



FCC PART 15.227

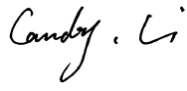
MEASUREMENT AND TEST REPORT

For

PLAY TEK LIMITED

UNIT 8, 12/F , TOWER A, NEW MANDARIN PLAZA, 14 SCIENCE MUSEUM ROAD, TSIM
SHA TSUI EAST, KOWLOON HONG KONG

FCC ID: 2A154-08810928

Report Type: Original Report	Product Type: 1:22 MONZOO MONSTER
Report Number:	<u>SZ3211012-52308E-RF-00</u>
Report Date:	<u>2021-11-08</u>
Reviewed By:	<u>Candy Li</u> 
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Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	1:22 MONZOO MONSTER
Tested Model	0881
Multiple Model	0820,0821 , 0822, 0823, 0824, 0825, 0826, 0827, 0828, 0829, 0830, 0831
Model Differences	Refer to the DoS letter
Test Frequency	27.145MHz
Voltage Range	DC 1.5V*2 AAA battery
Date of Test	2021-10-29
Sample serial number	SZ3211012-52308E-RF-S1 (Assigned by ATC, Shenzhen)
Received date	2021-10-12
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, 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 Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
Conducted Emissions	AC Mains	2.72 dB
Emissions, Radiated	9kHz-30MHz	2.66 dB
	30MHz - 1GHz	4.28dB

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. 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.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical mode.

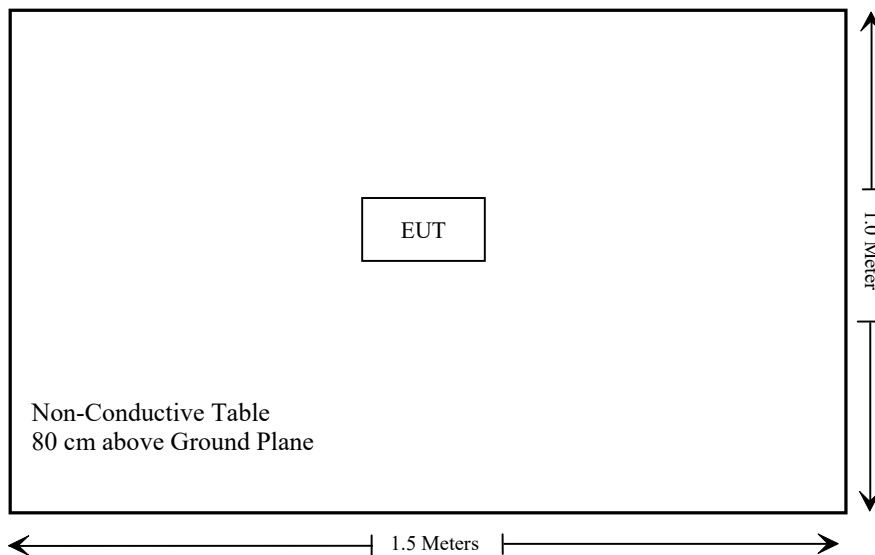
EUT Exercise Software

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	Compliant
§15.207	Conducted Emissions	Not Applicable
§15.205, §15.209, §15.227(a), §15.227(b)	Field Strength and Restricted Band Emissions	Compliant
§15.215(c)	20dB Emission Bandwidth	Compliant

Not Applicable: The EUT is powered by battery.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMI					
Rohde& Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
SCHWARZBECK	LOOP ANTENNA	FMZB1516	1516131	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
OREGON SCIENTIFIC	Temperature & Humidity Meter	JB913R	GZ-WS004	2020/01/02	2023/01/01
Unknown	RF Coaxial Cable	N-5m	No.3	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.5	2020/12/25	2021/12/24
Radiated Emission Test Software: EZ_EMV V 1.1.4.2					

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. 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 integral 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.

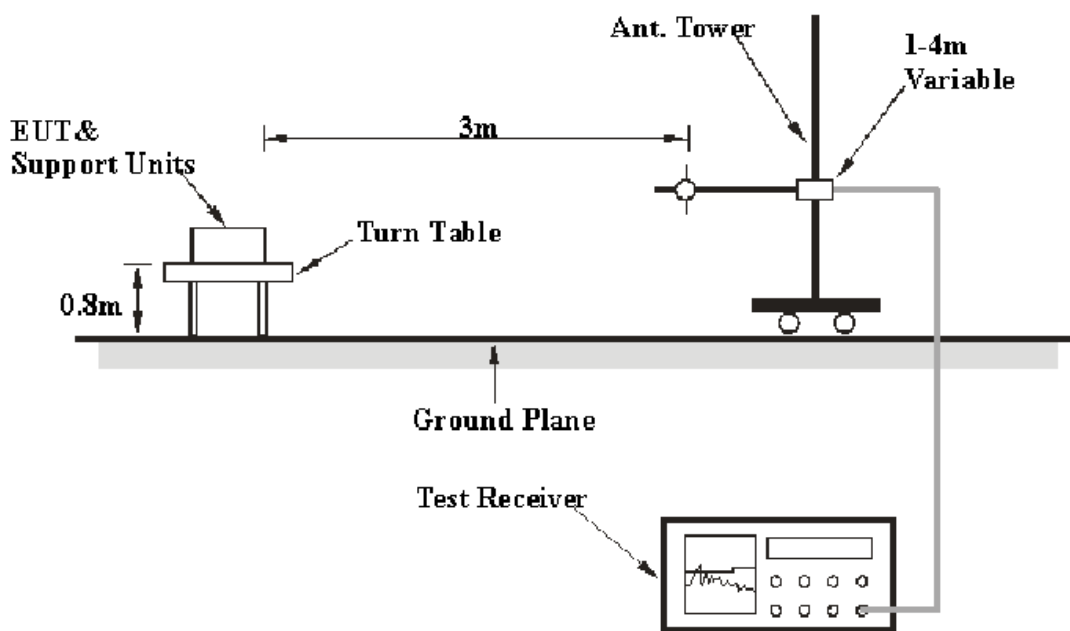
FCC§15.205, §15.209, §15.227(a), §15.227 (b) – FIELD STRENGTH AND RESTRICTED BAND EMISSIONS

Applicable Standard

According to FCC §15.227 (a), the field strength of 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:

$$\begin{aligned} \text{Result} &= \text{Meter Reading} + \text{Correction Factor} \\ \text{Correction Factor} &= \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain} \end{aligned}$$

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:

$$\text{Margin} = \text{Result} - \text{Limit}$$

Test Data

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	45 %
ATM Pressure:	101.0 kPa

Testing was performed by Chao Mo on 2021-10-29.

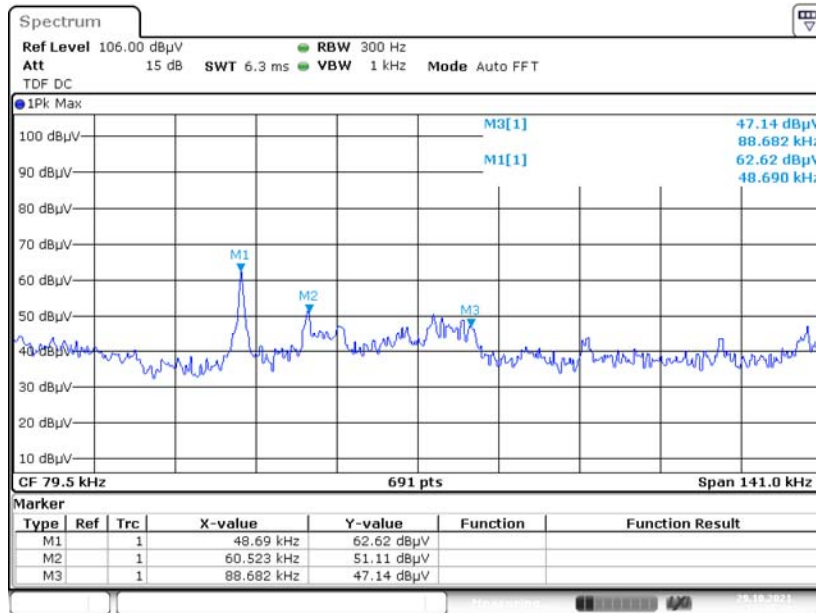
Test mode: Transmitting (Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case was Z-AXIS which was recorded)

Frequency (MHz)	Corrected Amplitude (dBμV/m)	PK/QP/Ave.	Turntable Degree	RX Antenna Height (m)	FCC Part 15.227&15.205&15.209		Remark
					Limit (dBμV/m)	Margin (dB)	
27.145	68.07	PK	100	1	100	-31.93	Fundamental
27.145	65.21	Ave.	100	1	80	-14.79	
0.04869	62.62	PK	62	1	113.86	-51.24	Spurious Emission
0.060523	51.11	PK	135	1	111.97	-60.86	
0.215	61.18	PK	235	1	100.96	-39.78	
21.382	30.14	PK	45	1	69.54	-39.40	

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

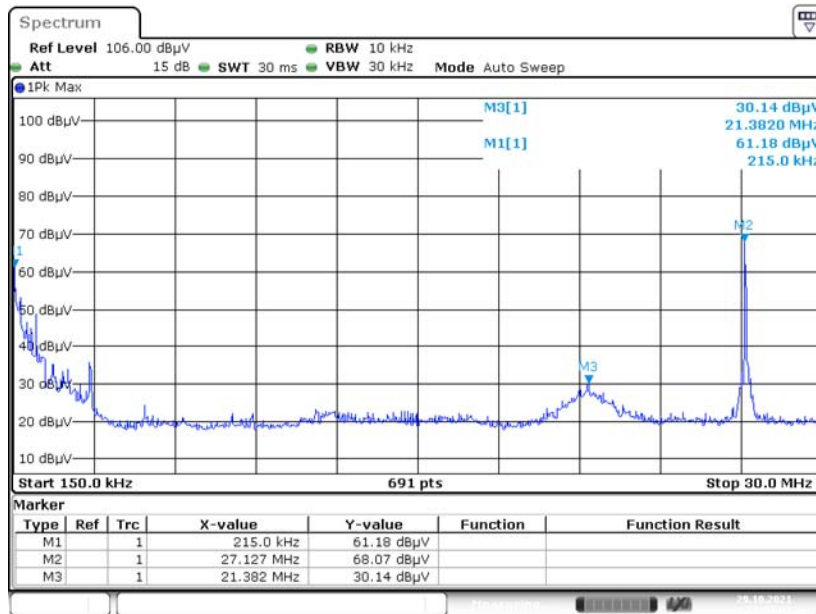
Note 2: The antenna factor, cable loss and preamplifier gain had been entered into the analyzer as the transducer factor.

9 kHz~150MHz:



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150 kHz~30MHz:

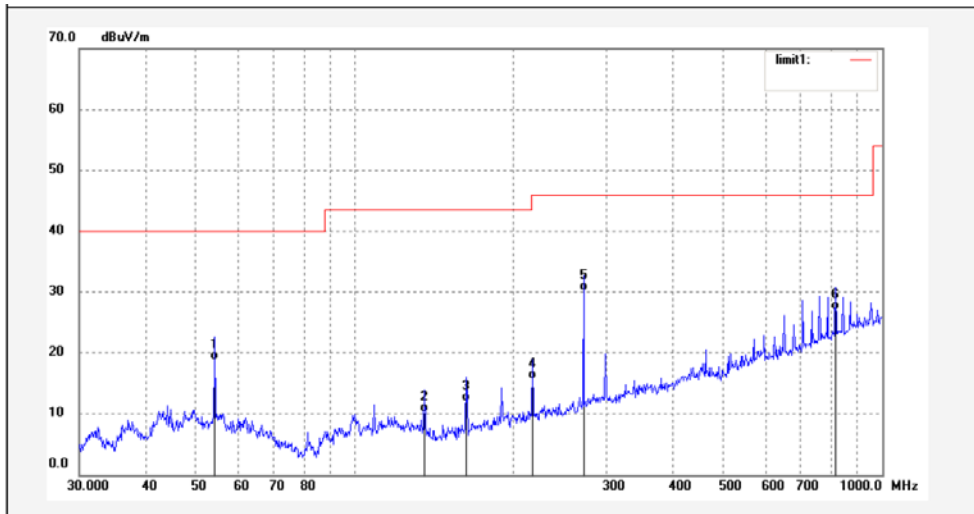


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Part 15 Section 15.31(f)(2) (9kHz-30MHz)
 Limit at 3m=Limit at 300m-40*log(3(m)/300(m))
 Limit at 3m=Limit at 30m-40*log(3(m)/30(m))

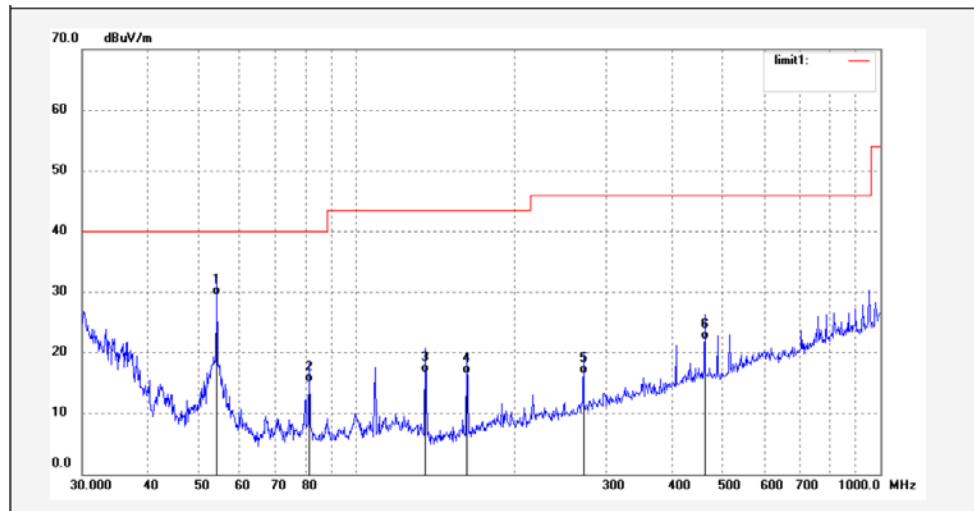
30 MHz ~ 1GHz

Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	54.2610	36.23	-17.36	18.87	40.00	-21.13	QP			
2	135.5062	29.43	-19.11	10.32	43.50	-33.18	QP			
3	162.6106	31.52	-19.47	12.05	43.50	-31.45	QP			
4	217.5443	32.76	-17.14	15.62	46.00	-30.38	QP			
5	271.3246	45.73	-15.62	30.11	46.00	-15.89	QP			
6	815.9678	32.13	-5.15	26.98	46.00	-19.02	QP			

Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	54.2610	47.11	-17.62	29.49	40.00	-10.51	QP			
2	81.4970	36.23	-21.05	15.18	40.00	-24.82	QP			
3	135.5062	35.75	-19.11	16.64	43.50	-26.86	QP			
4	162.6106	36.08	-19.47	16.61	43.50	-26.89	QP			
5	271.3246	32.19	-15.62	16.57	46.00	-29.43	QP			
6	462.3455	32.88	-10.68	22.20	46.00	-23.80	QP			

Result: Compliant.

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

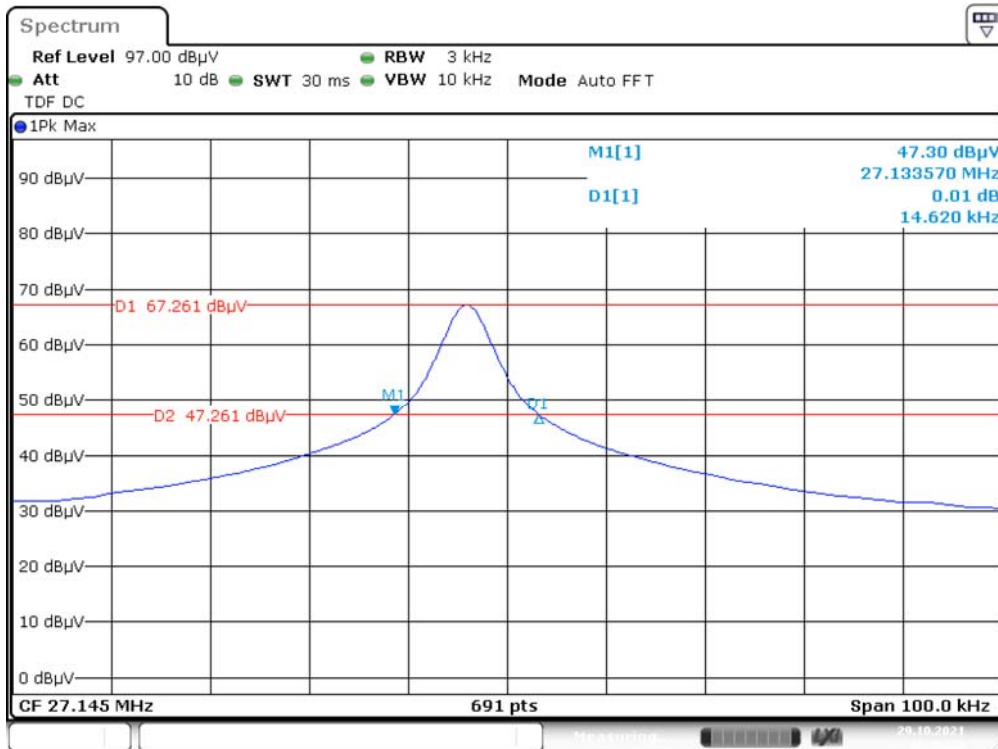
Environmental Conditions

Temperature:	30 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

Testing was performed by Chao Mo on 2021-10-29.

Test Mode: Transmitting

Please refer to the following plots.



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F _L (MHz)	F _H (MHz)	Permitted frequency range(MHz)	Result
27.133570	27.148190	26.96-27.28	Compliant

****END OF REPORT****