

RF Exposure Report

Report No.: SA160428C07-2 R1

FCC ID: VPYLB1KD

Test Model: LBEE6ZZ1KD

Received Date: Apr. 28, 2016

Test Date: May 19 ~ Jul. 13, 2016

Issued Date: Jul. 25, 2016

Applicant: Murata Manufacturing Co., Ltd.

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Release Control Record

Issue No.	Description	Date Issued
SA160428C07-2	Original release.	May 27, 2016
SA160428C07-2 R1	<ol style="list-style-type: none">1. Revised product name2. BT EDR/LE function: The EUT changed Bluetooth Config File (hcd file) to BCM4349B1_002.002.014.0077.0092.hcd test, the RF exposure was re-calculation	Jul. 25, 2016

1 Certificate of Conformity

Product: Communication Module

Brand: MURATA

Test Model: LBEE6ZZ1KD

Sample Status: Engineering sample


Applicant: Murata Manufacturing Co., Ltd.

Test Date: May 19 ~ Jul. 13, 2016

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 (October 23, 2015)
IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Jul. 25, 2016
Pettie Chen / Senior Specialist

Approved by :  , **Date:** Jul. 25, 2016
Ken Liu / Senior Manager

2 RF Exposure

2.1 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)
Limits For General Population / Uncontrolled Exposure				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

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

where

Pd = power density in mW/cm²

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	TX Function	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	1TX	22.65	2.37	20	0.0632	1
5180-5240	1TX	9.36	2.93	20	0.0034	1
	2TX	12.15	5.94	20	0.0128	1
5260-5320	1TX	9.39	2.93	20	0.0034	1
	2TX	12.14	5.94	20	0.0128	1
5500-5720	1TX	9.82	2.93	20	0.0037	1
	2TX	12.95	5.94	20	0.0154	1
5745-5825	1TX	10.12	2.93	20	0.0040	1
	2TX	12.73	5.94	20	0.0146	1
BT EDR	-	8.99	2.37	20	0.0027	1
BT LE	-	5.72	2.37	20	0.0013	1

Note:

WLAN: 5GHz Band: 2TX: Directional gain = 2.93dBi + 10log(2) = 5.94dBi

CONCLUSION:

Only WLAN 2.4G (1TX) & WLAN 5G (1TX) can transmit simultaneously (declared by client), the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4G (1TX) + WLAN 5G (1TX) = 0.0632 + 0.0154 = 0.00786

Therefore, the maximum calculation of this situation is 0.00786, which is less than the "1" limit.

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