



EUROFINS ELECTRICAL TESTING SERVICE (SHENZHEN) CO., LTD.

RADIO TEST - REPORT

FCC&IC Compliance Test Report for

Product name: RC MONSTER TRUCK

**Model name: 690,691,692,693,694,695,696,607,698,699,692-1,
698-1,550,551,555**

FCC ID: 2A664XIAODITOYS

Test Report Number: EFGX22050197-IE-01-E01

The above sample(s) and sample information was/were submitted and identified on behalf of the applicant. Eurofins assures objectivity and impartiality of the test, and fulfills the obligation of confidentiality for applicant's commercial information and technical documents.



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1 General Information

1.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter "Description of test item" and are not transferable to any other test items.

Eurofins Electrical Testing Service (Shenzhen) Co., Ltd. is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.

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operator

2022-07-11

Bruce Zheng / Project Engineer

A handwritten signature in black ink that appears to read "Bruce Zheng".

Date

Eurofins-Lab.

Name / Title

Signature

Technical responsibility for area of testing:

2022-07-11

Tom Tian / Supervisor

Date

Eurofins-Lab.

Name / Title

Signature



1.2 Testing laboratory

Eurofins Electrical Testing Service (Shenzhen) Co., Ltd.

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The Laboratory has passed the Accreditation by the American Association for Laboratory Accreditation (A2LA). The Accreditation number is 5376.01

The Laboratory has been listed by industry Canada to perform electromagnetic emission measurements, The CAB identifier is CN0088

1.3 Details of applicant

Name	:	Shantou Xiaodi Intelligent Technology Co., Ltd
Address	:	WEST INDUSTRIAL ZONE, OLD NATIONAL ROAD, LIAN-XIA TOWN, CHENGHAI DISTRICT, SHANTOU
Telephone	:	./.
Fax	:	./.

1.4 Details of manufacturer

Name	:	Shantou Xiaodi Intelligent Technology Co., Ltd
Address	:	WEST INDUSTRIAL ZONE, OLD NATIONAL ROAD, LIAN-XIA TOWN, CHENGHAI DISTRICT, SHANTOU
Telephone	:	./.
Fax	:	./.



1.5 Application details

Date of receipt of application	:	2022-05-17
Date of receipt of test item	:	2022-05-17
Date of test	:	2022-05-17 to 2022-06-20
Date of issue	:	2022-07-11

1.6 Test item

Product type	:	RC MONSTER TRUCK
Test Model	:	690
Sample ID	:	220517-23-002
Model name	:	690,691,692,693,694,695,696,607,698,699,692-1, 698-1,550,551,555
Serial number	:	./.
Hardware Version	:	./.
Software / Firmware Version	:	./.
Ratings	:	3.0Vdc supplied by 2* type "AA" Battery
Test voltage	:	DC 3V
FCC ID	:	2A664XIAODITOYS
Additional information	:	./.

RadioTechnical data

Radio Tech.	:	27.145MHz SRD
Modulation	:	ASK
Antenna type	:	Integral antenna



1.7 Test standards

Test Standards	
FCC Part 15 Subpart C	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-310	RSS-310 — Licence-Exempt Radio Apparatus
RSS-GEN	RSS-Gen — General Requirements for Compliance of Radio Apparatus

Test Method

- 1: ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
- 2: ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices.

2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

or

The deviations as specified were ascertained in the course of the tests performed.

2.2 Test environment

Ac line conducted

Enviroment Parameter	Temperature °C	Relative Humidity
101.4 kPa	23.7	51.9%

RF Conducted

Enviroment Parameter	Temperature °C	Relative Humidity
101.4 kPa	24.6	62.9%

Radiated

Enviroment Parameter	Temperature °C	Relative Humidity
101.4 kPa	24.7	53.7%

2.3 Measurement uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty in conducted measurements	1.96dB
Uncertainty for Conducted RF test	RF Power Conducted: 1.16dB Frequency test involved: 1.05×10-7 or 1%
Uncertainty for Radiated Emission 9KHz-30MHz	4.56dB
Uncertainty for Radiated Spurious Emission 30MHz-3000MHz	Horizontal: 4.46dB; Vertical: 4.54dB;
Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz	Horizontal: 4.42dB; Vertical: 4.41dB;
Uncertainty for Radiated Spurious Emission 18000MHz-40000MHz	Horizontal: 4.63dB; Vertical: 4.62dB;

2.4 Test mode

The EUT was set at continuously transmitting mode during the test.

2.5 Test equipment utilized

EQUIPMENT ID	EQUIPMENT NAME	MODEL NO.	CAL. DUE DATE
23-2-13-05	EMI Test Receiver	ESR3	2023-03-15
23-2-13-06	LISN	NNLK 8127 RC	2023-03-15
23-2-10-16	Attenuator	VTSD 9561-F	2023-03-16
23-2-10-63	Temperature & Humidity Meter	COS-03	2023-03-27
23-2-10-65	Barometer	Baro	2023-03-23
23-2-13-12	Signal Analyzer	N9010B-544	2023-03-15
23-2-13-13	BT/WLAN Tester	CMW270	2023-03-15
23-2-13-14	Signal Generator	N5183B-520	2023-03-15
23-2-13-15	Vector Signal Generator	N5182B-506	2023-03-15
23-2-10-43	Switch and Control Unit	ERIT-E-JS0806-2	2023-06-17
23-2-10-44	DC power supply	E3642A	2023-06-03
23-2-10-45	Temperature test chamber	SG-80-CC-2	2023-03-15
23-2-10-50	Temperature & Humidity Meter	COS-03	2023-03-27
23-2-10-66	Barometer	Baro	2023-03-23
23-2-13-01	EMI Test Receiver	ESR7	2023-03-15
23-2-13-02	Signal Analyzer	N9020B-544	2023-03-15
23-2-12-01	Active Loop Antenna	FMZB 1519B	2024-05-29
23-2-12-02	TRILOG Broadband Antenna	VULB9168	2024-05-29
23-2-12-03	Horn Antenna	3117	2024-05-29
23-2-12-04	Horn Antenna	BBHA 9170	2024-05-29
23-2-10-01	Preamplifier	BBV9745	2024-05-29
23-2-10-02	Preamplifier	TAP01018048	2023-03-16
23-2-10-03	Preamplifier	TAP18040048	2023-03-22
23-2-10-62	Temperature & Humidity Meter	COS-03	2023-03-27
23-2-10-64	Barometer	Baro	2023-03-23
23-2-10-14	Switch and Control Unit	ERIT-E-JS0806-SF1	N/A
23-2-13-03	EMI Test Receiver	ESR7	2023-03-16
23-2-13-04	Signal Analyzer	N9020B-526	2023-03-15
23-2-12-06	Active Loop Antenna	FMZB 1519B	2024-05-05
23-2-12-07	TRILOG Broadband Antenna	VULB9168	2024-05-05
23-2-12-08	Horn Antenna	3117	2024-05-05
23-2-10-46	Preamplifier	BBV9745	2024-05-05
23-2-10-47	Preamplifier	TAP01018048	2023-03-16
23-2-10-61	Temperature & Humidity Meter	COS-03	2023-03-27
23-2-10-52	Barometer	Baro	2023-03-23
23-2-10-15	Switch and Control Unit	ERIT-E-JS0806-SF1	N/A



2.6 Auxiliary equipment used during test

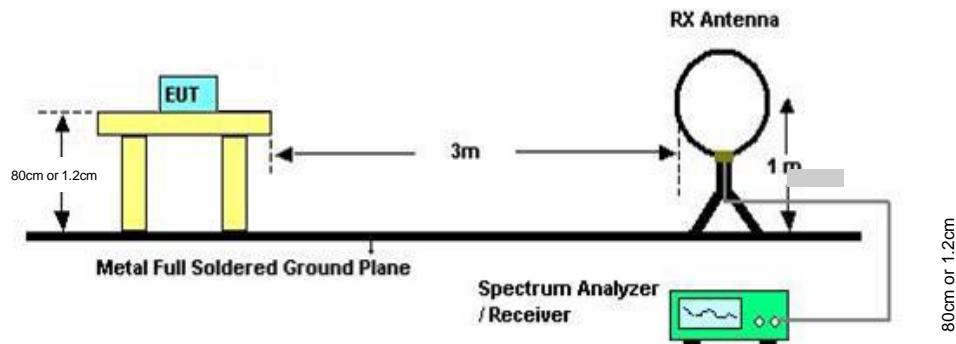
N/A

2.7 Test software information

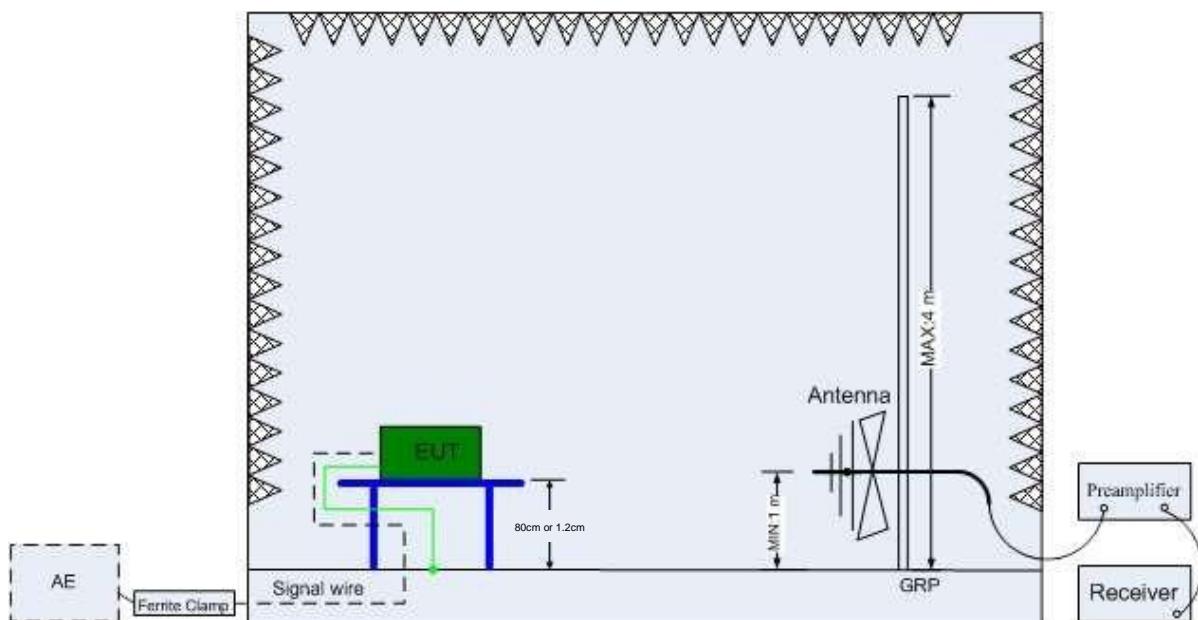
The EUT has two buttons with same duty cycle and it was setted to continue transmitting by debug software, therefore we pressed one button to transmitting 27.145MHz Fundamental frequency during Testing.

2.8 Test setup

Radiated tests below 30MHz



Radiated tests below 1GHz





2.9 Test results

1st test

test after modification

production test

Technical Requirements				
FCC Part 15 Subpart C/RSS-310 Issue 5/RSS-Gen Issue 5				
Test Condition		Test Result	Verdict	Test Site
§15.227	RSS-310	Transmitter Field Strength	Appendix J	Pass

Remark 1: N/A – Not Applicable.

Note 1: The EUT uses an Integral antenna, According to §15.203/ RSS-GEN 6.8, it is considered sufficiently to comply with the provisions of this section.

3 Technical Requirement

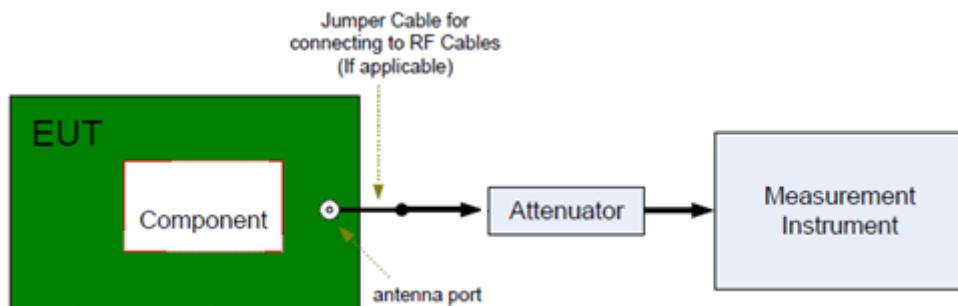
3.1 20dB bandwidth

Test Method:

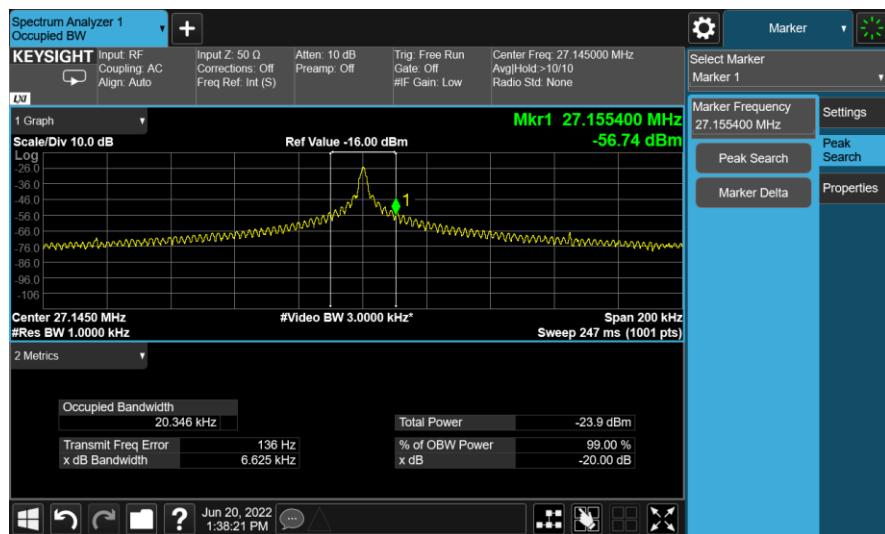
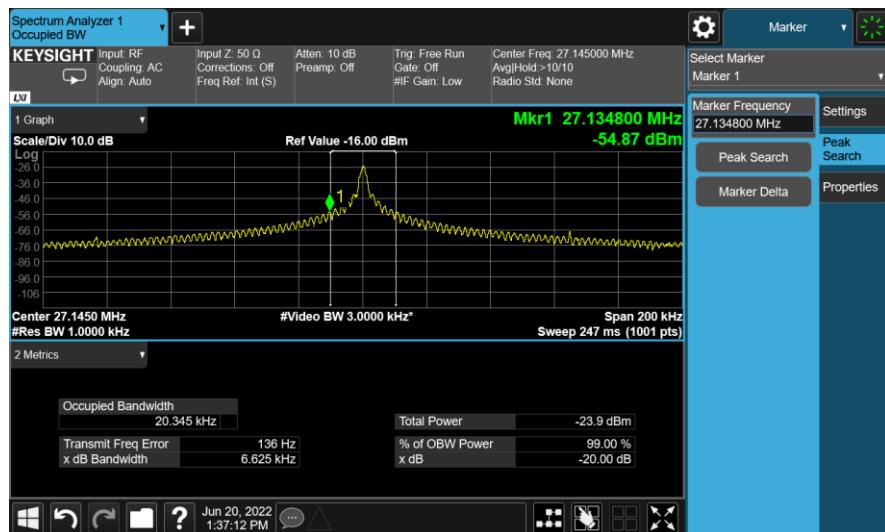
1. Connect EUT test port to spectrum analyzer.
2. Set the EUT to transmit maximum output power at 27.145MHz.
3. Then set the EUT to transmit frequency separately.
4. Set Span = approximately 1.5 to 5 times the 99% bandwidth.
5. Set RBW \geq 1% to 5% of the 99% bandwidth, VBW \geq RBW.
6. Set Sweep = auto.
7. Set Detector function = Average.
8. Allow the trace to stabilize.
9. Repeat above procedures until all frequencies measured were complete.

Test Setup:

The component's antenna port(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The press a button of the EUT is to emit the specified signals for the purpose of measurements.

**Limit:**

Pursuant to FCC part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.



20dB bandwidth lower frequency: 27.1348MHz

20dB bandwidth upper frequency: 27.1554MHz

3.2 Field strength of fundamental and Field strength of spurious emission

Test Method:

- 1: The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
- 3: The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4: For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5: Use the following spectrum analyzer settings According to C63.10:

For Above 1GHz

Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 1MHz, VBW \geq RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Below 1GHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 KHz, VBW \geq RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Below 30MHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 200 Hz, VBW \geq RBW from 9KHz to 0.15MHz, RBW 9KHz VBW \geq RBW from 0.15MHz to 30MHz for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Limit:

FCC §15.227 (a)

RSS-310 10.7

The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters.

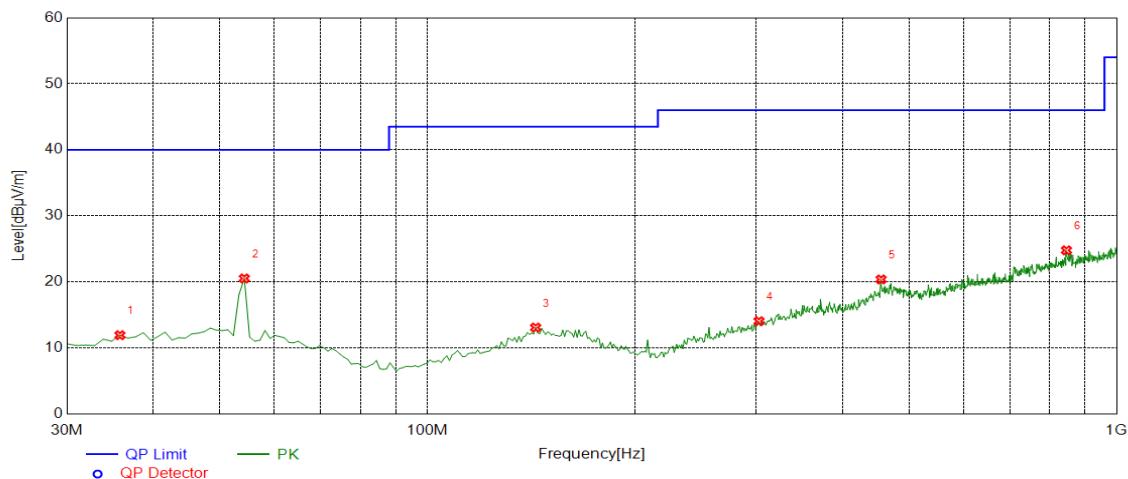
Field Strength of the Fundamental Emissions

Freq. [MHz]	Level [dB μ V/m]	Factor [dB/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
27.145	55.30	-10.86	100	44.70	100	89	PK
27.145	49.28	-10.86	80	30.72	100	89	AV

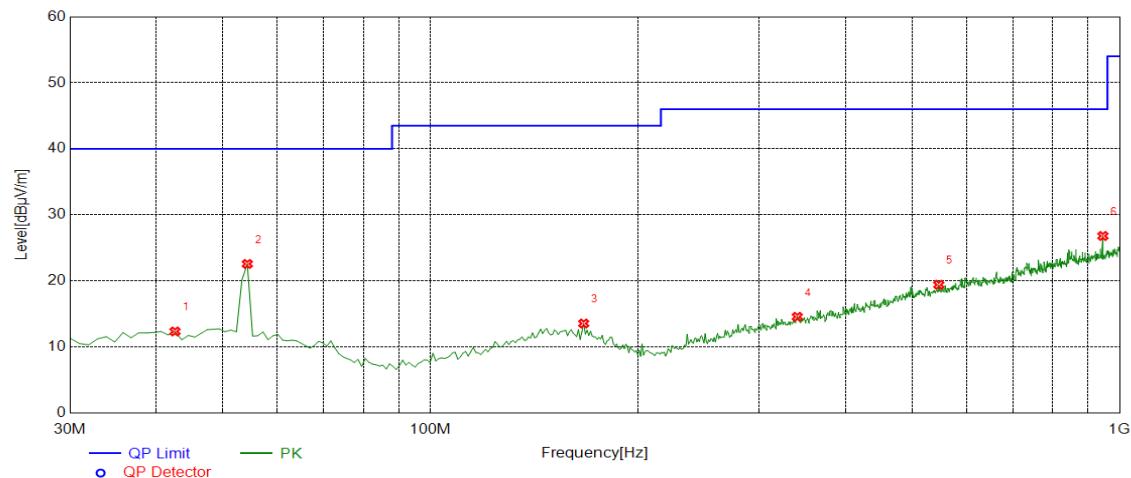
9KHz-30MHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30MHz – 1GHz



NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.8258	11.94	-16.51	40.00	28.06	100	73	Horizontal
2	54.2743	20.53	-15.80	40.00	19.47	100	356	Horizontal
3	143.603	13.10	-16.05	43.50	30.40	100	195	Horizontal
4	302.842	14.06	-15.60	46.00	31.94	100	197	Horizontal
5	455.285	20.38	-12.39	46.00	25.62	100	358	Horizontal
6	845.615	24.79	-6.10	46.00	21.21	100	327	Horizontal



NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.6226	12.35	-15.73	40.00	27.65	100	172	Vertical
2	54.2743	22.58	-15.80	40.00	17.42	100	264	Vertical
3	166.906	13.56	-16.20	43.50	29.94	100	222	Vertical
4	340.710	14.57	-14.81	46.00	31.43	100	314	Vertical
5	546.556	19.42	-10.49	46.00	26.58	100	154	Vertical
6	945.625	26.81	-5.16	46.00	19.19	100	126	Vertical



4 Test Setup Photos

Ref "EFGX22050197-IE-01-E01_Setup_Photos.pdf"

5 External Photos

Ref "EFGX22050197-IE-01-E01_External_Photos.pdf"

6 Internal Photos

Ref "EFGX22050197-IE-01-E01_Internal_Photos.pdf"

-End of report-