

Antenna Test Report

Report No.: EO/2013/60004

Test Plan: Non-compliance with ISO17025

Applicant Name: ORtek Technology Inc.

Manufacturer Name: XIAMEN ONLEADER TECHNOLOGY CO., LTD.

Product Name: Bluetooth 3.0 Audio Module

Model Number: TQBT11

Measurements performed at

SGS Taiwan Ltd.

Taipei, Taiwan

Issued Date: June 18, 2013

	Name	Date & Signature
Prepared by:	Jose Ho Engineer	<i>Jose Ho</i> June 18, 2013
Approved by:	Nick Hsu Asst. Manager	<i>Nick Hsu</i> June 18, 2013

Distribution

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SGS Taiwan Ltd.

台灣檢驗科技股份有限公司

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Measurement System Information

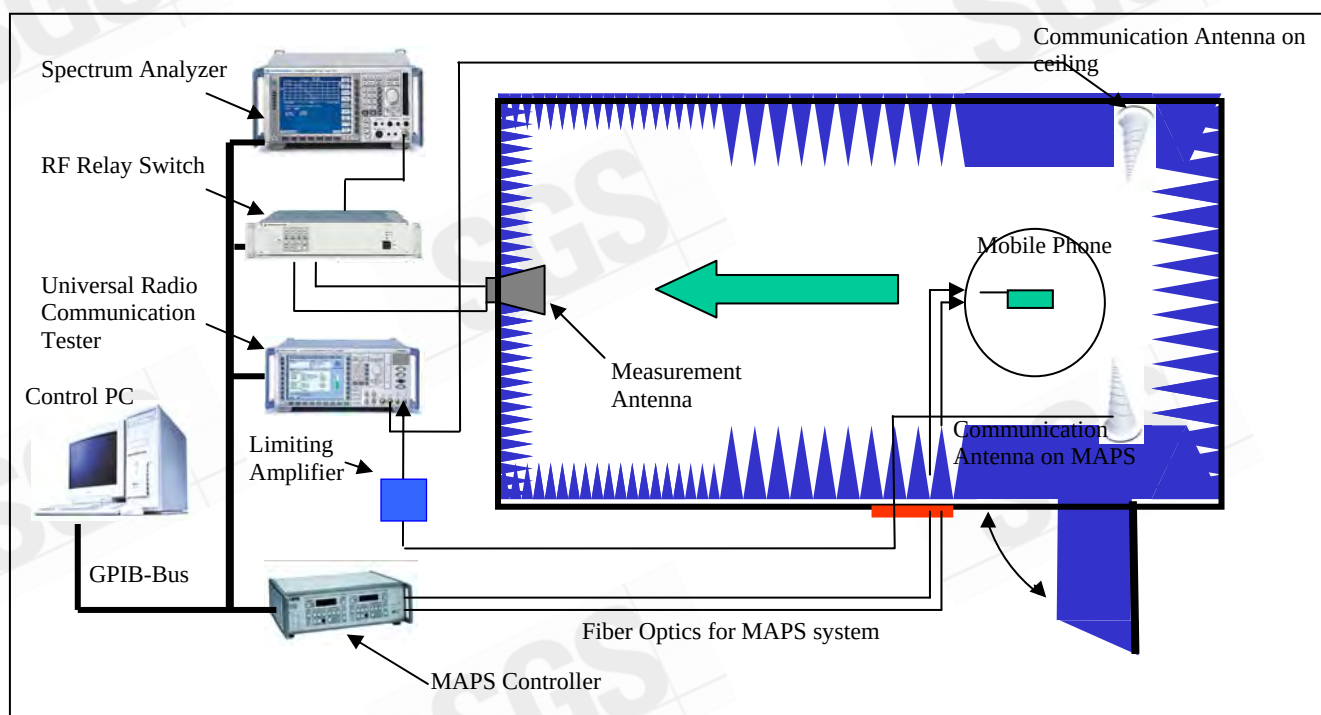
General Information

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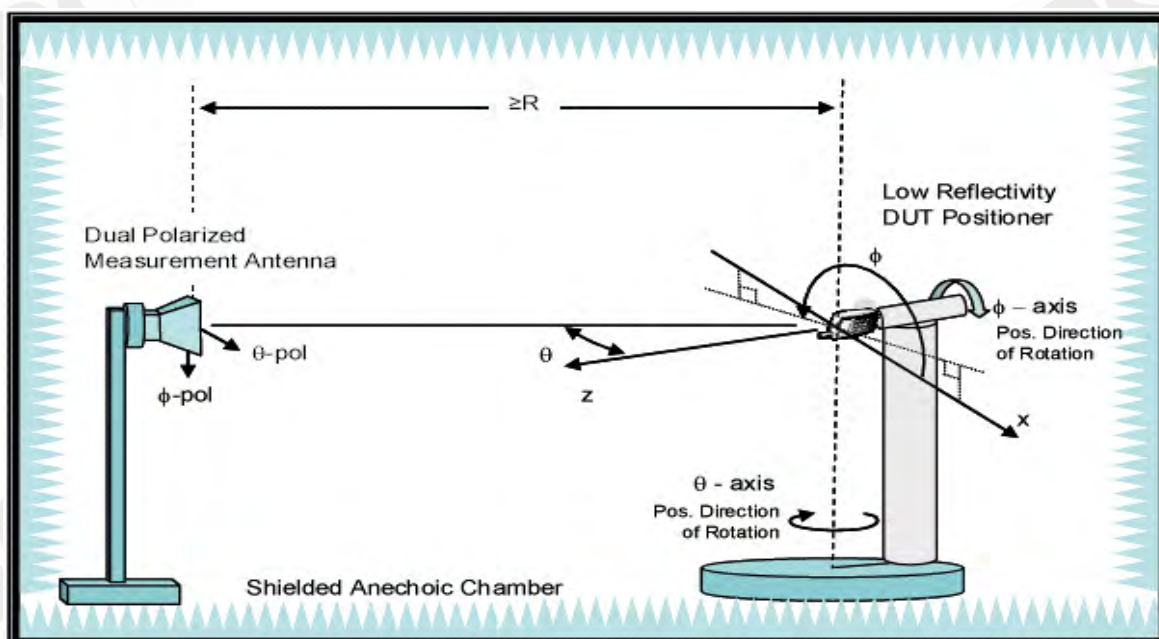
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Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™* **EMQ-100** data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

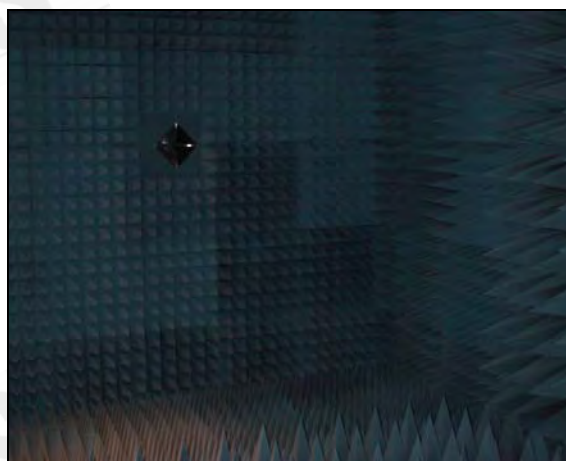
Typical Setup for ETS-Lindgren AMS-8500:



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:	ORtek Technology, Inc.
Applicant's address:	13F, Number 150, Jian-Yi Rd., Zhonghe Dist., New Taipei City, Taiwan, R.O.C.
Contact person:	Andy Chow / Engineer
Telephone:	82265123 ext 119
Fax:	8226-5125
E-mail:	rd8@ortek.com.tw

Details of Manufacturer:

Manufacturer's name:	XIAMEN ONLEADER TECHNOLOGY CO., LTD.
Manufacturer's address:	Factory Number 6, Hsin-His-Chiao Da Dong, Dong An Dist, Xiamen. P.R.C.
Contact person:	Andy Chow / Engineer
Telephone:	82265123 ext 119
Fax:	8226-5125
E-mail:	rd8@ortek.com.tw

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Details of EUT:

Device Description:	Bluetooth 3.0 Audio Module
Device Manufacturer:	ORtek Technology, Inc.
Device Model:	TQBT11
Hardware Version:	Keyboard:1.1
Software Version:	Keyboard:1.0
IMEI:	N/A
FCC ID:	GM8BMR300
Frequency Range:	2400MHz ~ 2500MHz Step size: 10MHz
Antenna Type:	Internal antenna

Duration of Tests:

Sample Receive Date:	2013-06-17
Test Starting Date:	2013-06-17
Test Ending Date:	2013-06-17
Report Issued Date:	2013-06-18

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	2013/3/18	2015/3/18
Spectrum analyzer	Agilent	N9010A	2011/12/15	2013/12/15
Network analyzer	Agilent	E5071C	2012/10/16	2013/10/16
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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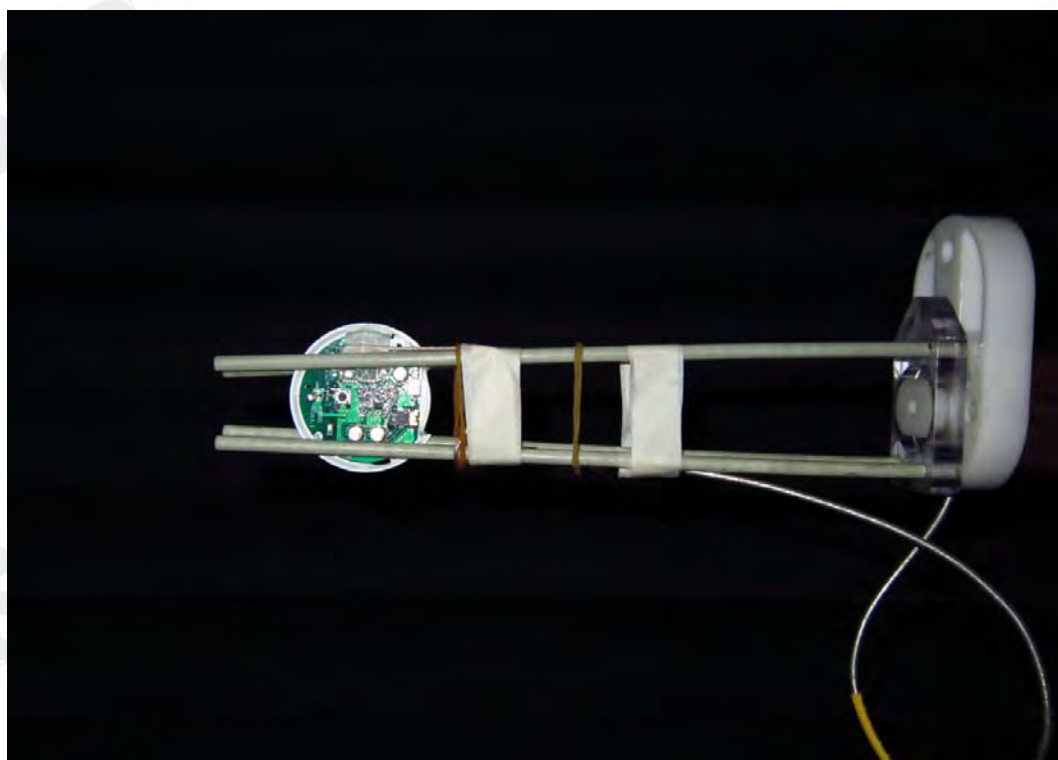
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Antenna Gain and Efficiency

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)	-3.85	-3.83	-3.83	-3.96	-4.05	-4.09	-4.13	-4.12	-4.06	-4.09	-4.11
Peak EIRP (dBm)	2.62	2.60	2.60	2.44	2.29	2.26	2.23	2.26	2.31	2.26	2.19
Directivity (dBi)	6.47	6.44	6.42	6.40	6.35	6.35	6.36	6.38	6.37	6.35	6.30
Efficiency (dB)	-3.85	-3.83	-3.83	-3.96	-4.05	-4.09	-4.13	-4.12	-4.06	-4.09	-4.11
Efficiency (%)	41.19	41.36	41.45	40.19	39.35	39.03	38.68	38.72	39.29	39.03	38.79
Gain (dBi)	2.62	2.60	2.60	2.44	2.29	2.26	2.23	2.26	2.31	2.26	2.19
NHPRP $\pm$ Pi/4 (dBm)	-5.27	-5.24	-5.21	-5.34	-5.42	-5.44	-5.47	-5.46	-5.40	-5.42	-5.44
NHPRP $\pm$ Pi/6 (dBm)	-7.20	-7.16	-7.13	-7.24	-7.32	-7.34	-7.37	-7.36	-7.31	-7.34	-7.37
NHPRP $\pm$ Pi/8 (dBm)	-8.58	-8.53	-8.48	-8.59	-8.67	-8.70	-8.73	-8.72	-8.68	-8.72	-8.76
Upper Hem. PRP (dBm)	-6.94	-6.90	-6.87	-6.99	-7.06	-7.10	-7.13	-7.14	-7.09	-7.15	-7.19
Lower Hem. PRP (dBm)	-6.78	-6.79	-6.80	-6.95	-7.06	-7.10	-7.14	-7.12	-7.04	-7.05	-7.05

Test Setup



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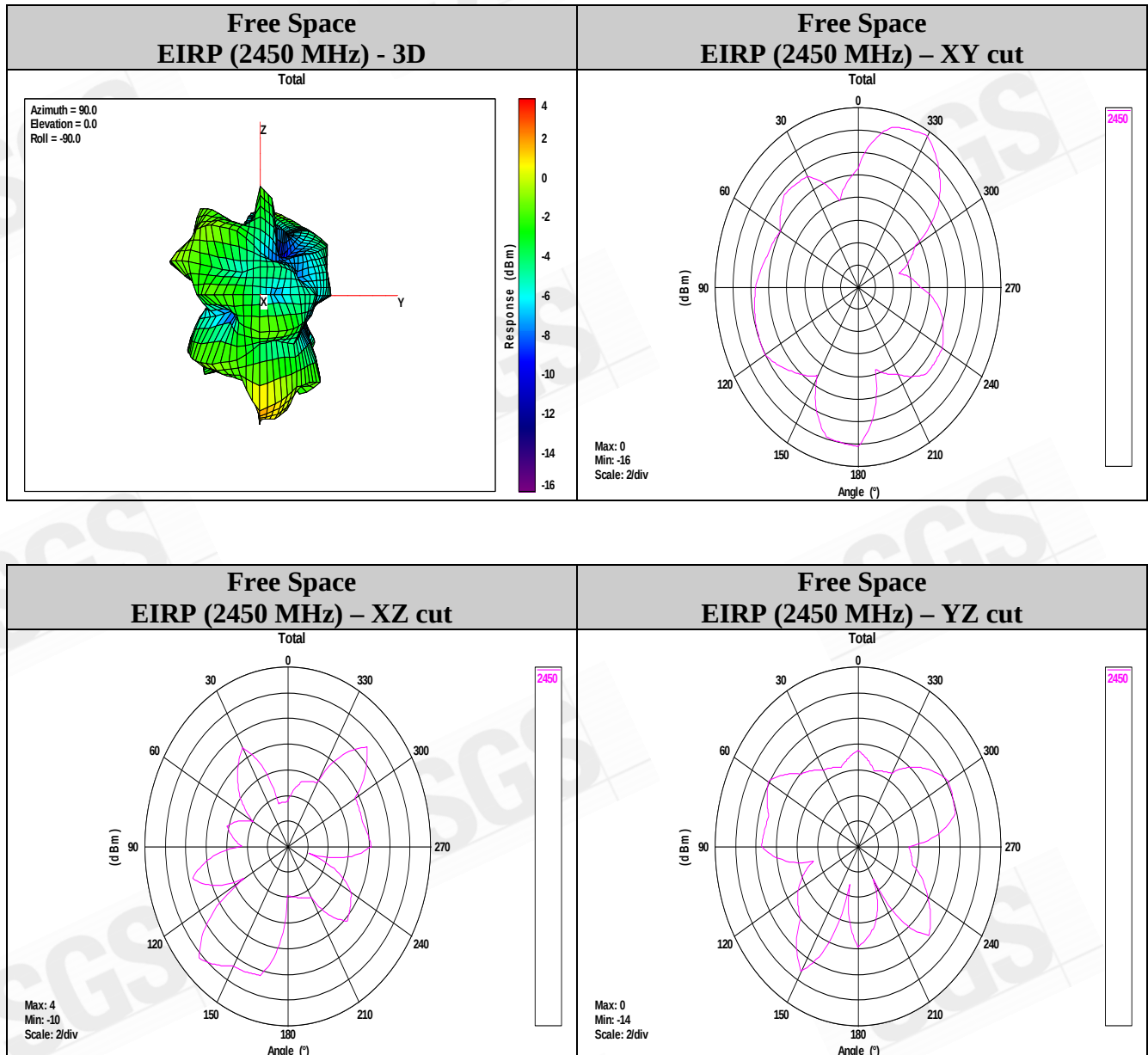
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Antenna 3D Plot Matrix

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.



End of Report

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