RF Exposure Evaluation Declaration

FCC ID:	VPYLBEE5HY1MW
APPLICANT:	Murata Manufacturing Co., Ltd.
Application Type:	Certification
Product:	Communication Module
Model No.:	LBEE5HY1MW
HVIN:	LBEE5HY1MW
FCC Classification:	FCC Part 15 Spread Spectrum Transmitter(DSS) Digital Transmission System (DTS) Unlicensed National Information Infrastructure (NII)

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ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
1802WSU008-U6	Rev. 01	Initial report	05-15-2018	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Communication Module
Model No.:	LBEE5HY1MW
HVIN:	LBEE5HY1MW
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Specification:	V4.2 dual mode
Operating Temperature:	-30 ~ 85 °C
Power Type:	DC 3.3V

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	Communication Module
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
Bluetooth	2402 ~ 2480	9.42	0.0017	1
802.11b/g/n	2412 ~ 2462	17.55	0.0113	1
802.11a/n/ac	5180 ~ 5825	14.42	0.0055	1

CONCULISON:

The max Power Density at R (20 cm) = 0.0017mW/cm^2 < 1 mW/cm^2 for Bluetooth.

The max Power Density at R (20 cm) = 0.0113mW/cm^2 < 1 mW/cm^2 for 2.4GHz WLAN.

The max Power Density at R (20 cm) = 0.0055mW/cm^2 < 1 mW/cm^2 for 5GHz WLAN.

Therefore, the Min Safety Distance is 20cm.

The End