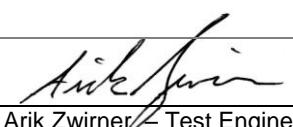
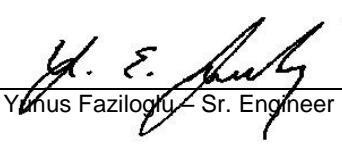




# Test Report

**CURTIS-STRAS** Curtis-Straus LLC, a wholly owned subsidiary of BV CPS

|                     |   |
|---------------------|---|
| Report No           | ES2971-1  |
| Client              | Slingmax Technologies, LLC  |
| Address             | 205 Bridgewater Rd.<br>P.O. Box 2423<br>Aston, PA 19014   |
| Phone               | 610-485-8500  |
| Items tested        | Common Base Station   |
| FCC ID              | 2APZM-BASE1   |
| IC                  | 23959-BASE1   |
| FRN                 | 0027571686  |
| Equipment Type      | Part 15 Spread Spectrum Transmitter   |
| Equipment Code      | DSS   |
| FCC/IC Rule Parts   | CFR Title 47 FCC 15.247, ISED Canada RSS-247 Issue 2  |
| Test Dates          | October 24, 2018 to January 29, 2019  |
| Results             | As detailed within this report  |
| Prepared by         | <br>Arik Zwirner – Test Engineer           |
| Authorized by       | <br>Yunus Faziloglu – Sr. Engineer         |
| Issue Date          | 3/28/19   |
| Conditions of Issue | This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 38 of this report. |

Curtis-Straus LLC is accredited to ISO/IEC 17025 by A2LA for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation. See our scope of accreditation at the end of this test report. Any opinions or interpretations expressed in this report are outside the scope of our A2LA accreditation as A2LA only accredits testing.

Testing Cert. No. 1627-01

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Testing Cert. No. 1627-01

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Form Final Report REV 7-20-07 (DW)

## Summary

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

The Common Base Station is a frequency hopping transmitter that operates in the frequency range 902.175 – 927.775MHz. It is powered by DC power from USB port.

Following antenna was supplied for testing,

| Manufacturer  | Model       | Type          | Gain (dBi) |
|---------------|-------------|---------------|------------|
| Nearson, Inc. | S152AH-915S | External whip | 2dBi       |

We found that the product met the above requirements without modification. The test sample was received in good condition.

### Release Control Record

|           |                   |                |
|-----------|-------------------|----------------|
| Issue No. | Reason for change | Date Issued    |
| 1         | Original Release  | March 29, 2019 |

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## Test Methodology

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

Radiated emissions were maximized by rotating the device around three orthogonal planes as well as varying the test antenna's height and polarity. Worst case orientation was found to be in flat (X) position and all radiated emissions tests were performed in this orientation unless otherwise specified in the data tables. External swivel antenna of the EUT was maximized separately.

Conducted emissions testing at the antenna port was performed.  
3 channels were tested as follows:

Low channel = 902.175 MHz

Middle channel = 914.975 MHz

High channel = 927.775 MHz

For AC line conducted emissions a 50Ω/50µH LISN was used.

Following bandwidths were used during radiated spurious and AC line conducted emissions tests.

| Frequency      | RBW    | VBW   |
|----------------|--------|-------|
| 150kHz – 30MHz | 9kHz   | 30kHz |
| 30MHz – 1GHz   | 120kHz | 1MHz  |
| 1GHz – 10GHz   | 1MHz   | 3MHz  |



**Product Tested - Configuration Documentation**

| EUT Configuration   |                                   |                |                    |                   |                 |                 |                   |               |                   |                |
|---|-----------------------------------|----------------|--------------------|-------------------|-----------------|-----------------|-------------------|---------------|-------------------|----------------|
| <b>Work Order:</b>  | S2971                             |                |                    |                   |                 |                 |                   |               |                   |                |
| <b>Company:</b>   | Slingmax Technologies, LLC        |                |                    |                   |                 |                 |                   |               |                   |                |
| <b>Company Address:</b>   | 205 Bridgewater Rd. P.O. Box 2423 |                |                    |                   |                 |                 |                   |               |                   |                |
|   | Aston, PA, 19014                  |                |                    |                   |                 |                 |                   |               |                   |                |
| <b>Contact:</b>   | Gregory D'Elia                    |                |                    |                   |                 |                 |                   |               |                   |                |
|   |                                   | <b>MN</b>      |                    |                   | <b>PN</b>       |                 |                   | <b>SN</b>     |                   |                |
| <b>EUT:</b>   | Common Base Station               |                |                    |                   |                 |                 |                   | Test Sample 1 |                   |                |
| <b>EUT Description:</b>   | 902-928MHz band radio             |                |                    |                   |                 |                 |                   |               |                   |                |
| <b>EUT Max Frequency:</b>   | 928 MHz                           |                |                    |                   |                 |                 |                   |               |                   |                |
| <b>Support Equipment</b>  |                                   | <b>MN</b>      |                    |                   |                 |                 |                   | <b>SN</b>     |                   |                |
| Dell laptop computer  |                                   |                |                    |                   |                 |                 |                   |               |                   |                |
| <b>Port Label</b>   | <b>Port Type</b>                  | <b># ports</b> | <b># populated</b> | <b>cable type</b> | <b>shielded</b> | <b>ferrites</b> | <b>length (m)</b> | <b>in/out</b> | <b>under test</b> | <b>comment</b> |
| USB   | USB                               | 1              | 1                  | USB               | Yes             | No              | 2                 | in            | yes               |                |
| <b>Software Operating Mode Description:</b>   |                                   |                |                    |                   |                 |                 |                   |               |                   |                |
| Frequency hopping transmitter in the 902-928MHz band. Client supplied software to change channels and enable-disable hopping. |                                   |                |                    |                   |                 |                 |                   |               |                   |                |

| Clock Frequencies        |     |  |  |  |  |  |  |  |  |  |
|--------------------------|-----|--|--|--|--|--|--|--|--|--|
| <b>frequencies (MHz)</b> | 928 |  |  |  |  |  |  |  |  |  |

**Modifications Required for Compliance**

None.



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### 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.  |
|         | 3.1     |         | 15.19            | The label is shown in the label exhibit.   |
|         | 3.2     |         | 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           | The antenna for this device is external whip with 2dBi 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           | The unit complies with the requirements of 15.207  |
|         |         |         | 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.   |



## Test Results

### 20dB Bandwidth and 99% Occupied Bandwidth

#### REQUIREMENT

15.247(a)(1)(i): *The maximum allowed 20dB bandwidth of the hopping channel is 500kHz*  
 RSS-247 Issue 2 Section 5.1: The maximum 20 dB bandwidth of the hopping channel shall be 500 kHz.

#### REQUIREMENT

*When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured.*  
 [RSS-GEN 6.7]

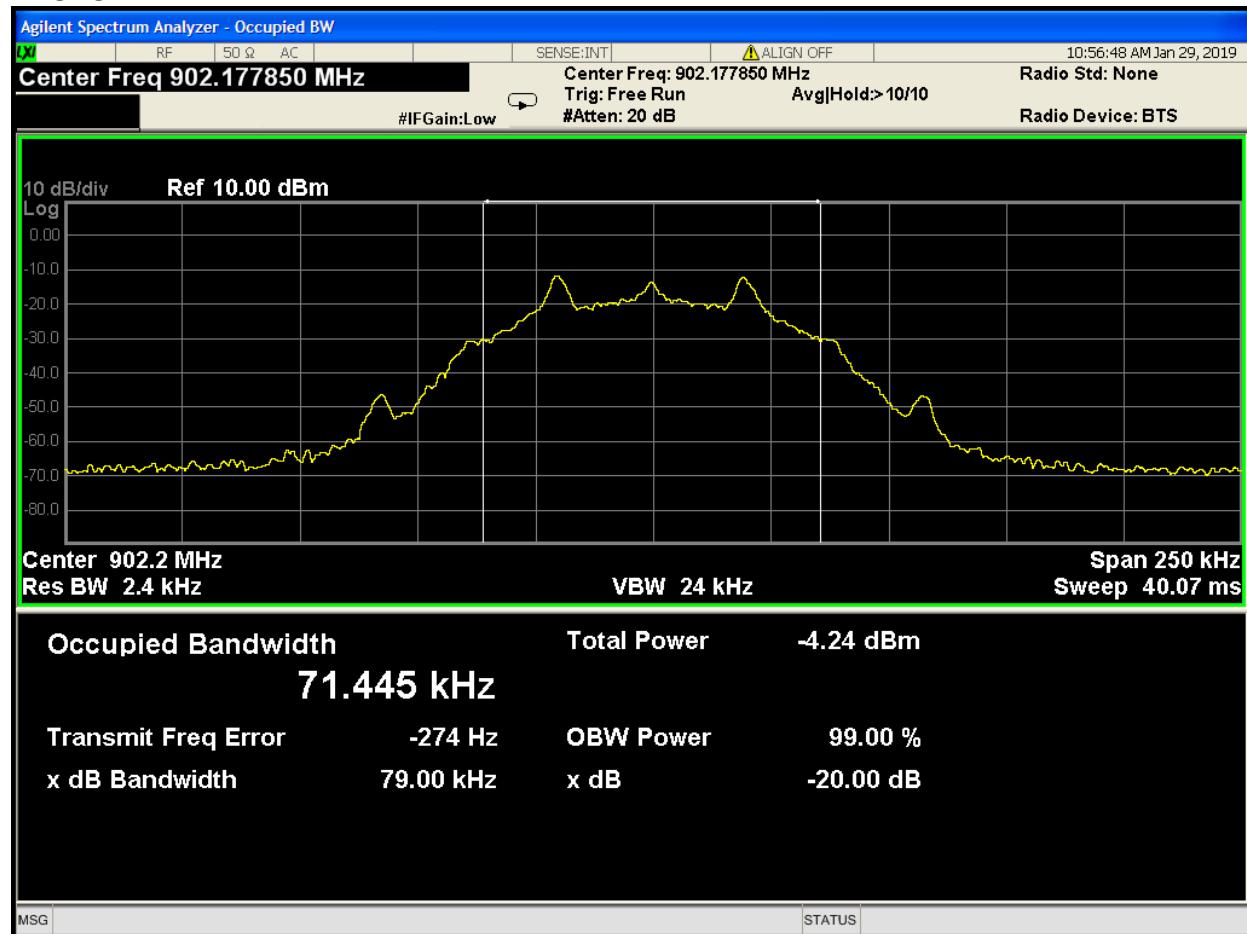
### MEASUREMENTS / RESULTS

| 99% Occupied Bandwidth      |                                     |   |
|-----------------------------|-------------------------------------|---|
| Date: 29-Jan-19             | Company: Slingmax Technologies, LLC | Work Order: S2971                               |
| Engineer: AKZ               | EUT: Common Base Station            | Operating Voltage/Frequency: 3.6V DC            |
| Temp: 21°C                  | Humidity: 32%                       | Pressure: 1012mBar                              |
| Frequency Range: 902-928MHz | Measurement Type: Conducted         | Measurement Method: RSS-Gen Issue 5 Section 6.7 |
| <b>Notes:</b>               |                                     |   |
| Frequency (MHz)             | 99% OBW (kHz)                       |   |
| 902.175                     | 71.445                              |   |
| 914.975                     | 71.764                              |   |
| 927.775                     | 71.631                              |   |
| Test Site: EMC-5            | Cable: N/A                          | Attenuator: Asset# 2121                         |
| Analyzer: 116827 SA         |                                     | Copyright Curtis-Straus LLC 2000                |

| 20dB Bandwidth               |                                     |                                      |
|------------------------------|-------------------------------------|--------------------------------------|
| Date: 29-Jan-19              | Company: Slingmax Technologies, LLC | Work Order: S2971                    |
| Engineer: AKZ                | EUT: Common Base Station            | Operating Voltage/Frequency: 3.6V DC |
| Temp: 21°C                   | Humidity: 32%                       | Pressure: 1012mBar                   |
| Frequency Range: 902-928 MHz | Measurement Type: Conducted         | Measurement Method: ANSI C63.10-2013 |
| <b>Notes:</b>                |                                     |                                      |
| Frequency (MHz)              | Reading (kHz)                       | 20dB Bandwidth Limit                 |
| 902.175                      | 79.00                               | ≤500                                 |
| 914.975                      | 79.03                               | ≤500                                 |
| 927.775                      | 78.83                               | ≤500                                 |
| Test Site: CEMI-1            | Cable: N/A                          | Attenuator: Asset# 2121              |
| Analyzer: 1168255            |                                     | Copyright Curtis-Straus LLC 2000     |

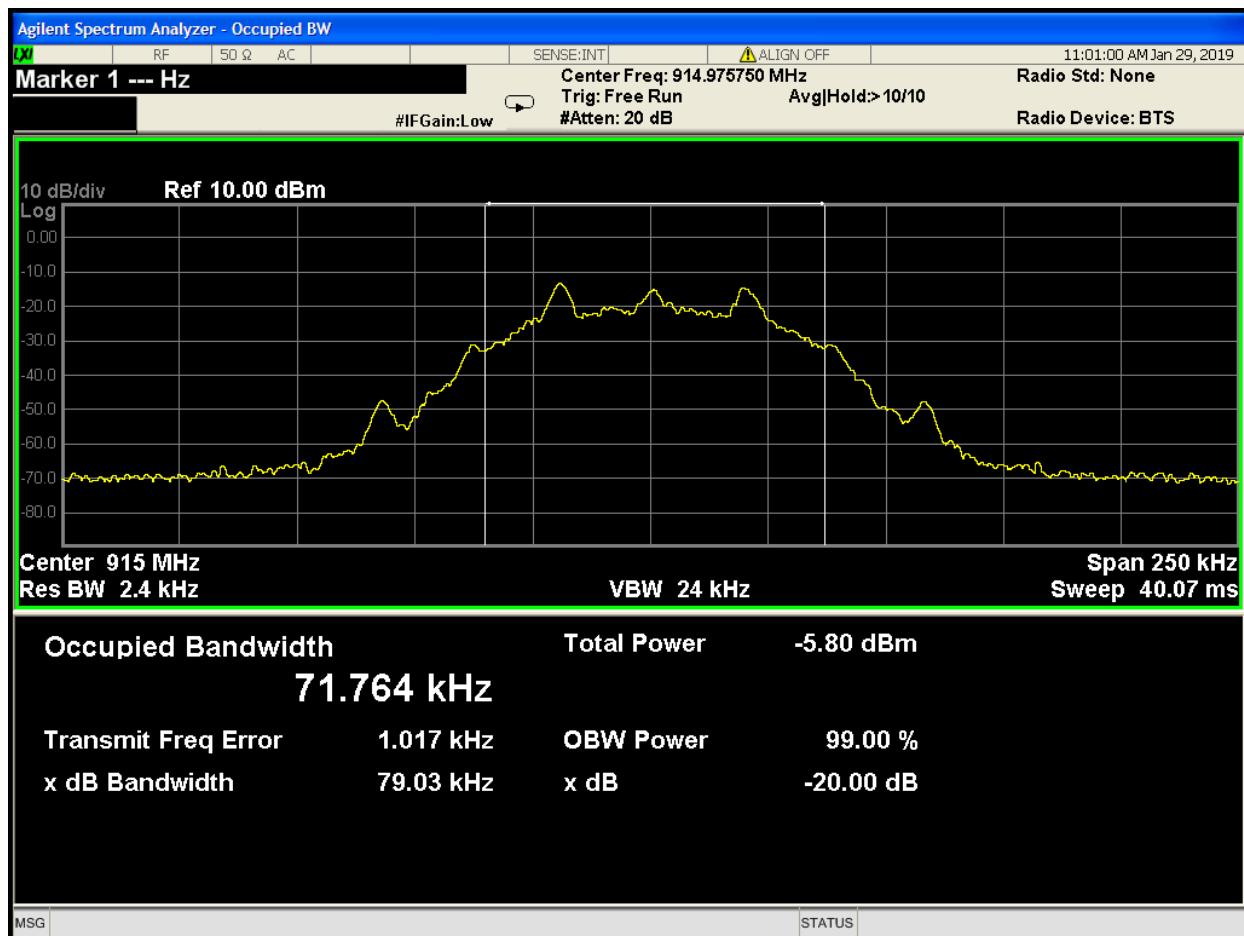


## PLOTS



Low Channel





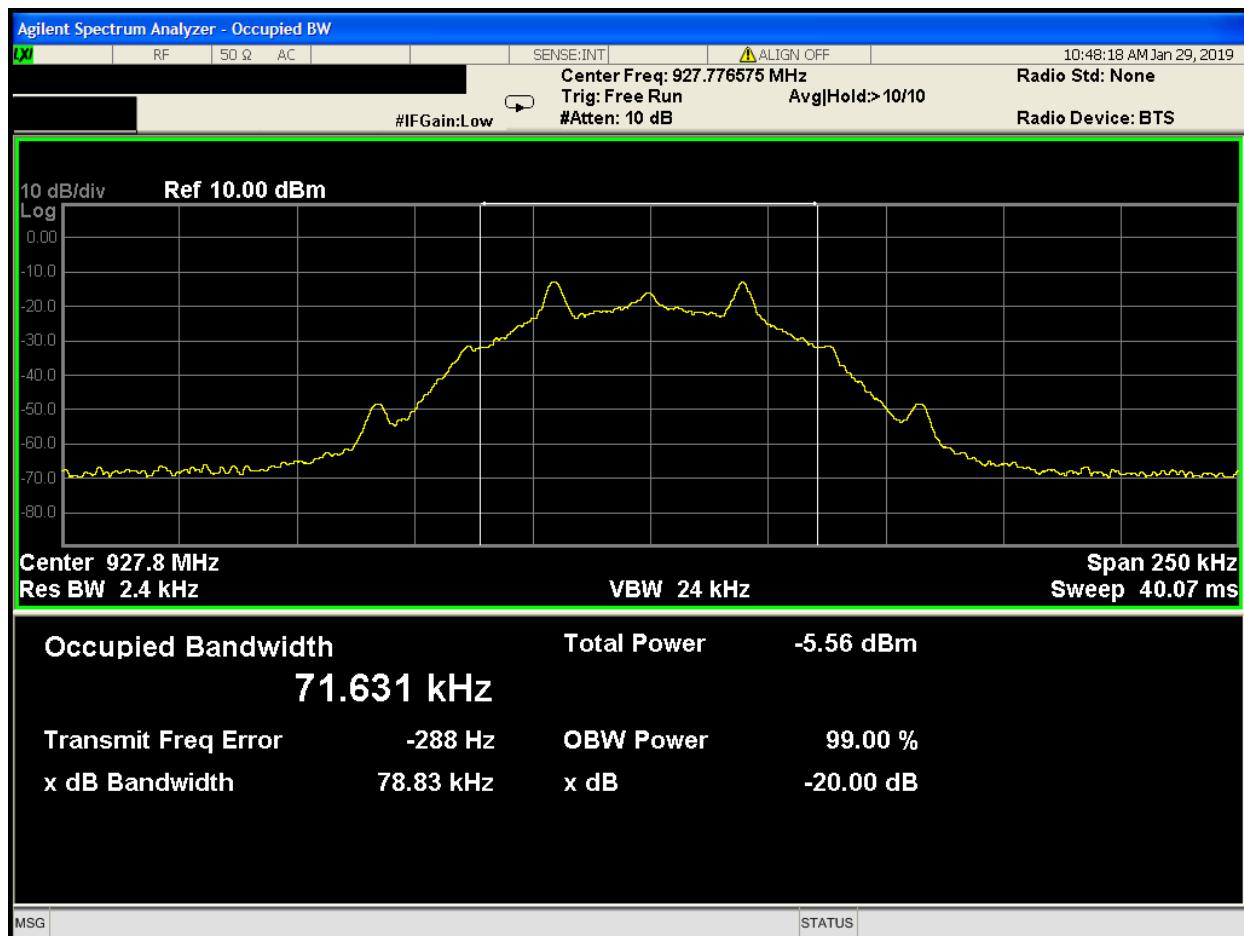
Mid Channel



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Note: Plots above show both 20dB Bandwidth and 99% OBW measurement data



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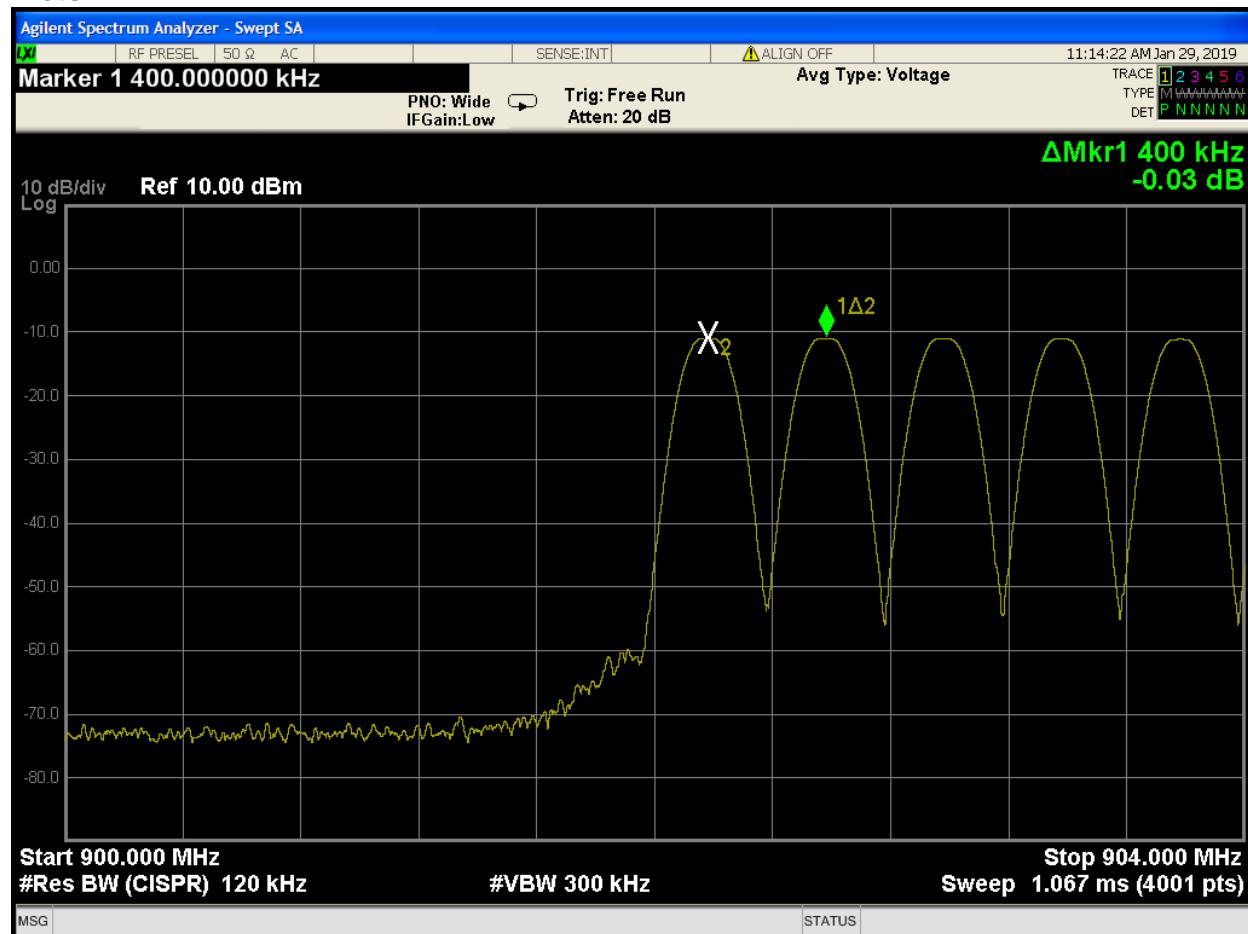
## Channel Separation

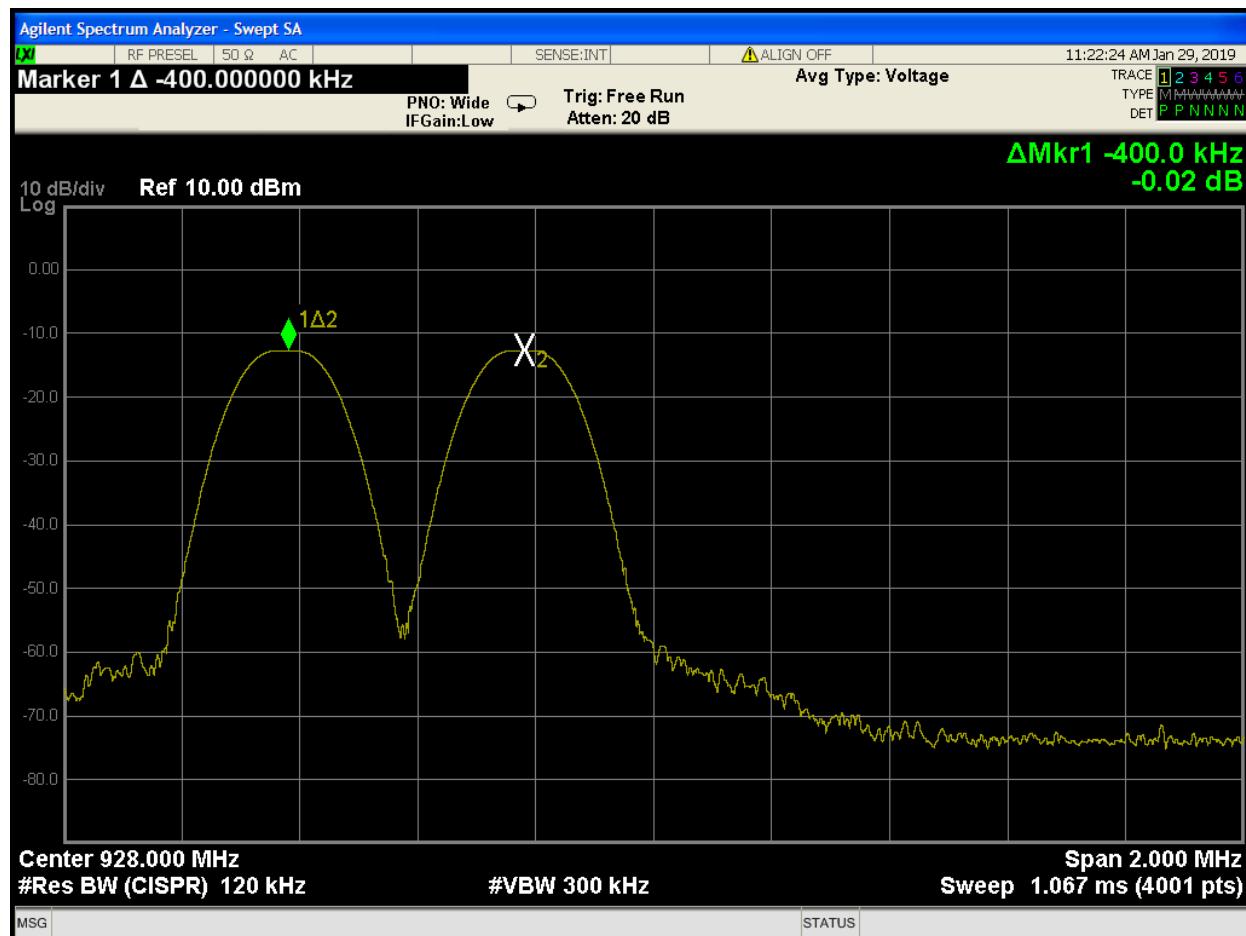
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. [15.247 (a) (1)]

## MEASUREMENTS / RESULTS

Channels are spaced by 400kHz as seen in the following plots. This is higher than both 25kHz and the 20dB bandwidth of the product.

### Plots





High End of the Band



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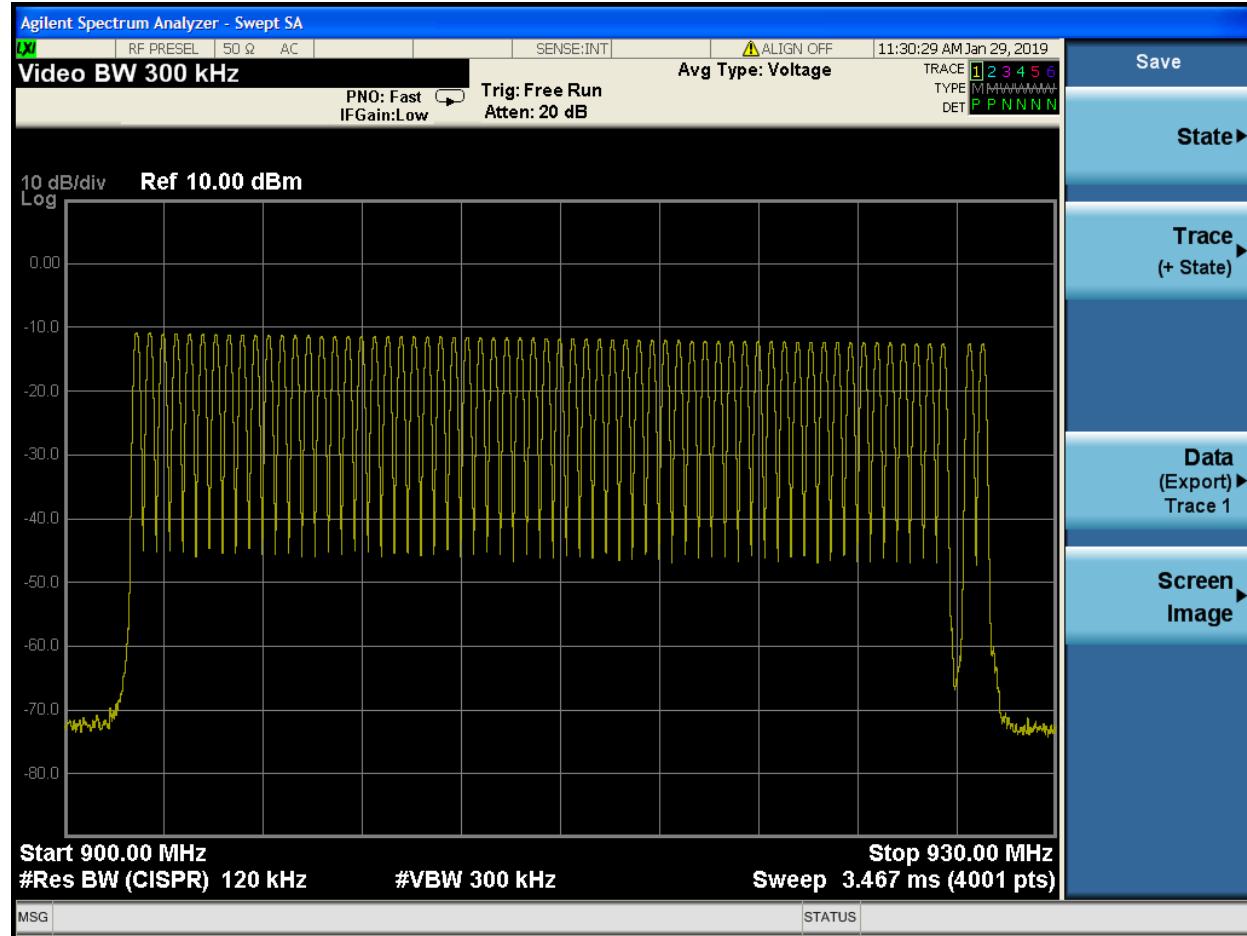


## Number of Channels

For frequency hopping systems operating in the 902-928MHz band: if the 20dB bandwidth of the hopping channel is less than 250kHz, the system shall use at least 50 hopping frequencies [15.247 (a) (1) (i)]

## MEASUREMENTS / RESULTS

### PLOTS



64 Channels



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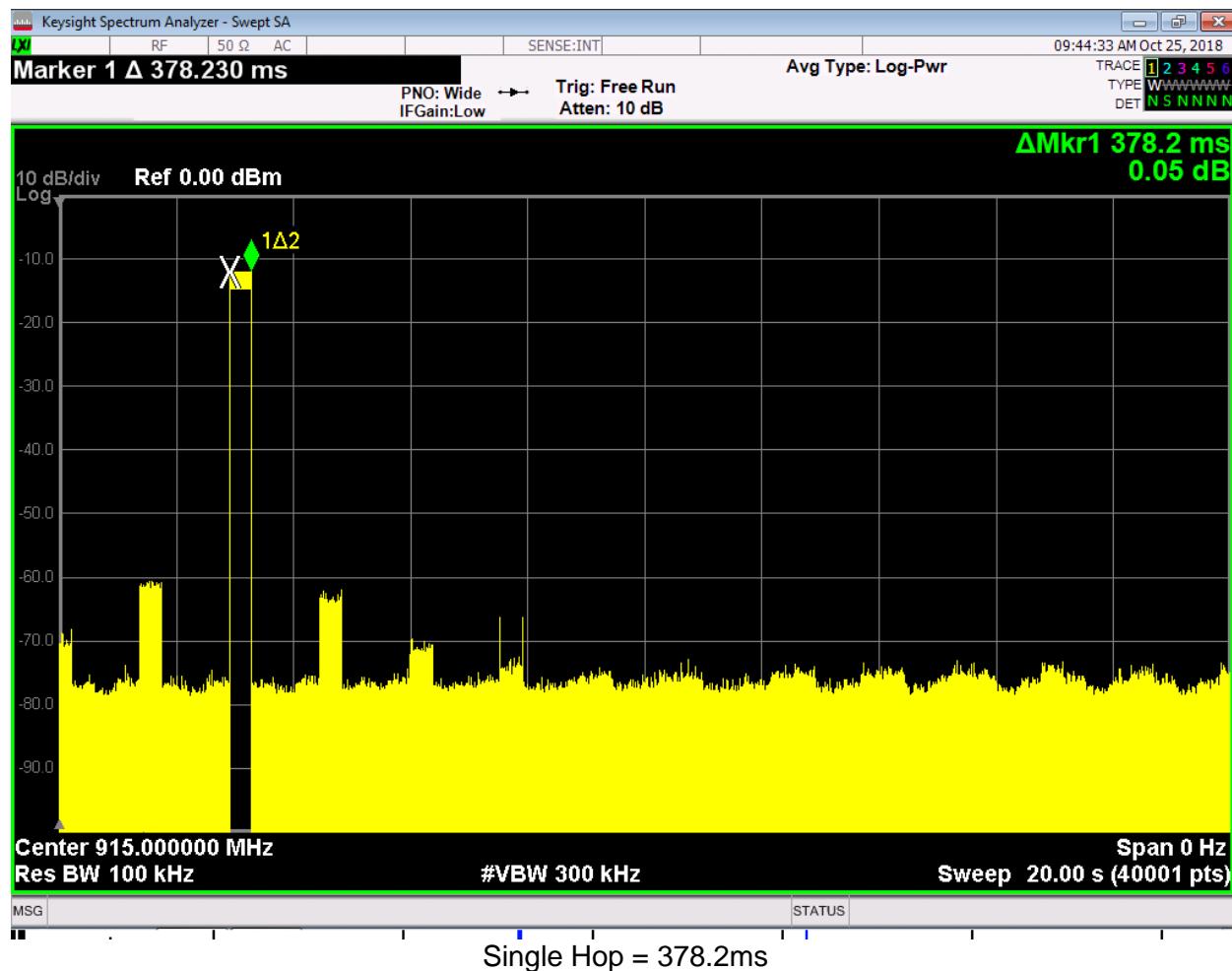
## Dwell Time

For frequency hopping systems operating in the 902-928MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz ...the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;

[15.247 (a) (1) (i)]

## MEASUREMENTS / RESULTS

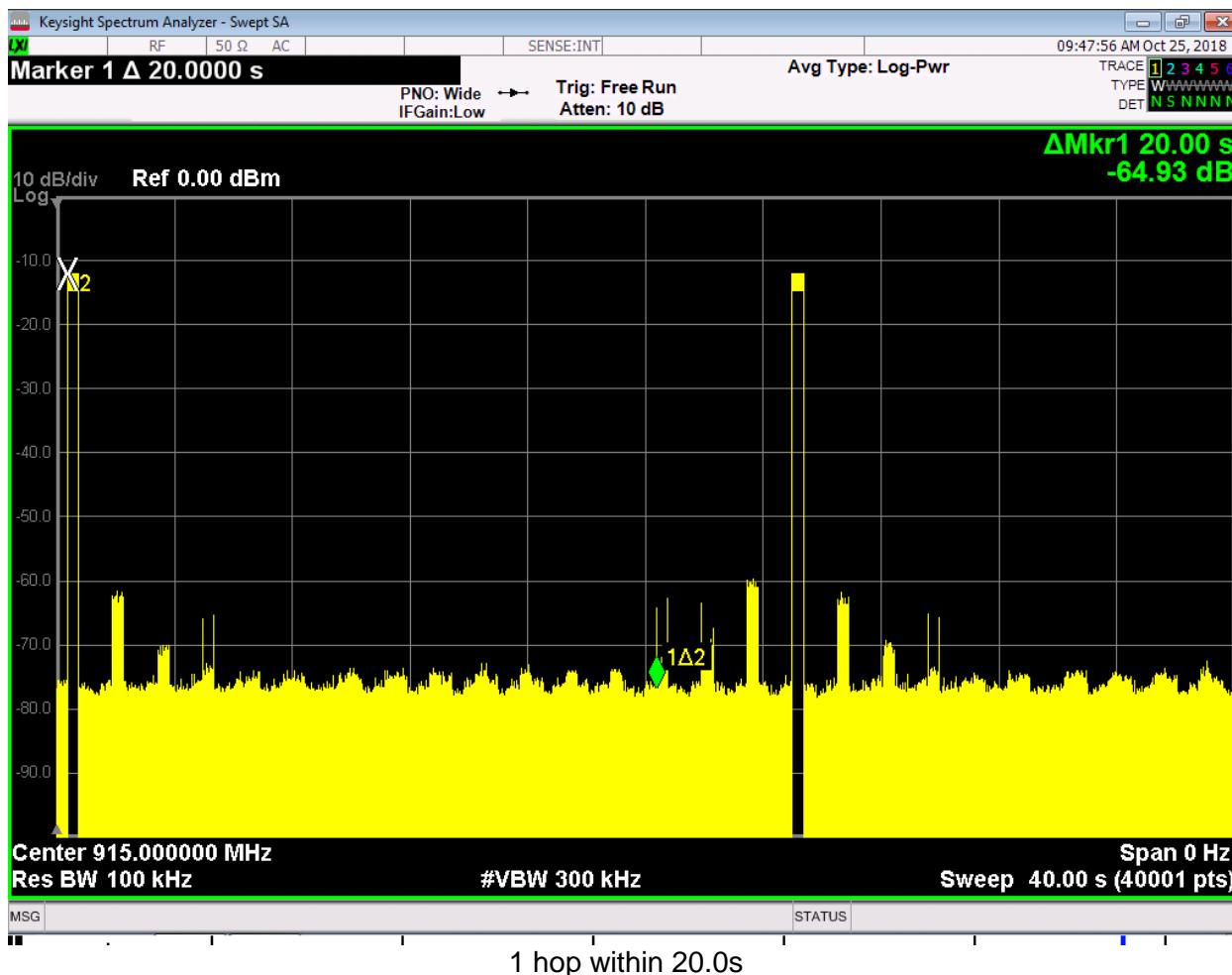
### Plots



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Dwell time in a 20sec period = 378.2ms

Limit (maximum) = 400ms

Result: Pass



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## Peak Output Power

### LIMIT

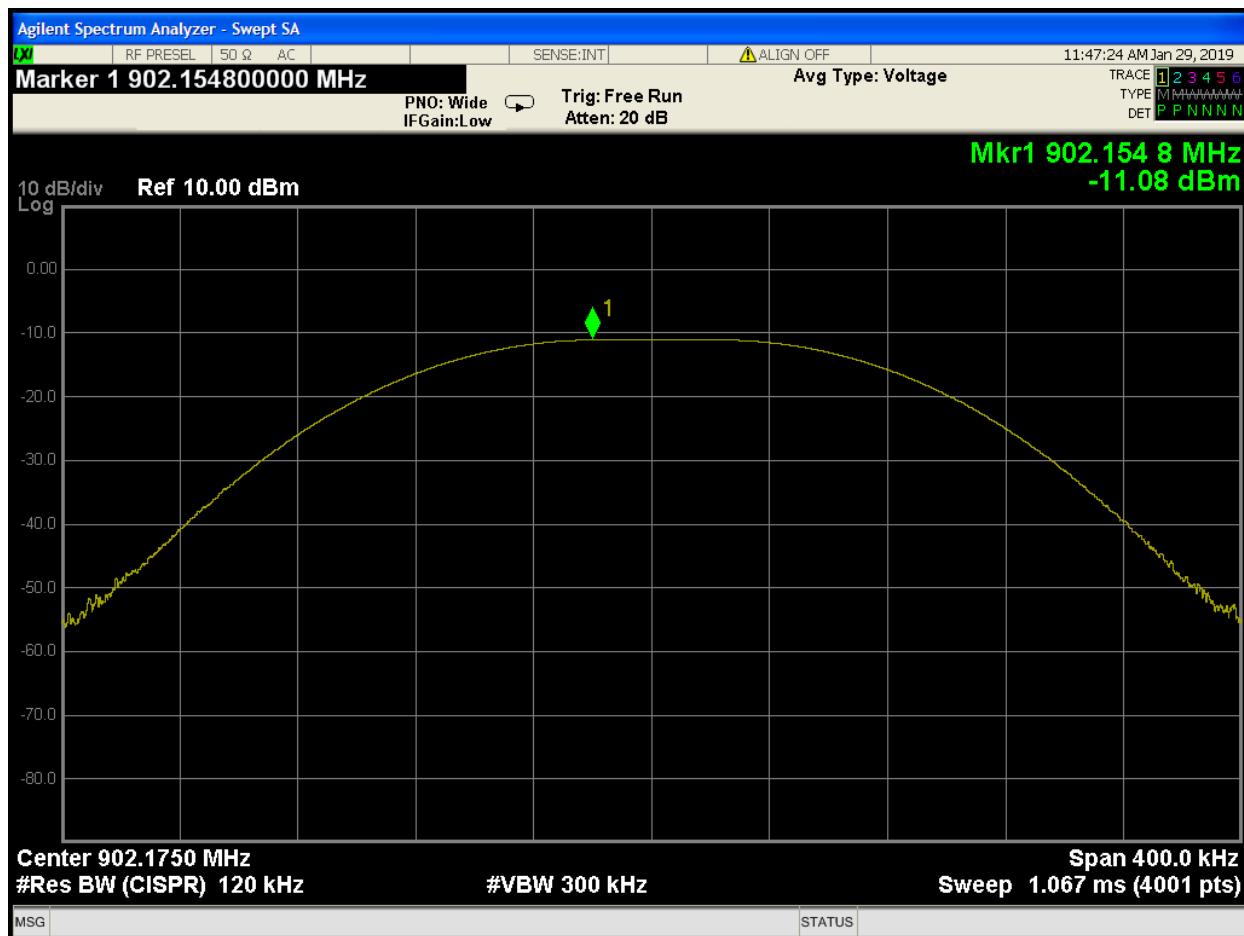
Conducted Output Power: 1 Watt [15.247(b) (2)]

### MEASUREMENTS / RESULTS

| Peak Output Power  |                                     |            |                                      |                    |                         |                                      |             |
|--|-------------------------------------|------------|--------------------------------------|--------------------|-------------------------|--------------------------------------|-------------|
| Date: 29-Jan-19  | Company: Slingmax Technologies, LLC |            |                                      |                    |                         | Work Order: S2971                    |             |
| Engineer: AKZ  | EUT: Common Base Station            |            |                                      |                    |                         | Operating Voltage/Frequency: 3.6V DC |             |
| Temp: 21°C   | Humidity: 32%                       |            |                                      | Pressure: 1012mBar |                         |                                      |             |
| Frequency Range: 902-928 MHz   |                                     |            | Measurement Type: Conducted          |                    |                         |                                      |             |
|  |                                     |            | Measurement Method: ANSI C63.10-2013 |                    |                         |                                      |             |
| Notes: No cable is used between the EUT and the attenuator.                          |                                     |            |                                      |                    |                         |                                      |             |
| Frequency  | Peak Reading                        | Cable Loss | Attenuator Loss                      | Peak Output Power  | Limit                   | Margin                               | Result      |
| (MHz)  | (dBm)                               | (dB)       | (dB)                                 | (dBm)              | (dBm)                   | (dB)                                 | (Pass/Fail) |
| 902.175  | -11.080                             | 0.00       | 29.4                                 | 18.320             | 30.0                    | -11.680                              | Pass        |
| 914.975  | -11.939                             | 0.00       | 29.4                                 | 17.461             | 30.0                    | -12.539                              | Pass        |
| 927.775  | -12.774                             | 0.00       | 29.4                                 | 16.626             | 30.0                    | -13.374                              | Pass        |
| Test Site: CEMI-1  | Cable: None                         |            |                                      |                    | Attenuator: Asset# 2121 |                                      |             |
| Analyzer: 1168255  |                                     |            |                                      |                    |                         |                                      |             |
| Peak Output Power (dBm)= Peak Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dB) |                                     |            |                                      |                    |                         |                                      |             |



## PLOTS



POP Low



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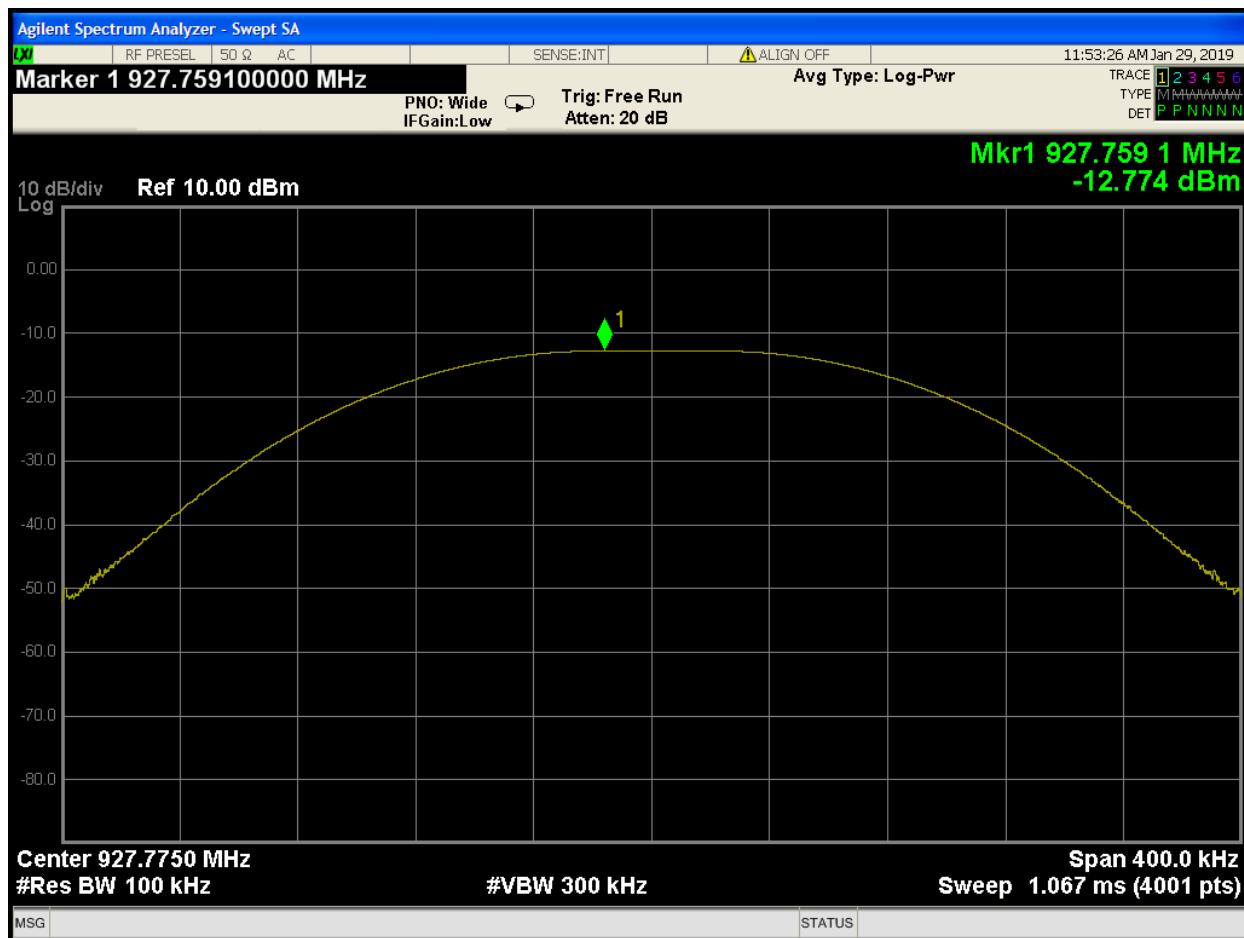
POP Mid



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POP High



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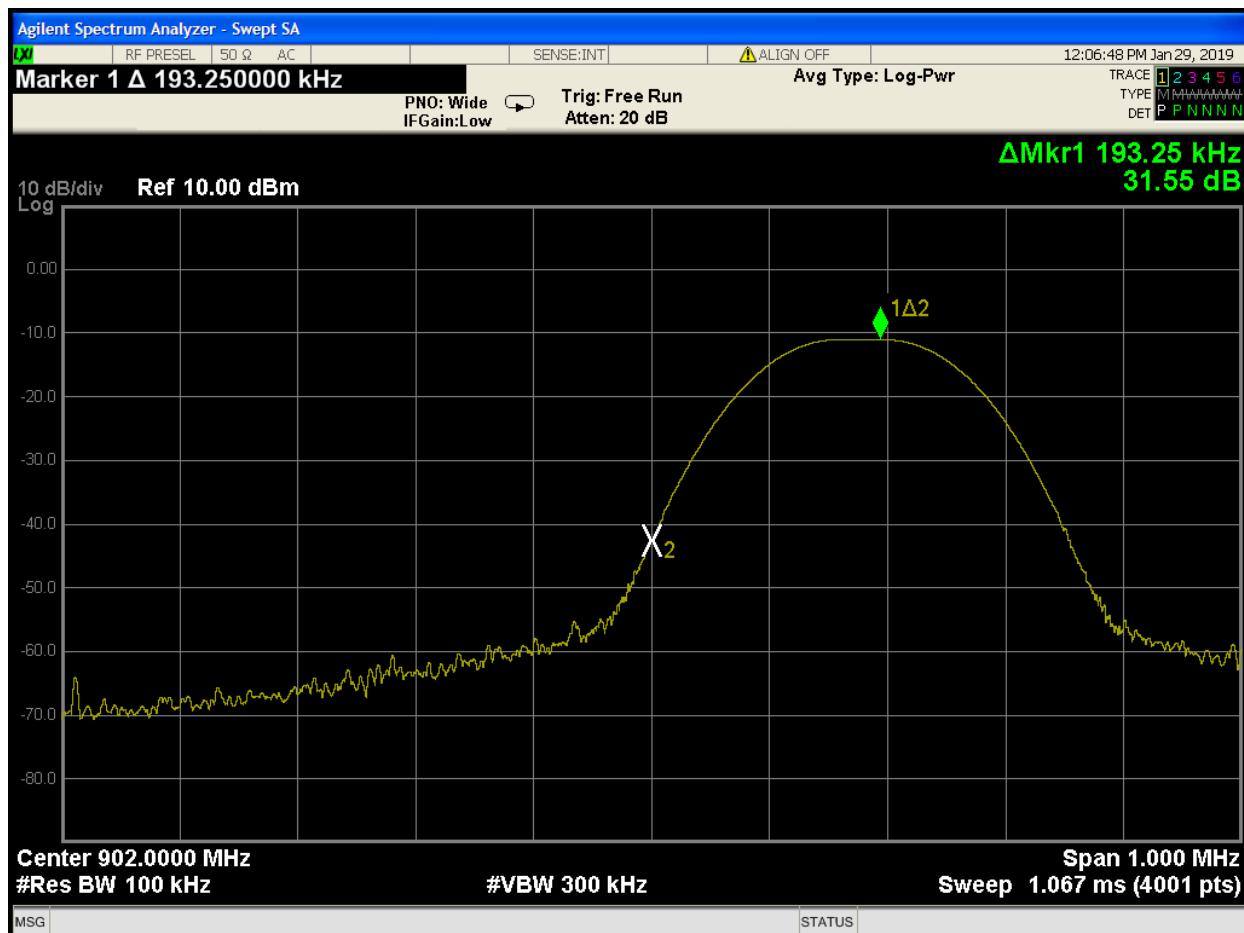
## Conducted Bandedges

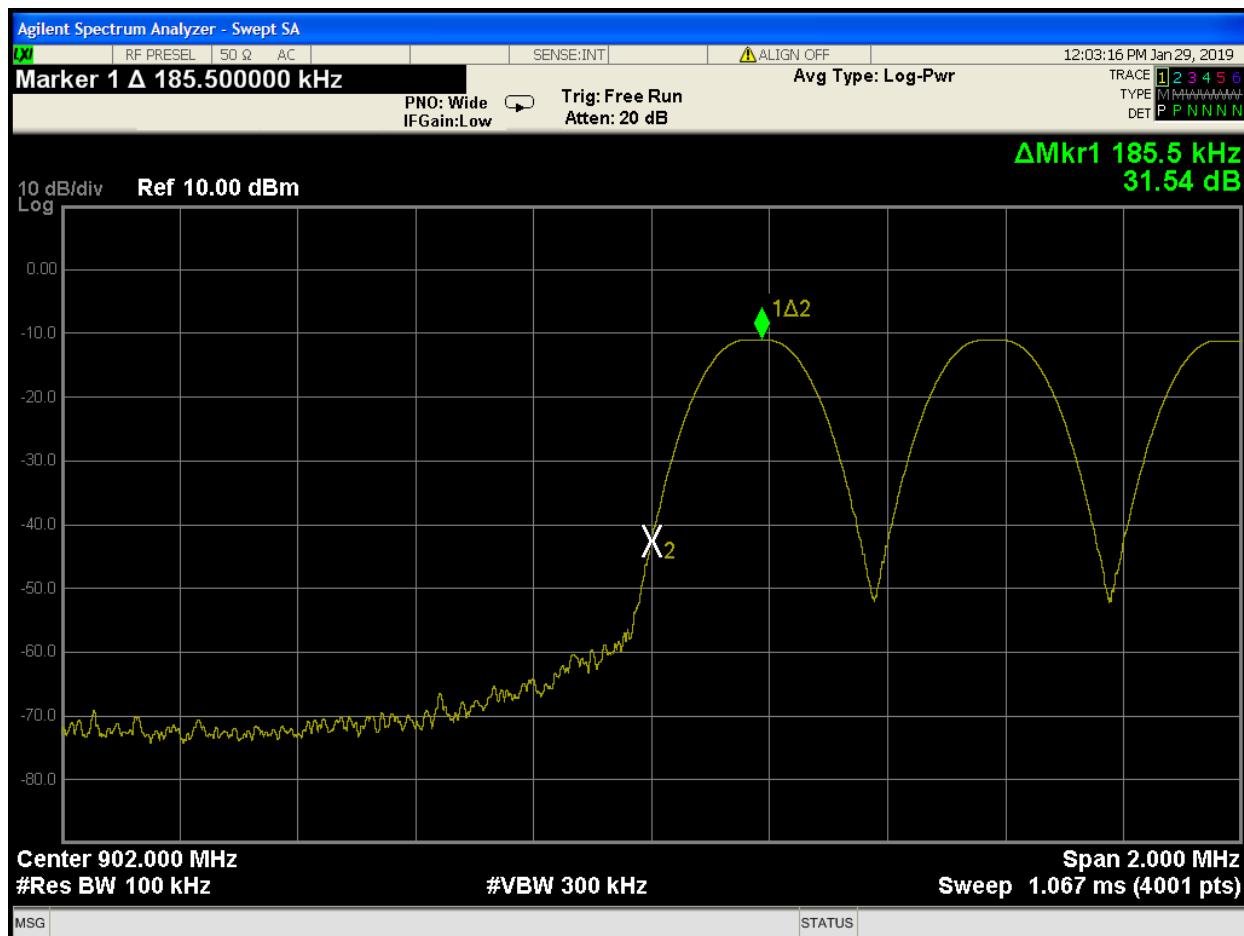
All band edges must be more than 20dB below the fundamental.

| Conducted Bandedge           |                                     |                                      |                                  |
|------------------------------|-------------------------------------|--------------------------------------|----------------------------------|
| Date: 29-Jan-19              | Company: Slingmax Technologies, LLC | Work Order: S2971                    |                                  |
| Engineer: AKZ                | EUT: Common Base Station            | Operating Voltage/Frequency: 3.6V DC |                                  |
| Temp: 21°C                   | Humidity: 32%                       | Pressure: 1012mBar                   |                                  |
| Frequency Range: 902-928 MHz |                                     | Measurement Type: Conducted          |                                  |
|                              |                                     | Measurement Method: ANSI C63.10-2013 |                                  |
| Notes:                       |                                     |                                      |                                  |
|                              | Delta to Peak<br>(dBm)              | Limit                                |                                  |
| Low Bandedge                 | 31.55                               | ≥ 20                                 | Pass                             |
| High Bandedge                | 42.96                               | ≥ 20                                 | Pass                             |
| Low Bandedge Hopping         | 31.54                               | ≥ 20                                 | Pass                             |
| High Bandedge Hopping        | 45.97                               | ≥ 20                                 | Pass                             |
| Test Site: CEMI-1            | Cable: N/A                          | Attenuator: Asset# 2121              |                                  |
| Analyzer: 1168255            |                                     |                                      | Copyright Curtis-Straus LLC 2000 |



## PLOTS





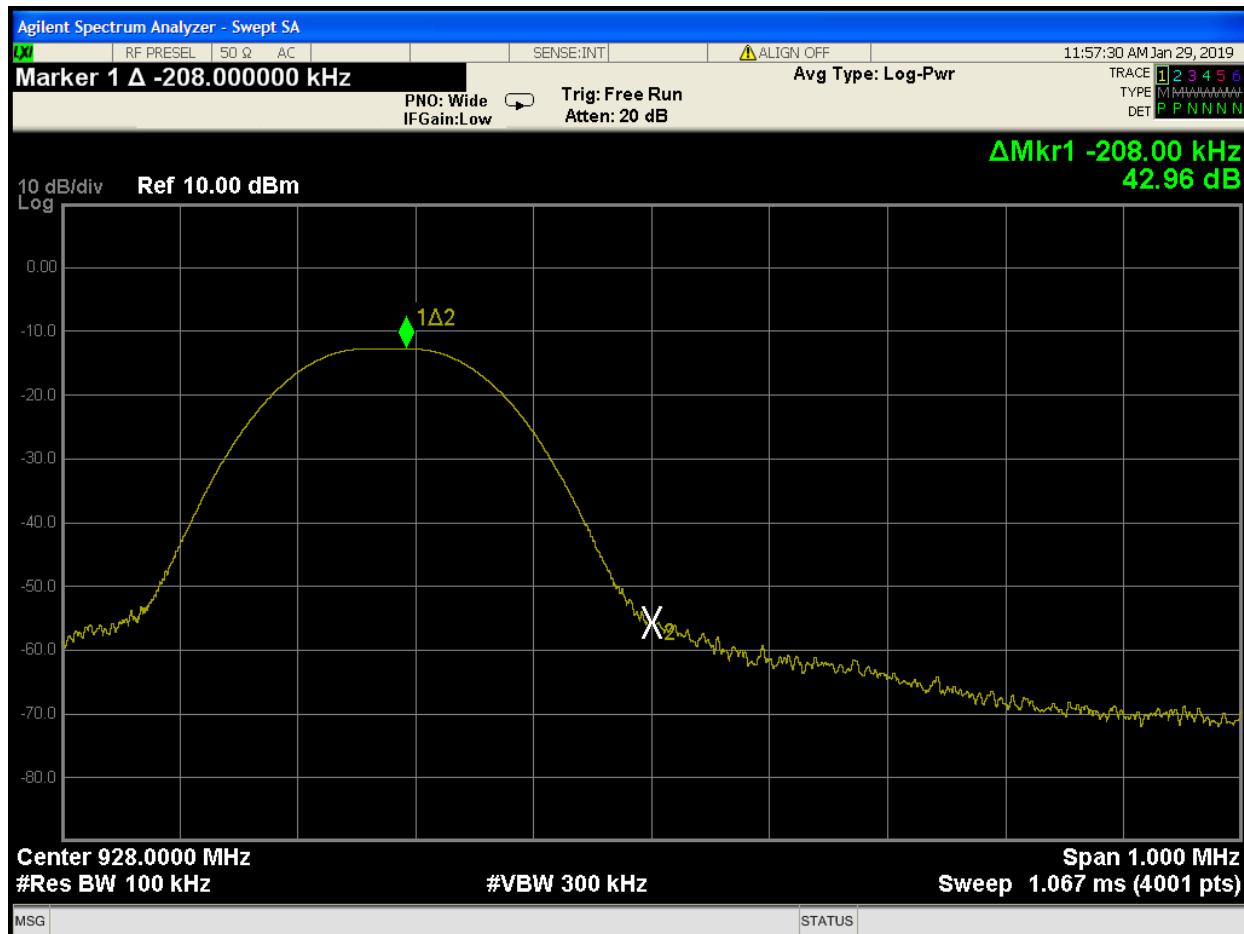
Low BE Hopping



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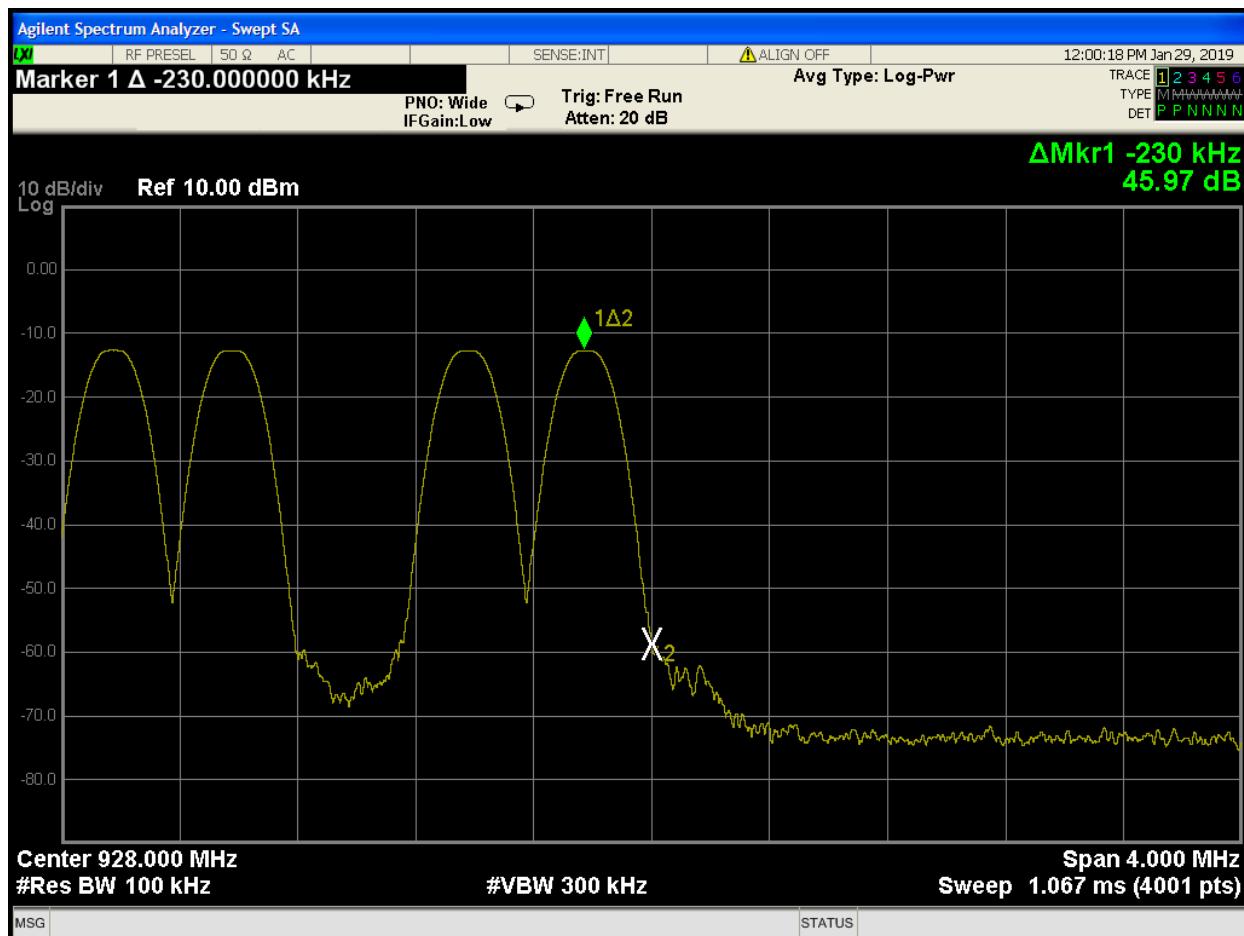
High BE Non-hopping



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High BE Hopping



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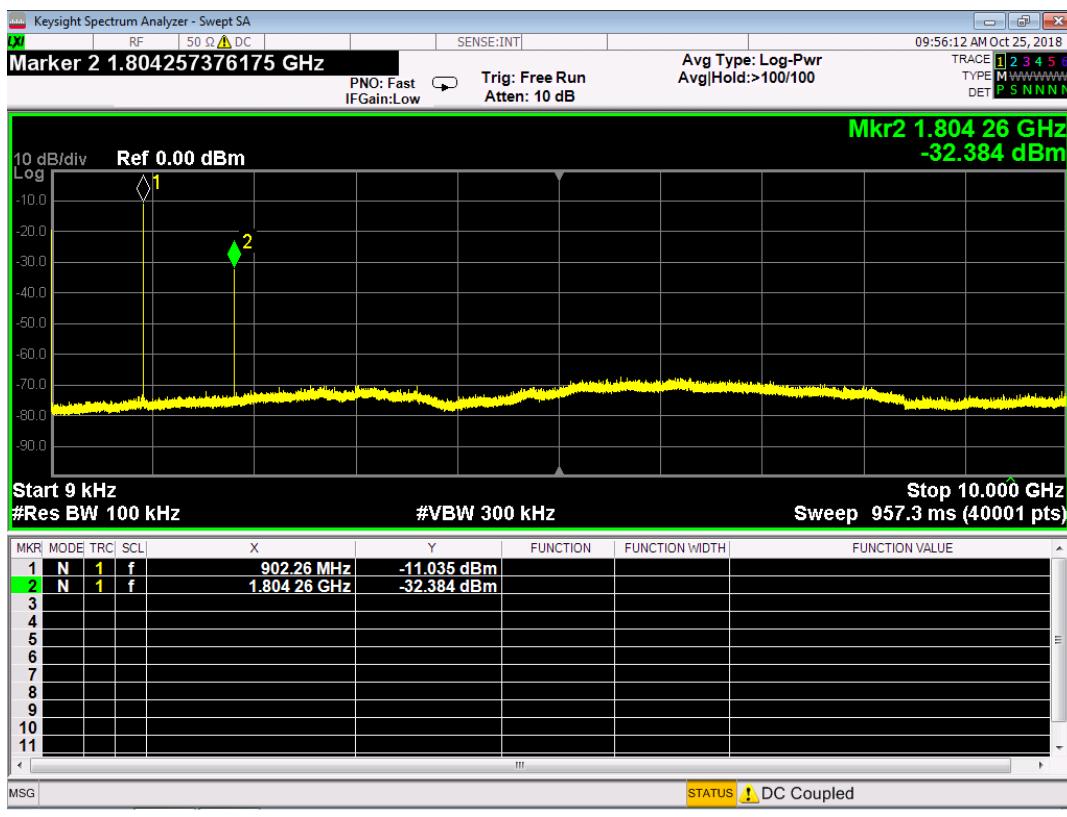


## Conducted Spurious

### LIMITS

15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

| Conducted Spurious                   |                          |                             |                  |                      |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |
|--------------------------------------|--------------------------|-----------------------------|------------------|----------------------|---------------------------|--------------------------------------|-------|-------|--------|--|--|--|--|--|--|--|--|
| Date: 10/24/2018                     | Company: I and I Sling   |                             |                  |                      |                           | Work Order: S2971                    |       |       |        |  |  |  |  |  |  |  |  |
| Engineer: Zac Johnson                | EUT: Common Base Station |                             |                  |                      |                           | Operating Voltage/Frequency: 3.6V DC |       |       |        |  |  |  |  |  |  |  |  |
| Temp: 22.1°C                         | Humidity: 33%            |                             |                  |                      |                           | Pressure: 1005mBar                   |       |       |        |  |  |  |  |  |  |  |  |
| Frequency Range: 9kHz-10GHz          |                          | Measurement Type: Conducted |                  |                      |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |
| Measurement Method: ANSI C63.10-2013 |                          |                             |                  |                      |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |
| Notes:                               |                          |                             |                  |                      |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |
| Channel                              | Fundamental Reading      | Attenuator & Cable Factor   | Adjusted Reading | 2nd Harmonic Reading | Attenuator & Cable Factor | Adjusted Reading                     | Delta | Limit | Result |  |  |  |  |  |  |  |  |
| Low                                  | -11.035                  | 29.50                       | 18.47            | -32.384              | 29.83                     | -2.55                                | 21.02 | >20   | Pass   |  |  |  |  |  |  |  |  |
| Mid                                  | -11.957                  | 29.50                       | 17.54            | -32.743              | 29.83                     | -2.91                                | 20.46 | >20   | Pass   |  |  |  |  |  |  |  |  |
| High                                 | -12.903                  | 29.57                       | 16.67            | -34.512              | 29.83                     | -4.68                                | 21.35 | >20   | Pass   |  |  |  |  |  |  |  |  |
| Test Site: EMC-5                     | Cable: 2289 Cbl          |                             |                  | Attenuator: 2121 Pad |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |
| Analyzer: 118472 SA                  |                          |                             |                  |                      |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |
| Copyright Curtis-Straus LLC 2000     |                          |                             |                  |                      |                           |                                      |       |       |        |  |  |  |  |  |  |  |  |



Low channel

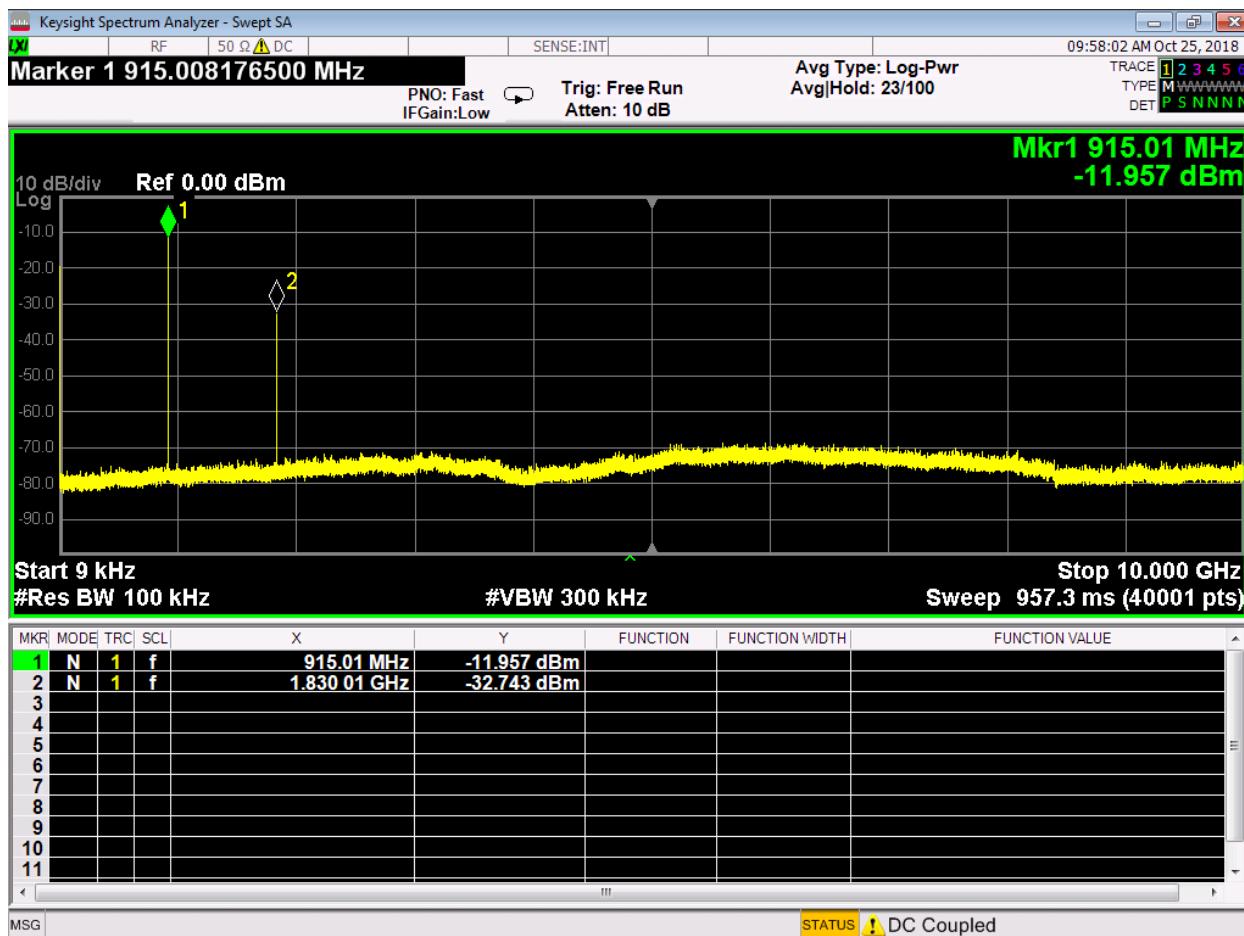


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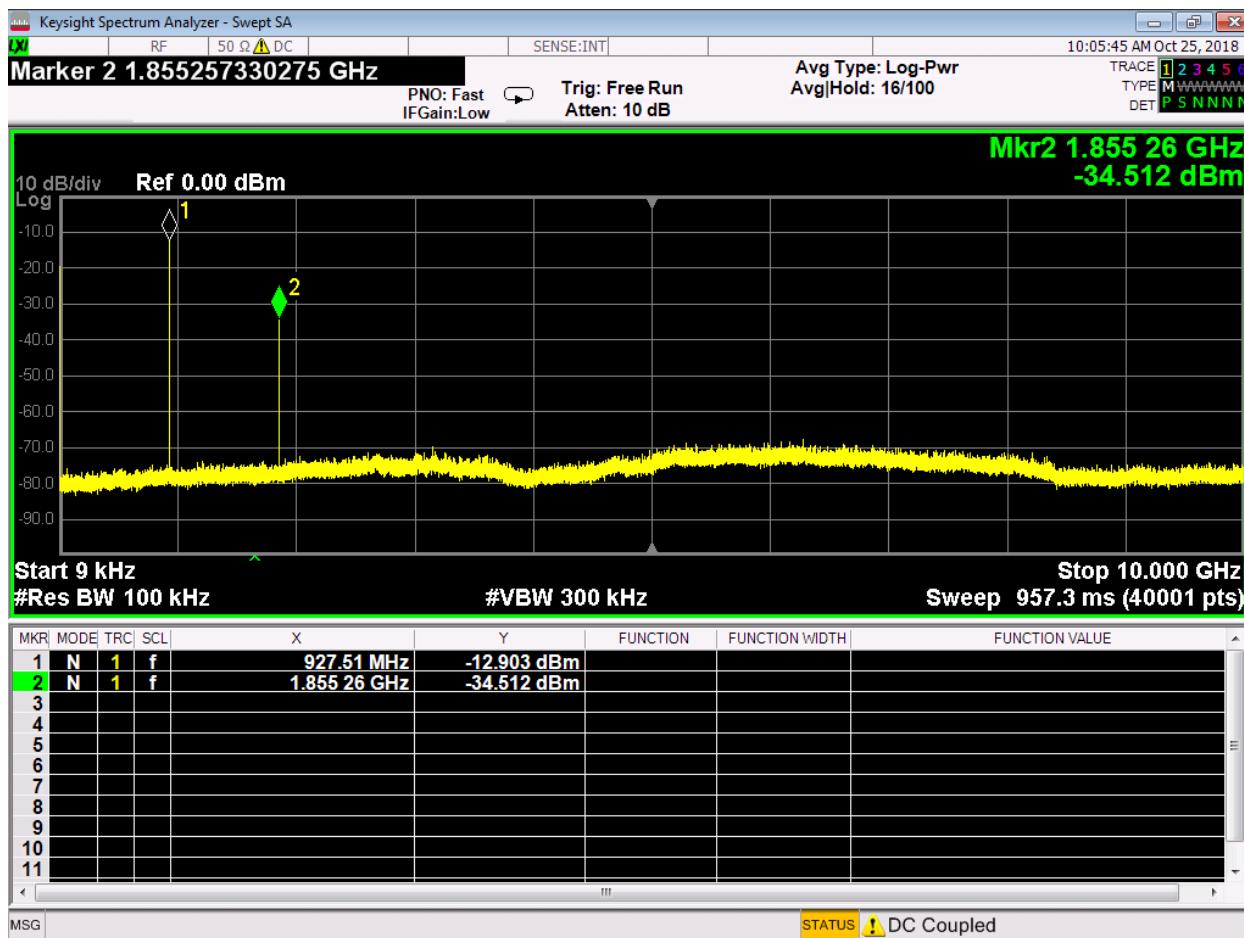


Testing Cert. No. 1627-01



## Mid channel





High channel



**Equipment used for the following tests:*****20dB Bandwidth and 99% OBW******Channel Separation******Number of Hopping Channels******Dwell Time******Peak Output Power******Conducted Bandedges******Conducted Spurious Emissions***

Rev. 10/23/2018

| Spectrum Analyzers / Receivers/Preselectors | Range          | MN                       | Mfr           | SN          | Asset   | Cat                    | Calibration Due        | Calibrated on |
|---|----------------|--------------------------|---------------|-------------|---------|------------------------|------------------------|---------------|
| Rental EXA Signal Analyzer(118472)          | 9KHz-26.5GHz   | N9010A-526;K             | AT            | MY51170010  | 1118472 | I                      | 8/10/2019              | 8/10/2018     |
| Preamps/Couplers Attenuators / Filters      | Range          | MN                       | Mfr           | SN          | Asset   | Cat                    | Calibration Due        | Calibrated on |
| API - 30dB 20W Attenuator                   | 9KHz-40GHz     | 89-30-11                 | API Weinschel | 703         | 2121    | I                      | 3/23/2019              | 3/23/2018     |
| Meteorological Meters/Chambers              | Range          | MN                       | Mfr           | SN          | Asset   | Cat                    | Calibration Due        | Calibrated on |
| Weather Clock (Pressure Only)<br>TH A#2086  | BA928<br>HTC-1 | Oregon Scientific<br>HDE | C3166-1       | 831<br>2086 | I<br>II | 5/15/2020<br>3/22/2019 | 5/15/2018<br>3/22/2018 |               |
| Cables                                      | Range          | Mfr                      |               |             |         | Cat                    | Calibration Due        | Calibrated on |
| Asset #2289                                 | 9KHz-26.5GHz   | FLC-1.5FT-SMSM+          | Mini-Circuits | 16021039    |         | II                     | 1/29/2019              | 1/29/2018     |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Rev. 1/27/2019

| Spectrum Analyzers / Receivers/Preselectors | Range       | MN       | Mfr           | SN         | Asset   | Cat | Calibration Due | Calibrated on |
|---|-------------|----------|---------------|------------|---------|-----|-----------------|---------------|
| Rental MXE EMI Receiver(1168255)            | 20Hz-8.4GHz | N9038A   | Agilent       | MY53290009 | 1168255 | I   | 8/23/2019       | 8/23/2018     |
| Preamps/Couplers Attenuators / Filters      | Range       | MN       | Mfr           | SN         | Asset   | Cat | Calibration Due | Calibrated on |
| API - 30dB 20W Attenuator                   | 9KHz-40GHz  | 89-30-11 | API Weinschel | 703        | 2121    | I   | 3/23/2019       | 3/23/2018     |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



## 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)]*

### MEASUREMENTS / RESULTS

| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Vertical 30-1000MHz<br>Operator: ZJ<br>Notes:<br>Low Channel   |                           |                          |  |  |                  | Work Order - S2971<br>EUT Power Input - 3.7<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |                        |                     |                             |
|---|---------------------------|--------------------------|--|--|------------------|---|------------------------|---------------------|-----------------------------|
| Data Taken at 11:15:11 PM, Wednesday, October 24, 2018  |                           |                          |  |  |                  |   |                        |                     |                             |
| Frequency (MHz)   | Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Lim1: FCC_pt15_1 09_Class_B (dB $\mu$ V/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail)   | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
| 30  | 25                        | -1.3                     | 23.7                                   | 40   | -16.3            | PASS  |                        | 200                 | 180                         |
| 74.038  | 33.2                      | -14.2                    | 19                                     | 40   | -21              | PASS  |                        | 100                 | 225                         |
| 811.335   | 27.9                      | 1.8                      | 29.7                                   | 46   | -16.3            | PASS  |                        | 200                 | 180                         |
| 819.701   | 38.9                      | -6.7                     | 32.2                                   | 46   | -13.8            | PASS  | -13.8                  | 150                 | 225                         |
| 821.035   | 40.3                      | -10.7                    | 29.6                                   | 46   | -16.4            | PASS  |                        | 100                 | 180                         |
| 822.175   | 39.1                      | -14.1                    | 24.9                                   | 46   | -21.1            | PASS  |                        | 100                 | 180                         |
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>Top Peaks Horizontal 30-1000MHz<br>Operator: ZJ<br>Notes:<br>Low Channel |                           |                          |  |  |                  | Work Order - S2971<br>EUT Power Input - 3.7<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |                        |                     |                             |
| Data Taken at 11:15:11 PM, Wednesday, October 24, 2018  |                           |                          |  |  |                  |   |                        |                     |                             |
| Frequency (MHz)   | Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Lim1: FCC_pt15_1 09_Class_B (dB $\mu$ V/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail)   | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees)       |
| 30  | 24.3                      | -1.3                     | 22.9                                   | 40   | -17.1            | PASS  |                        | 150                 | 315                         |
| 135.318   | 27.1                      | -8.8                     | 18.4                                   | 43.5                                       | -25.1            | PASS  |                        | 200                 | 270                         |
| 772.196   | 28.3                      | 1.3                      | 29.6                                   | 46   | -16.5            | PASS  |                        | 250                 | 315                         |
| 819.459   | 39.5                      | -5.9                     | 33.6                                   | 46   | -12.4            | PASS  | -12.4                  | 150                 | 225                         |
| 821.035   | 40.8                      | -10.7                    | 30.1                                   | 46   | -15.9            | PASS  |                        | 150                 | 45                          |
| 822.272   | 35.9                      | -14.4                    | 21.4                                   | 46   | -24.6            | PASS  |                        | 250                 | 180                         |

30-1000MHz Low Channel



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|   |                                      |
|---|--------------------------------------|
| Curtis Straus - a Bureau Veritas Company      | Work Order - S2971                   |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 3.1                |
| Top Peaks Vertical 30-1000MHz                 | Test Site - CH-1                     |
| Operator: ZJ                                  | Conditions - 22.1°C; 33%RH; 1005mBar |
| Notes:  |                                      |
| Mid Channel                                   |                                      |

Data Taken at 11:28:42 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Lim1: FCC_pt15_1 09_Class_B (dB $\mu$ V/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------------|--------------------------|--|--|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 30.534          | 24.5                      | -1.8                     | 22.8                                   | 40   | -17.2            | PASS                          |                        | 200                 | 135                         |
| 73.868          | 32.9                      | -14.2                    | 18.7                                   | 40   | -21.3            | PASS                          |                        | 100                 | 225                         |
| 285.401         | 31.5                      | -8.6                     | 22.8                                   | 46   | -23.2            | PASS                          |                        | 200                 | 180                         |
| 777.433         | 28.3                      | 1.5                      | 29.8                                   | 46   | -16.2            | PASS                          | -16.2                  | 100                 | 0                           |
| 820.38          | 30                        | -8.7                     | 21.2                                   | 46   | -24.8            | PASS                          |                        | 200                 | 225                         |
| 821.69          | 33.7                      | -12.7                    | 21                                     | 46   | -25              | PASS                          |                        | 100                 | 0                           |

|   |                                      |
|---|--------------------------------------|
| Curtis Straus - a Bureau Veritas Company      | Work Order - S2971                   |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 3.1                |
| Top Peaks Horizontal 30-1000MHz               | Test Site - CH-1                     |
| Operator: ZJ                                  | Conditions - 22.1°C; 33%RH; 1005mBar |
| Notes:  |                                      |
| Mid Channel                                   |                                      |

Data Taken at 11:37:25 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Lim1: FCC_pt15_1 09_Class_B (dB $\mu$ V/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------------|--------------------------|--|--|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 30.17           | 24.2                      | -1.5                     | 22.8                                   | 40   | -17.2            | PASS                          |                        | 100                 | 270                   |
| 72.826          | 27.6                      | -14.2                    | 13.3                                   | 40   | -26.7            | PASS                          |                        | 250                 | 135                   |
| 120.113         | 26.5                      | -8.7                     | 17.8                                   | 43.5                                       | -25.7            | PASS                          |                        | 100                 | 225                   |
| 766.715         | 28.3                      | 1.2                      | 29.5                                   | 46   | -16.5            | PASS                          | -16.5                  | 100                 | 0                     |

30-1000MHz Mid Channel



|   |                                      |
|---|--------------------------------------|
| Curtis Straus - a Bureau Veritas Company      | Work Order - S2971                   |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 3.1                |
| Top Peaks Horizontal 30-1000MHz               | Test Site - CH-1                     |
| Operator: ZJ                                  | Conditions - 22.1°C; 33%RH; 1005mBar |
| Notes:  |                                      |
| High Channel                                  |                                      |

Data Taken at 11:57:25 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Lim1: FCC_pt15_109_Class_B (dB $\mu$ V/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|---------------------------|--------------------------|--|---|------------------|-------------------------------|------------------------|---------------------|-----------------------|
| 30.897          | 25.2                      | -2                       | 23.2                                   | 40  | -16.8            | PASS                          |                        | 150                 | 45                    |
| 72.51           | 27.8                      | -14.3                    | 13.5                                   | 40  | -26.5            | PASS                          |                        | 150                 | 90                    |
| 134.057         | 26.9                      | -8.7                     | 18.2                                   | 43.5                                      | -25.3            | PASS                          |                        | 200                 | 135                   |
| 306.547         | 30.1                      | -8.4                     | 21.7                                   | 46  | -24.4            | PASS                          |                        | 100                 | 135                   |
| 810.995         | 28.2                      | 1.8                      | 30                                     | 46  | -16              | PASS                          | -16                    | 250                 | 180                   |

|   |                                      |
|---|--------------------------------------|
| Curtis Straus - a Bureau Veritas Company      | Work Order - S2971                   |
| Radiated Emissions Electric Field 3m Distance | EUT Power Input - 3.1                |
| Top Peaks Vertical 30-1000MHz                 | Test Site - CH-1                     |
| Operator: ZJ                                  | Conditions - 22.1°C; 33%RH; 1005mBar |
| Notes:  |                                      |
| High Channel                                  |                                      |

Data Taken at 11:57:25 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Lim1: FCC_pt15_109_Class_B (dB $\mu$ V/m) | Lim1 Margin (dB) | Lim1 Test Results (Pass/Fail) | Worst Margin Lim1 (dB) | Antenna Height (cm) | Turntable Azimuth (degrees) |
|-----------------|---------------------------|--------------------------|--|---|------------------|-------------------------------|------------------------|---------------------|-----------------------------|
| 30.267          | 24.6                      | -1.5                     | 23.1                                   | 40  | -16.9            | PASS                          | -16.9                  | 200                 | 135                         |
| 72.922          | 33.3                      | -14.2                    | 19.1                                   | 40  | -20.9            | PASS                          |                        | 100                 | 225                         |
| 136.579         | 27                        | -8.9                     | 18.1                                   | 43.5                                      | -25.4            | PASS                          |                        | 100                 | 270                         |
| 806.994         | 27.4                      | 1.6                      | 28.9                                   | 46  | -17.1            | PASS                          |                        | 200                 | 315                         |

30-1000MHz High Channel



|  |  |  |  |  |  |  |   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>1-6GHz Vertical Data<br>Operator: ZJ<br>Notes:<br>Low Channel |  |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|

Data Taken at 06:36:53 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|---|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 2706.3          | 49.4                          | 46.3                         | -0.5                     | 49                                     | 74  | -25              | PASS                     | -25                    | 45.8                                  | 54   | -8.2            | PASS                    | -8.2                  | 175                 | 189                   |

|  |  |  |  |  |  |  |   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>1-6GHz Horizontal Data<br>Operator: ZJ<br>Notes:<br>Low Channel |  |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|

Data Taken at 06:36:53 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|---|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2706.5          | 49.3                          | 44.2                         | -0.5                     | 48.8                                   | 74  | -25.2            | PASS                     | -25.2                  | 43.8                                  | 54   | -10.2           | PASS                    | -10.2                     | 288                 | 269                   |

## 1-6GHz Low Channel

|  |  |  |  |  |  |  |   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>1-6GHz Vertical Data<br>Operator: ZJ<br>Notes:<br>Mid Channel |  |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|

Data Taken at 07:37:13 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|---|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 2745.1          | 49.8                          | 47.9                         | -0.5                     | 49.3                                   | 74  | -24.7            | PASS                     | -24.7                  | 47.4                                  | 54   | -6.6            | PASS                    | -6.6                  | 275                 | 64                    |

|  |  |  |  |  |  |  |   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>1-6GHz Horizontal Data<br>Operator: ZJ<br>Notes:<br>Mid Channel |  |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|--|--|

Data Taken at 07:37:13 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|---|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2688.1          | 41                            | 32.5                         | -0.4                     | 40.6                                   | 74  | -33.4            | PASS                     | -33.4                  | 32.1                                  | 54   | -21.9           | PASS                    | -21.9                     | 275                 | 177                   |

## 1-6GHz Mid Channel



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|   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>1-6GHz Vertical Data<br>Operator: ZJ<br>Notes:<br>High Channel |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|

Data Taken at 08:43:04 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_Class B_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|--|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 2782.8          | 49                            | 47.1                         | -0.5                     | 48.5                                   | 74   | -25.5            | PASS                     | -25.5                  | 46.6                                  | 54   | -7.4            | PASS                    | -7.4                  | 275                 | 64                    |

|   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 3m Distance<br>1-6GHz Horizontal Data<br>Operator: ZJ<br>Notes:<br>High Channel |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|

Data Taken at 08:43:04 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_Cla ssB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_Cla ssB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Average Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|--|------------------|--------------------------|------------------------|---------------------------------------|---|-----------------|-------------------------|---------------------------|---------------------|-----------------------|
| 2782.1          | 43.2                          | 32.7                         | -0.5                     | 42.7                                   | 74   | -31.3            | PASS                     | -31.3                  | 32.2                                  | 54  | -21.8           | PASS                    | -21.8                     | 207                 | 119                   |

## 1-6GHz High Channel

|  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Vertical 6-18GHz<br>Operator: ZJ<br>Notes:<br>Low Channel |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|

Data Taken at 10:39:08 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|--------------------------|--|---|---------------------------|-------------------------------------|------------------------------|--|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| 6315.4          | 53.1                          | 6                        | 59.1                                   | 83.5  | -24.4                     | PASS                                | -24.4                        | 63.5   | -4.4                     | PASS                               | -4.4                        | 150                 | 197                   |
| 8119.4          | 46.2                          | 7.3                      | 53.5                                   | 83.5  | -30                       | PASS                                |                              | 63.5   | -10                      | PASS                               |                             | 150                 | 197                   |
| 9021.8          | 45.5                          | 7.6                      | 53.1                                   | 83.5  | -30.4                     | PASS                                |                              | 63.5   | -10.4                    | PASS                               |                             | 150                 | 147                   |
| 9924.2          | 45.8                          | 9.3                      | 55.1                                   | 83.5  | -28.4                     | PASS                                |                              | 63.5   | -8.4                     | PASS                               |                             | 150                 | 122                   |

|  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: ZJ<br>Notes:<br>Low Channel |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|

Data Taken at 10:39:08 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Margin to Avg Limit (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|--------------------------|--|---|---------------------------|-------------------------------------|------------------------------|--|--------------------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| 6315.2          | 48                            | 6                        | 54                                     | 83.5  | -29.5                     | PASS                                | -29.5                        | 63.5   | -9.5                     | PASS                               | -9.5                        | 150                 | 172                   |
| 8493.9          | 45                            | 7.5                      | 52.5                                   | 83.5  | -31                       | PASS                                |                              | 63.5   | -11                      | PASS                               |                             | 150                 | 172                   |
| 9551.7          | 44.6                          | 9.2                      | 53.8                                   | 83.5  | -29.7                     | PASS                                |                              | 63.5   | -9.7                     | PASS                               |                             | 125                 | 292                   |

## 6-10GHz Low Channel



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|   |  |  |  |  |  |   |  |  |  |  |  |  |  |
|---|--|--|--|--|--|---|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>6-18GHz Vertical Data<br>Operator: ZJ<br>Notes:<br>Mid Channel |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |
|---|--|--|--|--|--|---|--|--|--|--|--|--|--|

Data Taken at 10:12:48 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|---|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 6404.9          | 56                            | 53.3                         | 6.5                      | 62.5                                   | 83.5  | -21              | PASS                     | -21                    | 59.8                                  | 63.5   | -3.7            | PASS                    | -3.7                  | 171                 | 193                   |

|  |  |  |  |  |  |   |  |  |  |  |  |  |  |
|--|--|--|--|--|--|---|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: ZJ<br>Notes:<br>Mid Channel |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |
|--|--|--|--|--|--|---|--|--|--|--|--|--|--|

Data Taken at 10:12:48 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Margin to Avg Limit (dB) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|--------------------------|--|---|---------------------------|-------------------------------------|------------------------------|--------------------------|--|-----------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| 6404.6          | 53.7                          | 6.5                      | 60.2                                   | 83.5  | -23.3                     | PASS                                | -23.3                        | 63.5                     | -3.3   | PASS            | -3.3                               | 125                         | 217                 |                       |
| 9563.8          | 44.6                          | 9.2                      | 53.8                                   | 83.5  | -29.7                     | PASS                                |                              | 63.5                     | -9.7   | PASS            |                                    | 100                         | 0                   |                       |

## 6-10GHz Mid Channel

|  |  |  |  |  |  |   |  |  |  |  |  |  |  |
|--|--|--|--|--|--|---|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>6-18GHz Vertical Data<br>Operator: ZJ<br>Notes:<br>High Channel |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |
|--|--|--|--|--|--|---|--|--|--|--|--|--|--|

Data Taken at 09:40:22 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Raw Avg Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Peak Margin (dB) | Peak Results (Pass/Fail) | Worst Peak Margin (dB) | Adjusted Avg Amplitude (dB $\mu$ V/m) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Results (Pass/Fail) | Worst Avg Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|------------------------------|--------------------------|--|---|------------------|--------------------------|------------------------|---------------------------------------|--|-----------------|-------------------------|-----------------------|---------------------|-----------------------|
| 6493.1          | 53.5                          | 51.7                         | 6.4                      | 59.9                                   | 83.5  | -23.6            | PASS                     | -23.6                  | 58.1                                  | 63.5   | -5.4            | PASS                    | -5.4                  | 167                 | 189                   |
| 7421.9          | 41.1                          | 36.2                         | 6.3                      | 47.4                                   | 83.5  | -36.1            | PASS                     |                        | 42.5                                  | 63.5   | -21             | PASS                    |                       | 200                 | 242                   |
| 8348.2          | 41.6                          | 34.5                         | 7.7                      | 49.3                                   | 83.5  | -34.2            | PASS                     |                        | 42.2                                  | 63.5   | -21.3           | PASS                    |                       | 200                 | 199                   |
| 9896.2          | 38.5                          | 31                           | 9.2                      | 47.7                                   | 83.5  | -35.8            | PASS                     |                        | 40.1                                  | 63.5   | -23.4           | PASS                    |                       | 104                 | 86                    |

|   |  |  |  |  |  |   |  |  |  |  |  |  |  |
|---|--|--|--|--|--|---|--|--|--|--|--|--|--|
| Curtis Straus - a Bureau Veritas Company<br>Radiated Emissions Electric Field 1m Distance<br>Top Peaks Horizontal 6-18GHz<br>Operator: ZJ<br>Notes:<br>High Channel |  |  |  |  |  | Work Order - S2971<br>EUT Power Input - 3.7V DC<br>Test Site - CH-1<br>Conditions - 22.1°C; 33%RH; 1005mBar |  |  |  |  |  |  |  |
|---|--|--|--|--|--|---|--|--|--|--|--|--|--|

Data Taken at 09:40:22 PM, Wednesday, October 24, 2018

| Frequency (MHz) | Raw Peak Reading (dB $\mu$ V) | Correction Factor (dB/m) | Adjusted Peak Amplitude (dB $\mu$ V/m) | Pk Lim: FCC_pt15_109_ClassB_Peak (dB $\mu$ V/m) | Margin to Peak Limit (dB) | Peak Limit Test Results (Pass/Fail) | Peak Limit Worst Margin (dB) | Margin to Avg Limit (dB) | Av Lim: FCC_pt15_109_ClassB_AVG (dB $\mu$ V/m) | Avg Margin (dB) | Avg Limit Test Results (Pass/Fail) | Avg Limit Worst Margin (dB) | Antenna Height (cm) | EUT Azimuth (degrees) |
|-----------------|-------------------------------|--------------------------|--|---|---------------------------|-------------------------------------|------------------------------|--------------------------|--|-----------------|------------------------------------|-----------------------------|---------------------|-----------------------|
| 6493.1          | 50.5                          | 6.4                      | 56.9                                   | 83.5  | -26.6                     | PASS                                | -26.6                        | 63.5                     | -6.6   | PASS            | -6.6                               | 150                         | 224                 |                       |
| 9627.2          | 44.5                          | 9.4                      | 53.9                                   | 83.5  | -29.6                     | PASS                                |                              | 63.5                     | -9.6   | PASS            |                                    | 200                         | 0                   |                       |

## 6-10GHz High Channel



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| 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                      | 4/10/2019              | 4/10/2018            |
| <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         | 30-1000MHz       | 1685         | I            | 12/21/2018             | 12/21/2016             |                      |
| EMI Chamber 1                                  | 719150     | 2762A-6           | A-0015         | 1-18GHz          | 1685         | I            | 12/21/2018             | 12/21/2016             |                      |
| <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> |
| 2444 PA  | 9KHz-6GHz  | BBV9744           | SCWARZBECK     | 67               | 2444         | I            | 2/5/2019               | 2/5/2018               |                      |
| 2111 HF Preamp                                 | 0.5-18GHz  | PAM-118A          | COM-POWER      | 551063           | 2111         | II           | 11/19/2018             | 11/19/2017             |                      |
| 2130 BRF                                       | 9KHz-10GHz | BRM18770          | Micro-Tronics  | 1                | 2130         | II           | 1/10/2019              | 1/10/2018              |                      |
| <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> |
| Red-Black BiLog                                | 30-2000MHz | JB1               | Sunol          | A091604-2        | 1106         | I            | 2/28/2019              | 2/28/2017              |                      |
| Blue Horn                                      | 1-18Ghz    | 3117              | ETS            | 157647           | 1861         | I            | 2/14/2019              | 2/14/2017              |                      |
| <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            | II           | 5/15/2020              | 5/15/2018              |                      |
| TH A#2086                                      | HTC-1      | HDE               |                | 2086             | II           | II           | 3/22/2019              | 3/22/2018              |                      |
| <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           | 10/29/2018             | 10/29/2017             |                      |
| Asset #2466                                    | 9KHz-18GHz |                   | MegaPhase      |                  |              | II           | 10/29/2018             | 10/29/2017             |                      |
| Asset #2480                                    | 9KHz-18GHz |                   | MegaPhase      |                  |              | II           | 10/29/2018             | 10/29/2017             |                      |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



## AC Line Conducted Emissions

### LIMITS

AC line conducted emissions must comply with the conducted emission limits specified in Section 15.207.

### Data Tables:

|  |   |
|--|---|
| Curtis Straus - a Bureau Veritas Company<br>Conducted Emissions per CISPR 16-2-1<br>Peak Detector Data<br>Notes:<br>EUT Line tested: 120VAC/60Hz; Line 1 | Work Order # - S2971<br>EUT Power Input - 120VAC/60Hz<br>Test Site - CEMI-2<br>Conditions: - 22°C; 34%RH; 1003mBar<br>Test Engineer - AKZ |
|--|---|

Data Taken at 10:16:39 AM, Tuesday, December 04, 2018

| Frequency (MHz) | Raw Pk Reading (dB $\mu$ V) | Correction Factor (dB) | Adjusted Pk Amplitude (dB $\mu$ V) | QP Lim: Mains_FCC&CISP R_QP_Class_B (dB $\mu$ V) | Margin to the QP Limit (dB) | Pk to QP Limit Results (Pass/Fail) | Worst Margin (QP Limit) (dB) | Av Lim: Mains_FCC&CISP R_Avg_Class_B (dB $\mu$ V) | Margin to Avg Limit (dB) | Pk to Avg Limit Results (Pass/Fail) | Worst Margin (Avg Limit) (dB) |
|-----------------|-----------------------------|------------------------|------------------------------------|--|-----------------------------|------------------------------------|------------------------------|---|--------------------------|-------------------------------------|-------------------------------|
| 0.161           | 27.9                        | 20                     | 47.9                               | 65.4   | -17.5                       | PASS                               |                              | 55.4  | -7.5                     | PASS                                |                               |
| 0.201           | 23.8                        | 19.9                   | 43.7                               | 63.5   | -19.8                       | PASS                               |                              | 53.5  | -9.8                     | PASS                                |                               |
| 0.232           | 22.6                        | 19.8                   | 42.4                               | 62.4   | -20                         | PASS                               |                              | 52.4  | -10                      | PASS                                |                               |
| 0.294           | 23.2                        | 19.8                   | 43                                 | 60.4   | -17.4                       | PASS                               | -17.4                        | 50.4  | -7.4                     | PASS                                | -7.4                          |
| 0.421           | 16.7                        | 19.8                   | 36.5                               | 57.4   | -20.9                       | PASS                               |                              | 47.4  | -10.9                    | PASS                                |                               |
| 2.709           | 11.5                        | 19.8                   | 31.2                               | 56   | -24.8                       | PASS                               |                              | 46  | -14.8                    | PASS                                |                               |

|  |   |
|--|---|
| Curtis Straus - a Bureau Veritas Company<br>Conducted Emissions per CISPR 16-2-1<br>Peak Detector Data<br>Notes:<br>EUT Line tested: 120VAC/60Hz; Line 2 | Work Order # - S2971<br>EUT Power Input - 120VAC/60Hz<br>Test Site - CEMI-2<br>Conditions: - 22°C; 34%RH; 1003mBar<br>Test Engineer - AKZ |
|--|---|

Data Taken at 10:28:50 AM, Tuesday, December 04, 2018

| Frequency (MHz) | Raw Pk Reading (dB $\mu$ V) | Correction Factor (dB) | Adjusted Pk Amplitude (dB $\mu$ V) | QP Lim: Mains_FCC&CISP R_QP_Class_B (dB $\mu$ V) | Margin to the QP Limit (dB) | Pk to QP Limit Results (Pass/Fail) | Worst Margin (QP Limit) (dB) | Av Lim: Mains_FCC&CISP R_Avg_Class_B (dB $\mu$ V) | Margin to Avg Limit (dB) | Pk to Avg Limit Results (Pass/Fail) | Worst Margin (Avg Limit) (dB) |
|-----------------|-----------------------------|------------------------|------------------------------------|--|-----------------------------|------------------------------------|------------------------------|---|--------------------------|-------------------------------------|-------------------------------|
| 0.18            | 34                          | 20                     | 54.1                               | 64.5   | -10.4                       | PASS                               | -10.4                        | 54.5  | -0.4                     | PASS                                | -0.4                          |
| 0.207           | 31.1                        | 20                     | 51.1                               | 63.3   | -12.2                       | PASS                               |                              | 53.3  | -2.2                     | PASS                                |                               |
| 0.24            | 29.5                        | 19.8                   | 49.3                               | 62.1   | -12.8                       | PASS                               |                              | 52.1  | -2.8                     | PASS                                |                               |
| 0.302           | 27.6                        | 19.8                   | 47.4                               | 60.2   | -12.8                       | PASS                               |                              | 50.2  | -2.8                     | PASS                                |                               |
| 0.347           | 22                          | 19.8                   | 41.8                               | 59   | -17.2                       | PASS                               |                              | 49  | -7.2                     | PASS                                |                               |
| 0.446           | 19.7                        | 19.8                   | 39.5                               | 56.9   | -17.4                       | PASS                               |                              | 46.9  | -7.4                     | PASS                                |                               |

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|  |  |   |                              |                             |                         |  |  |                                   |
|--|--|---|------------------------------|-----------------------------|-------------------------|--|--|-----------------------------------|
| <b>Spectrum Analyzers / Receivers /Preselectors</b><br>Rental EXA Signal Analyzer(1118473) | <b>Range</b><br>9KHz-26.5GHz             | <b>MN</b><br>N9010A-526;N               | <b>Mfr</b><br>AT             | <b>SN</b><br>MY51107076     | <b>Asset</b><br>1118473 | <b>Cat</b><br>I                                  | <b>Calibration Due</b><br>6/19/2019            | <b>Calibrated on</b><br>6/19/2018 |
| <b>LISNs/Measurement Probes</b><br>LISN Asset 1728   | <b>Range</b><br>150KHz-30MHz             | <b>MN</b><br>LI-150A                    | <b>Mfr</b><br>Com-Power      | <b>SN</b><br>201084         | <b>Asset</b><br>1728    | <b>Cat</b><br>I                                  | <b>Calibration Due</b><br>5/16/2019            | <b>Calibrated on</b><br>5/16/2018 |
| LISN Asset 1730  | 150KHz-30MHz                             | LI-150A                                 | Com-Power                    | 201090                      | 1730                    | I  | 4/19/2019                                      | 4/19/2018                         |
| <b>Conducted Test Sites (Mains / Telco)</b><br>CEMI 2                                      | <b>FCC Code</b><br>719150                | <b>VCCI Code</b><br>A-0015              |                              |                             | <b>Cat</b><br>III       | <b>Calibration Due</b><br>NA                     | <b>Calibrated on</b><br>N/A                    |                                   |
| <b>Meteorological Meters/Chambers</b><br>Weather Clock (Pressure Only)<br>TH A#2082        | <b>MN</b><br>BA928<br>HTC-1              | <b>Mfr</b><br>Oregon Scientific<br>HDE  | <b>SN</b><br>C3166-1<br>2082 | <b>Asset</b><br>831<br>2082 | <b>Cat</b><br>I<br>II   | <b>Calibration Due</b><br>5/15/2020<br>3/23/2019 | <b>Calibrated on</b><br>5/15/2018<br>3/23/2018 |                                   |
| <b>Cables</b><br>CEMI-17<br>20dB Attenuator-05   | <b>Range</b><br>9KHz - 2GHz<br>9KHz-2GHz | <b>Mfr</b><br>C-S<br>Aeroflex/Weinschel |                              | <b>SN</b><br>BS9092         | <b>Cat</b><br>II<br>II  | <b>Calibration Due</b><br>11/5/2019<br>8/4/2019  | <b>Calibrated on</b><br>11/5/2018<br>8/4/2018  |                                   |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



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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)<br>NIST<br>CISPR                                      | 5.6dB<br>4.6dB           | N/A<br>5.2dB (Ucispqr)        |
| 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<br>NIST<br>CISPR  | 3.9dB<br>3.6dB           | N/A<br>3.6dB (Ucispqr)        |
| 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%<br>0.3dB            | 5%<br>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**," "**BVCP**," "**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 were 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



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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.

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