

APPROVAL SHEET

MESSRS. (주)아이디로

ITEM : Ceramic Patch Antenna

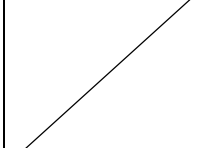
PART NAME : MPAC34SC920PS-TA

MODEL NAME :

REVISION : 0

ISSUE DATE : September 18, 2018

LAST SAVED : September 18, 2018

BUYER : (주)아이디로	SUPPLIER : MAC technologies Inc.		
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Title	RFID Ceramic Patch Ant. Specification
Document Number	MACQM730-06-18010
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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 920 PS - 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 : 920 MHz (± 2 MHz)

⑦ : Ground Plane - P : 40 x 40 PCB Ground Plane

PS : 40 x 40 PCB Ground Plane Special Characteristic Graph

⑧ : Assembly - PCB & Cable

3. Composition and Materials.

3-1. Ceramic Substrate : $\epsilon_r = 37.0 \pm 1.5$

3-2. Electrode Plating : Silver

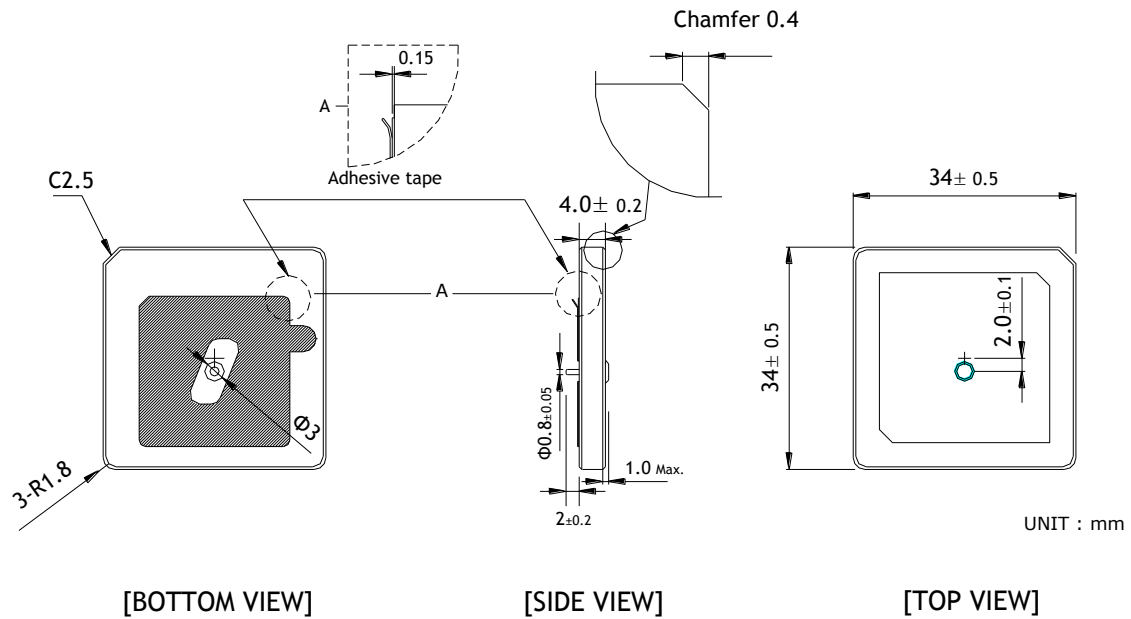
3-3. Terminal pin : Brass with Silver coating

3-4. Antenna Color : Ceramics antenna color alteration is possible

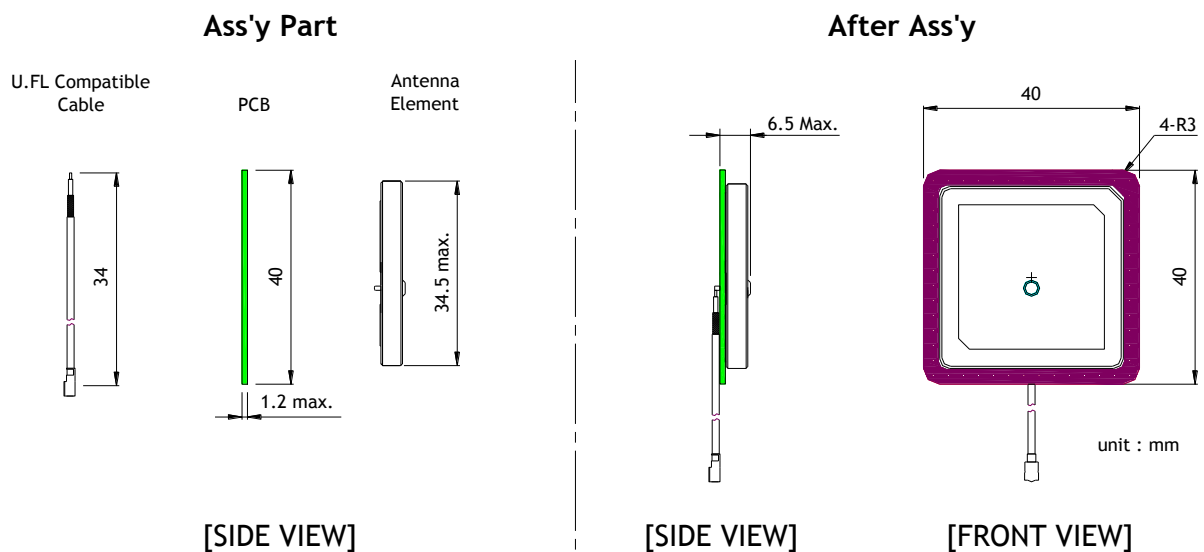
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4. Mechanical Dimensions. (unit : mm)

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



4-2. Cable Ass'y

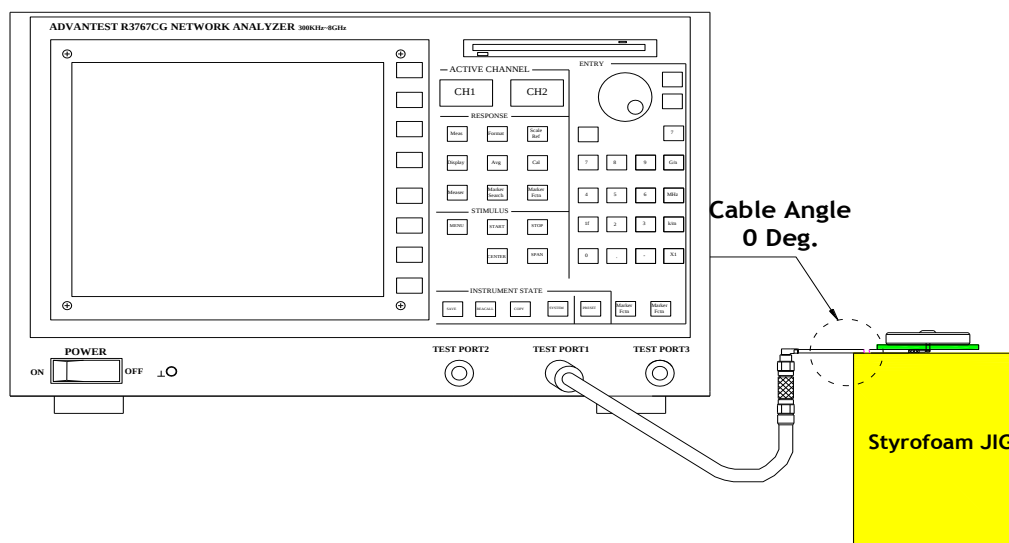


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5. Electrical Specifications.

NO.	Parameter	Spec.			Unit	Remark
		Ant. Element	PCB & Cable Ass'y	Set Ass'y		
1	Center Frequency	-	920.2 $\pm$ 2	919.0 $\pm$ 2	MHz	
2	Peak Gain	typ.	typ.	-2.0 typ.	dBiL	@ 919 MHz
		typ.	typ.	0.0 typ.	dBic	
3	Polarization	RHCP	RHCP	RHCP		
4	Beam Width	typ.	typ.	100 typ.	Deg.	@ -3 dB B.W
5	Band Width	typ.	typ.	4 typ.	MHz	@ -10 dB R.L
6	VSWR	max.	max.	2.0 : 1 max.	Ratio	
7	Impedance	50	50	50	Ohm	

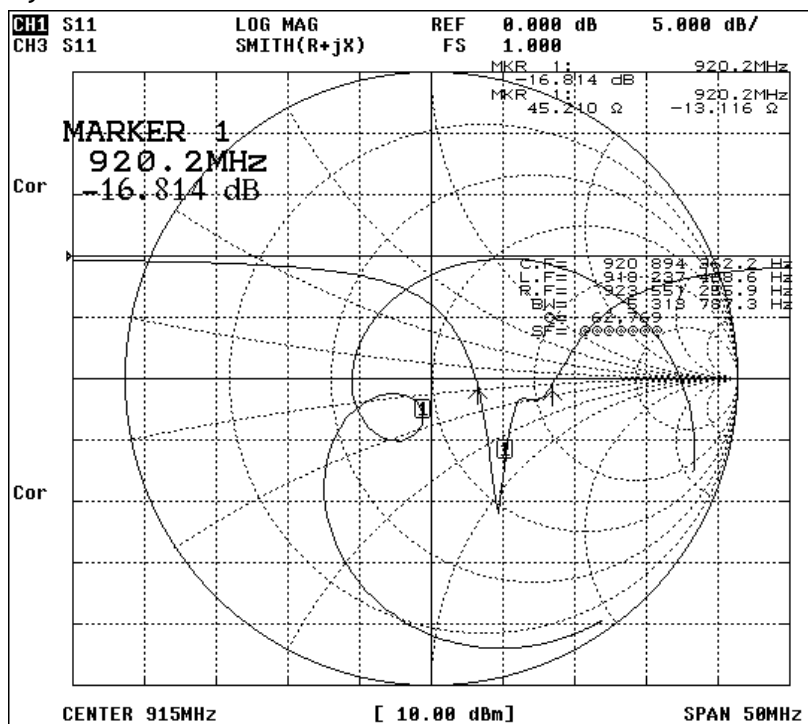
6. Test Fixture.



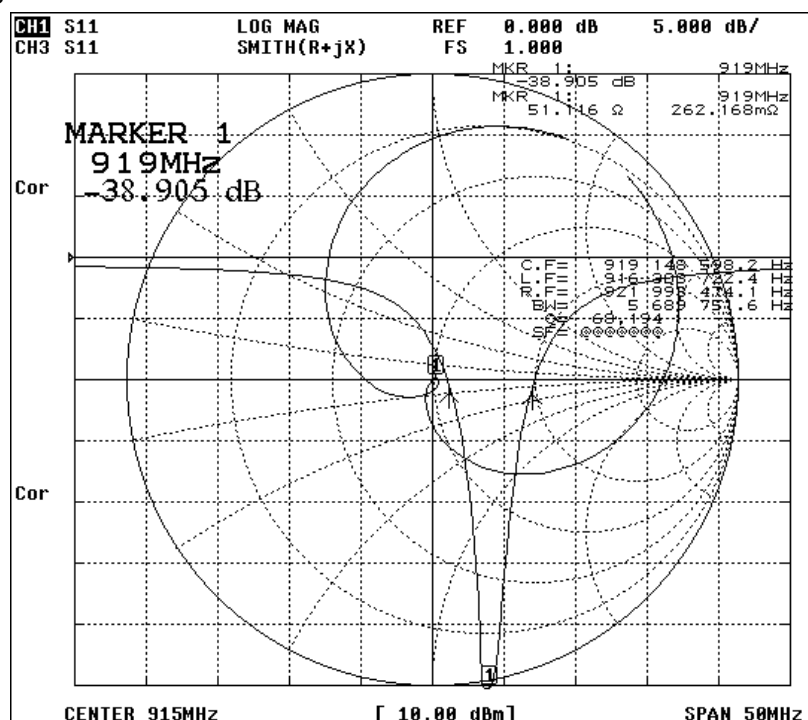
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7. S11 Measurement Data.

7-1. Cable Ass'y



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.

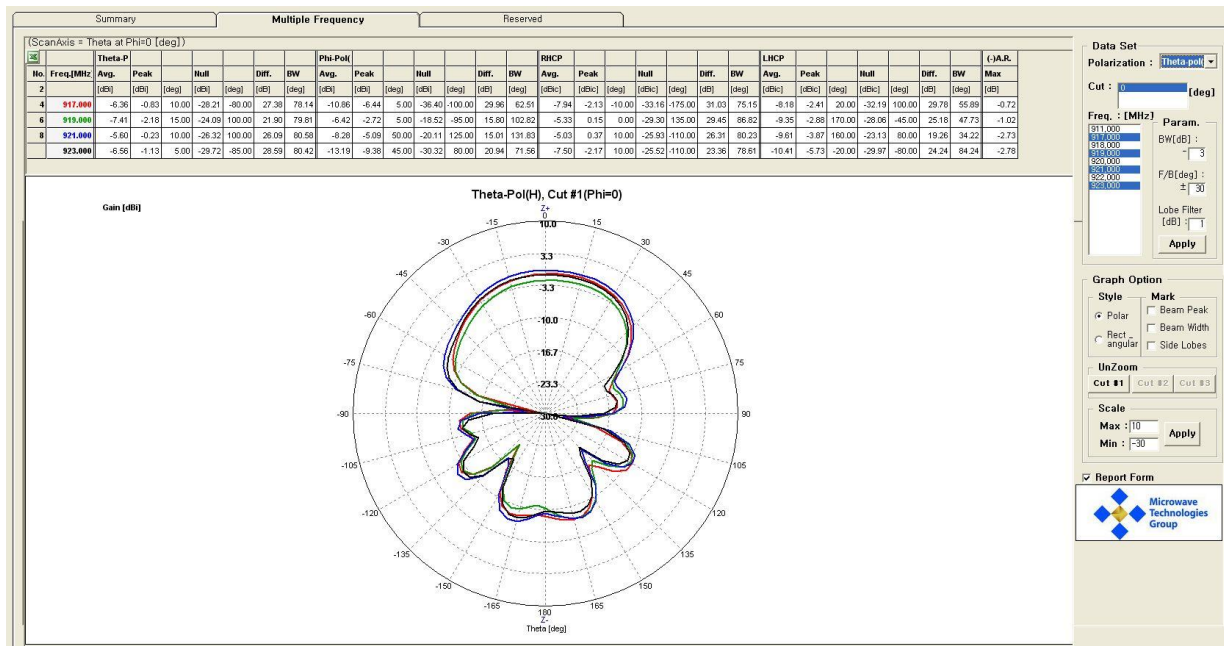
8-5. Vibration

The device should satisfy the electrical characteristics specified in paragraph 5 after applied to the vibration of 10 to 50 Hz with amplitude of 1.5 mm & sw of 1min for 2 hours each of x, y and z directions.

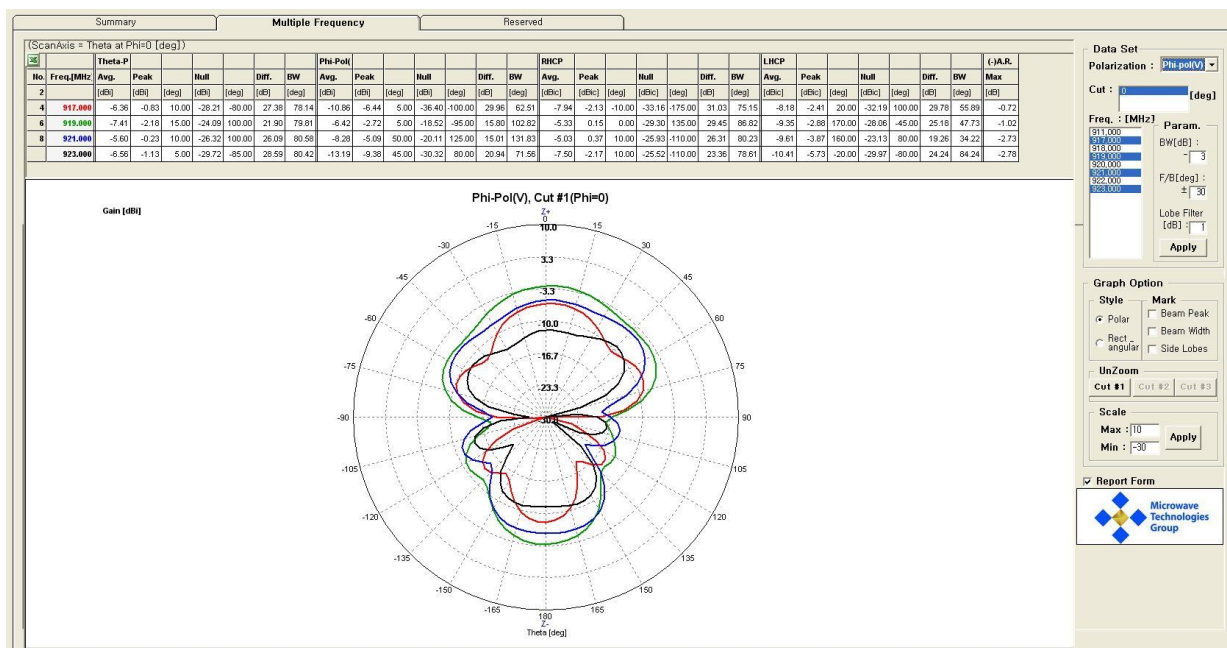
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9. Radiation Patterns after Set Ass'y (Test date : June 19, 2018)

9-1. H-pol (Frequency 917.0, 919.0, 921.0, 923.0 MHz)



9-2. V-pol (Frequency 917.0, 919.0, 921.0, 923.0 MHz)



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9-3. Gain Test Data

Source Antenna Polarization	Frequency			
	917.0 MHz	919.0 MHz	921.0 MHz	923.0 MHz
H-pol (dBiL)	-0.83	-2.18	-0.23	-1.13
V-pol (dBiL)	-6.44	-2.72	-5.09	-9.38
RHCP (dBic)	-2.13	0.15	0.37	-2.17

9-4. List of Equipments (MAC technologies Inc.)

NO	Equipments	Maker	Model No.	S/N	Calibration Date	Specification	Note
1	Anechoic Chamber	MTG	Mobile Chamber		N/A	4.0 m X 2.5 m X 2.5 m (0.4 ~ 3 GHz)	
2	Network Analyzer	Agilent	8753ES	US39173213	16/08/23	30 KHz ~ 6 GHz	
3	Dual-Polarization Horn Antenna with RF Switch	MTG	QRH-004060/ RSW-001060			0.4 MHz ~ 6 GHz	Source
4	Calibration Antenna	Schwarzbeck Mess - Elektronik	BBHA 9120 A	1201	10/04/30	0.7 MHz ~ 3 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.
- Don't handling by unarmed.
- No responsibility is assumed by us for any consequence resulting from any wrong or improper use or operation, etc. of the product.
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