

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.	:	XTREME 3N
Trade Mark	:	JBL
FCC ID	:	APIJBLXTREME3N
IC	:	6132A-JBLXTREME3N
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

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Test Report Declare

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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, RSS-210 Issue 10 December 2019.

Test procedure used:

ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018.

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.

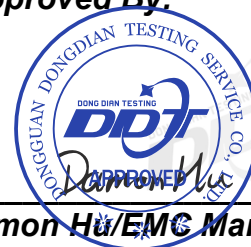
Report No:	DDT-R20052205-4E6 Rev.02		
Date of Receipt:	Sep. 29, 2020 Jan. 13, 2021	Date of Test:	Sep. 29, 2020 ~ Oct. 21, 2020 Jan. 13, 2021 ~ Jan. 19, 2021

Prepared By:

Sam Li

Sam Li/Engineer

Approved By:



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	Aug. 18, 2020	Sam Li
Rev.01	This report added AC adapter based on the original report, this change doesn't influence RF performance, so only power line conducted emissions and radiated emission (below 1 GHz) were tested and updated in this report.	Oct. 21, 2020	Sam Li
Rev.02	This report added battery cell (TI IC BQ27750) based on the report Rev. 01, this change doesn't influence the RF performance, so only power line conducted and radiated emission (below 1 GHz) were tested and updated in this report.	Jan. 19, 2021	Sam Li

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.249 ANSI C63.10:2013 RSS-210 Issue 10 RSS-Gen Issue 5	Pass
Power Line Conducted Emission	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	: XTREME 3N
EUT function description	: Please reference user manual of this device
Power supply	: DC 5V/9V/12V/15V/20V 3.0A from external AC Adapter DC 7.26 V Polymer Li-ion built-in battery
Operation frequency	: 2407 MHz - 2475 MHz
Modulation	: GFSK, $\pi/4$ -DQPSK, 8DPSK
Antenna Type	: Dedicated FPC antenna, maximum PK gain: 2.24 dBi
Serialnumber	: 0020ND-0000042DK 0727ND-0011256AL

Note: EUT is the abbreviation of equipment under test.

EUT channels and frequencies list:

Channel information					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
5	2407	28	2430	51	2453
6	2408	29	2431	52	2454
7	2409	30	2432	53	2455
8	2410	31	2433	54	2456
9	2411	32	2434	55	2457
10	2412	33	2435	56	2458
11	2413	34	2436	57	2459
12	2414	35	2437	58	2460
13	2415	36	2438	59	2461
14	2416	37	2439	60	2462
15	2417	38	2440	61	2463
16	2418	39	2441	62	2464
17	2419	40	2442	63	2465
18	2420	41	2443	64	2466
19	2421	42	2444	65	2467
20	2422	43	2445	66	2468
21	2423	44	2446	67	2469
22	2424	45	2447	68	2470
23	2425	46	2448	69	2471
24	2426	47	2449	70	2472
25	2427	48	2450	71	2473
26	2428	49	2451	72	2474
27	2429	50	2452	73	2475

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Remark
AC Adapter	Shenzhen JingQuanHua & Everrise Intelligent Electric Co., Ltd.	NSA60EU-2003000 (PD60W)	Input: 100-240V ~ 50/60 Hz 1.5A Output: 5.0V 3.0A, 9.0V 3.0A, 12.0V 3.0A, 15.0V 3.0A, 20.0V 3.0A	N/A
AC Adapter	Group Intellect Power Technology Limited	GHWM-P D60W-WC	Input: 100-240V ~ 50/60 Hz 1.5A Output: 5.0V 3.0A, 9.0V 3.0A, 12.0V 3.0A, 15.0V 3.0A, 20.0V 3.0A	N/A

Battery information

Description of Accessories	Manufacturer	Model number	Description	Remark
Rechargeable Li-ion Battery	ICON ENERGY SYSTEM (SHEN ZHEN) CO., LTD.	IBA001GA	Rated Capacity: 7.26V 5000mAh 36.3Wh;	TI IC BQ28Z610

New Battery IC:

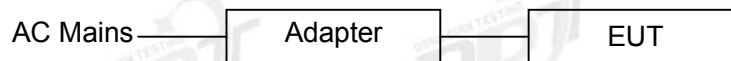
Description of Accessories	Manufacturer	Model number	Description	Remark
Rechargeable Li-ion Battery	ICON ENERGY SYSTEM (SHEN ZHEN) CO., LTD.	IBA001GA	Rated Capacity: 7.26V 5000mAh 36.3Wh;	TI IC BQ27750

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	Lenovo Beijing Co. Ltd.	ThinkPad	FCC/CE	TP00015A

2.4. Block diagram of EUT configuration for test

Tx Mode:



Test software: FCCTool.exe

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

Tested mode, channel, information		
Mode	Channel	Frequency (MHz)
GFSK Tx mode	CH5	2407
	CH39	2441
	CH73	2475
$\pi/4$ -DQPSKTx mode	CH5	2407
	CH39	2441
	CH73	2475
8DPSK Tx mode	CH5	2407
	CH39	2441
	CH73	2475

2.5. Test environment conditions

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

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

2.6. Deviations of test standard

No deviation.

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>, Email: ddt@dgddt.com

CNAS Registration No. CNAS L6451; A2LA Certificate Number: 3870.01;

FCC Designation Number: CN1182; FCC 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)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 22 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 °C
Humidity	2%
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 18 GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz - 18 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz - 30 MHz)

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

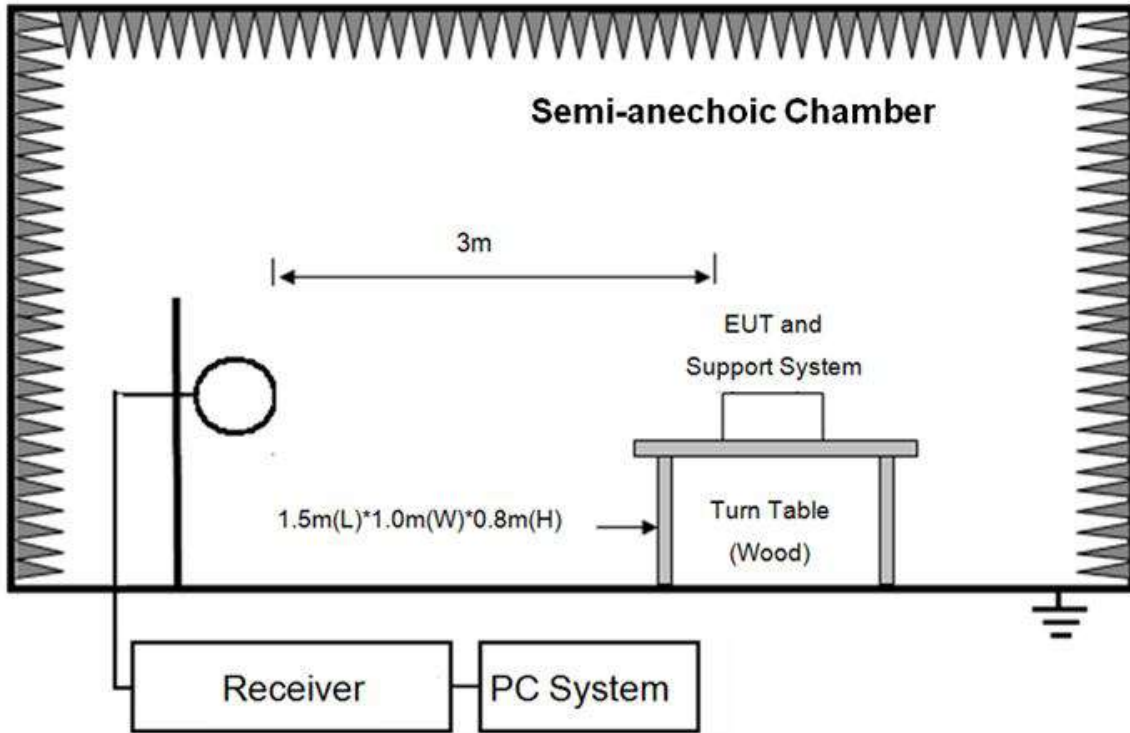
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input type="checkbox"/> RF Connected Test (Tonscend RF Measurement System 1#)					
Spectrum analyzer	R&S	FSU26	101272	Jul. 01, 2020	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 28, 2020	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 24, 2020	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	Apr. 25, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 28, 2020	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Jul. 01, 2020	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
<input type="checkbox"/> RF Connected Test (Tonscend RF Measurement System 2#)					
Spectrum analyzer	R&S	FSU26	200071	Sep. 25, 2020	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 28, 2020	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY19060405	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180912	Jul. 01, 2020	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC01449	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Apr. 25, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 28, 2020	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Jul. 01, 2020	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
<input type="checkbox"/> Radiation 1#chamber					
EMI Test Receiver	R&S	ESU8	100316	Sep. 24, 2020	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 13, 2020	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Nov. 18, 2020	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 13, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Apr. 11, 2020	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 28, 2020	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 24, 2020	1 Year

RF Cable	N/A	5m+6m+1m	06270619	Sep. 30, 2020	1 Year
MI Cable	HUBSER	C10-01-01-1 M	1091629	Sep. 30, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
<input checked="" type="checkbox"/> Radiation 2#chamber					
EMI Test Receiver	R&S	ESCI	101364	Sep. 28, 2020	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Nov. 13, 2020	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Nov. 18, 2020	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 11, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Apr. 11, 2020	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	1013 03	Sep. 28, 2020	1 Year
RF Cable	N/A	14+1.5m	06270619	Sep. 28, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
<input checked="" type="checkbox"/> Power Line Conducted Emissions Test 1#					
EMI Test Receiver	R&S	ESU8	100316	Sep. 24, 2020	1 Year
LISN 1	R&S	ENV216	101109	Sep. 28, 2020	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 28, 2020	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 24, 2020	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 24, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
<input type="checkbox"/> Power Line Conducted Emissions Test 2#					
Test Receiver	R&S	ESPI	101761	Sep. 24, 2020	1 Year
LISN 1	R&S	ENV216	101170	Sep. 28, 2020	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 28, 2020	1 Year
Pulse Limiter	R&S	KH43101	43101180156 8-12#	Jul. 01, 2020	1 Year
CE Cable 2	HUBSER	N/A	W11.02	Sep. 24, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

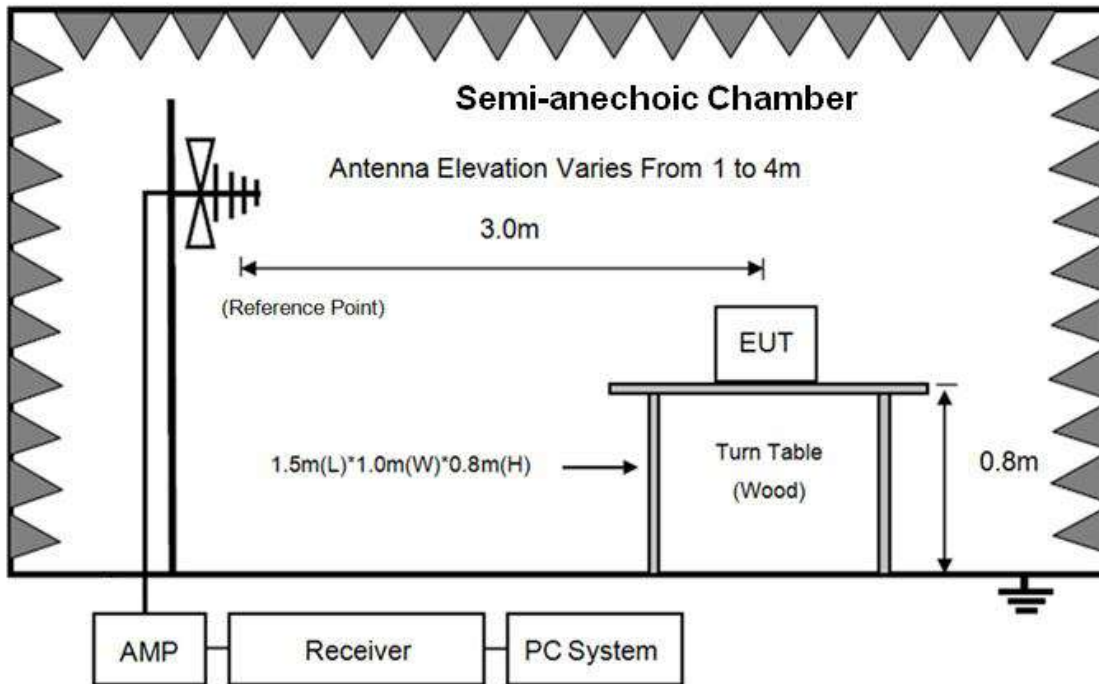
4. Radiated Emission

4.1. Block diagram of test setup

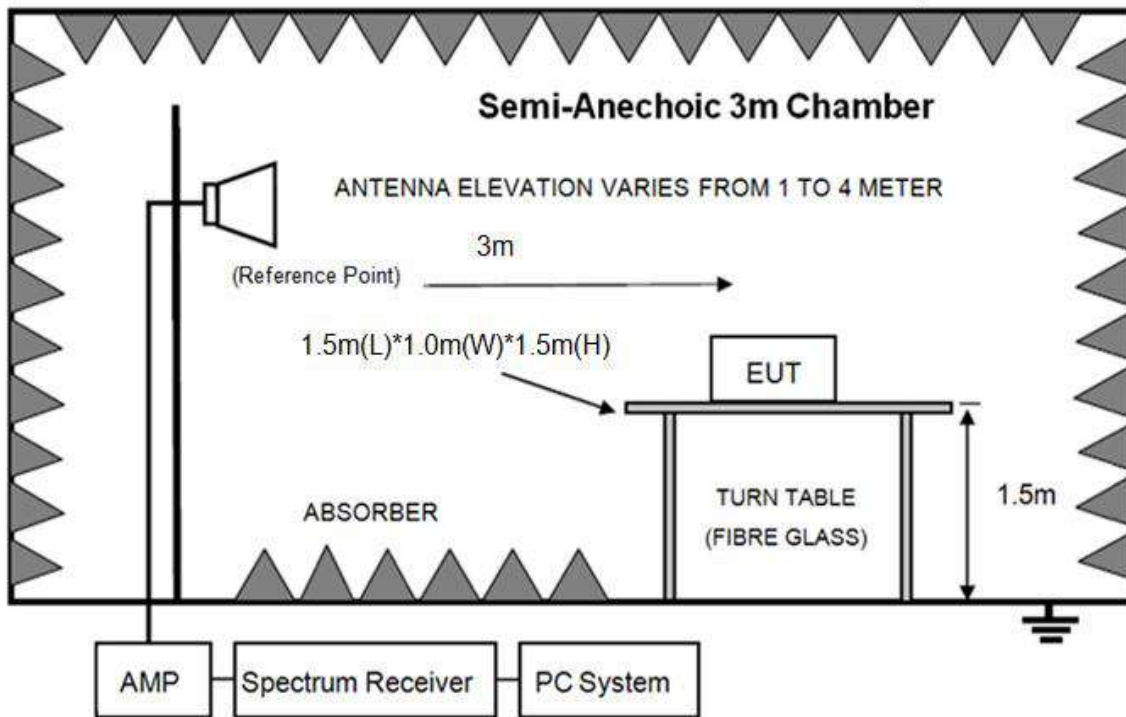
In 3 m Anechoic Chamber Test Setup Diagram for 9 kHz - 30 MHz



In 3 m Anechoic Chamber Test Setup Diagram for 30 MHz - 1 GHz



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



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

4.2. Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
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 MHz	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	
Field Strength of Fundamental emission for 2.4 GHz - 2.4835 GHz	3	94.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) 114.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak)	
Field Strength of Harmonics	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

Remark:

- (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
- (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.
- (4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz; radiated emission limits in these three bands are based on measurements employing

an average detector.

4.3. Test procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.
- (2) Setup EUT and assistant system according clause 2.3 and 4.2
- (3) Test antenna was located 3 m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
 - (a) Change work frequency or channel of device if practicable.
 - (b) Change modulation type of device if practicable.
 - (c) Change power supply range from 85% to 115% of the rated supply voltage
 - (d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produce highest emissions
- (4) Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1 m and 4 m 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.
- (6) For emissions from 30 MHz to 1 GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 kHz.
- (7) For emissions above 1 GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; according ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.
- (8) For fundamental frequency test, set spectrum analyzer's RBW = 3 MHz, VBW = 10 MHz. Peak detector for PK, according ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.
- (9) 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 25 GHz were comply with 15.209 limit.

Note1: According exploratory test no any obvious emission was detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in GFSK, Tx 2407 MHz mode.

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

Radiated Emission test (below 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#
Test Date : 2020-10-10
EUT : Portable Bluetooth Speaker
Power Supply : AC 120V/60Hz
Condition : TEMP:24.5°C, RH:55.4%, BP:101.4kPa
Memo : AC Adapter: (GHWM-PD60W-WC)

D:\2020 RE 1# Report data\Q20090802-1E\FCC BELOW 1G.EM6
Tested By : Bote Huang
Model Number : XTREME 3N
Test Mode : Tx mode
Antenna/Distance : 2019 VULB 9163 1#/3m/VERTICAL e

Data: 5

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	34.04	7.53	12.30	3.84	23.67	40.00	-16.33	QP	VERTICAL
2	45.70	6.04	14.00	3.96	24.00	40.00	-16.00	QP	VERTICAL
3	138.39	14.29	8.58	4.67	27.54	43.50	-15.96	QP	VERTICAL
4	154.82	17.60	8.50	4.77	30.87	43.50	-12.63	QP	VERTICAL
5	191.75	13.51	11.15	4.99	29.65	43.50	-13.85	QP	VERTICAL
6	495.93	7.38	17.13	6.33	30.84	46.00	-15.16	QP	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.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2020 RE 1# Report data\Q20090802-1E\FCC BELOW
1G.EM6

Test Date : 2020-10-10

Tested By : Bote Huang

EUT : Portable Bluetooth Speaker

Model Number : XTREME 3N

Power Supply : AC 120V/60Hz

Test Mode : Tx mode

Condition : TEMP:24.5°C, RH:55.4%, BP:101.4kPa

Antenna/Distance : 2019 VULB 9163 1#/3m/HORIZONTAL

Memo : AC Adapter: (GHWM-PD60W-WC)

Data: 6

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	138.39	14.28	8.58	4.67	27.53	43.50	-15.97	QP	HORIZONTAL
2	145.86	13.33	8.38	4.72	26.43	43.50	-17.07	QP	HORIZONTAL
3	287.99	11.85	13.83	5.47	31.15	46.00	-14.85	QP	HORIZONTAL
4	336.04	13.91	14.57	5.69	34.17	46.00	-11.83	QP	HORIZONTAL
5	638.37	1.72	19.48	6.88	28.08	46.00	-17.92	QP	HORIZONTAL
6	768.75	7.85	20.46	7.28	35.59	46.00	-10.41	QP	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 2#
Test Date : 2021-01-14
EUT : Portable Bluetooth Speaker
Power Supply : Battery
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa
Memo : AC Adapter: (GHWM-PD60W-WC)

Tested By : Zora
Model Number : XTREME 3N
Test Mode : Tx mode
Antenna/Distance : 2019 VULB 9163 2#/3m/HORIZONTAL

Data: 5

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	46.67	3.57	13.67	3.76	21.00	40.00	-19.00	QP	HORIZONTAL
2	122.83	4.83	9.72	4.38	18.93	43.50	-24.57	QP	HORIZONTAL
3	159.78	5.71	8.88	4.61	19.20	43.50	-24.30	QP	HORIZONTAL
4	300.37	10.37	14.01	5.37	29.75	46.00	-16.25	QP	HORIZONTAL
5	524.55	3.42	18.12	6.40	27.94	46.00	-18.06	QP	HORIZONTAL
6	875.25	4.10	21.89	7.83	33.82	46.00	-12.18	QP	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 2#

D:\2021 RE2# Report Data\Q21011219-1E JBL XTREME
3\FCC BELOW1G NEW.EM6

Test Date : 2021-01-14

Tested By : Zora

EUT : Portable Bluetooth Speaker

Model Number : XTREME 3N

Power Supply : Battery

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2019 VULB 9163 2#/3m/VERTICAL
e

Memo : AC Adapter: (GHWM-PD60W-WC)

Data: 6

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	46.02	2.98	13.75	3.75	20.48	40.00	-19.52	QP	VERTICAL
2	107.13	2.90	11.63	4.26	18.79	43.50	-24.71	QP	VERTICAL
3	208.58	4.13	11.67	4.89	20.69	43.50	-22.81	QP	VERTICAL
4	287.99	7.52	13.74	5.32	26.58	46.00	-19.42	QP	VERTICAL
5	622.89	3.57	19.45	6.86	29.88	46.00	-16.12	QP	VERTICAL
6	848.06	3.04	21.65	7.73	32.42	46.00	-13.58	QP	VERTICAL

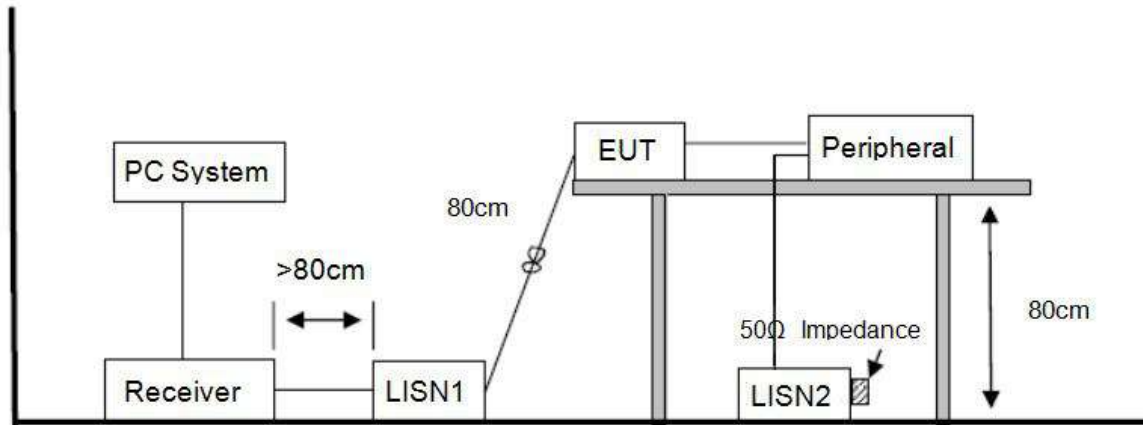
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

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(μ V)	Average Level dB(μ V)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	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 7.1 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 30 MHz 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/60Hz, recorded worst case. (AC 120V/60Hz)

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room
Test Date : 2020-10-10
EUT : Portable Bluetooth Speaker
Power Supply : AC 120V/60Hz
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa
Memo : AC Adapter: (GHWM-PD60W-WC)

D:\2020 CE report data\Q20090802-1EVFCC C CE.EM6
Tested By : Sandm Xu
Model Number : XTREME 3N
Test Mode : Tx mode
LISN : 2019 ENV216 1#/LINE

Data: 10

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dB μ V)	Limit Line (dB μ V)	Over Limit (dB)	Detector	Phase
1	0.17	25.47	9.60	0.01	9.86	44.94	64.94	-20.00	QP	LINE
2	0.17	9.57	9.60	0.01	9.86	29.04	54.94	-25.90	Average	LINE
3	0.60	20.60	9.60	0.03	9.86	40.09	56.00	-15.91	QP	LINE
4	0.60	14.72	9.60	0.03	9.86	34.21	46.00	-11.79	Average	LINE
5	1.17	19.07	9.60	0.03	9.86	38.56	56.00	-17.44	QP	LINE
6	1.17	13.18	9.60	0.03	9.86	32.67	46.00	-13.33	Average	LINE
7	2.90	11.17	9.60	0.06	9.87	30.70	56.00	-25.30	QP	LINE
8	2.90	4.43	9.60	0.06	9.87	23.96	46.00	-22.04	Average	LINE
9	10.23	13.12	9.60	0.11	9.89	32.72	60.00	-27.28	QP	LINE
10	10.23	7.52	9.60	0.11	9.89	27.12	50.00	-22.88	Average	LINE
11	16.75	10.15	9.64	0.15	9.92	29.86	60.00	-30.14	QP	LINE
12	16.75	4.64	9.64	0.15	9.92	24.35	50.00	-25.65	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
Test Date : 2020-10-10
EUT : Portable Bluetooth Speaker
Power Supply : AC 120V/60Hz
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa
Memo : AC Adapter: (GHWM-PD60W-WC)

Tested By : Sandm Xu
Model Number : XTREME 3N
Test Mode : Tx mode
LISN : 2019 ENV216 1#/NEUTRAL

D:\2020 CE report data\Q20090802-1EVCC C CE.EM6

Data: 12

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dB μ V)	Limit Line (dB μ V)	Over Limit (dB)	Detector	Phase
1	0.23	19.83	9.60	0.02	9.86	39.31	62.48	-23.17	QP	NEUTRAL
2	0.23	11.26	9.60	0.02	9.86	30.74	52.48	-21.74	Average	NEUTRAL
3	0.59	21.30	9.60	0.03	9.86	40.79	56.00	-15.21	QP	NEUTRAL
4	0.59	15.40	9.60	0.03	9.86	34.89	46.00	-11.11	Average	NEUTRAL
5	1.15	19.69	9.60	0.03	9.86	39.18	56.00	-16.82	QP	NEUTRAL
6	1.15	13.73	9.60	0.03	9.86	33.22	46.00	-12.78	Average	NEUTRAL
7	1.73	12.86	9.60	0.05	9.86	32.37	56.00	-23.63	QP	NEUTRAL
8	1.73	6.09	9.60	0.05	9.86	25.60	46.00	-20.40	Average	NEUTRAL
9	3.40	10.62	9.60	0.07	9.87	30.16	56.00	-25.84	QP	NEUTRAL
10	3.40	3.89	9.60	0.07	9.87	23.43	46.00	-22.57	Average	NEUTRAL
11	9.97	8.67	9.60	0.11	9.89	28.27	60.00	-31.73	QP	NEUTRAL
12	9.97	3.49	9.60	0.11	9.89	23.09	50.00	-26.91	Average	NEUTRAL

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:\2021 CE report date\Q21011219-1E\RF CE.EM6
Test Date : 2021-01-15 **Tested By** : Vic Xie
EUT : Portable Bluetooth Speaker **Model Number** : XTREME 3N
Power Supply : AC 120V/60Hz **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **LISN** : 2020 ENV 216 1#/NEUTRAL
Memo : Battery: (IBA001GA) Battery cell: (TI IC BQ27750)

Data: 14

Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limite r Factor (dB)	Result Level (dB μ V)	Limit Line (dB μ V)	Over Limit (dB)	Detector	Phase
1	0.19	34.93	9.37	0.02	9.86	54.18	64.20	-10.02	QP	NEUTRAL
2	0.19	22.56	9.37	0.02	9.86	41.81	54.20	-12.39	Average	NEUTRAL
3	0.25	28.80	9.38	0.02	9.86	48.06	61.86	-13.80	QP	NEUTRAL
4	0.25	20.38	9.38	0.02	9.86	39.64	51.86	-12.22	Average	NEUTRAL
5	0.50	24.04	9.39	0.02	9.86	43.31	56.00	-12.69	QP	NEUTRAL
6	0.50	19.46	9.39	0.02	9.86	38.73	46.00	-7.27	Average	NEUTRAL
7	0.61	20.61	9.39	0.02	9.86	39.88	56.00	-16.12	QP	NEUTRAL
8	0.61	15.41	9.39	0.02	9.86	34.68	46.00	-11.32	Average	NEUTRAL
9	0.75	19.97	9.39	0.03	9.86	39.25	56.00	-16.75	QP	NEUTRAL
10	0.75	14.76	9.39	0.03	9.86	34.04	46.00	-11.96	Average	NEUTRAL
11	3.04	12.11	9.41	0.06	9.87	31.45	56.00	-24.55	QP	NEUTRAL
12	3.04	2.45	9.41	0.06	9.87	21.79	46.00	-24.21	Average	NEUTRAL

- 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:\2021 CE report date\Q21011219-1E\RF CE.EM6
Test Date : 2021-01-15 **Tested By** : Vic Xie
EUT : Portable Bluetooth Speaker **Model Number** : XTREME 3N
Power Supply : AC 120V/60Hz **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **LISN** : 2020 ENV 216 1#/LINE
Memo : Battery: (IBA001GA) Battery cell: (TI IC BQ27750)

Data: 16

Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limite r Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.18	35.15	9.40	0.02	9.86	54.43	64.28	-9.85	QP	LINE
2	0.18	19.98	9.40	0.02	9.86	39.26	54.28	-15.02	Average	LINE
3	0.25	28.18	9.41	0.02	9.86	47.47	61.86	-14.39	QP	LINE
4	0.25	18.12	9.41	0.02	9.86	37.41	51.86	-14.45	Average	LINE
5	0.43	21.40	9.41	0.02	9.86	40.69	57.24	-16.55	QP	LINE
6	0.43	15.03	9.41	0.02	9.86	34.32	47.24	-12.92	Average	LINE
7	0.56	21.63	9.41	0.02	9.86	40.92	56.00	-15.08	QP	LINE
8	0.56	17.51	9.41	0.02	9.86	36.80	46.00	-9.20	Average	LINE
9	1.06	19.21	9.42	0.03	9.86	38.52	56.00	-17.48	QP	LINE
10	1.06	14.55	9.42	0.03	9.86	33.86	46.00	-12.14	Average	LINE
11	2.98	14.56	9.44	0.06	9.87	33.93	56.00	-22.07	QP	LINE
12	2.98	5.47	9.44	0.06	9.87	24.84	46.00	-21.16	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