

APPROVAL SHEET

MESSRS. (주)아이디로

ITEM : Ceramic Patch Antenna

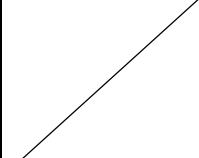
PART NAME : MPAC34SC922SS-TA

MODEL NAME : IDRO900RWe

REVISION : 0

ISSUE DATE : November 1, 2024

LAST SAVED : November 1, 2024

BUYER : (주)아이디로	SUPPLIER : MAC technologies Inc.		
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Title	RFID Ceramic Patch Ant. Specification
Document Number	MAC-08-02-05-24004
Revision & Date	0 & November 1, 2024
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Table of Contents

	Page
1. Scope	4
2. Part Name Information	4
3. Composition and Materials	4
4. Mechanical Dimensions	5
5. Electrical Specifications	6
6. Test Fixture	6
7. S11 Measurement Data	7
8. Environmental Specifications	8
9. Radiation Patterns	9~11
10. Remark	12

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1. Scope.

This specification covers the characteristics of the ceramic patch antenna element for the ISM band.

2. Part Name Information.

Part Name : **M PA C 34S C 922 SS - TA**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① : MAC technologies Inc.
- ② : Patch Antenna
- ③ : Hole Location - Center type (D : Diagonal type)
- ④ : 34 mm Square (Size)
- ⑤ : 4 mm Thickness (A : 2 mm, B : 3 mm, C : 4 mm, D : 5 mm ...)
- ⑥ : Center Frequency : 922 MHz (± 2 MHz)
- ⑦ : Ground Plane – SS : 78 x 78 **S**pecial Ground, **S**pecial Characteristic Graph
- ⑧ : Assembly – PCB

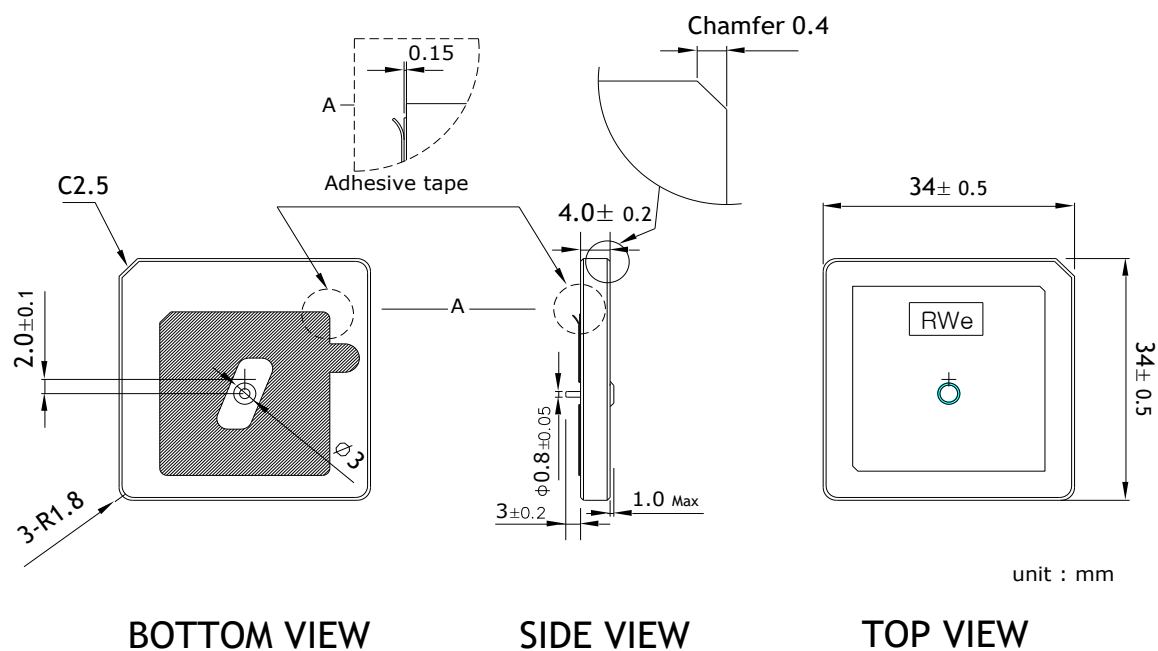
3. Composition and Materials.

- 3-1. Ceramic Substrate : $\epsilon_r = 37.0 \pm 1.5$
- 3-2. Electrode Plating : Silver
- 3-3. Terminal pin : Brass with Silver coating
- 3-4. Antenna Color : Ceramics antenna color alteration is possible

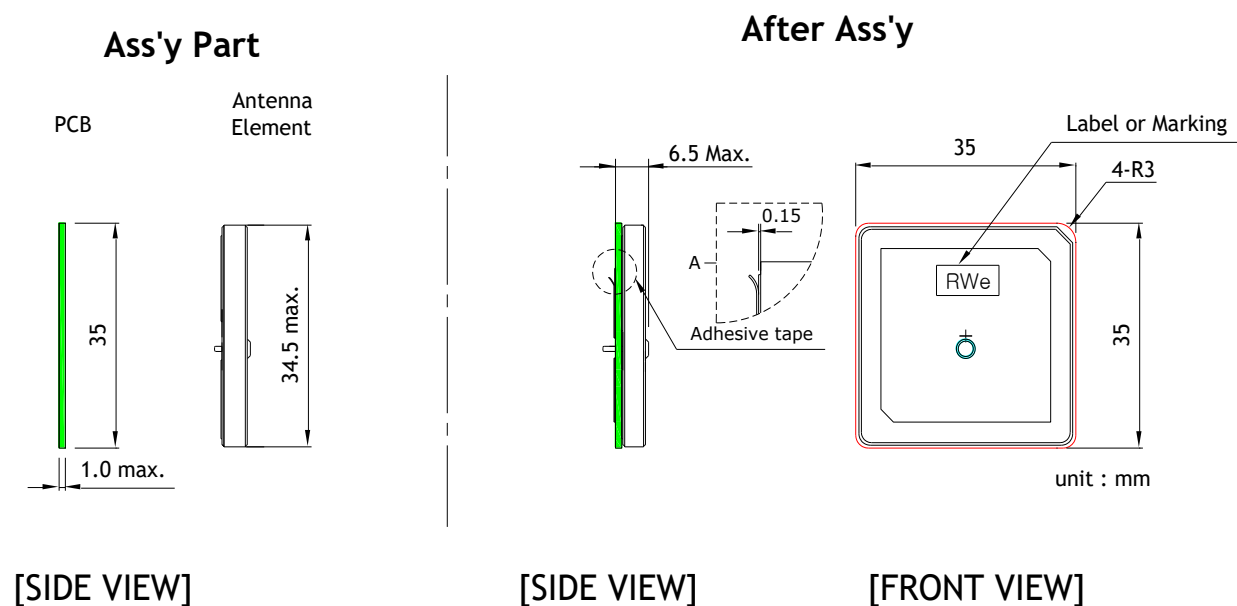
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4. Mechanical Dimensions. (unit : mm)

4-1. Antenna Element (The color of ceramic substrates can be changed.)



4-2. PCB Ass'y

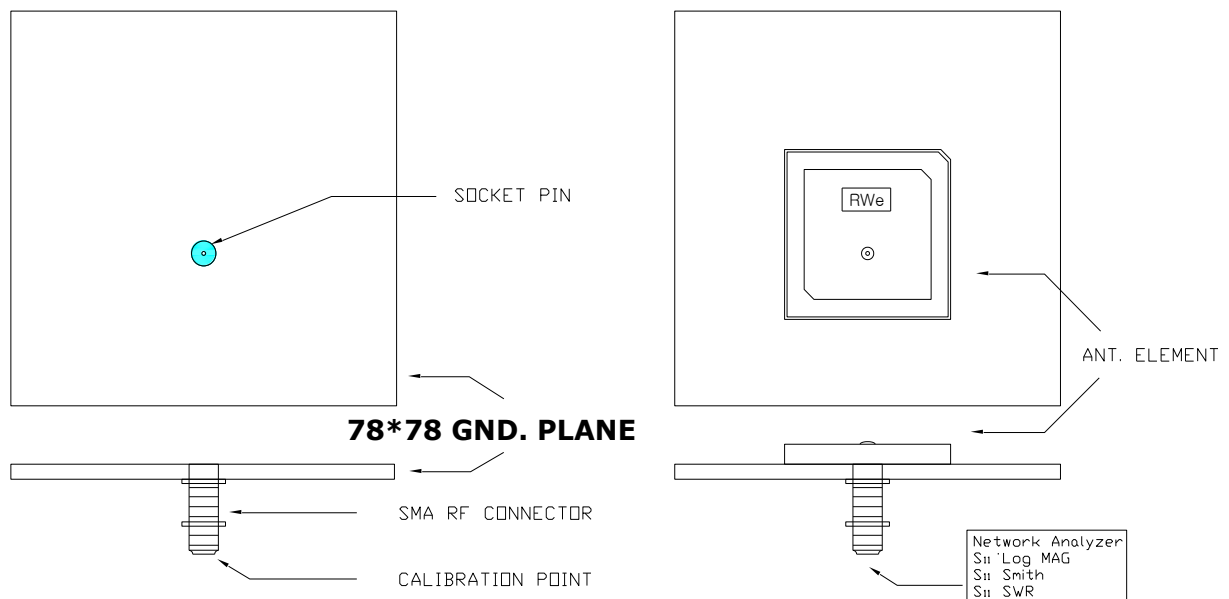


Title	RFID Ceramic Patch Ant. Specification
Document Number	MAC-08-02-05-24004
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5. Electrical Specifications.

NO.	Parameter	Spec.		Unit	Remark
		Ant. Element (@ 78×78 GND Plane)	Set Ass'y		
1	Center Frequency	922.0 ± 2	919.0 ± 2	MHz	
2	Peak Gain	typ.	-2.5 typ.	dBiL	@ Set Ass,y
		typ.	0 typ.	dBiC	
3	Polarization	RHCP	RHCP		
4	Beam Width	typ.	120 typ.	Deg.	@ -3 dB B.W
5	Band Width	typ.	8 typ.	MHz	@ -5 dB R.L
6	VSWR	max.	2.0 : 1 max.	Ratio	
7	Impedance	50	50	Ohm	

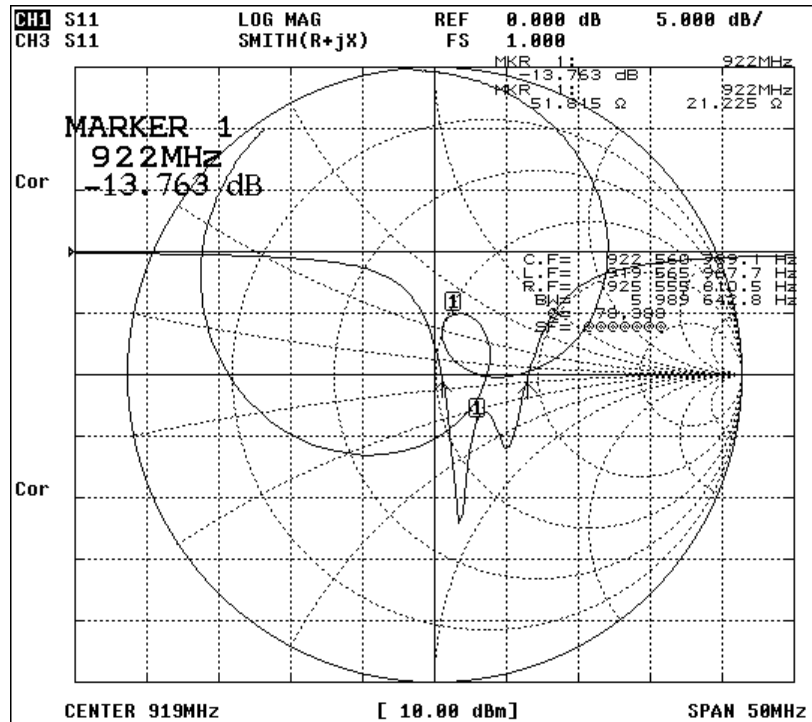
6. Test Fixture.



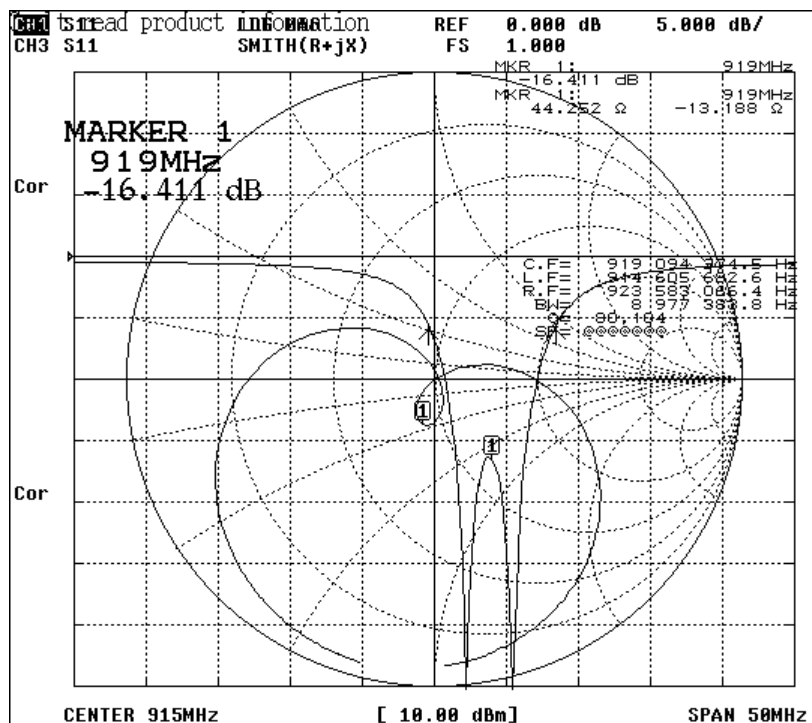
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7. S11 Measurement Data.

7-1. 78x78 mm Ground Plane



7-2. Set Ass'y



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8. Environmental Specifications.

** Operation conditions : Temperature range : -30 °C ~ +85 °C

Humidity range : 45 ~ 85 % RH

The device should satisfy the electrical characteristics specified in paragraph 5 after the following tests.

Measurements should be done after putting in the typical condition (20~30 °C / 55~75 % RH) for 2 hours minimum.

8-1. Temperature Characteristics

The device should satisfy the electrical characteristics specified in paragraph 5 at the temperature range of -30 °C ~ +85 °C.

8-2. Heat Proof

The device should satisfy the electrical characteristics specified in paragraph 5 after exposed to the temperature 85 ± 2 °C for 72 hours.

8-3. Cold Proof

The device should satisfy the electrical characteristics specified in paragraph 5 after exposed to the temperature -30 ± 2 °C for 72 hours.

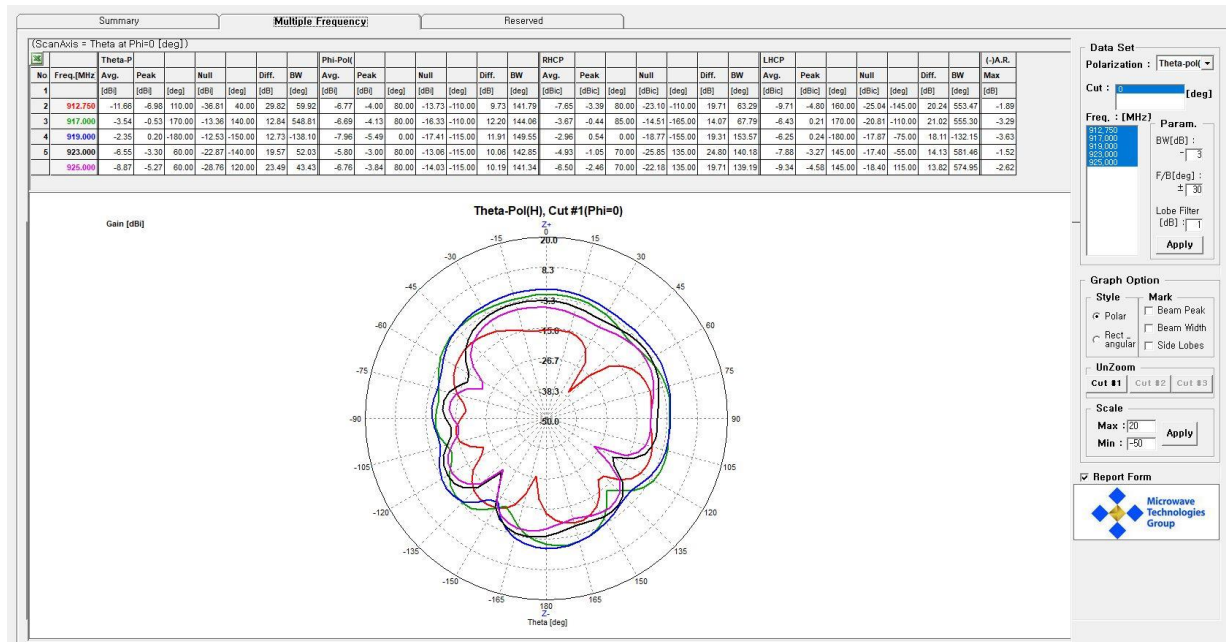
8-4. Moisture Proof

The device should satisfy the electrical characteristics specified in paragraph 5 after exposed to the temperature 40 ± 2 °C and the humidity 95 % RH for 72 hours.

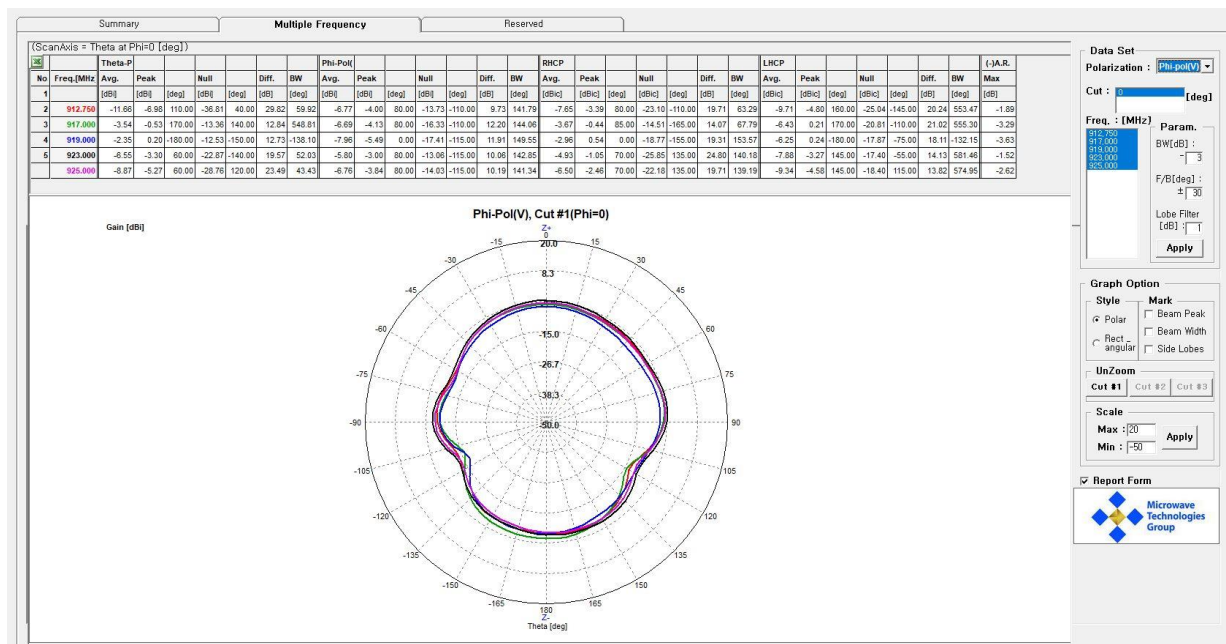
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9. Radiation Patterns after Set Ass'y

9-1. H-pol (Frequency 912.75, 917.0, 919.0, 923.0, 925.0 MHz)



9-2. V-pol (Frequency 912.75, 917.0, 919.0, 923.0, 925.0 MHz)

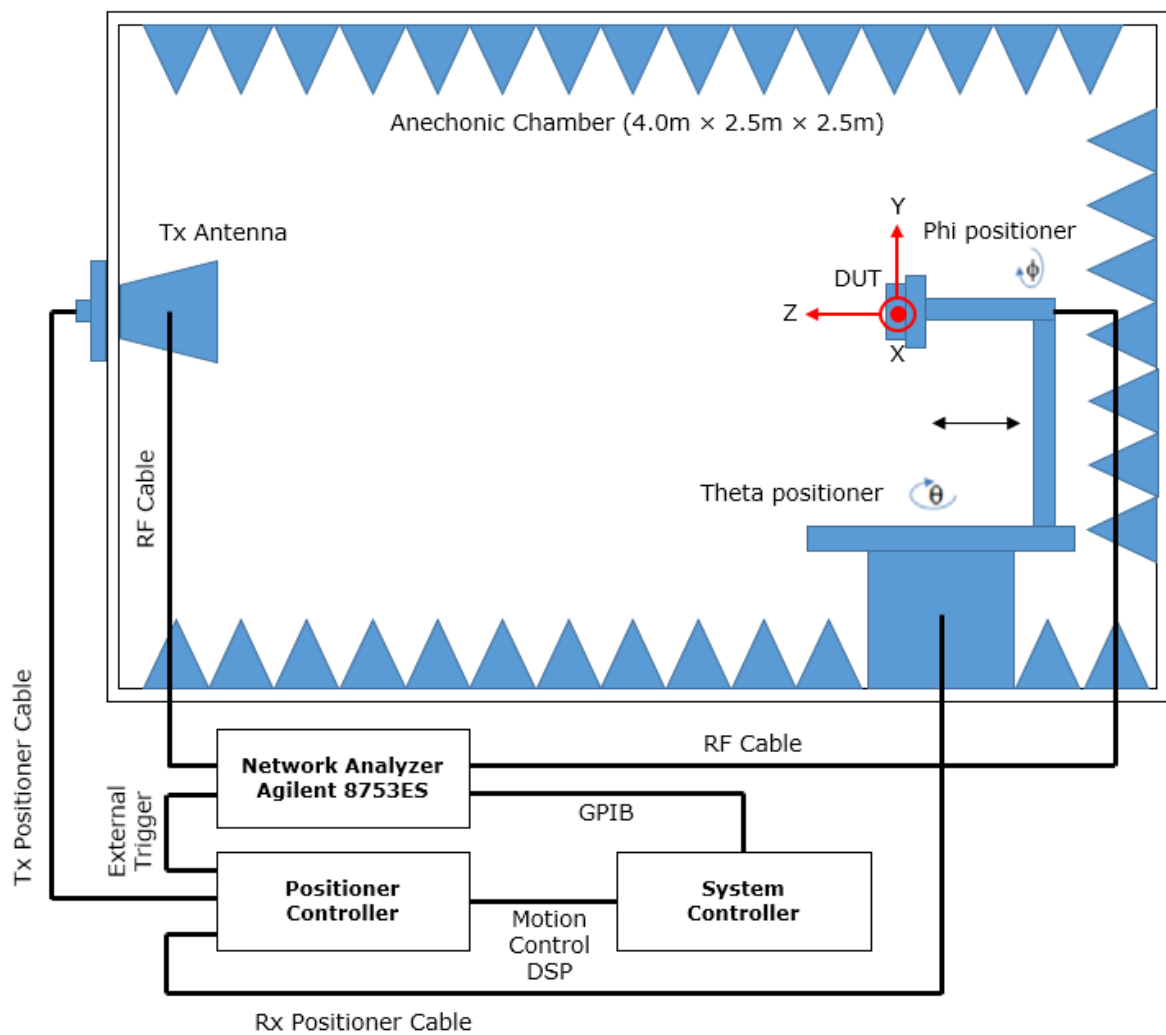


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9-3. Gain Test Data

Source Antenna Polarization	Frequency				
	912.75 MHz	917.0 MHz	919.0 MHz	923.0 MHz	925.0 MHz
H-pol. (dBiL)	-6.98	-0.53	0.20	-3.30	-5.27
V-pol. (dBiL)	-4.00	-4.13	-5.49	-3.00	-3.84
RHCP (dBiC)	-3.39	-0.44	0.54	-1.05	-2.46

9-4. Gain Measurement System



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9-5. List of Equipments (MAC technologies Inc.)

NO	Equipments	Maker	Model No.	S/N	Specification	Note
1	Anechoic Chamber	MTG	Mobile Chamber		4.0 m X 2.5 m X 2.5 m (0.4 ~ 3 GHz)	
2	Network Analyzer	Agilent	8753ES	US39173213	30 KHz ~ 6 GHz	
3	Dual-Polarization Horn Antenna with RF Switch	MTG	QRH-004060/ RSW-001060		0.4 GHz ~ 6 GHz	Source
4	Calibration Antenna	Schwarzbeck Mess - Elektronik	BBHA 9120 A	1201	0.8 GHz ~ 5 GHz	Reference
5	Absorber Installation	EMERSON & CUMING	SABS-003 18"		Reflectivity : -25 dB @ 0.8 GHz -30 dB @ 1.0 GHz	

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10. Remark.

- If there is any doubt in this specification and product, it should be resolved between made and manufacture.
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