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Report No.: 2211RSU056-U3 Report Version: V01 Issue Date: 2023-05-16

RF Exposure Evaluation Declaration

FCC ID: DD4MXW6X

Applicant: Shure Incorporated

Product: Wireless Microphone

Regulation Model MXW6X

Number (RMN):

Product Number: MXW6X/C Z10, MXW6X/O Z10

MXW6XW/C Z10, MXW6XW/O Z10

Trademark: SHURE SHURE

FCC Classification: Digital Transmission System (DTS)

Unlicensed PCS Base Station (PCS)

FCC Rule Part(s): FCC Part 2.1091

Result: Complies

Approved By:

Reviewed By:

Jame Yuan

Robin Wu

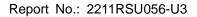
Robin Wu

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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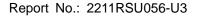
Revision History

Report No.	Version	Description	Issue Date	Note
2211RSU056-U3	V01	Initial Report	2023-05-16	Valid



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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

\boxtimes	Test Site - MRT	Suzhou Laborator	у					
	Laboratory Location (Suzhou - Wuzhong)							
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China							
	Laboratory Location (Suzhou - SIP)							
	4b Building, Liand	lo U Valley, No.200	Xingpu Rd., Shengpu	ı Town, Suzhou Indu	strial Park, China			
	Laboratory Accre	editations						
	A2LA: 3628.01		CNAS	s: L10551				
	FCC: CN1166		ISED:	CN0001				
	VCCI:	□R-20025	□G-20034	□C-20020	□T-20020			
	VCCI.	□R-20141	□G-20134	□C-20103	□T-20104			
	Test Site – MRT Shenzhen Laboratory							
	Laboratory Loca	tion (Shenzhen)						
	1G, Building A, Ju	nxiangda Building,	Zhongshanyuan Roa	d West, Nanshan Di	strict, Shenzhen,			
	China							
	Laboratory Accre	editations						
	A2LA: 3628.02 CNAS: L10551							
	FCC: CN1284		ISED:	CN0105				
	Test Site – MRT	Taiwan Laboratory	1					
	Laboratory Location (Taiwan)							
No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)								
	Laboratory Accreditations							
	TAF: L3261-1907	 25						
	FCC: 291082, TW	/3261	ISED:	TW3261				



1.4. Product Information

Product Name	Wireless Microphone	
RMN	MXW6X	
Product Number	MXW6X/C Z10, MXW6X/O Z10	
Product Number	MXW6XW/C Z10, MXW6XW/O Z10	
DECT Specification	1920 ~ 1930MHz	
Bluetooth Specification	V5.0 signal mode, BLE only	
Antenna Information	Refer to section 1.5	
Working Voltage Power by Li-ion battery or USB-C input		
Operating Temperature 5 ~ 40 °C		
Accessories		
Rechargeable Li-ion Battery	Model: SB906	
	Rating: 3.7Vdc, 1150mAh, 4.255Wh	

Remark:

- 1, The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.
- 2, Difference between models is that the EUT has different built-in MIC.
- 3, MXW6X/C Z10, MXW6X/O Z10: Black enclosure; MXW6XW/C Z10, MXW6XW/O Z10: White enclosure.

1.5. Antenna Details

Antenna Type	Frequency Band	Max Peak Gain	
	(GHz)	(dBi)	
Internal Chip	2.4 ~ 2.5	2.63	
L. (4.00 4.00	1.72	
Internal Chip	1.88 ~ 1.90	-0.70	

1.6. Applied Standards

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

FCC Part 2.1091 & KDB 447498 D04 Interim General RF Exposure Guidance v01



2. RF Exposure Evaluation

2.1. Test Limits

According to FCC §1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b)

Limits For Maximum Permissible Exposure (MPE)

Frequency Range	Electric Field	Magnetic Field	Power Density	Average Time		
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm²)	(Minutes)		
	(A) Limits fo	r Occupational/ Contro	l Exposures			
0.3-3.0	614	1.63	*(100)	≤6		
3.0-30	1842/f	4.89/f	*(900/f ²)	<6		
30-300	61.4	0.163	1.0	<6		
300-1,500			f/300	<6		
1,500-100,000			5	<6		
	(B) Limits for General Population/ Uncontrolled Exposures					
0.3-1.34	614	1.63	*(100)	<30		
1.34-30	824/f	2.19/f	*(180/f ²)	<30		
30-300	27.5	0.073	0.2	<30		
300-1,500			f/1500	<30		
1,500-100,000			1.0	<30		

f= frequency in MHz. * = Plane-wave equivalent power density.



2.1. MPE Exemptions

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph §1.1307(b)(2) of this section): A single RF source is exempt if:

(Option A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph §1.1307(b)(3)(ii)(A) of this section.

Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(ii)(A);

(Option B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \ cm} (d/20 \ \text{cm})^x & d \le 20 \ \text{cm} \\ ERP_{20 \ cm} & 20 \ \text{cm} < d \le 40 \ \text{cm} \end{cases}$$

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$$
 and f is in GHz;

and

$$\mathit{ERP}_{20\;cm}\;(\mathrm{mW}) = \begin{cases} 2040f & 0.3\;\mathrm{GHz} \leq f < 1.5\;\mathrm{GHz} \\ \\ 3060 & 1.5\;\mathrm{GHz} \leq f \leq 6\;\mathrm{GHz} \end{cases}$$

d =the separation distance (cm);

(**Option C**) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical



dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to §1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1920R ²
1.34-30	3450R²/f²
30-300	3.83R ²
300-1,500	0.0128R ² /f
1,500-100,000	19.2R ²

For multiple RF sources: Multiple RF sources are exempt if:

- (A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those is paragraph §1.1307(b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(i)(A).
- (B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \le 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum



distance including existing evaluated transmitters.

 P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

 $P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph §1.1307(b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

 ERP_j = the ERP of fixed, mobile, or portable RF source j.

ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph §1.1307(b)(3)(i)(C) of this section.

Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from §1.1310 of this chapter.



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2.2. Calculated Result

Product	Wireless Microphone
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band	Max Turn-up Power	Antenna Gain	EIRP
	(MHz)	(dBm)	(dBi)	(dBm)
Bluetooth	2402 ~ 2480	1.0	2.63	3.63
DECT	1920 ~ 1930	21.0	1.72	22.72

Note: Tune-up power was from operation description.

For single RF source, Option C

Test Mode	λ/2π	R	Turn-up ERP	Threshold ERP
	(m)	(m)	(mW)	(mW)
Bluetooth	0.0199	0.20	1.41	768
DECT	0.0249	0.20	114.02	768

Note: R is from user manual.

For multiple RF sourcess

The EUT supports Bluetooth + DECT simultaneous transmissions.

So the Max Simultaneous Transmission = 1.41/768 (DTS) + 114.02/768 (PCS) = 0.15 < 1.

Therefore, the device qualifies for RF exposure test exemption.