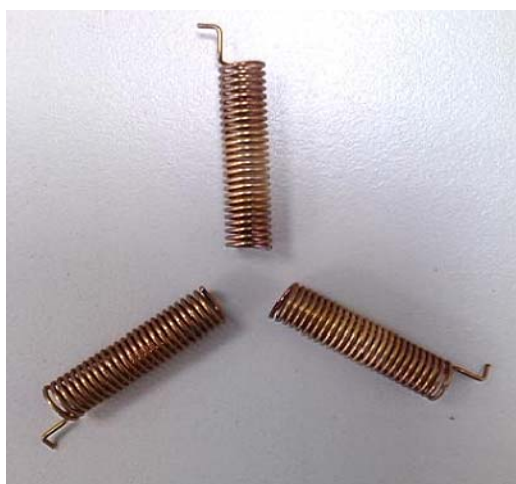


ISM Band 433.925/315MHz Helix Antenna

1. Explanation of Product Number:

R	A	0	6	L	C	H	B	0	1	R	A	0	1	0
		(1)		(2)		(3)		(4)		(5)		(6)		



Product Code:

(1) Dimensions:

06: 25.1x4.6x4.6(mm)

(2) Polarization:

L: linear polarization

(3) Product categories:

CH: copper helix

(4) Working frequency:

B: 433.925/315MHz

(5) Applications:

01: ISM band system

(6) Antenna series:

RA010: serial number

Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$



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Website: www.rifo.com.tw

Scale :

Unit : mm

Prepared By : Helen

Checked By : Jeff

Designed By : Jason

Approved By : Allen

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TITLE : ISM Band 433.925/315MHz Helix
Antenna

**DOCUMENT
NO.**

RA06LCHB01RA010S

REV.

B

2. Features:

- *Stable and reliable in performances
- *Compact size
- *Low temperature coefficient of frequency

3. Applications:

- *ISM Band system

4. Description:

RIFO's chip antenna series are specially designed for 433.925/315MHz band application. Based on RIFO's proprietary designs and processes, this helix antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

5. Electrical Specifications:

No	Item	SPEC.	Unit
1	Dimensions (LxWxH)	25.1*4.6*4.6	mm
2	Operating Frequency	433.925/315	MHz
3	VSWR	2 max.	
4	Impedance	50	Ω
5	Polarization	Linear	
6	Peak gain	1.0	dBi
7	Bandwidth(typ.)	11	MHz
8	Efficiency(typ.)	50	%

*The antenna performance is measured on 93*55mm test Board.

*Center frequency will be offset to operating frequency according to the conditions of user's ground plane and radome.

Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$



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DOCUMENT NO.

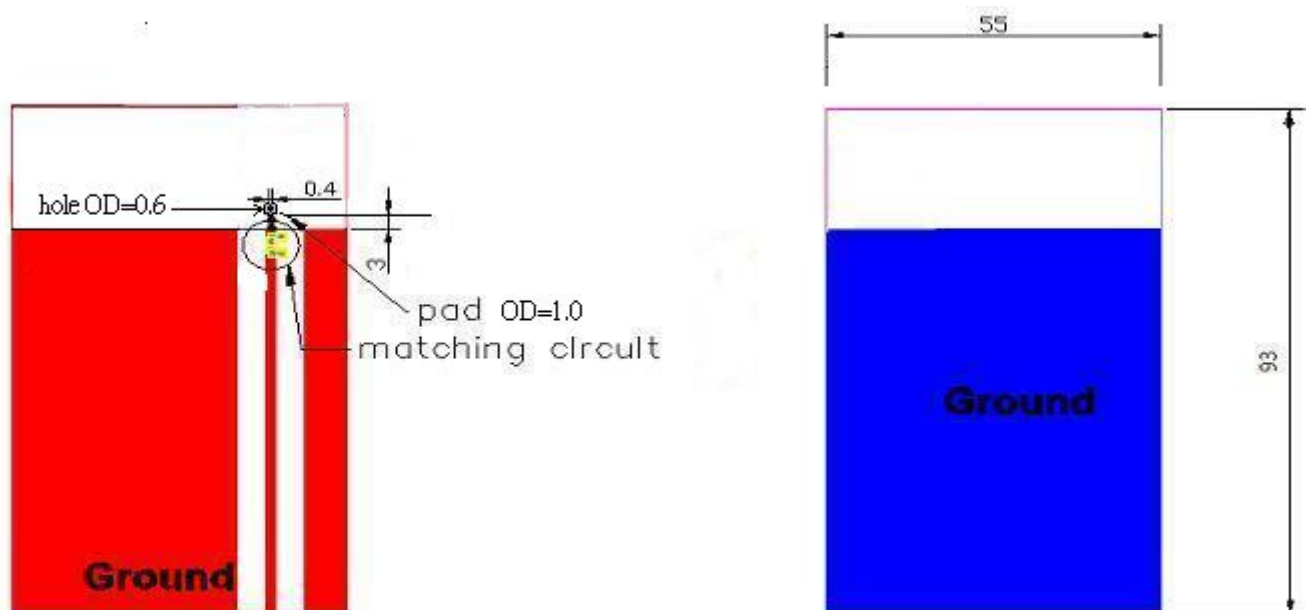
RA06LCHB01RA010S

REV.

B

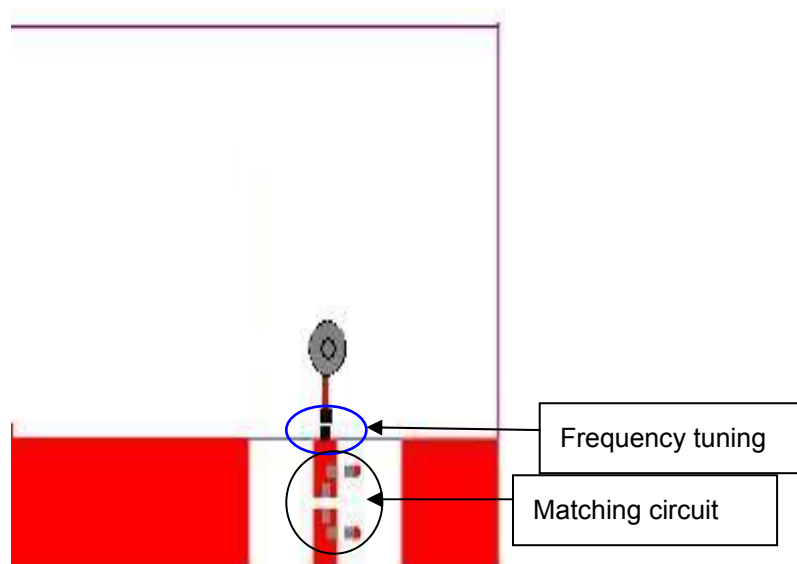
6. Layout Guide: (unit:mm)

6.1 Test Board Dimension



※ Test Board size is 93*55mm

6.2 PCB Design Guide



Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$

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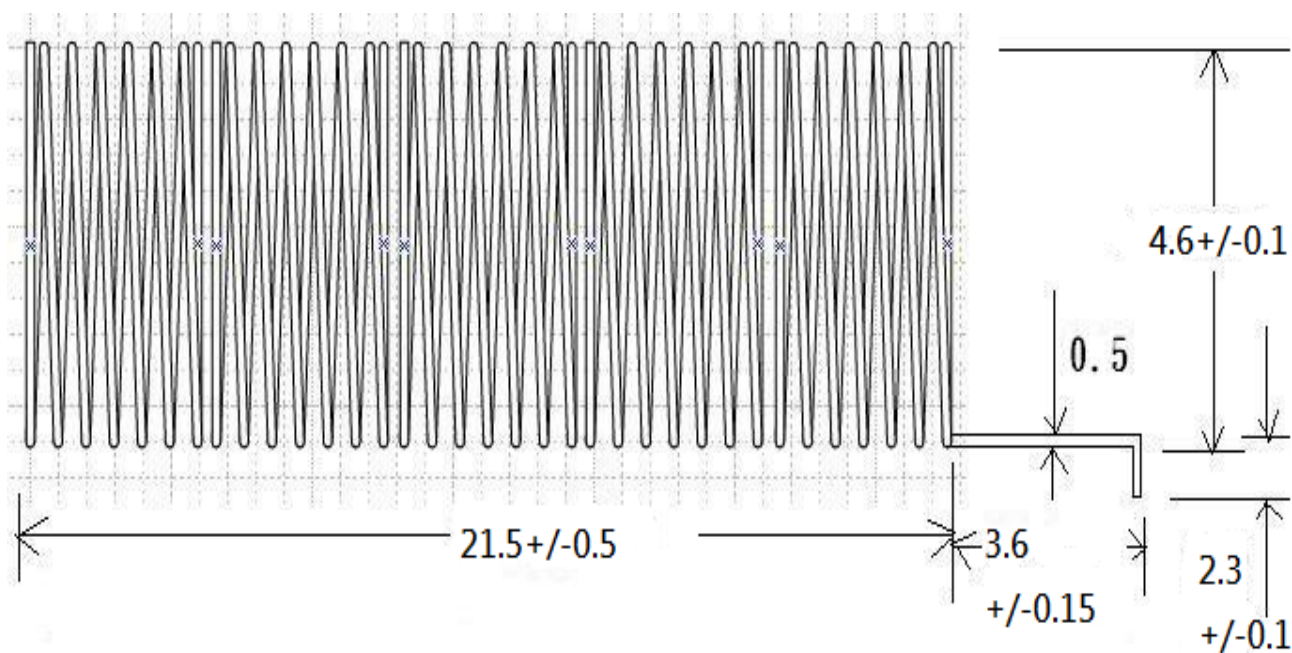
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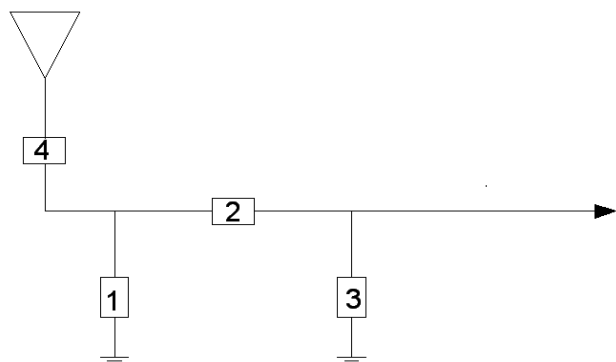
7. Antenna Dimensions: (unit: mm)



8. Measurement Result:

8.1 Matching circuit for 433.925MHz

Antenna



System Matching Circuit Component		
Location	Description	Vendor
1	100nH	DARFON(0402)
2	4.7pF	YAGEO(0402)
3	N/A	(0402)
4	0 ohm	(0402)

Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$

Scale : Unit : mm

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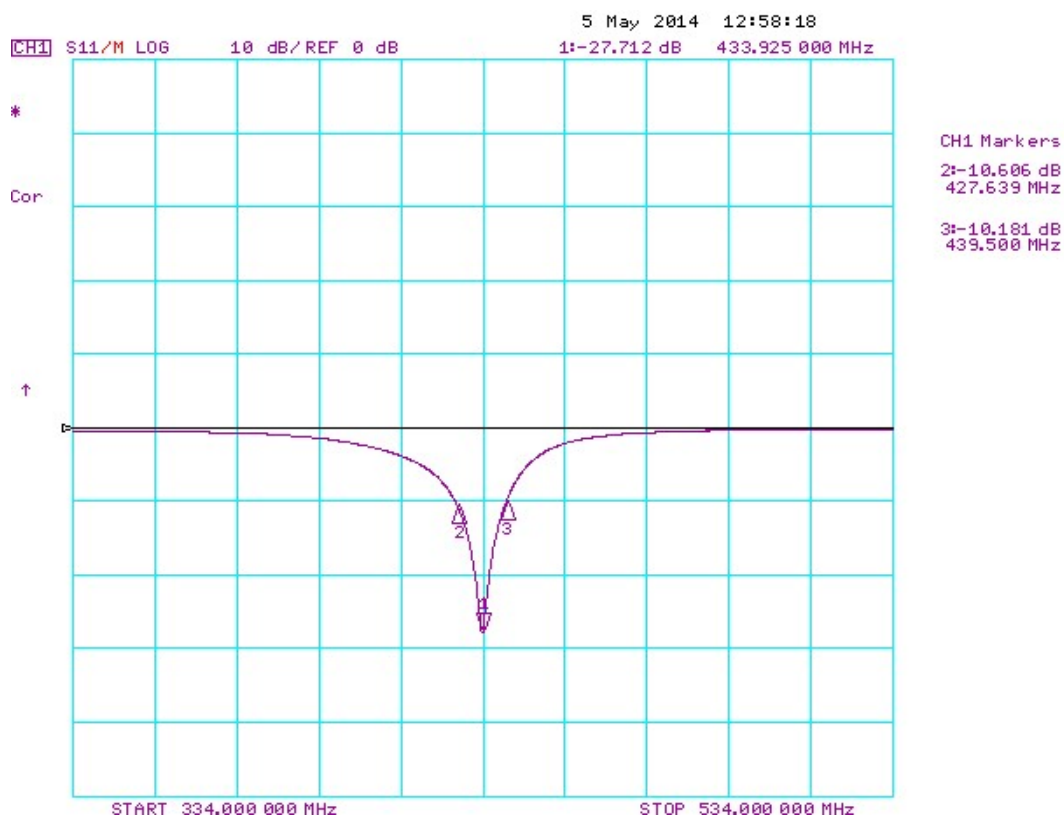
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RA06LCHB01RA010S

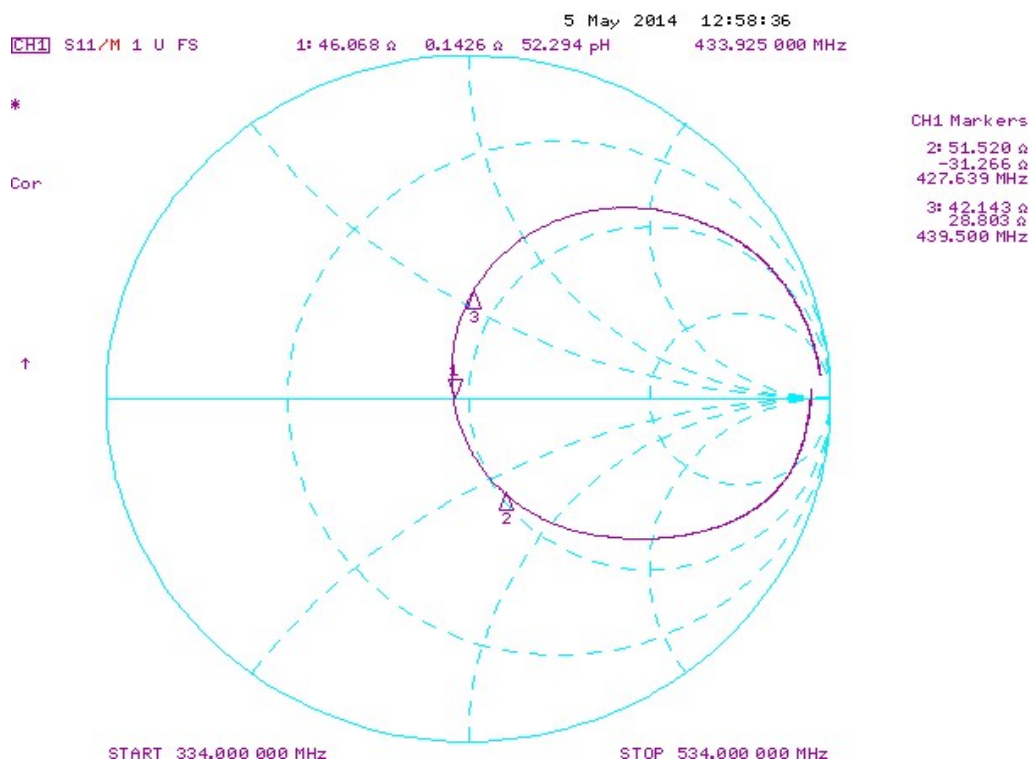
REV.

B

(a) Return Loss (S11)



(b) Smith Chart (S11)



Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$

Scale : Unit : mm

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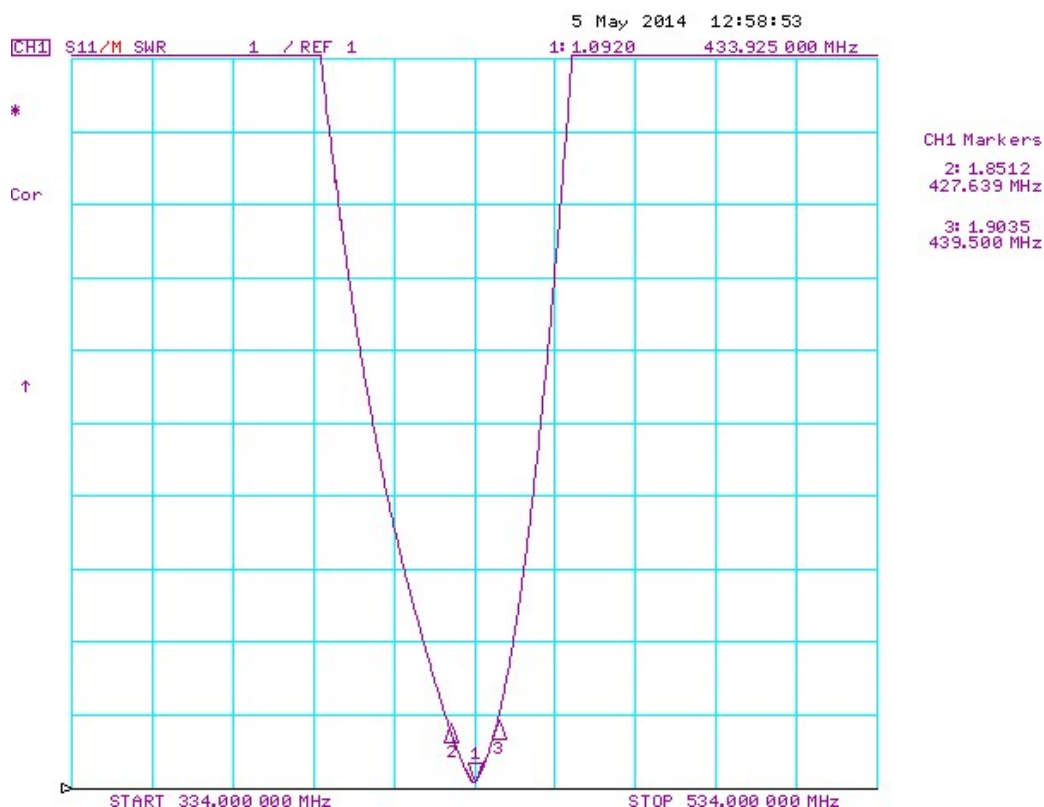
DOCUMENT NO.

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REV.

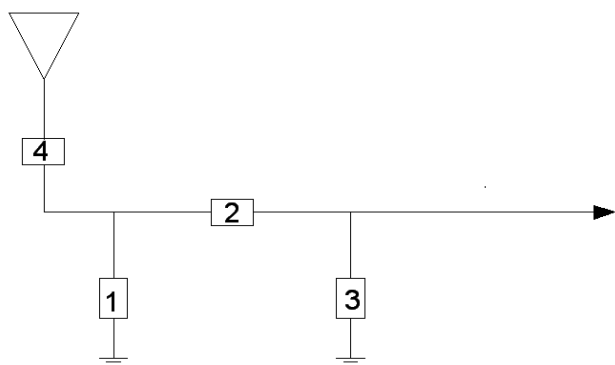
B

(c) VSWR (S11)



8.2 Matching circuit for 315MHz

Antenna



System Matching Circuit Component		
Location	Description	Vendor
1	39nH	DARFON(0402)
2	3.3pF	YAGEO(0402)
3	N/A	(0402)
4	100nH	DARFON (0402)

Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$

Scale : Unit : mm

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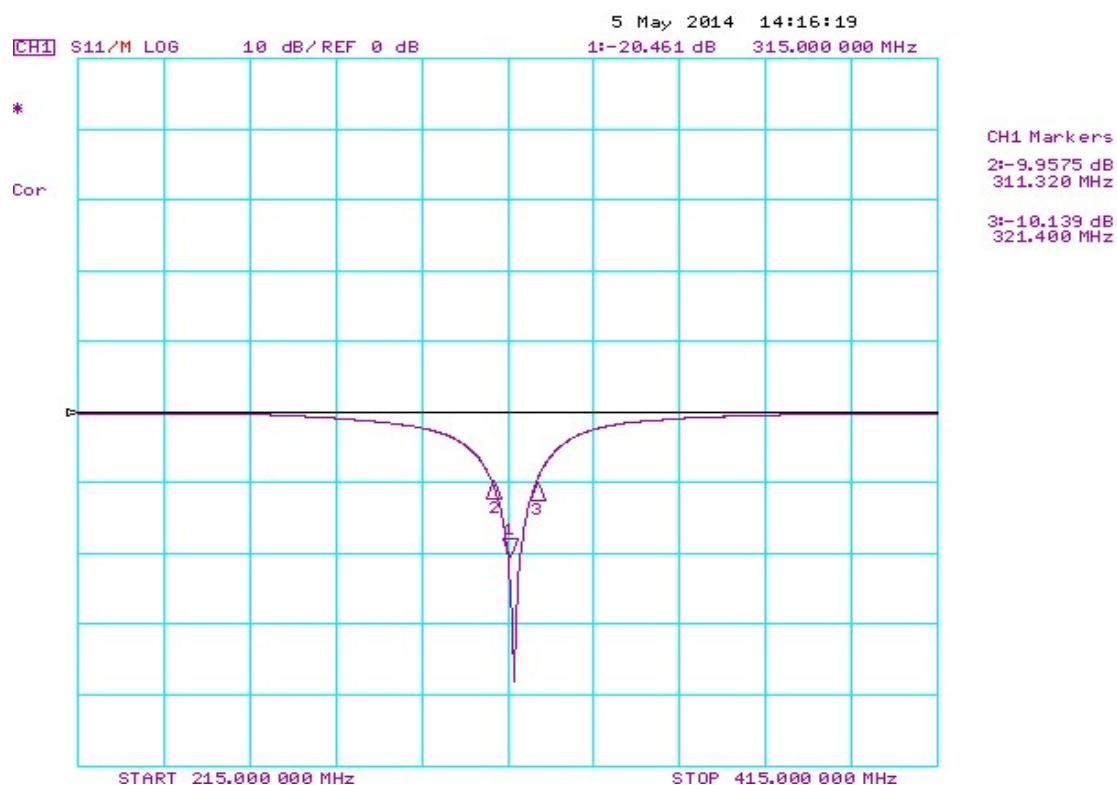
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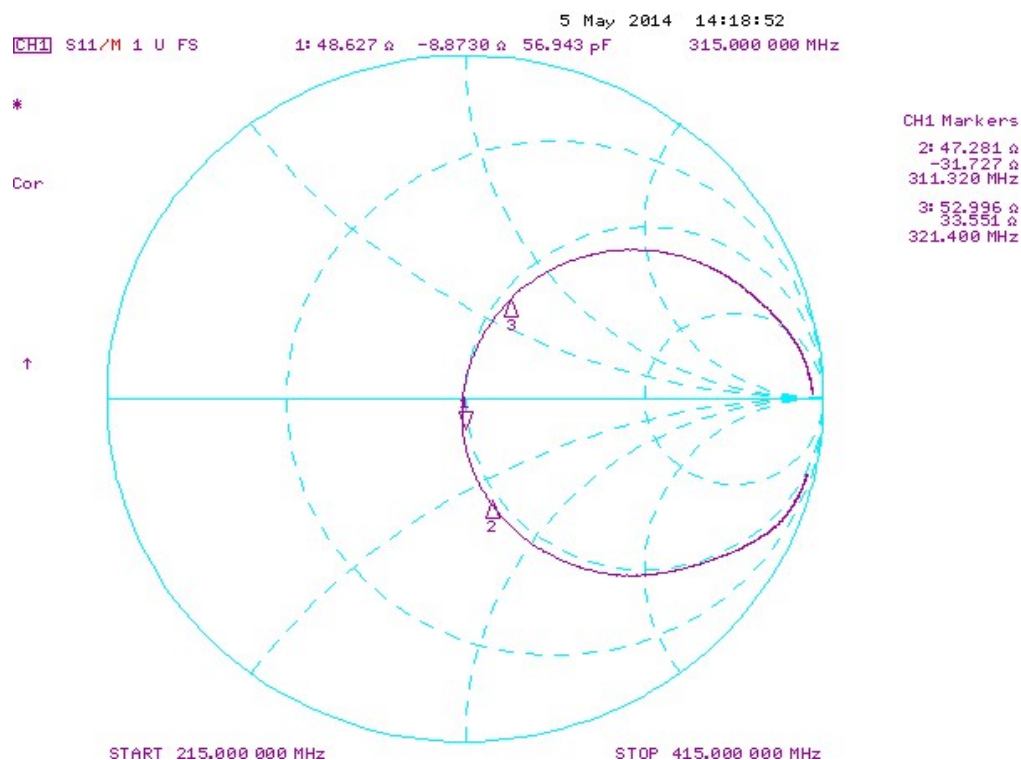
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B

(a) Return Loss (S11)

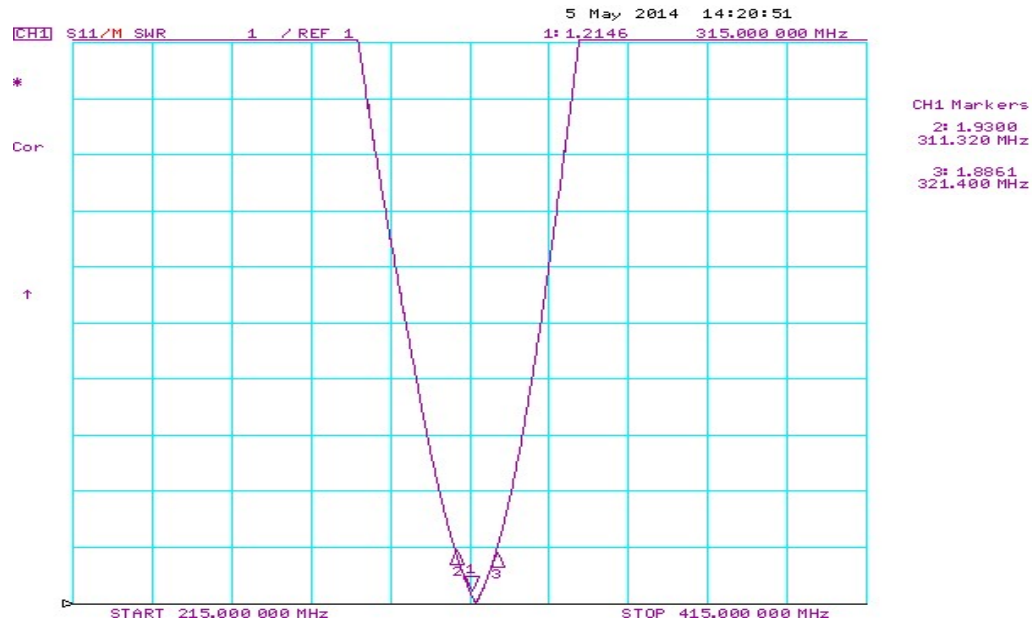


(b) Smith Chart (S11)

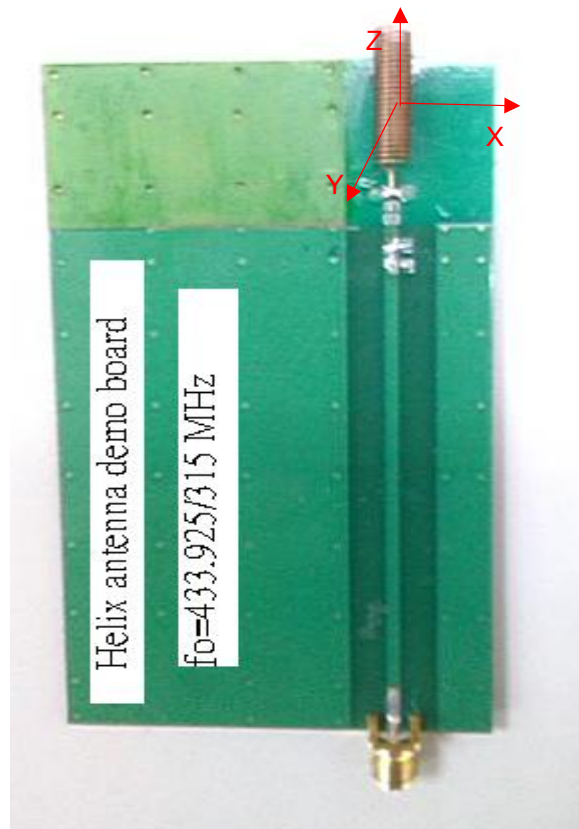


Tolerances (Unless otherwise specified) X : ± 1 X.X : ± 0.1 X.XX : ± 0.01 Angle : ± Hole Dia. : ±		 RIFO Technologies Corporation Website: www.rifo.com.tw		
Scale :	Unit : mm	THIS SPECIFICATION IS THE PROPERTY OF RIFO TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION		
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(c) VSWR (S11)



9. Three D Radiation Pattern measurements:



Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$

Scale : Unit : mm

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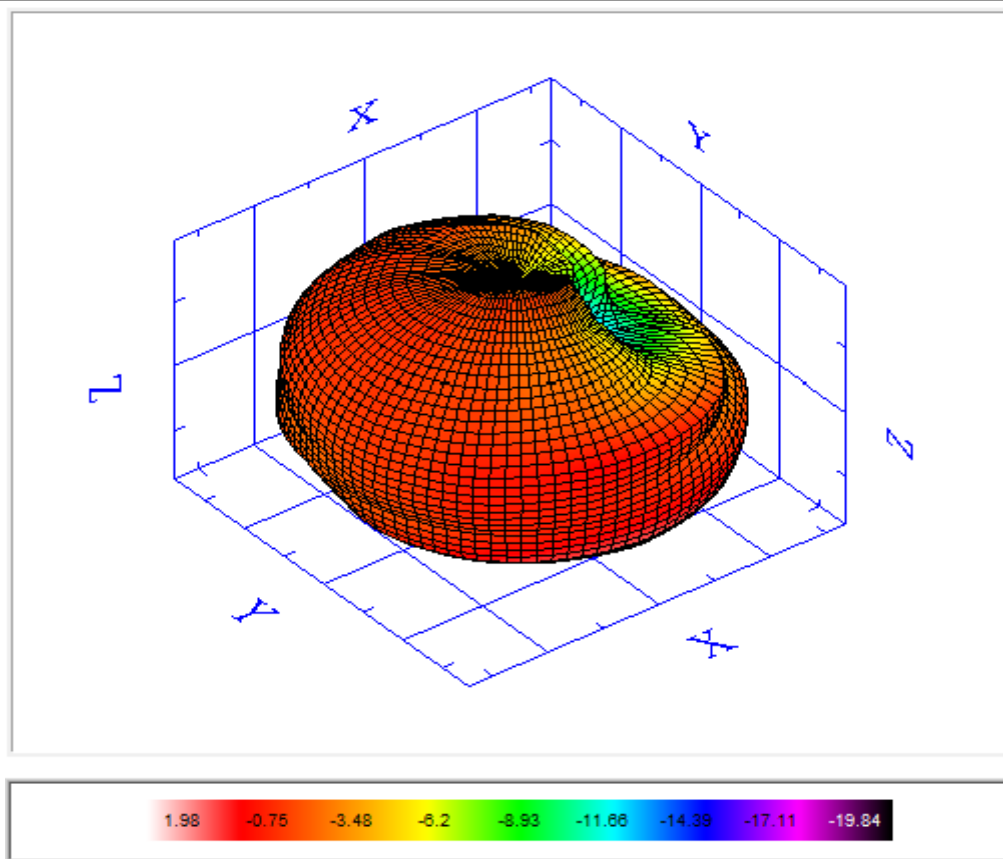
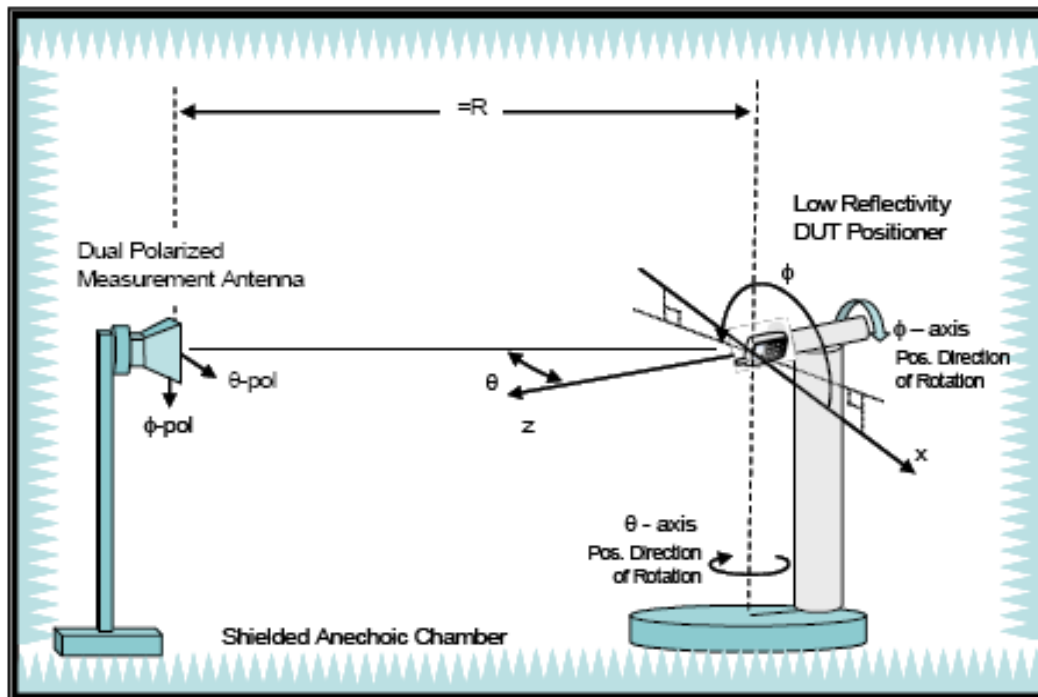
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Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$

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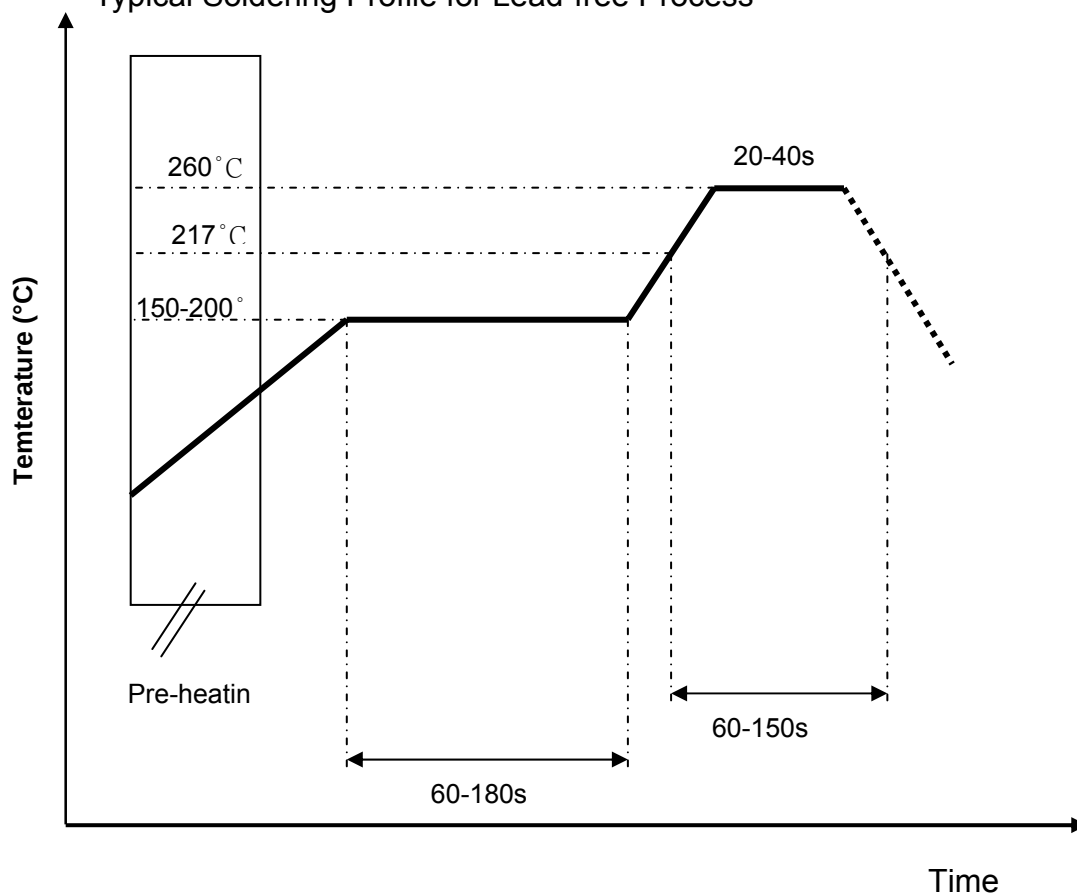
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10. Soldering Conditions:

Typical Soldering Profile for Lead-free Process



Tolerances (Unless otherwise specified)

X : ± 1 X.X : ± 0.1 X.XX : ± 0.01

Angle : $\pm$ Hole Dia. : $\pm$



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