FCC Test Report

Report No.: AGC07814220402FE03

FCC ID	:	2AZCSSL-00003
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Remote control car
BRAND NAME	:	N/A
MODEL NAME	:	Please see the page 6.
CLIENT	:	GUANGDONG HAOYUAN STEM TOYS CO.,LTD.
DATE OF ISSUE	:	Apr. 13, 2022
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15 Rules
REPORT VERSION	:	V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 13, 2022	Valid	Initial Release

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY 5

2. GENERAL INFORMATION 6

2.1. PRODUCT DESCRIPTION 6
2.2. TABLE OF CARRIER FREQUENCY 7

3. MEASUREMENT UNCERTAINTY 8

4. DESCRIPTION OF TEST MODES 9

5. SYSTEM TEST CONFIGURATION 10

5.1. CONFIGURATION OF EUT SYSTEM 10
5.2 EQUIPMENT USED IN TESTED SYSTEM 10
5.3. SUMMARY OF TEST RESULTS 10

6. TEST FACILITY 11

7. RADIATED EMISSION 12

7.1TEST LIMIT 12
7.2. MEASUREMENT PROCEDURE 13
7.3. TEST SETUP 15
7.4. TEST RESULT 16

8. BAND EDGE EMISSION 22

8.1. MEASUREMENT PROCEDURE 22
8.2 TEST SETUP 22
8.3 RADIATED TEST RESULT 22

9. 20DB BANDWIDTH 27

9.1. MEASUREMENT PROCEDURE 27
9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 27
9.3. MEASUREMENT RESULTS 28

10. FCC LINE CONDUCTED EMISSION TEST 30

10.1. LIMITS OF LINE CONDUCTED EMISSION TEST 30
10.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST 30

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

10.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST 31
10.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST 31
10.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST 31

APPENDIX A: PHOTOGRAPHS OF TEST SETUP 32

APPENDIX B: PHOTOGRAPHS OF THE EUT 32

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

1. VERIFICATION OF CONFORMITY

Applicant	GUANGDONG HAOYUAN STEM TOYS CO.,LTD.
Address	MIDDLE SECTION OF FU'AN ROAD, CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG, CHINA
Manufacturer	GUANGDONG HAOYUAN STEM TOYS CO.,LTD.
Address	MIDDLE SECTION OF FU'AN ROAD, CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG, CHINA
Factory	GUANGDONG HAOYUAN STEM TOYS CO.,LTD.
Address	MIDDLE SECTION OF FU'AN ROAD, CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG, CHINA
Product Designation	Remote control car
Brand Name	N/A
Test Model	SL-00003
Series Model	Please see the page 6.
Difference description	All the series models are the same as the test model except for the model names and the color of appearance.
Date of test	Apr. 11, 2022 to Apr. 13, 2022
Deviation	No any deviation from the test method
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, 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 Rules Part 15.249.

Prepared By	Bibo Zhang (Project Engineer)	Apr. 13, 2022
Reviewed By	Calvin Liu (Reviewer)	Apr. 13, 2022
Approved By	Max Zhang (Authorized Officer)	Apr. 13, 2022

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	2.405 GHz to 2.475GHz
Maximum field strength	79.91dBuV/m(average)@3m
Modulation	GFSK
Number of channels	71
Antenna Gain	0dBi
Antenna Designation	Wire Antenna (Met 15.203 Antenna requirement)
Hardware Version	V1.0
Software Version	V1.0
Power Supply	DC 3V by battery

Test Model	SL-00003
Series Model	SL-00001, SL-00002, SL-00004, SL-00005, SL-00006, SL-00007, SL-00008, SL-00009, SL-00010, SL-00011, SL-00012, SL-00013, SL-00014, SL-00015, SL-00016, SL-00017, SL-00018, SL-00019, SL-00020, SL-00021, SL-00022, SL-00023, SL-00024, SL-00025, SL-00026, SL-00027, SL-00028, SL-00029, SL-00030, SL-00031, SL-00032, SL-00033, SL-00034, SL-00035, SL-00036, SL-00037, SL-00038, SL-00039, SL-00040, SL-00041, SL-00042, SL-00043, SL-00044, SL-00045, SL-00046, SL-00047, SL-00048, SL-00049, SL-00050, SL-00051, SL-00052, SL-00053, SL-00054, SL-00055, SL-00056, SL-00057, SL-00058, SL-00059, SL-00060, SL-00061, SL-00062, SL-00063, SL-00064, SL-00065, SL-00066, SL-00067, SL-00068, SL-00069, SL-00070, SL-00071, SL-00072, SL-00073, SL-00074, SL-00075, SL-00076, SL-00077, SL-00078, SL-00079, SL-00080, SL-00081, SL-00082, SL-00083, SL-00084, SL-00085, SL-00086, SL-00087, SL-00088, SL-00089, SL-00090, SL-00091, SL-00092, SL-00093, SL-00094, SL-00095, SL-00096, SL-00097, SL-00098, SL-00099, SL-00100

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2.2. TABLE OF CARRIER FREQUENCY

Frequency Band	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
2400~2483.5MHZ	1	2405	25	2429	49	2453
	2	2406	26	2430	50	2454
	3	2407	27	2431	51	2455
	4	2408	28	2432	52	2456
	5	2409	29	2433	53	2457
	6	2410	30	2434	54	2458
	7	2411	31	2435	55	2459
	8	2412	32	2436	56	2460
	9	2413	33	2437	57	2461
	10	2414	34	2438	58	2462
	11	2415	35	2439	59	2463
	12	2416	36	2440	60	2464
	13	2417	37	2441	61	2465
	14	2418	38	2442	62	2466
	15	2419	39	2443	63	2467
	16	2420	40	2444	64	246+8
	17	2421	41	2445	65	2469
	18	2422	42	2446	66	2470
	19	2423	43	2447	67	2471
	20	2424	44	2448	68	2472
	21	2425	45	2449	69	2473
	22	2426	46	2450	70	2474
	23	2427	47	2451	71	2475
	24	2428	48	2452		

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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 = ±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 %

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

4. DESCRIPTION OF TEST MODES

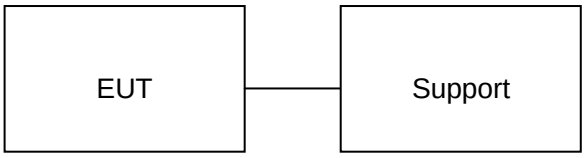
NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK

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. The EUT adjusts the frequency through the button.
4. For battery operated equipment, the equipment tests are performed using a new battery.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM



5.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Remote control car	SL-00003	2AZCSSL-00003	EUT

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249&15.209	Radiated Emission	Compliant
§15.249	Band Edges	Compliant
§15.215	20dB bandwidth	Compliant
§15.207	Conducted Emission	Not applicable

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

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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 15, 2021	May 14, 2022
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022

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
2.4GHz Fliter	EM Electronics	2400-2500MHz	N/A	Mar. 22, 2022	Mar. 21, 2024
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, 2022
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2020	Jan. 07, 2023

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

7. RADIATED EMISSION

7.1TEST LIMIT

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μV/m	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 (Peak) 54.0 dB(μV)/m (Average)	

Remark: (1) Emission level dB μV = 20 log Emission level μV/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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

7.2. 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 minimum resolution bandwidth of 1 MHz. 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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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

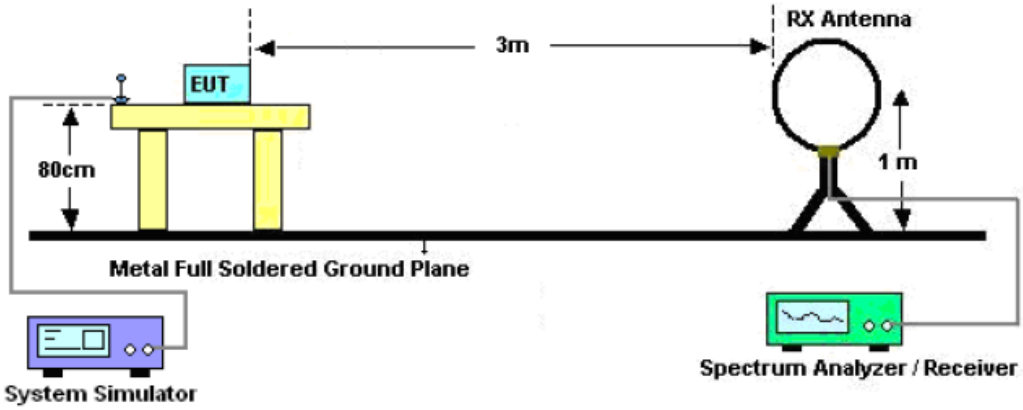
Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz RBW 2.4MHz/ VBW 8MHz for Peak, RBW 2.4MHz/10Hz for Average

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

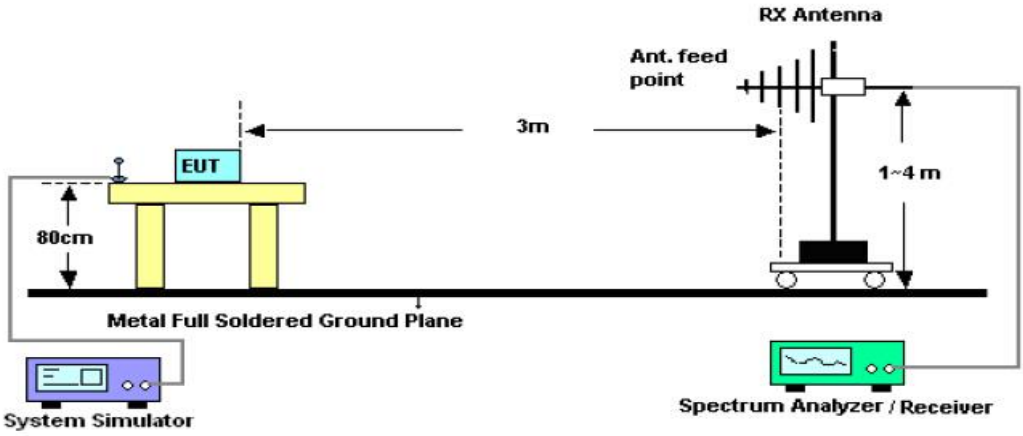
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

7.3. TEST SETUP

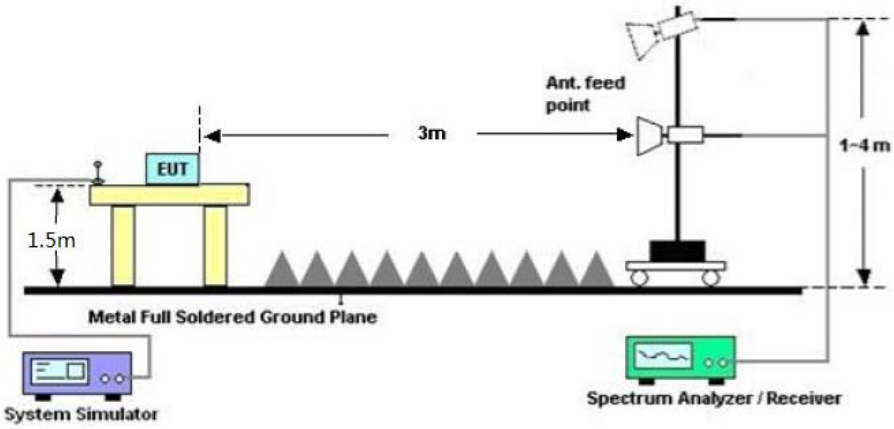
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

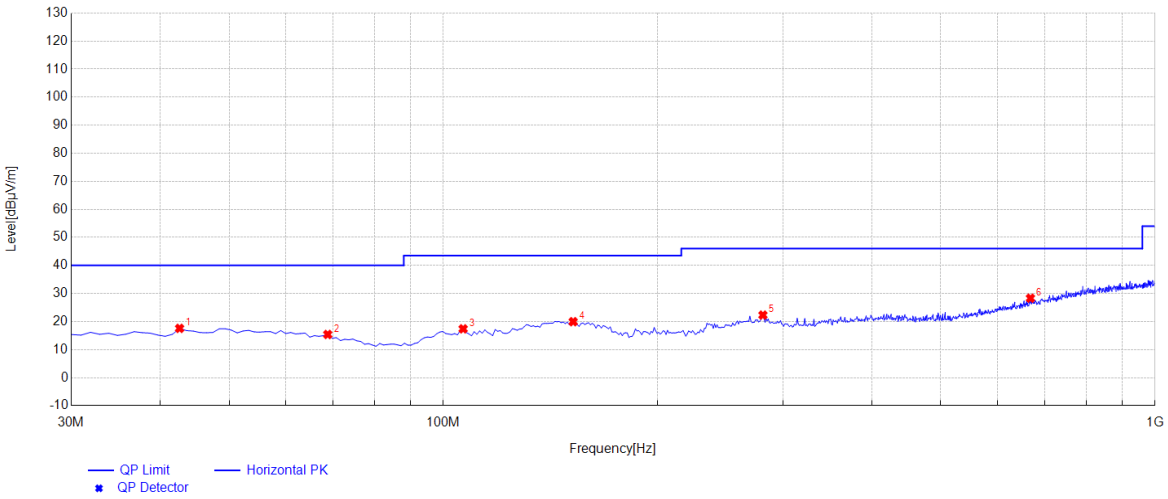
7.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION 30MHz- 1GHZ

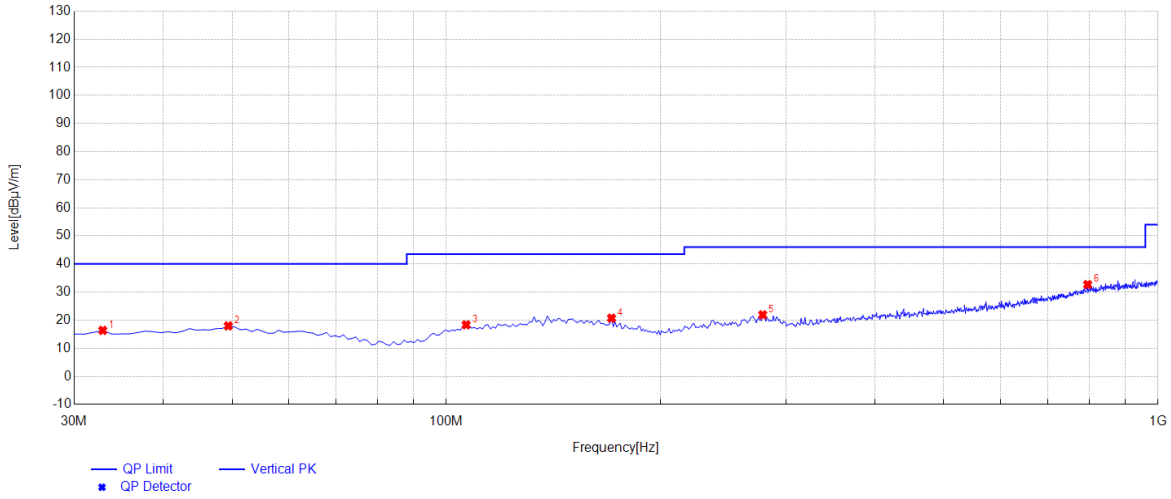
EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 1	Polarization :	Horizontal



Suspected Data List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.61	17.56	10.98	40.00	22.44	100	19	Horizontal
2	68.8	15.39	9.43	40.00	24.61	100	151	Horizontal
3	106.63	17.39	11.40	43.50	26.11	100	91	Horizontal
4	152.22	19.94	14.90	43.50	23.56	100	217	Horizontal
5	281.23	22.30	16.21	46.00	23.70	100	332	Horizontal
6	668.26	28.31	22.00	46.00	17.69	100	104	Horizontal

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 1	Polarization :	Vertical



Suspected Data List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.91	16.36	10.36	40.00	23.64	100	22	Vertical
2	49.4	17.96	11.61	40.00	22.04	100	328	Vertical
3	106.63	18.34	12.07	43.50	25.16	100	98	Vertical
4	170.65	20.72	13.89	43.50	22.78	100	29	Vertical
5	278.32	21.91	16.14	46.00	24.09	100	142	Vertical
6	796.3	32.68	26.38	46.00	13.32	100	145	Vertical

RESULT: PASS

Note:

Factor=Antenna Factor + Cable loss, Margin=Limit-Level.

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

The mode 1 is the worst case, and only the data of the worst case recorded in this test report.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

FIELD STRENGTH OF FUNDAMENTAL

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Modulation ：	GFSK	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2405.031	92.99	-9.61	83.38	114.00	-30.62	peak
2405.031	88.92	-9.61	79.31	94.00	-14.69	AVG
2440.031	93.02	-9.61	83.41	114.00	-30.59	peak
2440.031	89.17	-9.61	79.56	94.00	-14.44	AVG
2475.031	93.06	-9.61	83.45	114.00	-30.55	peak
2475.031	89.52	-9.61	79.91	94.00	-14.09	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Modulation ：	GFSK	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2405.031	90.12	-9.61	80.51	114.00	-33.49	peak
2405.031	84.66	-9.61	75.05	94.00	-18.95	AVG
2440.031	89.57	-9.61	79.96	114.00	-34.04	peak
2440.031	84.47	-9.61	74.86	94.00	-19.14	AVG
2475.031	89.13	-9.61	79.52	114.00	-34.48	peak
2475.031	84.33	-9.61	74.72	94.00	-19.28	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

RADIATED EMISSION ABOVE 1GHZ

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 1	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4810	48.31	3.76	52.07	74.00	-21.93	peak
4810	42.16	3.76	45.92	54.00	-8.08	AVG
7215	42.57	8.17	50.74	74.00	-23.26	peak
7215	38.64	8.17	46.81	54.00	-7.19	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 1	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4810	48.64	3.76	52.40	74.00	-21.60	peak
4810	43.57	3.76	47.33	54.00	-6.67	AVG
7215	42.15	8.17	50.32	74.00	-23.68	peak
7215	38.54	8.17	46.71	54.00	-7.29	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 2	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880	47.69	3.78	51.47	74.00	-22.53	peak
4880	42.15	3.78	45.93	54.00	-8.07	AVG
7320	43.58	8.23	51.81	74.00	-22.19	peak
7320	38.66	8.23	46.89	54.00	-7.11	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 2	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880	49.64	3.78	53.42	74.00	-20.58	peak
4880	43.52	3.78	47.30	54.00	-6.70	AVG
7320	43.18	8.23	51.41	74.00	-22.59	peak
7320	37.42	8.23	45.65	54.00	-8.35	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 3	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4950	48.52	3.81	52.33	74.00	-21.67	peak
4950	43.27	3.81	47.08	54.00	-6.92	AVG
7425	43.98	8.27	52.25	74.00	-21.75	peak
7425	39.51	8.27	47.78	54.00	-6.22	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 3	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4950	49.61	3.81	53.42	74.00	-20.58	peak
4950	43.28	3.81	47.09	54.00	-6.91	AVG
7425	42.16	8.27	50.43	74.00	-23.57	peak
7425	38.72	8.27	46.99	54.00	-7.01	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Note: Other emissions from 8G to 25 GHz are considered as ambient noise. No recording in the test report.
Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
The “Factor” value can be calculated automatically by software of measurement system.
The GFSK modulation was the worst case and only the data of worst recorded in this report

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

8. BAND EDGE EMISSION

8.1TEST LIMIT

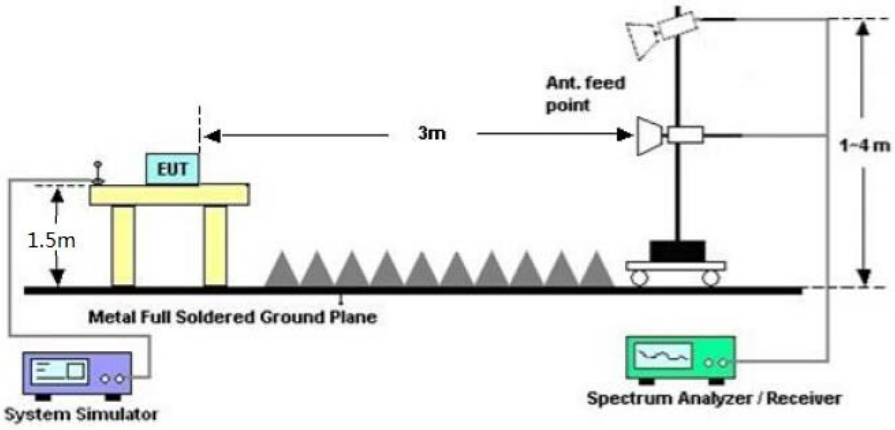
Frequency Band	Limit of the Field Strength (dBμV/m)	
	Peak	Average
f≤2390MHz	74	54
f≥2483.5MHz	74	54

8.2. MEASUREMENT PROCEDURE

1. The EUT operates at transmitting mode. The operate channel is tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.
2. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: (a) PEAK: RBW=1MHz, VBW=3MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz ; VBW=1/on time(1KHz) / Sweep=AUTO
3. Other procedures refer to clause 7.2.

8.3 TEST SETUP

RADIATED EMISSION TEST SETUP



8.4 TEST RESULT

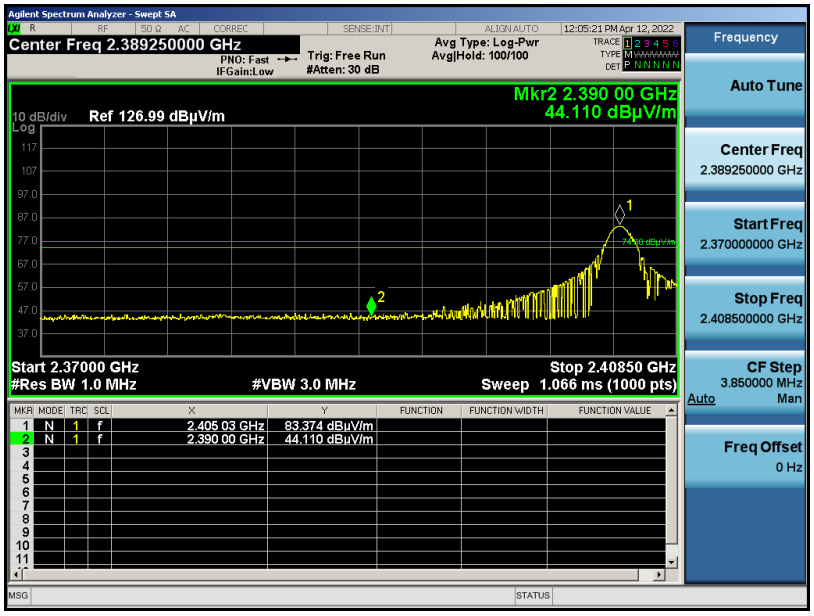
Note:

1. Factor=Antenna Factor + Cable loss - Amplifier gain. Field Strength=Factor + Reading level
2. The factor had been edited in the “Input Correction” of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB(μV) to represent the Amplitude. Use the F dB(μV/m) to represent the Field Strength. So A=F.

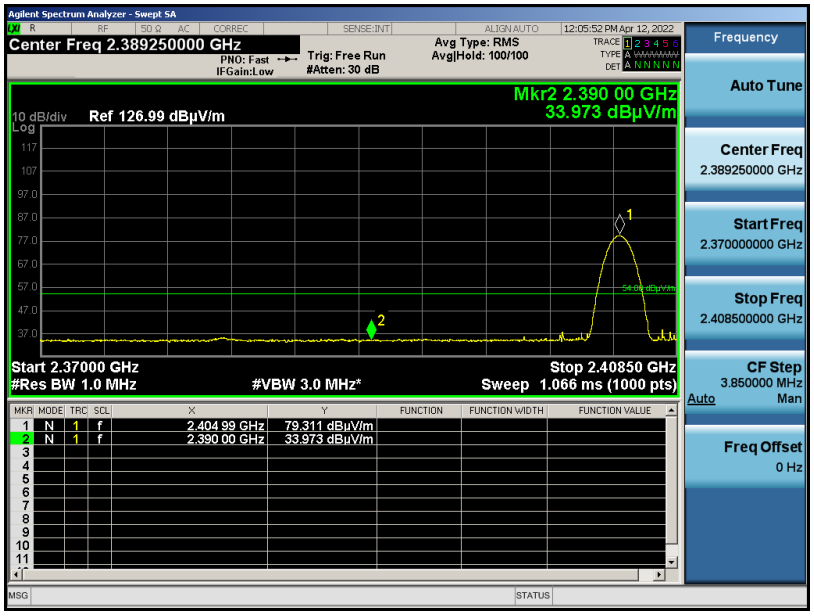
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the “Dedicated Testing/Inspection Stamp” is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 1	Polarization :	Horizontal

Peak Value



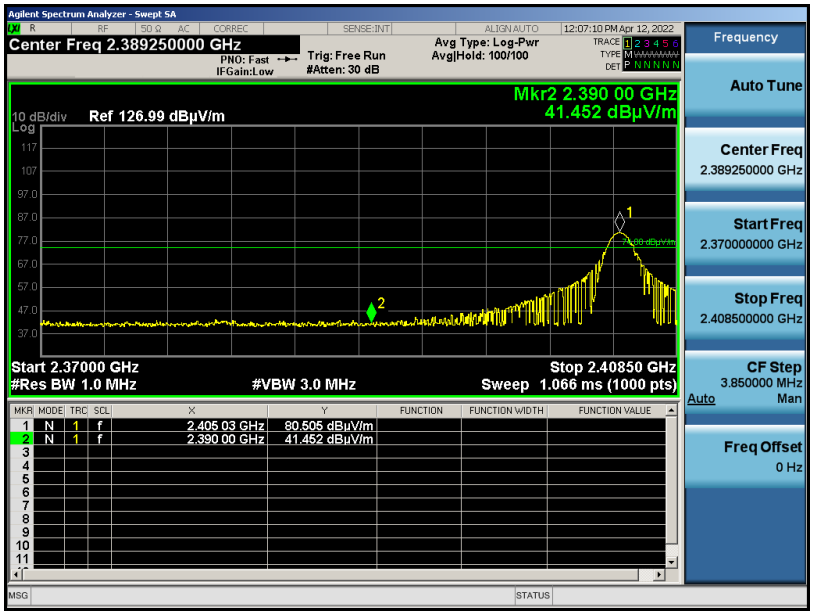
Average Value



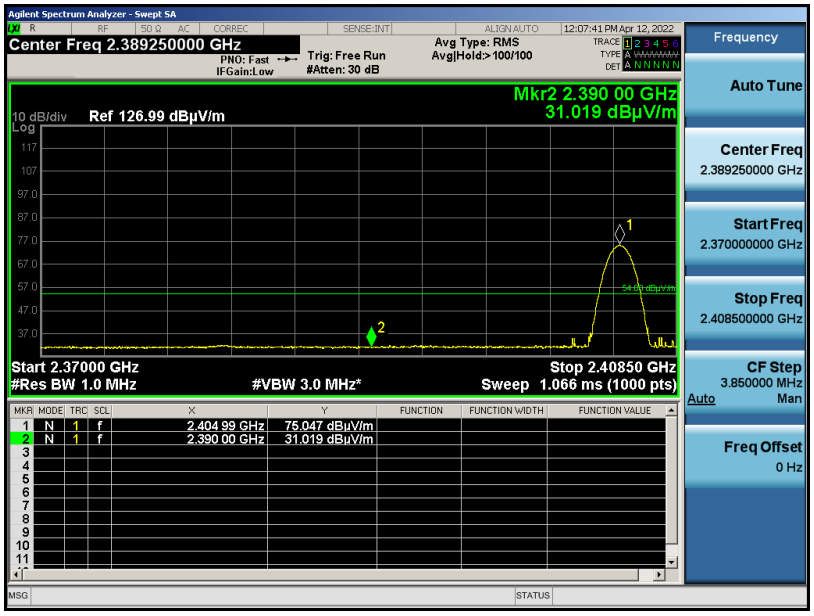
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3v
Test Mode ：	Mode 1	Polarization :	Vertical

Peak Value



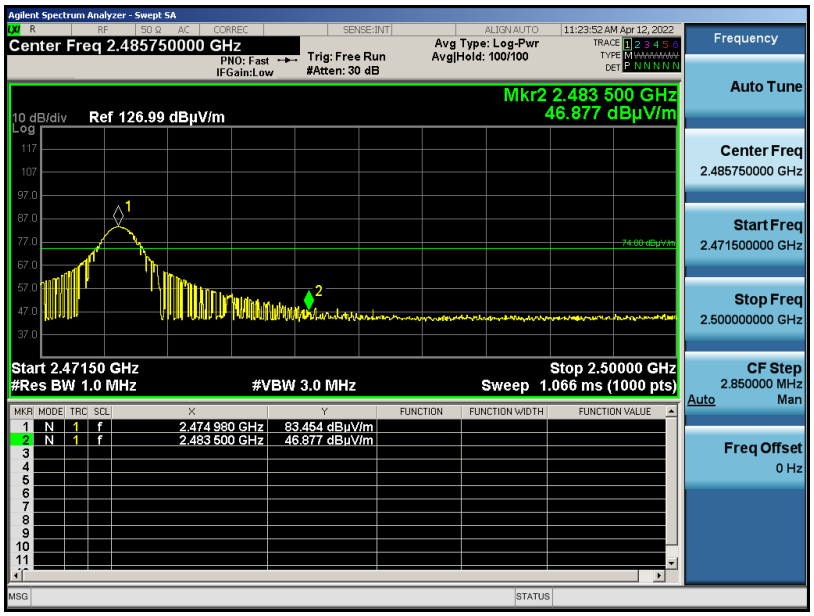
Average Value



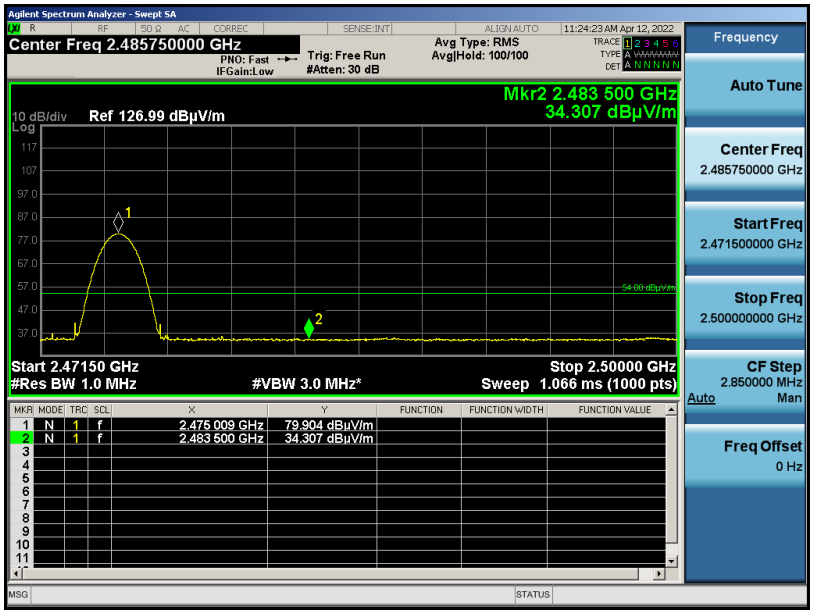
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3v
Test Mode ：	Mode 3	Polarization :	Horizontal

Peak Value



Average Value

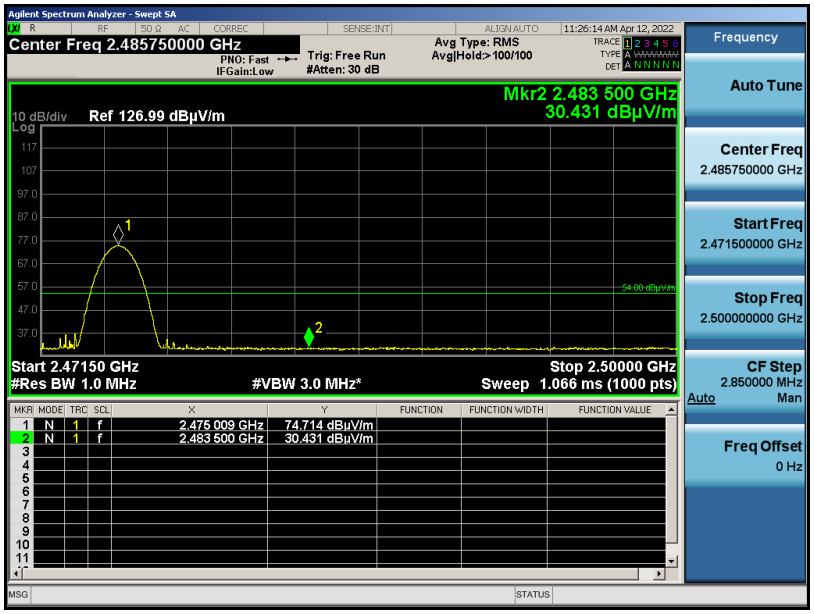


Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

EUT：	Remote control car	Model Name. ：	SL-00003
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3V
Test Mode ：	Mode 3	Polarization :	Vertical

Peak Value

Average Value



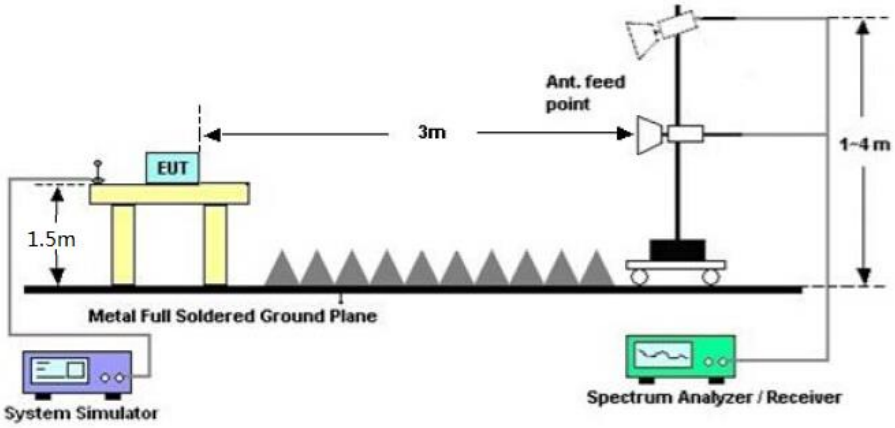
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

9. 20DB BANDWIDTH

9.1. MEASUREMENT PROCEDURE

1. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
2. Set SPA Centre Frequency = Operation Frequency, RBW= 30 KHz, VBW⩾3×RBW.
3. Set SPA Trace 1 Max hold, then View.

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



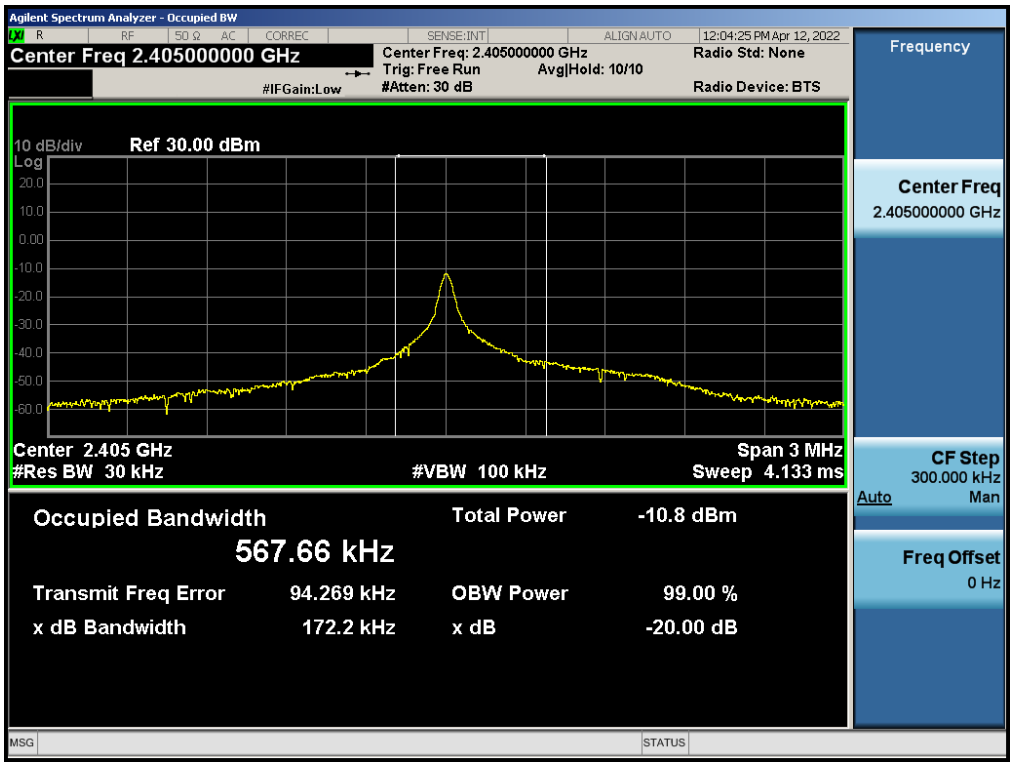
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

9.3. MEASUREMENT RESULTS

TEST ITEM	20DB BANDWIDTH
TEST MODULATION	GFSK

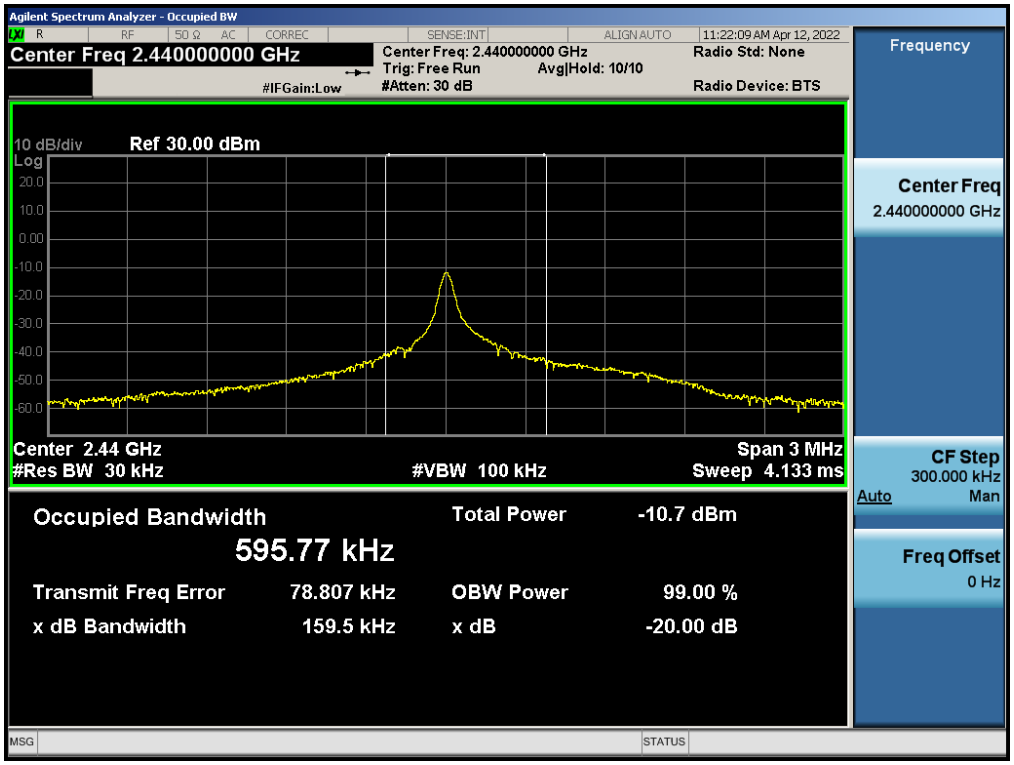
Test Data (kHz)		Criteria
Low Channel	172.2	PASS
Middle Channel	159.5	PASS
High Channel	162.1	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

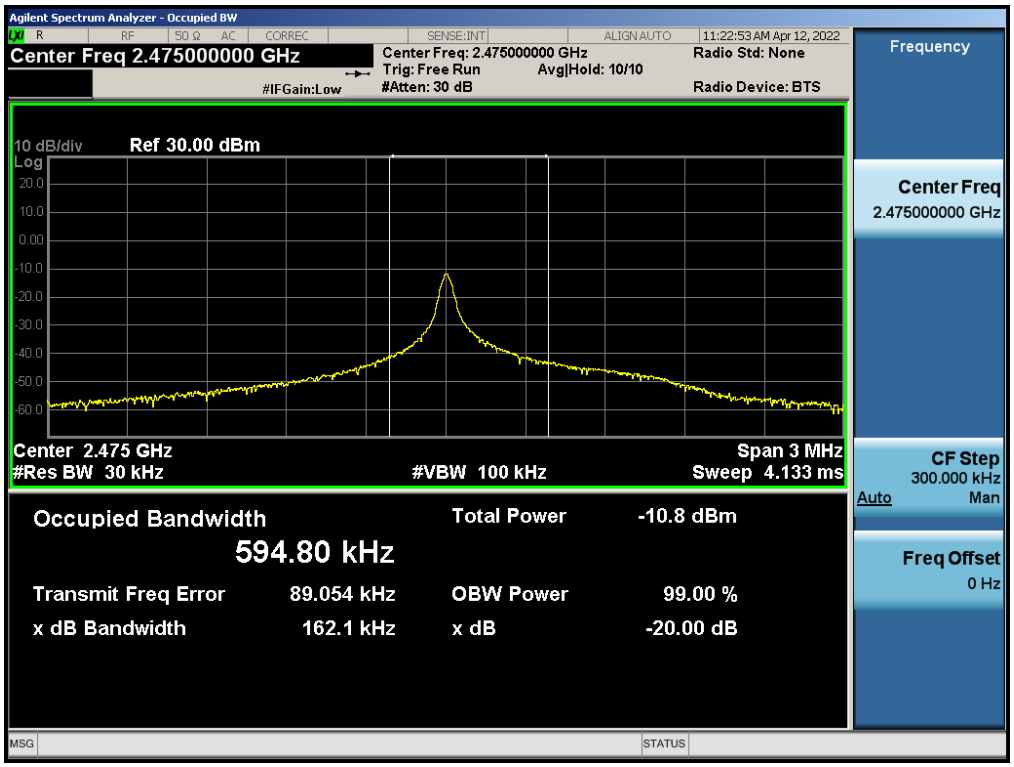


Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

10. FCC LINE CONDUCTED EMISSION TEST

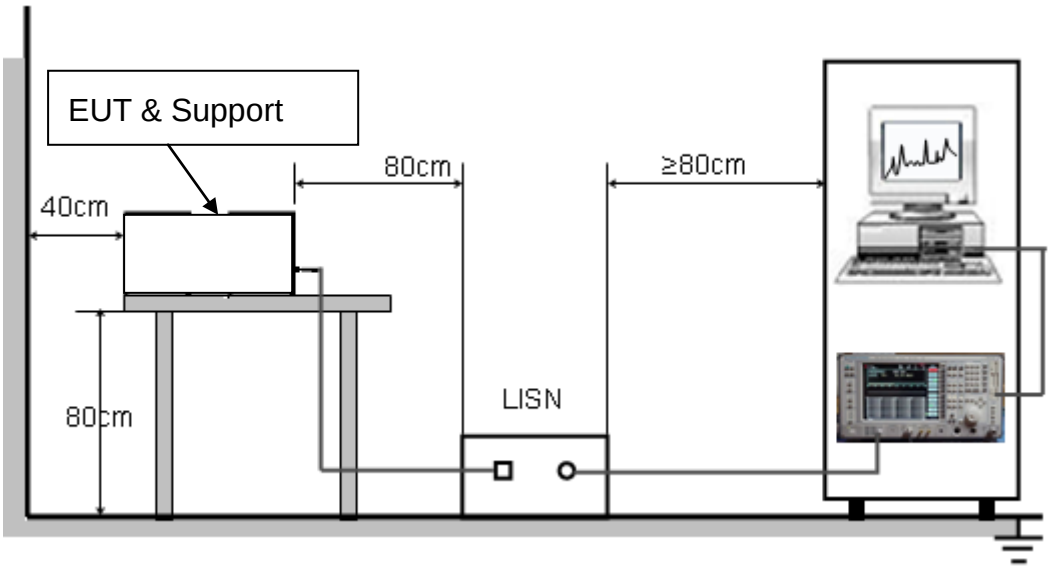
10.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	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 0.50MHz.

10.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

10.3. 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 equipments received AC120VV/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hzpower by 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.

10.4. 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.

10.5. 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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC07814220402AP01

APPENDIX B: PHOTOGRAPHS OF THE EUT

Refer to the Report No.: AGC07814220402AP02

----END OF REPORT----

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.