

## Antenna Test Report

**Report No.: EO/2010/90050**  
**CTIA Test Plan for OTA Revision 2.2.2**

**Applicant Name: ORtek Technology Inc.**  
**Manufacturer Name: ORtek Technology Inc.**

**Product Name: Wireless Smart Pad and Mini Keyboard**  
**Model Number: PKB-1800**

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

**Issued Date: November 03, 2010**

	Name	Date & Signature	Distribution
Prepared by:	Jose Ho Engineer	<i>Jose Ho</i> November 03, 2010	
Approved by:	Nick Hsu Supervisor	<i>Nick Hsu</i> November 03, 2010	

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## Measurement System Information

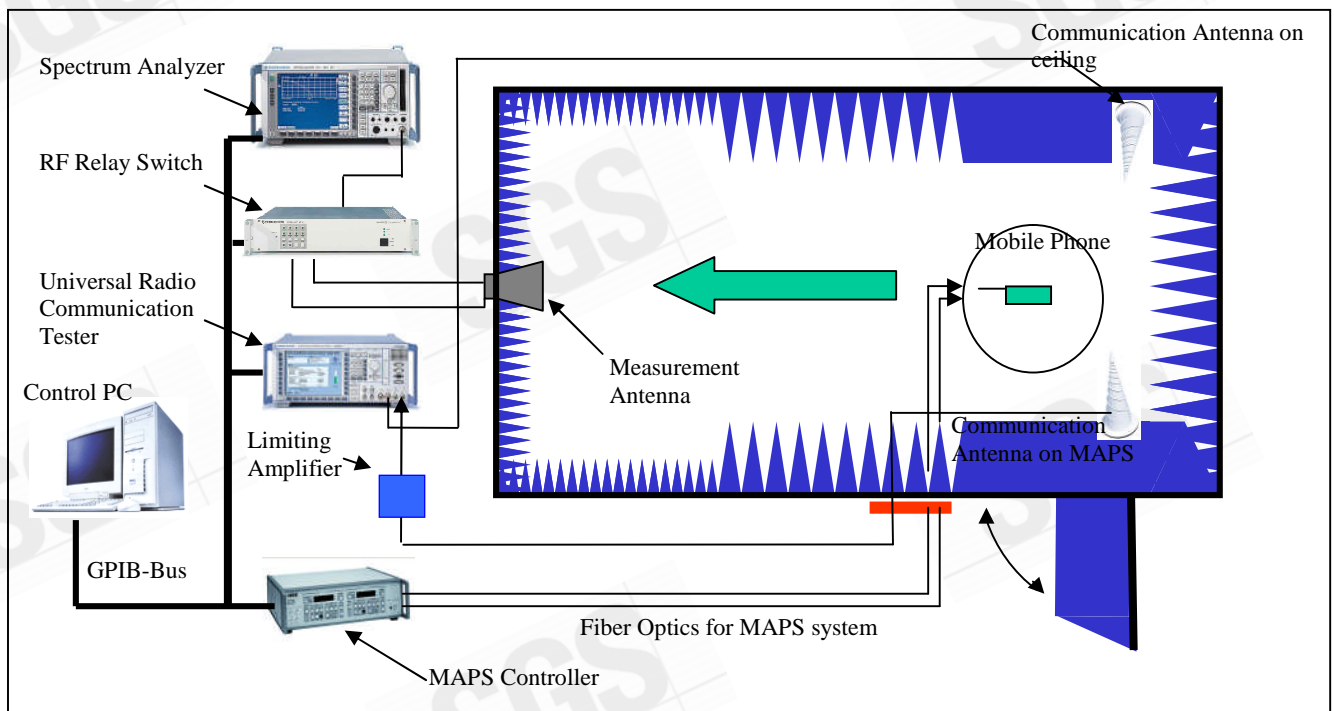
### General Information

#### Testing Condition:

- Temperature :  $25 \pm 3^\circ\text{C}$
- Humidity :  $< 60\%$

#### 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

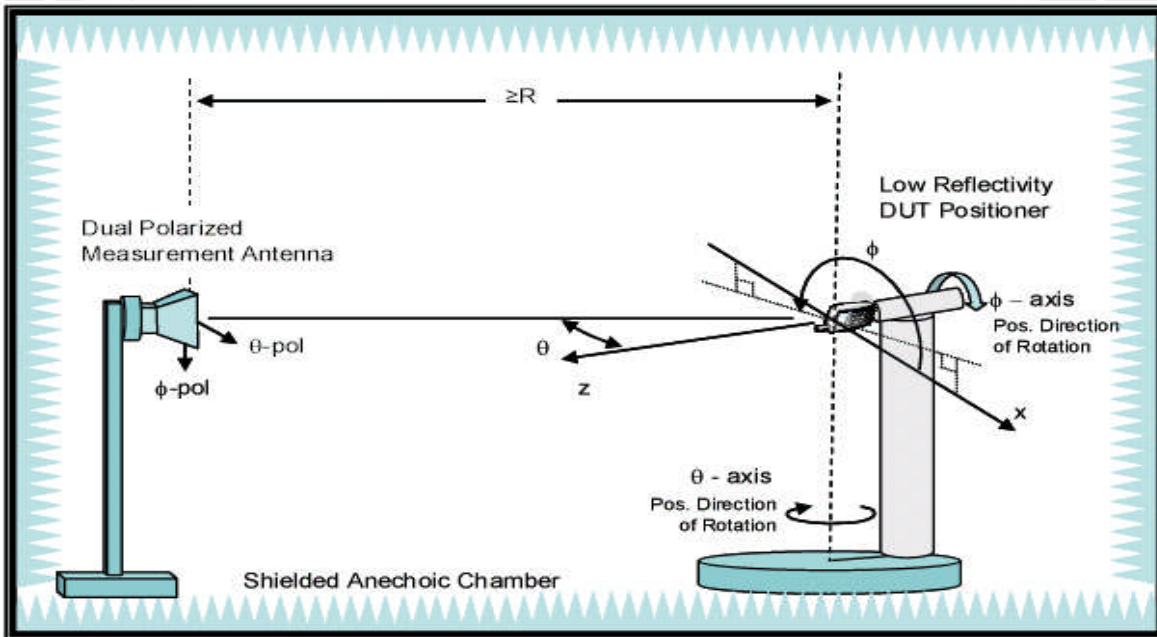


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Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™* *EMQ-100* data acquisition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

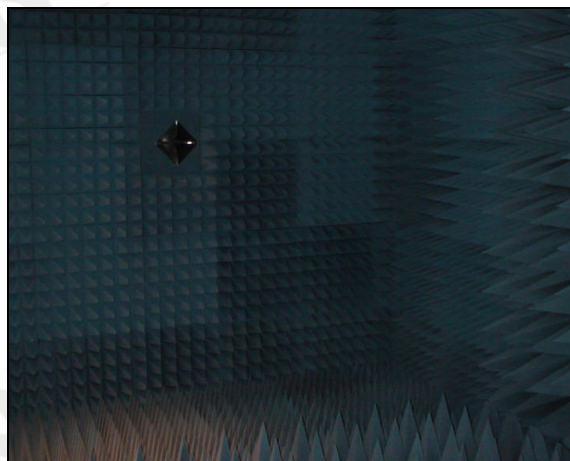
**Typical Setup for ETS-Lindgren AMS-8500:**



**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.sgs.com>

**Details of Applicant:**

<b>Applicant's name:</b>	<b>Ortek Technology Inc.</b>
<b>Applicant's address:</b>	<b>13F, Number 150, Jian Yi Rd. Chung Ho City, Taipei Hsien, Taiwan, R.O.C.</b>
<b>Contact person:</b>	<b>Andy Chow / Engineer</b>
<b>Telephone:</b>	<b>02-82265123 ext.119</b>
<b>Fax:</b>	<b>02-8226-5125</b>
<b>E-mail:</b>	<b><a href="mailto:rd8@ortek.com.tw">rd8@ortek.com.tw</a></b>

**Details of Manufacturer:**

<b>Manufacturer's name:</b>	<b>Ortek Technology Inc.</b>
<b>Manufacturer's address:</b>	<b>Factory Number 6, Hsin-His-Chiao Da Dong, Dong An Dist, Xiamen. P.R.C.</b>
<b>Contact person:</b>	<b>Andy Chow / Engineer</b>
<b>Telephone:</b>	<b>02-82265123 ext.119</b>
<b>Fax:</b>	<b>02-8226-5125</b>
<b>E-mail:</b>	<b><a href="mailto:rd8@ortek.com.tw">rd8@ortek.com.tw</a></b>

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**Details of EUT:**

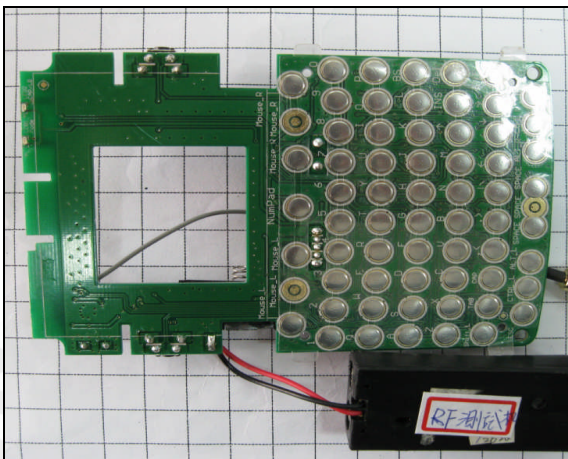
<b>Device Description:</b>	<b>Wireless Smart Pad and Mini Keyboard</b>
<b>Device Manufacturer:</b>	<b>ORtek Technology Inc.</b>
<b>Device Model:</b>	<b>PKB-1800</b>
<b>Hardware Version:</b>	<b>Keyboard:1.1 / dongle:1.0</b>
<b>Software Version:</b>	<b>Keyboard:1.0 / dongle:1.0</b>
<b>IMEI:</b>	<b>N/A</b>
<b>FCC ID:</b>	<b>GM8PKB1800</b>
<b>Frequency Range:</b>	<b>2425MHz, 2430MHz, 2435MHz, 2445MHz, 2455MHz, 2460MHz, 2465MHz, 2475MHz</b>

**Duration of Tests:**

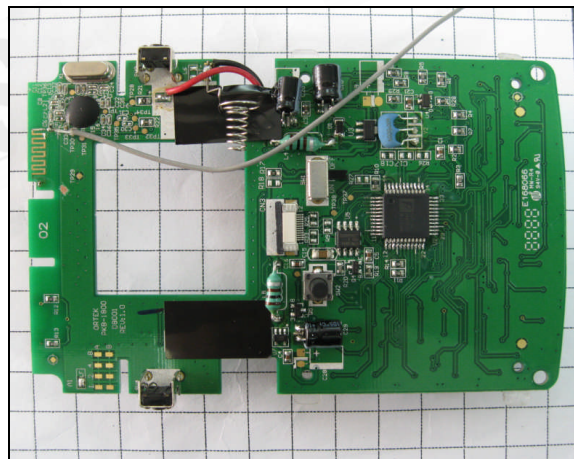
<b>Sample Receive Date:</b>	<b>2010-11-02</b>
<b>Test Starting Date:</b>	<b>2010-11-03</b>
<b>Test Ending Date:</b>	<b>2010-11-03</b>
<b>Report Issued Date:</b>	<b>2010-11-03</b>

**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	2008/12/31	2010/12/31
Spectrum analyzer	Agilent	E4405B	2010/7/6	2011/7/6
Network analyzer	Agilent	E5071C	2010/9/6	2011/9/6
Measurement software	ETS-Lindgren	EMQuest 1.07	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

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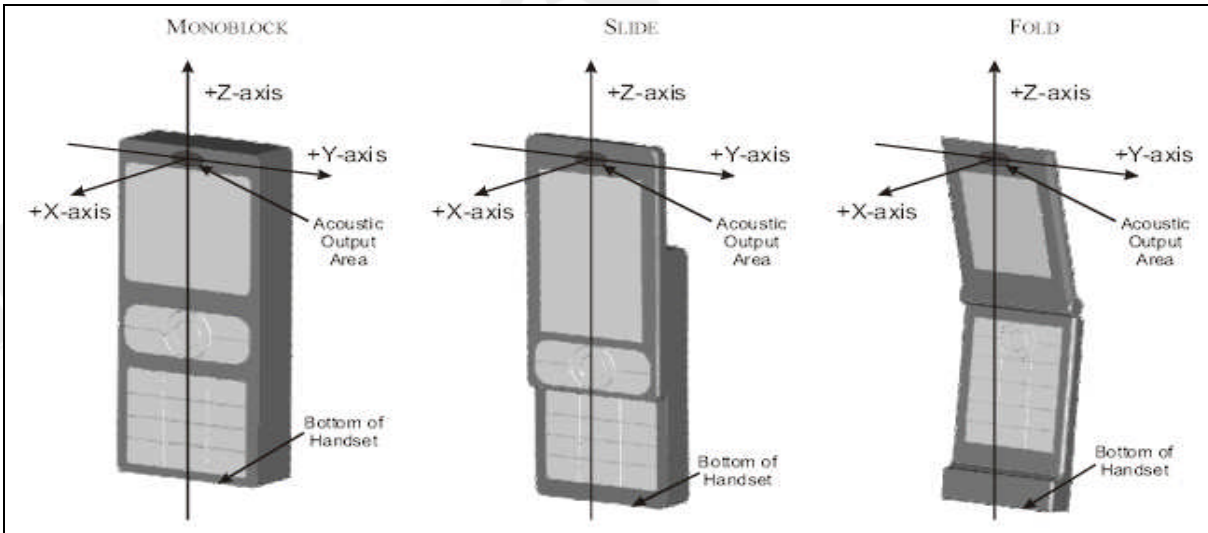
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**Antenna Gain and Efficiency**

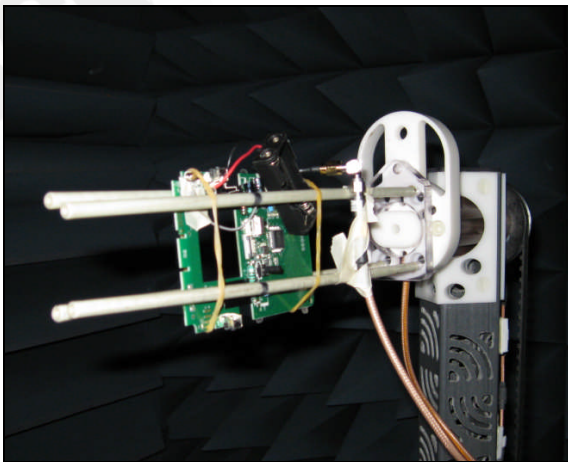
Free Space								
Frequency (MHz)	2425	2430	2435	2445	2455	2460	2465	2475
Point Values								
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	<b>-4.06</b>	<b>-4.05</b>	<b>-4.05</b>	<b>-4.12</b>	<b>-4.11</b>	<b>-4.13</b>	<b>-4.14</b>	<b>-4.11</b>
Peak EIRP (dBm)	<b>1.01</b>	<b>0.98</b>	<b>0.96</b>	<b>0.84</b>	<b>0.82</b>	<b>0.78</b>	<b>0.80</b>	<b>0.93</b>
Directivity (dBi)	5.07	5.04	5.01	4.96	4.93	4.91	4.94	5.04
Efficiency (dB)	<b>-4.06</b>	<b>-4.05</b>	<b>-4.05</b>	<b>-4.12</b>	<b>-4.11</b>	<b>-4.13</b>	<b>-4.14</b>	<b>-4.11</b>
Efficiency (%)	<b>39.28</b>	<b>39.34</b>	<b>39.39</b>	<b>38.74</b>	<b>38.80</b>	<b>38.61</b>	<b>38.59</b>	<b>38.86</b>
Gain (dBi)	1.01	0.98	0.96	0.84	0.82	0.78	0.80	0.93
IIHPRP $\pm\pi/4$ (dBm)	-5.06	-5.05	-5.04	-5.11	-5.10	-5.12	-5.13	-5.11
IIHPRP $\pm\pi/6$ (dBm)	-6.73	-6.72	-6.71	-6.79	-6.79	-6.81	-6.83	-6.81
IIHPRP $\pm\pi/8$ (dBm)	-8.27	-8.27	-8.27	-8.35	-8.36	-8.38	-8.40	-8.39
Upper Hem. PRP (dBm)	-7.24	-7.24	-7.25	-7.37	-7.42	-7.47	-7.51	-7.54
Lower Hem. PRP (dBm)	-6.91	-6.89	-6.87	-6.90	-6.85	-6.84	-6.81	-6.73

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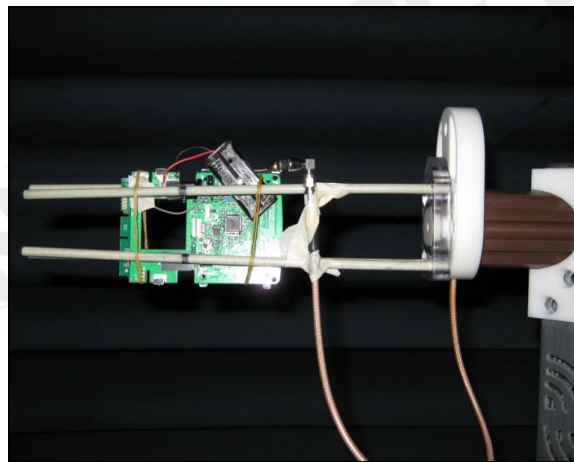
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Free Space - Front View



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).

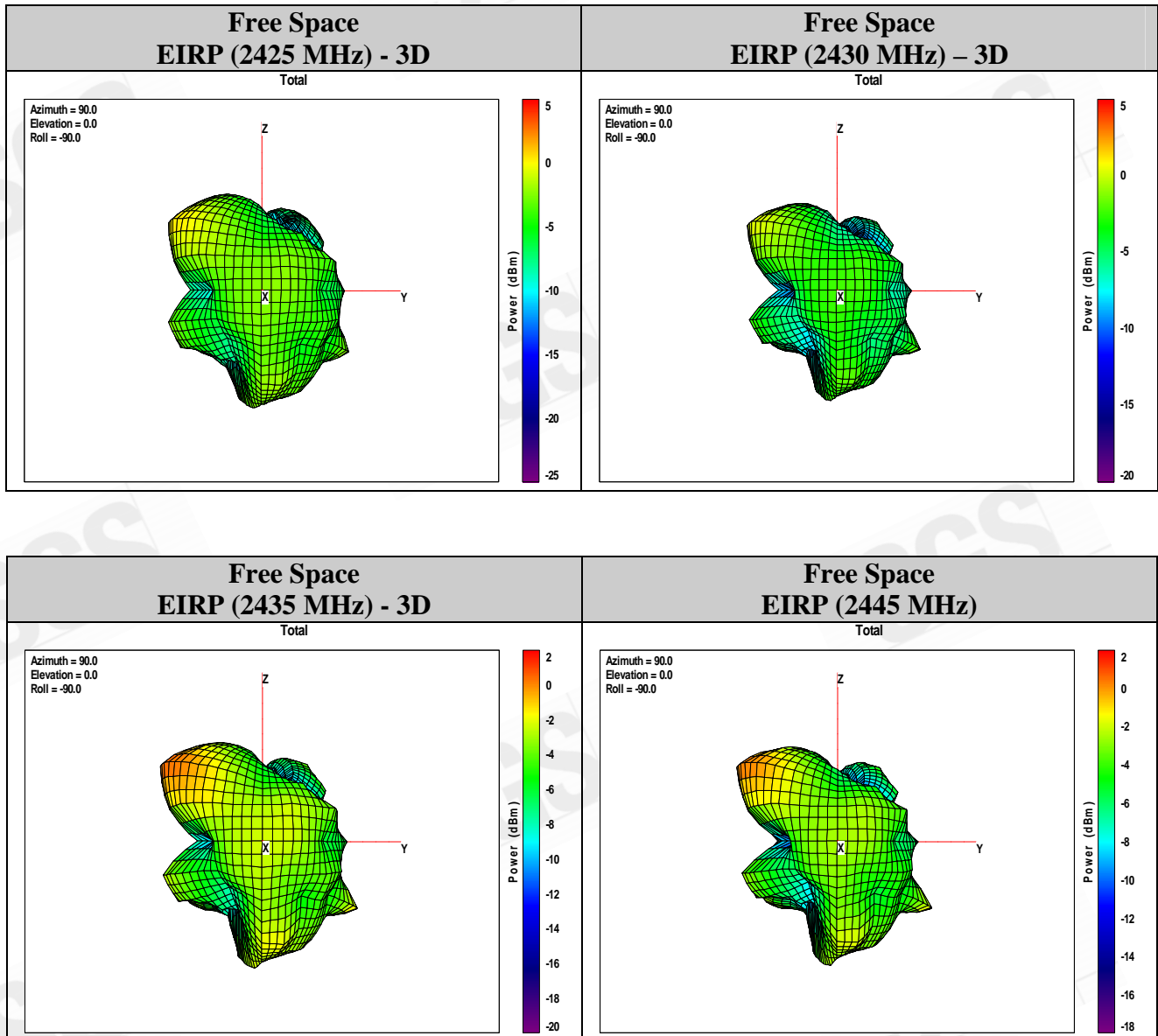
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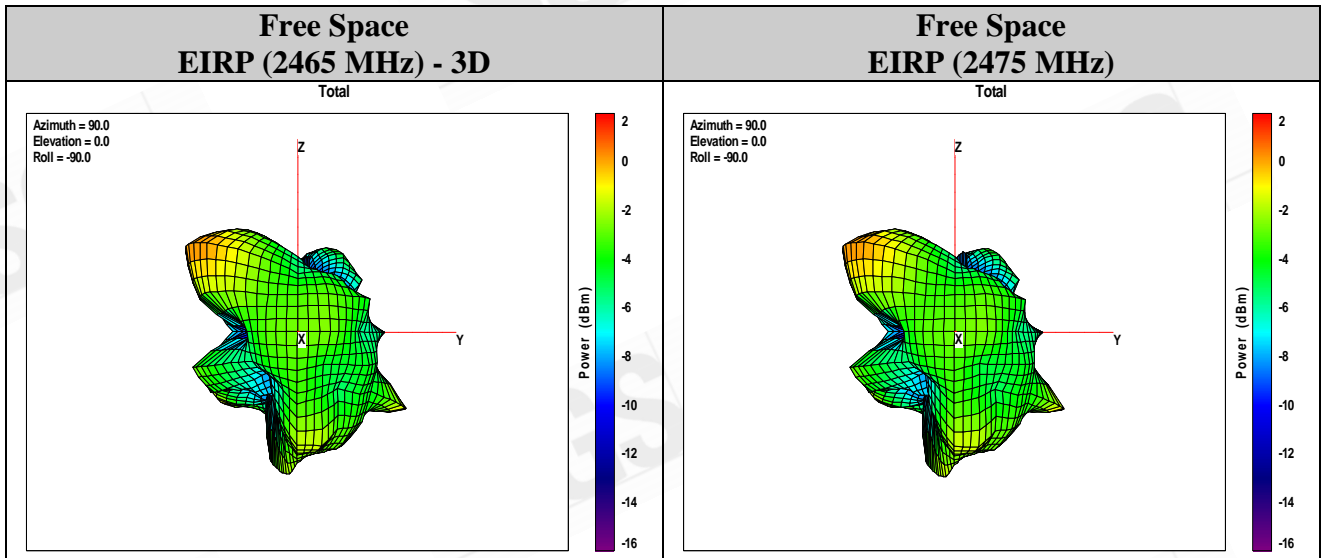
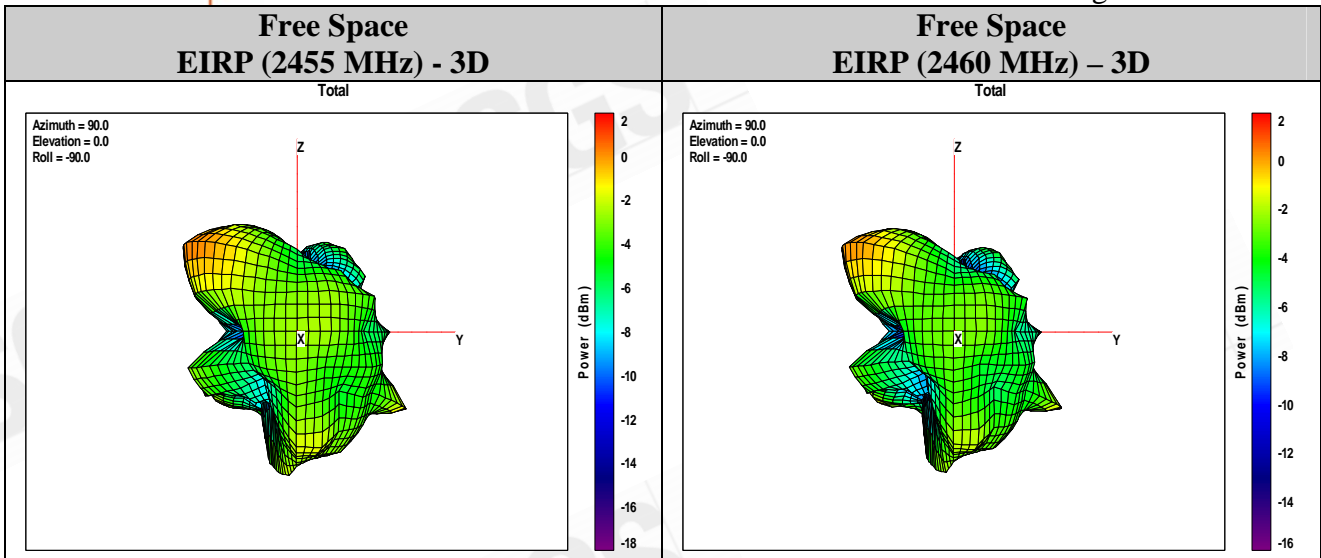
## Antenna 3D Plot Matrix

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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