



**FCC Part 1 Subpart I  
FCC Part 2 Subpart J  
INDUSTRY CANADA RSS-102 ISSUE 5**

**RF EXPOSURE REPORT**

**FOR**

**MODEL NUMBER: QCA6234**

**FCC ID: 2AEIM-QCA6234  
IC: 20098-QCA6234**

**REPORT NUMBER: 15U21359-S1-V1**

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*Prepared for*

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**NVLAP LAB CODE 200065-0**

Revision History

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Tesla Motors, Inc.

**EUT DESCRIPTION:** Wi-Fi module

**MODEL:** QCA6234

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 1 SUBPART I & PART 2 SUBPART J	Pass
INDUSTRY CANADA RSS-102 ISSUE 5	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, any agency of the Federal Government, or any agency of any government.

Approved & Released For  
UL Verification Services Inc. By:



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Dave Weaver  
Program Manager  
UL Verification Services Inc.

## **2. TEST METHODOLOGY**

All calculations were made in accordance with FCC KDB 447498 and IC RSS-102 issue 5.

## **3. REFERENCES**

Output power, Duty cycle and Antenna gain data is excerpted from the applicable test reports or manufacturer's declarations.

## **4. FACILITIES AND ACCREDITATION**

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

## **5. DEVICE UNDER TEST**

The DUT is a Wi-Fi module intended for portable use. The minimum separation distance of the DUT's antenna to the user is specified as 17.5mm

The maximum declared conducted power of the DUT is 12mW.

## 6. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

### 6.1. 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  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ , for 1-g SAR and  $\leq 7.5$  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

This test exclusion is applicable only when the minimum test separation distance is  $\leq 50$  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.

**SAR Exclusion Calculation Table for Portable Devices (separation distance  $< 50$ mm)**

Antenna	Tx	Frequency (MHz)	Avg Output power		Separation distance (mm)	Calculated Threshold
			dBm	mW		
PIFA	Wi-Fi	2440	10.8	12	18	1.0

Conclusion:

The computed value is  $< 3$ ; therefore, the module qualifies for Standalone SAR test exclusion.

## 6.2. INDUSTRY CANADA

RSS-102 issue 5 §2.5 specifies the exemption limits for routine evaluation of RF exposure. 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

Maximum Avg Power	Antenna Gain	0.6 dBi
	(dBm)	(mW)
Conducted	10.8	12.0
E.I.R.P	11.4	13.9

The minimum antenna to user distance that will be encountered in normal use is 17.5mm. This results in an exemption limit of 15mW at 2450 MHz.

As the maximum output power is 12mW conducted and 13.9mW EIRP the DUT qualifies for SAR test exclusion.

**END OF REPORT**