



ETSI EN 301 489 TEST REPORT

Applicant	:	Harman International Industries, Inc.
Address of Applicant	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Manufacturer	:	Harman International Industries, Inc.
Address of Manufacturer	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	Portable Bluetooth Speaker
Model No.	:	BOOMBOX 4C
Test Standard(s)	:	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.3.1 (2024-09)
Report No.	:	DDT-RE24112111-2E03
Issue Date	:	2025/05/14
Issued By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

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Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	Portable Bluetooth Speaker
Model No.	:	BOOMBOX 4C

Test Standard Used:
ETSI EN 301 489-1 V2.2.3 (2019-11)
ETSI EN 301 489-17 V3.3.1 (2024-09)

We Declare:
The equipment described above is tested by Guangdong 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 Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	DDT-RE24112111-2E03		
Date of Receipt:	2025/02/25	Date of Test:	2025/02/28-2025/04/17
Created: Lori Mi	Reviewed: Sincere Luo	Approved: Damon Hu	
			
2025/04/23	2025/05/13	2025/05/14	

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

Revision History

Version	Revision Content	Issue Date	Approved
V0	Initial issue	2025/05/14	Damon Hu

1. Summary of Test Results

EMISSION (EMI)			
Description of Test Item	Standard	Result	Memo
AC Power Port Conducted Emission	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
DC Power Port Conducted Emission	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	N/A	Vehicle Use
Wired network port Conducted Emission	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	N/A	For signal port
Radiated Emissions Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Harmonic Current Emissions Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Voltage Fluctuations& Flicker Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
IMMUNITY (EMS)			
Description of Test Item	Standard	Result	Memo
Electrostatic Discharge Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Continuous Radio Frequency Disturbances Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Electrical Fast Transients(EFT) Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Surge Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Continuous Conducted Disturbances Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/

Voltage Dips and Interruptions Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	PASS	/
Transients and Surge for DC Port Test	ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.3.1 (2024-09)	N/A	Vehicle Use

Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.

Note: 1. The EMI measurements had been made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications. An attempt had been made to maximize the emission by varying the configuration of the EUT.

2. The EMS measurements had been made in the frequency bands being investigated, with the EUT in the most susceptible operating mode consistent with normal applications. The configuration of the test sample had been varied to achieve maximum susceptibility.

Remark: Performance criteria:

Criteria	During test	After test (i.e. as a result of the application of the test)
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.
NOTE: Operate as intended during the test allows a level of degradation in accordance with Minimum performance level. For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %. For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.		

Performance criteria for continuous phenomena:

The performance criteria A shall apply.

During the test, the equipment shall:

- continue to operate as intended;
- not unintentionally transmit;
- not unintentionally change its operating state;
- not unintentionally change critical stored data.

Performance criteria for Transient phenomena:

The performance criteria B shall apply.

For all ports and transient phenomena with the exception described below, the following applies:

- The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data.
- After application of the transient phenomena, the equipment shall operate as intended.

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

- For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

- For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

2. General Test Information

2.1. Description of EUT

EUT* Name	: Portable Bluetooth Speaker
Model Number	: BOOMBOX 4C
Difference of model number	: /
EUT Function Description	: Please reference user manual of this device
Power Supply	: Input: AC 100-240V ~ 50/60Hz, 150W Internal battery: Rechargeable Li-ion Battery Pack 99.02 Wh (equivalent to 21.6 V / 4584 mAh)
Hardware Version	: 2.0.1
Software Version	: V250430
Radio Specification	: Bluetooth BR/EDR/LE
Operation Frequency	: 2402 MHz to 2480 MHz
Modulation	: GFSK, $\pi/4$ -DQPSK, 8DPSK
Antenna Type	: FPC
Max Antenna Gain(dBi)	: 2.48
Sample Number	: S24112111-001,S24112111-036

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

Note 2: “☑” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

Note 3: Equipment meeting Class A requirements may not offer adequate protection to broadcast services within a residential environment; The Class B requirements for equipment are intended to offer adequate protection to broadcast services within the residential environment. Equipment compliant with the class A requirements should have a warning notice in the user manual stating that it could cause radio interference. For example, Warning: Operation of this equipment in a residential environment could cause radio interference.

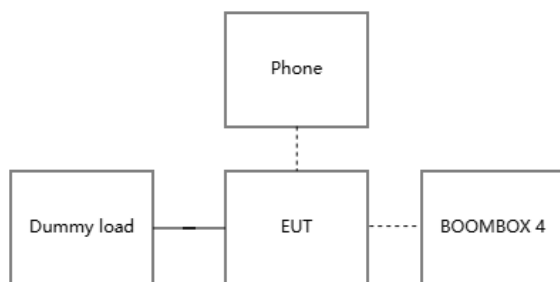
Note 4: The accessories of this product are only power cables, and the length of other signal cables and control cables used during the test is less than 3 meters.

2.2. Accessories of EUT

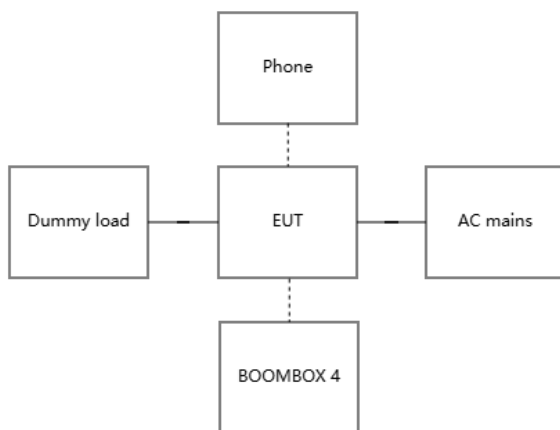
Accessories	Manufacturer	Model number	Description
AC cable	Harman	N/A	Length: 2m

2.3. Block diagram EUT configuration for test

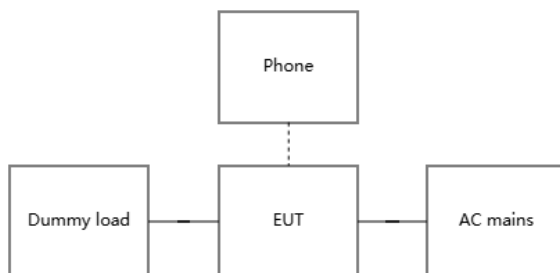
Mode 1:Bluetooth + TWS + 5V/1A load mode



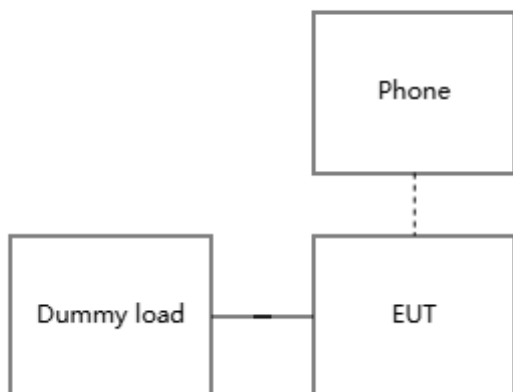
Mode 2:Charging + Bluetooth + TWS + 5V/1A load mode



Mode 3:Charging + Bluetooth + 5V/1A load mode



Mode 4:Bluetooth + 5V/1A load mode



Test mode description: According to the manufacturer's requirements, phone playing 1kHz sine audio signal and input to EUT.

Note: According exploration test, adjust the volume of EUT radiated the maximum emissions.

2.4. Decision of final test mode

Emission	AC Power Port Conducted Emission	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode
	Radiated Emissions Test	Mode 1: Bluetooth + TWS + 5V/1A load mode Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode Mode 4: Bluetooth + 5V/1A load mode
	Harmonic Current Emissions Test	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode
	Voltage Fluctuations& Flicker Test	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode
Immunity	Electrostatic Discharge Test	Mode 1: Bluetooth + TWS + 5V/1A load mode Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode Mode 4: Bluetooth + 5V/1A load mode
	Continuous Radio Frequency Disturbances Test	Mode 1: Bluetooth + TWS + 5V/1A load mode Mode 2: Charging + Bluetooth + TWS +

		5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode Mode 4: Bluetooth + 5V/1A load mode
	Electrical Fast Transients(EFT) Test	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode
	Surge Test	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode
	Continuous Conducted Disturbances Test	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode
	Voltage Dips and Interruptions Test	Mode 2: Charging + Bluetooth + TWS + 5V/1A load mode Mode 3: Charging + Bluetooth + 5V/1A load mode

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:	20-25°C
Humidity range:	40-75%
Pressure range:	86-106 kPa

Note: The specific temperature and humidity information of each test item refers to the temperature and humidity record in the corresponding test data.

2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20240, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Conducted disturbance at mains terminals	1#: 3.72dB (9 kHz to 150 kHz), 3.34dB (150 kHz to 30 MHz)
	2#: 3.75dB (9 kHz to 150 kHz), 3.39dB (150 kHz to 30 MHz)
	3#: 3.78dB (9 kHz to 150 kHz), 3.37dB (150 kHz to 30 MHz)
Uncertainty for telecommunication port conduction emission test	1#: AAN with aLCL = 55 ... 40 dBc: 3.64 dB AAN with aLCL = 65 ... 50 dBc: 4.08 dB AAN with aLCL = 75 ... 60 dBc: 4.56 dB
	2#: AAN with aLCL = 55 ... 40 dBc: 3.82 dB AAN with aLCL = 65 ... 50 dBc: 3.96 dB AAN with aLCL = 75 ... 60 dBc: 4.12 dB
Uncertainty for radiation emission test (30 MHz-1 GHz)	1#: 4.94 dB (Antenna Polarize: V) 4.68 dB (Antenna Polarize: H)
	2#: 4.94 dB (Antenna Polarize: V) 4.68 dB (Antenna Polarize: H)
	3#: 4.96 dB (Antenna Polarize: V) 4.98 dB (Antenna Polarize: H)
	10m: 4.48 dB (Antenna Polarize: V) 4.64 dB (Antenna Polarize: H)
Uncertainty for radiation disturbance test (1 GHz to 6 GHz)	1#: 4.10 dB (1-6 GHz)
	3#: 4.54 dB (1-6 GHz)
Uncertainty for Flicker test	0.2%
Uncertainty for Harmonic test	5%
Uncertainty for Electrostatic discharge	Rise time: 4% Peak current: 3.1% Current at 30 ns: 3.1% Current at 60 ns: 3.1%
Uncertainty for Surge	Peak of the open-circuit voltage impulse: 3% Front time of the open-circuit voltage impulse: 5% Width of the open-circuit voltage impulse: 5% Peak of the short-circuit current impulse: 2.7% Front time of the short-circuit current impulse: 5% Duration of the short-circuit current impulse: 3%
Uncertainty for Electrical fast transients	Voltage rise time: 3.7% Peak voltage value: 3.4% Voltage pulse width: 3.7%
Uncertainty for Continuous conducted disturbances	0.25dB
Uncertainty for Continuous radio frequency disturbances	1.12dB
Uncertainty for Power-frequency magnetic fields	10%
Uncertainty for Voltage dips and interruptions	3.7%
Temperature	0.4 °C
Humidity	2%
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

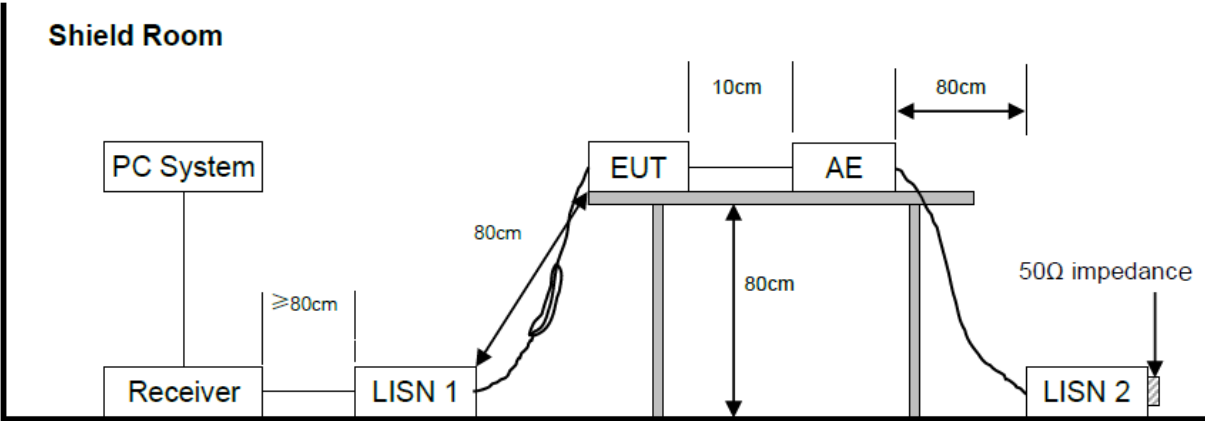
3. AC Power Port Conducted Emission

3.1. Test equipment

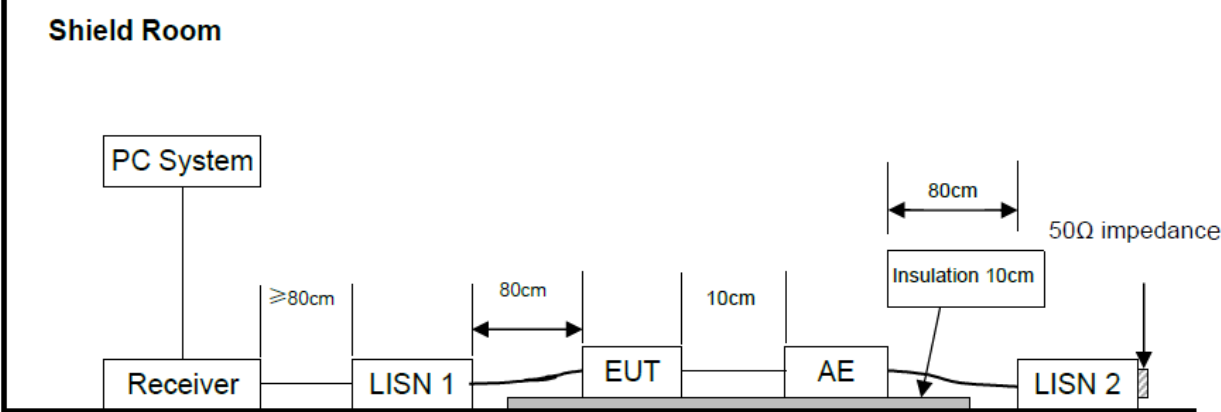
Equipment	Manufacturer	Model No.	Equipment No.	Cal Due To
EMI Test Receiver	R&S	ESCI	DDT-ZC00235	2025/07/08
Two Line V-Network	R&S	ENV216	DDT-ZC00535	2025/07/08
Artificial mains	R&S	ESH2-Z5	DDT-ZC00538	2025/07/08
Pulse Limiter	SCHWARZBEC K	ESH3-Z2	DDT-ZC00539	2025/07/08
CE Cable 1	R&S	ESU8/RF2	DDT-ZC00566	2025/07/08
Conducted Radiated Software	Audix	E3	DDT-ZC00562	/

3.2. Block diagram of test setup

For table-top equipment



For floor standing equipment



[illegible]

Class A		
Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz~500 kHz	79	66
500 kHz~30 MHz	73	60
Class B		
Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz~500 kHz	66 ~ 56*	56 ~ 46*
500 kHz~5 MHz	56	46
5 MHz~30 MHz	60	50

Notes:

- * Decreasing linearly with logarithm of frequency.
- The lower limit shall apply at the transition frequencies.

Assistant equipment	Manufacturer	Model number	Description	other
Mobile phone	SAMSUNG	SM-G9730	R28M3129AAF	N/A
Mobile phone	Apple	iPhone 15	N/A	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	1.67Ω/2.5Ω/3Ω/5Ω/7.5Ω/13Ω/8.6Ω/4Ω	N/A
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
Charger LAB POWER-Z USB PD Tester	POWER-Z	KT001	Large red regulator	N/A

3.5. Test procedure

- (1) The EUT placement requires reference to the test block diagram and is placed on a non-metallic table.
- (2) Setup the EUT and assistant equipment as shown above block diagram and equipment list.
- (3) The EUT's power was connected to the power mains through a line impedance stabilization network (L.I.S.N). which this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted disturbance. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ETSI EN 301 489 on conducted disturbance emission test.
- (4) The bandwidth of test receiver is set at 9 kHz.
- (5) The frequency range from 150 kHz to 30 MHz is checked.

3.6. Test result

Pass. (See below detailed test result)

Note 1: All emissions not reported below are too low against the prescribed limits.

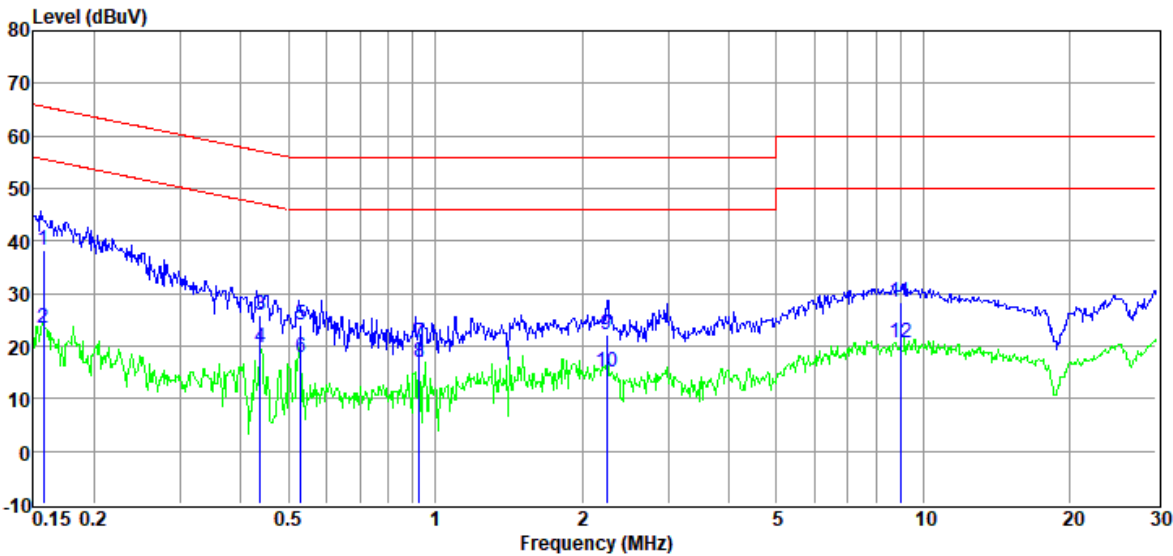
Note 2: "----" means Peak detection; "----" means Average detection.

3.7. Test data

TR-4-E-010 Conducted Emission Test Result

Test Site	: DDT 1# Shield Room	D:\2025 CE report data\Q24112111-2E\0401 CE.EM6
Test Date	: 2025-04-01	Tested By : Chunchieh Huang
EUT	: Portable Bluetooth Speaker	Model Number : BOOMBOX 4C
Power Supply	: AC 120V/60Hz	Test Mode : Charging + Bluetooth + 5V/1A load mode
Condition	: TEMP:23.4°C, RH:61.2%	LISN : 2024 1# ENV216/NEUTRAL
Memo		

Data: 50



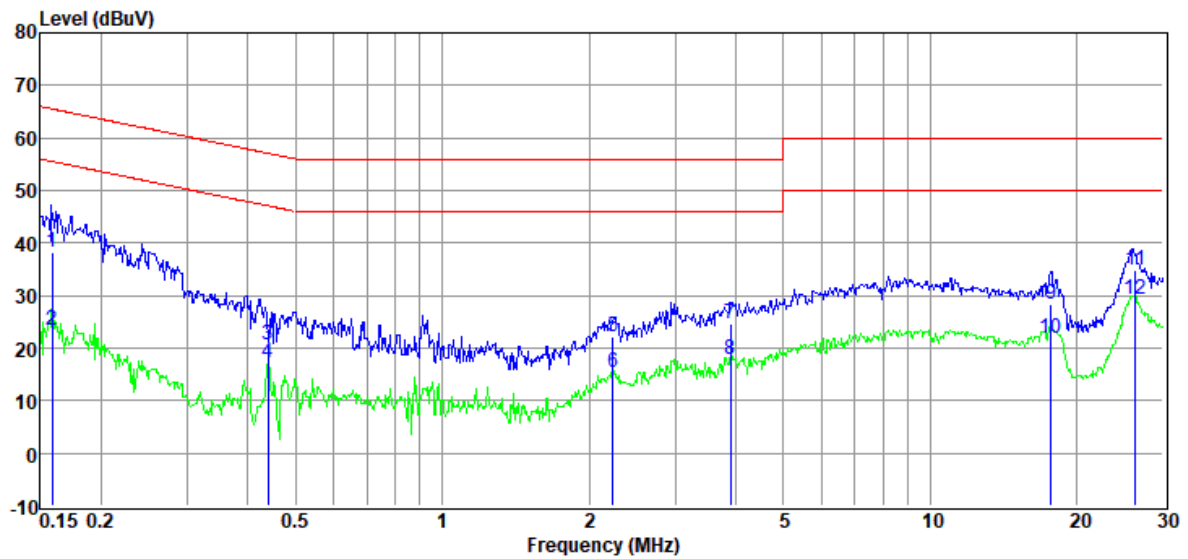
Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.16	18.56	9.65	0.11	9.86	38.18	65.60	-27.42	QP	NEUTRAL
2	0.16	3.87	9.65	0.11	9.86	23.49	55.60	-32.11	Average	NEUTRAL
3	0.44	6.23	9.76	0.08	9.86	25.93	57.11	-31.18	QP	NEUTRAL
4	0.44	-0.11	9.76	0.08	9.86	19.59	47.11	-27.52	Average	NEUTRAL
5	0.53	4.26	9.78	0.06	9.86	23.96	56.00	-32.04	QP	NEUTRAL
6	0.53	-1.92	9.78	0.06	9.86	17.78	46.00	-28.22	Average	NEUTRAL
7	0.93	0.93	9.71	0.06	9.88	20.58	56.00	-35.42	QP	NEUTRAL
8	0.93	-2.68	9.71	0.06	9.88	16.97	46.00	-29.03	Average	NEUTRAL
9	2.25	2.43	9.67	0.05	9.87	22.02	56.00	-33.98	QP	NEUTRAL
10	2.25	-4.67	9.67	0.05	9.87	14.92	46.00	-31.08	Average	NEUTRAL
11	8.96	8.49	9.73	0.12	9.96	28.30	60.00	-31.70	QP	NEUTRAL
12	8.96	0.92	9.73	0.12	9.96	20.73	50.00	-29.27	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
Test Date : 2025-04-01
EUT : Portable Bluetooth Speaker
Power Supply : AC 120V/60Hz
Condition : TEMP:23.4°C, RH:61.2%
Memo :
D:\2025 CE report data\Q24112111-2E\0401 CE.EM6
Tested By : Chunchieh Huang
Model Number : BOOMBOX 4C
Test Mode : Charging + Bluetooth + 5V/1A load mode
LISN : 2024 1# ENV216/LINE

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	0.16	18.37	9.88	0.11	9.86	38.22	65.52	-27.30	QP	LINE
2	0.16	3.55	9.88	0.11	9.86	23.40	55.52	-32.12	Average	LINE
3	0.44	0.87	9.83	0.08	9.86	20.64	57.07	-36.43	QP	LINE
4	0.44	-2.70	9.83	0.08	9.86	17.07	47.07	-30.00	Average	LINE
5	2.24	2.56	9.75	0.05	9.87	22.23	56.00	-33.77	QP	LINE
6	2.24	-4.19	9.75	0.05	9.87	15.48	46.00	-30.52	Average	LINE
7	3.90	4.95	9.74	0.05	9.86	24.60	56.00	-31.40	QP	LINE
8	3.90	-1.86	9.74	0.05	9.86	17.79	46.00	-28.21	Average	LINE
9	17.66	8.15	10.01	0.15	9.95	28.26	60.00	-31.74	QP	LINE
10	17.66	1.85	10.01	0.15	9.95	21.96	50.00	-28.04	Average	LINE
11	26.28	14.43	10.18	0.20	10.00	34.81	60.00	-25.19	QP	LINE
12	26.28	8.93	10.18	0.20	10.00	29.31	50.00	-20.69	Average	LINE

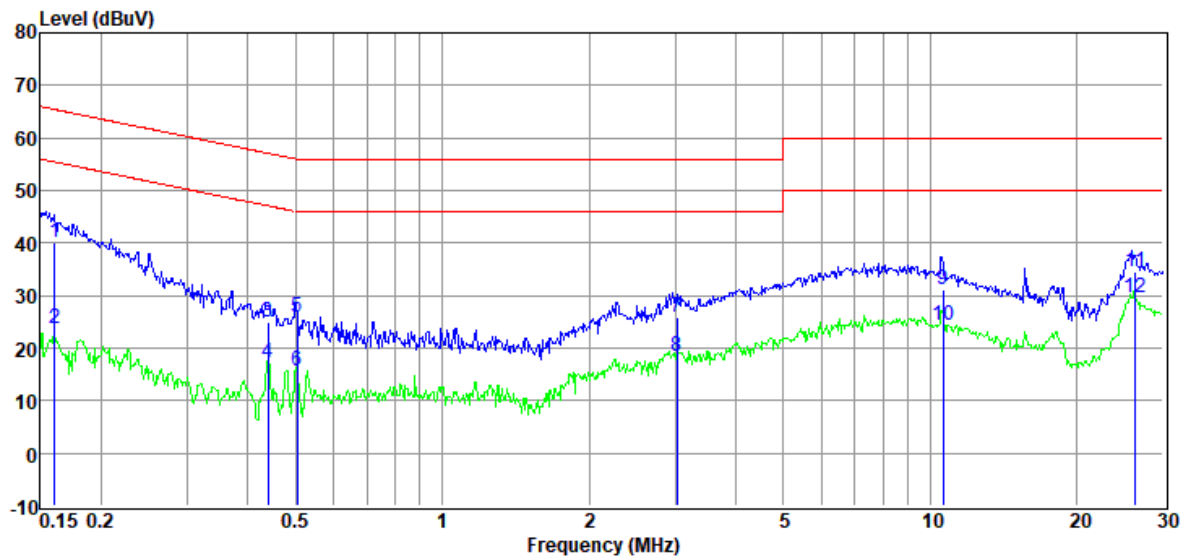
Note:

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 : 2025-04-01
EUT : Portable Bluetooth Speaker
Power Supply : AC 240V/50Hz
Condition : TEMP:23.4°C, RH:61.2%
Memo :
D:\2025 CE report data\Q24112111-2E\0401 CE.EM6
Tested By : Chunchieh Huang
Model Number : BOOMBOX 4C
Test Mode : Charging + Bluetooth + 5V/1A load mode
LISN : 2024 1# ENV216/LINE

Data: 54



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	0.16	20.16	9.87	0.11	9.86	40.00	65.43	-25.43	QP	LINE
2	0.16	3.96	9.87	0.11	9.86	23.80	55.43	-31.63	Average	LINE
3	0.44	5.08	9.83	0.08	9.86	24.85	57.07	-32.22	QP	LINE
4	0.44	-2.66	9.83	0.08	9.86	17.11	47.07	-29.96	Average	LINE
5	0.50	6.18	9.84	0.06	9.86	25.94	56.00	-30.06	QP	LINE
6	0.50	-3.98	9.84	0.06	9.86	15.78	46.00	-30.22	Average	LINE
7	3.03	6.29	9.74	0.05	9.86	25.94	56.00	-30.06	QP	LINE
8	3.03	-1.08	9.74	0.05	9.86	18.57	46.00	-27.43	Average	LINE
9	10.62	11.31	9.82	0.13	9.97	31.23	60.00	-28.77	QP	LINE
10	10.62	4.27	9.82	0.13	9.97	24.19	50.00	-25.81	Average	LINE
11	26.28	14.25	10.18	0.20	10.00	34.63	60.00	-25.37	QP	LINE
12	26.28	9.34	10.18	0.20	10.00	29.72	50.00	-20.28	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

: 2025-04-01

EUT

: Portable Bluetooth Speaker

Power Supply

: AC 240V/50Hz

Condition

: TEMP:23.4°C, RH:61.2%

Memo

:

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Tested By

: Chunchieh Huang

Model Number

: BOOMBOX 4C

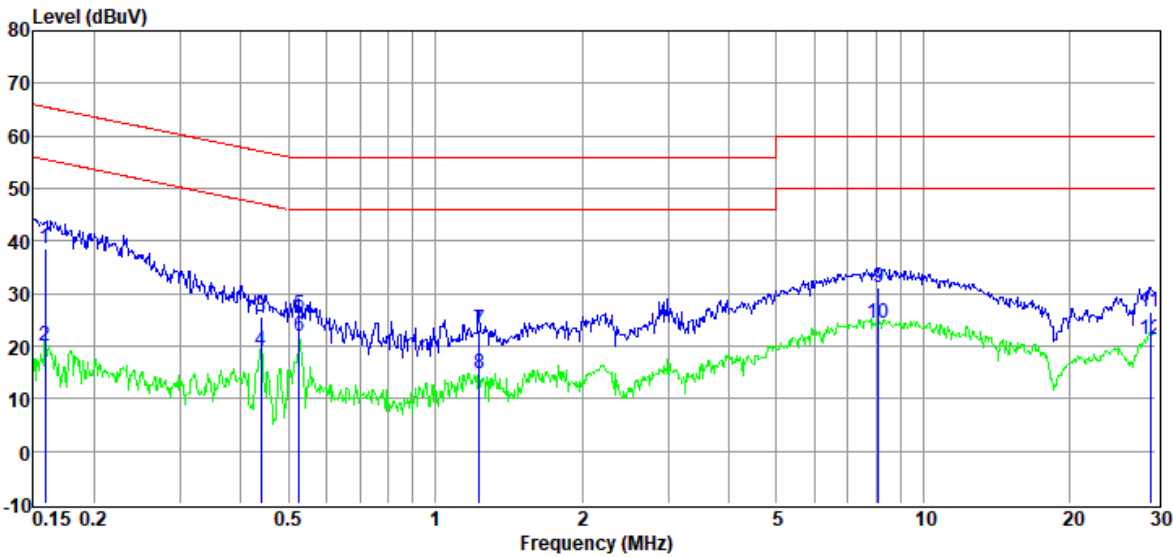
Test Mode

: Charging + Bluetooth + 5V/1A load mode

LISN

: 2024 1# ENV216/NEUTRAL

Data: 56



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.16	19.08	9.65	0.11	9.86	38.70	65.52	-26.82	QP	NEUTRAL
2	0.16	0.50	9.65	0.11	9.86	20.12	55.52	-35.40	Average	NEUTRAL
3	0.44	6.01	9.76	0.08	9.86	25.71	57.07	-31.36	QP	NEUTRAL
4	0.44	-0.76	9.76	0.08	9.86	18.94	47.07	-28.13	Average	NEUTRAL
5	0.53	6.28	9.78	0.06	9.86	25.98	56.00	-30.02	QP	NEUTRAL
6	0.53	2.25	9.78	0.06	9.86	21.95	46.00	-24.05	Average	NEUTRAL
7	1.23	3.52	9.69	0.04	9.88	23.13	56.00	-32.87	QP	NEUTRAL
8	1.23	-4.86	9.69	0.04	9.88	14.75	46.00	-31.25	Average	NEUTRAL
9	8.11	11.49	9.72	0.11	9.94	31.26	60.00	-28.74	QP	NEUTRAL
10	8.11	4.69	9.72	0.11	9.94	24.46	50.00	-25.54	Average	NEUTRAL
11	29.22	6.23	10.19	0.22	10.01	26.65	60.00	-33.35	QP	NEUTRAL
12	29.22	0.91	10.19	0.22	10.01	21.33	50.00	-28.67	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

Test Date

: 2025-04-16

EUT

: Portable Bluetooth Speaker

Power Supply

: AC 240V/50Hz

Condition

: TEMP:23.1°C, RH:63.8

Memo

:

D:\2024 CE report data\Q24112111-2E\0416 CE.EM6

Tested By

: Aaron Liu

Model Number

: BOOMBOX 4C

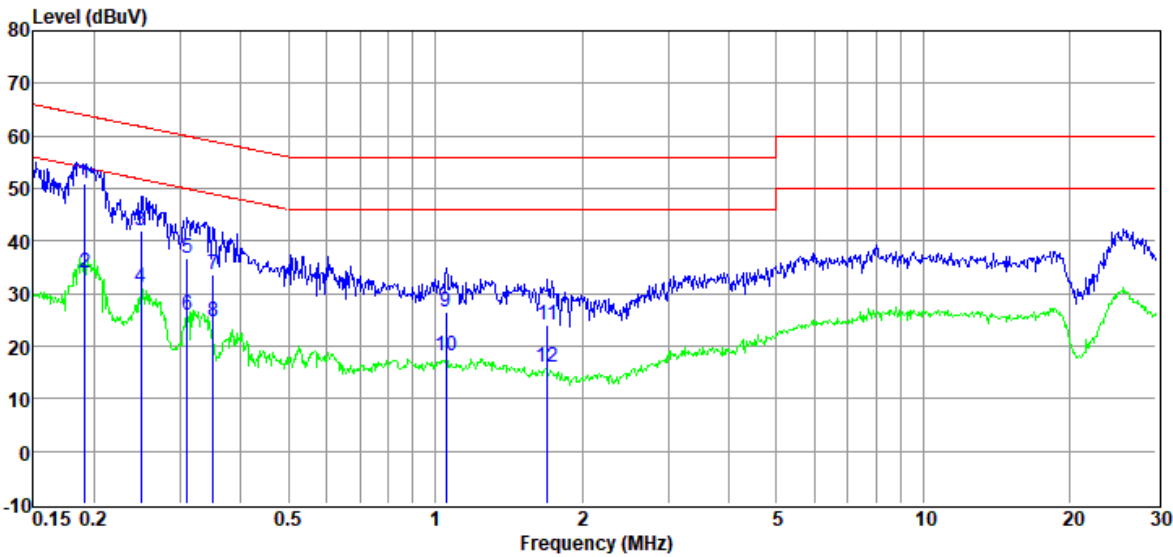
Test Mode

: Charging + Bluetooth + TWS + 5V/1A
load mode

LISN

: 2024 1# ENV216/LINE

Data: 2



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.19	31.04	9.76	0.12	9.86	50.78	63.98	-13.20	QP	LINE
2	0.19	14.33	9.76	0.12	9.86	34.07	53.98	-19.91	Average	LINE
3	0.25	22.11	9.74	0.14	9.86	41.85	61.78	-19.93	QP	LINE
4	0.25	11.54	9.74	0.14	9.86	31.28	51.78	-20.50	Average	LINE
5	0.31	17.07	9.76	0.14	9.86	36.83	59.97	-23.14	QP	LINE
6	0.31	6.25	9.76	0.14	9.86	26.01	49.97	-23.96	Average	LINE
7	0.35	13.98	9.78	0.12	9.86	33.74	58.96	-25.22	QP	LINE
8	0.35	4.76	9.78	0.12	9.86	24.52	48.96	-24.44	Average	LINE
9	1.05	6.75	9.78	0.04	9.88	26.45	56.00	-29.55	QP	LINE
10	1.05	-1.66	9.78	0.04	9.88	18.04	46.00	-27.96	Average	LINE
11	1.70	4.50	9.76	0.04	9.87	24.17	56.00	-31.83	QP	LINE
12	1.70	-3.81	9.76	0.04	9.87	15.86	46.00	-30.14	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

: 2025-04-16

EUT

: Portable Bluetooth Speaker

Power Supply

: AC 240V/50Hz

Condition

: TEMP:23.1°C, RH:63.8

Memo

: S24112111-036

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Tested By

: Aaron Liu

Model Number

: BOOMBOX 4C

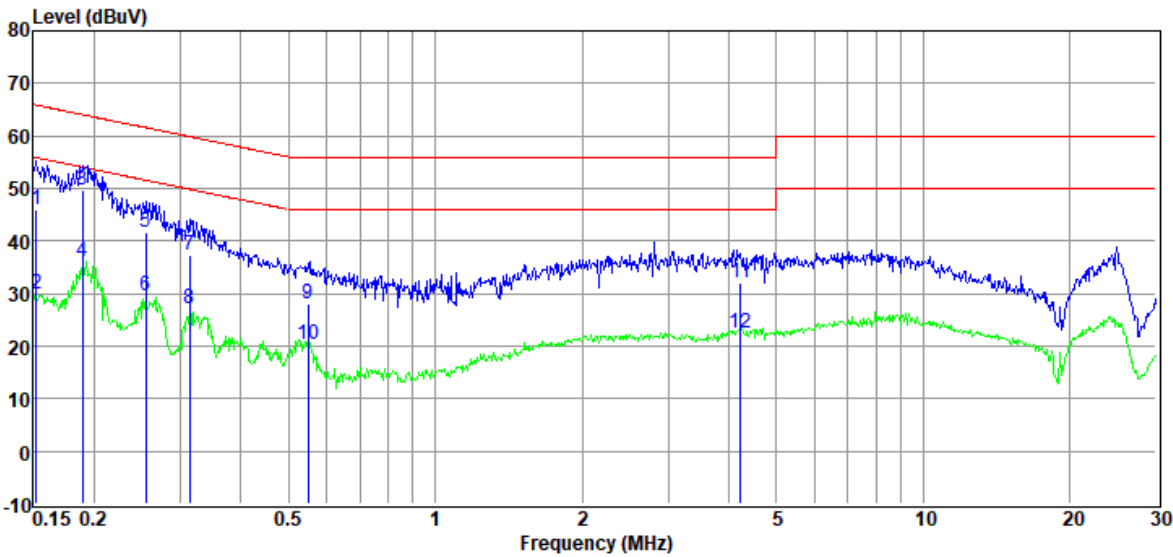
Test Mode

: Charging + Bluetooth + TWS + 5V/1A
load mode

LISN

: 2024 1# ENV216/NEUTRAL

Data: 4



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.15	26.42	9.65	0.11	9.86	46.04	65.87	-19.83	QP	NEUTRAL
2	0.15	10.42	9.65	0.11	9.86	30.04	55.87	-25.83	Average	NEUTRAL
3	0.19	29.88	9.69	0.12	9.86	49.55	64.06	-14.51	QP	NEUTRAL
4	0.19	16.53	9.69	0.12	9.86	36.20	54.06	-17.86	Average	NEUTRAL
5	0.25	21.80	9.72	0.14	9.86	41.52	61.60	-20.08	QP	NEUTRAL
6	0.25	9.91	9.72	0.14	9.86	29.63	51.60	-21.97	Average	NEUTRAL
7	0.31	17.51	9.72	0.14	9.86	37.23	59.88	-22.65	QP	NEUTRAL
8	0.31	7.32	9.72	0.14	9.86	27.04	49.88	-22.84	Average	NEUTRAL
9	0.55	8.33	9.77	0.07	9.86	28.03	56.00	-27.97	QP	NEUTRAL
10	0.55	0.64	9.77	0.07	9.86	20.34	46.00	-25.66	Average	NEUTRAL
11	4.22	12.50	9.65	0.05	9.85	32.05	56.00	-23.95	QP	NEUTRAL
12	4.22	2.86	9.65	0.05	9.85	22.41	46.00	-23.59	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

Test Date

: 2025-04-16

EUT

: Portable Bluetooth Speaker

Power Supply

: AC 120V/60Hz

Condition

: TEMP:23.1°C, RH:63.8

Memo

:

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Tested By

: Aaron Liu

Model Number

: BOOMBOX 4C

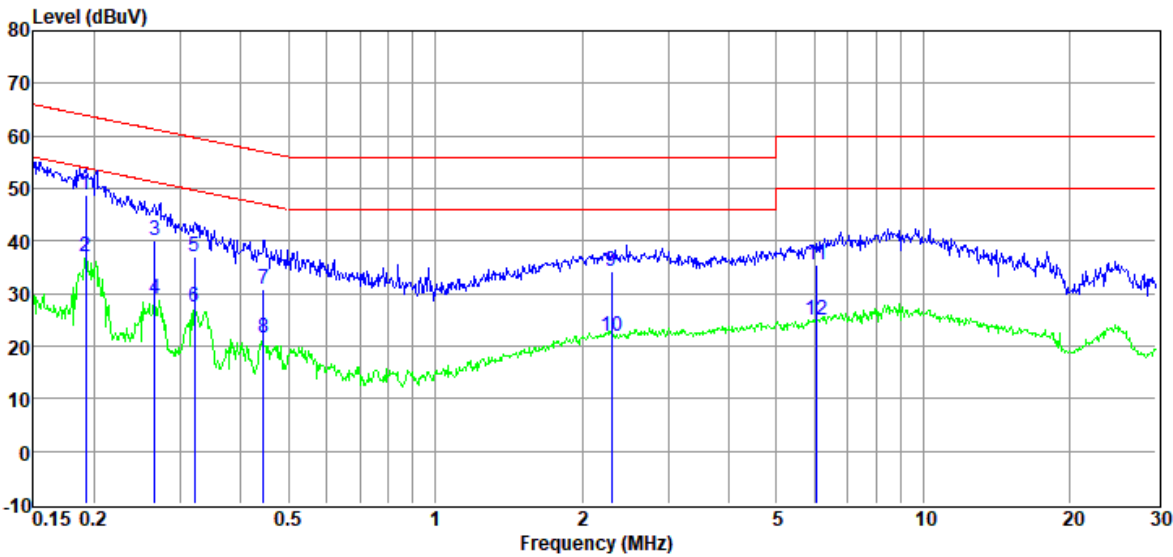
Test Mode

: Charging + Bluetooth + TWS + 5V/1A
load mode

LISN

: 2024 1# ENV216/NEUTRAL

Data: 6



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.19	29.20	9.69	0.12	9.86	48.87	63.93	-15.06	QP	NEUTRAL
2	0.19	17.21	9.69	0.12	9.86	36.88	53.93	-17.05	Average	NEUTRAL
3	0.27	20.24	9.72	0.14	9.86	39.96	61.25	-21.29	QP	NEUTRAL
4	0.27	9.10	9.72	0.14	9.86	28.82	51.25	-22.43	Average	NEUTRAL
5	0.32	17.25	9.72	0.14	9.86	36.97	59.66	-22.69	QP	NEUTRAL
6	0.32	7.84	9.72	0.14	9.86	27.56	49.66	-22.10	Average	NEUTRAL
7	0.44	11.20	9.76	0.08	9.86	30.90	56.98	-26.08	QP	NEUTRAL
8	0.44	1.92	9.76	0.08	9.86	21.62	46.98	-25.36	Average	NEUTRAL
9	2.30	14.64	9.67	0.05	9.87	34.23	56.00	-21.77	QP	NEUTRAL
10	2.30	2.39	9.67	0.05	9.87	21.98	46.00	-24.02	Average	NEUTRAL
11	6.06	15.72	9.69	0.07	9.89	35.37	60.00	-24.63	QP	NEUTRAL
12	6.06	5.16	9.69	0.07	9.89	24.81	50.00	-25.19	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

Test Date

: 2025-04-16

EUT

: Portable Bluetooth Speaker

Power Supply

: AC 120V/60Hz

Condition

: TEMP:23.1°C, RH:63.8

Memo

: S24112111-036

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Tested By

: Aaron Liu

Model Number

: BOOMBOX 4C

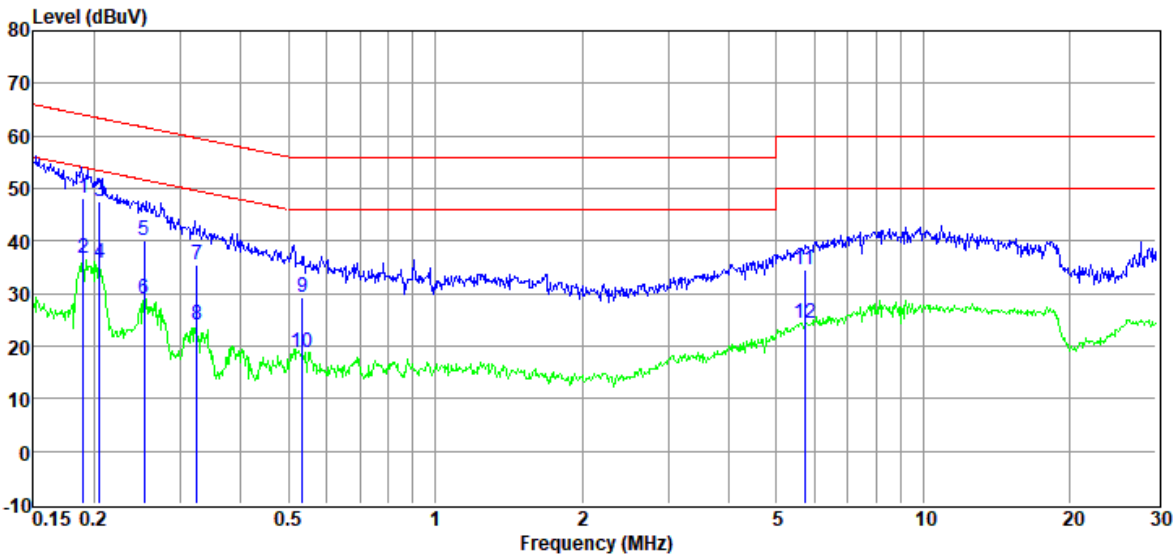
Test Mode

: Charging + Bluetooth + TWS + 5V/1A
load mode

LISN

: 2024 1# ENV216/LINE

Data: 8



Item	Freq.	Read	LISN	Cable	Pulse	Result	Limit	Over	Detector	Phase
(Mark)	(MHz)	Level	Factor	Loss	Limiter	Level	Line	Limit		
		(dBμV)	(dB)	(dB)	Factor	(dBμV)	(dBμV)	(dB)		
1	0.19	28.37	9.76	0.12	9.86	48.11	64.02	-15.91	QP	LINE
2	0.19	16.96	9.76	0.12	9.86	36.70	54.02	-17.32	Average	LINE
3	0.21	27.67	9.72	0.13	9.86	47.38	63.40	-16.02	QP	LINE
4	0.21	16.10	9.72	0.13	9.86	35.81	53.40	-17.59	Average	LINE
5	0.25	20.38	9.74	0.14	9.86	40.12	61.64	-21.52	QP	LINE
6	0.25	9.33	9.74	0.14	9.86	29.07	51.64	-22.57	Average	LINE
7	0.33	15.80	9.77	0.14	9.86	35.57	59.57	-24.00	QP	LINE
8	0.33	4.31	9.77	0.14	9.86	24.08	49.57	-25.49	Average	LINE
9	0.53	9.63	9.85	0.06	9.86	29.40	56.00	-26.60	QP	LINE
10	0.53	-1.09	9.85	0.06	9.86	18.68	46.00	-27.32	Average	LINE
11	5.71	14.74	9.77	0.07	9.88	34.46	60.00	-25.54	QP	LINE
12	5.71	4.52	9.77	0.07	9.88	24.24	50.00	-25.76	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.

3.8. Test photo



4. Radiated Emissions Test

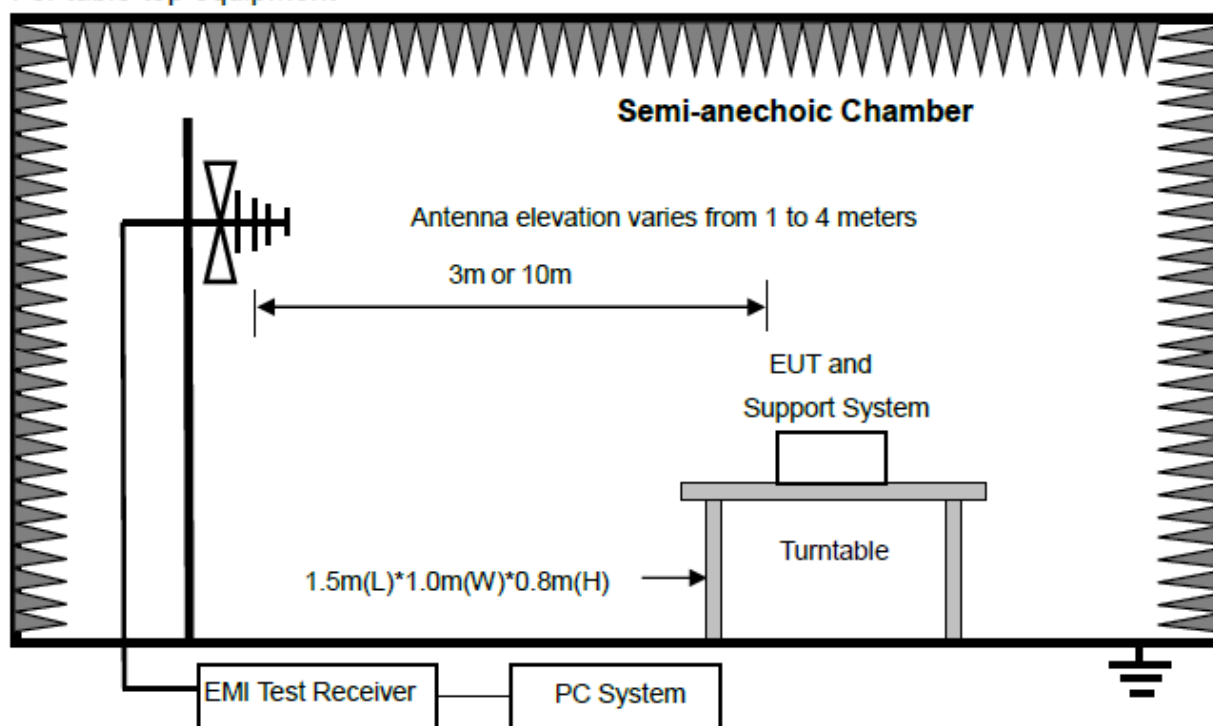
4.1. Test equipment

Equipment	Manufacturer	Model No.	Equipment No.	Cal Due To
Pre-amplifier	SONOMA	310N	DDT-ZC00534	2025/07/08
Pre-amplifier	SONOMA	310N	DDT-ZC01970	2025/07/08
EMI Test Receiver	R&S	ESCI7	DDT-ZC01819	2026/03/28
EMI Test Receiver	R&S	ESCI	DDT-ZC01971	2026/03/28
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02048	2025/07/11
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02049	2025/07/11
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2026/03/28
RF cable	DDT	H0.5M+1M+3M+ (6M+4M)	DDT-ZC02533	2025/07/30
RF cable	DDT	V0.5M+1M+3M+ (11M+6M)	DDT-ZC02534	2025/07/30
Preamplifier	COM-POWER	PAM-118A	DDT-ZC01489	2025/08/12
Hochgewinn-Hornantenne	SCHWARZBECK	BBHA 9120 D	DDT-ZC02129	2025/09/18
Radiation disturbance fully automated test software	Tonscend	JS32-RE	DDT-ZC02644	/
EMI Test Receiver	R&S	ESU8	DDT-ZC00514	2025/06/28
Spectrum Analyzer	Agilent	E4440A	DDT-ZC01445	2026/03/28
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2027/04/01
Horn Antenna	SCHWARZBECK	BBHA9120 D	DDT-ZC01218	2025/08/27
Preamplifier	COM-POWER	PAM-118A	DDT-ZC01489	2025/08/12
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2026/03/28
EMI Test Software	Audix/TW	e3	DDT-ZC01252	/
RF cable	Zhongke Junchuang	JCTB810-NJ-NJ-7M	DDT-ZC02759	2025/07/08

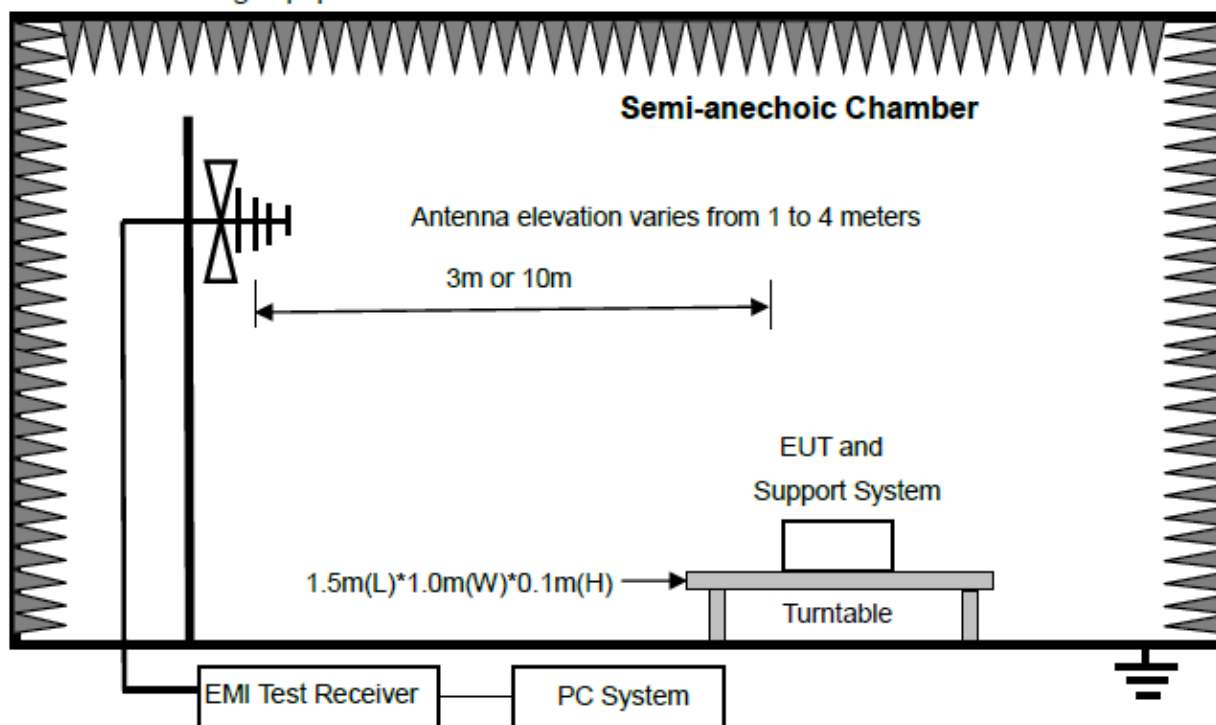
4.2. Block diagram of test setup

Below 1 GHz

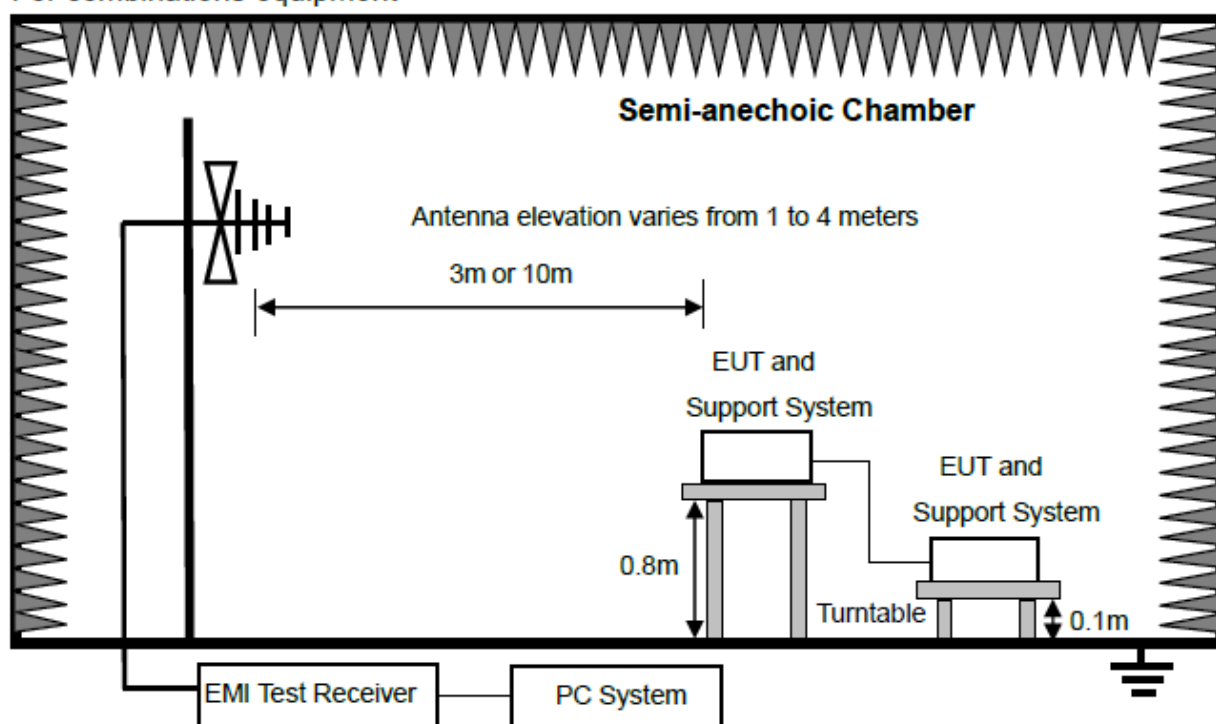
For table-top equipment



For floor standing equipment

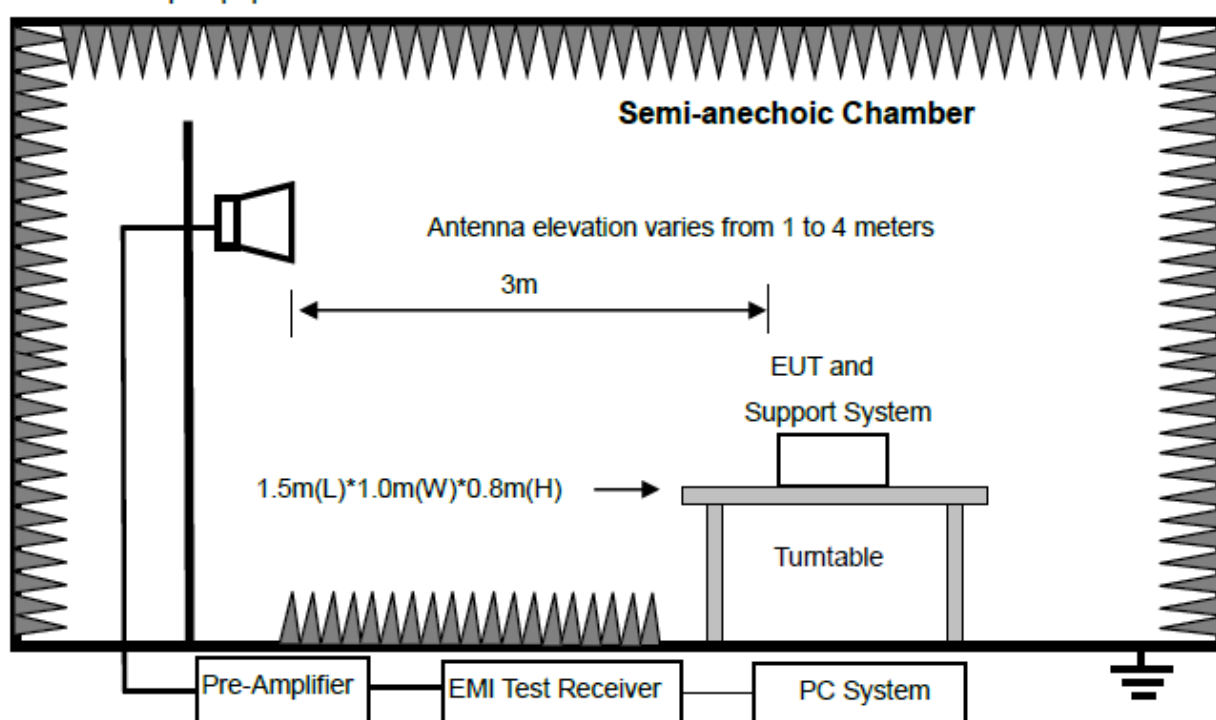


For combinations equipment

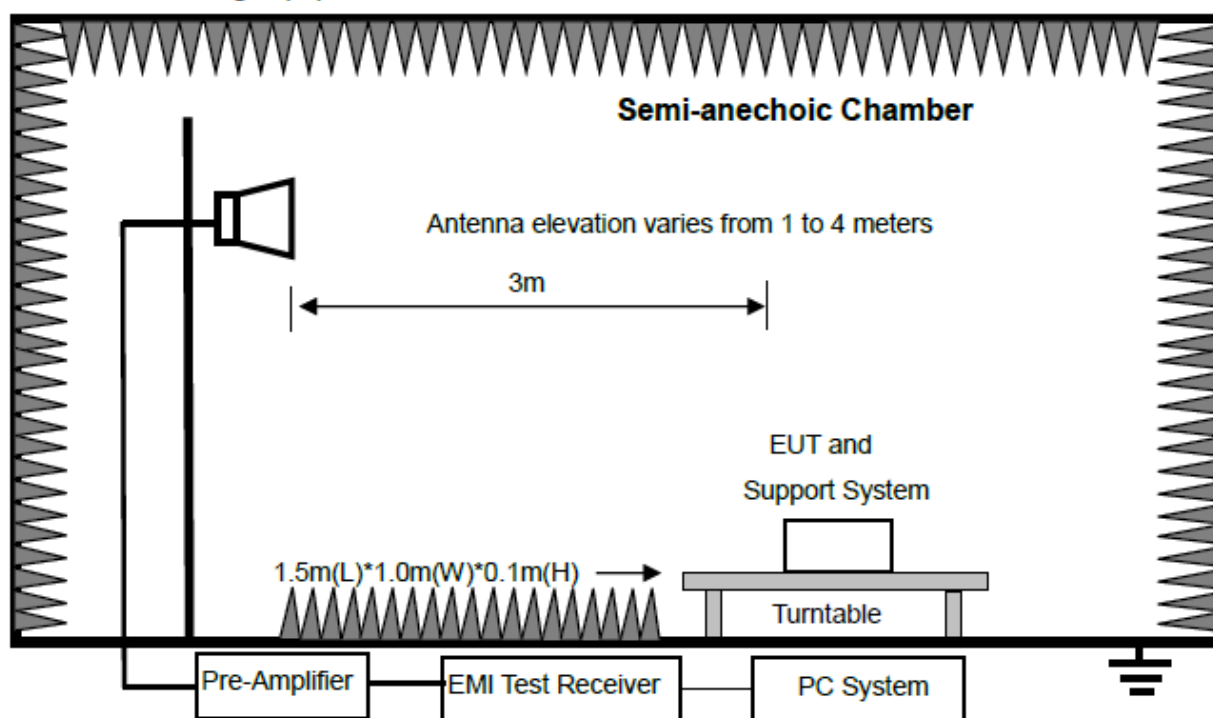


Above 1 GHz

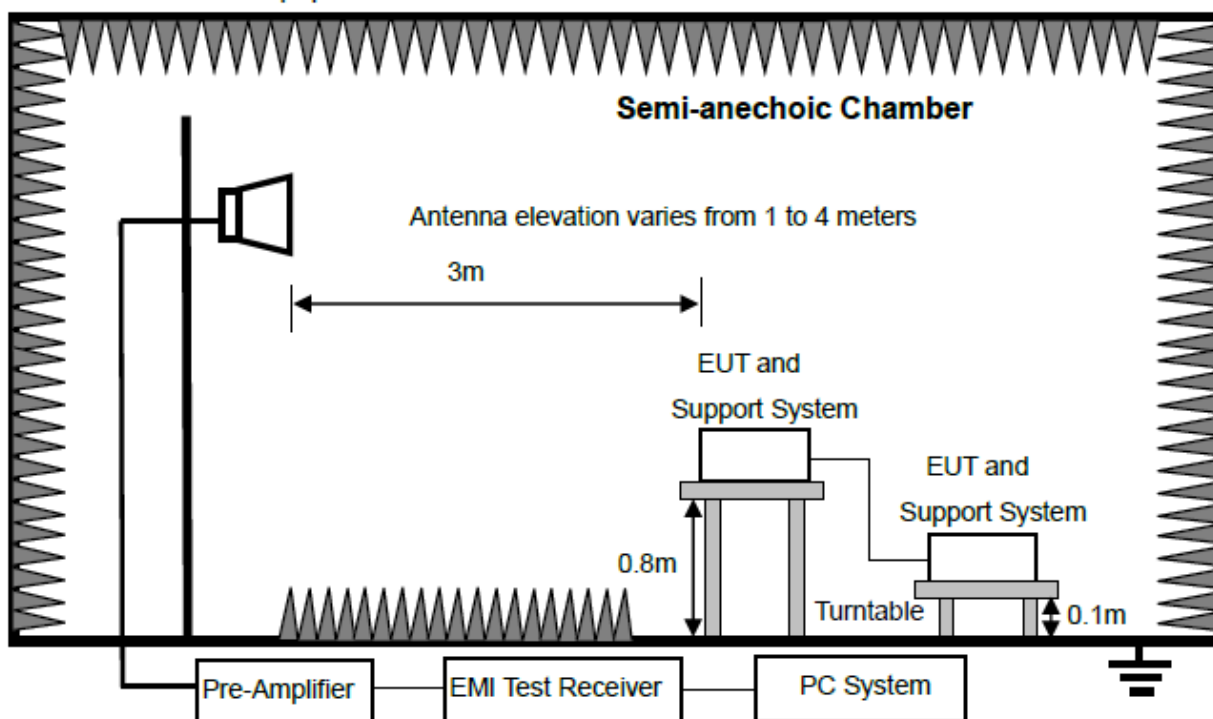
For table-top equipment



For floor standing equipment



For combinations equipment



4.3. Limits

Equipment	Frequency	Field Strengths Limits at 10m measuring distance dB(μ V)/m	Field Strengths Limits at 3m measuring distance dB(μ V)/m
Class A Equipment	30 MHz to 230 MHz	40	50
	230 MHz to 1000 MHz	47	57
	1 GHz to 3 GHz	/	Average:56; Peak:76
	3 GHz to 6 GHz	/	Average:60; Peak:80
Equipment	Frequency	Field Strengths Limits at 10m measuring distance dB(μ V)/m	Field Strengths Limits at 3m measuring distance dB(μ V)/m
Class B Equipment	30 MHz to 230 MHz	30	40
	230 MHz to 1000 MHz	37	47
	1 GHz to 3 GHz	/	Average:50; Peak:70
	3 GHz to 6 GHz	/	Average:54; Peak:74

Note:

(1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile phone	SAMSUNG	SM-G9730	R28M3129AAF	N/A
Mobile phone	Apple	iPhone 15	N/A	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	1.67 Ω /2.5 Ω /3 Ω /5 Ω /7.5 Ω /13 Ω /8.6 Ω /4 Ω	N/A
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
Charger LAB POWER-Z USB PD Tester	POWER-Z	KT001	Large red regulator	N/A

4.5. Test procedure

- (1) The EUT was placed on a non-metallic table reference to the test block diagram above the ground plane inside a semi-anechoic chamber.
- (2) Test antenna center was located 3m or 10m from the EUT and assistant equipment boundary (imaginary circular periphery) on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were 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 equipment and all of the interface cables were changed according to EN 55032 on radiated emission test.

- (3) Spectrum frequency from 30 MHz to 1 GHz/6 GHz was investigated.
- (4) For final emissions measurements at each frequency of interest, the EUT were 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 equipment and all of the interface cables were changed according to EN 55032 on Radiated Emission test.
- (5) For emissions from 30 MHz to 1 GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 kHz.
- (6) 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.

4.6. Test result

Pass. (See below detailed test result)

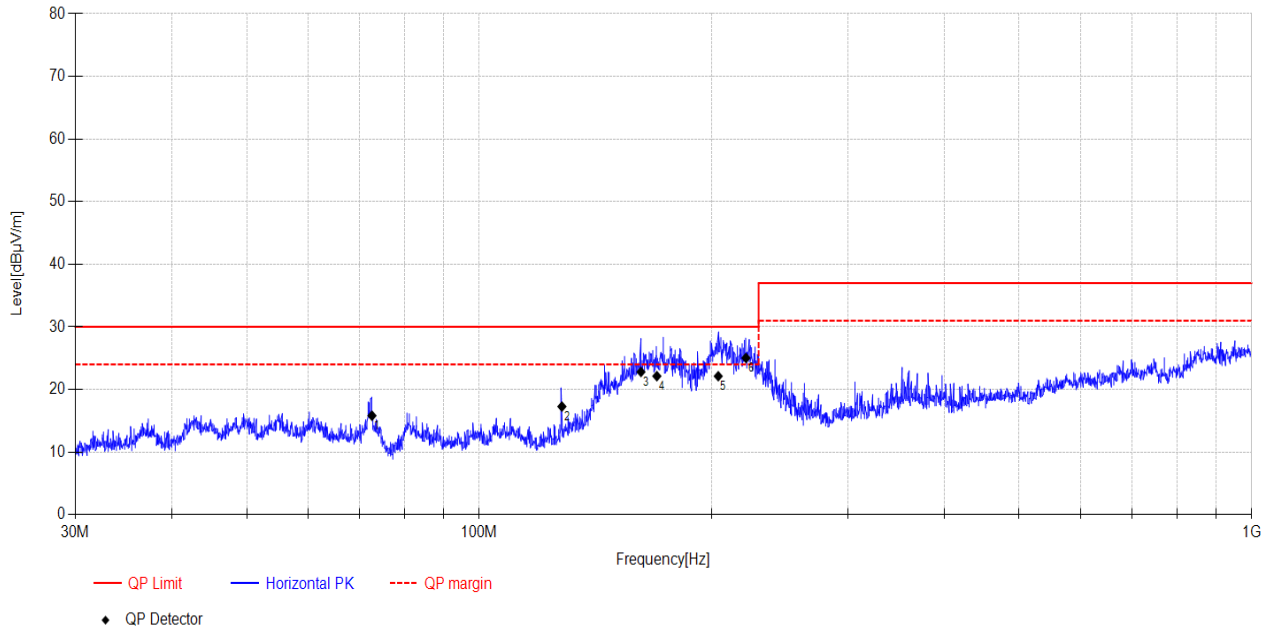
Note 1: All emissions not reported below are too low against the prescribed limits.

Note 2: "----" means Peak detection.

4.7. Test data

TR-4-E-009 Radiated Emission Test Result

Test Date: 2025-04-15 **Tested By:** Mende Guo
EUT: Portable Bluetooth Speaker **Model Number:** BOOMBOX 4C
Test Mode: Bluetooth + 5V/1A load mode **Power Supply:** Battery
Condition: Temp:21.7°C;Humi:59.1% **Test Site:** DDT 10M Chamber
File Path: d:\ts\2024 report data\Q24112111-2E\0422 10M RE\1
Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	72.64	33.52	-17.71	15.81	30.00	14.19	QP	Horizontal
2	127.95	34.67	-17.40	17.27	30.00	12.73	QP	Horizontal
3	161.97	39.79	-16.99	22.80	30.00	7.20	QP	Horizontal
4	169.82	39.31	-17.18	22.13	30.00	7.87	QP	Horizontal
5	203.92	37.83	-15.71	22.12	30.00	7.88	QP	Horizontal
6	221.48	40.12	-15.09	25.03	30.00	4.97	QP	Horizontal

Note: 1. Result Level = Reading + Factor.

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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Bluetooth + 5V/1A load mode

Power Supply:

Battery

Condition:

Temp:21.7°C;Humi:59.1%

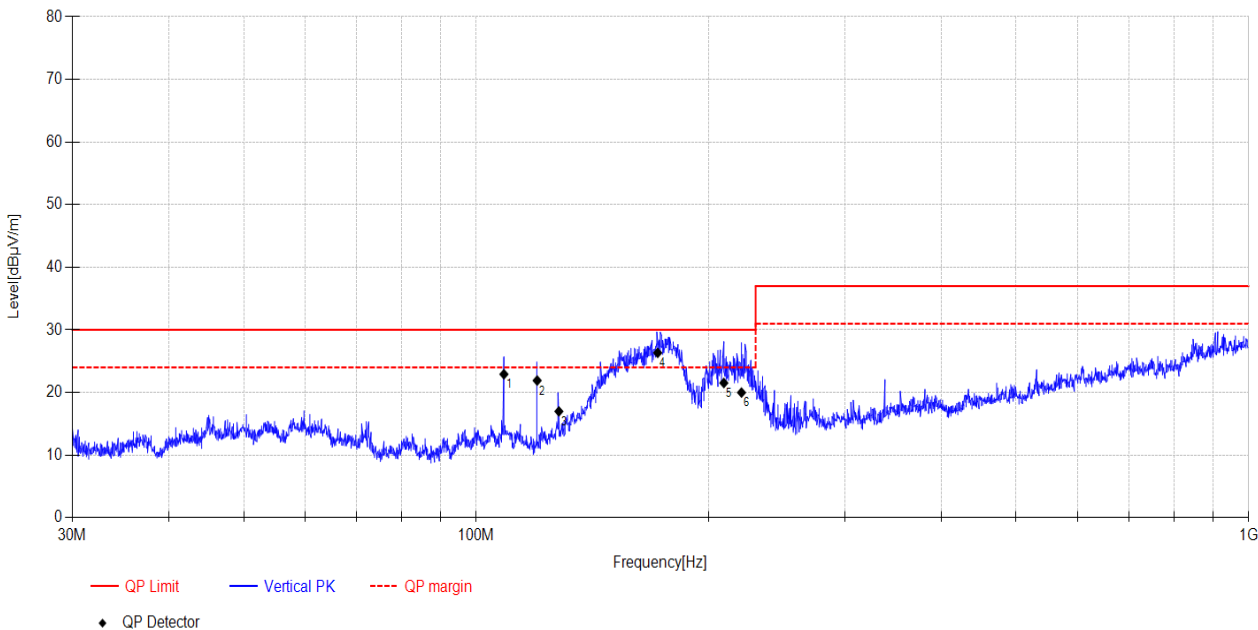
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\2

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	108.61	36.68	-13.77	22.91	30.00	7.09	QP	Vertical
2	119.92	37.7	-15.79	21.91	30.00	8.09	QP	Vertical
3	127.95	33.61	-16.63	16.98	30.00	13.02	QP	Vertical
4	171.77	42.46	-16.13	26.33	30.00	3.67	QP	Vertical
5	209.21	36.50	-14.98	21.52	30.00	8.48	QP	Vertical
6	220.52	34.72	-14.73	19.99	30.00	10.01	QP	Vertical

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + 5V/1A load mode

Power Supply:

AC 240V/50Hz

Condition:

Temp:21.7°C;Humi:59.1%

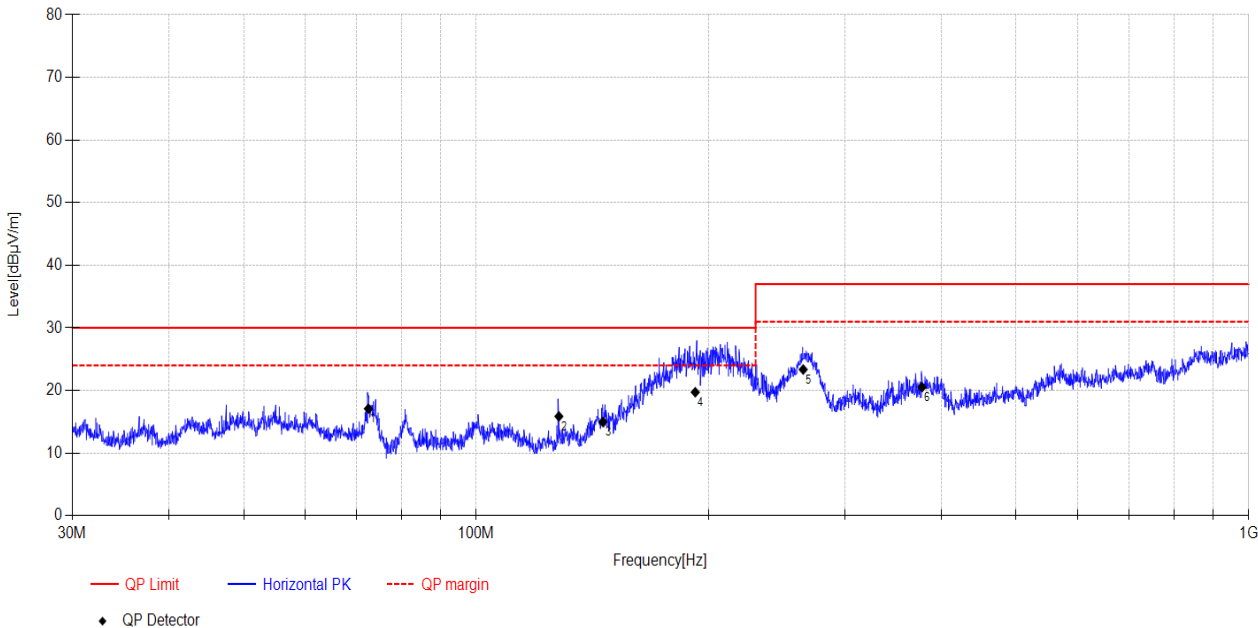
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\3

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	72.51	34.71	-17.62	17.09	30.00	12.91	QP	Horizontal
2	127.95	33.26	-17.40	15.86	30.00	14.14	QP	Horizontal
3	145.93	32.76	-17.79	14.97	30.00	15.03	QP	Horizontal
4	192.12	35.70	-15.98	19.72	30.00	10.28	QP	Horizontal
5	265.07	36.92	-13.57	23.35	37.00	13.65	QP	Horizontal
6	377.68	30.87	-10.34	20.53	37.00	16.47	QP	Horizontal

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + 5V/1A load mode

Power Supply:

AC 240V/50Hz

Condition:

Temp:21.7°C;Humi:59.1%

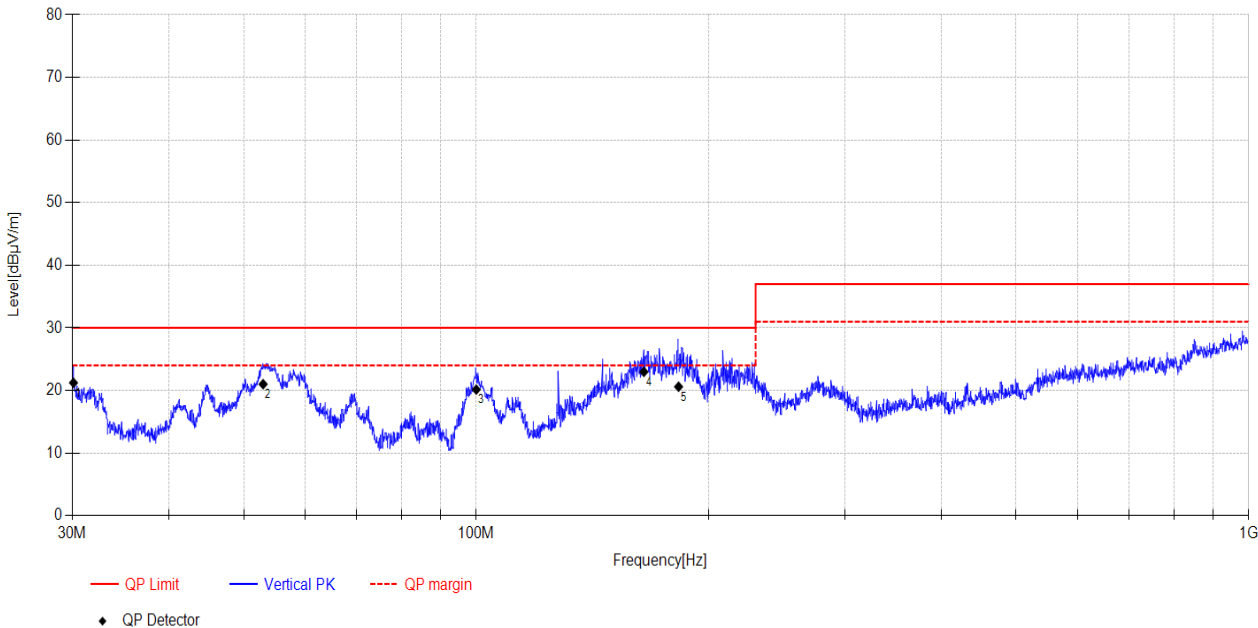
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\4

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	30.11	37.22	-15.99	21.23	30.00	8.77	QP	Vertical
2	52.98	34.08	-13.07	21.01	30.00	8.99	QP	Vertical
3	100.02	34.52	-14.38	20.14	30.00	9.86	QP	Vertical
4	164.84	39.9	-16.92	22.98	30.00	7.02	QP	Vertical
5	182.80	36.89	-16.29	20.60	30.00	9.40	QP	Vertical

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + 5V/1A load mode

Power Supply:

AC 120V/60Hz

Condition:

Temp:21.7°C;Humi:59.1%

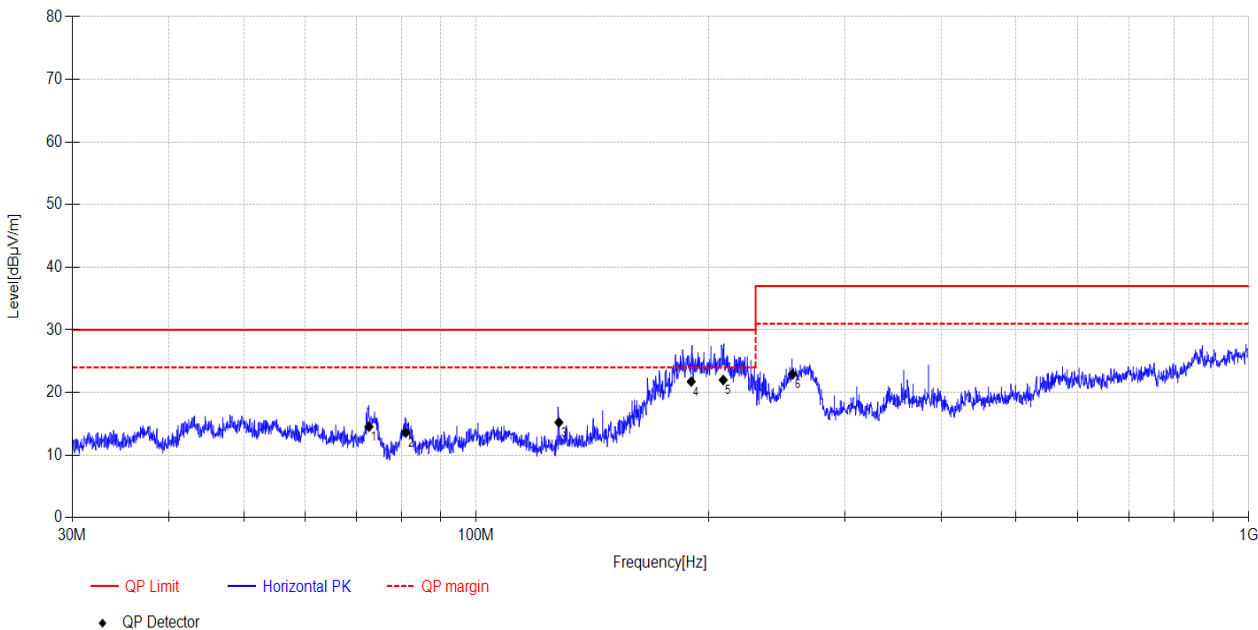
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\5

Memo:



Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + 5V/1A load mode

Power Supply:

AC 120V/60Hz

Condition:

Temp:21.7°C;Humi:59.1%

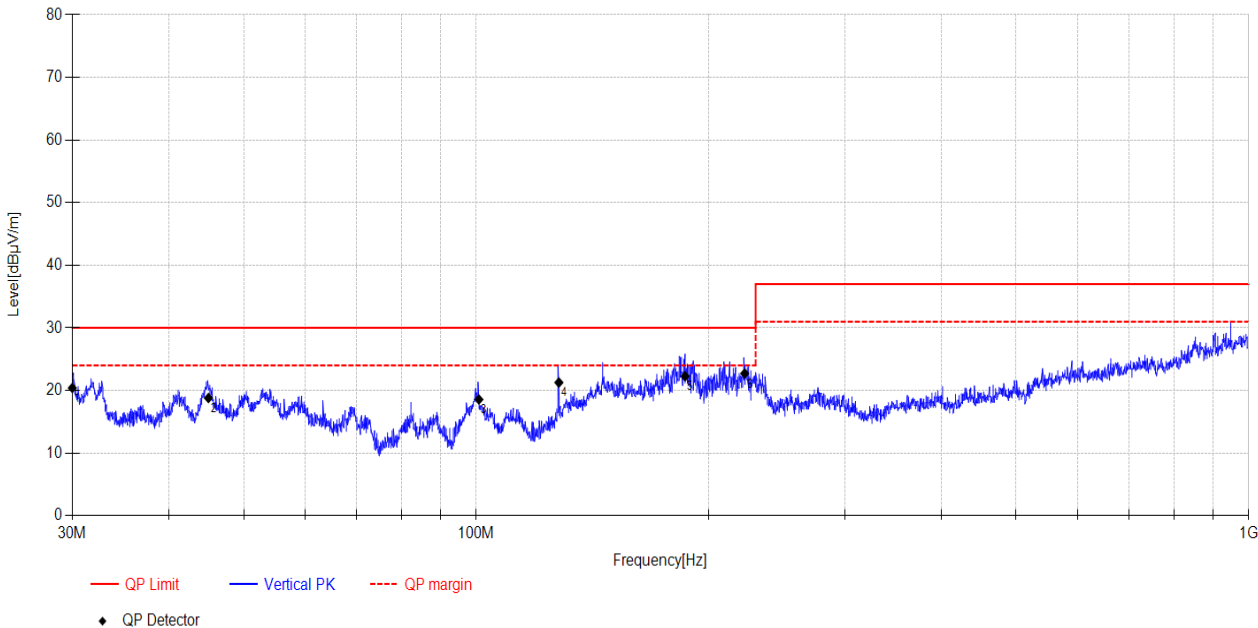
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\6

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	30.00	36.34	-15.93	20.41	30.00	9.59	QP	Vertical
2	45.01	32.12	-13.32	18.80	30.00	11.20	QP	Vertical
3	100.81	33.49	-14.93	18.56	30.00	11.44	QP	Vertical
4	127.95	37.9	-16.63	21.27	30.00	8.73	QP	Vertical
5	186.36	38.22	-15.94	22.28	30.00	7.72	QP	Vertical
6	222.64	37.26	-14.55	22.71	30.00	7.29	QP	Vertical

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + TWS + 5V/1A load mode

Power Supply:

AC 240V/50Hz

Condition:

Temp:21.7°C;Humi:59.1%

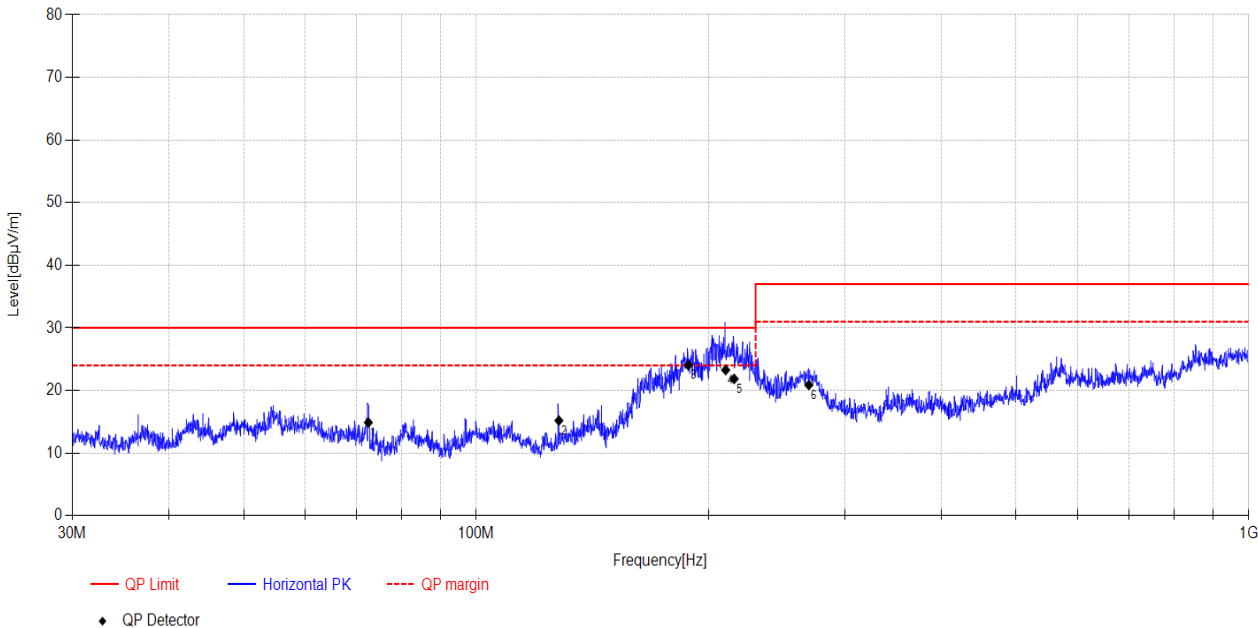
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\11

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	72.51	32.5	-17.62	14.88	30.00	15.12	QP	Horizontal
2	127.95	32.59	-17.40	15.19	30.00	14.81	QP	Horizontal
3	188.16	40.27	-16.23	24.04	30.00	5.96	QP	Horizontal
4	210.31	38.58	-15.31	23.27	30.00	6.73	QP	Horizontal
5	215.73	37.38	-15.53	21.85	30.00	8.15	QP	Horizontal
6	269.52	34.15	-13.28	20.87	37.00	16.13	QP	Horizontal

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + TWS + 5V/1A load mode

Power Supply:

AC 240V/50Hz

Condition:

Temp:21.7°C;Humi:59.1%

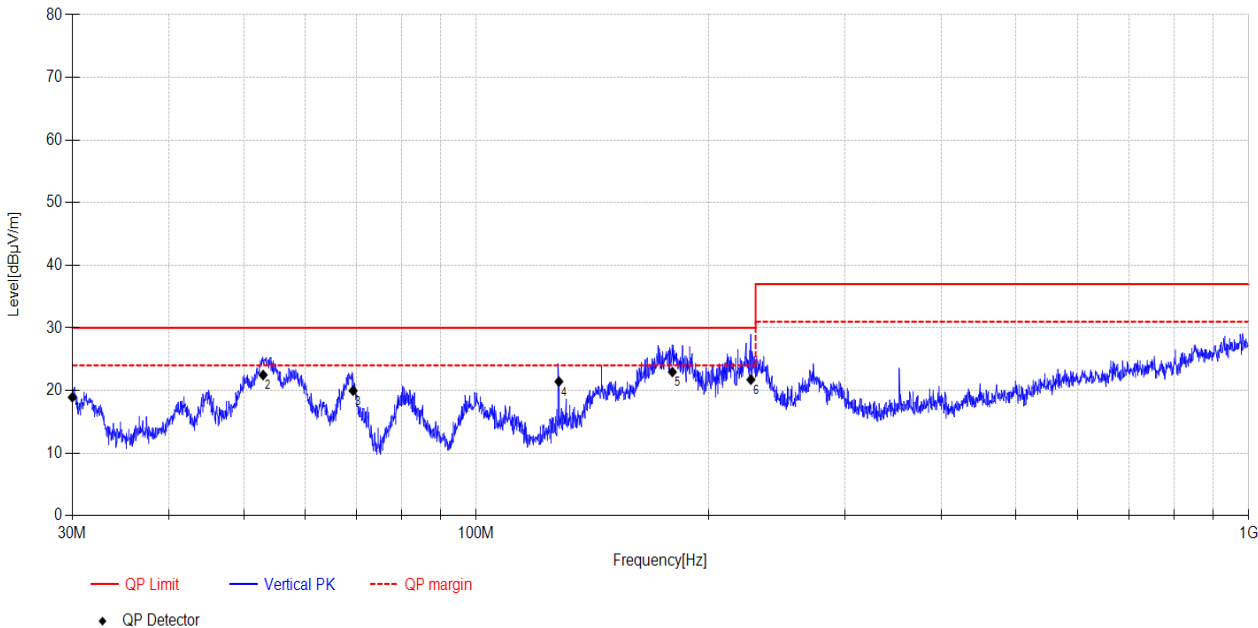
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\12

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	30.00	34.84	-15.93	18.91	30.00	11.09	QP	Vertical
2	52.98	35.54	-13.07	22.47	30.00	7.53	QP	Vertical
3	69.28	35.56	-15.60	19.96	30.00	10.04	QP	Vertical
4	127.95	38.05	-16.63	21.42	30.00	8.58	QP	Vertical
5	179.46	38.93	-15.99	22.94	30.00	7.06	QP	Vertical
6	226.78	36.00	-14.28	21.72	30.00	8.28	QP	Vertical

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + TWS + 5V/1A load mode

Power Supply:

AC 120V/60Hz

Condition:

Temp:21.7°C;Humi:59.1%

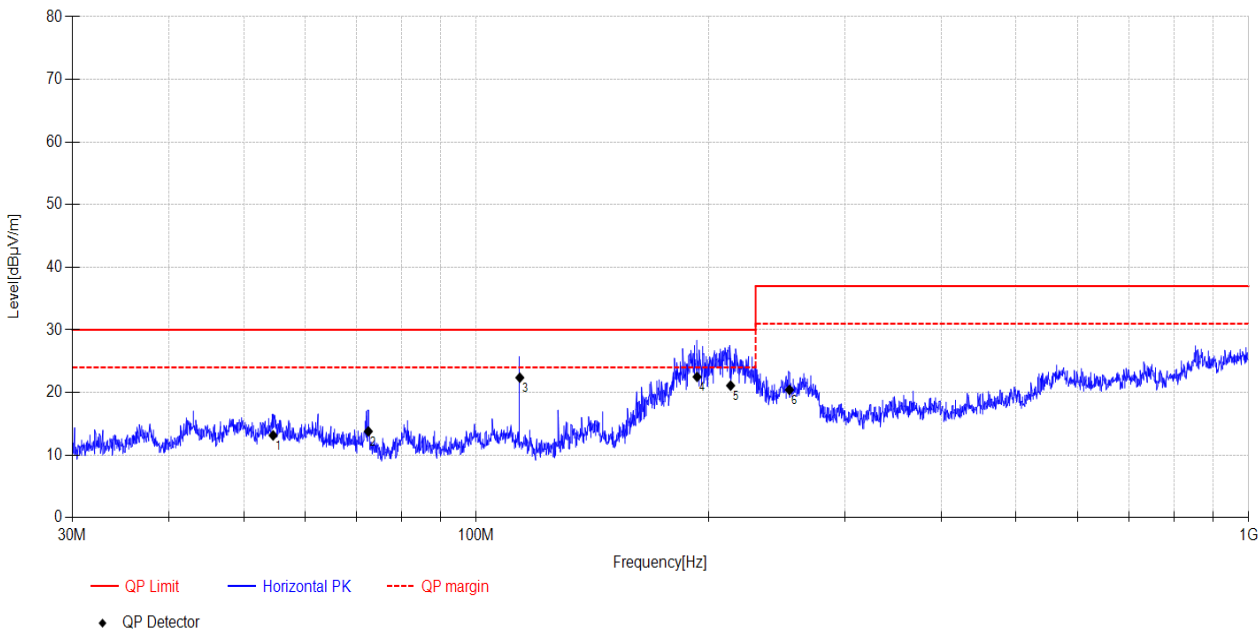
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\13

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	54.59	27.02	-13.88	13.14	30.00	16.86	QP	Horizontal
2	72.51	31.4	-17.62	13.78	30.00	16.22	QP	Horizontal
3	113.88	37.92	-15.55	22.37	30.00	7.63	QP	Horizontal
4	193.17	38.58	-16.09	22.49	30.00	7.51	QP	Horizontal
5	213.47	36.58	-15.48	21.10	30.00	8.90	QP	Horizontal
6	254.37	34.09	-13.67	20.42	37.00	16.58	QP	Horizontal

Note: 1. Result Level = Reading + Factor.
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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Charging + Bluetooth + TWS + 5V/1A load mode

Power Supply:

AC 120V/60Hz

Condition:

Temp:21.7°C;Humi:59.1%

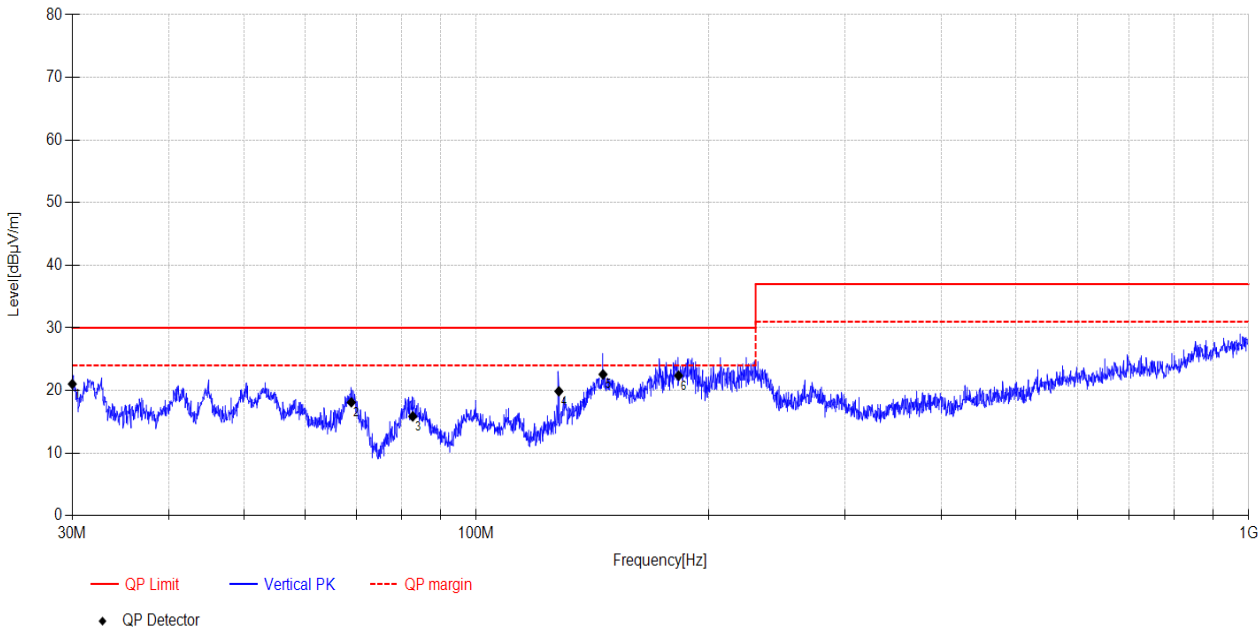
Test Site:

DDT 10M Chamber

File Path:

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Memo:



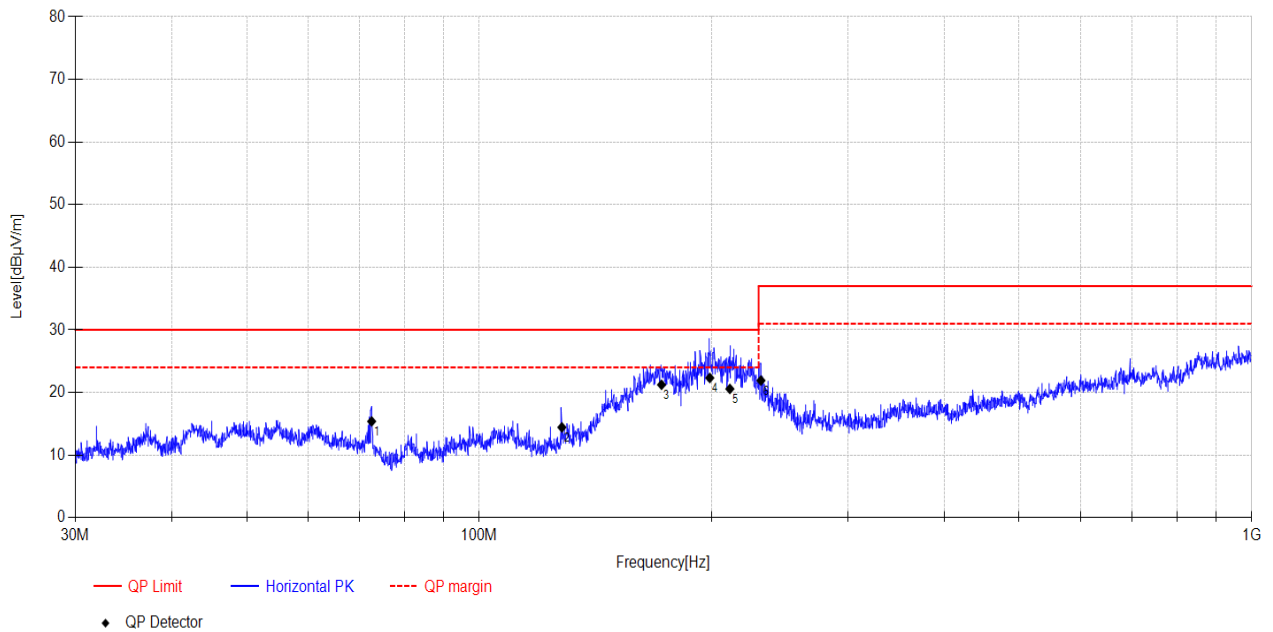
Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	30.00	36.97	-15.93	21.04	30.00	8.96	QP	Vertical
2	68.92	33.51	-15.41	18.10	30.00	11.90	QP	Vertical
3	82.77	32.4	-16.55	15.85	30.00	14.15	QP	Vertical
4	127.95	36.5	-16.63	19.87	30.00	10.13	QP	Vertical
5	145.93	39.7	-17.13	22.57	30.00	7.43	QP	Vertical
6	182.80	38.66	-16.29	22.37	30.00	7.63	QP	Vertical

Note: 1. Result Level = Reading + Factor.
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 Date: 2025-04-15 **Tested By:** Mende Guo
EUT: Portable Bluetooth Speaker **Model Number:** BOOMBOX 4C
Test Mode: Bluetooth + TWS + 5V/1A load mode **Power Supply:** Battery
Condition: Temp:21.7°C;Humi:59.1% **Test Site:** DDT 10M Chamber
File Path: d:\ts\2024 report data\Q24112111-2E\0422 10M RE\15

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	72.58	33.04	-17.66	15.38	30.00	14.62	QP	Horizontal
2	127.95	31.83	-17.40	14.43	30.00	15.57	QP	Horizontal
3	172.22	37.74	-16.51	21.23	30.00	8.77	QP	Horizontal
4	198.84	37.95	-15.62	22.33	30.00	7.67	QP	Horizontal
5	211.12	35.95	-15.38	20.57	30.00	9.43	QP	Horizontal
6	231.60	36.29	-14.38	21.91	37.00	15.09	QP	Horizontal

Note: 1. Result Level = Reading + Factor.

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 Date:

2025-04-15

Tested By:

Mende Guo

EUT:

Portable Bluetooth Speaker

Model Number:

BOOMBOX 4C

Test Mode:

Bluetooth + TWS + 5V/1A load mode

Power Supply:

Battery

Condition:

Temp:21.7°C;Humi:59.1%

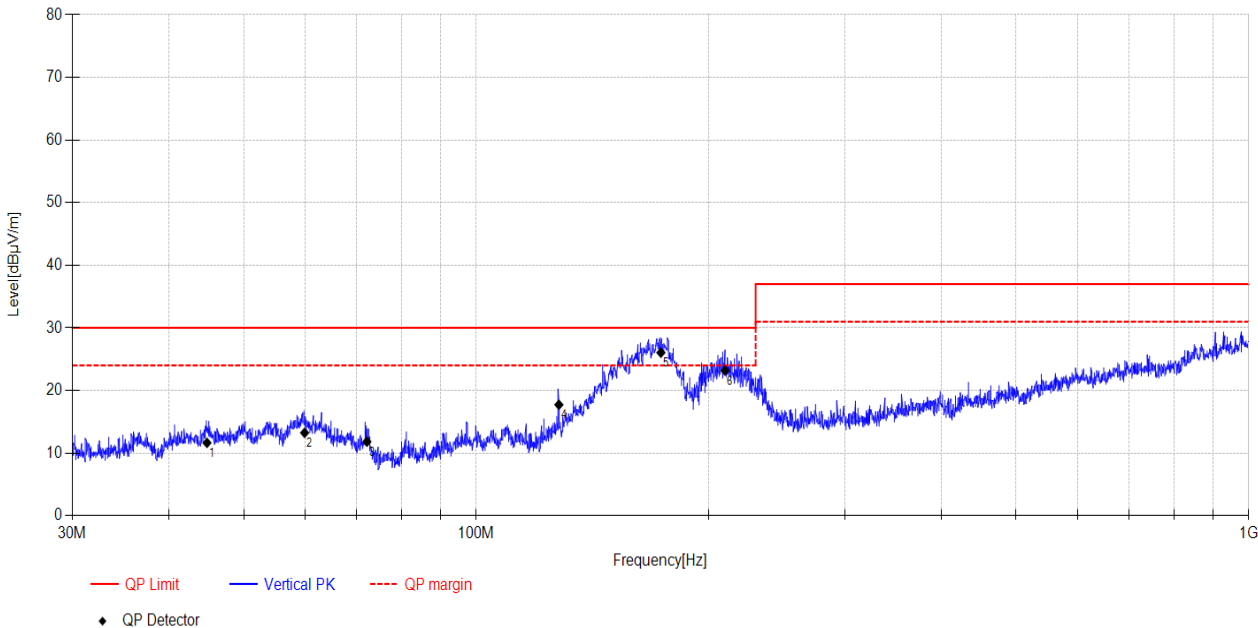
Test Site:

DDT 10M Chamber

File Path:

d:\ts\2024 report data\Q24112111-2E\0422 10M RE\16

Memo:



Final Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	44.82	25.12	-13.48	11.64	30.00	18.36	QP	Vertical
2	59.95	27.19	-13.96	13.23	30.00	16.77	QP	Vertical
3	72.19	28.75	-16.93	11.82	30.00	18.18	QP	Vertical
4	127.95	34.35	-16.63	17.72	30.00	12.28	QP	Vertical
5	173.43	42.37	-16.33	26.04	30.00	3.96	QP	Vertical
6	209.95	38.07	-14.90	23.17	30.00	6.83	QP	Vertical

Note: 1. Result Level = Reading + Factor.
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:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : Battery

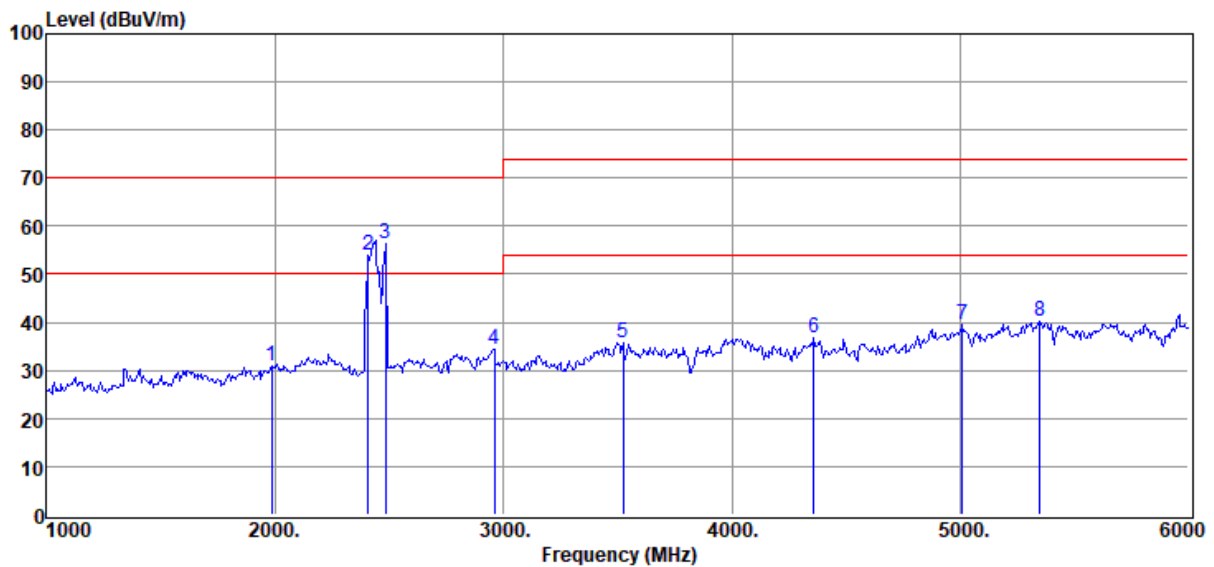
Test Mode : Bluetooth + TWS + 5V/1A load

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
VERTICAL

Memo :

Data: 39



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	1985.00	54.61	26.25	53.80	3.72	30.78	70.00	-39.22	Peak	VERTICAL
2	2410.00	76.17	27.20	53.89	4.33	53.81	Carrier frequency			VERTICAL
3	2485.00	78.44	27.41	53.91	4.43	56.37	Carrier frequency			VERTICAL
4	2960.00	54.87	28.52	53.99	4.98	34.38	70.00	-35.62	Peak	VERTICAL
5	3525.00	55.47	29.30	54.06	4.99	35.70	74.00	-38.30	Peak	VERTICAL
6	4360.00	55.63	29.90	54.25	5.36	36.64	74.00	-37.36	Peak	VERTICAL
7	5010.00	55.78	32.42	54.51	5.99	39.68	74.00	-34.32	Peak	VERTICAL
8	5350.00	55.84	33.20	54.72	6.01	40.33	74.00	-33.67	Peak	VERTICAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : Battery

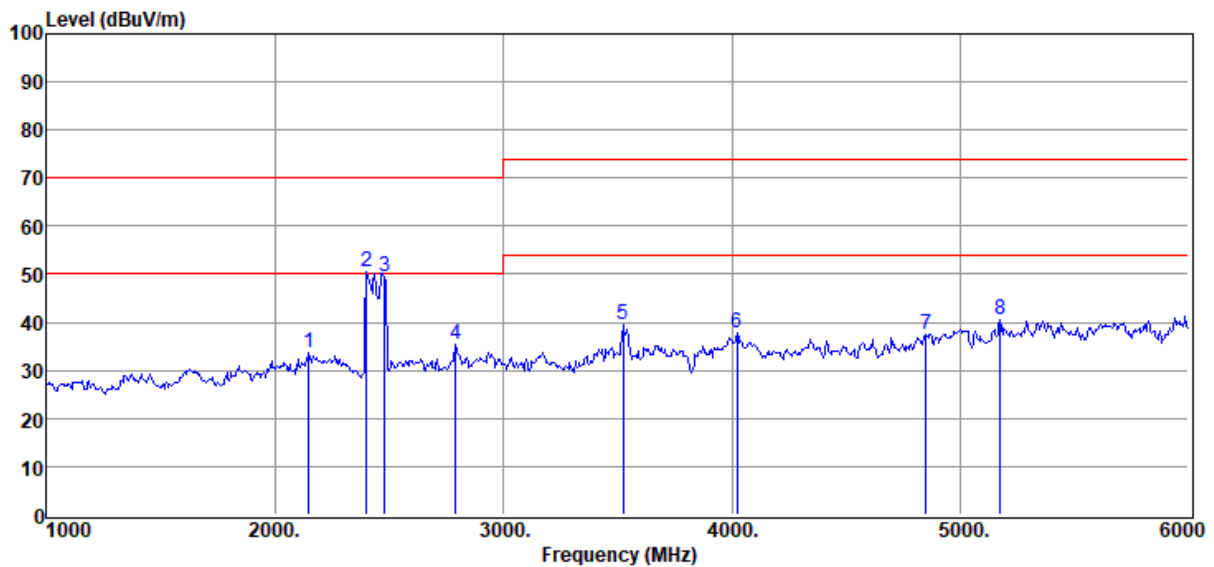
Test Mode : Bluetooth + TWS + 5V/1A load

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
HORIZONTAL

Memo :

Data: 40



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2150.00	56.28	27.30	53.84	3.97	33.71	70.00	-36.29	Peak	HORIZONTAL
2	2400.00	73.03	27.20	53.89	4.32	50.66	Carrier frequency			HORIZONTAL
3	2480.00	71.48	27.38	53.91	4.42	49.37	Carrier frequency			HORIZONTAL
4	2790.00	56.98	27.56	53.96	4.79	35.37	70.00	-34.63	Peak	HORIZONTAL
5	3525.00	59.42	29.30	54.06	4.99	39.65	74.00	-34.35	Peak	HORIZONTAL
6	4025.00	55.83	30.95	54.11	4.99	37.66	74.00	-36.34	Peak	HORIZONTAL
7	4850.00	54.70	31.50	54.45	5.85	37.60	74.00	-36.40	Peak	HORIZONTAL
8	5175.00	56.93	32.20	54.61	6.00	40.52	74.00	-33.48	Peak	HORIZONTAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 240V/50Hz

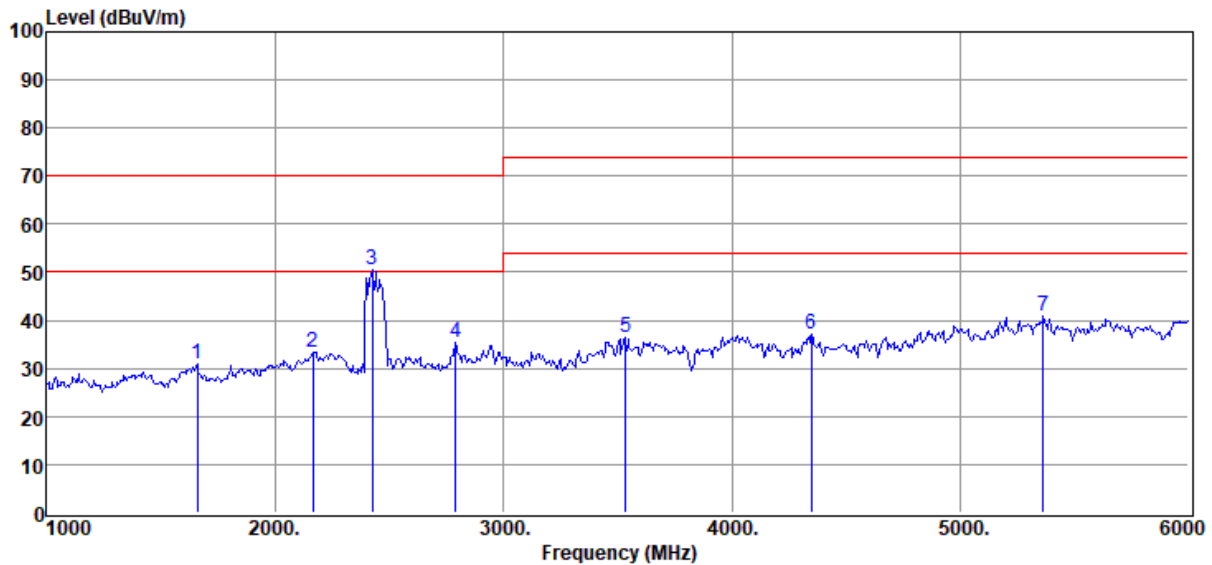
Test Mode : Charging + Bluetooth + TWS + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
HORIZONTAL

Memo :

Data: 41



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	1660.00	55.70	25.70	53.83	3.37	30.94	70.00	-39.06	Peak	HORIZONTAL
2	2165.00	55.80	27.42	53.84	3.99	33.37	70.00	-36.63	Peak	HORIZONTAL
3	2425.00	72.89	27.20	53.90	4.35	50.54	Carrier frequency			HORIZONTAL
4	2790.00	57.02	27.56	53.96	4.79	35.41	70.00	-34.59	Peak	HORIZONTAL
5	3535.00	56.16	29.30	54.06	4.99	36.39	74.00	-37.61	Peak	HORIZONTAL
6	4350.00	56.14	29.90	54.25	5.35	37.14	74.00	-36.86	Peak	HORIZONTAL
7	5365.00	56.28	33.32	54.73	6.01	40.88	74.00	-33.12	Peak	HORIZONTAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 240V/50Hz

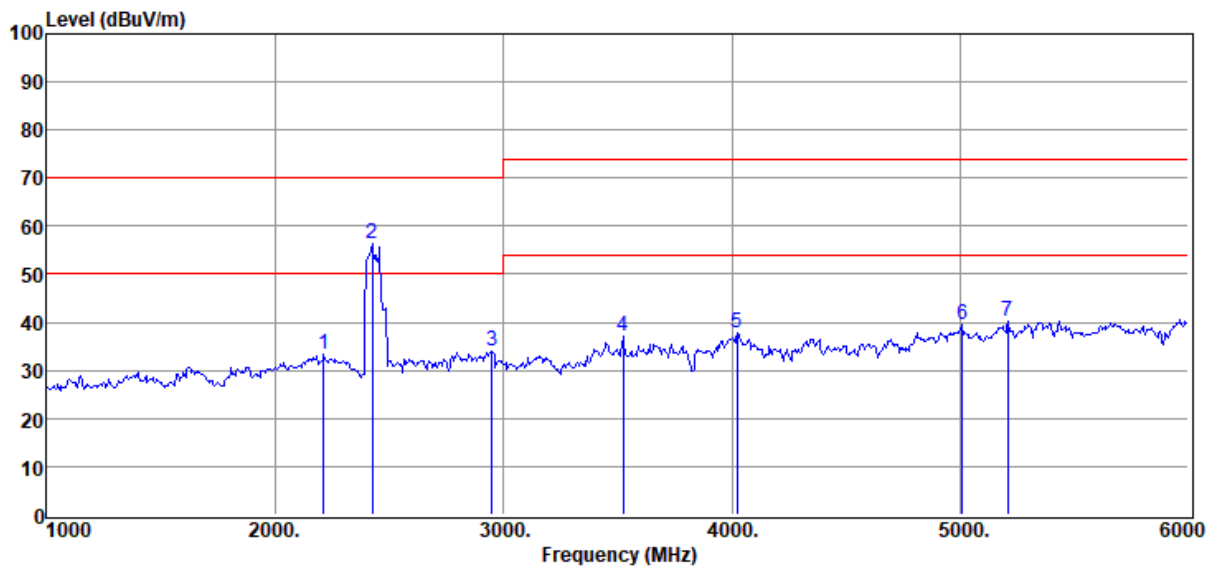
Test Mode : Charging + Bluetooth + TWS + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
VERTICAL

Memo :

Data: 42



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Detector	Polarization
1	2215.00	55.45	27.64	53.85	4.06	33.30	70.00	-36.70	Peak	VERTICAL
2	2425.00	78.69	27.20	53.90	4.35	56.34	Carrier frequency			VERTICAL
3	2950.00	54.63	28.50	53.99	4.97	34.11	70.00	-35.89	Peak	VERTICAL
4	3525.00	56.72	29.30	54.06	4.99	36.95	74.00	-37.05	Peak	VERTICAL
5	4025.00	56.12	30.95	54.11	4.99	37.95	74.00	-36.05	Peak	VERTICAL
6	5010.00	55.65	32.42	54.51	5.99	39.55	74.00	-34.45	Peak	VERTICAL
7	5210.00	56.55	32.46	54.64	6.00	40.37	74.00	-33.63	Peak	VERTICAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 120V/60Hz

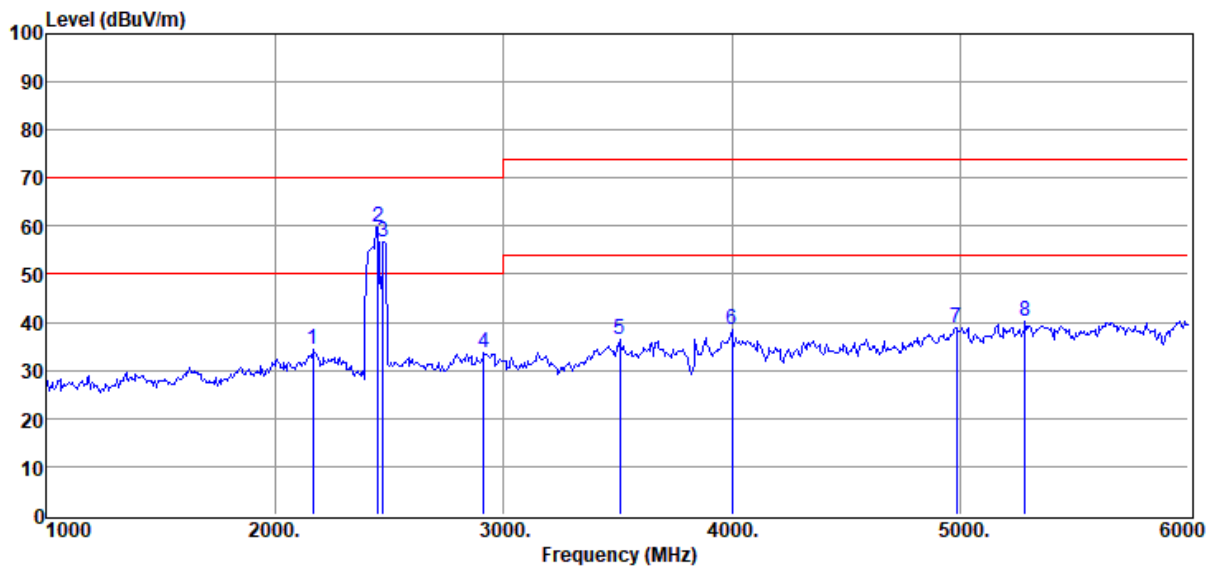
Test Mode : Charging + Bluetooth + TWS + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
VERTICAL

Memo :

Data: 43



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2165.00	56.80	27.42	53.84	3.99	34.37	70.00	-35.63	Peak	VERTICAL
2	2450.00	81.96	27.20	53.90	4.38	59.64	Carrier frequency			VERTICAL
3	2475.00	79.01	27.35	53.91	4.41	56.86	Carrier frequency			VERTICAL
4	2915.00	54.49	28.15	53.99	4.93	33.58	70.00	-36.42	Peak	VERTICAL
5	3510.00	56.17	29.30	54.05	4.99	36.41	74.00	-37.59	Peak	VERTICAL
6	4000.00	56.47	31.00	54.10	4.96	38.33	74.00	-35.67	Peak	VERTICAL
7	4985.00	55.07	32.32	54.49	5.98	38.88	74.00	-35.12	Peak	VERTICAL
8	5285.00	55.93	32.79	54.68	6.01	40.05	74.00	-33.95	Peak	VERTICAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 120V/60Hz

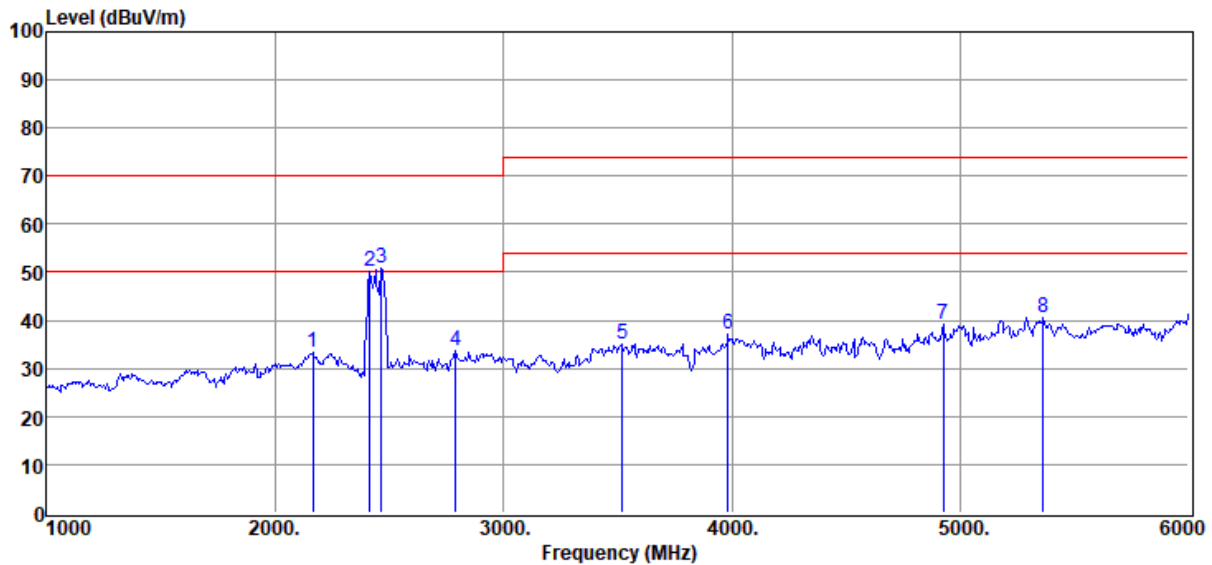
Test Mode : Charging + Bluetooth + TWS + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
HORIZONTAL

Memo :

Data: 44



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2165.00	55.79	27.42	53.84	3.99	33.36	70.00	-36.64	Peak	HORIZONTAL
2	2415.00	72.39	27.20	53.89	4.34	50.04	Carrier frequency			HORIZONTAL
3	2465.00	73.07	27.29	53.90	4.40	50.86	Carrier frequency			HORIZONTAL
4	2790.00	55.14	27.56	53.96	4.79	33.53	70.00	-36.47	Peak	HORIZONTAL
5	3520.00	54.84	29.30	54.06	4.99	35.07	74.00	-38.93	Peak	HORIZONTAL
6	3985.00	55.38	30.88	54.10	4.96	37.12	74.00	-36.88	Peak	HORIZONTAL
7	4925.00	56.10	31.80	54.47	5.92	39.35	74.00	-34.65	Peak	HORIZONTAL
8	5365.00	56.05	33.32	54.73	6.01	40.65	74.00	-33.35	Peak	HORIZONTAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 120V/60Hz

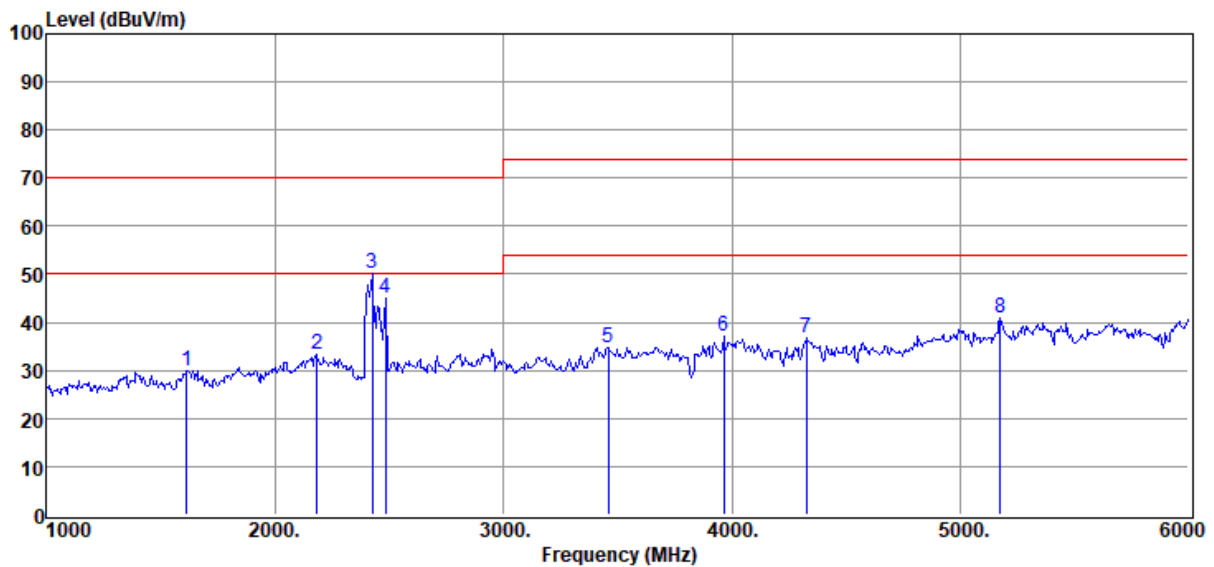
Test Mode : Charging + Bluetooth + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
HORIZONTAL

Memo :

Data: 45



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	1615.00	54.60	25.97	53.83	3.31	30.05	70.00	-39.95	Peak	HORIZONTAL
2	2185.00	55.52	27.58	53.84	4.02	33.28	70.00	-36.72	Peak	HORIZONTAL
3	2425.00	72.48	27.20	53.90	4.35	50.13	Carrier frequency			HORIZONTAL
4	2485.00	67.25	27.41	53.91	4.43	45.18	Carrier frequency			HORIZONTAL
5	3460.00	54.16	29.70	54.05	4.99	34.80	74.00	-39.20	Peak	HORIZONTAL
6	3965.00	55.38	30.72	54.10	4.96	36.96	74.00	-37.04	Peak	HORIZONTAL
7	4325.00	55.78	29.85	54.24	5.32	36.71	74.00	-37.29	Peak	HORIZONTAL
8	5175.00	57.26	32.20	54.61	6.00	40.85	74.00	-33.15	Peak	HORIZONTAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 120V/60Hz

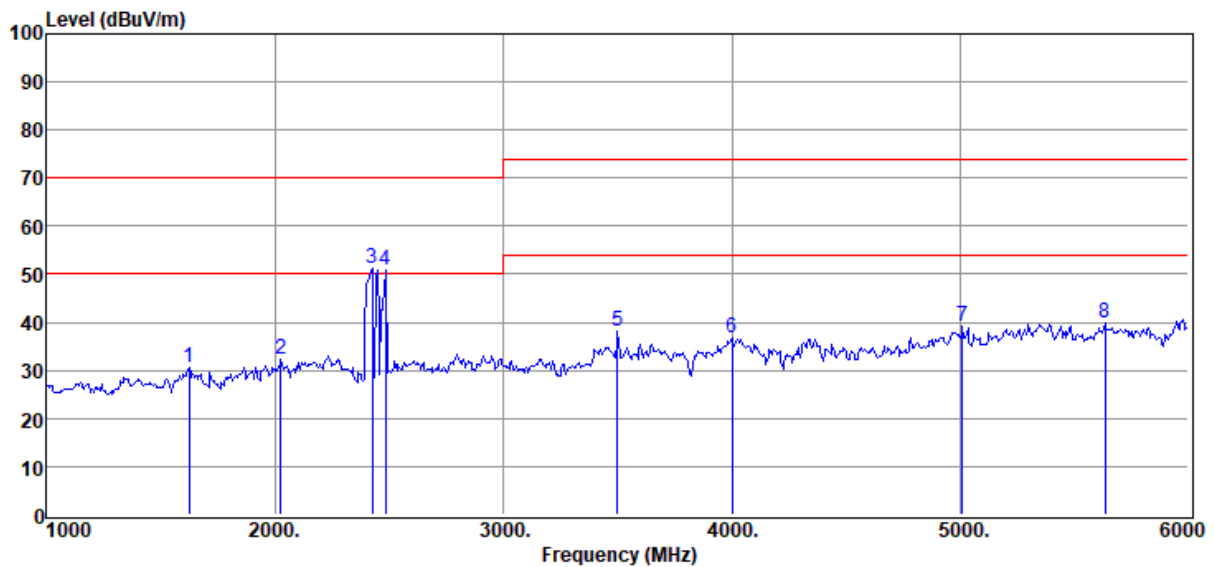
Test Mode : Charging + Bluetooth + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
VERTICAL

Memo :

Data: 46



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	1625.00	55.15	25.95	53.83	3.32	30.59	70.00	-39.41	Peak	VERTICAL
2	2025.00	55.84	26.55	53.81	3.78	32.36	70.00	-37.64	Peak	VERTICAL
3	2425.00	73.53	27.20	53.90	4.35	51.18	Carrier frequency			VERTICAL
4	2485.00	73.08	27.41	53.91	4.43	51.01	Carrier frequency			VERTICAL
5	3500.00	57.78	29.30	54.05	4.99	38.02	74.00	-35.98	Peak	VERTICAL
6	4000.00	54.75	31.00	54.10	4.96	36.61	74.00	-37.39	Peak	VERTICAL
7	5010.00	55.25	32.42	54.51	5.99	39.15	74.00	-34.85	Peak	VERTICAL
8	5635.00	55.17	33.45	54.89	6.02	39.75	74.00	-34.25	Peak	VERTICAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 240V/50Hz

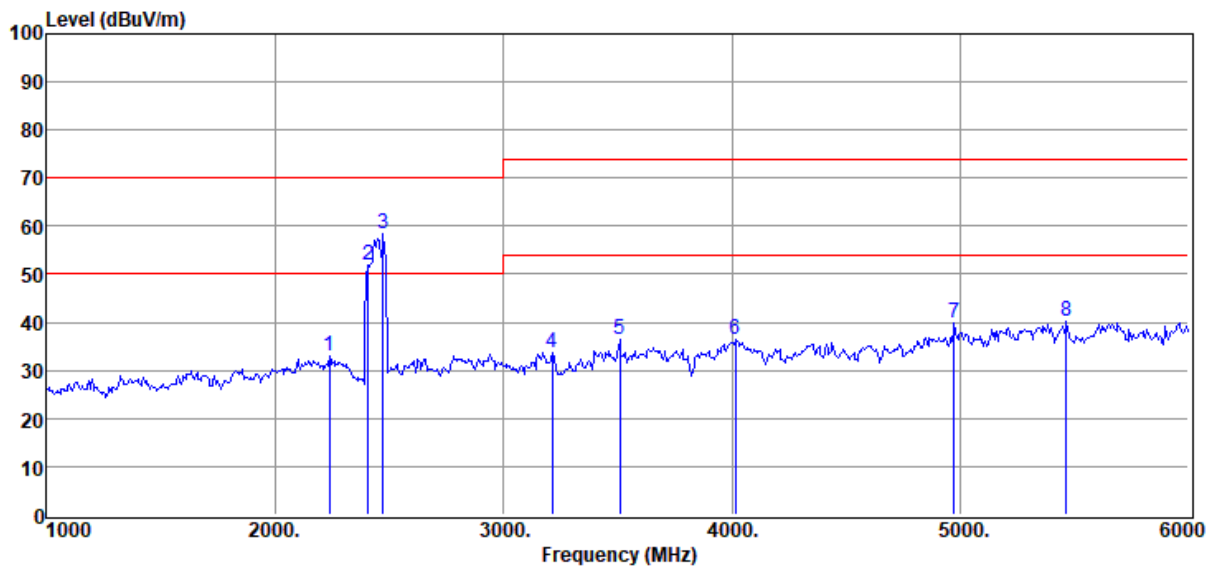
Test Mode : Charging + Bluetooth + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
VERTICAL

Memo :

Data: 47



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2240.00	55.37	27.54	53.86	4.10	33.15	70.00	-36.85	Peak	VERTICAL
2	2410.00	74.09	27.20	53.89	4.33	51.73	Carrier frequency			VERTICAL
3	2475.00	80.67	27.35	53.91	4.41	58.52	Carrier frequency			VERTICAL
4	3215.00	54.62	28.04	54.02	5.01	33.65	74.00	-40.35	Peak	VERTICAL
5	3510.00	56.16	29.30	54.05	4.99	36.40	74.00	-37.60	Peak	VERTICAL
6	4015.00	54.67	30.97	54.11	4.98	36.51	74.00	-37.49	Peak	VERTICAL
7	4975.00	56.23	32.20	54.49	5.97	39.91	74.00	-34.09	Peak	VERTICAL
8	5465.00	56.20	32.73	54.79	6.01	40.15	74.00	-33.85	Peak	VERTICAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : AC 240V/50Hz

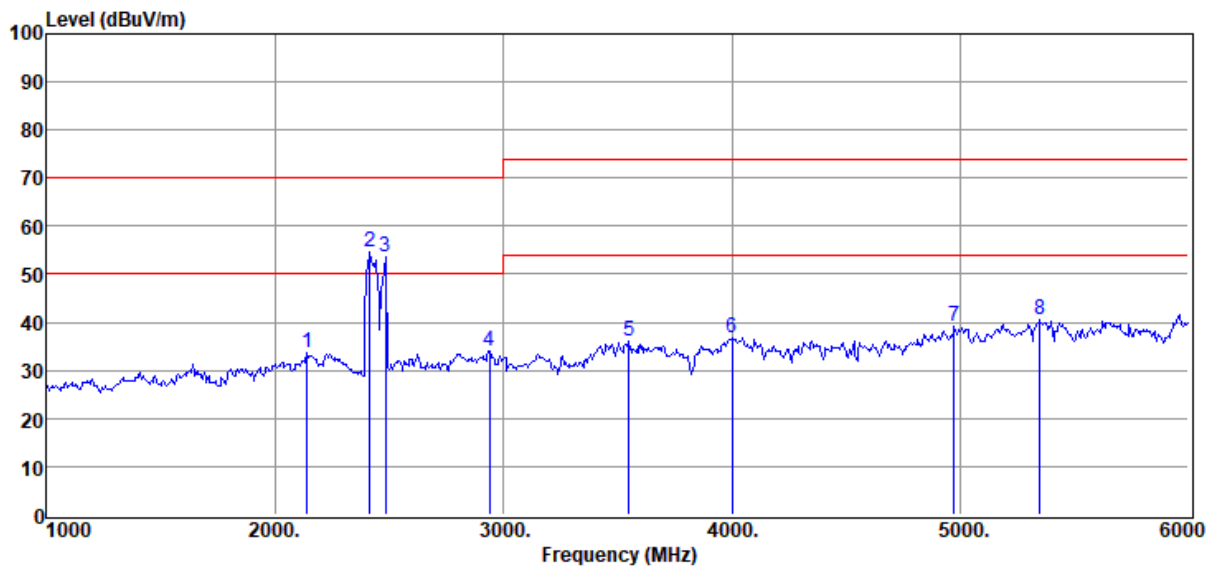
Test Mode : Charging + Bluetooth + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
HORIZONTAL

Memo :

Data: 48



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2140.00	56.17	27.28	53.83	3.95	33.57	70.00	-36.43	Peak	HORIZONTAL
2	2415.00	76.88	27.20	53.89	4.34	54.53	Carrier frequency			HORIZONTAL
3	2485.00	75.69	27.41	53.91	4.43	53.62	Carrier frequency			HORIZONTAL
4	2940.00	54.74	28.40	53.99	4.96	34.11	70.00	-35.89	Peak	HORIZONTAL
5	3550.00	55.80	29.30	54.06	4.98	36.02	74.00	-37.98	Peak	HORIZONTAL
6	4000.00	54.77	31.00	54.10	4.96	36.63	74.00	-37.37	Peak	HORIZONTAL
7	4975.00	55.45	32.20	54.49	5.97	39.13	74.00	-34.87	Peak	HORIZONTAL
8	5350.00	56.06	33.20	54.72	6.01	40.55	74.00	-33.45	Peak	HORIZONTAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : Battery

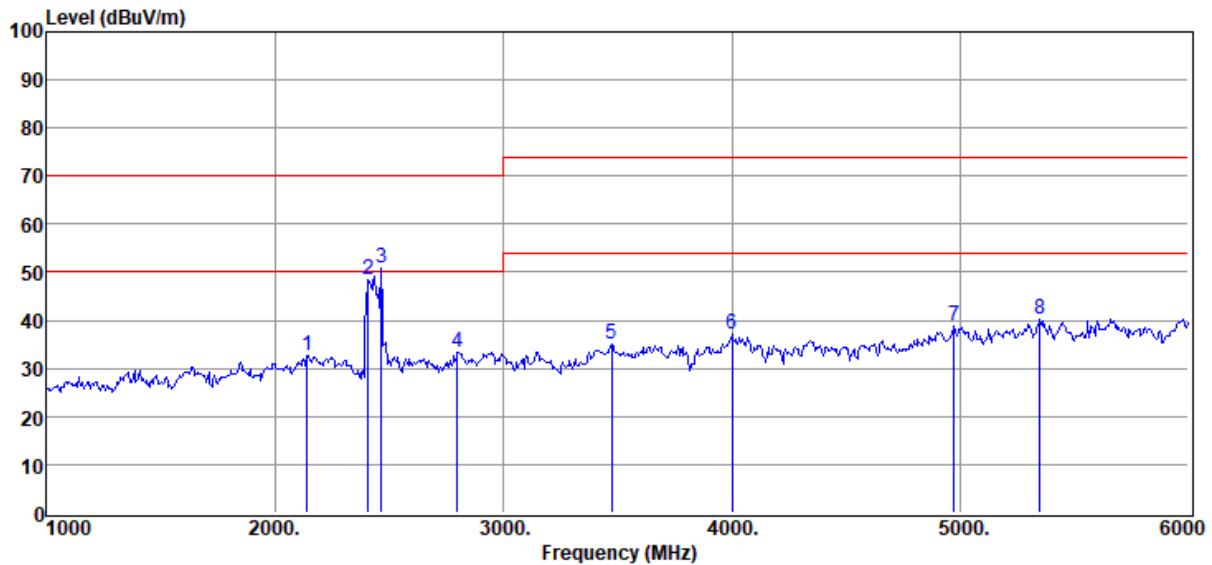
Test Mode : Bluetooth + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
HORIZONTAL

Memo :

Data: 49



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2140.00	55.08	27.28	53.83	3.95	32.48	70.00	-37.52	Peak	HORIZONTAL
2	2410.00	70.98	27.20	53.89	4.33	48.62	Carrier frequency			HORIZONTAL
3	2465.00	72.94	27.29	53.90	4.40	50.73	Carrier frequency			HORIZONTAL
4	2800.00	54.96	27.50	53.97	4.80	33.29	70.00	-36.71	Peak	HORIZONTAL
5	3475.00	54.59	29.55	54.05	4.99	35.08	74.00	-38.92	Peak	HORIZONTAL
6	4000.00	55.11	31.00	54.10	4.96	36.97	74.00	-37.03	Peak	HORIZONTAL
7	4975.00	55.10	32.20	54.49	5.97	38.78	74.00	-35.22	Peak	HORIZONTAL
8	5350.00	55.66	33.20	54.72	6.01	40.15	74.00	-33.85	Peak	HORIZONTAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2025 RE 1# Report data\Q24112111-2E\FCC CE RE-H.EM6

Test Date : 2025-02-28

Tested By : Chunchieh Huang

EUT : Portable Bluetooth Speaker

Model Number : BOOMBOX 4C

Power Supply : Battery

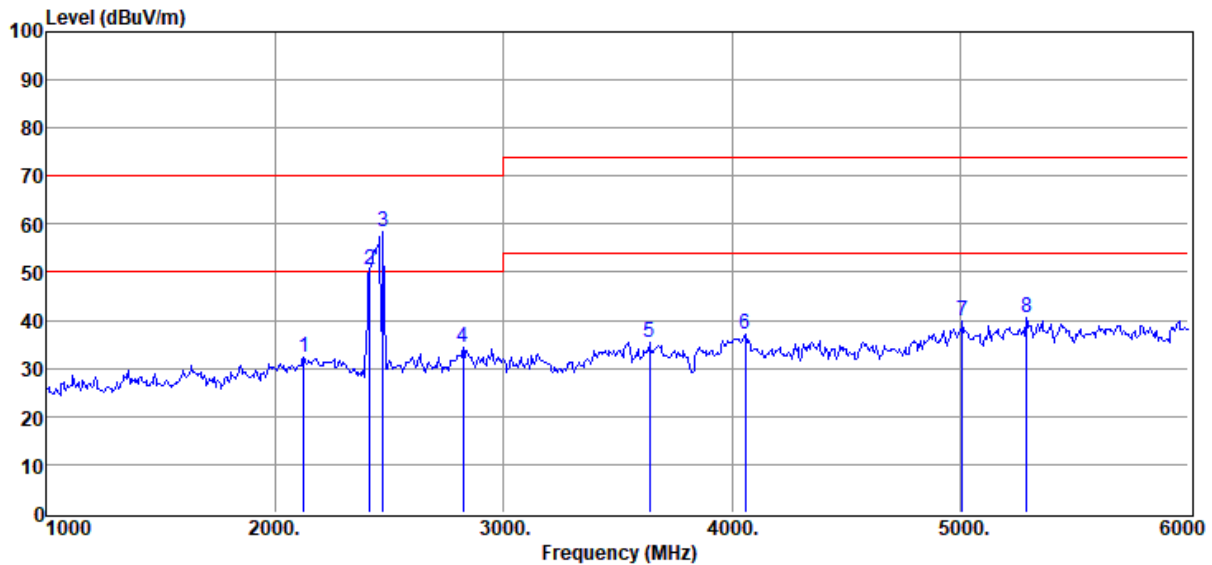
Test Mode : Bluetooth + 5V/1A load mode

Condition : Temp:23.1°C,Humi:62.5%

Antenna/Distance : 2023 BBHA9120D1#/3m/
VERTICAL

Memo :

Data: 50



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2125.00	55.02	27.25	53.83	3.93	32.37	70.00	-37.63	Peak	VERTICAL
2	2415.00	72.90	27.20	53.89	4.34	50.55	Carrier frequency			VERTICAL
3	2475.00	80.51	27.35	53.91	4.41	58.36	Carrier frequency			VERTICAL
4	2825.00	55.65	27.85	53.97	4.83	34.36	70.00	-35.64	Peak	VERTICAL
5	3640.00	54.69	29.78	54.07	4.98	35.38	74.00	-38.62	Peak	VERTICAL
6	4060.00	55.40	30.78	54.13	5.03	37.08	74.00	-36.92	Peak	VERTICAL
7	5010.00	55.96	32.42	54.51	5.99	39.86	74.00	-34.14	Peak	VERTICAL
8	5290.00	56.20	32.86	54.69	6.01	40.38	74.00	-33.62	Peak	VERTICAL

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

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

4. According to standard requirements, the radio carrier and harmonic frequencies of the samples are not included in the test results.

4.8. Test photo



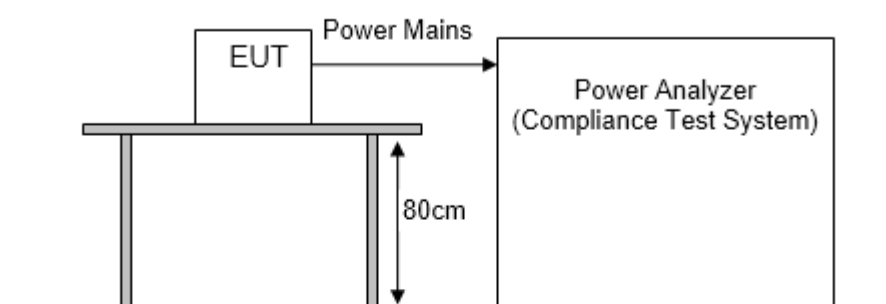
5. Harmonic Current Emissions Test

5.1. Test equipment

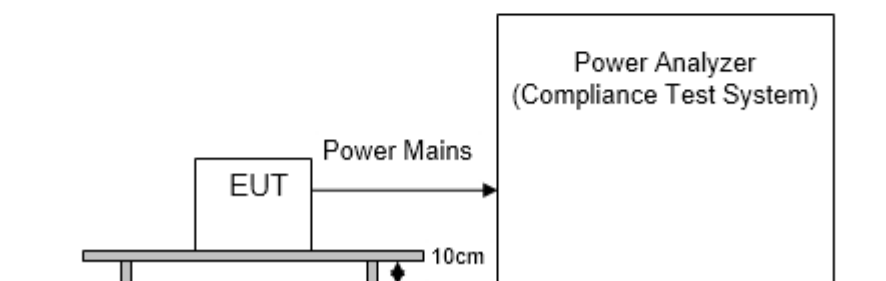
Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
Harmonics&Flicker Analyzer	emtest	DPA503N	DDT-ZC04145	2025/10/29
Flicker impedance	AMETEK CTS	AIF 503N32.4	DDT-ZC04558	2025/10/29
NET.CONTROL	EM TEST	N/A	DDT-ZC00795	/

5.2. Block diagram of test setup

Table-top device



Floor-standing device



5.3. Test levels and performance criterion

Limit for Class A equipment	
Harmonic order(h)	Maximum permissible harmonic current (A)
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
$15 \leq h \leq 39$	$0.15 \cdot 15/h$

Even harmonics		
2	1.08	
4	0.43	
6	0.30	
8≤h≤40	0.23*8/h	
Limit for Class B equipment		
The harmonics of the input current shall not exceed the values given in Class A limits multiplied by a factor of 1,5.		
Limit for Class C equipment		
Harmonic order(h)	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %	
2	2	
3	27	
5	10	
7	7	
9	5	
11≤h≤39 (odd harmonic only)	3	
Limit for Class D equipment		
Harmonic order(h)	Maximum permissible harmonic current per watt (mA/W)	Maximum permissible harmonic current (A)
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13≤h≤39 (odd harmonic only)	3.85/n	0.15*15/h

5.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A

5.5. Test procedure

The EUT is placed on top of a wooden table (according to the standard height requirements, refer to the test layout) the maximum, harmonic components under normal operating conditions for each successive harmonic component in turn. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.

5.6. Test result

Pass. (See below detailed test result)

5.7. Test data

Test Report	
Test Object :	Portable Bluetooth Speaker
Test Standard :	IEC 61000-3-2 (Ed5-1) - Class A (230V - 50Hz)
Tester :	Telamon Chen
Company :	Guangdong Dongdian Testing Service Co., Ltd.
Test Date :	4/11/2025 1:19:03 PM

Result			
E.U.T. :	PASS	Source :	PASS

Test Object / Product			
Name :	Portable Bluetooth Speaker	Operation Mode :	Charging + Bluetooth + 5V/1A load mode
Serial Number :	/	Connection :	/
Description :	Model: BOOMBOX 4C		

Climatic Conditions			
Temperature :	22 °C	Pressure :	101 kPa Humidity : 45 %

Measures & Analysis			
Measure Window :	10 periods	Voltage Range :	50 0 V
Refresh Interval :	2 s	Current Range :	20 0 A
Sampling Rate :	10.24 kS/s		
Scaled Window :	Rectangular		
According :	IEC 61000-3-2 (Edition 5.1) Limits for harmonic current emissions (equipment input current < 16 A per phase)		

Standard Specific Results for IEC 61000-3-2 (Edition 5.1)

Standard Group: Industry
 Standard Name: IEC 61000-3-2 (Edition 5.1)
 Limits for harmonic current emissions (equipment input current < 16 A per phase)
 Device Under Test: **PASS**
 Power Source: **PASS**
 Connection Type: L - N
 Main Line: 230 V, 50 Hz
 Classification: Class A
 Appli. of Limits: less than or equal to 150 % (Without POHC Enhancement)
 Test Duration: **3 min**

Evaluation of Partial Odd Harmonics Enhancement			
<i>Partial Odd Harmonic Currents</i>			
	<i>measured value</i>	<i>limit</i>	<i>result</i>
Line 1:	0.09 A (8.25 %)	0.251 A	PASS
<i>Evaluation for current limits</i>			
	<i>without enhancement</i>	<i>with enhancement</i>	<i>need enhancement</i>
Line 1:	PASS	PASS	No
Enhancement is not applied			
Check Harmonics 2..40			
<i>First detected harmonic order > 150 %</i>			
Line 1:	None		
<i>Harmonics orders > 150 %</i>			
Line 1:	None		
<i>Harmonics orders with average > 100 %</i>			
Line 1:	None		

Measured values			
<i>Fundamental Current</i>			
Line 1:	0.574 A		
<i>Active input Power</i>			
Line 1:	129.431 W *		
<i>Circuit power factor</i>			
Line 1:	0.514 *		

* Absolute value.

Prerequisite for simplified method unfulfilled			
<i>First time window with THD(I) > 15 %</i>			
Line 1:	None		
<i>Time window with max THD(I) > 15 %</i>			
Line 1:	None		
<i>Current emission below 60 % of the applicable limits</i>			
Line 1:	No		
<i>Active Input Power</i>			
Line 1:	129 W *		

* Absolute value.

Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [A]	of Limit [%]	Limit [A]	Result	I _{eff} [A]	of Limit [%]	Limit [A]	Result	
1	0.546				0.570				
2	0.001	0.137	1.080	n/a	0.002	0.104	1.620	n/a	PASS
3	0.519	22.561	2.300	PASS	0.537	15.576	3.450	PASS	PASS
4	0.002	0.373	0.430	n/a	0.002	0.286	0.645	n/a	PASS
5	0.472	41.368	1.140	PASS	0.481	28.100	1.710	PASS	PASS
6	0.002	0.532	0.300	n/a	0.002	0.400	0.450	n/a	PASS
7	0.406	52.763	0.770	PASS	0.408	35.306	1.155	PASS	PASS
8	0.002	0.678	0.230	n/a	0.002	0.489	0.345	n/a	PASS
9	0.331	82.675	0.400	PASS	0.335	55.766	0.600	PASS	PASS
10	0.002	1.068	0.184	n/a	0.002	0.798	0.276	n/a	PASS
11	0.250	75.809	0.330	PASS	0.257	51.855	0.495	PASS	PASS
12	0.001	0.944	0.153	n/a	0.002	0.818	0.230	n/a	PASS
13	0.172	81.939	0.210	PASS	0.180	57.208	0.315	PASS	PASS
14	0.001	1.009	0.131	n/a	0.002	0.785	0.197	n/a	PASS
15	0.104	69.491	0.150	PASS	0.113	50.006	0.225	PASS	PASS
16	0.001	1.053	0.115	n/a	0.001	0.841	0.173	n/a	PASS
17	0.053	40.359	0.132	PASS	0.060	30.169	0.199	PASS	PASS
18	0.002	1.472	0.102	n/a	0.002	1.138	0.153	n/a	PASS
19	0.032	27.239	0.118	PASS	0.039	21.811	0.178	PASS	PASS
20	0.001	1.330	0.092	n/a	0.002	1.091	0.138	n/a	PASS
21	0.039	36.511	0.107	PASS	0.049	30.512	0.161	PASS	PASS
22	0.001	1.251	0.084	n/a	0.001	0.993	0.125	n/a	PASS
23	0.045	46.451	0.098	PASS	0.048	33.030	0.147	PASS	PASS
24	0.001	1.260	0.077	n/a	0.001	1.032	0.115	n/a	PASS
25	0.043	48.238	0.090	PASS	0.045	33.289	0.135	PASS	PASS
26	0.001	1.253	0.071	n/a	0.001	1.004	0.106	n/a	PASS
27	0.035	41.418	0.083	PASS	0.037	29.767	0.125	PASS	PASS
28	0.001	1.441	0.066	n/a	0.001	1.184	0.099	n/a	PASS
29	0.022	28.758	0.078	PASS	0.026	22.463	0.116	PASS	PASS
30	0.001	1.364	0.061	n/a	0.001	1.078	0.092	n/a	PASS
31	0.012	16.092	0.073	PASS	0.015	13.796	0.109	PASS	PASS
32	0.001	1.403	0.058	n/a	0.001	1.207	0.086	n/a	PASS
33	0.009	13.518	0.068	PASS	0.019	18.452	0.102	PASS	PASS
34	0.001	1.492	0.054	n/a	0.001	1.206	0.081	n/a	PASS
35	0.014	21.287	0.064	PASS	0.022	22.449	0.096	PASS	PASS
36	0.001	1.616	0.051	n/a	0.001	1.268	0.077	n/a	PASS
37	0.016	26.350	0.061	PASS	0.021	22.603	0.091	PASS	PASS
38	0.001	1.734	0.048	n/a	0.001	1.395	0.073	n/a	PASS
39	0.015	25.817	0.058	PASS	0.020	23.519	0.087	PASS	PASS
40	0.001	1.784	0.046	n/a	0.001	1.437	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

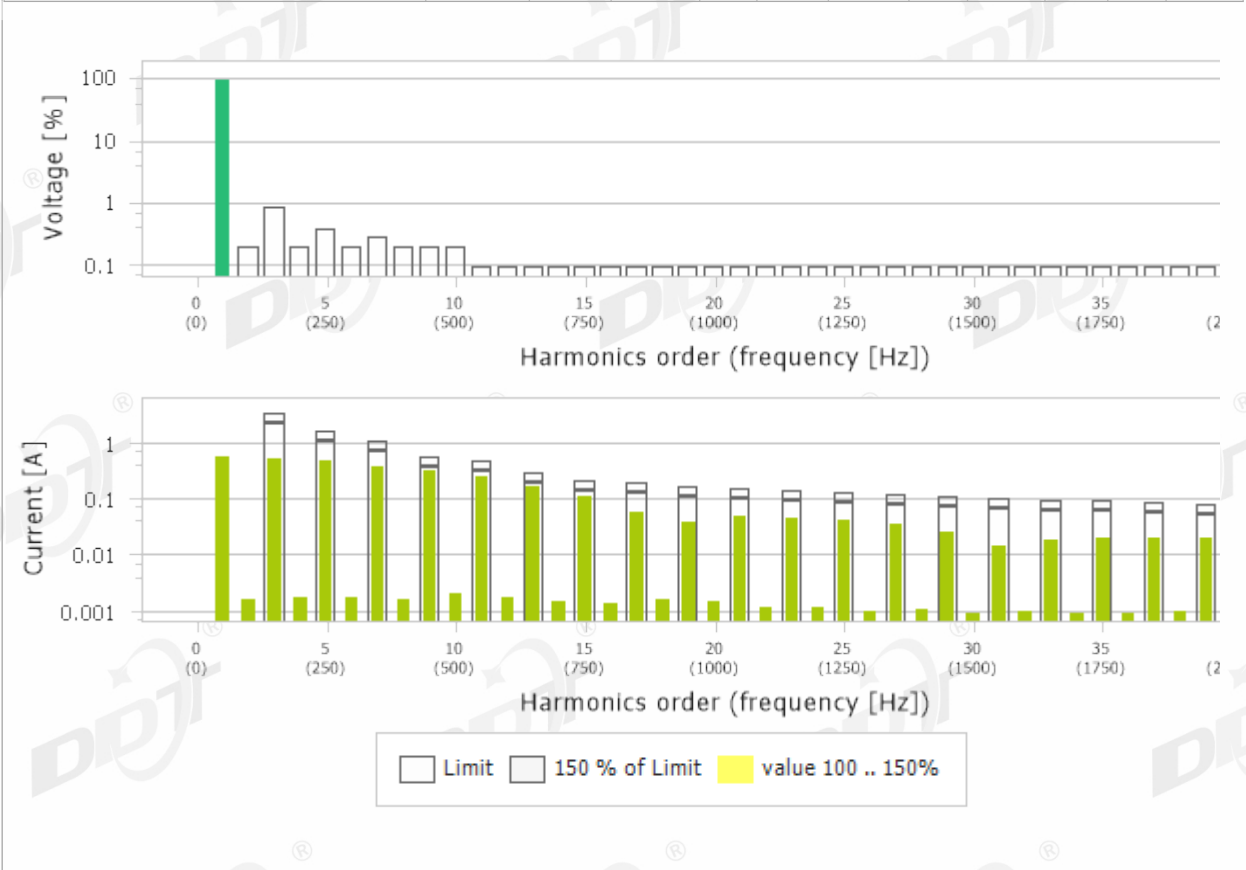
Voltage Source Verification

Harmonic voltage results				
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.380	100.165		
2	0.064	0.028	0.200	PASS
3	0.126	0.055	0.900	PASS
4	0.011	0.005	0.200	PASS
5	0.093	0.041	0.400	PASS
6	0.008	0.003	0.200	PASS
7	0.083	0.036	0.300	PASS
8	0.010	0.004	0.200	PASS
9	0.141	0.061	0.200	PASS
10	0.016	0.007	0.200	PASS
11	0.099	0.043	0.100	PASS
12	0.011	0.005	0.100	PASS
13	0.085	0.037	0.100	PASS
14	0.008	0.003	0.100	PASS
15	0.050	0.022	0.100	PASS
16	0.006	0.003	0.100	PASS
17	0.031	0.014	0.100	PASS
18	0.011	0.005	0.100	PASS
19	0.032	0.014	0.100	PASS
20	0.017	0.007	0.100	PASS
21	0.032	0.014	0.100	PASS
22	0.006	0.003	0.100	PASS
23	0.035	0.015	0.100	PASS
24	0.006	0.003	0.100	PASS
25	0.035	0.015	0.100	PASS
26	0.006	0.003	0.100	PASS
27	0.036	0.016	0.100	PASS
28	0.007	0.003	0.100	PASS
29	0.021	0.009	0.100	PASS
30	0.006	0.002	0.100	PASS
31	0.017	0.007	0.100	PASS
32	0.006	0.003	0.100	PASS
33	0.019	0.008	0.100	PASS
34	0.006	0.003	0.100	PASS
35	0.023	0.010	0.100	PASS
36	0.005	0.002	0.100	PASS
37	0.025	0.011	0.100	PASS
38	0.007	0.003	0.100	PASS
39	0.024	0.011	0.100	PASS
40	0.013	0.006	0.100	PASS

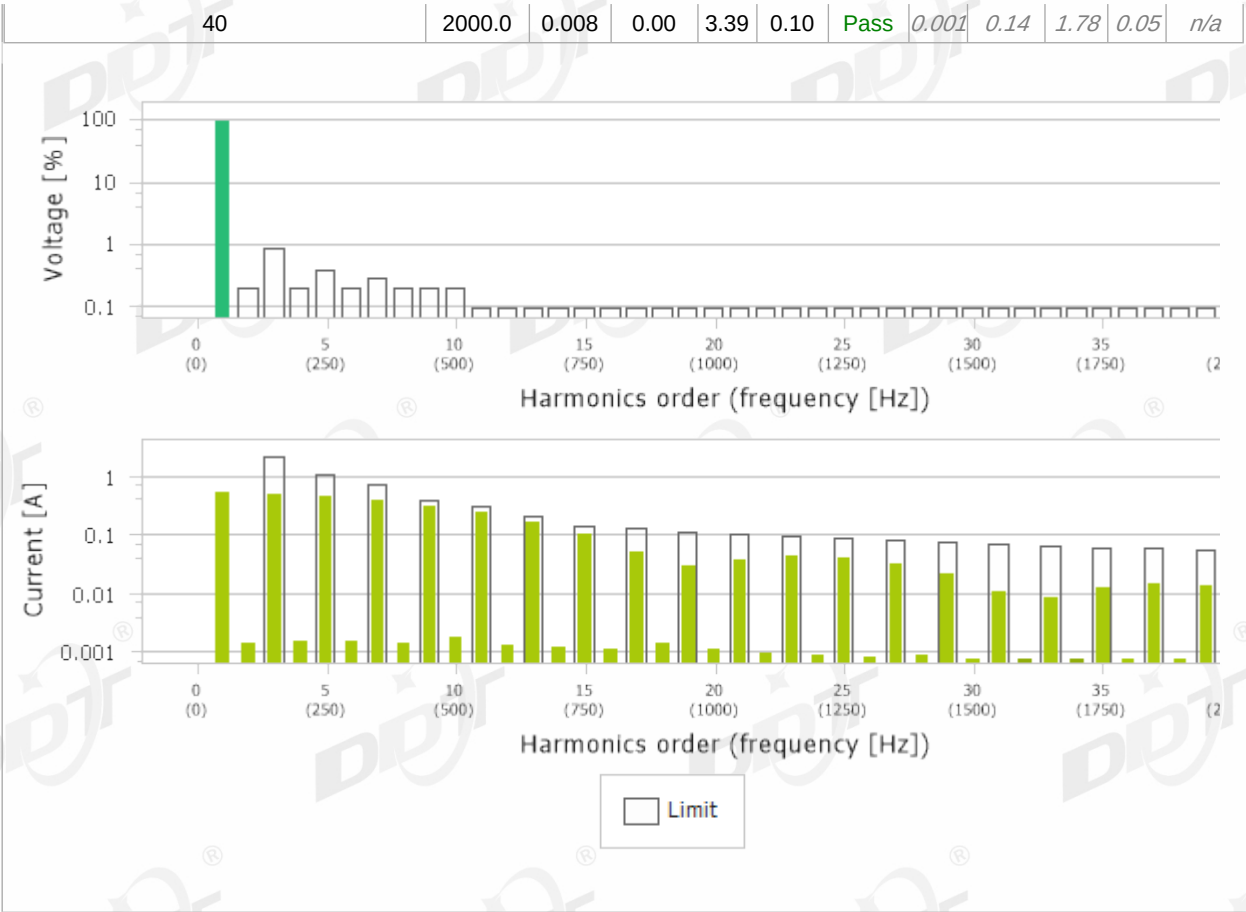
Maximum / Average Values	
	Line 1
Maximum Values	
Frequency	50 Hz
Voltage RMS	230.3 V
Current RMS	1.093 A
Peak Current	3.996 A
Fundamental Current	0.5747 A
Current Crest Factor	3.684
Active Power P	129.6 W
Power Factor	0.5149
Total Harmonic Current (THC)	0.9423 A
Instantaneous Partial Odd Harmonic Current (Inst. POHC)	0.09534 A
Total Harmonic Distortion Current (THDC)	1.642
Average Values	
Total Harmonic Current (THC)	0.9389 A
Instantaneous Partial Odd Harmonic Current (Inst. POHC)	0.09025 A
Total Harmonic Distortion Current (THDC)	1.636

Maximum Harmonics											
Maximum Harmonics (Line 1)											
Hn	Frequency [Hz]	Voltage					Current				
		eff [V]	eff [%]	of Limit [%]	Limit [%]	Time Window	eff [A]	eff [%]	of Limit [%]	Limit [A]	Time Window
1	50.0	230.380	100.17	-	-	550	0.574	100.00	-	-	4
2	100.0	0.064	0.03	13.88	0.20	374	0.002	0.29	0.10	1.62	616
3	150.0	0.126	0.05	6.08	0.90	27	0.541	94.24	15.68	3.45	1
4	200.0	0.011	0.00	2.45	0.20	294	0.002	0.32	0.29	0.65	786
5	250.0	0.093	0.04	10.15	0.40	490	0.482	83.93	28.17	1.71	5
6	300.0	0.008	0.00	1.63	0.20	806	0.002	0.31	0.40	0.45	631
7	350.0	0.083	0.04	12.01	0.30	414	0.408	71.06	35.31	1.16	804
8	400.0	0.010	0.00	2.12	0.20	343	0.002	0.29	0.49	0.35	811
9	450.0	0.141	0.06	30.64	0.20	635	0.335	58.30	55.77	0.60	805
10	500.0	0.016	0.01	3.49	0.20	805	0.002	0.38	0.80	0.28	897
11	550.0	0.099	0.04	43.01	0.10	472	0.257	44.73	51.86	0.50	831
12	600.0	0.011	0.00	4.85	0.10	214	0.002	0.33	0.82	0.23	706
13	650.0	0.085	0.04	37.14	0.10	834	0.180	31.40	57.21	0.32	900
14	700.0	0.008	0.00	3.44	0.10	79	0.002	0.27	0.79	0.20	341
15	750.0	0.050	0.02	21.85	0.10	648	0.113	19.61	50.01	0.23	900
16	800.0	0.006	0.00	2.72	0.10	899	0.001	0.25	0.84	0.17	791
17	850.0	0.031	0.01	13.54	0.10	895	0.060	10.44	30.17	0.20	837
18	900.0	0.011	0.00	4.96	0.10	106	0.002	0.30	1.14	0.15	861
19	950.0	0.032	0.01	14.00	0.10	542	0.040	7.01	22.65	0.18	1
20	1000.0	0.017	0.01	7.22	0.10	710	0.002	0.26	1.09	0.14	696
21	1050.0	0.032	0.01	13.79	0.10	21	0.050	8.63	30.80	0.16	9
22	1100.0	0.006	0.00	2.78	0.10	556	0.001	0.22	0.99	0.13	487
23	1150.0	0.035	0.02	15.06	0.10	93	0.048	8.44	33.02	0.15	30
24	1200.0	0.006	0.00	2.56	0.10	719	0.001	0.21	1.03	0.12	490
25	1250.0	0.035	0.02	15.27	0.10	761	0.045	7.83	33.29	0.14	575
26	1300.0	0.006	0.00	2.81	0.10	482	0.001	0.19	1.00	0.11	321
27	1350.0	0.036	0.02	15.59	0.10	741	0.037	6.48	29.77	0.13	899
28	1400.0	0.007	0.00	3.18	0.10	161	0.001	0.20	1.18	0.10	486
29	1450.0	0.021	0.01	9.18	0.10	648	0.026	4.56	22.46	0.12	843
30	1500.0	0.006	0.00	2.47	0.10	12	0.001	0.17	1.08	0.09	244
31	1550.0	0.017	0.01	7.21	0.10	10	0.015	2.62	13.80	0.11	842
32	1600.0	0.006	0.00	2.52	0.10	695	0.001	0.18	1.21	0.09	225
33	1650.0	0.019	0.01	8.44	0.10	6	0.019	3.31	18.58	0.10	22
34	1700.0	0.006	0.00	2.79	0.10	790	0.001	0.17	1.21	0.08	243
35	1750.0	0.023	0.01	10.03	0.10	40	0.022	3.78	22.49	0.10	26

36	1800.0	0.005	0.00	2.37	0.10	725	0.001	0.17	1.27	0.08	241
37	1850.0	0.025	0.01	10.71	0.10	573	0.021	3.59	22.60	0.09	108
38	1900.0	0.007	0.00	3.14	0.10	154	0.001	0.18	1.39	0.07	808
39	1950.0	0.024	0.01	10.57	0.10	635	0.020	3.55	23.52	0.09	896
40	2000.0	0.013	0.01	5.64	0.10	475	0.001	0.17	1.44	0.07	240



Average Harmonics											
Average Harmonics (Line 1)											
Hn	Frequency [Hz]	Voltage					Current				
		eff [V]	eff [%]	of Limit [%]	Limit [%]	Pass / Fail	eff [A]	eff [%]	of Limit [%]	Limit [A]	Pass / Fail
1	50.0	230.344	100.15	-	-	n/a	0.546	95.17	-	-	n/a
2	100.0	0.058	0.03	12.53	0.20	Pass	0.001	0.26	0.14	1.08	n/a
3	150.0	0.119	0.05	5.75	0.90	Pass	0.519	90.42	22.56	2.30	Pass
4	200.0	0.006	0.00	1.32	0.20	Pass	0.002	0.28	0.37	0.43	n/a
5	250.0	0.087	0.04	9.50	0.40	Pass	0.472	82.18	41.37	1.14	Pass
6	300.0	0.003	0.00	0.62	0.20	Pass	0.002	0.28	0.53	0.30	n/a
7	350.0	0.078	0.03	11.29	0.30	Pass	0.406	70.80	52.76	0.77	Pass
8	400.0	0.005	0.00	1.14	0.20	Pass	0.002	0.27	0.68	0.23	n/a
9	450.0	0.134	0.06	29.12	0.20	Pass	0.331	57.63	82.68	0.40	Pass
10	500.0	0.005	0.00	1.10	0.20	Pass	0.002	0.34	1.07	0.18	n/a
11	550.0	0.080	0.03	34.57	0.10	Pass	0.250	43.59	75.81	0.33	Pass
12	600.0	0.004	0.00	1.57	0.10	Pass	0.001	0.25	0.94	0.15	n/a
13	650.0	0.077	0.03	33.65	0.10	Pass	0.172	29.98	81.94	0.21	Pass
14	700.0	0.002	0.00	0.86	0.10	Pass	0.001	0.23	1.01	0.13	n/a
15	750.0	0.043	0.02	18.49	0.10	Pass	0.104	18.16	69.49	0.15	Pass
16	800.0	0.002	0.00	0.90	0.10	Pass	0.001	0.21	1.05	0.12	n/a
17	850.0	0.020	0.01	8.88	0.10	Pass	0.053	9.31	40.36	0.13	Pass
18	900.0	0.003	0.00	1.12	0.10	Pass	0.002	0.26	1.47	0.10	n/a
19	950.0	0.023	0.01	9.82	0.10	Pass	0.032	5.62	27.24	0.12	Pass
20	1000.0	0.007	0.00	2.97	0.10	Pass	0.001	0.21	1.33	0.09	n/a
21	1050.0	0.024	0.01	10.26	0.10	Pass	0.039	6.82	36.51	0.11	Pass
22	1100.0	0.002	0.00	0.98	0.10	Pass	0.001	0.18	1.25	0.08	n/a
23	1150.0	0.029	0.01	12.55	0.10	Pass	0.045	7.92	46.45	0.10	Pass
24	1200.0	0.002	0.00	0.99	0.10	Pass	0.001	0.17	1.26	0.08	n/a
25	1250.0	0.031	0.01	13.29	0.10	Pass	0.043	7.57	48.24	0.09	Pass
26	1300.0	0.002	0.00	1.03	0.10	Pass	0.001	0.15	1.25	0.07	n/a
27	1350.0	0.027	0.01	11.93	0.10	Pass	0.035	6.01	41.42	0.08	Pass
28	1400.0	0.002	0.00	1.08	0.10	Pass	0.001	0.16	1.44	0.07	n/a
29	1450.0	0.014	0.01	6.26	0.10	Pass	0.022	3.89	28.76	0.08	Pass
30	1500.0	0.002	0.00	0.87	0.10	Pass	0.001	0.15	1.36	0.06	n/a
31	1550.0	0.009	0.00	3.82	0.10	Pass	0.012	2.04	16.09	0.07	Pass
32	1600.0	0.002	0.00	0.85	0.10	Pass	0.001	0.14	1.40	0.06	n/a
33	1650.0	0.008	0.00	3.43	0.10	Pass	0.009	1.61	13.52	0.07	Pass
34	1700.0	0.002	0.00	0.84	0.10	Pass	0.001	0.14	1.49	0.05	n/a
35	1750.0	0.014	0.01	6.16	0.10	Pass	0.014	2.38	21.29	0.06	Pass
36	1800.0	0.002	0.00	0.76	0.10	Pass	0.001	0.14	1.62	0.05	n/a
37	1850.0	0.016	0.01	7.08	0.10	Pass	0.016	2.79	26.35	0.06	Pass
38	1900.0	0.002	0.00	0.91	0.10	Pass	0.001	0.15	1.73	0.05	n/a
39	1950.0	0.016	0.01	7.08	0.10	Pass	0.015	2.60	25.82	0.06	Pass



11/04/202569/115

Test Report

Test Object :	Portable Bluetooth Speaker
Test Standard :	IEC 61000-3-2 (Ed5-1) - Class A (230V - 50Hz)
Tester :	Telamon Chen
Company :	Guangdong Dongdian Testing Service Co., Ltd.
Test Date :	4/11/2025 2:37:28 PM

Result			
E.U.T. :	PASS	Source :	PASS

Test Object / Product			
Name :	Portable Bluetooth Speaker	Operation Mode :	Charging + Bluetooth + TWS + 5V/1A load mode
Serial Number :	/	Connection :	/
Description :	Model: BOOMBOX 4C		

Climatic Conditions			
Temperature :	22 °C	Pressure :	101 kPa Humidity : 45 %

Measures & Analysis			
Measure Window :	10 periods	Voltage Range :	500 V
Refresh Interval :	2 s	Current Range :	200 A
Sampling Rate :	10.24 kS/s		
Scaled Window :	Rectangular		
According :	IEC 61000-3-2 (Edition 5.1) Limits for harmonic current emissions (equipment input current < 16 A per phase)		

Standard Specific Results for IEC 61000-3-2 (Edition 5.1)

Standard Group: Industry
 Standard Name: IEC 61000-3-2 (Edition 5.1)
 Limits for harmonic current emissions (equipment input current < 16 A per phase)
 Device Under Test: **PASS**
 Power Source: **PASS**
 Connection Type: L - N
 Main Line: 230 V, 50 Hz
 Classification: Class A
 Appli. of Limits: less than or equal to 150 % (Without POHC Enhancement)

Test Duration: **3 min**

Evaluation of Partial Odd Harmonics Enhancement			
<i>Partial Odd Harmonic Currents</i>			
	<i>measured value</i>	<i>limit</i>	<i>result</i>
Line 1:	0.094 A (8.2 %)	0.251 A	PASS
<i>Evaluation for current limits</i>			
	<i>without enhancement</i>	<i>with enhancement</i>	<i>need enhancement</i>
Line 1:	PASS	PASS	No
Enhancement is not applied			
Check Harmonics 2..40			
<i>First detected harmonic order > 150 %</i>			
Line 1:	None		
<i>Harmonics orders > 150 %</i>			
Line 1:	None		
<i>Harmonics orders with average > 100 %</i>			
Line 1:	None		

Measured values			
<i>Fundamental Current</i>			
Line 1:	0.564 A		
<i>Active input Power</i>			
Line 1:	127.092 W *		
<i>Circuit power factor</i>			
Line 1:	0.482 *		
* Absolute value.			
Prerequisite for simplified method unfulfilled			
<i>First time window with THD(I) > 15 %</i>			
Line 1:	None		
<i>Time window with max THD(I) > 15 %</i>			
Line 1:	None		
<i>Current emission below 60 % of the applicable limits</i>			
Line 1:	No		
<i>Active Input Power</i>			
Line 1:	127 W *		

* Absolute value.

Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [A]	of Limit [%]	Limit [A]	Result	I _{eff} [A]	of Limit [%]	Limit [A]	Result	
1	0.549				0.563				
2	0.002	0.157	1.080	n/a	0.002	0.125	1.620	n/a	PASS
3	0.525	22.806	2.300	PASS	0.536	15.544	3.450	PASS	PASS
4	0.002	0.432	0.430	n/a	0.002	0.369	0.645	n/a	PASS
5	0.482	42.313	1.140	PASS	0.492	28.745	1.710	PASS	PASS
6	0.002	0.653	0.300	n/a	0.002	0.528	0.450	n/a	PASS
7	0.424	55.010	0.770	PASS	0.429	37.171	1.155	PASS	PASS
8	0.002	0.827	0.230	n/a	0.002	0.651	0.345	n/a	PASS
9	0.355	88.636	0.400	PASS	0.357	59.559	0.600	PASS	PASS
10	0.002	1.202	0.184	n/a	0.003	0.938	0.276	n/a	PASS
11	0.279	84.601	0.330	PASS	0.281	56.818	0.495	PASS	PASS
12	0.002	1.122	0.153	n/a	0.002	0.923	0.230	n/a	PASS
13	0.204	97.110	0.210	PASS	0.206	65.334	0.315	PASS	PASS
14	0.002	1.225	0.131	n/a	0.002	0.975	0.197	n/a	PASS
15	0.136	90.416	0.150	PASS	0.138	61.205	0.225	PASS	PASS
16	0.001	1.256	0.115	n/a	0.002	1.024	0.173	n/a	PASS
17	0.079	59.808	0.132	PASS	0.082	41.235	0.199	PASS	PASS
18	0.002	1.642	0.102	n/a	0.002	1.304	0.153	n/a	PASS
19	0.042	35.093	0.118	PASS	0.044	24.631	0.178	PASS	PASS
20	0.001	1.429	0.092	n/a	0.002	1.180	0.138	n/a	PASS
21	0.034	31.397	0.107	PASS	0.036	22.577	0.161	PASS	PASS
22	0.001	1.340	0.084	n/a	0.001	1.111	0.125	n/a	PASS
23	0.041	42.334	0.098	PASS	0.044	30.299	0.147	PASS	PASS
24	0.001	1.378	0.077	n/a	0.001	1.134	0.115	n/a	PASS
25	0.045	50.104	0.090	PASS	0.046	34.430	0.135	PASS	PASS
26	0.001	1.394	0.071	n/a	0.001	1.103	0.106	n/a	PASS
27	0.041	49.672	0.083	PASS	0.042	33.750	0.125	PASS	PASS
28	0.001	1.475	0.066	n/a	0.001	1.193	0.099	n/a	PASS
29	0.032	41.505	0.078	PASS	0.034	29.300	0.116	PASS	PASS
30	0.001	1.411	0.061	n/a	0.001	1.116	0.092	n/a	PASS
31	0.021	28.452	0.073	PASS	0.024	21.865	0.109	PASS	PASS
32	0.001	1.444	0.058	n/a	0.001	1.108	0.086	n/a	PASS
33	0.011	15.847	0.068	PASS	0.015	14.181	0.102	PASS	PASS
34	0.001	1.556	0.054	n/a	0.001	1.267	0.081	n/a	PASS
35	0.010	15.377	0.064	PASS	0.014	14.556	0.096	PASS	PASS
36	0.001	1.700	0.051	n/a	0.001	1.368	0.077	n/a	PASS
37	0.014	23.611	0.061	PASS	0.020	21.439	0.091	PASS	PASS
38	0.001	1.817	0.048	n/a	0.001	1.455	0.073	n/a	PASS
39	0.017	29.100	0.058	PASS	0.022	25.073	0.087	PASS	PASS
40	0.001	1.876	0.046	n/a	0.001	1.495	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

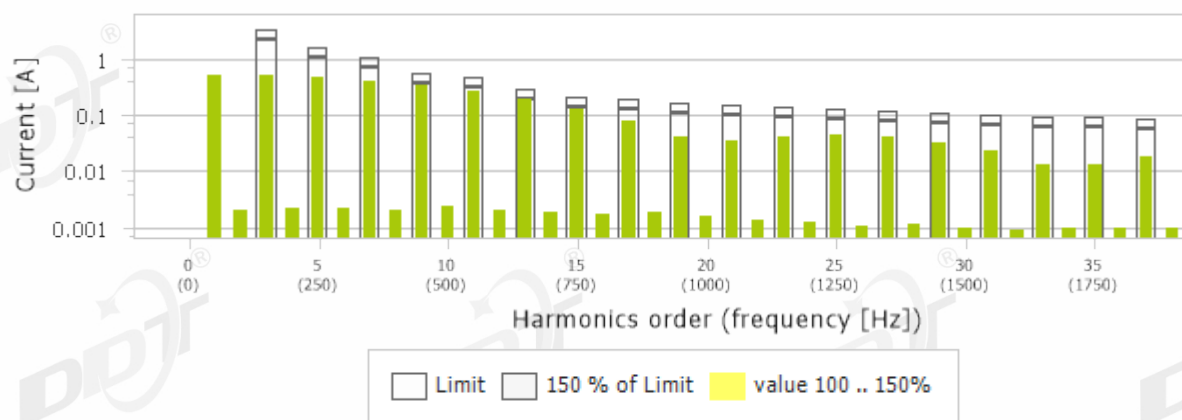
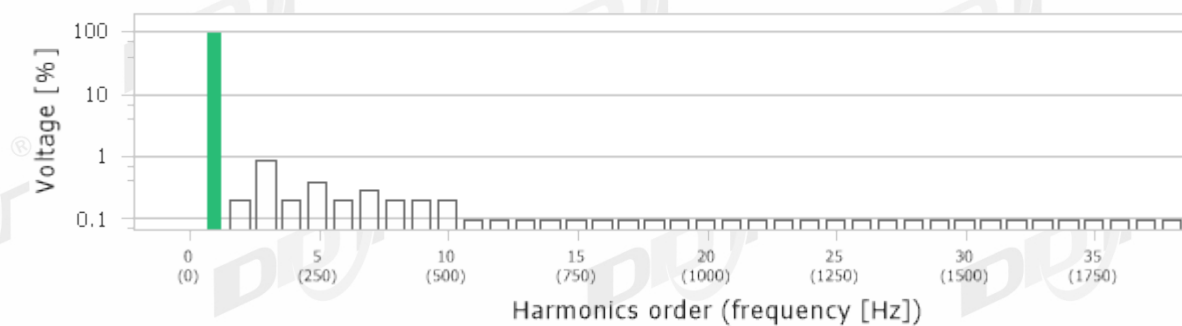
Voltage Source Verification

Harmonic voltage results				
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.372	100.162		
2	0.067	0.029	0.200	PASS
3	0.123	0.054	0.900	PASS
4	0.012	0.005	0.200	PASS
5	0.096	0.042	0.400	PASS
6	0.008	0.004	0.200	PASS
7	0.087	0.038	0.300	PASS
8	0.010	0.004	0.200	PASS
9	0.147	0.064	0.200	PASS
10	0.016	0.007	0.200	PASS
11	0.109	0.047	0.100	PASS
12	0.011	0.005	0.100	PASS
13	0.096	0.042	0.100	PASS
14	0.006	0.003	0.100	PASS
15	0.063	0.027	0.100	PASS
16	0.007	0.003	0.100	PASS
17	0.044	0.019	0.100	PASS
18	0.012	0.005	0.100	PASS
19	0.036	0.016	0.100	PASS
20	0.013	0.006	0.100	PASS
21	0.024	0.010	0.100	PASS
22	0.006	0.003	0.100	PASS
23	0.032	0.014	0.100	PASS
24	0.006	0.003	0.100	PASS
25	0.037	0.016	0.100	PASS
26	0.009	0.004	0.100	PASS
27	0.040	0.018	0.100	PASS
28	0.009	0.004	0.100	PASS
29	0.026	0.012	0.100	PASS
30	0.006	0.003	0.100	PASS
31	0.020	0.009	0.100	PASS
32	0.006	0.002	0.100	PASS
33	0.013	0.006	0.100	PASS
34	0.006	0.003	0.100	PASS
35	0.017	0.007	0.100	PASS
36	0.005	0.002	0.100	PASS
37	0.022	0.010	0.100	PASS
38	0.006	0.003	0.100	PASS
39	0.026	0.011	0.100	PASS
40	0.015	0.007	0.100	PASS

Maximum / Average Values	
	Line 1
Maximum Values	
Frequency	50 Hz
Voltage RMS	230.3 V
Current RMS	1.145 A
Peak Current	4.293 A
Fundamental Current	0.5643 A
Current Crest Factor	3.794
Active Power P	127.1 W
Power Factor	0.4821
Total Harmonic Current (THC)	0.9948 A
Instantaneous Partial Odd Harmonic Current (Inst. POHC)	0.09810 A
Total Harmonic Distortion Current (THDC)	1.763
Average Values	
Total Harmonic Current (THC)	0.9837 A
Instantaneous Partial Odd Harmonic Current (Inst. POHC)	0.09384 A
Total Harmonic Distortion Current (THDC)	1.743

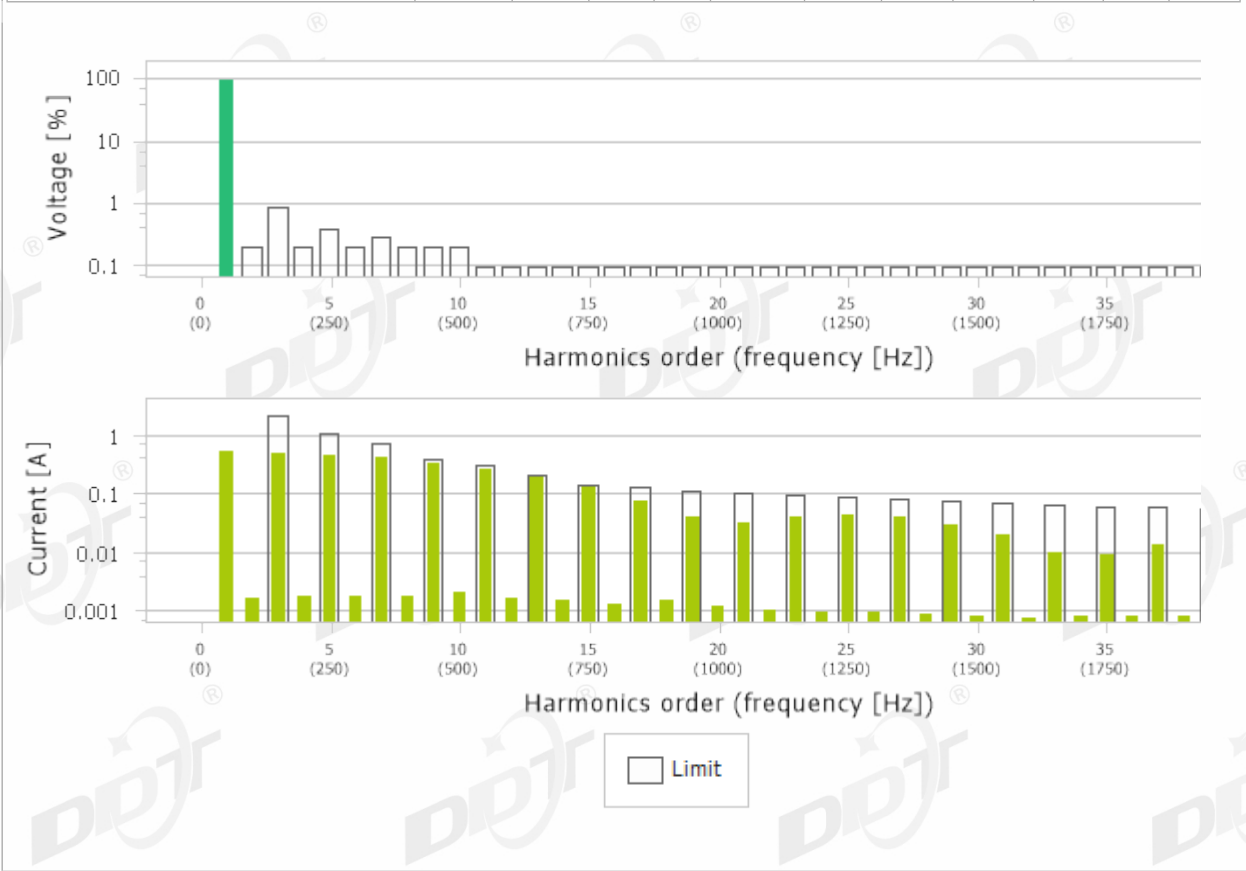
Maximum Harmonics											
Maximum Harmonics (Line 1)											
Hn	Frequency [Hz]	Voltage					Current				
		eff [V]	eff [%]	of Limit [%]	Limit [%]	Time Window	eff [A]	eff[%]	of Limit [%]	Limit [A]	Time Window
1	50.0	230.37 2	100.1 6	-	-	603	0.564	100.00	-	-	1
2	100.0	0.067	0.03	14.5 1	0.20	334	0.002	0.39	0.13	1.62	1
3	150.0	0.123	0.05	5.95	0.90	289	0.538	95.30	15.59	3.45	1
4	200.0	0.012	0.01	2.59	0.20	550	0.002	0.42	0.37	0.65	462
5	250.0	0.096	0.04	10.3 9	0.40	34	0.493	87.29	28.80	1.71	1
6	300.0	0.008	0.00	1.82	0.20	434	0.002	0.42	0.53	0.45	462
7	350.0	0.087	0.04	12.6 4	0.30	303	0.430	76.17	37.21	1.16	1
8	400.0	0.010	0.00	2.15	0.20	306	0.002	0.40	0.65	0.35	465
9	450.0	0.147	0.06	31.9 4	0.20	236	0.357	63.33	59.56	0.60	215
10	500.0	0.016	0.01	3.41	0.20	683	0.003	0.46	0.94	0.28	462
11	550.0	0.109	0.05	47.4 0	0.10	411	0.281	49.84	56.82	0.50	460
12	600.0	0.011	0.00	4.81	0.10	734	0.002	0.38	0.92	0.23	462
13	650.0	0.096	0.04	41.5 7	0.10	409	0.206	36.47	65.33	0.32	460
14	700.0	0.006	0.00	2.58	0.10	438	0.002	0.34	0.97	0.20	462
15	750.0	0.063	0.03	27.1 8	0.10	442	0.138	24.41	61.21	0.23	483
16	800.0	0.007	0.00	2.87	0.10	427	0.002	0.31	1.02	0.17	96
17	850.0	0.044	0.02	19.3 3	0.10	480	0.082	14.51	41.23	0.20	822
18	900.0	0.012	0.01	5.11	0.10	443	0.002	0.35	1.30	0.15	499
19	950.0	0.036	0.02	15.5 5	0.10	499	0.044	7.75	24.63	0.18	508
20	1000.0	0.013	0.01	5.72	0.10	814	0.002	0.29	1.18	0.14	165
21	1050.0	0.024	0.01	10.4 2	0.10	257	0.036	6.44	22.60	0.16	1
22	1100.0	0.006	0.00	2.67	0.10	426	0.001	0.25	1.11	0.13	289
23	1150.0	0.032	0.01	13.8 2	0.10	219	0.044	7.88	30.30	0.15	53
24	1200.0	0.006	0.00	2.68	0.10	266	0.001	0.23	1.13	0.12	205
25	1250.0	0.037	0.02	15.8 7	0.10	332	0.046	8.24	34.43	0.14	73
26	1300.0	0.009	0.00	3.78	0.10	784	0.001	0.21	1.10	0.11	484
27	1350.0	0.040	0.02	17.6 0	0.10	642	0.042	7.48	33.75	0.13	461
28	1400.0	0.009	0.00	4.02	0.10	343	0.001	0.21	1.19	0.10	200
29	1450.0	0.026	0.01	11.5 2	0.10	703	0.034	6.04	29.30	0.12	518
30	1500.0	0.006	0.00	2.61	0.10	370	0.001	0.18	1.12	0.09	889
31	1550.0	0.020	0.01	8.80	0.10	459	0.024	4.22	21.86	0.11	519
32	1600.0	0.006	0.00	2.45	0.10	477	0.001	0.17	1.11	0.09	889
33	1650.0	0.013	0.01	5.77	0.10	430	0.015	2.57	14.18	0.10	512
34	1700.0	0.006	0.00	2.65	0.10	755	0.001	0.18	1.27	0.08	889
35	1750.0	0.017	0.01	7.34	0.10	70	0.014	2.49	14.55	0.10	65

36	1800.0	0.005	0.00	2.17	0.10	54	0.001	0.19	1.37	0.08	888
37	1850.0	0.022	0.01	9.63	0.10	60	0.020	3.47	21.44	0.09	73
38	1900.0	0.006	0.00	2.53	0.10	550	0.001	0.19	1.46	0.07	76
39	1950.0	0.026	0.01	11.3 1	0.10	39	0.022	3.85	25.07	0.09	96
40	2000.0	0.015	0.01	6.55	0.10	809	0.001	0.18	1.49	0.07	275



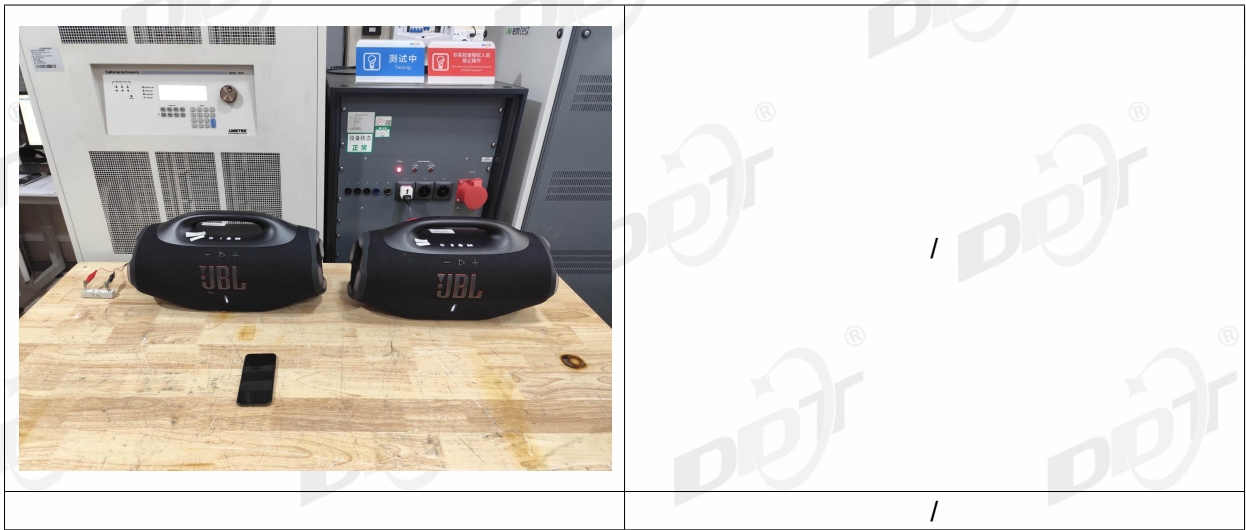
Average Harmonics											
Average Harmonics (Line 1)											
Hn	Frequency [Hz]	Voltage					Current				
		eff [V]	eff [%]	of Limit [%]	Limit [%]	Pass / Fail	eff [A]	eff [%]	of Limit [%]	Limit [A]	Pass / Fail
1	50.0	230.335	100.15	-	-	n/a	0.549	97.28	-	-	n/a
2	100.0	0.058	0.03	12.65	0.20	Pass	0.002	0.30	0.16	1.08	n/a
3	150.0	0.118	0.05	5.68	0.90	Pass	0.525	92.96	22.81	2.30	Pass
4	200.0	0.007	0.00	1.47	0.20	Pass	0.002	0.33	0.43	0.43	n/a
5	250.0	0.089	0.04	9.71	0.40	Pass	0.482	85.49	42.31	1.14	Pass
6	300.0	0.003	0.00	0.65	0.20	Pass	0.002	0.35	0.65	0.30	n/a
7	350.0	0.081	0.04	11.80	0.30	Pass	0.424	75.07	55.01	0.77	Pass
8	400.0	0.005	0.00	1.14	0.20	Pass	0.002	0.34	0.83	0.23	n/a
9	450.0	0.141	0.06	30.60	0.20	Pass	0.355	62.83	88.64	0.40	Pass
10	500.0	0.004	0.00	0.93	0.20	Pass	0.002	0.39	1.20	0.18	n/a
11	550.0	0.090	0.04	39.20	0.10	Pass	0.279	49.48	84.60	0.33	Pass
12	600.0	0.003	0.00	1.42	0.10	Pass	0.002	0.30	1.12	0.15	n/a
13	650.0	0.091	0.04	39.36	0.10	Pass	0.204	36.14	97.11	0.21	Pass
14	700.0	0.002	0.00	0.84	0.10	Pass	0.002	0.29	1.23	0.13	n/a
15	750.0	0.057	0.02	24.58	0.10	Pass	0.136	24.04	90.42	0.15	Pass
16	800.0	0.002	0.00	0.95	0.10	Pass	0.001	0.26	1.26	0.12	n/a
17	850.0	0.034	0.01	14.68	0.10	Pass	0.079	14.03	59.81	0.13	Pass
18	900.0	0.003	0.00	1.13	0.10	Pass	0.002	0.30	1.64	0.10	n/a
19	950.0	0.028	0.01	12.19	0.10	Pass	0.042	7.36	35.09	0.12	Pass
20	1000.0	0.007	0.00	2.97	0.10	Pass	0.001	0.23	1.43	0.09	n/a
21	1050.0	0.019	0.01	8.42	0.10	Pass	0.034	5.96	31.40	0.11	Pass
22	1100.0	0.002	0.00	0.89	0.10	Pass	0.001	0.20	1.34	0.08	n/a
23	1150.0	0.027	0.01	11.57	0.10	Pass	0.041	7.34	42.33	0.10	Pass
24	1200.0	0.002	0.00	0.98	0.10	Pass	0.001	0.19	1.38	0.08	n/a
25	1250.0	0.032	0.01	13.88	0.10	Pass	0.045	7.99	50.10	0.09	Pass
26	1300.0	0.002	0.00	1.01	0.10	Pass	0.001	0.17	1.39	0.07	n/a
27	1350.0	0.033	0.01	14.16	0.10	Pass	0.041	7.34	49.67	0.08	Pass
28	1400.0	0.002	0.00	1.05	0.10	Pass	0.001	0.17	1.47	0.07	n/a
29	1450.0	0.022	0.01	9.45	0.10	Pass	0.032	5.71	41.51	0.08	Pass
30	1500.0	0.002	0.00	0.85	0.10	Pass	0.001	0.15	1.41	0.06	n/a
31	1550.0	0.014	0.01	6.27	0.10	Pass	0.021	3.66	28.45	0.07	Pass
32	1600.0	0.002	0.00	0.88	0.10	Pass	0.001	0.15	1.44	0.06	n/a
33	1650.0	0.007	0.00	3.03	0.10	Pass	0.011	1.91	15.85	0.07	Pass
34	1700.0	0.002	0.00	0.84	0.10	Pass	0.001	0.15	1.56	0.05	n/a
35	1750.0	0.011	0.00	4.61	0.10	Pass	0.010	1.75	15.38	0.06	Pass
36	1800.0	0.002	0.00	0.80	0.10	Pass	0.001	0.15	1.70	0.05	n/a

37	1850.0	0.015	0.01	6.67	0.10	Pass	0.014	2.54	23.61	0.06	Pass
38	1900.0	0.002	0.00	0.90	0.10	Pass	0.001	0.16	1.82	0.05	n/a
39	1950.0	0.018	0.01	8.04	0.10	Pass	0.017	2.98	29.10	0.06	Pass
40	2000.0	0.008	0.00	3.41	0.10	Pass	0.001	0.15	1.88	0.05	n/a



11/04/202578/115

5.8. Test photo



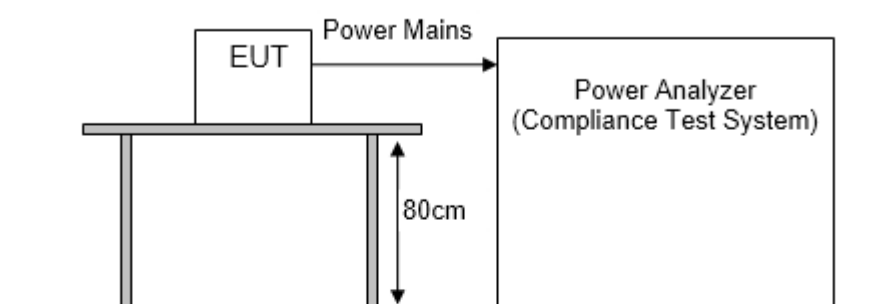
6. Voltage Fluctuations& Flicker Test

6.1. Test equipment

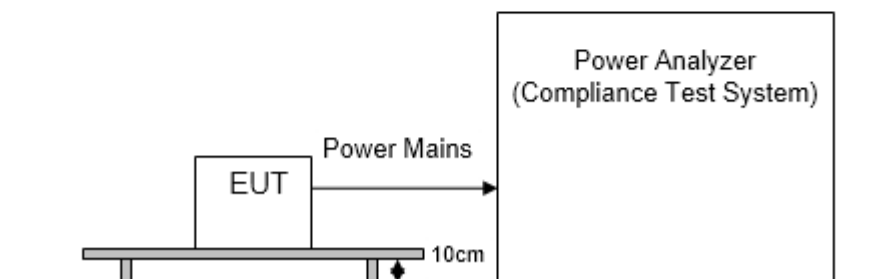
Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
Harmonics&Flicker Analyzer	emtest	DPA503N	DDT-ZC04145	2025/10/29
Flicker impedance	AMETEK CTS	AIF 503N32.4	DDT-ZC04558	2025/10/29
NET.CONTROL	EM TEST	N/A	DDT-ZC00795	/

6.2. Block diagram of test setup

Table-top device



Floor-standing device



6.3. Test levels and performance criterion

Voltage fluctuations & flicker Limit

Test Item	Limit	Note
Pst	1.0	Pst means Short-term flicker indicator
Plt	0.65	Plt means long-term flicker indicator
Tdt	0.5	Tdt means maximum time that dt exceeds 3.3%
dmax (%)	4%	dmax means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change.

6.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A

6.5. Test procedure

The EUT is placed on top of a wooden table (according to the standard height requirements, refer to the test layout), the most unfavorable sequence of voltage changes under normal conditions during the flick measurement; the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

6.6. Test result

Pass. (See below detailed test result)

6.7. Test data

Test Report	
Test Object :	Portable Bluetooth Speaker
Test Standard :	IEC 61000-3-3 (Ed3-2) - General Test conditions (230V - 50Hz)
Tester :	Telamon Chen
Company :	Guangdong Dongdian Testing Service Co., Ltd.
Test Date :	3/4/2025 5:09:00 PM

Result	
E.U.T. :	Passed

(Date)

(Sign)

Test Object / Product	
Name :	Portable Bluetooth Speaker
Serial Number :	S24112111-001
Description :	BOOMBOX 4C
Operation Mode :	Charging + Bluetooth + TWS + 5V/1A load mode
Connection :	

Climatic Conditions			
Temperature :	22 °C	Pressure :	101 kPa
Humidity :	48 %		

Flicker Results
Standard Specific Results for IEC 61000-3-3 (Edition 3.2)

Standard Group: Industry

Standard Name: IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A
per phase
and not subject to conditional connection

Test Condition: General Test Conditions

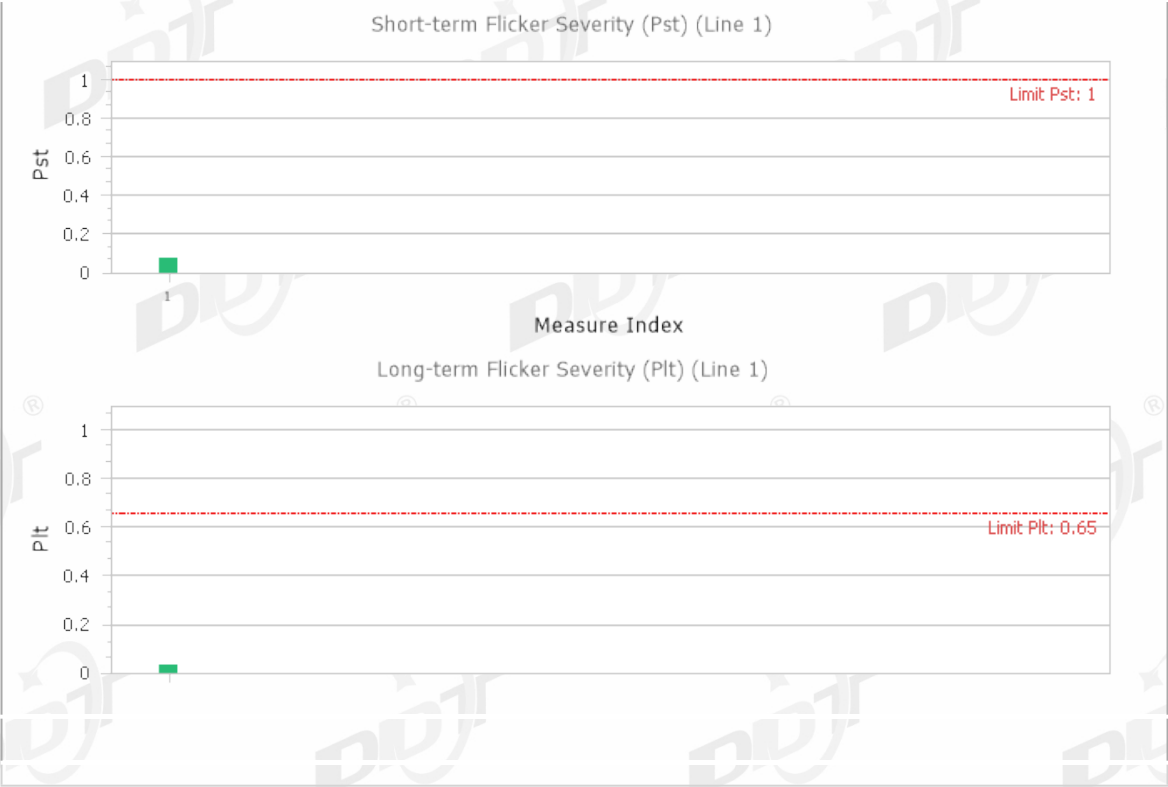
Analysis Status: PASS

Flicker Measurements Settings	
Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	1 × 10 min
Measurements:	1

Flicker Measurements					
	P _{It}	Max P _{st}	Max d _c	Max d _{max}	Max T _{max}
Line 1:	0.035	0.08	0.111	0.247	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

Flicker Individual Measurements											
Measurement t	P _{st} []		d _c [%]		d _{max} [%]		T _{max} [s]				
	Value	Limit	Result	Value	Limit	Result	Value	Limit	Result	Value	Limit
#1	0.08	1.00	PASS	0.11	3.30	PASS	0.25	4.00	PASS	0.00	0.50

Pst Data									
Flicker (Line 1)									
Meas. No.	P0,1	P1s	P3s	P10s	P50s	Pst	dc [%]	dmax [%]	Tmax [s]
1	0.028	0.015	0.014	0.012	0.006	0.08	0.111	0.247	0



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Test Report	
Report Number : Flicker pass	
Test Object :	Portable Bluetooth Speaker
Test Standard :	IEC 61000-3-3 (Ed3-2) - General Test conditions (230V - 50Hz)
Tester :	Telamon Chen
Company :	Guangdong Dongdian Testing Service Co., Ltd.
Test Date :	3/4/2025 4:29:44 PM
Result	
E.U.T. :	PASS

(Date)		(Sign)	
Test Object / Product			
Name :	Portable Bluetooth Speaker	Operation Mode :	Charging + Bluetooth + 5V/1A load mode
Serial Number :	S24112111-001	Connection :	
Description :	BOOMBOX 4C		
Climatic Conditions			
Temperature :	22 °C	Pressure :	101 kPa
		Humidity :	48 %
Flicker Results			
Standard Specific Results for IEC 61000-3-3 (Edition 3.2)			

Standard Group: Industry

Standard Name: IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

Test Condition: General Test Conditions

Analysis Status: PASS

Flicker Measurements Settings	
Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	1 × 10 min
Measurements:	1

Flicker Measurements					
	P _{It}	Max P _{st}	Max d _c	Max d _{max}	Max T _{max}
Line 1:	0.034	0.078	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

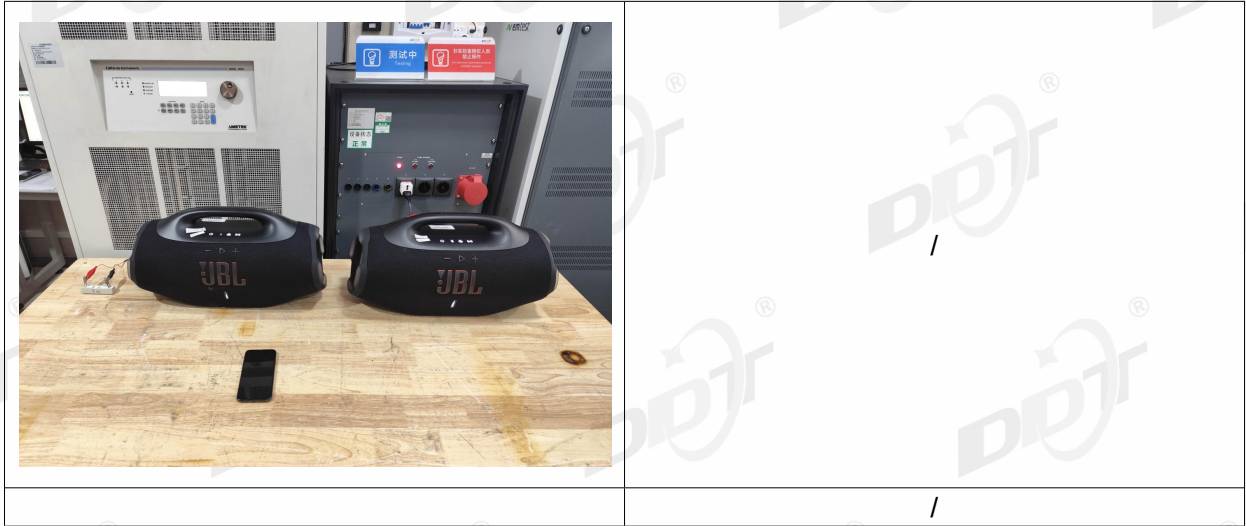
Flicker Individual Measurements											
Measurement	P _{st} []		d _c [%]		d _{max} [%]		T _{max} [s]				
	Value	Limit	Result	Value	Limit	Result	Value	Limit	Result	Value	Limit
#1	0.08	1.00	PASS	0.00	3.30	PASS	< 0.2	4.00	PASS	0.00	0.50

Pst Data									
Flicker (Line 1)									
Meas. No.	P0,1	P1s	P3s	P10s	P50s	Pst	dc [%]	dmax [%]	Tmax [s]
1	0.016	0.015	0.014	0.012	0.006	0.078	0	0.119	0



Page 1/1Flicker pass04/03/2025

6.8. Test photo



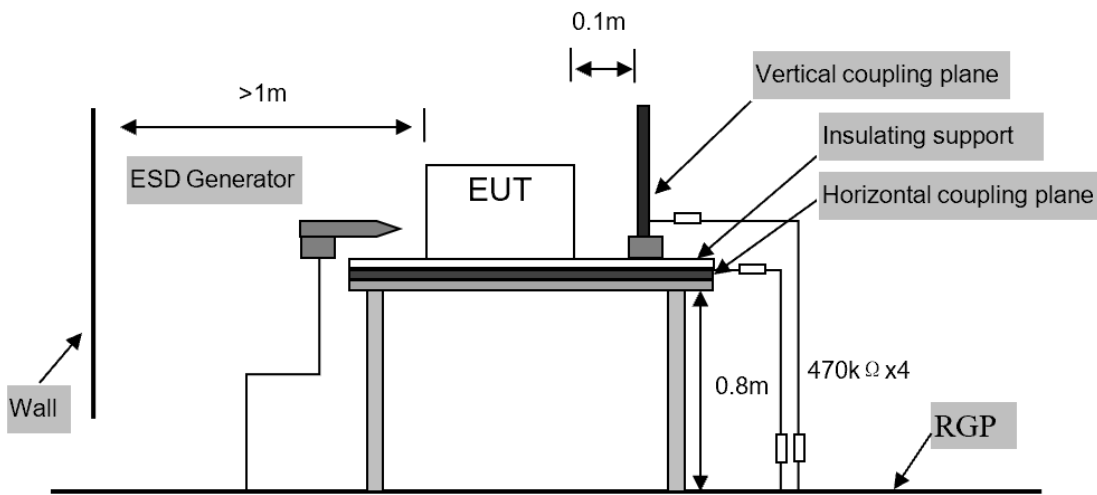
7. Electrostatic Discharge Test

7.1. Test equipment

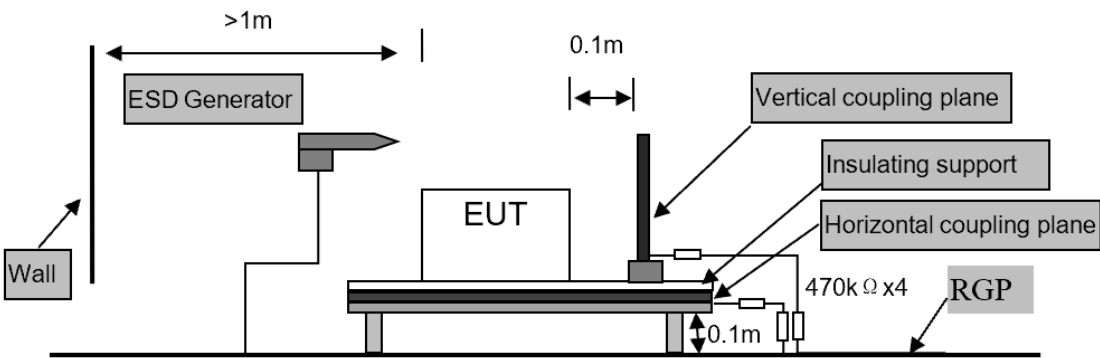
Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
ESD Generator	TESEQ	NSG 437	DDT-ZC01820	2026/03/28

7.2. Block diagram of test setup

Table-top equipment



Floor-standing equipment



7.3. Test levels and performance criterion

Test Level		Performance Criteria
Air Discharge	±2kV, ±4kV and ±8kV	B
Contact Discharge	±4kV	
Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of		

performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended.

7.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A
Multimeter	FLUKE	15B+	Multimeter	N/A

7.5. Test procedure

Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed.

Contact Discharge:

All the procedure was same as air discharge. Except that the generator was re-triggered for a new single discharge. The tip of the discharge electrode was touching the EUT before the discharge switch was operated.

Indirect discharge for horizontal coupling plane:

At least 20 single discharges were applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane:

At least 20 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

7.6. Test result

Test Site: 7#EMC Shield Room	Test Date: 2025/04/17--2025/04/17
Condition: 25°C,50%RH,101kPa	Test Engineer: Elosky Liu
Memo: /	

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4		
Sample No.: S24112111-036			Test Mode: Bluetooth + TWS + 5V/1A load mode		
Power supply: Battery			Memo:/		
Measure parameters: 20 times at each point for contact discharge; 20 times at each point for air discharge. 1 second interval for each discharge.					
Type of discharge	Test Level	Test Point	Required	Observation	Result
Contact to EUT	±4kV	1,2,3	B	A	Pass
Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
Air	±2kV/±4kV/ ±8kV	1,2,3,4,5,6,7	B	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4		
Sample No.: S24112111-036			Test Mode: Bluetooth + 5V/1A load mode		
Power supply: Battery			Memo:/		
Measure parameters: 20 times at each point for contact discharge; 20 times at each point for air discharge. 1 second interval for each discharge.					
Type of discharge	Test Level	Test Point	Required	Observation	Result
Contact to EUT	±4kV	1,2,3	B	A	Pass
Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
Air	±2kV/±4kV/ ±8kV	1,2,3,4,5,6,7	B	A	Pass
Observation Description:					
A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

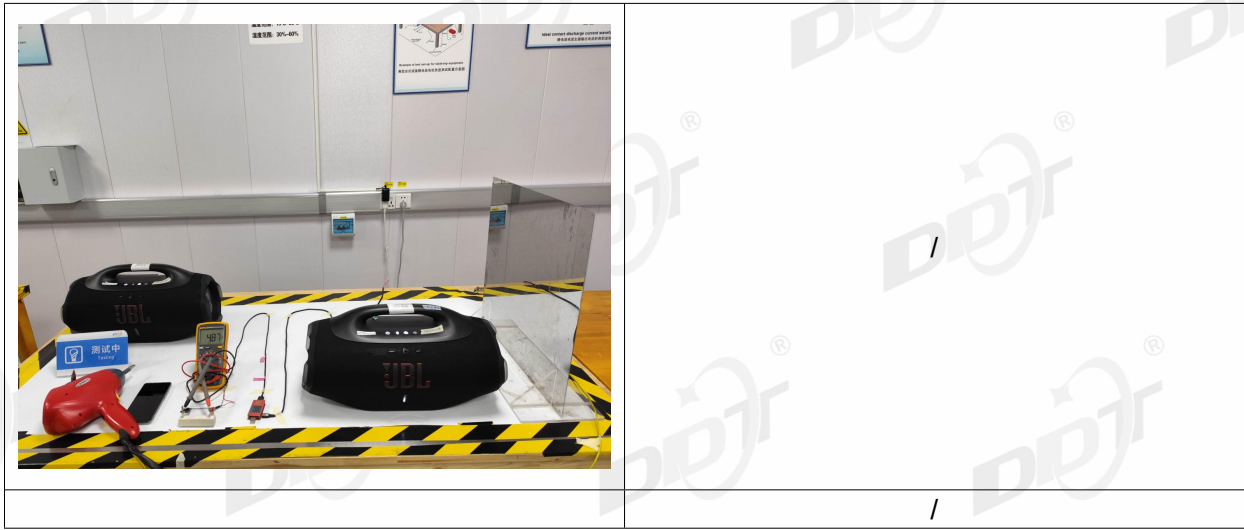
EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4		
Sample No.: S24112111-036			Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode		
Power supply: AC 230V/50Hz			Memo:/		
Measure parameters: 20 times at each point for contact discharge; 20 times at each point for air discharge. 1 second interval for each discharge.					
Type of discharge	Test Level	Test Point	Required	Observation	Result
Contact to EUT	±4kV	1,2,3	B	A	Pass
Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
Air	±2kV/±4kV/ ±8kV	1,2,3,4,5,6,7	B	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4		
Sample No.: S24112111-036			Test Mode: Charging + Bluetooth + 5V/1A load mode		
Power supply: AC 230V/50Hz			Memo:/		
Measure parameters: 20 times at each point for contact discharge; 20 times at each point for air discharge. 1 second interval for each discharge.					
Type of discharge	Test Level	Test Point	Required	Observation	Result
Contact to EUT	±4kV	1,2,3	B	A	Pass
Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
Air	±2kV/±4kV/ ±8kV	1,2,3,4,5,6,7	B	A	Pass
Observation Description:					
A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

7.7. ESD test points



7.8. Test photo



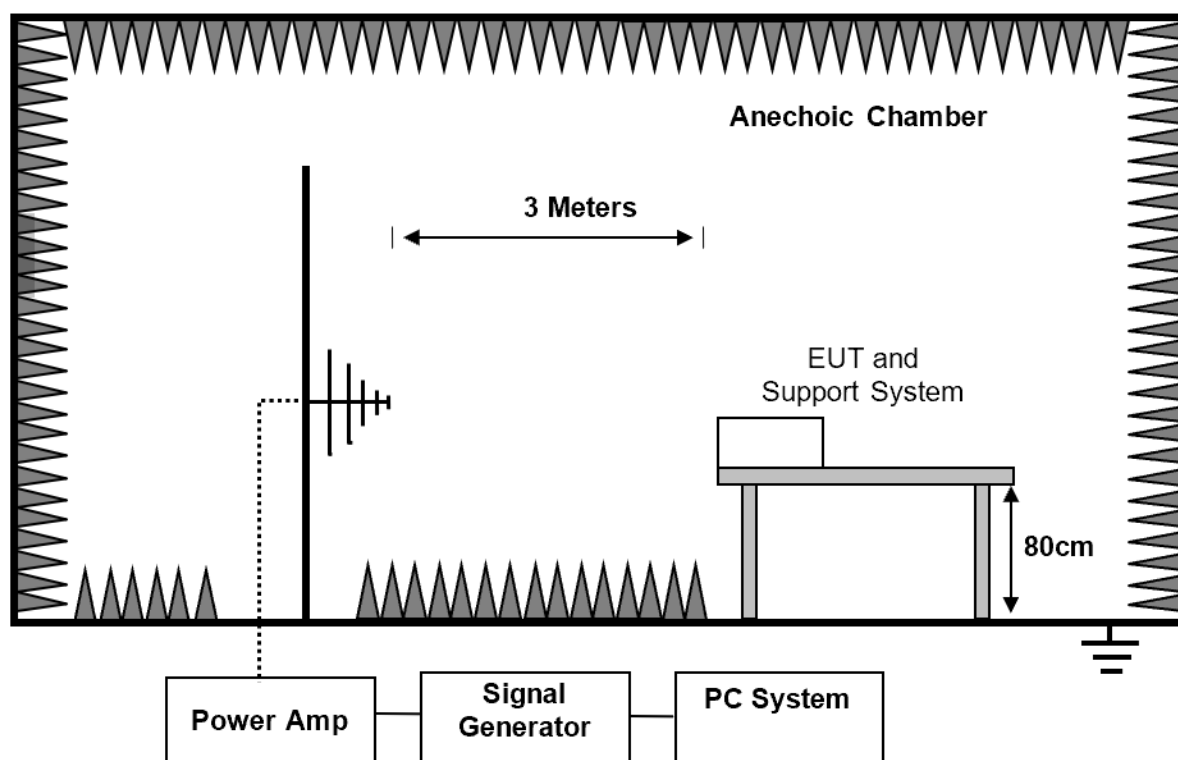
8. Continuous Radio Frequency Disturbances Test

8.1. Test equipment

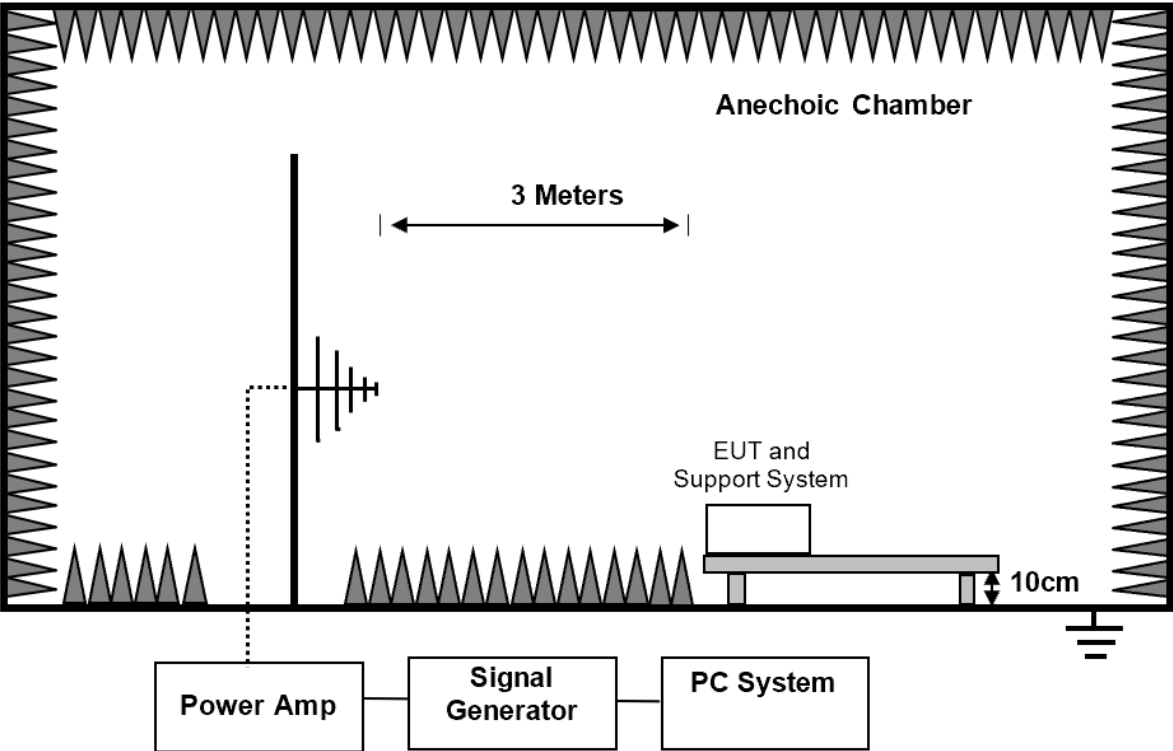
Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
MXG Vector Signal Generator	Agilent	N5182A	DDT-ZC00239	2025/07/08
Power meter	Agilent	E4417A	DDT-ZC00934	2025/07/08
Power sensor	Agilent	E9323A	DDT-ZC00938	2025/08/25
Power sensor	Agilent	E9323A	DDT-ZC00939	2025/08/25
Electric Field Sensors	DARE Instruments	CTR1001S	DDT-ZC02865	2025/11/03
Power Amplifier	Wonder	HPA80M1000M500	DDT-ZC00940	2025/07/08
Power Amplifier	Wonder	HPA1000M2500M300	DDT-ZC00941	2025/07/08
Power Amplifier	Wonder	HPA2500M6000M200	DDT-ZC00942	2025/07/08
RS Test Software	SKET	EMC-S	DDT-ZC01455	/
Audio Analyzer	R&S	UPV	DDT-ZC01246	2025/07/09
Log-Periodic Antenna	schwarzbeck	STLP 9129	DDT-ZC04673	2026/11/24

8.2. Block diagram of test setup

Table-top device



Floor-standing device



8.3. Test levels and performance criterion

Test Level		Performance Criteria
Frequency	80 MHz to 6 GHz	A
Field Strength	3V/m measured unmodulated	
Modulation	AM modulated to a depth of 80% by a sinusoidal audio signal of □1 kHz/▣400 Hz	
Step Size	1% increments	
Dwell time	>0.5 Sec.	

8.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A
Multimeter	FLUKE	15B+	Multimeter	N/A

8.5. Test procedure

The field sensor is placed on the EUT table (Ground clearance height reference "block diagram of test setup") which is 3 meters away from the transmitting antenna. Through the signal generator, power amplifier and transmitting antenna to produce a uniformity field strength around the EUT table from frequency range specified and records the signal generator 's output level at the same time for whole measured frequency range. Then, put EUT and its simulators on the EUT turn table and keep them 3 meters away from the transmitting antenna which is mounted on an antenna tower and fixes at 1 meter height above the ground. Using the recorded signal generator's output level to measure the EUT from frequency range specified and both horizontal & vertical polarization of antenna must be set and measured. Each of the four sides of EUT must be faced this transmitting antenna and measures individually.

8.6. Test result

Test Site: 4# Chamber	Test Date: 2025/03/04--2025/03/04
Condition: 22°C,45%RH	Test Engineer: Hans Xu
Memo: /	

EUT Name: Portable Bluetooth Speaker	EUT Model: BOOMBOX 4C
Sample No.: S24112111-001	Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode
Power supply: AC 230V/50Hz	Memo: /

Steps: 1%, Dwell time 1s, 0.4kHz 80% AM modulation

Test frequency	Level	EUT Position	Antenna Polarization	Required	Observation	Result
80MHz to 6000MHz	3V/m	Front	H	A	A	Pass
			V	A	A	Pass
		Left	H	A	A	Pass
			V	A	A	Pass
		Rear	H	A	A	Pass
			V	A	A	Pass
		Right	H	A	A	Pass
			V	A	A	Pass

Observation Description:

A: Normal performance within limits specified by the manufacturer requestor or purchaser.

EUT Name: Portable Bluetooth Speaker	EUT Model: BOOMBOX 4C
Sample No.: S24112111-001	Test Mode: Bluetooth + TWS + 5V/1A load mode
Power supply: Battery	Memo: /

Steps: 1%, Dwell time 1s, 0.4kHz 80% AM modulation

Test frequency	Level	EUT Position	Antenna Polarization	Required	Observation	Result
80MHz to 6000MHz	3V/m	Front	H	A	A	Pass
			V	A	A	Pass
		Left	H	A	A	Pass
			V	A	A	Pass
		Rear	H	A	A	Pass
			V	A	A	Pass
		Right	H	A	A	Pass
			V	A	A	Pass

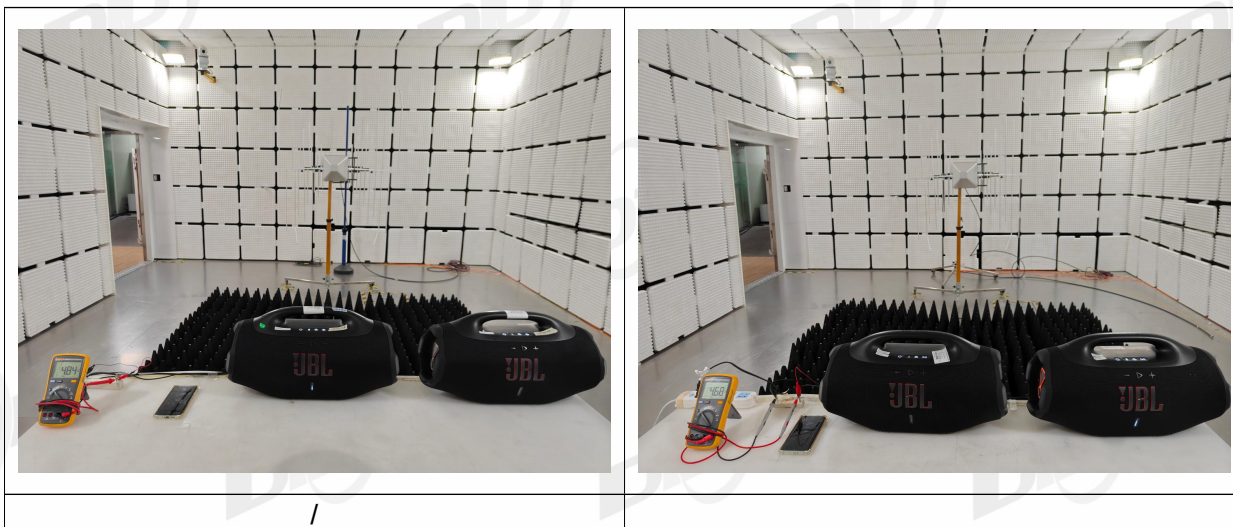
Observation Description:

A: Normal performance within limits specified by the manufacturer requestor or purchaser.

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001			Test Mode: Charging + Bluetooth + 5V/1A load mode			
Power supply: AC 230V/50Hz			Memo:/			
Steps: 1%, Dwell time 1s, 0.4kHz 80% AM modulation						
Test frequency	Level	EUT Position	Antenna Polarization	Required	Observation	Result
80MHz to 6000MHz	3V/m	Front	H	A	A	Pass
			V	A	A	Pass
		Left	H	A	A	Pass
			V	A	A	Pass
		Rear	H	A	A	Pass
			V	A	A	Pass
		Right	H	A	A	Pass
			V	A	A	Pass
Observation Description:						
A: Normal performance within limits specified by the manufacturer requestor or purchaser.						

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001			Test Mode: Bluetooth + 5V/1A load mode			
Power supply: Battery			Memo:/			
Steps: 1%, Dwell time 1s, 0.4kHz 80% AM modulation						
Test frequency	Level	EUT Position	Antenna Polarization	Required	Observation	Result
80MHz to 6000MHz	3V/m	Front	H	A	A	Pass
			V	A	A	Pass
		Left	H	A	A	Pass
			V	A	A	Pass
		Rear	H	A	A	Pass
			V	A	A	Pass
		Right	H	A	A	Pass
			V	A	A	Pass
Observation Description:						
A: Normal performance within limits specified by the manufacturer requestor or purchaser.						

8.7. Test photo



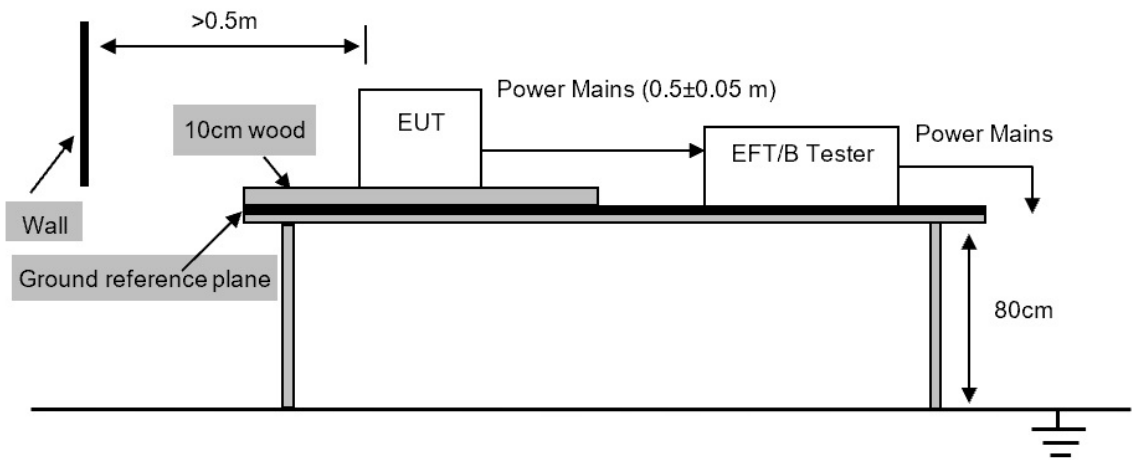
9. Electrical Fast Transients(EFT) Test

9.1. Test equipment

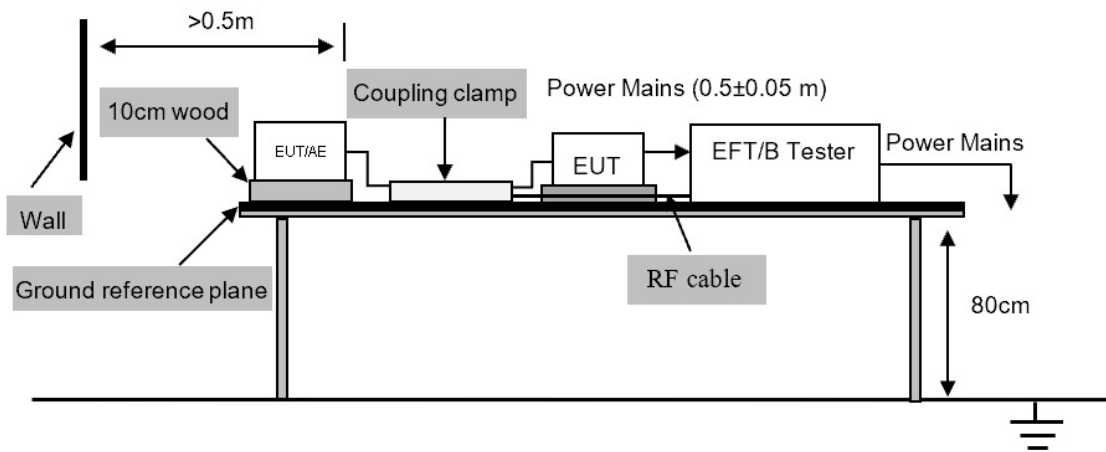
Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
EFT Generator	EMC Partner	TRA3000F	DDT-ZC00546	2025/04/14
Coupling Clamp EFT	EMC Partner	CN-EFT1000	DDT-ZC00547	2025/04/14

9.2. Block diagram of test setup

For power port (Note: if the DC network power cable may be lengths greater than 3 m, the requirement is applicable).



For analogue/digital data ports, if the cables may be longer than 3 m.



9.3. Test levels and performance criterion

Test Level			Performance Criteria
Test voltage	±1kV For AC mains Port	±0.5kV for dc input or signal Port	B
Repetition Frequency	5kHz	5kHz	
Burst Duration	15ms	15ms	
Burst Period	300ms	300ms	
Inject Time(s)	120s	120s	
Inject Method	Direct for AC mains port	Capacitive coupling clamp or CDN	
Inject Line	AC mains	signal ports, wired network ports, control ports, and DC power ports	

Note: This test shall be additionally performed on signal ports, wired network ports, control ports, and DC power ports, of radio equipment and associated ancillary equipment, if the cables may be longer than 3 m.

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended.

9.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A
Multimeter	FLUKE	15B+	Multimeter	N/A

9.5. Test procedure

The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m ± 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

For DC powerport and AC main ports:

The EUT was connected to the power mains by using a coupling device that couples the EFT interference signal to AC or DC power lines. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 2mins. For signal ports, wired network ports, control ports:

The capacitive coupling clamp was connected to the power by using a coupling device that couples the EFT interference signal to capacitive coupling clamp. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 2mins.

9.6. Test result

Test Site: 7#EMC Shield Room			Test Date: 2025/03/05--2025/03/05			
Condition: 22°C,56%RH			Test Engineer: Elosky Liu			
Memo: /						
EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001			Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode			
Power supply: AC 230V/50Hz			Memo:/			
Test Burst parameters: Burst Period 300ms, Durations 15ms, Repetition Frequency 5kHz						
Port/ Coupling	Line	Test Voltage	Test time(s)	Required	Observation	Result
AC Mains/ Direct	L	+1kV	120	B	A	Pass
		-1kV	120	B	A	Pass
	N	+1kV	120	B	A	Pass
		-1kV	120	B	A	Pass
	L-N	+1kV	120	B	A	Pass
		-1kV	120	B	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.						

EUT Name: Portable Bluetooth Speaker				EUT Model: BOOMBOX 4C		
Sample No.: S24112111-001				Test Mode: Charging + Bluetooth + 5V/1A load mode		
Power supply: AC 230V/50Hz				Memo: /		
Test Burst parameters: Burst Period 300ms, Durations 15ms, Repetition Frequency 5kHz						
Port/ Coupling	Line	Test Voltage	Test time(s)	Required	Observation	Result
AC Mains/ Direct	L	+1kV	120	B	A	Pass
		-1kV	120	B	A	Pass
	N	+1kV	120	B	A	Pass
		-1kV	120	B	A	Pass
	L-N	+1kV	120	B	A	Pass
		-1kV	120	B	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.						

9.7. Test photo

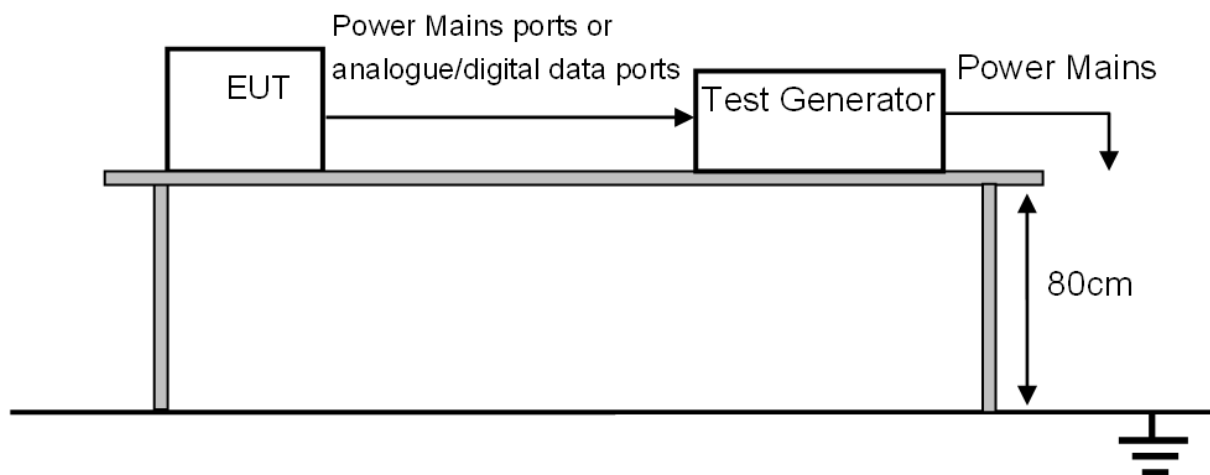
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10. Surge Test

10.1. Test equipment

Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
SURGE Generator	EMC Partner	TRANSIENT2000	DDT-ZC00544	2025/03/31
Surge Coupling Network	EMC Partner	CDN-UTP8 ED3	DDT-ZC00892	2025/07/08
Surge Coupling Network	EMC Partner	CDN-KIT1000	DDT-ZC00545	2025/03/31

10.2. Block diagram of test setup



10.3. Test levels and performance criterion

Test level for AC mains ports		Performance Criterion
Line to Line	1 kV 1.2/50(8/20) μ s	B
Line to Ground	2 kV 1.2/50(8/20) μ s	B
Note: In telecom centres 1 kV line to ground and 0,5 kV line to line shall be used.		
Wired network port (outdoor)		Performance Criterion
Line to Ground	1 kV 10/700(5/320) μ s (symmetrically)	B
Line to Ground or Shield to Ground	1 kV 1.2/50(8/20) μ s (non-symmetrically)	B
Line to Line	0.5 kV 1.2/50(8/20) μ s (non-symmetrically)	B
Wired network port (indoor)		Performance Criterion
Line to Ground or Shield to Ground	0.5 kV 1.2/50(8/20) μ s (longer than 30m)	B
Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended.		

10.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A
Multimeter	FLUKE	15B+	Multimeter	N/A

10.5. Test procedure

For line-to- nature coupling mode, provide a 1 kV 1.2/50 us voltage surge (at pen-circuit condition) and 8/20 us current surge to EUT selected points.

For line-to- ground coupling mode, provide a 2 kV 1.2/50 us voltage surge (at pen-circuit condition) and 8/20 us current surge to EUT selected points.

At least 5 positive and 5 negative (polarity) tests with a maximum 1-minute repetition rate are applied during test.

Different phase angles are done individually.

For other surge test, each line of internet port to ground coupling mode, provide a combination wave specified above table.

At least 5 positive and 5 negative (polarity) tests with a maximum 1-minute repetition rate are applied during test.

Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

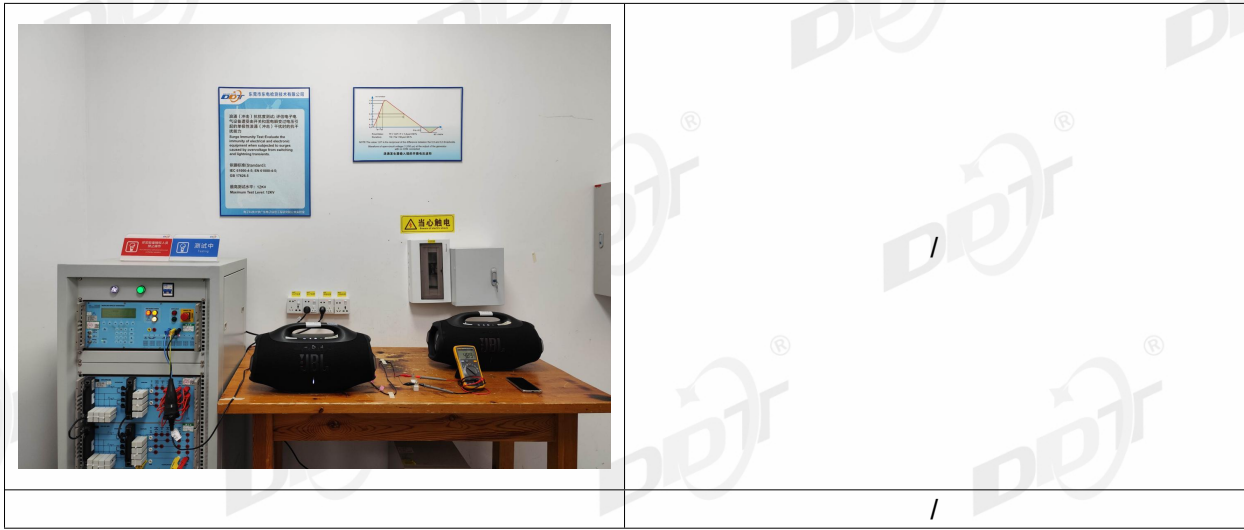
10.6. Test result

Test Site: 1# Surge Room	Test Date: 2025/03/05--2025/03/05
Condition: 22°C,53%RH	Test Engineer: Jenny Chen
Memo: /	

EUT Name: Portable Bluetooth Speaker		EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001		Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode			
Power supply: AC 230V/50Hz		Memo:/			
Test wave parameters: Wave Type: 1.2/50us-8/20us; Voltage Phase: 0°, 90°, 180°, 270°; Pulse times: 5 times at each polarity; Pulse Interval: 60s					
Line/Port	Internal impedance	Test Voltage	Required	Observation	Result
L-N	2Ω	+0.5kV	B	A	Pass
	2Ω	-0.5kV	B	A	Pass
L-N	2Ω	+1kV	B	A	Pass
	2Ω	-1kV	B	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

EUT Name: Portable Bluetooth Speaker		EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001		Test Mode: Charging + Bluetooth + 5V/1A load mode			
Power supply: AC 230V/50Hz		Memo:/			
Test wave parameters: Wave Type: 1.2/50us-8/20us; Voltage Phase: 0°, 90°, 180°, 270°; Pulse times: 5 times at each polarity; Pulse Interval: 60s					
Line/Port	Internal impedance	Test Voltage	Required	Observation	Result
L-N	2Ω	+0.5kV	B	A	Pass
	2Ω	-0.5kV	B	A	Pass
L-N	2Ω	+1kV	B	A	Pass
	2Ω	-1kV	B	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

10.7. Test photo



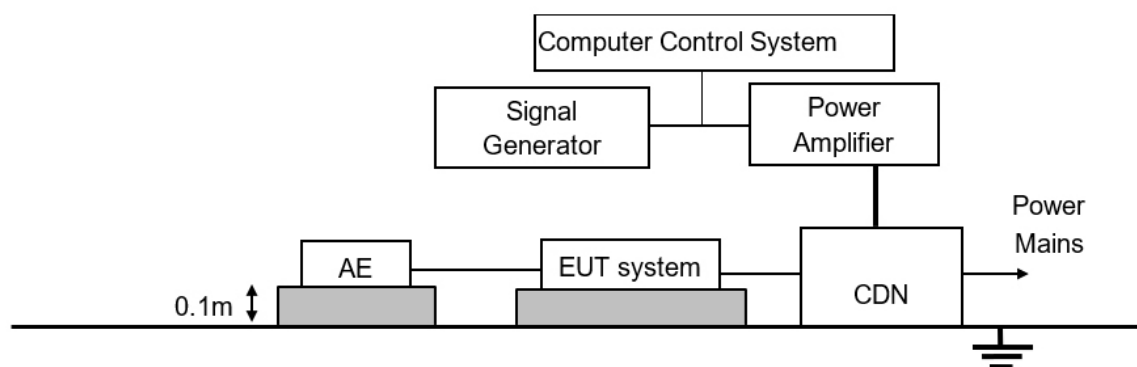
11. Continuous Conducted Disturbances Test

11.1. Test equipment

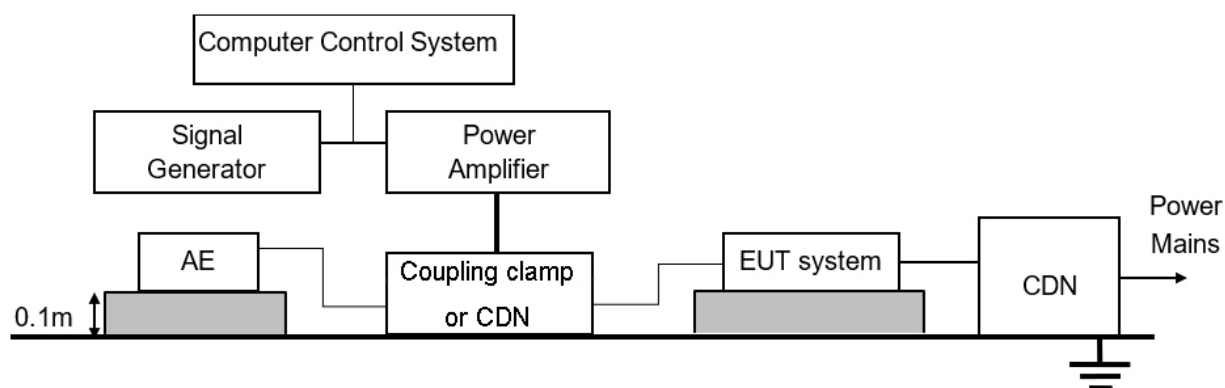
Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
Conducted Immunity Tester	FRANKONIA	CIT-10	DDT-ZC00551	2025/03/31
CDN	SCHWARZBEC K	CDN M2/M3PE 16A	DDT-ZC01558	2025/07/08
Attenuation	BIRD	DAM75W (6dB)	DDT-ZC00555	2025/07/08
CS Test Software	SKET	EMC-S	DDT-ZC01429	/

11.2. Block diagram of test setup

For power port (Note: if the DC network power cable may be lengths greater than 3 m, the requirement is applicable).



For signal/wired network/control ports, if the cables may be longer than 3 m.



11.3. Test levels and performance criterion

Test Level		Performance Criteria
Frequency	0.15 MHz to 80 MHz	A
Field Strength	3V measured unmodulated	
Modulation	AM modulated to a depth of 80% by a sinusoidal audio signal of ☐ 1 kHz / ☒ 400 Hz (see note1)	
Step Size	1% increments	
Dwell time	>0.5 Sec.	
Note 1: If the wanted signal is modulated at 1 kHz, then the test signal of 400 Hz shall be used.		
Note 2: This test shall be additionally performed on signal ports, wired network ports, control ports, and DC power ports, of radio equipment and associated ancillary equipment, if the cables may be longer than 3 m.		

11.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A
Multimeter	FLUKE	15B+	Multimeter	N/A

11.5. Test procedure

The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

The disturbance signal described below is injected to EUT through CDN.

The EUT operates within its operational mode(s) under intended climatic conditions after power on. Use the frequency range specified by the standard, interference signal level, and interference signal for testing.

The step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.6. Test result

Test Site: 1# CS Room	Test Date: 2025/03/06--2025/03/06
Condition: 20°C,58%RH	Test Engineer: Chen Wei
Memo: /	

EUT Name: Portable Bluetooth Speaker		EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001		Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode			
Power supply: AC 230V/50Hz		Memo: /			
Test steps: 1%, Dwell time 1s, 0.4kHz 80% AM modulation					
Test frequency	Injected Position	Strength	Required	Observation	Result
0.15MHz to 80MHz	AC Port	3V	A	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

EUT Name: Portable Bluetooth Speaker		EUT Model: BOOMBOX 4C			
Sample No.: S24112111-001		Test Mode: Charging + Bluetooth + 5V/1A load mode			
Power supply: AC 230V/50Hz		Memo:/			
Test steps: 1%, Dwell time 1s, 0.4kHz 80% AM modulation					
Test frequency	Injected Position	Strength	Required	Observation	Result
0.15MHz to 80MHz	AC Port	3V	A	A	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser.					

11.7. Test photo

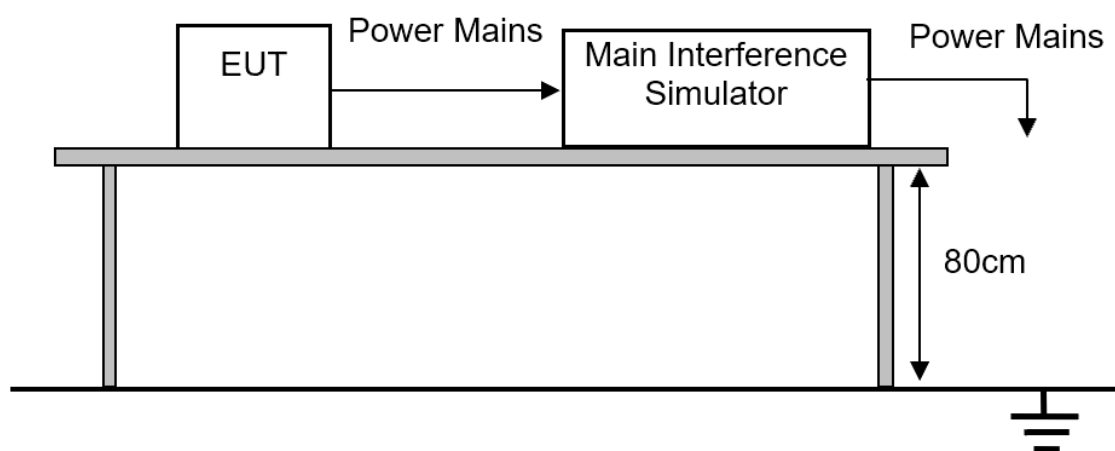


12. Voltage Dips and Interruptions Test

12.1. Test equipment

Equipment	Manufacturer	Model No.	Equipment No.	Cal. Due to
EFT Generator	EMC Partner	TRA3000F	DDT-ZC00546	2025/04/14
DIPS TESTER	EMC Partner	EXT-TRA3000D	DDT-ZC00548	2025/03/31

12.2. Block diagram of test setup



12.3. Test levels and performance criterion

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)	Performance Criterion
0	100	0.5	B
0	100	1	B
70	30	25 for 50 Hz/30 for 60 Hz	C(note)
0	100	250 for 50 Hz/300 for 60 Hz	C

Note: in the case where the equipment is fitted with or connected to a battery back-up, the performance criteria for transient phenomena shall apply as specified in clause 6.2 of ETSI EN 301 489-1.

12.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Mobile Phone	HUAWEI	HMA-AL00	Huawei Phone-Mate 20	EMS site
Bluetooth Speaker	Harman	BOOMBOX 4C	N/A	N/A
pressure-regulating plate	POWER-Z	KT001	Large red regulator	N/A
USB Cable	N/A	N/A	Length: 1.00m, unshielded, non-magnetic ring	N/A
Load	N/A	N/A	2.5Ω/5Ω	N/A
Multimeter	FLUKE	15B+	Multimeter	N/A

12.5. Test procedure

The EUT and test generator were setup as shown. The interruptions are introduced at selected phase angles with specified duration. Record any degradation of performance.

12.6. Test result

Test Site: 7#EMC Shield Room	Test Date: 2025/03/05--2025/03/05
Condition: 22°C,56%RH	Test Engineer: Elosky Liu
Memo: /	

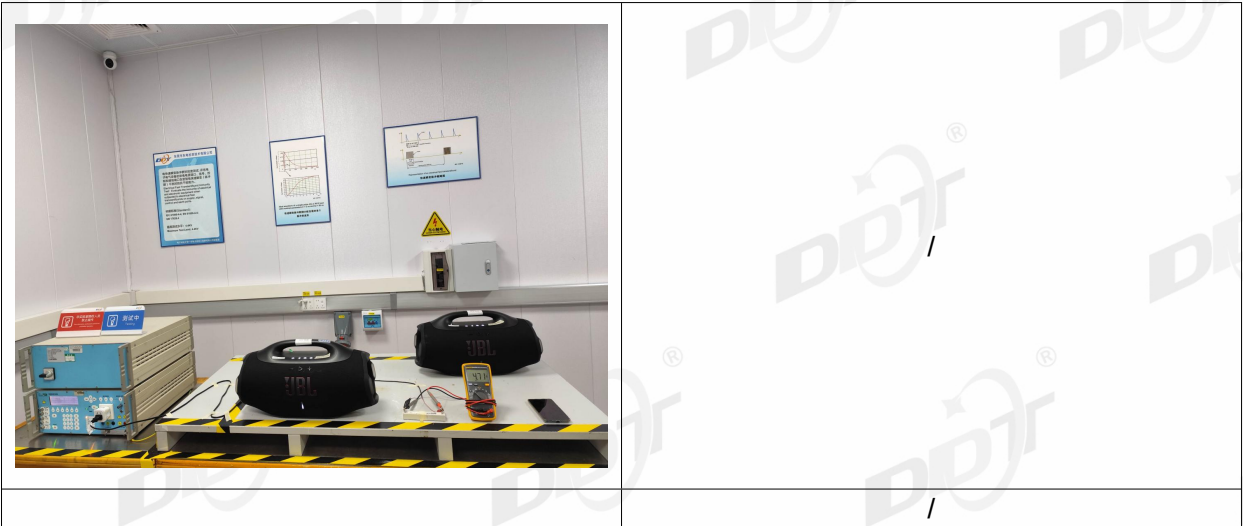
EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C		
Sample No.: S24112111-001			Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode		
Power supply: AC 240V/50Hz			Memo:/		
Voltage Dips & Short Interruptions %U _T	Duration (in period)	Phase Angle	Required	Observation	Result
0	0.5P	0° to 360°	B	A	Pass
0	1P	0° to 360°	B	A	Pass
70	25P	0° to 360°	C	A	Pass
0	250P	0° to 360°	C	B	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser. B: During the test, the sample does not charge, and it can automatically resume normal operation.					

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C		
Sample No.: S24112111-001			Test Mode: Charging + Bluetooth + TWS + 5V/1A load mode		
Power supply: AC 100V/60Hz			Memo: /		
Voltage Dips & Short Interruptions %U _T	Duration (in period)	Phase Angle	Required	Observation	Result
0	0.5P	0° to 360°	B	A	Pass
0	1P	0° to 360°	B	A	Pass
70	30P	0° to 360°	C	A	Pass
0	300P	0° to 360°	C	B	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser. B: During the test, the sample does not charge, and it can automatically resume normal operation.					

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C		
Sample No.: S24112111-001			Test Mode: Charging + Bluetooth + 5V/1A load mode		
Power supply: AC 240V/50Hz			Memo: /		
Voltage Dips & Short Interruptions %U _T	Duration (in period)	Phase Angle	Required	Observation	Result
0	0.5P	0° to 360°	B	A	Pass
0	1P	0° to 360°	B	A	Pass
70	25P	0° to 360°	C	A	Pass
0	250P	0° to 360°	C	B	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser. B: During the test, the sample does not charge, and it can automatically resume normal operation.					

EUT Name: Portable Bluetooth Speaker			EUT Model: BOOMBOX 4C		
Sample No.: S24112111-001			Test Mode: Charging + Bluetooth + 5V/1A load mode		
Power supply: AC 100V/60Hz			Memo: /		
Voltage Dips & Short Interruptions %U _T	Duration (in period)	Phase Angle	Required	Observation	Result
0	0.5P	0° to 360°	B	A	Pass
0	1P	0° to 360°	B	A	Pass
70	30P	0° to 360°	C	A	Pass
0	300P	0° to 360°	C	B	Pass
Observation Description: A: Normal performance within limits specified by the manufacturer requestor or purchaser. B: During the test, the sample does not charge, and it can automatically resume normal operation.					

12.7. Test photo



13. Sample photos

Please refer to DDT-Q24112111-2E Appendix I.

-----End Report-----