

# **FCC Test Report**

Report No.: AGC13994220402FE03

**FCC ID** : 2AQ8F-930C

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: R/C TOYS

**BRAND NAME** : N/A

MODEL NAME : 930C

**APPLICANT** : DARON WORLDWIDE TRADING INC

**DATE OF ISSUE** : Apr. 25, 2022

STANDARD(S)

**TEST PROCEDURE(S)** 

: FCC Part 15 Subpart C Section 15.227

**REPORT VERSION**: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

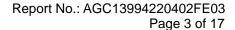




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# **Report Revise Record**

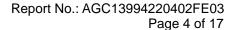
Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 25, 2022	Valid	Initial release





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# 1. VERIFICATION OF CONFORMITY

Applicant	DARON WORLDWIDE TRADING INC
Address	24 STEWART PL., UNIT # 4 FAIRFIELD, NJ, Connecticut, 07004 USA
Manufacturer	DARON WORLDWIDE TRADING INC
Address	24 STEWART PL., UNIT # 4 FAIRFIELD, NJ, Connecticut, 07004 USA
Factory	DARON WORLDWIDE TRADING INC
Address	24 STEWART PL., UNIT # 4 FAIRFIELD, NJ, Connecticut, 07004 USA
Product Designation	R/C TOYS
Brand Name	N/A
Test Model	930C
Date of test	Apr. 18, 2022 to Apr. 25, 2022
Deviation	None
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BR/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.227. The test results of this report relate only to the tested sample identified in this report.

Prepared By	Bibo zhay	
	Bibo Zhang (Project Engineer)	Apr. 25, 2022
Reviewed By	Calin Lin	
	Calvin Liu (Reviewer)	Apr. 25, 2022
Approved By	Max Zhang	
	Max Zhang (Authorized Officer)	Apr. 25, 2022



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# 2. GENERAL INFORMATION

# 2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	27.15MHz
Field Strength(3m)	59.92dBuV/m(AV)@3m
Modulation	FSK
Number of channels	1
Hardware Version	1.0
Software Version	1.0
Antenna Designation	Wire antenna
Antenna Gain	0dBi
Power Supply	DC 3V by battery



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# 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

- Uncertainty of Conducted Emission,  $Uc = \pm 2.9 dB$
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.8 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.9 dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %



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# 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Wireless operate mode
2	Standby mode

#### Note:

- 1. All the test modes can be supply by new battery, and only the data of the worst case recorded in the test report.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

# 5. SYSTEM TEST CONFIGURATION

# **5.1. CONFIGURATION OF EUT SYSTEM**

Configure 1:

#### **5.2. EQUIPMENT USED IN EUT SYSTEM**

Item	Equipment	Mfr/Brand	Model/Type No.	Remark
1	R/C TOYS	N/A	930C	EUT

#### 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.227&15.209	Radiated Emission	Compliant
§15.215	20dB bandwidth	Compliant
§15.207	Conducted Emission	Not applicable

The conducted emission tests at AC port are not required for devices which only employ battery power for operation



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# 6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

# 7. TEST EQUIPMENT LIST

# **TEST EQUIPMENT OF RADIATED EMISSION TEST**

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
Attenuator	Weinachel Corp	58-30-33	N/A	Sep. 03, 2020	Sep. 02, 2022
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023





# 8. RADIATED EMISSION

#### **8.1 TEST LIMIT**

#### Standard FCC 15.209

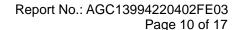
Frequency	Distance	Field Strengths Limit		
(MHz)	Meters	μ <b>V/m</b>	dB(μV)/m	
0.009 ~ 0.490	300	2400/F(kHz)		
0.490 ~ 1.705	30	24000/F(kHz)		
1.705 ~ 30	30	30		
30 ~ 88	3	100	40.0	
88 ~ 216	3	150	43.5	
216 ~ 960	3	200	46.0	
960 ~ 1000	3	500	54.0	
Above 1000	3	Other:74.0 dB(µV)/m	ı (Peak) 54.0 dB(µV)/m	
		(Average)		

Remark:

- (1) Emission level dB  $\mu$  V = 20 log Emission level  $\mu$  V/m
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

#### **8.2. MEASUREMENT PROCEDURE**

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed





at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

The following table is the setting of spectrum analyzer and receiver.

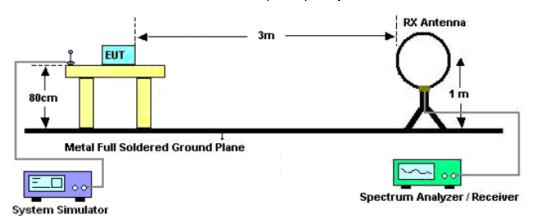
Spectrum Parameter	Setting		
Start ~Stop Frequency	9KHz~150KHz/RBW 200Hz for QP		
Start ~Stop Frequency	150KHz~30MHz/RBW 9KHz for QP		
Start ~Stop Frequency	30MHz~1000MHz/RBW 120KHz for QP		
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/1MHz for Peak, 1MHz/10Hz for Average		

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RBW 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RBW 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RBW 120KHz for QP

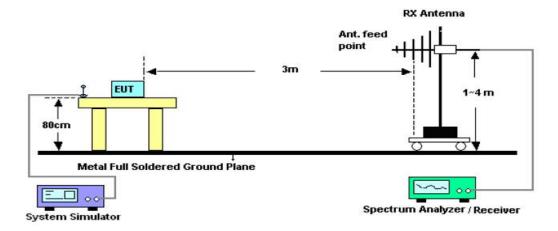


#### 8.2. TEST SETUP

# Radiated Emission Test-Setup Frequency Below 30MHz



#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz





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#### 8.3. TEST RESULT

#### **RADIATED EMISSION BELOW 30MHZ**

EUT:	R/C TOYS	Model Name.:	930C
Temperature :	<b>25</b> ℃	Relative Humidtity:	60%
Pressure :	1010 hPa	Test Voltage :	DC 3V
Test Mode :	Mode 1	Polarization :	

Frequency MHz	Polarization	Reading dB(uV) AV	Factor dB (1/m)	Level dB(uV/m) AV	Limit dB(uV/m) AV	Margin dB	Pass/Fail
27.15	Face	22.34	24.38	46.72	80	-33.28	Pass
27.15	Side	35.54	24.38	59.92	80	-20.08	Pass

**Note:** 1.The level of peak emission is less than the average limit, so the level of average emission need not to be tested. Other emissions from 9kHz to 30MHz are considered as ambient noise. No recording in the test report.

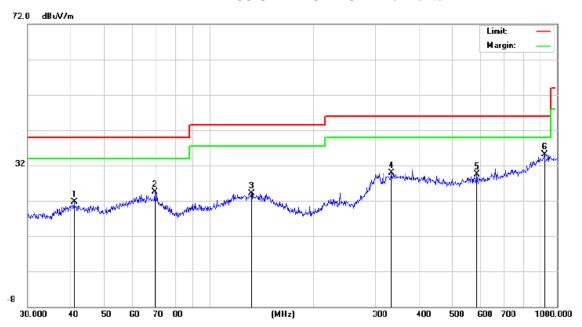
2: Level(dBuV/m)=Reading(dBuV)+Factor(dB/m)

 $Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ loss(dB) + Attenuation(dB) for\ Attenuator(dB/m) + Cable\ loss(dB/m) + Cable\ loss$ 

Margin=Level-Limit



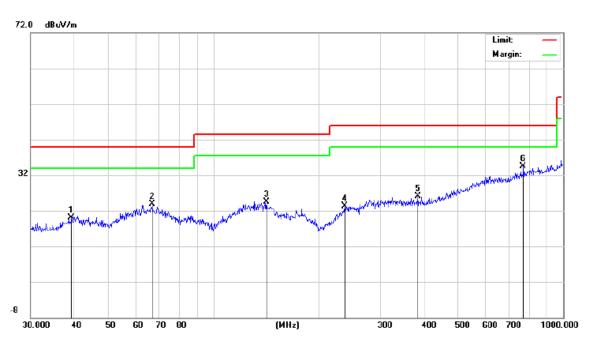
# **RADIATED EMISSION BELOW 1GHZ-Horizontal**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		40.8446	5.75	15.98	21.73	40.00	-18.27	peak
2		69.6005	6.36	18.08	24.44	40.00	-15.56	peak
3		132.2206	5.29	18.77	24.06	43.50	-19.44	peak
4		333.6867	5.67	24.18	29.85	46.00	-16.15	peak
5		588.9051	6.60	22.85	29.45	46.00	-16.55	peak
6	*	919.2866	6.17	28.89	35.06	46.00	-10.94	peak



### **RADIATED EMISSION BELOW 1GHZ-Vertical**



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		39.2991	4.49	15.70	20.19	40.00	-19.81	peak
2		66.9669	5.79	18.04	23.83	40.00	-16.17	peak
3		141.8262	5.47	19.04	24.51	43.50	-18.99	peak
4		237.4760	4.11	19.23	23.34	46.00	-22.66	peak
5		383.9318	6.05	20.06	26.11	46.00	-19.89	peak
6	*	768.7481	6.77	27.70	34.47	46.00	-11.53	peak

#### **RESULT: PASS**

Note: 1. Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.



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# 9. BANDWIDTH

# 9.1. MEASUREMENT PROCEDURE

1. Set the parameters of SPA as below:

Centre frequency = Operation Frequency

RBW=300Hz

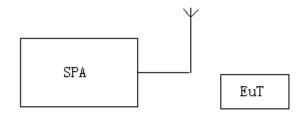
VBW=1KHz

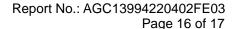
Span: 30kHz

Sweep time: Auto

- 2. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the "N dB down" function of SPA to define the bandwidth.
- 3. Record the plots and Reported.

#### 9.2. TEST SETUP





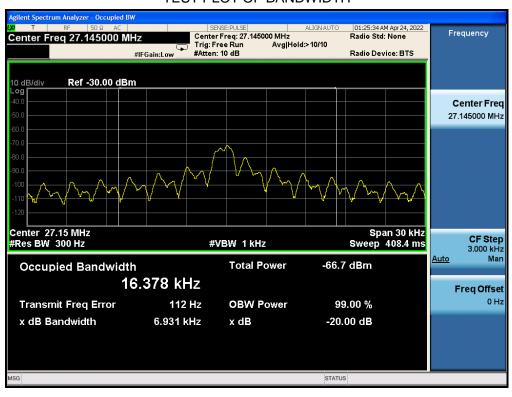


#### 9.3. TEST RESULT

TEST ITEM	20DB BANDWIDTH
TEST MODULATION	FSK

Test Data (kHz)	Criteria	
Operate Channel	6.931	PASS

#### **TEST PLOT OF BANDWIDTH**







# **APPENDIX A: PHOTOGRAPHS OF TEST SETUP**

Refer to the Report No.: AGC13994220402AP01

**APPENDIX B: PHOTOGRAPHS OF EUT** 

Refer to the Report No.: AGC13994220402AP02

----END OF REPORT---



# Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
- 2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
- 6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
- 7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
- 9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.