

RF Exposure Report

Report No.: SA171225E01

FCC ID: JNZRR0013

Test Model: R-R0013

Received Date: Dec. 25, 2017

Test Date: Dec. 29, 2017

Issued Date: Jan. 08, 2018

Applicant: LOGITECH FAR EAST LTD.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Release Control Record

Issue No.	Description	Date Issued
SA171225E01	Original release.	Jan. 08, 2018

1 Certificate of Conformity

Product: Wireless Presenter

Brand: Logitech

Test Model: R-R0013

Sample Status: ENGINEERING SAMPLE

Applicant: LOGITECH FAR EAST LTD.

Test Date: Dec. 29, 2017

Standards: FCC Part 2 (Section 2.1093)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 : Mary Ko , **Date:** Jan. 08, 2018
Mary Ko / Specialist

Approved by : May Chen , **Date:** Jan. 08, 2018
May Chen / Manager

2 Evaluation Result

Following FCC KDB 447498 D01 “General SAR test exclusion guidance”

The corresponding SAR Exclusion Threshold condition, listed below:

- 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:
$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]}{\leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}}$$
 - $f(\text{GHz})$ 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 is applied to determine SAR test exclusion.
- 2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50mm) · (f(MHz)/150)] mW, at 100MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz
- 3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
 - a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm.
 - b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$ for test separation distances ≤ 50 mm.
 - c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

3 SAR Test Exclusion Thresholds

BT-LE Avg. Power Table

Channel	Frequency (MHz)	Peak Power		Avg. Power	
		(mW)	(dBm)	(mW)	(dBm)
0	2402	3.192	5.04	3.162	5.00
19	2440	3.162	5.00	3.133	4.96
39	2480	3.148	4.98	3.119	4.94

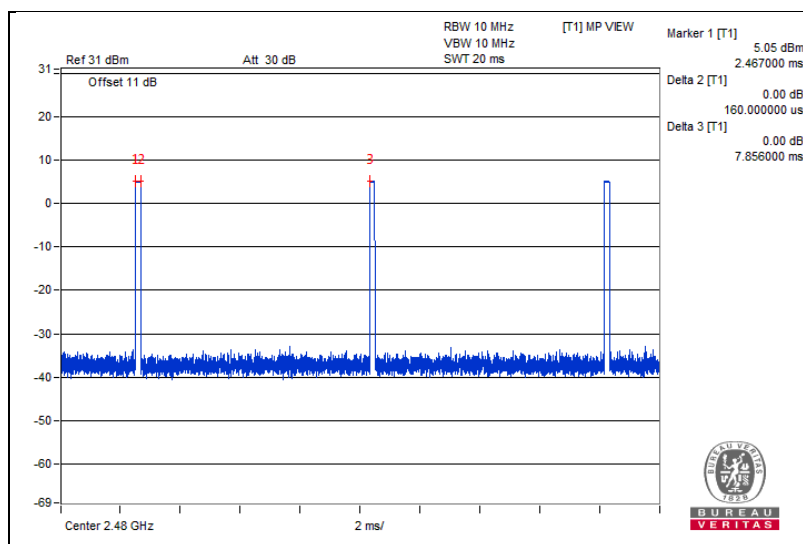
For BT-LE SAR Test Exclusion Thresholds

Frequency (GHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value ^(NOTE 1)	10-g SAR test exclusion thresholds	Result
2.402 ~ 2.480	5	-11.91	0.064	5	0.01984	7.5	Pass

NOTE: 1. The antenna type is ceramic chip antenna with -3.55dBi gain.
 2. Calculate SAR test exclusion thresholds from condition "1" formulas.
 3. *Time Avg. Power= Avg. Power+Duty factor

BT-LE Duty Cycle of Test Signal

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
	0.16	7.856	-16.91
Duty Factor = $10 \cdot \log(\text{Tx on} / \text{Tx total})$			



GFSK Avg. Power Table

Channel	Frequency (MHz)	Peak Power		Avg. Power	
		(mW)	(dBm)	(mW)	(dBm)
1	2405	3.177	5.02	3.155	4.99
8	2444	3.148	4.98	3.133	4.96
12	2474	3.133	4.96	3.112	4.93

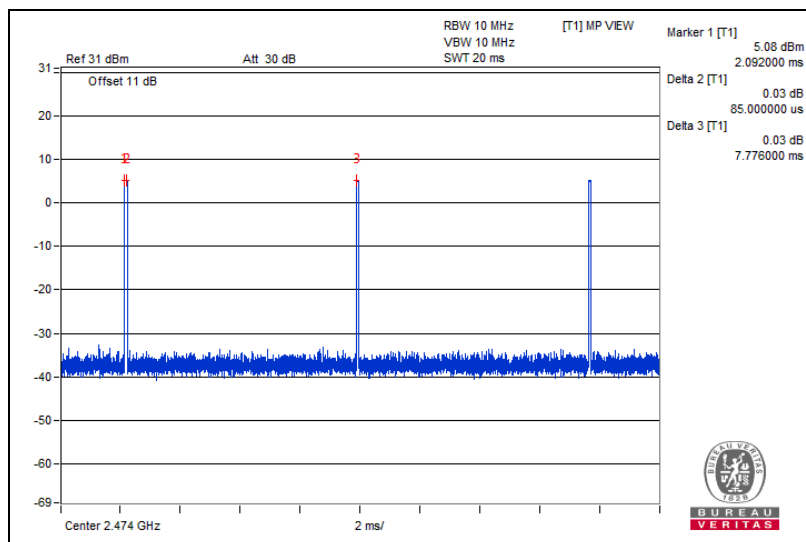
For GFSK SAR Test Exclusion Thresholds

Frequency (GHz)	Max Avg. Power (dBm)	*Max Time Avg. Power (dBm)	Max Time Avg. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value ^(NOTE 1)	10-g SAR test exclusion thresholds	Result
2.405 ~ 2.474	4.99	-14.62	0.035	5	0.01086	7.5	Pass

- NOTE:**
1. The antenna type is ceramic chip antenna with -3.55dBi gain.
 2. Calculate SAR test exclusion thresholds from condition "1" formulas.
 3. *Time Avg. Power= Avg. Power+Duty factor

GFSK Duty Cycle of Test Signal

Duty Cycle	Tx on (ms)	Tx total (ms)	Duty Factor (dB)
	0.085	7.776	-19.61
Duty Factor = $10 * \log(\text{Tx on} / \text{Tx total})$			



4 Conclusion

Since Source-base time average power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

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