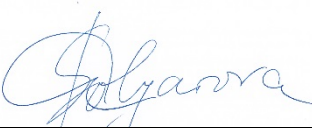




**BUREAU  
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# Test Report

Bureau Veritas Consumer Products Services Inc.

|                                  |                                                                                                                               |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Report No                        | EU1037-2                                                                                                                      |
| Client                           | Onset Computer Corporation                                                                                                    |
| Address                          | 470 MacArthur Blvd.<br>Bourne MA, 02532                                                                                       |
| Phone                            | 508-759-950                                                                                                                   |
| Items tested<br>FCC ID<br>IC     | InTemp® CX450 Temp/RH Logger<br>WXF-ONST9<br>7936A-ONST9                                                                      |
| Equipment Type<br>Equipment Code | Digital Transmission System<br>DTS                                                                                            |
| FCC/IC Rule Parts                | CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2                                                                     |
| Test Dates                       | August 21 – August 26, 2020                                                                                                   |
| Results                          | As detailed within this report                                                                                                |
| Prepared by                      | <br>Landu Nsalambi – EMC Engineer          |
| Authorized by                    | <br>Anna Vancheva- EMC Engineer            |
| Issue Date                       | <u>9/8/2020</u>                                                                                                               |
| Conditions of Issue              | This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 20 of this report. |

Bureau Veritas Consumer Products Services Inc. is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.



**Bureau Veritas Consumer Products Services Inc.**  
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Report REV Sep-08-2017 - YF



## Summary

This test report supports an application for certification of a transmitter operating pursuant to:  
CFR Title 47 FCC Part 15.247, ISSED Canada RSS-247 Issue 2

The product is InTemp® CX450 Temp/RH data logger. This Bluetooth® Smart-enabled logger operates in the 2402MHz– 2480MHz frequency range.

Antenna Type: Non-detachable SMT Ceramic Chip

Gain: 0.5dBi

We found that the product met the above requirements without modification.

Test samples were received in good condition.

## Test Methodology

All testing was performed according to the following rules/procedures/documents;  
CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05r02 and ANSI C63.10-2013

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) as well as varying the test antenna's height and polarity.

EUT operating voltage is 3.3V DC from batteries, therefore AC line conducted emissions requirements are not applicable.

Following bandwidths were used during radiated spurious emissions testing.

| Frequency  | RBW    | VBW  |
|------------|--------|------|
| 30-1000MHz | 120kHz | 1MHz |
| 1-25GHz    | 1MHz   | 3MHz |

**Product Tested - Configuration Documentation**

| EUT Configuration                                                                                                                                            |                                 |              |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------|----------|
| Work Order:                                                                                                                                                  | U1037                           |              |          |
| Company:                                                                                                                                                     | Onset Computer Corporation      |              |          |
| Company Address:                                                                                                                                             | 470 MacArthur Blvd.             |              |          |
|                                                                                                                                                              | Bourne, MA, 02532               |              |          |
|                                                                                                                                                              |                                 |              |          |
| Contact:                                                                                                                                                     | John Araujo                     |              |          |
|                                                                                                                                                              |                                 |              |          |
|                                                                                                                                                              | MN                              | PN           | SN       |
| EUT:                                                                                                                                                         | CX450                           |              | 20847956 |
| EUT Description:                                                                                                                                             | Bluetooth® Smart-enabled logger |              |          |
|                                                                                                                                                              |                                 |              |          |
| Support Equipment                                                                                                                                            | MN                              | SN           |          |
| Lab PC with nRFgo Studio                                                                                                                                     | Latitude E5410                  | n/a          |          |
| Ipad                                                                                                                                                         | A1893                           | F9FW587KJF8J |          |
|                                                                                                                                                              |                                 |              |          |
| Software Operating Mode Description:                                                                                                                         |                                 |              |          |
| Direct Test Mode via Nordic nRFgo Studio to change channels (Low 2402MHz, Mid 2440MHz and High 2480MHz) and transmit 37 bytes of PRBS9 packets continuously. |                                 |              |          |
|                                                                                                                                                              |                                 |              |          |

**Clock Frequencies**

| Clock Frequencies        |          |
|--------------------------|----------|
| <b>frequencies (MHz)</b> | 32, 2480 |

**Statement of Conformity**

| RSS-GEN | RSP-100 | RSS 247 | Part 15          | Comments                                                                                                                                                                               |
|---------|---------|---------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.4     |         |         | 15.15(b)         | There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.                                                      |
|         | 5       |         | 15.19            | The label is shown in the label exhibit.                                                                                                                                               |
|         | 7       |         | 15.21            | Information to the user is shown in the instruction manual exhibit.                                                                                                                    |
|         |         |         | 15.27            | No special accessories are required for compliance.                                                                                                                                    |
| 3.2     |         |         | 15.31            | The EUT was tested in accordance with the measurement standards in this section.                                                                                                       |
| 6.13.2  |         |         | 15.33            | Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.                                                  |
| 6.13.1  |         |         | 15.35            | The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.      |
| 6.8     |         |         | 15.203           | EUT has a non-detachable SMT ceramic chip antenna with 0.5dBi gain.                                                                                                                    |
| 8.10    |         |         | 15.205<br>15.209 | The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable |
| 8.8     |         |         | 15.207           | N/A. EUT is battery powered.                                                                                                                                                           |
|         |         |         | 15.247           | The unit complies with the requirements of 15.247                                                                                                                                      |
|         |         | RSS 247 |                  | The unit complies with the requirements of RSS-247                                                                                                                                     |
| 6.7     |         |         |                  | Occupied Bandwidth measurements were made.                                                                                                                                             |

Refer to Appendix A of this report for antenna port conducted measurements.

## Test Results

### Radiated Spurious Emissions

#### LIMITS

*Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).*

[15.247(d)]

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) and worst case emissions observed in Y orientation. All the results below are for the worst case orientation only.

**MEASUREMENTS / RESULTS****30-1000MHz Low Channel**

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 3m Distance  
Top Peaks Vertical 30-1000MHz  
Notes:  
BLE Low Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480MHz

Data Taken at 11:51:44 AM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Lim1<br>Margin<br>(dB) | Lim1 Test<br>Results<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | Turntable<br>Azimuth<br>(degrees) |
|--------------------|---------------------------|--------------------------------|-------------------------------------------|---------------------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------------|
| 31.212             | 28.9                      | -4.2                           | 24.8                                      | 40                                    | -15.2                  | PASS                                |                                 | 200                       | 135                               |
| 142.859            | 35.3                      | -10.7                          | 24.7                                      | 43.5                                  | -18.8                  | PASS                                |                                 | 100                       | 45                                |
| 145.939            | 35.8                      | -10.9                          | 24.9                                      | 43.5                                  | -18.6                  | PASS                                |                                 | 100                       | 45                                |
| 149.334            | 34.8                      | -11.1                          | 23.7                                      | 43.5                                  | -19.8                  | PASS                                |                                 | 100                       | 45                                |
| 155.203            | 36.4                      | -11.3                          | 25.1                                      | 43.5                                  | -18.4                  | PASS                                |                                 | 100                       | 90                                |
| 905.91             | 30.3                      | 2.4                            | 32.7                                      | 46                                    | -13.3                  | PASS                                | -13.3                           | 100                       | 135                               |

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 3m Distance  
Top Peaks Horizontal 30-1000MHz  
Notes:  
BLE Low Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480MHz

Data Taken at 11:51:44 AM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Lim1<br>Margin<br>(dB) | Lim1 Test<br>Results<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|---------------------------|--------------------------------|-------------------------------------------|---------------------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------|
| 30.412             | 28.4                      | -3.6                           | 24.9                                      | 40                                    | -15.1                  | PASS                                |                                 | 150                       | 90                          |
| 75.566             | 29.9                      | -16                            | 13.8                                      | 40                                    | -26.2                  | PASS                                |                                 | 150                       | 135                         |
| 123.751            | 28.6                      | -8.9                           | 19.8                                      | 43.5                                  | -23.7                  | PASS                                |                                 | 200                       | 225                         |
| 198.246            | 29.9                      | -10.8                          | 19.1                                      | 43.5                                  | -24.4                  | PASS                                |                                 | 100                       | 45                          |
| 564.519            | 32.2                      | -3.6                           | 28.5                                      | 46                                    | -17.5                  | PASS                                |                                 | 200                       | 270                         |
| 955.889            | 29.8                      | 3.1                            | 32.9                                      | 46                                    | -13.1                  | PASS                                | -13.1                           | 250                       | 225                         |

**30-1000MHz Middle Channel**

|                                               |                                    |
|-----------------------------------------------|------------------------------------|
| Bureau Veritas Consumer Product Services Inc. | Work Order - U1037                 |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 3 VDC            |
| Top Peaks Vertical 30-1000MHz                 | Test Site - CH-1                   |
| Notes:                                        | Conditions - 24°C; 51%RH; 1005mBar |
| BLE Mid Channel 80cm Height                   | Test Engineer - Landu Nsalambi     |
|                                               | EUT Maximum Frequency - 2480 MHz   |

Data Taken at 03:07:29 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Lim1<br>Margin<br>(dB) | Lim1 Test<br>Results<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | Turntable<br>Azimuth<br>(degrees) |
|--------------------|---------------------------|--------------------------------|-------------------------------------------|---------------------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------------|
| 30.218             | 28                        | -3.5                           | 24.5                                      | 40                                    | -15.5                  | PASS                                |                                 | 150                       | 45                                |
| 142.884            | 35.9                      | -10.7                          | 25.2                                      | 43.5                                  | -18.3                  | PASS                                |                                 | 100                       | 45                                |
| 155.13             | 38.1                      | -11.3                          | 26.8                                      | 43.5                                  | -16.7                  | PASS                                |                                 | 150                       | 90                                |
| 158.089            | 37.1                      | -11.3                          | 25.8                                      | 43.5                                  | -17.7                  | PASS                                |                                 | 100                       | 90                                |
| 820.065            | 37.5                      | 0.2                            | 37.7                                      | 46                                    | -8.3                   | PASS                                | -8.3                            | 100                       | 45                                |
| 946.165            | 30                        | 3                              | 32.9                                      | 46                                    | -13.1                  | PASS                                |                                 | 150                       | 180                               |

|                                               |                                    |
|-----------------------------------------------|------------------------------------|
| Bureau Veritas Consumer Product Services Inc. | Work Order - U1037                 |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 3 VDC            |
| Top Peaks Horizontal 30-1000MHz               | Test Site - CH-1                   |
| Notes:                                        | Conditions - 24°C; 51%RH; 1005mBar |
| BLE Mid Channel 80cm Height                   | Test Engineer - Landu Nsalambi     |
|                                               | EUT Maximum Frequency - 2480 MHz   |

Data Taken at 03:07:29 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Lim1<br>Margin<br>(dB) | Lim1 Test<br>Results<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|---------------------------|--------------------------------|-------------------------------------------|---------------------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------|
| 30.897             | 28.5                      | -3.9                           | 24.6                                      | 40                                    | -15.4                  | PASS                                |                                 | 200                       | 90                          |
| 123.168            | 28.8                      | -8.8                           | 20                                        | 43.5                                  | -23.5                  | PASS                                |                                 | 150                       | 0                           |
| 204.018            | 30.8                      | -11.6                          | 19.2                                      | 43.5                                  | -24.3                  | PASS                                |                                 | 150                       | 45                          |
| 564.567            | 32.9                      | -3.6                           | 29.2                                      | 46                                    | -16.8                  | PASS                                |                                 | 200                       | 90                          |
| 699.761            | 36.9                      | -1.3                           | 35.7                                      | 46                                    | -10.3                  | PASS                                | -10.3                           | 100                       | 270                         |
| 934.937            | 30                        | 2.6                            | 32.6                                      | 46                                    | -13.4                  | PASS                                |                                 | 200                       | 90                          |



**30-1000MHz High Channel**

Bureau Veritas Consumer Product Services Inc.

Radiated Emissions Electric Field 3m Distance

Top Peaks Vertical 30-1000MHz

Notes:

BLE High 80cm Height

Work Order - U1037

EUT Power Input - 3 VDC

Test Site - CH-1

Conditions - 24°C; 51%RH; 1005mBar

Test Engineer - Landu Nsalambi

EUT Maximum Frequency - 2480MHz

Data Taken at 03:12:47 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Lim1<br>Margin<br>(dB) | Lim1 Test<br>Results<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | Turntable<br>Azimuth<br>(degrees) |
|--------------------|---------------------------|--------------------------------|-------------------------------------------|---------------------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------------|
| 30.049             | 28.8                      | -3.3                           | 25.5                                      | 40                                    | -14.5                  | PASS                                |                                 | 100                       | 45                                |
| 149.456            | 38.6                      | -11.1                          | 27.4                                      | 43.5                                  | -16.1                  | PASS                                |                                 | 100                       | 90                                |
| 155.591            | 39.8                      | -11.3                          | 28.5                                      | 43.5                                  | -15                    | PASS                                |                                 | 100                       | 90                                |
| 819.071            | 45.6                      | 0.1                            | 45.7                                      | 46                                    | -0.3                   | PASS                                | -0.3                            | 200                       | 90                                |
| 822.635            | 43.1                      | 0.3                            | 43.5                                      | 46                                    | -2.5                   | PASS                                |                                 | 100                       | 180                               |
| 950.118            | 30                        | 2.9                            | 32.9                                      | 46                                    | -13.1                  | PASS                                |                                 | 100                       | 0                                 |

Data Taken at 03:12:47 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Raw QP<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted QP<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Margin to<br>Lim1<br>(dB) | Test Results<br>Lim1<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-----------------------------|--------------------------------|--------------------------------------|---------------------------------------|---------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------|
| 818.29             | 24.6                        | 0.1                            | 24.7                                 | 46                                    | -16.5                     | PASS                                |                                 | 172                       | 57                          |
| 822.364            | 24.5                        | 0.3                            | 24.8                                 | 46                                    | -16.4                     | PASS                                | -16.4                           | 400                       | 1                           |
| 962.249            | 24                          | 3.4                            | 27.4                                 | 54                                    | -31.8                     | PASS                                |                                 | 128                       | 38                          |



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Bureau Veritas Consumer Product Services Inc.

Radiated Emissions Electric Field 3m Distance

Top Peaks Horizontal 30-1000MHz

Notes:

BLE High 80cm Height

Work Order - U1037

EUT Power Input - 3 VDC

Test Site - CH-1

Conditions - 24°C; 51%RH; 1005mBar

Test Engineer - Landu Nsalambi

EUT Maximum Frequency - 2480MHz

Data Taken at 03:12:47 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Lim1:<br>FCC_pt15_2<br>09<br>(dBμV/m) | Lim1<br>Margin<br>(dB) | Lim1 Test<br>Results<br>(Pass/Fail) | Worst<br>Margin<br>Lim1<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|---------------------------|--------------------------------|-------------------------------------------|---------------------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|-----------------------------|
| 30.121             | 28.4                      | -3.4                           | 25                                        | 40                                    | -15                    | PASS                                |                                 | 150                       | 90                          |
| 121.98             | 28.7                      | -9.1                           | 19.6                                      | 43.5                                  | -23.9                  | PASS                                |                                 | 200                       | 315                         |
| 199.265            | 29.8                      | -10.7                          | 19                                        | 43.5                                  | -24.5                  | PASS                                |                                 | 250                       | 135                         |
| 564.519            | 32.2                      | -3.6                           | 28.5                                      | 46                                    | -17.5                  | PASS                                |                                 | 200                       | 270                         |
| 946.408            | 29.2                      | 3                              | 32.2                                      | 46                                    | -13.8                  | PASS                                | -13.8                           | 100                       | 270                         |

## 1-6GHz Low Channel

Bureau Veritas Consumer Product Services Inc.

Radiated Emissions Electric Field 3m Distance

Top Peaks Vertical 1-6GHz

Notes:

BLE Low Channel 80cm Height

Work Order - U1037

EUT Power Input - 3 VDC

Test Site - CH-1

Conditions - 24°C; 51%RH; 1005mBar

Test Engineer - Landu Nsalambi

EUT Maximum Frequency - 2480MHz

Data Taken at 10:17:53 AM, Monday, August 03, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Test Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Results<br>(Pass/Fail) | Worst Avg<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|----------------------------|-----------------------------|---------------------------|-----------------------------|
| 1315.13            | 48.4                          | -4.6                           | 43.8                                      | 74                                           | -30.2                           | PASS                                      |                                       | 30.8                                     | 54                                              | -23.2              | PASS                       |                             | 108                       | 227                         |
| 2138.5             | 47.2                          | 3                              | 50.2                                      | 74                                           | -23.8                           | PASS                                      |                                       | 50.2                                     | 54                                              | -3.8               | PASS                       | -3.8                        | 100                       | 0                           |
| 3217.63            | 47.1                          | 4.6                            | 51.7                                      | 74                                           | -22.3                           | PASS                                      |                                       | 38.6                                     | 54                                              | -15.4              | PASS                       |                             | 108                       | 183                         |
| 5633.38            | 46                            | 8.7                            | 54.8                                      | 74                                           | -19.2                           | PASS                                      | -19.2                                 | 42.4                                     | 54                                              | -11.6              | PASS                       |                             | 175                       | 118                         |

Bureau Veritas Consumer Product Services Inc.

Radiated Emissions Electric Field 3m Distance

Top Peaks Horizontal 1-6GHz

Notes:

BLE Low Channel 80cm Height

Work Order - U1037

EUT Power Input - 3 VDC

Test Site - CH-1

Conditions - 24°C; 51%RH; 1005mBar

Test Engineer - Landu Nsalambi

EUT Maximum Frequency - 2480MHz

Data Taken at 10:17:53 AM, Monday, August 03, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Test Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Results<br>(Pass/Fail) | Worst<br>Average<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|----------------------------|------------------------------------|---------------------------|-----------------------------|
| 1963.75            | 47.3                          | 1.9                            | 49.3                                      | 74                                           | -24.7                           | PASS                                      |                                       | 37                                       | 54                                              | -17                | PASS                       |                                    | 275                       | 224                         |
| 2911.13            | 47                            | 4.7                            | 51.7                                      | 74                                           | -22.3                           | PASS                                      |                                       | 38.9                                     | 54                                              | -15.1              | PASS                       |                                    | 299                       | 1                           |
| 5575.63            | 46.2                          | 8.5                            | 54.8                                      | 74                                           | -19.2                           | PASS                                      | -19.2                                 | 42.1                                     | 54                                              | -11.9              | PASS                       | -11.9                              | 125                       | 97                          |

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## 1-6GHz Middle Channel

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 3m Distance  
Top Peaks Vertical 1-6GHz  
Notes:  
BLE Mid Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480 MHz

Data Taken at 03:43:33 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Test Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Results<br>(Pass/Fail) | Worst Avg<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|----------------------------|-----------------------------|---------------------------|-----------------------------|
| 1545.75            | 48.5                          | -4.2                           | 44.3                                      | 74                                           | -29.7                           | PASS                                      |                                       | 30.8                                     | 54                                              | -23.2              | PASS                       |                             | 175                       | 117                         |
| 2019.5             | 47                            | 2.6                            | 49.6                                      | 74                                           | -24.4                           | PASS                                      |                                       | 37                                       | 54                                              | -17                | PASS                       |                             | 275                       | 53                          |
| 2601.63            | 48.1                          | -97.8                          | -49.7                                     | 74                                           | -123.7                          | PASS                                      |                                       | -61.7                                    | 54                                              | -115.7             | PASS                       |                             | 224                       | 184                         |
| 3201.63            | 46.5                          | 4.8                            | 51.3                                      | 74                                           | -22.7                           | PASS                                      |                                       | 39.4                                     | 54                                              | -14.6              | PASS                       |                             | 108                       | 47                          |
| 5559.88            | 46                            | 8.5                            | 54.4                                      | 74                                           | -19.6                           | PASS                                      | -19.6                                 | 42                                       | 54                                              | -12                | PASS                       | -12                         | 275                       | 90                          |

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 3m Distance  
Top Peaks Horizontal 1-6GHz  
Notes:  
BLE Mid Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480 MHz

Data Taken at 03:43:33 PM, Thursday, August 27, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Results<br>(Pass/Fail) | Worst<br>Average<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|--------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|----------------------------|------------------------------------|---------------------------|-----------------------------|
| 2177.13            | 46.5                          | 3.2                            | 49.7                                      | 74                                           | -24.3                           | PASS                                 |                                       | 37.9                                     | 54                                              | -16.1              | PASS                       |                                    | 281                       | 223                         |
| 2616               | 48.5                          | -97.7                          | -49.3                                     | 74                                           | -123.3                          | PASS                                 |                                       | -61.7                                    | 54                                              | -115.7             | PASS                       |                                    | 187                       | 7                           |
| 3578.25            | 46.6                          | 4.6                            | 51.3                                      | 74                                           | -22.7                           | PASS                                 |                                       | 38.3                                     | 54                                              | -15.7              | PASS                       |                                    | 225                       | 101                         |
| 5301.63            | 55.8                          | 7.9                            | 63.7                                      | 74                                           | -10.3                           | PASS                                 | -10.3                                 | 40.4                                     | 54                                              | -13.6              | PASS                       | -13.6                              | 100                       | 16                          |



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## 1-6GHz High Channel

Bureau Veritas Consumer Product Services Inc.  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Vertical 1-6GHz  
 Notes:  
 BLE High 80cm Height

Work Order - U1037  
 EUT Power Input - 3 VDC  
 Test Site - CH-1  
 Conditions - 24°C; 51%RH; 1005mBar  
 Test Engineer - Landu Nsalambi  
 EUT Maximum Frequency - 2480MHz

Data Taken at 11:49:32 AM, Monday, August 03, 2020

| Frequency (MHz) | Raw Peak Reading (dBμV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBμV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBμV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Adjusted Avg Amplitude (dBμV/m) | Av Lim: FCC_pt15_2 09_Average (dBμV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|---------------------------------|----------------------------------------|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1990.63         | 46.8                    | 2.5                      | 49.3                             | 74                                  | -24.7                     | PASS                                |                              | 37.1                            | 54                                     | -16.9           | PASS                    |                       | 111                 | 222                   |
| 2613.5          | 48.1                    | -97.7                    | -49.6                            | 74                                  | -123.6                    | PASS                                |                              | -61.7                           | 54                                     | -115.7          | PASS                    |                       | 125                 | 283                   |
| 3171.25         | 46.8                    | 4.6                      | 51.3                             | 74                                  | -22.7                     | PASS                                |                              | 39.1                            | 54                                     | -14.9           | PASS                    |                       | 275                 | 292                   |
| 5299.13         | 47.7                    | 7.9                      | 55.6                             | 74                                  | -18.4                     | PASS                                |                              | 40.3                            | 54                                     | -13.7           | PASS                    |                       | 275                 | 25                    |
| 5321.5          | 49.7                    | 8                        | 57.6                             | 74                                  | -16.4                     | PASS                                | -16.4                        | 40.3                            | 54                                     | -13.7           | PASS                    |                       | 296                 | 216                   |
| 5749.38         | 45.6                    | 8.9                      | 54.5                             | 74                                  | -19.5                     | PASS                                |                              | 41.5                            | 54                                     | -12.5           | PASS                    | -12.5                 | 113                 | 87                    |

Bureau Veritas Consumer Product Services Inc.  
 Radiated Emissions Electric Field 3m Distance  
 Top Peaks Horizontal 1-6GHz  
 Notes:  
 BLE High 80cm Height

Work Order - U1037  
 EUT Power Input - 3 VDC  
 Test Site - CH-1  
 Conditions - 24°C; 51%RH; 1005mBar  
 Test Engineer - Landu Nsalambi  
 EUT Maximum Frequency - 2480MHz

Data Taken at 11:49:32 AM, Monday, August 03, 2020

| Frequency (MHz) | Raw Peak Reading (dBμV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBμV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBμV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Adjusted Avg Amplitude (dBμV/m) | Av Lim: FCC_pt15_2 09_Average (dBμV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|---------------------------------|----------------------------------------|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2157.5          | 46.5                    | 3.1                      | 49.5                             | 74                                  | -24.5                     | PASS                                |                              | 37.7                            | 54                                     | -16.3           | PASS                    |                           | 188                 | 318                   |
| 2598.5          | 47.8                    | -97.8                    | -50                              | 74                                  | -124                      | PASS                                |                              | -61.7                           | 54                                     | -115.7          | PASS                    |                           | 291                 | 226                   |
| 3204.13         | 46.5                    | 4.7                      | 51.3                             | 74                                  | -22.7                     | PASS                                |                              | 39.3                            | 54                                     | -14.7           | PASS                    |                           | 201                 | 113                   |
| 5302.13         | 53.5                    | 7.9                      | 61.4                             | 74                                  | -12.6                     | PASS                                | -12.6                        | 40.3                            | 54                                     | -13.7           | PASS                    |                           | 125                 | 164                   |
| 5314.13         | 48                      | 7.9                      | 56                               | 74                                  | -18                       | PASS                                |                              | 40.3                            | 54                                     | -13.7           | PASS                    |                           | 125                 | 161                   |
| 5903.88         | 45                      | 9.3                      | 54.2                             | 74                                  | -19.8                     | PASS                                |                              | 41.8                            | 54                                     | -12.2           | PASS                    | -12.2                     | 125                 | 74                    |



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## 6-18GHz Low Channel

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 1m Distance  
Top Peaks Vertical 6-18GHz  
Notes:  
BLE Low Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480MHz

Data Taken at 03:12:38 PM, Monday, August 03, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Test Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Results<br>(Pass/Fail) | Worst Avg<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|----------------------------|-----------------------------|---------------------------|-----------------------------|
| 10530.9            | 50.2                          | 17                             | 67.2                                      | 83.5                                         | -16.3                           | PASS                                      |                                       | 50.8                                     | 63.5                                            | -12.7              | PASS                       |                             | 100                       | 61                          |
| 17964              | 47.3                          | 27.5                           | 74.8                                      | 83.5                                         | -8.7                            | PASS                                      | -8.7                                  | 62.2                                     | 63.5                                            | -1.3               | PASS                       | -1.3                        | 100                       | 16                          |

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 1m Distance  
Top Peaks Horizontal 6-18GHz  
Notes:  
BLE Low Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480MHz

Data Taken at 03:12:38 PM, Monday, August 03, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Test Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Test<br>Results<br>(Pass/Fail) | Worst Avg<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|------------------------------------|-----------------------------|---------------------------|--------------------------|
| 10533              | 52.5                          | 17                             | 69.5                                      | 83.5                                         | -14                             | PASS                                      |                                       | 50.7                                     | 63.5                                            | -12.8              | PASS                               |                             | 175                       | 320                      |
| 10582.2            | 49.4                          | 16.8                           | 66.2                                      | 83.5                                         | -17.3                           | PASS                                      |                                       | 50.5                                     | 63.5                                            | -13                | PASS                               |                             | 110                       | 171                      |
| 17919.3            | 47.5                          | 27.7                           | 75.3                                      | 83.5                                         | -8.2                            | PASS                                      | -8.2                                  | 62.5                                     | 63.5                                            | -1                 | PASS                               | -1                          | 114                       | 216                      |



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## 6-18GHz Middle Channel

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 1m Distance  
Top Peaks Vertical 6-18GHz  
Notes:  
BLE Mid Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480 MHz

Data Taken at 02:05:35 PM, Monday, August 03, 2020

| Frequency (MHz) | Raw Peak Reading (dBμV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBμV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBμV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Adjusted Avg Amplitude (dBμV/m) | Av Lim: FCC_pt15_2 09_Average (dBμV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|---------------------------------|----------------------------------------|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 10532.7         | 49.1                    | 17                       | 66.1                             | 83.5                                | -17.4                     | PASS                                |                              | 50.7                            | 63.5                                   | -12.8           | PASS                    |                       | 119                 | 150                   |
| 12787.5         | 46.6                    | 21.1                     | 67.7                             | 83.5                                | -15.8                     | PASS                                |                              | 54.3                            | 63.5                                   | -9.2            | PASS                    |                       | 100                 | 0                     |
| 17915.7         | 47.6                    | 27.8                     | 75.3                             | 83.5                                | -8.2                      | PASS                                | -8.2                         | 62.5                            | 63.5                                   | -1              | PASS                    | -1                    | 200                 | 276                   |

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 1m Distance  
Top Peaks Horizontal 6-18GHz  
Notes:  
BLE Mid Channel 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480 MHz

Data Taken at 02:05:35 PM, Monday, August 03, 2020

| Frequency (MHz) | Raw Peak Reading (dBμV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBμV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBμV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Adjusted Avg Amplitude (dBμV/m) | Av Lim: FCC_pt15_2 09_Average (dBμV/m) | Avg Margin (dB) | Avg Test Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|---------------------------------|----------------------------------------|-----------------|------------------------------|-----------------------|---------------------|-----------------------|
| 10533           | 50.6                    | 17                       | 67.6                             | 83.5                                | -15.9                     | PASS                                |                              | 50.7                            | 63.5                                   | -12.8           | PASS                         |                       | 134                 | 67                    |
| 10582.8         | 49.4                    | 16.8                     | 66.2                             | 83.5                                | -17.3                     | PASS                                |                              | 50.5                            | 63.5                                   | -13             | PASS                         |                       | 125                 | 223                   |
| 12664.5         | 46.9                    | 20.8                     | 67.7                             | 83.5                                | -15.8                     | PASS                                |                              | 54.2                            | 63.5                                   | -9.3            | PASS                         |                       | 181                 | 292                   |
| 17911.8         | 47.2                    | 27.8                     | 75                               | 83.5                                | -8.5                      | PASS                                | -8.5                         | 62.5                            | 63.5                                   | -1              | PASS                         | -1                    | 150                 | 19                    |

## 6-18GHz High Channel

Bureau Veritas Consumer Product Services Inc.  
Radiated Emissions Electric Field 1m Distance  
Top Peaks Vertical 6-18GHz  
Notes:  
BLE High 80cm Height

Work Order - U1037  
EUT Power Input - 3 VDC  
Test Site - CH-1  
Conditions - 24°C; 51%RH; 1005mBar  
Test Engineer - Landu Nsalambi  
EUT Maximum Frequency - 2480MHz

Data Taken at 01:15:39 PM, Monday, August 03, 2020

| Frequency (MHz) | Raw Peak Reading (dBμV) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dBμV/m) | Pk Lim: FCC_pt15_2 09_Peak (dBμV/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Adjusted Avg Amplitude (dBμV/m) | Av Lim: FCC_pt15_2 09_Average (dBμV/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------|--------------------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|------------------------------|---------------------------------|----------------------------------------|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 10531.5         | 49.4                    | 17                       | 66.4                             | 83.5                                | -17.1                     | PASS                                |                              | 50.6                            | 63.5                                   | -12.9           | PASS                    |                       | 200                 | 246                   |
| 12746.4         | 46.3                    | 21.2                     | 67.5                             | 83.5                                | -16                       | PASS                                |                              | 54.6                            | 63.5                                   | -8.9            | PASS                    |                       | 117                 | 85                    |
| 17817.9         | 47.2                    | 27.6                     | 74.7                             | 83.5                                | -8.8                      | PASS                                | -8.8                         | 62.3                            | 63.5                                   | -1.2            | PASS                    | -1.2                  | 100                 | 47                    |



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Bureau Veritas Consumer Product Services Inc.  
 Radiated Emissions Electric Field 1m Distance  
 Top Peaks Horizontal 6-18GHz  
 Notes:  
 BLE High 80cm Height

Work Order - U1037  
 EUT Power Input - 3 VDC  
 Test Site - CH-1  
 Conditions - 24°C; 51%RH; 1005mBar  
 Test Engineer - Landu Nsalambi  
 EUT Maximum Frequency - 2480MHz

Data Taken at 01:15:39 PM, Monday, August 03, 2020

| Frequency<br>(MHz) | Raw Peak<br>Reading<br>(dBμV) | Correction<br>Factor<br>(dB/m) | Adjusted<br>Peak<br>Amplitude<br>(dBμV/m) | Pk Lim:<br>FCC_pt15_2<br>09_Peak<br>(dBμV/m) | Margin to<br>Peak Limit<br>(dB) | Peak Limit<br>Test Results<br>(Pass/Fail) | Peak Limit<br>Worst<br>Margin<br>(dB) | Adjusted<br>Avg<br>Amplitude<br>(dBμV/m) | Av Lim:<br>FCC_pt15_2<br>09_Average<br>(dBμV/m) | Avg Margin<br>(dB) | Avg Test<br>Results<br>(Pass/Fail) | Worst Avg<br>Margin<br>(dB) | Antenna<br>Height<br>(cm) | EUT<br>Azimuth<br>(degrees) |
|--------------------|-------------------------------|--------------------------------|-------------------------------------------|----------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------|--------------------|------------------------------------|-----------------------------|---------------------------|-----------------------------|
| 10533.3            | 50.6                          | 17                             | 67.6                                      | 83.5                                         | -15.9                           | PASS                                      |                                       | 50.7                                     | 63.5                                            | -12.8              | PASS                               |                             | 194                       | 70                          |
| 10582.5            | 48.4                          | 16.8                           | 65.2                                      | 83.5                                         | -18.3                           | PASS                                      |                                       | 50.5                                     | 63.5                                            | -13                | PASS                               |                             | 200                       | 93                          |
| 17836.8            | 48.5                          | 27.5                           | 76.1                                      | 83.5                                         | -7.4                            | PASS                                      | -7.4                                  | 62.5                                     | 63.5                                            | -1                 | PASS                               | -1                          | 200                       | 209                         |

| Rev. 8/27/2020                                                                                                     |                |          |                   |            |         |     |                 |               |  |
|--------------------------------------------------------------------------------------------------------------------|----------------|----------|-------------------|------------|---------|-----|-----------------|---------------|--|
| Spectrum Analyzers / Receivers / Preselectors                                                                      | Range          | MN       | Mfr               | SN         | Asset   | Cat | Calibration Due | Calibrated on |  |
| Rental MXE EMI Receiver(1170725)                                                                                   | 20Hz-26.5GHz   | N9038A   | Agilent           | MY51210151 | 1170725 | I   | 11/30/2020      | 5/30/2019     |  |
| Radiated Emissions Sites                                                                                           | FCC Code       | IC Code  | VCCI Code         | Range      | Asset   | Cat | Calibration Due | Calibrated on |  |
| EMI Chamber 1                                                                                                      | 719150         | 2762A-6  | A-0015            | 30-1000MHz | 1685    | I   | 12/7/2020       | 12/7/2018     |  |
| EMI Chamber 1                                                                                                      | 719150         | 2762A-6  | A-0015            | 1-18GHz    | 1685    | I   | 12/7/2020       | 12/7/2018     |  |
| Preamps / Couplers Attenuators / Filters                                                                           | Range          | MN       | Mfr               | SN         | Asset   | Cat | Calibration Due | Calibrated on |  |
| 2116 BRF                                                                                                           | 0.009-18000MHz | BRM50702 | Micro-Tronics     | G226       | 2116    | II  | 11/11/2020      | 11/11/2019    |  |
| 8449B HF Preamp                                                                                                    | 1-18GHz        | 8449B    | Agilent           | 1149055    |         | II  | 11/24/2020      | 11/24/2019    |  |
| Antennas                                                                                                           | Range          | MN       | Mfr               | SN         | Asset   | Cat | Calibration Due | Calibrated on |  |
| Red-Black Bilog                                                                                                    | 30-2000MHz     | JB1      | Sunol             | A091604-2  | 1106    | I   | 4/26/2021       | 4/26/2019     |  |
| Blue Horn                                                                                                          | 1-18GHz        | 3117     | ETS               | 157647     | 1861    | I   | 3/9/2021        | 3/9/2019      |  |
| Meteorological Meters/Chambers                                                                                     |                | MN       | Mfr               | SN         | Asset   | Cat | Calibration Due | Calibrated on |  |
| Weather Clock (Pressure Only)                                                                                      |                | BA928    | Oregon Scientific | C3166-1    | 831     | I   | 11/15/2020      | 5/15/2018     |  |
| Asset #2658                                                                                                        |                | 1235C97  | Control Company   | 181683808  | 2658    | I   | 10/3/2020       | 4/3/2019      |  |
| Cables                                                                                                             | Range          |          | Mfr               |            |         | Cat | Calibration Due | Calibrated on |  |
| Asset #2456                                                                                                        | 9KHz-18GHz     |          | MegaPhase         |            |         | II  | 11/2/2020       | 11/2/2019     |  |
| Asset #2467                                                                                                        | 9KHz-18GHz     |          | MegaPhase         |            |         | II  | 11/2/2020       | 11/2/2019     |  |
| Asset #2682                                                                                                        | 9KHz-18GHz     |          | Pasternack        |            |         | II  | 1/31/2021       | 1/31/2020     |  |
| All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard. |                |          |                   |            |         |     |                 |               |  |

## Test Equipment Used



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## 18-25GHz All channels

| Radiated Emissions Table                                                   |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |
|----------------------------------------------------------------------------|-----------------|---------------------|------------------------|--------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|----------------------------------------------------------------------|--|--------------------------------------|--|--|------------------|--|--|--|--|
| Date: 28-Jul-20                                                            |                 |                     |                        |                    |                       |                   |                                |                               |                                   | Work Order: U1037                                                    |  |                                      |  |  |                  |  |  |  |  |
| Engineer: LN                                                               |                 |                     |                        |                    |                       |                   |                                |                               |                                   | EUT Operating Voltage/Frequency: Battery 3V                          |  |                                      |  |  |                  |  |  |  |  |
| Temp: 24.0°C                                                               |                 |                     |                        |                    |                       |                   |                                |                               |                                   | Humidity: 51%                                                        |  |                                      |  |  |                  |  |  |  |  |
| Pressure: 1005mbar                                                         |                 |                     |                        |                    |                       |                   |                                |                               |                                   | Frequency Range: 18-26.5GHz                                          |  |                                      |  |  |                  |  |  |  |  |
| Measurement Distance: 0.1 m                                                |                 |                     |                        |                    |                       |                   |                                |                               |                                   | Notes: BLE all channels, Horizontal and Vertical antenna orientation |  |                                      |  |  |                  |  |  |  |  |
| EUT Max Freq: 2480MHz                                                      |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |
| Antenna Polarization (H/V)                                                 | Frequency (MHz) | Peak Reading (dBμV) | Average Reading (dBμV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBμV/m) | Adjusted Avg Reading (dBμV/m) | FCC Class B High Frequency - Peak |                                                                      |  | FCC Class B High Frequency - Average |  |  |                  |  |  |  |  |
| Limit (dBμV/m)                                                             | Margin (dB)     | Result (Pass/Fail)  | Limit (dBμV/m)         | Margin (dB)        | Result (Pass/Fail)    |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |
| No Emissions found                                                         |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |
| <b>Table Result:</b> Pass by N/A dB <b>Worst Freq:</b> N/A MHz             |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |
| Test Site: EMI Chamber 1                                                   |                 |                     |                        |                    | Cable 1: Asset #2456  |                   |                                |                               |                                   | Cable 2: #2682                                                       |  |                                      |  |  | Cable 3: ---     |  |  |  |  |
| Analyzer: SA 1170725                                                       |                 |                     |                        |                    | Preamp: None          |                   |                                |                               |                                   | Antenna: 18-26.5 GHz Horn Antenna                                    |  |                                      |  |  | Preselector: --- |  |  |  |  |
| CSsoft Radiated Emissions Calculator v 1.017.215                           |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                                                      |  |                                      |  |  |                  |  |  |  |  |

| Rev. 8/27/2020                                |              |               |                   |              |       |     |                   |               |  |
|-----------------------------------------------|--------------|---------------|-------------------|--------------|-------|-----|-------------------|---------------|--|
| Antennas                                      | Range        | MN            | Mfr               | SN           | Asset | Cat | Calibration Due   | Calibrated on |  |
| HF (White) Horn                               | 18-26.5GHz   | 801-WLM       | Waveline          | 758          | 758   | III | Verify before Use | date of test  |  |
| Meteorological Meters/Chambers                |              | MN            | Mfr               | SN           | Asset | Cat | Calibration Due   | Calibrated on |  |
| Weather Clock (Pressure Only)                 |              | BA928         | Oregon Scientific | C3166-1      | 831   | I   | 11/15/2020        | 5/15/2018     |  |
| Asset #2658                                   |              | 1235C97       | Control Company   | 181683808    | 2658  | I   | 10/3/2020         | 4/3/2019      |  |
| Cables                                        | Range        |               | Mfr               |              |       | Cat | Calibration Due   | Calibrated on |  |
| Asset #2456                                   | 9KHz-18GHz   |               | MegaPhase         |              |       | II  | 11/2/2020         | 11/2/2019     |  |
| Asset #2682                                   | 9KHz-18GHz   |               | Pasternack        |              |       | II  | 1/31/2021         | 1/31/2020     |  |
| Asset #2323                                   | 1-26.5GHz    | TM26-S1S1-120 | MEGAPHASE         | 17139101 002 |       | II  | 8/26/2021         | 8/26/2020     |  |
| Asset #2324                                   | 1-26.5GHz    | TM26-S1S1-120 | MEGAPHASE         | 17139101 001 |       | II  | 8/26/2020         | 8/26/2020     |  |
| Spectrum Analyzers / Receivers / Preselectors | Range        | MN            | Mfr               | SN           | Asset | Cat | Calibration Due   | Calibrated on |  |
| Brown                                         | 9KHz-26.5GHz | E4407B        | Agilent           | SG44210511   | 1510  | I   | 10/22/2020        | 4/22/2019     |  |

## Test Equipment Used



Bureau Veritas Consumer Products Services Inc.  
One Distribution Center Circle, #1 • Littleton, MA • TEL (978) 486-8880 • FAX (978) 486-8828



## Radiated Band Edge

| Radiated Emissions Table                                                   |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                             |                    |                                      |             |                    |
|----------------------------------------------------------------------------|-----------------|---------------------|------------------------|--------------------|-----------------------|-------------------|--------------------------------|-------------------------------|-----------------------------------|---------------------------------------------|--------------------|--------------------------------------|-------------|--------------------|
| Date: 25-Aug-20                                                            |                 |                     |                        |                    |                       |                   |                                |                               |                                   | Work Order: U1037                           |                    |                                      |             |                    |
| Engineer: AV                                                               |                 |                     |                        |                    |                       |                   |                                |                               |                                   | EUT Operating Voltage/Frequency: Battery 3V |                    |                                      |             |                    |
| Temp: 24.4°C                                                               |                 |                     |                        |                    | Humidity: 49%         |                   |                                |                               |                                   | Pressure: 1002mBar                          |                    |                                      |             |                    |
| Frequency Range:                                                           |                 |                     |                        |                    |                       |                   |                                |                               |                                   | Measurement Distance: 3 m                   |                    |                                      |             |                    |
| Notes: BLE band edges                                                      |                 |                     |                        |                    |                       |                   |                                |                               |                                   | EUT Max Freq: 2480MHz                       |                    |                                      |             |                    |
| Antenna Polarization (H/V)                                                 | Frequency (MHz) | Peak Reading (dBμV) | Average Reading (dBμV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBμV/m) | Adjusted Avg Reading (dBμV/m) | FCC Class B High Frequency - Peak |                                             |                    | FCC Class B High Frequency - Average |             |                    |
|                                                                            |                 |                     |                        |                    |                       |                   |                                |                               | Limit (dBμV/m)                    | Margin (dB)                                 | Result (Pass/Fail) | Limit (dBμV/m)                       | Margin (dB) | Result (Pass/Fail) |
| High Channel<br>H<br>V                                                     | 2483.5          | 33.041              | 32.002                 | 38.9               | 32.4                  | 3.1               | 29.6                           | 28.6                          | 74.0                              | -44.4                                       | Pass               | 54.0                                 | -25.4       | Pass               |
|                                                                            | 2483.5          | 34.009              | 32.437                 | 38.9               | 32.4                  | 3.1               | 30.6                           | 29.0                          | 74.0                              | -43.4                                       | Pass               | 54.0                                 | -25.0       | Pass               |
| Low Channel<br>H<br>V                                                      | 2390.0          | 32.002              | 32.002                 | 38.9               | 32.4                  | 3.1               | 28.6                           | 28.6                          | 74.0                              | -45.4                                       | Pass               | 54.0                                 | -25.4       | Pass               |
|                                                                            | 2390.0          | 32.437              | 32.437                 | 38.9               | 32.4                  | 3.1               | 29.0                           | 29.0                          | 74.0                              | -45.0                                       | Pass               | 54.0                                 | -25.0       | Pass               |
| Table Result: Pass by -9.5 dB Worst Freq: 2483.5 MHz                       |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                             |                    |                                      |             |                    |
| Test Site: EMI Chamber 1                                                   |                 |                     |                        |                    | Cable 1: Asset #2456  |                   |                                |                               |                                   | Cable 2: 2682                               |                    |                                      |             |                    |
| Analyzer: SA 1170725                                                       |                 |                     |                        |                    | Preamp: None          |                   |                                |                               |                                   | Antenna: Blue Horn                          |                    |                                      |             |                    |
| CSsoft Radiated Emissions Calculator v 1.017.215                           |                 |                     |                        |                    | Cable 3: ---          |                   |                                |                               |                                   | Preselector: ---                            |                    |                                      |             |                    |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                             |                    |                                      |             |                    |
| Copyright Curtis-Straus LLC 2000                                           |                 |                     |                        |                    |                       |                   |                                |                               |                                   |                                             |                    |                                      |             |                    |

|                                                                                                                    |                 |                |                   |              |              |            |                        |                      |  |
|--------------------------------------------------------------------------------------------------------------------|-----------------|----------------|-------------------|--------------|--------------|------------|------------------------|----------------------|--|
| Rev. 8/27/2020                                                                                                     |                 |                |                   |              |              |            |                        |                      |  |
| <b>Spectrum Analyzers / Receivers / Preselectors</b>                                                               | <b>Range</b>    | <b>MN</b>      | <b>Mfr</b>        | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |  |
| Rental MXE EMI Receiver(1170725)                                                                                   | 20Hz-26.5GHz    | N9038A         | Agilent           | MY51210151   | 1170725      | I          | 11/30/2020             | 5/30/2019            |  |
| <b>Radiated Emissions Sites</b>                                                                                    | <b>FCC Code</b> | <b>IC Code</b> | <b>VCCI Code</b>  | <b>Range</b> | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |  |
| EMI Chamber 1                                                                                                      | 719150          | 2762A-6        | A-0015            | 1-18GHz      | 1685         | I          | 12/7/2020              | 12/7/2018            |  |
| <b>Preamps / Couplers Attenuators / Filters</b>                                                                    | <b>Range</b>    | <b>MN</b>      | <b>Mfr</b>        | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |  |
| 8449B HF Preamp                                                                                                    | 1-18GHz         | 8449B          | Agilent           | 1149055      |              | II         | 11/24/2020             | 11/24/2019           |  |
| <b>Antennas</b>                                                                                                    | <b>Range</b>    | <b>MN</b>      | <b>Mfr</b>        | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |  |
| Blue Horn                                                                                                          | 1-18GHz         | 3117           | ETS               | 157647       | 1861         | I          | 3/9/2021               | 3/9/2019             |  |
| <b>Meteorological Meters/Chambers</b>                                                                              |                 | <b>MN</b>      | <b>Mfr</b>        | <b>SN</b>    | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |  |
| Weather Clock (Pressure Only)                                                                                      |                 | BA928          | Oregon Scientific | C3166-1      | 831          | I          | 11/15/2020             | 5/15/2018            |  |
| Asset #2658                                                                                                        |                 | 1235C97        | Control Company   | 181683808    | 2658         | I          | 10/3/2020              | 4/3/2019             |  |
| <b>Cables</b>                                                                                                      | <b>Range</b>    |                | <b>Mfr</b>        |              |              | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |  |
| Asset #2456                                                                                                        | 9KHz-18GHz      |                | MegaPhase         |              |              | II         | 11/2/2020              | 11/2/2019            |  |
| Asset #2682                                                                                                        | 9KHz-18GHz      |                | Pasternack        |              |              | II         | 1/31/2021              | 1/31/2020            |  |
| All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard. |                 |                |                   |              |              |            |                        |                      |  |

## Test Equipment Used



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## Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

| Measurement                                                                           | Expanded Uncertainty k=2 | Maximum allowable uncertainty |
|---------------------------------------------------------------------------------------|--------------------------|-------------------------------|
| Radiated Emissions (30-1000MHz)                                                       | 5.6dB                    | N/A                           |
| NIST                                                                                  | 4.6dB                    | 5.2dB (Ucisp)                 |
| CISPR                                                                                 |                          |                               |
| Radiated Emissions (1-26.5GHz)                                                        | 4.6dB                    | N/A                           |
| Radiated Emissions (above 26.5GHz)                                                    | 4.9dB                    | N/A                           |
| Magnetic Radiated Emissions                                                           | 5.6dB                    | N/A                           |
| Conducted Emissions                                                                   |                          |                               |
| NIST                                                                                  | 3.9dB                    | N/A                           |
| CISPR                                                                                 | 3.6dB                    | 3.6dB (Ucisp)                 |
| Telco Conducted Emissions (Current)                                                   | 2.9dB                    | N/A                           |
| Telco Conducted Emissions (Voltage)                                                   | 4.4dB                    | N/A                           |
| Electrostatic Discharge                                                               | 11.5%                    | N/A                           |
| Radiated RF Immunity (Uniform Field)                                                  | 1.6dB                    | N/A                           |
| Electrical Fast Transients                                                            | 23.1%                    | N/A                           |
| Surge                                                                                 | 23.1%                    | N/A                           |
| Conducted RF Immunity                                                                 | 3dB                      | N/A                           |
| Magnetic Immunity                                                                     | 12.8%                    | N/A                           |
| Dips and Interrupts                                                                   | 2.3V                     | N/A                           |
| Harmonics                                                                             | 3.5%                     | N/A                           |
| Flicker                                                                               | 3.5%                     | N/A                           |
| Radio frequency (@ 2.4GHz)                                                            | $3.23 \times 10^{-8}$    | $1 \times 10^{-7}$            |
| RF power, conducted                                                                   | 0.40dB                   | 0.75dB                        |
| Maximum frequency deviation:                                                          |                          |                               |
| • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency | 3.4%                     | 5%                            |
|                                                                                       | 0.3dB                    | 3dB                           |
| Adjacent channel power                                                                | 1.9dB                    | 3dB                           |
| Conducted spurious emission of transmitter, valid up to 12.75GHz                      | 2.39dB                   | 3dB                           |
| Conducted emission of receivers                                                       | 1.3dB                    | 3dB                           |
| Radiated emission of transmitter, valid up to 26.5GHz                                 | 3.9dB                    | 6dB                           |
| Radiated emission of transmitter, valid up to 80GHz                                   | 3.3dB                    | 6dB                           |
| Radiated emission of receiver, valid up to 26.5GHz                                    | 3.9dB                    | 6dB                           |
| Radiated emission of receiver, valid up to 80GHz                                      | 3.3dB                    | 6dB                           |
| Humidity                                                                              | 2.37%                    | 5%                            |
| Temperature                                                                           | 0.7°C                    | 1.0°C                         |
| Time                                                                                  | 4.1%                     | 10%                           |
| RF Power Density, Conducted                                                           | 0.4dB                    | 3dB                           |
| DC and low frequency voltages                                                         | 1.3%                     | 3%                            |
| Voltage (AC, <10kHz)                                                                  | 1.3%                     | 2%                            |
| Voltage (DC)                                                                          | 0.62%                    | 1%                            |
| The above reflects a 95% confidence level                                             |                          |                               |

## Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.

2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.

3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.

4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.

5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS," "MTL," "ACTS," "MTL-ACTS" and CURTIS-STRAUS (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.

6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.

7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.

8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.

9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.

10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.

11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.

12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.

13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.

14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.



15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.  
Rev.160009121(2)\_#684340 v14CS



**Appendix A****CFR Title 47 FCC Part §15.247 and ISCED Canada RSS-247 Issue 2****DUT Information**

Model Number: CX450  
 Manufacturer: Onset Computer Corporation  
 Serial Number: Not listed

40 channels are provided for BLE:

| Channel  | Freq. (MHz) | Channel   | Freq. (MHz) | Channel | Freq. (MHz) | Channel   | Freq. (MHz) |
|----------|-------------|-----------|-------------|---------|-------------|-----------|-------------|
| <b>0</b> | <b>2402</b> | 10        | 2422        | 20      | 2442        | 30        | 2462        |
| 1        | 2404        | 11        | 2424        | 21      | 2444        | 31        | 2464        |
| 2        | 2406        | 12        | 2426        | 22      | 2446        | 32        | 2466        |
| 3        | 2408        | 13        | 2428        | 23      | 2448        | 33        | 2468        |
| 4        | 2410        | 14        | 2430        | 24      | 2450        | 34        | 2470        |
| 5        | 2412        | 15        | 2432        | 25      | 2452        | 35        | 2472        |
| 6        | 2414        | 16        | 2434        | 26      | 2454        | 36        | 2474        |
| 7        | 2416        | 17        | 2436        | 27      | 2456        | 37        | 2476        |
| 8        | 2418        | 18        | 2438        | 28      | 2458        | 38        | 2478        |
| 9        | 2420        | <b>19</b> | <b>2440</b> | 29      | 2460        | <b>39</b> | <b>2480</b> |

**Notes:** Channels indicated above in bold were selected as representative test channels.

| Modulation | Data Rate |
|------------|-----------|
| GFSK       | 1Mbps     |

|                           |                                 |
|---------------------------|---------------------------------|
| Antenna manufacturer      | Johanson Technology             |
| Antenna Part#             | 2450AT18B100                    |
| Antenna type              | Non-detachable SMT Ceramic Chip |
| Antenna gain              | 0.5 dBi                         |
| Number of transmit chains | 1                               |
| Equipment type            | Digital Transmission System     |

## Test Equipment Used

|                                                                                                                    |              |            |                   |                        |              |            |                        |                      |
|--------------------------------------------------------------------------------------------------------------------|--------------|------------|-------------------|------------------------|--------------|------------|------------------------|----------------------|
| Rev. 6/04/2020                                                                                                     |              |            |                   |                        |              |            |                        |                      |
| <b>Spectrum Analyzers / Receivers / Preselectors</b>                                                               | <b>Range</b> | <b>MN</b>  | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| FSV40 Signal/Spectrum Analyzer                                                                                     | 10Hz-40GHz   | FSV40      | ROHDE & SCHWARZ   | 101551                 | 2200         | I          | 10/16/2020             | 10/16/2019           |
| <b>Signal Generators/Comparison Noise Emitter</b>                                                                  | <b>Range</b> | <b>MN</b>  | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| SMBV100A Vector Signal Generator                                                                                   | 9KHz-6GHz    | SMBV100A   | ROHDE & SCHWARZ   | 261919                 | 2201         | I          | 10/16/2020             | 10/16/2019           |
| SMB100A Signal Generator                                                                                           | 100kHz-40GHz | SMB100A    | ROHDE & SCHWARZ   | 179884                 | 2557         | I          | 10/16/2020             | 10/16/2019           |
| <b>Power/Noise Meters</b>                                                                                          |              | <b>MN</b>  | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| OSP - open switch and control platform                                                                             | 30MHz-18GHz  | OSP-B157W8 | ROHDE & SCHWARZ   | 1527.1144.02-100955-Ck | 2558         | I          | 4/16/2021              | 4/16/2020            |
| <b>Cables</b>                                                                                                      | <b>Range</b> |            | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| DUT1                                                                                                               | 30MHz-40GHz  |            | Micro-Coax        | UFB142A-1-0787-200200  | 2593         | I          | 3/7/2021               | 3/7/2020             |
| DUT2                                                                                                               | 30MHz-40GHz  |            | Micro-Coax        | UFB142A-1-0787-200200  | 2594         | I          | 3/7/2021               | 3/7/2020             |
| <b>Attenuators / Couplers</b>                                                                                      | <b>Range</b> | <b>MN</b>  | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| 10dB Attenuator-01 Brown                                                                                           | 30MHz-18GHz  |            | Mini Circuits     | BW-S10W2+              |              | I          | 3/7/2021               |                      |
| <b>Communication Tester</b>                                                                                        | <b>Range</b> | <b>MN</b>  | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| CMW270 Wideband Radio Communication Tester                                                                         | DC to 6GHz   | CMW270     | ROHDE & SCHWARZ   | 1201.0002K75-101066-MV | 2559         | I          | 4/6/2021               | 4/6/2020             |
| <b>Meteorological Meters/Chambers</b>                                                                              |              | <b>MN</b>  | <b>Mfr</b>        | <b>SN</b>              | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Temp/Humidity Chamber #18                                                                                          |              | EPX-2H     | Espec             | 137664                 | 1645         | I          | 1/3/2021               | 1/3/2020             |
| Weather Clock (Pressure only)                                                                                      |              | BA928      | Oregon Scientific | C3166-1                | 831          | I          | 5/15/2022              | 5/15/2020            |
| All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard. |              |            |                   |                        |              |            |                        |                      |

| Rohde&Schwarz Test System TS8997 |               |              |               |                                                 |                  |
|----------------------------------|---------------|--------------|---------------|-------------------------------------------------|------------------|
| Test Equipment                   | Manufacturer  | Model Number | Serial Number | Firmware Version                                | Software Version |
| Spectrum Analyzer                | Rohde&Schwarz | FSV40        | 101551        | 3.40                                            | N/A              |
| Signal Generator                 | Rohde&Schwarz | SMB100A      | 179884        | 3.20.390.24 / Drv:Rev 2.21.0, 07/2016, CVI 2015 | N/A              |
| Vector Signal Generator          | Rohde&Schwarz | SMBV100A     | 261919        | 3.1.19.15 - 3.50.082.47                         | N/A              |
| Switching Platform               | Rohde&Schwarz | OSP-B157W    | 1527.1144     | 1.23.0.2                                        | N/A              |
| Wireless Connectivity Tester     | Rohde&Schwarz | CMW270       | 101066        | 3.7                                             | N/A              |
| Test Software                    | Rohde&Schwarz | WMS32        | N/A           | N/A                                             | V10.50.00        |

## Summary

| Test                           | Frequency (MHz)    | Result |
|--------------------------------|--------------------|--------|
| Average Output Power           | 2402 / 2440 / 2480 | PASS   |
| Peak Power Spectral Density    | 2402 / 2440 / 2480 | PASS   |
| DTS Bandwidth (6dB)            | 2402 / 2440 / 2480 | PASS   |
| Occupied Channel Bandwidth 99% | 2402 / 2440 / 2480 | PASS   |
| Conducted Band Edges           | 2402 / 2480        | PASS   |
| Conducted Spurious Emissions   | 2402 / 2440 / 2480 | PASS   |

## Average Output Power

Test procedure in accordance with ANSI C63.10-2013 Section 11.9.2.3.2 Method AVGPM-G.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1.

Expanded Combined Uncertainty of absolute Level Measurement ( $K=2$ ) < 1 dB

| Channel | Frequency (MHz) | Gated RMS (dBm) | Limit Max (dBm) |
|---------|-----------------|-----------------|-----------------|
| 0       | 2402            | -5.9            | 30              |
| 19      | 2440            | -6.2            | 30              |
| 39      | 2480            | -7.2            | 30              |

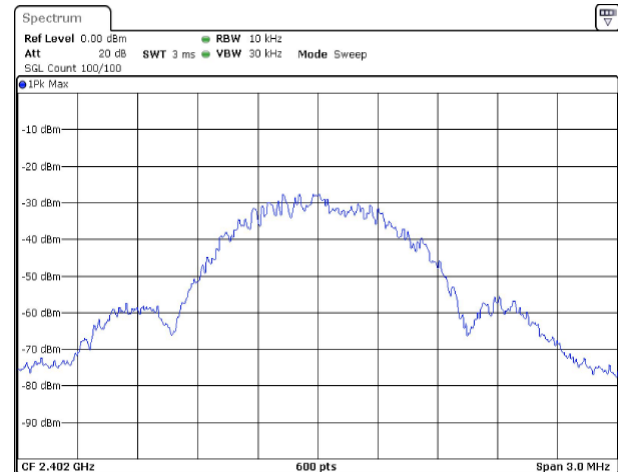
## Peak Power Spectral Density

Test procedure in accordance with ANSI C63.10-2013 Section 11.10.2 Method PKPSD.

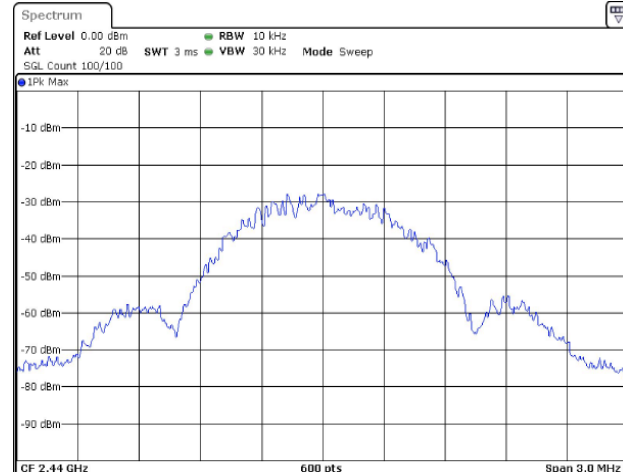
Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty ( $K=2$ ) < 1.3 dB.

| Channel | Frequency (MHz) | Peak PSD (dBm) | Limit Max (dBm) |
|---------|-----------------|----------------|-----------------|
| 0       | 2402            | -15.875        | 8               |
| 19      | 2440            | -16.100        | 8               |
| 39      | 2480            | -17.076        | 8               |

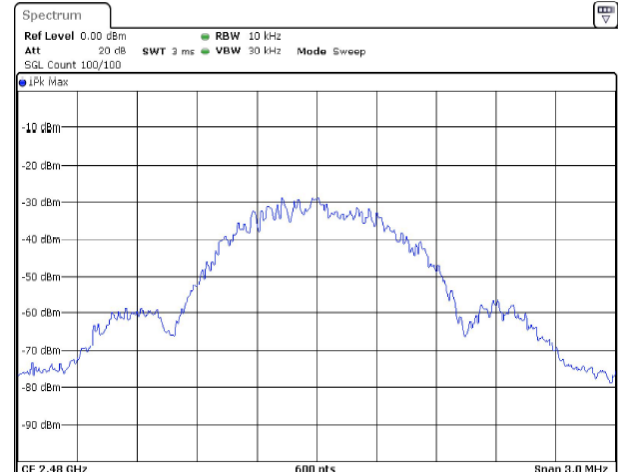
### 2402 MHz



### 2440 MHz



### 2480 MHz

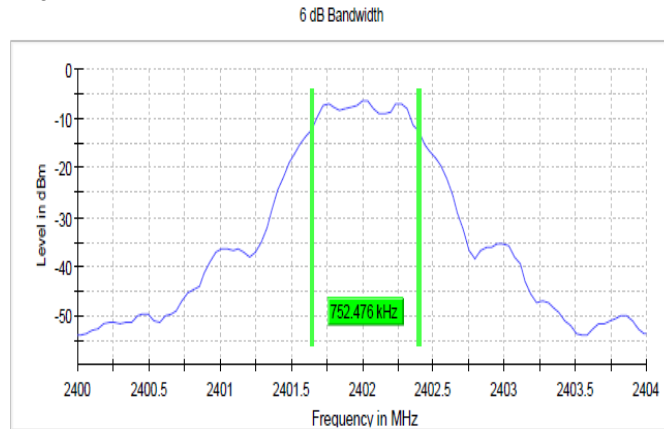
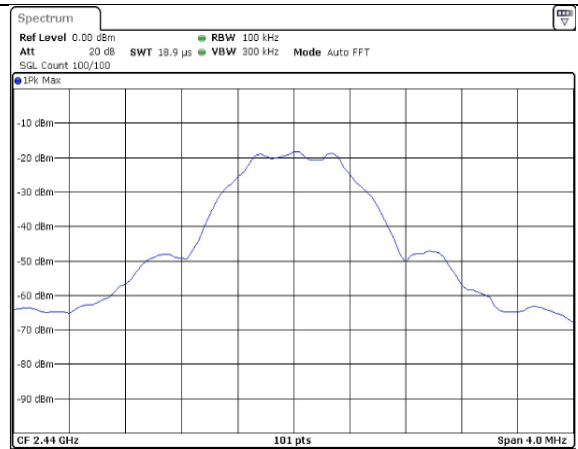
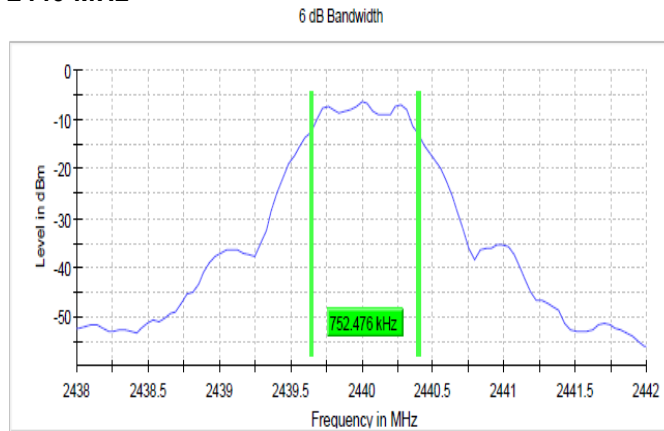
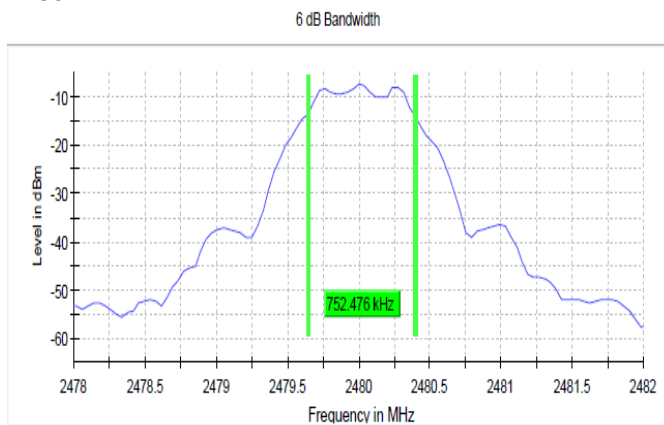


**DTS Bandwidth (6dB)**

Test procedure in accordance with ANSI C63.10-2013 Section 11.8.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) &lt; 2%

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Limit (MHz) | Result |
|---------|-----------------|---------------------|-------------|--------|
| 0       | 2402            | 0.752476            | > 0.5       | Pass   |
| 19      | 2440            | 0.752476            | > 0.5       | Pass   |
| 39      | 2480            | 0.752476            | > 0.5       | Pass   |

**2402 MHz****2440 MHz****2480 MHz**BUREAU  
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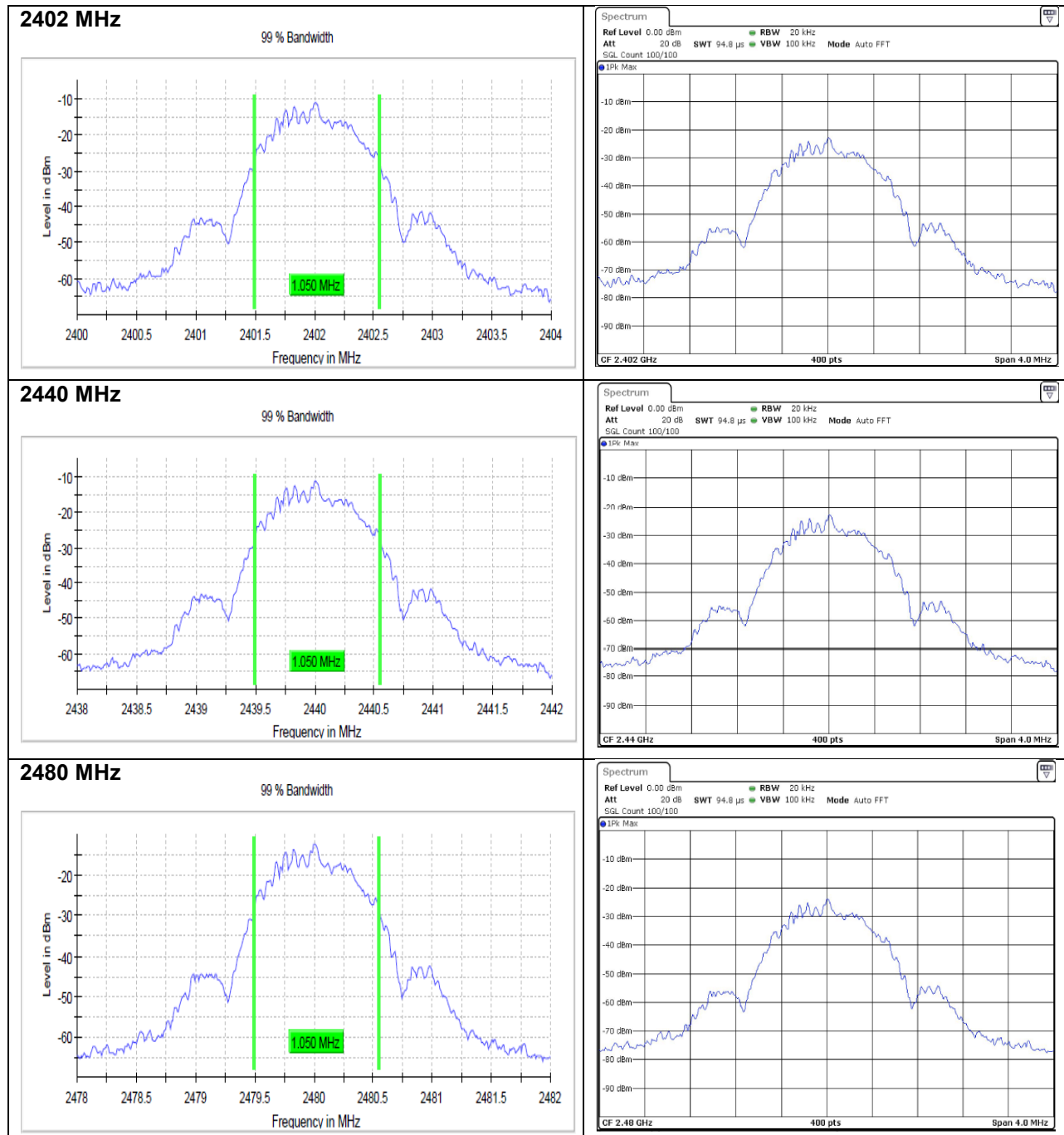
Testing Cert. No. 1627-01

**Occupied Channel Bandwidth 99%**

Test procedure in accordance with RSS-Gen Issue 5 Section 6.7.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) &lt; 2%

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
|---------|-----------------|------------------------------|
| 0       | 2402            | 1.050                        |
| 19      | 2440            | 1.050                        |
| 39      | 2480            | 1.050                        |

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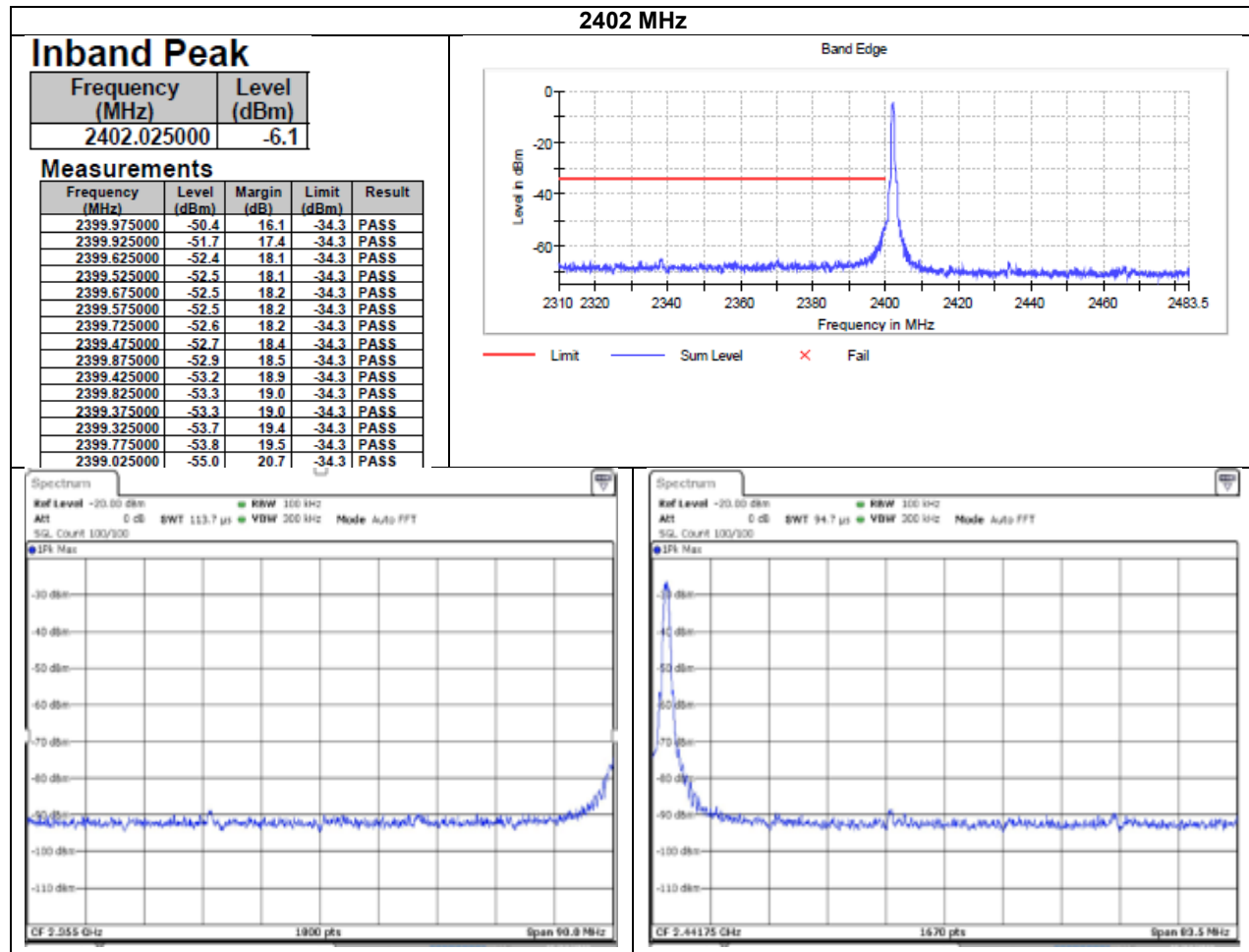


Testing Cert. No. 1627-01

**Conducted Band Edge Low**

Test procedure in accordance with ANSI C63.10-2013 Section 11.11.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) &lt; 0.8 dB

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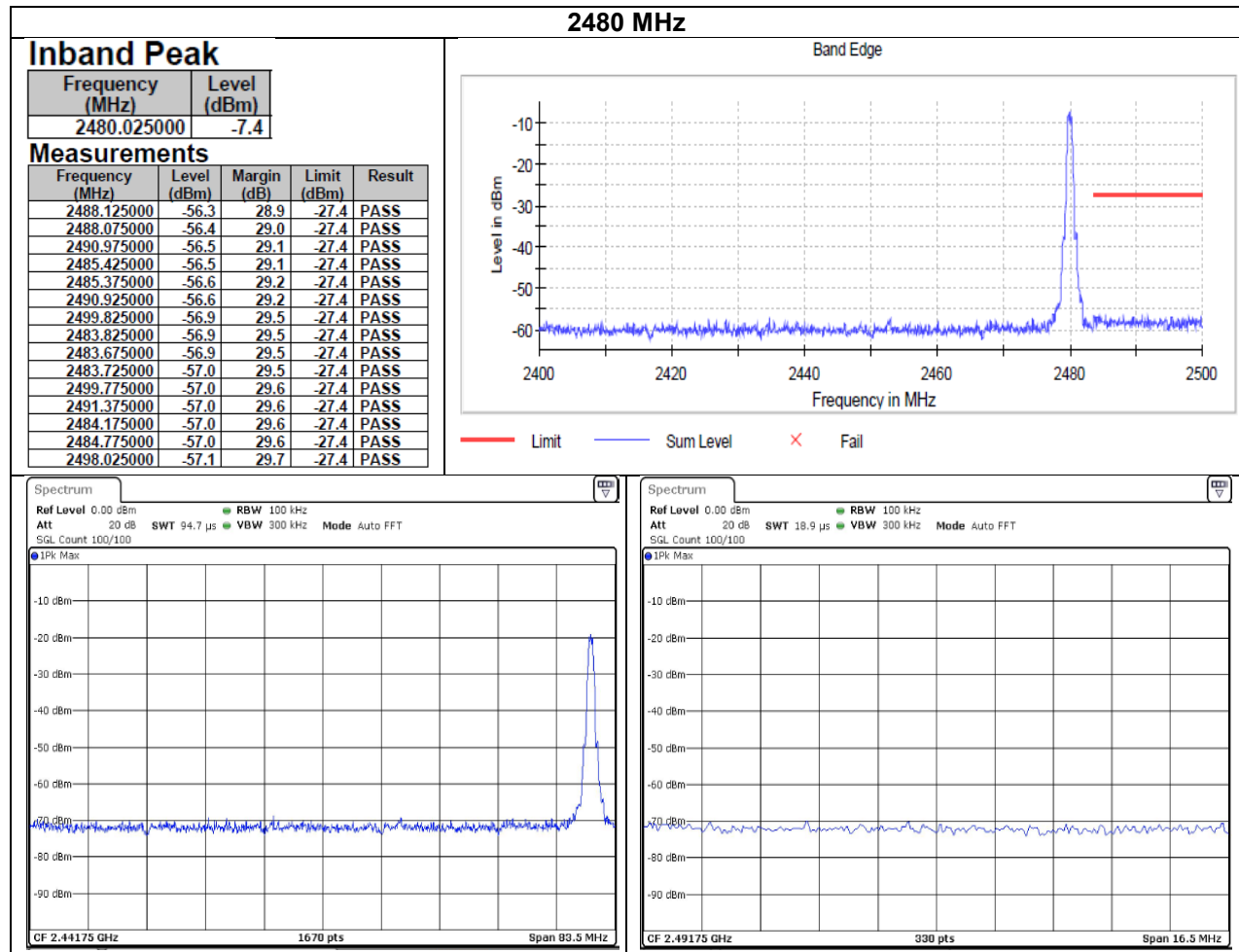


Testing Cert. No. 1627-01

**Conducted Band Edge High**

Test procedure in accordance with ANSI C63.10-2013 Section 11.11.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) &lt; 0.8 dB

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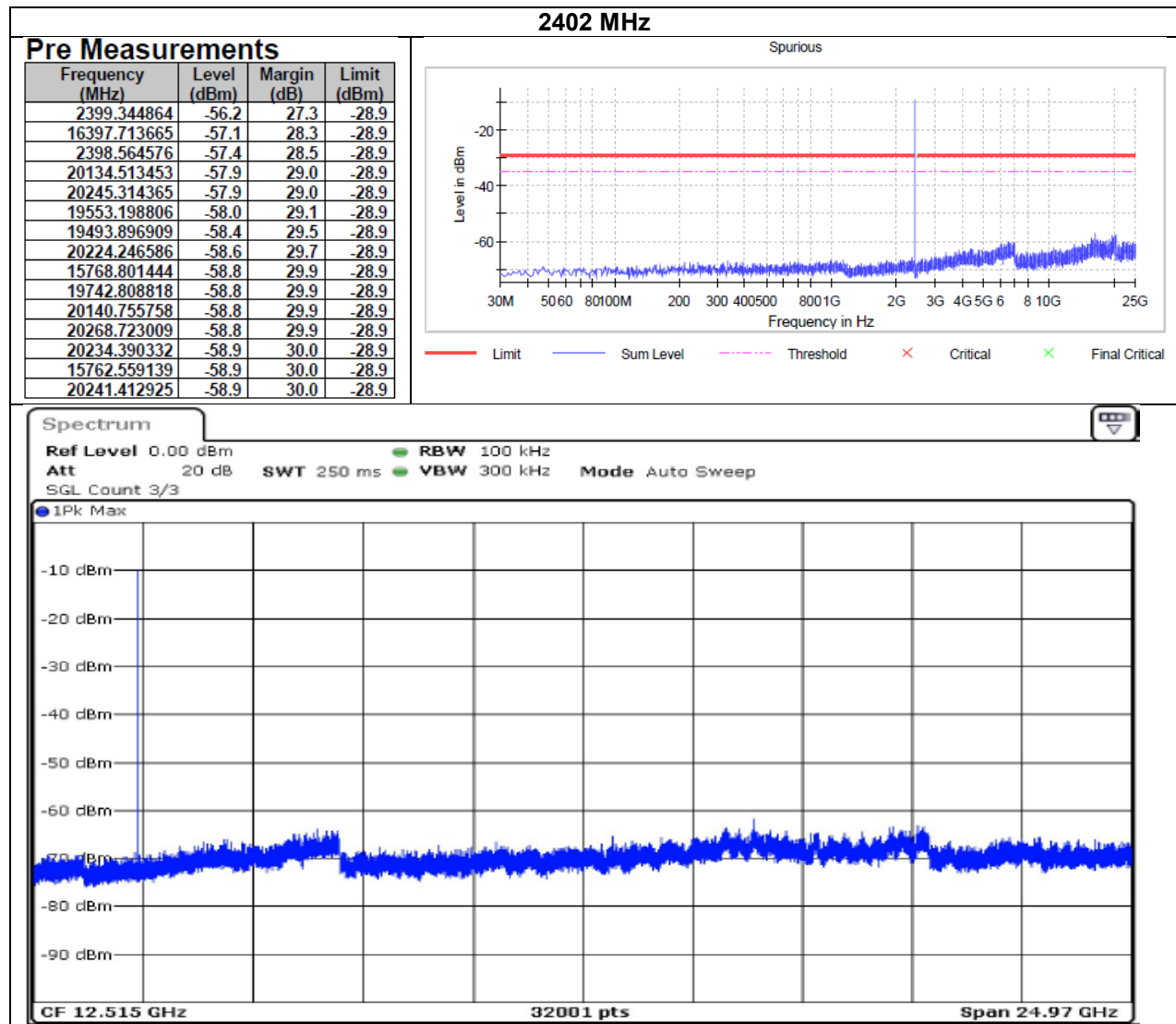
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## Conducted Spurious Emissions

Test procedure in accordance with ANSI C63.10-2013 Section 11.11.

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 1.8 dB

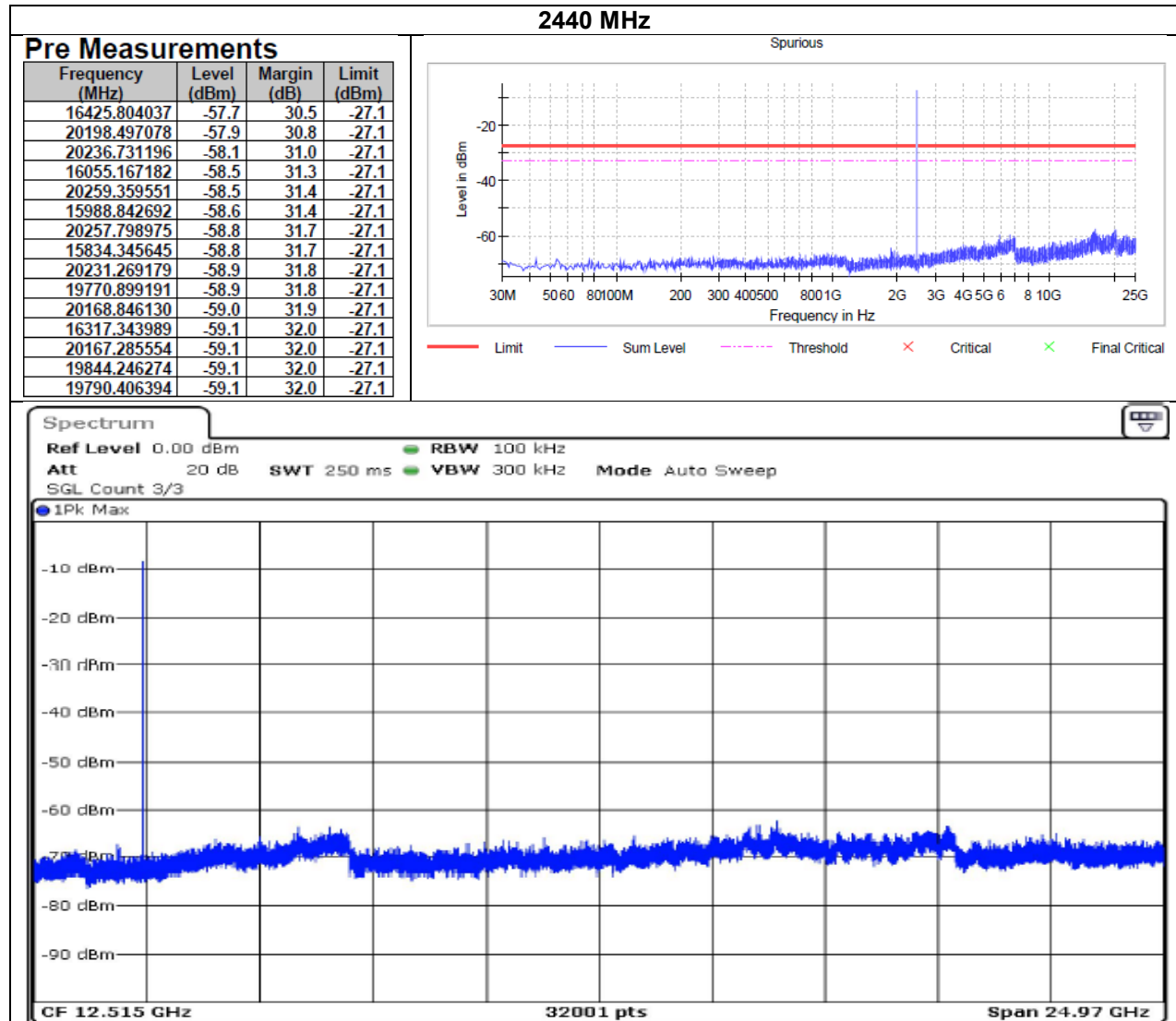


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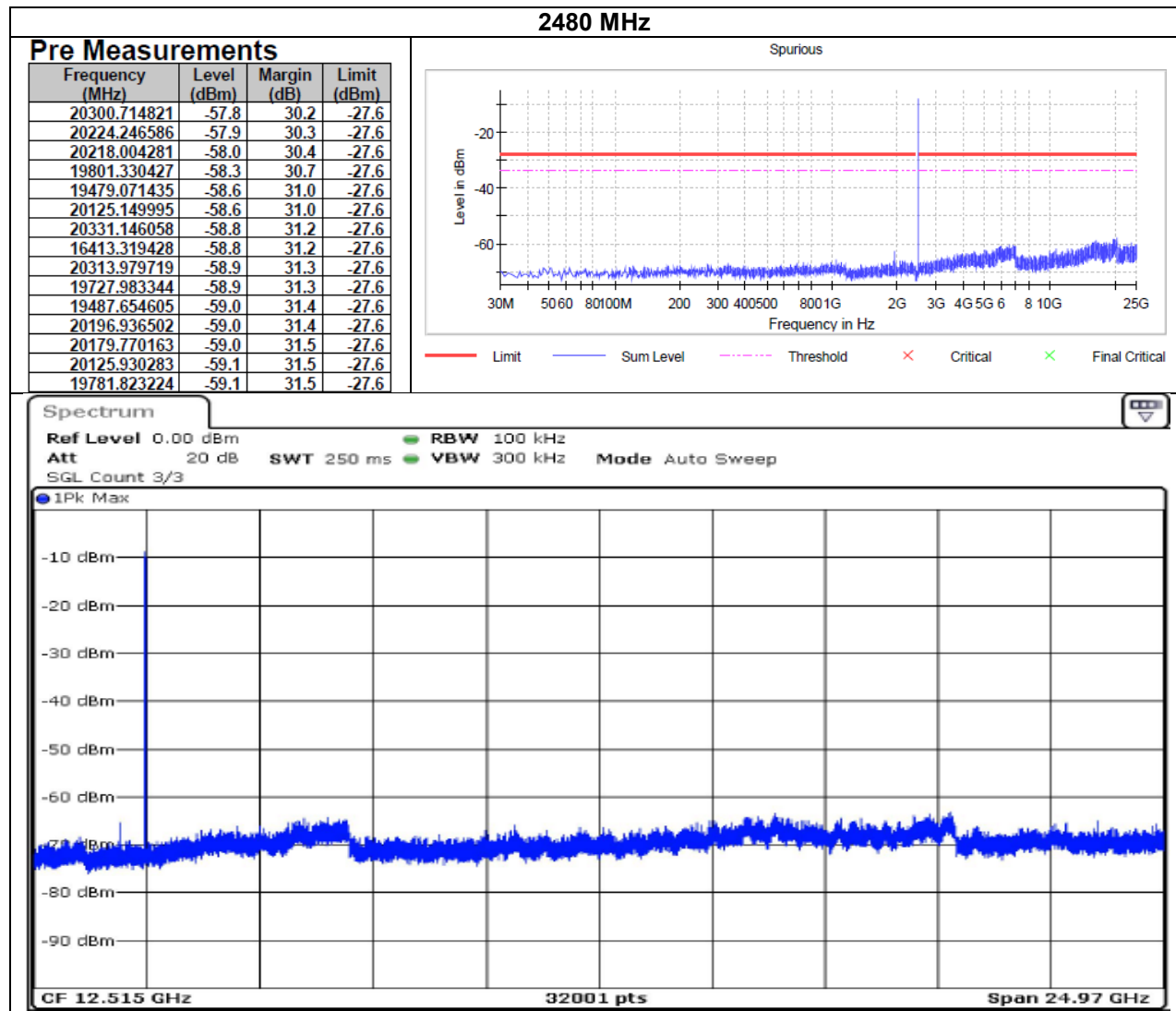




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