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

RADIO TEST - REPORT

FCC&IC Compliance Test Report for

Product name: RC MONSTER TRUCK

Model name: 8210,8211,8212,8213,8214,8215,8216,8217,8218,8219 KY95A,8812,8813,555

FCC ID: 2A664XIAODITOYS2

Test Report Number: EFGX22050197-IE-01-E02

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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Content

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.

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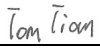
perator

2022-07-11		Bruce Zheng / Project Engineer	
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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Telephone : +86-755-82911867
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The Laboratory has passed the Accreditation by the American Association for Laboratory Accrediation (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	:	8210
Sample ID	:	220517-23-003
Model name	:	8210,8211,8212,8213,8214,8215,8216,8217,8218,8219 KY95A,8812,8813,555
Serial number	:	./.
Hardware Version	:	./.
Software / Firmware Version	:	./.
Ratings	:	3.0Vdc supplied by 2* type “AA” Battery
Test voltage	:	DC 3V
FCC ID	:	2A664XIAODITOYS2
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 ℃	Relative Humidity
101.4 kPa	23.7	51.9%

RF Conducted

Enviroment Parameter	Temperature℃	Relative Humidity
101.4 kPa	24.6	62.9%

Radiated

Enviroment Parameter	Temperature℃	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

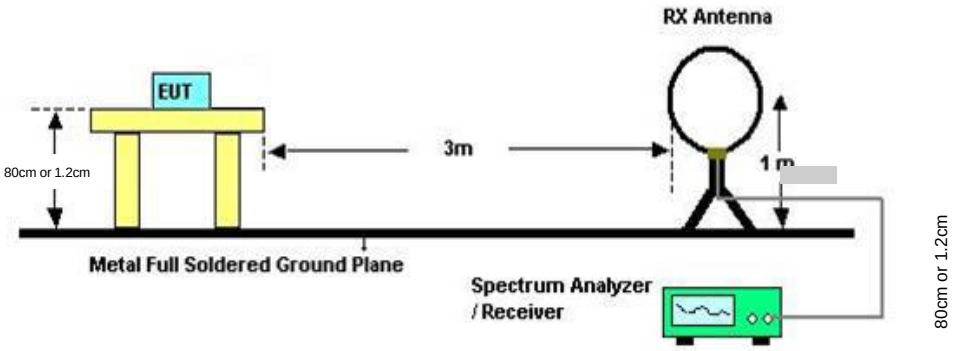
N/A

2.7 Test software information

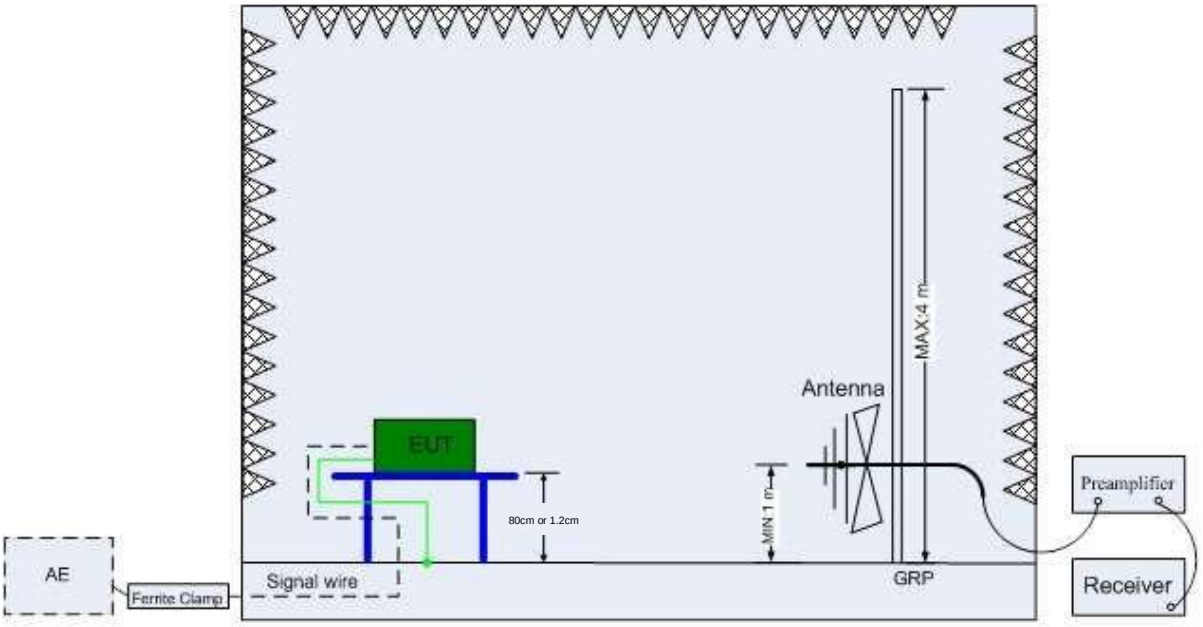
The EUT has two buttons with same duty cycle and it was setted to continue transimitting by debug software, therefore we pressed one button to transmitting 27.145MHz Fundamental frequency during Testing.

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	Ver-dict	Test Site
§15.227	RSS-310	Transmitter Field Strength	Appendix J	Pass	Site 1

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

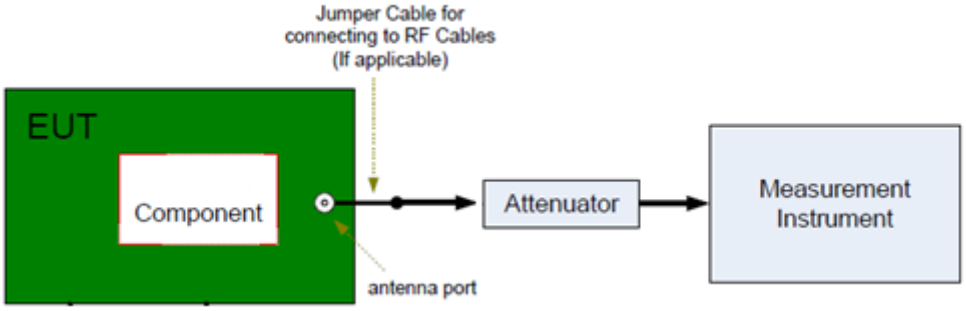
3.1 20dB bandwidth

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 ≥ 1% to 5% of the 99% bandwidth, VBW ≥ 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.

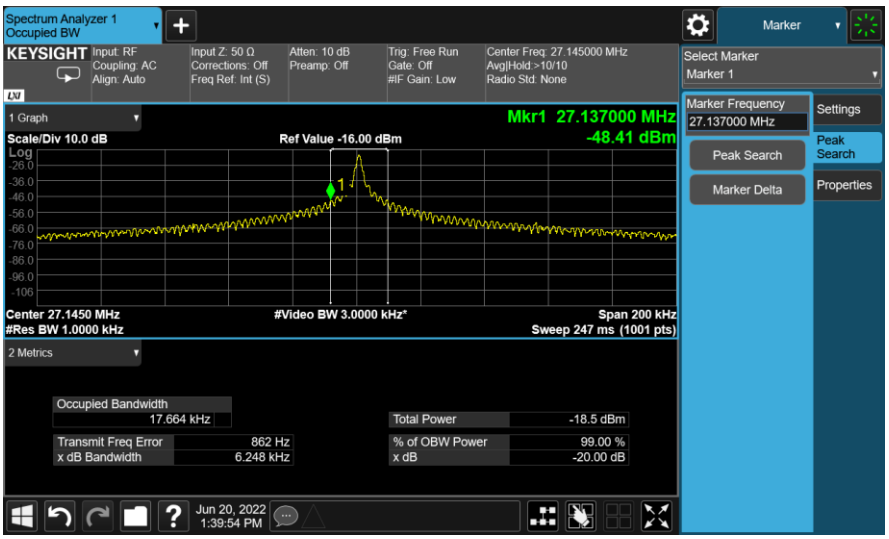
Test Setup:

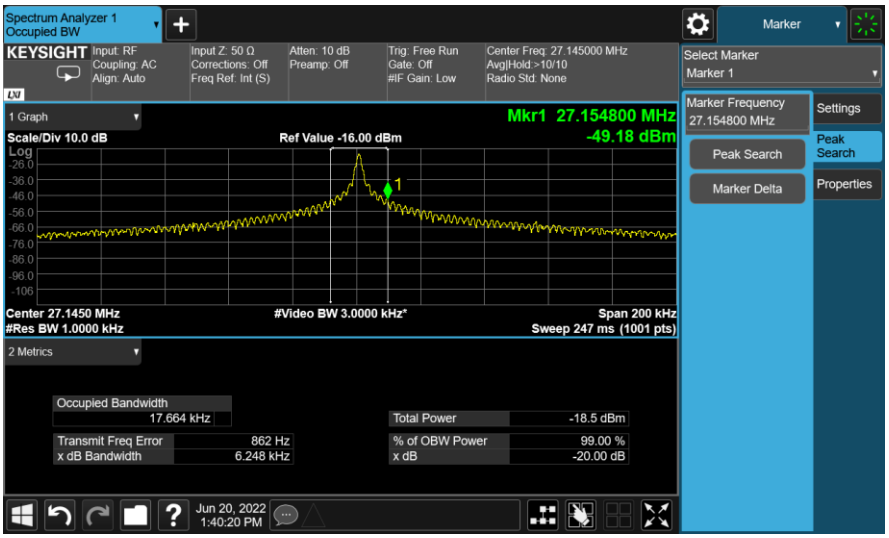
The component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The press a button of the EUT is to emit the specified signals for the purpose of measurements.



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: 27.137MHz

20dB bandwidth upper frequency: 27.1548MHz

3.2 Field strength of fundamental and Field strength of spurious emissiom

Test Method:

1: The EUT was place 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≥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≥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⩾RBW from 9KHz to 0.15MHz, RBW 9KHz VBW⩾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.

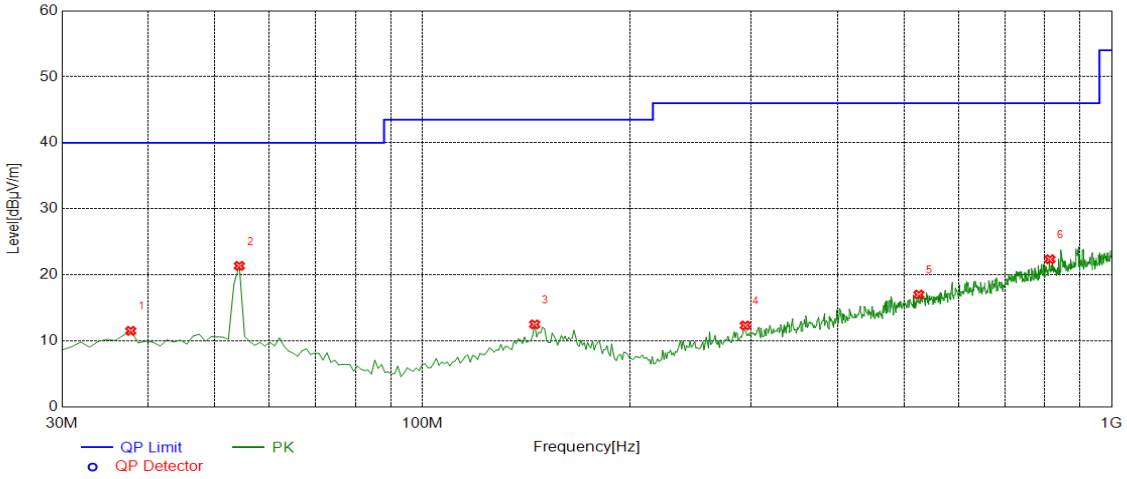
Field Strength of the Fundamental Emissions

Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
27.145	57.03	-10.86	100	42.97	100	341	PK
27.145	51.01	-10.86	80	28.99	100	341	AV

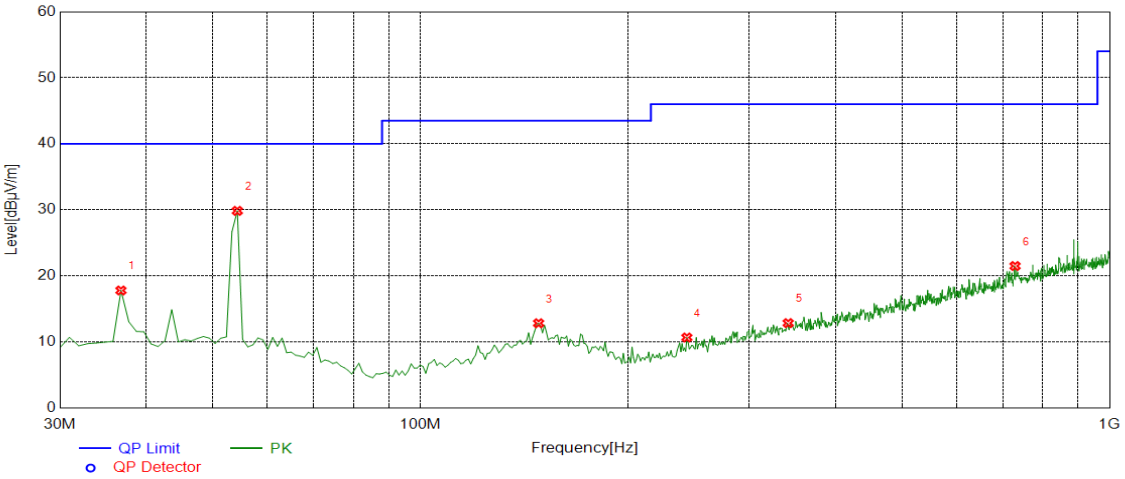
9KHz-30MHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

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 [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	37.7678	11.54	-16.10	40.00	28.46	100	33	Horizontal
2	54.2743	21.38	-15.99	40.00	18.62	100	236	Horizontal
3	145.5455	12.52	-16.08	43.50	30.98	100	335	Horizontal
4	294.1041	12.36	-15.94	46.00	33.64	100	77	Horizontal
5	525.1952	17.04	-11.32	46.00	28.96	100	44	Horizontal
6	813.5736	22.38	-6.68	46.00	23.62	100	19	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	17.80	-16.24	40.00	22.20	100	292	Vertical
2	54.2743	29.85	-15.99	40.00	10.15	100	154	Vertical
3	148.4585	12.84	-16.03	43.50	30.66	100	100	Vertical
4	243.6136	10.68	-17.52	46.00	35.32	100	110	Vertical
5	341.6817	12.86	-14.90	46.00	33.14	100	344	Vertical
6	729.0991	21.50	-7.95	46.00	24.50	100	276	Vertical

4 Test Setup Photos

Ref “EFGX22050197-IE-01-E02_Setup_Photos.pdf”

5 External Photos

Ref “EFGX22050197-IE-01-E02_External_Photos.pdf”

6 Internal Photos

Ref “EFGX22050197-IE-01-E02_Internal_Photos.pdf”

-End of report-