



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

RF EXPOSURE REPORT

FOR

eTap System, Firmware Updated Dongle

MODEL NUMBER: 12701

FCC ID: C90-LINKED  
IC: 10161A-LINKED

REPORT NUMBER: 15U21449-S1V2

ISSUE DATE: OCTOBER 9, 2015

*Prepared for*  
**SRAM LLC**  
1000 W FULTON MARKET 4<sup>TH</sup> FLOOR  
CHICAGO, IL 60607, U.S.A.

*Prepared by*  
**UL VERIFICATION SERVICES INC.**  
47173 BENICIA STREET  
FREMONT, CA 94538, U.S.A.  
TEL: (510) 771-1000



NVLAP LAB CODE 200065-0

Revision History

| Rev. | Issue Date | Revisions                                                                                    | Revised By   |
|------|------------|----------------------------------------------------------------------------------------------|--------------|
| --   | 9/24/2015  | Original Issue                                                                               |              |
| V2   | 10/09/15   | Report revised based on Reviewer's comments:<br>1. Updated IC ID<br>2. Updated Sec. 5 and 6. | Bobby Bayani |

## TABLE OF CONTENTS

|                                                       |   |
|-------------------------------------------------------|---|
| 1. ATTESTATION OF TEST RESULTS .....                  | 4 |
| 2. TEST METHODOLOGY .....                             | 5 |
| 3. REFERENCES .....                                   | 5 |
| 4. FACILITIES AND ACCREDITATION .....                 | 5 |
| 5. Device under test .....                            | 5 |
| 6. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS ..... | 6 |
| 6.1. FCC .....                                        | 6 |
| 6.2. INDUSTRY CANADA .....                            | 7 |

## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SRAM LLC

**EUT DESCRIPTION:** eTap System, Firmware Update Dongle

**MODEL:** 12701

**SERIAL NUMBER:** Radiated: 19T58910093; Conducted: 4032500062

**DATE TESTED:** SEPTEMBER 8 - 23, 2015

| 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:



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 client 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 EUT is a dongle with 802.15.4 SRAMLink technology. It can be used in association with a laptop computer.

The minimum user separation distance is 0mm  
The maximum output power is 3dBm  
The antenna gain is 0dBi

## 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:

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

| Tx       | Frequency<br>(MHz) | Avg Output power |    | Separation<br>distances (mm) | Calculated<br>Threshold |
|----------|--------------------|------------------|----|------------------------------|-------------------------|
|          |                    | dBm              | mW |                              |                         |
| 802.15.4 | 2480               | 3.00             | 2  | 5                            | 0.6                     |

Conclusion:

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

## 6.2. 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                          |

| Tx | Frequency (MHz) | Maximum Avg Power | Antenna Gain | 0.0 dBi |
|----|-----------------|-------------------|--------------|---------|
|    |                 |                   | (dBm)        | (mW)    |
| BT | 2440            | Conducted         | 3.00         | 2.00    |
|    |                 | E.I.R.P           | 3            | 2.00    |

The minimum antenna to user distance that will be encountered in normal use is 0mm. This results in an exemption limit of 4 mW at 2450 MHz.

As the maximum output power is 2 mW conducted and 2 mW EIRP the DUT qualifies for SAR test exclusion.

## END OF REPORT