RF Exposure Evaluation declaration

Product Name	:	Miku Life Monitor
Trade Name	:	miku
Model No.	:	M0100
FCC ID.	:	2AQM3M0100

Applicant : Miku, Inc.

Address : 10 Woodbridge Center Drive Suite 650 Woodbridge, NJ 07095

Date of Receipt	:	Aug. 02, 2018
Date of Declaration	:	Sep. 21, 2018
Report No.	:	1880035R-RFUSP02V00
Report Version	:	V0.1-Draft

Testing Laboratory
3024

1. RF Exposure Evaluation

1.1. 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

Friis Formula

Friis transmission 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 id the limit of MPE, 1 mW/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.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	Miku Life Monitor
Test Mode	Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.85 dBi or 2.43 dBi in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11b (ANT 0)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
1	2412	142.889	0.069
6	2437	178.649	0.086
11	2462	275.423	0.133

IEEE 802.11g (ANT 0)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
1	2412	437.522	0.212
6	2437	449.780	0.217
11	2462	420.727	0.203

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

The results are evaluated using the maximum power.

Product	Miku Life Monitor
Test Mode	Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.85 dBi or 2.43 dBi in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11n (20MHz) (ANT 0+1)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
1	2412	104.568	0.051
6	2437	254.976	0.123
11	2462	251.652	0.122

IEEE 802.11n (40MHz) (ANT 0+1)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
3	2422	235.885	0.114
6	2437	231.526	0.112
9	2452	237.739	0.115

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

The results are evaluated using the maximum power.

Product	Miku Life Monitor
Test Mode	Transmit
Test Condition	RF Exposure Evaluation

Power Density (2.4G) (mW/cm^2)	Power Density (UWB) (mW/cm^2)	Total Power Density (2.4GHz + UWB) (mW/cm^2)	Limit (mW/cm^2)
0.217	0.001	0.218	1

Note: The power of certified UWB module (FCC ID: 2AD9QX4M02) is according to 1772022R-RF-US-P06V02 from DEKRA report.

The Power Density in UWB is 0.001 mW/cm^2.