

# **FCC Test Report**

Report No.: AGC14041220401FE02

FCC ID : 2AJGILHC030

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: RC Car

**BRAND NAME** : N/A

MODEL NAME

LH-C030, LH-C013, LH-C014, LH-C015, LH-C016, LH-C017, LH-C018, LH-C019, LH-C020, LH-C021, LH-C022, LH-C023, LH-C024, LH-C025, LH-C026, LH-C027, LH-C028, LH-C029, LH-C031, LH-C032

LH-C027, LH-C028, LH-C029, LH-C031, LH-C032,

LH-C033.LH-C034, LH-C035.LH-C036, LH-C037, LH-C038, LH-C039, LH-C040, LH-C041, LH-C042, LH-C043, LH-C044, LH-C045, LH-C046, LH-C047,

LH-C048

**APPLICANT**: Shantou Chenghai Lihuang Plastic Toys Co., Ltd

**DATE OF ISSUE** : Apr. 14, 2022

STANDARD(S) : FCC Ant P5:24

REPORT VERSION :

Attestation of Global Compliance (Shenzhen) Co., Ltd

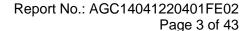




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## REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 14, 2022	Valid	Initial Release





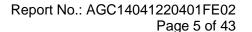
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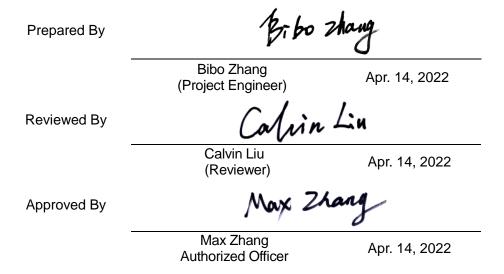


## 1. VERIFICATION OF COMPLIANCE

Applicant	Shantou Chenghai Lihuang Plastic Toys Co., Ltd
Address	No.1, 1 Road, Huaihe Industrial Park, Lianxia, Chenghai, Shantou, China.
Manufacturer	Shantou Chenghai Lihuang Plastic Toys Co., Ltd
Address	No.1, 1 Road, Huaihe Industrial Park, Lianxia, Chenghai, Shantou, China.
Factory	Shantou Chenghai Lihuang Plastic Toys Co., Ltd
Address	No.1, 1 Road, Huaihe Industrial Park, Lianxia, Chenghai, Shantou, China.
Product Designation	RC Car
Brand Name	N/A
Test Model	LH-C030
Series Model	LH-C013, LH-C014, LH-C015, LH-C016, LH-C017, LH-C018, LH-C019, LH-C020, LH-C021, LH-C022, LH-C023, LH-C024, LH-C025, LH-C026, LH-C027, LH-C028, LH-C029, LH-C031, LH-C032, LH-C033.LH-C034, LH-C035.LH-C036, LH-C037, LH-C038, LH-C039, LH-C040, LH-C041, LH-C042, LH-C043, LH-C044, LH-C045, LH-C046, LH-C047, LH-C048
Declaration of Difference	The packing is different, but everything else is the same
Date of test	Apr. 08, 2022~Apr. 14, 2022
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BLE/RF

## We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.247.





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## 2. GENERAL INFORMATION

## 2.1. PRODUCT DESCRIPTION

The EUT is designed as a "RC Car". It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	2.405 GHz to 2.475GHz
RF Output Power	-5.927dBm (Max)
Bluetooth Version	V5.1
Modulation	GFSK
Number of channels	71Channel
Antenna Designation	Telescopic Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	0dBi
Hardware Version	V01
Software Version	V01
Power Supply	DC 3.0V by battery



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## 2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	Channel Number	Frequency	Channel Number	Frequency
	0	2405	24	2429	48	2453
	1	2406	25	2430	49	2454
	2	2407	26	2431	50	2455
	3	2408	27	2432	51	2456
	4	2409	28	2433	52	2457
	5	2410	29	2434	53	2458
	6	2411	30	2435	54	2459
	7	2412	31	2436	55	2460
	8	2413	32	2437	56	2461
	9	2414	33	2438	57	2462
	10	2415	34	2439	58	2463
2400~2483.5MHz	11	2416	35	2440	59	2464
2400~2403.3IVII IZ	12	2417	36	2441	60	2465
	13	2418	37	2442	61	2466
	14	2419	38	2443	62	2467
	15	2420	39	2444	63	2468
	16	2421	40	2445	64	2469
	17	2422	41	2446	65	2470
	18	2423	42	2447	66	2471
	19	2424	43	2448	67	2472
	20	2425	44	2449	68	2473
	21	2426	45	2450	69	2474
	22	2427	46	2451	70	2475
	23	2428	47	2452		



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## 2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID: 2AJGILHC030** filing to comply with the FCC Part 15.247 requirements.

#### 2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

#### 2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

## 2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

#### 2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device. For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.



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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%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$



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## 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX

#### Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
- 4. The EUT adjusts the frequency through the button.
- 5. For battery operated equipment, the equipment tests are performed using a new battery.



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## 5. SYSTEM TEST CONFIGURATION

## **5.1. CONFIGURATION OF TESTED SYSTEM**

Radiated Emission Configure:

EUT

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

Item	Equipment	Model No.	ID or Specification	Remark
1	RC Car	LH-C030	2AJGILHC030	EUT

#### 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(3)	Peak Output Power	Compliant
15.247 (a)(2)	6 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.247 (e)	Maximum Conducted Output Power Density	Compliant
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Not applicable

Note: The conducted limits 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	

## **TEST EQUIPMENT OF CONDUCTED EMISSION TEST**

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due			
TEST RECEIVER	R&S	ESPI	101206	May 11, 2021	May 10, 2022			
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022			
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A			

## **TEST EQUIPMENT OF RADIATED EMISSION TEST**

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Apr. 14, 2021	Apr. 13, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



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## 7. PEAK OUTPUT POWER

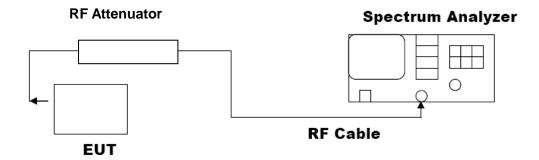
## 7.1. MEASUREMENT PROCEDURE

For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW ≥ DTS bandwidth
- 3. VBW≥3\*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

## 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP





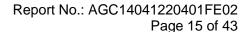
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7.3. LIMITS AND MEASUREMENT RESULT

7.0. EIMITO AILE	7.5. EIMITO AND MEAGOREMENT RESSET						
Test Data of Conducted Output Power							
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail			
	2405	-5.927	≤30	Pass			
GFSK	2442	-6.207	≤30	Pass			
	2475	-6.286	≤30	Pass			

Test Graphs of Conducted Output Power











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## 8. BANDWIDTH

#### **8.1. MEASUREMENT PROCEDURE**

#### 6dB bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW ≥ 3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

## Occupied bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
  The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video
  bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

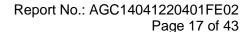
Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

## 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

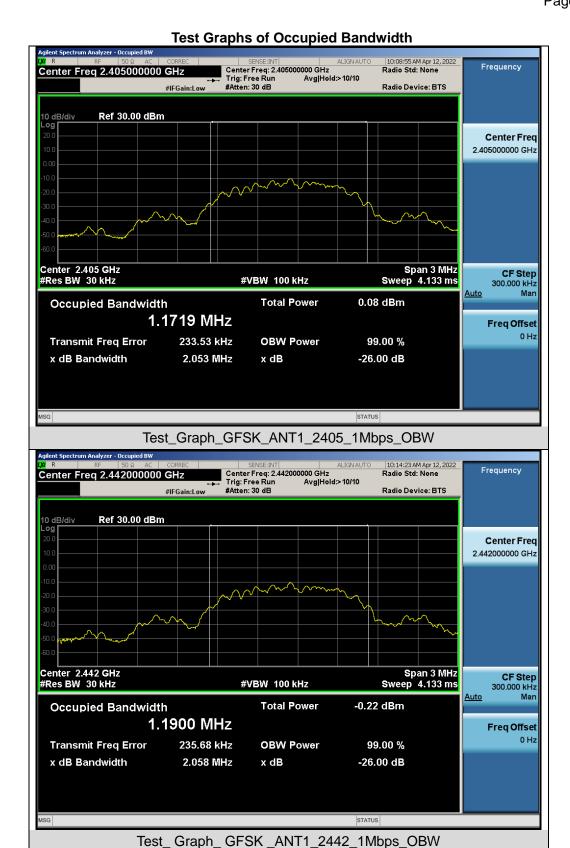
The same as described in section 7.2.

#### 8.3. LIMITS AND MEASUREMENT RESULTS

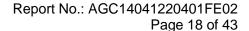
Test Data of Occupied Bandwidth and DTS Bandwidth							
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail		
	2405	1.172	0.846	≥0.5	Pass		
GFSK	2442	1.190	0.865	≥0.5	Pass		
	2475	1.206	0.874	≥0.5	Pass		



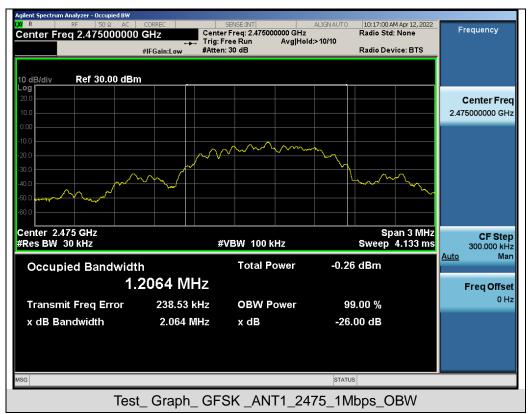


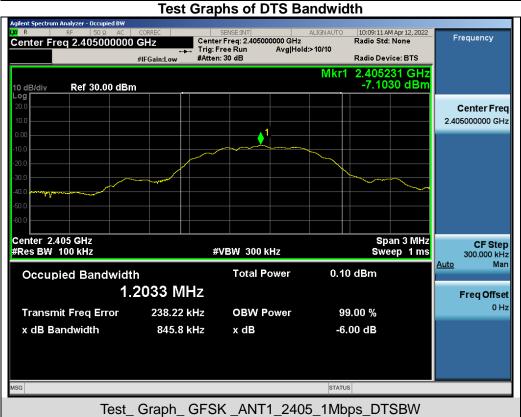


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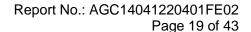




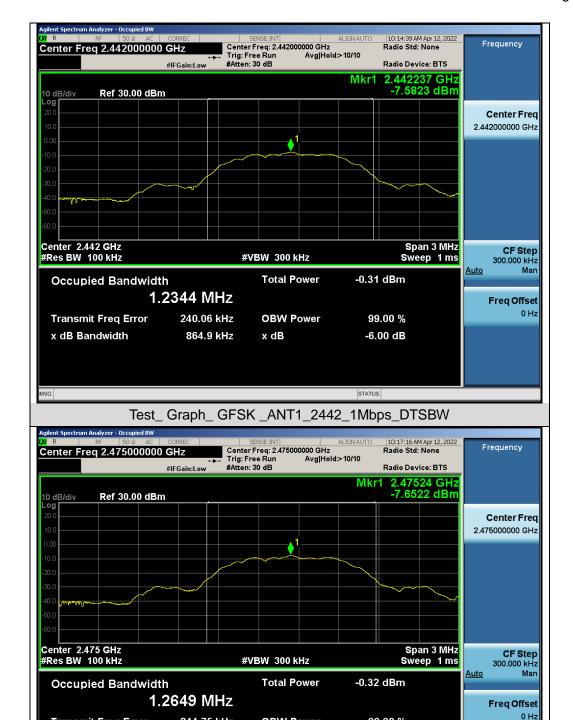




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**OBW Power** 

Test Graph GFSK ANT1 2475 1Mbps DTSBW

x dB

99.00 %

-6.00 dB

244.75 kHz

874.4 kHz

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Transmit Freq Error

x dB Bandwidth



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## 9. CONDUCTED SPURIOUS EMISSION

## 9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

## 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

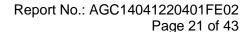
The same as described in section 7.2.

#### 9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

#### 9.4. LIMITS AND MEASUREMENT RESULT

O.T. EIIII O AND MEAGONEMENT NEGGET							
LIMITS AND MEA	LIMITS AND MEASUREMENT RESULT						
Applicable Limite	Measurement Result						
Applicable Limits	Test Data	Criteria					
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -20dBc than the reference level	PASS					





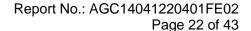
Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands



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Test\_Graph\_GFSK\_ANT1\_2405\_1Mbps\_Lower Band Emissions

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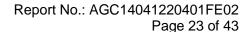




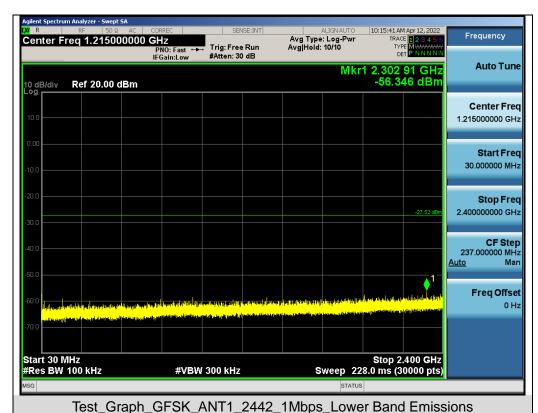




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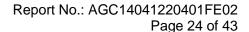








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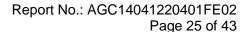




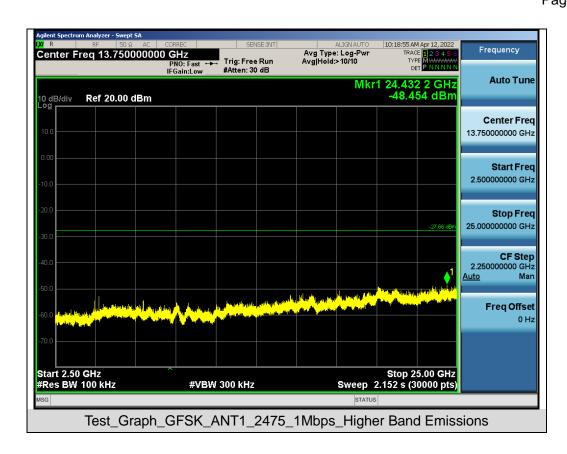


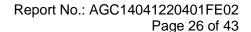


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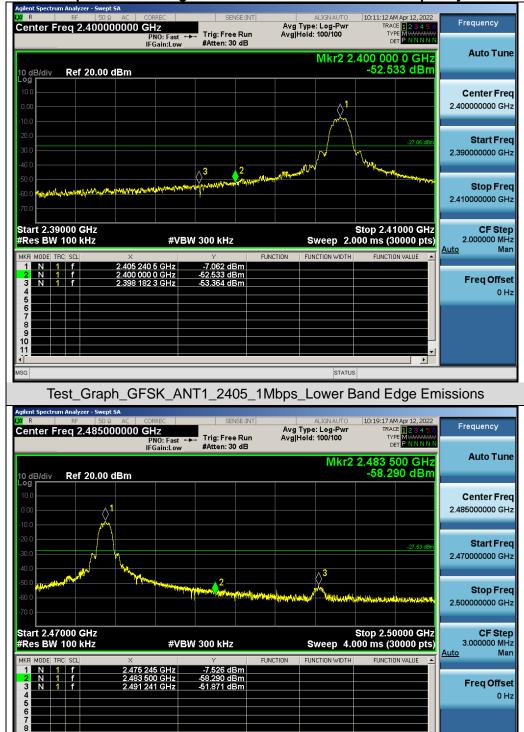








Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands



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Test\_Graph\_GFSK\_ANT1\_2475\_1Mbps\_Higher Band Edge Emissions

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## 10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

#### 10.1. MEASUREMENT PROCEDURE

- (1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (3). Set the SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 8.4 was used in this testing.

## 10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer to Section 7.2.

#### 10.3. MEASUREMENT EQUIPMENT USED

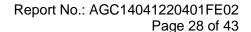
Refer to Section 6.

#### 10.4. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power Spectral Density						
Test Mode	Test Channel (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail		
	2405	-19.862	<b>≤8</b>	Pass		
GFSK	2442	-20.394	≤8	Pass		
	2475	-20.713	≪8	Pass		

Test Graphs of Conducted Output Power Spectral Density

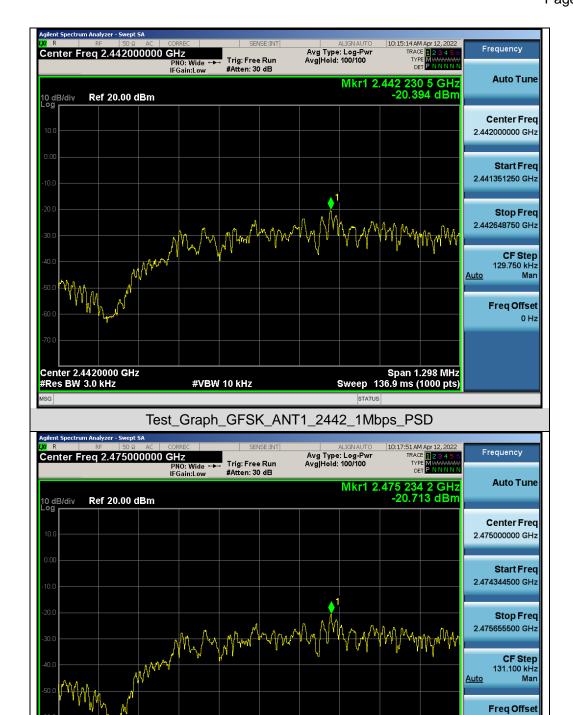




0 Hz

Span 1.311 MHz Sweep 138.3 ms (1000 pts)





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Test\_Graph\_GFSK\_ANT1\_2475\_1Mbps\_PSD

#VBW 10 kHz

Center 2.4750000 GHz #Res BW 3.0 kHz

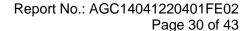


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## 11. RADIATED EMISSION

#### 11.1. MEASUREMENT PROCEDURE

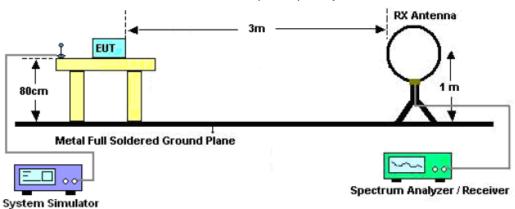
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated 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 emission, 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 RBW and 3MHz VBW for peak reading. 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.



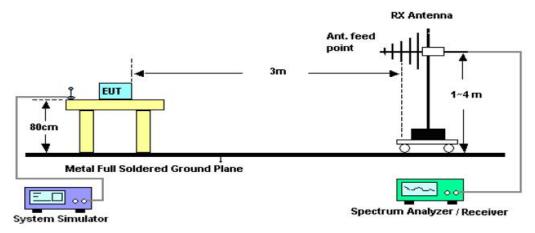


## 11.2. TEST SETUP

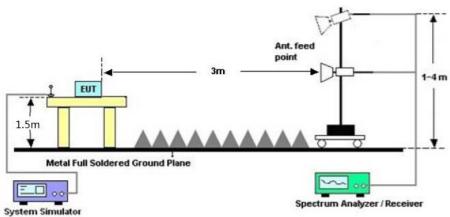
## Radiated Emission Test-Setup Frequency Below 30MHz



## RADIATED EMISSION TEST SETUP 30MHz-1000MHz



## RADIATED EMISSION TEST SETUP ABOVE 1000MHz





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## 11.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

## 11.4. TEST RESULT

## Radiated emission below 30MHz

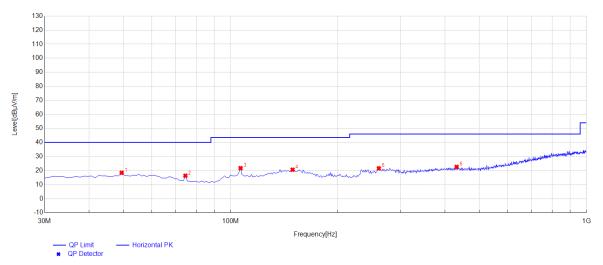
The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.



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## Radiated emission from 30MHz to 1000MHz

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal



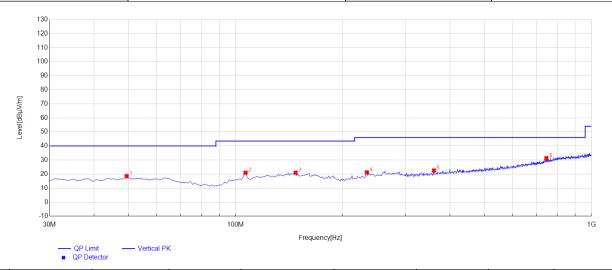
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.4	18.43	11.61	40.00	21.57	100	3	Horizontal
2	74.62	16.32	8.27	40.00	23.68	100	1	Horizontal
3	106.63	21.76	11.40	43.50	21.74	100	185	Horizontal
4	149.31	20.63	14.88	43.50	22.87	100	353	Horizontal
5	260.86	21.61	14.63	46.00	24.39	100	133	Horizontal
6	431.58	22.62	17.19	46.00	23.38	100	277	Horizontal

**RESULT: PASS** 



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EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.4	18.52	11.61	40.00	21.48	100	3	Vertical
2	106.63	21.00	12.07	43.50	22.50	100	302	Vertical
3	147.37	20.98	14.88	43.50	22.52	100	36	Vertical
4	233.7	21.23	13.50	46.00	24.77	100	266	Vertical
5	360.77	22.56	16.26	46.00	23.44	100	0	Vertical
6	746.83	31.36	24.67	46.00	14.64	100	4	Vertical

## RESULT: PASS Note:

- 1. Factor=Antenna Factor + Cable loss, Margin=Limit-Measurement.
- 2. All test modes had been tested. The mode 3 is the worst case and recorded in the report.



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## Radiated emission above 1GHz

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type	
4810.000	51.22	0.08	51.30	74.00	-22.70	peak	
4810.000	43.37	0.08	43.45	54.00	-10.55	AVG	
7215.000	49.12	2.21	51.33	74.00	-22.67	peak	
7215.000	39.28	2.21	41.49	54.00	-12.51	AVG	
Remark:							
Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type	
4810.000	49.37	0.08	49.45	74.00	-24.55	peak	
4810.000	42.22	0.08	42.30	54.00	-11.70	AVG	
7215.000	48.46	2.21	50.67	74.00	-23.33	peak	
7215.000	37.25	2.21	39.46	54.00	-14.54	AVG	
Remark:							
Factor = Antenna Factor + Cable Loss – Pre-amplifier.							



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LH-C030

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type	
4880.000	51.36	0.14	51.50	74.00	-22.50	peak	
4880.000	38.77	0.14	38.91	54.00	-15.09	AVG	
7320.000	51.25	2.36	53.61	74.00	-20.39	peak	
7320.000	37.31	2.36	39.67	54.00	-14.33	AVG	
Remark:							
Factor = Anten	na Factor + Cabl	<u>e Loss – Pre-ar</u>	nplifier.				

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type		
4880.000	49.89	0.14	50.03	74.00	-23.97	peak		
4880.000	39.22	0.14	39.36	54.00	-14.64	AVG		
7320.000	50.37	2.36	52.73	74.00	-21.27	peak		
7320.000	38.26	2.36	40.62	54.00	-13.38	AVG		
Remark:								
Factor = Antenna Factor + Cable Loss – Pre-amplifier.								



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EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type		
4950.000	52.38	0.22	52.60	74.00	-21.40	peak		
4950.000	42.24	0.22	42.46	54.00	-11.54	AVG		
7425.000	48.31	2.64	50.95	74.00	-23.05	peak		
7425.000	39.26	2.64	41.90	54.00	-12.10	AVG		
Remark:								
Factor = Anten	na Factor + Cabl	e Loss – Pre-ar	mplifier.					

Factor = Anten	na Factor +	Cable Loss	– Pre-amplifier.
			•

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4950.000	48.34	0.22	48.56	74.00	-25.44	peak
4950.000	41.39	0.22	41.61	54.00	-12.39	AVG
7425.000	47.46	2.64	50.10	74.00	-23.90	peak
7425.000	38.14	2.64	40.78	54.00	-13.22	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

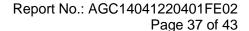
## **RESULT: PASS**

#### Note:

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

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





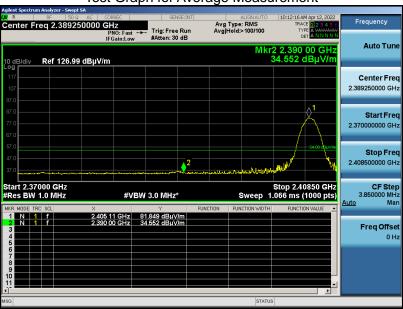
Test result for band edge emission at restricted bands

EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

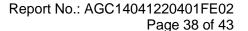
Test Graph for Peak Measurement







**RESULT: PASS** 





EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

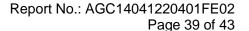
Test Graph for Peak Measurement







**RESULT: PASS** 





**EUT** RC Car **Model Name** LH-C030 25° C **Temperature Relative Humidity** 55.4% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 3 **Antenna** Horizontal

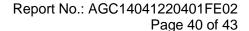
Test Graph for Peak Measurement







**RESULT: PASS** 



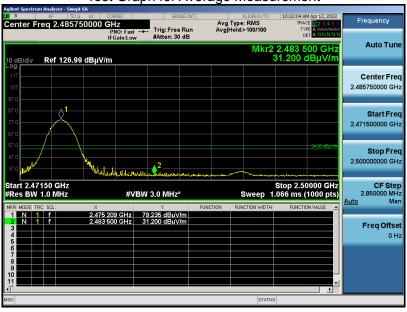


EUT	RC Car	Model Name	LH-C030
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



## **RESULT: PASS**

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



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## 12. LINE CONDUCTED EMISSION TEST

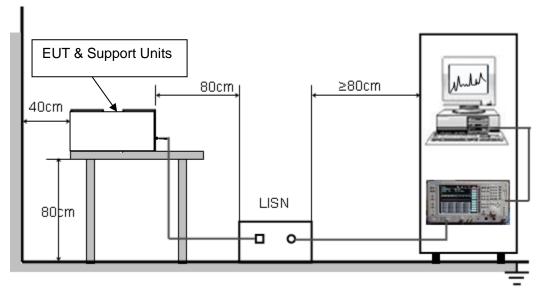
## 12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

F	Maximum RF Line Voltage		
Frequency	Q.P.( dBuV)	Average( dBuV)	
150kHz~500kHz	66-56	56-46	
500kHz~5MHz	56	46	
5MHz~30MHz	60	50	

## Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

## 12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





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#### 12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

## 12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

N/A

Note: The conducted limits are not required for devices which only employ battery power for operation.



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## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC14041220401AP01

**APPENDIX B: PHOTOGRAPHS OF EUT** 

Refer to the Report No.: AGC14041220401AP02

----END OF REPORT----



## Conditions of Issuance of Test Reports

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