

# Antenna Test Report

**Report No.: TEOT2306000420EO**

**Applicant Name: Raytac Corporation**  
**Manufacturer Name: Raytac Corporation**

**Product Name: Antenna Product**  
**Model Number: MDBT42V-P**

**Measurements performed at**  
**SGS Taiwan Ltd.**  
**WuKu District, Taiwan**

**Issued Date: June 23, 2023**

	Name	Date & Signature	Distribution
Prepared by:	Eric Cheng Asst. Supervisor	 June 23, 2023	
Approved by:	Eason Chou Supervisor	 June 23, 2023	

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**Revision Version**

Report Number	Revision	Date	Memo
TEOT2306000420EO	00	2023/06/23	Initial creation of test report

**This test report contains a reference to the previous version test report that it replaces.**

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## Measurement System Information

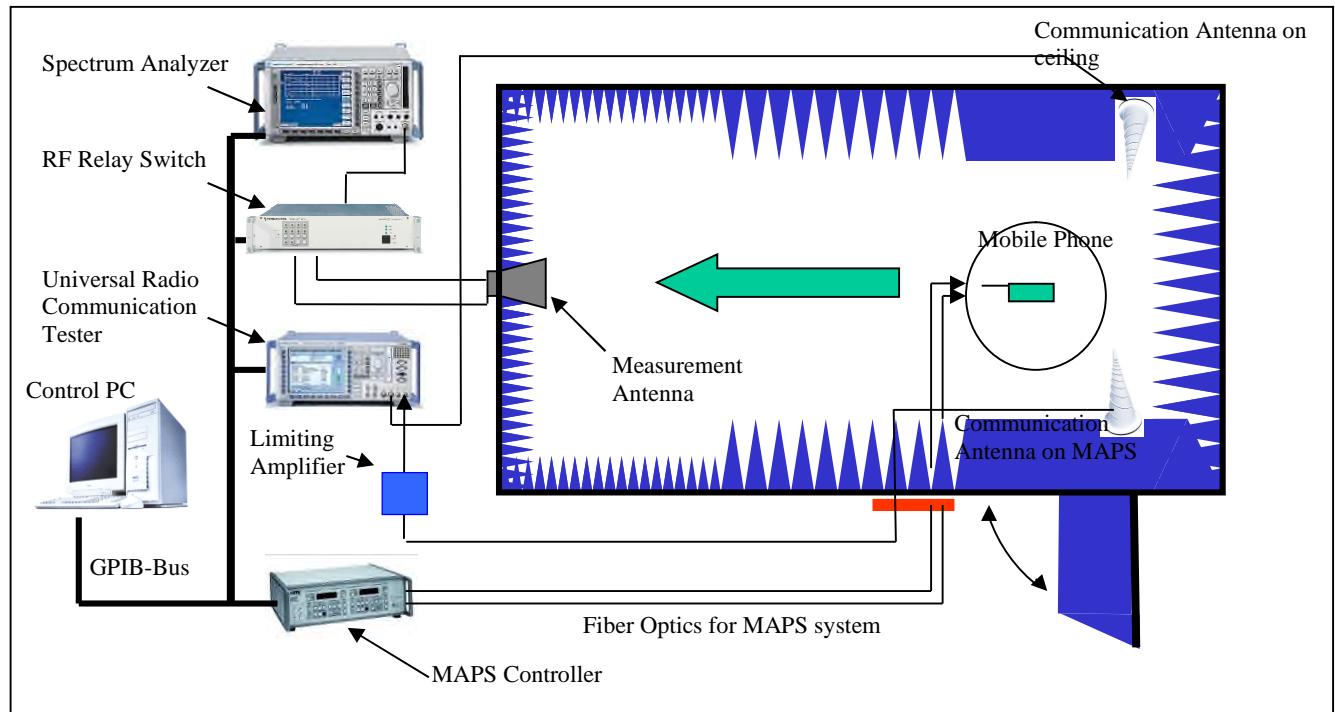
### General Information

#### 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
- ETS-Lindgren EMCO-2090 Auxiliary Ports RF Relay Switches
- Spectrum Analyzer: Agilent N9010A
- Network Analyzer: Agilent E5071C

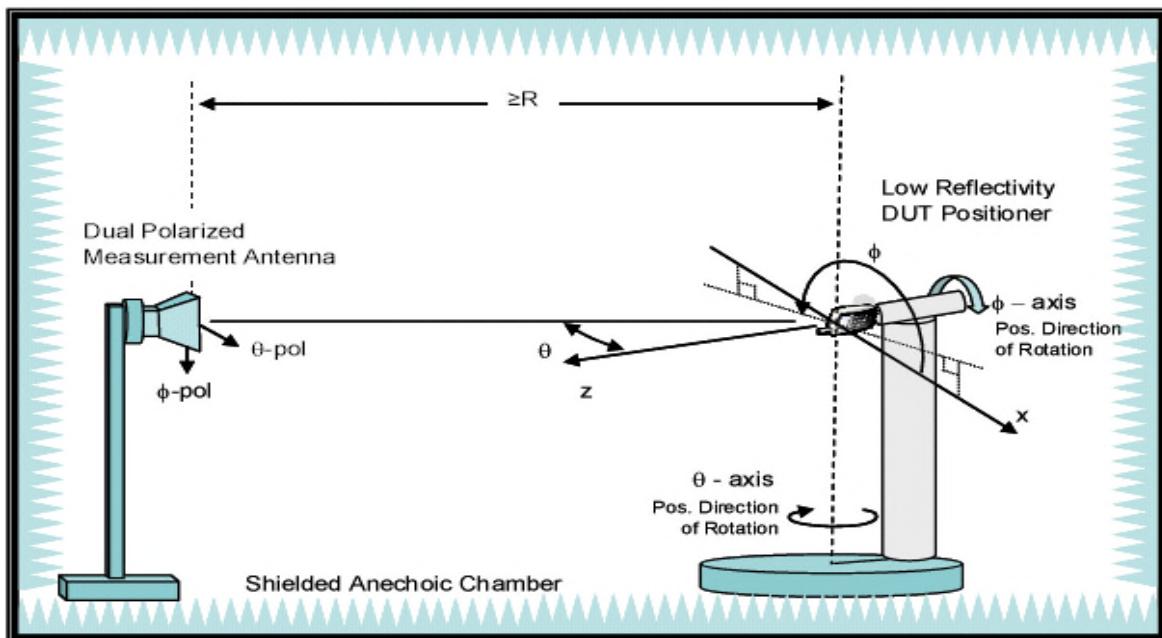


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Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™EMQ-100* data acquisition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

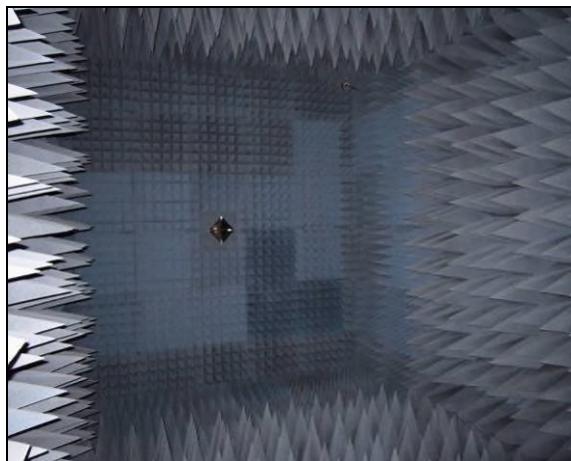
### Typical Setup for ETS-Lindgren AMS-8500:



**Instruments View**



**Inside View**



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**Testing Laboratory: Identification of the Responsible Test Laboratory.****● OTA Laboratory:****SGS Taiwan Ltd. Wireless Laboratory**

No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803.

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Fax: +886 2 2298 0488

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**● Testing Location:**

No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803.

**Details of Applicant:**

<b>Applicant's name:</b>	<b>Raytac Corporation</b>
<b>Applicant's address:</b>	<b>5F, No.3, Jiankang Rd., Zhonghe Dist., New Taipei City, 23586, Taiwan</b>
<b>Contact person:</b>	<b>Ms. Sharon Chen</b>
<b>Telephone:</b>	<b>02-3234-0208 #201</b>
<b>Fax:</b>	<b>02-3234-0547</b>
<b>E-mail:</b>	<a href="mailto:sharon@raytac.com">sharon@raytac.com</a>

**Details of Manufacturer:**

<b>Manufacturer's name:</b>	<b>Raytac Corporation</b>
<b>Manufacturer's address:</b>	<b>5F, No.3, Jiankang Rd., Zhonghe Dist., New Taipei City, 23586, Taiwan</b>
<b>Contact person:</b>	<b>Ms. Sharon Chen</b>
<b>Telephone:</b>	<b>02-3234-0208 #201</b>
<b>Fax:</b>	<b>02-3234-0547</b>
<b>E-mail:</b>	<a href="mailto:sharon@raytac.com">sharon@raytac.com</a>

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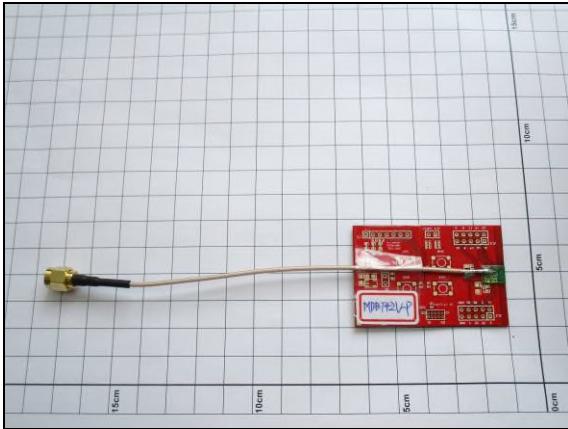
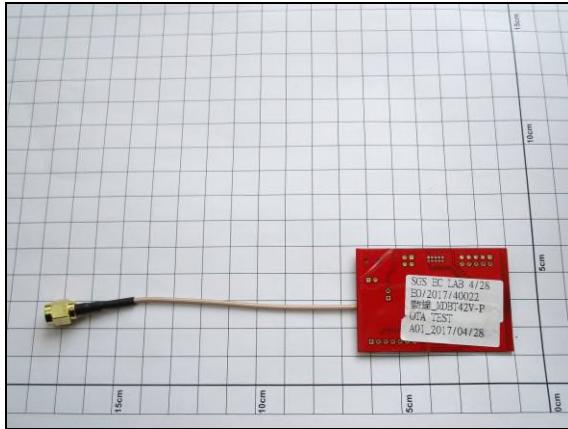
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**Details of EUT:**

<b>Device Description:</b>	Antenna Product
<b>Device Manufacturer:</b>	Raytac Corporation
<b>Device Model:</b>	MDBT42V-P
<b>Hardware Version:</b>	1
<b>Software Version:</b>	1
<b>FCC ID:</b>	N/A
<b>Frequency Range:</b>	2400MHz ~ 2500MHz Step size: 10MHz
<b>Antenna Type:</b>	Internal Antenna

**Duration of Tests:**

<b>Sample Receive Date:</b>	2017-04-28
<b>Test Starting Date:</b>	2017-05-02
<b>Test Ending Date:</b>	2017-05-03
<b>Report Issued Date:</b>	2023-06-23

**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	2016/10/20	2017/10/19
Spectrum analyzer	Agilent	N9010A	2016/12/29	2017/12/28
Network analyzer	Agilent	E5071C	2016/12/28	2017/12/27
Measurement software	ETS-Lindgren	EMQuest 1.09	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
Fully anechoic test system	ETS-Lindgren	AMS-8500	2016/10/03	2017/10/02
Horn antenna	ETS-Lindgren	3164-04	2016/10/03	2017/10/02

### Reference Measurement Procedure

The reference measurement procedure is described in SGS Working Instruction WI-TESP-EO-101 to 108 for OTA service. Measurements are made by placing the probe in contact with the sample and measuring the admittance or reflection coefficient with respect to the open-circuit end, using a network analyzer or equivalent instrumentation.

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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
<b>Tot. Rad. Pwr. (dBm)</b>	<b>-9.14</b>	<b>9.17</b>	<b>-9.28</b>	<b>-9.44</b>	<b>-9.58</b>	<b>-9.63</b>	<b>-9.67</b>	<b>-9.69</b>	<b>-9.79</b>	<b>-9.94</b>	<b>-10.43</b>
Peak EIRP (dBm)	-3.85	-3.81	-3.92	-4.00	-4.07	-4.14	-4.22	-4.32	-4.46	-4.63	-5.13
Directivity (dBi)	5.29	5.36	5.36	5.43	5.51	5.49	5.45	5.37	5.33	5.31	5.30
Efficiency (dB)	-9.14	-9.17	-9.28	-9.44	-9.58	-9.63	-9.67	-9.69	-9.79	-9.94	-10.43
<b>Efficiency (%)</b>	<b>12.18</b>	<b>12.10</b>	<b>11.81</b>	<b>11.38</b>	<b>11.01</b>	<b>10.89</b>	<b>10.79</b>	<b>10.73</b>	<b>10.49</b>	<b>10.13</b>	<b>9.05</b>
Gain (dBi)	-3.85	-3.81	-3.92	-4.00	-4.07	-4.14	-4.22	-4.32	-4.46	-4.63	-5.13
NHPRP $\pm \frac{\pi}{4}$ (dBm)	-10.07	-10.11	-10.22	-10.39	-10.54	-10.59	-10.65	-10.68	-10.78	-10.93	-11.41
NHPRP $\pm \frac{\pi}{6}$ (dBm)	-11.33	-11.37	-11.49	-11.67	-11.84	-11.91	-11.98	-12.02	-12.13	-12.28	-12.75
NHPRP $\pm \frac{\pi}{8}$ (dBm)	-12.35	-12.41	-12.55	-12.75	-12.93	-13.03	-13.12	-13.18	-13.29	-13.44	-13.91
Upper Hem. PRP (dBm)	-13.20	-13.27	-13.41	-13.63	-13.84	-13.92	-13.96	-13.97	-14.03	-14.15	-14.65
Lower Hem. PRP (dBm)	-11.31	-11.32	-11.40	-11.52	-11.63	-11.66	-11.69	-11.72	-11.85	-12.02	-12.50

## Test Setup

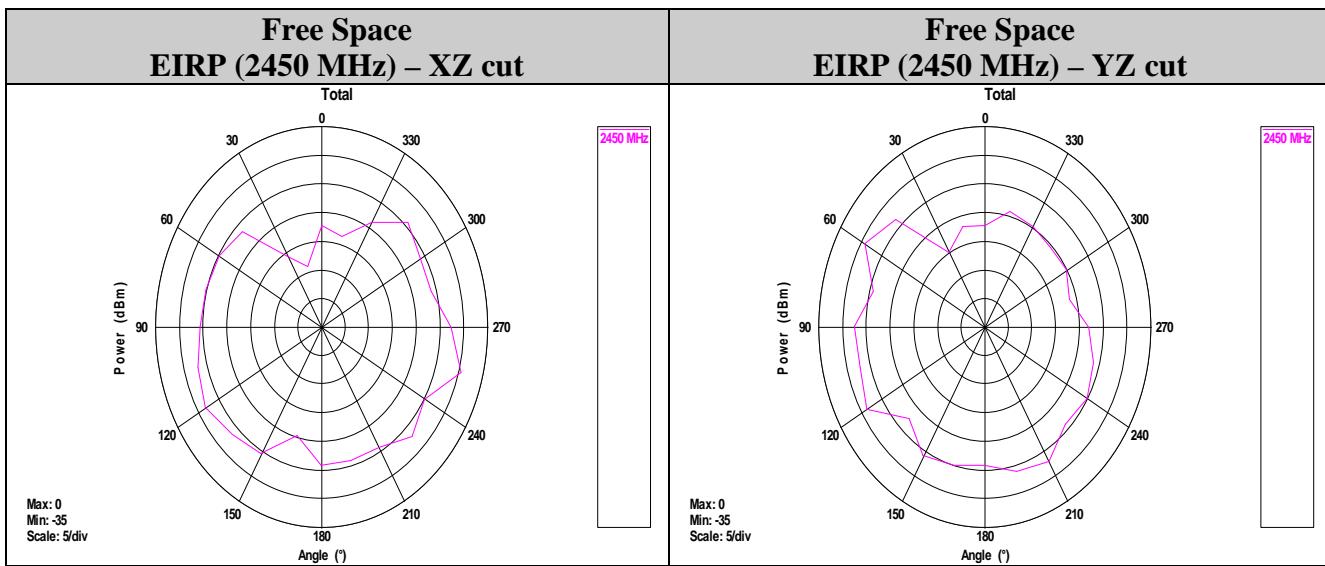
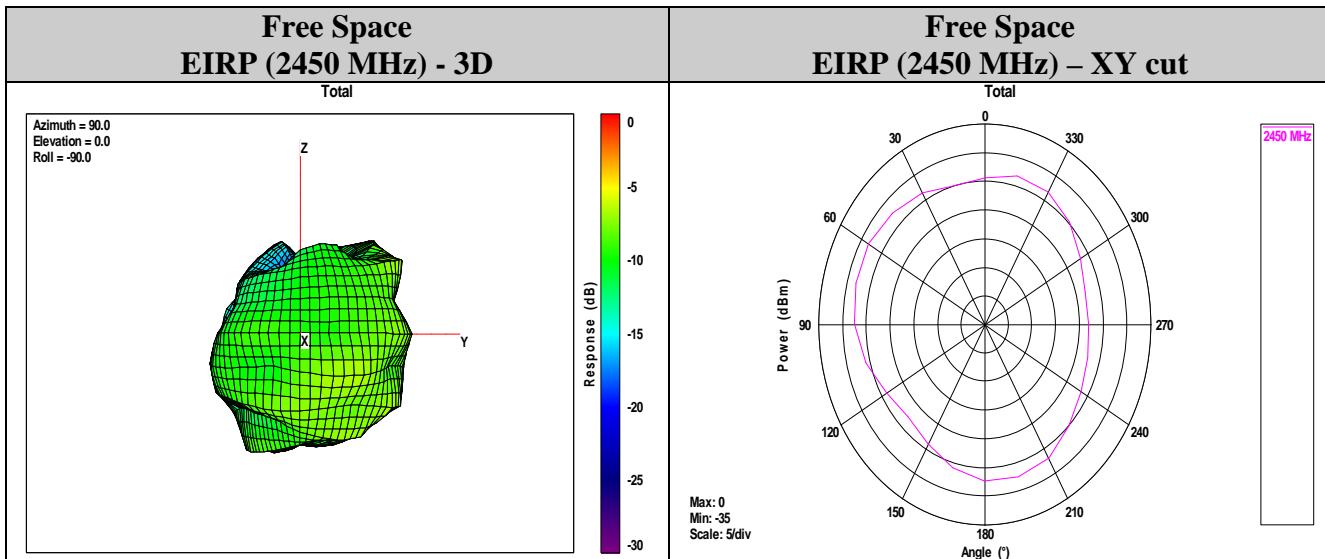


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## Antenna 3D Plot Matrix

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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