

Antenna Test Report

Report No.: EO/2011/70032

Test Plan: Non-compliance with ISO17025

Applicant Name: EGIGA TECHNOLOGIES CO LTD

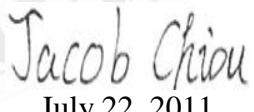
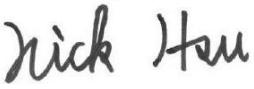
**Manufacturer Name: EGIGA TECHNOLOGIES CO LTD /
STOULLMANN E+V GmbH**

Product Name: Bluetooth Module

Model Number: eGM-A03(BlueMod+B20)

**Measurements performed at
SGS Taiwan Ltd.
Taipei, Taiwan**

Issued Date: July 22, 2011

	Name	Date & Signature	Distribution
Prepared by:	Jacob Chiou Engineer	 July 22, 2011	
Approved by:	Nick Hsu Supervisor	 July 22, 2011	

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Measurement System Information

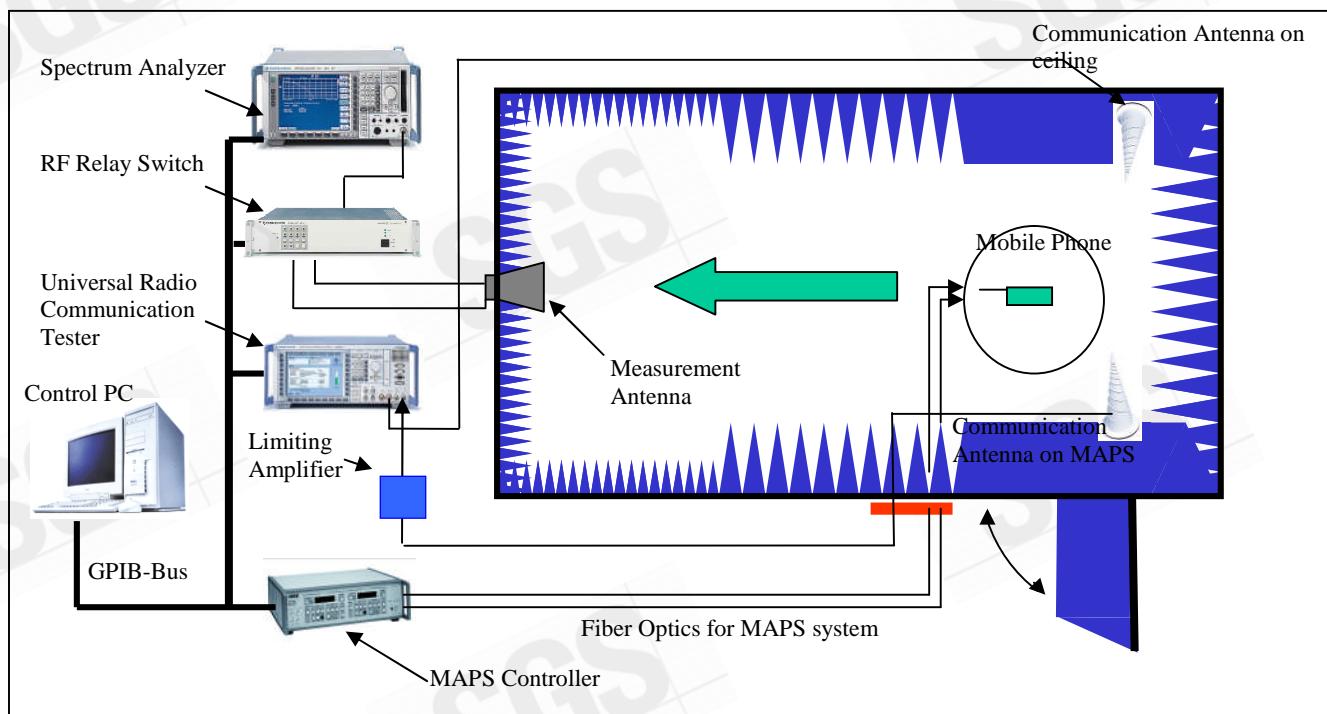
General Information

Testing Condition:

- Temperature: $25 \pm 3^\circ\text{C}$
- Humidity: <80%

Measurement Facility:

- Measurement Chamber: ETS-Lindgren 3D fully anechoic chamber and its measuring system (AMS-8500)
- Base Station Simulator: Agilent E5515C (or R&S CMU200)
- ETS-Lindgren EMCO-2090 Auxiliary Ports RF Relay Switches
- Spectrum Analyzer: Agilent E4405B
- Network Analyzer: Agilent E5071C

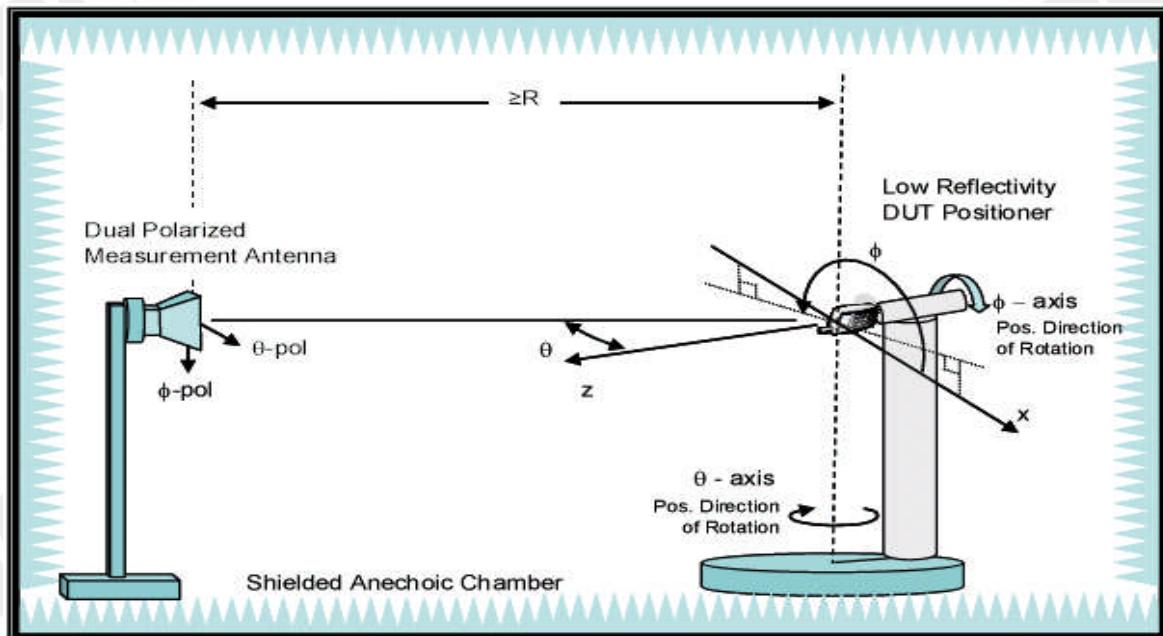


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Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™ EMQ-100* data acquisition and analysis software. The geometry of the setup is specified below for reference.

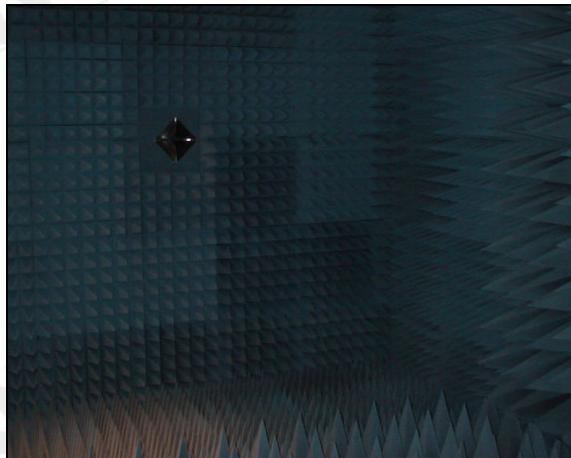
Typical Setup for ETS-Lindgren AMS-8500:



Instruments View



Inside View



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Testing Laboratory: Identification of the Responsible Test Laboratory.**● OTA Laboratory:**

SGS Taiwan Ltd. Electronics & Communication Laboratory
5F, No.134, Wu Kung Road, Wuku Industrial zone, Taipei County, Taiwan 248, R.O.C.
Telephone: +886 2 2299 3279
Fax: +886 2 2298 0488
Internet: <http://www.tw.sgs.com>

Details of Applicant:

Applicant's name:	EGIGA TECHNOLOGIES CO LTD
Applicant's address:	3F, No.200, Sec.2, Nanchang Rd., Jhongjheng District, 10084Taipei, Taiwan
Contact person:	Jasen Ho/ GM
Telephone:	+886-2-23681235
Fax:	+886-2-23670093
E-mail:	Jasen@egigatek.com.tw

Details of Manufacturer:

Manufacturer's name:	EGIGA TECHNOLOGIES CO LTD / STOULLMANN E+V GmbH
Manufacturer's address:	3F, No.200, Sec.2, Nanchang Rd., Jhongjheng District, 10084Taipei, Taiwan
Contact person:	Tony Kuan, CTO
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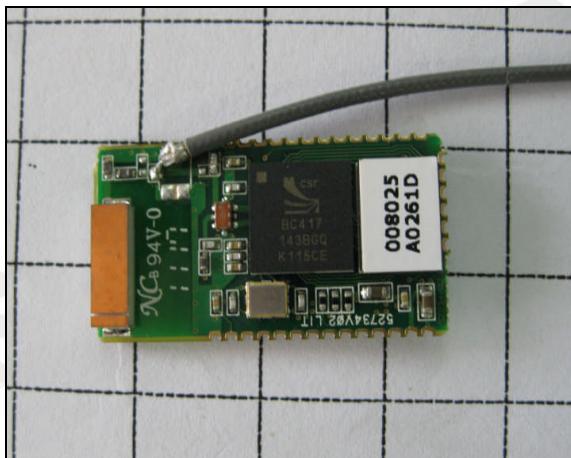
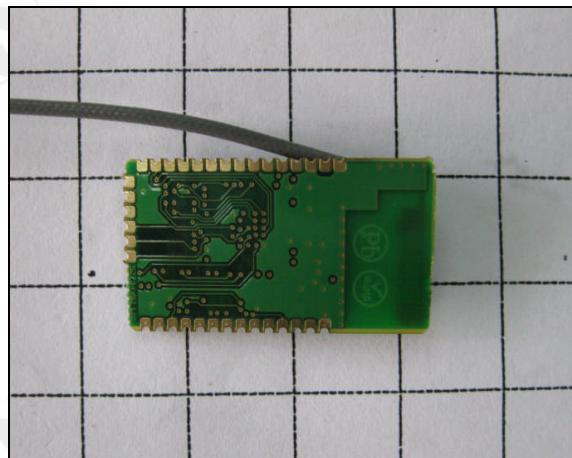
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Details of EUT:

Device Description:	Bluetooth Module
Device Manufacturer:	EGIGA TECHNOLOGIES CO LTD / STOULLMANN E+V GmbH
Device Model:	eGM-A03(BlueMod+B20)
BD serial number:	008025 A0261D
Hardware version:	V1.0
Software version:	V1.102
Frequency Band:	2400MHz ~ 2483.5MHz
Modulation Type:	GFSK
Number of Channels:	79
Antenna:	Internal antenna

Duration of Tests:

Sample Receive Date:	2011-07-19
Test Starting Date:	2011-07-19
Test Ending Date:	2011-07-19
Report Issued Date:	2011-07-22

Photographs of EUT:**Front View****Back View**

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List of Equipment

Equipment Summary Sheet

Equipment Description	Manufacturer	Identification no.	Current calibration date	Next calibration date
Base station	Agilent	E5515C	2011/1/6	2013/1/6
Spectrum analyzer	Agilent	E4405B	2011/7/12	2012/7/12
Network analyzer	Agilent	E5071C	2010/9/6	2011/9/6
Measurement software	ETS-Lindgren	EMQuest 1.08	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2115	N/A	N/A
Multi axis positioning system(MAPSTM)	ETS-Lindgren	EMCO 2110	N/A	N/A
MAPSTM controller	ETS-Lindgren	EMCO 2090	N/A	N/A
Horn antenna	ETS-Lindgren	3164-04	N/A	N/A

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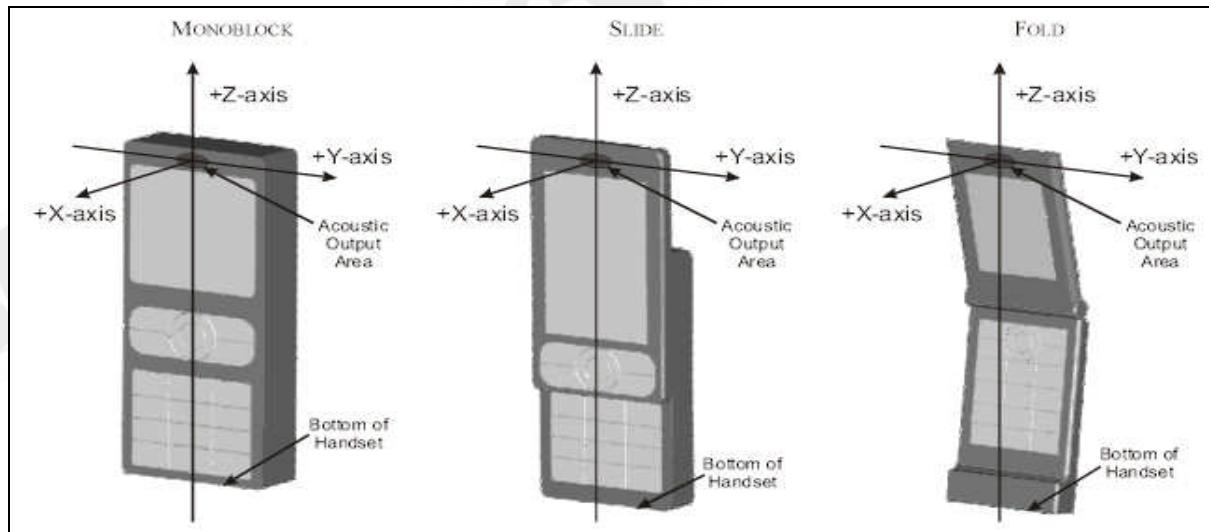
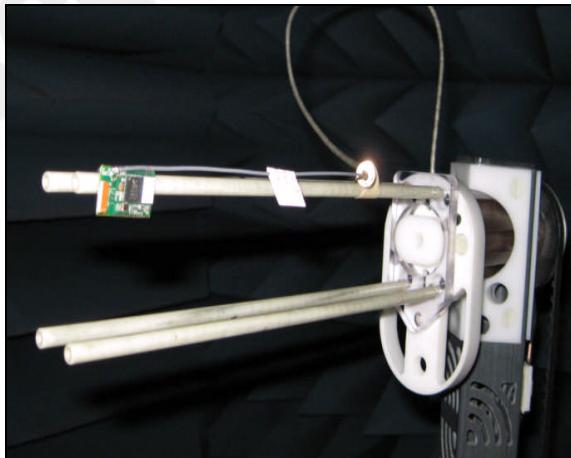
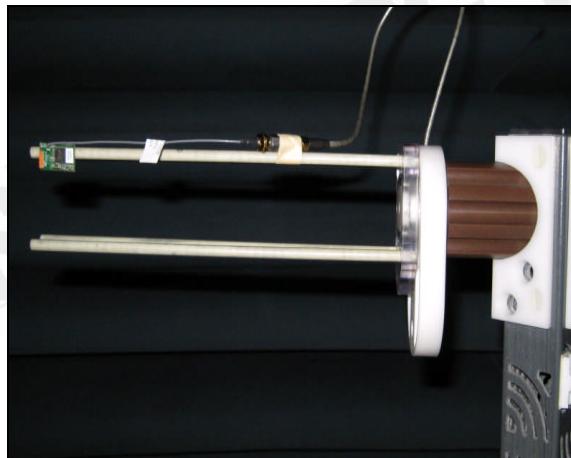
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Antenna Gain and Efficiency

Frequency (MHz)	Test Results										
	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-5.03	-4.74	-4.42	-4.17	-3.89	-3.68	-3.45	-3.15	-2.87	-2.65	-2.58
Peak EIRP (dBm)	-2.17	-1.84	-1.41	-0.88	-0.38	0.03	0.44	0.93	1.40	1.80	2.03
Directivity (dBi)	2.85	2.90	3.00	3.29	3.52	3.71	3.89	4.08	4.27	4.45	4.60
Efficiency (dB)	-5.03	-4.74	-4.42	-4.17	-3.89	-3.68	-3.45	-3.15	-2.87	-2.65	-2.58
Efficiency (%)	31.43	33.57	36.16	38.26	40.81	42.87	45.19	48.41	51.67	54.34	55.23
Gain (dBi)	-2.17	-1.84	-1.41	-0.88	-0.38	0.03	0.44	0.93	1.40	1.80	2.03
IHPRP ±Pi/4 (dBm)	-5.86	-5.58	-5.26	-5.02	-4.75	-4.54	-4.32	-4.02	-3.75	-3.54	-3.48
IHPRP ±Pi/6 (dBm)	-7.08	-6.80	-6.49	-6.26	-5.99	-5.78	-5.55	-5.26	-4.98	-4.77	-4.71
IHPRP ±Pi/8 (dBm)	-8.15	-7.87	-7.57	-7.33	-7.07	-6.87	-6.64	-6.35	-6.07	-5.85	-5.79
Upper Hem. PRP (dBm)	-8.11	-7.90	-7.65	-7.49	-7.30	-7.17	-7.01	-6.78	-6.55	-6.39	-6.37
Lower Hem. PRP (dBm)	-7.96	-7.61	-7.21	-6.89	-6.54	-6.26	-5.97	-5.62	-5.29	-5.03	-4.93

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**Free Space - Front View****Free Space - Side View**

Coordinate System

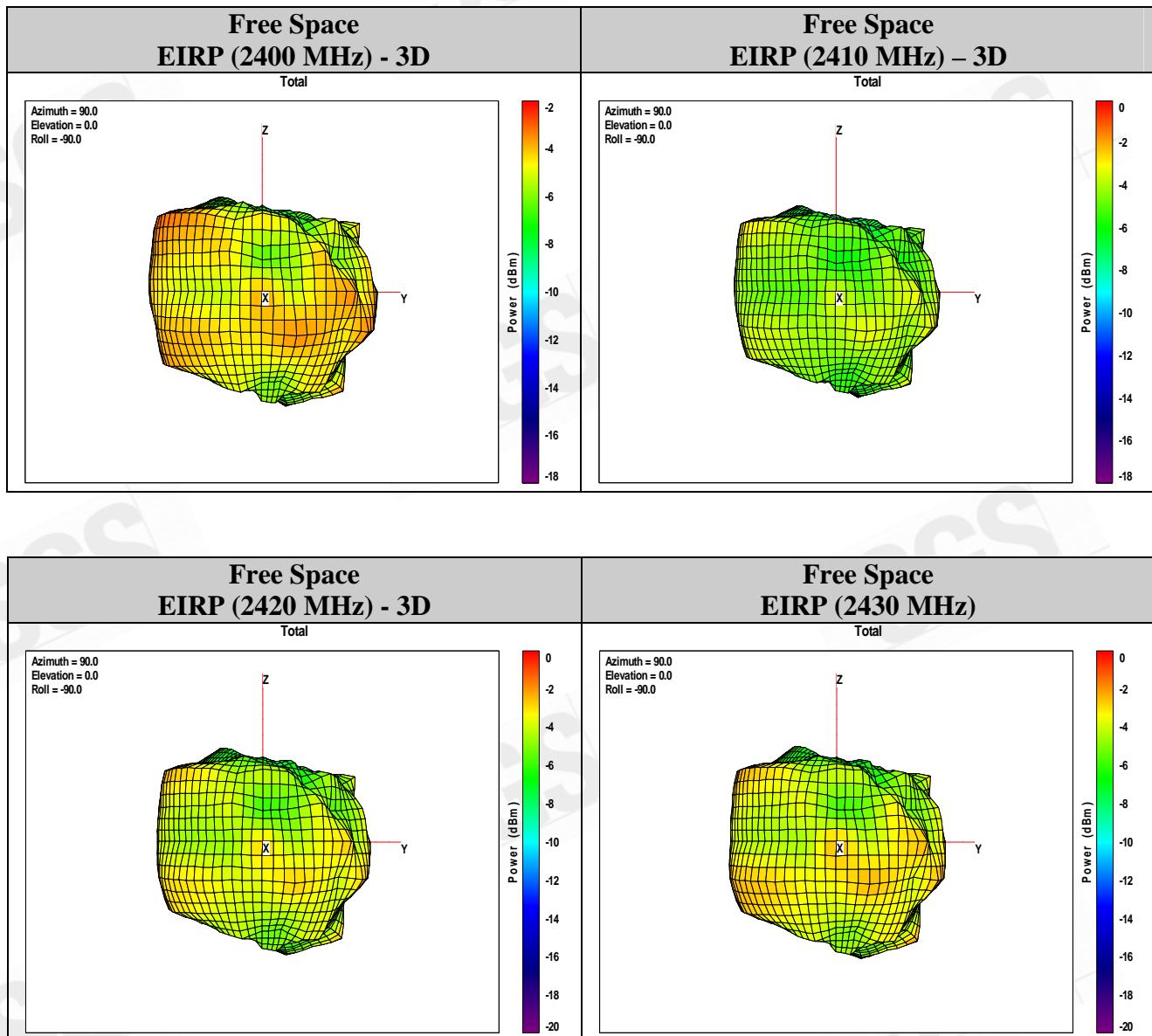
The coordinate system is centered on the antenna of the EUT, with the **+X-axis** pointing front side of the EUT (out of the picture), the **+Y-axis** pointing right side of the EUT (top side of the picture), and the **+Z-axis** pointing top side of the EUT (left side of the picture).

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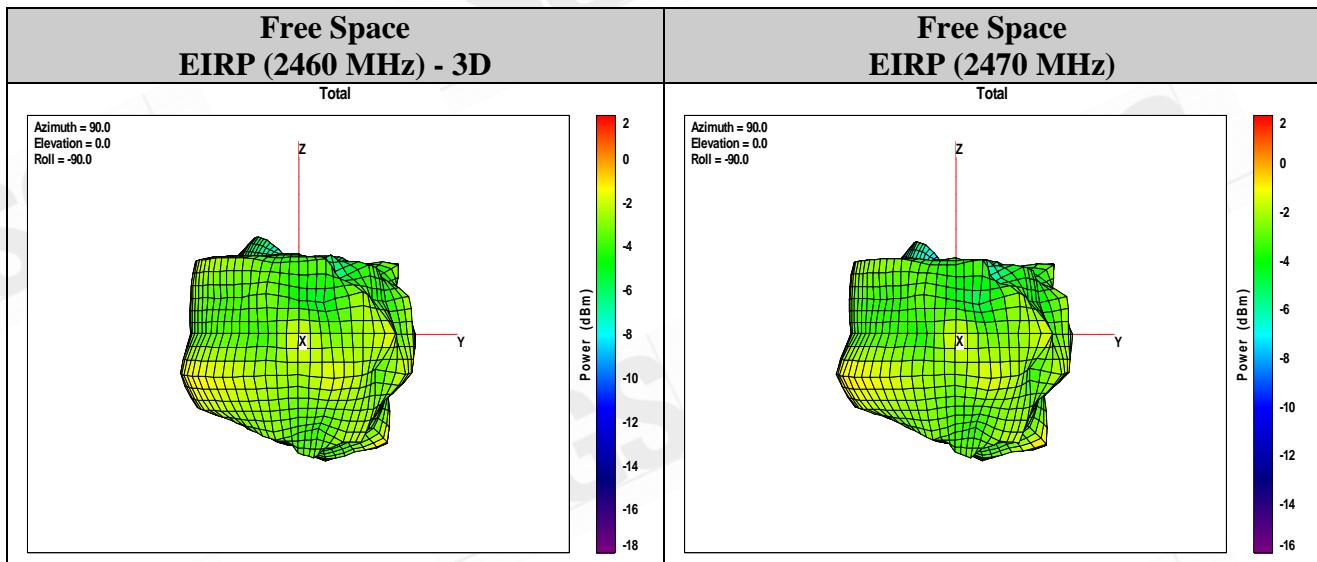
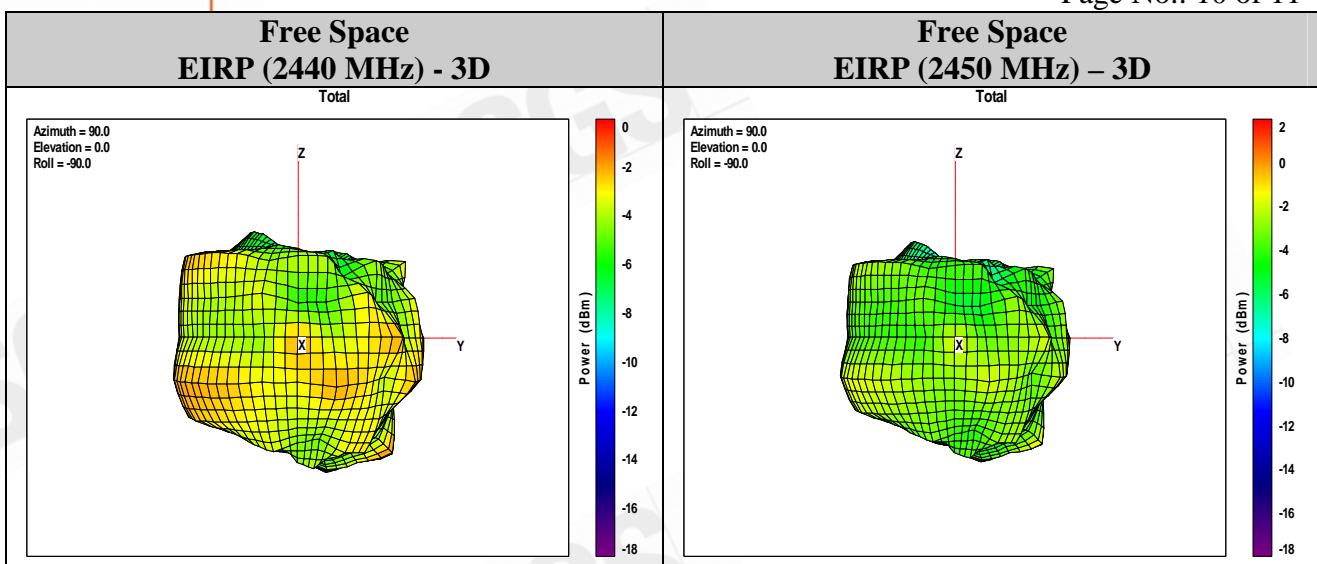
Antenna 3D Plot Matrix

All plots in this section show the total EIRP ($EIRP_\theta + EIRP_\phi$) with the $+x$ -axis pointing out of the page, $+y$ -axis pointing right, and $+z$ -axis pointing up.



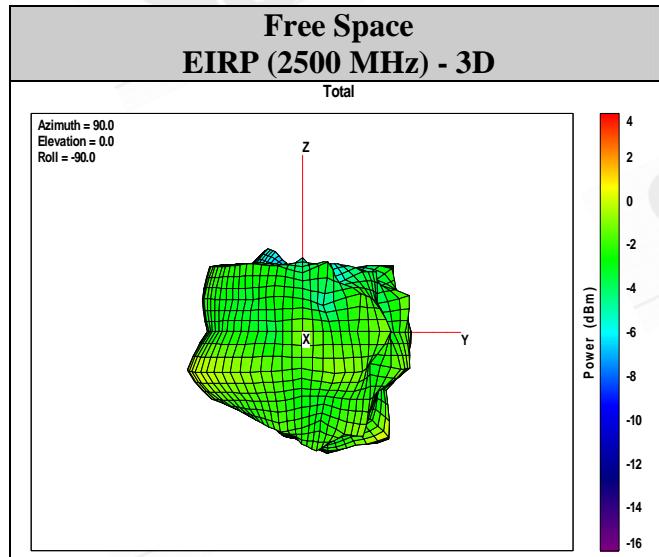
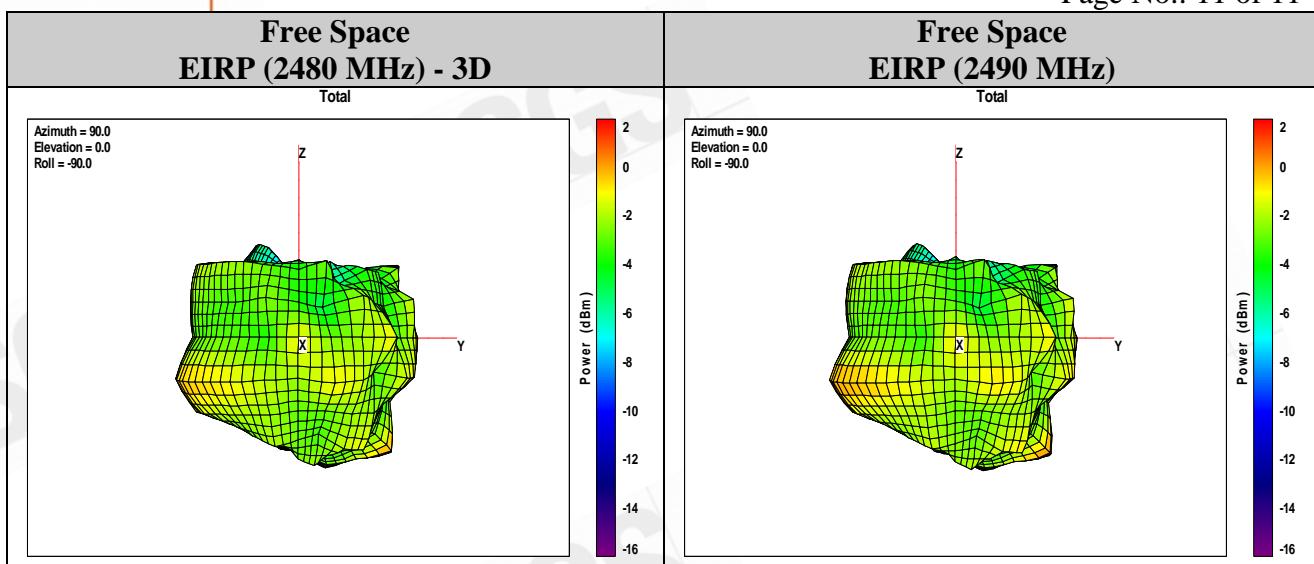
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