

RADIO TEST REPORT – 433532-1APFWL

Type of assessment:

MPE Exemption report

Applicant:

Astus

Product:

Telematic device for vehicle

Model:

Astus QC25 NA1 BLE

FCC ID:

SFPASTUS-QC25

Contains FCC ID's:

2AA9B04 (BLE)

R17LE910NAV2 (LTE)

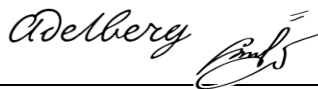
Specifications:

- ◆ 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

Date of issue: September 27, 2021

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Prepared by



Signature

Lab locations

Company name	Nemko Canada Inc.			
Facilities	<i>Ottawa site:</i>	<i>Montréal site:</i>	<i>Cambridge site:</i>	<i>Almonte site:</i>
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	FCC:	CA2040	CA2041	CA0101
	ISED:	2040A-4	2040G-5	24676
Website	www.nemko.com			

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 contained in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 1 Evaluation summary

1.1 MPE exemption for simultaneous transmission

1.1.1 References, definitions and limits

FCC §2.1091(c)

- (1) Mobile devices that operate in the Commercial Mobile Radio Services pursuant to part 20 of this chapter; the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Upper Microwave Flexible Use Service pursuant to part 30 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; the 76-81 GHz Band Radar Service pursuant to part 95 of this chapter; and the Citizens Broadband Radio Service pursuant to part 96 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if:
 - (i) They operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or
 - (ii) They operate at frequencies above 1.5 GHz and their ERP is 3 watts or more.
- (2) Unlicensed personal communications service devices, unlicensed millimeter-wave devices, and unlicensed NII devices authorized under §§15.255(f), 15.257(g), 15.319(i), and 15.407(f) of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in §2.1093(b) requiring evaluation under the provisions of that section.
- (3) All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§1.1307(c) and 1.1307(d) of this chapter.

1.1.2 EUT technical information

	Transmitter 1 (LTE – worst case)	Transmitter 2 (BLE)
Operational frequency	1710 MHz	2440 MHz
Antenna type	4G/LTE ceramic chip antenna	PCB antenna
Antenna gain	4.10 dBi	0 dBi
Number of antennas	1	1
Maximum transmitter conducted power	24 dBm (251.18 mW)	-7.43 dBm (0.181 mW)

1.1.1 MPE exemption calculation

	Transmitter 1 (LTE)	Transmitter 2 (BLE)
Fundamental transmit (prediction) frequency:	1710 MHz	2440 MHz
Maximum measured conducted peak output power:	24 dBm	-7.43 dBm
Cable and/or jumper loss:	0 dB	0 dB
Maximum peak power at antenna input terminal:	24 dBm	-7.43 dBm
Tx On time:	1.000 ms	1.000 ms
Tx period time:	1.000 ms	1.000 ms
Average factor:	100 %	100 %
Maximum calculated average power at antenna input terminal:	251.1886432 mW	0.180717413 mW
Single Antenna gain (typical):	4.1 dBi	0 dBi
Number of antennae:	1	1
Total system gain:	4.10 dBi	0.00 dBi
MPE exemption limit:	3.000000 W	3.000000 W
Average EIRP at prediction frequency:	645.654 mW 0.646 W	0.181 mW 0.000181 W
Margin of Compliance:	6.67 dB	42.20 dB
EIRP to MPE exemption ratio:	0.215	0.000060
Total sum of ratios:	0.215	
Maximum allowed sum of ratios:	1	

1.1.2 Verdict

The calculation of EIRP is below the exemption limit; therefore, the product is passing the RF Exposure exemption requirements.

End of the test report