

# APPROVAL SHEET

**Dipole ANTENNA**

**5.15~5.85 GHz Working Frequency**

**Halogens Free Product**

**P/N: RFDPA141510IM5B701**

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 Dec.	New Release	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	5.15~5.85 GHz
Gain (Peak)	1.75 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 Base	PC+PBT ; Black
Connector	IPEX ; Ni/Gold
Coaxial Cable	(ø1.37) ; Blue
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Rivet	POM ; Black
Tube	PE ; Transparent
Plug	Silicon Rubber ; Black
Sponge	Black

### ORDERING RULE

RF	DPA	1415	10	I	M	5	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
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**

ELECTRICAL

Frequency : 5.15~5.85 GHz

NO	DESCRIPTION	DESCRIPTION ; MAT'L ; Color	QTY	REMARK
A	Antenna Cover	ABS ; Black	1	
B	Antenna Base	PC+PBT ; Black	1	
C	Connector	IPEX ; Ni/Gold	1	20670-001R-37
D	Cable	(Ø1.37) ; Blue	1	
E	Up Brass Tube	Brass	1	
F	Down Brass Tube	Brass	1	
G	Heat Shrink Tube	Black	1	
H	Rivet	POM ; Black	2	
I	Tube	PE ; Transparent	1	
J	Plug	Silicon Rubber ; Black	1	
K	Sponge	Black	1	

A

B

C

D

E

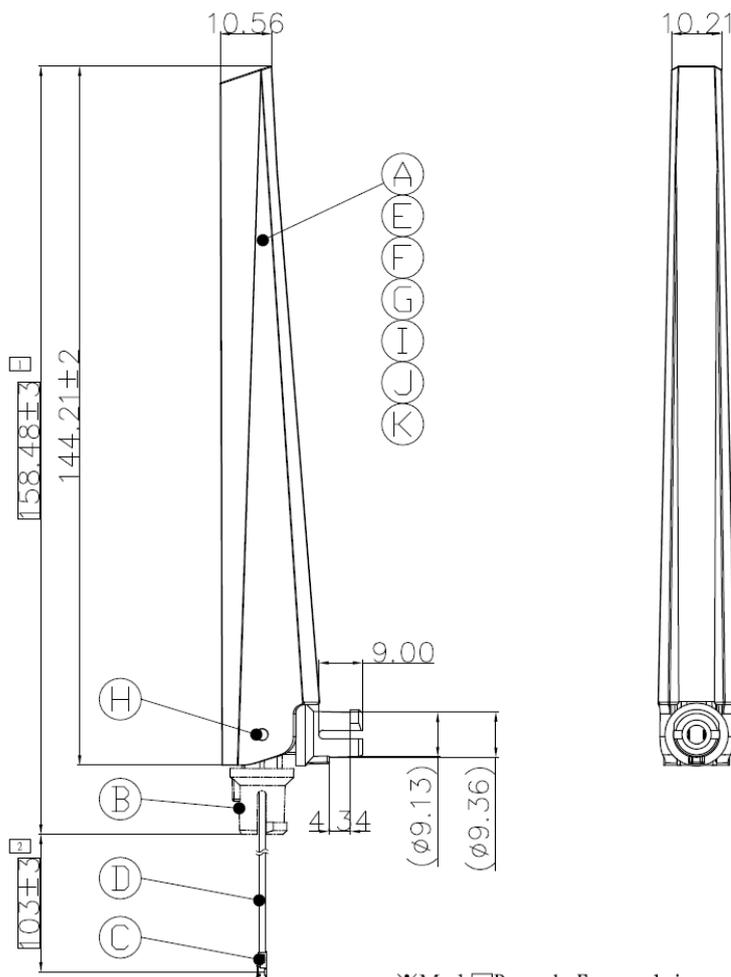
A

B

C

D

E



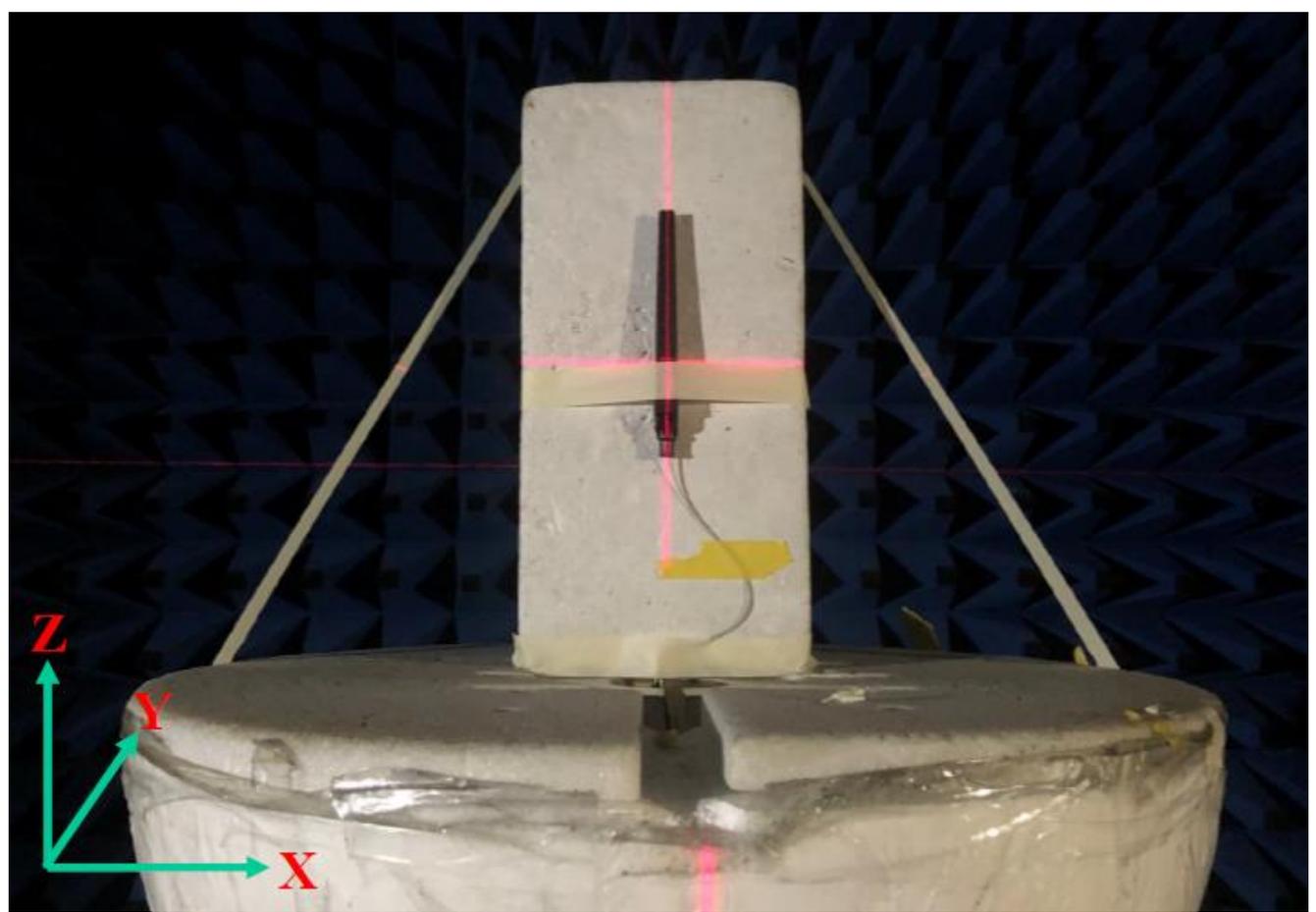
※Mark  Bymark, Focused inspection dimensions

※標記  記號者, 為重點檢驗尺寸

				設計DR. PIPI	2019.12.16	品名	版本 REV.
				核准APPL. Marco		ARTICLE	A
				容許公差 TOLERANCE		RFDPA141510IM5B701	
				6 以下.....±0.2		單位 UNIT	張數 SHEET
				6 以上~30.....±0.5		mm	7
				30 以上~120.....±0.8		比例 SCALE	****
				120 以上~315.....±1.2			
				315 以上~1000.....±2.0			
				1000 以上~2000.....±3.0			
LTR	DESCRIPTION	DATE	REQ. BY				

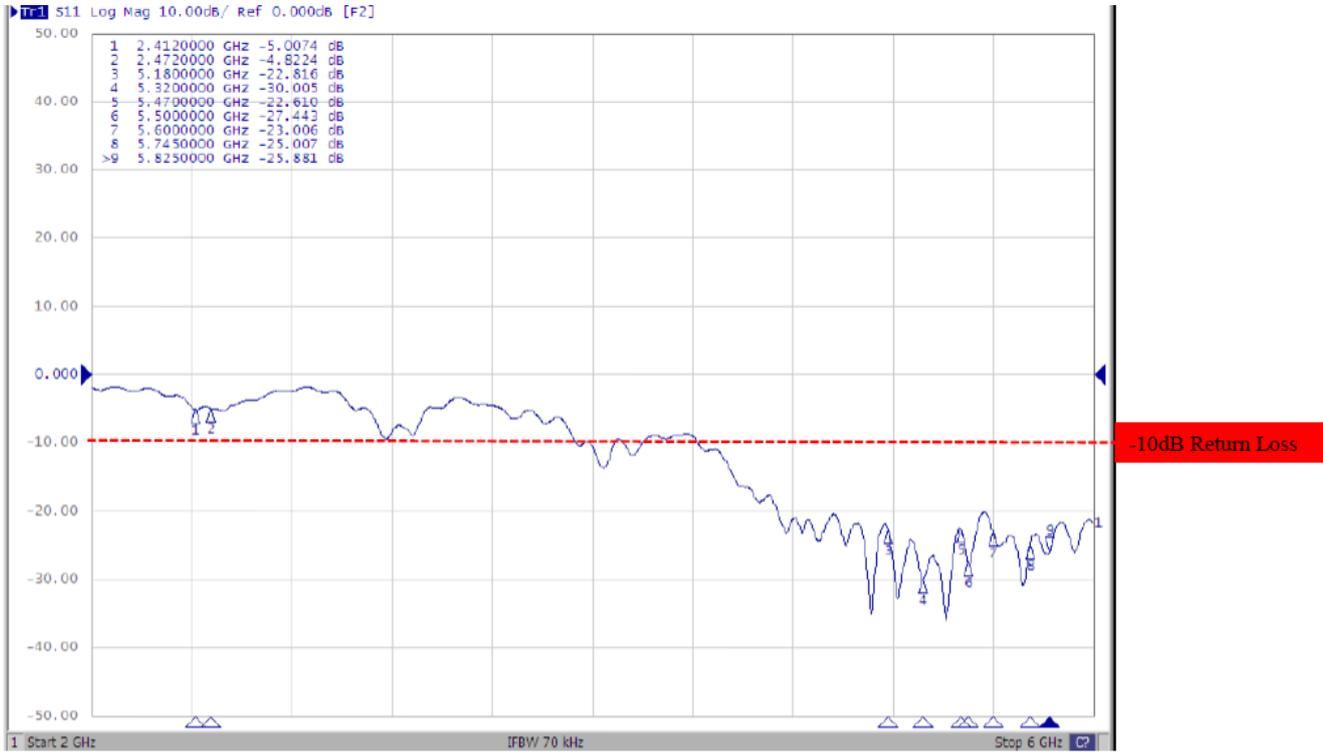
# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

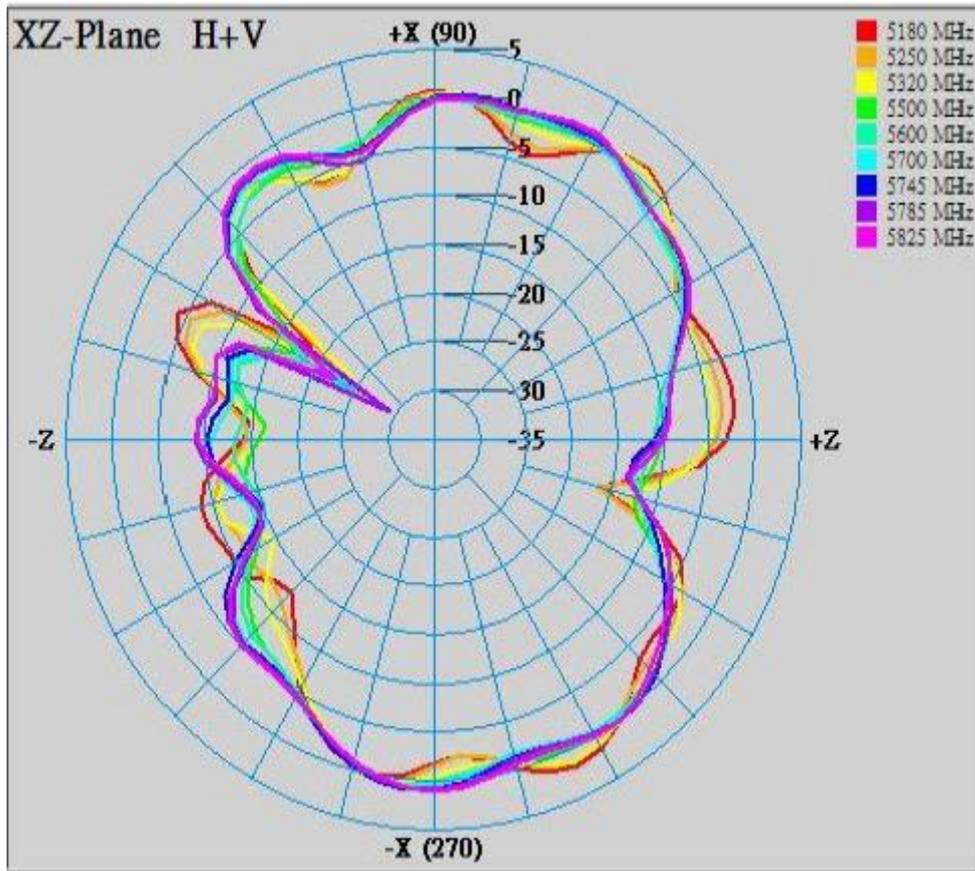


# RADIATION PATTERN

5150~5850 MHz

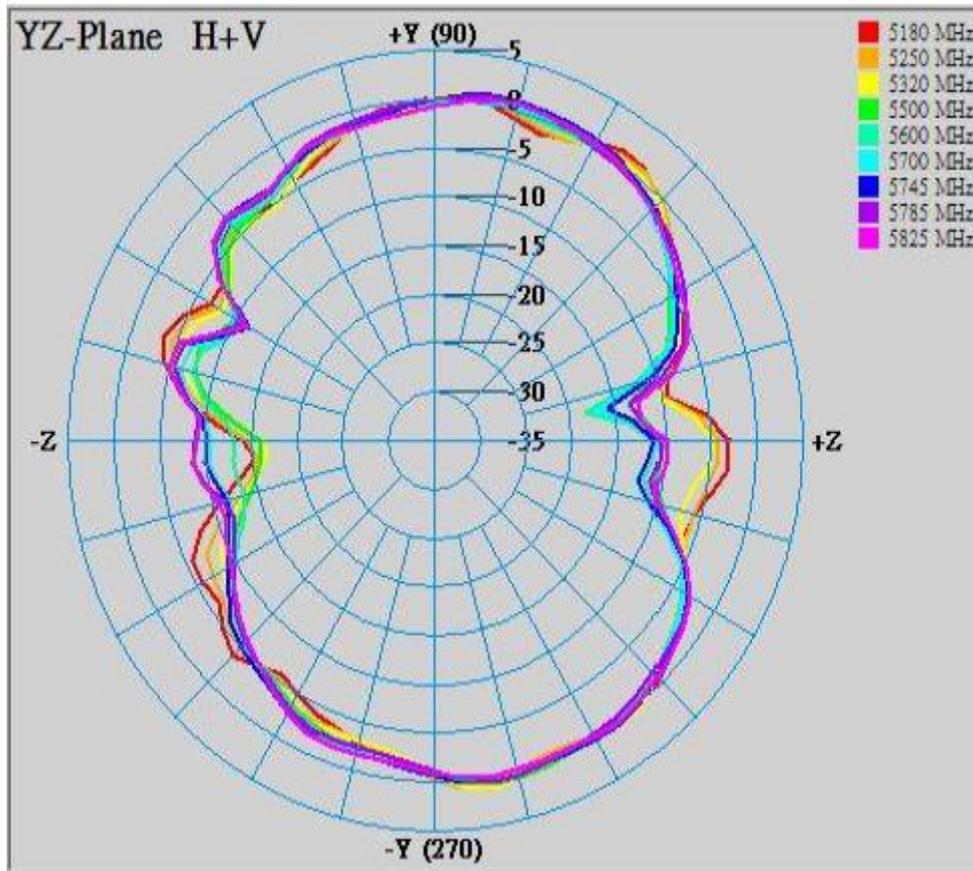
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Gain . dB



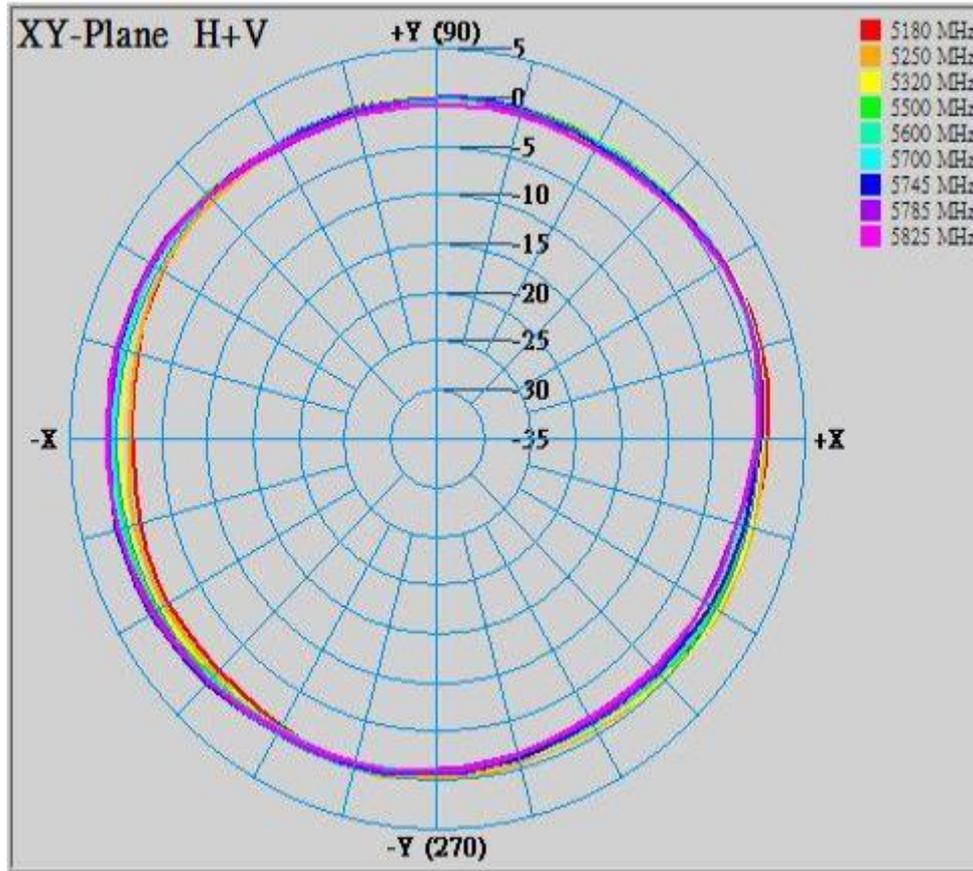
Phi=90.00deg

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	1.75	-3.00	1.21	-2.67	1.44	-0.26
5250	1.46	-3.15	0.88	-2.86	1.13	-0.21
5320	1.31	-3.07	1.11	-2.88	1.27	-0.03
5500	0.62	-3.37	0.83	-3.09	0.97	-0.07
5600	0.56	-3.47	0.57	-3.21	0.89	-0.13
5700	0.62	-3.32	0.53	-3.00	1.18	-0.09
5745	1.02	-2.99	1.01	-2.70	1.13	0.07
5785	0.81	-3.05	0.68	-2.89	1.14	-0.15
5825	0.99	-2.95	0.63	-2.82	1.10	-0.24

# APPROVAL SHEET

**Dipoie ANTENNA**

**5.15~5.85 GHz Working Frequency**

**Halogens Free Product**

**P/N: RFDPA141511IM5B701**

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

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Version	Date	Description	Author
V01	2019 Dec.	New Release	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	5.15~5.85 GHz
Gain (Peak)	1.93 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 Base	PC+PBT ; Black
Connector	IPEX ; Ni/Gold
Coaxial Cable	(ø1.37) ; White
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Rivet	POM ; Black
Tube	PE ; Transparent
Plug	Silicon Rubber ; Black
Sponge	Black

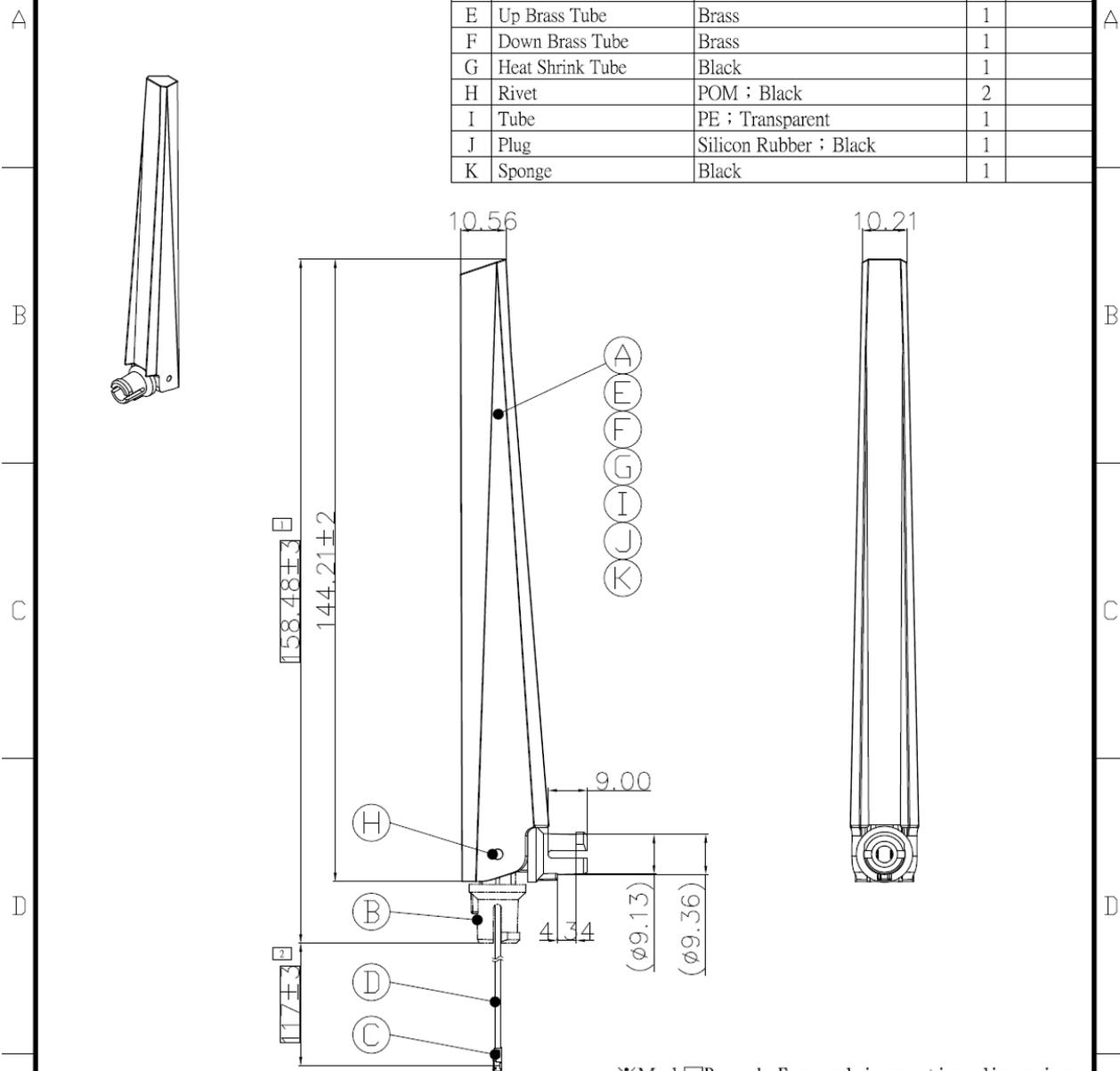
### ORDERING RULE

RF	DPA	1415	11	I	M	5	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
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**

**ELECTRICAL**  
Frequency : 5.15~5.85 GHz

NO	DESCRIPTION	DESCRIPTION : MAT'L : Color	QTY	REMARK
A	Antenna Cover	ABS ; Black	1	
B	Antenna Base	PC+PBT ; Black	1	
C	Connector	IPEX ; Ni/Gold	1	20670-001R-37
D	Cable	(Ø1.37) ; White	1	
E	Up Brass Tube	Brass	1	
F	Down Brass Tube	Brass	1	
G	Heat Shrink Tube	Black	1	
H	Rivet	POM ; Black	2	
I	Tube	PE ; Transparent	1	
J	Plug	Silicon Rubber ; Black	1	
K	Sponge	Black	1	



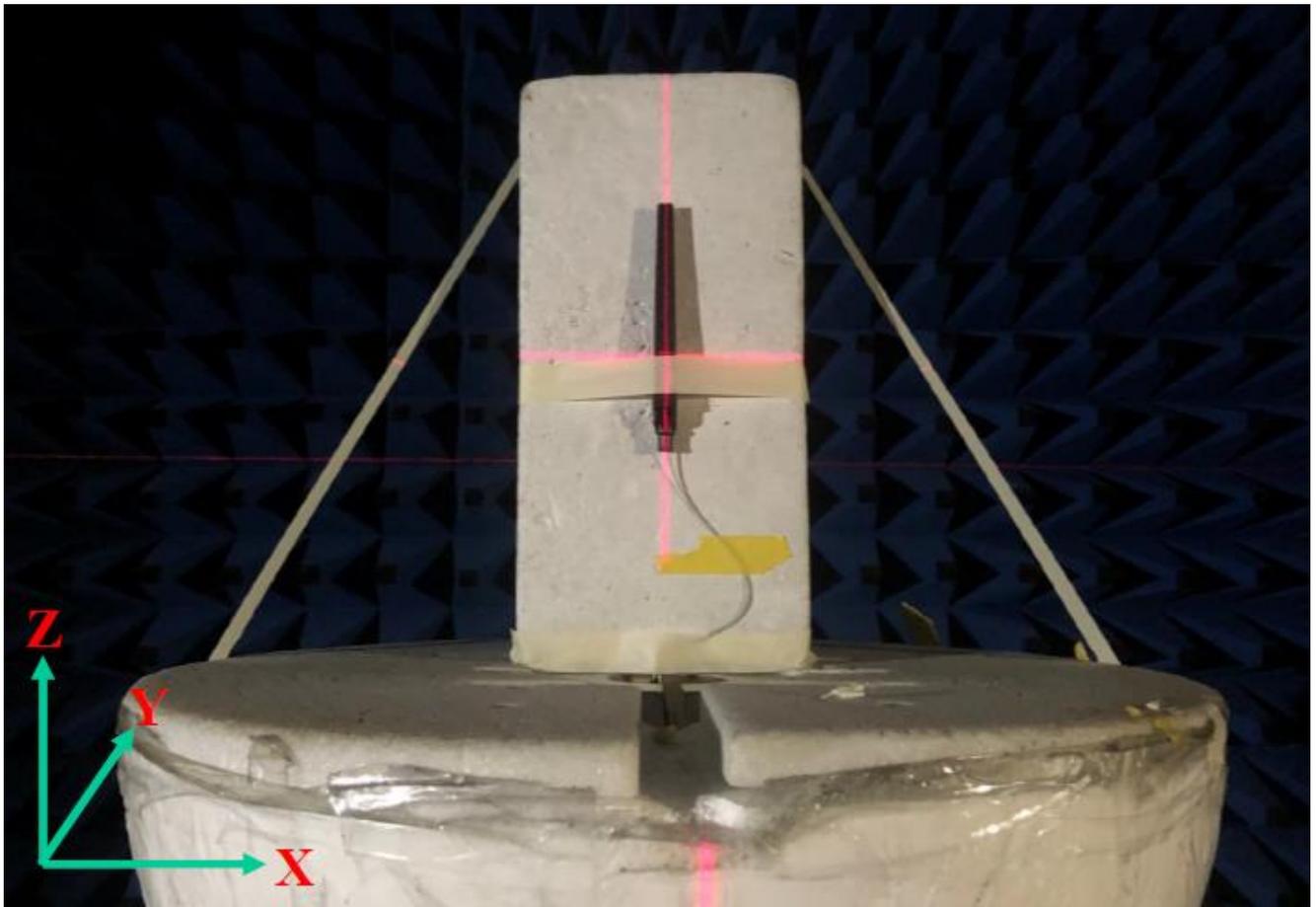
※Mark  By mark, Focused inspection dimensions

※標記  記號者, 為重點檢驗尺寸

設計DR. PIPI		2019.12.16		品名		版本REV.	
核准APP. Marco				ARTICLE		A	
容許公差 TOLERANCE				RFDPA141511M5B701			
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			
LTR		DESCRIPTION		DATE		REQ. BY	
PSA		華新科技股份有限公司		WALSIN TECHNOLOGY CORPORATION			

# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

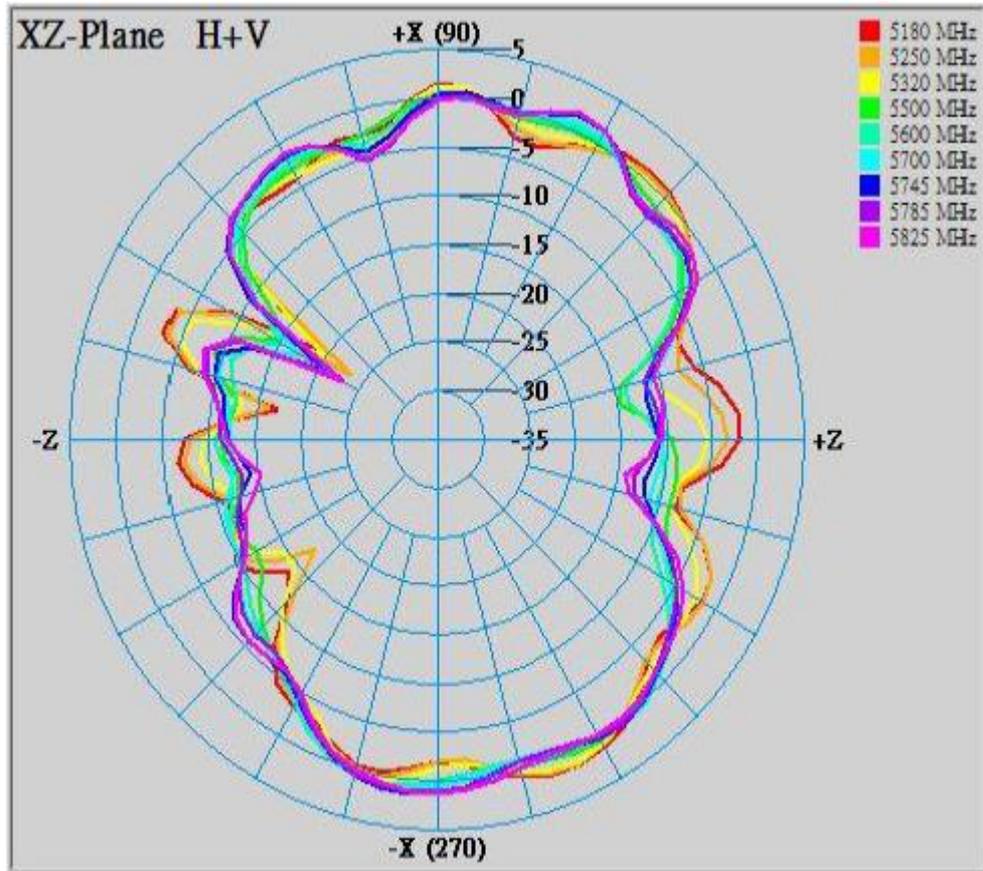


# RADIATION PATTERN

5150~5850 MHz

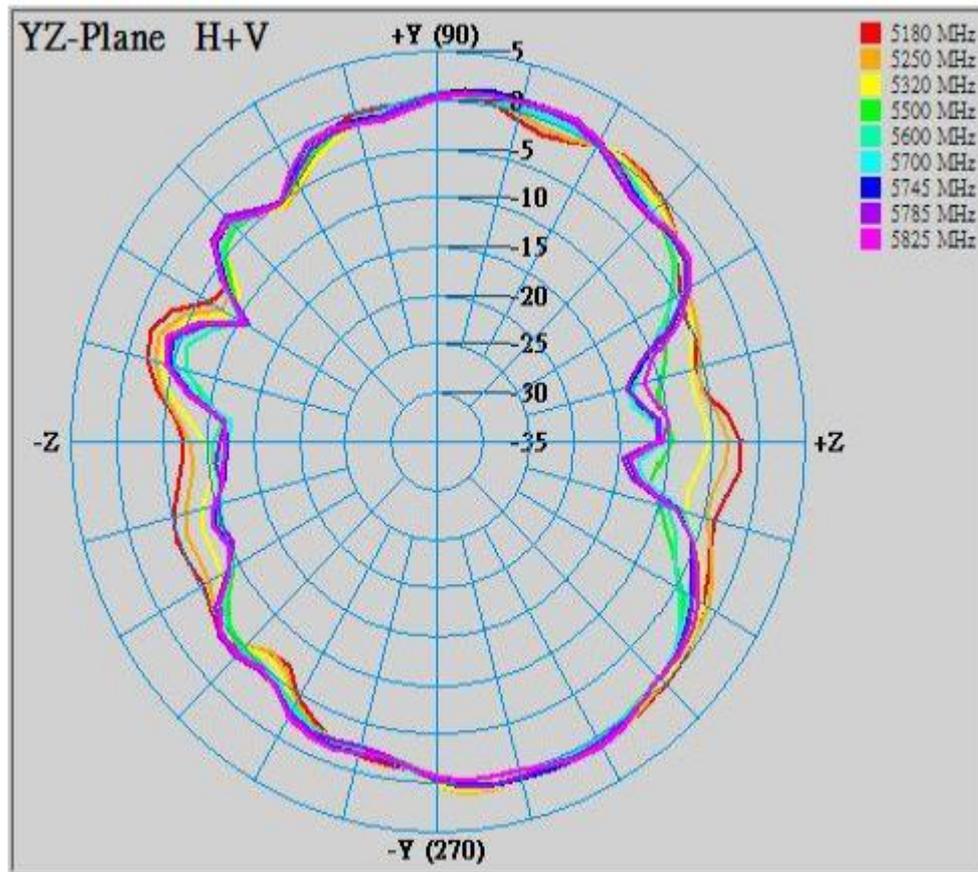
Phi=0.00deg

Gain . dB



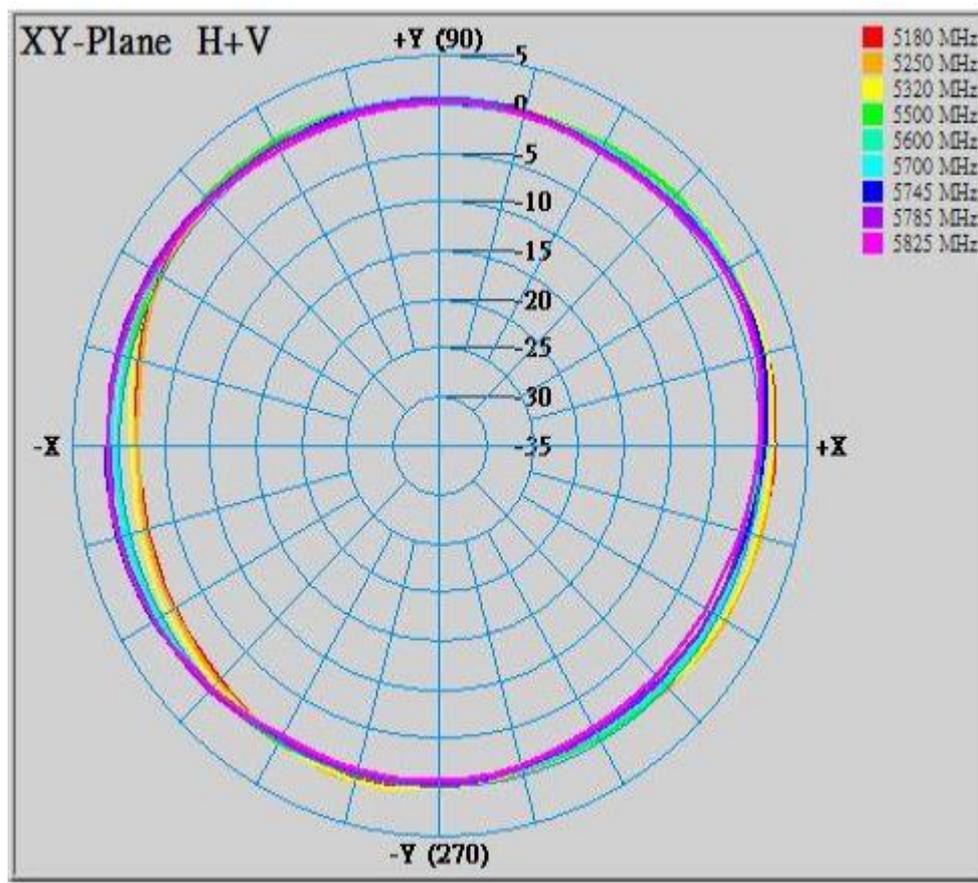
Phi=90.00deg

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	1.67	-2.54	1.01	-1.99	1.82	0.21
5250	1.57	-2.72	1.16	-2.15	1.78	0.17
5320	1.39	-2.93	1.31	-2.34	1.93	0.39
5500	0.63	-3.14	0.60	-2.95	1.40	0.30
5600	0.74	-3.19	0.89	-2.87	1.26	0.22
5700	1.06	-3.00	1.16	-2.63	1.58	0.32
5745	1.65	-2.77	1.32	-2.46	1.41	0.34
5785	1.81	-2.91	0.99	-2.63	1.41	0.30
5825	1.92	-2.81	1.31	-2.52	1.29	0.01

# APPROVAL SHEET

**Dipole ANTENNA**

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

**Halogens Free Product**

**P/N: RFDPA141514IMLB701**

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

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Version	Date	Description	Author
V01	2019 Dec.	New Release	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	2.4~2.5 / 5.15~5.85 GHz
Gain (Peak)	2.4~2.5 GHz @ 1.70 dBi 5.15~5.85 GHz @ 1.75 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 Base	PC+PBT ; Black
Connector	IPEX ; Ni/Gold
Coaxial Cable	(ø1.37) ; Black
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Rivet	POM ; Black
Tube	PE ; Transparent
Plug	Silicon Rubber ; Black
Sponge	Black

### ORDERING RULE

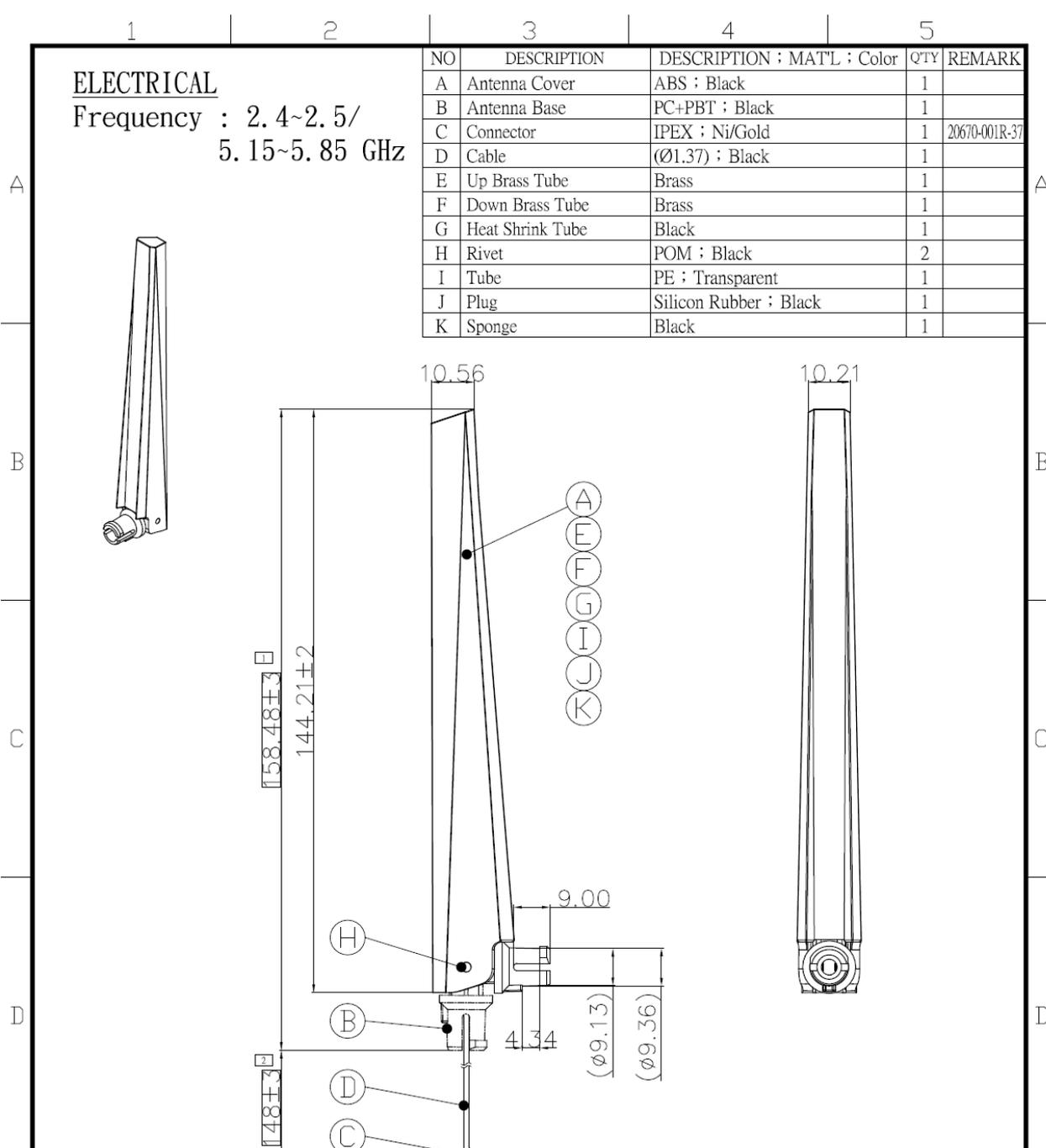
RF	DPA	1415	14	I	M	L	B	7	01
Type Code	Product Code	Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
RF Device	DPA:	Per 2 digits of length, width e.g.: 2513 Length 255mm, Width 13.00mm	2 digits for cable length e.g.: 13 Cable 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

**ELECTRICAL**

Frequency : 2.4~2.5/  
5.15~5.85 GHz

NO	DESCRIPTION	DESCRIPTION ; MAT'L ; Color	Q'TY	REMARK
A	Antenna Cover	ABS ; Black	1	
B	Antenna Base	PC+PBT ; Black	1	
C	Connector	IPEX ; Ni/Gold	1	20670-001R-37
D	Cable	(Ø1.37) ; Black	1	
E	Up Brass Tube	Brass	1	
F	Down Brass Tube	Brass	1	
G	Heat Shrink Tube	Black	1	
H	Rivet	POM ; Black	2	
I	Tube	PE ; Transparent	1	
J	Plug	Silicon Rubber ; Black	1	
K	Sponge	Black	1	



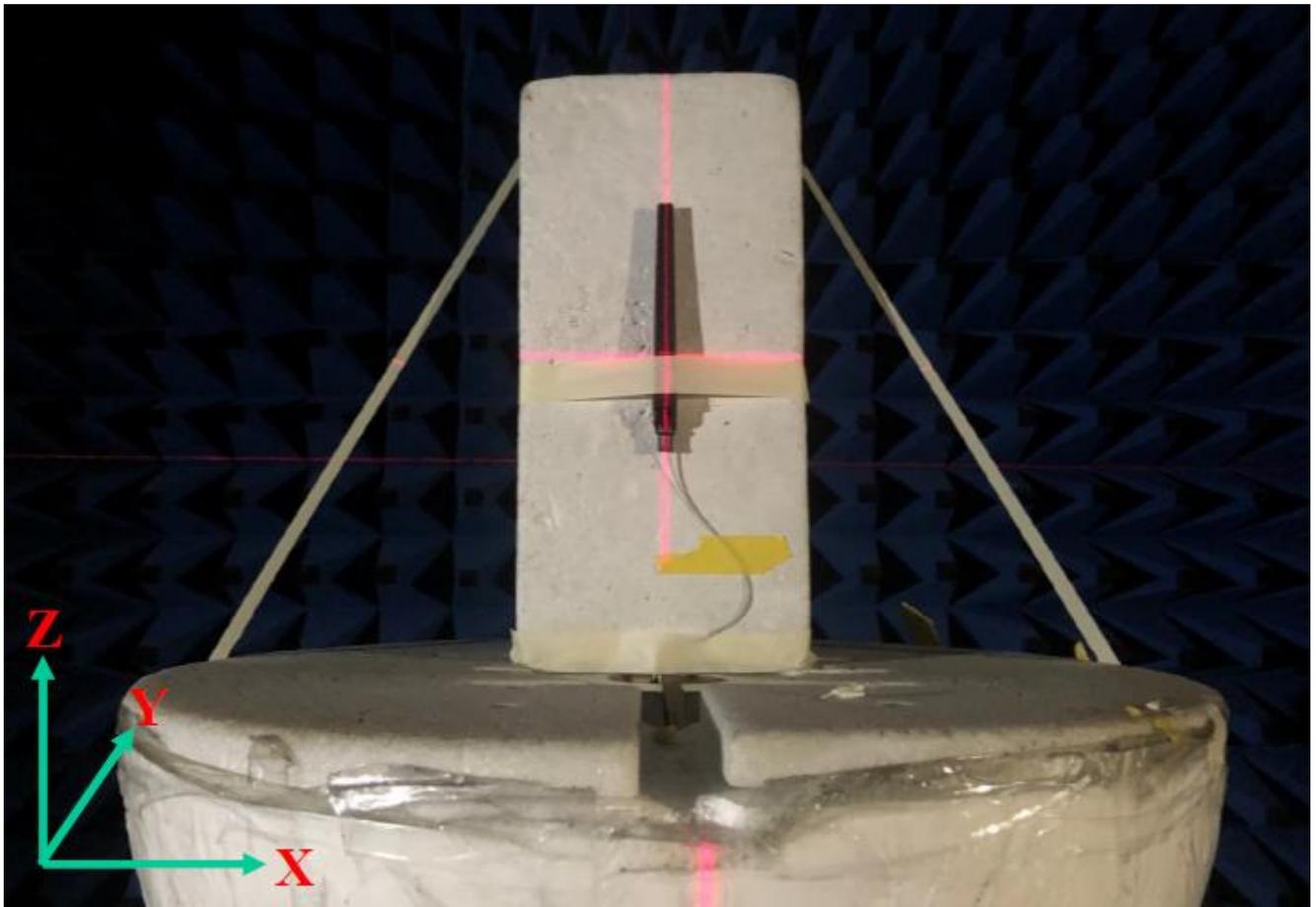
※Mark  By mark, Focused inspection dimensions

※標記  記號者, 為重點檢驗尺寸

				設計DR. PIPI	2019.12.16	品名	版本 REV.
				核准APP. Marco		ARTICLE	A
				容許公差 TOLERANCE		RFDPA141514IMLB701	
				6 以下.....±0.2		單位 UNIT	
				6 以上~30.....±0.5		比例 SCALE	
				30 以上~120.....±0.8		張數 SHEET	
				120 以上~315.....±1.2		mm	
				315 以上~1000.....±2.0		****	
				1000 以上~2000.....±3.0		1	

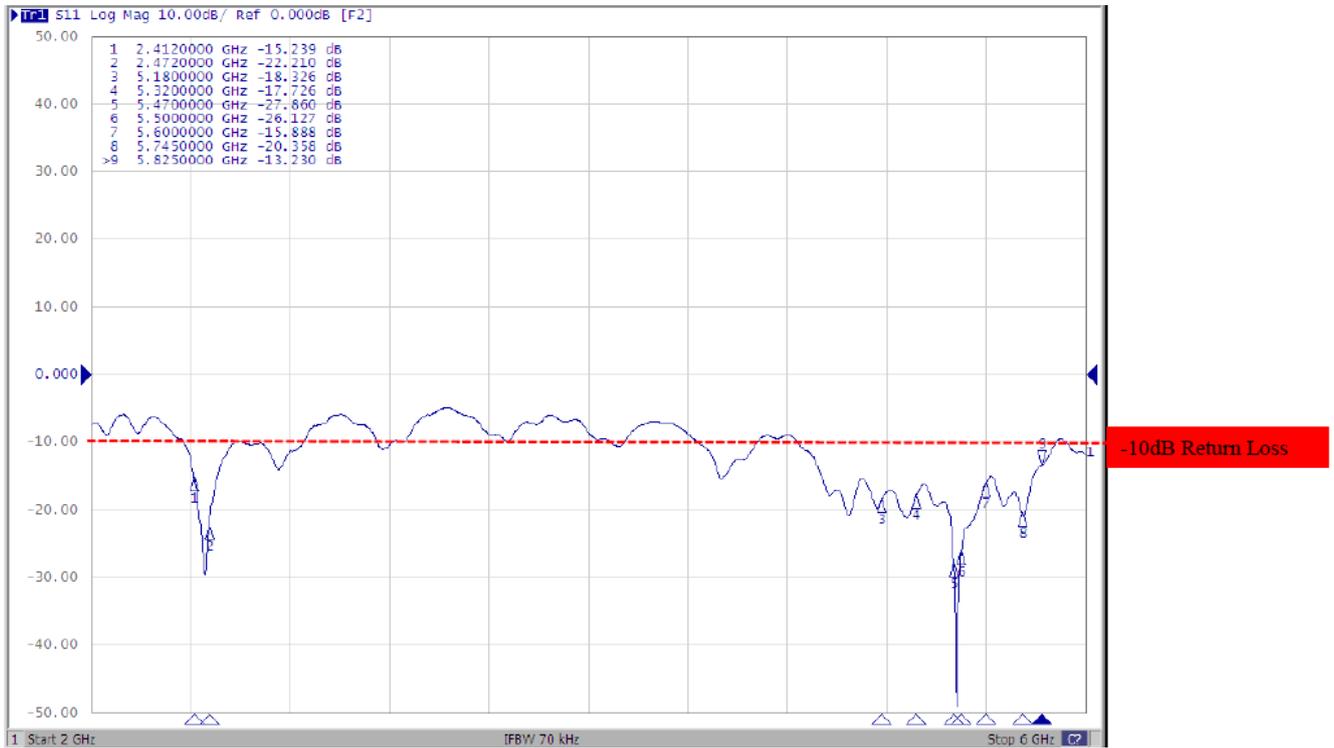
# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

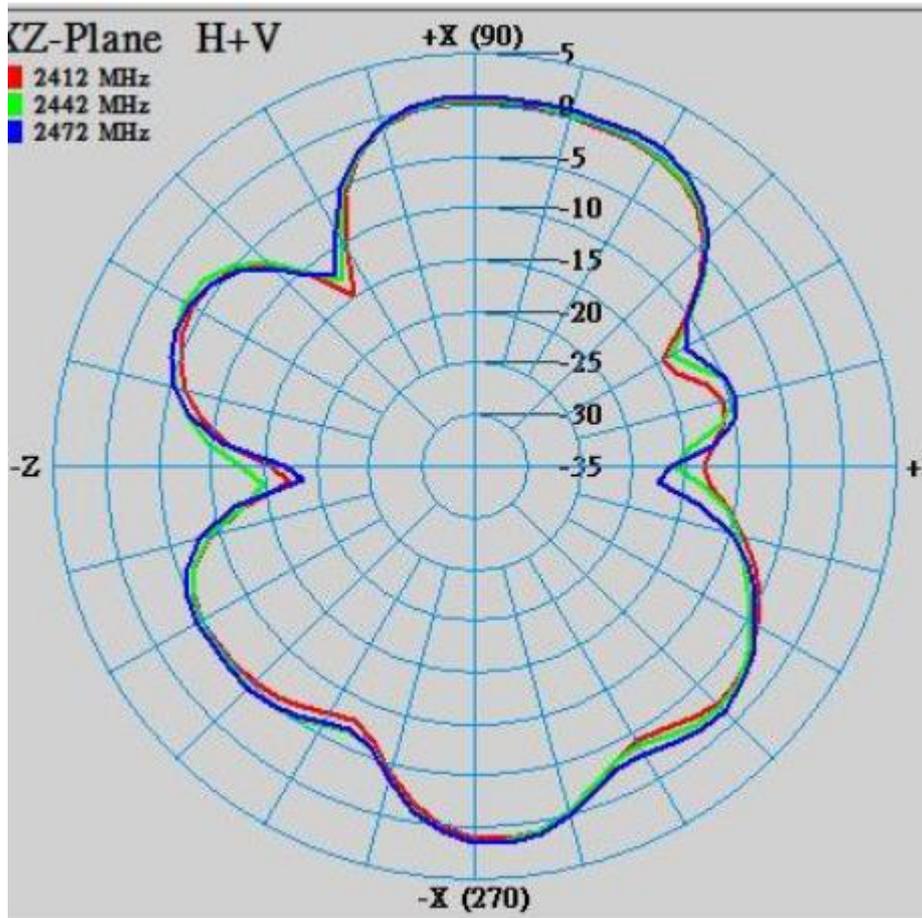


# RADIATION PATTERN

2400~2500 MHz

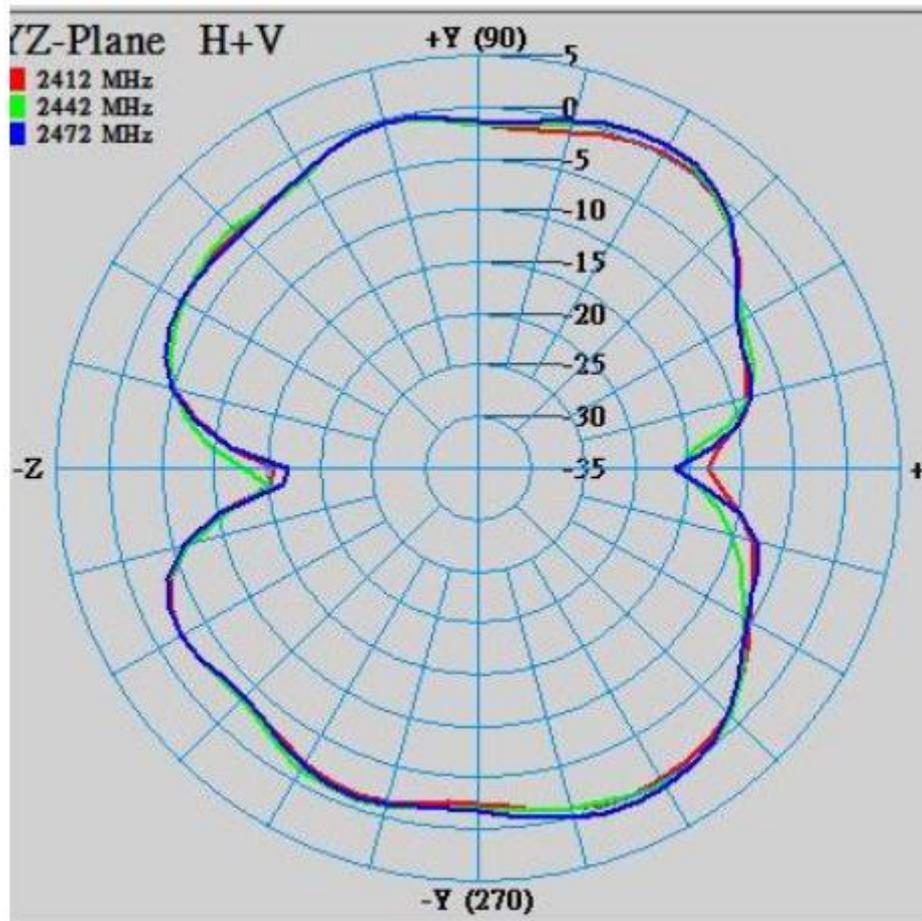
Phi=0.00deg

Gain . dB



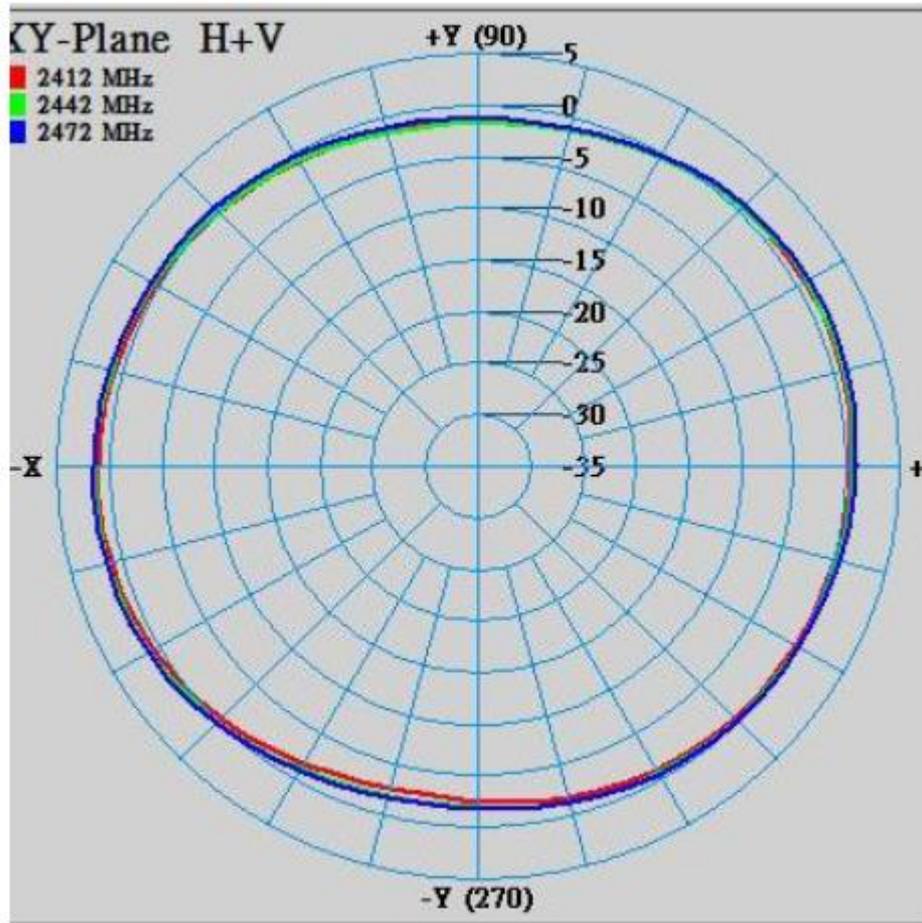
Phi=90.00deg

Gain . dB



Theta=90.00deg

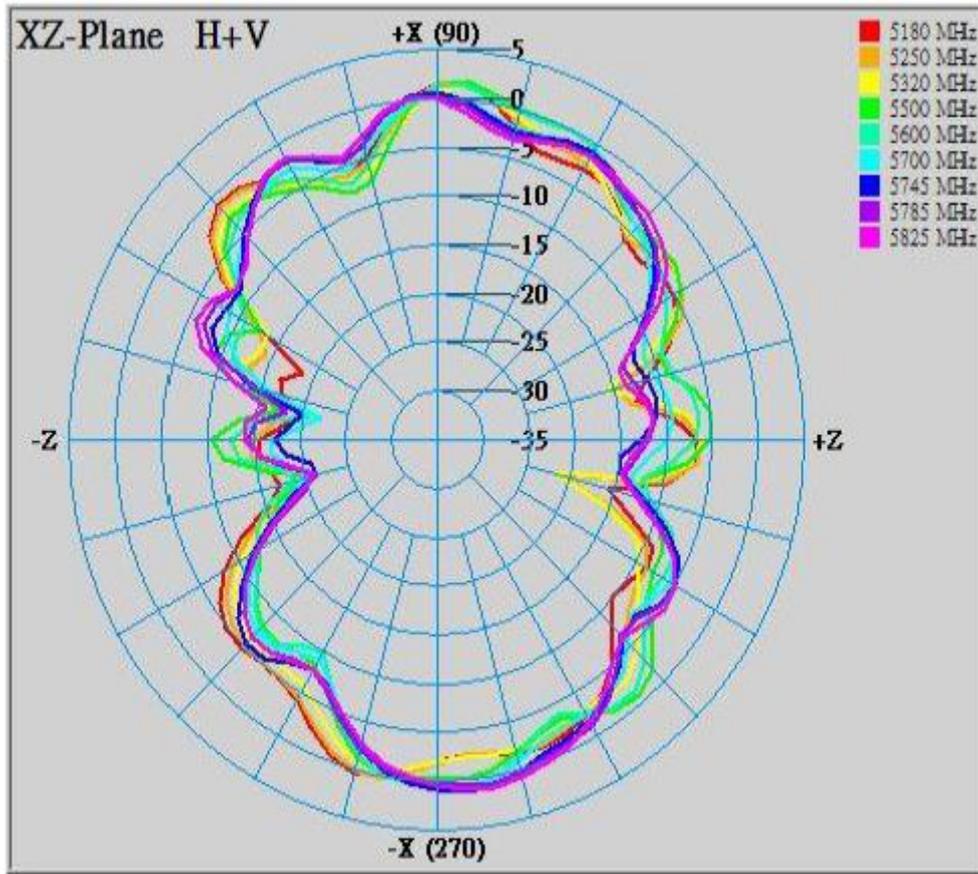
Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2412	1.28	-3.70	0.37	-2.76	1.08	-0.32
2442	1.54	-3.42	0.96	-2.56	1.45	-0.07
2472	1.70	-3.15	1.15	-2.44	1.55	0.17

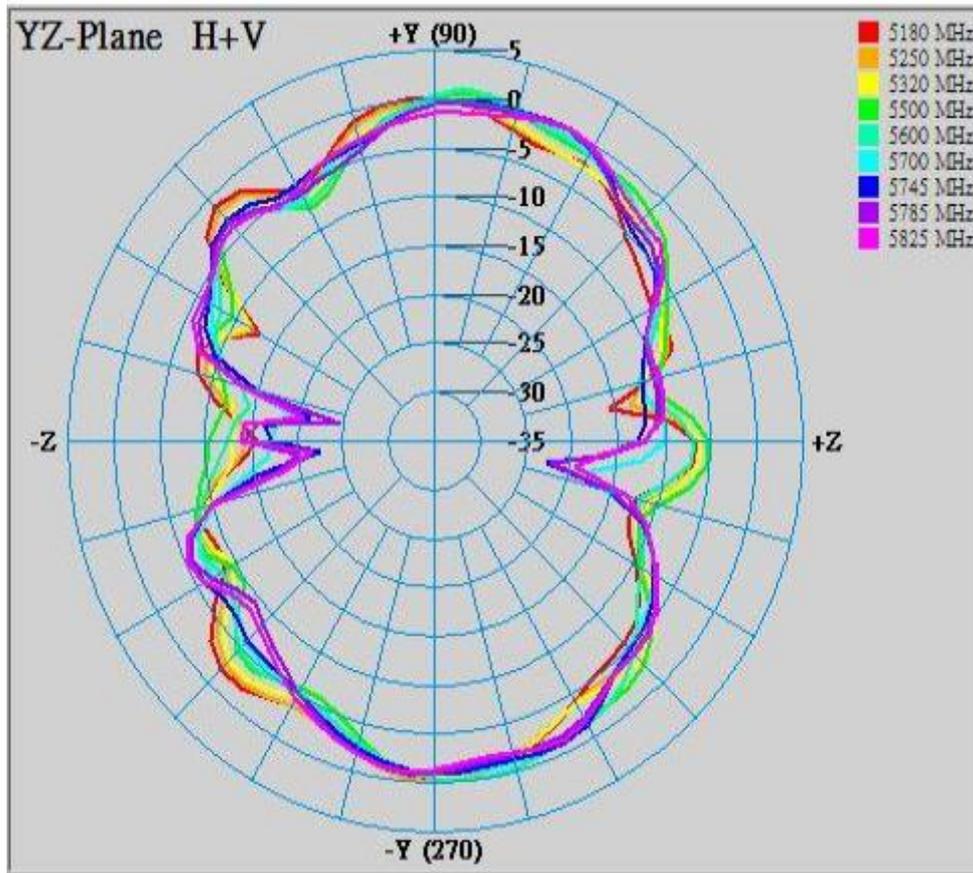
5150~5850 MHz  
Phi=0.00deg

Gain . dB



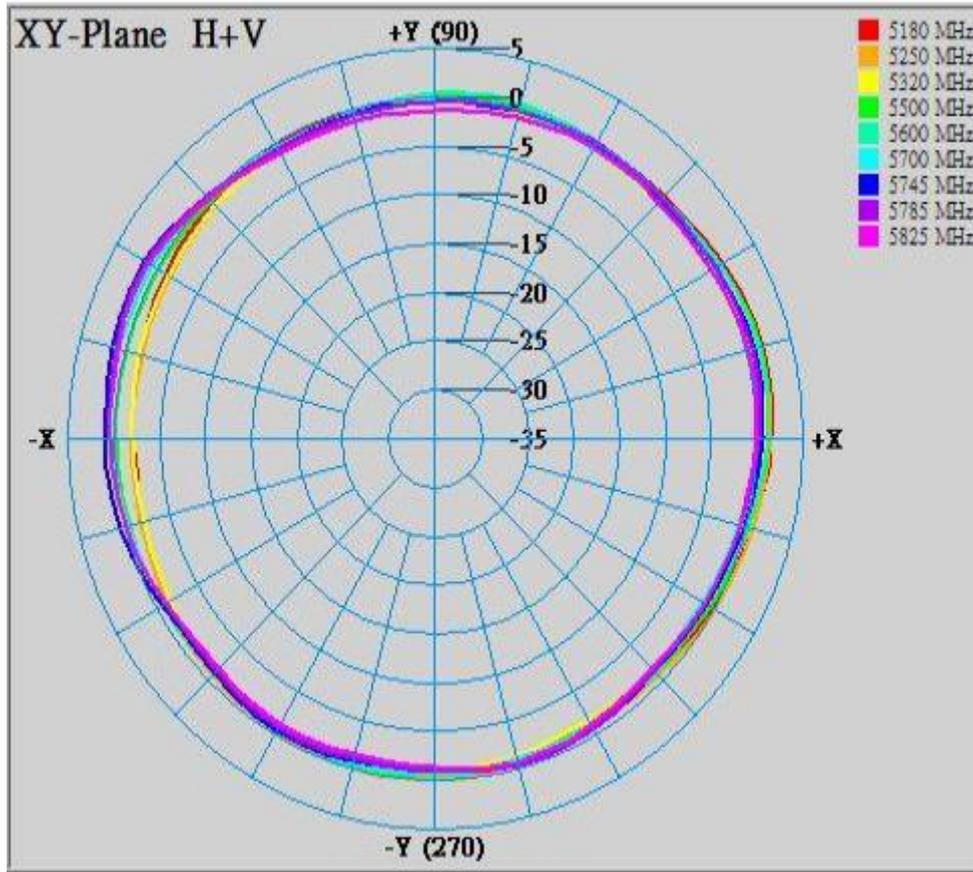
Phi=90.00deg

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	1.75	-4.23	-0.03	-4.12	1.75	-0.32
5250	1.75	-4.20	-0.09	-4.03	1.68	-0.42
5320	1.41	-4.48	-0.14	-4.34	1.27	-0.79
5500	1.78	-3.92	0.78	-3.79	1.61	-0.23
5600	1.37	-3.97	1.12	-3.89	1.45	-0.07
5700	0.61	-4.51	0.23	-4.34	0.95	-0.45
5745	1.27	-4.04	0.27	-4.13	1.67	-0.12
5785	0.67	-4.22	0.12	-4.31	1.39	-0.29
5825	1.05	-4.12	0.13	-4.24	1.11	-0.64

# APPROVAL SHEET

**Dipole ANTENNA**

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

**Halogens Free Product**

**P/N: RFDPA141516IMLB701**

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

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Version	Date	Description	Author
V01	2019 Dec.	New Release	PIPI

## Antenna Specification

### ELECTRICAL CHARACTERISTICS

Item	Specification
Working Frequency Range	2.4~2.5 / 5.15~5.85 GHz
Gain (Peak)	2.4~2.5 GHz @ 1.61 dBi 5.15~5.85 GHz @ 1.89 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 Base	PC+PBT ; Black
Connector	IPEX ; Ni/Gold
Coaxial Cable	(ø1.37) ; Gray
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Rivet	POM ; Black
Tube	PE ; Transparent
Plug	Silicon Rubber ; Black
Sponge	Black

### ORDERING RULE

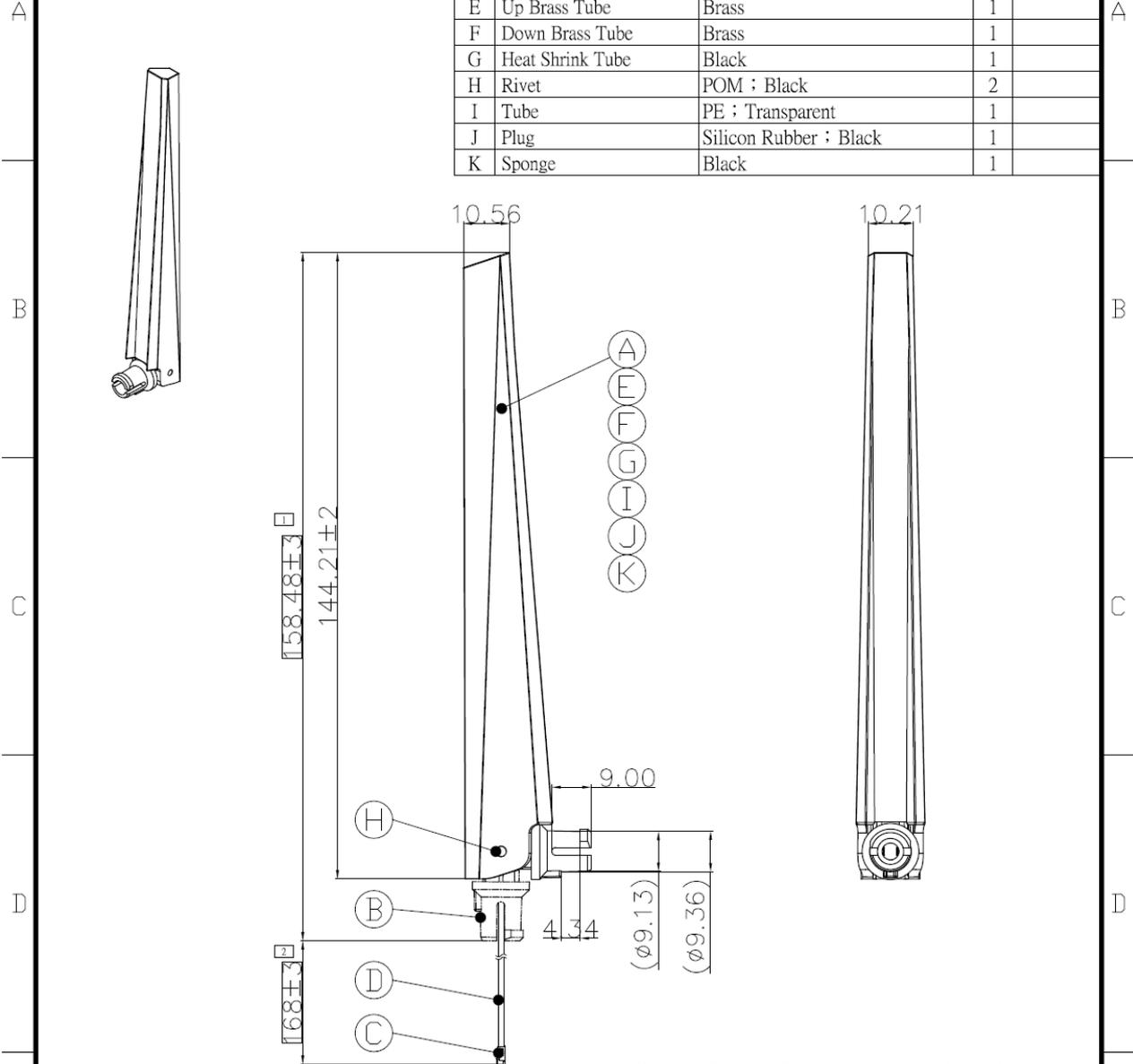
RF	DPA	1415	16	I	M	L	B	7	01
Type Code	Product Code	Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
RF Device	DPA:	Per 2 digits of length, width e.g.: 2513 Length 255mm, Width 13.00mm	2 digits for cable length e.g.: 13 Cable 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 B: Female 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	DESCRIPTION ; MATL ; Color	QTY	REMARK
A	Antenna Cover	ABS ; Black	1	
B	Antenna Base	PC+PBT ; Black	1	
C	Connector	IPEX ; Ni/Gold	1	20670-001R-37
D	Cable	(Ø1.37) ; Gray	1	
E	Up Brass Tube	Brass	1	
F	Down Brass Tube	Brass	1	
G	Heat Shrink Tube	Black	1	
H	Rivet	POM ; Black	2	
I	Tube	PE ; Transparent	1	
J	Plug	Silicon Rubber ; Black	1	
K	Sponge	Black	1	

ELECTRICAL

Frequency : 2.4~2.5/  
5.15~5.85 GHz



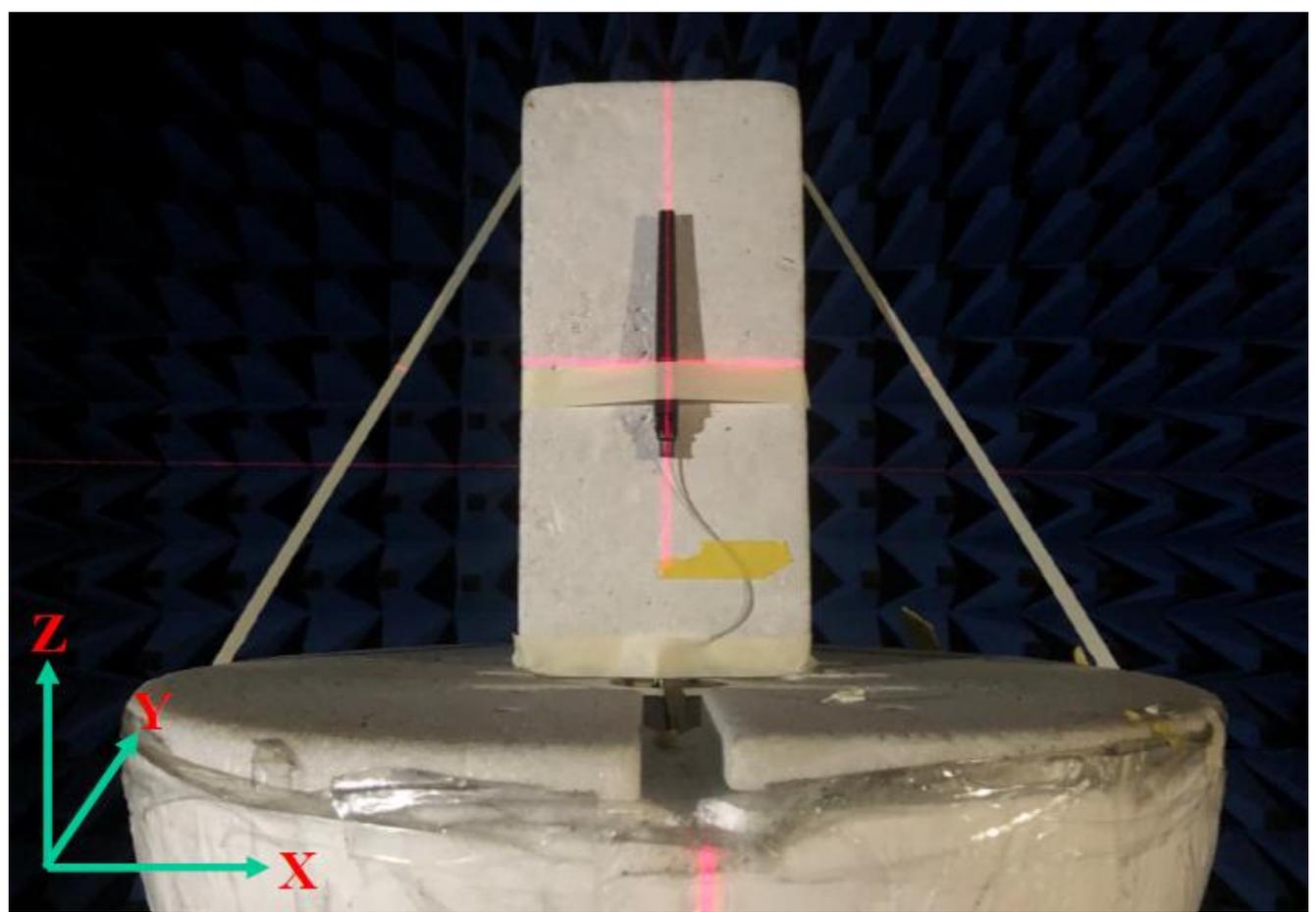
※Mark □ By mark, Focused inspection dimensions

※標記 □ 記號者, 為重點檢驗尺寸

設計DR. PIPI 2019.12.16		品名		版本 REV.
核准APP. Marco		ARTICLE		A
容許公差 TOLERANCE		RFDPA141516IMLB701		
LTR	DESCRIPTION	DATE	REQ. BY	單位 UNIT
PSA 華新科技股份有限公司 WALSIN TECHNOLOGY CORPORATION				比例 SCALE
				張數 SHEET
				mm **** 1

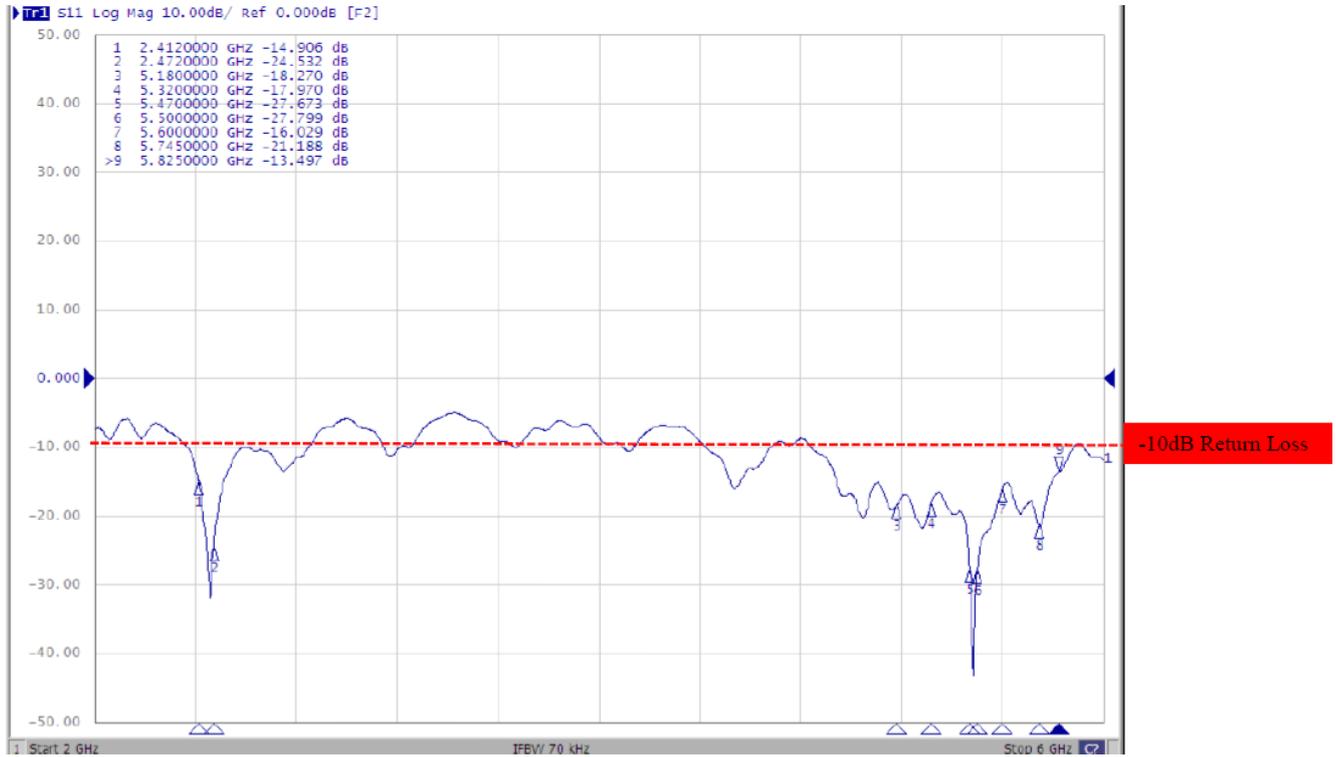
# Test Report

## ■ Experimental Setup



# ELECTRICAL CHARACTERISTICS

## Return Loss

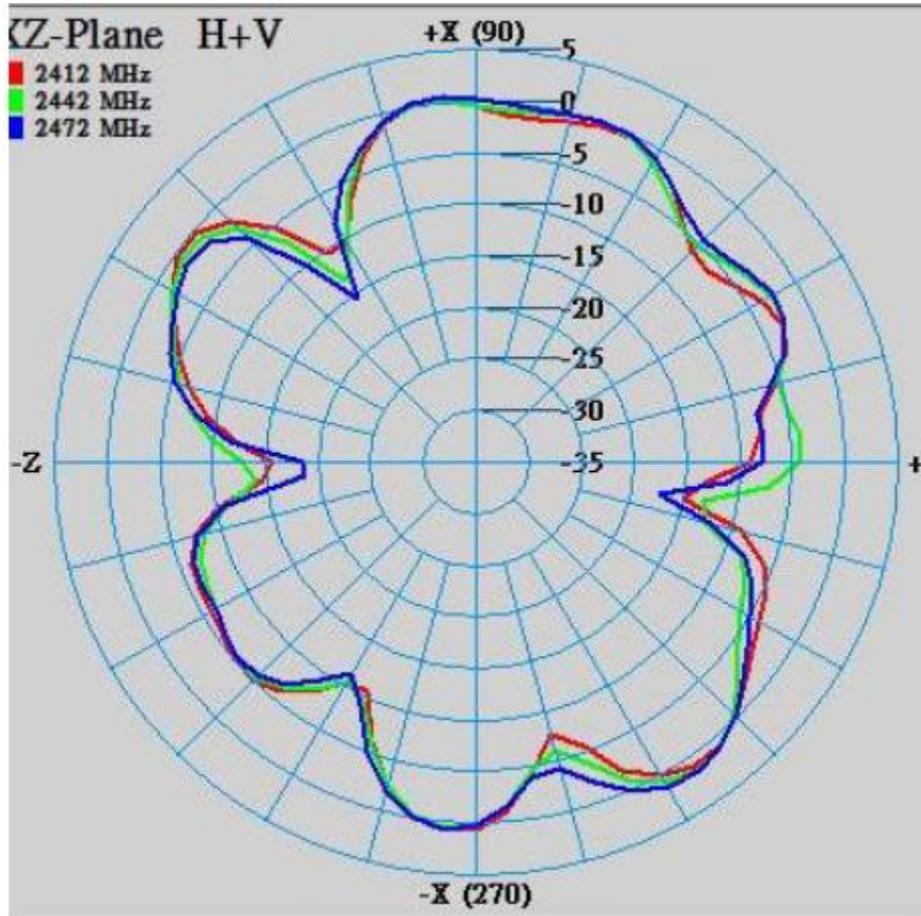


# RADIATION PATTERN

2400~2500 MHz

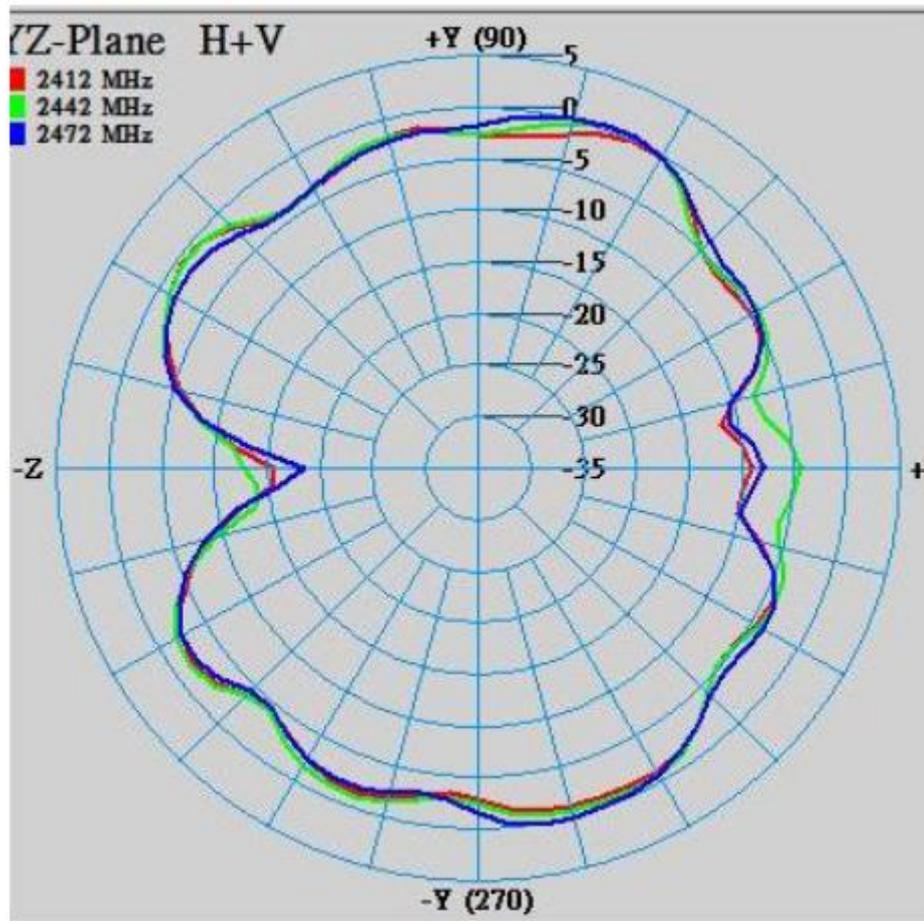
Phi=0.00deg

Gain . dB



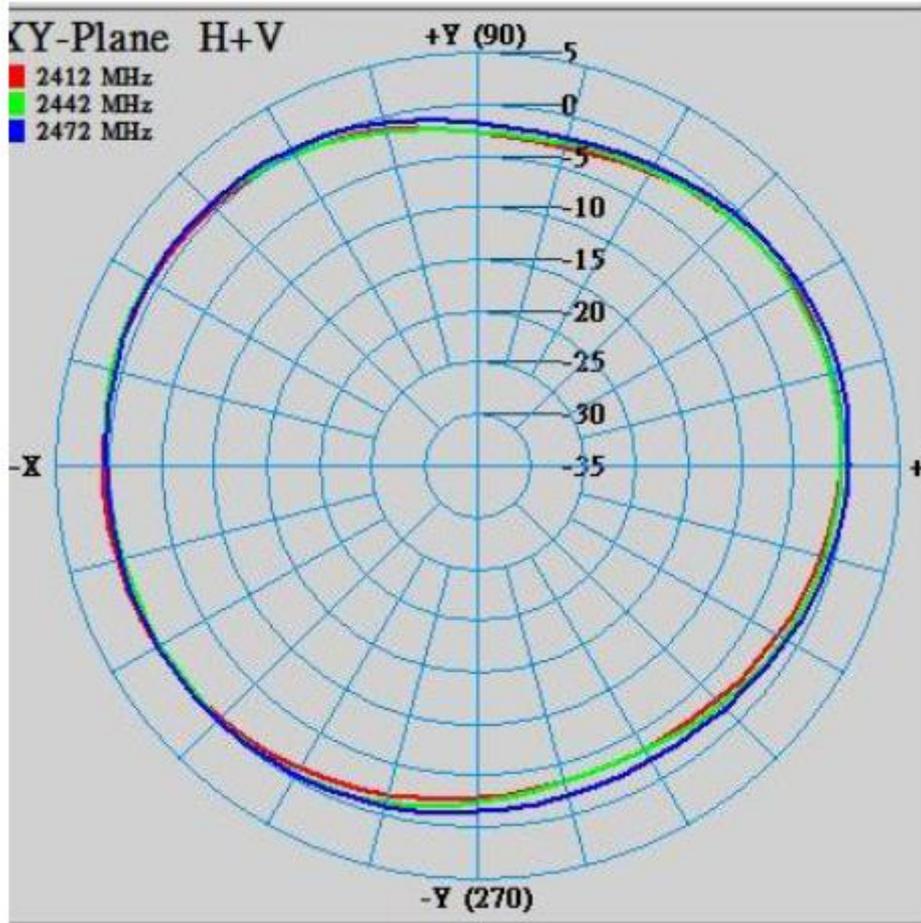
Phi=90.00deg

Gain . dB



Theta=90.00deg

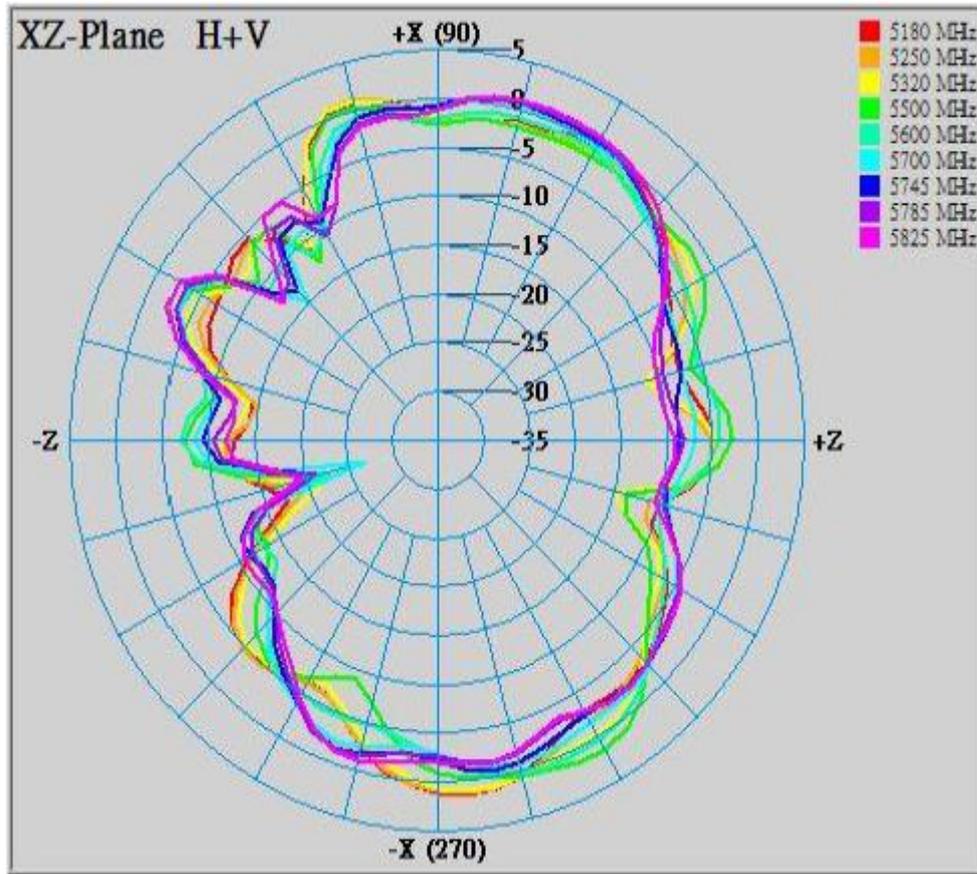
Gain . dB



Frequency [MHz]	ZX plane		ZY plane		XY plane	
	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]	Max Value [dB]	Average [dB]
2412	1.11	-3.33	-0.09	-3.34	0.76	-0.98
2442	1.48	-3.23	0.35	-2.92	1.10	-0.86
2472	1.61	-3.08	0.39	-3.05	0.88	-0.45

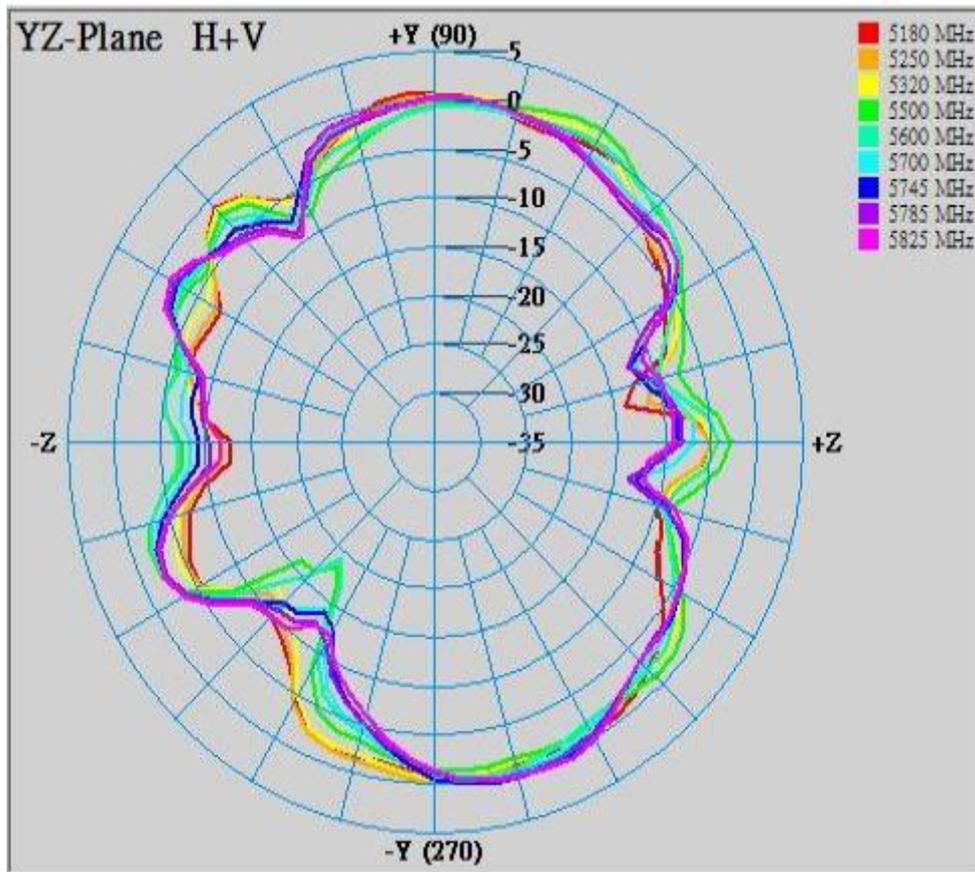
5150~5850 MHz  
Phi=0.00deg

Gain . dB



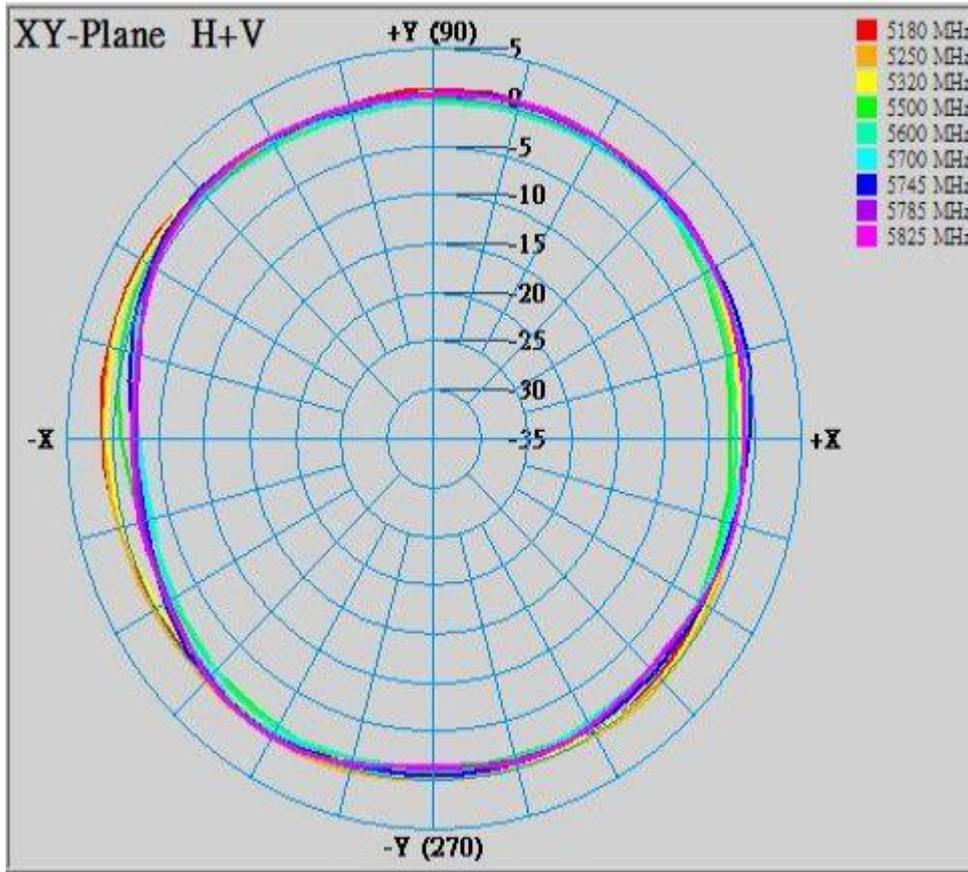
Phi=90.00deg

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	1.40	-3.47	0.80	-3.20	1.86	0.14
5250	1.18	-3.50	0.56	-3.09	1.52	0.13
5320	1.01	-3.49	0.96	-3.04	1.60	0.03
5500	1.50	-3.45	1.89	-2.84	0.89	-0.93
5600	0.51	-3.77	0.48	-3.22	0.47	-1.11
5700	0.44	-3.85	0.31	-3.29	0.89	-0.62
5745	0.69	-3.73	0.50	-3.27	1.05	-0.32
5785	0.75	-3.97	0.63	-3.54	0.82	-0.50
5825	0.95	-3.74	0.71	-3.36	0.73	-0.47