RF MEASUREMENT REPORT

Applicant:	Shure Incorporated
Product:	Wireless Microphone Transmitter
Model No.:	BLX1
Trademark:	SHURE, SHURE
FCC Rule Part(s):	Part 74 Subpart H Section 74.861
	Clause (e)(1)(ii) & (e)(6) & (e)(7)
Result:	Complies
Test Date:	2022-10-10 ~ 2022-10-11

Reviewed By: Jame Yuan

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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 C63.26-2015 and EN 300 422-1 V1.4.2. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
2209RSU053-U2	Rev. 01	Initial Report	2022-10-18	Valid

CONTENTS

1. General Information

1.1. Applicant

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.2. Manufacturer

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.3. Testing Facility

<table>
<tr><td>☒</td><td colspan="5">Test Site – MRT Suzhou Laboratory</td></tr>
<tr><td></td><td colspan="5">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</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="2">A2LA: 3628.01</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td></td><td colspan="2">FCC: CN1166</td><td colspan="3">ISED: CN0001</td></tr>
<tr><td></td><td rowspan="2">VCCI:</td><td>☐R-20025</td><td>☐G-20034</td><td>☐C-20020</td><td>☐T-20020</td></tr>
<tr><td></td><td>☐R-20141</td><td>☐G-20134</td><td>☐C-20103</td><td>☐T-20104</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Shenzhen Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Shenzhen)
1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="2">A2LA: 3628.02</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td></td><td colspan="2">FCC: CN1284</td><td colspan="3">ISED: CN0105</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Taiwan Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Taiwan)
No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="5">TAF: L3261-190725</td></tr>
<tr><td></td><td colspan="2">FCC: 291082, TW3261</td><td colspan="3">ISED: TW3261</td></tr>
</table>

1.4. Product Information

Product Name	Wireless Microphone Transmitter
Model No.	BLX1
EUT Identification No.	H9: 20220921Sample#06 (Radiated), 20220921Sample#03 (Conducted) H10: 20220921Sample#08 (Radiated), 20220921Sample#07 (Conducted)
Working Voltage	2pcs AA Batteries (DC 3.0V)
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	H9 Band: 512.125 - 541.800MHz H10 Band: 542.125 - 571.800MHz
Declared Power Level	10mW
Type of Modulation	FM
Channel Spacing	25kHz

1.6. Working Frequencies

Groups	Channel	Frequency	Groups	Channel	Frequency
H9 Band	Low	512.125 MHz	H10 Band	Low	542.125 MHz
	…	…		…	…
	Mid	526.925 MHz		Mid	556.675 MHz
	…	…		…	…
	High	541.800 MHz		High	571.800 MHz

2. Test Configuration

2.1. Test Mode

Mode 1: Transmit at Low Channel 512.125MHz (H9 Band)
Mode 2: Transmit at Mid Channel 526.925MHz (H9 Band)
Mode 3: Transmit at High Channel 541.800MHz (H9 Band)
Mode 4: Transmit at Low Channel 542.125MHz (H10 Band)
Mode 5: Transmit at Mid Channel 556.675MHz (H10 Band)
Mode 6: Transmit at High Channel 571.800MHz (H10 Band)

2.2. Test Software

There is no test utility software used during testing. Radio frequency can be set by the button on the device.

2.3. Applied Standards

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

- FCC Part 74.861
- ANSI C63.26-2015
- KDB 206256 D01v02
- ETSI EN 300 422-1 V1.4.2 (2011-08)

2.4. Test Environment Condition

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

3. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022-12-29	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2023-08-22	WZ-AC1
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2022-11-12	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2023-06-21	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2023-04-21	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE06403	1 year	2023-06-06	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022-12-29	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11039	1 year	2022-11-11	WZ-AC1
Audio Analyzer	R&S	UPV	MRTSUE06357	1 year	2023-04-28	WZ-SR5
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2023-06-06	WZ-SR5
Shielding Room	HUAMING	WZ-SR5	MRTSUE06442	N/A	N/A	WZ-SR5
Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2023-06-04	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11079	1 year	2023-06-09	WZ-SR5

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	2.03C	RE Antenna & Turntable

4. 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.

Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB

5. Test Result

5.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
74.861(e)(1)(ii)	Output Power	Conducted	Pass
74.861(e)(7)	Necessary Bandwidth		Pass
74.861(e)(7)	Radiated Spurious Emission	Radiated	Pass

Remark:

1. The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2. For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

5.2. Output Power Measurement

5.2.1. Test Limit

The conducted power may not exceed 250mW in 470 ~ 608 and 614 ~ 698 MHz band.

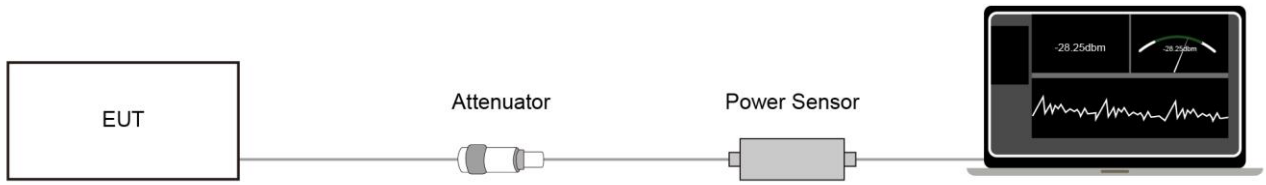
5.2.2. Test Procedure

ANSI C63.26 - 2015 - Section 5.2.4.2

5.2.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

5.2.4. Test Setup



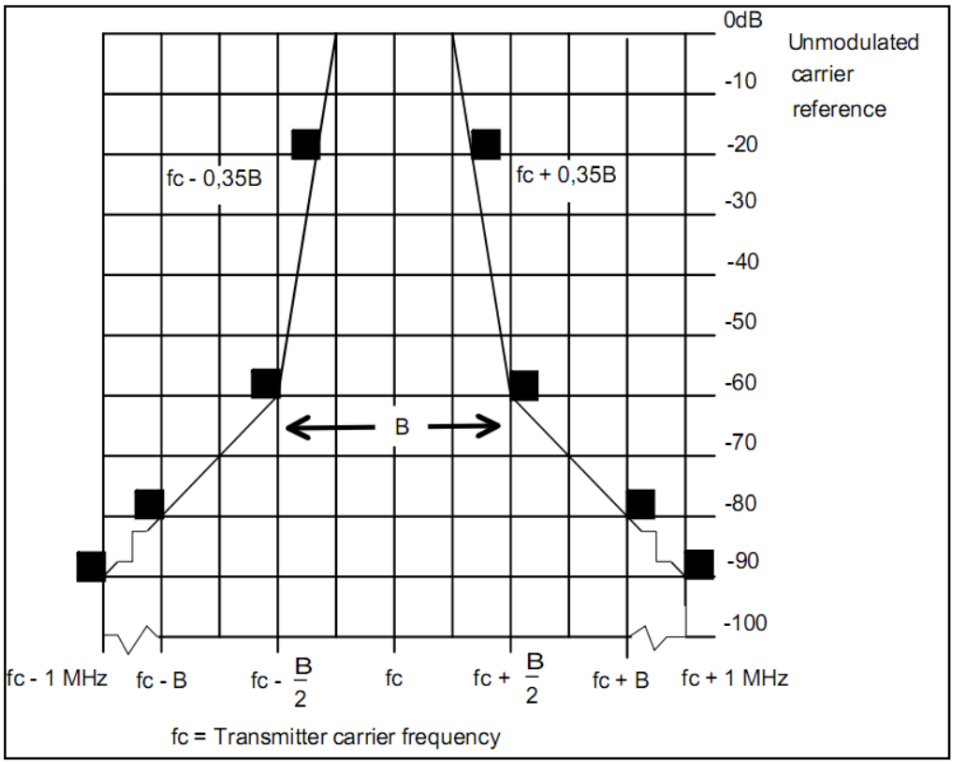
5.2.5. Test Result

Refer to Appendix A.1.

5.3. Necessary Bandwidth Measurement

5.3.1. Test Limit

Digital emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 8.3.1.2 (Figure 3) of the European Telecommunications Institute Standard ETSI EN 300 422-1 v1.4.2, as shown below.



5.3.2. Test Procedure

EN 300 422-1 V1.4.2 Clause 8.3.1.1.

5.3.3. Test Settitng

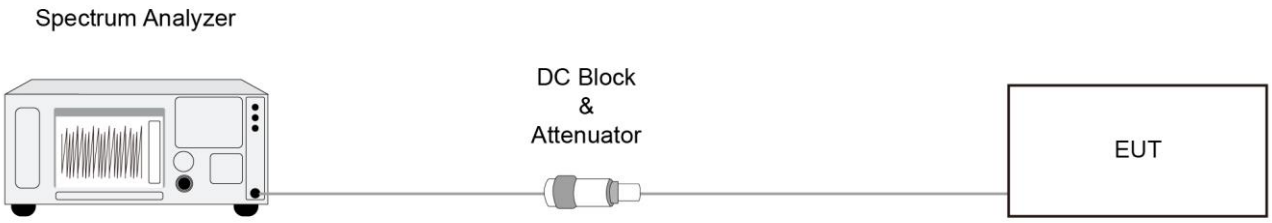
The EUT was powered up and the transmit frequency & power output of the EUT were selected.

The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.

Inject the 1kHz audio signal to the EUT to meet EN 300 422-1 requirements.

Only lowest and highest channel is required, at an output power level of 10mW.

5.3.4. Test Setup



5.3.5. Test Result

Refer to Appendix A.2.

5.4. Radiated Spurious Emission Measurement

5.4.1. Test Limit

Beyond one megahertz below and above the carrier frequency, emissions shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 v1.4.2, as shown below.

State	Frequency		
	47 MHz to 74 MHz, 87.5 MHz to 137 MHz 174 MHz to 230 MHz, 470 MHz to 862 MHz	Other frequencies below 1000 MHz	Frequencies above 1000 MHz
Operation	4 nW	250 nW	1 µW
Standby	2 nW	2 nW	20 nW

5.4.2. Test Procedure

EN 300 422-1 V1.4.2 Clause 8.4.2.

5.4.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
25 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000MHz	1MHz

Emissions shall be investigated up to the 10 harmonic of the fundamental.

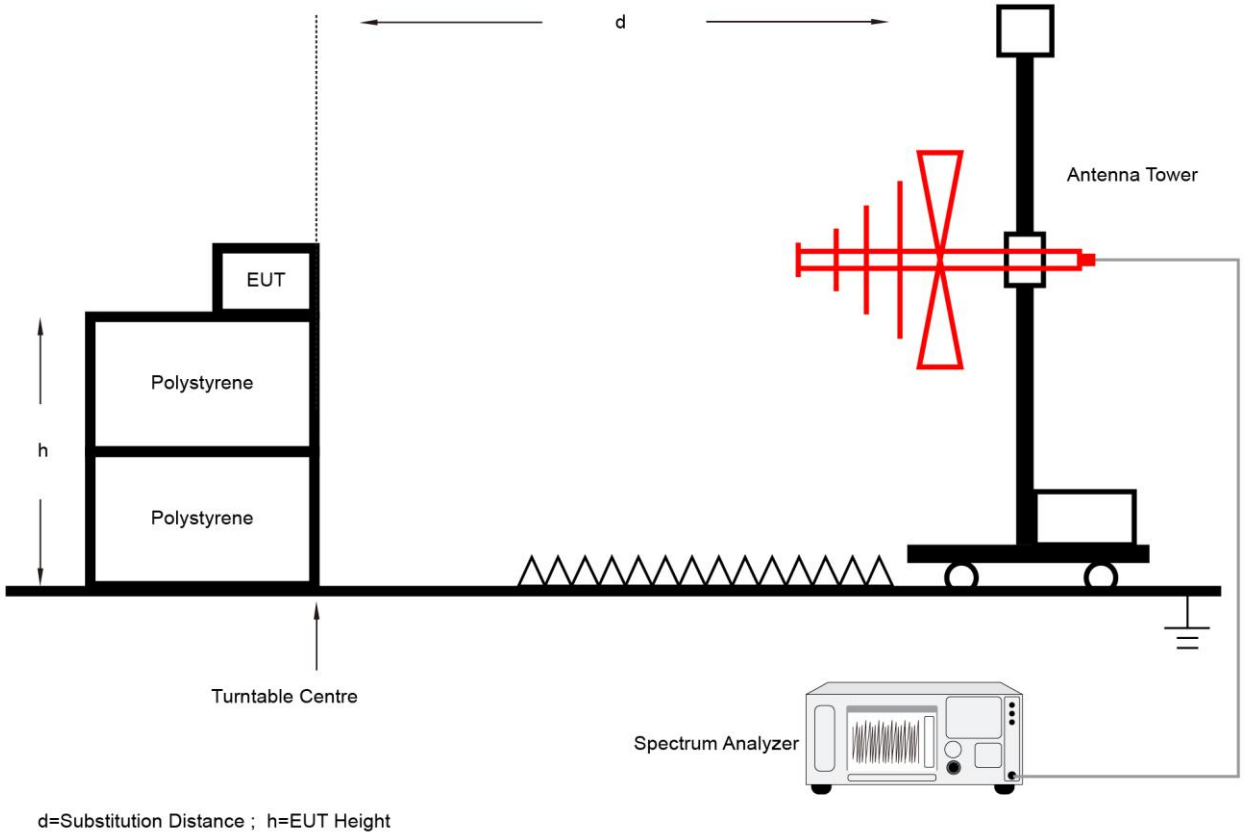
Compliance with the emission limits shall be demonstrated using a RMS Average detector.

All significant broadband and narrowband signals found in the preliminary sweeps were measured using a peak detector at a test distance of 3 meters.

At each frequency at which a component is detected, the sample shall be rotated to obtain maximum response and the effective radiated power of that component determined by a substitution measurement.

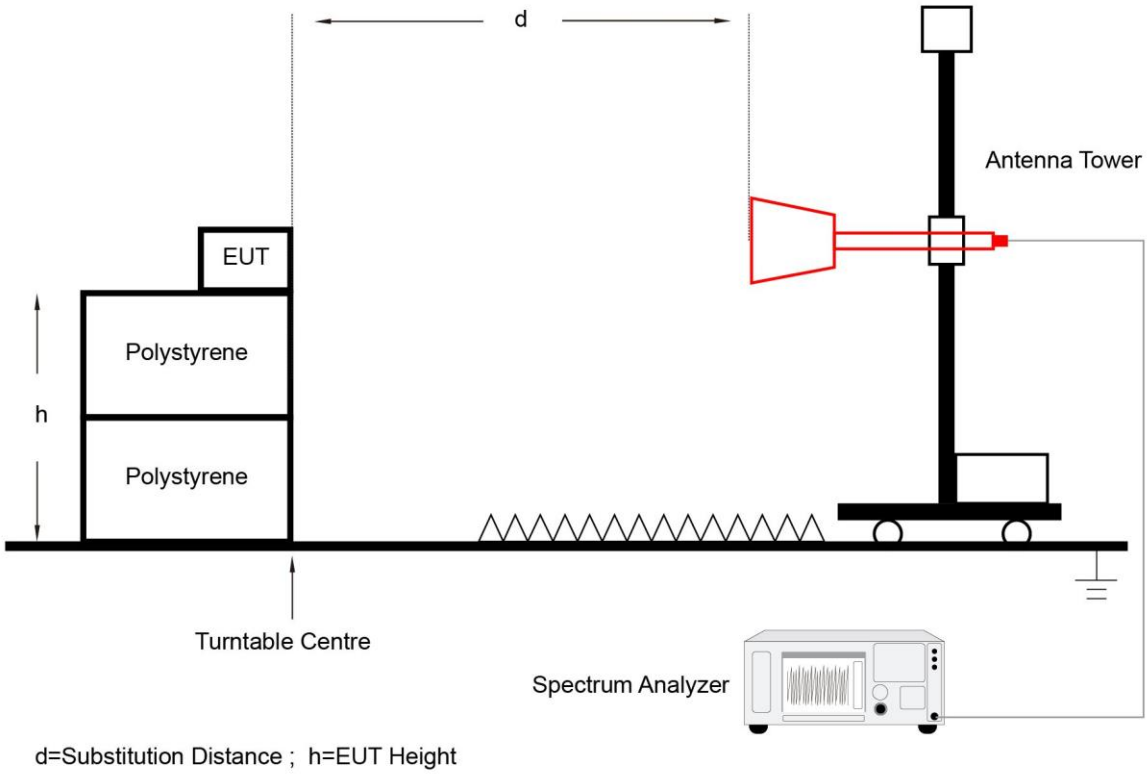
5.4.4. Test Setup

Below 1GHz Test Setup:



d=Substitution Distance ; h=EUT Height

Above 1GHz Test Setup:



d=Substitution Distance ; h=EUT Height

5.4.5. Test Result

Refer to Appendix A.3.

Appendix A – Test Result

A.1 Output Power Test Result

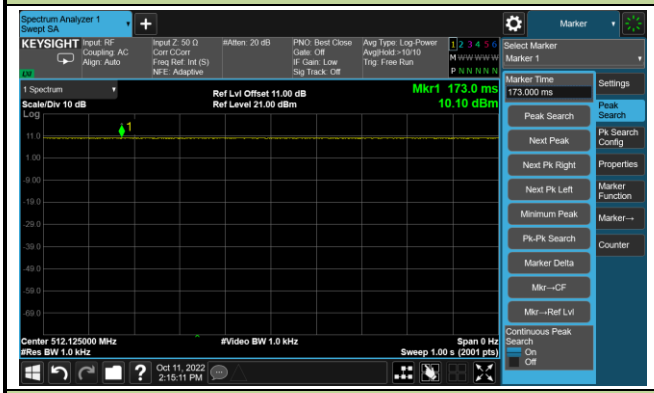
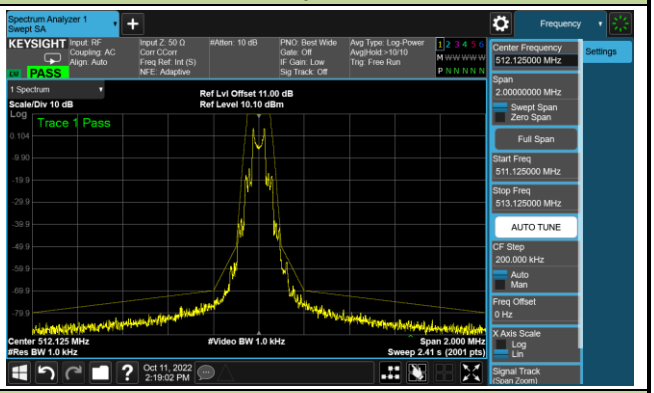
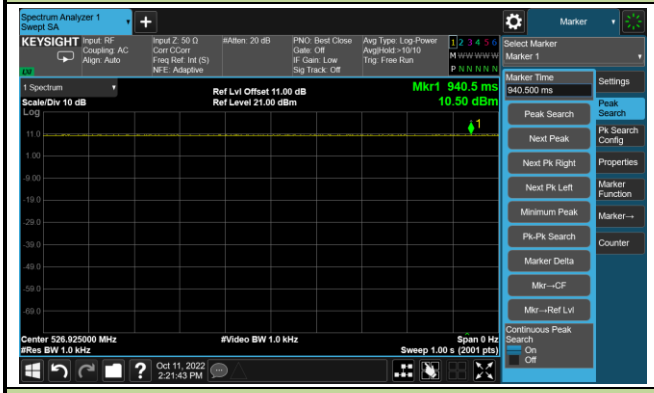
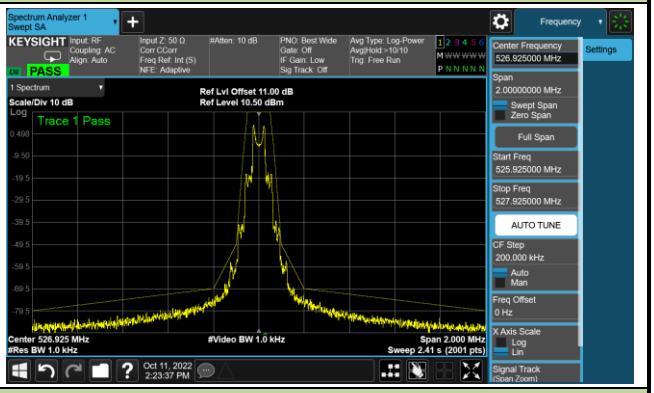
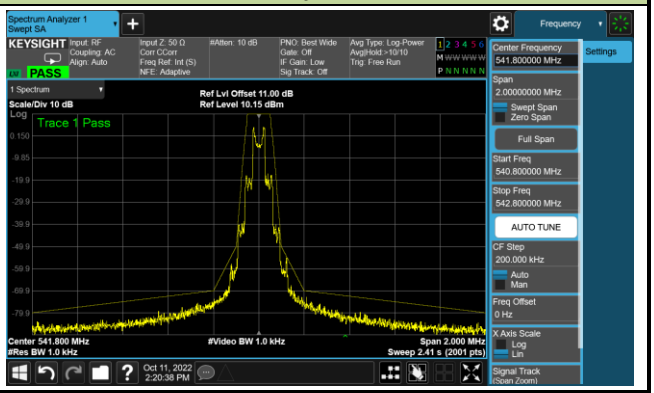
Test Site	WZ-SR5	Test Engineer	Dandy Li
Test Date	2022-10-11		

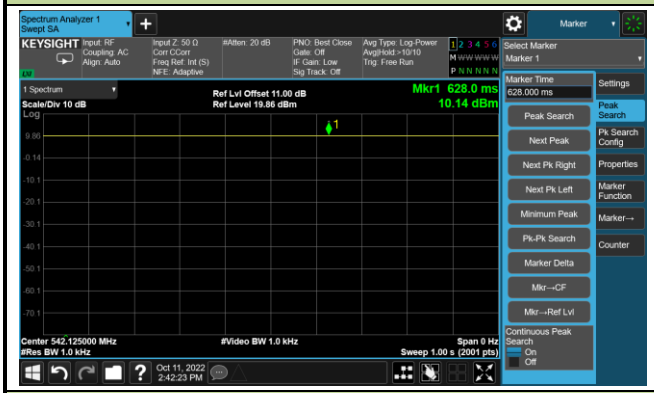
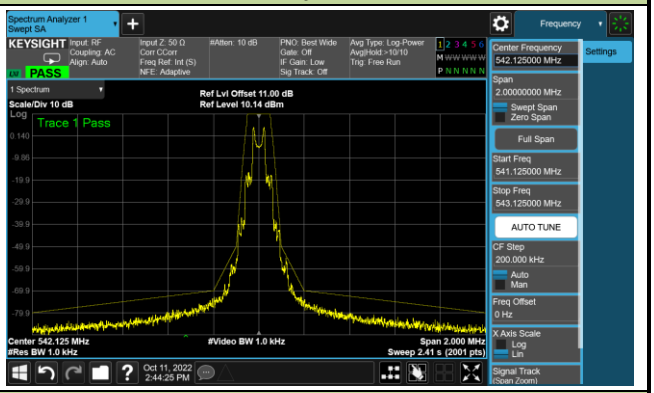
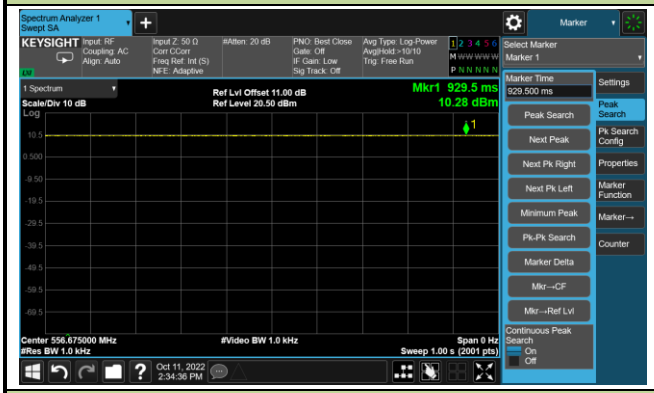
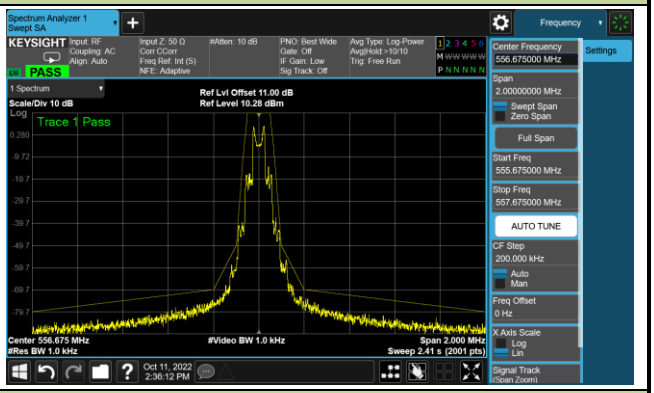
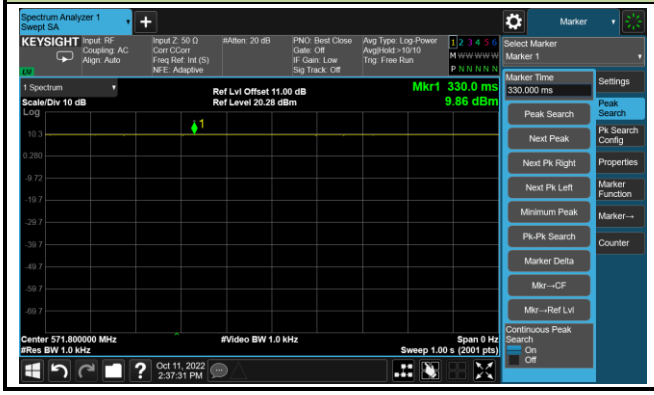
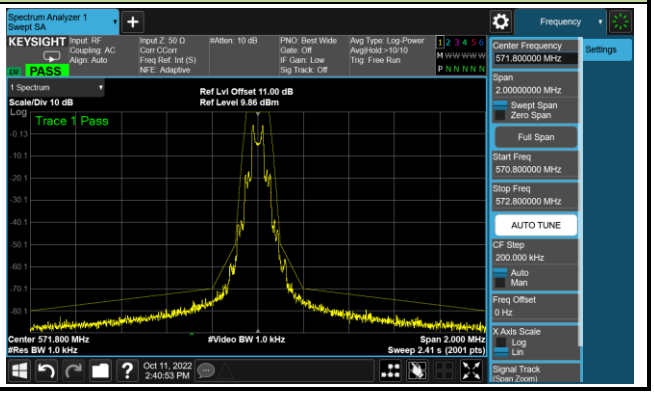
Groups	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)
H9 Band	Low	512.125	9.41	≤ 23.98
	Mid	526.925	9.82	≤ 23.98
	High	541.800	9.54	≤ 23.98
H10 Band	Low	542.125	9.42	≤ 23.98
	Mid	556.675	9.57	≤ 23.98
	High	571.800	9.13	≤ 23.98

Note: Limit (dBm) = 10*Log (250 mW) = 23.98 dBm.

A.2 Necessary Bandwidth Test Result

Test Site	WZ-SR5	Test Engineer	Dandy Li
Test Date	2022-10-11		

512.125MHz (H9 Band)	
Unmodulated Carrier Reference Level	Necessary Bandwidth
	
526.925MHz (H9 Band)	
Unmodulated Carrier Reference Level	Necessary Bandwidth
	
541.800MHz (H9 Band)	
Unmodulated Carrier Reference Level	Necessary Bandwidth
	

542.125MHz (H10 Band)	
Unmodulated Carrier Reference Level	Necessary Bandwidth
	
556.675MHz (H10 Band)	
Unmodulated Carrier Reference Level	Necessary Bandwidth
	
571.800MHz (H10 Band)	
Unmodulated Carrier Reference Level	Necessary Bandwidth
	

A.3 Radiated Spurious Emission Test Result

Test Site	WZ-AC1	Test Engineer	Edith Yu
Test Date	2022-10-10 ~ 2022-10-11	Group	BLX1 H9

Test Frequency (MHz)	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
512.125	48.915	-100.0	26.9	-73.1	-54.0	-19.1	Peak	Horizontal
	718.215	-100.2	37.9	-62.3	-54.0	-8.3	Peak	Horizontal
	90.625	-101.0	31.3	-69.7	-54.0	-15.7	Peak	Vertical
	776.415	-100.3	36.8	-63.5	-54.0	-9.5	Peak	Vertical
	3073.875	-66.1	11.2	-54.9	-30.0	-24.9	Peak	Horizontal
	10875.875	-70.3	27.9	-42.4	-30.0	-12.4	Peak	Horizontal
	3073.875	-66.2	11.2	-55.0	-30.0	-25.0	Peak	Vertical
	10335.375	-71.2	27.4	-43.8	-30.0	-13.8	Peak	Vertical
526.925	50.855	-101.6	26.0	-75.6	-54.0	-21.6	Peak	Horizontal
	725.975	-99.6	37.0	-62.6	-54.0	-8.6	Peak	Horizontal
	113.420	-101.0	30.7	-70.3	-54.0	-16.3	Peak	Vertical
	717.245	-100.3	36.6	-63.7	-54.0	-9.7	Peak	Vertical
	1052.875	-48.2	2.1	-46.1	-30.0	-16.1	Peak	Horizontal
	10969.875	-71.3	27.7	-43.6	-30.0	-13.6	Peak	Horizontal
	1052.875	-54.4	2.6	-51.8	-30.0	-21.8	Peak	Vertical
	3162.000	-65.4	12.1	-53.3	-30.0	-23.3	Peak	Vertical
541.800	47.460	-100.6	27.8	-72.8	-54.0	-18.8	Peak	Horizontal
	719.185	-100.6	37.9	-62.7	-54.0	-8.7	Peak	Horizontal
	108.570	-100.8	30.3	-70.5	-54.0	-16.5	Peak	Vertical
	680.870	-100.2	36.3	-63.9	-54.0	-9.9	Peak	Vertical
	1082.250	-43.4	2.6	-40.8	-30.0	-10.8	Peak	Horizontal
	2709.625	-60.7	9.3	-51.4	-30.0	-21.4	Peak	Horizontal
	1082.250	-55.0	2.5	-52.5	-30.0	-22.5	Peak	Vertical
	2709.625	-61.5	10.2	-51.3	-30.0	-21.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: For emission below 1GHz:

Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - 2.15 (dB)

For emission above 1GHz:

Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - Pre_Amplifier Gain (dB)

Note 3: RMS measurement was not performed when peak level was lower than 6dB below the RMS limit.

Test Site	WZ-AC1	Test Engineer	Edith Yu
Test Date	2022-10-10 ~ 2022-10-11	Group	BLX1 H10

Test Frequency (MHz)	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
542.125	193.930	-100.3	28.2	-72.1	-54.0	-18.1	Peak	Horizontal
	684.265	-99.6	37.3	-62.3	-54.0	-8.3	Peak	Horizontal
	89.655	-100.8	30.9	-69.9	-54.0	-15.9	Peak	Vertical
	796.785	-99.4	37.0	-62.4	-54.0	-8.4	Peak	Vertical
	1082.250	-51.0	2.6	-48.4	-30.0	-18.4	Peak	Horizontal
	2709.625	-62.5	9.3	-53.2	-30.0	-23.2	Peak	Horizontal
	2709.625	-64.6	10.2	-54.4	-30.0	-24.4	Peak	Vertical
	10529.250	-71.2	27.3	-43.9	-30.0	-13.9	Peak	Vertical
556.675	183.745	-100.2	28.8	-71.4	-54.0	-17.4	Peak	Horizontal
	717.245	-99.9	37.8	-62.1	-54.0	-8.1	Peak	Horizontal
	91.110	-101.2	31.6	-69.6	-54.0	-15.6	Peak	Vertical
	834.615	-100.0	38.1	-61.9	-54.0	-7.9	Peak	Vertical
	1111.625	-53.7	3.0	-50.7	-30.0	-20.7	Peak	Horizontal
	2786.000	-63.2	10.2	-53.0	-30.0	-23.0	Peak	Horizontal
	1111.625	-59.8	3.9	-55.9	-30.0	-25.9	Peak	Vertical
	2786.000	-65.1	10.4	-54.7	-30.0	-24.7	Peak	Vertical
571.800	182.775	-100.4	28.8	-71.6	-54.0	-17.6	Peak	Horizontal
	726.945	-99.0	36.8	-62.2	-54.0	-8.2	Peak	Horizontal
	91.595	-101.3	31.5	-69.8	-54.0	-15.8	Peak	Vertical
	724.035	-98.5	36.4	-62.1	-54.0	-8.1	Peak	Vertical
	2856.500	-58.7	10.4	-48.3	-30.0	-18.3	Peak	Horizontal
	10529.250	-71.0	27.8	-43.2	-30.0	-13.2	Peak	Horizontal
	2856.500	-60.8	11.1	-49.7	-30.0	-19.7	Peak	Vertical
	10135.625	-71.2	27.0	-44.2	-30.0	-14.2	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: For emission below 1GHz:

Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - 2.15 (dB)

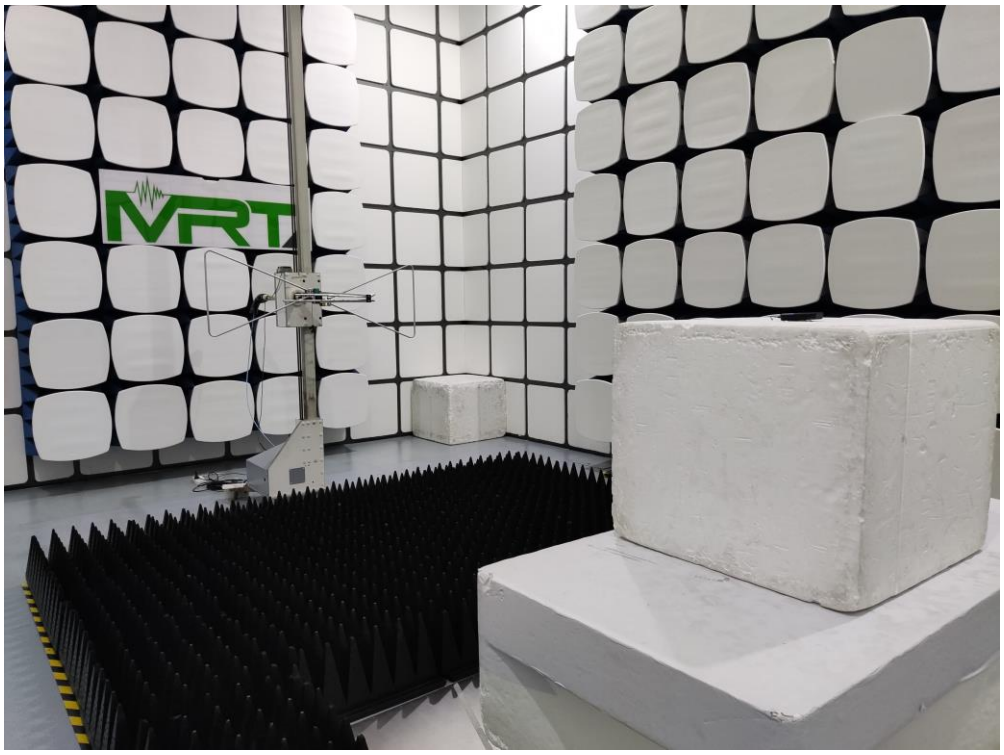
For emission above 1GHz:

Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - Pre_Amplifier Gain (dB)

Note 3: RMS measurement was not performed when peak level was lower than 6dB below the RMS limit.

Appendix B – Test Setup Photograph

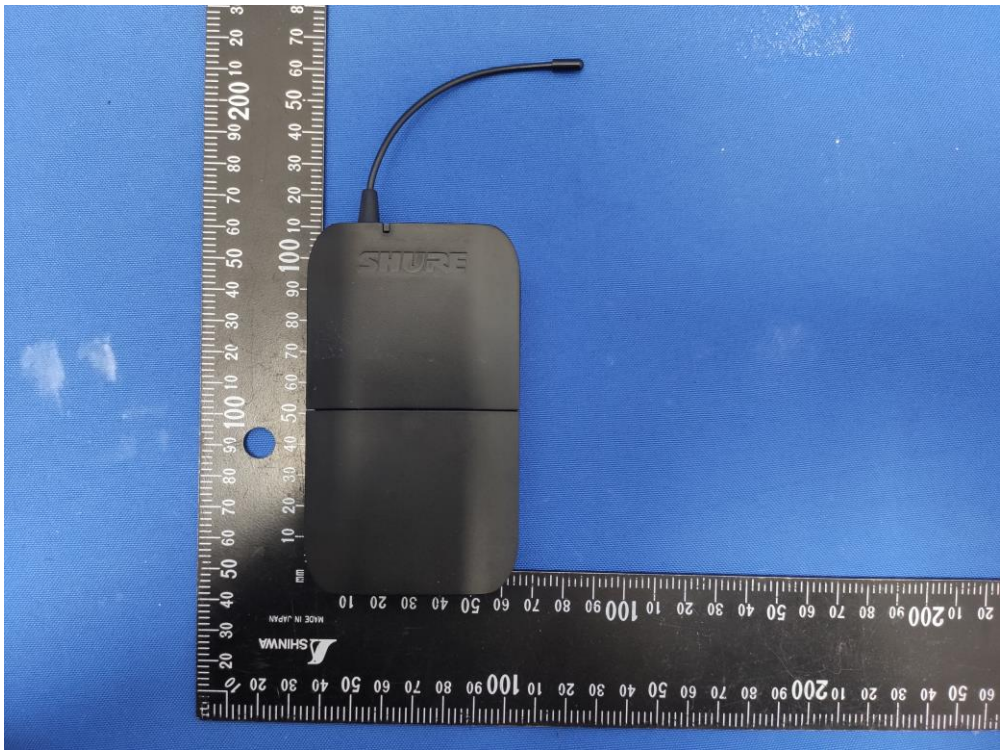
Description: Radiated Spurious Emission Test Setup Below 1GHz



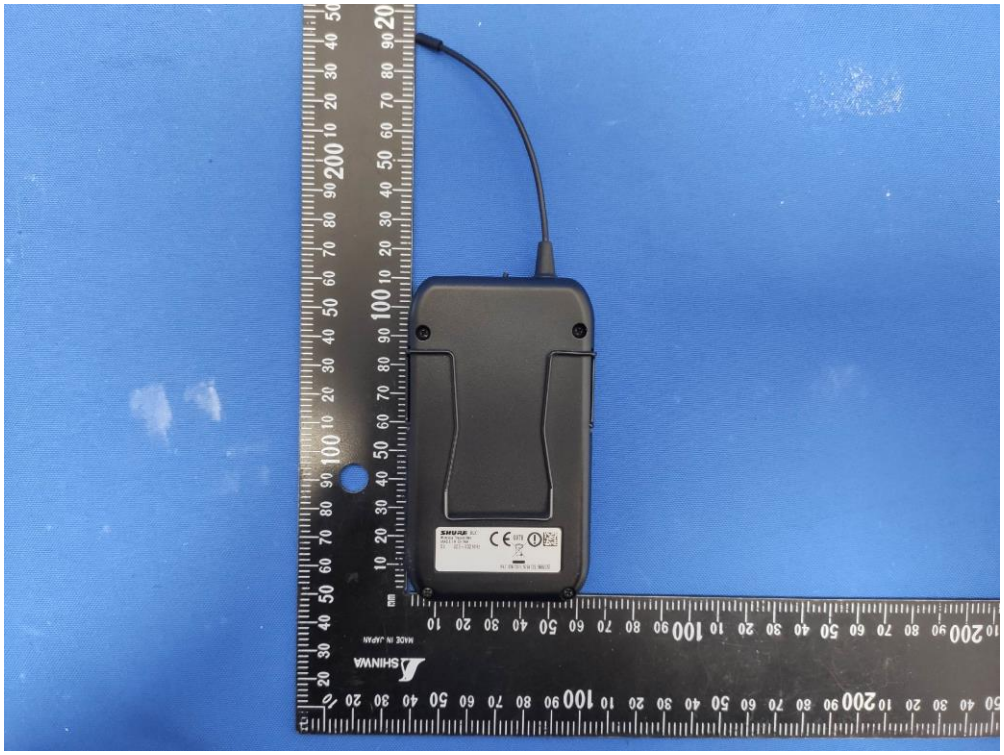
Description: Radiated Spurious Emission Test Setup Above 1GHz

Appendix C – EUT Photograph

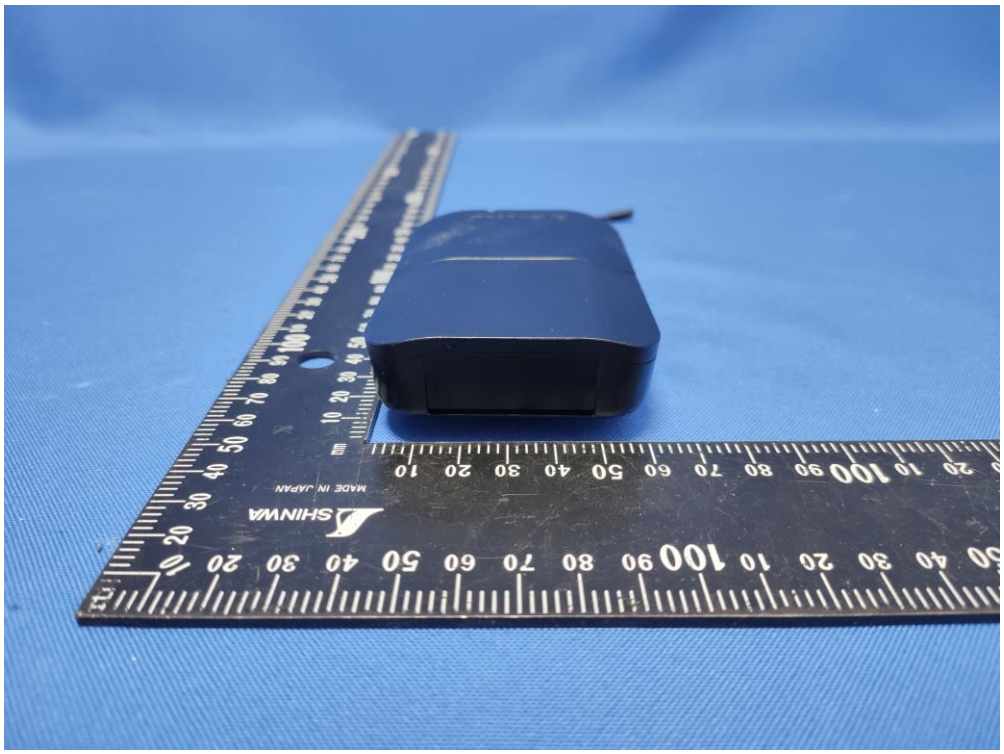
(1) EUT Photo



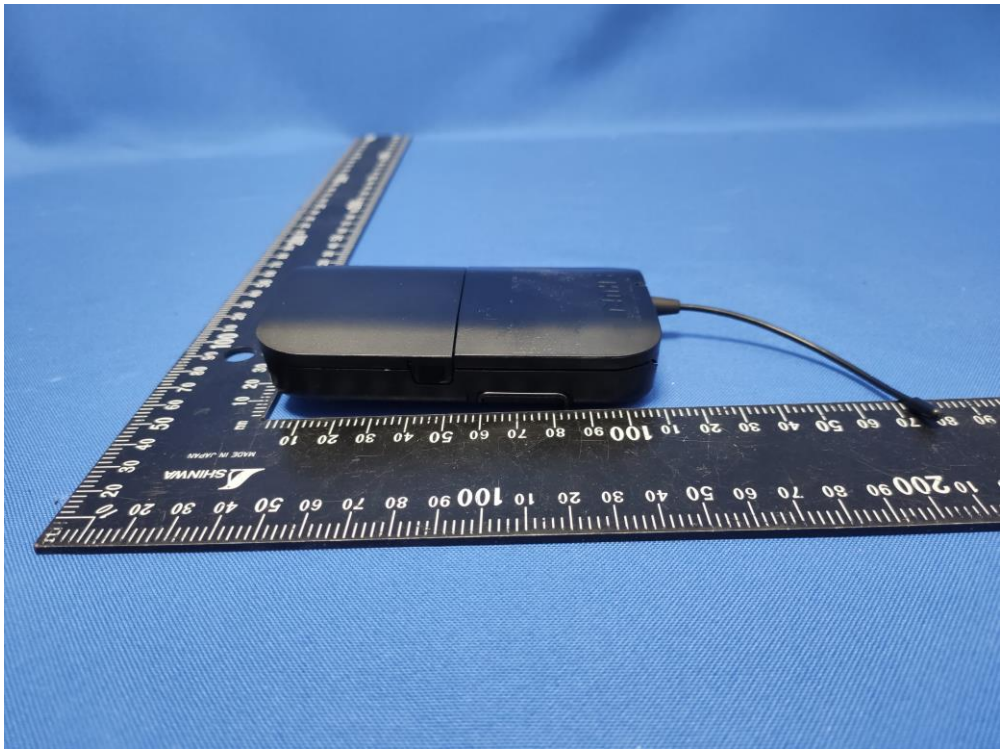
(2) EUT Photo



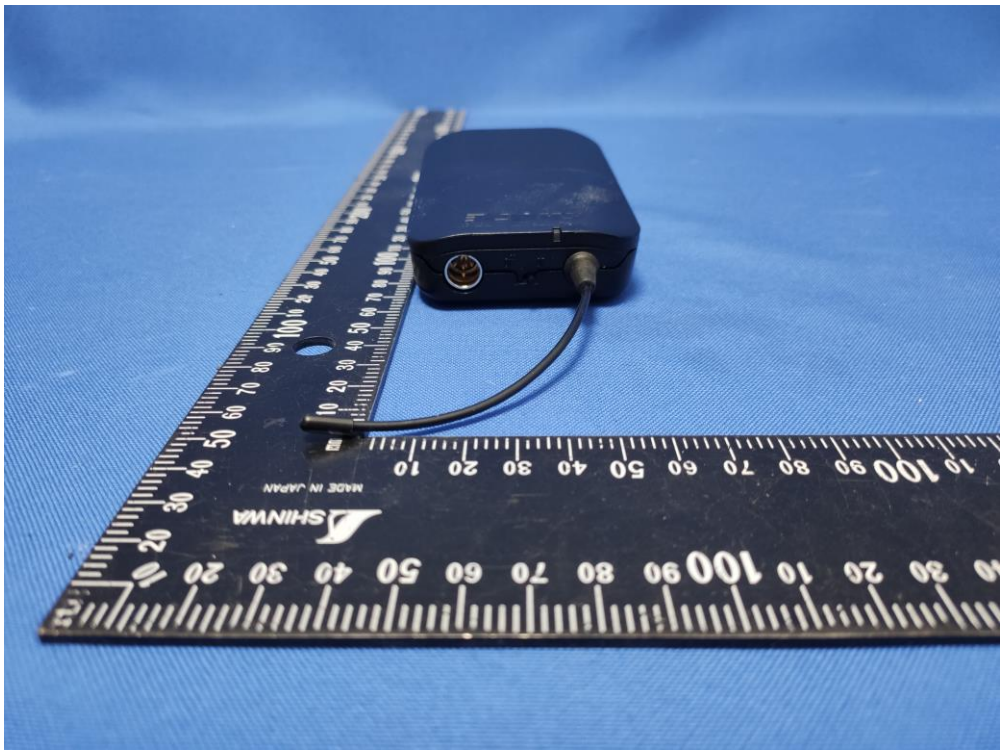
(3) EUT Photo



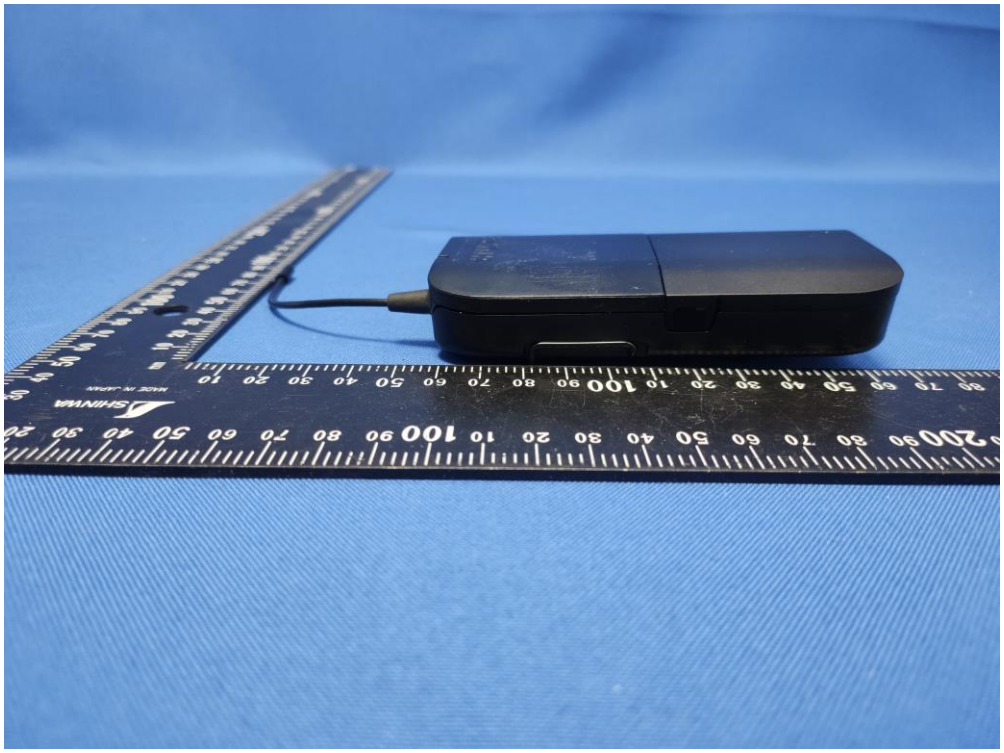
(4) EUT Photo



(5) EUT Photo



(6) EUT Photo



The End