FCC AND ISED CERTIFICATION TEST REPORT

FOR

Applicant	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	PORTABLE BLUETOOTH SPEAKER
Model No.	:	GO2H
Trade Mark	:	JBL
FCC ID	:	APIJBLGO2H
IC	:	6132A-JBLGO2H
Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678 **E-mail:** ddt@dgddt.com http://www.dgddt.com

REPORT

TABLE OF CONTENTS

Test report declares....4
1. Summary of test results....5
2. General test information....6
2.1. Description of EUT....6
2.2. Accessories of EUT....6
2.3. Assistant equipment used for test....6
2.4. Block diagram of EUT configuration for test....7
2.5. Deviations of test standard....7
2.6. Test environment conditions....7
2.7. Test laboratory....8
2.8. Measurement uncertainty....8
3. Equipment used during test....9
4. Radiated emission....11
4.1. Block diagram of test setup....11
4.2. Limit....12
4.3. Test Procedure....13
4.4. Test result....14
5. Power Line Conducted Emission....18
5.1. Block diagram of test setup....18
5.2. Power Line Conducted Emission Limits....18
5.3. Test Procedure....18
5.4. Test Result....19

TEST REPORT DECLARE

Applicant	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	PORTABLE BLUETOOTH SPEAKER
Model No.	:	GO2H
Trade mark	:	JBL
Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C.

Test procedure used:

ANSI C63.10:2013.

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC&ISED standards.

Report No.:	DDT-R18082902-1E1 Rev. 03		
Date of Receipt:	Sep. 10, 2020	**Date of Test:**	Sep. 10, 2020 ~ Sep. 17, 2020

Prepared By: ***Approved By:***

Bobo Chen

Bobo Chen/Engineer

DONGGUAN DONGDIAN TESTING SERVICE CO., LTD. APPROVED

Damon Hu

Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Nov. 06, 2017	
V1.0	There is power amplifier add in this report base on the original report: DDT-R17101804-1E2, this change doesn't influence the RF performance, so power line conducted and radiated emission (below 1GHz) were tested and updated in this report only.	Apr. 19, 2018	Ella Gong
V2.0	There is a new battery added in this report base on the original report: R18041303-1E2, this change doesn't influence the RF performance, so only power line conducted and radiated emission (below 1GHz) were tested and updated in this report only.	Sep. 09, 2018	Ella Gong
V3.0	This report added electrostatic discharge improvement plan and new battery based on the original report, this change based on engineering judgment that only power line conducted and radiated emission (below 1GHz), need to test, and the original test data retained in this report	Mar. 26, 2020	Bobo Chen
V4.0	This report changed the amplifier IC (Amplifier_HT862E) and added battery (304055) based on the report version 1.0, this change doesn't influence the RF performance, so power line conducted and radiated emission (below 1GHz) were tested and updated in this report only.	Sep. 23, 2020	Bobo Chen
V5.0	This report added battery cell (GSP383555 01) based on the original report version 4.0, this change doesn't influence the RF performance, so power line conducted and radiated emission (below 1GHz) were tested and updated in this report only.	Oct. 13, 2020	Bobo Chen

1. Summary of test results

Description of Test Item	Standard	Results
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10:2013 RSS-247 Issue 2 RSS-Gen Issue 5	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.10:2013 RSS-Gen Issue 5	PASS

2. General test information

2.1. Description of EUT

EUT* Name	:	PORTABLE BLUETOOTH SPEAKER
Model Number	:	GO2H
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 5V from external AC Adapter DC 3.7V built-in battery
Radio Specification	:	Bluetooth V4.1 (only BDR/EDR)
Operation frequency	:	2402MHz -2480MHz
Modulation	:	GFSK, π/4 QPSK, 8-DPSK
Data rate	:	1Mbps, 2Mbps, 3Mbps
Antenna Type	:	Integrated antenna, maximum PK gain: 1.3dBi
Sample Type	:	Series production

Note 1: EUT is the ab. of equipment under test.

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Serial No.	Other
USB cable	Harman	N/A	N/A	Length: 0.3m, unshielded
Built-in Battery	McNair New Power Co., Ltd	GO2/MLP284154	3.7V,730mAh, 2.70Wh, lithium-ion polymer	N/A
Built-in Battery	EVE Energy Co., Ltd	L0707-LF	3.7V,730mAh, 2.70Wh, Lithium-ion polymer	N/A
Built-in Battery	Springpower Technology (Shenzhen) Co., Ltd.	304055	3.7V, 730 mAh, 2.701Wh, polymer lithium-ion battery	N/A
Built-in Battery	Guangzhou Great Power Energy & Technology Co., Ltd.	GSP383555 01	3.7V, 730mAh	N/A
PCB mainboard	N/A	LM48511	N/A	Choosability
PCB mainboard	N/A	HT862E	N/A	

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Serial No.	Other
AC Adapter	Group Intellect Power Technology Limited	F5V-2.3C-1U	N/A	Input: AC 100-240V -50/60Hz, 0.5A; Output: DC 5V, 2.3A

Notebook	DELL	Latitude D610	FCC DOC	00045-534-136-300

2.4. Block diagram of EUT configuration for test

AC Mains → AC Adapter → EUT

Test software: ASTTestTool.exe
The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode as blow table.

Tested mode, channel, information		
Mode	Channel	Frequency (MHz)
GFSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
π/4 QPSK Hopping on TX mode	CH0 to CH78	2402 to 2480
8-DPSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
GFSK hopping off Tx Mode	CH0	2402
	CH39	2441
	CH78	2480
π/4 QPSK hopping off Tx Mode	CH0	2402
	CH39	2441
	CH78	2480
8-DPSK hopping off Tx Mode	CH0	2402
	CH39	2441
	CH78	2480

Note: For π/4 QPSK its same modulation type with 8-DPSK, and based exploratory test, there is no significant difference of that two types test result, so except output power, all other items final test were only performed with the worse case 8-DPSK and GFSK.

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808 Tel: +86-0769-38826678 http://www.dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

Designation Number: CN1182; Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted)(Spectrum analyzer)	0.86dB (10 MHz ≤ f < 3.6GHz);
	1.38dB (3.6GHz≤ f < 8GHz)
Peak Output Power (Conducted)(Power Sensor)	0.74dB
Dwell Time	0.6%
Conducted spurious emissions	0.86dB (10 MHz ≤ f < 3.6GHz);
	1.40dB (3.6GHz≤ f < 8GHz)
	1.66dB (8GHz≤ f < 22GHz)
Uncertainty for radio frequency (RBW<20KHz)	3×10^{-8}
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-18GHz)	4.10dB(1-6GHz)
	4.40dB (6GHz-18Gz)
Uncertainty for Power line conduction emission test	3.32dB (150KHz-30MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment used during test

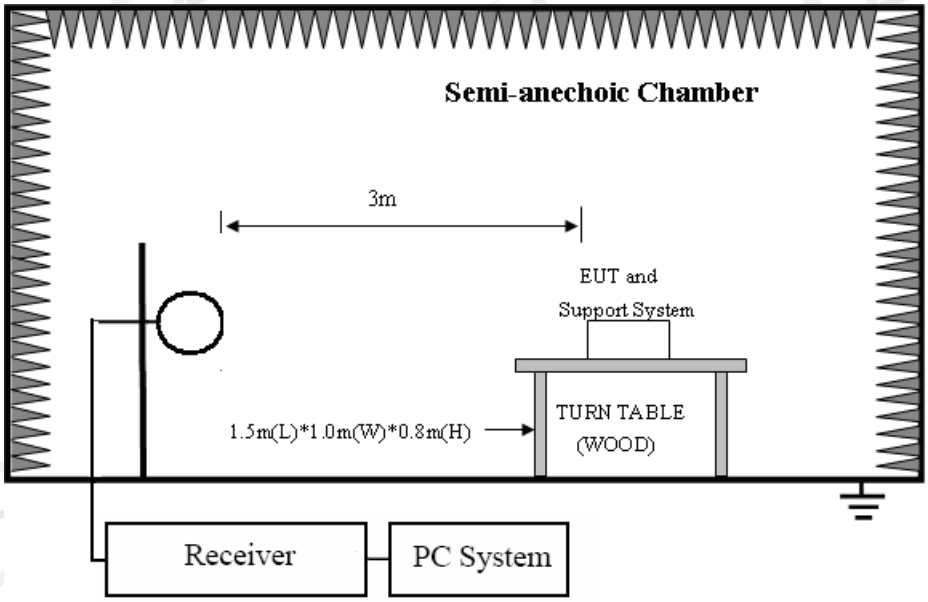
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscend RF Measurement System)					
Spectrum analyzer	R&S	FSU26	200071	Sep. 29, 2019	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 29, 2019	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Jul. 01, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 29, 2019	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Oct. 21, 2019	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
Radiation 1#chamber					
EMI Test Receiver	R&S	ESU8	100316	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2019	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 15, 2019	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Sep. 29, 2019	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 29, 2019	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Sep. 29, 2019	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 29, 2019	1 Year
RF Cable	N/A	5m+6m+1m	06270619	Sep. 29, 2019	1 Year
MI Cable	HUBSER	C10-01-01-1M	1091629	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Radiation 2#chamber					
EMI Test Receiver	R&S	ESCI	101364	Sep. 29, 2019	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2019	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 11, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Sep. 29, 2019	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Sep. 29, 2019	1 Year

RF Cable	N/A	14+1.5m	06270619	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Power Line Conducted Emissions Test					
EMI Test Receiver	R&S	ESU8	100316	Sep. 29, 2019	1 Year
LISN 1	R&S	ENV216	101109	Sep. 29, 2019	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 29, 2019	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 29, 2019	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 29, 2019	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

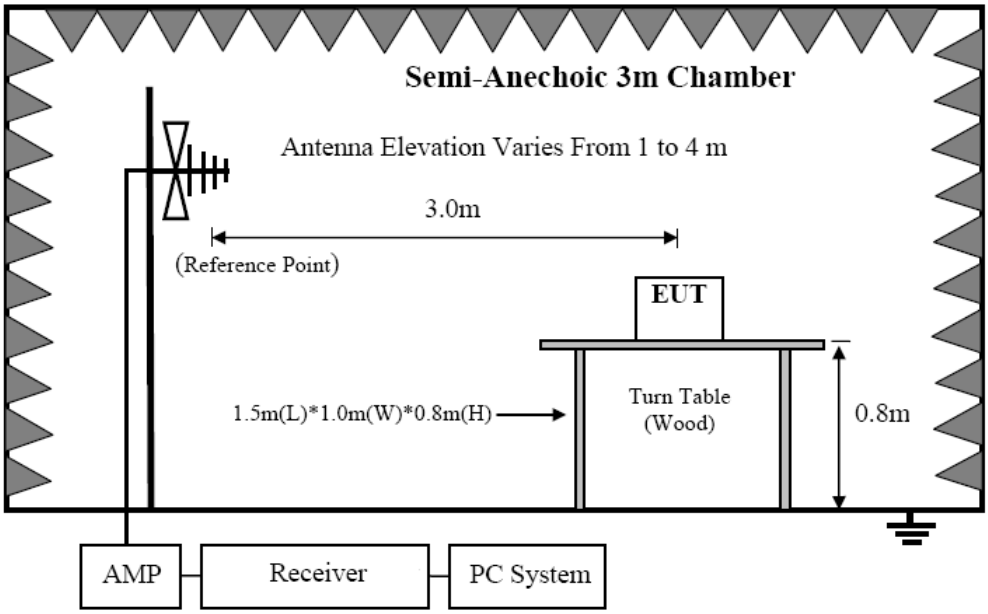
4. Radiated emission

4.1. Block diagram of test setup

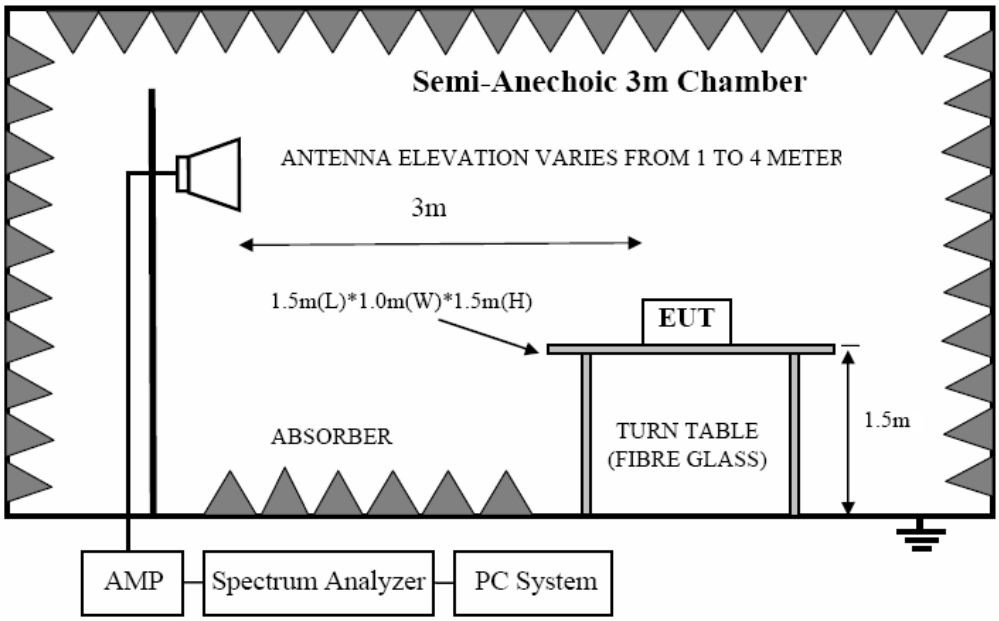
In 3m Anechoic Chamber Test Setup Diagram for 9KHz-30MHz



In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

4.2. Limit

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

(2) FCC 15.209 Limit.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(KHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(KHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
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	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1)The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$Limit_{3m}(dBuV/m)= Limit_{30m}(dBuV/m) + 40Log(30m/3m)$$

(3) Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.3. Test Procedure

(1) EUT was placed on a non-metallic table, 150 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9KHz-30MHz	Active Loop antenna	3m
30MHz-1GHz	Trilog Broadband Antenna	3m
1GHz-18GHz	Double Ridged Horn Antenna(1GHz-18GHz)	3m
18GHz-40GHz	Horn Antenna(18GHz-40GHz)	1m

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. for measurement above 30MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of

Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9KHz to 25GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m(Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18GHz to 25GHz, so below final test was performed with frequency range from 9KHz to 18GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(5) The emissions from 9KHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz, for emissions from 9KHz-90KHz,110KHz-490KHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
9KHz-150KHz	200Hz
150KHz-30MHz	9KHz
30MHz-1GHz	120KHz

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RMS detector RBW 1MHz VBW 3MHz for Average measure(according ANSI C63.10:2013 clause 4.2.3.2.3 procedure for average measure).

(8) X axis, Y axis, Z axis are tested, and worse setup X axis is reported.

4.4. Test result

PASS. (See below detailed test result)

All the emissions except fundamental emission from 9 KHz to 25GHz were comply with 15.209 limits.

Note1: According exploratory test no any obvious emission were detected from 9KHz to 30MHz and 18GHz to 25GHz.

Note2: For emissions below 1GHz, according exploratory explorer test, when change Tx mode

and channel, have no distinct influence on emissions level, so for emissions below 1GHz, the final test was only performed with EUT working in GFSK, Tx 2441MHz mode.

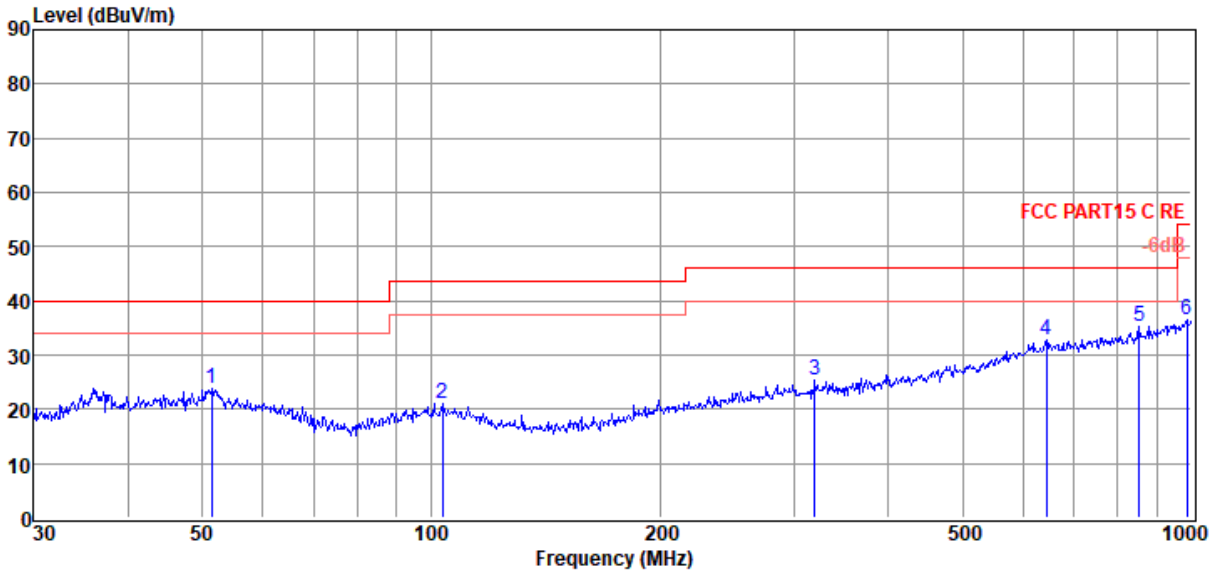
Note3: For emissions above 1GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

Mainboard: HT862E collocation Built-in Battery: GSP383555 01:

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 1#	D:\2020 RE 1# Report data\Q20090405-1E\FCC BELOW1G.EM6	
Test Date	: 2020-09-17	**Tested By**	: Ella
EUT	: PORTABLE BLUETOOTH SPEAKER	**Model Number**	: G02H
Power Supply	: Battery	**Test Mode**	: Tx mode
Condition	: Temp:24.5'C,Humi:45%,Press:101.3kPa	**Antenna/Distance**	: 2019 VULB 9163 1#/3m/HORIZONTAL
Memo	:		

Data: 1



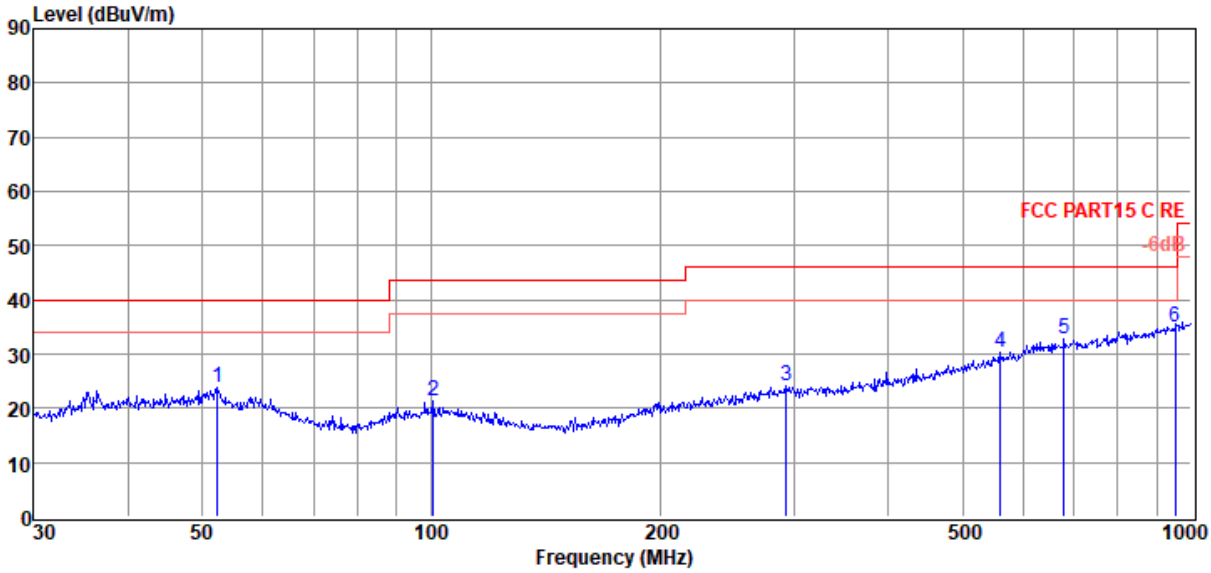
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	51.48	5.78	14.01	4.01	23.80	40.00	-16.20	Peak	HORIZONTAL
2	103.44	4.83	11.69	4.44	20.96	43.50	-22.54	Peak	HORIZONTAL
3	319.94	5.29	14.37	5.62	25.28	46.00	-20.72	Peak	HORIZONTAL
4	645.12	6.21	19.53	6.90	32.64	46.00	-13.36	Peak	HORIZONTAL
5	854.03	6.51	21.31	7.55	35.37	46.00	-10.63	Peak	HORIZONTAL
6	986.07	5.88	22.67	7.93	36.48	54.00	-17.52	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 1#	D:\2020 RE 1# Report data\Q20090405-1E\FCC BELOW1G.EM6	
Test Date	: 2020-09-17	**Tested By**	: Ella
EUT	: PORTABLE BLUETOOTH SPEAKER	**Model Number**	: G02H
Power Supply	: Battery	**Test Mode**	: Tx mode
Condition	: Temp:24.5'C,Humi:45%,Press:101.3kPa	**Antenna/Distance**	: 2019 VULB 9163 1#/3m/VERTICAL
Memo	:		

Data: 2

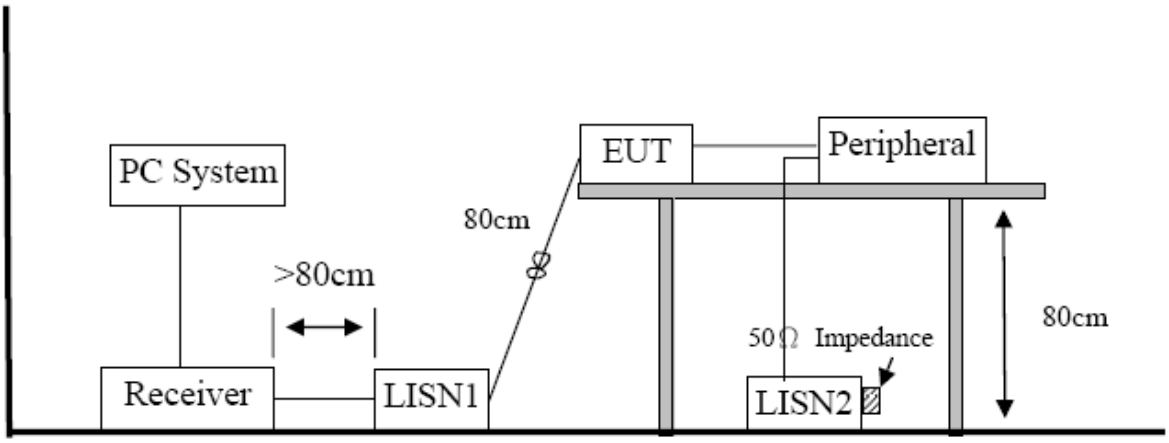


Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	52.39	5.97	13.89	4.02	23.88	40.00	-16.12	Peak	VERTICAL
2	100.58	5.13	11.86	4.41	21.40	43.50	-22.10	Peak	VERTICAL
3	293.08	4.72	13.94	5.49	24.15	46.00	-21.85	Peak	VERTICAL
4	560.69	5.12	18.46	6.59	30.17	46.00	-15.83	Peak	VERTICAL
5	679.96	6.15	19.77	7.01	32.93	46.00	-13.07	Peak	VERTICAL
6	952.09	4.82	22.33	7.84	34.99	46.00	-11.01	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

5. Power Line Conducted Emission

5.1. Block diagram of test setup



5.2. Power Line Conducted Emission Limits

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

5.3. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, 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.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 KHz.

5.4. Test Result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.
Note2: "-----" means Peak detection; "-----" means Average detection.

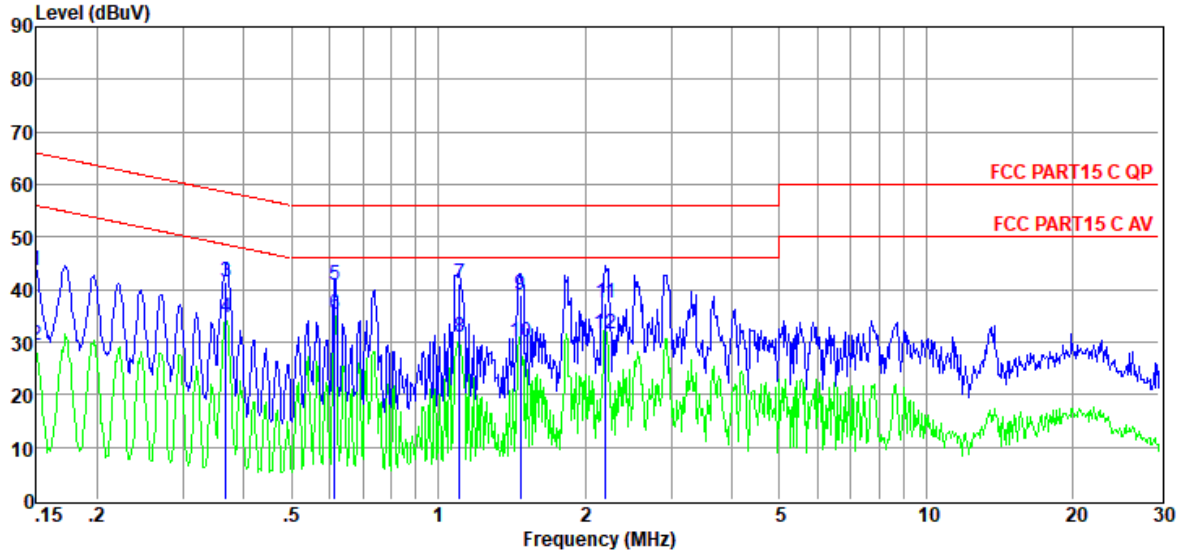
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded worst case.

Mainboard: HT862E collocation Built-in Battery: GSP383555 01

TR-4-E-010 Conducted Emission Test Result

Test Site	: DDT 1# Shield Room	D:\2020 CE report data\Q20090405-1E\20200916 CE.EM6	
Test Date	: 2020-09-16	**Tested By**	: Bote Huang
EUT	: PORTABLE BLUETOOTH SPEAKER	**Model Number**	: G02H
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx mode
Condition	: TEMP:24.8°C, RH:51.8%, BP:101.4kPa	**LISN**	: 2019 ENV216 1#/LINE
Memo	:		

Data: 50



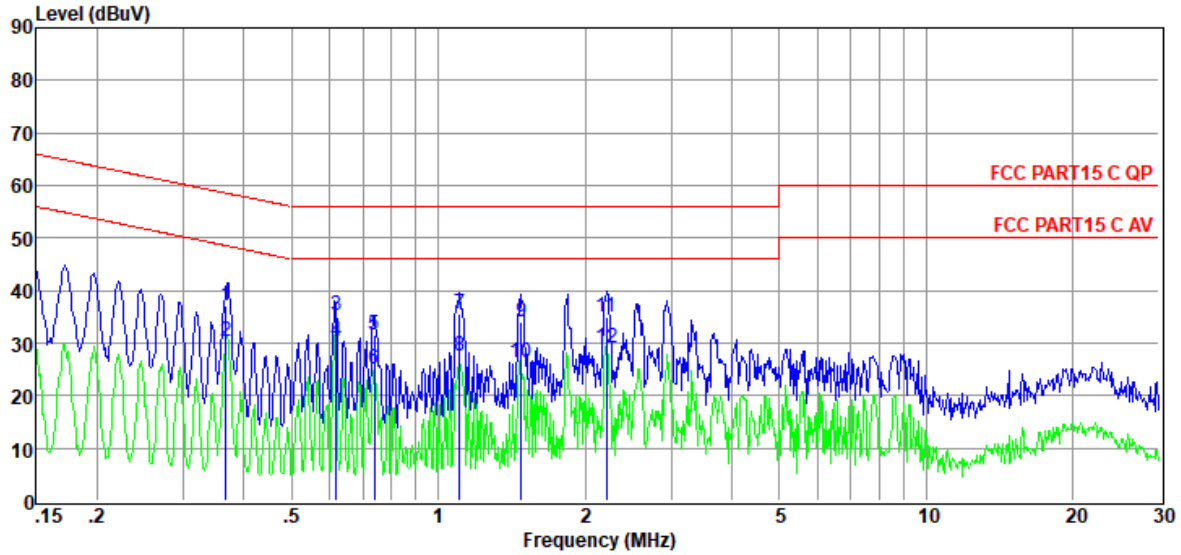
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.15	24.16	9.60	0.01	9.86	43.63	66.00	-22.37	QP	LINE
2	0.15	9.77	9.60	0.01	9.86	29.24	56.00	-26.76	Average	LINE
3	0.37	21.88	9.60	0.02	9.86	41.36	58.56	-17.20	QP	LINE
4	0.37	15.08	9.60	0.02	9.86	34.56	48.56	-14.00	Average	LINE
5	0.61	21.38	9.60	0.03	9.86	40.87	56.00	-15.13	QP	LINE
6	0.61	15.74	9.60	0.03	9.86	35.23	46.00	-10.77	Average	LINE
7	1.11	21.59	9.60	0.03	9.86	41.08	56.00	-14.92	QP	LINE
8	1.11	11.57	9.60	0.03	9.86	31.06	46.00	-14.94	Average	LINE
9	1.47	19.57	9.60	0.04	9.86	39.07	56.00	-16.93	QP	LINE
10	1.47	10.55	9.60	0.04	9.86	30.05	46.00	-15.95	Average	LINE
11	2.20	18.01	9.60	0.05	9.86	37.52	56.00	-18.48	QP	LINE
12	2.20	12.13	9.60	0.05	9.86	31.64	46.00	-14.36	Average	LINE

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site	: DDT 1# Shield Room	D:\2020 CE report data\Q20090405-1E\20200916 CE.EM6	
Test Date	: 2020-09-16	**Tested By**	: Bote Huang
EUT	: PORTABLE BLUETOOTH SPEAKER	**Model Number**	: G02H
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx mode
Condition	: TEMP:24.8°C, RH:51.8%, BP:101.4kPa	**LISN**	: 2019 ENV216 1#/LINE
Memo	:		

Data: 52



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.37	17.68	9.60	0.02	9.86	37.16	58.56	-21.40	QP	LINE
2	0.37	10.74	9.60	0.02	9.86	30.22	48.56	-18.34	Average	LINE
3	0.62	15.82	9.60	0.03	9.86	35.31	56.00	-20.69	QP	LINE
4	0.62	10.84	9.60	0.03	9.86	30.33	46.00	-15.67	Average	LINE
5	0.74	12.03	9.60	0.03	9.86	31.52	56.00	-24.48	QP	LINE
6	0.74	5.54	9.60	0.03	9.86	25.03	46.00	-20.97	Average	LINE
7	1.11	16.03	9.60	0.03	9.86	35.52	56.00	-20.48	QP	LINE
8	1.11	7.89	9.60	0.03	9.86	27.38	46.00	-18.62	Average	LINE
9	1.48	14.53	9.60	0.04	9.86	34.03	56.00	-21.97	QP	LINE
10	1.48	6.91	9.60	0.04	9.86	26.41	46.00	-19.59	Average	LINE
11	2.21	15.47	9.60	0.05	9.86	34.98	56.00	-21.02	QP	LINE
12	2.21	9.53	9.60	0.05	9.86	29.04	46.00	-16.96	Average	LINE

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

END OF REPORT