

# Antenna Test Report

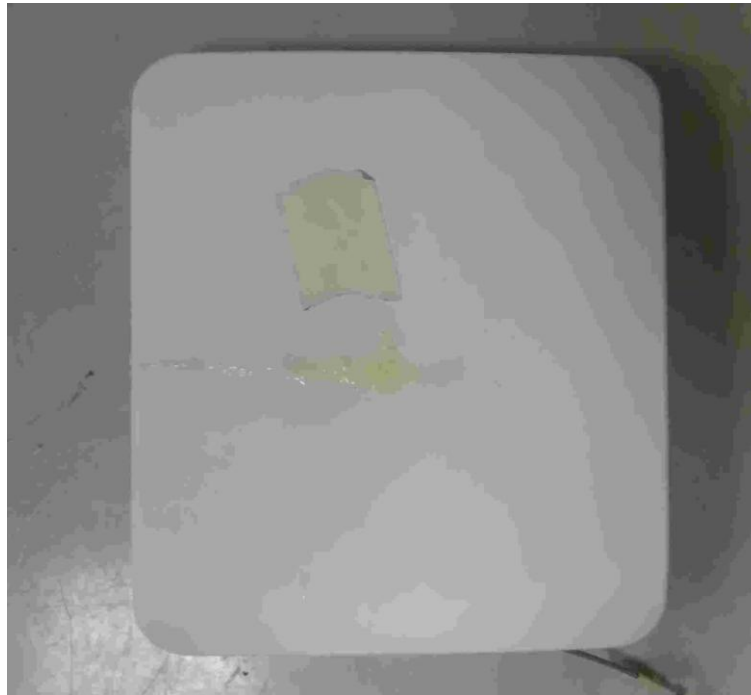
<b>Document Number</b>	<b>NE3-14133</b>
<b>1<sup>st</sup> Released Date</b>	<b>02/10/2014</b>
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<b>Designers</b>	<b>Yuan Chiu</b>
<b>Review by</b>	<b>Sky Lo</b>



## Electrical Specification

<b>Rough description</b>	None	
<b>Item</b>	<b>Initial Specification</b>	<b>Final Specification</b>
<b>Dimensions</b>	None	
<b>Impedance</b>	50Ω	
<b>Test environment</b>	With Housing	
<b>Spectrum</b>	None	
<b>Freq. Range</b>	4.9~5.825GHz	
<b>Antenna type</b>	None	
<b>Gain(Peak gain)</b>	Ant_1 : 2.57	
<b>VSWR</b>	1.92 : 1	
<b>Radiation</b>	Omni	
<b>Polarization</b>	Linear	
<b>HPBW / H</b>	None	
<b>HPBW / E</b>	None	
<b>Rad. efficiency</b>	None	
<b>Connector type</b>	I-Pex	
<b>Cable type</b>	1.13	
<b>Cable length</b>	None	
<b>Isolation</b>	None	

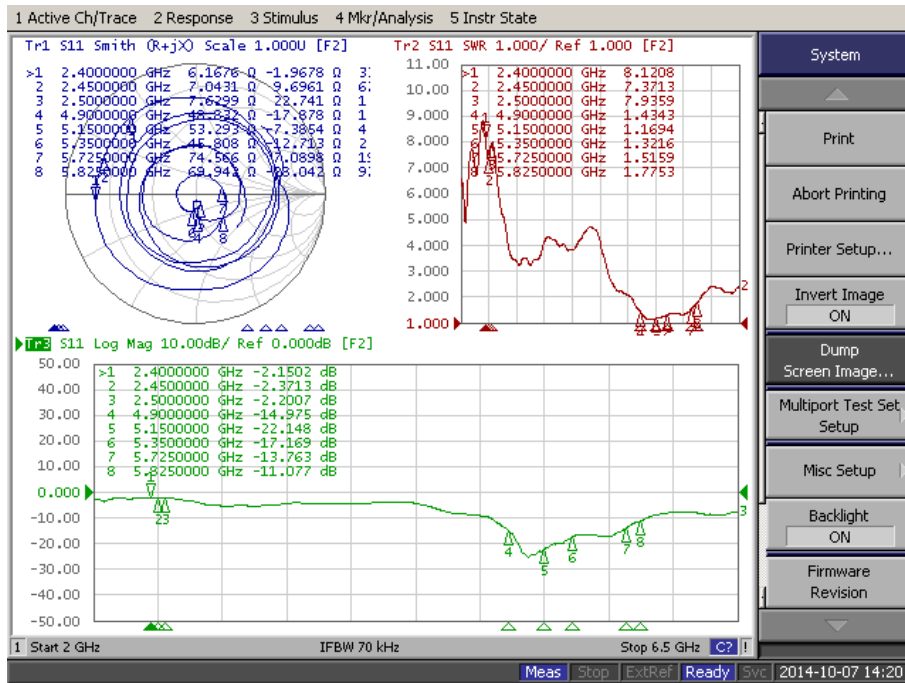
## 1. Antennas' setup and environment



## 2. Network Analyzer Measurement

### 2.1 S11 Test Results

#### 2.1.1 Ant 1



### 3. Gain & Patterns test results

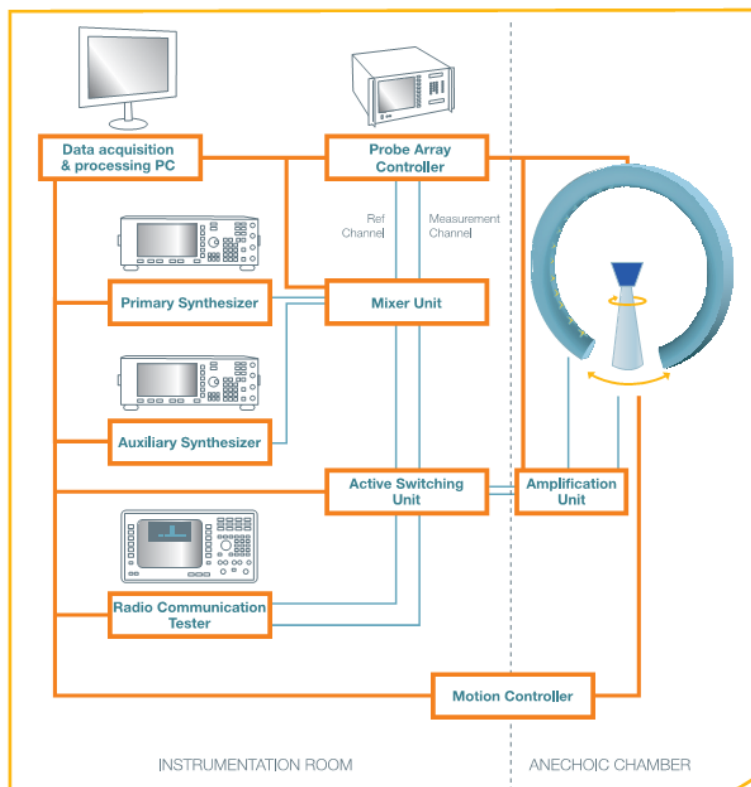
#### 3.1 Lab information

- Lab name : Satimo
- Address : No.326 Sec.2, Kung Tao 5 Road, HsinChu City, Taiwan
- Certification : none (Satimo system certification: CTIA, 3GPP, Wi-Fi alliance and WiMAX Forum)
- Size (LxWxH) : 5m x 5m x 5m
- Isolation level : >100dB
- Normal applications : antenna radiation pattern measurement, OTA performance testing.
- Frequency measurement range : 0.4 to 6 GHz
- EUT scanning method : conical cut method
- Measurement distance : 1.6m
- Measurement antenna specification (for  $\theta$  and  $\Phi$  polarization each) : dual polarization antenna for 0.4 to 6.0 GHz frequency range

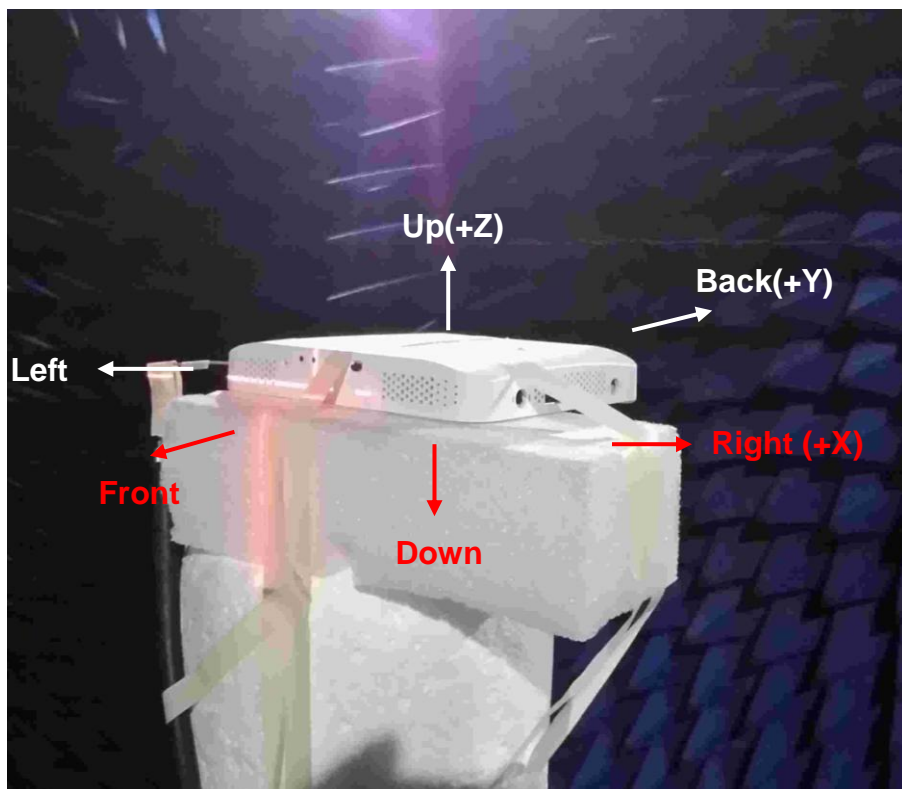
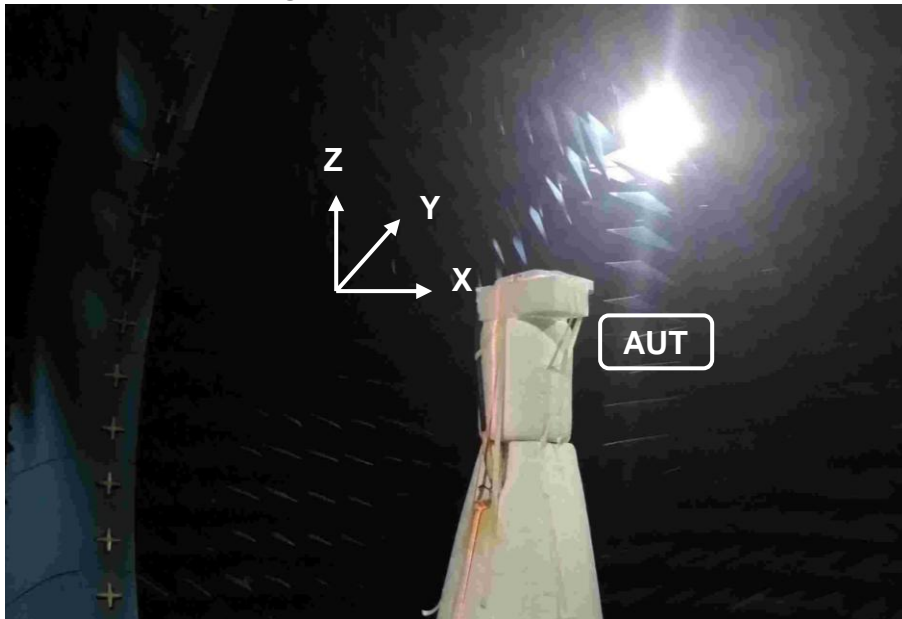


> 0.4 to 6.0 GHz probe

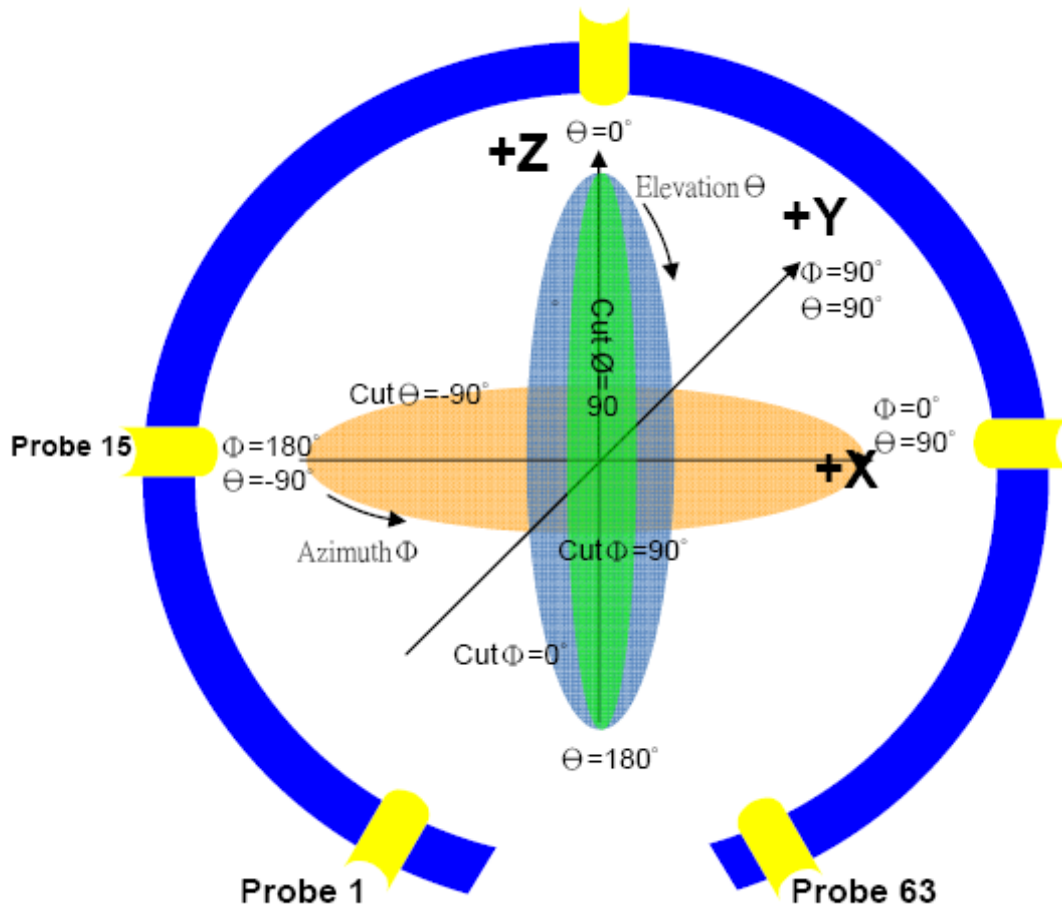
- Equipment list :



### 3.2 Measurement setting



	<b>XY</b>	<b>YZ</b>	<b>XZ</b>
0°	Right	Up	Up
90°	Back	Back	Right
180°	Left	Down	Down
270°	Front	Front	Left

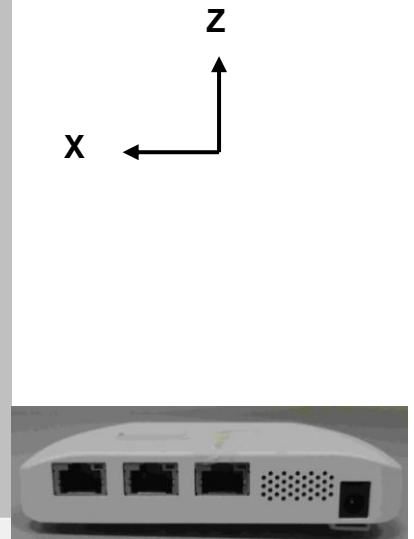
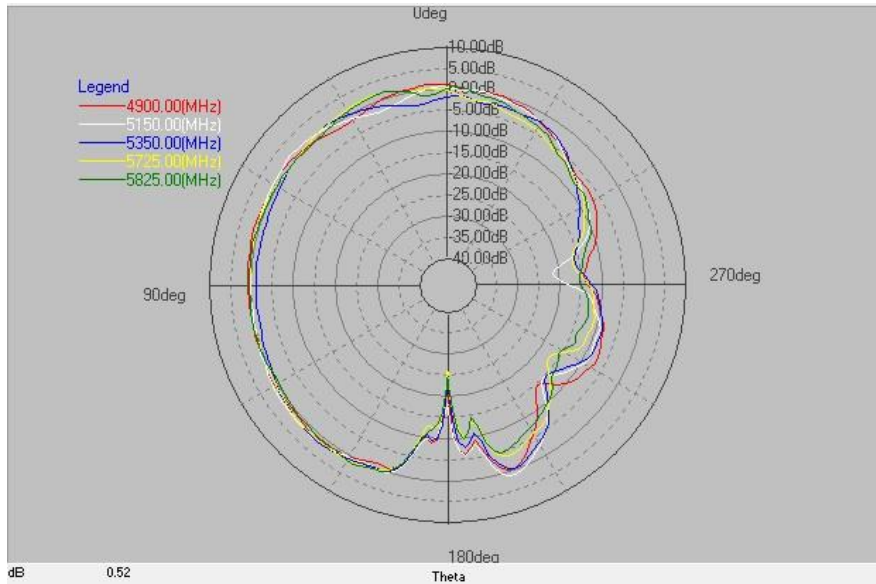


	$\theta$	$\phi$
Total angle	$175^\circ$	$360^\circ$
How many angle scan one point	$5^\circ$	$5^\circ$
Total scan point	36	73

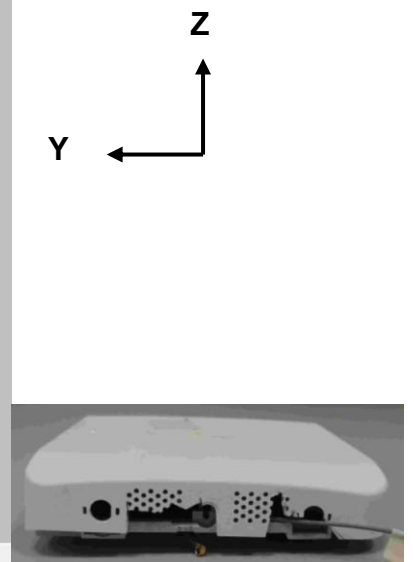
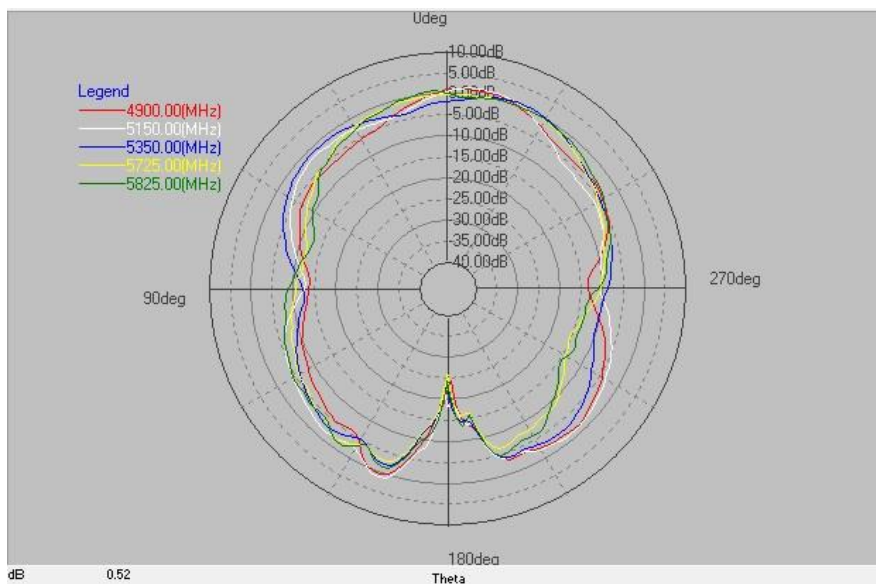


### 3.3 2D Patterns

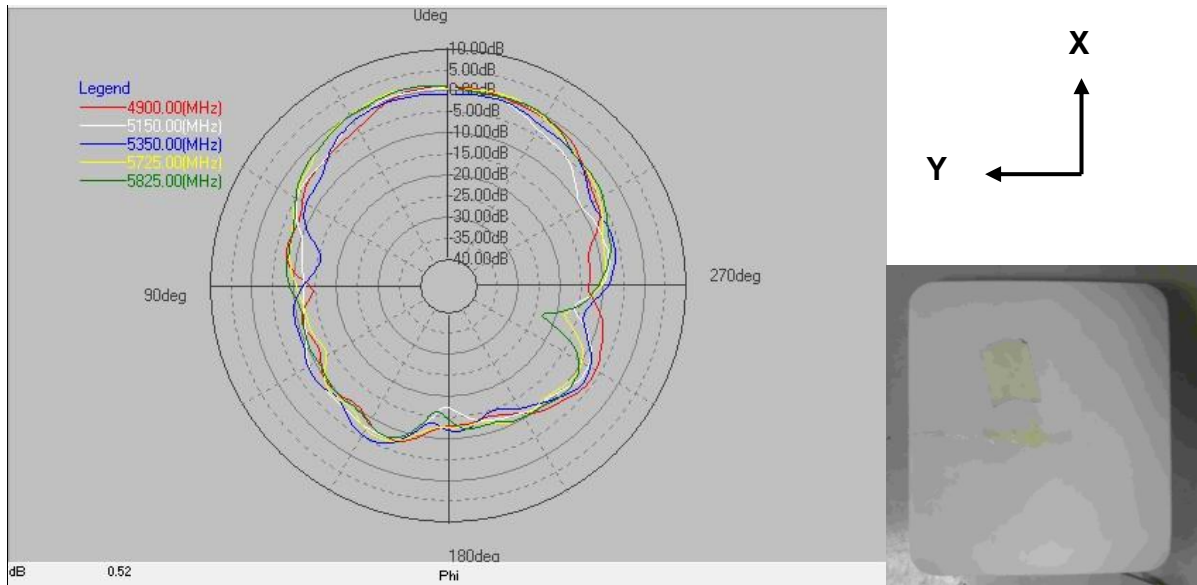
#### 3.3.1 Ant 1



**X-Z Plane**



**Y-Z Plane**



**X-Y Plane**

## 4. Summary

### 4.1 Return Loss

Frequency	Ant 1 (dB)
4900MHz	<b>-14.9</b>
5150MHz	<b>-22.1</b>
5350MHz	<b>-17.1</b>
5725MHz	<b>-13.7</b>
5825MHz	<b>-11.0</b>

### 4.2 3D total Peak Gain & Efficiency

Frequency	Ant 1	
	Peak Gain (dBi)	Efficiency (%)
4900MHz	<b>2.15</b>	<b>45.28%</b>
5150MHz	<b>2.57</b>	<b>45.95%</b>
5350MHz	<b>1.72</b>	<b>42.90%</b>
5725MHz	<b>1.91</b>	<b>46.10%</b>
5825MHz	<b>1.94</b>	<b>46.49%</b>