

RF Exposure Report

Report No.: SA180723C13

FCC ID: APV-3040LA

Test Model: LMU3040LA

Received Date: Apr. 16, 2018

Date of Evaluation: Aug. 22, 2018

Issued Date: Aug. 22, 2018

Applicant: CalAmp Corporation

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

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA180723C13	Original Release	Aug. 22, 2018

1 Certificate of Conformity

Product: OBD2 LTE/3G/GPS/BT tracker

Brand: CalAmp Corp.

Test Model: LMU3040LA

Sample Status: Production Unit

Applicant: CalAmp Corporation

Date of Evaluation: Aug. 22, 2018

Standards: FCC Part 2 (Section 2.1091)

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 :



Date: Aug. 22, 2018

Ivonne Wu / Supervisor

Approved by :



Date: Aug. 22, 2018

Dylan Chiou / Project Engineer

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				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

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**.

2.4 Antenna Gain

TYPE	Band	Gain (dBi)
Internal Antenna	WCDMA II	2.04
	WCDMA V	-0.78
	LTE 2	2.04
	LTE 4	2.74
	LTE 5	-0.78
	LTE 12	-0.33
	BT	0.52

2.5 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WCDMA II	1850-1910	25.7	2.04	20	0.118	1.00
WCDMA V	824-849	25.7	-0.78	20	0.062	0.55
LTE 2	1850-1910	25.7	2.04	20	0.118	1.00
LTE 4	1710-1755	25.7	2.74	20	0.139	1.00
LTE 5	824-849	25.7	-0.78	20	0.062	0.55
LTE 12	699-716	25.7	-0.33	20	0.069	0.47
BT	2402-2480	3	0.52	20	0.000	1.00

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$WWAN + BT = 0.139 + 0.000 = 0.139$

Therefore the maximum calculations of above situations are less than the "1" limit.

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