FCC Test Report

Report No.: AGC12032220601FE03

FCC ID	:	2ARXWSINOVAN08
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	RC HIGH SPEED BOAT
BRAND NAME	:	N/A
MODEL NAME	:	See page 5
APPLICANT	:	GUANGDONG SINOVAN CULTURE CO., LTD.
DATE OF ISSUE	:	Jun. 13, 2022
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15 Rules
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	/	Jun. 13, 2022	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	GUANGDONG SINOVAN CULTURE CO., LTD.
Address	XINAN INDUSTRIAL AREA, CHENGHAI, SHANTOU,GUANGDONG, CHINA
Manufacturer	GUANGDONG SINOVAN CULTURE CO., LTD.
Address	XINAN INDUSTRIAL AREA, CHENGHAI, SHANTOU,GUANGDONG, CHINA
Factory	GUANGDONG SINOVAN CULTURE CO., LTD.
Address	XINAN INDUSTRIAL AREA, CHENGHAI, SHANTOU,GUANGDONG, CHINA
Product Designation	RC HIGH SPEED BOAT
Brand Name	N/A
Test Model	S0101B
Series Model	See page 6
Difference description	Only the appearance and color are different, others are the same.
Date of test	Jun. 03, 2022 to Jun. 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	Eder Zhan (Project Engineer)	Jun. 13, 2022
Reviewed By	Calvin Liu (Reviewer)	Jun. 13, 2022
Approved By	Max Zhang (Authorized Officer)	Jun. 13, 2022

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	2405 MHz to 2475 MHz
Maximum field strength	89.98dBuV/m(average)@3m
Modulation	GFSK
Number of channels	71
Antenna Gain	2dBi
Antenna Designation	Copper sleeve antenna (Met 15.203 Antenna requirement)
Hardware Version	JH-2738T:V1.0
Software Version	RF2517-V12F4
Power Supply	DC 4.5V by battery

Series Model	S0101, S0101A, S0101C, S0101D, S0101E, S0101F, S0102, S0102A, S0102B, S0102C, S0102D, S0102E, S0102F, S0103, S0103A, S0103B, S0103C, S0103D, S0103E, S0103F, S0104, S0104A, S0104B, S0104C, S0104D, S0104E, S0104F, S0105, S0105A, S0105B, S0105C, S0105D, S0105E, S0105F, S0106, S0106A, S0106B, S0106C, S0106D, S0106E, S0106F, S0108, S0108A, S0108B, S0108C, S0108D, S0108E, S0108F, SP001, SP001A, SP001B, SP001C, SP001D, SP001E, SP001F, SP002, SP002A, SP002B, SP002C, SP002D, SP002E, SP002F, SP003, SP003A, SP003B, SP003C, SP003D, SP003E, SP003F, SP004, SP004A, SP004B, SP004C, SP004D, SP004E, SP004F, SP005, SP005A, SP005B, SP005C, SP005D, SP005E, SP005F, SP006, SP006A, SP006B, SP006C, SP006D, SP006E, SP006F, SP008, SP008A, SP008B, SP008C, SP008D, SP008E, SP008F

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2.2. TABLE OF CARRIER FREQUENCY

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

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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 = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %

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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.

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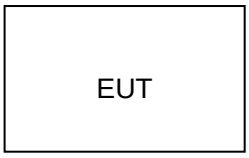
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure:



5.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	RC HIGH SPEED BOAT	S0101B	2ARXWSINOVAN08	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 EUT is battery operated without AC mains.

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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 RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Sep. 06, 2021	Sep. 05, 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	Mar. 12, 2022	Mar. 11, 2024
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, 2020	Jan. 07, 2023

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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.

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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.

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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

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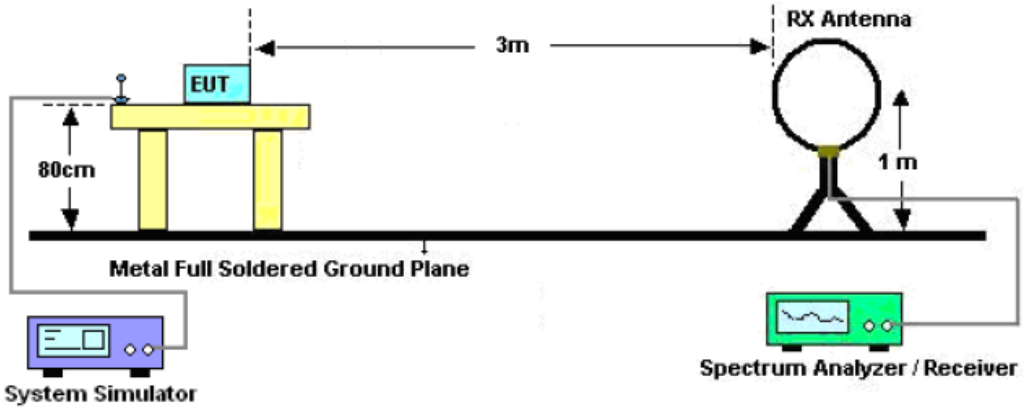
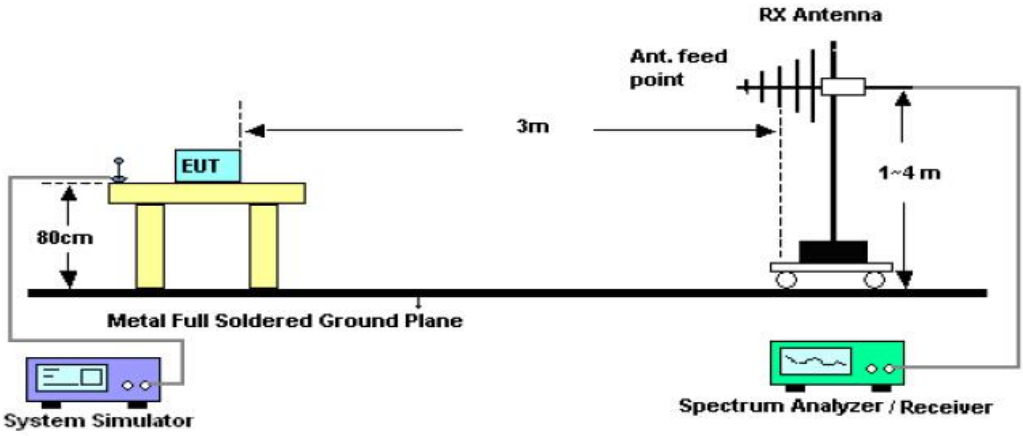
7.3. TEST SETUP

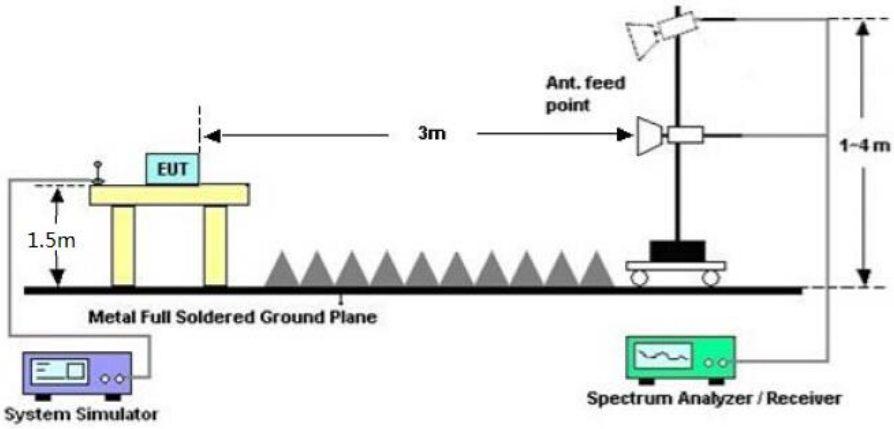
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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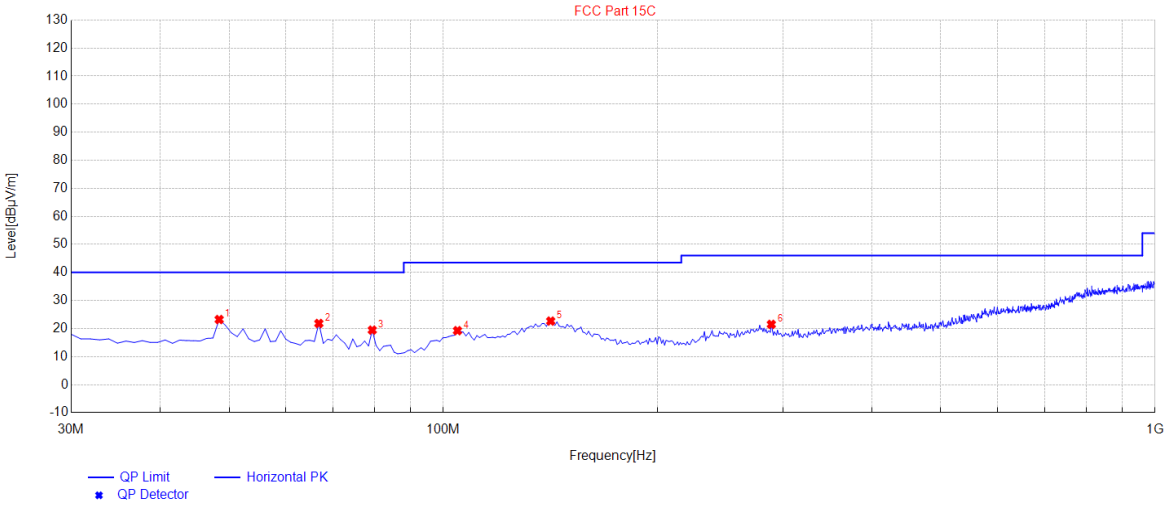
7.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

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

RADIATED EMISSION 30MHz- 1GHZ

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25 ℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Mode ：	Mode 3	Polarization :	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.43	23.21	11.53	40.00	16.79	100	210	Horizontal
2	66.86	21.81	9.76	40.00	18.19	100	200	Horizontal
3	79.47	19.44	7.26	40.00	20.56	100	300	Horizontal
4	104.69	19.24	11.86	43.50	24.26	100	50	Horizontal
5	141.55	22.66	17.65	43.50	20.84	100	90	Horizontal
6	288.99	21.48	15.60	46.00	24.52	100	360	Horizontal

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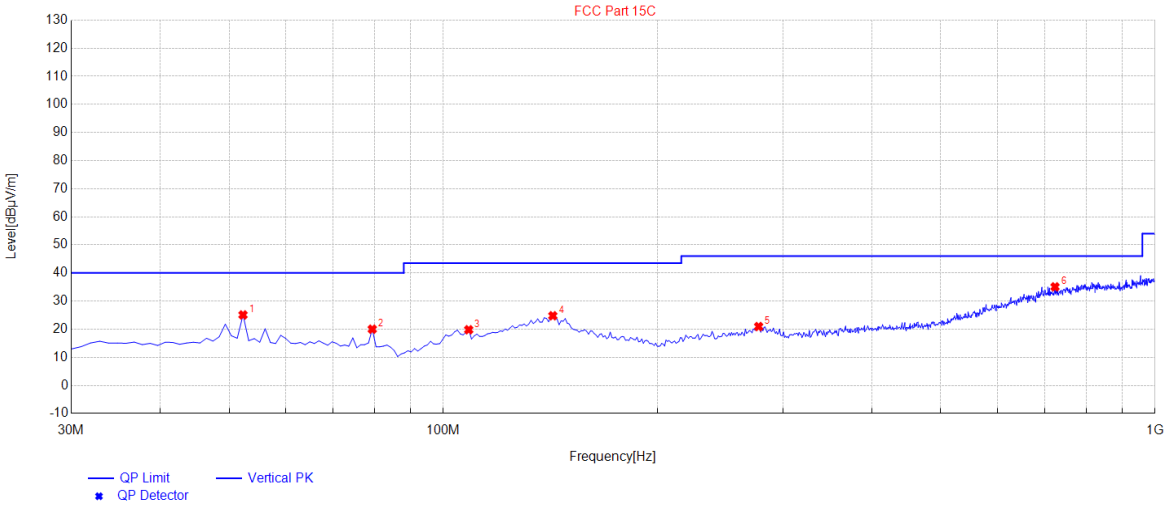
EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25 ℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Mode ：	Mode 3	Polarization :	Vertical



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	52.31	25.07	11.49	40.00	14.93	100	110	Vertical
2	79.47	20.00	7.26	40.00	20.00	100	280	Vertical
3	108.57	19.80	13.13	43.50	23.70	100	90	Vertical
4	142.52	24.77	19.25	43.50	18.73	100	130	Vertical
5	277.35	20.93	16.05	46.00	25.07	100	130	Vertical
6	723.55	35.06	29.62	46.00	10.94	100	350	Vertical

RESULT: PASS

Note:

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

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

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FIELD STRENGTH OF FUNDAMENTAL

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Modulation ：	GFSK	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2405	113.92	-9.61	104.31	114.00	-9.69	peak
2405	98.41	-9.61	88.80	94.00	-5.20	AVG
2440	97.56	-9.61	87.95	114.00	-26.05	peak
2440	93.26	-9.61	83.65	94.00	-10.36	AVG
2475	110.30	-9.61	100.69	114.00	-13.32	peak
2475	94.23	-9.61	84.62	94.00	-9.38	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Modulation ：	GFSK	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2405	113.30	-9.61	103.69	114.00	-10.32	peak
2405	99.59	-9.61	89.98	94.00	-4.02	AVG
2440	99.39	-9.61	89.78	114.00	-24.22	peak
2440	94.57	-9.61	84.96	94.00	-9.04	AVG
2475	111.24	-9.61	101.63	114.00	-12.37	peak
2475	94.92	-9.61	85.31	94.00	-8.69	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

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RADIATED EMISSION ABOVE 1GHZ

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
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	48.62	3.76	52.38	74.00	-21.62	peak
4810	43.58	3.76	47.34	54.00	-6.66	AVG
7215	42.56	8.17	50.73	74.00	-23.27	peak
7215	38.69	8.17	46.86	54.00	-7.14	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
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	47.92	3.76	51.68	74.00	-22.32	peak
4810	43.86	3.76	47.62	54.00	-6.38	AVG
7215	42.18	8.17	50.35	74.00	-23.65	peak
7215	37.59	8.17	45.76	54.00	-8.24	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

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EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
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	47.18	3.78	50.96	74.00	-23.04	peak
4880	43.57	3.78	47.35	54.00	-6.65	AVG
7320	43.85	8.23	52.08	74.00	-21.92	peak
7320	39.62	8.23	47.85	54.00	-6.15	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
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	48.94	3.78	52.72	74.00	-21.28	peak
4880	42.63	3.78	46.41	54.00	-7.59	AVG
7320	44.18	8.23	52.41	74.00	-21.59	peak
7320	39.92	8.23	48.15	54.00	-5.85	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

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EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
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	47.85	3.81	51.66	74.00	-22.34	peak
4950	44.26	3.81	48.07	54.00	-5.93	AVG
7425	42.17	8.27	50.44	74.00	-23.56	peak
7425	38.62	8.27	46.89	54.00	-7.11	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
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	48.69	3.81	52.50	74.00	-21.50	peak
4950	43.16	3.81	46.97	54.00	-7.03	AVG
7425	44.53	8.27	52.80	74.00	-21.20	peak
7425	40.25	8.27	48.52	54.00	-5.48	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=Level-Limit.
The “Factor” value can be calculated automatically by software of measurement system.

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8. BAND EDGE EMISSION

8.1TEST LIMIT

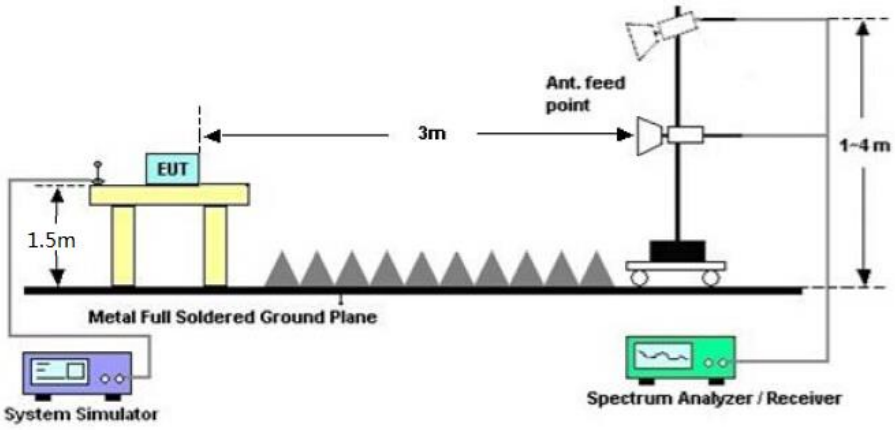
Frequency Band	Limit of the Field Strength (dBμV/m)	
	Peak	Average
f≤2390MHz	74	54
f≥2483.5MHz	74	54

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.

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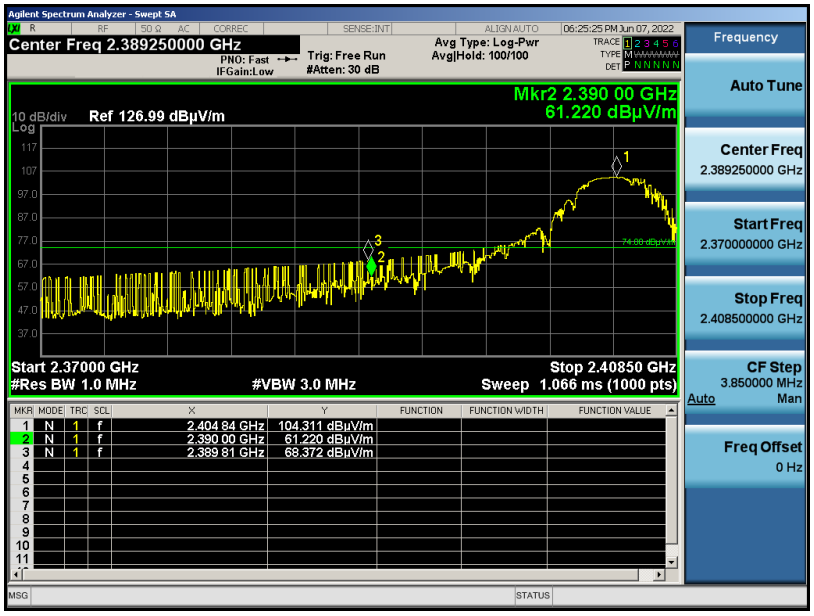
EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Mode ：	Mode 1	Polarization :	Horizontal

Peak Value



Average Value

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EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Mode ：	Mode 1	Polarization :	Vertical

Peak Value

Average Value

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EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Mode ：	Mode 3	Polarization :	Horizontal

Peak Value

Average Value

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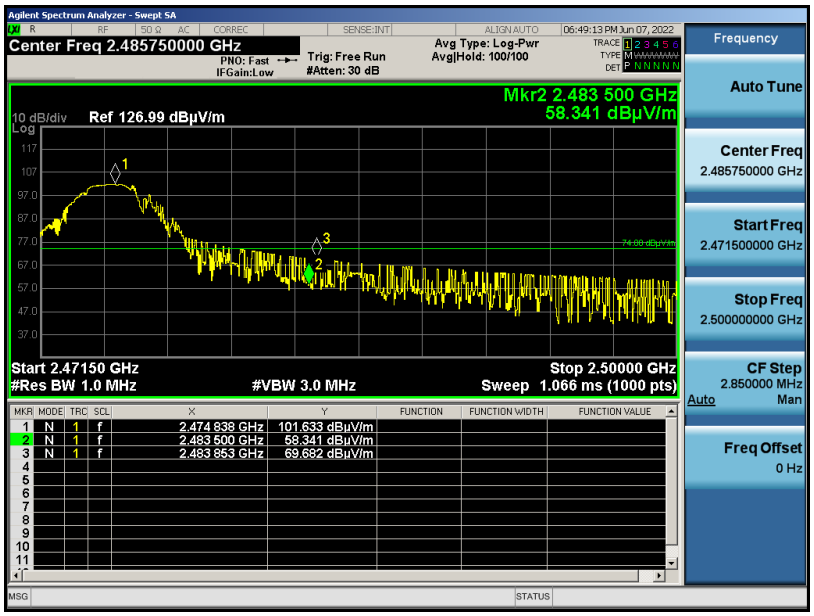
EUT：	RC HIGH SPEED BOAT	Model Name. ：	S0101B
Temperature：	25℃	Relative Humidity：	55%
Pressure：	1010 hPa	Test Voltage ：	DC 4.5V
Test Mode ：	Mode 3	Polarization :	Vertical

Peak Value



Average Value

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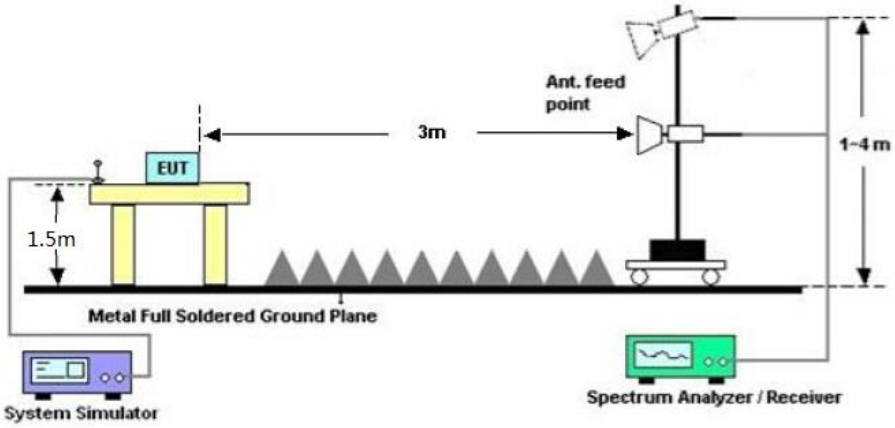
9. 20DB BANDWIDTH

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)



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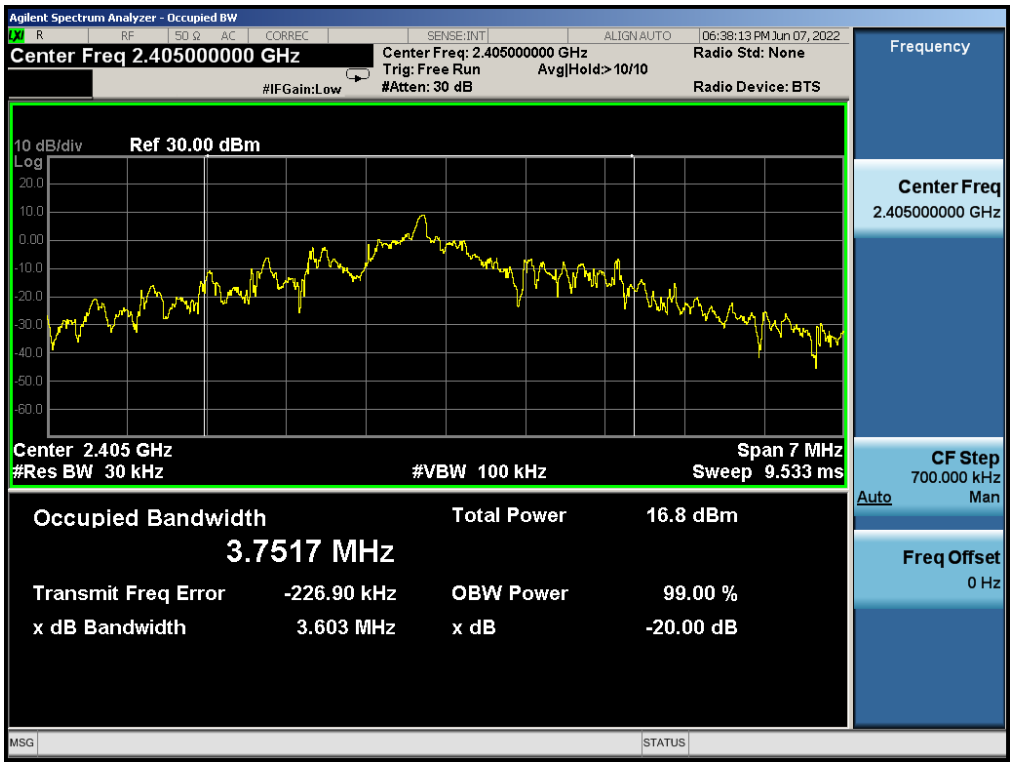
9.3. MEASUREMENT RESULTS

TEST ITEM	20DB BANDWIDTH
TEST MODULATION	GFSK

Test Data (MHz)		Criteria
Low Channel	3.603	PASS
Middle Channel	2.739	PASS
High Channel	2.526	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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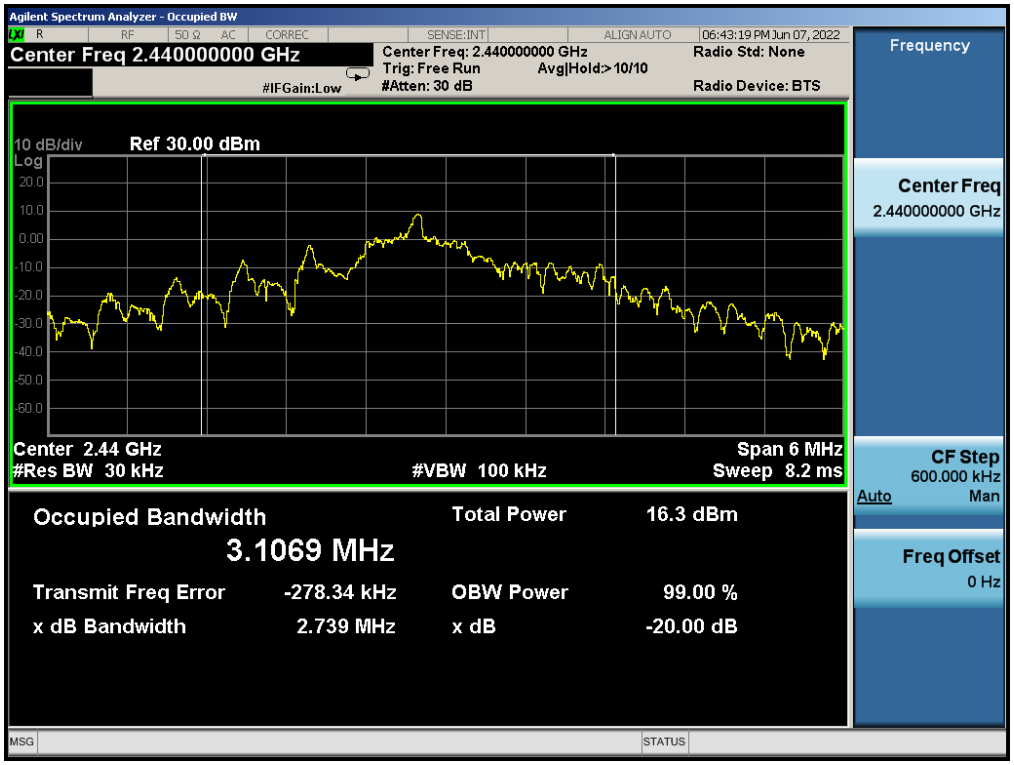
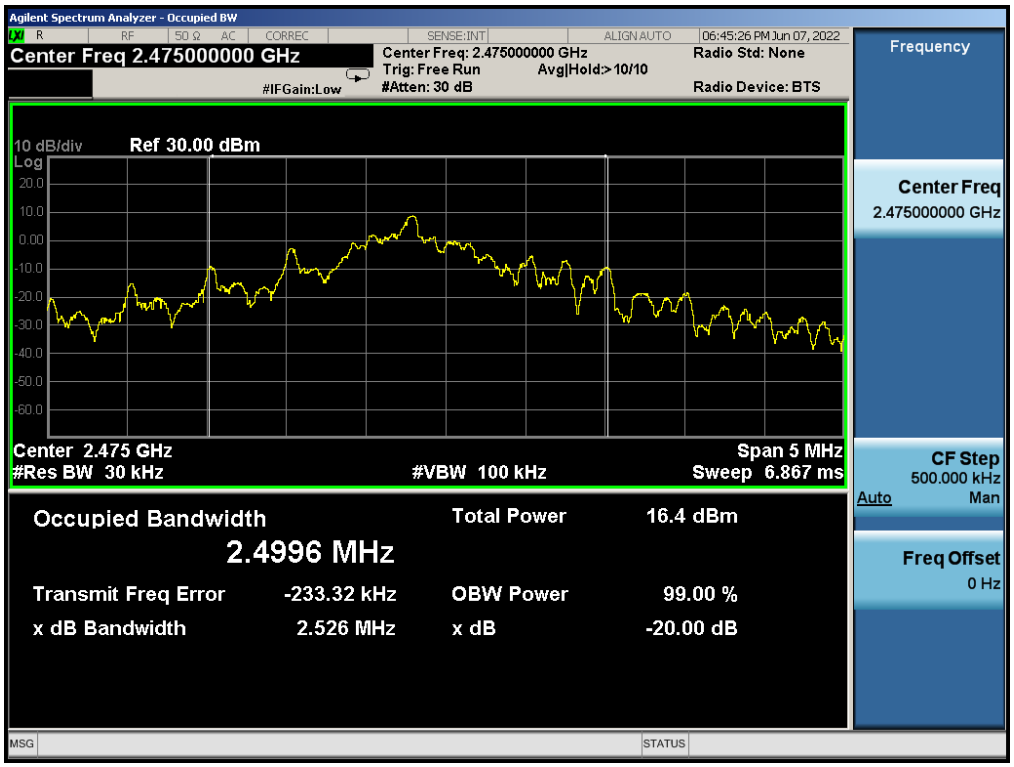
TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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10. FCC LINE CONDUCTED EMISSION TEST

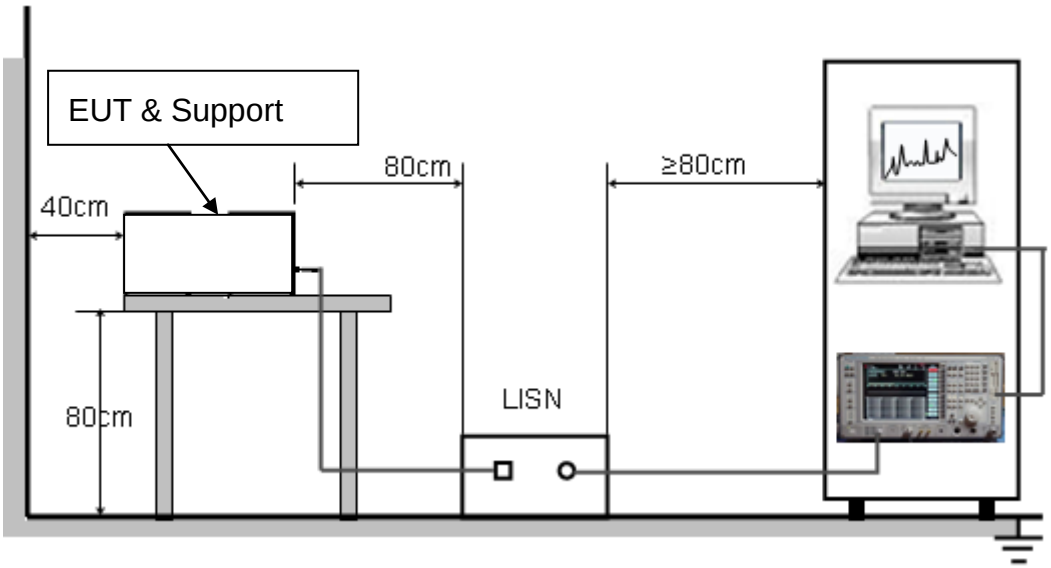
10.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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



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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 EUT is battery operated without AC mains.

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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC12032220601AP01

APPENDIX B: PHOTOGRAPHS OF THE EUT

Refer to the Report No.: AGC12032220601AP02

----END OF REPORT----

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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.

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