5300	73.10	4.23	65.49	3.55
5785	72.26	5.12	63.62	4.28
5825	74.74	5.30	66.64	4.24

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.	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		
SCALE : N/A	UNIT : mm				
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯				
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮				
TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916	SPEC REV.	A1

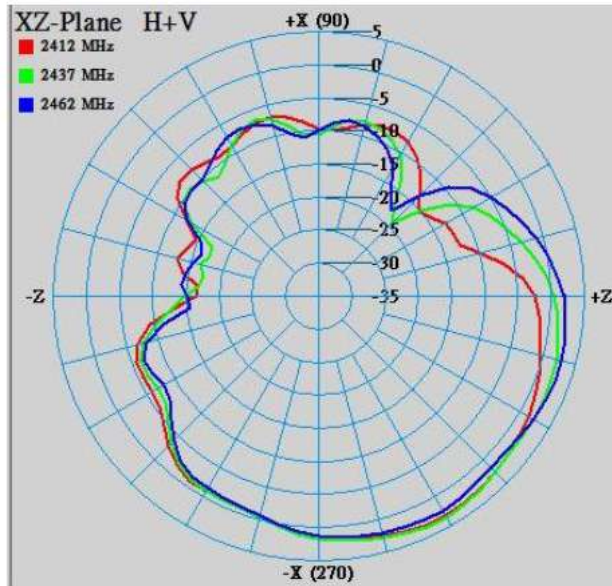
# Radiation Patterns


ANT1@2G

X-Z Plane

Phi=0.00deg

Gain . dB

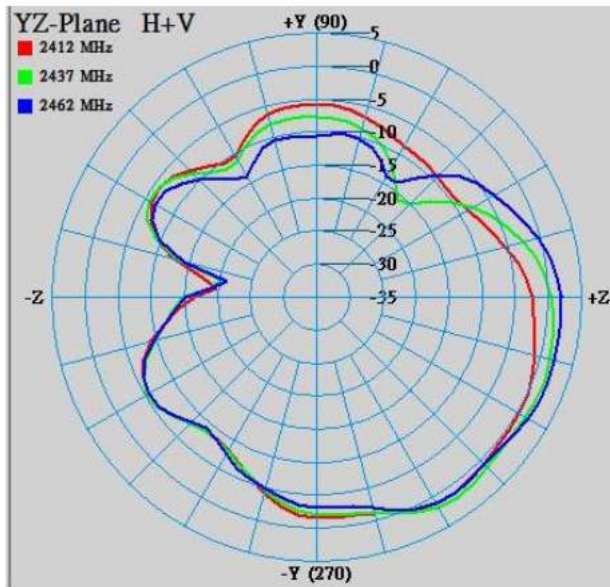



UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A		
ANGLES = N/A		HOLEDIA = N/A	
SCALE : N/A	UNIT : mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯		
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916
		SPEC REV. A1	

Y-Z Plane

Phi=90.00deg

Gain . dB



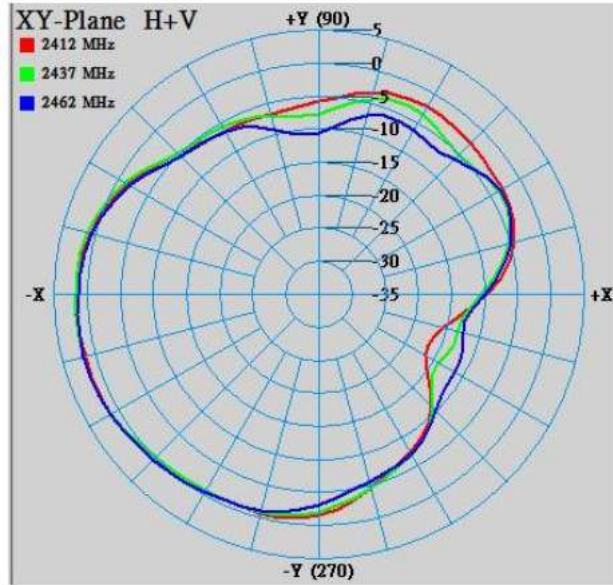
UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A      X.XX = N/A		
ANGLES = N/A		HOLEDIA = N/A	
SCALE : N/A	UNIT : mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
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TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916
			SPEC REV. A1



X-Y Plane

Theta=90.00deg

Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2412	3.29	-2.34	1.24	-4.07	1.66	-2.43
2437	3.60	-1.79	2.00	-3.40	1.84	-2.60
2462	2.86	-1.90	2.27	-3.21	1.81	-2.96

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 : 詹惠雯      CHECKED BY : 詹惠雯  
 DESIGNED BY : 黃瑞郎      APPROVED BY : 陳振榮

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TITLE : RFFPA301205IMLB401

DOCUMENT NO. ENS070008870-000803568916

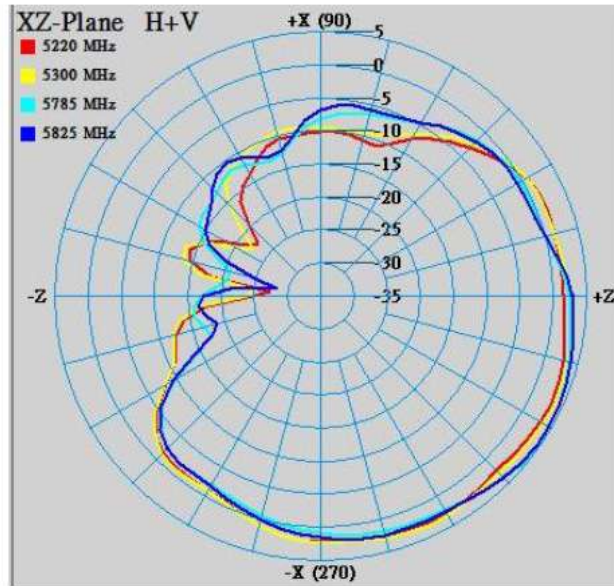
SPEC REV. A1


ANT1@5G

X-Z Plane

Phi=0.00deg

Gain . dB

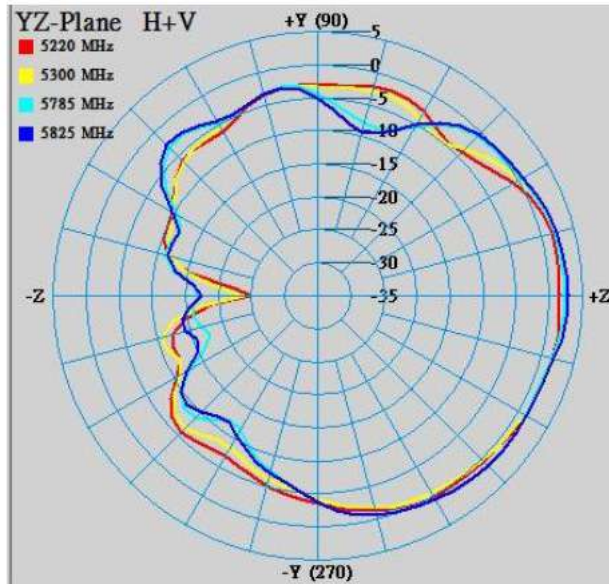



UNLESS OTHER SPECIFIED TOLERANCES ON :			INPAQ TECHNOLOGY CO., LTD.
X = N/A	X.X = N/A      X.XX = N/A		
ANGLES = N/A		HOLEDIA = N/A	
SCALE : N/A	UNIT : mm	THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
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TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916
		SPEC REV. A1	

Y-Z Plane

Phi=90.00deg

Gain . dB

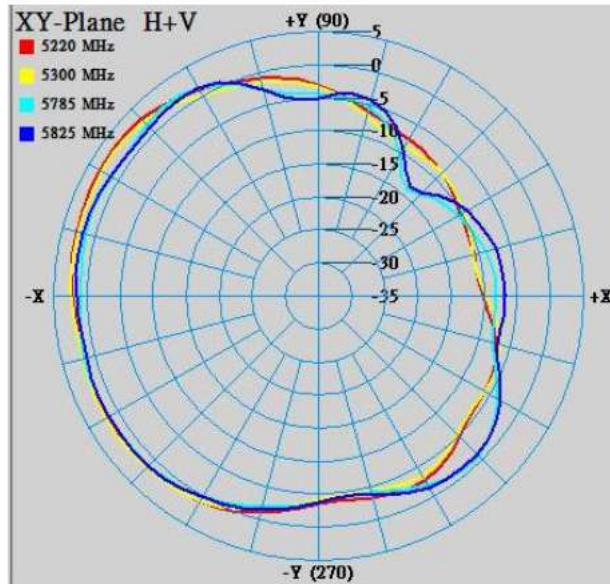


UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A		
ANGLES = N/A		HOLEDIA = N/A	
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DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916
			SPEC REV. A1


# X-Y Plane

Theta=90.00deg

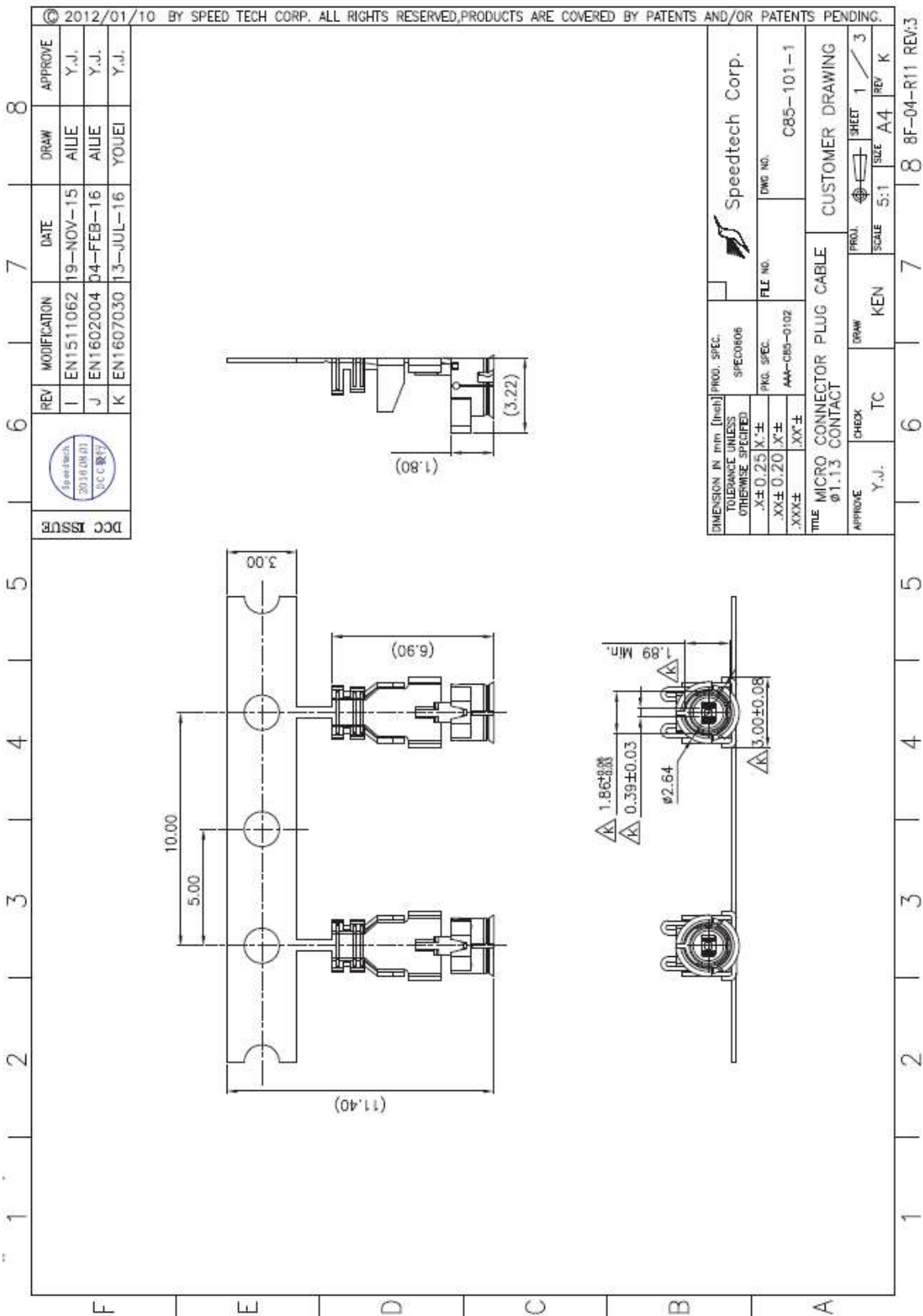
Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
5220	3.27	-0.98	1.72	-2.41	3.21	-0.94
5300	3.76	-0.60	2.61	-2.32	2.78	-1.14
5785	4.75	-0.86	2.26	-2.21	2.08	-1.47
5825	4.68	-0.64	2.81	-1.99	1.82	-1.33

UNLESS OTHER SPECIFIED TOLERANCES ON : X=N/A      X.X=N/A      X.XX=N/A ANGLES=N/A      HOLEDIA=N/A			<b>INPAQ TECHNOLOGY CO., LTD.</b>
SCALE : N/A	UNIT : mm		
DRAWN BY : 詹惠雯	CHECKED BY : 詹惠雯	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	
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916
			SPEC REV. A1

# Connector Specification




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

SCALE : N/A      UNIT : mm

DRAWN BY : 詹惠愛      CHECKED BY : 詹惠愛  
 DESIGNED BY : 黃瑞郎      APPROVED BY : 陳振榮

TITLE : RFFPA301205IMLB401




**INPAQ TECHNOLOGY CO., LTD.**

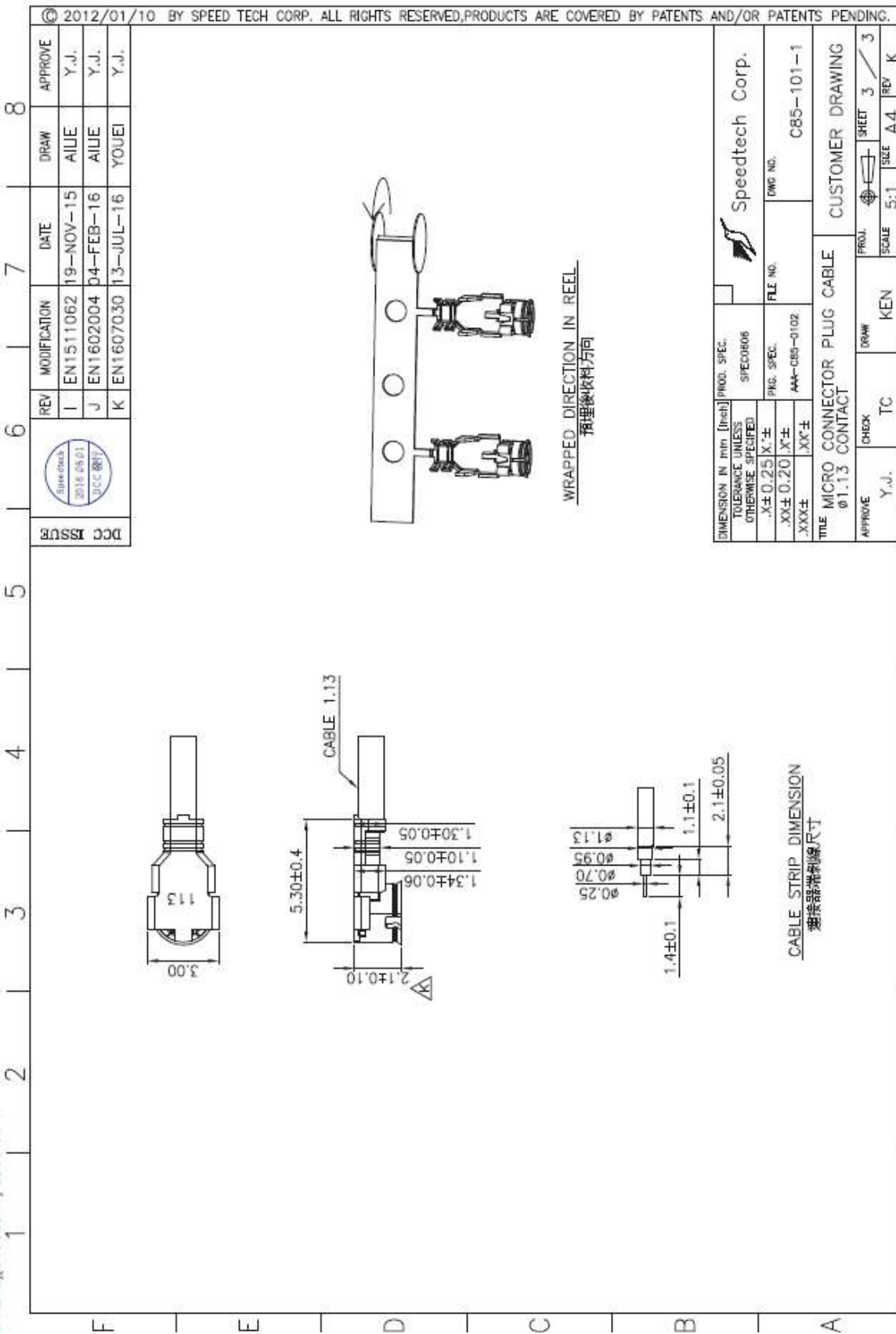
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DOCUMENT NO.	ENS070008870-000803568916	SPEC REV.	A1
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DCC ISSUE		REV		MODIFICATION	DATE	DRAW	APPROVE
Speedtech 2018.08.01 VCC 發行		I	EN1511062	19-NOV-15		AIUE	Y.J.
		J	EN1602004	04-FEB-16		AIUE	Y.J.
		K	EN1607030	13-JUL-16		YOUJEI	Y.J.
<p>註記:</p> <p>1. 材質:                      1-1. 塑膠本體: 高溫熱塑性塑膠, 塑膠顏色: 黑色                      1-2. 插鍍端: 高性能銅合金                      1-3. 接地端: 高性能銅合金                      2. 電鍍:                      2-1. 訊號端:                      全端子鍍線區最少 50 微米吋                      全端子鍍金最少 1 微米吋                      2-2. 接地端:                      鍍金規格如下敘述                      3. 包裝包裝: 2.5KPCS/ 捲                      4. 無鹵料號                      C85P101-000XX-H</p> <p>接地端子電鍍規格:                      01: 全端子鍍線最少 50 微米吋                      02: 全端子鍍線最少 50 微米吋及鍍薄金。</p>							
<p>NOTES:</p> <p>1. MATERIAL                      1-1. HOUSING: HIGH TEMPERATURE THERMOPLASTIC, COLOR IN BLACK.                      1-2. SIGNAL CONTACT: HIGH PERFORMANCE COPPER ALLOY.                      1-3. GROUND CONTACT: HIGH PERFORMANCE COPPER ALLOY.                      2. FINISH                      2-1. SIGNAL CONTACT                      50u" MIN. NICKEL UNDERPLATING OVER ALL.                      GOLD 1u" MIN. PLATING OVER ALL.                      2-2. GROUND CONTACT                      PLATING SEE ORDER INFORMATION.                      3. PACKAGE REEL: 2.5 KPCS/ REEL                      4. HALOGEN FREE                      C85P101-000XX-H</p> <p>GROUND CONTACT PLATING                      01: 50 MIN. NICKEL OVER ALL                      02: 50 MIN. NICKEL OVER ALL &amp; GOLD FLASH</p>							

DIMENSION IN mm [Inch]		PROD. SPEC.	Speedtech Corp.	
TOLERANCE UNLESS OTHERWISE SPECIFIED		SPEC0806	DWG NO.	
.X ± 0.25 X ±	.X ±	PKG. SPEC.	FILE NO.	C85-101-1
.XX ± 0.20 X ±	.X ±	AAA-C85-0102	DWG NO.	
.XXX ±	.XX ±	C85-101-1		
TITLE MICRO CONNECTOR PLUG CABLE CUSTOMER DRAWING				
APPROVE		CHECK	TC	SCALE
Y.J.				5:1
DRAW		KEN		SHEET
				2 / 3
				A4
				REV K
				18 8F-04-R11 REV.3

UNLESS OTHER SPECIFIED TOLERANCES ON :			<b>INPAQ TECHNOLOGY CO., LTD.</b>
X = N/A	X.X = N/A		
ANGLES = N/A		HOLEDIA = N/A	
SCALE : N/A	UNIT : mm		
DRAWN BY : 詹惠愛	CHECKED BY : 詹惠愛		
DESIGNED BY : 黃瑞郎	APPROVED BY : 陳振榮		
TITLE : RFFPA301205IMLB401		DOCUMENT NO.	ENS070008870-000803568916
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 DCC ISSUE	REV	MODIFICATION	DATE	DRAW	APPROVE
	I	EN1511062	19-NOV-15	AIIUE	Y.J.
	J	EN1602004	04-FEB-16	AIIUE	Y.J.
	K	EN1607030	13-JUL-16	YOUJEI	Y.J.


DIMENSION IN mm [inch] PROD. SPEC. SPEEDOR06 TOLERANCE UNLESS OTHERWISE SPECIFIED .X±0.25 X± .XX±0.20 X± .XXX± .XX±		PROD. SPEC. SPEEDOR06 FILE NO. AAA-C85-0102 DWG NO. C85-101-1
TITLE MICRO CONNECTOR PLUG CABLE Ø 1.13 CONTACT		
APPROVE Y.J.	CHECK TC	DRAW KEN SCALE 5:1 SHEET 3 / 3 SIZE A4 REV K

Speedtech Corp.

CUSTOMER DRAWING

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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		SPEC REV. A1

# Cable Specification

<b>型号 Type</b>	RF-1.13L/50	<b>料号 P/N</b>	SY113L/50-008(Blue)
<b>结构图 Structure drawing</b>			


结构特性 Structure characteristics		
结构 Structure	项目 Item	标准值 Standard value
①内导体 Inner conductor	材料 Material	镀银铜线 Silverplated copper wire
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)	7/0.083
	(综合)标称外径(mm) (Inter twist)NOM O.D.(mm)	0.249±0.02
②绝缘层 Insulation	材料 Material	聚全氟乙丙烯 FEP
	颜色 Color	透明 Clarity
	标称外径(mm) NOM O.D.(mm)	0.735±0.03
③外导体 Outer conductor	材料 Material	铜塑层 Cu-plastic composite tape
	组成:厚度(mm)×宽度(mm) Makeup:thickness(mm)×width(mm)	0.012×2.5
	标称外径(mm) NOM O.D.(mm)	0.759±0.03
	覆盖率(%) Coverage ratio(%)	100
④外导体 Outer conductor	材料 Material	镀锡铜线 Tinned copper wire
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)	4/0.05
	标称外径(mm) NOM O.D.(mm)	0.96±0.05
	覆盖率(%) Coverage ratio(%)	90±5
⑤护套层 Jacket	材料 Material	聚全氟乙丙烯 FEP
	颜色 Color	蓝 Blue
	标称外径(mm) NOM O.D.(mm)	1.15±0.05

电性能特性 Electrical characteristics				
项目 Item	标准值 Standard value	项目 Item	频率 Frequency	标准值 Standard value 单位 Unit:dB/m
电容(pF/m) Capacitance(pF/m)	98	衰减 Attenuation	1GHz	≤1.88
速率(%) Velocity(%)	70		2GHz	≤2.55
阻抗(Ω) Impedance(Ω)	50±2		3GHz	≤3.05
驻波比 Standing wave ratio	≤1.3@0-6GHz		4GHz	≤3.52
最大工作电压(V) Max operating voltage(V)	1000		5GHz	≤4.05
最大工作频率(GHz) Max operating frequency(GHz)	6		6GHz	≤4.4

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 radius static	mm	4	
最小弯曲半径(重复) Min bending radius repeated	mm	—	
工作温度范围 Operating temperature	℃	-55--+200	

包装 Packing			
项目 Item	单位 Unit	标准值 Standard value	
包装方式 Packing mode	/	纸盘 Papery plate	
每盘长度 The length of each plate	m	1000	
每盘接头数 Each connector plate number	/	≤5	
每段最短长度 The shortest length of each root	m	≥10	

使用提示 Use tips	
存储环境 Storage environment	温度: 30℃以下; 湿度: 20%~85%
最佳保存周期 The best save cycle	2个月; 2个月以上作业性下降, 如上物效果变差, 但电性能不受影响, 夏季高温高湿环境开剥后需尽快流转
加工温度 Processing temperature	260℃的极限情况下, 可短时间承受; 300℃以上分子通常带有的等端基会分解; 400℃以上发生显著的热分解
收缩及收缩 Teflon Shrink	固有材料特性, 绝缘: 0.2mm以下; 护套: 0.3mm以下
护套牵引 Jacket traverse	加工长度(护套残留长度) 低于5cm易发生
<b>其他 Other</b>	
特殊加工工艺, 请与供方协商后使用	

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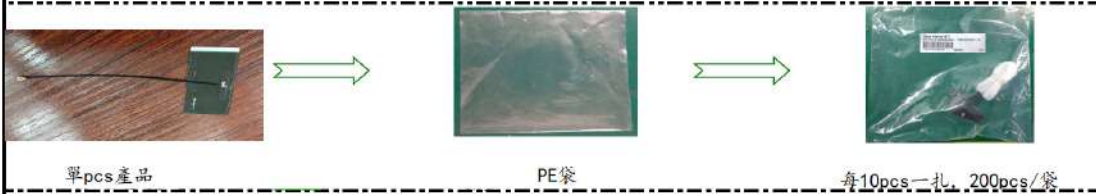


# Package

RFFPA301205IMLB401包規	頁次： 1 之 1	
	規章編號：	版次： A0
	制修訂日期： 2020/8/11	

產品包裝圖示：

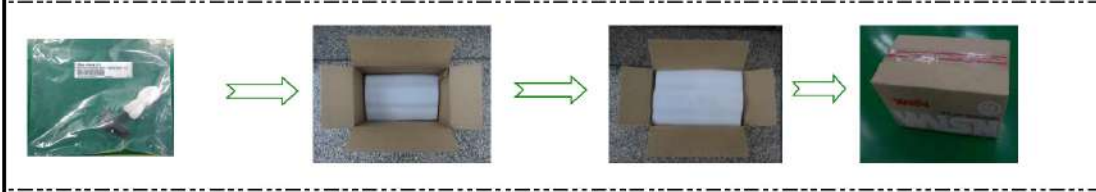
圖一



圖二




圖三



產品包裝規範：

1. 將每10pcs產品使用珍珠棉將端子端用白色橡皮筋包扎,然後裝入PE袋內, 每PE袋200pcs, PE袋需封口, 如圖示(一)
2. 將珍珠棉放入外箱中(如圖示二)
3. 將裝好的成品(如圖示三)放入外箱中, 每箱放4000pcs產品, 上下各放1片珍珠棉, 將包裝好的外箱左上方貼製造標籤
4. 製造標籤需貼到最小包裝。

核准：	何耀輝	審核：	童明輝	制定：	李連杰
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