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Report No.: 1802WSU008-U6 Report Version: V01 Issue Date: 05-15-2018

# **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)

Reviewed By :

( Kevin Guo )

Approved By

( Marlin Chen )





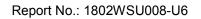
The test results relate only to the samples tested.

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.

FCC ID: VPYLBEE5HY1MW

Page Number: 1 of 5





## **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	Electric Field	Magnetic Field	Power Density	Average Time	
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm <sup>2</sup> )	(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<sup>2</sup>

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<sup>2</sup>. 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 $R = 20 \text{ cm}$ $(\text{mW/cm}^2)$	Limit (mW/cm²)
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<sup>2</sup> < 1 mW/cm<sup>2</sup> for Bluetooth.

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

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

Therefore, the Min Safety Distance is 20cm.