

# APPROVAL SHEET

**Dipole ANTENNA**  
**5.15~5.85 GHz Working Frequency**  
**Halogens Free Product**  
**P/N: RFDPA171310IM5B702**

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

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

Version	Date	Description	Author
V01	2019 Jul.	New Release	PIPI
V02	2019 Jul.	變更線長量測方式及線長由100改為103mm	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	5.15~5.85 GHz (Note-1)
Gain (Peak)	1.88 dBi
Return Loss	-10dB(Max)
VSWR	2 max.
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω
Operation Temperature	-20° C~+65° C

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

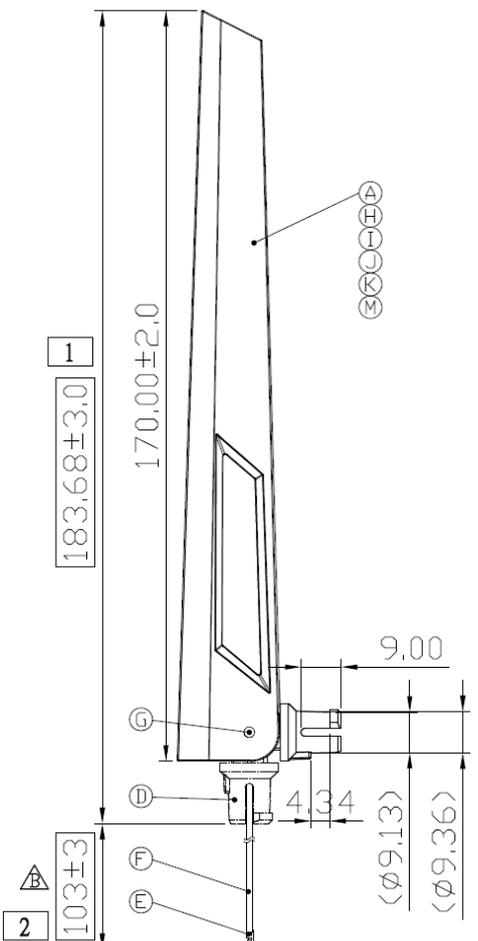
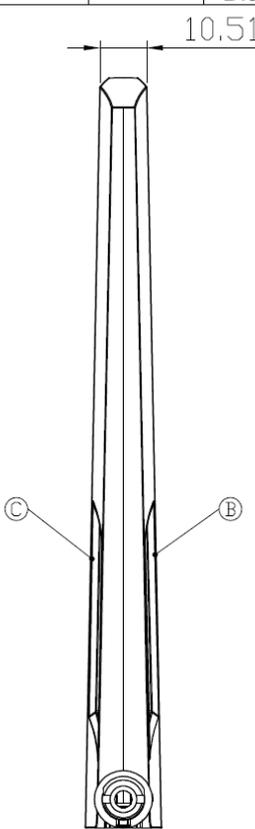
### MATERIAL TABLE

Items	Description
Antenna Cover	ABS(Black)
Antenna Side Cover 1	ABS(Yellow _ Pantone 136C)
Antenna Side Cover 2	ABS(Yellow _ Pantone 136C)
Antenna Base	PC+PBT(Black)
Connector	IPEX(Ni/Gold)
Coaxial Cable	ø1.37 (Blue)
Rivet	POM(Black)
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Sponge	Black
Plug	Silicon Rubber(Black)
Sponge	Black

### ORDERING RULE

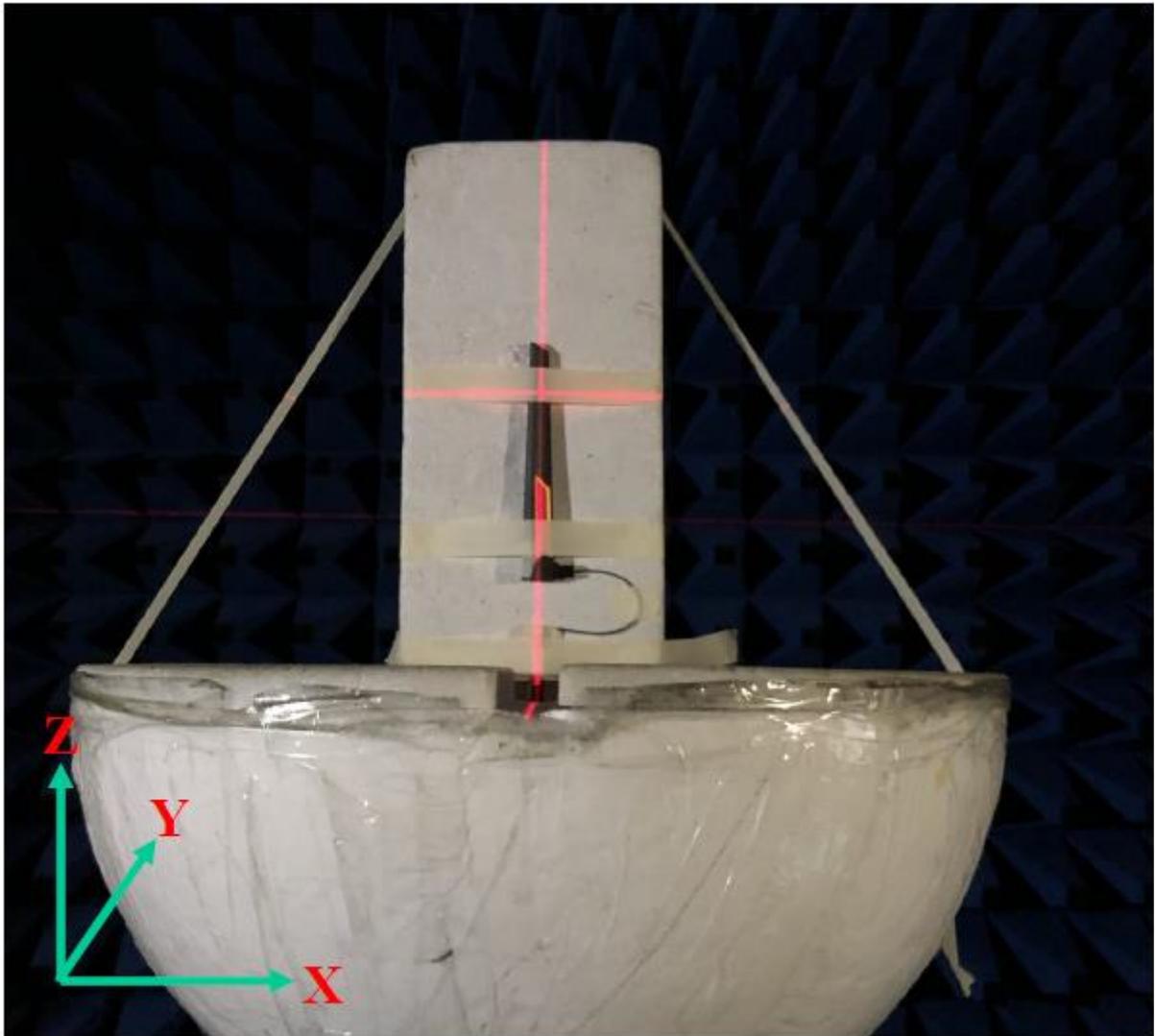
RF	DPA	1713	10	I	M	5	B	7	02
Type Code	Product Code	Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	DPA:	Per 2 digits of length, width e.g.: 2513 Length 255mm, Width 13.00mm	2 digits for cable length e.g.: 13 Cable Length:130m	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:ø0.81 3:ø1.13 6:RG316 7:ø1.37 8:RG178	01~99 series number

**DIMENSIONS**

1	2	3	4	5																																																																																	
<p><b>ELECTRICAL</b> Frequency: 5.15~5.85 GHz</p> 		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>DESCRIPTION</th> <th>MAT'L</th> <th>Color</th> <th>Q'TY</th> </tr> </thead> <tbody> <tr><td>A</td><td>Antenna Cover</td><td>ABS</td><td>Black</td><td>1</td></tr> <tr><td>B</td><td>Antenna Side Cover1</td><td>Pantone 136C</td><td>ABS</td><td>Yellow</td><td>1</td></tr> <tr><td>C</td><td>Antenna Side Cover2</td><td>Pantone 136C</td><td>ABS</td><td>Yellow</td><td>1</td></tr> <tr><td>D</td><td>Antenna Base</td><td>PC+PBT</td><td>Black</td><td>1</td></tr> <tr><td>E</td><td>Connector</td><td>IPEX (2130800024)</td><td>---</td><td>Ni/Gold</td><td>1</td></tr> <tr><td>F</td><td>Cable</td><td>Ø1.37</td><td>---</td><td>Blue</td><td>1</td></tr> <tr><td>G</td><td>Rivet</td><td></td><td>POM</td><td>Black</td><td>2</td></tr> <tr><td>H</td><td>Up Brass Tube</td><td></td><td>Brass</td><td>---</td><td>1</td></tr> <tr><td>I</td><td>Down Brass Tube</td><td></td><td>Brass</td><td>---</td><td>1</td></tr> <tr><td>J</td><td>Heat Shrink Tube</td><td></td><td>---</td><td>Black</td><td>1</td></tr> <tr><td>K</td><td>Sponge</td><td></td><td>---</td><td>Black</td><td>1</td></tr> <tr><td>L</td><td>Plug</td><td></td><td>Silicon Rubber</td><td>Black</td><td>1</td></tr> <tr><td>M</td><td>Sponge(防退泡棉)</td><td></td><td>---</td><td>Black</td><td>1</td></tr> </tbody> </table>			No.	DESCRIPTION	MAT'L	Color	Q'TY	A	Antenna Cover	ABS	Black	1	B	Antenna Side Cover1	Pantone 136C	ABS	Yellow	1	C	Antenna Side Cover2	Pantone 136C	ABS	Yellow	1	D	Antenna Base	PC+PBT	Black	1	E	Connector	IPEX (2130800024)	---	Ni/Gold	1	F	Cable	Ø1.37	---	Blue	1	G	Rivet		POM	Black	2	H	Up Brass Tube		Brass	---	1	I	Down Brass Tube		Brass	---	1	J	Heat Shrink Tube		---	Black	1	K	Sponge		---	Black	1	L	Plug		Silicon Rubber	Black	1	M	Sponge(防退泡棉)		---	Black	1
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D	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:10%;">設計DR.</td> <td style="width:10%;">PIPI</td> <td style="width:10%;">2019.07.15</td> <td style="width:20%;">品名</td> <td style="width:10%;">版本 REV.</td> </tr> <tr> <td></td> <td>核准APP.</td> <td>Marco</td> <td></td> <td>ARTICLE</td> <td>B</td> </tr> <tr> <td></td> <td colspan="2">容許公差 TOLERANCE</td> <td></td> <td rowspan="5" style="text-align: center; vertical-align: middle;"><b>RFDPA171310IM5B702</b></td> <td></td> </tr> <tr> <td></td> <td colspan="2">6以下.....±0.2</td> <td></td> </tr> <tr> <td></td> <td colspan="2">6以上~30.....±0.5</td> <td></td> </tr> <tr> <td></td> <td colspan="2">30以上~120.....±0.8</td> <td></td> </tr> <tr> <td></td> <td colspan="2">120以上~315.....±1.2</td> <td></td> </tr> <tr> <td></td> <td colspan="2">315以上~1000.....±2.0</td> <td></td> <td>單位 UNIT</td> <td>比例 SCALE</td> </tr> <tr> <td></td> <td colspan="2">1000以上~2000.....±3.0</td> <td></td> <td>mm</td> <td>****</td> </tr> <tr> <td></td> <td colspan="2"></td> <td></td> <td>張數 SHEET</td> <td>7</td> </tr> </table>			設計DR.	PIPI	2019.07.15	品名	版本 REV.		核准APP.	Marco		ARTICLE	B		容許公差 TOLERANCE			<b>RFDPA171310IM5B702</b>			6以下.....±0.2				6以上~30.....±0.5				30以上~120.....±0.8				120以上~315.....±1.2				315以上~1000.....±2.0			單位 UNIT	比例 SCALE		1000以上~2000.....±3.0			mm	****					張數 SHEET	7	D																														
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# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

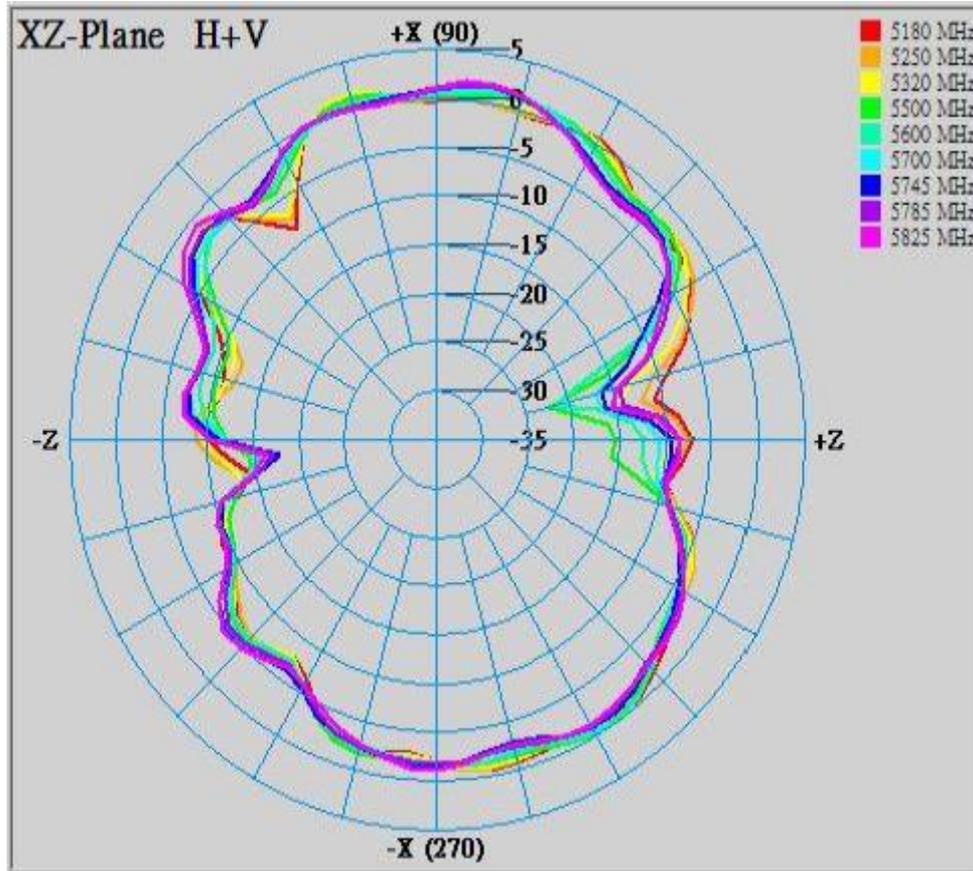


# RADIATION PATTERN

5150~5850 MHz

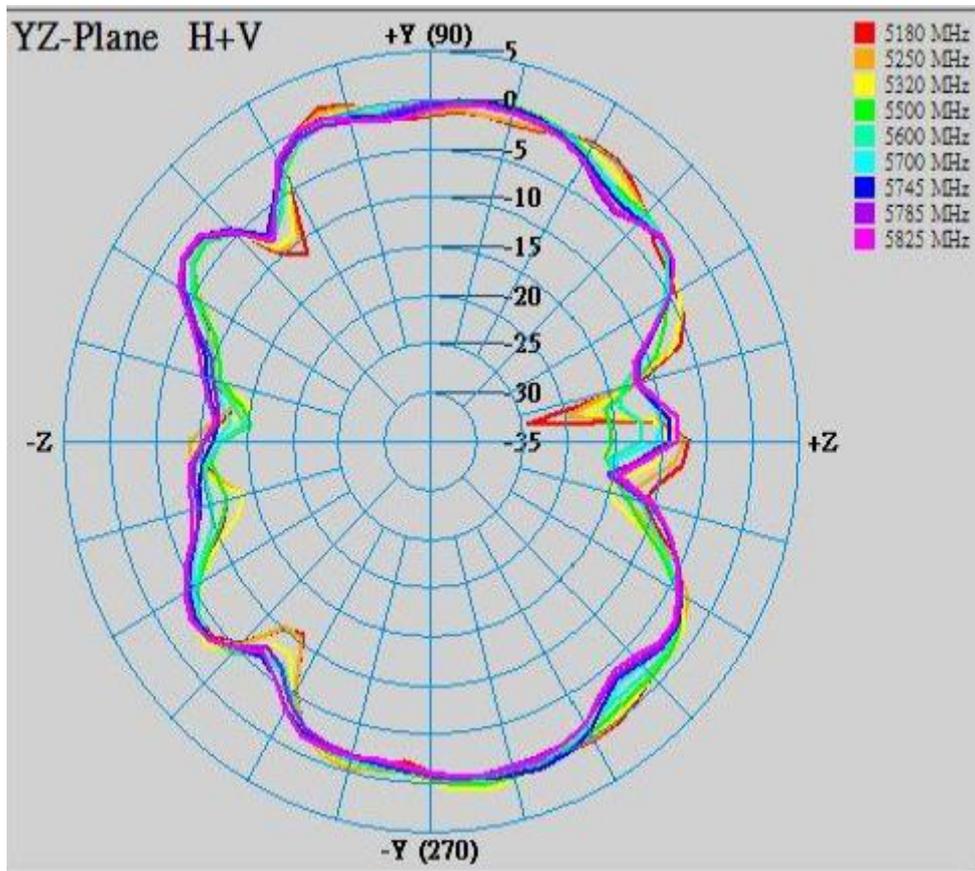
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Gain . dB



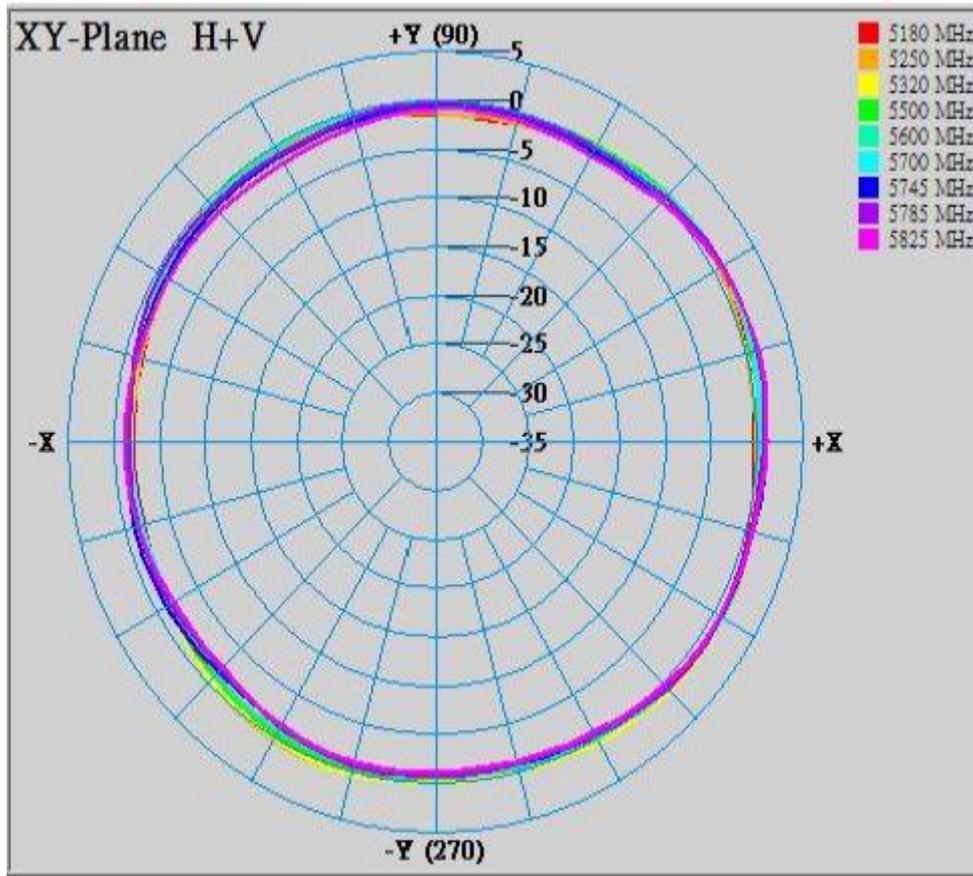
Phi=90.00deg

Gain . dB



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]
5180	1.38	-3.05	1.20	-2.92	0.77	-0.61
5250	1.48	-3.04	0.88	-2.92	1.16	-0.35
5320	1.60	-2.97	1.07	-2.85	1.11	-0.10
5500	1.17	-3.12	0.59	-3.06	0.97	-0.24
5600	1.07	-3.18	0.21	-3.22	0.96	-0.31
5700	1.46	-3.24	0.23	-3.13	1.11	-0.45
5745	1.51	-3.15	0.49	-3.05	1.30	-0.42
5785	1.62	-3.19	0.00	-3.35	1.26	-0.35
5825	1.88	-3.07	0.11	-3.31	1.34	-0.67

# APPROVAL SHEET

**Dipole ANTENNA**  
**5.15~5.85 GHz Working Frequency**  
**Halogens Free Product**  
**P/N: RFDPA171311IM5B702**

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

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

Version	Date	Description	Author
V01	2019 Jul.	New Release	PIPI
V02	2019 Jul.	變更測報	PIPI
V03	2019 Jul.	變更線長	PIPI
V04	2019 Jul.	變更線長量測方式	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	5.15~5.85 GHz (Note-1)
Gain (Peak)	1.90 dBi
Return Loss	-10dB(Max)
VSWR	2 max.
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω
Operation Temperature	-20° C~+65° C

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

### MATERIAL TABLE

Items	Description
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Antenna Side Cover 2	ABS(Yellow _ Pantone 136C)
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Connector	IPEX(Ni/Gold)
Coaxial Cable	ø1.37 (White)
Rivet	POM(Black)
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Sponge	Black
Plug	Silicon Rubber(Black)
Sponge	Black

### ORDERING RULE

RF	DPA	1713	11	I	M	5	B	7	02
Type Code	Product Code	Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	DPA:	Per 2 digits of length, width e.g.: 2513 Length 255mm, Width 13.00mm	2 digits for cable length e.g.: 13 Cable Length:130m	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:ø0.81 3:ø1.13 6:RG316 7:ø1.37 8:RG178	01~99 series number

DIMENSIONS

No.	DESCRIPTION	MAT'L	Color	Q'TY
<b>ELECTRICAL</b> Frequency: 5.15~5.85 GHz				
A	Antenna Cover	ABS	Black	1
B	Antenna Side Cover1	Pantone 136C	ABS	Yellow
C	Antenna Side Cover2	Pantone 136C	ABS	Yellow
D	Antenna Base	PC+PBT	Black	1
E	Connector	IPEX (213080024)	Ni/Gold	1
F	Cable	Ø1.37	White	1
G	Rivet	POM	Black	2
H	Up Brass Tube	Brass	---	1
I	Down Brass Tube	Brass	---	1
J	Heat Shrink Tube	---	Black	1
K	Sponge	---	Black	1
L	Plug	Silicon Rubber	Black	1
M	Sponge(防退泡棉)	---	Black	1

A

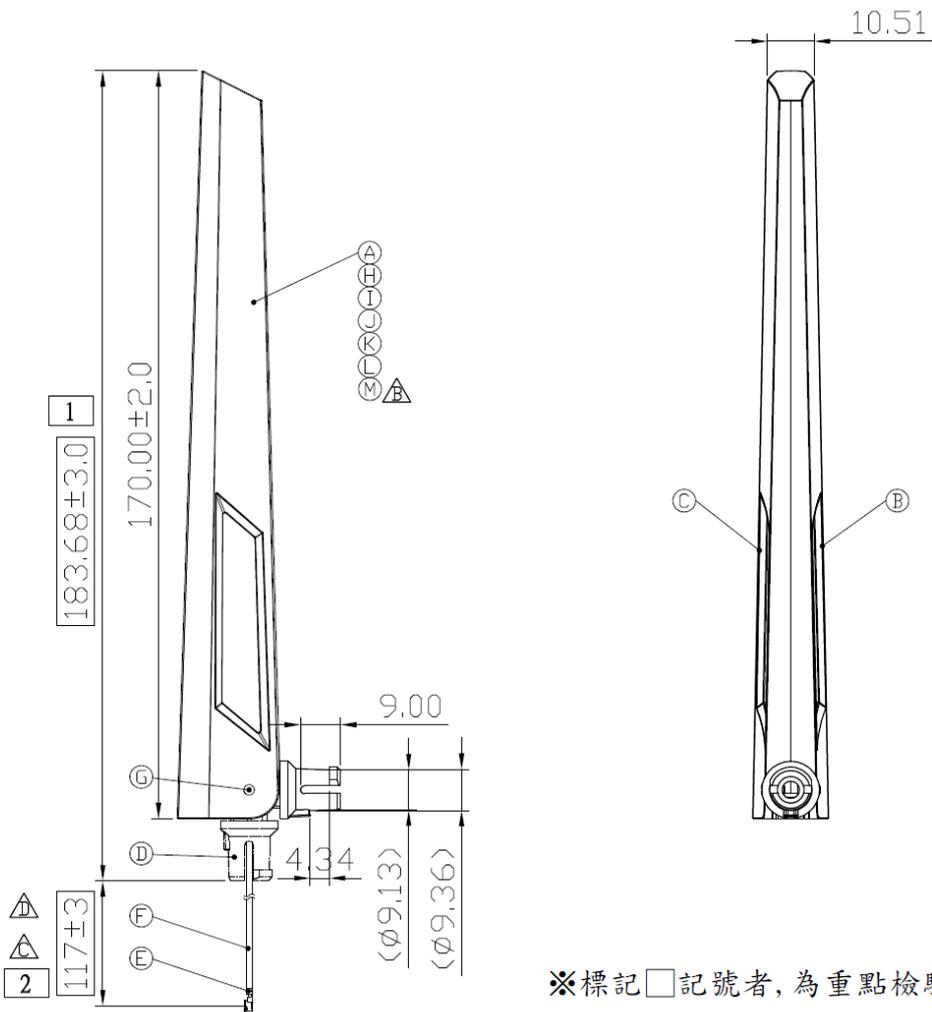


B

C

D

E



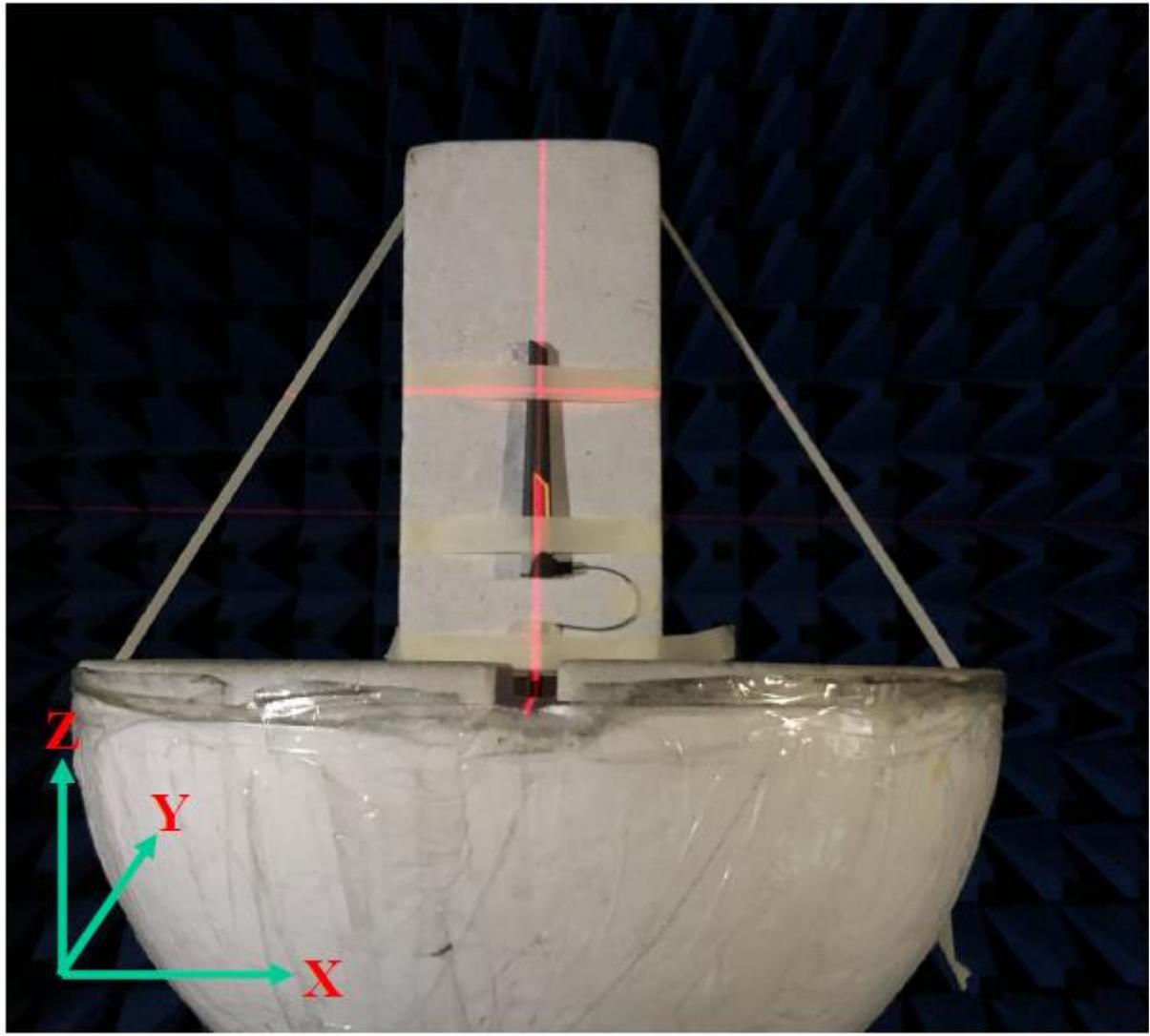
※標記□記號者, 為重點檢驗尺寸

變更線長量測方式	2019.07.18	PIPI	設計DR.	PIPI	2019.07.01	品名	版本 REV.	
變更線長由110改為117mm	2019.07.15	PIPI	核准APP.	Marco		ARTICLE	D	
增加防退泡棉	2019.07.04	PIPI	容許公差 TOLERANCE			<b>RFDPA171311M5B702</b>		
LTR	DESCRIPTION	DATE	REQ. BY				單位 UNIT	比例 SCALE
							mm	****
							張數 SHEET	7



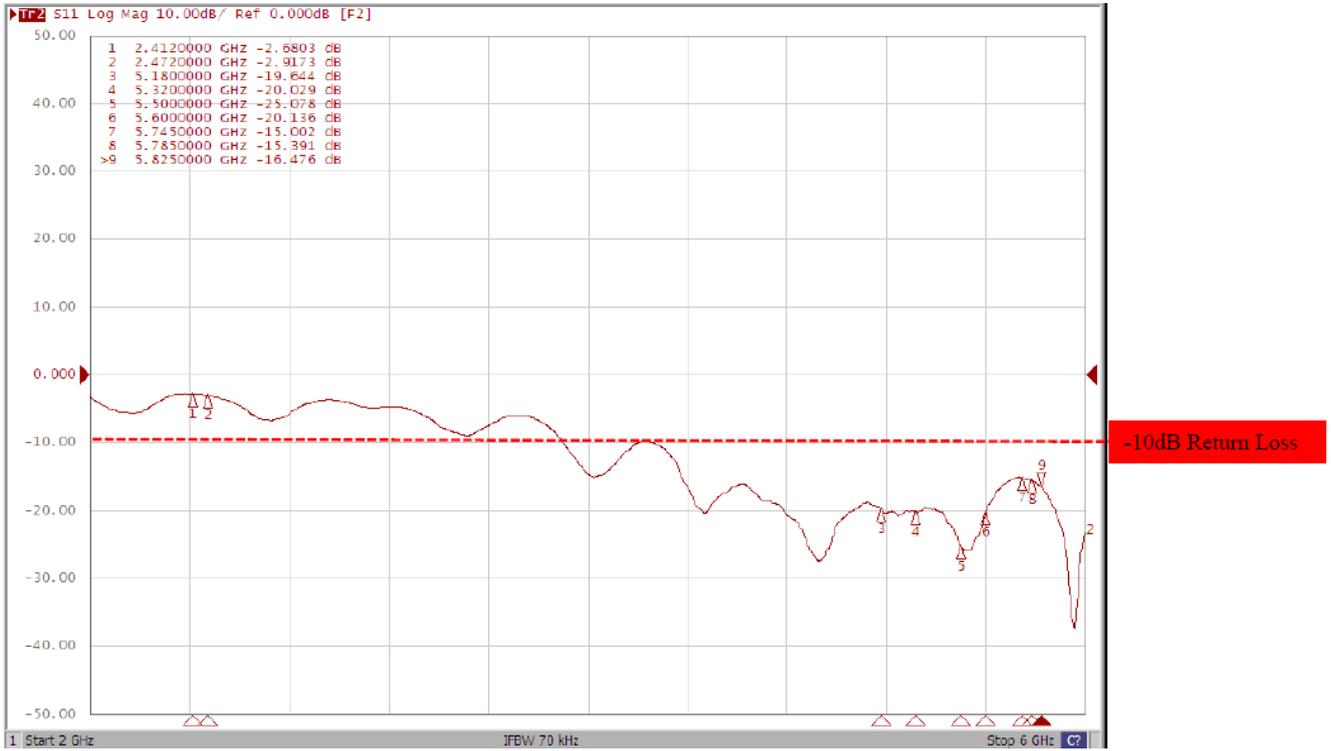
# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

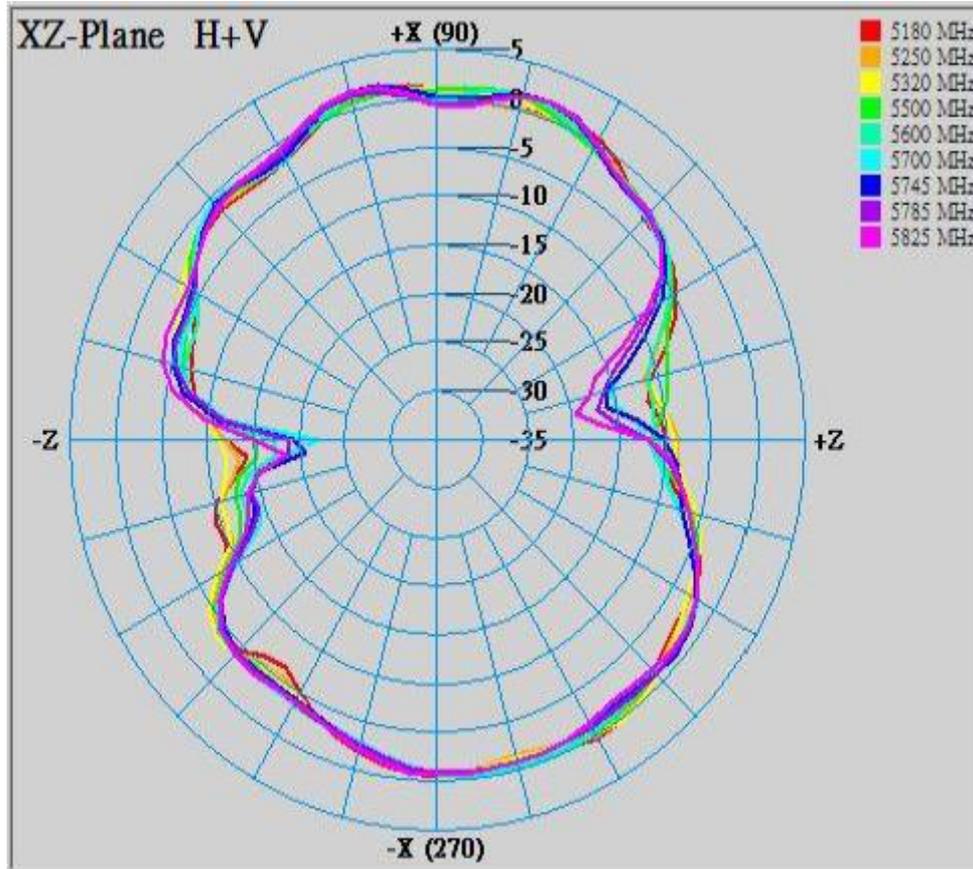


# RADIATION PATTERN

5150~5850 MHz

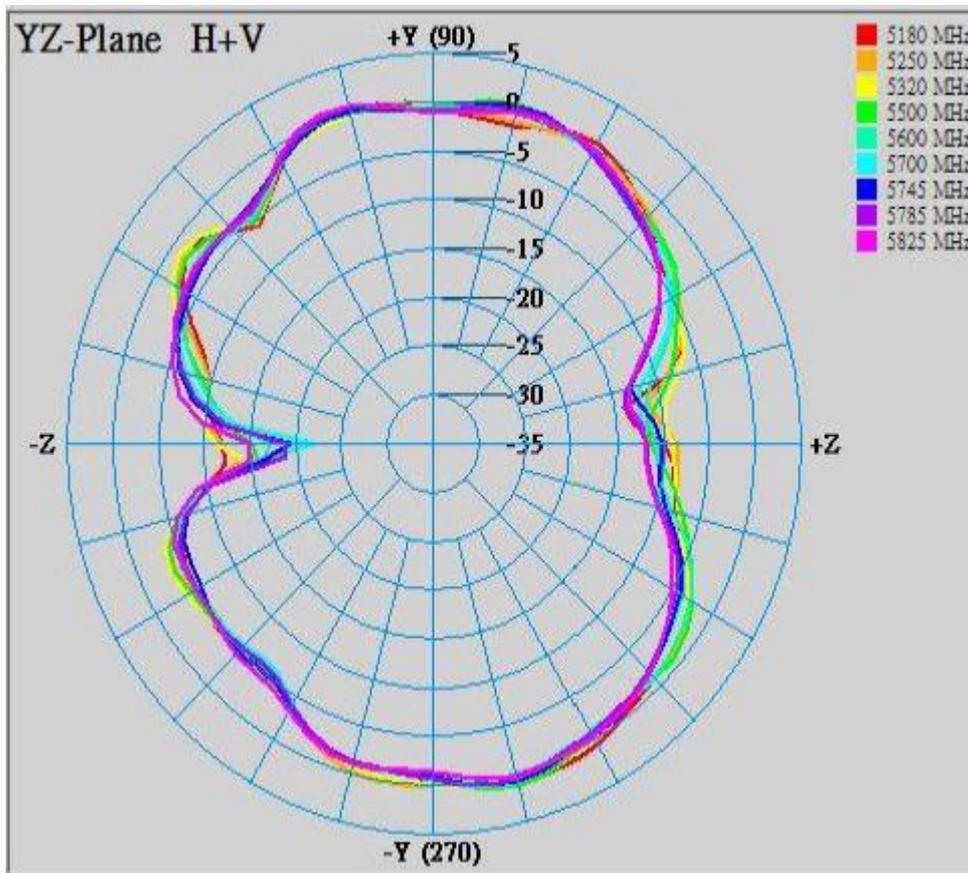
Phi=0.00deg

Gain . dB



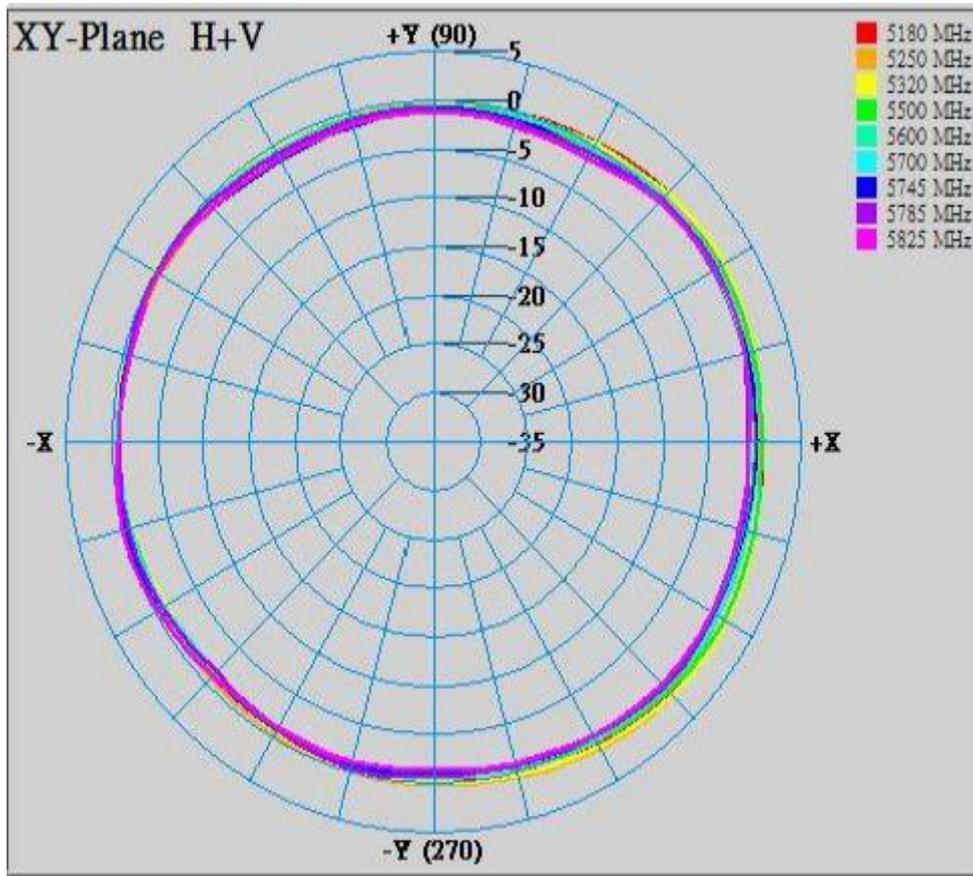
Phi=90.00deg

Gain . dB



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]
5180	1.57	-2.59	1.05	-2.53	1.44	0.12
5250	1.41	-2.61	0.73	-2.45	1.86	0.14
5320	1.14	-2.45	1.10	-2.39	1.90	0.20
5500	1.50	-2.47	1.27	-2.46	1.44	-0.08
5600	1.56	-2.42	0.90	-2.73	0.85	-0.26
5700	1.64	-2.61	0.83	-2.82	0.70	-0.51
5745	1.87	-2.52	0.78	-2.82	0.42	-0.53
5785	1.79	-2.61	0.74	-2.91	0.53	-0.53
5825	1.90	-2.51	0.90	-2.80	0.39	-0.71

# APPROVAL SHEET

**Dipole ANTENNA**

**2.4~2.5 / 5.15~5.85 GHz Working Frequency**

**Halogens Free Product**

**P/N: RFDPA171314IMLB701**

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

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V01	2019 Jul.	New Release	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	2.4~2.5 / 5.15~5.85 GHz (Note-1)
Gain (Peak)	2.4~2.5 GHz @ 1.70dBi 5.15~5.85 GHz @ 1.82 dBi
Return Loss	-10dB(Max)
VSWR	2 max.
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω
Operation Temperature	-20° C~+65° C

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

### MATERIAL TABLE

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Connector	IPEX(Ni/Gold)
Coaxial Cable	ø1.37 (Black)
Rivet	POM(Black)
Up Brass Tube	Brass
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Heat Shrink Tube	Black
Sponge	Black
Plug	Silicon Rubber(Black)
Sponge	Black

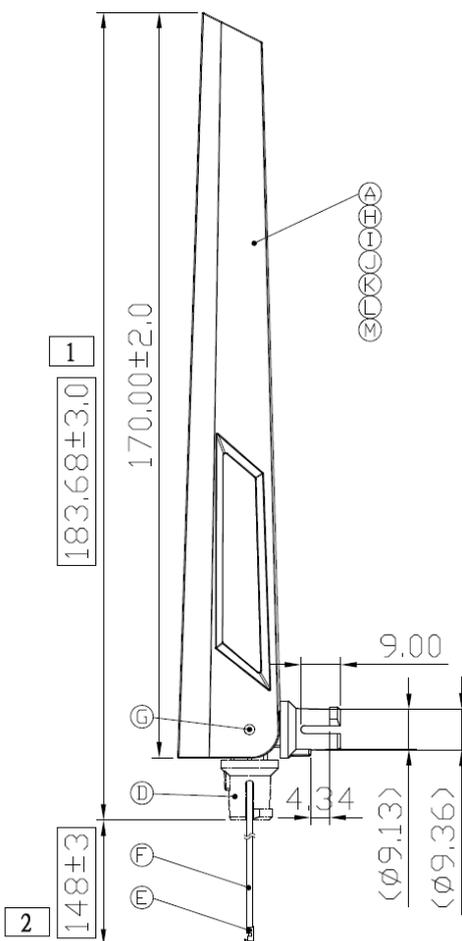
### ORDERING RULE

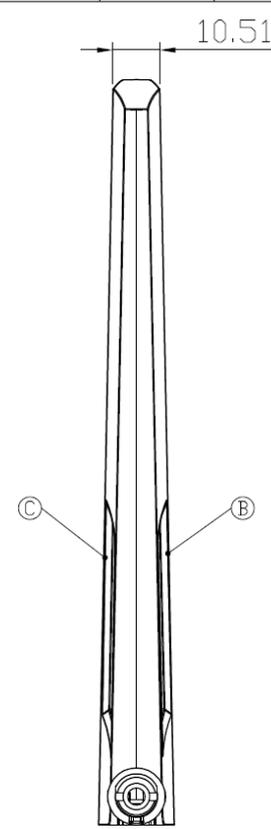
RF	DPA	1713	14	I	M	L	B	7	01
Type Code	Product Code	Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	DPA:	Per 2 digits of length, width e.g.: 2513 Length 255mm, Width 13.00mm	2 digits for cable length e.g.: 13 Cable Length:130m m	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:ø0.81 3:ø1.13 6:RG316 7:ø1.37 8:RG178	01~99 series number

**DIMENSIONS**

	1	2	3	4	5			
<p><b>ELECTRICAL</b> Frequency: 2.4~2.5/ 5.15~5.85 GHz</p> 	No.		DESCRIPTION	MAT'L	Color	Q'TY		
	A		Antenna Cover		ABS	Black	1	
	B		Antenna Side Cover1		Pantone 136C	ABS	Yellow	1
	C		Antenna Side Cover2		Pantone 136C	ABS	Yellow	1
	D		Antenna Base		PC+PBT	Black	1	
	E		Connector		IPEX (2130800024)	Ni/Gold	1	
	F		Cable		∅1.37	Black	1	
	G		Rivet		POM	Black	2	
	H		Up Brass Tube		Brass	---	1	
	I		Down Brass Tube		Brass	---	1	
	J		Heat Shrink Tube		---	Black	1	
	K		Sponge		---	Black	1	
	L		Plug		Silicon Rubber	Black	1	
M		Sponge(防退泡棉)		---	Black	1		



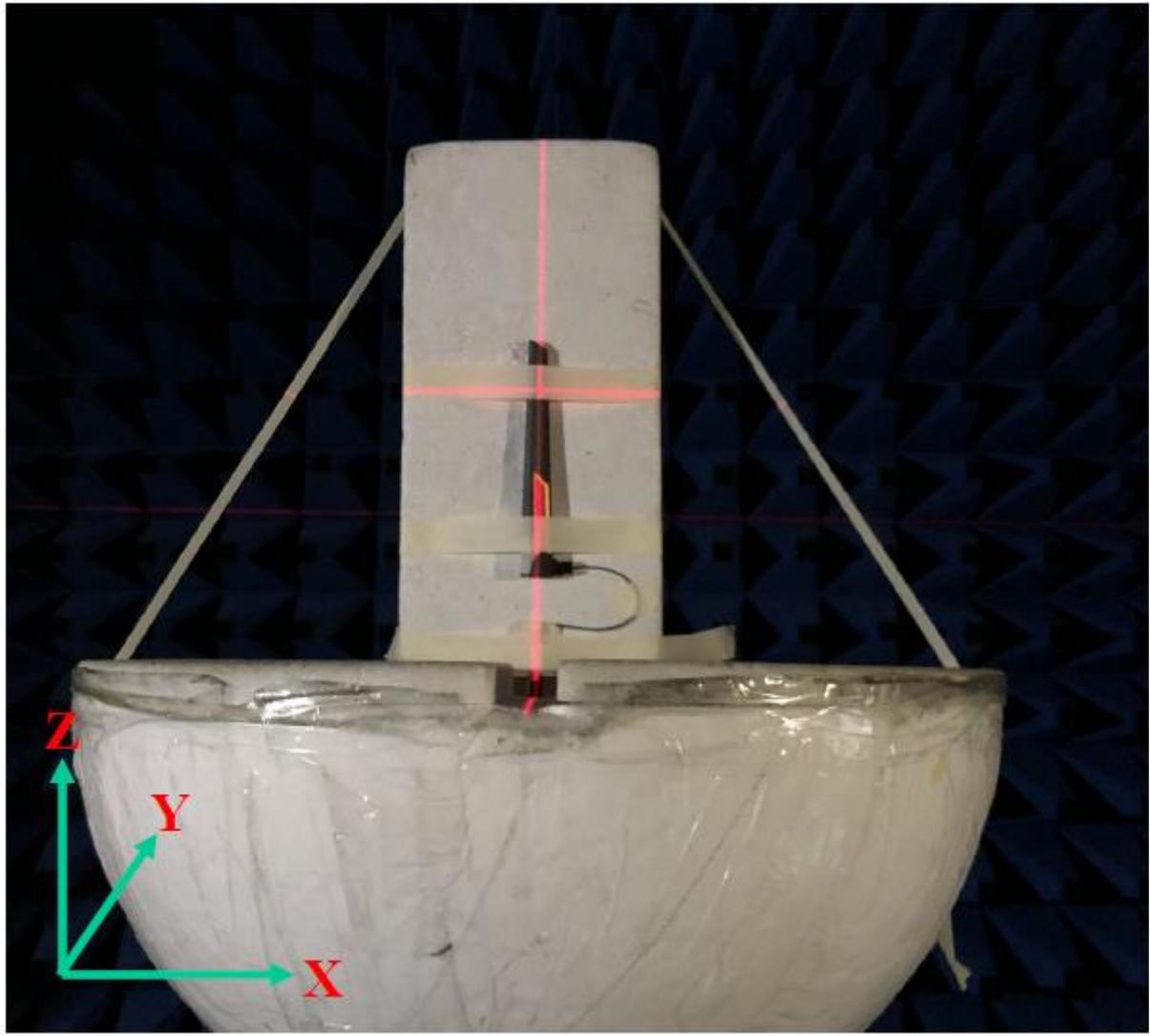


※標記□記號者, 為重點檢驗尺寸

			設計DR. PIPI	2019.07.17	品名	版本 REV.
			核准APP. Marco		ARTICLE	A
LTR	DESCRIPTION	DATE	REQ. BY	容許公差 TOLERANCE		<b>RFDPA171314IMLB701</b>
				6以下.....±0.2		
				6以上~30.....±0.5		
				30以上~120.....±0.8		
				120以上~315.....±1.2		
				315以上~1000.....±2.0		
				1000以上~2000.....±3.0		
<b>PSA</b> 華新科技股份有限公司 WALSIN TECHNOLOGY CORPORATION				單位 UNIT	比例 SCALE	張數 SHEET
				mm	****	1

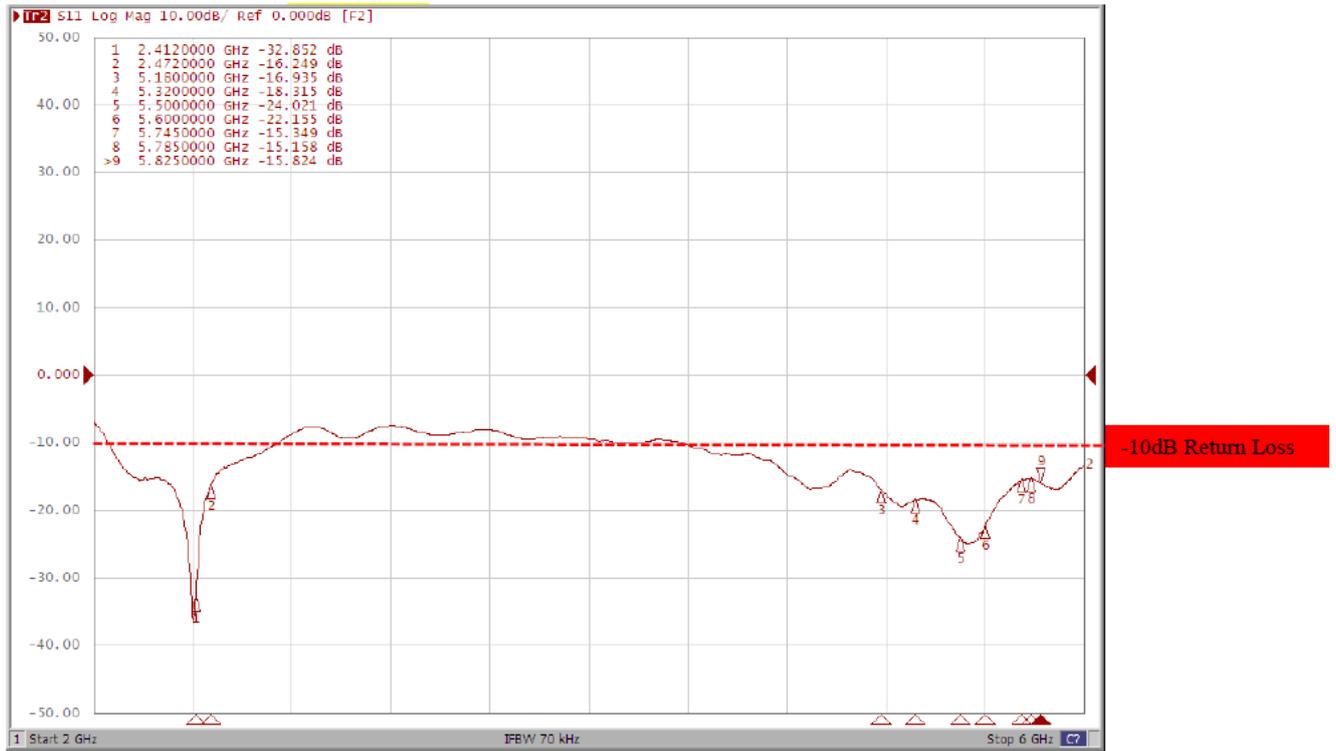
# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

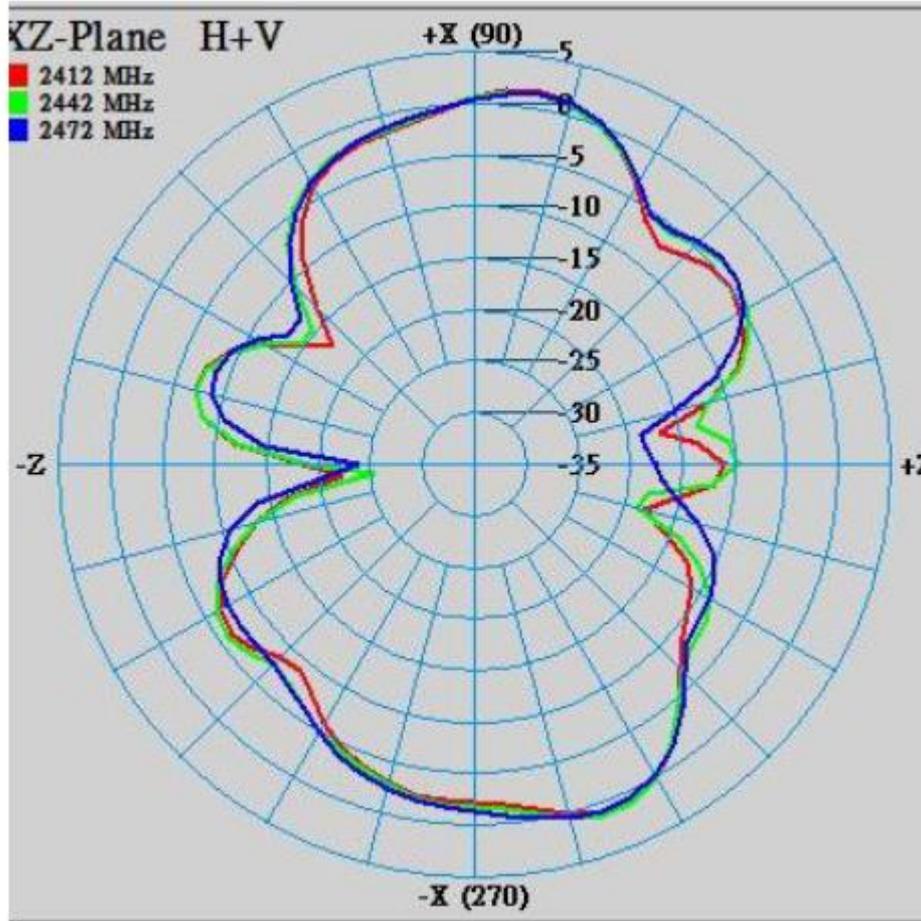


# RADIATION PATTERN

2400~2500 MHz

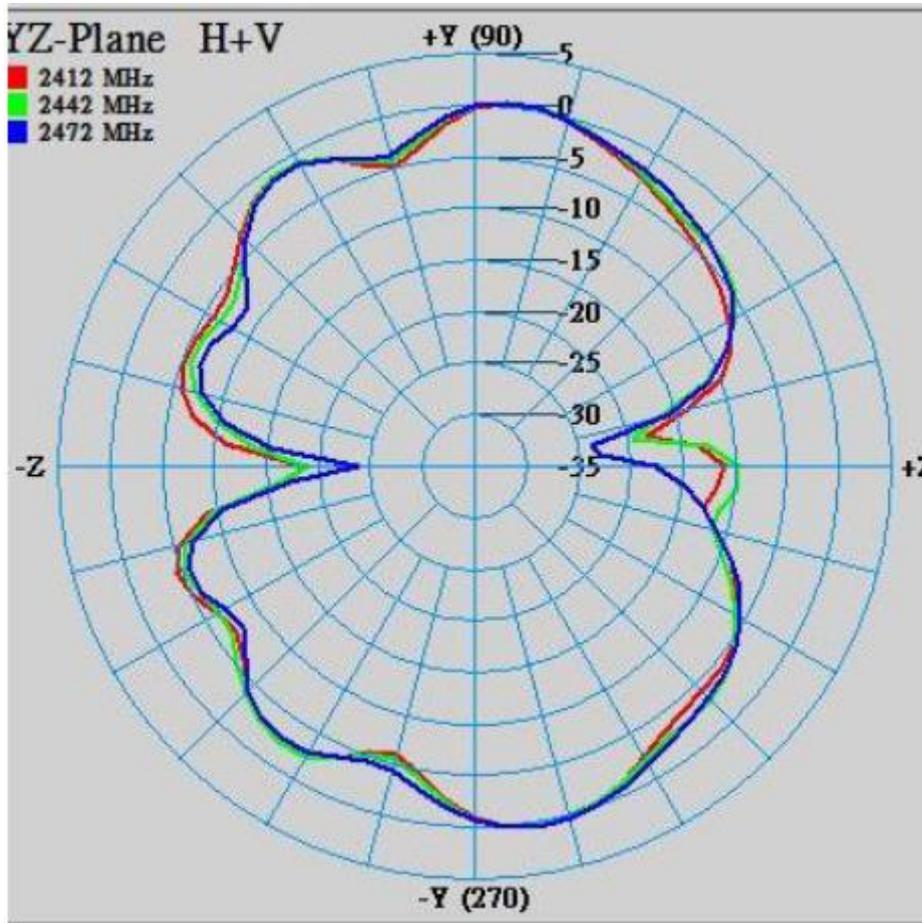
Phi=0.00deg

Gain . dB



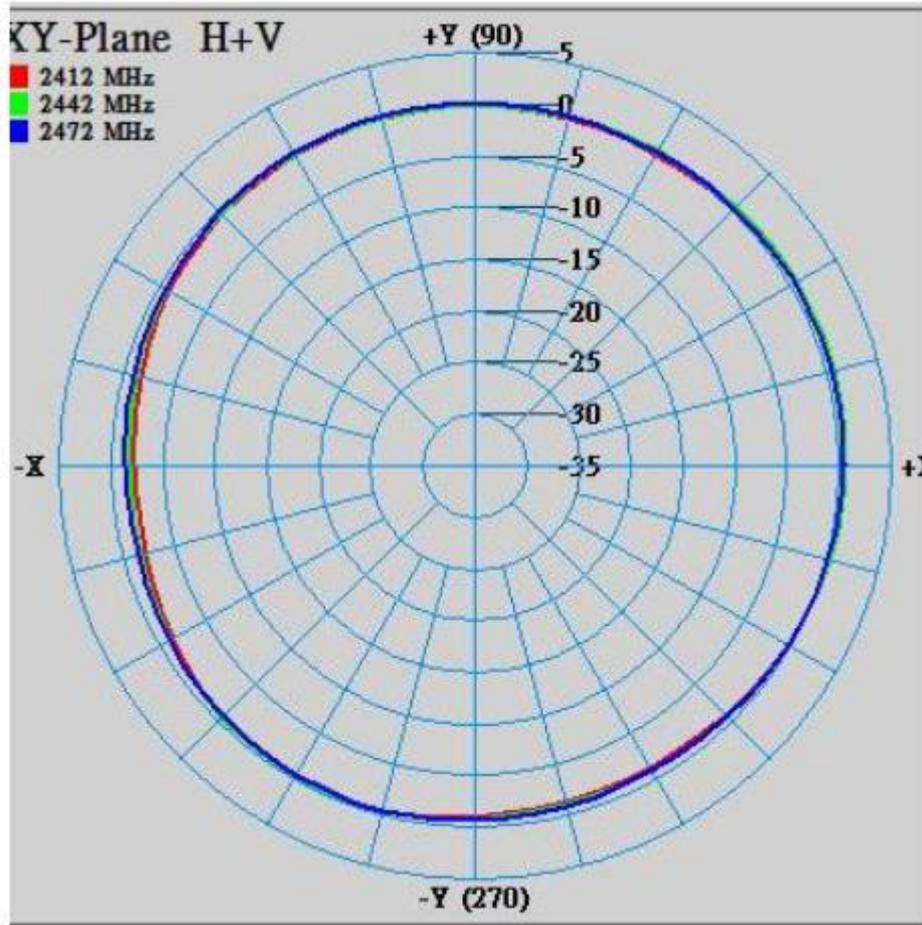
Phi=90.00deg

Gain . dB



Theta=90.00deg

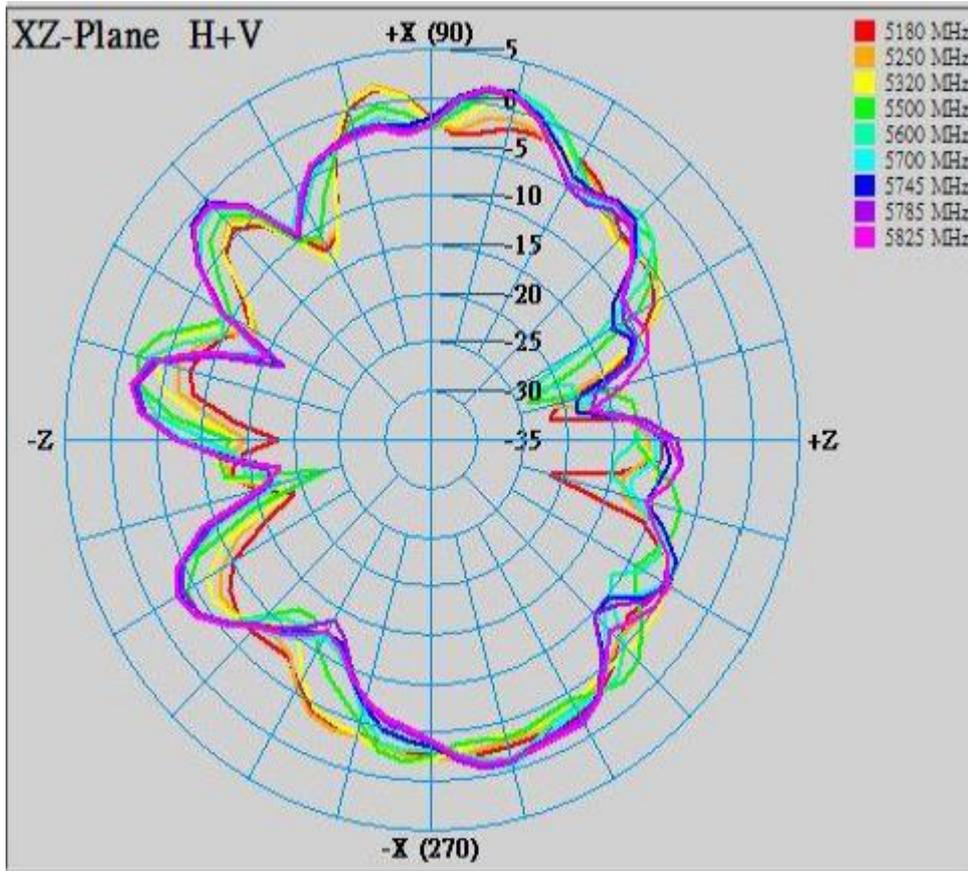
Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2412	1.70	-4.26	0.35	-3.84	0.63	-0.54
2442	1.37	-3.96	0.35	-3.72	0.76	-0.37
2472	1.39	-4.00	0.41	-3.72	0.49	-0.37

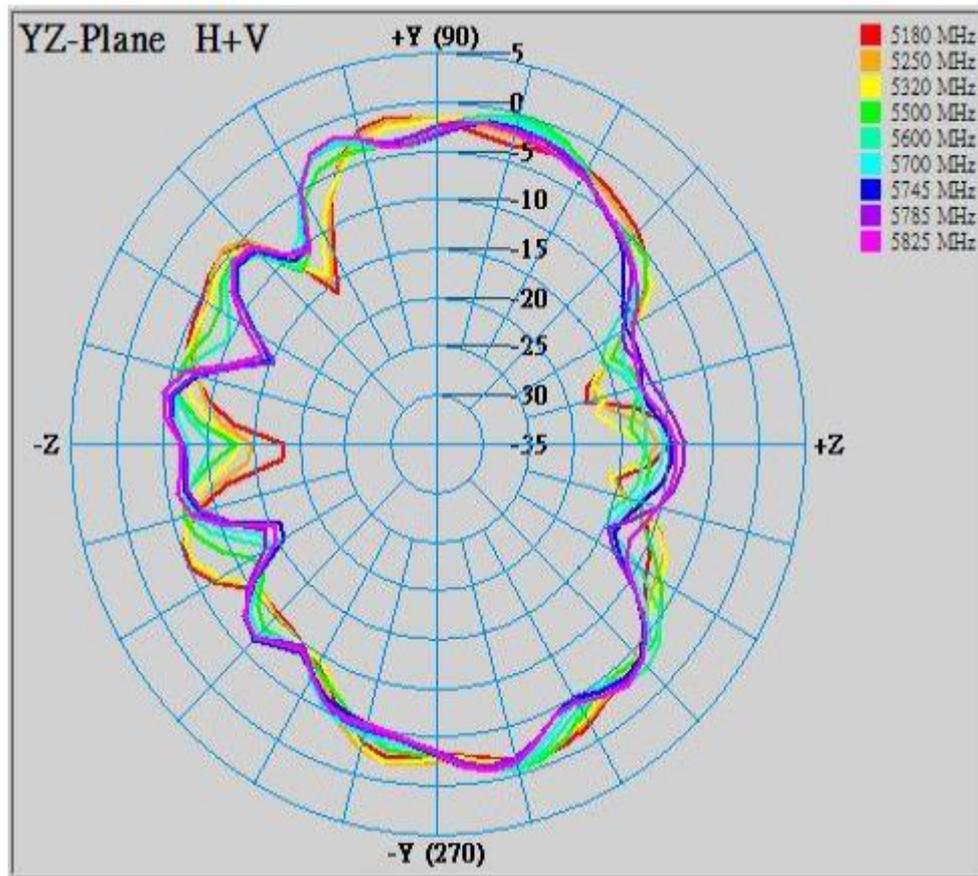
5150~5850 MHz  
Phi=0.00deg

Gain . dB



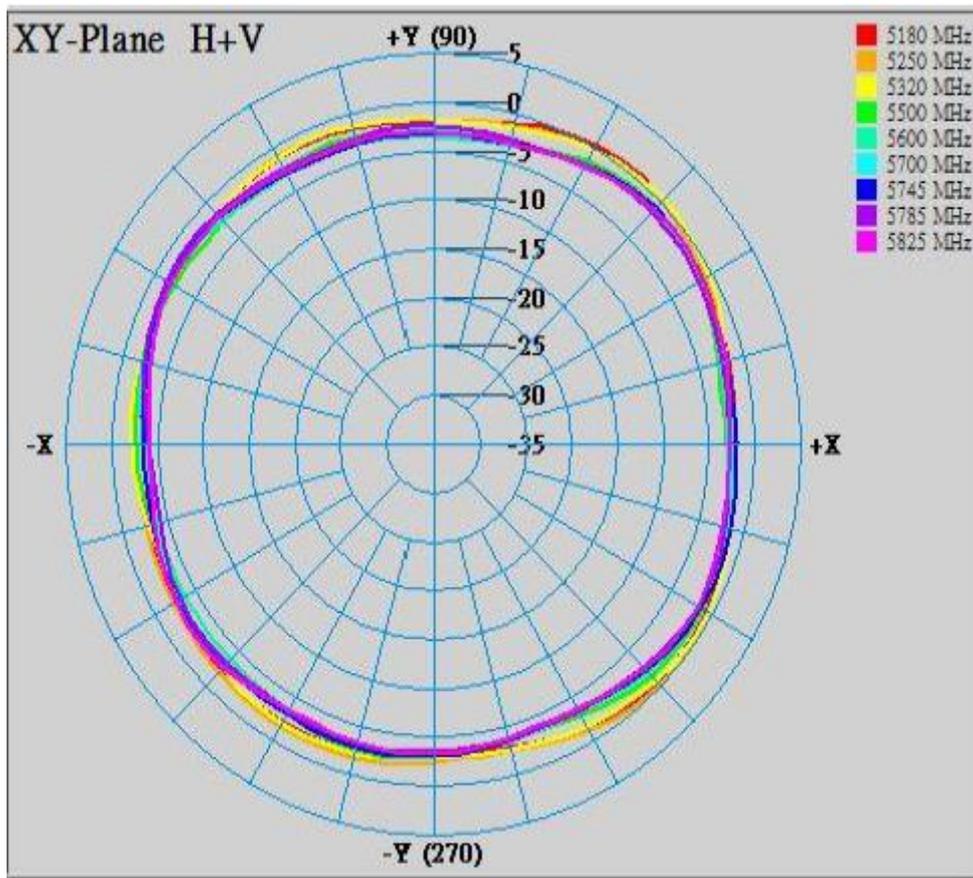
Phi=90.00deg

Gain . dB



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]
5180	1.48	-5.19	-1.01	-5.29	0.47	-1.65
5250	1.74	-4.98	-1.33	-5.22	0.11	-1.53
5320	1.61	-4.83	-1.11	-5.23	0.32	-1.65
5500	1.62	-4.52	-0.36	-5.22	-0.84	-2.54
5600	1.82	-4.47	-0.68	-5.36	-1.26	-2.78
5700	1.80	-4.45	-0.98	-5.50	-1.01	-2.58
5745	1.68	-4.42	-1.16	-5.69	-0.81	-2.50
5785	1.49	-4.66	-1.47	-5.55	-1.33	-2.66
5825	1.68	-4.47	-1.07	-5.52	-0.96	-2.70

# APPROVAL SHEET

**Dipole ANTENNA**

**2.4~2.5 / 5.15~5.85 GHz Working Frequency**

**Halogens Free Product**

**P/N: RFDPA171316IMLB701**

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

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

Version	Date	Description	Author
V01	2019 Jul.	New Release	PIPI
V02	2019 Jul.	變更測報	PIPI
V03	2019 Jul.	變更線長	PIPI
V04	2019 Jul.	變更線長量測方式	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	2.4~2.5 / 5.15~5.85 GHz (Note-1)
Gain (Peak)	2.4~2.5 GHz @ 1.61dBi 5.15~5.85 GHz @ 1.86 dBi
Return Loss	-10dB(Max)
VSWR	2 max.
Polarization	Linear
Radiation Pattern	Omni-directional
Impedance	50Ω
Operation Temperature	-20° C~+65° C

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

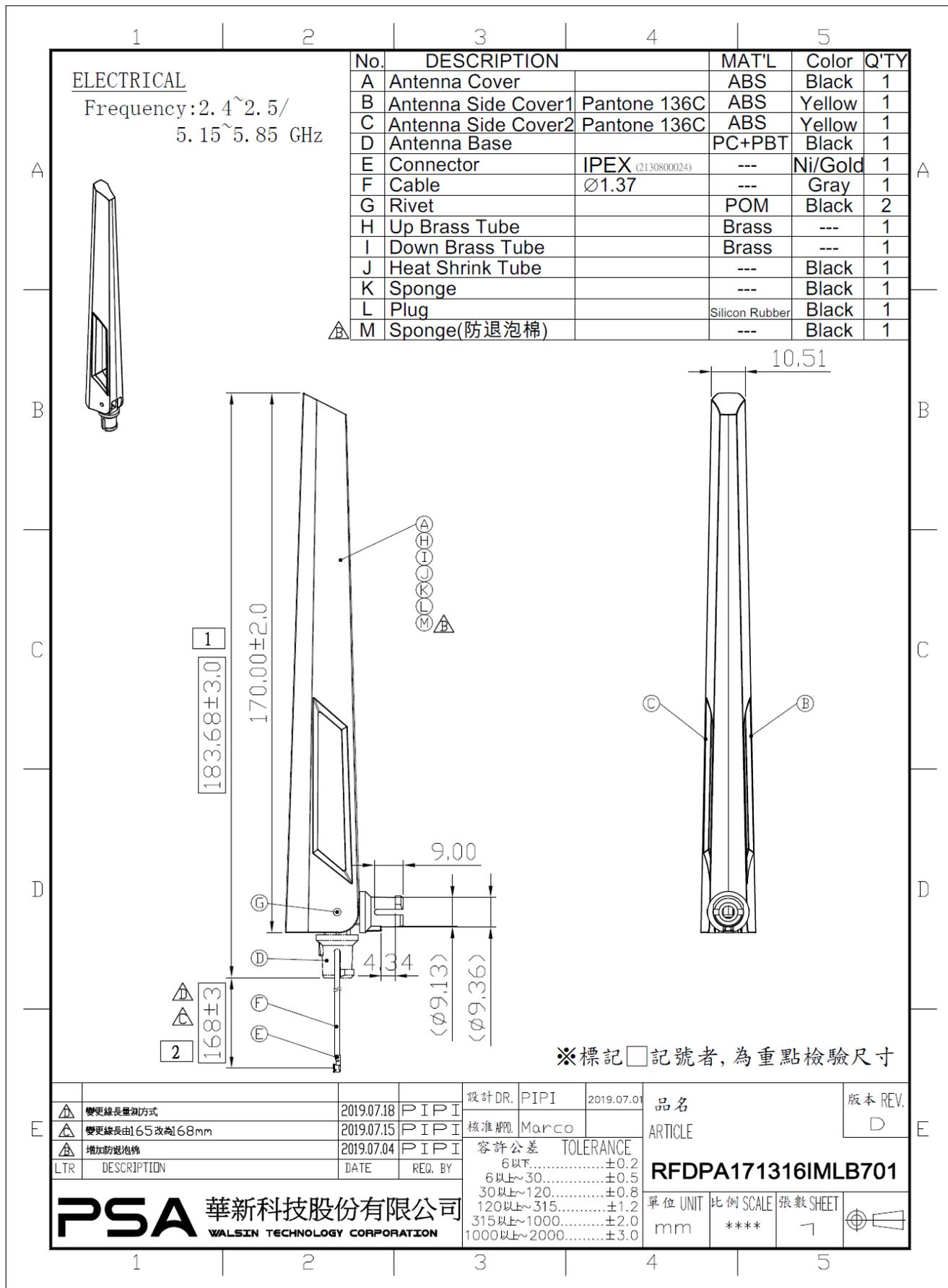
### MATERIAL TABLE

Items	Description
Antenna Cover	ABS(Black)
Antenna Side Cover 1	ABS(Yellow _ Pantone 136C)
Antenna Side Cover 2	ABS(Yellow _ Pantone 136C)
Antenna Base	PC+PBT(Black)
Connector	IPEX(Ni/Gold)
Coaxial Cable	ø1.37 (Gray)
Rivet	POM(Black)
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Sponge	Black
Plug	Silicon Rubber(Black)
Sponge	Black

### ORDERING RULE

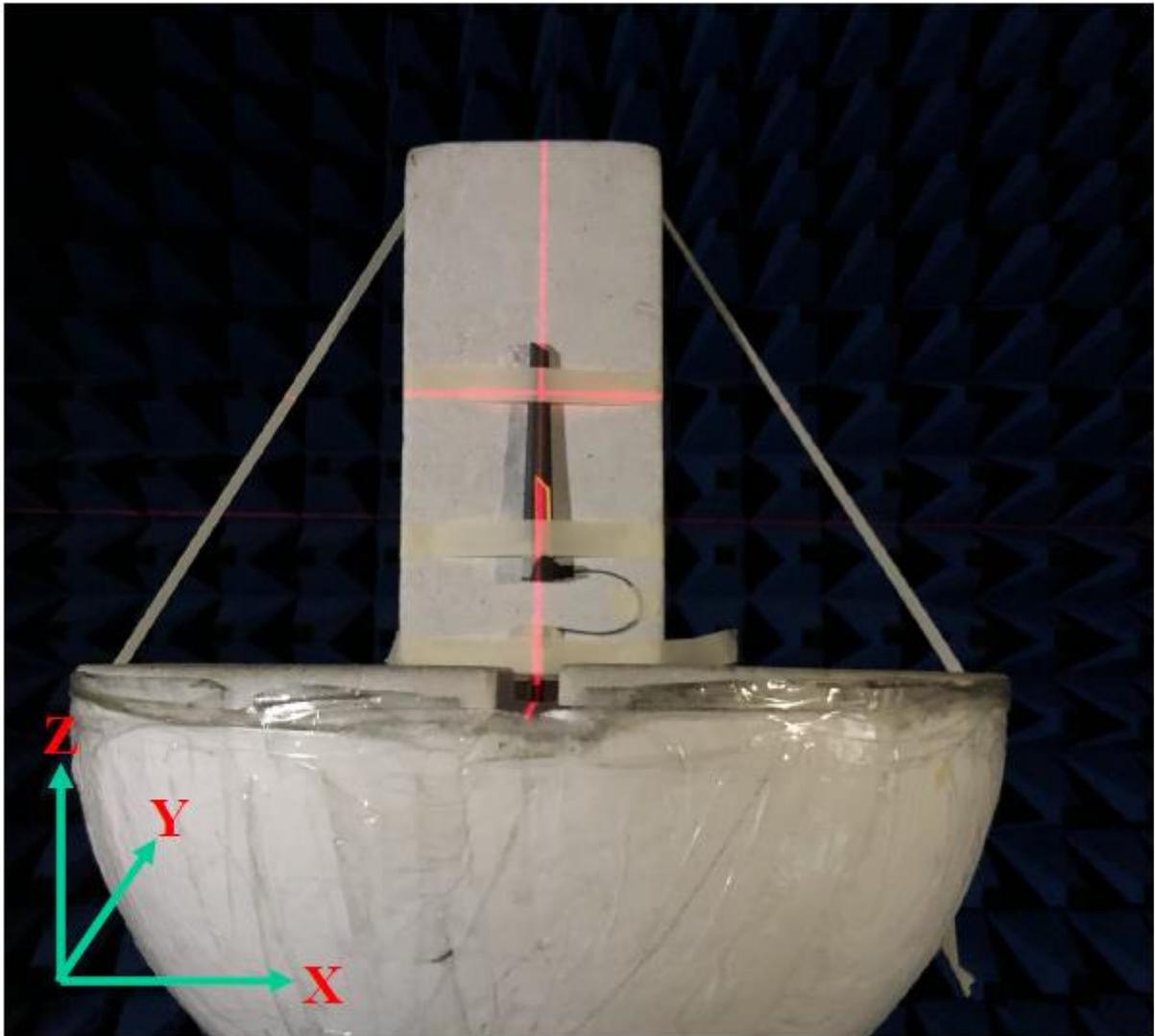
RF	DPA	1713	16	I	M	L	B	7	01
Type Code	Product Code	Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	DPA:	Per 2 digits of length, width e.g.: 2513 Length 255mm, Width 13.00mm	2 digits for cable length e.g.: 13 Cable Length:130m m	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:ø0.81 3:ø1.13 6:RG316 7:ø1.37 8:RG178	01~99 series number

**DIMENSIONS**



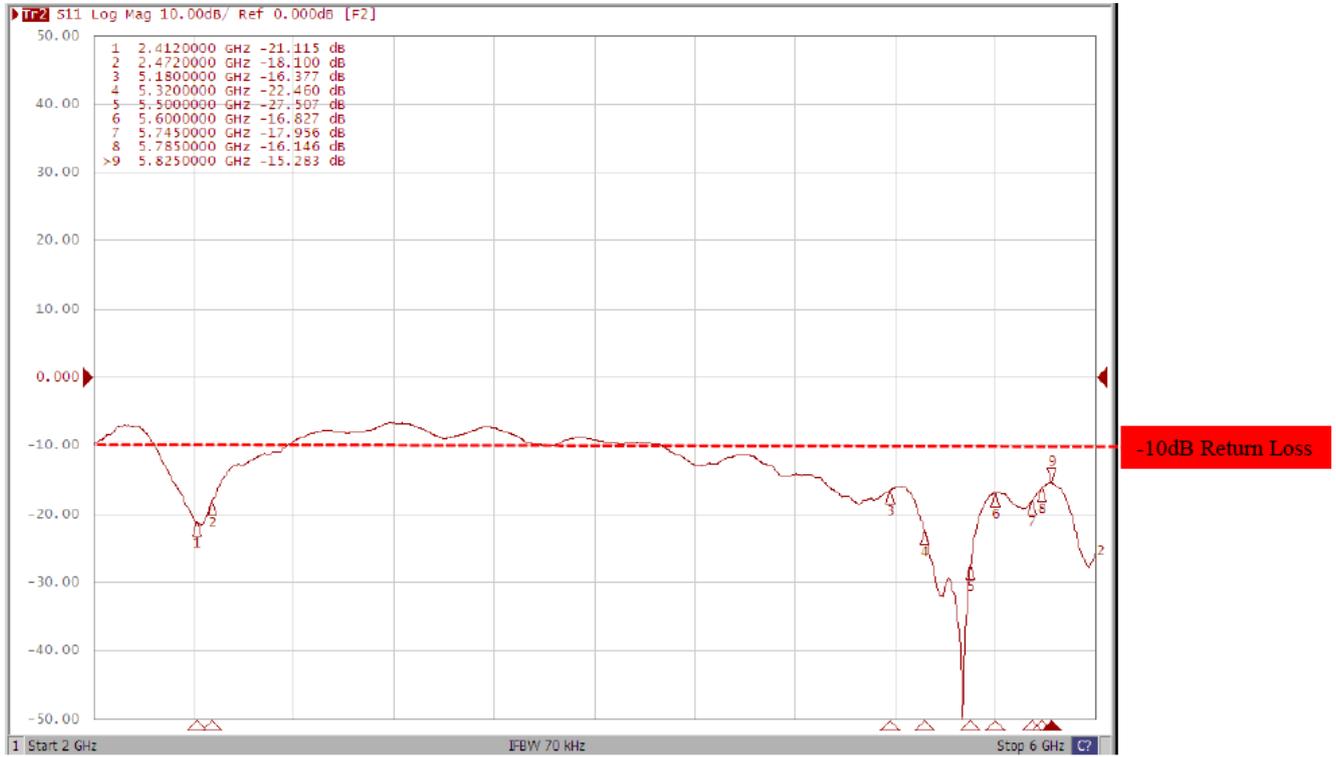
# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

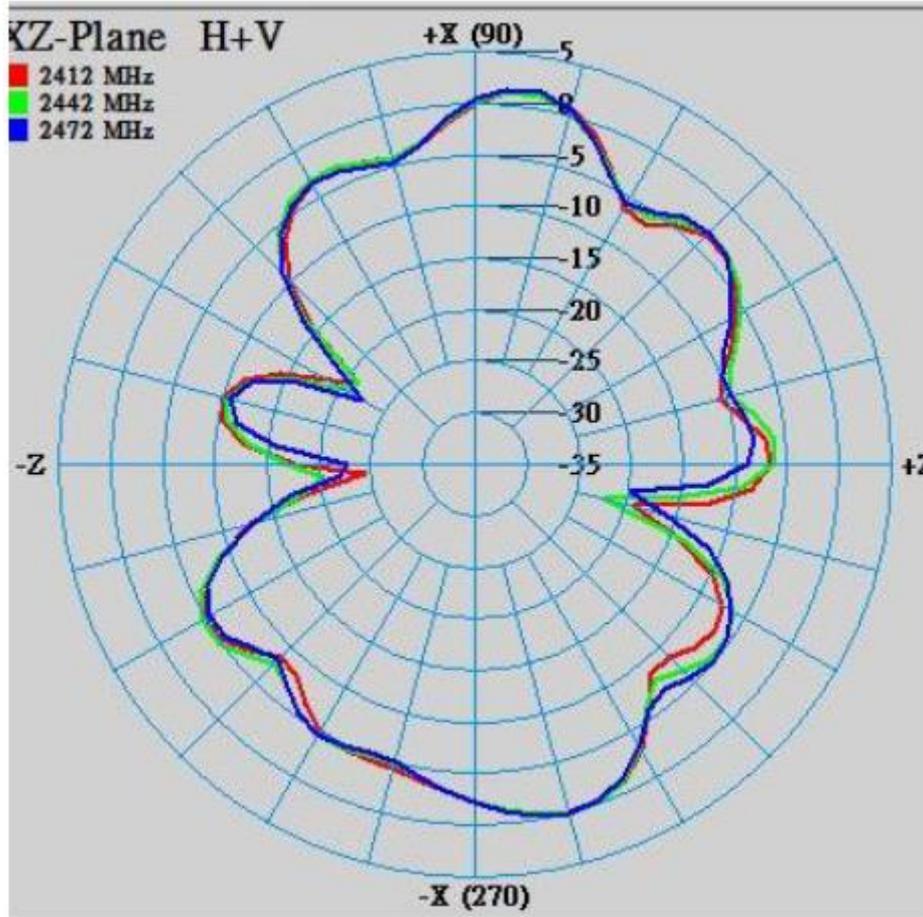


# RADIATION PATTERN

2400~2500 MHz

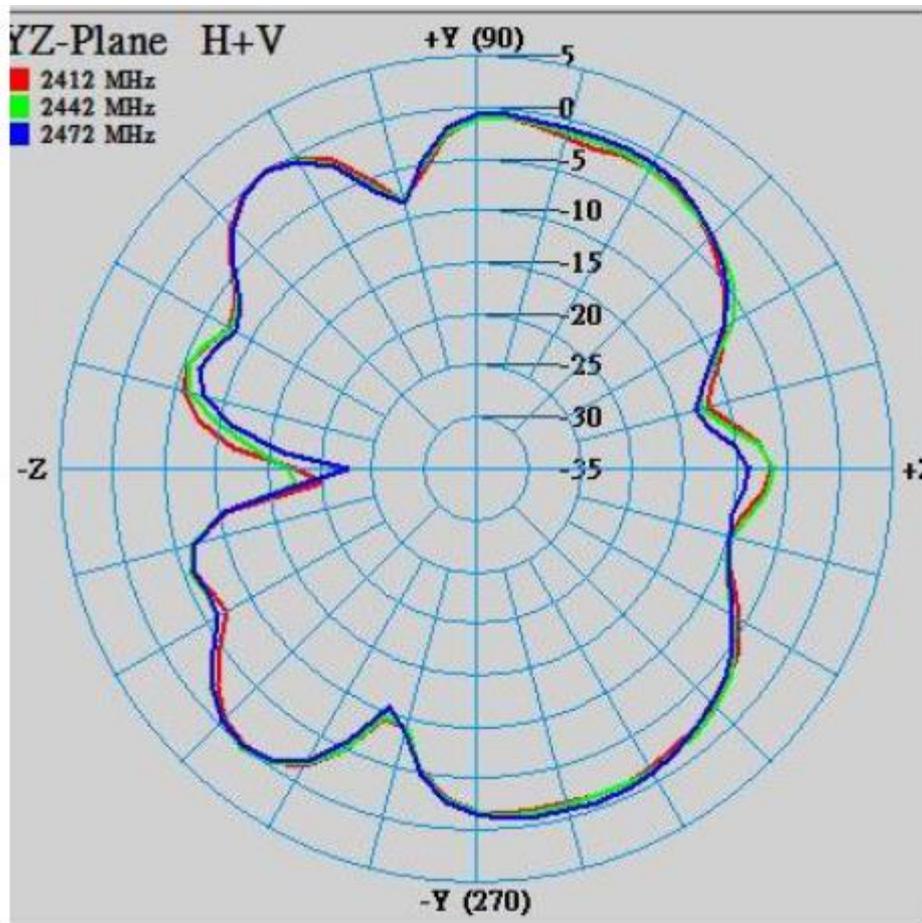
Phi=0.00deg

Gain . dB



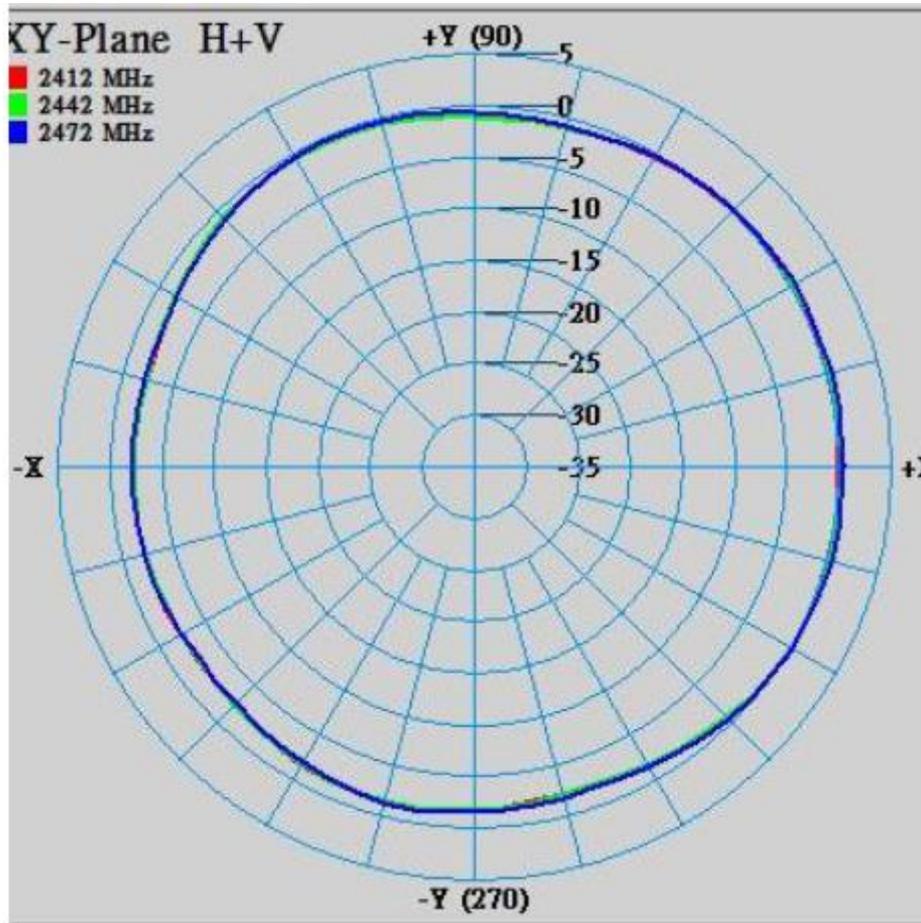
Phi=90.00deg

Gain . dB



Theta=90.00deg

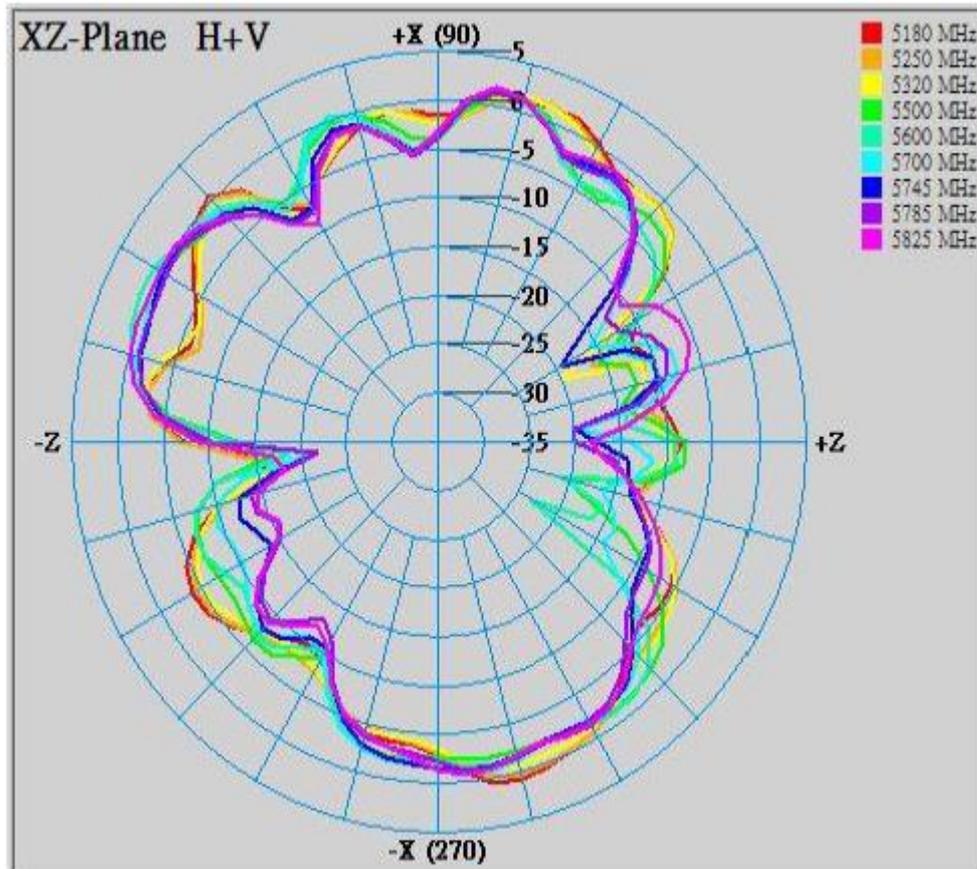
Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2412	1.47	-4.80	0.21	-3.71	0.25	-1.05
2442	1.23	-4.66	0.25	-3.59	0.37	-1.02
2472	1.61	-4.74	0.17	-3.60	0.44	-0.90

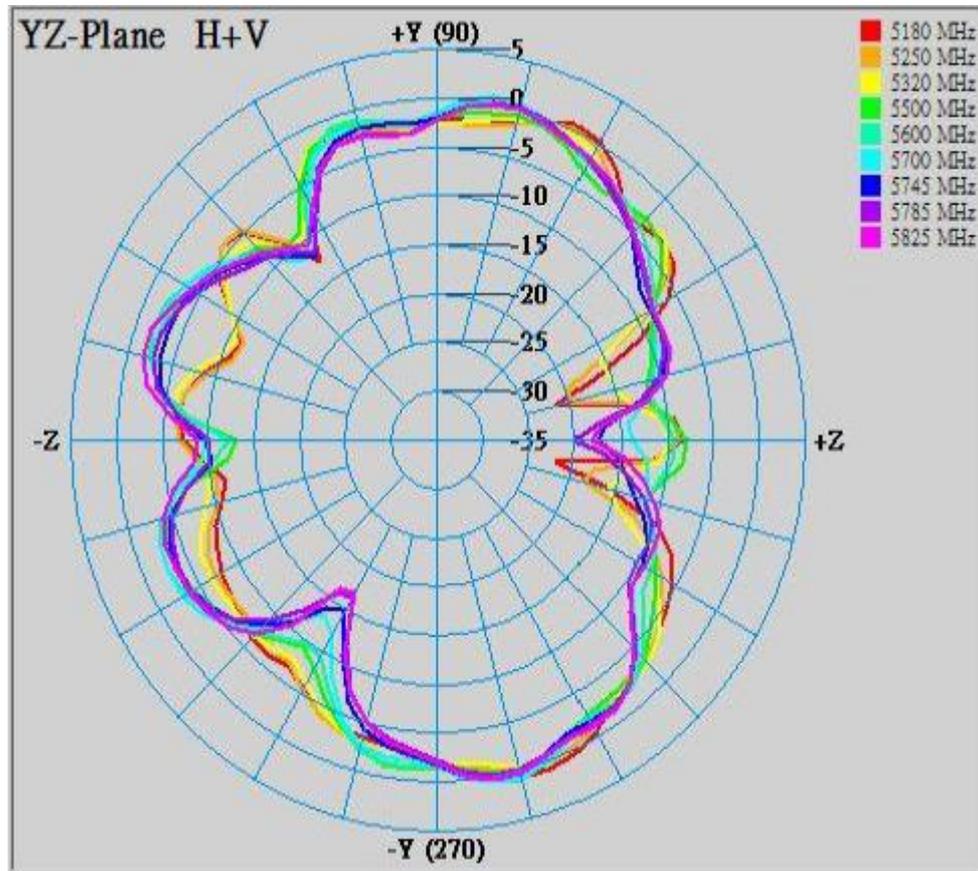
5150~5850 MHz  
Phi=0.00deg

Gain . dB



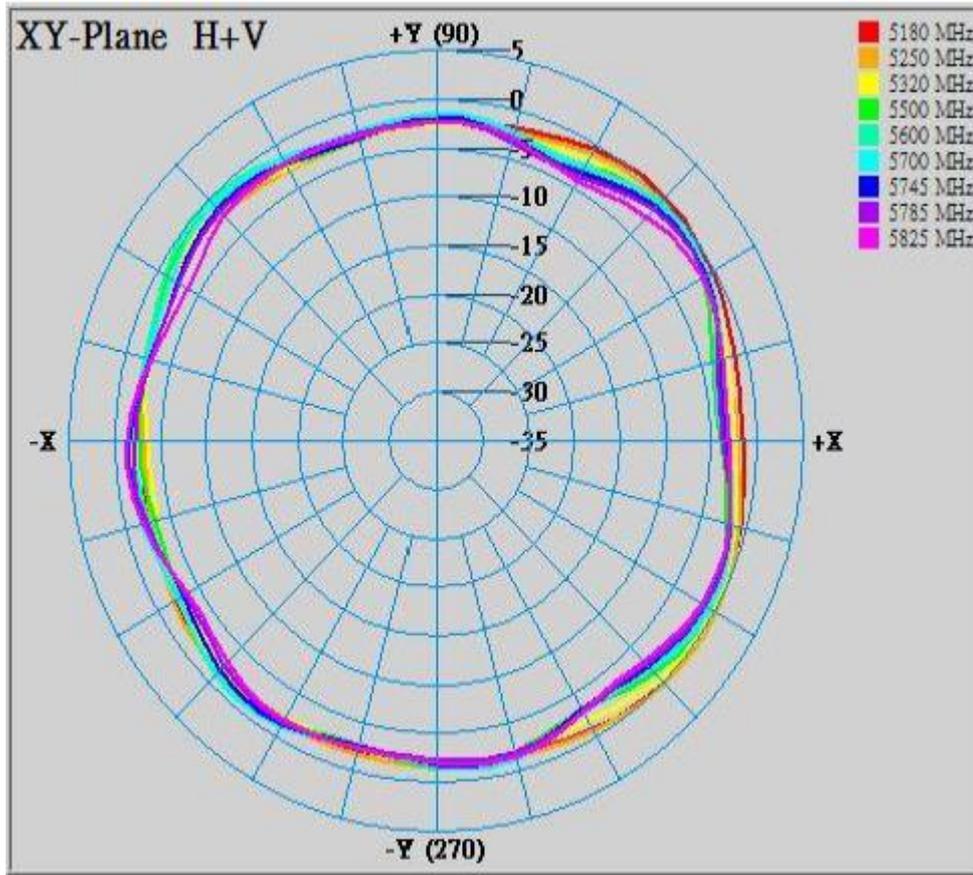
Phi=90.00deg

Gain . dB



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]
5180	1.59	-3.24	0.86	-4.01	0.35	-1.42
5250	1.63	-3.37	0.20	-4.28	0.40	-1.63
5320	1.71	-3.61	-0.26	-4.44	-0.14	-1.99
5500	1.56	-3.51	-0.07	-3.99	-0.53	-2.09
5600	1.55	-3.46	0.89	-3.68	-0.08	-1.85
5700	1.81	-3.66	0.83	-3.80	-0.42	-1.77
5745	1.64	-4.01	0.43	-4.33	-0.81	-2.18
5785	1.60	-4.26	0.21	-4.50	-0.96	-2.38
5825	1.86	-3.74	0.41	-4.16	-1.25	-2.48