



測試報告

Test Report

客 戶： 大眾電腦股份有限公司

Customer

品 名： WiMax/Wlan PCB Antenna

Part name

料 號： GY196C098-014

Part No.

WIESON





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Rev	Date	Description	Edited by	Tester	Wayne
01	2009.12.11	NEW RELEASE	Wayne	Checked	Wen
				Supervisor	Leo
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I. SUMMARY :

This report to account for the measurement setup and result of the Antenna.

1. The measurement setup includes s-parameter, pattern, and gain measurement.
2. The measured data for Antenna are presented and analysis.

II. S-PARAMETER MEASUREMENT :

A. Reflection coefficient :

(a) Instrument : Network Analyzer.

(b) Setup :

- (1) Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.
- (2) Connect the antenna under test to the Network Analyzer.
- (3) Measure the S11(reflection coefficient) shown in Fig. 1.
- (4) Generally, the S11 is less than -10dB to ensure the 90% power into antenna and only less than 10% power back to system.

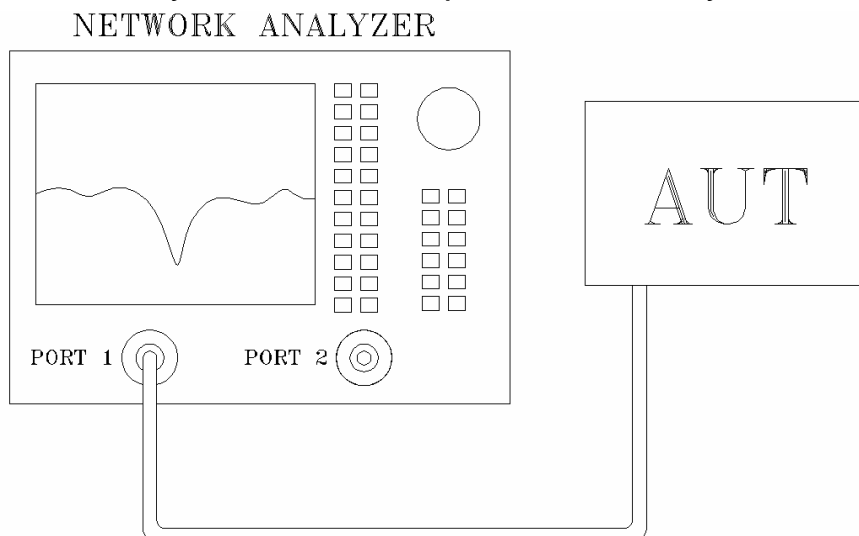


Fig.1 Antenna measured in Network Analyzer



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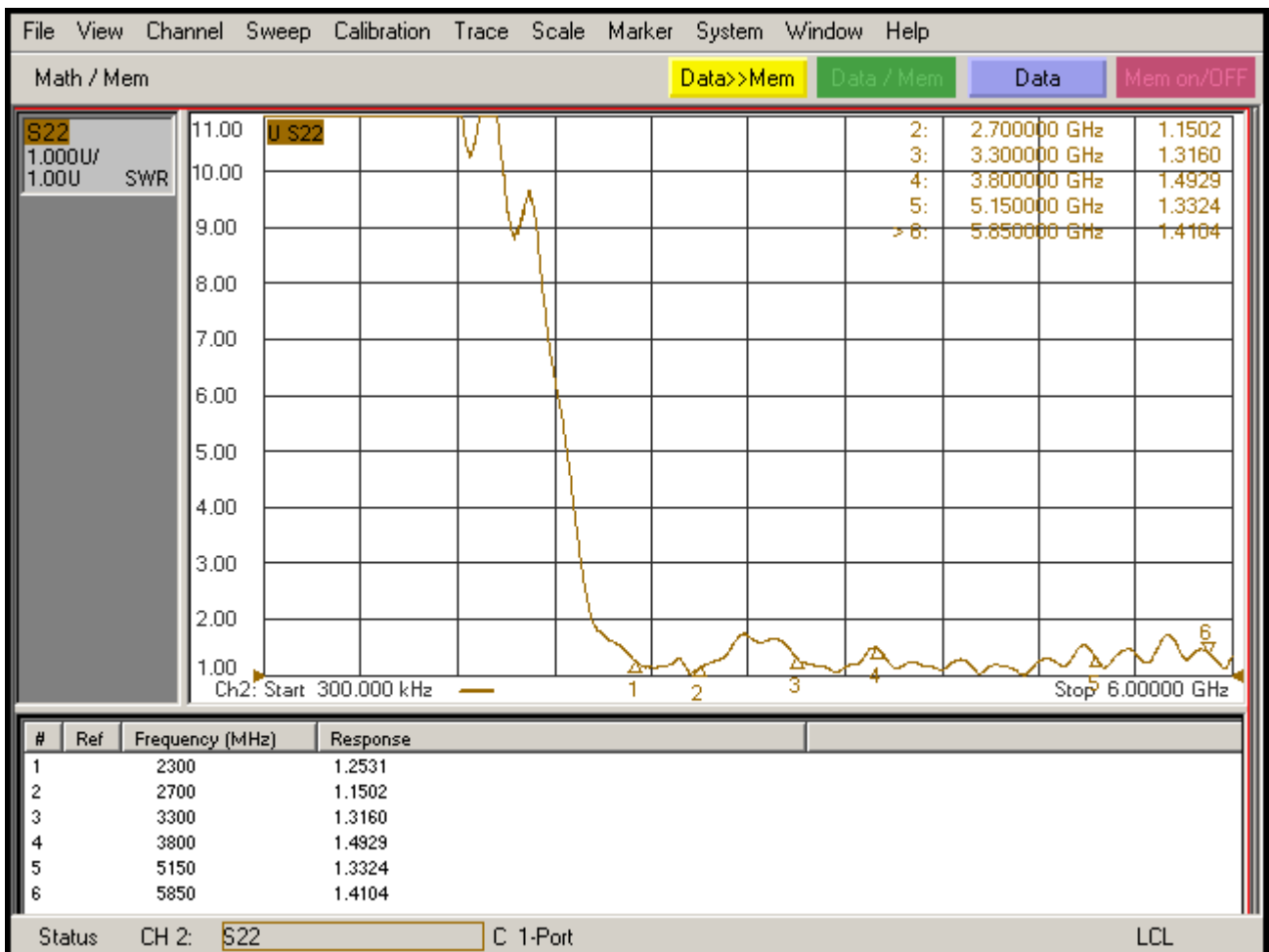
MEASUREMENT AND PERFORMANCE

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III. S-PARAMETER TEST RESULT :

(a) Antenna

Frequency Sample	2.3 GHz	2.7 GHz	3.3 GHz	3.8 GHz	5.15 GHz	5.85 GHz
1	1.2531	1.1520	1.3160	1.4929	1.3324	1.4104



III. THE TEST INFORMATION IN ANECHOIC CHAMBER

A. Measurement System:

- (a) Instruments: anechoic antenna, network analyzer, standard gain horns antenna.
- (b) Anechoic chamber description:
 - (1) The anechoic chamber is a far-field measurement system with size of 3.25M*2.84M*6.4M. The quiet zone of this chamber shall be greater than 70cm @ 0.9GHz, 50cm @ 1.8GHz, 44cm @ 2.4GHz, 28cm @ 5.8GHz, 16cm @ 18GHz.
 - (2) Fig.2 shows the interior components of the anechoic chamber. The antenna standard antenna as probe and antenna under test is 3M. The antenna under test is fixed on two step rotators. We control the rotating angle for accurate or rough measurement.

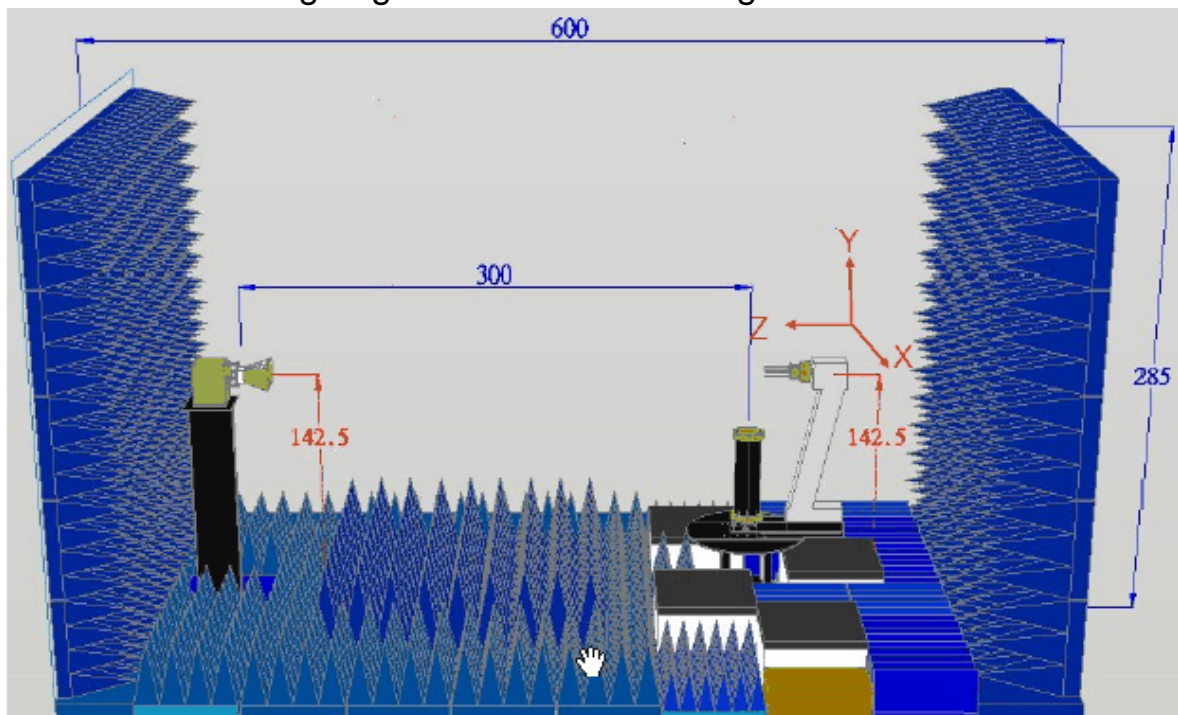


Fig.2 The interior components of the anechoic

- (3) While we measure the radiation patterns by rotating AUT with 360 degrees phi axis along 180 degrees theta axis and repeat again by replacing the AUT with the standard gain antenna under test, we compare both data and using a formula to obtain the

$$G_{AUT} = G_{STAND} + P_{AUT} - P_{STAND}$$

G_{AUT} : Gain of AUT

G_{STAND} : Gain of Standard Gain Antenna

P_{AUT} : Measured Power of AUT

P_{STAND} : Measured Power of Standard Gain Antenna

- (4) The axis defined in the Fig.3.

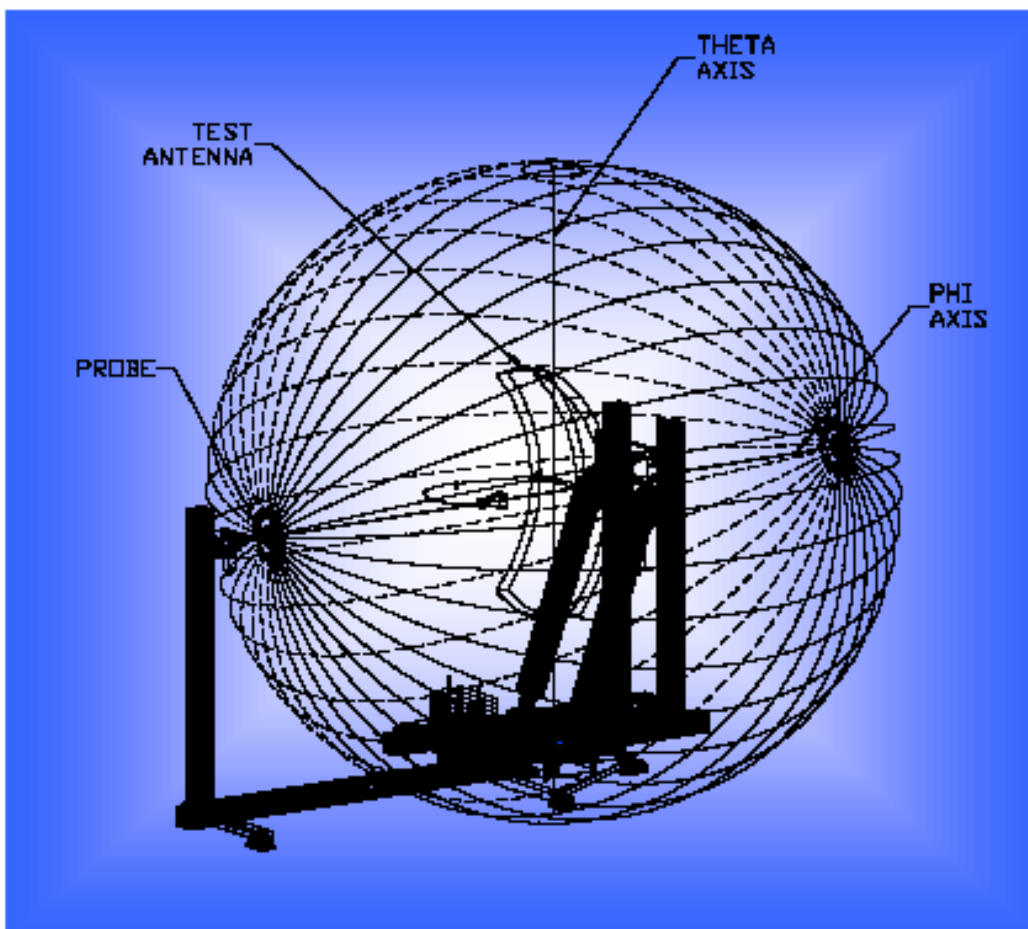
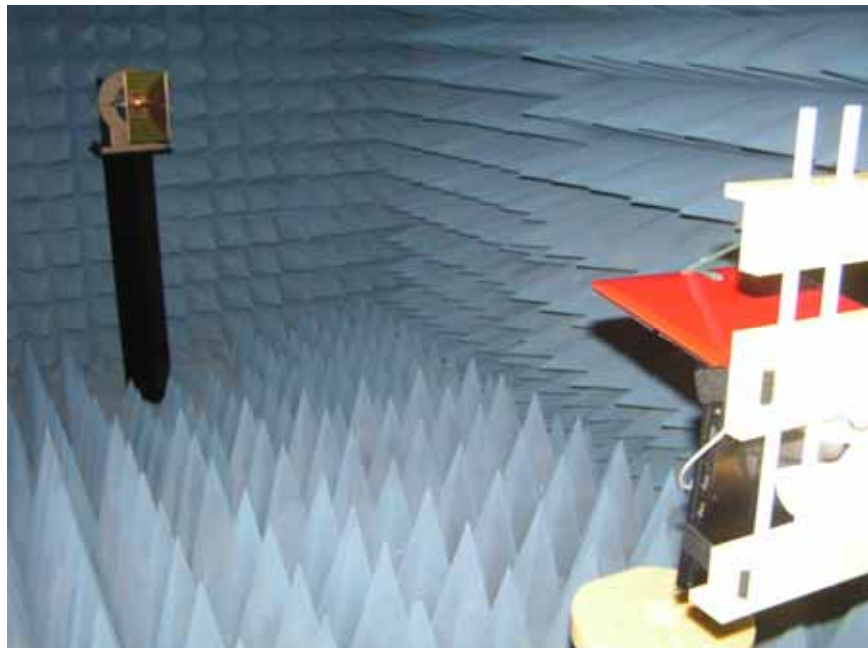
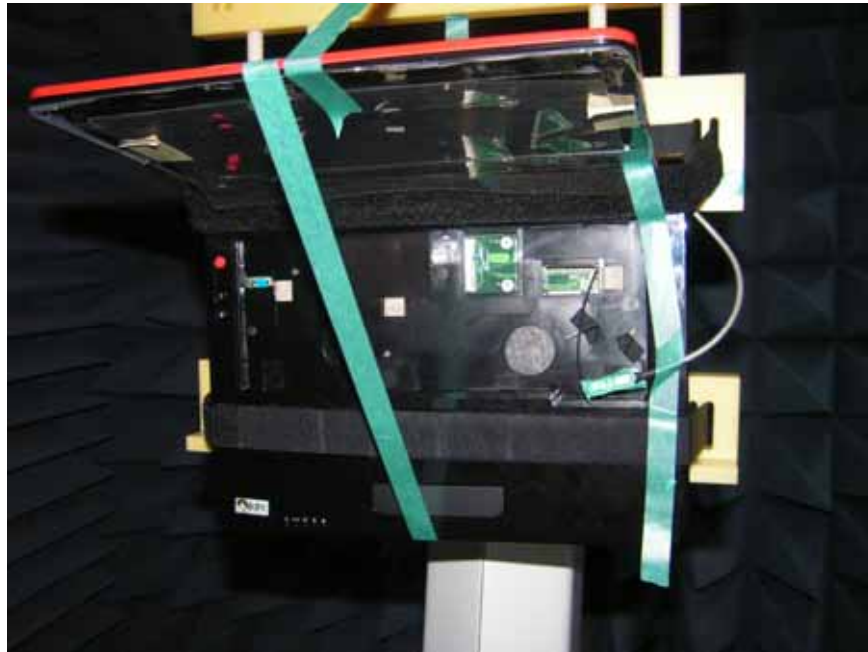


Fig.3 The axis defined



V. CHAMBER TEST PICTURE





VI. CHAMBER TEST RESULT

Item \ Frequency	2300 MHz	2400 MHz	2500 MHz	2600 MHz	2700 MHz	3300 MHz
Peak Gain (dBi)	4.94	4.67	5.22	3.61	3.63	2.73
Avg. Gain (dBi)	-1.55	-1.9	-1.29	-2.32	-1.37	-2.27
Efficiency (%)	70	65	74	59	73	59

Item \ Frequency	3400 MHz	3500 MHz	3600 MHz	3700 MHz	3800 MHz	5150 MHz
Peak Gain (dBi)	2.38	1.91	1.64	1.98	3.11	4.26
Avg. Gain (dBi)	-2.13	-2.31	-2.37	-3.32	-2.51	-2.63
Efficiency (%)	61	59	58	47	56	55

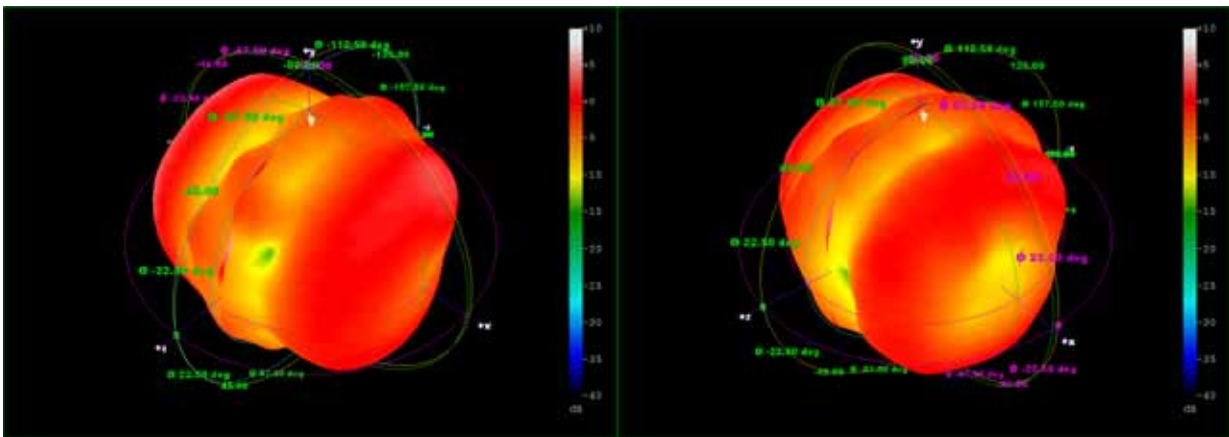
Item \ Frequency	5250 MHz	5350 MHz	5470 MHz	5600 MHz	5750 MHz	5850 MHz
Peak Gain (dBi)	4.37	4.8	4.17	2.97	2.71	3.1
Avg. Gain (dBi)	-2.61	-2.73	-3.14	-4.24	-3.52	-3.88
Efficiency (%)	55	53	49	38	44	41



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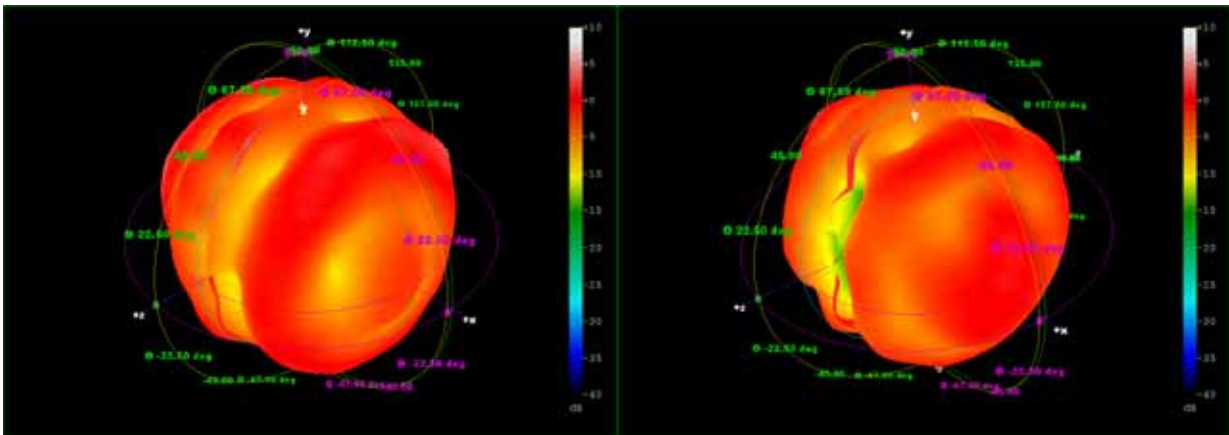
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(b) Antenna Pattern :



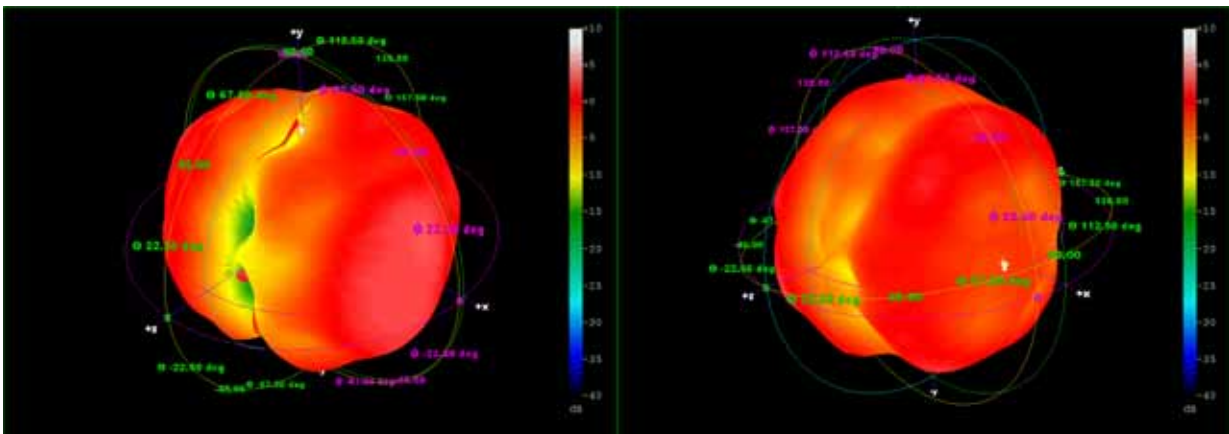
2.3 GHz

2.4 GHz



2.5 GHz

2.6 GHz



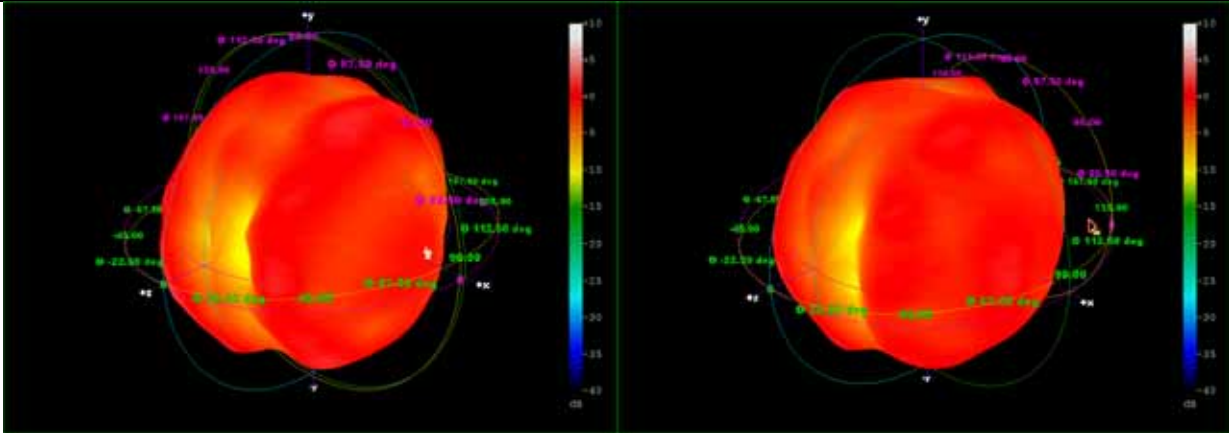
2.7 GHz

3.3 GHz



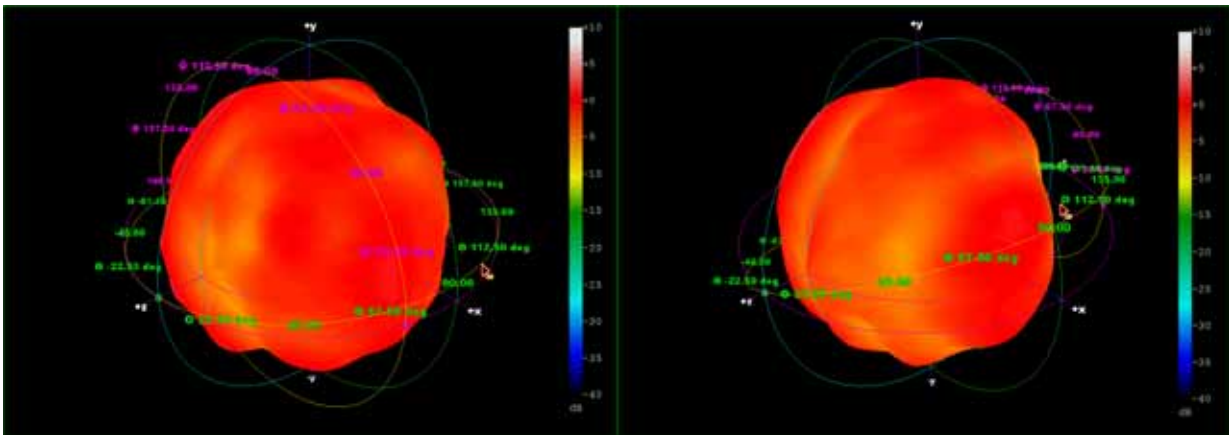
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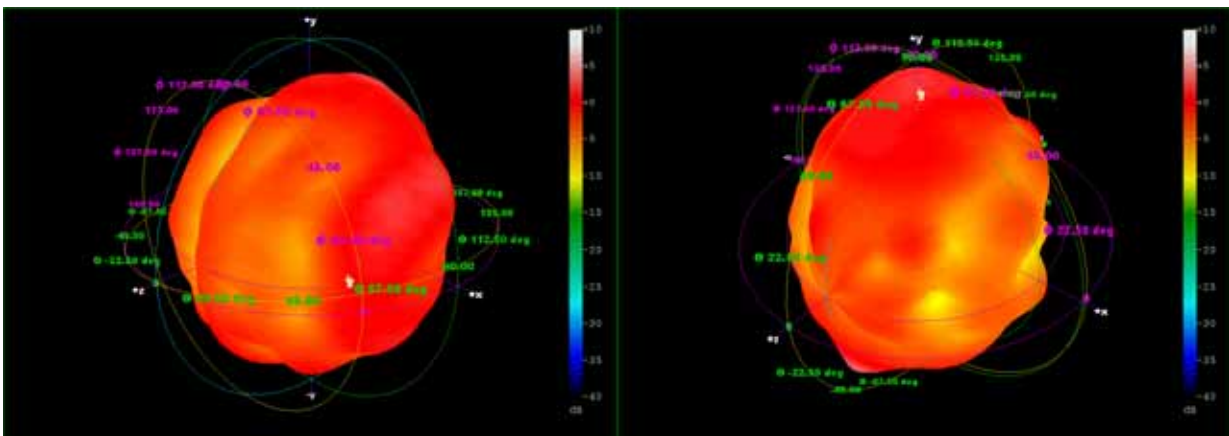
3.4 GHz

3.5 GHz



3.6 GHz

3.7 GHz



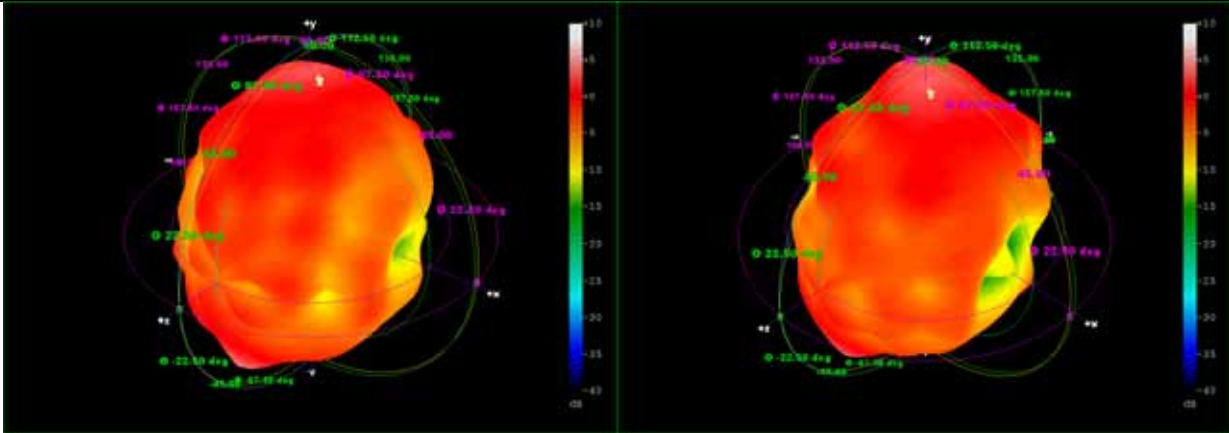
3.8 GHz

5.15 GHz



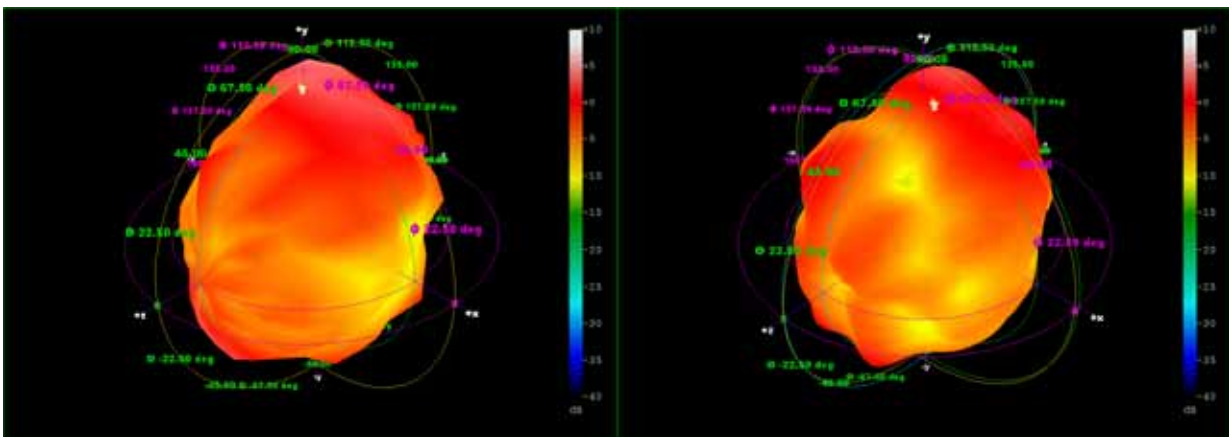
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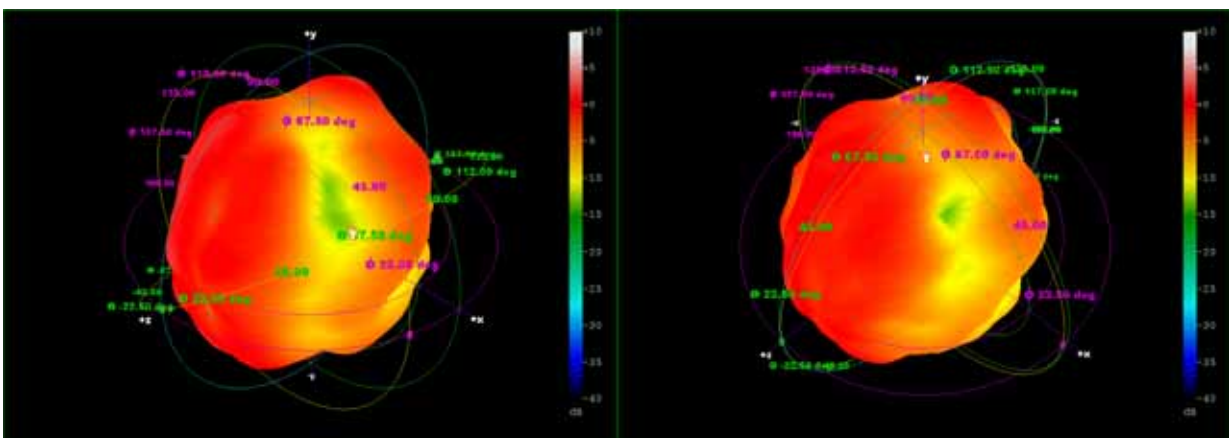
5.25 GHz

5.35 GHz



5.47 GHz

5.6 GHz



5.75 GHz

5.85 GHz