# RF Exposure Evaluation Declaration

**FCC ID:** DD4ULXD8X52

**APPLICANT:** Shure Incorporated

**Application Type:** Certification

**Product:** Wireless Gooseneck Transmitter

**Model No.:** ULXD8 X52

**Brand Name:** SHURE

**FCC Classification:** Digital Transmission System (DTS)
Low Power Communication Device Transmitter (DXX)

Reviewed By Manager : Robin Wu
( Robin Wu )

Approved By CEO : Marlinchen
( Marlin Chen )

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.

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 |
|---|---|---|---|---|
| 1608RSU00503 | Rev. 01 | Initial report | 10-23-2016 | Valid |
| | | | | |

# 1. PRODUCT INFORMATION

| | |
|---|---|
| Product Name | Wireless Gooseneck Transmitter |
| Model No. | ULXD8 |
| Frequency Range | X52 Band: 902 ~ 928 MHz |
| Working Mode | Normal Mode and HD Mode |
| Power Level | 0.25mW & 10mW & 20mW |
| Antenna Type | PIFA |
| Antenna Gain | Max Peak Gain 1.45dBi |
| **Components** | |
| Rechargeable Li-ion Battery | Model: SB900A<br>OUTPUT: 3.7Vdc, 1320mAh,4.88Wh |

Note 1: The EUT has two frequency bands (Q51 band and S50 band). Q51 band has three power levels (1mW & 10mW & 20mW), S50 band has two power levels (1mW & 10mW). Power levels are switchable among these power levels.

Note 2: The EUT is capable of operating with AA alkaline batteries or with the Shure SB900A rechargeable battery pack.

# 2. RF Exposure Evaluation

## 2.1. 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 (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density ($mW/cm^2$) | Average Time (Minutes) |
|---|---|---|---|---|
| (A) Limits for Occupational/ Control Exposures | | | | |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 5 | 6 |
| (B) Limits for General Population/ Uncontrolled Exposures | | | | |
| 300-1500 | -- | -- | f/1500 | 6 |
| 1500-100,000 | -- | -- | 1 | 30 |

f= Frequency in MHz

Calculation Formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in $mW/cm^2$

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

r = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 2.2. Test Result of RF Exposure Evaluation

| | |
|---|---|
| Product | Wireless Gooseneck Transmitter |
| Test Item | RF Exposure Evaluation |

Antenna Gain: Refer to Clause 1 of antenna description.

**For X52 ISM Band:**

| Test Mode | Frequency Band (MHz) | Maximum Average Output Power (dBm) | Power Density at R = 20 cm ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|
| Normal Mode<br>HD Mode | 902.4 ~ 927.6 | 14.16 | 0.0072 | 0.6016 |

**CONCULISON:**

Therefore, the Max Power Density at R (20 cm) = 0.0072$mW/cm^2$ < 0.6016$mW/cm^2$.

So the EUT complies with the requirement.

The End