# RF Exposure Test Report

**FCC ID: SK9CAT2**
**IC: 864G-CAT2**

**FCC Rule Part: 1.1310**
**ISED Canada Radio Standards Specification: RSS-102**

**Report Number: AT72153786-2C0**

Manufacturer: Itron, Inc.
Model: CAT2

Test Begin Date: October 31, 2019
Test End Date: November 1, 2019

Report Issue Date: November 5, 2019

FOR THE SCOPE OF ACCREDITATION UNDER Certificate Number: 2955.09

This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

**Prepared By:**

**Ryan McGann**
**Team Leader**
**TÜV SÜD America Inc.**

**Reviewed by:**

**Jeremy Pickens**
**Senior Wireless Engineer**
**TÜV SÜD America Inc.**



**This report contains 144 pages**

# TABLE OF CONTENTS


**1 GENERAL ..... 3**

1.1 PURPOSE ..... 3
1.2 MANUFACTURER INFORMATION ..... 3
1.3 PRODUCT DESCRIPTION ..... 3
1.4 TEST METHODOLOGY AND CONSIDERATIONS ..... 5

**2 TEST FACILITIES ..... 6**

2.1 LOCATION ..... 6
2.2 LABORATORY ACCREDITATIONS/RECOGNITIONS/CERTIFICATIONS ..... 6
2.3 RADIATED EMISSIONS TEST SITE DESCRIPTION ..... 7
*2.3.1 Semi-Anechoic Chamber Test Site – Chamber A ..... 7*
*2.3.2 Semi-Anechoic Chamber Test Site – Chamber B ..... 8*

**3 APPLICABLE STANDARD REFERENCES ..... 9**

**4 LIST OF TEST EQUIPMENT ..... 9**

**5 SUPPORT EQUIPMENT ..... 10**

**6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM ..... 10**

**7 SUMMARY OF TESTS ..... 11**

7.1 MAXIMUM PERMISSIBLE EXPOSURE – FCC: SECTION 1.1310; ISED CANADA: RSS-102 SECTION 4 ..... 11
*7.1.1 Measurement Procedure ..... 11*
*7.1.2 Measurement Results ..... 11*
*7.1.3 Summation of MPE Ratios – Simultaneous Transmissions ..... 13*

**8 ESTIMATION OF MEASUREMENT UNCERTAINTY ..... 14**

**9 CONCLUSION ..... 14**

# 1 GENERAL

## 1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 1 Subpart I of the FCC's Code of Federal Regulations and Innovation, Science, and Economic Development Canada's Radio Standards Specification RSS-102 Certification for Maximum Permissible Exposure.

## 1.2 Manufacturer Information

Itron, Inc.
313 N Hwy 11
West Union, SC 29696

## 1.3 Product Description

The Itron CAT2 is an electricity metering module which includes an 802.11bgn WLAN transceiver and a CAT-M1 LTE module. The module operates on DC power which is supplied by a host device.

This test report documents the compliance of the maximum permissible exposure for uncontrolled exposure of a fixed device.

Technical Information (WiFi):

| Detail | Description |
|---|---|
| Frequency Range (MHz) | 2412 – 2462 |
| Number of Channels | 11 (20MHz Channels)<br>7 (40MHz Channels) |
| Channel Spacing | 5 MHz |
| Modulation Format | 802.11 b/g/n(HT20)/n(HT40) |
| Data Rates | 802.11b: 1, 2, 5.5, 11 Mbps<br>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11n: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65.5, 72.2 Mbps |
| Operating Voltage | 3.3Vdc |
| Antenna Type / Gain | PCB Trace / 4.57dBi Max |

Technical Information (Cellular Radio):

<table>
<tr><th>Detail</th><th>Description</th></tr>
<tr><td>Frequency Range (MHz)</td><td>1850-1910 (LTE B2)<br>1710-1755 (LTE B4)<br>824-849 (LTE B5)<br>699-716 (LTE B12)<br>777-787 (LTE B13)<br>788-798 (LTE B14)<br>704-716 (LTE B17)<br>1850-1915 (LTE B25)<br>814-849 (LTE B26)<br>1710-1780 (LTE B66)</td></tr>
<tr><td>Operating Voltage</td><td>5Vdc</td></tr>
<tr><td>Antenna Type / Gain</td><td>Custom / Permanently attached
<table>
<tr><th>Frequency</th><th>Gain (dBi)</th></tr>
<tr><td>746MHz</td><td>-0.2</td></tr>
<tr><td>751MHz</td><td>-0.41</td></tr>
<tr><td>756MHz</td><td>-0.6</td></tr>
<tr><td>777MHz</td><td>-1.27</td></tr>
<tr><td>782MHz</td><td>-1.68</td></tr>
<tr><td>787MHz</td><td>-1.52</td></tr>
<tr><td>1.71GHz</td><td>1.84</td></tr>
<tr><td>1.747GHz</td><td>1.56</td></tr>
<tr><td>1.785GHz</td><td>1.89</td></tr>
<tr><td>1.805GHz</td><td>2.5</td></tr>
<tr><td>1.84GHz</td><td>2.4</td></tr>
<tr><td>1.85GHz</td><td>2.58</td></tr>
<tr><td>1.88GHz</td><td>1.53</td></tr>
<tr><td>1.91GHz</td><td>1.25</td></tr>
<tr><td>1.92GHz</td><td>1.05</td></tr>
<tr><td>1.93GHz</td><td>1.19</td></tr>
<tr><td>1.95GHz</td><td>1.69</td></tr>
<tr><td>1.96GHz</td><td>1.8</td></tr>
<tr><td>1.98GHz</td><td>2.45</td></tr>
<tr><td>1.99GHz</td><td>2.49</td></tr>
<tr><td>2.11GHz</td><td>-1.59</td></tr>
<tr><td>2.132GHz</td><td>-1.83</td></tr>
<tr><td>2.14GHz</td><td>-0.7</td></tr>
<tr><td>2.155GHz</td><td>-0.98</td></tr>
</table></td></tr>
<tr><td>Manufacturer</td><td>Sierra Wireless</td></tr>
</table>

Model Number: CAT2

Test Sample Serial Number(s): Not labeled

Test Sample Condition: The test samples were provided in good working order with no visible defects.

### 1.4 Test Methodology and Considerations

The data presented in this report represents the worst case where applicable. The worst-case data rate for the WiFi radio was 802.11g at 6MBPS configured on the middle channel (2437MHz).

Software power setting during test: Each radio was configured for maximum intended power

# 2 TEST FACILITIES

## 2.1 Location

The radiated and conducted emissions test sites are located at the following addresses:

TÜV SÜD America, Inc.
5945 Cabot Pkwy, Suite 100
Alpharetta, GA 30005
Phone: (678) 341-5900

## 2.2 Laboratory Accreditations/Recognitions/Certifications

TÜV SÜD America, Inc. is accredited to ISO/IEC 17025 by the American Association for Laboratory Accreditation/A2LA accreditation program and has been issued certificate number 2955.09 in recognition of this accreditation.

Unless otherwise specified, all tests methods described within this report are covered under the ISO/IEC 17025 scopes of accreditation.

The Semi-Anechoic Chamber Test Sites and Conducted Emissions Sites have been fully described, submitted to, and accepted by the FCC, ISED Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

| | |
|---|---|
| FCC Designation Accreditation Number: | US1233 |
| ISED Canada Lab Code: | 23932 |
| VCCI Member Number: | 1831 |
| • VCCI Registration Number | A-0295 |

## 2.3 Radiated Emissions Test Site Description

### 2.3.1 Semi-Anechoic Chamber Test Site – Chamber A

The Semi-Anechoic Chamber Test Site consists of a 20’ x 30’ x 18’ shielded enclosure. The chamber is lined with Toyo Ferrite Grid Absorber, model number FFG-1000. The ferrite tile grid is 101 x 101 x 19mm thick and weighs approximately 550 grams. These tiles are mounted on steel panels and installed directly on the inner walls of the chamber.

The turntable is 5' in diameter and is located 5’6” from the back wall of the chamber. The chamber is grounded via 1 - 8’ copper ground rod, installed at the center of the back wall, it is bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is all steel, flush mounted EMCO Model 1060 installed in an all steel frame. The table is remotely operated from inside the control room located 25’ from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Behind the turntable is a 3’ x 6’ x 4’ deep shielded pit used for support equipment if necessary. The pit is equipped with 1 - 4” PVC chase from the turntable to the pit that allows for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit, so cables can be supplied to the EUT from the pit.

The chamber rear wall is covered with a mixture of Siepel pyramidal absorber. The side walls of the chamber are partially covered with Siepel pyramidal absorber.

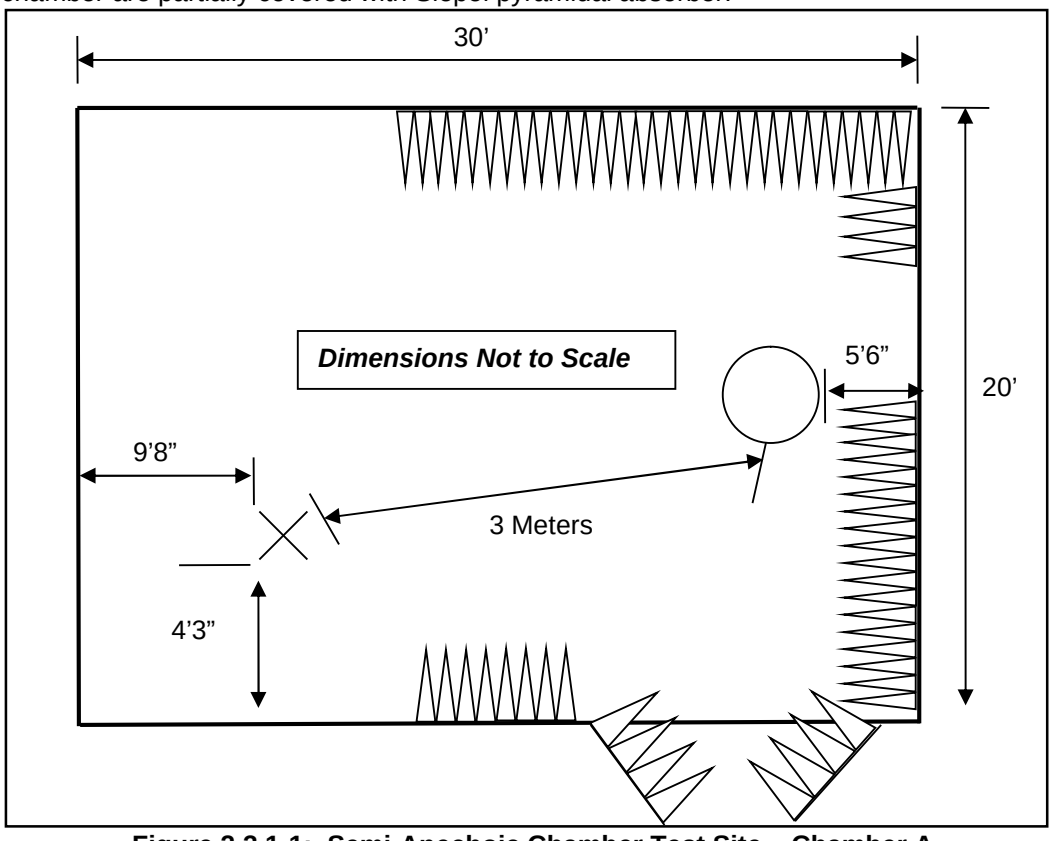


**Figure 2.3.1-1: Semi-Anechoic Chamber Test Site – Chamber A**

### 2.3.2 Semi-Anechoic Chamber Test Site – Chamber B

The Semi-Anechoic Chamber Test Site consists of a 20'W x 30'L x 20'H shielded enclosure. The chamber is lined with ETS-Lindgren Ferrite Absorber, model number FT-1500. The ferrite tile 600 mm x 600 mm (2.62 in x 23.62 in) panels and are mounted directly on the inner walls of the chamber shield.

The specular regions of the chamber are lined with additional ETS-Lindgren PS-600 hybrid absorber to extend its frequency range up to 18GHz and beyond.

The turntable is a 2m ETS-Lindgren Model 2170 and installed off the center axis is located 5'6" from the back wall of the chamber. The chamber is grounded via 1 - 8' copper ground rod, installed at the center of the back wall, it is bound to the shield using #8 solid copper wire.

The antenna mast is an EMCO 1060 and is remotely controlled from the control room for both antenna height and polarization.

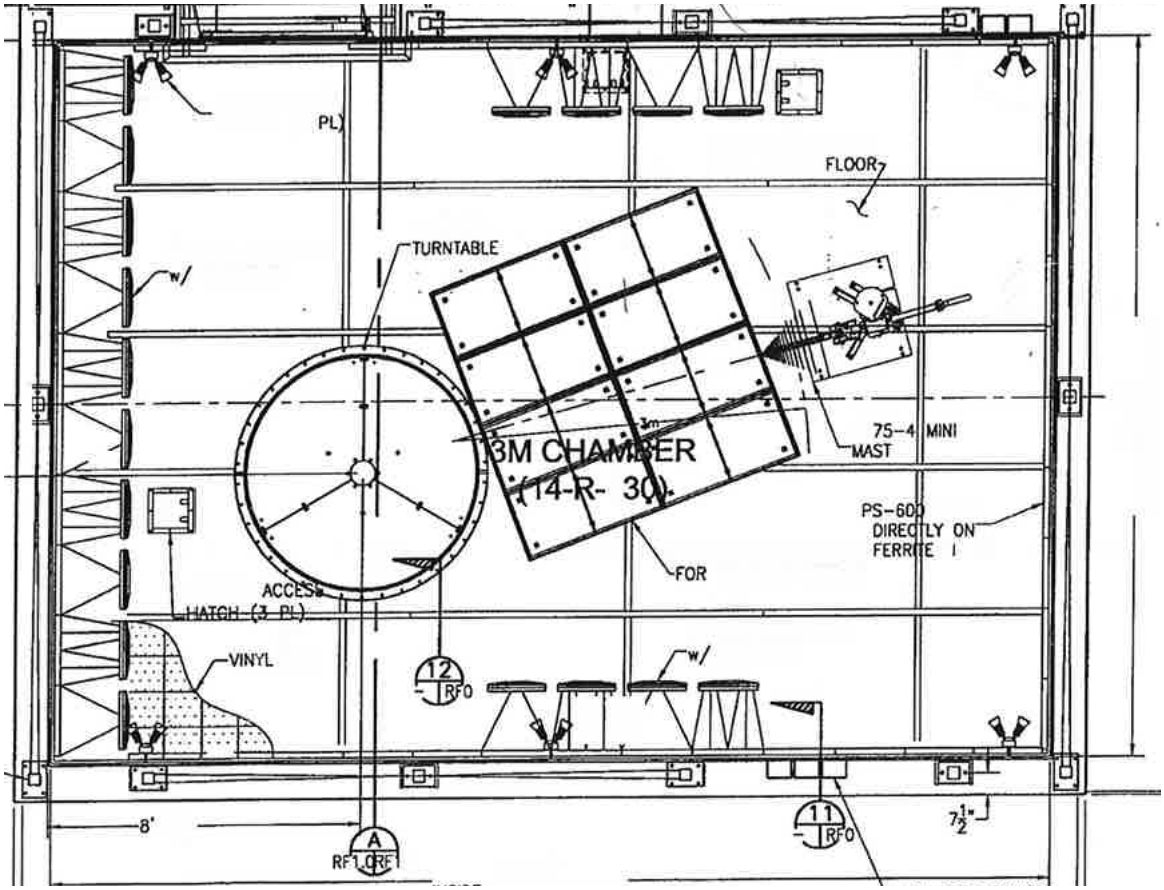


**Figure 2.3.2-1: Semi-Anechoic Chamber Test Site – Chamber B**

## 3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2014: American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
- ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- IEEE C95.3-2002: IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to Such Fields, 100 kHz to 300 GHz.
- US Code of Federal Regulations (CFR): Title 47, Part 1, Subpart I: Procedures Implementing the National Environmental Policy Act of 1969, 2019
- FCC KDB 447498 D01 General RF Exposure Guidance v06, Oct. 23, 2015.
- ISED Canada Radio Standards Specification: RSS-102 – Radio Frequency (RF) Exposure Compliance of Radiocommunications Apparatus (All Frequency Bands), Issue 5, March 2015.

## 4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

**Table 4-1: Test Equipment**

| Asset ID | Manufacturer | Model | Equipment Type | Serial Number | Last Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| RE137 | Holaday | HI-6005 | Isotropic Probe | 23667 | 4/12/2019 | 4/12/2020 |

**NOTE: All test equipment was used only during active calibration cycles.**

## 5 SUPPORT EQUIPMENT

**Table 5-1: Support Equipment**

| Item | Equipment Type | Manufacturer | Model/Part Number | Serial Number |
|---|---|---|---|---|
| **1** | Interface Board | Not labeled | Not labeled | N/A |
| **2** | AC/DC Adapter | Phihong | PSM08A-052 | N/A |

**Table 5-2: Cable Description**

| Cable | Cable Type | Length | Shield | Termination |
|---|---|---|---|---|
| A | DC Power | 1.75m | No | Interface Board to AC/DC Adapter |

## 6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

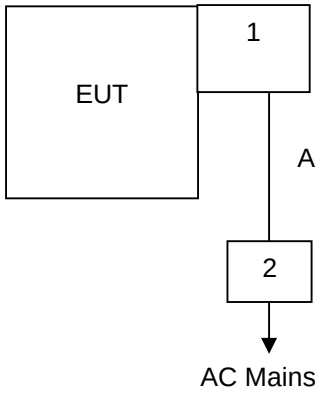


**Figure 6-1: Test Setup Block Diagram**

# 7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

## 7.1 Maximum Permissible Exposure – FCC: Section 1.1310; ISED Canada: RSS-102 Section 4

### 7.1.1 Measurement Procedure

The EUT was placed on a non-conductive platform in the center of the turntable at a height of 1.5 meters above the ground plane. The measurement probe was located 20 centimeters away from the EUT on an adjustable antenna mast. The EUT was rotated through 360 degrees so that the maximum radiated emissions level would be detected. The mast was adjusted until the evaluated results are less than 10% of the applicable limit. Once a stable reading was obtained, the maximum was recorded. The azimuth and elevation leading to the direction of maximum exposure was identified. The evaluation points in the horizontal plane were along radials extending from the antenna axis 45 degrees apart starting from the direction of maximum exposure.

### 7.1.2 Measurement Results

Performed by: Ryan McGann

**Table 7.1.2-1: Maximum Permissible Exposure - WiFi**

| Mode | Frequency (MHz) | Distance cm | Azimuth degrees | Elevation cm | Probe Display V/m | Probe Factor | Field Strength V/m | Power Density $mW/cm^2$ | FCC Limit $mW/cm^2$ | ISED Canada Limit $mW/cm^2$ | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WiFi | 2462 | 20 | 0 | 157 | 1.65 | 1.31 | 2.1615 | 0.00123928 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 45 | 164 | 0.789 | 1.31 | 1.03359 | 0.00028337 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 90 | 203 | 0.65 | 1.31 | 0.8515 | 0.00019232 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 135 | 151 | 1.244 | 1.31 | 1.62964 | 0.00070444 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 180 | 163 | 1.505 | 1.31 | 1.97155 | 0.00103104 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 225 | 151 | 1.289 | 1.31 | 1.68859 | 0.00075632 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 270 | 151 | 1.624 | 1.31 | 2.12744 | 0.00120053 | 1 | 0.54417897 | PASS |
| WiFi | 2462 | 20 | 315 | 148 | 1.205 | 1.31 | 1.57855 | 0.00066096 | 1 | 0.54417897 | PASS |

**Table 7.1.2-2: Maximum Permissible Exposure – LTE Band 2**

| Mode | Frequency (MHz) | Distance cm | Azimuth degrees | Elevation cm | Probe Display V/m | Probe Factor | Field Strength V/m | Power Density $mW/cm^2$ | FCC Limit $mW/cm^2$ | ISED Canada Limit $mW/cm^2$ | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LTE B2 | 1880 | 20 | 0 | 154 | 4.724 | 1.16 | 5.47984 | 0.00796516 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 45 | 154 | 4.238 | 1.16 | 4.91608 | 0.00641057 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 90 | 146 | 4.267 | 1.16 | 4.94972 | 0.0064986 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 135 | 146 | 4.226 | 1.16 | 4.90216 | 0.00637432 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 180 | 162 | 3.582 | 1.16 | 4.15512 | 0.00457958 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 225 | 155 | 3.201 | 1.16 | 3.71316 | 0.00365718 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 270 | 155 | 3.005 | 1.16 | 3.4858 | 0.00322302 | 1 | 0.4525796 | PASS |
| LTE B2 | 1880 | 20 | 315 | 156 | 3.755 | 1.16 | 4.3558 | 0.00503262 | 1 | 0.4525796 | PASS |

**Table 7.1.2-3: Maximum Permissible Exposure – LTE Band 4**

| Mode | Frequency (MHz) | Distance cm | Azimuth degrees | Elevation cm | Probe Display V/m | Probe Factor | Field Strength V/m | Power Density mW/cm² | FCC Limit mW/cm² | ISED Canada Limit mW/cm² | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LTE B4 | 1732.5 | 20 | 0 | 162 | 5.312 | 1.09 | 5.79008 | 0.00889258 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 45 | 158 | 3.737 | 1.09 | 4.07333 | 0.00440107 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 90 | 149 | 4.173 | 1.09 | 4.54857 | 0.00548793 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 135 | 144 | 4.602 | 1.09 | 5.01618 | 0.00667429 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 180 | 132 | 3.02 | 1.09 | 3.2918 | 0.00287426 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 225 | 123 | 2.856 | 1.09 | 3.11304 | 0.00257056 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 270 | 107 | 2.992 | 1.09 | 3.26128 | 0.00282121 | 1 | 0.42800101 | PASS |
| LTE B4 | 1732.5 | 20 | 315 | 133 | 4.107 | 1.09 | 4.47663 | 0.00531571 | 1 | 0.42800101 | PASS |

**Table 7.1.2-4: Maximum Permissible Exposure – LTE Band 12**

| Mode | Frequency (MHz) | Distance cm | Azimuth degrees | Elevation cm | Probe Display V/m | Probe Factor | Field Strength V/m | Power Density mW/cm² | FCC Limit mW/cm² | ISED Canada Limit mW/cm² | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LTE B12 | 707.5 | 20 | 0 | 166 | 4.212 | 1.04 | 4.38048 | 0.00508982 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 45 | 164 | 3.724 | 1.04 | 3.87296 | 0.00397873 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 90 | 162 | 3.769 | 1.04 | 3.91976 | 0.00407547 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 135 | 169 | 3.863 | 1.04 | 4.01752 | 0.00428129 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 180 | 178 | 3.828 | 1.04 | 3.98112 | 0.00420406 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 225 | 182 | 3.703 | 1.04 | 3.85112 | 0.00393399 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 270 | 185 | 3.587 | 1.04 | 3.73048 | 0.00369137 | 0.47166667 | 0.23208045 | PASS |
| LTE B12 | 707.5 | 20 | 315 | 182 | 3.678 | 1.04 | 3.82512 | 0.00388105 | 0.47166667 | 0.23208045 | PASS |

**Table 7.1.2-5: Maximum Permissible Exposure – LTE Band 13**

| Mode | Frequency (MHz) | Distance cm | Azimuth degrees | Elevation cm | Probe Display V/m | Probe Factor | Field Strength V/m | Power Density mW/cm² | FCC Limit mW/cm² | ISED Canada Limit mW/cm² | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LTE B13 | 782 | 20 | 0 | 162 | 3.383 | 1.03 | 3.48449 | 0.0032206 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 45 | 169 | 3.186 | 1.03 | 3.28158 | 0.00285644 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 90 | 167 | 3.182 | 1.03 | 3.27746 | 0.00284927 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 135 | 169 | 3.047 | 1.03 | 3.13841 | 0.00261263 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 180 | 183 | 3.064 | 1.03 | 3.15592 | 0.00264186 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 225 | 193 | 3.186 | 1.03 | 3.28158 | 0.00285644 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 270 | 195 | 3.119 | 1.03 | 3.21257 | 0.00273756 | 0.52133333 | 0.24851522 | PASS |
| LTE B13 | 782 | 20 | 315 | 192 | 2.953 | 1.03 | 3.04159 | 0.00245392 | 0.52133333 | 0.24851522 | PASS |

**Table 7.1.2-6: Maximum Permissible Exposure – LTE Band 26**

| Mode | Frequency (MHz) | Distance cm | Azimuth degrees | Elevation cm | Probe Display V/m | Probe Factor | Field Strength V/m | Power Density mW/cm² | FCC Limit mW/cm² | ISED Canada Limit mW/cm² | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LTE B26 | 831.5 | 20 | 0 | 177 | 3.228 | 1.03 | 3.32484 | 0.00293224 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 45 | 167 | 3.043 | 1.03 | 3.13429 | 0.00260578 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 90 | 162 | 2.985 | 1.03 | 3.07455 | 0.00250739 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 135 | 175 | 3.022 | 1.03 | 3.11266 | 0.00256993 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 180 | 184 | 2.853 | 1.03 | 2.93859 | 0.00229053 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 225 | 190 | 2.351 | 1.03 | 2.42153 | 0.00155539 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 270 | 191 | 2.004 | 1.03 | 2.06412 | 0.00113013 | 0.55433333 | 0.25916083 | PASS |
| LTE B26 | 831.5 | 20 | 315 | 185 | 2.504 | 1.03 | 2.57912 | 0.00176442 | 0.55433333 | 0.25916083 | PASS |

### 7.1.3 Summation of MPE Ratios – Simultaneous Transmissions

Performed by: Ryan McGann

This device contains multiple transmitters which can operate simultaneously; therefore, the maximum RF exposure is determined by the summation of MPE ratios. The limit is such that the summation of MPE ratios is ≤ 1.0.

**Table 7.1.3-1: Summation of MPE Ratios – FCC**

| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|
| WiFi Radio | x | x | x | x | x |
| LTE B2 | x | | | | |
| LTE B4 | | x | | | |
| LTE B12 | | | x | | |
| LTE B13 | | | | x | |
| LTE B26 | | | | | x |
| WiFi MPE Ratio | 0.0012 | 0.0012 | 0.0012 | 0.0012 | 0.0012 |
| LTE MPE Ratio | 0.008 | 0.0089 | 0.0108 | 0.0062 | 0.0029 |
| MPE Summation | 0.0092 | 0.0101 | 0.012 | 0.0074 | 0.0041 |

**Table 7.1.3-2: Summation of MPE Ratios – ISED Canada**

| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|
| WiFi Radio | x | x | x | x | x |
| LTE B2 | x | | | | |
| LTE B4 | | x | | | |
| LTE B12 | | | x | | |
| LTE B13 | | | | x | |
| LTE B26 | | | | | x |
| WiFi MPE Ratio | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0023 |
| LTE MPE Ratio | 0.0176 | 0.0208 | 0.0219 | 0.013 | 0.0113 |
| MPE Summation | 0.0199 | 0.0231 | 0.0242 | 0.0153 | 0.0136 |

## 8 ESTIMATION OF MEASUREMENT UNCERTAINTY

The expanded laboratory measurement uncertainty figures ($U_{Lab}$) provided below correspond to an expansion factor (coverage factor) k = 1.96 which provide confidence levels of 95%.

| Parameter | $U_{lab}$ |
|---|---|
| Electric Field | 39.12% |

## 9 CONCLUSION

In the opinion of TÜV SÜD America, Inc. the CAT2, manufactured by Itron, Inc. meets the requirements of FCC Part 1 subpart I and Innovation, Science, and Economic Development Canada's Radio Standards Specification RSS-102 for the tests documented in this test report.

# END REPORT