

Assessment Report

REP156216-4ARFWL

Type of assessment:

MPE Calculation report

Manufacturer:

CalAmp

Model:

TTU3640LAB

Product Marketing Name (PMN):

Vehicle Telematics Device

FCC ID:

APV-TTU3640LAB

ISED certification number:

5843C-TTU3640LAB

Specification:

- ◆ FCC 47 CFR Part 1 Subpart I, §§1.1307, 1.1310
- ◆ FCC 47 CFR Part 2 Subpart J, §2.1091
- ◆ FCC KDB 447498 D01 General RF Exposure Guidance v06
- ◆ ISED Canada RSS-102 Issue 6, (December 2023)

RSS-102 Annex B - Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in Annex A is correct; that the Technical Brief was prepared and the information contained therein is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed; and that the device meets the SAR and/or RF field strength limits of RSS-102.

Date of issue: April 16, 2026

James Cunningham, EMC/WL Manager

Prepared by

James.Cunningham

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Date: 2026.04.16 09:56:49 -0700

Signature



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ISED Test Site	2040B-3

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Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko USA's ISO/IEC 17025 accreditation.

This report must not be used by the client to claim product certification, approval, or endorsement by ANAB, NIST, or any agency of the U.S. Government.

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Table of Contents

Table of Contents	3
Section 1 Evaluation summary	4
1.1 MPE calculation for simultaneous transmission	4

Section 1 Evaluation summary

1.1 MPE calculation for simultaneous transmission

1.1.1 References, definitions and limits

FCC §2.1091(d)

- (2) For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 in paragraph (e)(1) of this section, may be used instead of whole-body SAR limits as set forth in paragraphs (a) through (c) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b) of this part, except for portable devices as defined in §2.1093 of this chapter as these evaluations shall be performed according to the SAR provisions in §2.1093.

Table 1.1-1: Table 1 to §1.1310(e)(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)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*(100)	≤6
3.0–30	1842 / f	4.89 / f	*(900 / f ²)	<6
30–300	61.4	0.163	1.0	<6
300–1500			f / 300	<6
1500–100000			5	<6
(ii) 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
1500–100000			1.0	<30

Notes: f = frequency in MHz. * = Plane-wave equivalent power density.

RSS-102, Section 5

For the purpose of this standard, ISED has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6:

Table 1.1-2: Table 4 to RSS-102 — RF Field Strength Limits

Frequency range (MHz)	Electric field strength (V/m rms)	Magnetic field strength (A/m rms)	Power density (W/m ²)	Reference Period (minutes)
Limits for Controlled Environment				
10–20	61.4	0.163	10	6
20–48	129.8 / f ^{0.25}	0.3444 / f ^{0.25}	44.72 / f ^{0.5}	6
48–100	49.33	0.1309	6.455	6
100–6000	15.60 f ^{0.25}	0.04138 f ^{0.25}	0.6455 f ^{0.5}	6
6000–15000	137	0.364	50	6
Limits for Uncontrolled Environment				
10–20	27.46	0.0728	2	6
20–48	58.07 / f ^{0.25}	0.1540 / f ^{0.25}	8.944 / f ^{0.5}	6
48–300	22.06	0.05852	1.291	6
300–6000	3.142 f ^{0.3417}	0.008335 f ^{0.3417}	0.02619 f ^{0.6834}	6
6000–15000	61.4	0.163	10	6

Notes: f = frequency in MHz



Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (mW/cm² or W/m²)

P = power input to the antenna (mW or W)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm or m)

1.1.2 EUT technical information

	Transmitter 1 (Bluetooth Low Energy)	Transmitter 2 (LTE-M1)
Prediction frequency	2480 MHz	GHz
Antenna type	Integrated	Integrated
Antenna gain	2.5 dBi	2.14 dBi
Maximum transmitter conducted power	0.0 dBm (1.0 mW)	23.60 dBm (229 mW)
Prediction distance	20 cm	2- cm

Bluetooth Low Energy antenna gain and maximum transmitter conducted power data taken from the initial FCC certification test report for the used BLE module (FCC ID: APV-BLD01, test report reference: FCCIC_RF_SL1802601-CAL-013-BLE).

LTE-M1 antenna gain and maximum transmitter conducted power data taken from the initial FCC certification test report for the used LTE-M1 module (FCC ID: R17LE910NAV2). The module supports multiple operating frequency bands. This evaluation is based on the operating frequency band yielding the highest EIRP (transmitter conducted power plus antenna gain) as reported in the initial module certification (LTE band 5: 824-849 MHz).

1.1.3 MPE calculation

	Transmitter 1		Transmitter 2	
Fundamental transmit (prediction) frequency:	2480	MHz	846.6	MHz
Maximum measured conducted peak output power:	0	dBm	23.6	dBm
Cable and/or jumper loss:	0	dB	0	dB
Maximum peak power at antenna input terminal:	0	dBm	23.6	dBm
Duty cycle:	100	%	100	%
Maximum calculated average power at antenna input terminal:	1	mW	229.08677	mW
Single Antenna gain (typical):	2.5	dBi	2.14	dBi
Number of antennae:	1		1	
Total system gain:	2.50	dBi	2.14	dBi
	ISED limit	FCC limit	ISED limit	FCC limit
MPE limit for <u>uncontrolled</u> exposure at prediction frequency:	0.547 mW/cm ²	1.000 mW/cm ²	0.262 mW/cm ²	0.564 mW/cm ²
	5.469 W/m ²	10.000 W/m ²	2.624 W/m ²	5.644 W/m ²
MPE limit for <u>controlled</u> exposure at prediction frequency:	3.215 mW/cm ²	5.000 mW/cm ²	1.878 mW/cm ²	2.822 mW/cm ²
	32.146 W/m ²	50.000 W/m ²	18.782 W/m ²	28.220 W/m ²
Minimum calculated prediction distance for compliance:	20	cm	20	cm
Typical (declared) distance:	20	cm	20	cm
Average power density at prediction frequency:	0.00035 mW/cm ²	0.00035 mW/cm ²	0.0746 mW/cm ²	0.0746 mW/cm ²
	0.00354 W/m ²	0.00354 W/m ²	0.7460 W/m ²	0.7460 W/m ²
MPE compliance for simultaneous operation:				
Margin of Compliance for <u>controlled</u> environment:	39.58	dB	14.01	dB
with Maximum permitted antenna gain:	42.08	dB	16.15	dB
Margin of Compliance for <u>uncontrolled</u> environment:	31.89	dB	5.46	dB
with Maximum permitted antenna gain:	34.39	dB	7.60	dB
Average power density to MPE limit ratio (<u>uncontrolled</u>):	0.001	0.000	0.284	0.132
Average power density to MPE limit ratio (<u>controlled</u>):	0.000	0.000	0.040	0.026
Total sum of ratios for FCC (uncontrolled):	0.133	<1	0.027	<1
Total sum of ratios for ISSED (uncontrolled):	0.285	<1	0.040	<1
Maximum allowed sum of ratios:	1			
			Total RF value for ISSED:	0.7495 W/m ²

1.1.4 Verdict

The calculation is below the limit; therefore, the product is passing the RF Exposure requirements for the declared distance.

End of the test report