



Prüfbericht-Nr.: Test report no.:	CN230FJC 002	Auftrags-Nr.: Order no.:	168454763	Page 1 of 23 Seite 1 von 23
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2023-11-27	
Auftraggeber: Client:	Harman International Industries, Incorporated 8500 Balboa Blvd, Northridge, California, 91329, United States			
Prüfgegenstand: Test item:	PORTABLE BLUETOOTH SPEAKER			
Bezeichnung / Typ-Nr.: Identification / Type no.:	CLIP5D (Trademark: JBL)			
Auftrags-Inhalt: Order content:	Type test			
Prüfgrundlage: Test specification:	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209		RSS-247-Issue 3 August 2023 RSS-Gen Issue 5 March 2019	
Wareneingangsdatum: Date of sample receipt:	2023-11-30	Refer to photos document		
Prüfmuster-Nr.: Test sample no.:	A003613938			
Prüfzeitraum: Testing period:	2023-11-30 – 2023-12-15			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:		genehmigt von: authorized by:		
Datum: Date:	2024-01-12 <small>Signed by: Harry W. C. Wu</small>	Ausstellungsdatum: Issue date:	2024-01-12 <small>Signed by: Alex Lan</small>	
Stellung / Position:	Project Manager	Stellung / Position:	Reviewer	
Sonstiges / Other:	FCC ID: APIJBLCLIP5D IC: 6132A-JBLCLIP5D HVIN: CLIP5D			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
<small>* Legende:</small>	<small>P(ass) = entspricht o.g. Prüfgrundlage(n)</small>	<small>F(ail) = entspricht nicht o.g. Prüfgrundlage(n)</small>	<small>N/A = nicht anwendbar</small>	<small>N/T = nicht getestet</small>
<small>* Legend:</small>	<small>P(ass) = passed a.m. test specification(s)</small>	<small>F(ail) = failed a.m. test specification(s)</small>	<small>N/A = not applicable</small>	<small>N/T = not tested</small>
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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Prüfbericht-Nr.: CN230FJC 002
Test report no.:

Page 2 of 23
Seite 2 von 23

Remarks
Anmerkungen

1	<p>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.</p> <p>Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</p> <p><i>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</i></p> <p><i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i></p>
2	<p>As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</p> <p><i>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</i></p>
3	<p>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</p> <p><i>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</i></p>
4	<p>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</p> <p><i>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</i></p>

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

Seite 3 von 23
Page 3 of 23

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 99%dB BANDWIDTH

RESULT: Pass

5.1.5 6dB BANDWIDTH

RESULT: Pass

5.1.6 FREQUENCY STABILITY

RESULT: Pass

5.1.7 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.8 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.9 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

 Seite 4 von 23
 Page 4 of 23

Contents

1	GENERAL REMARKS	5
1.1	COMPLEMENTARY MATERIALS	5
2	TEST SITES.....	5
2.1	TEST FACILITIES.....	5
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
2.3	TRACEABILITY.....	7
2.4	CALIBRATION	7
2.5	MEASUREMENT UNCERTAINTY	7
2.6	LOCATION OF ORIGINAL DATA	7
2.7	STATUS OF FACILITY USED FOR TESTING	7
3	GENERAL PRODUCT INFORMATION.....	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	10
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	10
3.5	SUBMITTED DOCUMENTS.....	10
4	TEST SET-UP AND OPERATION MODES	11
4.1	PRINCIPLE OF CONFIGURATION SELECTION	11
4.2	TEST OPERATION AND TEST SOFTWARE	11
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	11
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	11
4.5	TEST SETUP DIAGRAM	12
5	TEST RESULTS.....	14
5.1	TRANSMITTER REQUIREMENT & TEST SUITES.....	14
<i>5.1.1</i>	<i>Antenna Requirement.....</i>	<i>14</i>
<i>5.1.2</i>	<i>Maximum Peak Conducted Output Power.....</i>	<i>15</i>
<i>5.1.3</i>	<i>Conducted Power Spectral Density.....</i>	<i>16</i>
<i>5.1.4</i>	<i>99%dB Bandwidth</i>	<i>17</i>
<i>5.1.5</i>	<i>6dB Bandwidth</i>	<i>18</i>
<i>5.1.6</i>	<i>Frequency stability</i>	<i>19</i>
<i>5.1.7</i>	<i>Conducted Spurious Emissions Measured in 100 kHz Bandwidth</i>	<i>20</i>
<i>5.1.8</i>	<i>Radiated Spurious Emission.....</i>	<i>21</i>
<i>5.1.9</i>	<i>Conducted Emission on AC Mains.....</i>	<i>22</i>
6	PHOTOGRAPHS OF THE TEST SET-UP.....	23
7	LIST OF TABLES	23

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Bluetooth Low Energy.

Appendix B: Photographs of the Test Set-up.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China/518110

FCC Registration No.: 694916

IC Registration No.: 25069 and the CAB identifier is CN0078.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (TS8997)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	21.09.2024
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	21.09.2024
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	21.09.2024
DC Power Supply	Keysight	E3642A	MY61276100	21.09.2024
Wireless Connectivity Tester	R&S	CMW270	102505	21.09.2024
Power Control Unit	Tonscend	JS0806-4ADC	N/A	21.09.2024
Automation Control Unit	Tonscend	JS0806-2	21C8060396	21.09.2024
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	25.07.2024
Signal Analyzer	R&S	FSV 40	101439	25.07.2024
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	25.07.2024
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	25.07.2024
Amplifier	R&S	SCU-18F	180070	25.07.2024
Amplifier	R&S	SCU40A	100475	25.07.2024
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	06.08.2024
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	06.08.2024
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	27.08.2024
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	06.08.2024
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	22.06.2024
Conducted Emission on AC Mains				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR3	102428	31.07.2024
Artificial Mains Network	R&S	ENV216	102333	01.08.2024
Impedance Stabilisation Network	R&S	ENY81-CA6	101810	01.08.2024
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty (k=2)
Occupied Channel Bandwidth	± 2.08 %
RF output power, conducted	± 0.99 dB
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	± 4.17 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China/518110 is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a portable Bluetooth speaker, which supports Bluetooth dual mode technology, this speaker has nine colors of enclosures (Black, Vogue Black, Red, White, Green, Blue, Pink, Purple, Camouflage color).

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	PORTABLE BLUETOOTH SPEAKER
Type Designation	CLIP5D
Trademark	JBL
FCC ID	APIJBLCLIP5D
IC	6132A-JBLCLIP5D
HVIN	CLIP5D
Extreme Temperature Range	0°C to +45°C
Operating Voltage	DC 3.8V, 1400mAh via built-in lithium-ion battery DC 5V, 1A via Type-C port
Technical Specification of Classical Bluetooth	
Bluetooth Core Version	Bluetooth 5.3
Operating Frequency band	2402 ~ 2480 MHz
Channel Number	79 channels
Channel separation	1MHz
Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Antenna Type	PCB Antenna
Antenna Gain	1.95 dBi (Provided by the Client)
Technical Specification of Bluetooth Low Energy	
Bluetooth Core Version	Bluetooth 5.3
Operating Frequency band	2402 ~ 2480 MHz for 1Mbps 2404 ~ 2478 MHz for 2Mbps
Channel Number	40 channels for 1Mbps 38 channels for 2Mbps
Channel separation	2MHz
Data rate	1Mbps, 2Mbps
Modulation	GFSK
Antenna Type	PCB Antenna
Antenna Gain	1.95 dBi (Provided by the Client)

Table 3: RF Channel and Frequency of Classic Bluetooth

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	20	2422.00	40	2442.00	60	2462.00
01	2403.00	21	2423.00	41	2443.00	61	2463.00
02	2404.00	22	2424.00	42	2444.00	62	2464.00
03	2405.00	23	2425.00	43	2445.00	63	2465.00
04	2406.00	24	2426.00	44	2446.00	64	2466.00
05	2407.00	25	2427.00	45	2447.00	65	2467.00
06	2408.00	26	2428.00	46	2448.00	66	2468.00
07	2409.00	27	2429.00	47	2449.00	67	2469.00
08	2410.00	28	2430.00	48	2450.00	68	2470.00
09	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00	--	--

Table 4: RF Channel and Frequency of Bluetooth Low Energy

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	19	2440.00	29	2460.00	39	2480.00

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth LE transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Bluetooth connecting mode
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- FCC/IC Label and Location Info
- Operation Description
- Photo Document
- Schematics
- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all test items were applied on model CLIP5D with black color of enclosure.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Laptop	Lenovo	T480	PF-16A6N8

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

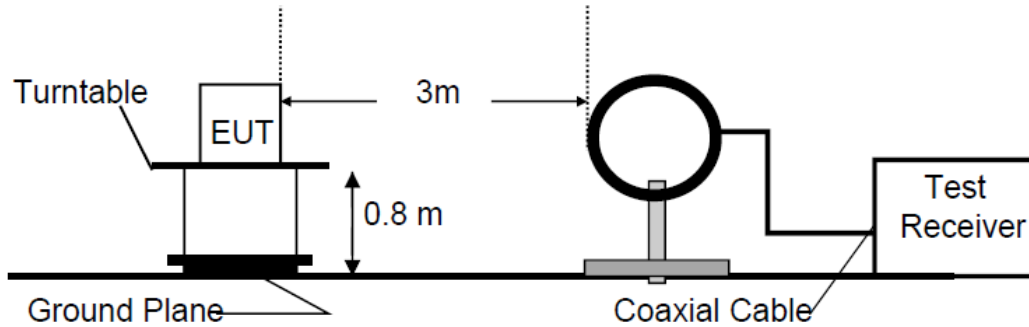
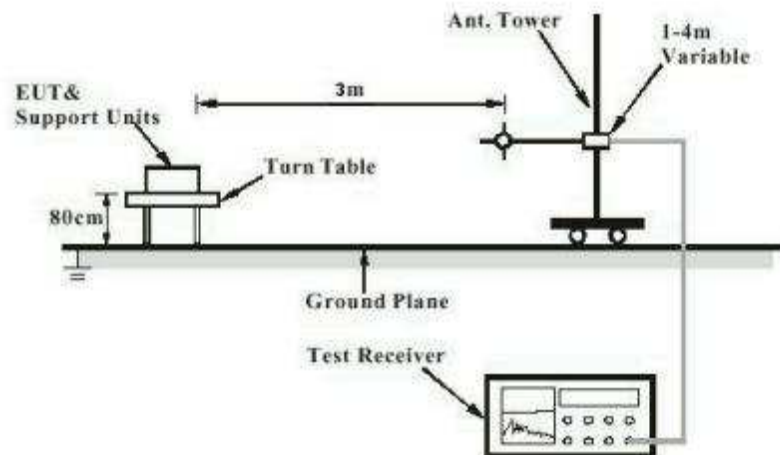
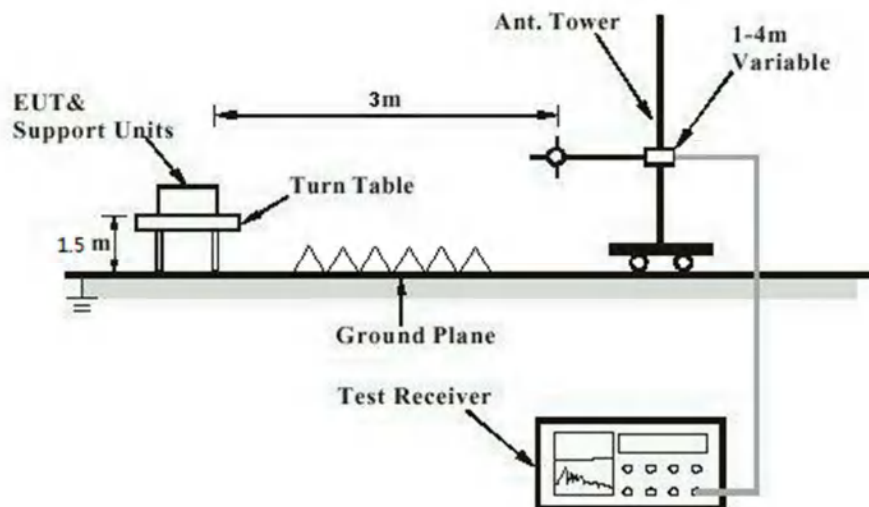
Diagram of Measurement Configuration for Radiation Test (Below 30MHz)

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

Diagram of Measurement Configuration for Radiation Test (Above 1GHz)


Diagram of Measurement Configuration for Conducted Transmitter Measurement

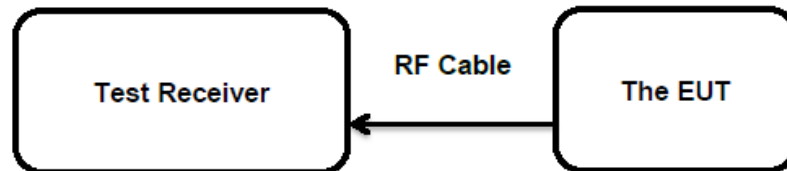
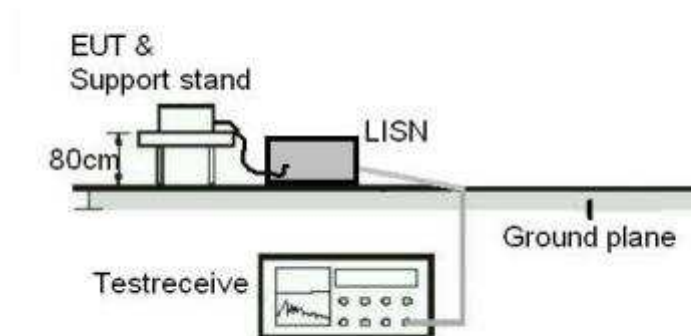


Diagram of Measurement Configuration for Mains Conduction Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Pass****Test Specification**

Test standard	:	FCC Part 15.247(b)(4) and Part 15.203
	:	RSS-Gen Clause 6.7
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has one PCB antenna , the directional gain of antennas is 1.95 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

 Seite 15 von 23
 Page 15 of 23

5.1.2 Maximum Peak Conducted Output Power

RESULT: **Pass**
Test Specification

Test standard : FCC Part 15.247(b)(3)
 : RSS-247 Clause 5.4(d)
 Basic standard : ANSI C63.10: 2013
 Limits : < 1 Watt (Maximum Conducted Peak Power)
 : e.i.r.p. <4W
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-30 to 2023-12-15
 Input voltage : DC 3.8V
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 22.3 °C
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 6: Test Result of Maximum Peak Conducted Output Power

Data Rate	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
BLE 1Mbps	2402	6.98	0.0050	< 1.0
	2440	6.90	0.0049	
	2480	6.69	0.0047	
BLE 2Mbps	2404	6.90	0.0049	< 1.0
	2440	6.72	0.0047	
	2478	6.56	0.0045	
Maximum Measured Value		6.98	0.0050	

Note: The cable loss is taken into account in results and the maximum e.i.r.p. is 8.93 dBm less than 4W (36 dBm).

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

 Seite 16 von 23
 Page 16 of 23

5.1.3 Conducted Power Spectral Density

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(e)
 : RSS-247 Clause 5.2(b)
 Basic standard : ANSI C63.10: 2013
 Limits : 8 dBm / 3kHz
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-30 to 2023-12-15
 Input voltage : DC 3.8V
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 22.3 °C
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Table 7: Test Result of Conducted Power Spectral Density

Test Mode	Channel Frequency (MHz)	Conducted Power Spectral Density	Limit
		(dBm / 3kHz)	
BLE 1Mbps	2402	-8.05	8 dBm / 3kHz
	2440	-7.90	
	2480	-8.32	
BLE 2Mbps	2404	-10.41	8 dBm / 3kHz
	2440	-10.37	
	2478	-10.69	

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

 Seite 17 von 23
 Page 17 of 23

5.1.4 99%dB Bandwidth

RESULT:
Pass
Test Specification

 Test standard : RSS-Gen clause 6.7
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

 Date of testing : 2023-11-30 to 2023-12-15
 Input voltage : DC 3.8V
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 22.3 °C
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Table 8: Test Result of 99% Bandwidth

Test Mode	Channel Frequency (MHz)	Measured 99% Bandwidth	Limit
		(MHz)	
BLE 1Mbps	2402	1.0967	/
	2440	1.0981	
	2480	1.1055	
BLE 2Mbps	2404	2.1683	/
	2440	2.1650	
	2478	2.1850	

Note: The fundamental emissions stay within the allocated band 2400-2483.5MHz.

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

 Seite 18 von 23
 Page 18 of 23

5.1.5 6dB Bandwidth

RESULT:
Pass
Test Specification

 Test standard : FCC Part 15.247(a)(2)
 : RSS-247 Clause 5.2(a)
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

 Date of testing : 2023-11-30 to 2023-12-15
 Input voltage : DC 3.8V
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 22.3 °C
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

Table 9: Test Result of 6dB Bandwidth

Test Mode	Channel Frequency (MHz)	Measured 6dB Bandwidth	Limit
		(MHz)	
BLE 1Mbps	2402	0.712	>500kHz
	2440	0.736	
	2480	0.724	
BLE 2Mbps	2404	1.328	>500kHz
	2440	1.256	
	2478	1.276	

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

Seite 19 von 23
Page 19 of 23

5.1.6 Frequency stability

RESULT:

Pass

Test Specification

Test standard : RSS-247 Clause 8.11
Basic standard : ANSI C63.10: 2013
Limits : within at least the central 80% of its permitted operating frequency band (2400-2483.5MHz)
Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-30 to 2023-12-15
Input voltage : DC 3.8V
Operation mode : B
Ambient temperature : 22.3 °C
Relative humidity : 50 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

Seite 20 von 23
Page 20 of 23

5.1.7 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:

Pass

Test Specification

Test standard	:	FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2023-11-30 to 2023-12-15
Input voltage	:	DC 3.8V
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	22.3 °C
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

Seite 21 von 23
Page 21 of 23

5.1.8 Radiated Spurious Emission

RESULT:

Pass

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3 & 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Table 4 & Table 5
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	2023-11-30 to 2023-12-15
Input voltage	:	DC 3.8V
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix A.

Prüfbericht-Nr.: CN230FJC 002
Test report no.:

Seite 22 von 23
Page 22 of 23

5.1.9 Conducted Emission on AC Mains

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.207(a)
RSS-Gen Clause 8.8

Basic standard : ANSI C63.10: 2013

Frequency range : 0.15 – 30MHz

Limits : FCC Part 15.207(a)
RSS-Gen Table 4

Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-30 to 2023-12-15

Input voltage : DC 5V via Type-C interface

Operation mode : B

Earthing : Not connected

Ambient temperature : Refer to test result

Relative humidity : Refer to test result

Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix B.

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Technical Specification of EUT	8
Table 3: RF Channel and Frequency of Classic Bluetooth.....	9
Table 4: RF Channel and Frequency of Bluetooth Low Energy.....	9
Table 5: List of Accessories and Auxiliary Equipment.....	11
Table 6: Test Result of Maximum Peak Conducted Output Power.....	15
Table 7: Test Result of Conducted Power Spectral Density.....	16
Table 8: Test Result of 99% Bandwidth	17
Table 9: Test Result of 6dB Bandwidth.....	18

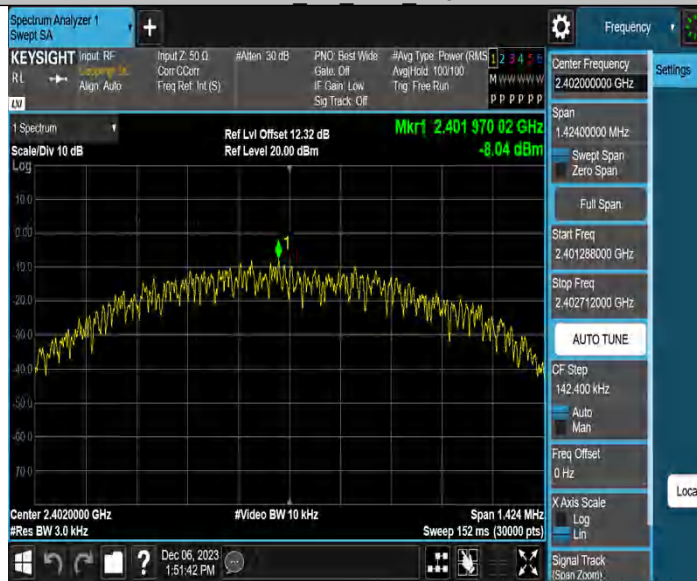
Appendix A: Test Results of Bluetooth Low Energy

APPENDIX A: TEST RESULTS OF BLUETOOTH LOW ENERGY.....	1
APPENDIX A.1: TEST RESULTS OF CONDUCTED POWER SPECTRAL DENSITY	2
APPENDIX A.2: TEST RESULTS OF 6DB BANDWIDTH	5
APPENDIX A.3: TEST RESULTS OF 99% BANDWIDTH	8
APPENDIX A.4: TEST RESULTS OF FREQUENCY STABILITY	11
APPENDIX A.5: TEST RESULTS OF CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH	13
<i>Conducted measurements</i>	13
<i>Band edge measurements</i>	20
APPENDIX A.6: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS	22
30 MHz - 1GHz.....	22
1GHz - 18GHz	24
APPENDIX A.7: TEST RESULTS OF RADIATED EMISSIONS IN RESTRICTED BANDS	36
APPENDIX A.8: TEST RESULTS OF CONDUCTED EMISSIONS ON AC MAINS.....	44

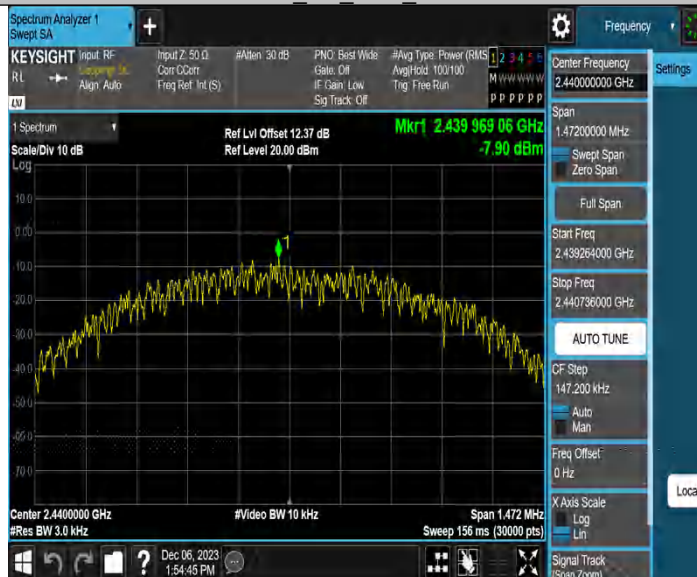
Appendix A.1: Test Results of Conducted Power Spectral Density

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-8.05	≤8.00	PASS
		2440	-7.90	≤8.00	PASS
		2480	-8.32	≤8.00	PASS
BLE_2M	Ant1	2404	-10.41	≤8.00	PASS
		2440	-10.37	≤8.00	PASS
		2478	-10.69	≤8.00	PASS

BLE 1M Ant1 2402



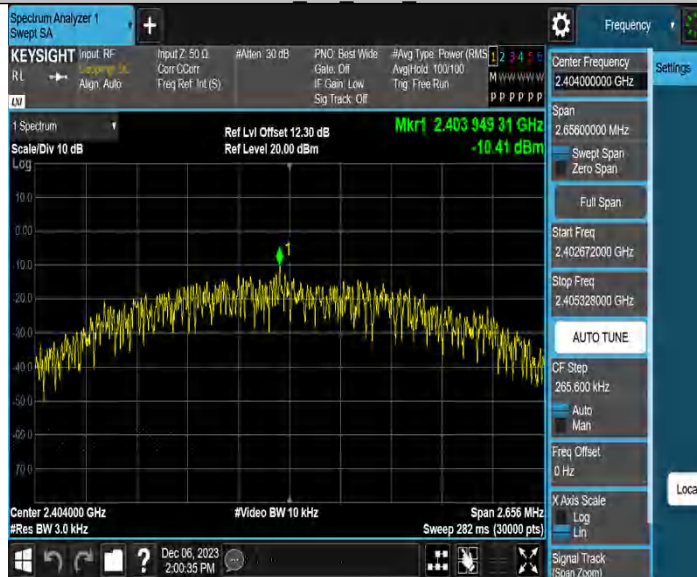
BLE 1M Ant1 2440



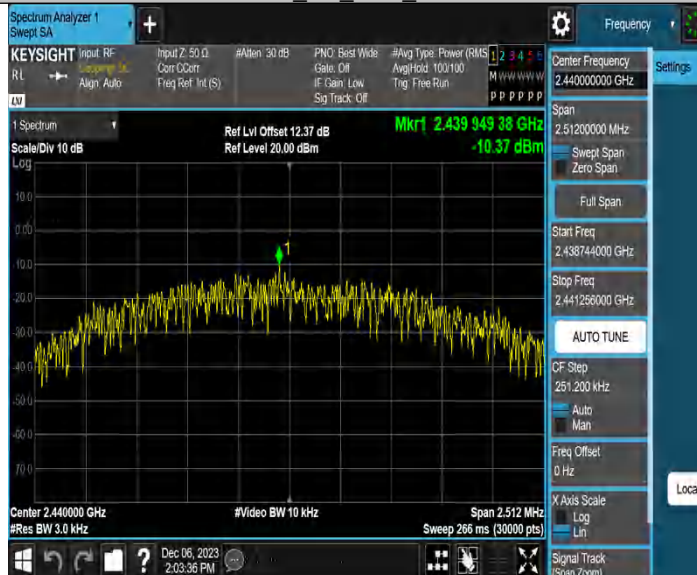
BLE 1M Ant1 2480



BLE 2M Ant1 2404



BLE 2M Ant1 2440





Appendix A.2: Test Results of 6dB Bandwidth

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.712	2401.632	2402.344	0.5	PASS
		2440	0.736	2439.608	2440.344	0.5	PASS
		2480	0.724	2479.620	2480.344	0.5	PASS
BLE_2M	Ant1	2404	1.328	2403.320	2404.648	0.5	PASS
		2440	1.256	2439.336	2440.592	0.5	PASS
		2478	1.276	2477.332	2478.608	0.5	PASS

BLE 1M Ant1 2402



BLE 1M Ant1 2440



BLE 1M Ant1 2480



BLE 2M Ant1 2404



BLE 2M_Ant1_2440





Appendix A.3: Test Results of 99% Bandwidth

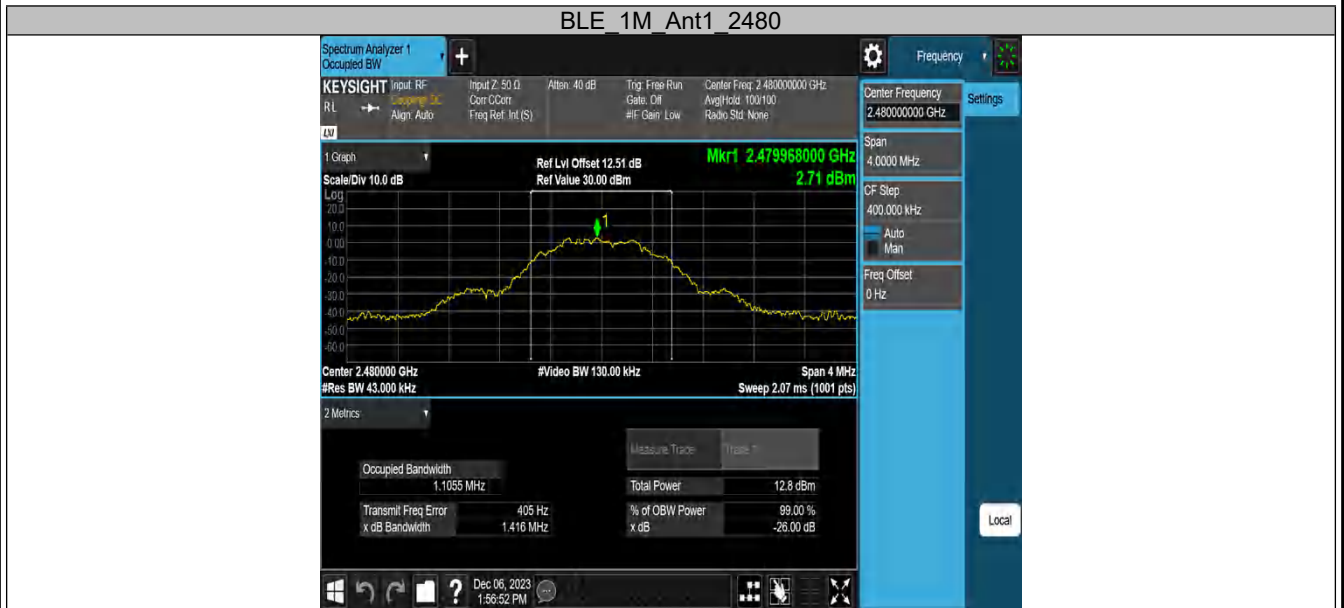
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0967	2401.4498	2402.5465	---	---
		2440	1.0981	2439.4472	2440.5453	---	---
		2480	1.1055	2479.4477	2480.5532	---	---
BLE_2M	Ant1	2404	2.1683	2402.9245	2405.0928	---	---
		2440	2.1650	2438.9265	2441.0915	---	---
		2478	2.1850	2476.9137	2479.0987	---	---

BLE 1M Ant1 2402



BLE 1M Ant1 2440







Appendix A.4: Test Results of Frequency stability

Test Channel (MHz)	2402
--------------------	------

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
DC 3.8V	2401.995	5	2.08	10
DC 3.42V	2401.995	5	2.08	
DC 4.18V	2401.995	5	2.08	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2401.994	6	2.50	10
-20	2401.994	6	2.50	
-10	2401.995	5	2.08	
0	2401.995	5	2.08	
10	2401.995	5	2.08	
20	2401.995	5	2.08	
30	2401.996	4	1.67	
40	2401.996	4	1.67	
50	2401.997	3	1.25	
55	2401.997	3	1.25	

Test Channel (MHz)	2440
--------------------	------

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
DC 3.8V	2439.994	-6	-2.45902	10
DC 3.42V	2439.994	-6	-2.45902	
DC 4.18V	2439.994	-6	-2.45902	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2439.993	-7	-2.86885	10
-20	2439.993	-7	-2.86885	
-10	2439.995	-5	-2.04918	
0	2439.994	-6	-2.45902	
10	2439.995	-5	-2.04918	
20	2439.994	-6	-2.45902	
30	2439.993	-7	-2.86885	
40	2439.994	-6	-2.45902	
50	2439.995	-5	-2.04918	
55	2439.995	-5	-2.04918	

Test Channel (MHz)	2480
--------------------	------

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
DC 3.8V	2479.997	-3	-1.21	10
DC 3.42V	2479.997	-3	-1.21	
DC 4.18V	2479.997	-3	-1.21	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2479.995	-5	-2.02	10
-20	2479.996	-4	-1.61	
-10	2479.995	-5	-2.02	
0	2479.996	-4	-1.61	
10	2479.997	-3	-1.21	
20	2479.996	-4	-1.61	
30	2479.995	-5	-2.02	
40	2479.996	-4	-1.61	
50	2479.995	-5	-2.02	
55	2479.994	-6	-2.42	

Appendix A.5: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

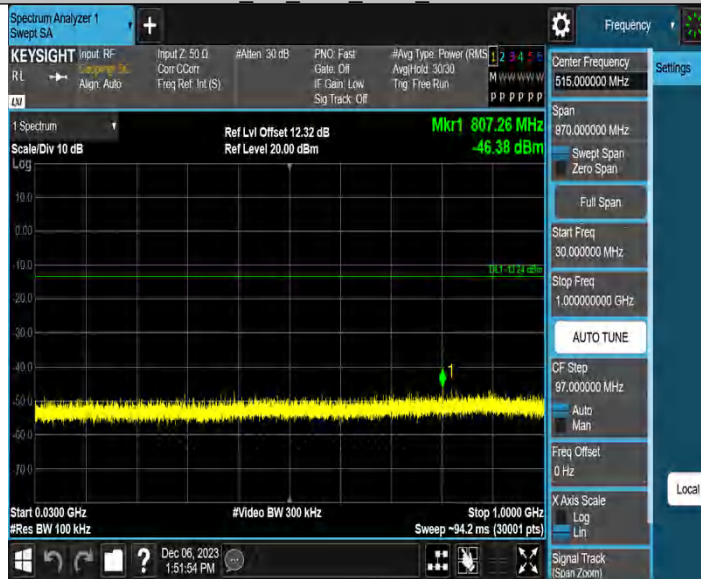
Conducted measurements

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	6.76	6.76	---	PASS
			30~1000	6.76	-46.38	≤-13.24	PASS
			1000~26500	6.76	-37.02	≤-13.24	PASS
		2440	Reference	6.75	6.75	---	PASS
			30~1000	6.75	-46.8	≤-13.25	PASS
			1000~26500	6.75	-35.92	≤-13.25	PASS
		2480	Reference	6.42	6.42	---	PASS
			30~1000	6.42	-46.65	≤-13.58	PASS
			1000~26500	6.42	-35.65	≤-13.58	PASS
BLE_2M	Ant1	2404	Reference	5.76	5.76	---	PASS
			30~1000	5.76	-47.12	≤-14.24	PASS
			1000~26500	5.76	-37.09	≤-14.24	PASS
		2440	Reference	5.79	5.79	---	PASS
			30~1000	5.79	-46.97	≤-14.21	PASS
			1000~26500	5.79	-36.44	≤-14.21	PASS
		2478	Reference	5.48	5.48	---	PASS
			30~1000	5.48	-47.04	≤-14.52	PASS
			1000~26500	5.48	-36.64	≤-14.52	PASS

BLE 1M Ant1 2402 0~Reference



BLE 1M Ant1 2402 30~1000



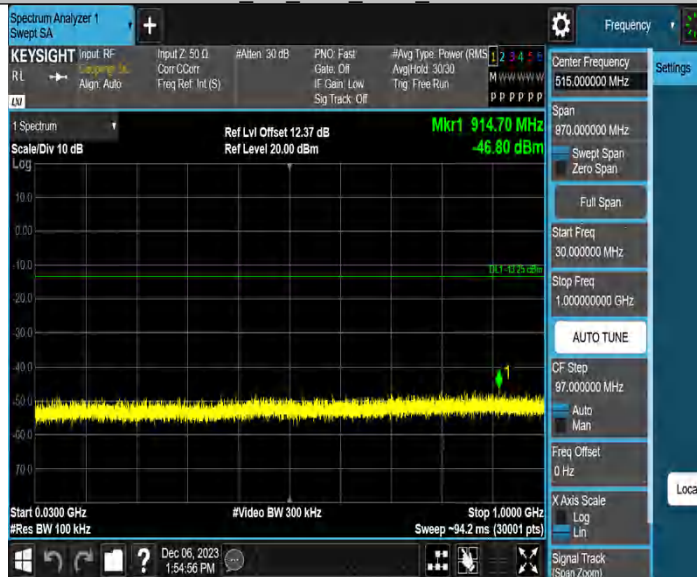
BLE 1M Ant1 2402 1000~26500



BLE 1M Ant1 2440 0~Reference



BLE 1M Ant1 2440 30~1000



BLE 1M Ant1 2440 1000~26500



BLE 1M Ant1 2480 0~Reference



BLE 1M Ant1 2480 30~1000



BLE 1M Ant1 2480 1000~26500



BLE 2M Ant1 2404 0~Reference



BLE 2M Ant1 2404 30~1000



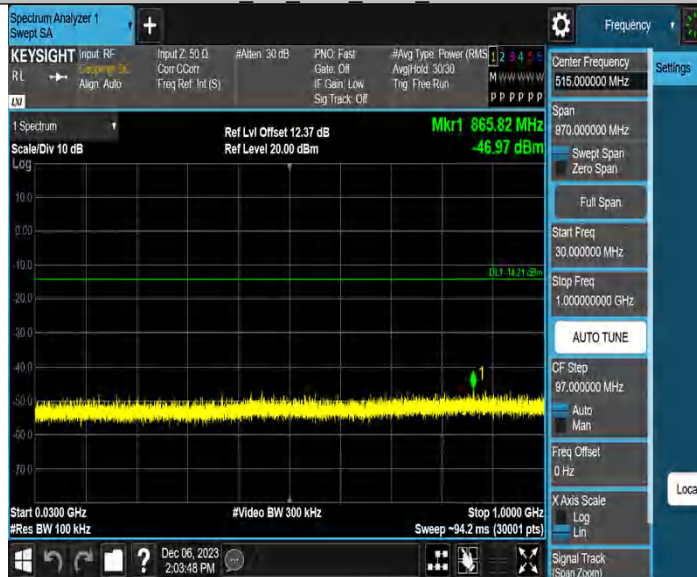
BLE 2M Ant1 2404 1000~26500



BLE 2M Ant1 2440 0~Reference



BLE 2M Ant1 2440 30~1000



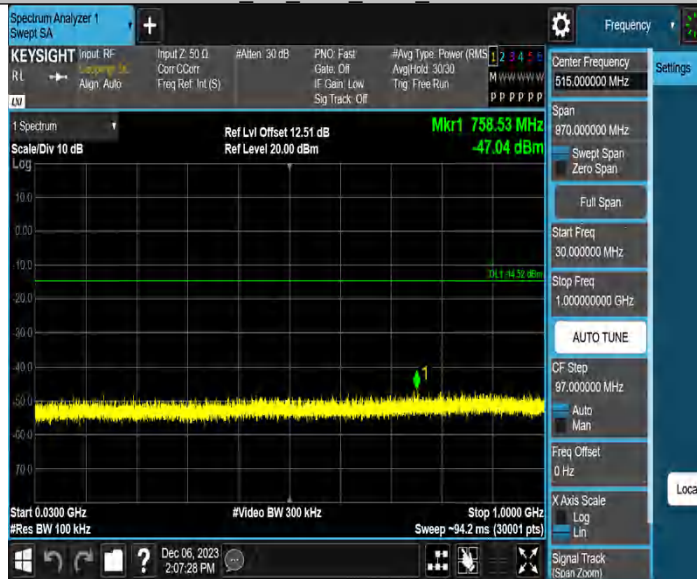
BLE 2M Ant1 2440 1000~26500



BLE 2M Ant1 2478 0~Reference



BLE 2M Ant1 2478 30~1000

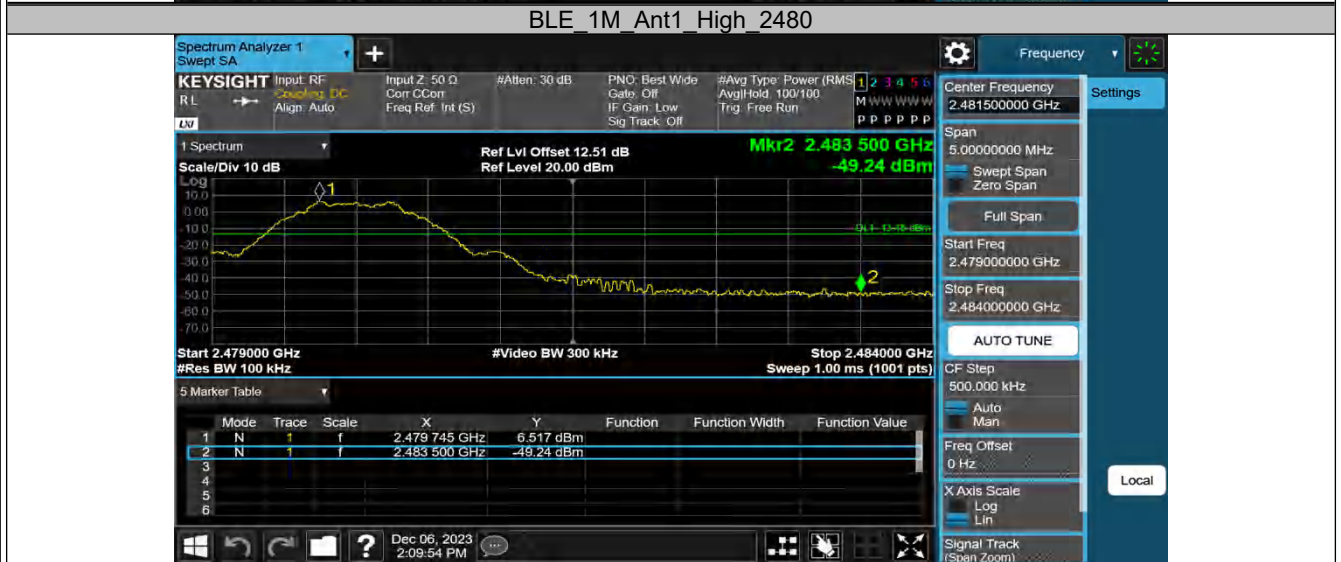


BLE 2M Ant1 2478 1000~26500



Band edge measurements

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	6.786	-47.39	≤-13.21	PASS
		High	2480	6.517	-49.24	≤-13.48	PASS
BLE_2M	Ant1	Low	2404	4.706	-46.52	≤-15.29	PASS
		High	2478	5.516	-48.44	≤-14.48	PASS





BLE 2M Ant1 High 2478



Appendix A.6: Test Results of Radiated Spurious Emissions

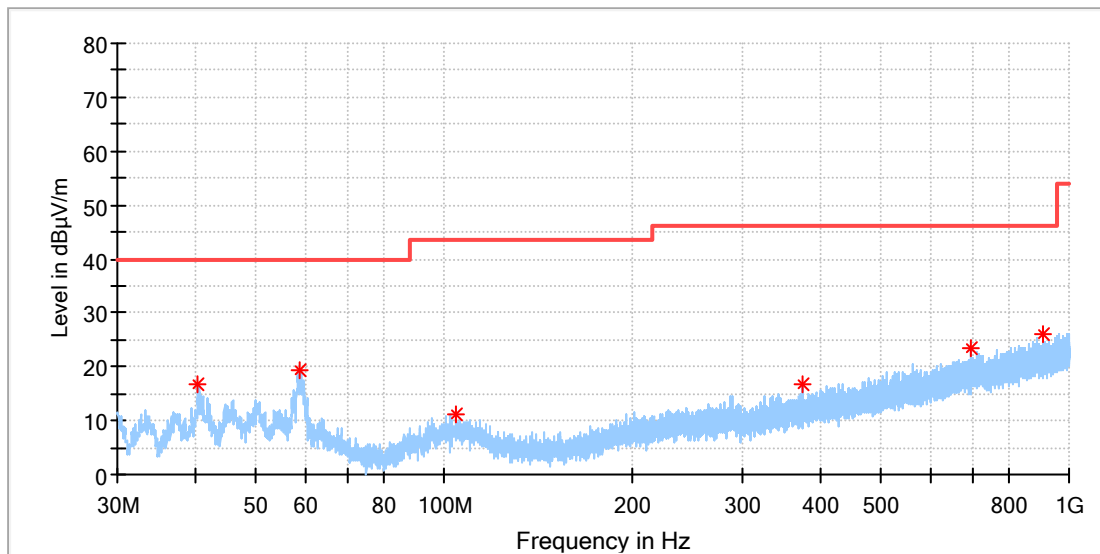
Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30 MHz - 1GHz

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

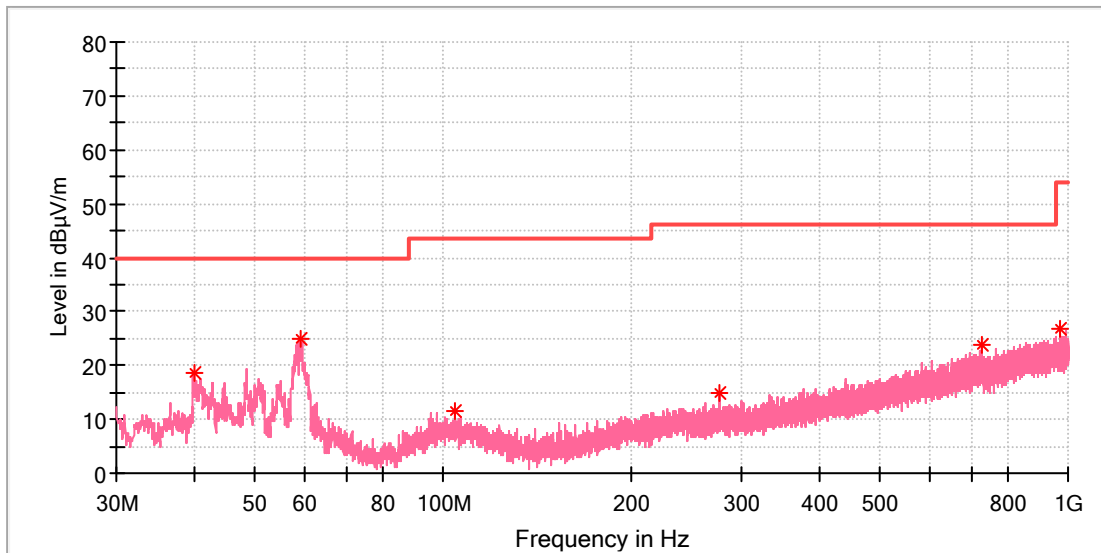


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
40.446154	16.73	40.00	23.27	100.0	H	214.0	-20.3
58.913462	19.39	40.00	20.61	100.0	H	52.0	-19.2
104.466154	11.18	43.50	32.32	100.0	H	314.0	-19.1
373.454615	16.66	46.00	29.34	100.0	H	146.0	-14.7
697.621154	23.26	46.00	22.74	100.0	H	95.0	-8.5
907.999231	26.09	46.00	19.91	100.0	H	130.0	-5.3

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

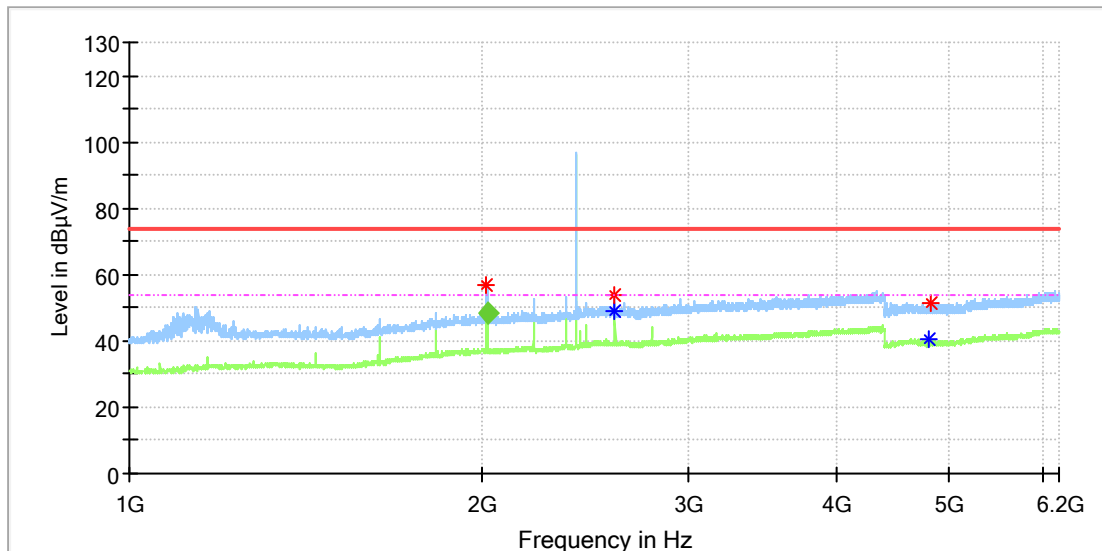
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
39.923846	18.77	40.00	21.23	100.0	V	15.0	-20.4
58.950769	24.87	40.00	15.13	100.0	V	2.0	-19.2
104.205000	11.65	43.50	31.85	100.0	V	191.0	-19.1
276.603846	15.03	46.00	30.97	100.0	V	316.0	-17.1
727.504615	23.98	46.00	22.02	100.0	V	142.0	-8.0
967.542308	26.86	54.00	27.14	100.0	V	135.0	-4.6

1GHz - 18GHz

Note: The highest waveform in the figure is Bluetooth Fundamental.

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

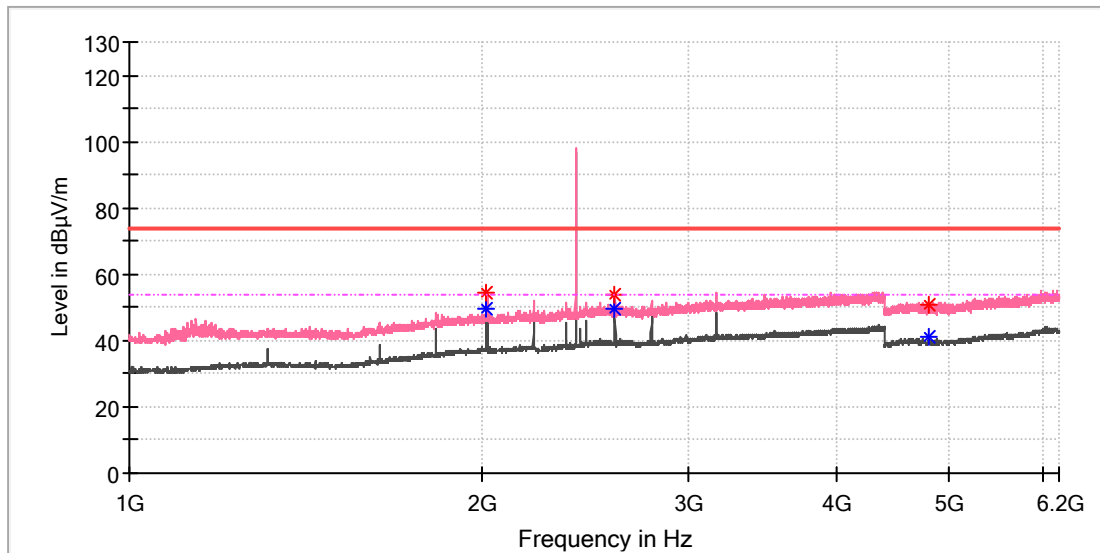
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2017.500000	56.62	---	74.00	17.38	150.0	H	225.0	6.0
2594.000000	54.09	---	74.00	19.91	150.0	H	225.0	7.4
2594.000000	---	48.97	54.00	5.03	150.0	H	225.0	7.4
4803.500000	---	40.57	54.00	13.43	150.0	H	328.0	11.8
4824.000000	51.18	---	74.00	22.82	150.0	H	357.0	11.8

Final Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2018.027941	48.29	54.00	5.71	150.0	H	227.0	6.0

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_Low channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

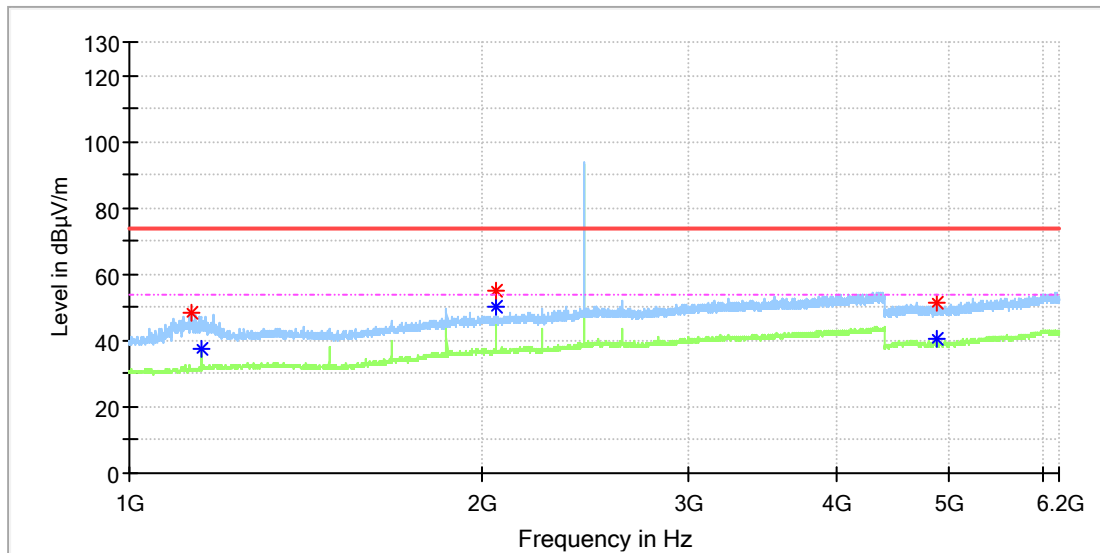


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2017.500000	54.53	---	74.00	19.47	150.0	V	241.0	6.0
2017.500000	---	49.79	54.00	4.21	150.0	V	241.0	6.0
2594.000000	53.87	---	74.00	20.13	150.0	V	300.0	7.4
2594.000000	---	49.61	54.00	4.39	150.0	V	300.0	7.4
4803.500000	---	40.86	54.00	13.14	150.0	V	23.0	11.8
4805.500000	50.78	---	74.00	23.22	150.0	V	236.0	11.8

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

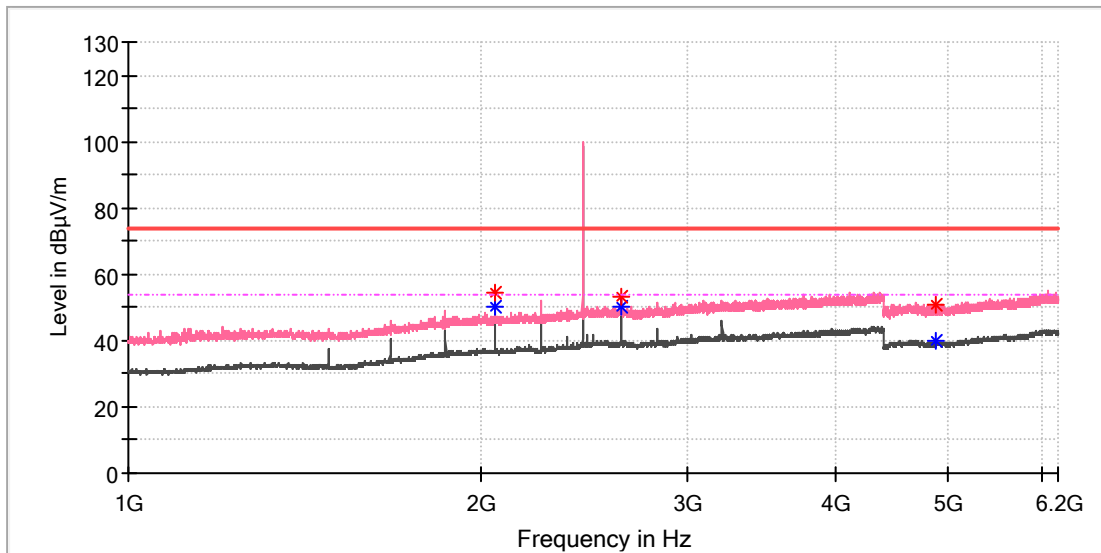


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1131.000000	48.07	---	74.00	25.93	150.0	H	302.0	0.4
1153.000000	---	37.28	54.00	16.72	150.0	H	308.0	0.8
2055.500000	---	50.22	54.00	3.78	150.0	H	188.0	5.9
2056.000000	54.93	---	74.00	19.07	150.0	H	182.0	5.9
4879.500000	---	40.43	54.00	13.57	150.0	H	106.0	11.8
4880.000000	51.12	---	74.00	22.88	150.0	H	17.0	11.8

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_Mid channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

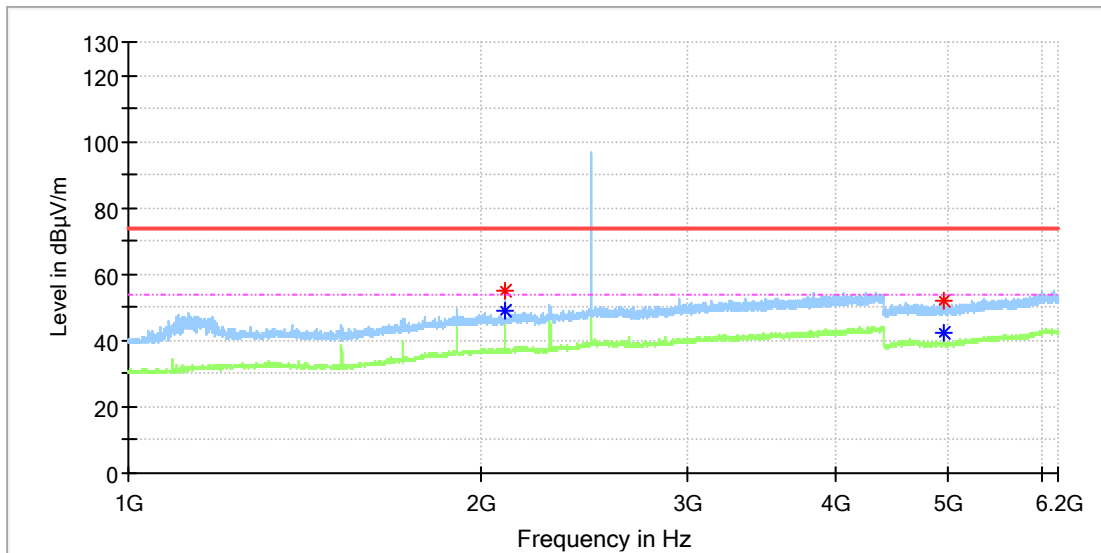


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2055.500000	---	49.95	54.00	4.05	150.0	V	297.0	5.9
2056.000000	54.13	---	74.00	19.87	150.0	V	321.0	5.9
2632.000000	53.41	---	74.00	20.59	150.0	V	303.0	7.5
2632.000000	---	50.07	54.00	3.93	150.0	V	303.0	7.5
4871.500000	50.66	---	74.00	23.34	150.0	V	20.0	11.8
4880.000000	---	40.12	54.00	13.88	150.0	V	13.0	11.8

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_High channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

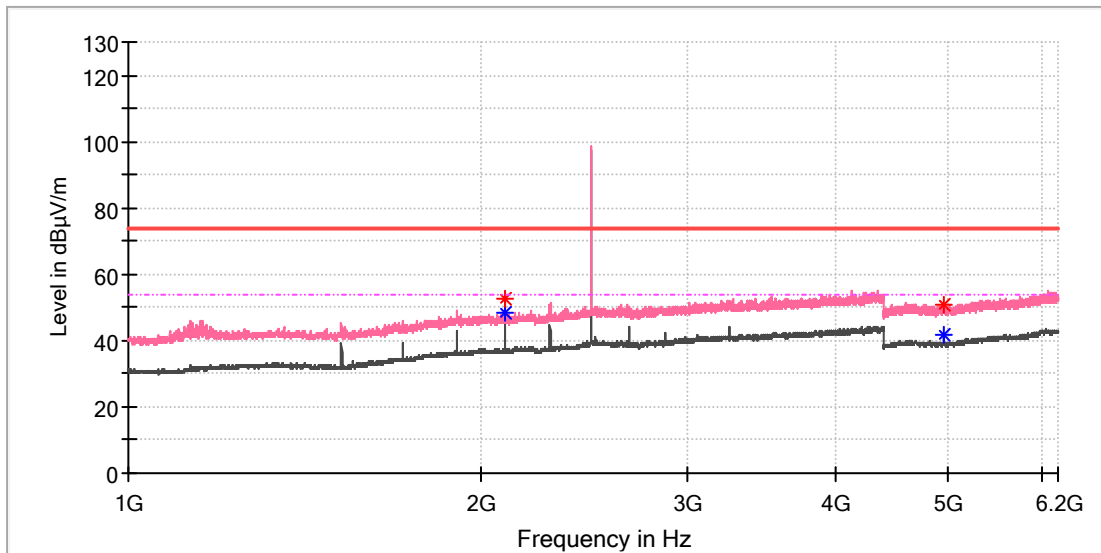


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2095.500000	55.01	---	74.00	18.99	150.0	H	228.0	6.0
2096.500000	---	49.11	54.00	4.89	150.0	H	228.0	6.0
4959.500000	52.12	---	74.00	21.88	150.0	H	30.0	11.8
4960.000000	---	42.53	54.00	11.47	150.0	H	238.0	11.8

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_High channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

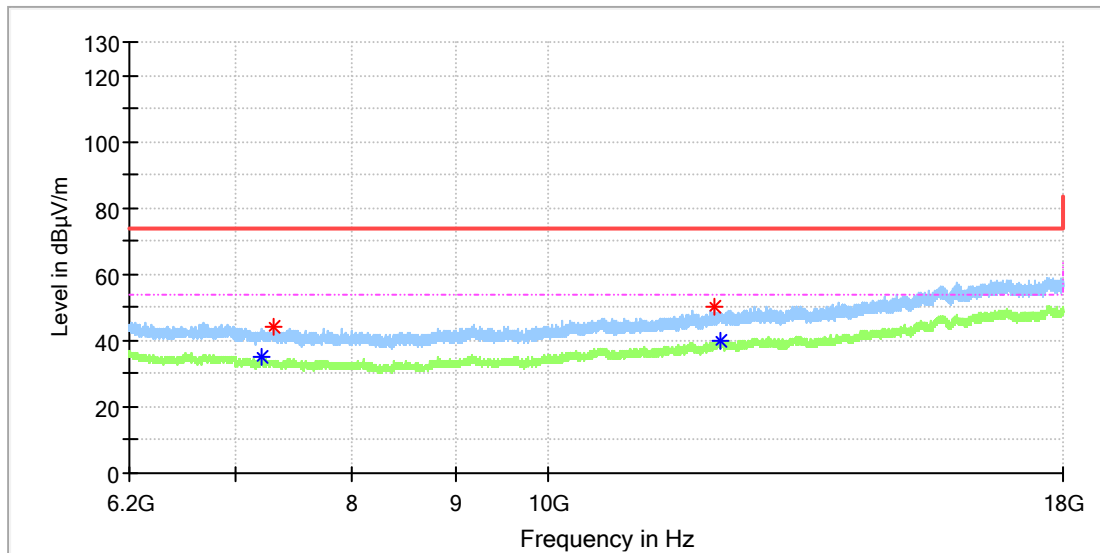


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2095.500000	---	48.21	54.00	5.79	150.0	V	319.0	6.0
2096.000000	52.65	---	74.00	21.35	150.0	V	160.0	6.0
4953.000000	50.85	---	74.00	23.15	150.0	V	140.0	11.8
4959.500000	---	41.83	54.00	12.17	150.0	V	12.0	11.8

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

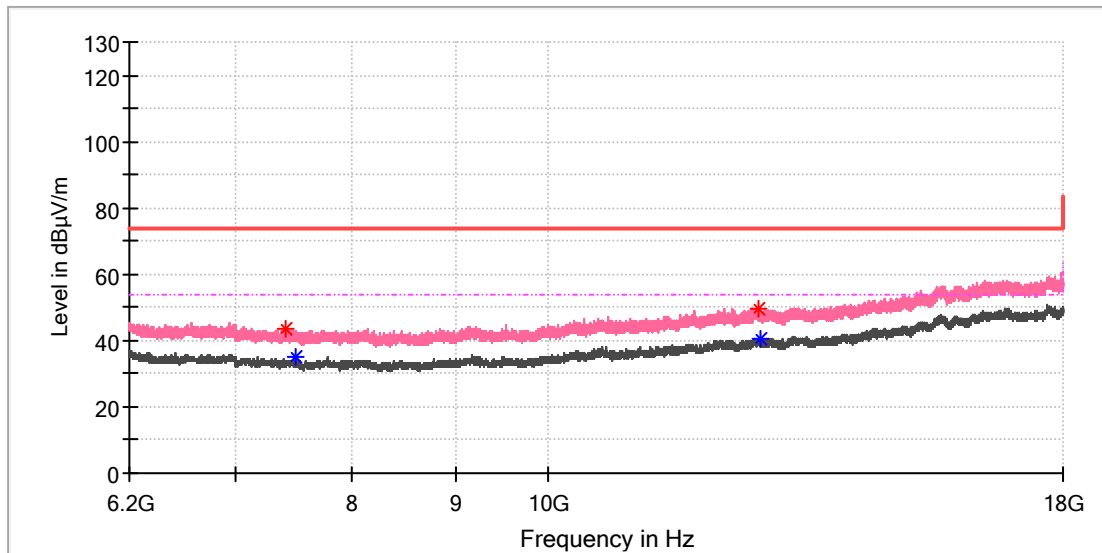


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7206.441667	---	35.15	54.00	18.85	150.0	H	170.0	8.8
7303.791667	44.35	---	74.00	29.65	150.0	H	122.0	8.3
12078.858333	49.95	---	74.00	24.05	150.0	H	254.0	14.1
12175.225000	---	39.85	54.00	14.15	150.0	H	18.0	14.5

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_Low channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

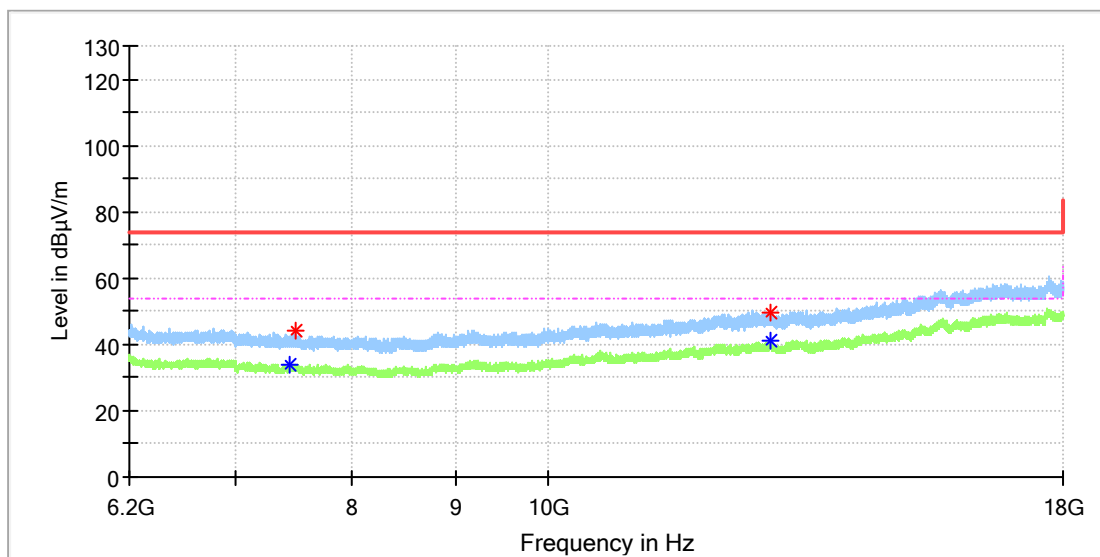


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7402.616667	43.65	---	74.00	30.35	150.0	V	124.0	8.3
7493.575000	---	35.25	54.00	18.75	150.0	V	29.0	8.7
12720.483333	49.81	---	74.00	24.19	150.0	V	0.0	15.1
12751.458333	---	40.60	54.00	13.40	150.0	V	0.0	15.2

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

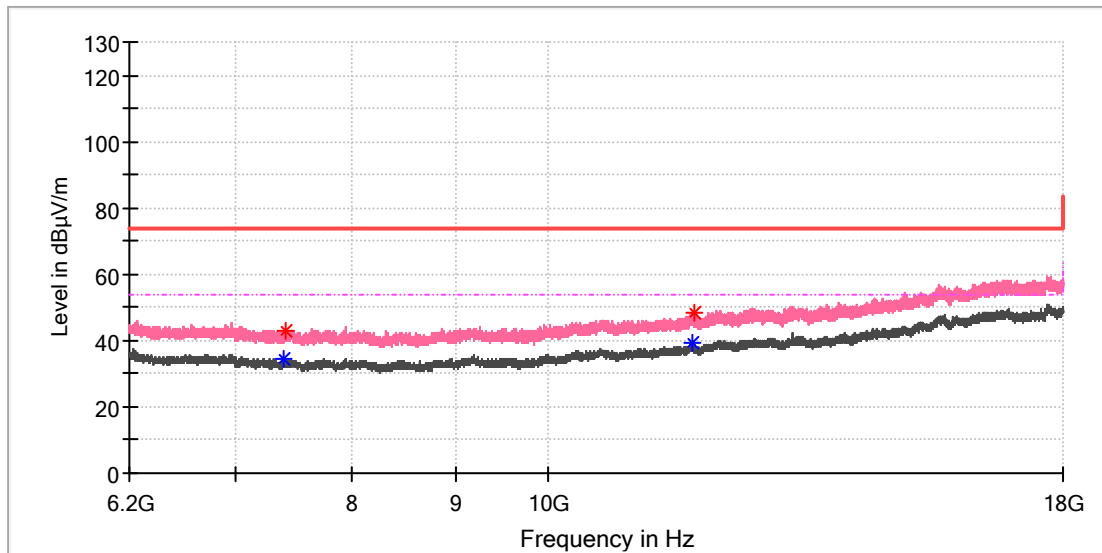


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7452.275000	---	33.94	54.00	20.06	150.0	H	28.0	8.5
7488.658333	44.06	---	74.00	29.94	150.0	H	0.0	8.7
12891.091667	49.73	---	74.00	24.27	150.0	H	200.0	15.5
12898.958333	---	40.94	54.00	13.06	150.0	H	162.0	15.5

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_Mid channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

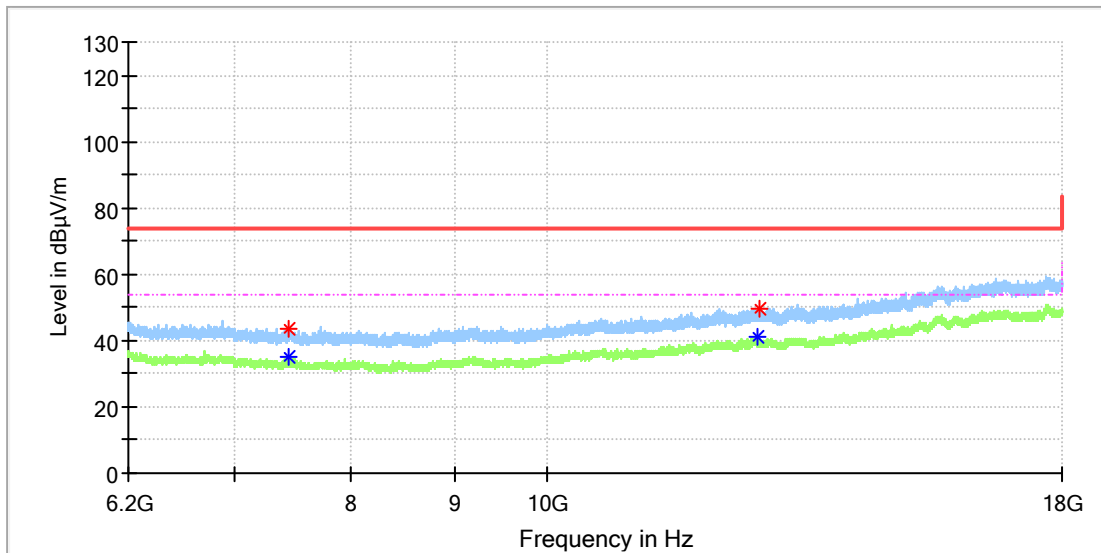


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7395.733333	---	34.25	54.00	19.75	150.0	V	354.0	8.3
7411.466667	42.94	---	74.00	31.06	150.0	V	256.0	8.3
11788.775000	---	39.27	54.00	14.73	150.0	V	73.0	13.4
11808.441667	48.67	---	74.00	25.33	150.0	V	232.0	13.5

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_High channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

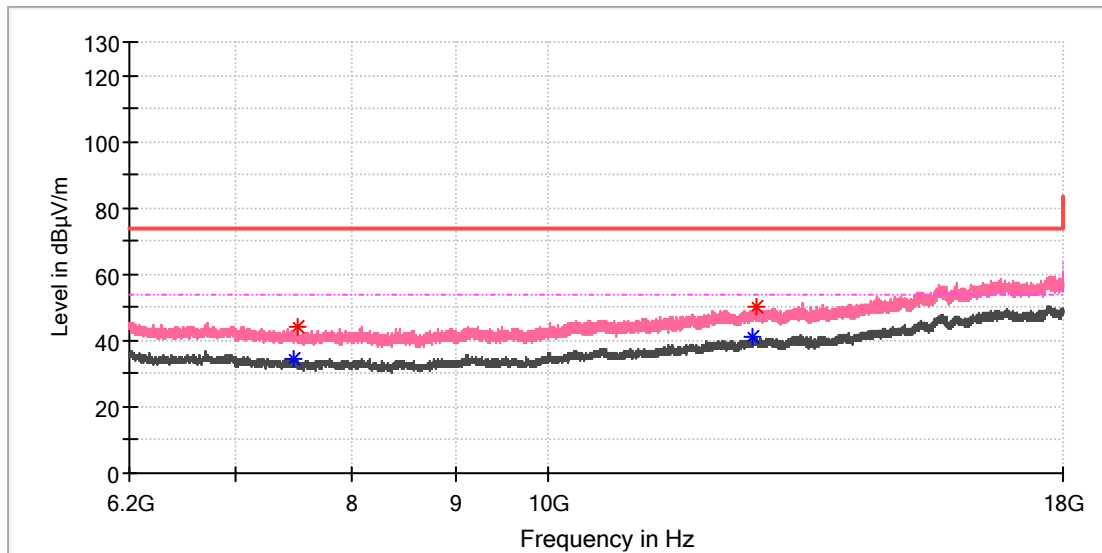


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.491667	---	34.97	54.00	19.03	150.0	H	163.0	8.4
7448.833333	43.29	---	74.00	30.71	150.0	H	104.0	8.5
12700.325000	---	41.29	54.00	12.71	150.0	H	235.0	15.1
12734.741667	49.34	---	74.00	24.66	150.0	H	45.0	15.2

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_High channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



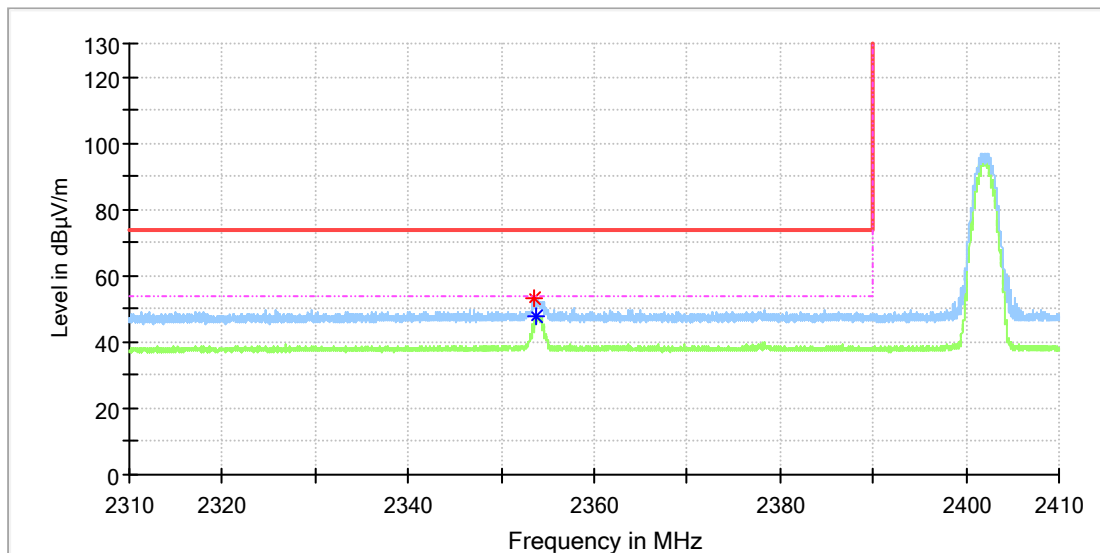
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7472.433333	---	34.23	54.00	19.77	150.0	V	196.0	8.6
7507.341667	44.04	---	74.00	29.96	150.0	V	47.0	8.7
12632.475000	---	40.84	54.00	13.16	150.0	V	257.0	15.0
12689.508333	50.40	---	74.00	23.60	150.0	V	292.0	15.1

Appendix A.7: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

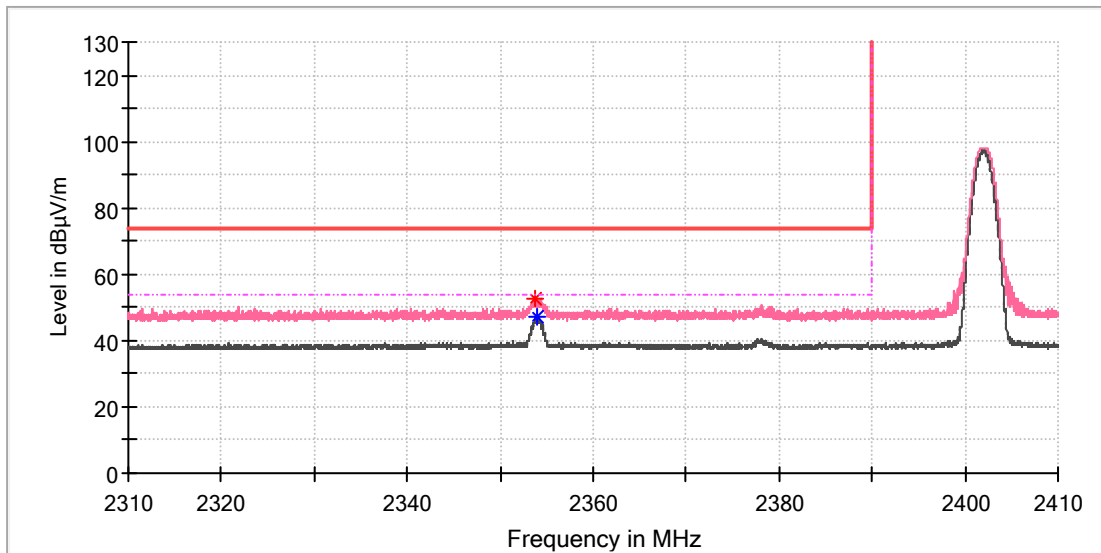


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2353.558824	53.06	---	74.00	20.94	150.0	H	237.0	6.9
2353.676471	---	47.93	54.00	6.07	150.0	H	231.0	6.9

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

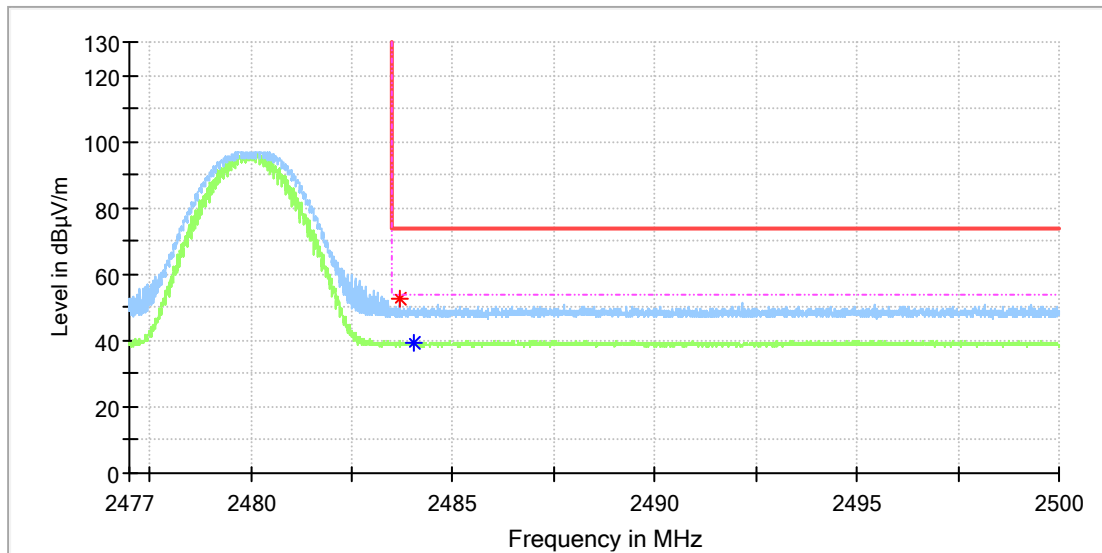


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2353.779412	52.73	---	74.00	21.27	150.0	V	249.0	6.9
2354.000000	---	47.08	54.00	6.92	150.0	V	249.0	6.9

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_High channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

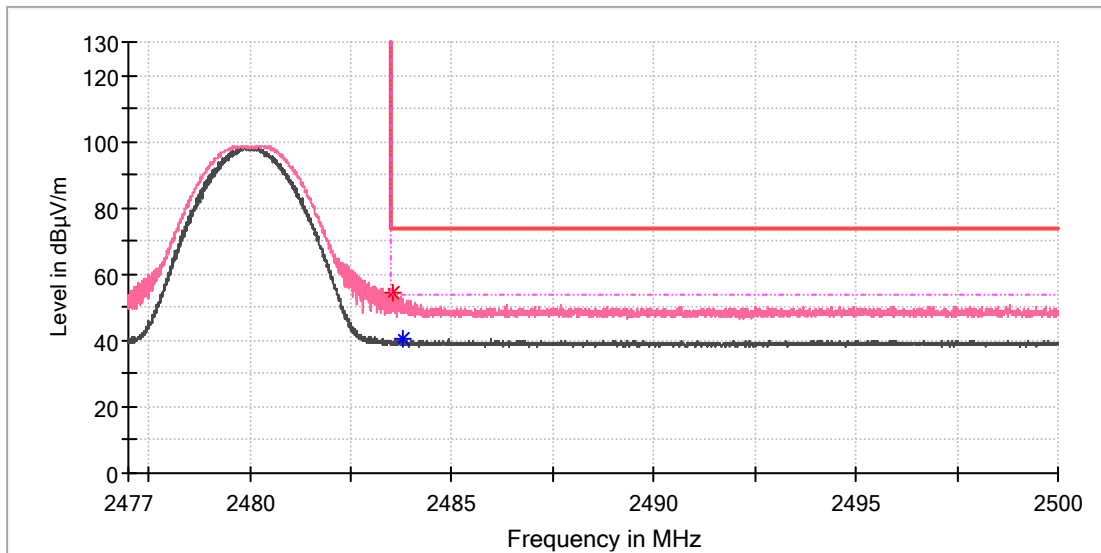


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.676471	52.42	---	74.00	21.58	150.0	H	231.0	7.4
2484.033824	---	39.39	54.00	14.61	150.0	H	216.0	7.4

EUT Information

EUT Name: PORTABLE BLUETOOTH SPEAKER
 Model: CLIP5D
 Test Mode: BLE 1M_High channel
 Order No/Sample No: 168454763/A003613938
 Test Voltage:: Battery
 Remark: Temp 23 Humi:53%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin

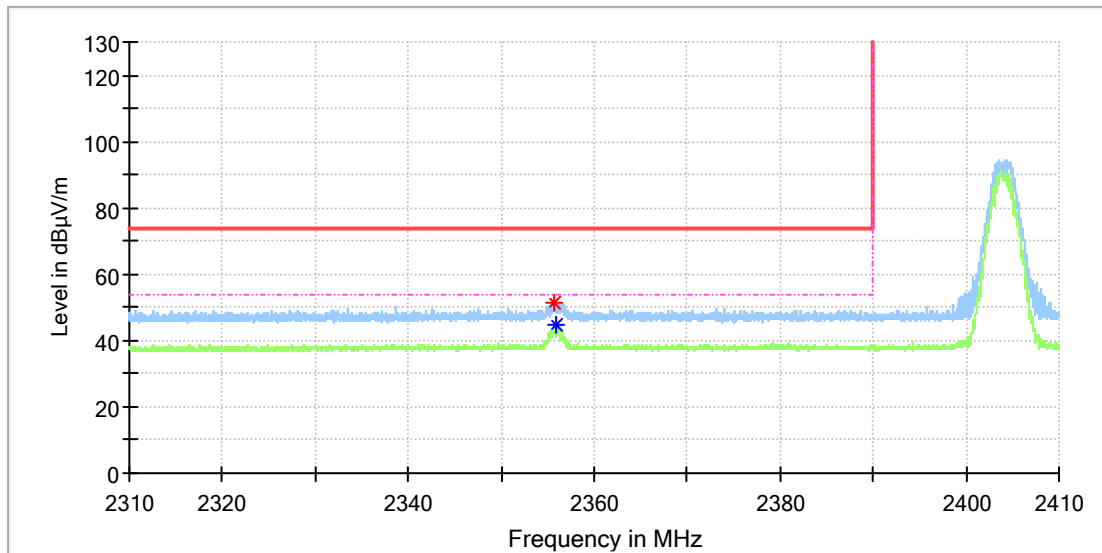


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.552941	54.44	---	74.00	19.56	150.0	V	86.0	7.4
2483.773530	---	40.25	54.00	13.75	150.0	V	93.0	7.4

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 2M_Low channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

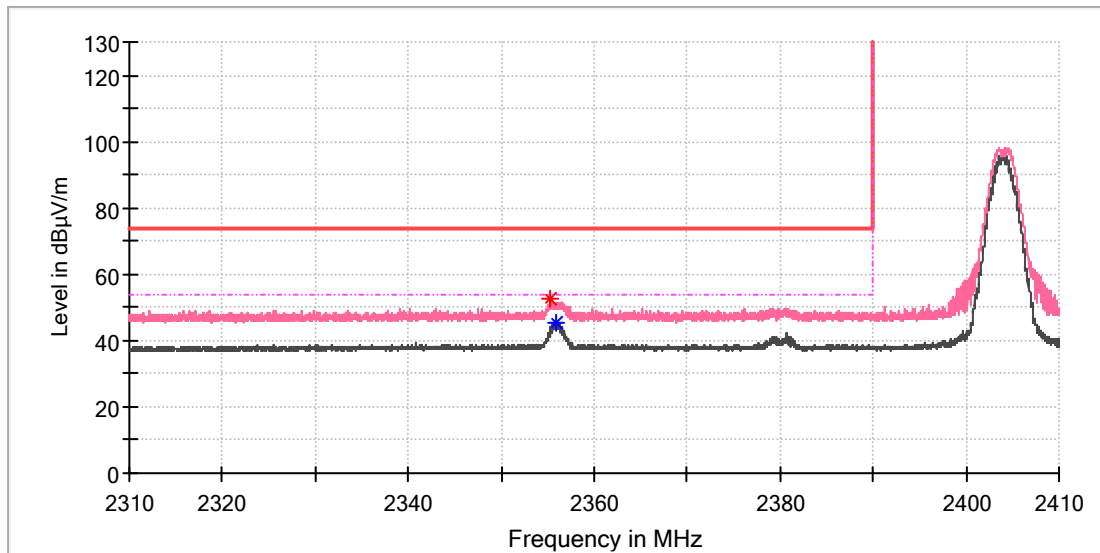


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2355.632353	51.48	---	74.00	22.52	150.0	H	211.0	6.9
2355.970588	---	44.54	54.00	9.46	150.0	H	211.0	6.9

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 2M_Low channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

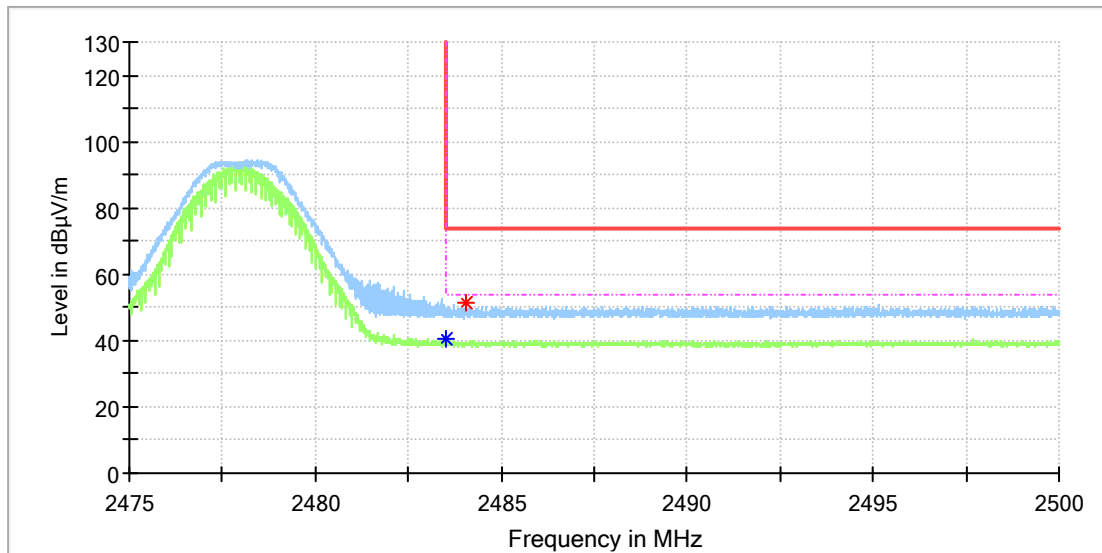


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2355.338235	52.32	---	74.00	21.68	150.0	V	102.0	6.9
2355.955882	---	45.61	54.00	8.39	150.0	V	285.0	6.9

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 2M_High channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

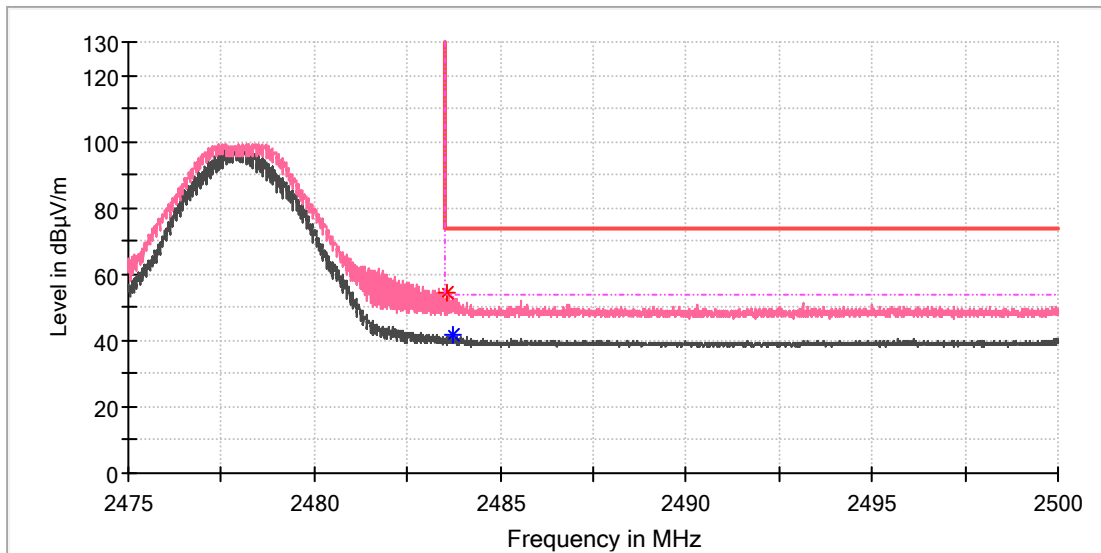


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.508824	---	40.36	54.00	13.64	150.0	H	229.0	7.4
2484.047059	51.37	---	74.00	22.63	150.0	H	193.0	7.4

EUT Information

EUT Name:	PORTABLE BLUETOOTH SPEAKER
Model:	CLIP5D
Test Mode:	BLE 2M_High channel
Order No/Sample No:	168454763/A003613938
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



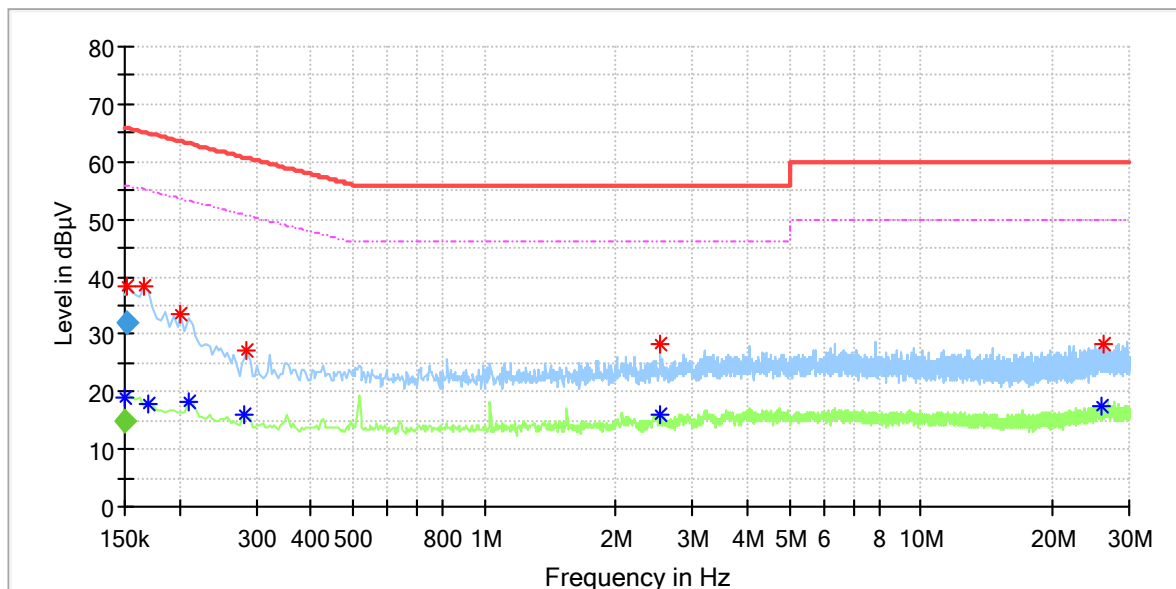
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.548530	54.17	---	74.00	19.83	150.0	V	299.0	7.4
2483.738235	---	41.47	54.00	12.53	150.0	V	322.0	7.4

Appendix A.8: Test Results of Conducted Emissions on AC Mains

EUT Information

EUT Name	PORTABLE BLUETOOTH SPEAKER
Order Number:	168454763
Model:	CLIP5D
Test Mode:	Bluetooth
Test Voltage:	AC 120V/60Hz
Test Standard:	FCC Part 15C
Test By:/Review By:	Steve Lan/ Gary Chen
Tem./Hum./Pressure:	25.0°C/51.2%/101kPa
Remark:	SR1



Critical Freqs

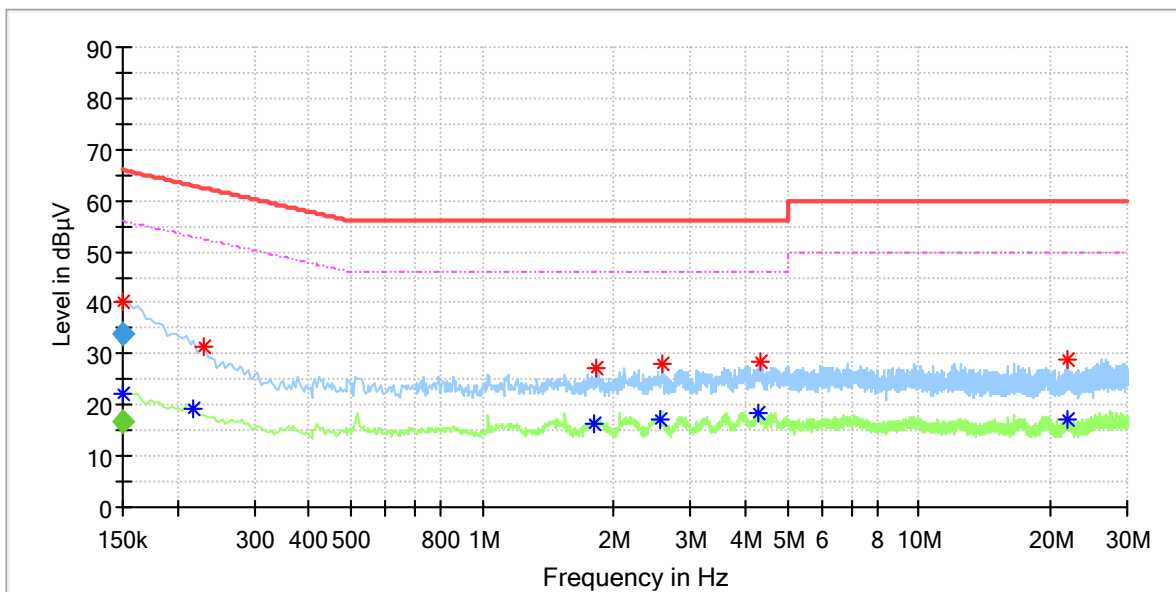
Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.150000	---	18.83	55.36	36.53	L1	9.7
0.152500	38.14	---	65.16	27.02	L1	9.7
0.166000	38.14	---	65.16	27.02	L1	9.7
0.170000	---	17.70	54.96	37.26	L1	9.7
0.202000	33.55	---	63.53	29.98	L1	9.8
0.210000	---	18.34	53.21	34.87	L1	9.8
0.282000	---	15.86	50.76	34.89	L1	9.8
0.286000	27.10	---	60.64	33.54	L1	9.8
2.516000	28.21	---	56.00	27.79	L1	9.9
2.524000	---	16.02	46.00	29.98	L1	9.9
26.032000	---	17.44	50.00	32.56	L1	10.6
26.108000	28.30	---	60.00	31.70	L1	10.6

Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	14.81	56.00	41.19	1000.0	9.000	L1	9.6
0.152500	31.86	---	65.86	34.01	1000.0	9.000	L1	9.6

EUT Information

EUT Name	PORTABLE BLUETOOTH SPEAKER
Order Number:	168454763
Model:	CLIP5D
Test Mode:	Bluetooth
Test Voltage:	AC 120V/60Hz
Test Standard:	FCC Part 15C
Test By:/Review By:	Steve Lan/ Gary Chen
Tem./Hum./Pressure:	25.0°C/51.2%/101kPa
Remark:	SR1



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.150000	---	22.15	55.78	33.63	N	9.8
0.150000	40.33	---	65.78	25.45	N	9.8
0.218000	---	19.27	52.90	33.63	N	9.7
0.230000	31.49	---	62.45	30.96	N	9.7
1.792000	---	16.22	46.00	29.78	N	9.9
1.828000	27.07	---	56.00	28.93	N	9.9
2.552000	---	17.34	46.00	28.66	N	10.0
2.580000	27.96	---	56.00	28.04	N	10.0
4.284000	---	18.33	46.00	27.67	N	10.0
4.316000	28.53	---	56.00	27.47	N	10.0
21.992000	---	17.16	50.00	32.84	N	10.4
21.992000	28.76	---	60.00	31.24	N	10.4

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	16.84	56.00	39.16	1000.0	9.000	N	9.8
0.150000	33.85	---	66.00	32.15	1000.0	9.000	N	9.8