SAR Exclusion Test Report

Standards:	FCC 47CFR Parts 1.1307, 1.1310, 2.1091 KDB 447498 D01 V06 Canada RSS-102 Issue 5
Report Number:	Report 813-FCC-IC-MPE
Product Name:	USB Dongle with accessory cable
Model Name:	B00046
FCC ID:	JNZB00046
IC:	4418-B00046
Test Date:	11/20/2020
Issued Date:	12/16/2020
Applicant:	Logitech
Address:	7700 Gateway Blvd., Newark, CA 94560
Applicant Contact:	Jesse Chen, Jesse_Chen@logitech.com
Issued By:	Avidity Test Labs
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Revision History

Issue Number	Description	Date Issued
1	Original Release	December 16, 2020

Facility

Avidity Test Lab	*4700 NW Camas Meadows Dr.,* *Camas WA, 98607* (360)-817-1214

1 Test Report Attestation

Product:	USB Dongle with accessory cable
Brand:	Ultimate Ears
Model:	B00046
Serial Number:	Engineering Sample
Test Date:	11/20/20
Standards:	FCC 47CFR parts 1.1307, 1.1310, 2.1091
	Canada ISED RSS-102 Issue 5

Remark: The manufacturer declares that the EUT hardware and firmware is representative of a mass production sample.

The above equipment has been tested by **Avidity Test Labs** and found to be in compliance with the requirements of the above standards. The test record, data evaluation and Equipment Under test (EUT) configurations represented herein are true and accurate accounts of the measurement of the sample's EMC characteristics under the conditions specified in this report.

Prepared by: Jacob Borg , **Date:** 12/16/2020

Jacob Borg — Date

Test Engineer

Approved by: , **Date** Dec-16-2020

Dave Crawford — Date

Quality Manager

2 Summary of Test

2.1 Results Summary

FCC SAR Exclusion				
Frequency	Radio	Max Power	FCC Exclusion Level	Result
2.4 GHz	Bluetooth LE	-1.1 dBm	9.82 dBm	Pass
2.45 GHz	Bluetooth LE	-0.1 dBm	9.77 dBm	Pass
2.835 GHz	Bluetooth LE	-0.1 dBm	9.49 dBm	Pass

ISED SAR Exclusion				
Frequency	Radio	Max Power	FCC Exclusion Level	Result
2.45 GHz	Bluetooth LE	-0.1 dBm	6 dBm	Pass

The device has been evaluated against worst case limit of 5mm even though it is not likely to be used that close.

3 Product Description

3.1 General Description of EUT

Product:	USB Dongle with accessory cable
Brand:	Ultimate Ears
Model:	B00046
Functional Description of EUT:	The EUT is a USB dongle with a 2.5mm port and accessory cable. The 2.5mm port supplies power to ultraviolet LEDS attached to the accessory cable. There is a Bluetooth 4.0 radio in the dongle with a SISO radio. The EUT is powered by a dedicated AC/DC adapter.
Serial Number	Engineering Sample
Radio Descriptions:	Bluetooth LE
Frequency Range of Operation:	2402 – 2480 MHz
Modulations:	BT 4.0 GFSK
Antenna Peak Gains:	-18.5 dBi
Operating Software	The utility software used for testing is Hercules Setup utility
Firmware	The EUT firmware installed was 0.0.2
Proximity to the User	The transceiver is contained within a USB dongle and receives power from a USB port. It is possible for it to be powered from a laptop and be within 50mm of the user in the future.

4 FCC SAR test exclusion criteria

4.1 KDB 447498 Do1 v06 section 4.3.1 Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition(s), listed below, is (are) satisfied.

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

For 1-g head and body SAR:

$$\frac{(max.\ power\ of\ channel\ ,including\ tune-up\ tolerance\ ,mW)}{(min.\ test\ separation\ distance\ ,mm)} * \sqrt{f(GHz)} \leq 3.0$$

For 10-g Extremity SAR:

$$\frac{(max.\ power\ of\ channel\ ,including\ tune-up\ tolerance\ ,mW)}{(min.\ test\ separation\ distance\ ,mm)} * \sqrt{f(GHz)} \leq 7.5$$

where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

For operation in the 2.4Ghz to 2.4835GHz band this results in the following exclusion output power levels of

Frequency (GHz)	Body SAR Exclusion level	Extremity Exclusion level
2.4	9.6mW (9.82dBm)	24.2mW (13.84dBm)
2.45	9.5mW (9.77dBm)	23.9mW (13.78dBm)
2.835	8.9mW (9.49dBm)	22.2mW (13.46dBm)

5 ISED SAR

5.1 Exclusion limits (RSS-102 sec 2.5.1)

Frequency (MHz)	Head & Body Exemption Limits				
	At a separation distance of				
	≤ 5mm	10mm	15mm	20mm	25mm
2450	4mW (6dBm)	7mW (8.45dBm	15mW (11.76dBm)	30mW (14.77dBm)	52mW (17.16dBm)

Frequency (MHz)	Extremity Exemption Limits				
	At a separation distance of				
	≤ 5mm	10mm	15mm	20mm	25mm
2450	10mW (10dBm)	17.5mW (12.43dBm	37.5mW (15.74dBm)	75mW (18.75dBm)	130mW (21.14dBm)

6 Device measurements

6.1 Power Measurements

Composite Antenna Gain Type		Antenna Gain (dBi)			Chain0		Directional Gain	
No		2400 ~ 2483.5 MHz:					-18.5 dBi	
Mode	Data Rate	Channel	Frequency (MHz)	Power Setting	Chain0		Total Power	
					Avg (dBm)	Peak (dBm)	Avg (dBm)	Peak (dBm)
BT LE-1M	1Mbps	0	2402	0	-1.20	-1.10	-1.20	-1.10
		19	2440	0	-0.20	-0.10	-0.20	-0.10
		39	2480	0	-0.30	-0.10	-0.30	-0.10

6.2 Device Configuration

Not applicable.