

Antenna Test Report

Report No.: EO/2015/A0026

Test Plan: Non-compliance with ISO17025

Applicant Name: Traxxas, L.P.

Manufacturer Name: JASON TOYS & ELECTRONICS CO., LTD.

Product Name:

**TQi 2.4GHz Micro Receiver with telemetry &
TSM (5-channel)**

Model Number: 6533

Measurements performed at

SGS Taiwan Ltd.

Wuku District, Taiwan

Issued Date: December 04, 2015

	Name	Date & Signature
Prepared by:	Eason Chou Asst. Supervisor	<i>Eason Chou</i> December 04, 2015
Approved by:	Nick Hsu Asst. Manager	<i>Nick Hsu</i> December 04, 2015

Distribution

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Revision Version

Report Number	Revision	Date	Memo
EO/2015/A0026	00	2015/12/04	Initial creation of test report.

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

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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

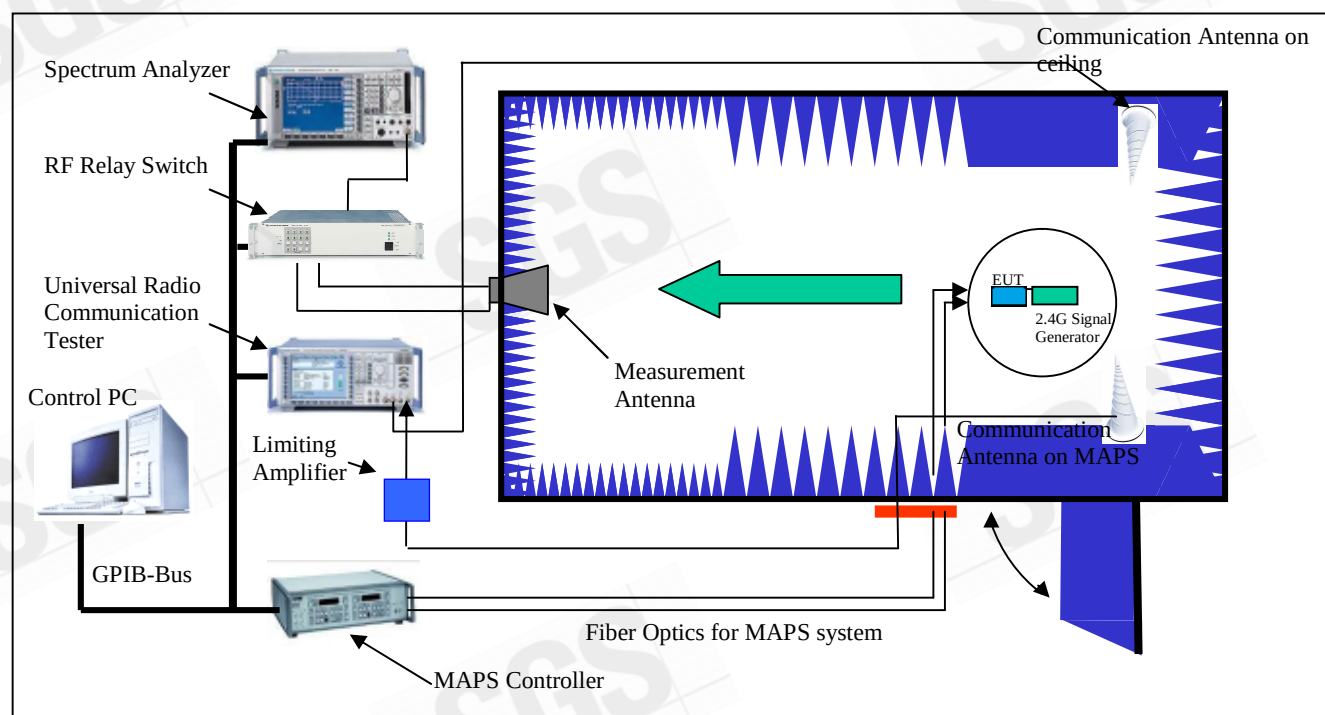
General Information

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 N9010A
- Network Analyzer: Agilent E5071C



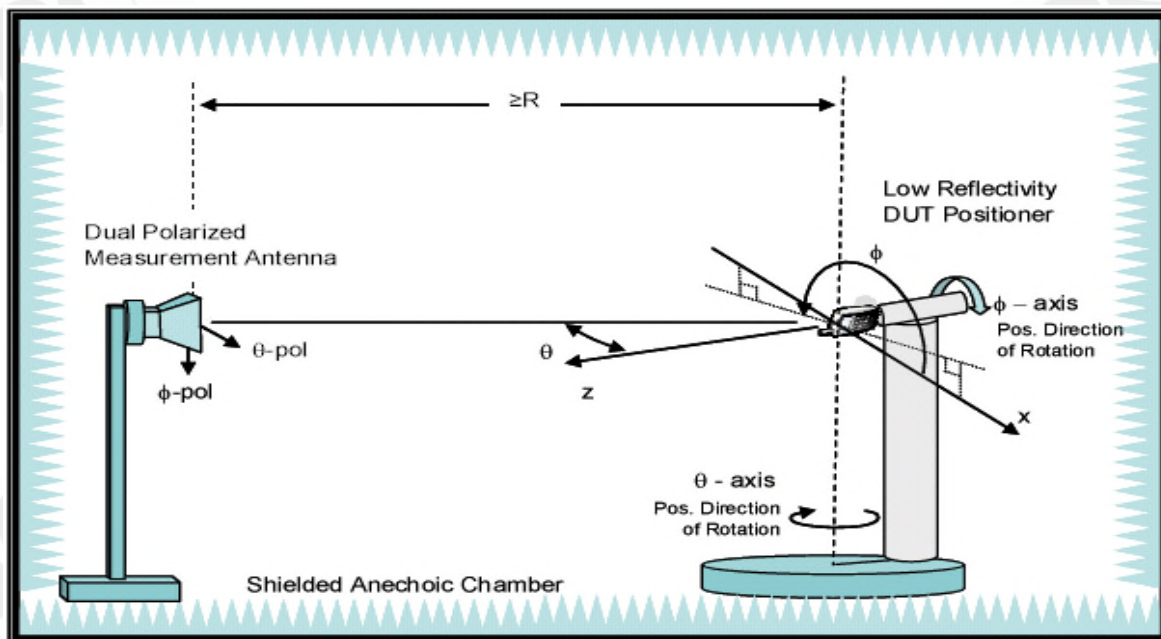
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Measurements are performed in a ETS-Lindgren **AMS-8500** 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Multi-Axis Positioning System (MAPS), and *EMQuest™* EMQ-100 data acquisition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

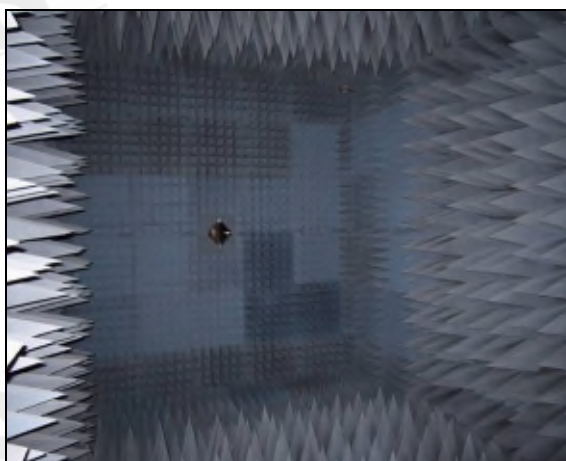
Typical Setup for ETS-Lindgren AMS-8500:



Instruments View



Inside View



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Testing Laboratory: Identification of the Responsible Test Laboratory.

- **OTA Laboratory:**
SGS Taiwan Ltd. Electronics & Communication Laboratory
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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:	Traxxas, L.P.
Applicant's address:	6250 Traxxas Way, McKinney, TX 75070, USA
Contact person:	Scott Schmitz / Sr. Manager Electrical Engineering
Telephone:	972-372-2022
Fax:	N/A
E-mail:	sschmitz@traxxas.com

Details of Manufacturer:

Manufacturer's name:	JASON TOYS & ELECTRONICS CO., LTD.
Manufacturer's address:	NO.133, Wugong Road, Wugu District, New Taipei City 24886, Taiwan
Contact person:	Chih-Wei Yeh
Telephone:	(02)8990-2176 ext.75
Fax:	(02)2298-8488
E-mail:	cwei.yeh@jason-tec.com

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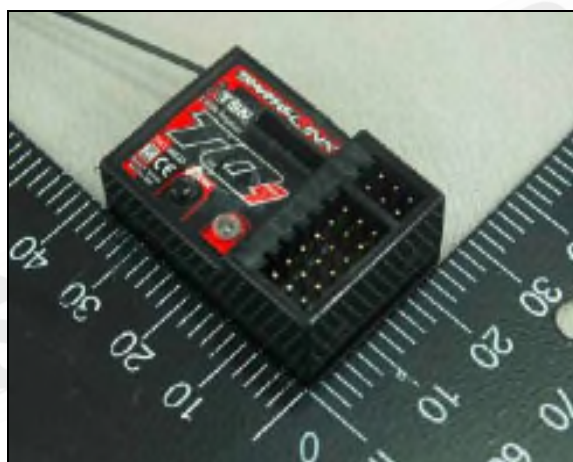
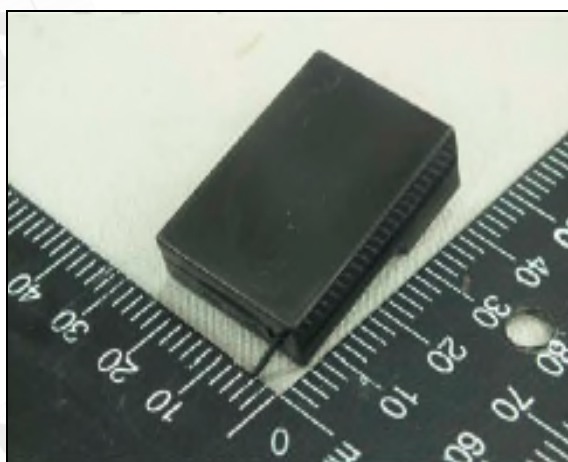
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Details of EUT:

Device Description:	TQi 2.4GHz Micro Receiver with telemetry & TSM (5-channel)
Device Manufacturer:	Traxxas, L.P.
Device Model:	6533
Hardware Version:	N/A
Software Version:	N/A
IMEI:	N/A
FCC ID:	XVE-TRX1019
Frequency Range:	2400MHz ~ 2500MHz Step size: 10MHz
Antenna Type:	Internal antenna

Duration of Tests:

Sample Receive Date:	2015-10-30
Test Starting Date:	2015-11-03
Test Ending Date:	2015-11-04
Report Issued Date:	2015-12-04

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	2015/4/1	2016/3/31
Spectrum analyzer	Agilent	N9010A	2013/11/29	2015/11/28
Network analyzer	Agilent	E5071C	2015/11/05	2016/11/04
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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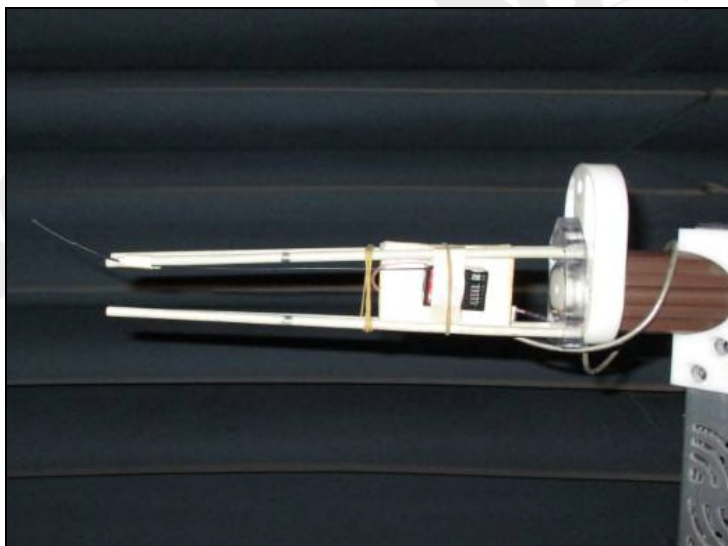
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Antenna Gain and Efficiency

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)	-4.41	-4.38	-4.38	-4.58	-4.71	-4.81	-4.91	-5.00	-5.03	-5.12	-5.22
Peak EIRP (dBm)	0.80	0.75	1.00	0.99	0.92	0.77	0.57	0.35	0.15	-0.03	-0.19
Directivity (dBi)	5.21	5.12	5.38	5.58	5.62	5.58	5.48	5.35	5.18	5.09	5.04
Efficiency (dB)	-4.41	-4.38	-4.38	-4.58	-4.71	-4.81	-4.91	-5.00	-5.03	-5.12	-5.22
Efficiency (%)	36.18	36.51	36.50	34.82	33.83	33.06	32.30	31.60	31.40	30.77	30.05
Gain (dBi)	0.80	0.75	1.00	0.99	0.92	0.77	0.57	0.35	0.15	-0.03	-0.19
NHPRP $\pm\pi/4$ (dBm)	-5.69	-5.67	-5.70	-5.93	-6.08	-6.20	-6.32	-6.43	-6.46	-6.54	-6.63
NHPRP $\pm\pi/6$ (dBm)	-7.05	-7.05	-7.09	-7.34	-7.53	-7.68	-7.83	-7.96	-7.99	-8.07	-8.15
NHPRP $\pm\pi/8$ (dBm)	-8.10	-8.09	-8.13	-8.39	-8.57	-8.73	-8.88	-9.00	-9.02	-9.08	-9.14
Upper Hem. PRP (dBm)	-8.16	-8.12	-8.11	-8.29	-8.36	-8.40	-8.42	-8.42	-8.37	-8.37	-8.40
Lower Hem. PRP (dBm)	-6.80	-6.76	-6.77	-6.99	-7.15	-7.30	-7.47	-7.64	-7.74	-7.90	-8.07

Test Setup



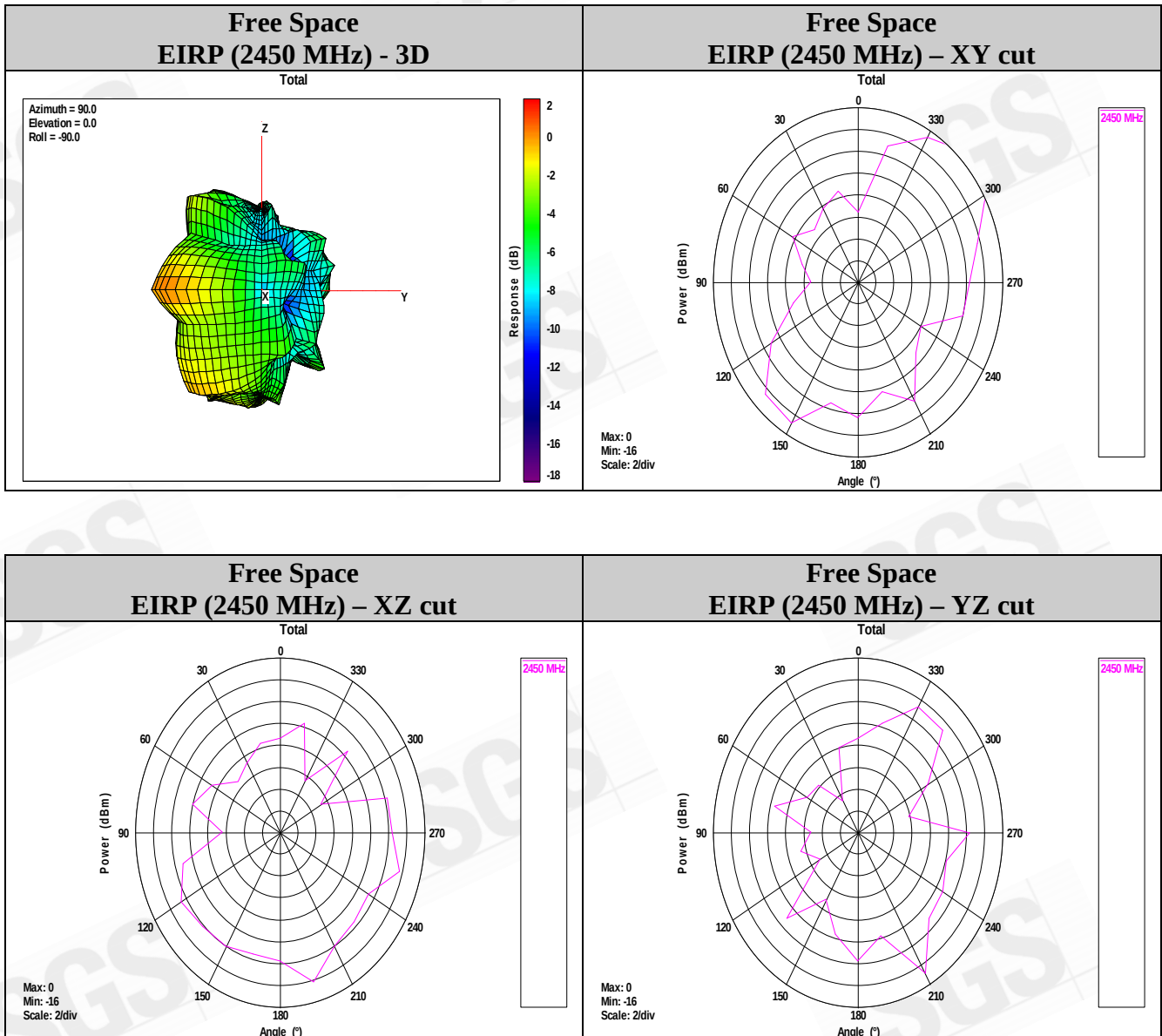
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Antenna 3D Plot Matrix

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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