FCC PART 15.227

MEASUREMENT AND TEST REPORT

For

Zeeva International Limited

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FCC ID: 2ADM5-ET-0011-27

Report Type:	**Product Type:**
Original Report	RC GESTURE CONTROL ROBOT

Report Number:	RSZ200901830-00
Report Date:	2020-11-13
Reviewed By:	Nancy Wang RF Engineer
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Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	RC GESTURE CONTROL ROBOT
Tested Model	ET-0011
UPC Number	192234061770
SKU Number	3350311
Test Frequency	27.145MHz
Antenna Specification*	0dBi(provided by the applicant)
Voltage Range	DC 1.5V*3 from battery
Date of Test	2020-10-13~2020-11-13
Sample serial number	RSZ200901830-RF-S1 (Assigned by BACL, Shenzhen)
Received date	2020-09-01
Sample/EUT Status	Good condition

Objective

This report is in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commission's rules.

The objective is to determine the compliance of EUT with FCC rules, section 15.203, 15.205, 15.209, 15.215 and 15.227.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with radiated emission is 4.75 dB for 30MHz-1GHz, and 4.88 dB for above 1GHz.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 342867, the FCC Designation No. : CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical mode.

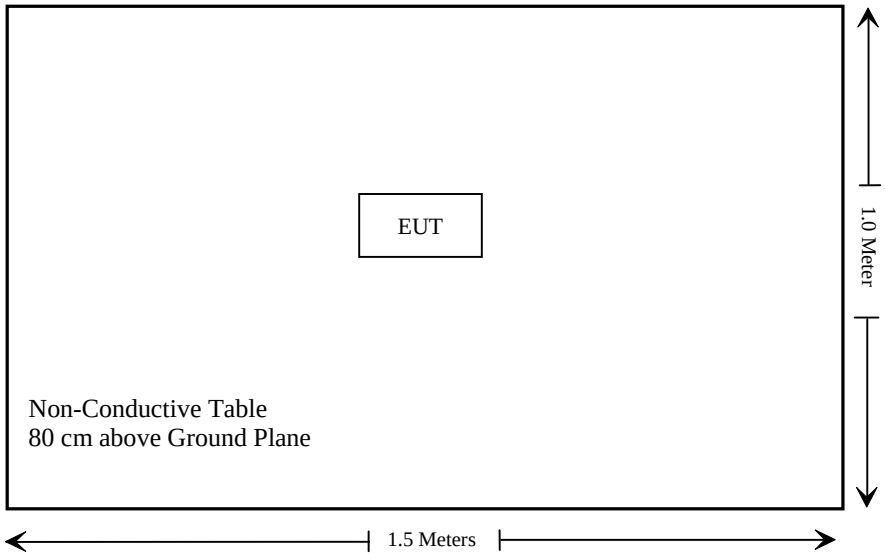
EUT Exercise Software

No exercise software was used.

Equipment Modifications

No modifications.

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna requirement	Compliance
§15.207	Conducted Emissions	Not Applicable
§15.205, §15.209, §15.227(a), §15.227(b)	Field Strength and Restricted Band Emissions	Compliance
§15.215(c)	20dB Emission Bandwidth	Compliance

Not Applicable: The EUT is powered by battery.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017/12/22	2020/12/21
ETS	Passive Loop Antenna	6512	29604	2018/07/14	2021/07/13
Unknown	Cable 2	RF Cable 2	F-03-EM197	2019/11/29	2020/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2019/11/29	2020/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Antenna Connector Construction

The EUT has an internal antenna arrangement, which was permanently attached and the antenna gain is 0 dBi; fulfill the requirement of this section. Please refer to EUT photos.

Result: Compliant.

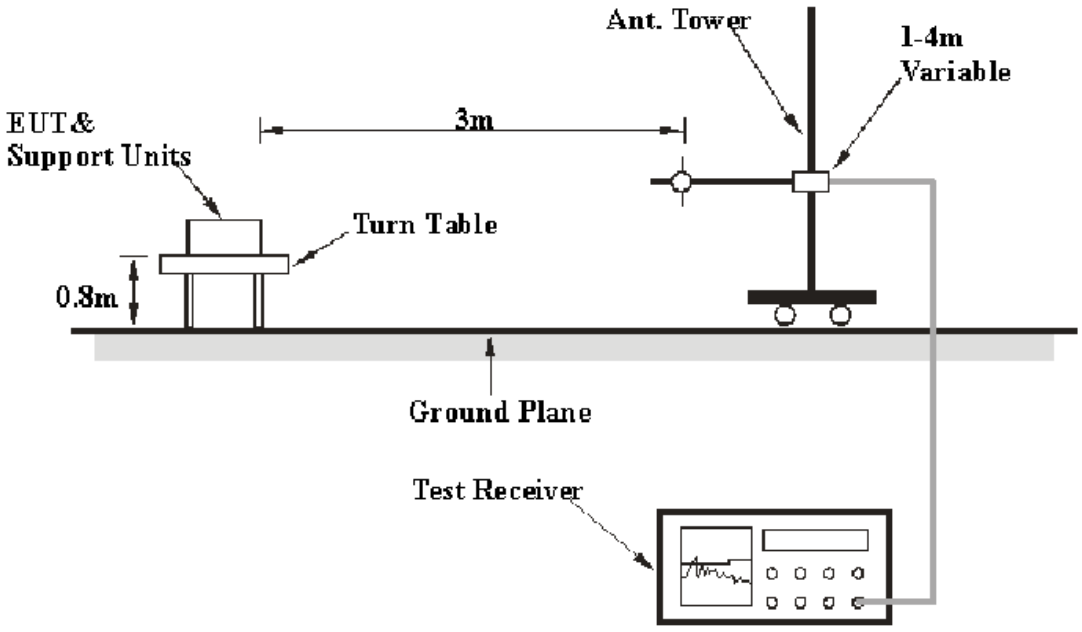
FCC§15.205, §15.209, §15.227(a), §15.227 (b) – FIELD STRENGTH AND RESTRICTED BAND EMISSIONS

Applicable Standard

According to FCC §15.227 (a), the field strength if any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters.

(b) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in §15.209.

EUT Setup



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part 15.205 and 15.209 and 15.227 limits.

EMI Test Receiver Setup

The system was investigated from 9 kHz to 1000MHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Correction Factor
Correction Factor = Antenna Loss + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Data

Environmental Conditions

Temperature:	28 ℃
Relative Humidity:	62 %
ATM Pressure:	101.0 kPa

Testing was performed by Harris He on 2020-10-13.

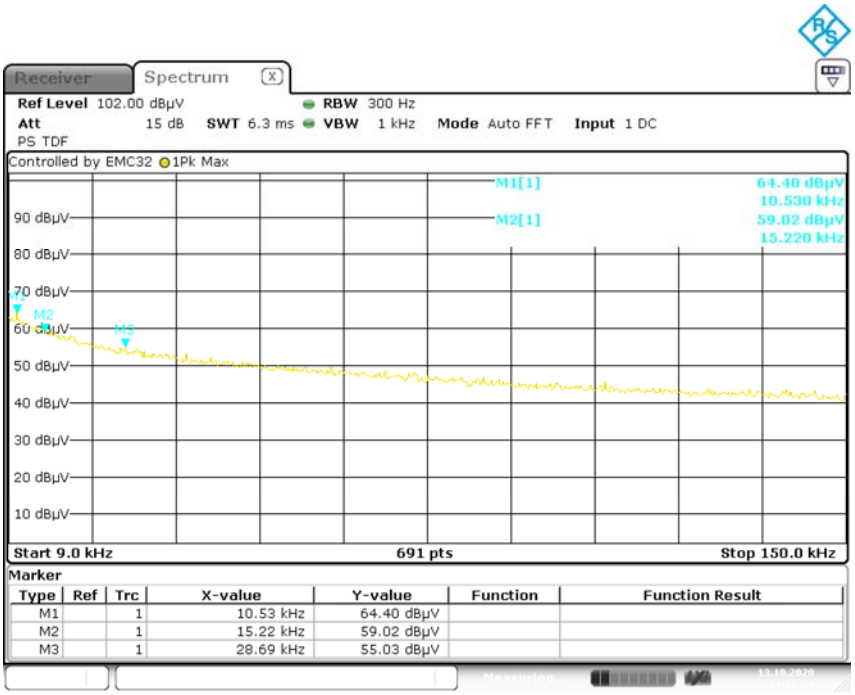
Test mode: Transmitting (*Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case was Y-AXIS which was recorded*)

Frequency (MHz)	Corrected Amplitude (dBµV/m)	PK/QP/Ave.	Turntable Degree	RX Antenna Height (m)	FCC Part 15.227&15.205&15.209 Limit (dBµV/m)	FCC Part 15.227&15.205&15.209 Margin (dB)	Remark
27.145	72.97	PK	165	1	100	27.03	Fundamental
27.145	68.72	Ave.	165	1	80	11.28	
0.01053	64.40	PK	165	1	127.16	62.76	Spurious Emission
0.01522	59.02	PK	165	1	123.95	64.93	
0.172	51.69	PK	165	1	102.89	51.20	
21.166	56.90	PK	165	1	69.54	12.64	

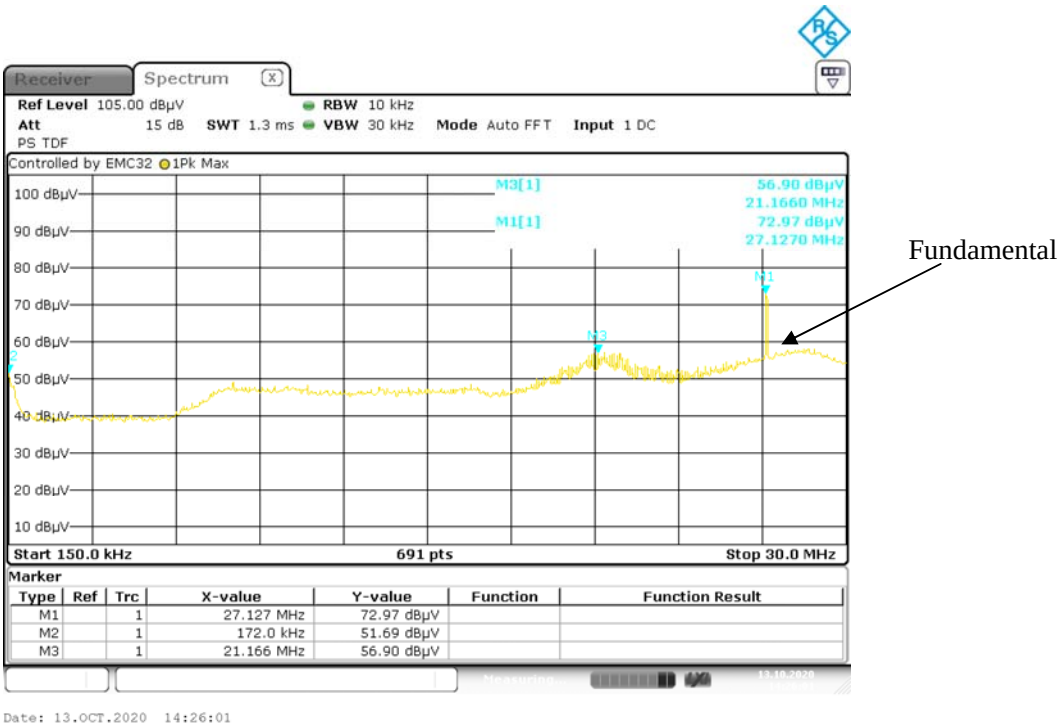
Note 1: PK detector data compliance with the average and QP detector limit for the spurious emission test.

Note 2: The antenna factor, cable loss and preamplifier gain had been entered into the analyzer as the transducer factor.

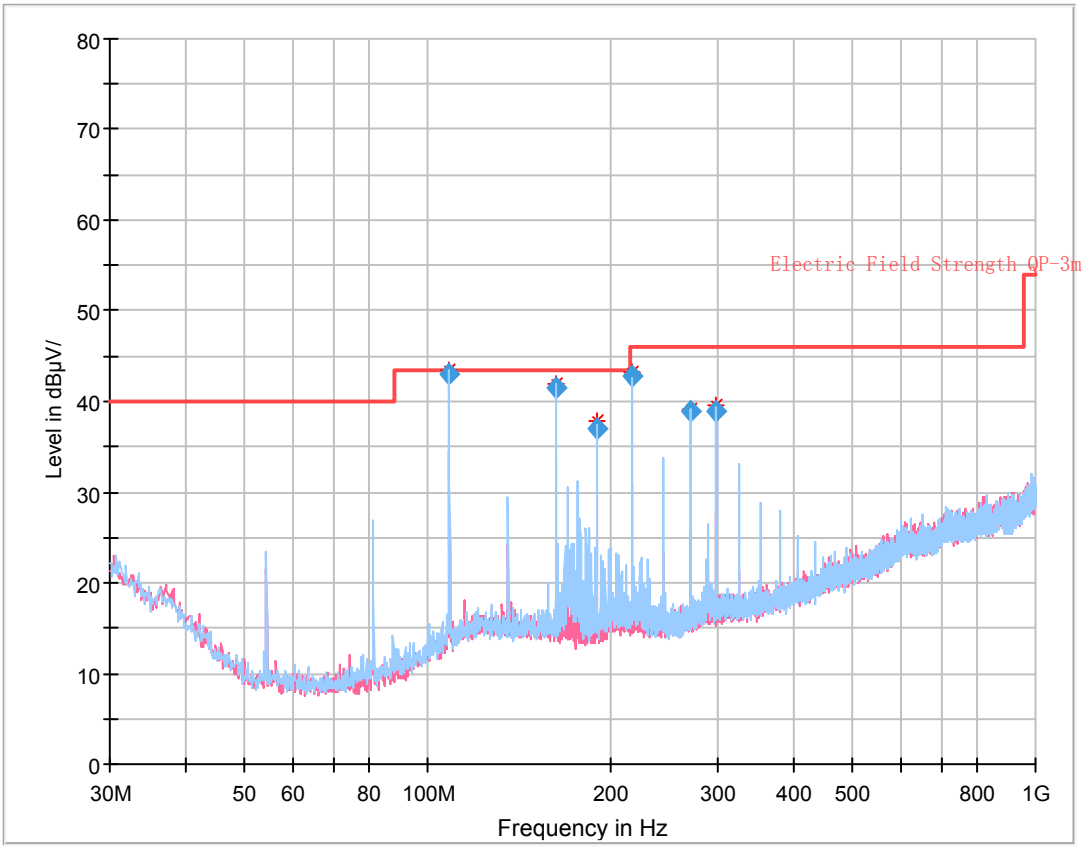
9 KHz-150 KHz



150 KHz-30MHz



30 MHz~1 GHz



Final_Result

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
108.579625	43.02	43.50	0.48	270.0	H	214.0	-12.3
162.870375	41.50	43.50	2.00	149.0	H	194.0	-11.3
190.008875	37.08	43.50	6.42	115.0	H	187.0	-12.0
217.158250	42.75	46.00	3.25	127.0	H	187.0	-10.7
271.457375	38.89	46.00	7.11	110.0	H	124.0	-10.1
298.596750	39.00	46.00	7.00	102.0	H	119.0	-9.2

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor（RX）+cable loss － amplifier factor
Margin = Limit- Corr. Amplitude

Result: Compliance

FCC§15.215(c) - 20dB EMISSION BANDWIDTH

Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

Per ANSI C63.10-2013 §6.4 & §6.9.

Test Data

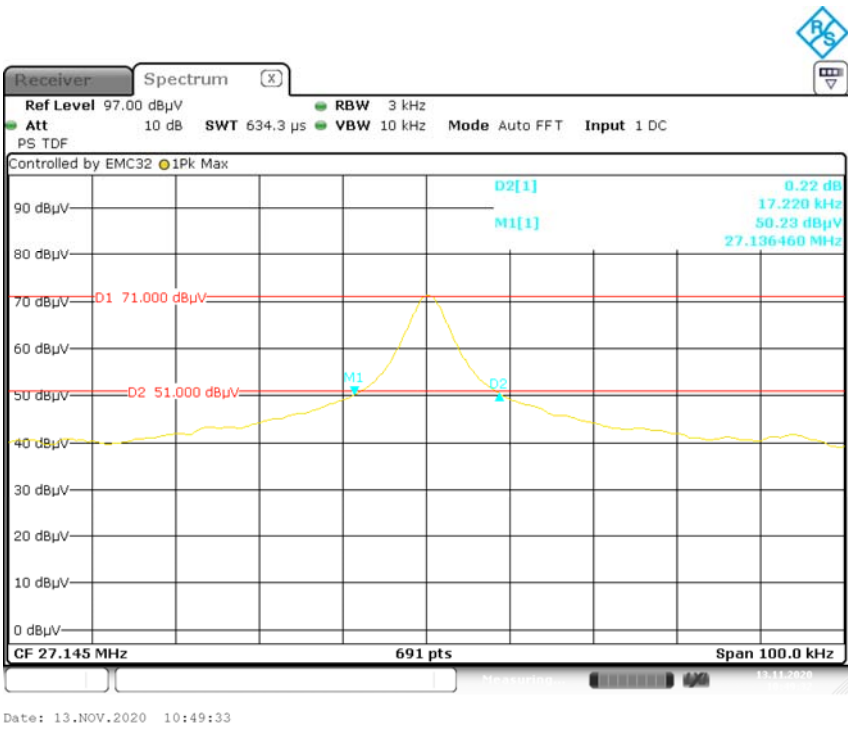
Environmental Conditions

Temperature:	28 ℃
Relative Humidity:	62 %
ATM Pressure:	101.0 kPa

Testing was performed by Harris He on 2020-11-13.

Test Mode: Transmitting

Please refer to the following plots.



F_L(MHz)	F_H (MHz)	Permitted frequency range(MHz)	Result
27.136460	27.153680	26.96-27.28	Compliant

******END OF REPORT******