



RF MEASUREMENT REPORT

FCC ID: 2AU47-00005
Applicant: Tonies US, Inc.
Product: Toniebox 2
Model No.: 10005
Brand Name: Tonies
FCC Classification: Part 15 Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s): Part 15 Subpart C (Section 15.225)
Result: Complies
Received Date: 2024-10-31
Test Date: 2024-12-27 ~ 2025-02-14

Reviewed By:

Denise Zhou

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2410RSU073-U5	V01	Initial Report	2025-03-31	Invalid
2410RSU073-U5	V02	Update product brand name	2025-05-09	Valid

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1.1. Applicant

3000 El Camino Real Building 4, Suite 200, Palo Alto CA 94306

Tonies US, Inc.

3000 El Camino Real Building 4, Suite 200, Palo Alto CA 94306

☒	Test Site – MRT Suzhou Laboratory			
	Laboratory Location (Suzhou - Wuzhong)			
	D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China			
	Laboratory Location (Suzhou - SIP)			
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China			
	Laboratory Location (Suzhou - Wujiang)			
	Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People’s Republic of China			
☐	Laboratory Accreditations			
	A2LA: 3628.01		CNAS: L10551	
	FCC: CN1166		ISED: CN0001	
	VCCI:	☐ R-20025	☐ G-20034	☐ C-20020
		☐ R-20141	☐ G-20134	☐ C-20103
			☐ T-20020	☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory			
	Laboratory Location (Shenzhen)			
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China			
	Laboratory Accreditations			
	A2LA: 3628.02		CNAS: L10551	
☐	FCC: CN1284		ISED: CN0105	
	Test Site – MRT Taiwan Laboratory			
	Laboratory Location (Taiwan)			
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)			
	Laboratory Accreditations			
☐	TAF: 3261			
	FCC: 291082, TW3261		ISED: TW3261	

1.4. Product Information

Product Name	Toniebox 2
Model No.	10005
EUT Identification No.	20241120Sample#01
HW Version	Main board for CE test: V2.0.O.1 UX-Board for CE test: 1.0.H.6
SW Version	For Conducted Emission test: hw-verify-cert-v0.28.0 Except for Conducted Emission test: hw-verify-cert-v0.26.0
Wi-Fi Specification	802.11a/b/g/n
NFC Specification	13.56MHz
Bluetooth Specification	Bluetooth 5.2 (Dual Mode)
Power Type	By Battery
Accessory	
Rechargeable Li-ion Battery	Model No.: ITR26700 Nominal Voltage: 3.2V Rated Capacity: 4000mAh 12.8Wh Limited Charge Voltage: 3.65V
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification

Frequency Range	13.56MHz
Channel Number	1
Type of modulation	ASK

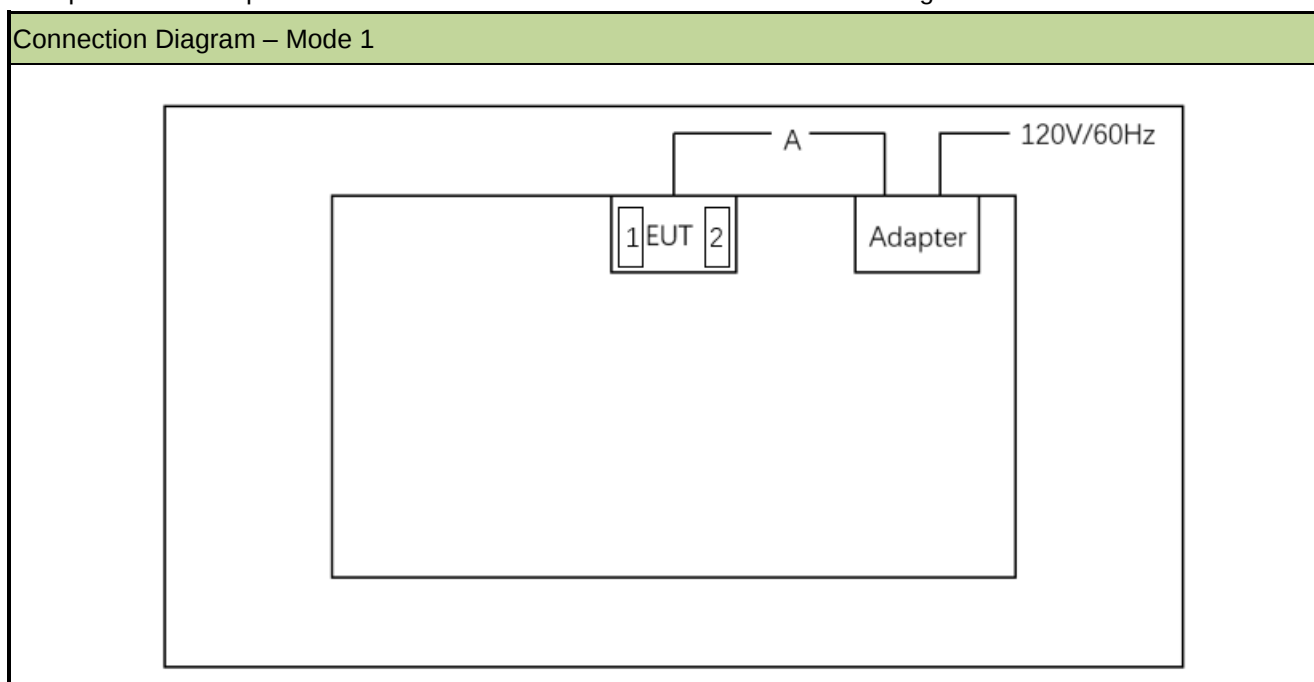
2. Test Configuration

2.1. Test Mode

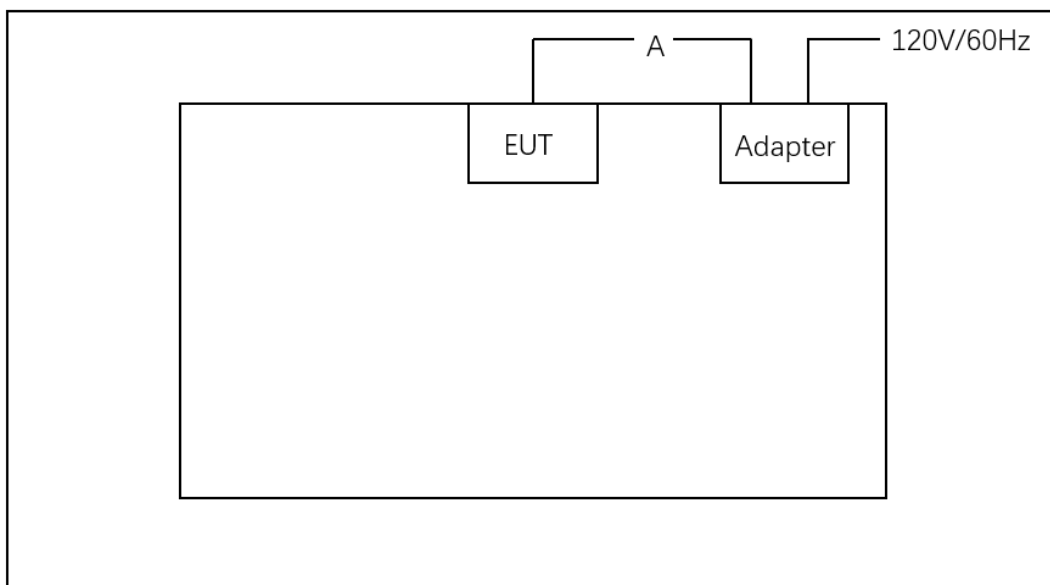
Test Mode
Mode 1: Operating Mode (With Receiver)
Mode 2: Operating Mode (Without Receiver)

2.2. Test Configuration and Software

The device was tested per the guidance ANSI C63.10-2013 that was used to reference the appropriate EUT setup for radiated spurious emissions and AC line conducted emission testing.



Connection Diagram – Mode 2



Cable Type		Cable Description	Length
A	Power Cable	Non-Shielded	1.7m
Product		Manufacturer	Model No.
1	Controller	Tonies US, Inc.	N/A
2	DISC	Tonies US, Inc.	N/A

2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.225
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35 °C
Relative Humidity	20 ~75 %RH

3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of this device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
TRILOG Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2025-04-17	WZ-AC2
EMI Test Receiver	Agilent	N9038A	MRTSUE06125	1 year	2025-05-08	WZ-AC2
Anechoic Chamber	RIKEN	WZ-AC2	MRTSUE06213	1 year	2025-04-18	WZ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11263	1 year	2025-10-16	WZ-AC2
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2025-01-27	WZ-AC2/WZ-TR3
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2026-01-04	WZ-AC2/WZ-TR3
Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2025-05-08	WZ-AC2/WZ-TR3
Temperature Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2025-09-02	WZ-TR3
Thermohygrometer	testo	608-H1	MRTSUE11268	1 year	2025-12-10	WZ-TR3
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2025-05-08	WZ-SR2
Shielding Room	MIX-BEP	WZ-SR2	MRTSUE06215	5 years	2026-12-20	WZ-SR2
Thermohygrometer	testo	608-H1	MRTSUE06404	1 year	2025-05-12	WZ-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06909	1 year	2025-09-05	WZ-SR2

Software	Version	Function
e3	230711	RE & CE
Controller_MF 7802	1.02	RE Antenna & Turntable

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.

(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.58dB 150kHz~30MHz: 3.20dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Coaxial: 9kHz~30MHz: 2.61dB Coplanar: 9kHz~30MHz: 2.62dB Horizontal: 30MHz~200MHz: 3.79dB Vertical: 30MHz~200MHz: 4.06dB

6. Test Result

6.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Verdict
15.225 (a), (b), (c)	In-Band Emission	Radiated	Pass
15.225(d)	Out-Band Emission		Pass
15.215(c)	20dB Bandwidth		Pass
15.225(e)	Frequency Tolerance		Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

Note: For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

6.2. In-band Emission Measurement

6.2.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.225		
Frequency (MHz)	Distance (m)	Level ($\mu\text{V/m}$)
13.553 ~13.567	30	15848
13.410 ~13.553, 13.567 ~13.710	30	334
13.110 ~13.410, 13.710 ~14.010	30	106
Note 1: The lower limit shall apply at the transition frequency.		
Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.		
Note 3: $E \text{ field strength (dB}\mu\text{V/m)} = 20 \log E \text{ field strength (}\mu\text{V/m)}$		

6.2.2. Test Procedure

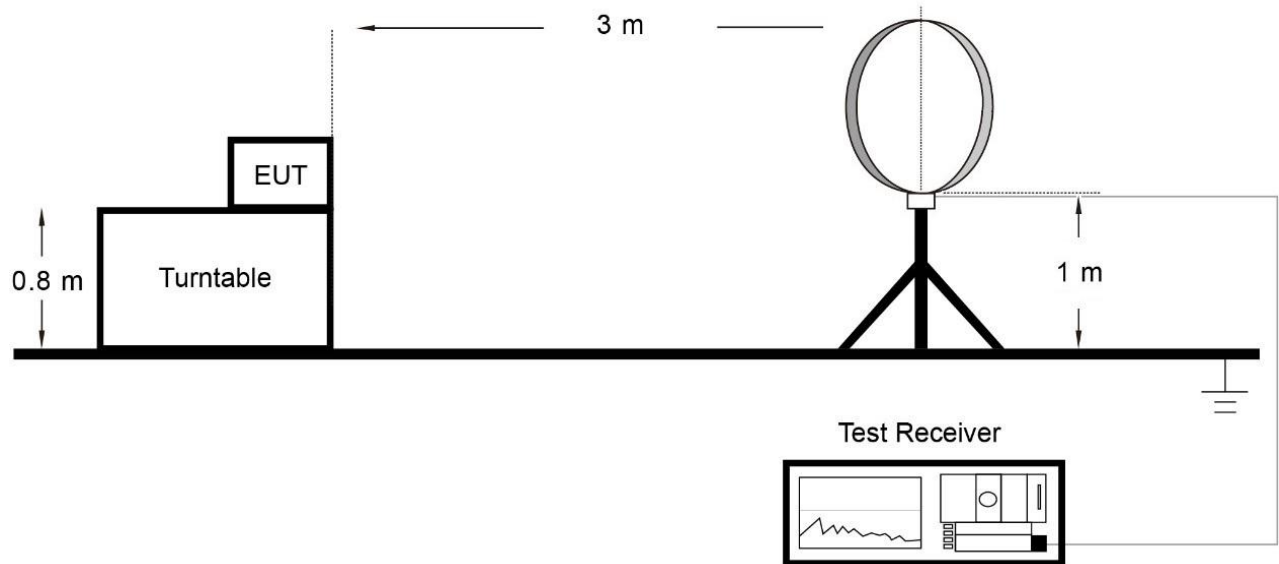
ANSI C63.10 - 2013 - Section 6.4

6.2.3. Test Setting

1. RBW = 9kHz or 10kHz
2. VBW = 3 * RBW
3. Detector = Peak
4. Trace mode = Max hold
5. Sweep = Auto couple
6. Allow the trace to stabilize

6.2.4. Test Setup

9kHz ~ 30MHz Test Setup:



6.2.5. Test Result

Refer to Appendix A.1.

6.3. Out-band Emission Measurement

6.3.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level ($\mu\text{V/m}$)
0.009 - 0.490	300	2400/F (kHz)
0.490 - 1.705	30	24000/F (kHz)
1.705 - 30	30	30
30 - 88	3	100
88 - 216	3	150

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dB $\mu\text{V/m}$) = 20 log E field strength ($\mu\text{V/m}$)

6.3.2. Test Procedure

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

6.3.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz

Peak Measurement

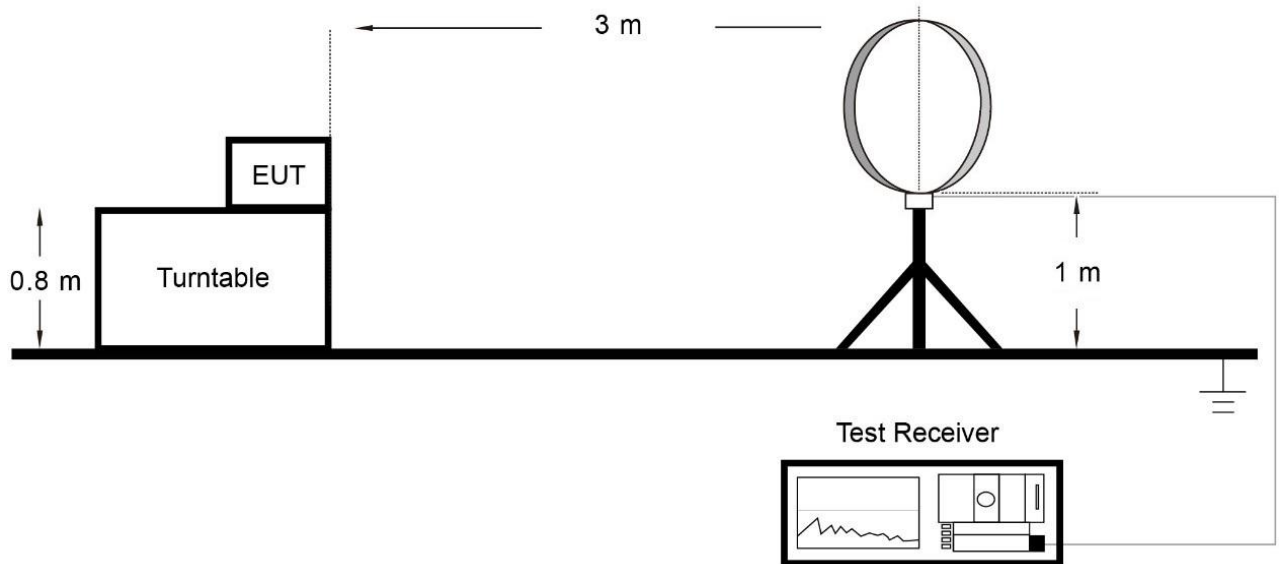
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3 * RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

Quasi-Peak Measurement

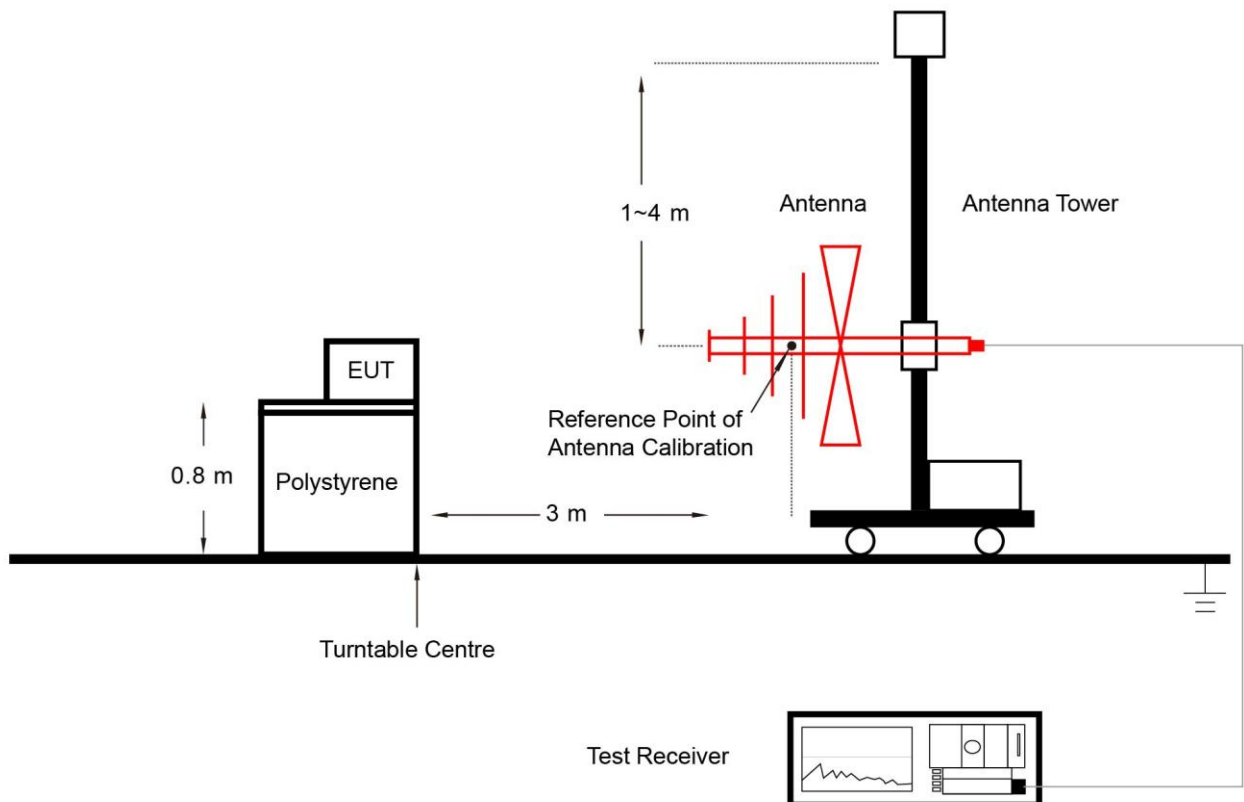
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

6.3.4. Test Setup

9kHz ~ 30MHz Test Setup:



Above 30MHz Test Setup:



6.3.5. Test Result

Refer to Appendix A.2.

6.4. Occupied Bandwidth Measurement

6.4.1. Test Limit

The occupied bandwidth is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequency.

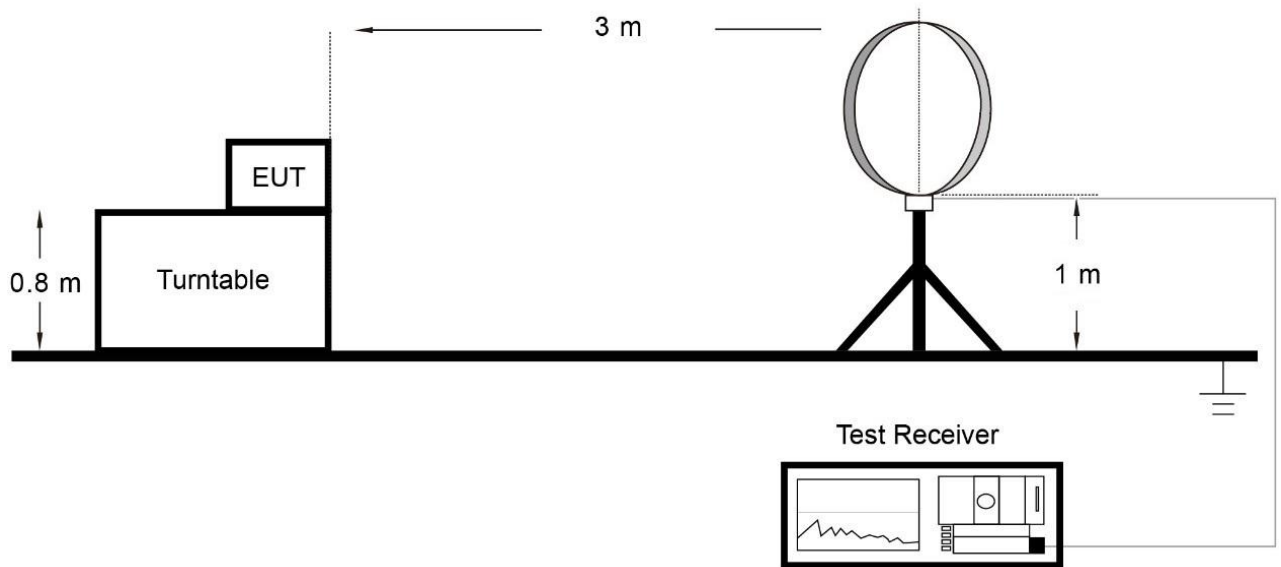
6.4.2. Test Procedure

ANSI C63.10-2013 - Section 6.9.2

6.4.3. Test Setting

1. Set RBW $\geq$ 1% to 5% of the 20dB bandwidth
2. VBW = approximately three times RBW
3. Span = approximately 2 to 5 times the 20dB bandwidth
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.3.

6.5. Frequency Tolerance Measurement

6.5.1. Test Limit

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency.

6.5.2. Test Procedure

ANSI C63.10-2013 - Section 6.8

6.5.3. Test Setting

Frequency Stability Under Temperature Variations:

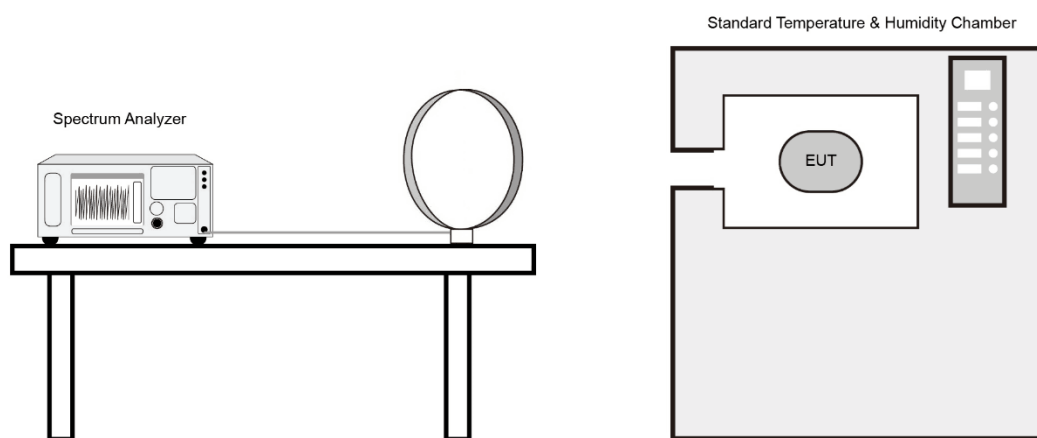
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change. For hand-carried battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

6.5.4. Test Setup



6.5.5. Test Result

Refer to Appendix A.4.

6.6. AC Conducted Emissions Measurement

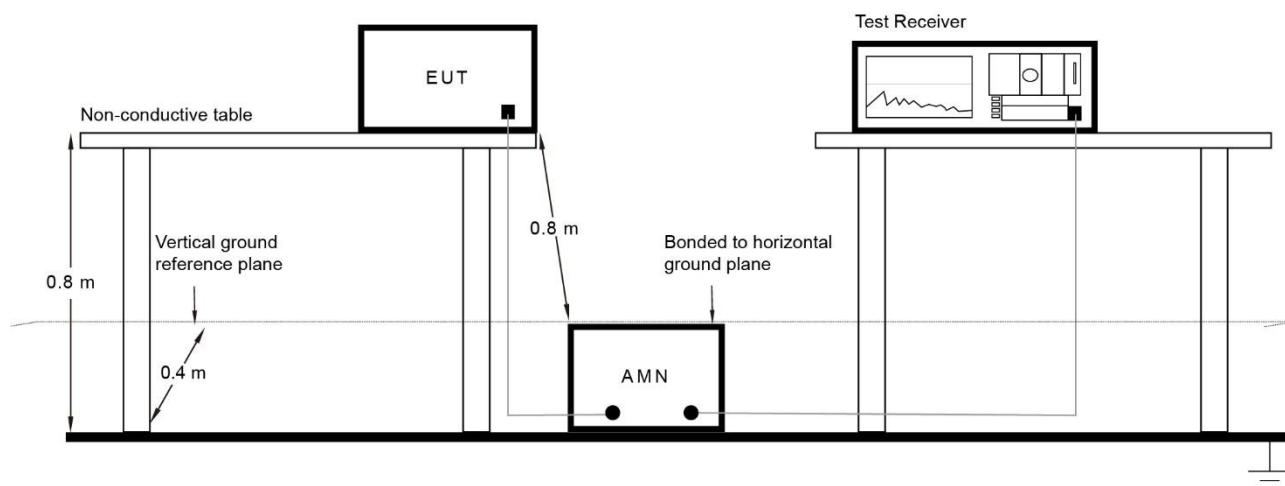
6.6.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207		
Frequency (MHz)	QP (dB μ V)	AV (dB μ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.6.2. Test Setup



6.6.3. Test Result

Refer to Appendix A.5.

Appendix A - Test Result

A.1 In-band Emission Test Result

Test Site	WZ-AC2	Test Date	2024-12-27
Test Engineer	Ajin Fan	Test Mode	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level@3m (dBμV/m)	Measure Level@30m (dBμV/m)	Limit (dBμV/m)	Margin [dB]	Detector	Polarization
13.400	36.240	19.130	55.370	15.370	40.506	-25.136	Peak	Coaxial
13.552	55.780	19.120	74.900	34.900	50.475	-15.575	Peak	Coaxial
13.561	62.540	19.120	81.660	41.660	83.999	-42.339	Peak	Coaxial
13.569	56.780	19.120	75.900	35.900	50.475	-14.575	Peak	Coaxial
13.721	37.660	19.120	56.780	16.780	40.506	-23.726	Peak	Coaxial
13.405	32.300	19.130	51.430	11.430	40.506	-29.076	Peak	Coplanar
13.552	53.090	19.120	72.210	32.210	50.475	-18.265	Peak	Coplanar
13.561	59.730	19.120	78.850	38.850	83.999	-45.149	Peak	Coplanar
13.569	52.490	19.120	71.610	31.610	50.475	-18.865	Peak	Coplanar
13.720	33.720	19.120	52.840	12.840	40.506	-27.666	Peak	Coplanar

Note

- All measurements were performed using a loop antenna. The antenna was positioned in two orthogonal (coaxial and coplanar) and the position with the highest emission level was recorded.
- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
- Measurements were tested at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2).
Extrapolation Factor = $40 \cdot \log(30/3) = 40$ dB
- All measurements were recorded using an EMI test receiver employing a peak detector.

Test Site	WZ-AC2	Test Date	2024-12-27
Test Engineer	Ajin Fan	Test Mode	Mode 2

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level@3m (dBμV/m)	Measure Level@30m (dBμV/m)	Limit (dBμV/m)	Margin [dB]	Detector	Polarization
13.403	37.210	19.130	56.340	16.340	40.506	-24.166	Peak	Coaxial
13.551	55.950	19.120	75.070	35.070	50.475	-15.405	Peak	Coaxial
13.561	63.920	19.120	83.040	43.040	83.999	-40.959	Peak	Coaxial
13.569	56.780	19.120	75.900	35.900	50.475	-14.575	Peak	Coaxial
13.724	36.260	19.120	55.380	15.380	40.506	-25.126	Peak	Coaxial
13.400	33.980	19.130	53.110	13.110	40.506	-27.396	Peak	Coplanar
13.552	53.890	19.120	73.010	33.010	50.475	-17.465	Peak	Coplanar
13.561	60.800	19.120	79.920	39.920	83.999	-44.079	Peak	Coplanar
13.568	55.970	19.120	75.090	35.090	50.475	-15.385	Peak	Coplanar
13.724	32.920	19.120	52.040	12.040	40.506	-28.466	Peak	Coplanar

Note

- All measurements were performed using a loop antenna. The antenna was positioned in two orthogonal (coaxial and coplanar) and the position with the highest emission level was recorded.
- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
- Measurements were tested at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2).
Extrapolation Factor = $40 \cdot \log(30/3) = 40 \text{ dB}$
- All measurements were recorded using an EMI test receiver employing a peak detector.

A.2 Out-Band Emission Test Result

Test Site	WZ-AC2	Test Date	2024-12-27
Test Engineer	Ajin Fan	Test Mode	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level@3m (dBμV/m)	Measure Level@300m or 30m (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
0.026	32.120	19.750	51.880	-28.120	39.305	-67.425	Peak	Coaxial
0.130	19.470	19.090	38.560	-41.440	25.325	-66.765	Peak	Coaxial
0.995	18.560	19.100	37.660	-2.340	27.648	-29.988	Peak	Coaxial
2.678	17.870	19.250	37.130	-2.870	29.542	-32.412	Peak	Coaxial
0.026	31.130	19.770	50.900	-29.100	39.305	-68.405	Peak	Coplanar
0.130	19.360	19.090	38.450	-41.550	25.325	-66.875	Peak	Coplanar
1.028	18.330	19.100	37.430	-2.570	27.364	-29.934	Peak	Coplanar
27.119	14.620	19.610	34.230	-5.770	29.542	-35.312	Peak	Coplanar

Notes:

- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
- Measurements were tested at 3m and the data was extrapolated to the specified measurement distance of 30m or 300m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2). Extrapolation Factor = $40 \cdot \log(300/3) = 80$ dB for range 0.009 ~ 0.490MHz,
Extrapolation Factor = $40 \cdot \log(30/3) = 40$ dB for range 0.490 ~ 30MHz,
- Below 30MHz measurement was performed using a loop antenna. The antenna was positioned in two orthogonal (Coaxial and Coplanar) and the position with the highest emission level was recorded.
- All measurements were recorded using an EMI test receiver employing a peak detector.

Out-Band Emission Above 30MHz							
Polarization	Frequency (MHz)	Reading Level (dBμV/m)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
Horizontal	45.566	-2.900	20.320	17.420	40.000	-22.580	Peak
Horizontal	66.566	-0.600	17.530	16.930	40.000	-23.070	Peak
Horizontal	106.124	0.900	18.470	19.370	43.500	-24.130	Peak
Horizontal	122.961	9.400	16.390	25.790	43.500	-17.710	Peak
Horizontal	129.086	17.500	15.830	33.330	43.500	-10.170	Peak
Horizontal	138.871	10.000	15.270	25.270	43.500	-18.230	Peak
Vertical	48.926	2.600	20.480	23.080	40.000	-16.920	Peak
Vertical	66.899	9.400	17.410	26.810	40.000	-13.190	Peak
Vertical	122.982	9.400	16.390	25.790	43.500	-17.710	Peak
Vertical	128.992	21.100	15.840	36.940	43.500	-6.560	Peak
Vertical	146.752	4.500	15.140	19.640	43.500	-23.860	Peak
Vertical	149.807	7.900	15.200	23.100	43.500	-20.400	Peak

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Note 2: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

Test Site	WZ-AC2	Test Date	2024-12-27
Test Engineer	Ajin Fan	Test Mode	Mode 2

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level@3m (dBμV/m)	Measure Level@300m or 30m (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
0.029	32.260	19.640	51.890	-28.110	38.356	-66.466	Peak	Coaxial
0.130	19.700	19.090	38.780	-41.220	25.325	-66.545	Peak	Coaxial
1.066	17.930	19.110	37.040	-2.960	27.049	-30.009	Peak	Coaxial
7.618	14.990	19.140	34.140	-5.860	29.542	-35.402	Peak	Coaxial
0.029	32.290	19.670	51.960	-28.040	38.356	-66.396	Peak	Coplanar
0.130	19.220	19.090	38.310	-41.690	25.325	-67.015	Peak	Coplanar
1.019	17.200	19.100	36.310	-3.690	27.441	-31.131	Peak	Coplanar
27.122	14.460	19.610	34.070	-5.930	29.542	-35.472	Peak	Coplanar

Notes:

- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
- Measurements were tested at 3m and the data was extrapolated to the specified measurement distance of 30m or 300m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2). Extrapolation Factor = $40 \cdot \log(300/3) = 80$ dB for range 0.009 ~ 0.490MHz,
Extrapolation Factor = $40 \cdot \log(30/3) = 40$ dB for range 0.490 ~ 30MHz,
- Below 30MHz measurement was performed using a loop antenna. The antenna was positioned in two orthogonal (Coaxial and Coplanar) and the position with the highest emission level was recorded.
- All measurements were recorded using an EMI test receiver employing a peak detector.

Out-Band Emission Above 30MHz							
Polarization	Frequency (MHz)	Reading Level (dBμV/m)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
Horizontal	36.333	-1.900	18.020	16.120	40.000	-23.880	Peak
Horizontal	47.843	-3.400	20.450	17.050	40.000	-22.950	Peak
Horizontal	66.877	0.300	17.420	17.720	40.000	-22.280	Peak
Horizontal	122.823	4.800	16.400	21.200	43.500	-22.300	Peak
Horizontal	128.989	16.400	15.840	32.240	43.500	-11.260	Peak
Horizontal	138.893	5.300	15.270	20.570	43.500	-22.930	Peak
Vertical	49.060	2.700	20.480	23.180	40.000	-16.820	Peak
Vertical	66.802	10.300	17.450	27.750	40.000	-12.250	Peak
Vertical	123.021	7.100	16.380	23.480	43.500	-20.020	Peak
Vertical	129.055	19.200	15.830	35.030	43.500	-8.470	Peak
Vertical	138.893	4.600	15.270	19.870	43.500	-23.630	Peak
Vertical	149.590	8.700	15.190	23.890	43.500	-19.610	Peak

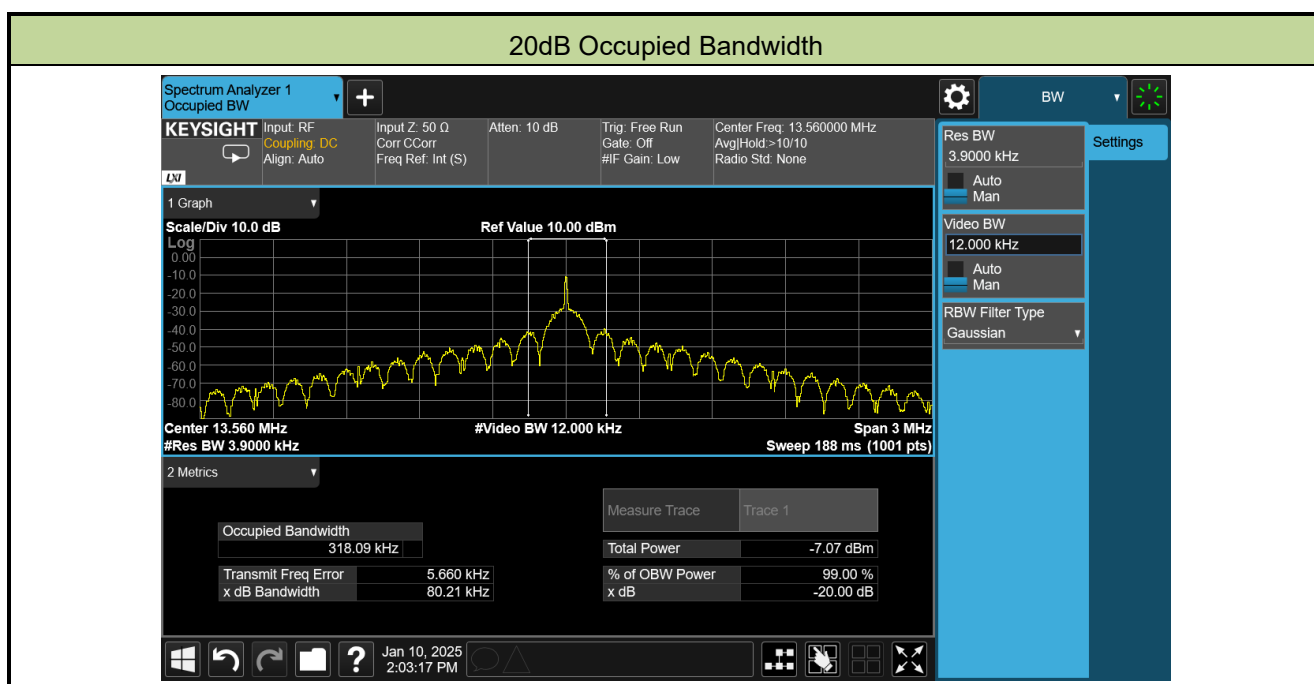
Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Note 2: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

A.3 Occupied Bandwidth Test Result

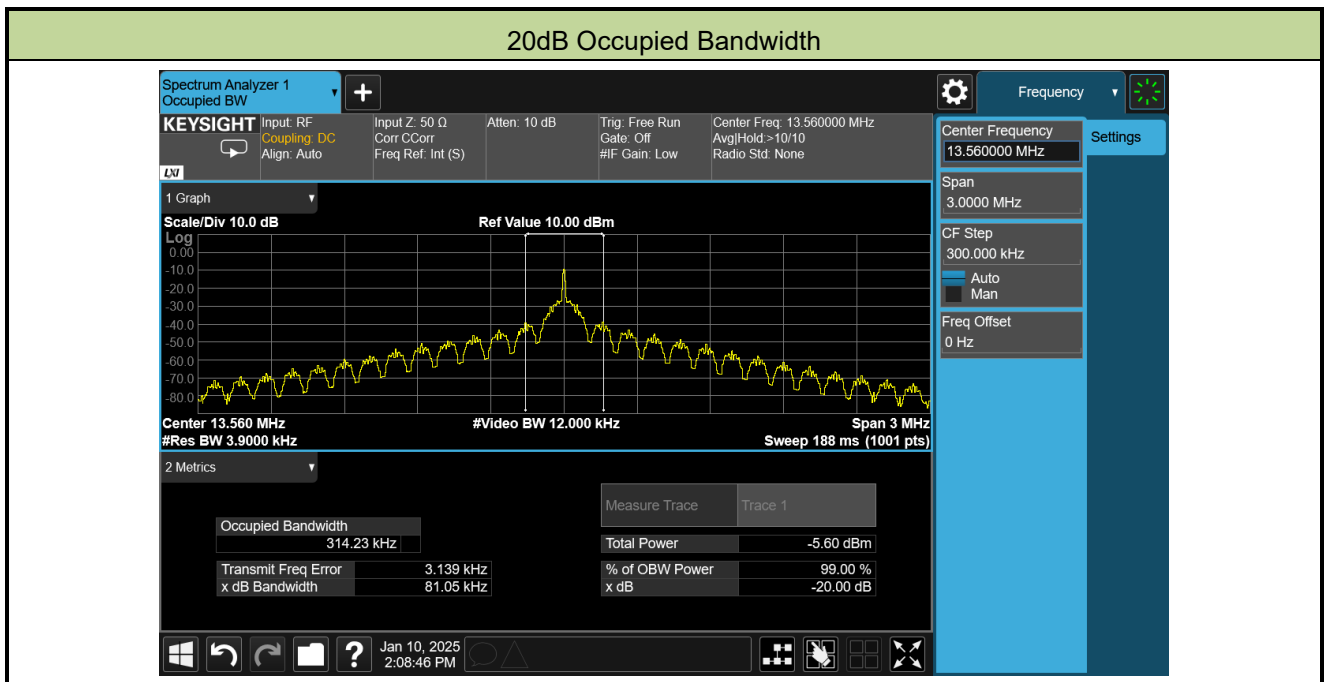
Test Site	WZ-AC2	Test Date	2025-01-10
Test Engineer	Ajin Fan	Test Mode	Mode 1

Frequency (MHz)	20dB Occupied Bandwidth (kHz)
13.56	80.21



Test Site	WZ-AC2	Test Date	2025-01-10
Test Engineer	Ajin Fan	Test Mode	Mode 2

Frequency (MHz)	20dB Occupied Bandwidth (kHz)
13.56	81.05



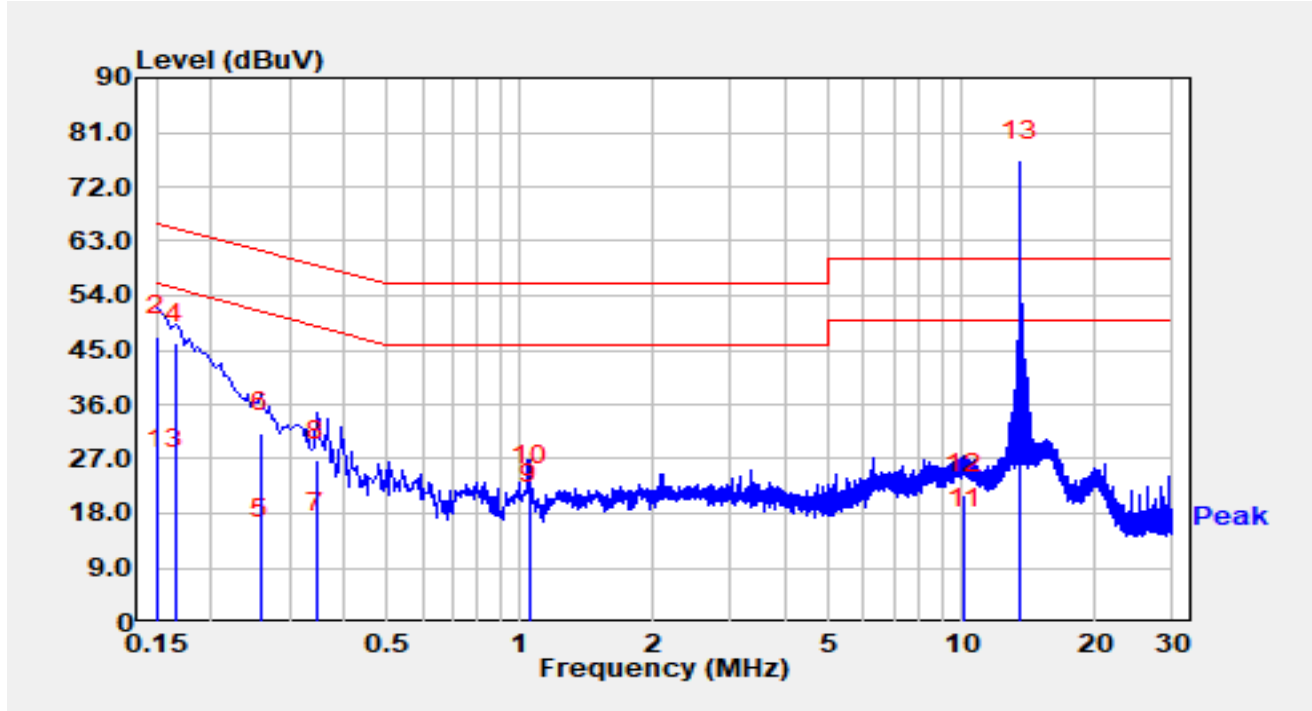
A.4 Frequency Tolerance Test Result

Test Site	WZ-TR3	Test Date	2025-01-12
Test Engineer	Lucas Wang	Test Mode	Mode 1

Reference Voltage: 120V			
Deviation Limit: +/- 0.01% = +/- 1356Hz			
Voltage (%)	Power Battery	Temp (°C)	Frequency Deviation (Hz)
100%	120V	-20	615
		-10	-53
		0	514
		+10	-299
		+20	559
		+30	461
		+40	-94
		+50	556
85%	102V	+ 20	581
115%	138V	+ 20	655

A.5 AC Conducted Emissions Test Result

Site	WZ-SR2	Test Date	2025-01-10
Temperature	19.2°C	Humidity	23.6%
Limit	FCC Part 15.207_CE_Mains	Test Engineer	Linda Wei
Factor	ENV216_101683_L1_Filter Off_E	Polarity	Line1
EUT	Toniebox 2	Test Voltage	AC 120V/60Hz
Test Mode	Mode 1		

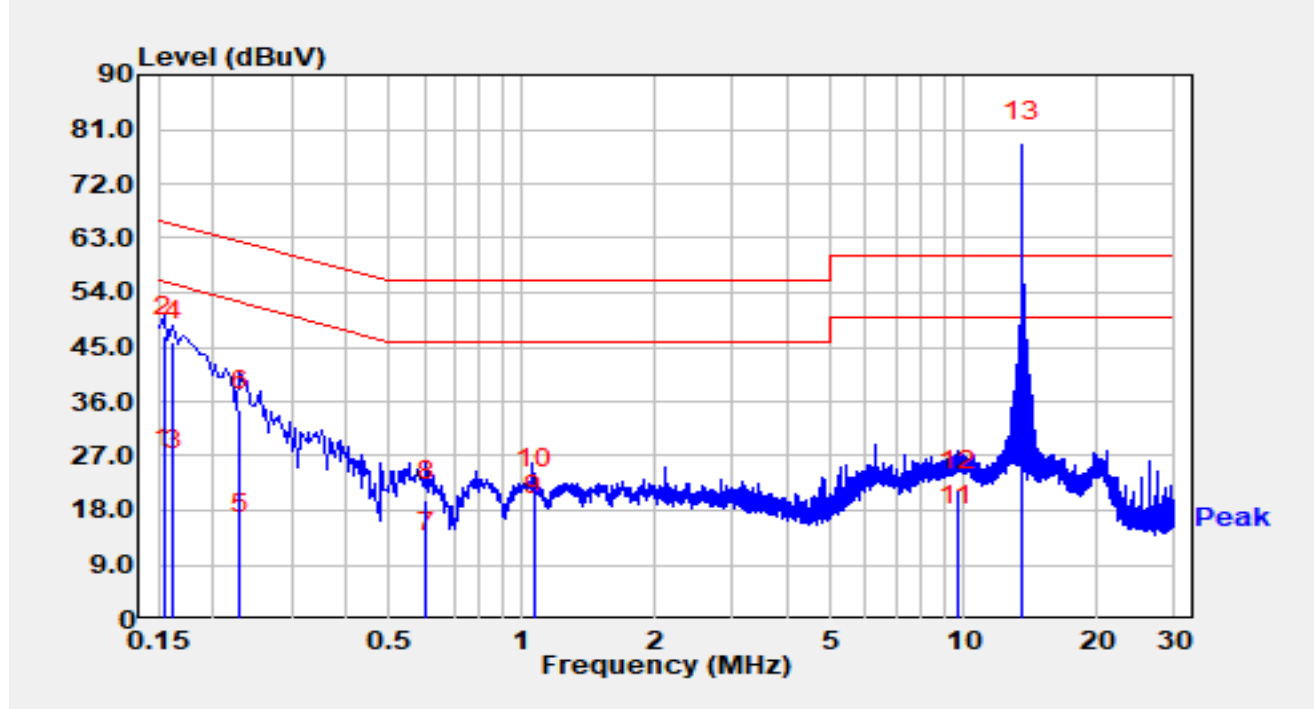


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB)	Measurement (dBμV)	Margin (dB)	Limit (dBμV)	Detector
1		0.150	15.50	9.79	25.29	-30.71	56.00	Average
2	*	0.150	37.50	9.79	47.29	-18.71	66.00	QP
3		0.166	15.40	9.78	25.18	-29.98	55.16	Average
4		0.166	36.30	9.78	46.08	-19.08	65.16	QP
5		0.258	4.10	9.82	13.92	-37.58	51.50	Average
6		0.258	21.50	9.82	31.32	-30.18	61.50	QP
7		0.346	4.90	9.85	14.75	-34.31	49.06	Average
8		0.346	16.90	9.85	26.75	-32.31	59.06	QP
9		1.050	9.50	10.20	19.70	-26.30	46.00	Average
10		1.050	12.50	10.20	22.70	-33.30	56.00	QP
11		10.140	4.50	10.98	15.48	-34.52	50.00	Average
12		10.140	10.20	10.98	21.18	-38.82	60.00	QP
13		13.560	65.10	11.17	76.27	N/A	N/A	Peak

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB) = LISN Factor (dB) + Cable Loss (dB).
3. Measurement (dB μ V) = Reading (dB μ V) + C.F (dB).
4. The point (13) is NFC fundamental frequency that is not evaluated in this standard. Data under the following section indicates that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

Site	WZ-SR2	Test Date	2025-01-10
Temperature	19.2°C	Humidity	23.6%
Limit	FCC Part 15.207_CE_Mains	Test Engineer	Linda Wei
Factor	ENV216_101683_N_Filter Off_E	Polarity	Neutral
EUT	Toniebox 2	Test Voltage	AC 120V/60Hz
Test Mode	Mode 1		

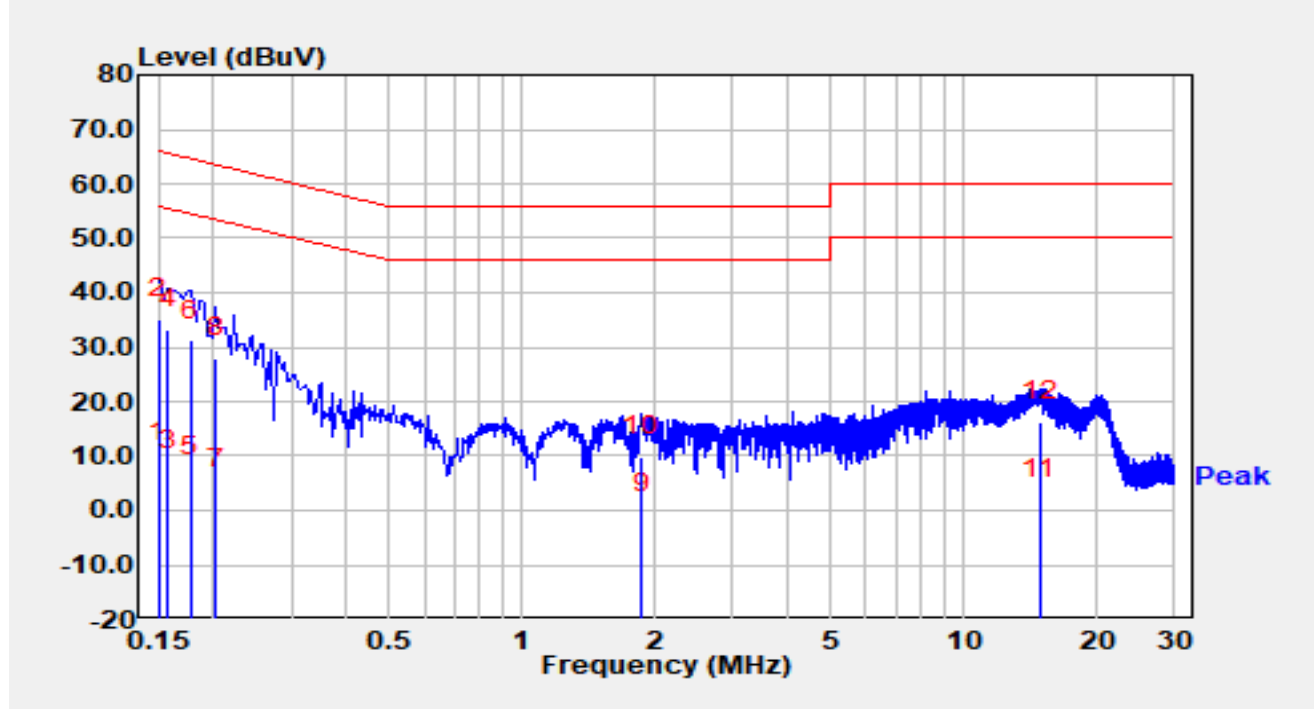


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB)	Measurement (dBμV)	Margin (dB)	Limit (dBμV)	Detector
1		0.154	15.20	9.75	24.95	-30.83	55.78	Average
2	*	0.154	37.10	9.75	46.85	-18.93	65.78	QP
3		0.162	14.80	9.76	24.56	-30.80	55.36	Average
4		0.162	36.10	9.76	45.86	-19.50	65.36	QP
5		0.229	4.20	9.79	13.99	-38.50	52.49	Average
6		0.229	24.70	9.79	34.49	-28.00	62.49	QP
7		0.607	1.00	9.97	10.97	-35.03	46.00	Average
8		0.607	9.70	9.97	19.67	-36.33	56.00	QP
9		1.060	7.10	10.18	17.28	-28.72	46.00	Average
10		1.060	11.50	10.18	21.68	-34.32	56.00	QP
11		9.640	4.50	10.98	15.48	-34.52	50.00	Average
12		9.640	10.30	10.98	21.28	-38.72	60.00	QP
13		13.560	67.60	11.22	78.82	N/A	N/A	Peak

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB) = LISN Factor (dB) + Cable Loss (dB).
3. Measurement (dB μ V) = Reading (dB μ V) + C.F (dB).
4. The point (13) is NFC fundamental frequency that is not evaluated in this standard. Data under the following section indicates that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

Site	WZ-SR2	Test Date	2025-02-14
Temperature	17.8 °C	Humidity	34.9 %
Limit	FCC Part 15.207_CE_Mains	Test Engineer	Linda Wei
Factor	ENV216_101683_L1_Filter Off_E	Polarity	Line1
EUT	Toniebox 2	Test Voltage	AC 120V/60Hz
Test Mode	Antenna terminal terminated		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB)	Measurement (dBμV)	Margin (dB)	Limit (dBμV)	Detector
1		0.150	-1.10	9.79	8.69	-47.31	56.00	Average
2	*	0.150	25.40	9.79	35.19	-30.81	66.00	QP
3		0.158	-2.40	9.77	7.37	-48.19	55.57	Average
4		0.158	23.60	9.77	33.37	-32.19	65.57	QP
5		0.178	-3.50	9.78	6.28	-48.30	54.58	Average
6		0.178	21.50	9.78	31.28	-33.30	64.58	QP
7		0.202	-5.90	9.79	3.89	-49.63	53.53	Average
8		0.202	18.20	9.79	27.99	-35.53	63.53	QP
9		1.860	-10.70	10.28	-0.42	-46.42	46.00	Average
10		1.860	-0.30	10.28	9.98	-46.02	56.00	QP
11		14.830	-9.00	11.24	2.24	-47.76	50.00	Average
12		14.830	5.00	11.24	16.24	-43.76	60.00	QP

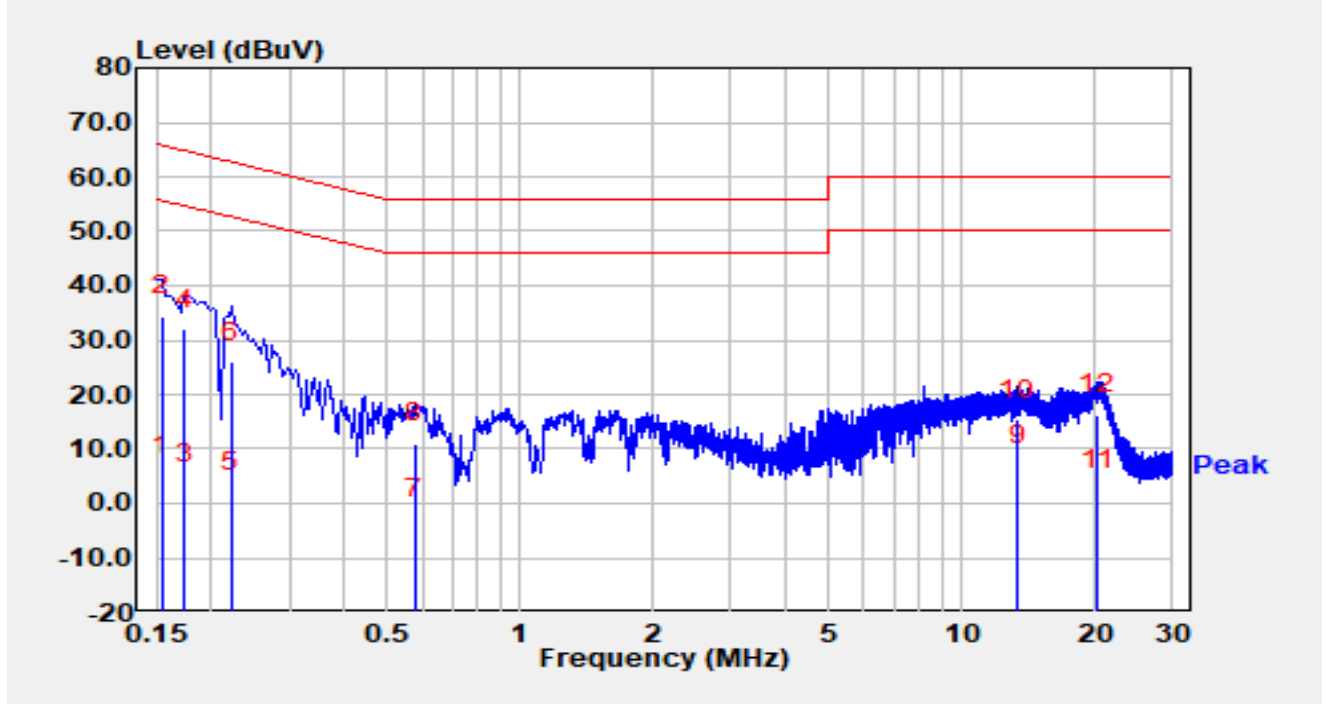
Notes:

1. " * ", means this data is the worst emission level.

2. C.F (dB) = LISN Factor (dB) + Cable Loss (dB).

3. Measurement (dBμV) = Reading (dBμV) + C.F (dB).

Site	WZ-SR2	Test Date	2025-02-14
Temperature	17.8 °C	Humidity	34.9 %
Limit	FCC Part 15.207_CE_Mains	Test Engineer	Linda Wei
Factor	ENV216_101683_N_Filter Off_E	Polarity	Neutral
EUT	Toniebox 2	Test Voltage	AC 120V/60Hz
Test Mode	Antenna terminal terminated		



No	Mark	Frequency (MHz)	Reading (dBUV)	C.F (dB)	Measurement (dBUV)	Margin (dB)	Limit (dBUV)	Detector
1		0.154	-4.50	9.75	5.25	-50.53	55.78	Average
2	*	0.154	24.70	9.75	34.45	-31.33	65.78	QP
3		0.174	-6.30	9.76	3.46	-51.30	54.77	Average
4		0.174	22.30	9.76	32.06	-32.70	64.77	QP
5		0.222	-7.60	9.78	2.18	-50.56	52.74	Average
6		0.222	16.20	9.78	25.98	-36.76	62.74	QP
7		0.578	-12.90	9.95	-2.95	-48.95	46.00	Average
8		0.578	1.00	9.95	10.95	-45.05	56.00	QP
9		13.390	-4.30	11.21	6.91	-43.09	50.00	Average
10		13.390	4.20	11.21	15.41	-44.59	60.00	QP
11		20.250	-9.00	11.50	2.50	-47.50	50.00	Average
12		20.250	4.90	11.50	16.40	-43.60	60.00	QP

Notes:

1. " * ", means this data is the worst emission level.

2. C.F (dB) = LISN Factor (dB) + Cable Loss (dB).

3. Measurement (dB μ V) = Reading (dB μ V) + C.F (dB).

Appendix B - Test Setup Photograph

Refer to “2410RSU073-UT” file.

Appendix C - EUT Photograph

Refer to “2410RSU073-UE” file.

The End
