

Antenna Test Report

Report No.: EO/2012/A0001

Test Plan: Non-compliance with ISO17025

Applicant Name: ALATECH Technology Limited Co.

Manufacturer Name: Zhejiang Ala electronic technology Ltd.

Product Name: BLE Heart Rate Transmitter

Model Number: CS010

Measurements performed at

SGS Taiwan Ltd.

Taipei, Taiwan

Issued Date: October 17, 2012

	Name	Date & Signature
Prepared by:	Jose Ho Engineer	<i>Jose Ho</i> October 17, 2012
Approved by:	Nick Hsu Supervisor	<i>Nick Hsu</i> October 17, 2012

Distribution

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Measurement System Information

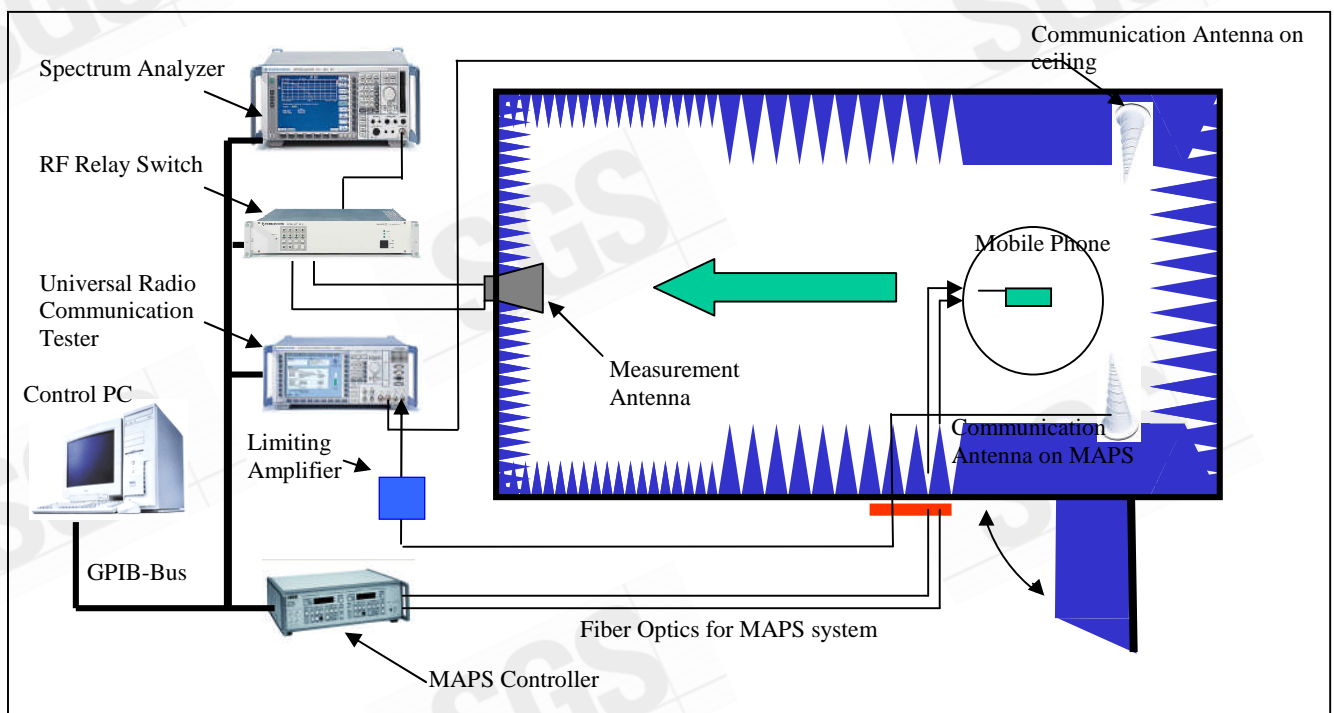
General Information

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 N9010A
- Network Analyzer: Agilent E5071C



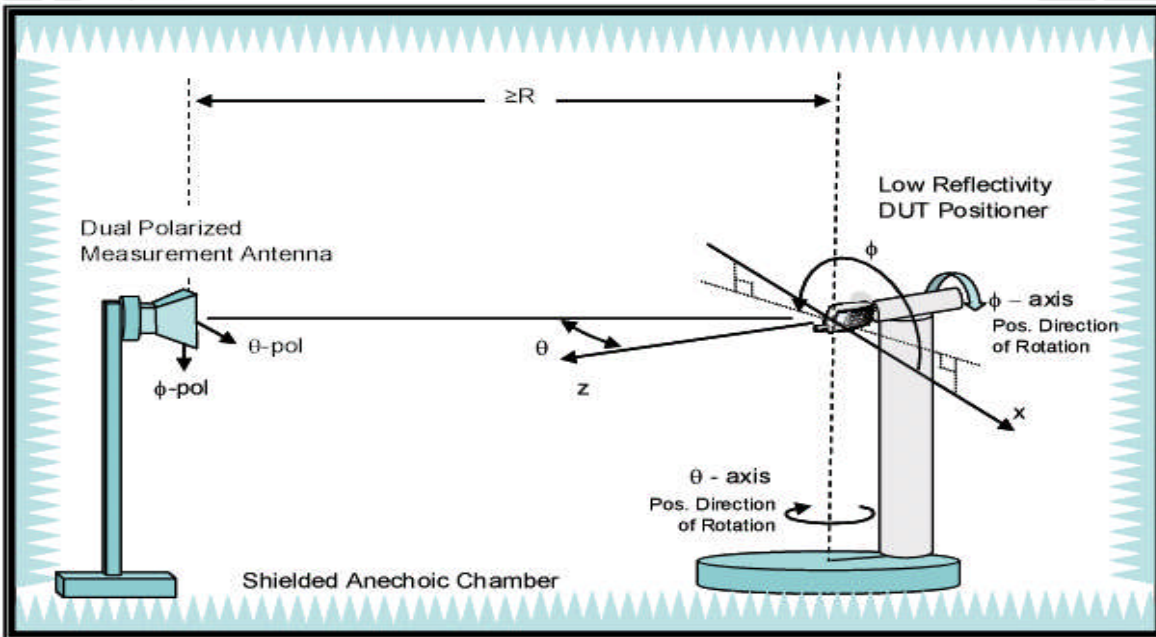
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Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™* **EMQ-100** data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

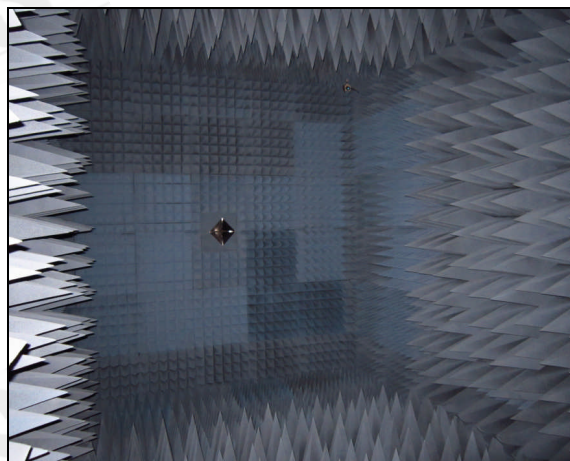
Typical Setup for ETS-Lindgren AMS-8500:



Instruments View



Inside View



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Testing Laboratory: Identification of the Responsible Test Laboratory.

- **OTA Laboratory:**
SGS Taiwan Ltd. Electronics & Communication Laboratory
 No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803.
 Telephone: +886 2 2299 3279
 Fax: +886 2 2298 0488
 Internet: <http://www.tw.sgs.com>
- **Testing Location:**
 No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803.

Details of Applicant:

Applicant's name:	ALATECH Technology Limited Co.
Applicant's address:	39F., No.758, Jungming S.RD. Taichung, Taiwan, R.O.C.
Contact person:	Brian, senior engineer
Telephone:	886-4-22608341
Fax:	886-4-22608346
E-mail:	brian@alatech.com.tw

Details of Manufacturer:

Manufacturer's name:	Zhejiang Ala electronic technology Ltd.
Manufacturer's address:	NO.99 GUANGHUA ROAD TONGXIANG ECONOMIC DEVELOPMENT ZONE
Contact person:	Sky, RD manager
Telephone:	0573-88628666
Fax:	N/A
E-mail:	Sky@zjala.com

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Details of EUT:

Device Description:	BLE Heart Rate Transmitter
Device Manufacturer:	ALATECH Technology Limited Co.
Device Model:	CS010
Hardware Version:	1.0
Software Version:	1.0
IMEI:	N/A
FCC ID:	YQOCS010
Frequency Range:	2400MHz ~ 2500MHz Step size: 10MHz
Antenna Type:	Internal antenna

Duration of Tests:

Sample Receive Date:	2012-10-01
Test Starting Date:	2012-10-01
Test Ending Date:	2012-10-01
Report Issued Date:	2012-10-17

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	N9010A	2011/12/15	2012/12/15
Network analyzer	Agilent	E5071C	2012/9/23	2013/9/23
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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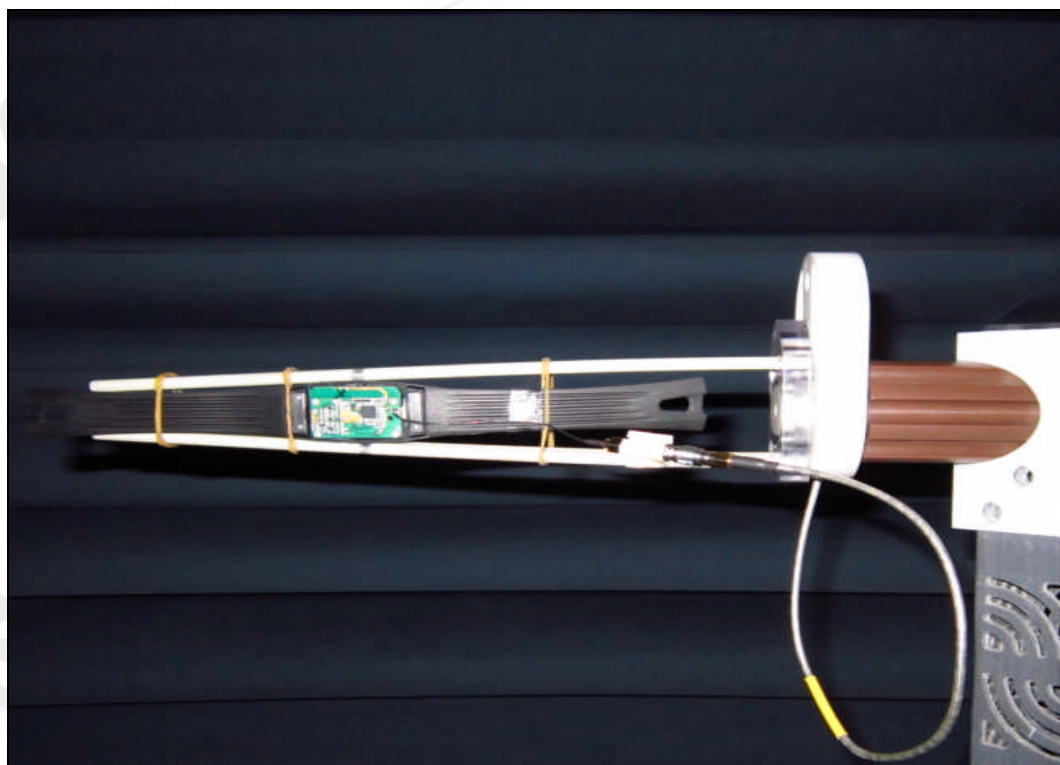
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Antenna Gain and Efficiency

Test Results											
Frequency (MHz)	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)	-2.50	-2.46	-2.43	-2.55	-2.58	-2.61	-2.61	-2.57	-2.56	-2.55	-2.57
Peak EIRP (dBm)	1.52	1.51	1.52	1.40	1.30	1.25	1.24	1.29	1.30	1.28	1.19
Directivity (dBi)	4.02	3.97	3.95	3.95	3.88	3.85	3.85	3.87	3.87	3.83	3.76
Efficiency (dB)	-2.50	-2.46	-2.43	-2.55	-2.58	-2.61	-2.61	-2.57	-2.56	-2.55	-2.57
Efficiency (%)	56.26	56.81	57.17	55.64	55.27	54.85	54.77	55.28	55.43	55.55	55.36
Gain (dBi)	1.52	1.51	1.52	1.40	1.30	1.25	1.24	1.29	1.30	1.28	1.19
IIHPRP ±Pi/4 (dBm)	-4.39	-4.33	-4.29	-4.39	-4.41	-4.42	-4.40	-4.34	-4.31	-4.28	-4.27
IIHPRP ±Pi/6 (dBm)	-6.48	-6.40	-6.33	-6.40	-6.38	-6.35	-6.31	-6.22	-6.17	-6.12	-6.09
IIHPRP ±Pi/8 (dBm)	-7.93	-7.84	-7.76	-7.81	-7.79	-7.75	-7.70	-7.61	-7.56	-7.49	-7.45
Upper Hem. PRP (dBm)	-5.73	-5.69	-5.66	-5.79	-5.81	-5.84	-5.84	-5.80	-5.80	-5.80	-5.82
Lower Hem. PRP (dBm)	-5.30	-5.26	-5.23	-5.34	-5.37	-5.41	-5.42	-5.38	-5.36	-5.34	-5.35

Test Setup



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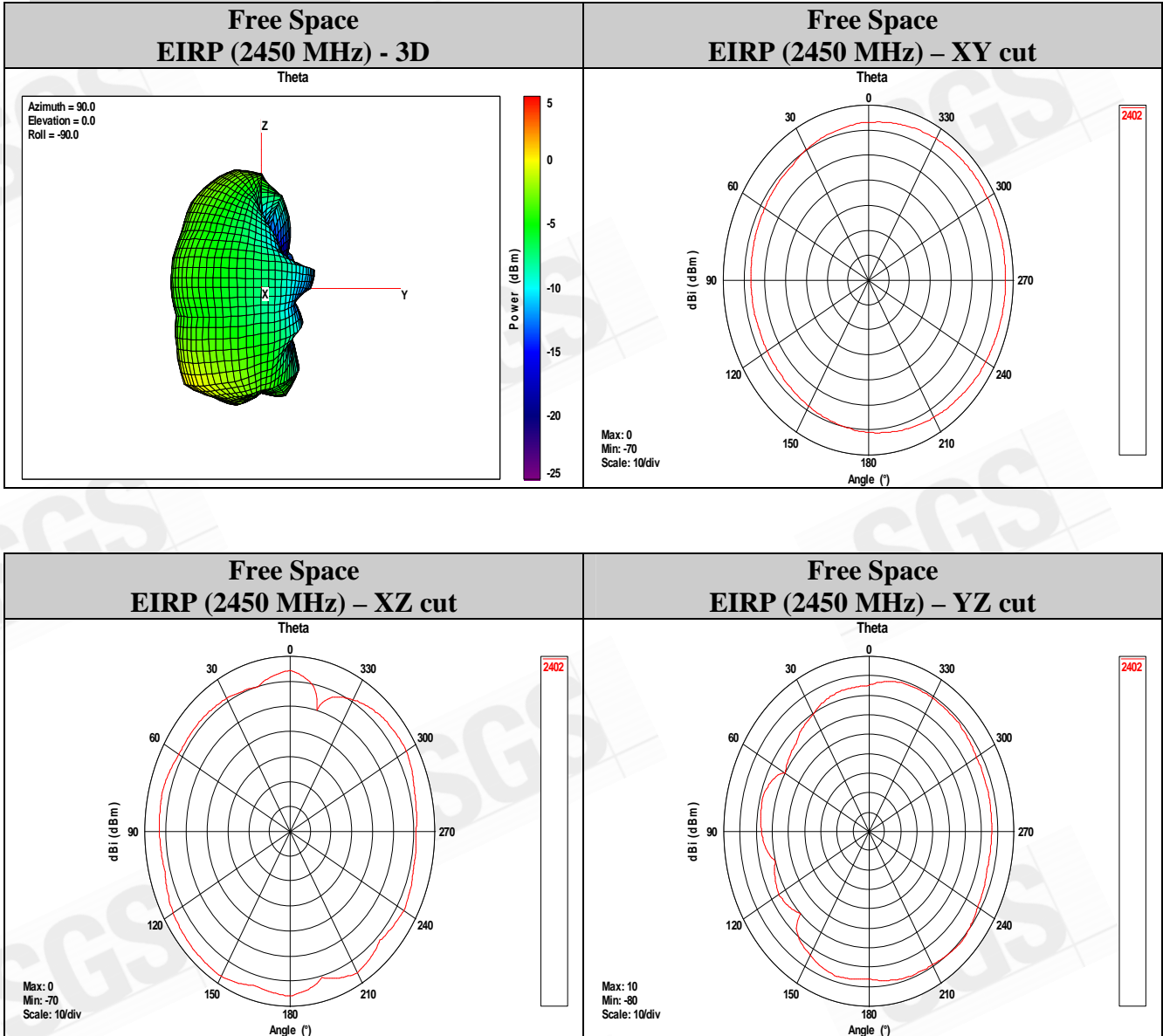
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Antenna 3D Plot Matrix

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.

Polarization - Horizontal

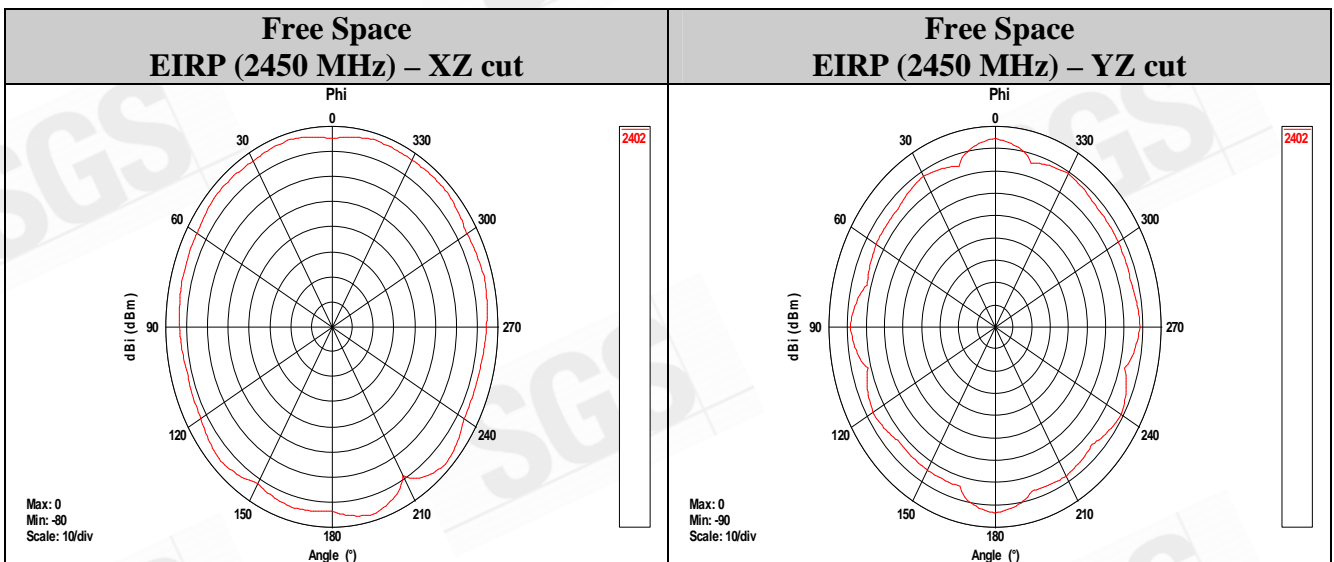
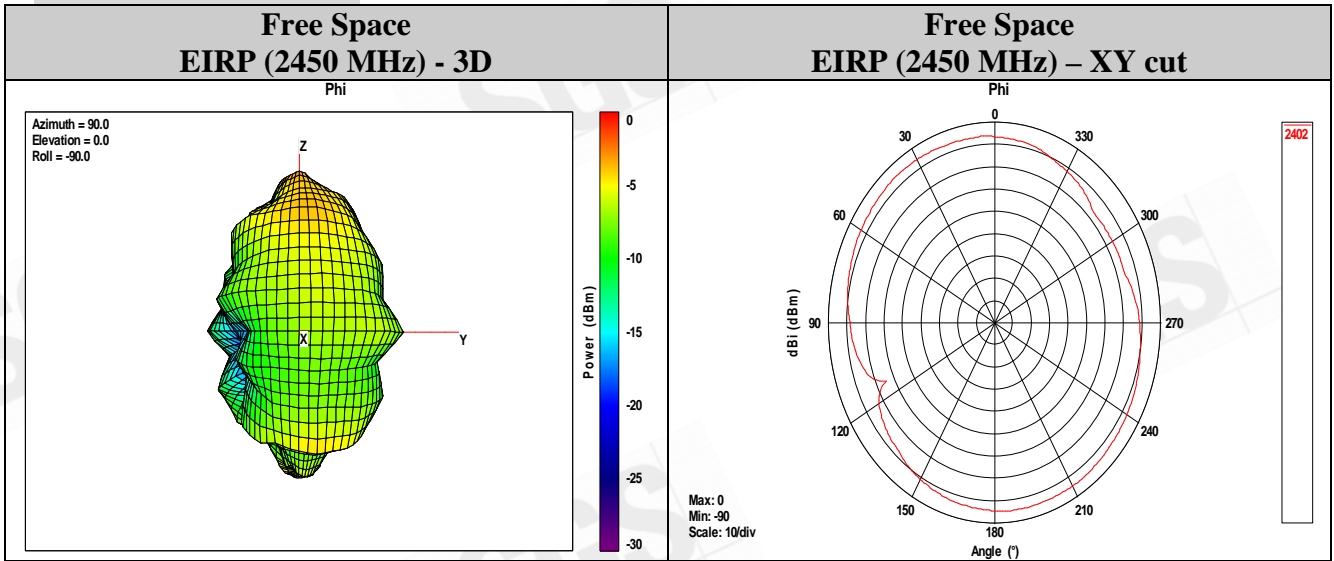


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Polarization - Vertical

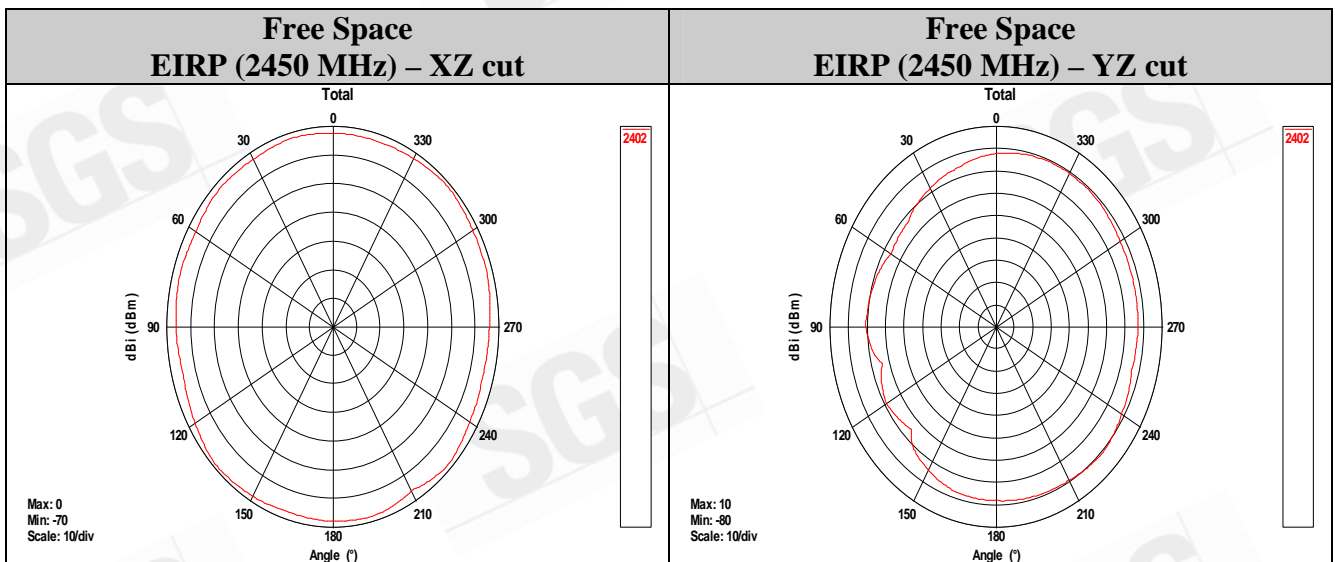
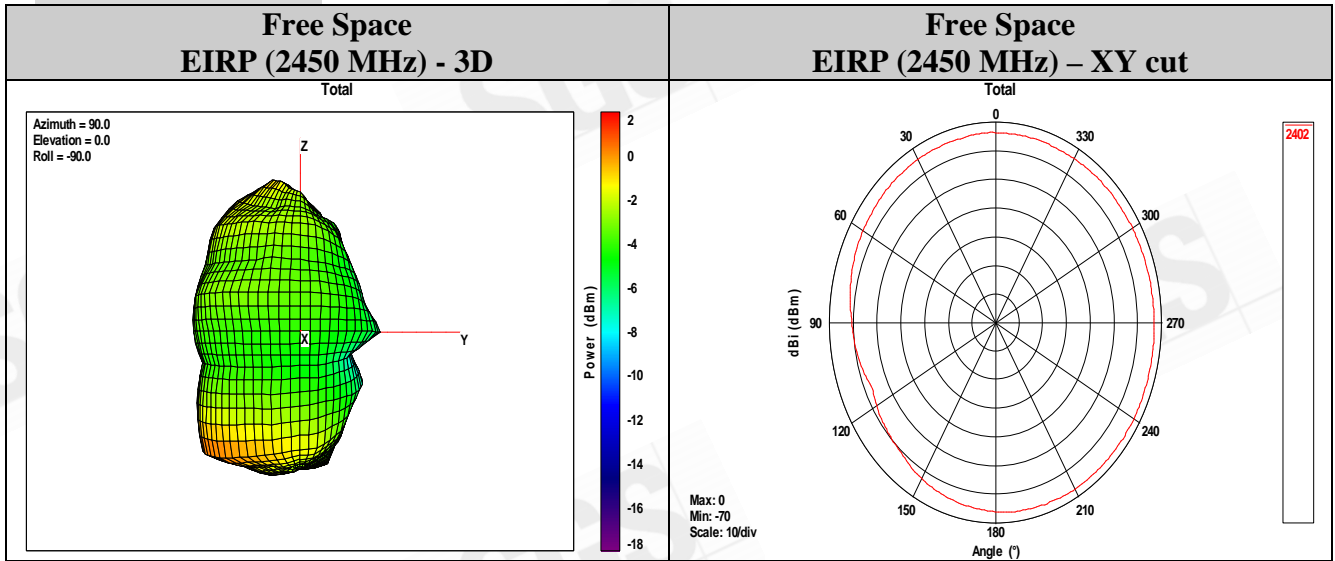


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Polarization - Total



End of Report

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