CERTIFICATION TEST REPORT

Report Number. : 11888590-E3V3

Applicant	:	CROSBY ENGINEERING SERVICES 1120 LARKIN VALLEY RD WATSONVILLE, CA 95076, USA
FCC ID	:	Q3E-MWM-EH3
EUT Description	:	MwM Ear Hat
Test Standard(s)	:	FCC Part 1 Subpart I FCC Part 2 Subpart J

Date Of Issue:
October 20, 2017

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NVLAP TESTING
NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/16/2017	Initial Issue	--
V2	10/19/2017	Revised calculations	Frank Ibrahim
V3	10/20/2017	Revised sections 5.1 and 5.2	Frank Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CROSBY ENGINEERING SERVICES
1120 LARKIN VALLEY RD
WATSONVILLE, CA 95076

EUT DESCRIPTION: MwM Ear Hat

SERIAL NUMBER: 001 (Radiated), 002 (Conducted)

DATE TESTED: SEPTEMBER 12-22, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 1 SUBPART I & PART 2 SUBPART J	Pass

UL Verification Services Inc. calculated the RF Exposure of the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Approved & Released For
UL Verification Services Inc. By:

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UL Verification Services Inc.

Calculated By:

JASON QIAN
TEST ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

All calculations were made in accordance with FCC OET Bulletin 65 Edition 97-01.

3. REFERENCES

All measurements were made as documented in test report UL Verification Services Inc. Document 11888590-E1V2 for operation in the 2.4 GHz band.

Output power, Duty cycle and Antenna gain data is excerpted from the applicable test reports and operation description from the manufacturer.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

5. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

5.1. FCC

SAR test exclusion in accordance with KDB 447498.

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:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]·[√f(GHz)] ≤ 3.0, for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, 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

This test exclusion is 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.

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:

1. {[Power allowed at numeric threshold for 50 mm)] + [(test separation distance – 50 mm)·(f(MHz)/150)]} mW, for 100 MHz to 1500 MHz
    - $f_{(MHz)}$ is the RF channel transmit frequency in MHz
2. {[Power allowed at numeric threshold for 50 mm)] + [(test separation distance – 50 mm)·10]} mW, for > 1500 MHz and ≤ 6 GHz

RESULTS

The min. separation distance of device is < 5mm
Target power = 0 dBm
[Power (mW)/ 5 mm]*SQRT(2.48) = 0.315
The computed values are < 3; therefore, the device qualifies for Standalone SAR test exclusion.

5.2. INDUSTRY CANADA

The SAR exclusion table from RSS-102 issue 5 is reproduced below:

Table 1: SAR evaluation - exemption limits for routine evaluation based on frequency and separation distance.

Frequency MHz	Exemption Limits (mW)				
	At separation distance of ≤5mm	At separation distance of 10mm	At separation distance of 15mm	At separation distance of 20mm	At separation distance of 25mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency MHz	Exemption Limits (mW)				
	At separation distance of 30mm	At separation distance of 35mm	At separation distance of 40mm	At separation distance of 45mm	At separation distance of ≥50mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

RESULTS

The min. separation distance of device is < 5mm. The Exemption Limit for the frequency 2450 MHz is 4 mW.
As the maximum output power is 1 mW conducted and 1.26 mW EIRP, the DUT qualifies for SAR test exclusion.

END OF REPORT