

APPROVAL SHEET

MESSRS. 아이디로(주)

ITEM : Quadrifilar Meander Antenna



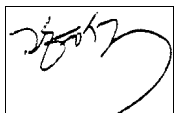
PART NAME : MQMA60SH939-A

MODEL NAME : BIP-6000 (KOREA)

REVISION : 0

ISSUE DATE : May 04, 2012

LAST SAVED : May 04, 2012

BUYER : 아이디로(주)	SUPPLIER : MAC technologies Inc.		
ACKNOWLEDGED BY	DRAWN	CHECKED	APPROVED
			



301, Star enterprise center, Technopark, 685-1 Yangcheong-ri,

Ochang-eub, Cheongwon-gun, Chungbuk, KOREA, 363-883

Tel : +82 43 275 2485 Fax : +82 43 275 2487

Title	RFID Quarifilar Meander Ant. Specification
Document Number	MACQM730-06-12006
Revision & Date	0
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1. Scope.

This specification covers the characteristics of the quadrifilar meander antenna element for the ISM band.

2. Part Name Information.

Part Name : M QMA 60S H 939 - A

① ② ③ ④ ⑤ ⑥

① : MAC technologies Inc.

② : Quadrifilar Meander Antenna

③ : 60 mm Bottom substrate, 60 mm Top substrate, Square (Size)

④ : 9 mm Thickness (A : 2 mm, B : 3 mm, C : 4 mm ...)

⑤ : Center Frequency : 939 MHz

⑥ : Assembly : cable

3. Composition and Materials.

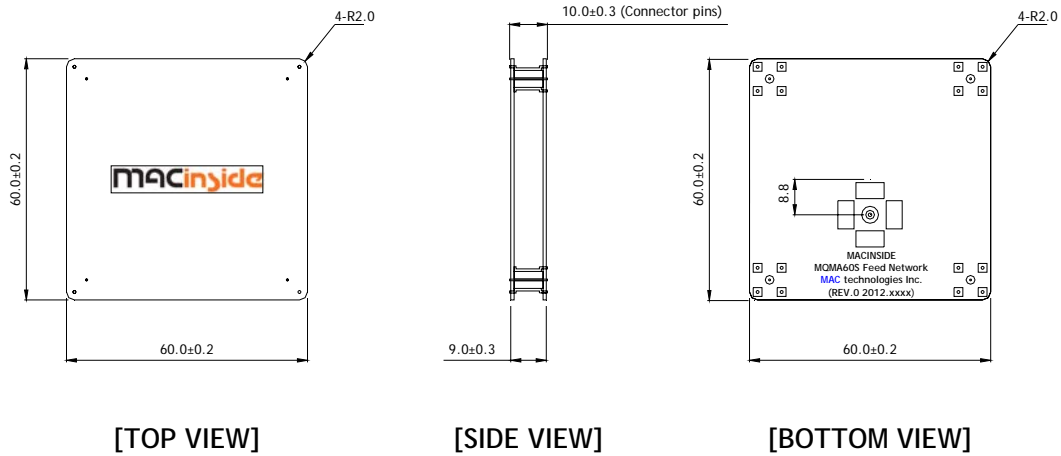
3-1. Substrate : Keeping a secret from outsiders

3-2. Metal Connector : Metal and teflon

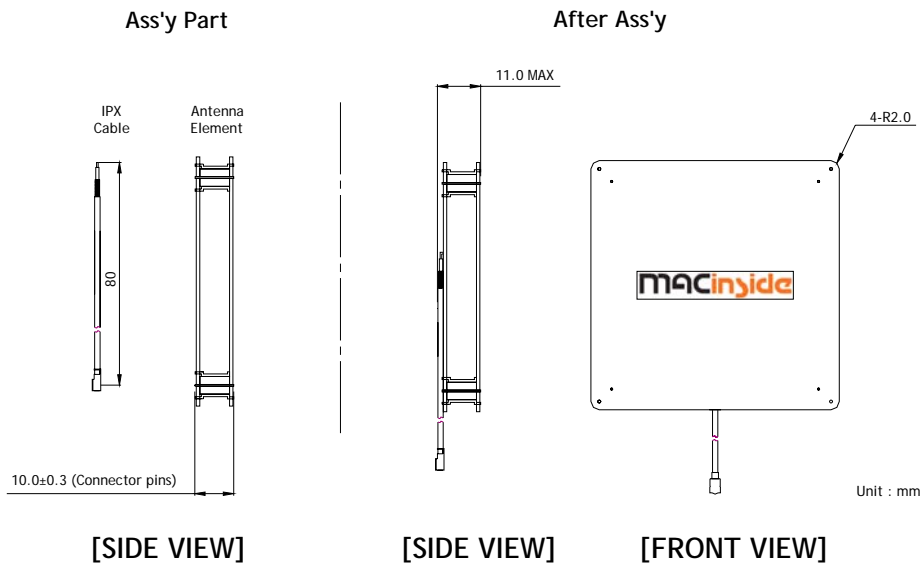
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4. Mechanical Dimensions. (unit : mm)

4-1. Antenna Element



4-2. Cable Ass'y

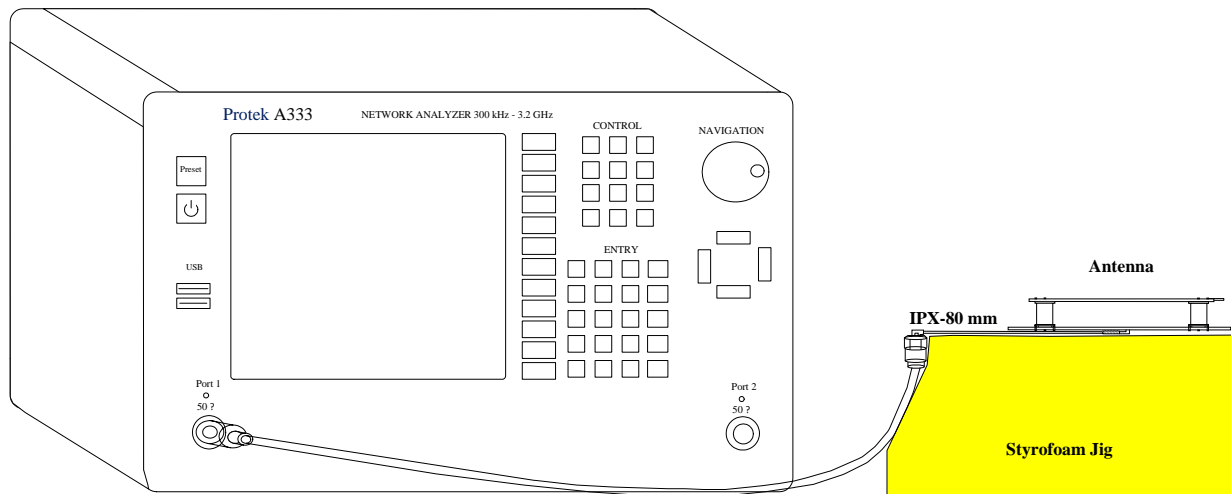


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5. Electrical Specifications.

NO.	Parameter	Spec.		Unit	Remark
		Cable Ass'y	Set Ass'y		
1	Center Frequency	939.0 ± 3	919.0 ± 3	MHz	
2	Band Width	min.	15 min.	MHz	@ -10 dB R.L
3	VSWR	max.	2.0 : 1 max.	Ratio	
4	Impedance		50	Ohms	
5	Peak Gain	min.	-1.5 min.	dBIL	@ 919 MHz Set Ass'y
6	Polarization		RHCP		
7	Beam Width	typ.	105 typ.	Deg.	

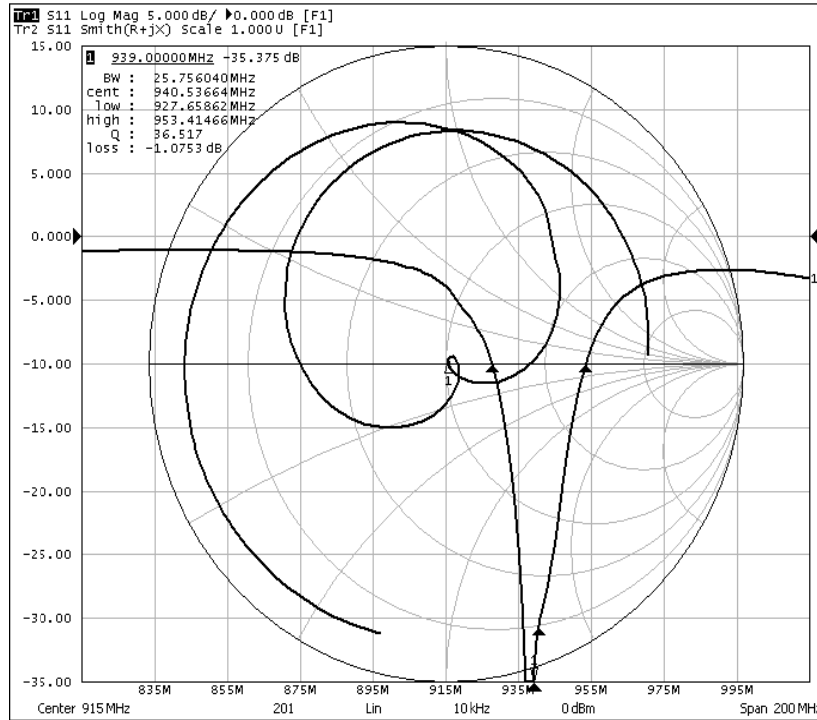
6. Test Fixture.



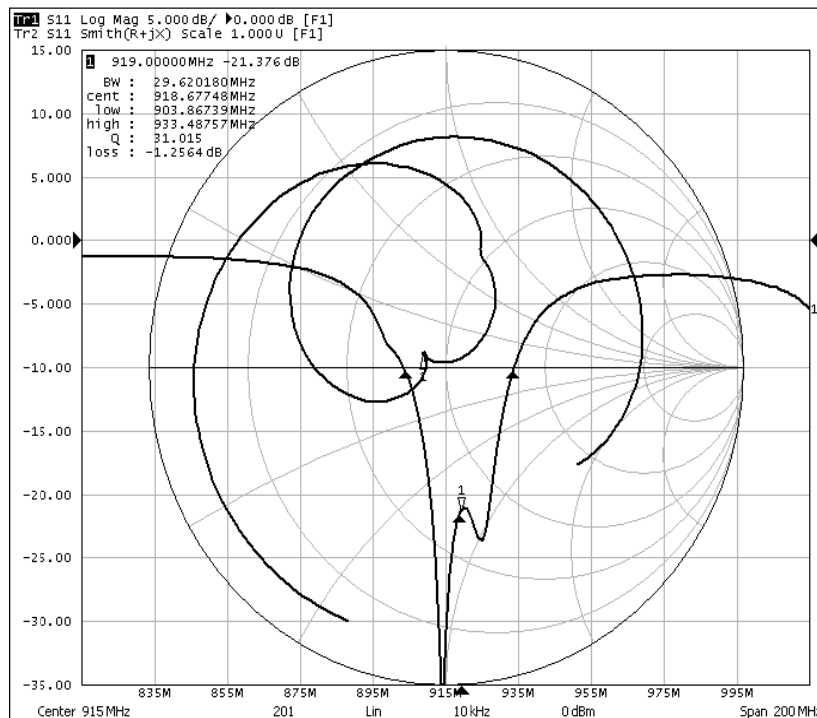
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7. S11 Measurement Data.

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 4 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 4 at the temperature range of -30 °C ~ +85 °C.

8-2. Heat Proof

The device should satisfy the electrical characteristics specified in paragraph 4 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 4 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 4 after exposed to the temperature 40 ± 2 °C and the humidity 95 % RH for 72 hours.

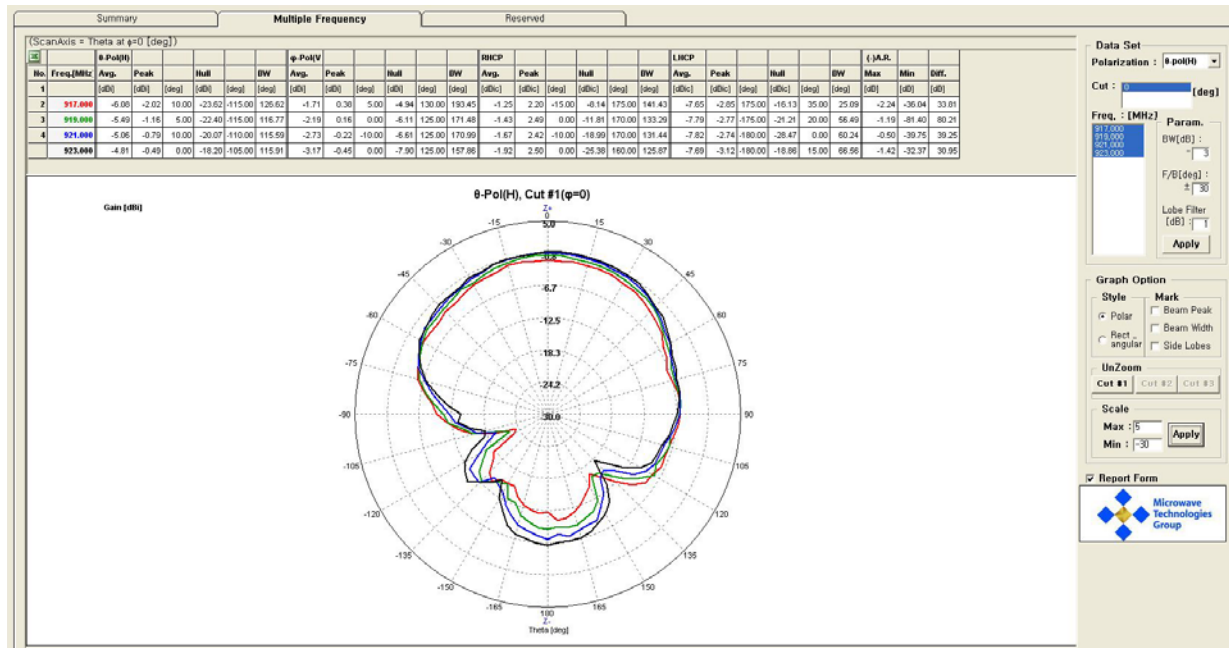
8-5. Vibration

The device should satisfy the electrical characteristics specified in paragraph 4 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.

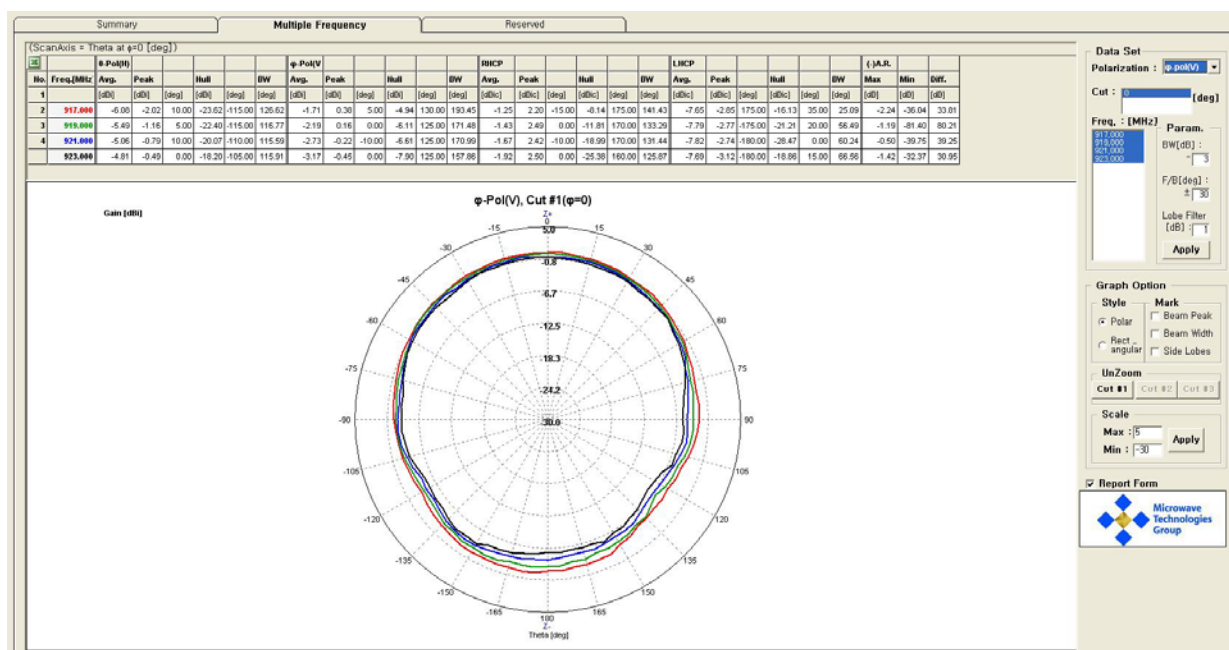
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9. Radiation Patterns after Set Ass'y (Test date 2012.05.04)

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	Gain			
	917.0 MHz	919.0 MHz	921.0 MHz	923.0 MHz
H-pol (dBiL)	-2.02	-1.16	-0.79	-0.49
V-pol (dBiL)	0.38	0.16	-0.22	-0.45
RHCP (dBic)	2.20	2.49	2.42	2.50

9-4. List of utilized test equipment (MAC technologies Inc.)

NO	Kind of Equipment and Precision	Manufacturer	Model No.	Serial Number	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	09/12/24	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.
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