

Prüfbericht-Nr.: Test report no.:	CN244TOI 002	Auftrags-Nr.: Order no.:	168517158	Page 1 of 23 Seite 1 von 23
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2024-11-13	
Auftraggeber: Client:	Harman International Industries, Inc 8500 Balboa Blvd, Northridge, California, 91329, United States			
Prüfgegenstand: Test item:	Bluetooth Clock Radio Speaker			
Bezeichnung / Typ-Nr.: Identification / Type no.:	HORIZON 3 (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:	2024-11-18	Refer to photos document		
Prüfmuster-Nr.: Test sample no.:	A003875862			
Prüfzeitraum: Testing period:	2024-11-18 – 2024-12-11			
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:	2025-01-20	Ausstellungsdatum: Issue date:		2025-01-20
Stellung / Position: Project Manager		Stellung / Position: Authorizer		
Sonstiges / Other:	FCC ID: APIHORIZON3 IC: 6132A-HORIZON3 HVIN: HORIZON 3			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende: * Legend:	P(ass) = entspricht o.g. Prüfgrundlage(n) P(ass) = passed a.m. test specification(s) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) F(ail) = failed a.m. test specification(s) N/A = nicht anwendbar N/A = not applicable N/T = nicht getestet N/T = not tested			
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>				
TUV Rheinland (Shenzhen) Co., Ltd., 1601-1604, 17-18F, Tower A Building 2, Shenzhen International Innovation Valley, Dashi 1st Road, Xili Street, Xili Community, Nanshan District, Shenzhen 518052, P. R. China Mail: service-gc@tuv.com · Web: www.tuv.com				

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Remarks
Anmerkungen

1	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. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request. <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> <i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i>
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3	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. <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>
4	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. <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>

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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

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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: Photographs of the Test Set-up

Appendix B: Test Results.

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	25.09.2025
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	25.09.2025
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	25.09.2025
DC Power Supply	Keysight	E3642A	MY61276100	25.09.2025
Wireless Connectivity Tester	R&S	CMW270	102505	25.09.2025
Power Control Unit	Tonscend	JS0806-4ADC	N/A	25.09.2025
Automation Control Unit	Tonscend	JS0806-2	21C8060396	25.09.2025
Humid & Temp Programmable Tester	BOST	NTH090-60	19040801	28.02.2025
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLY23JMF	N/A
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	28.09.2025
Signal Analyzer	R&S	FSV 40	101439	28.09.2025
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	28.09.2025
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	28.09.2025
Amplifier	R&S	SCU-18F	180070	28.09.2025
Amplifier	R&S	SCU40A	100475	28.09.2025
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	27.09.2026
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	27.09.2026
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	27.09.2026
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	27.09.2026
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	13.09.2027
Conduct Emissions Testing				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR3	102428	22.07.2025
Artificial Mains Network	R&S	ENV216	102333	22.07.2025
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

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B & C 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 Bluetooth Headset, which supports Bluetooth dual mode technology.

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	Bluetooth Clock Radio Speaker
Type Designation	HORIZON 3
Trademark	JBL
FCC ID	APIHORIZON3
IC	6132A-HORIZON3
HVIN	HORIZON 3
Extreme Temperature Range	0°C to +45°C
Operating Voltage	Input: AC100-240V, 50/60Hz, 35W
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	PIFA antenna
Antenna Gain	2.23 dBi (Provided by the Client)
Technical Specification of Bluetooth Low Energy	
Bluetooth Core Version	Bluetooth 5.3
Operating Frequency band	2402 – 2480 MHz for data rate 1Mbps 2404 – 2478 MHz for data rate 2Mbps
Channel Number	40 channels for data rate 1Mbps 38 channels for data rate 2Mbps
Channel separation	2MHz
Data rate	1Mbps, 2Mbps
Modulation	GFSK
Antenna Type	PIFA antenna
Antenna Gain	2.23 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.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N or Rating
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)

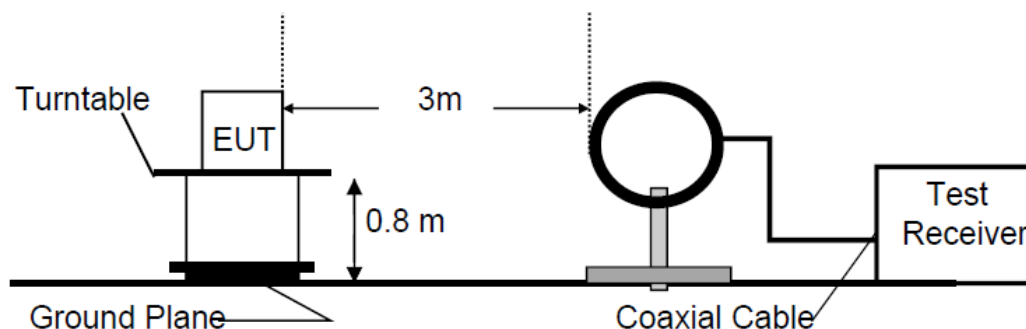


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

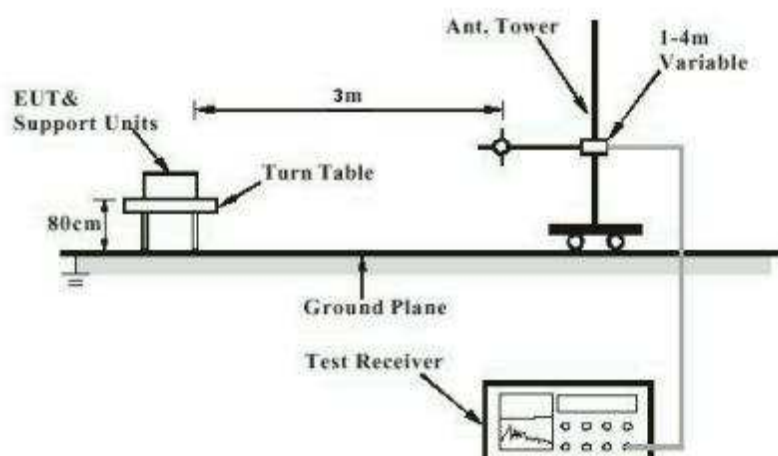


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

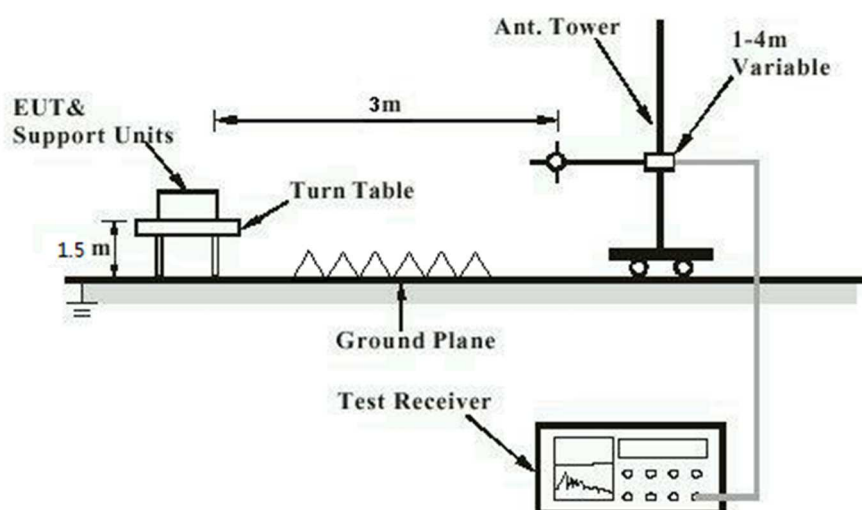


Diagram of Measurement Configuration for Conducted Transmitter Measurement

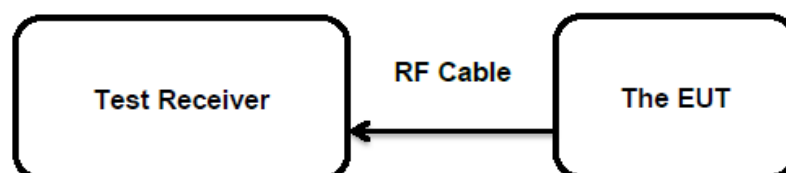
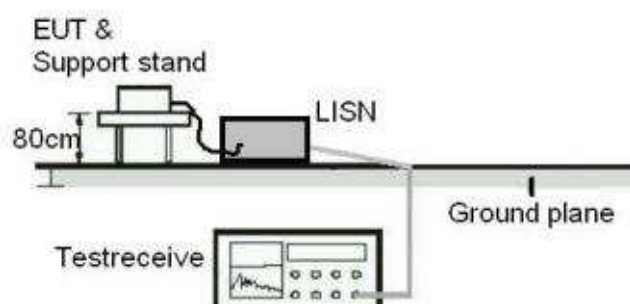


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



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 PIFA antenna, the directional gain of antennas is 2.23dBi 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.

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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 : 2024-11-18 to 2024-12-11
 Input voltage : AC 120V, 60Hz
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 22.5 °C
 Relative humidity : 50.2 %
 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)	
1 Mbps	2402	6.17	0.0041	< 1.0
	2440	6.29	0.0043	
	2480	6.50	0.0045	
2 Mbps	2404	6.10	0.0041	
	2440	6.30	0.0043	
	2478	6.54	0.0045	
Maximum Measured Value		6.54	0.0045	

Note: The cable loss is taken into account in results and the maximum e.i.r.p. is 9.54 dBm less than 4W (36 dBm).

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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 : 2024-11-18 to 2024-12-11
 Input voltage : AC 120V, 60Hz
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 22.5 °C
 Relative humidity : 50.2 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 7: Test Result of 99% Bandwidth

Data Rate	Channel Frequency (MHz)	Measured Conducted Power Spectral Density	Limit
		(dBm / 3kHz)	
1 Mbps	2402	-10.23	8 dBm / 3kHz
	2440	-10.04	
	2480	-9.88	
2 Mbps	2404	-12.62	8 dBm / 3kHz
	2440	-12.43	
	2478	-12.23	

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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 : 2024-11-18 to 2024-12-11
Input voltage : AC 120V, 60Hz
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 22.5 °C
Relative humidity : 50.2 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 8: Test Result of 99% Bandwidth

Data Rate	Channel Frequency (MHz)	Measured 99% Bandwidth	Limit
		(MHz)	
1 Mbps	2402	1.1088	/
	2440	1.1023	
	2480	1.1094	
2 Mbps	2404	2.1952	/
	2440	2.1770	
	2478	2.1709	

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

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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 : 2024-11-18 to 2024-12-11
Input voltage : AC 120V, 60Hz
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 22.5 °C
Relative humidity : 50.2 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 9: Test Result of 6dB Bandwidth

Data Rate	Channel Frequency (MHz)	Measured 6dB Bandwidth	Limit
		(MHz)	
1 Mbps	2402	0.692	>500kHz
	2440	0.716	
	2480	0.712	
2 Mbps	2404	1.260	>500kHz
	2440	1.248	
	2478	1.260	

Prüfbericht-Nr.: **CN244TOI 002**
Test report no.:

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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	: 2024-11-18 to 2024-12-11
Input voltage	: AC 120V, 60Hz
Operation mode	: B
Ambient temperature	: 22.5 °C
Relative humidity	: 50.2 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B

Prüfbericht-Nr.: **CN244TOI 002**
Test report no.:

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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	: 2024-11-18 to 2024-12-11
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22.5 °C
Relative humidity	: 50.2 %
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 B.

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Test report no.:

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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	:	2024-11-18 to 2024-12-11
Input voltage	:	AC 120V, 60Hz
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 B.

Prüfbericht-Nr.: **CN244TOI 002**
Test report no.:

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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	: 2024-11-18 to 2024-12-11
Input voltage	: AC 120V, 60Hz
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 B.

6 Photographs of the Test Set-Up

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

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Appendix B: Test Results of Bluetooth Low Energy

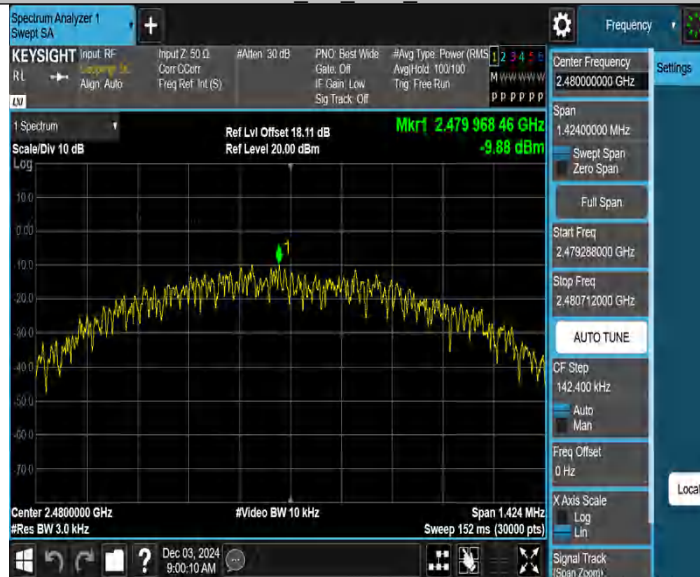
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Appendix B.1: Test Results of Conducted Power Spectral Density

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-10.23	≤8.00	PASS
		2440	-10.04	≤8.00	PASS
		2480	-9.88	≤8.00	PASS
BLE_2M	Ant1	2404	-12.62	≤8.00	PASS
		2440	-12.43	≤8.00	PASS
		2478	-12.23	≤8.00	PASS



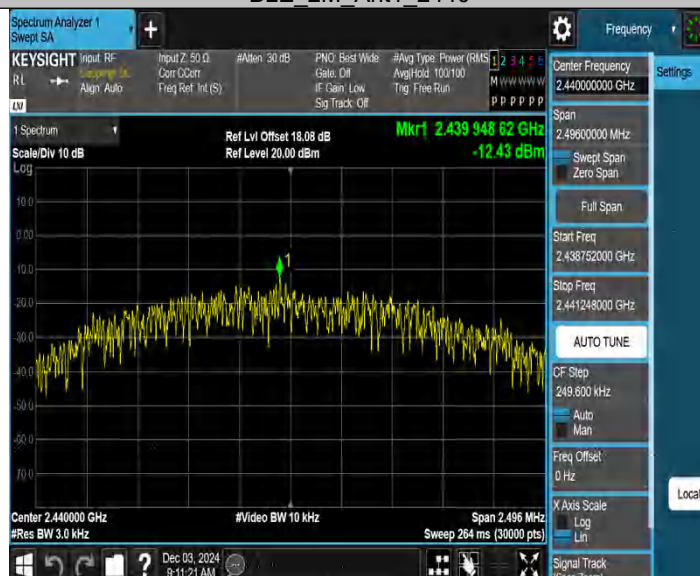
BLE 1M Ant1 2480



BLE 2M Ant1 2404



BLE 2M Ant1 2440





Appendix B.2: Test Results of 6dB Bandwidth

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.692	2401.624	2402.316	0.5	PASS
		2440	0.716	2439.616	2440.332	0.5	PASS
		2480	0.712	2479.608	2480.320	0.5	PASS
BLE_2M	Ant1	2404	1.260	2403.324	2404.584	0.5	PASS
		2440	1.248	2439.344	2440.592	0.5	PASS
		2478	1.260	2477.324	2478.584	0.5	PASS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE 1M Ant1 2480



BLE 2M Ant1 2404



BLE 2M Ant1 2440





Appendix B.3: Test Results of 99% Bandwidth

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.1088	2401.4426	2402.5514	---	---
		2440	1.1023	2439.4441	2440.5464	---	---
		2480	1.1094	2479.4398	2480.5492	---	---
BLE_2M	Ant1	2404	2.1952	2402.9066	2405.1018	---	---
		2440	2.1770	2438.9110	2441.0880	---	---
		2478	2.1709	2476.9197	2479.0906	---	---

BLE_1M Ant1 2402



BLE_1M Ant1 2440



BLE 1M Ant1 2480



BLE 2M Ant1 2404



BLE 2M Ant1 2440





Appendix B.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)
AC 120V	2401.995	-5	-2.08	10
AC 108V	2401.995	-5	-2.08	
DC 132V	2401.996	-4	-1.67	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2401.993	-7	-2.91	10
-20	2401.993	-7	-2.91	
-10	2401.994	-6	-2.50	
0	2401.994	-6	-2.50	
10	2401.995	-5	-2.08	
20	2401.995	-5	-2.08	
30	2401.995	-5	-2.08	
40	2401.996	-4	-1.67	
50	2401.996	-4	-1.67	
55	2401.996	-4	-1.67	

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

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
AC 120V	2439.991	-9	-3.69	10
AC 108V	2439.991	-9	-3.69	
DC 132V	2439.991	-9	-3.69	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2439.988	-12	-4.92	10
-20	2439.987	-13	-5.33	
-10	2439.991	-9	-3.69	
0	2439.991	-9	-3.69	
10	2439.992	-8	-3.28	
20	2439.991	-9	-3.69	
30	2439.992	-8	-3.28	
40	2439.992	-8	-3.28	
50	2439.993	-7	-2.87	
55	2439.992	-8	-3.28	

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

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
AC 120V	2479.992	-8	-3.23	10
AC 108V	2479.993	-7	-2.82	
DC 132V	2479.993	-7	-2.82	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2479.989	-11	-4.44	10
-20	2479.989	-11	-4.44	
-10	2479.989	-11	-4.44	
0	2479.990	-10	-4.03	
10	2479.991	-9	-3.63	
20	2479.992	-8	-3.23	
30	2479.992	-8	-3.23	
40	2479.993	-7	-2.82	
50	2479.992	-8	-3.23	
55	2479.993	-7	-2.82	

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

Conducted Spurious Emission

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	4.59	4.59	---	PASS
			30~1000	4.59	-42.05	≤-15.41	PASS
			1000~26500	4.59	-32.33	≤-15.41	PASS
		2440	Reference	4.59	4.59	---	PASS
			30~1000	4.59	-41.76	≤-15.41	PASS
			1000~26500	4.59	-33.4	≤-15.41	PASS
		2480	Reference	4.45	4.45	---	PASS
			30~1000	4.45	-42.05	≤-15.55	PASS
			1000~26500	4.45	-32.15	≤-15.55	PASS
BLE_2M	Ant1	2404	Reference	3.28	3.28	---	PASS
			30~1000	3.28	-42.43	≤-16.72	PASS
			1000~26500	3.28	-33.03	≤-16.72	PASS
		2440	Reference	3.40	3.40	---	PASS
			30~1000	3.40	-42.23	≤-16.6	PASS
			1000~26500	3.40	-33.07	≤-16.6	PASS
		2478	Reference	3.80	3.80	---	PASS
			30~1000	3.80	-42.02	≤-16.2	PASS
			1000~26500	3.80	-32.94	≤-16.2	PASS

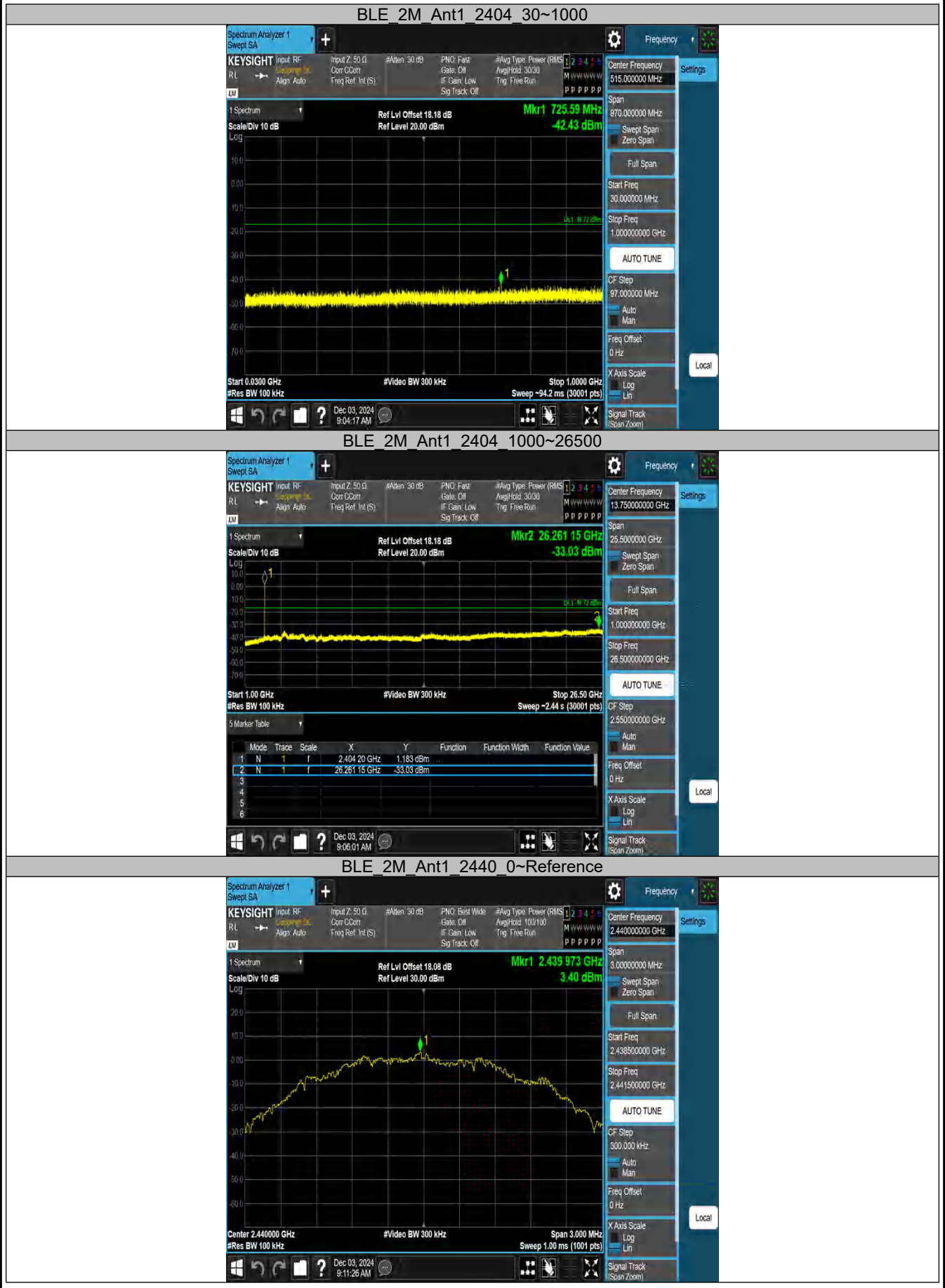
BLE_1M_Ant1_2402_0~Reference











BLE 2M Ant1 2440 30~1000



BLE 2M Ant1 2440 1000~26500



BLE 2M Ant1 2478 0~Reference





Band edge measurements

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	4.57	-44.47	≤-15.43	PASS
		High	2480	4.84	-45.31	≤-15.16	PASS
BLE_2M	Ant1	Low	2404	3.50	-45.28	≤-16.50	PASS
		High	2478	3.27	-42.95	≤-16.73	PASS

BLE 1M Ant1 Low 2402



BLE 1M Ant1 High 2480



BLE 2M Ant1 Low 2404



BLE 2M Ant1 High 2478



Appendix B.6: Test Results of Radiated Spurious Emissions

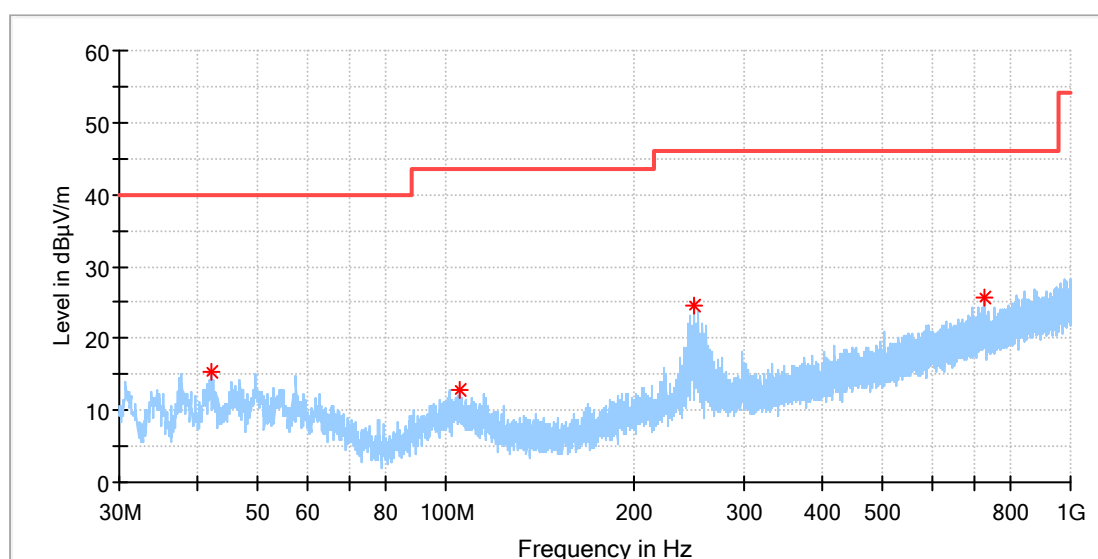
Note:

- 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:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Mid channel
Order No./Sample No:	A003875862-004
Test Voltage:	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

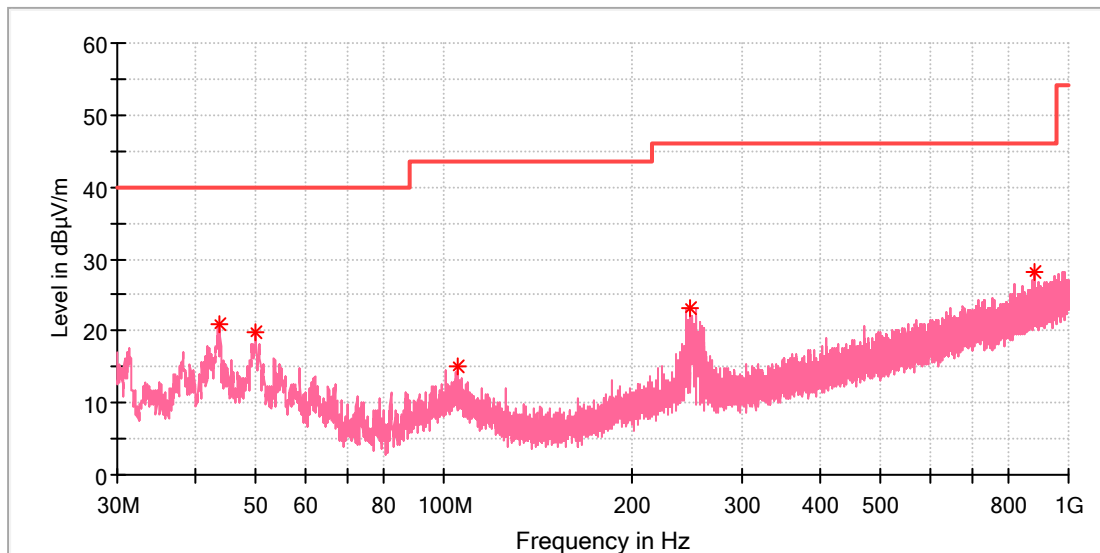


Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.050385	15.29	40.00	24.71	100.0	H	122.0	-19.7
105.249615	12.86	43.50	30.64	100.0	H	42.0	-18.9
250.003462	24.59	46.00	21.41	100.0	H	260.0	-17.4
729.929615	25.75	46.00	20.25	100.0	H	42.0	-7.4

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	A003875862-004
Test Voltage:	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

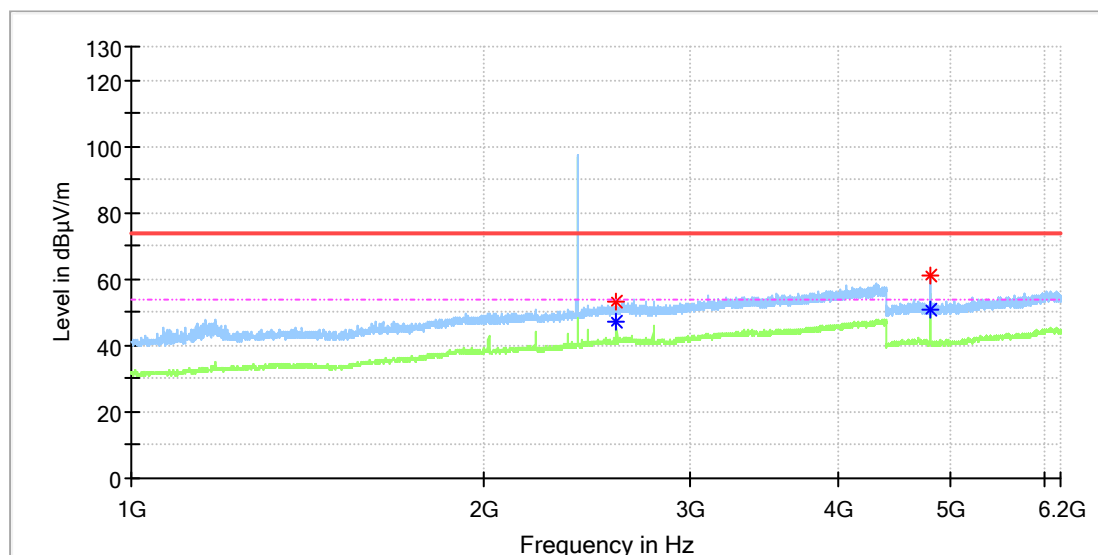
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
43.803846	20.86	40.00	19.14	100.0	V	278.0	-19.2
49.996923	19.72	40.00	20.28	100.0	V	213.0	-18.4
105.361539	15.06	43.50	28.44	100.0	V	0.0	-18.9
248.138077	23.09	46.00	22.91	100.0	V	0.0	-17.4
883.413462	28.28	46.00	17.72	100.0	V	285.0	-5.0

1GHz - 18GHz

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

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

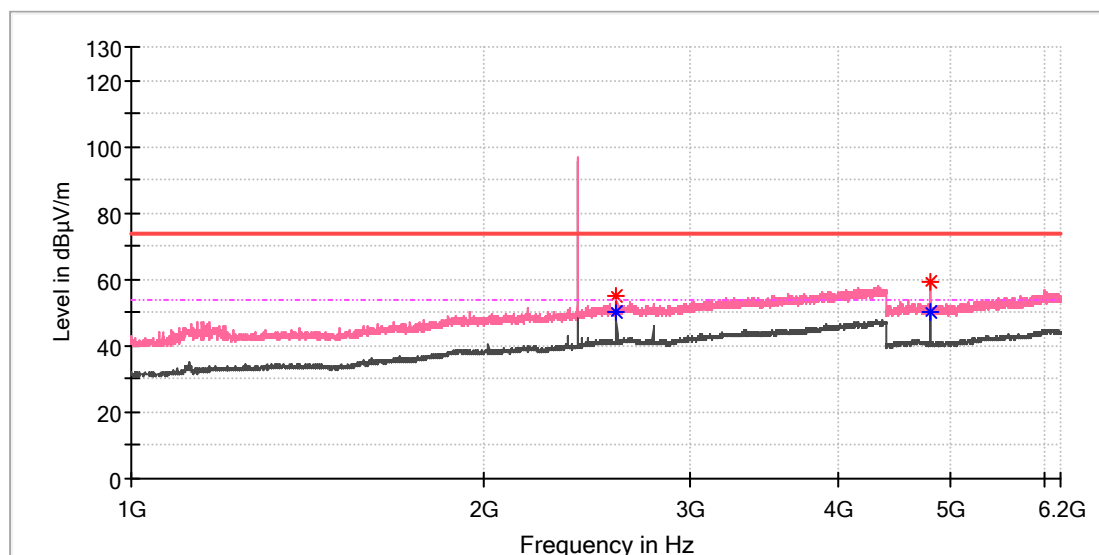


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2593.500000	53.43	---	74.00	20.57	150.0	H	41.0	9.5
2594.000000	---	47.23	54.00	6.77	150.0	H	41.0	9.5
4803.000000	---	50.77	54.00	3.23	150.0	H	327.0	13.3
4803.500000	60.88	---	74.00	13.12	150.0	H	334.0	13.3

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

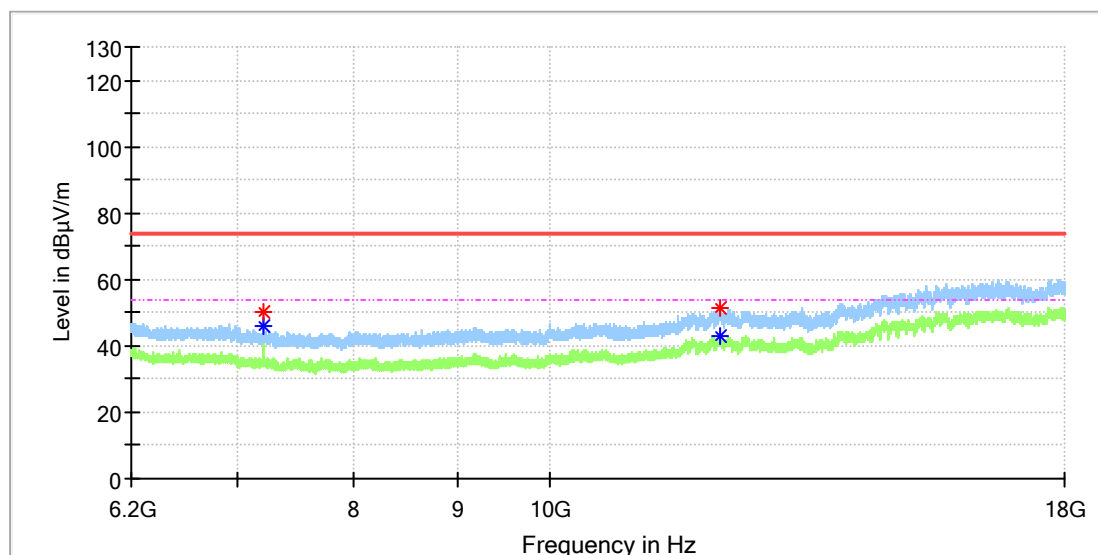


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2593.500000	54.89	---	74.00	19.11	150.0	V	279.0	9.5
2594.000000	---	50.39	54.00	3.61	150.0	V	279.0	9.5
4804.500000	59.23	---	74.00	14.77	150.0	V	92.0	13.3
4804.500000	---	49.93	54.00	4.07	150.0	V	92.0	13.3

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

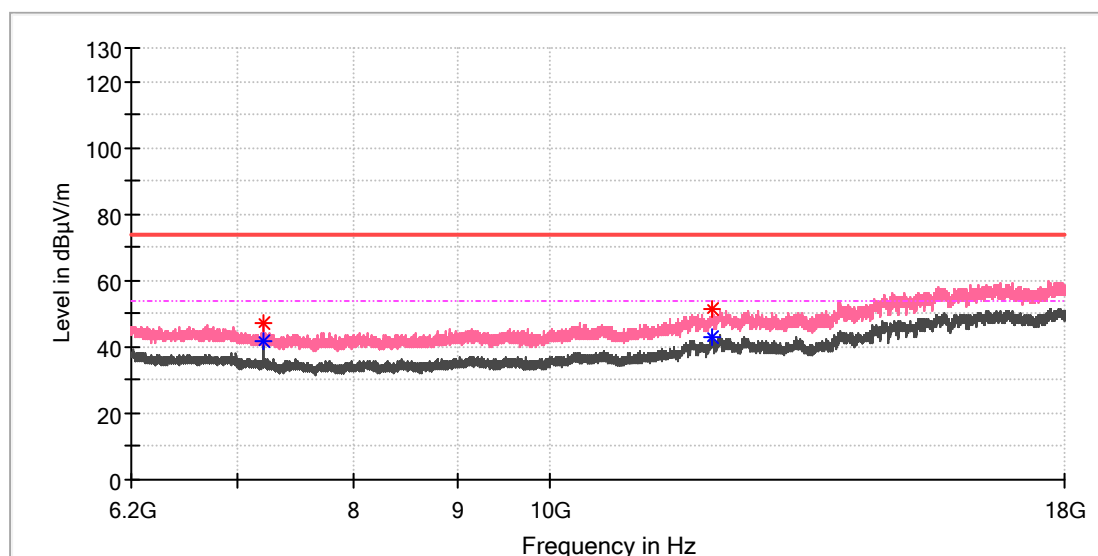


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7206.441667	50.13	---	74.00	23.87	150.0	H	169.0	8.8
7206.441667	---	45.90	54.00	8.10	150.0	H	169.0	8.8
12139.825000	---	42.69	54.00	11.31	150.0	H	17.0	16.5
12140.808333	51.30	---	74.00	22.70	150.0	H	53.0	16.5

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_Low channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

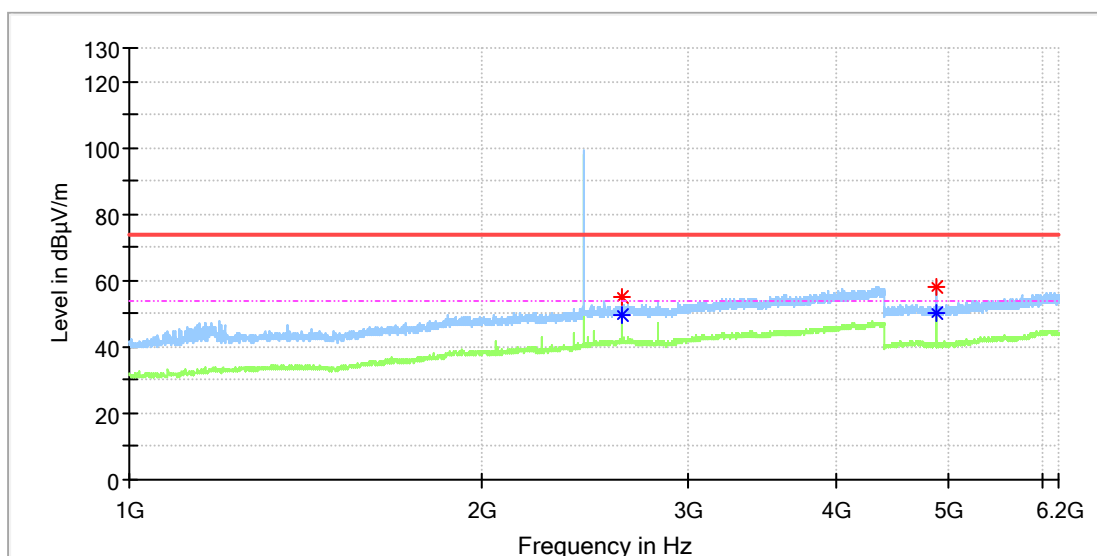


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7205.458333	---	41.78	54.00	12.22	150.0	V	177.0	8.8
7206.441667	47.23	---	74.00	26.77	150.0	V	269.0	8.8
12048.375000	51.25	---	74.00	22.75	150.0	V	303.0	16.4
12048.375000	---	42.99	54.00	11.01	150.0	V	303.0	16.4

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_Mid channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

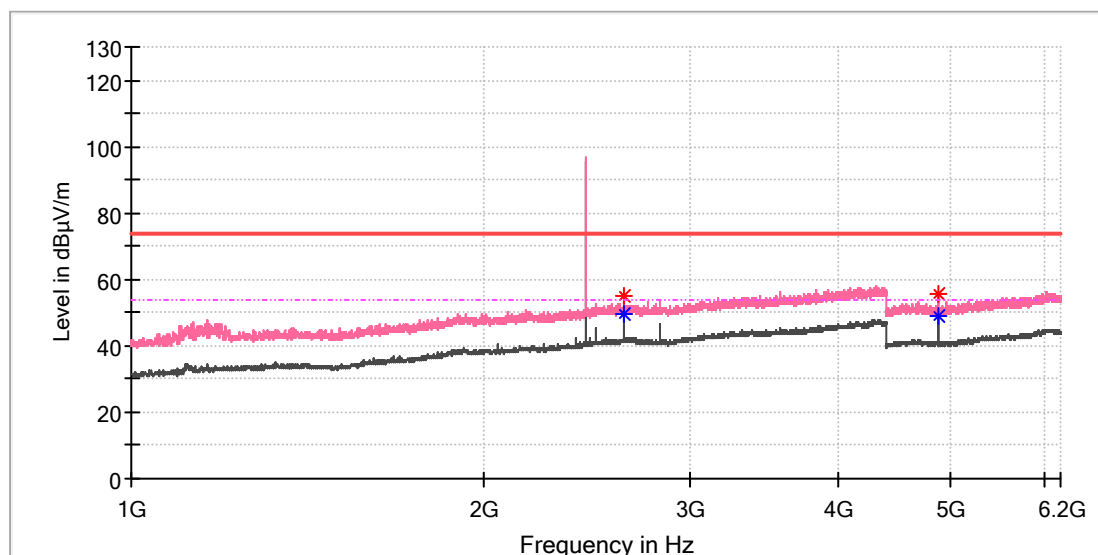


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2632.000000	---	49.74	54.00	4.26	150.0	H	221.0	9.9
2632.500000	54.77	---	74.00	19.23	150.0	H	139.0	9.9
4880.000000	58.24	---	74.00	15.76	150.0	H	330.0	13.3
4880.500000	---	50.45	54.00	3.55	150.0	H	342.0	13.3

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_Mid channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

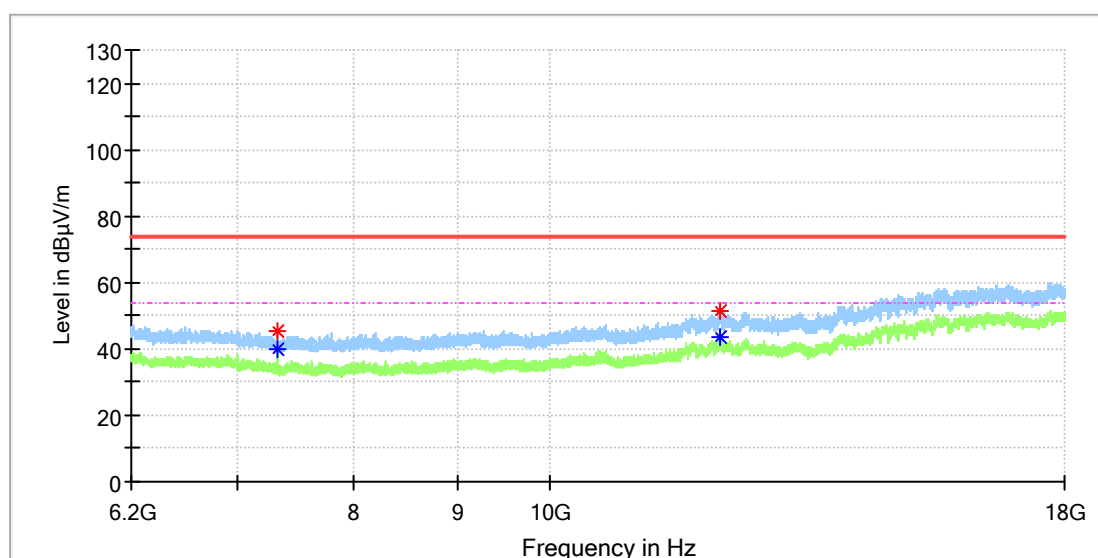


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2632.000000	---	49.34	54.00	4.66	150.0	V	110.0	9.9
2632.500000	55.04	---	74.00	18.96	150.0	V	117.0	9.9
4879.500000	---	48.95	54.00	5.05	150.0	V	93.0	13.3
4880.500000	55.89	---	74.00	18.11	150.0	V	93.0	13.3

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_Mid channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

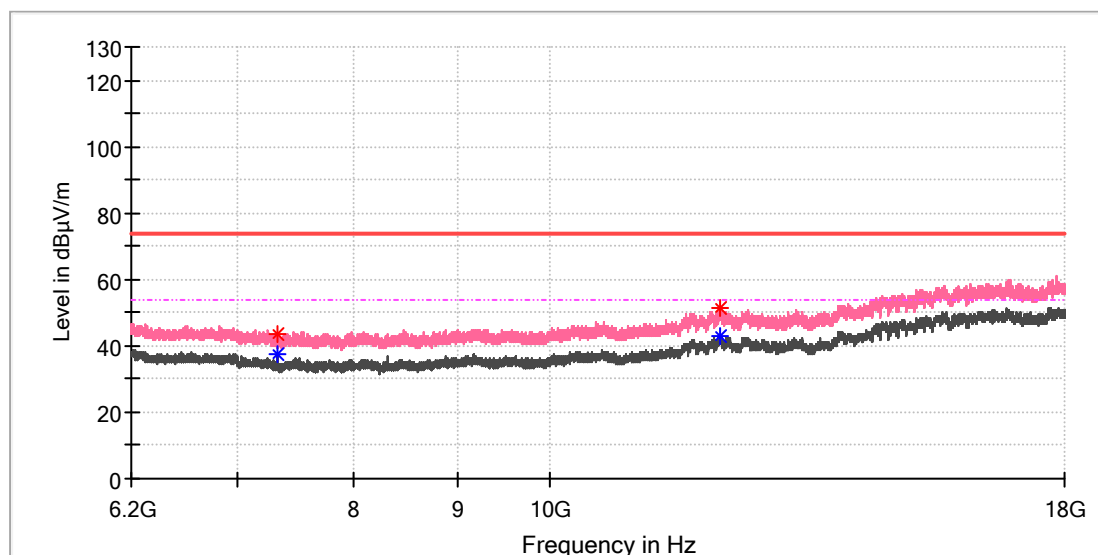


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7319.525000	45.13	---	74.00	28.87	150.0	H	189.0	8.2
7319.525000	---	39.85	54.00	14.15	150.0	H	189.0	8.2
12138.350000	51.56	---	74.00	22.44	150.0	H	0.0	16.4
12152.116667	---	43.67	54.00	10.33	150.0	H	151.0	16.6

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_Mid channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

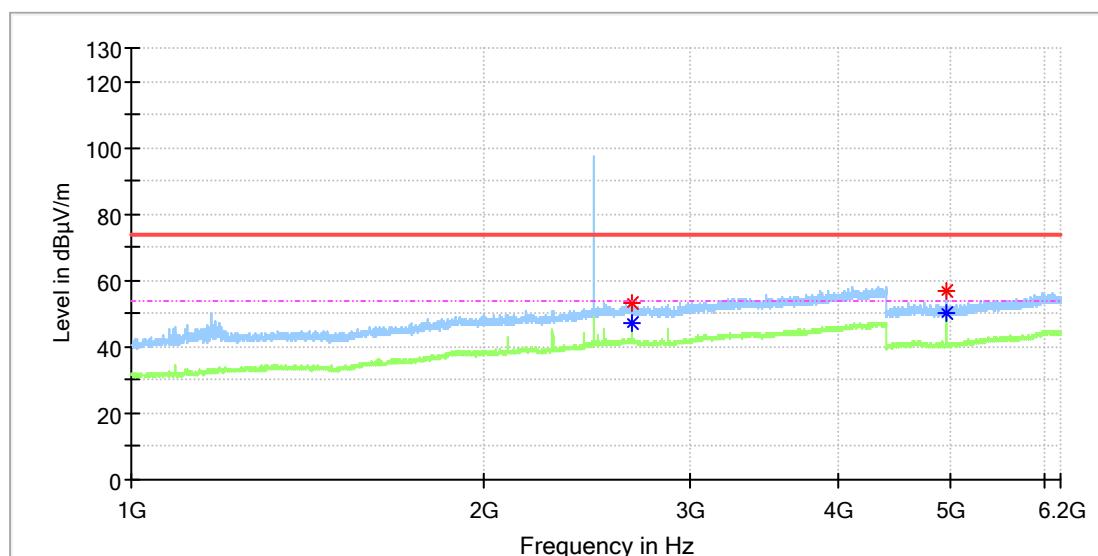


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7319.525000	---	37.22	54.00	16.78	150.0	V	307.0	8.2
7320.016667	43.50	---	74.00	30.50	150.0	V	296.0	8.2
12138.841667	51.17	---	74.00	22.83	150.0	V	110.0	16.4
12146.216667	---	43.12	54.00	10.88	150.0	V	230.0	16.6

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_High channel
Order No./Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

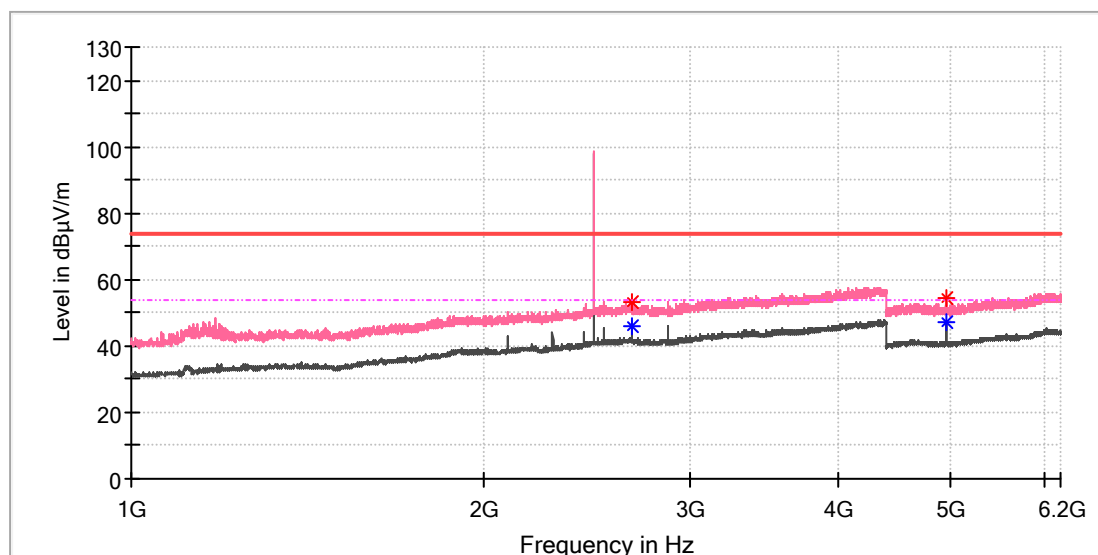


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2672.000000	53.40	---	74.00	20.60	150.0	H	337.0	10.2
2672.000000	---	46.95	54.00	7.05	150.0	H	337.0	10.2
4959.500000	---	50.12	54.00	3.88	150.0	H	179.0	13.3
4960.000000	56.58	---	74.00	17.42	150.0	H	179.0	13.3

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_High channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

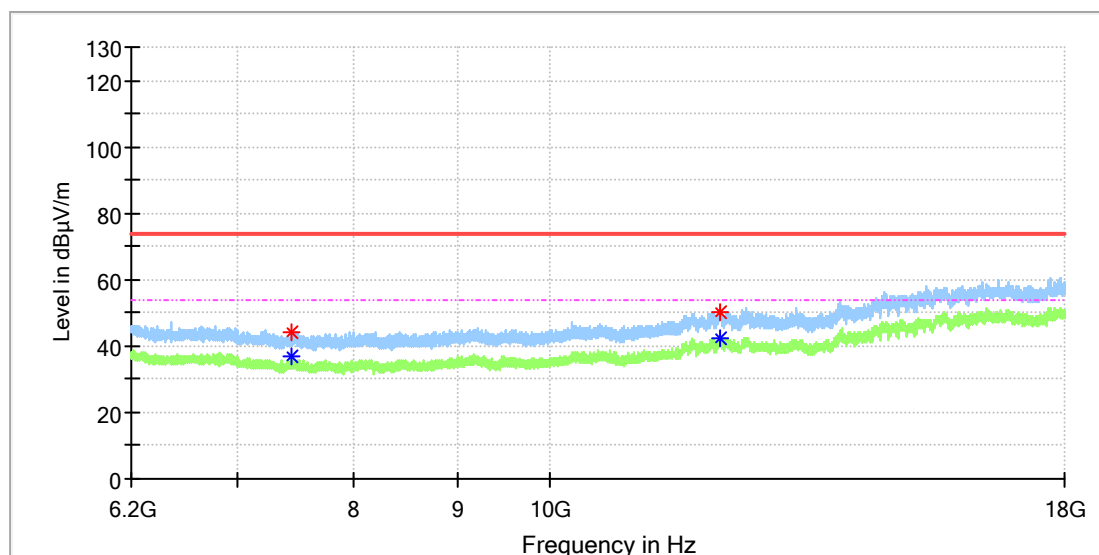


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2671.000000	53.18	---	74.00	20.82	150.0	V	281.0	10.2
2672.000000	---	46.23	54.00	7.77	150.0	V	288.0	10.2
4959.500000	54.26	---	74.00	19.74	150.0	V	110.0	13.3
4960.000000	---	47.12	54.00	6.88	150.0	V	103.0	13.3

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_High channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

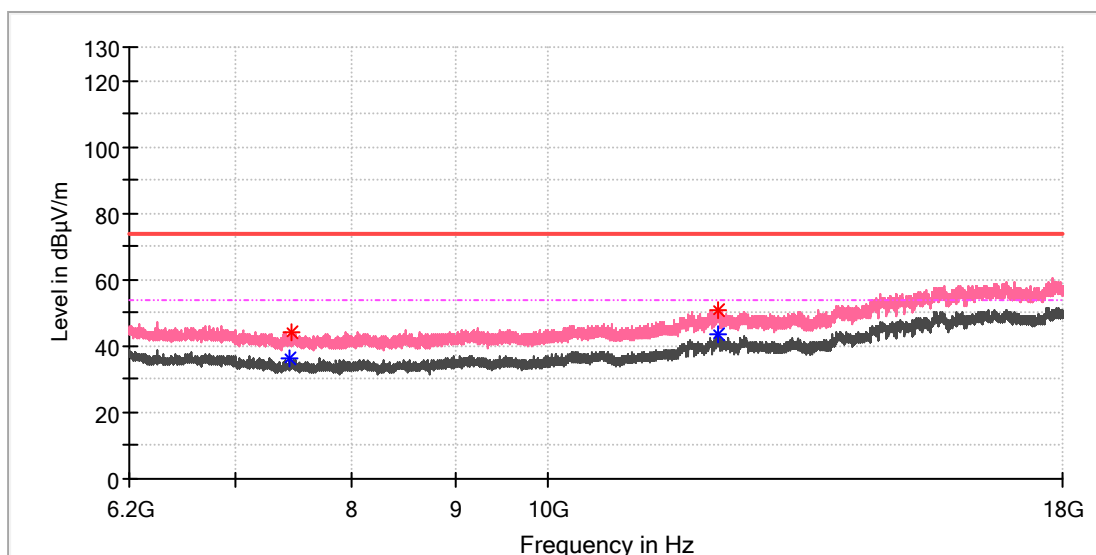


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.491667	44.22	---	74.00	29.78	150.0	H	224.0	8.4
7439.983333	---	36.63	54.00	17.38	150.0	H	151.0	8.4
12133.925000	50.42	---	74.00	23.58	150.0	H	256.0	16.3
12144.250000	---	42.50	54.00	11.50	150.0	H	73.0	16.6

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_High channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



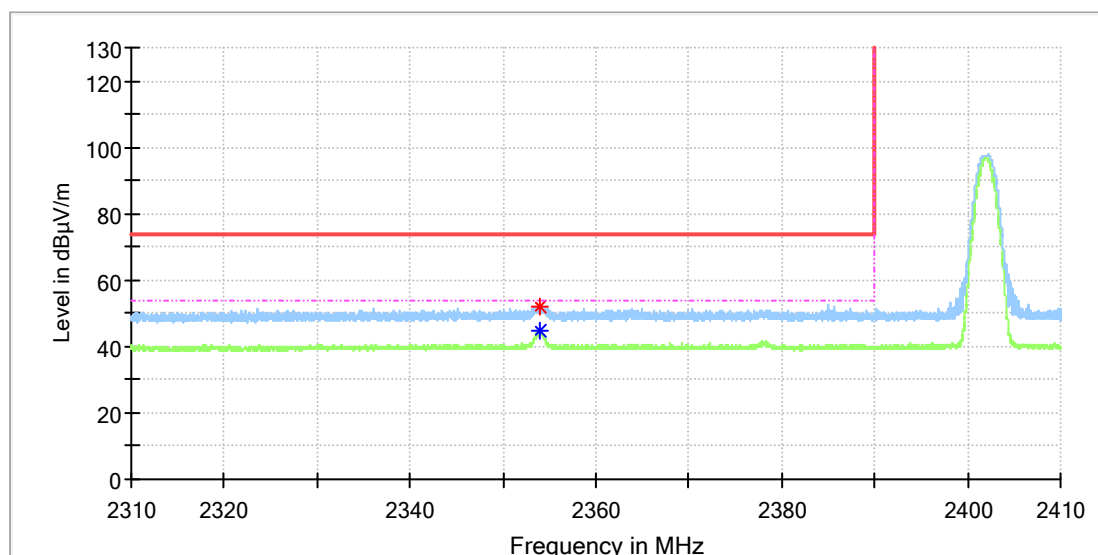
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.491667	---	36.42	54.00	17.58	150.0	V	240.0	8.4
7454.733333	43.98	---	74.00	30.02	150.0	V	171.0	8.5
12143.266667	50.75	---	74.00	23.25	150.0	V	0.0	16.6
12153.100000	---	43.71	54.00	10.29	150.0	V	250.0	16.6

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

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

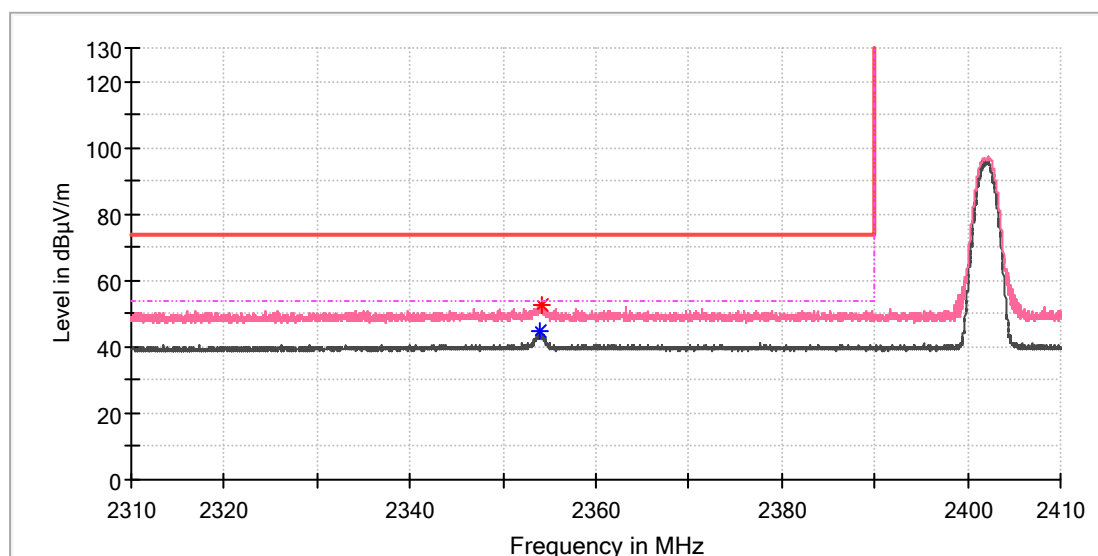


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2353.897059	---	44.65	54.00	9.35	150.0	H	301.0	8.5
2353.970588	52.14	---	74.00	21.86	150.0	H	1.0	8.5

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_Low channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

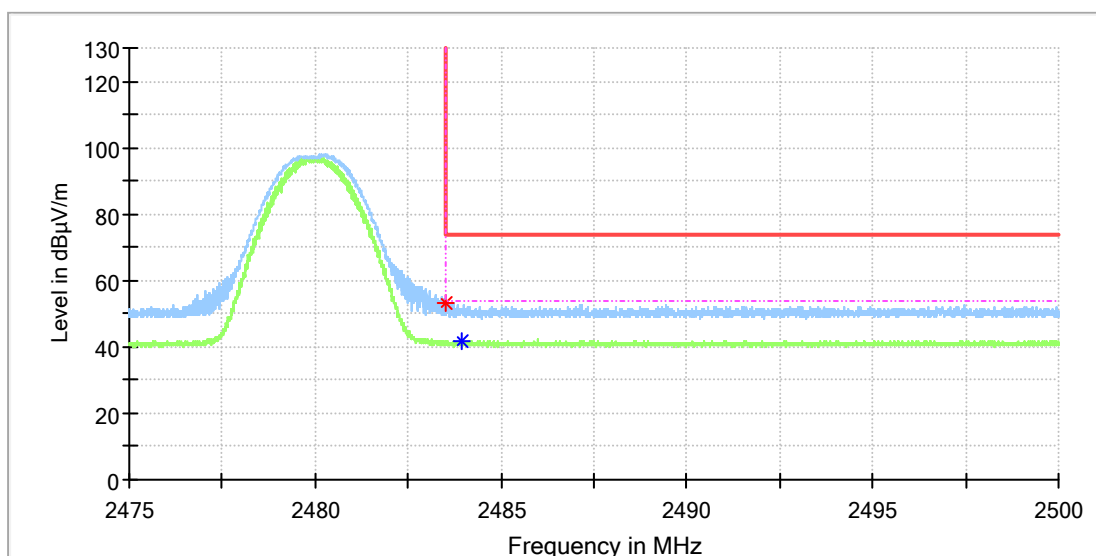


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2354.044118	---	44.55	54.00	9.45	150.0	V	217.0	8.5
2354.220588	52.45	---	74.00	21.55	150.0	V	209.0	8.5

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 1M_High channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

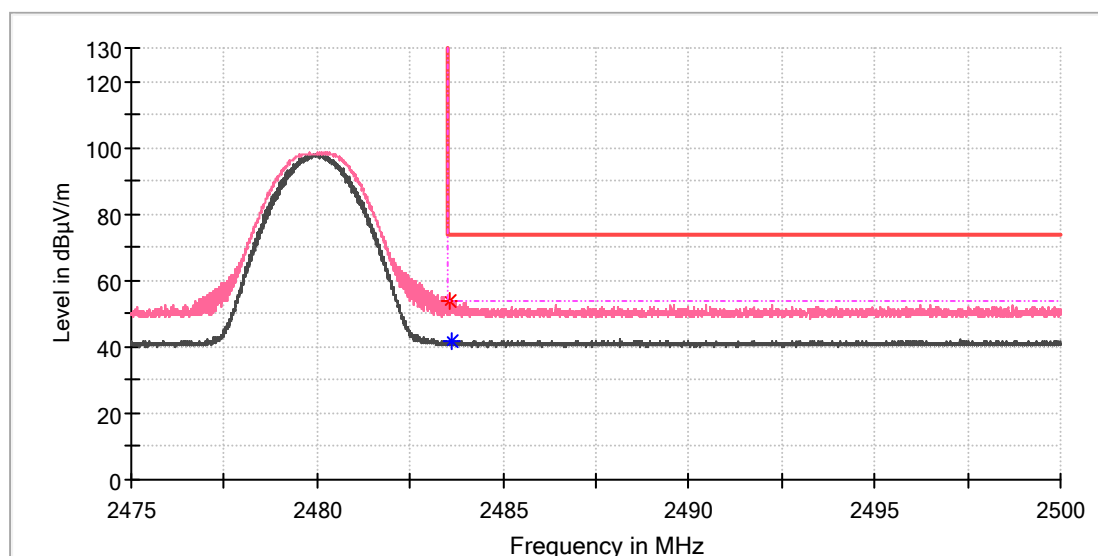


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.529412	53.11	---	74.00	20.89	150.0	H	163.0	9.0
2483.959559	---	41.48	54.00	12.52	150.0	H	211.0	9.0

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 1M_High channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

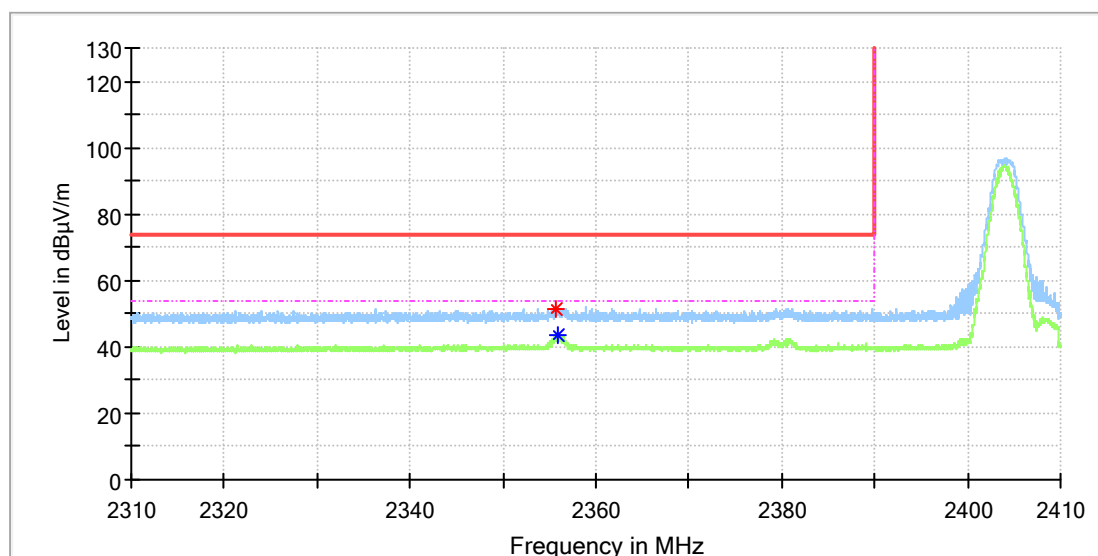


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.558824	53.90	---	74.00	20.10	150.0	V	312.0	9.0
2483.602941	---	41.68	54.00	12.32	150.0	V	286.0	9.0

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 2M_Low channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

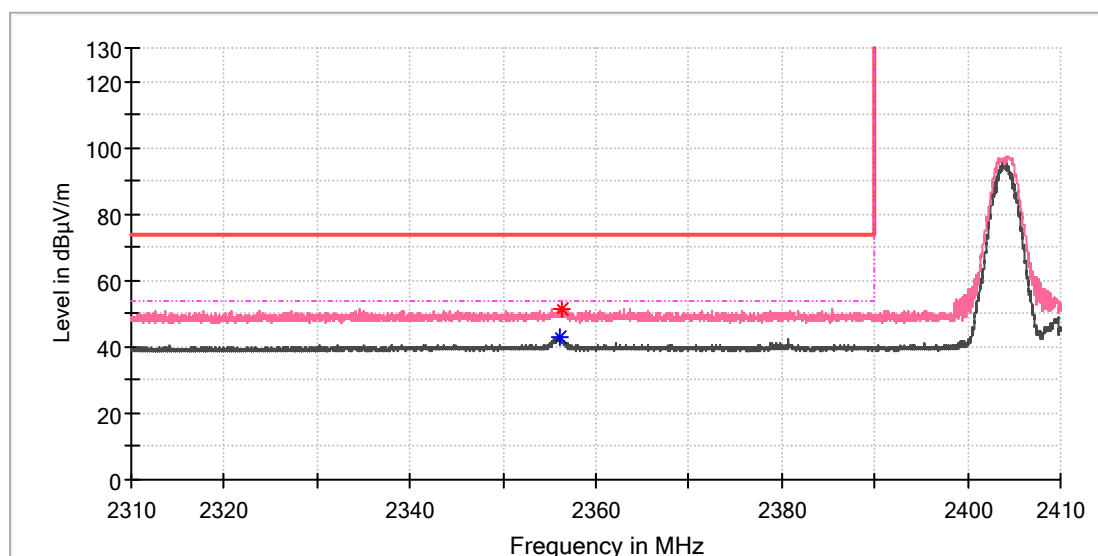


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2355.588235	51.50	---	74.00	22.50	150.0	H	309.0	8.5
2355.911765	---	43.65	54.00	10.35	150.0	H	309.0	8.5

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 2M_Low channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

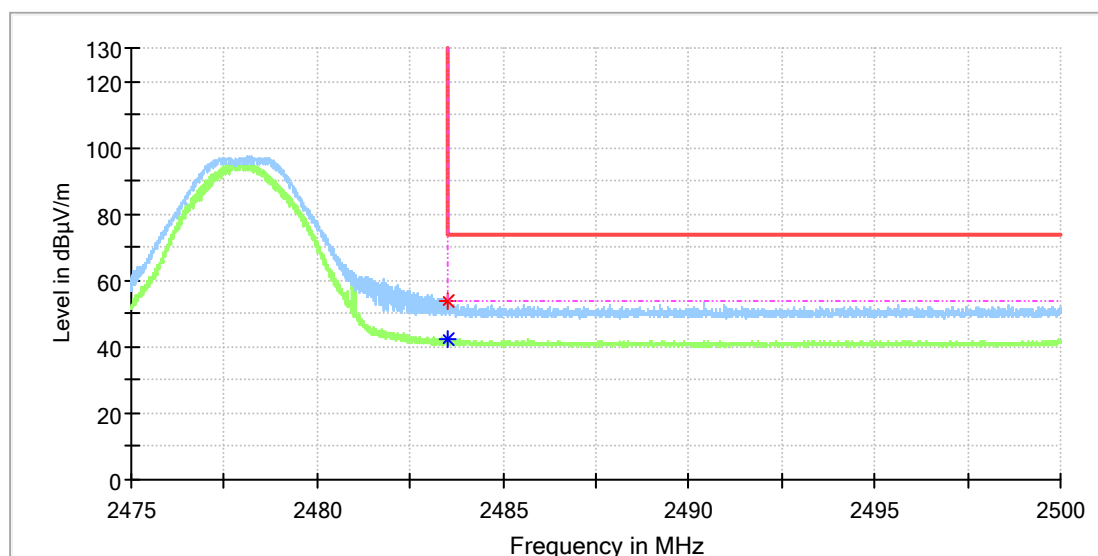


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2356.029412	---	43.20	54.00	10.80	150.0	V	212.0	8.5
2356.308824	51.58	---	74.00	22.42	150.0	V	212.0	8.5

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: BLE 2M_High channel
Order No/Sample No: A003875862-004
Test Voltage:: 120V/60Hz
Remark: Temp 23 Humi:58%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin

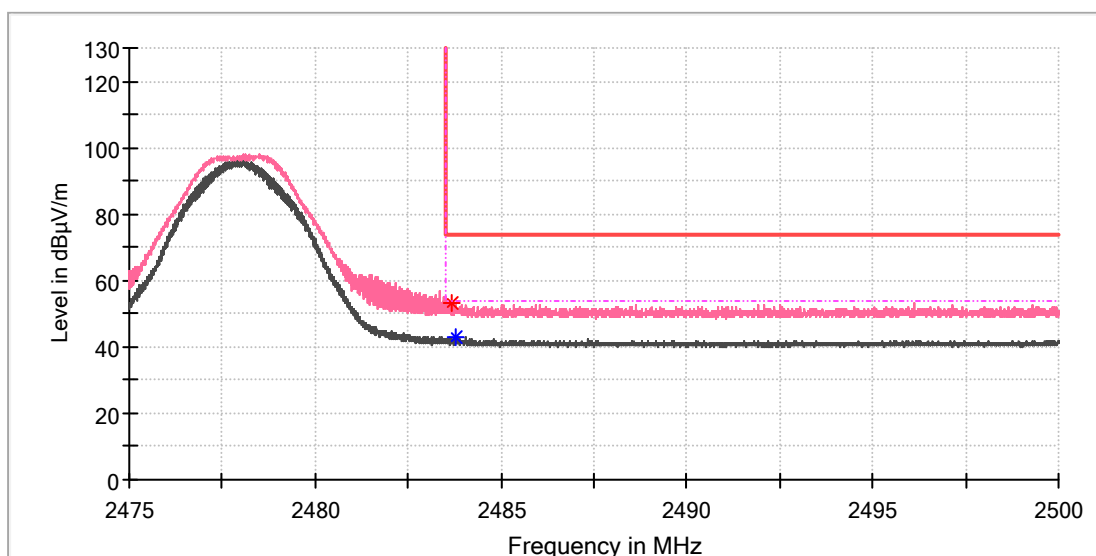


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.536765	---	42.37	54.00	11.63	150.0	H	226.0	9.0
2483.536765	54.09	---	74.00	19.91	150.0	H	226.0	9.0

EUT Information

EUT Name:	Bluetooth Clock Radio Speaker
Model:	HORIZON 3
Test Mode:	BLE 2M_High channel
Order No/Sample No:	A003875862-004
Test Voltage::	120V/60Hz
Remark:	Temp 23 Humi:58%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



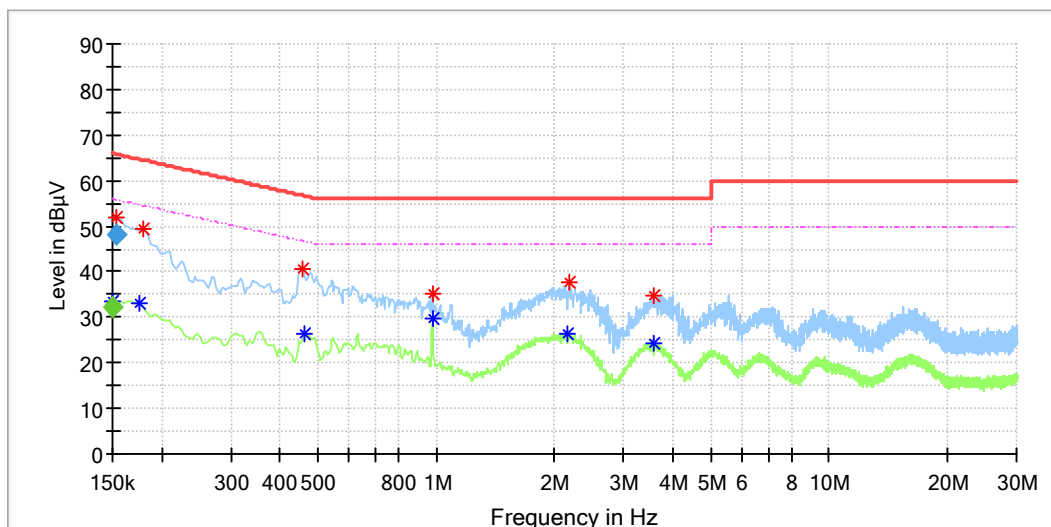
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.694853	53.48	---	74.00	20.52	150.0	V	237.0	9.0
2483.808824	---	43.08	54.00	10.92	150.0	V	222.0	9.0

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

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: ON, Bluetooth
Test Voltage: AC 120V/60Hz
Test Standard: FCC Part 15C
Test By:/Review By: Soloman Wu / Shower Dai
Tem./Hum./Pressure: 24.0°C/50.4%/101kPa



Critical Freqs

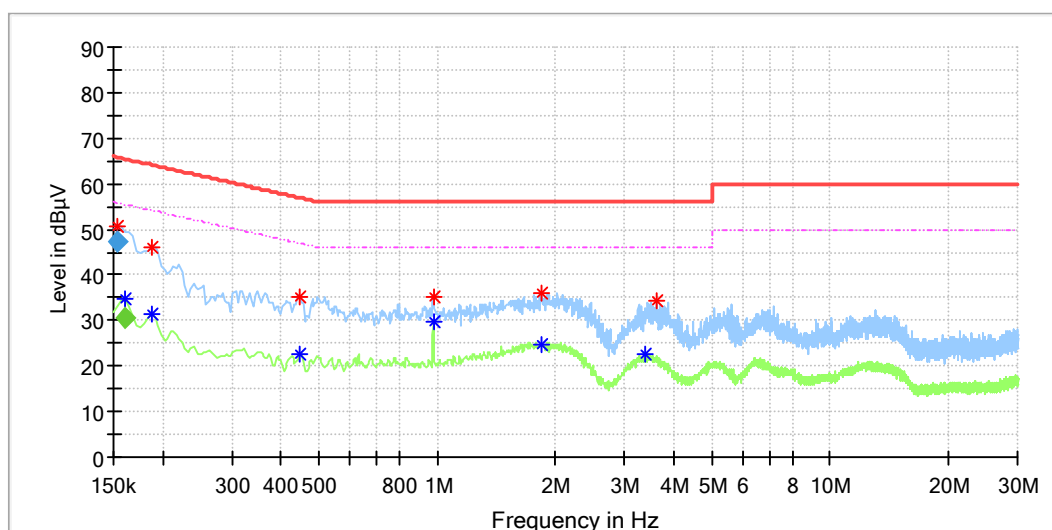
Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.150000	---	33.46	55.80	22.33	L1	9.9
0.152962	51.86	---	65.60	13.73	L1	9.9
0.176119	---	32.96	54.67	21.71	L1	9.9
0.179850	49.32	---	64.49	15.17	L1	9.9
0.455963	40.71	---	56.77	16.05	L1	10.0
0.463425	---	26.38	46.63	20.25	L1	10.0
0.978338	---	29.73	46.00	16.27	L1	10.0
0.978338	35.28	---	56.00	20.72	L1	10.0
2.168606	---	26.45	46.00	19.55	L1	10.1
2.187263	37.47	---	56.00	18.53	L1	10.2
3.582750	34.84	---	56.00	21.16	L1	10.2
3.593944	---	24.35	46.00	21.65	L1	10.2

Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	32.28	56.00	23.72	1000.0	9.000	L1	9.9
0.152962	47.97	---	65.84	17.87	1000.0	9.000	L1	9.9

EUT Information

EUT Name: Bluetooth Clock Radio Speaker
Model: HORIZON 3
Test Mode: ON, Bluetooth
Test Voltage: AC 120V/60Hz
Test Standard: FCC Part 15C
Test By:/Review By: Solomon Wu / Shower Dai
Tem./Hum./Pressure: 24.0°C/50.4%/101kPa



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.152962	50.82	---	65.60	14.78	N	9.8
0.160694	---	34.93	55.40	20.47	N	9.8
0.187313	---	31.21	54.16	22.95	N	9.8
0.187313	46.23	---	64.16	17.92	N	9.8
0.448500	---	22.76	46.90	24.14	N	9.8
0.448500	35.27	---	56.90	21.63	N	9.8
0.978338	---	29.67	46.00	16.33	N	9.8
0.978338	35.21	---	56.00	20.79	N	9.8
1.836525	36.04	---	56.00	19.96	N	9.8
1.851450	---	24.78	46.00	21.22	N	9.8
3.377531	---	22.63	46.00	23.37	N	9.9
3.623794	34.19	---	56.00	21.81	N	9.9

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.152962	47.34	---	65.84	18.50	1000.0	9.000	N	9.8
0.160694	---	30.35	55.43	25.08	1000.0	9.000	N	9.8