Test Report



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

| Report No | EQ1779-1 |
|---|--|
| Client | Ideal Industries, Inc. |
| Address | Becker Place Sycamore, IL 60178 |
| Phone | (815) 895 - 1295 |
| Items tested FCC ID IC ID FRN | ESCGRID1000 2AAMXESCGRID1000 11250A-ESCGRID1000 0002862225 |
| Equipment Type Equipment Code Emission Designator | Digital Transmission System DTS 795KG1D |
| FCC/IC Rule Parts | CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1 |
| Test Dates | June 20, 23, 30, and July 1, 2016 |
| Results | As detailed within this report |
| Prepared by | Christopher Bramley – EMC Engineer |
| Authorized by | Junus Fazilogiu - Sr. EMC Engineer |
| Issue Date | 3/20/2017 |
| Conditions of Issue | This Test Report is issued subject to the conditions stated in the ' <i>Conditions of Testing</i> ' section on page 28 of this report. |

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.





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page 1 of 29

Contents

| Contents | 2 |
|--|----|
| Summary | 3 |
| Test Methodology | |
| Product Tested - Configuration Documentation | 5 |
| Statement of Conformity | 6 |
| Test Results | |
| Bandwidth | 7 |
| Fundamental Emission Output Power | 10 |
| Radiated Spurious Emissions | 13 |
| Conducted Spurious Emissions | |
| Power Spectral Density | |
| AC Line Conducted Emissions | |
| Occupied Bandwidth | 24 |
| Measurement Uncertainty | |
| Conditions Of Testing | |
| | |

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 Part 15.247, ISED Canada RSS-247 Issue 1

The product is the ESCGRID1000. It is a digitally modulated transmitter that operates in the 902.7-927.3MHz frequency range. Product has an internal PCB trace antenna with 3dBi gain.

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

Issue No. 1 Reason for change Original Release Date Issued March 20, 2017



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page 3 of 29

Test Methodology

All testing was performed according to the following rules/procedures/documents; CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1, ISED Canada RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r05 and ANSI C63.10-2013.

Radiated Emissions were maximized by rotating the device around its axes as well as varying the test antenna's height and polarity. AC line conducted emissions testing was performed with a $50\Omega/50\mu$ H LISN. AC side of the support AC/DC brick to the EUT was tested.

RF measurements were performed at the antenna port on 3 channels as follows:

Low channel = 902.7MHz Mid channel = 915MHz High channel = 927.3MHz

The following bandwidths were used during radiated spurious and AC line conducted emissions tests:

| Frequency | RBW | VBW |
|------------|--------|-------|
| 0.15-30MHz | 9kHz | 30kHz |
| 30-1000MHz | 120kHz | 1MHz |
| 1-10GHz | 1MHz | 3MHz |





page 4 of 29

Product Tested - Configuration Documentation

| | | | | | | | • | | | | | | |
|----------------|------------------|-----------------|--|----------------|----------------|-----------------|---------------|----------|-------|--------|--------|------------|--------------------------------------|
| | | | | | | EUT Cont | figuratio n | | | | | | |
| v | Work Order: | Q1779 | | | | | | | | | | | |
| | Company: | Ideal Industri | es, Inc. | | | | | | | | | | |
| Compa | any Address: | Becker Place | | | | | _ | | | | | | |
| | | Sycamore, IL | . 60178 | | | | _ | | | | | | |
| | | | | | | | | | | | | | |
| | Contact: | Tim Tunnell | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | MN PN SN | | | | | | | | | | |
| | EUT: ESCGRID1000 | | | | | | | | | | | | |
| EUT | Description: | Smart Conne | ctor | | | | | | | | | | |
| EUT T | X Frequency: | 902.7-927.3 | MHz | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Port Label | Port | Туре | # ports | # populated | cable | e type | shielded | ferrites | lengt | th (m) | in/out | under test | comment |
| 24VDC power | DC Power | | 1 | 1 | Power | | No | No | 0 | | In | yes | Direct contact with power rail |
| Load | DC Power | | 1 | 1 | Power | | No | No | 1 | | Out | yes | |
| | 1 | | 1 | 1 | 1 | | | 1 | | | 1 | | |
| | * | | • | • | • | | | • | | | • | | |
| Software O | perating Mo | de Descriptio | on: | | | | | | | | | | |
| The EUT is | clipped on to f | the power rail | that carries 24 | 4VDC. EUT p | rovides a DC l | oad output. | | | | | | | |
| For testing th | he EUT was co | onfigured to ch | nange between | 3 channels by | power cycling | g. | | | | | | | |
| - | | - | • | | 7.3MHz. Direc | • | road speatrum | | | | | | |
| Low channel | 1. 902./WITE, I | viiu Channel. | main and a second secon | i Channel. 92 | 7.5WINZ. DIICC | it sequence spi | read spectrum | • | | | | | |





page 5 of 29

Statement of Conformity

| RSS-GEN | RSP-100 | RSS 247 | Part 15 | Comments |
|---------|---------|---------|----------|--|
| 6.3 | | | 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. |
| | 4 | | 15.21 | Information to the user is shown in the instruction |
| | | | 45.07 | manual exhibit. |
| | | | 15.27 | No special accessories are required for compliance. |
| 3, 6.1 | | | 15.31 | The EUT was tested in accordance with the |
| | | | | measurement standards in this section. |
| 6.13 | | | 15.33 | Frequency range was investigated according to this |
| | | | | section, unless noted in specific rule section under |
| | | | | which the equipment operates. |
| 8.1 | | | 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. |
| 8.3 | | | 15.203 | Product has an internal PCB trace antenna with 3dBi |
| | | | | gain. |
| 8.10 | | | 15.205 | The fundamental is not in a Restricted band and the |
| | | | 15.209 | 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 | EUT meets the AC Line conducted emissions |
| | | | | requirements of this section. |
| | | | 15.247 | The unit complies with the requirements of 15.247 |
| | | RSS 247 | | The unit complies with the requirements of RSS-247 |
| 6.6 | | | | Occupied Bandwidth measurements were made. |



B U R E A U VERITAS



Test Results

Bandwidth

LIMIT

The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a) (2)]

MEASUREMENTS / RESULTS

| | | 6d | B Ba | ndwidth | | | | | |
|--|----------------------|------------------------------|-----------------------|--|-------------------------|---------------------------------------|----------|--|---------------------------------------|
| Date: 20-Jun-16 | | Compar | 1y: Ideal I | Industries, Inc. | | | | Work Order | : Q1779 |
| Engineer: Yunus Fazilog | lu | EUT De | sc: ESCO | RID1000 | EUT Op | JT Operating Voltage/Frequency: 24VDC | | | 24VDC |
| Temp: 24.5°C | | Humidi | ty: 44% | Р | ressure: 100 | 8mBar | | | |
| Frequency Range: 902.7MH | z - 927.3MH z | | | | | | | | |
| Notes: Per FCC 5580 | 74 D01 DTS Mea | s Guidance v03 | r05 Sectio | on 8.2 | | | | | |
| Frequency (MHz) | | Measured I | DTS Bandw | vidth (kHz) | | | Minin | num Limit (kHz) | Result |
| 902.7 | | | 653.4 | | | | | 500.0 | Pass |
| 915.0 | | | 653.6 | | | | | 500.0 | Pass |
| 927.3 | | | 656.1 | | | | | 500.0 | Pass |
| Rev. 6/8/2016 Spectrum Analyzers / Receiv MXE EMI Receiv | | Range 20Hz-26.5GHz | MN N9038A | Mfr Agilent | SN MY51210181 | Asset 2093 | Cat I | Calibration Due 7/21/2016 | Calibrated o 7/21/2015 |
| Preamps /Couplers Attenu API - 30dB 20W Atte | | Range 9KHz-40GHz | MN 89-30-11 | Mfr API Weinschel | SN 703 | Asset 2121 | Cat I | Calibration Due 2/10/2017 | Calibrated o 2/10/2016 |
| Meteorological M Weather Clock (Press TH A#2082 | | | MN BA928 HTC-1 | Mfr Oregon Scientific HDE | SN C3166-1 | Asset 831 2082 | Cat I | Calibration Due 4/28/2017 4/5/2017 | Calibrated o 4/28/2016 4/5/2016 |

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



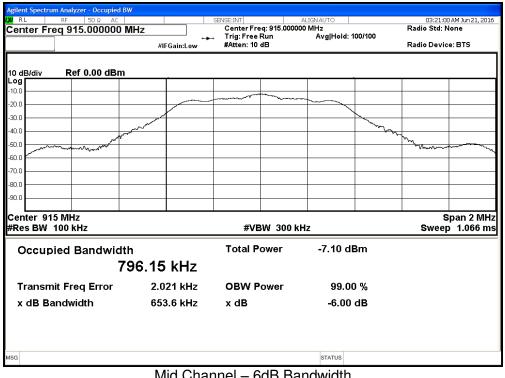


page 7 of 29

PLOT(s)

| | m Analyzer - Occupied BW | / | | | |
|------------|--------------------------|---|------------------------------------|-------------------|---|
| LX/ RL | RF 50 Ω AC | | SENSE:INT Center Freq: 902.7000 | | 03:20:03 AM Jun 21, 2016 Radio Std: None |
| Center Fre | eq 902.700000 M | HZ #IFGain:Low | ⊥ Trig: Free Run #Atten: 10 dB | Avg Hold: 100/100 | Radio Device: BTS |
| | | in Gam.Low | | | 1 |
| 10 dB/div | Ref 0.00 dBm | | | | |
| -10.0 | | | | | |
| -10.0 | | | | ~~~ | |
| | | | | | |
| -30.0 | | and marked and the second s | | - market | |
| -40.0 | | | | ````` | Maria and Lamon |
| -50.0 | | | | | |
| -60.0 | | | | | |
| -70.0 | | | | | |
| -80.0 | | | | | |
| -90.0 | | | | | |
| Center 902 | 2 7 MHz | | | | Span 2 MHz |
| #Res BW 1 | | | #VBW 300 k | Sweep 1.066 ms | |
| Оссирі | ied Bandwidth | 1 | Total Power | -5.65 dBm | |
| | |)3.64 kHz | | | |
| Transmi | it Freq Error | 2.285 kHz | OBW Power | 99.00 % | |
| | - | | | | |
| хавва | ndwidth | 653.4 kHz | x dB | -6.00 dB | |
| | | | | | |
| | | | | | |
| MSG | | | | STATUS | |

Low Channel - 6dB Bandwidth



Mid Channel – 6dB Bandwidth





| | ım Analyzer - Occupied B\ | N | | | | | | | |
|----------------------|---------------------------|---------|------------|----------------------------|---------------|--------------------|--|--------------|---------------------------------------|
| (XIRL | RF 50 Ω AC | | S | ENSE:INT | | LIGN AUTO | | | 7 AM Jun 21, 2016 |
| Center Fr | eq 927.300000 N | /IHz | | Center Fre Trig: Free F | q: 927.300000 | MHz Avg Hold: 1 | 00/400 | Radio Std: I | None |
| | 7 | #IFGair | ⊶+ viow | #Atten: 10 d | | Avginoid. I | 00/100 | Radio Devi | e: BTS |
| | | | neow | | | | | | |
| | | | | | | | | | |
| 10 dB/div Log | Ref 0.00 dBm | | | | | | | | |
| -10.0 | | | | | | | | | |
| -20.0 | | | | | | | | | |
| | | | | | | | | | |
| -30.0 | | | | | | | and the second s | | |
| -40.0 | | www. | | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | m. | |
| -50.0 | | | | | | | | W. Margaren | |
| -60.0 | m | | | | | | | | · · · · · · · · · · · · · · · · · · · |
| -70.0 | | | | | | | | | |
| | | | | | | | | | |
| -80.0 | | | | | | | | | |
| -90.0 | | | | | | | | | |
| | | | | | | | | | |
| Center 92 #Res BW | | | | #\/B | W 300 kH | 7 | | | Span 2 MHz p 1.066 ms |
| #Res DW | | | | #VD | W JOOKI | 2 | | Swee | p 1.000 ms |
| Occur | ied Bandwidt | h | | Total Po | ower | -8.02 dE | ßm | | |
| | | | | | | | | | |
| | 8 | 06.75 k | HZ | | | | | | |
| Transm | nit Freq Error | 2.583 | kHz | OBW P | ower | 99.00 | 1% | | |
| | - | | | | | | | | |
| хавва | andwidth | 656.1 | KHZ | x dB | | -6.00 | aB | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| MSG | | | | | | STATUS | | | |
| | | | | | | 514105 | | | |

High Channel – 6 dB Bandwidth





Fundamental Emission Output Power

Conducted Output Power 1 Watt [15.247(b) (3)]

MEASUREMENTS / RESULTS

| Date: 20-Jun-16 | | Company: Idea | I Industrie | es, Inc. | | | | Work | Order: Q1779 |
|--|---------------------|-----------------------|---------------------|----------------|-------------------------|--|----------|------------------------------|---------------------------|
| Engineer: Yunus Faziloglu | | EUT Desc: ESC | GRID100 | 00 | | EUT Operating Voltage/Frequency: 24VDC | | | |
| Temp: 24.5°C | | Humidity: 44% | , , | | Pressure: 100 | 08mBar | | | |
| requency Range: 902.7MHz | - 927.3MH z | | | | | | | | |
| Notes: Per FCC 558074 | 4 D01 DTS Meas Guid | ance v03r05 Sect | tion 9.2.2. | .2 Method AVG | SA-1 | | | | |
| Frequency (MHz) | Reading (dBm) | Attenuator Los | s (dB) | Power (dBm) | Limit (dB | m) | M | argin (dB) | Result |
| 902.7 | -10.74 | 29.44 | | 18.70 | 30.00 | | | -11.3 | Pass |
| 915.0 | -12.10 | 29.44 | | 17.34 | 30.00 | | | -12.66 | Pass |
| 927.3 | -13.05 | 29.44 | | 16.39 | 30.00 | | | -13.61 | Pass |
| ower(dBm) = Reading(dBm) + | Attenuator Loss(dB) | | | | | | | | |
| ev. 6/8/2016 | | | | | | | | | |
| Spectrum Analyzers / Recei MXE EMI Rece | | Range 20Hz-26.5GHz | MN N9038A | Mfr Agilent | SN MY51210181 | Asset 2093 | Cat I | Calibration Due 7/21/2016 | Calibrated o 7/21/2015 |
| Preamps /Couplers Atter | auatore / Filtore | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated o |

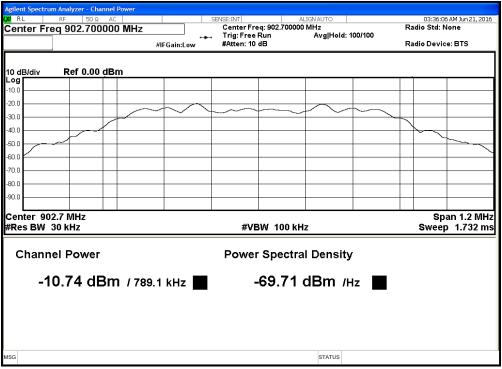
| Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|------------|----------|------------------------------------|--|---|--|--|--|
| 9KHz-40GHz | 89-30-11 | API Weinschel | 703 | 2121 | I | 2/10/2017 | 2/10/2016 |
| | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| | BA928 | Oregon Scientific | C3166-1 | 831 | I. | 4/28/2017 | 4/28/2016 |
| | HTC-1 | HDE | | 2082 | Ш | 4/5/2017 | 4/5/2016 |
| | | 9KHz-40GHz 89-30-11 MN BA928 | 9KHz-40GHz 89-30-11 API Weinschel MN Mfr BA928 Oregon Scientific | 9KHz-40GHz 89-30-11 API Weinschel 703 MN Mfr SN BA928 Oregon Scientific C3166-1 | 9KHz-40GHz 89-30-11 API Weinschel 703 2121 MN Mfr SN Asset BA928 Oregon Scientific C3166-1 831 | 9KHz-40GHz 89-30-11 API Weinschel 703 2121 I MN Mfr SN Asset Cat BA928 Oregon Scientific C3166-1 831 I | 9KHz-40GHz 89-30-11 API Weinschel 703 2121 I 2/10/2017 MN Mfr SN Asset Cat Calibration Due BA928 Oregon Scientific C3166-1 831 I 4/28/2017 |

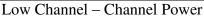
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

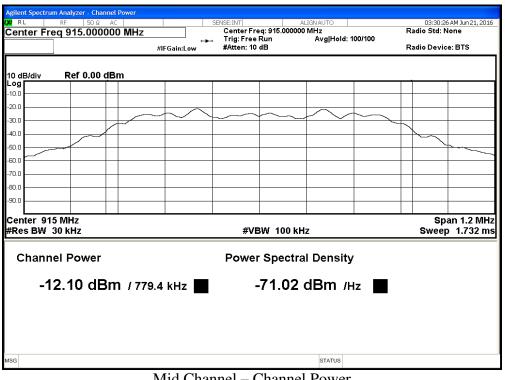




PLOTS













Channel Po

Ref 0.00 dBm

Center Freq 927.300000 MHz

10 dB/div

| | | SENSE:INT | 0 | IGNAUTO | | | 02:22:5 | 1 AM Jun 21, 2016 |
|-----|------------------|--------------------------|----------------|-------------|----------------|-----|------------|-------------------|
| | | Center Fre | q: 927.300000 | MHz | | Rad | lio Std: N | |
| #11 | Gain:Low | Trig: Free #Atten: 10 | | Avg Hold: 1 | 00/100 | Rad | dio Devid | e: BTS |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | ~ | | | | | | | |
| ~ | $\sim \sim \sim$ | | $\sim\sim\sim$ | | $\sim\sim\sim$ | | | |

| -20.0 | | | | |
|---|----------------------|-------|------------------------|---|
| | | | | |
| -40.0 | | | | |
| -50.0 | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |
| -00.0 | | | | |
| -80.0 | | | | |
| -90.0 | | _ | | |
| | | | | |
| Center 927.3 MHz #Res BW 30 kHz | #VBW 100 kHz | Sweep | an 1.2 MHz 1.732 ms | |
| | | | | |
| | | | | |
| Channel Power | Power Spectral Densi | ty | | |
| | - | - | | |
| Channel Power -13.05 dBm / 794.8 kHz | - | - | | |
| | - | - | | |
| | - | - | | |
| | - | - | | |
| | - | - | | |

High Channel – Channel Power





Sep 28, 2016

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

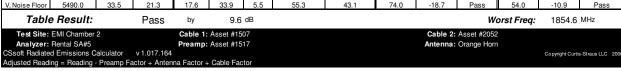
| Date | : 30-Jun-16 | | Company | Ideal Industri | as Inc | | | | | V | Vork Order | · 01779 |
|---|--|---|--|---|---|--|--|--|---|--|--|---|
| Engineer: | | | | ESCGRID10 | | | | | oratir | ng Voltage/ | | |
| Temp | | | Humidity: | | | essure: 1007mBar | | LUI OF | Jeratii | ig voltage/ | riequency | . 24100 |
| Temp: | | | | | Pr | essure: 100/mbar | | | | Distances | 0 | |
| <u></u> | | ncy Range: | | ΗZ | | | | Measur | | t Distance: | - | |
| Notes | Low channel a | nd middle ch | annel | | | | | | EU | T Tx Freq: | 902.7-927.3 | 3MHz |
| Antenna | | | Preamp | Antenna | Cable Adju | eted | | | | | FCC 15.2 | 09 |
| Polarization | Frequency | Reading | Factor | | Factor Rea | | | | | Limit | Margin | Result |
| (H / V) | (MHz) | (dBµV) | (dB) | (dB/m) | (dB) (dBµ | | | | | (dBµV/m) | (dB) | (Pass/Fa |
| w Channel 902.7MHz | | | | | | | | | | | | |
| V | 546.0 | 36.6 | 25.6 | 18.2 | 1.8 31 | .0 | | | | 46.0 | -15.0 | Pass |
| V | 439.0 | 32.4 | 25.7 | 16.7 | 1.5 24 | .9 | | | | 46.0 | -21.1 | Pass |
| V | 78.5 | 46.7 | 25.5 | 7.9 | 0.6 29 | .7 | | | | 40.0 | -10.3 | Pass |
| V | 163.375 | 42.8 | 25.5 | 12.1 | 1.0 30 | .4 | | | | 43.5 | -13.1 | Pass |
| V | 287.0 | 44.9 | 25.7 | 13.4 | 1.3 33 | .9 | | | | 46.0 | -12.1 | Pass |
| v | 30.5 | 33.5 | 25.5 | 21.0 | 0.4 29 | - | | | | 40.0 | -10.6 | Pass |
| Н | 110.0 | 46.9 | 25.6 | 12.6 | 0.8 34 | | | | | 43.5 | -8.8 | Pass |
| /id Channel 915MHz | | | 20.0 | | | | | | | | 0.0 | |
| H | 546.7 | 39.2 | 25.6 | 18.2 | 1.8 33 | 6 | | | l | 46.0 | -12.4 | Pass |
| н | 284.0 | 46.5 | 25.7 | 13.4 | 1.3 35 | - | | | | 46.0 | -10.5 | Pass |
| н | 110.0 | 45.0 | 25.6 | 12.6 | 0.8 32 | - | | | | 43.5 | -10.7 | Pass |
| v | 78.5 | 43.6 | 25.5 | 7.9 | 0.6 26 | - | | | | 40.0 | -13.4 | Pass |
| v | 146.4 | 38.1 | 25.6 | 12.6 | 1.0 26 | - | | | | 40.0 | -17.4 | Pass |
| v | 545.0 | 37.5 | 25.6 | 12.0 | 1.8 31 | | | | | 46.0 | -17.4 | Pass |
| v | 30.0 | 31.5 | 25.6 | 21.4 | 0.4 27 | - | | | | 40.0 | -14.1 | Pass |
| - | e Result: | | | | | .0 | | | | | | |
| j ani | A RACIIIT' | | | | | | | | | | | |
| | | Pass | by | -8.8 d | 5 | | | | | rst Freq: | 110.0 |) IVIHZ |
| Test Site: | EMI Chamber | | Cable 1: | Asset #2051 | 5 | | Cable 2: | | 1784 | rst Freq: | 110.0 | JIMINZ |
| Test Site: Analyzer: | EMI Chamber Gold | 1 | Cable 1: Preamp: | Asset #2051 | 5 | | Cable 2: Antenna: | | 1784 | rst Freq: | | |
| Test Site: Analyzer: Ssoft Radiated Emiss | EMI Chamber Gold ions Calculator | 1 v 1.017.1 | Cable 1: Preamp: 64 | Asset #2051 Green | | | | | 1784 | rst Freq: | | Curtis-Straus LLC |
| Test Site: Analyzer: soft Radiated Emiss justed Reading = Re | EMI Chamber Gold ions Calculator | 1 v 1.017.1 | Cable 1: Preamp: 64 | Asset #2051 Green | | | | | 1784 | rst Freq: | | |
| Test Site: Analyzer: Ssoft Radiated Emiss justed Reading = Re | EMI Chamber Gold ions Calculator ading - Preamp zers / Receiver | 1 v 1.017.1 Factor + An | Cable 1: Preamp: 64 tenna Facto | Asset #2051 Green or + Cable Fa Range | ctor MN | Mfr Agilent | Antenna: SN | Red-Bro | 1784 own Cat | , Calibrati | Copyright C | Curtis-Straus LLC Calibrated |
| Test Site: Analyzer: Ssoft Radiated Emiss justed Reading = Re v. 6/29/2016 Spectrum Analyz | EMI Chamber Gold ading - Preamp zers / Receiver Gold | v 1.017.1 Factor + An s/Preselecto | Cable 1: Preamp: 64 tenna Facto | Asset #2051 Green or + Cable Fa Range 00Hz-26.5 GH | MN z E4407B | Agilent | Antenna: SN MY45113816 | Red-Bro | 1784 own Cat | Calibrati | Copyright C on Due 2017 | Calibrated 1/13/2016 |
| Test Site: Analyzer: Soft Radiated Emiss justed Reading = Re v. 6/29/2016 Spectrum Analyz Radiat | EMI Chamber Gold ions Calculator ading - Preamp zers / Receiver | v 1.017.1 Factor + An s/Preselecto | Cable 1: Preamp: 64 tenna Facto | Asset #2051 Green or + Cable Fa Range | ctor MN | | Antenna: SN | Red-Bro | 1784 own Cat | , Calibrati | Copyright C on Due 2017 on Due | Calibrated 1/13/2010 |
| Test Site: Analyzer: Ssoft Radiated Emiss ijusted Reading = Re 20. 6/29/2016 Spectrum Analyz Radiat | EMI Chamber Gold Gold Ading - Preamp Zers / Receiver Gold ted Emissions S | 1 v1.017.1 Factor + An s /Preselecto | Cable 1: Preamp: 64 tenna Facto ors | Asset #2051 Green or + Cable Fa Range 00Hz-26.5 GH FCC Code 719150 Range | MN z E4407B | Agilent VCCI Code | Antenna: SN MY45113816 Range | Red-Bro | Cat | Calibrati 1/13/2 Calibrati | Copyright C on Due 2017 on Due 2017 on Due | Curtis-Straus LLC |
| Test Site: Analyzer: soft Radiated Emiss justed Reading = Re v. 6/29/2016 Spectrum Analyz Radiat Preamps /Con | EMI Chamber Gold ions Calculator ading - Preamp zers / Receiver Gold ted Emissions S EMI Chamber 1 uplers Attenual Green Antennas | 1 v1.017.1 Factor + An s /Preselecto | Cable 1: Preamp: 64 tenna Facto ors 11 | Asset #2051 Green or + Cable Fa BonHz-26.5 GH FCC Code 719150 Range 009-2000MHz Range | etor z E4407B IC Code 2762A-6 MN z ZFL-1000-LN MN | Agilent VCCI Code A-0015 Mfr CS Mfr | SN MY45113816 Range 30-1000MHz SN N/A SN | Asset 1284 Asset 802 Asset | Cat Cat I Cat II Cat II Cat | Calibrati 1/13/2 Calibrati 3/21/2 Calibrati 9/17/2 Calibrati | Copyright C on Due 2017 on Due 2017 on Due 2016 on Due | Calibrated 1/13/2010 Calibrated 3/21/2011 Calibrated 9/17/2011 Calibrated |
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All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



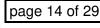


| | : 23-Jun-16 | | <u>^</u> | mnanv | Powercast | Corporat | tion | | | | | w | ork Orde | ar• ∩1 | 779 |
|--|--|---|---|--|---|--|---|--|--|--|--|--|--|--|---|
| | | | | • • | ESCGRID ¹ | • | | | | | | | | | |
| - | : Jason Hale | әу | | | | 1000 | D | | | EULOP | berating | Voltage/F | requenc | y: 24 | VDC |
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| | | quency F | - | -1000MH | Z | | | | | Measur | | istance: 3 | | | |
| Notes | : High Chan | nel (927.3 | BMHz) | | | | | | | | EUT Ma | ax Freq: 9 | 27.3MHz | : | |
| | | | | | | | | | | FCC Class B | | | | | |
| Antenna Polarization | Frequence | cy Rea | | Preamp Factor | Antenna Factor | Cable Factor | Adjusted Reading | Limit | Margin | Resu | ılt | Limit | Margin | | Result |
| (H / V) | (MHz) | (dE | BμV) | (dB) | (dB/m) | (dB) | (dBµV/m) | (dBµV/m) | (dB) | (Pass/ | ail) (c | lBμV/m) | (dB) | (| (Pass/Fail |
| V | 74.33 | | 8.2 | 25.3 | 9.1 | 0.6 | 32.6 | | | | | 40.0 | -7.4 | | Pass |
| V H | 112.4 112.5 | | 3.3 6.3 | 25.2 25.2 | 13.2 13.2 | 0.8 0.8 | 32.1 35.1 | | | | | 43.5 43.5 | -11.4 -8.4 | | Pass Pass |
| | 1 | | | | | | 30.1 | | | | | | - | | |
| | le Resul | | ass | by | -7.4 | | | | | | | t Freq: | - | 33 M⊦ | ΗZ |
| | : EMI Cham | | | | Asset #15 | 07 | | | | 2: Asset # | | | Cable | | |
| | Rental SA | | | reamp: | Blue-Blk | | | | Antenna | a: Red-Bla | ack | P | reselecto | | |
| | ed Emissior ding = Readi | | | .017.164 | no Ecotor | Coble | Footor | | | | | | Copyright C | urtis-Str | raus LLC 2 |
| justed Read | aing = Read | ing - Prea | mp Facto | + Anten | Ta Factor - | + Cable r | actor | | | | | | | | |
| | | | | | | | | | | | | | | | |
| ev. 9/25/2016 Spectrur | ; m Analyzers | Receive | rs /Prese | ectors | Ba | inge | MN | Mfr | SN | Asset | Cat | Calibratio | n Due | Calib | brated o |
| opeouru | | MI Receiv | | 00015 | | 26.5GHz | N9038A | Agilent | MY5121018 | | I | 8/9/20 | | | /9/2016 |
| | | ntennas | | | P - | inge | MN | Mfr | SN | Asset | Cat | Calibratio | n Duc | Call | brated o |
| | | ntennas Black Bilog | a | | | i nge 100MHz | JB1 | Sunol | SN A091604-2 | | | 2/9/20 | | | orated o /9/2015 |
| | | | • | | | | | | | | | | | | |
| | Radiated | | | | | Code | IC Code | VCCI Code | Range | | | Calibratio | | | brated o |
| | EIVII | Chamber 2 | 2 | | /1 | 9150 | 2762A-7 | A-0015 | 1-18GHz | | I | 4/29/20 | 17 | 4/4 | 29/2015 |
| Prea | mps /Couple | ers Attenua | ators / Filt | ers | Ra | inge | MN | Mfr | SN | Asset | Cat | Calibratio | n Due | Calib | brated o |
| | Blu | ue-Black | | | 0.009-2 | 2000MHz | ZFL-1000-LN | CS | N/A | 800 | Ш | 12/27/2 | 016 | 12/ | /27/2015 |
| | | Cables | | | Ra | inge | | Mfr | | | Cat | Calibratio | n Due | Calib | brated o |
| | | Jubico | | | | | | | | | | | | | |
| | Ass | set #1507 | | | 9kHz | - 18GHz | | Florida RF | | | | 2/14/20 | | 2/* | 14/2016 |
| | | set #1507 set #2052 | | | | | | | | | | | 17 | | 14/2016 /2/2016 |
| Il equipment i | Ass | set #2052 | dards trace | able to NI | 9kHz | - 18GHz - 18GHz | recognized cal | Florida RF Florida RF | rd. | | Ш | 2/14/20 | 17 | | |
| | Ass | set #2052 using stand | | able to NI | 9kHz | - 18GHz - 18GHz | r recognized cal | Florida RF Florida RF | rd. | | Ш | 2/14/20 | 17 | | |
| Radiated | Ass is calibrated u Emissio | set #2052 using stand | | | 9kHz ST or other | - 18GHz - 18GHz nationally | - | Florida RF Florida RF | rd. | | Ш | 2/14/20 | 17 17 | 3/ | /2/2016 |
| Radiated Date: 2 | Ass is calibrated u Emissio 23-Jun-16 | set #2052 using stand | | Company | 9kHz ST or other y: Ideal Indu | - 18GHz - 18GHz nationally stries, Inc. | - | Florida RF Florida RF | rd. | | II II | 2/14/20 3/2/20 | 17 17 Work O | 3/ rder: 0 | /2/2016 Q1779 |
| Radiated | Ass is calibrated u Emissio 23-Jun-16 Jason Haley | set #2052 using stand | | Company | 9kHz ST or other y: Ideal Indu c: ESCGRID | - 18GHz - 18GHz nationally stries, Inc. | - | Florida RF Florida RF | | | II II | 2/14/20 | 17 17 Work O | 3/ rder: 0 | /2/2016 Q1779 |
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| Radiated Date: 2 Engineer: J Temp: 2 Notes: 1 | Ass is calibrated u Emissio 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 | set #2052 using stand ons Tab Freque 305.4MHz a | ncy Range | Company EUT Des Humidity : 1-6GHz Iz frequenci | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% | - 18GHz - 18GHz nationally stries, Inc. 01000 | - | Florida RF Florida RF ibration standa Pressure: | 1005mBar | | II II EUT Oper | 2/14/20 3/2/20 ating Volta | Work O ge/Freque | 3/ rder: (ency: 2 | 2/2016 Q1779 24VDC |
| Radiated Date: 2 Engineer: J Temp: 2 Notes: 1 | Ass is calibrated u Emissio 23-Jun-16 Jason Haley 22°C | set #2052 using stand ons Tab Freque 305.4MHz a | ncy Range | Company EUT Des Humidity : 1-6GHz Iz frequenci | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% | - 18GHz - 18GHz nationally stries, Inc. 01000 | | Florida RF Florida RF ibration standa Pressure: | 1005mBar o 30dB down fr | om the | II II EUT Oper Measurem | 2/14/20 3/2/20 ating Volta nent Distance EUT Tx Free | 117 17 Work O ge/Freque æ: 3m q: 902.7-9 | 3/ rder: (ency: 2 927.3M | 2/2/2016 Q1779 24VDC Hz |
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| Antenna Colarization (H/V) Vertical | Ass is calibrated L 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding Frequency (M+z) 1854.6 2781.9 | rest #2052 using stand Ins Tab Freque 305.4MHz a fundamenta Peak Reading ((BlV)) 64.8 35.9 | ncy Range Ind 1830MH al field stren Reading (dBµV) 59,5 24,4 | Company EUT Des Humidity :: 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 20.1 | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% es are not ir Gem actor (dB/m) 27.4 28.9 | - 18GHz - 18GHz nationally stries, Inc. 01000 n a restrict Cable Factor (dB) 3.2 3.7 | ed band, therefor Adjusted Peak Reading (dBµV/m) 76.6 48.4 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 | 1005mBar o 30dB down fi FCC 15.209 H Lim it (dB _L V/m) 101.6 74.0 | om the igh Freque (dB) -25.0 -25.6 | II II EUT Oper Measurem Result (Pass/Fail) Pass Pass | 2/14/20 3/2/20 ating Volta eent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 | 117 17 Work O ge/Freque re: 3m 15.209 Hig Aver (dB (dB (-17. | 3/ rder: C ency: 2 027.3M h Freq age gin 3) .5 .1 | /2/2016 Q1779 24VDC Hz Quency - Result (Pass/Fa Pass Pass |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 C Notes: 1 C Antenna Jolarization (H / V) Vertical Vertical Voise Floor | Ass is calibrated u Emissio 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding Frequency (M+tz) 1854.6 2781.9 3709.2 | rreque Peak Reading (dBµV) 64.8 33.9 | ncy Range and 1830MH I field stren Reading (dBµV) 59.3 24.4 21.9 | Company EUT Des Humidity :: 1-6GHz iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 | 9kHz ST or other y: Ideal Indu c: ESCGRIC y: 37% es are not ir Factor (dB/m) 27.4 28.9 32.1 | - 18GHz - 18GHz nationally stries, Inc. 01000 n a restrict Cable Factor (dB) 3.2 3.7 4.2 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 | 1005mBar ο 30dB down fi FCC 15.209 H Limit (dBμV/m) 101.6 74.0 74.0 | om the igh Freque (dB) -25.0 -25.6 -22.9 | II II EUT Oper Measurem Incy - Pea Result (Pass/Fail) Pass Pass Pass Pass | 2/14/20 3/2/20 ating Volta tent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 54.0 | 117 17 Work O ge/Freque xe: 3m q: 902.7-5 15.209 Hig Aver (dB -10. -11. -14. | 3/ rder: (ency: 2 927.3Mi h Freq age gin .5 .5 .1 .9 | /2/2016 Q1779 24VDC Hz quency - Result (Pass/Fa Pass Pass Pass Pass Pass |
| Antenna Polarization (H/V) Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding Frequency (Mtz) 1854.6 2781.9 3709.2 4636.5 | Freque 305.4MHz a fundamenta Peak Reading (dB _I V) 64.8 35.9 33.9 34.1 | ncy Range and 1830MH I field strem Average Reading (dBµV) 59.3 24.4 21.9 21.3 | Company EUT Des Humidity :: 1-6GHz iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 19.1 | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 | - 18GHz - 18GHz nationally stries, Inc. 10000 Cable Factor (dB) 3.2 3.7 4.2 5.2 | Adjusted Peak Reading (dB _µ V/m) 76.6 48.4 51.1 54.0 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 | 1005mBar o 30dB down fi FCC 15.209 F Limit (dBµV/m) 101.6 74.0 74.0 74.0 | om the igh Freque (dB) -25.0 -25.6 -22.9 -20.0 | II II EUT Oper Measurem Measurem Pass Pass Pass Pass Pass Pass | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBjt//m 81.6 54.0 54.0 54.0 | 117 17 Work O ge/Freque 202.7-9 15.209 Hig Aver 0 (dt -10, -11, -14, -12, | 3/ rder: (2027.3M h Freq age gin 3) 5. 1. 9 8. | /2/2016 Q1779 24VDC Hz Result (Pass/Fa Pass Pass Pass Pass Pass |
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| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 C Notes: 1 C Vertical Vertical Vertical Vertical Vertical Vertical Noise Floor Noise Floor Noise Floor Noise Floor Horizontal | Ass is calibrated u 23-Jun-16 Jason Haley 22°C It854.6MHz, 18 corresponding Frequency (MHz) 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 | Freque 305.4MHz a fundamenta Peak Reading (dB _l V) (64.8 35.9 33.9 34.1 34.0 65.6 39.5 | DIC ncy Range ncy Range Reading (dBµV) 59.3 24.4 21.9 21.3 21.4 60.2 29.3 | Company EUT Des Humidity :: 1-6GHz zs frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% Antenna Factor (dB/m) 27.4 28.9 32.6 33.9 27.4 28.9 32.6 33.9 27.4 28.9 | - 18GHz - 18GHz nationally stries, Inc. 1000 Cable Factor (dB) 3.2 3.7 4.2 5.2 5.5 3.7 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 | 1005mBar ο 30dB down fi FCC 15.209 F Limit (dBμV/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | om the igh Freque (dB) -25.0 -25.6 -22.9 -20.0 -18.2 -24.2 -22.0 | II II II EUT Oper Measurem Measurem Measurem Pass Pass Pass Pass Pass Pass Pass Pas | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dB)//m 81.6 54.0 54.0 54.0 54.0 54.0 54.0 54.0 | 117 17 Work O ge/Freque 202.7-9 15.209 Hig Aver 0 (@@ 201.7-9 14.40 -10. -17. -14. -12. -10. -9. -9. -12. | 3/ rder: (2 227.3M h Freq age 1 9 5.5 .1 9 8.8 6 6 2 | 21779 24VDC Hz Quency - Pass Pass Pass Pass Pass Pass Pass Pas |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 C Notes: 1 C Notes: 1 C Notes: 1 C Vertical Vertical Vertical Vertical Vertical Vertical Noise Floor Noise Floor Noise Floor Horizontal Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 | Peak Peak Peak Peak Reading (dBµV) 64.8 35.9 33.9 34.1 34.0 65.6 39.5 34.8 | Average Reading (dBμV) 59.3 24.4 21.9 21.4 60.2 29.3 21.9 | Company EUT Des Humidit : 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% res are not in Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 | - 18GHz - 18GHz nationally stries, Inc. 01000 Cable Factor (dB) 3.2 3.2 4.2 5.5 3.2 3.2 4.2 | ed band, therefor Peak Reading (dBµ//m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dB _L V/m) 101.6 74.0 74.0 74.0 74.0 101.6 74.0 74.0 101.6 74.0 74.0 | Margin (B) -25.0 -25.0 -22.9 -20.0 -18.2 -22.0 -22.0 | II II II EUT Oper Measurem Measurem Measurem Pass Pass Pass Pass Pass Pass Pass Pas | 2/14/20 3/2/20 ating Volta ment Distance EUT Tx Free k FCC Limit (dBjt//m 81.6 54.0 54 | Work O ge/Freque e: 3m eq: 902.7-9 15.209 Hig Aver (dB -10, -17, -14, -12, -10, -12, -14, -12, -12, | 3/ rder: C ency: 2 227.3M h Freq age gin 5. 1. 9. 8. 8. 6. 2. 9. | 2/2/2016 Q1779 24VDC Hz Quency - Result (Pass/Fa Pass Pass Pass Pass Pass Pass Pass Pa |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Output Notes: 1 Output Vertical Vertical Vertical Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 | Freque 305.4MHz a fundamenta Peak Reading (dBµV) 64.8 33.9 33.9 34.1 34.0 65.6 39.5 34.8 34.5 34.4 | DIC ncy Range ncy Range Reading (dBµV) 59.3 24.4 21.3 21.3 21.3 21.4 21.3 21.3 21.9 21.3 21.9 21.3 21.9 21.5 | Company EUT Des Humidity : 1-6GHz iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 | 9kHz ST or other : ESCGRID : SCGRID : SCGRID : 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 | - 18GHz - 18GHz nationally stries, Inc. 11000 Cable Factor (dB) 3.2 3.7 4.2 5.2 5.5 3.7 4.2 5.2 5.5 | ed band, therefor Adjusted Peak Reading (dBμV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 52.0 54.4 56.2 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 | 1005mBar o 30dB down fi FCC 15.209 F Limit (dBµV/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | Margin (dB) -25.6 -25.6 -22.9 -20.0 -18.2 -24.2 -22.0 -19.6 -17.8 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 | 117 17 17 17 17 17 17 17 17 17 17 17 17 | 3/ rder: (2 027.3M h Freq age jin b 5 5 5 5 1 9 8 8 8 6 2 9 9 7 7 7 | 2/2/2016 Q1779 24VDC Hz Quency - Pass Pass Pass Pass Pass Pass Pass Pas |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Contemport Notes: 1 Contemport Antenna Polarization (H/V) Vertical Vertical Vertical Vertical Vertical Vertical Vertical Vertical Vertical Noise Floor Noise Floor Noise Floor Noise Floor Noise Floor Horizontal | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 | Preque 005.4MHz a 010.4MHz a 010.4M | Average Reading (dBμV) 59.3 24.4 21.9 21.4 60.2 29.3 21.4 60.2 29.3 21.4 60.2 29.3 21.4 60.2 29.3 21.4 60.1 | Company EUT Des Humidit : 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 19.1 19.1 19.1 19.1 19.1 19.1 1 | 9kHz ST or other y: Ideal Indu c: ESCGRID y: 37% Tes are not in Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 | - 18GHz - 18GHz nationally stries, Inc. 01000 Cable Factor (dB) 3.2 5.5 3.7 4.2 5.5 3.2 3.7 4.2 5.2 5.2 3.2 | ed band, therefor Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 54.4 56.2 62.3 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 57.7 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dB _L V/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | m the margin (dB) -25.0 -25.6 -22.0 -20.0 -18.2 -24.2 -24.2 -22.0 -17.8 -41.6 | II II II EUT Oper Measurem (Pass/Fail) Pass Pass Pass Pass Pass Pass Pass Pas | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBji//m 54.0 54. | Work O ge/Freque be: 3m bq: 902.7-5 15.209 Hig Aver (dB (dB (dB (dB (dB (dB (dB (dB (dB (dB | 3/ rder: (acceleration of the second seco | 2/2/2016 Q1779 24VDC Hz Result (Pass/Fa Pass Pass Pass Pass Pass Pass Pass Pa |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Notes: 1 C Antenna Polarization (H/V) Vertical Vertical Noise Floor Noise Floor Noise Floor Horizontal Horizontal Horizontal Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding Frequency (M+tz) 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 | Freque 305.4MHz a fundamenta Peak Reading (dBµV) 64.8 33.9 33.9 34.1 34.0 65.6 39.5 34.8 34.5 34.4 | DIC ncy Range ncy Range Reading (dBµV) 59.3 24.4 21.3 21.3 21.3 21.4 21.3 21.3 21.9 21.3 21.9 21.3 21.9 21.5 | Company EUT Des Humidity : 1-6GHz iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 | 9kHz ST or other : ESCGRID : SCGRID : SCGRID : 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 | - 18GHz - 18GHz nationally stries, Inc. 11000 Cable Factor (dB) 3.2 3.7 4.2 5.2 5.5 3.7 4.2 5.2 5.5 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 52.0 54.4 56.2 62.3 47.3 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 | 1005mBar o 30dB down fi FCC 15.209 F Limit (dBµV/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | Margin (dB) -25.6 -25.6 -22.9 -20.0 -18.2 -24.2 -22.0 -19.6 -17.8 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 | 117 17 17 17 17 17 17 17 17 17 17 17 17 | 3/ rder: (population of the second | 2/2/2016 Q1779 24VDC Hz Quency - Pass Pass Pass Pass Pass Pass Pass Pas |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Contemportant Notes: 1 Contemportant Notes: 1 Vertical Vertical Vertical Vertical Vertical Vertical Vertical Vertical Vertical Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C Frequency (M+z) 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1805.4 2781.9 3709.2 4636.5 | Preque 305.4MHz a fundamenta Peak Reading (dBµV) 64.8 35.9 34.1 34.0 65.6 39.5 34.8 34.4 50.7 35.2 34.4 34.7 32.5 | Average Reading (dBμV) 59.3 21.4 21.9 21.4 60.2 29.3 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.2 | Company EUT Des Humidit : 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.7 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 | 9kHz ST or other :: ldeal Induu :: ESCGRIE y: 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 32.4 | - 18GHz - 18GHz nationally stries, Inc. 01000 Cable Factor (dB) 3.27 4.2 5.5 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.0 | ed band, therefor Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 54.4 52.0 54.4 56.2 62.3 47.3 51.6 52.0 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 43.2 72.0 41.3 39.1 41.3 43.3 57.7 33.9 39.0 40.7 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dB _L V/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | m the margin (dB) -25.0 -25.6 -22.0 -20.0 -18.2 -24.0 -22.0 -22.0 -22.0 -17.8 -41.6 -26.7 -22.4 -22.4 -22.0 | II II II EUT Oper Measurem Measurem (Pass/Fail) Pass Pass Pass Pass Pass Pass Pass Pas | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBji//m 54.0 54. | Mork O ge/Freque wer 3m rg: 902.7-5 15.209 Hig Aver (df) -10. -11. -12. -10. -14. -12. -10. -11. -12. -10. -10. -12. -10. -12. -10. -12. -10. -12. -14. -12. -14. -12. -10. -26. -20. -13. | 3/ rder: C page 27.3MI h Freca age 27.3MI h Freca age 28.8 5.5 1.1 9.9 5.5 1.1 9.9 5.5 1.1 9.9 7.7 7.7 2.2 1.0 0.3 1.1 1.2 1.2 1.2 1.2 1.2 1.2 1.2 | 2/2/2016 Q1779 24VDC Hz Quency - Pass |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Notes: 1 Notes: 1 Contribution (H/V) Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding Frequency (M+tz) 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5565.8 1805.4 2708.1 3610.8 451.5 5541.2 | Preque 305.4MHz a fundamenta (dBµV) 64.8 33.9 34.1 34.0 65.6 39.5 34.4 50.7 34.7 35.2 34.7 32.2 | DIC ncy Range Ind 1830MH I field strend Reading (dBµV) 59.3 24.4 21.9 21.4 21.3 21.4 21.9 21.4 21.5 46.1 21.8 22.1 22.8 22.1 22.8 | Company EUT Des Humidity :: 1-6GHz iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 19.1 17.9 17.6 18.8 20.1 19.1 19.1 17.9 17.6 19.1 19.1 19.1 19.1 19.1 19.1 19.1 19 | 9kHz ST or other : ESCGRIC y: 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 | - 18GHz - 18GHz nationally stries, Inc. 1000 Cable Factor (dB) 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.5 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 54.4 52.0 54.4 56.2 47.3 51.6 52.0 54.0 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adgusted Adgusted Adgusted Adgusted Adgusted Adgusted Ag Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 57.7 33.9 39.0 40.7 42.6 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dBuV/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | Margin (dB) -25.6 -22.9 -24.2 -24.2 -24.2 -22.0 -19.6 -17.8 -41.6 -22.0 -22.0 -22.0 -22.0 -22.0 -22.0 -20.0 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ment Distance EUT Tx Free k FCC Limit (dBµV/m) 54.0 54 | 117 17 17 17 17 17 17 17 17 17 | 3/ rder: C ency: 2 327.3M h Freq age age age age age age age age | 2/2/2016 Q1779 24VDC Hz quency - Result (Pass/Fa Pass Pass Pass Pass Pass Pass Pass Pa |
| Antenna Polarization (H/V) Vertical Voise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 isorresponding 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1805.4 2708.1 3610.8 4513.5 5416.2 1805.4 | Preque Trab Freque 305.4MHz a 100.5.4MHz a Trab Break Reading Reading 0.64.8 33.9 34.1 34.1 34.1 34.1 34.1 34.1 34.1 34.1 34.4 5 34.7 34.7 34.7 32.2 47.1 | DIE nrcy Range red 1830MH 1 field stren Reading (dBµV) 59.3 24.4 21.9 21.3 21.4 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.3 21.9 21.4 21.9 21.3 21.9 21.4 21.9 21.3 21.9 21.4 21.9 21.3 21.4 21.9 21.4 21.5 46.1 21.2 20.8 20.1 20.4 20.2 20.3 21.9 21.4 21.5 46.1 21.2 20.8 20.1 20.1 20.2 20.2 20.2 20.2 20.2 20.2 20.2 20.4 20.2 20.2 20.4 20.2 20.2 20.4 20.2 20.2 20.4 20.2 20.4 20.2 20.4 20.2 20.4 20.2 20.2 20.4 20.2 20.4 | Company EUT Des Humidity :: 1-6GHz iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.6 18.8 20.1 19.1 19.1 17.6 18.8 20.1 19.1 19.1 17.6 18.8 20.1 19.1 19.1 19.1 19.1 19.1 19.1 19.1 1 | 9kHz ST or other : ESCGRID : ST or other : ESCGRID : 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 32.4 33.9 27.2 | - 18GHz - 18GHz nationally stries, Inc. 1000 - a restrict Factor (dB) 3.2 3.7 4.2 5.5 3.2 5.5 3.2 5.5 3.2 3.7 4.5 5.5 3.2 3.2 3.2 | Adjusted Peak Reading (dBμV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.0 58.7 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 57.7 33.9 39.0 40.7 42.6 51.8 | 1005mBar o 30dB down fi FCC 15.209 F Limit (dBμV/m) 101.6 74.0 74 | m the margin (dB) -25.0 -25.0 -25.0 -25.0 -25.0 -22.0 -22.0 -24.2 -24.2 -24.2 -24.2 -19.6 -17.8 -41.6 -26.7 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.5 -22.9 -22.0 -22.5 -22.9 -22.0 -24.2 -24.2 -24.2 -24.2 -24.2 -25.0 -25.0 -25.0 -25.0 -24.2 -24.2 -24.2 -24.2 -24.2 -24.2 -25.0 -25.0 -25.0 -25.0 -25.0 -25.0 -22.9 -24.2 -22.0 -22.0 -25.0 -22.0 -25.2 -2 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 | 117 17 Work O ge/Freque 20: 3m 15.209 Hig Aver 15.209 Hig Aver (de 10. -10. -17. -14. -12. -10. -12. -14. -12. -10. -12. -14. -12. -13. -13. -20. -2 | 3/ rder: (2 227.3M h Freq age () h Freq age () () () () () () () () () () | 2/2/2016 Q1779 24VDC Hz Quency - Pass Pass Pass Pass Pass Pass Pass Pas |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Notes: 1 Notes: 1 Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 5000000000000000000000000000000000000 | Preque 305.4MHz a fundamenta (dBµV) 64.8 33.9 34.1 34.0 65.6 39.5 34.4 50.7 34.7 35.2 34.4 50.7 34.3 34.0 | Average Reading (dB _i V) 59.3 24.4 21.9 21.3 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.5 46.1 21.9 21.4 21.5 46.1 21.8 22.1 21.4 21.8 22.1 22.1 | Company EUT Des Humidit : 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 | 9kHz ST or other : ESCGRIC y: 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 | - 18GHz - 18GHz nationally stries, Inc. 01000 a restrict Cable Factor (dB) 3.2 5.5 3.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.5 3.2 3.6 4.5 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 54.4 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.0 54.0 54.2 62.3 47.3 51.6 52.0 54.0 54.0 54.0 54.0 55.0 54.0 54.0 55.0 54.0 55.0 54.0 55.0 54.0 55.0 54.0 55.0 55 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adguste | 1005mBar o 30dB down fi FCC 15.209 H Limit (dBuV/m) 101.6 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 | Margin (dB) -25.6 -25.6 -22.9 -20.0 -18.2 -24.2 -22.0 -19.6 -17.8 -26.7 -22.0 -26.7 -22.0 -27.7 -22.0 -27.7 -23.1 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ating Volta a | 117 17 17 17 17 17 17 17 17 17 | 3/ rder: C 227.3M h Freq age 327.3M h Freq age 327.3M h Freq 327.3M h Freq 338.8 h Freq 348.8 h Freq 348.8 | 2/2/2016 Q1779 24VDC Hz quency - Pass Pass Pass Pass Pass Pass Pass Pas |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Notes: 1 Control (H/V) Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 1854.6 2781.9 3709.2 4636.5 5563.8 1864.6 2781.9 3709.2 4636.5 5563.8 1864.6 2781.9 361.0 2781.0 2781.0 361.0 2781.0 2781.0 361.0 2781.0 2781.0 361.0 2781.0 361.0 2781.0 2781.0 361.0 2781.0 2781.0 361.0 278 | Peak Peak Reading (dBµV) 64.8 33.9 34.1 34.1 34.1 34.1 34.1 34.1 34.1 34.2 34.3 34.4 50.7 32.5 34.4 32.7 34.2 34.4 34.7 32.5 32.7 34.7 32.6 34.7 32.2 47.1 34.2 34.0 33.1 | Average Reading (dBµV) 59.3 24.4 21.9 21.3 21.4 21.9 21.3 21.4 21.3 21.4 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 21.5 46.1 21.5 21.5 21.5 21.5 21.5 21.5 21.5 21 | Company EUT Des Humidity :: 1-6GHz Iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 | 9kHz ST or other : ESCGRID : ESCGRID : 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 32.4 33.9 27.2 28.8 31.5 32.4 | - 18GHz - 18GHz nationally stries, Inc. 1000 - a restrict Factor (dB) 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.0 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.0 54.0 58.7 46.3 50.9 52.6 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adgusted Adgusted Adgusted Adgusted Ag Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 57.7 33.9 39.0 40.7 42.6 51.8 33.9 38.9 40.7 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dBμV/m) 101.6 74.0 74 | m the margin (dB) -25.0 -25.0 -25.0 -25.0 -25.0 -22.0 -22.0 -22.0 -24.2 -24.2 -24.2 -22.0 -19.6 -17.8 -41.6 -26.7 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.1 -22.1 -21.1 -21.1 -21.1 -22.1 -21.1 -2 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 | 117 17 17 17 17 17 17 17 17 17 | 3/ rder: (2 227.3M h Freq age 10 5.5 1.1 9.8 8.8 6 6 2.2 9.7 7.7 7.2 1.1 0.3 3.4 4.1 1.1 1.3 | 2/2/2016 Q1779 24VDC Hz Quency - Result (Pass/Fa Pass |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Contemport Notes: 1 Contemport Polarization (H/V) Vertical Vertical Vertical Vertical Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22*C 1854.6MHz, 16 corresponding Frequency (M+z) 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1855.4 2708.1 3610.8 4513.5 5416.2 | Preque 005.4MHz a fundamenta Peak Reading (dBµV) (dBµV) (dBµV) 33.9 34.1 34.0 65.6 39.5 34.4 50.7 35.2 34.4 50.7 35.4 34.7 32.5 32.4.7 32.5 32.4.7 32.5 32.9 | Average Reading (dBμV) 59.3 24.4 21.9 21.4 60.2 29.3 21.4 61.1 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.9 21.4 21.2 20.8 40.0.2 21.8 22.0 21.8 22.0 | Company EUT Des Humidit : 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 17.9 17.6 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 17.9 17.9 17.6 17.9 17.9 | 9kHz ST or other : Ideal Indu :: ESCGRIE y: 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 32.4 33.9 27.2 28.8 31.5 32.4 33.9 | - 18GHz - 18GHz nationally stries, Inc. 01000 Cable Factor (dB) 3.2 5.5 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.0 5.5 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 54.4 52.0 54.4 52.0 54.4 52.0 54.4 52.0 54.4 52.0 54.0 52.0 54.0 52.0 54.0 52.0 54.0 52.0 54.0 52.0 54.0 52.0 54.7 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Avg Reading (dBµV/m) (dBµV/m) (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 43.2 72.0 41.3 39.1 41.3 43.2 72.0 41.3 39.1 41.3 43.2 72.7 8 9.0 40.7 42.6 51.8 33.9 38.9 40.7 42.7 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dB ₁ V/m) 101.6 74.0 7 | om the Margin (dB) -25.0 -25.6 -22.0 -20.0 -18.2 -24.2 -24.2 -22.0 -22.0 -22.0 -22.0 -17.8 -41.6 -26.7 -22.4 -22.4 -22.4 -22.2 -22.4 -22.2 -22.4 -22.7 -23.1 -21.4 -19.3 | II II II EUT Oper Measurem Measurem (Pass/Fail) Pass Pass Pass Pass Pass Pass Pass Pas | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBji/Vm 54.0 54. | Work O ge/Freque be: 3m fq: 902.7-5 15.209 Hig Aver (df) -10, -17, -14, -12, -10, -9, -14, -12, -10, -26, -20, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -11, -15, -13, -13, -14, -15, -15, -15, -15, -15, -15, -15, -15 | 3/ rder: (2 3/27.3M/ 3/27.3M/ 3/27.3M/ 5/ | 24VDC Hz quency - Pass Pass Pass Pass Pass Pass Pass Pas |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Notes: 1 Control (H/V) Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 1854.6 2781.9 3709.2 4636.5 5563.8 1864.6 2781.9 3709.2 4636.5 5563.8 1864.6 2781.9 361.0 2781.0 2781.0 361.0 2781.0 2781.0 361.0 2781.0 2781.0 361.0 2781.0 361.0 2781.0 2781.0 361.0 2781.0 2781.0 361.0 278 | Peak Peak Reading (dBµV) 64.8 33.9 34.1 34.1 34.1 34.1 34.1 34.1 34.1 34.2 34.3 34.4 50.7 32.5 34.4 32.7 34.2 34.4 34.7 32.5 32.7 34.7 32.6 34.7 32.2 47.1 34.2 34.0 33.1 | Average Reading (dBµV) 59.3 24.4 21.9 21.3 21.4 21.9 21.3 21.4 21.3 21.4 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 46.1 21.5 21.5 46.1 21.5 21.5 21.5 21.5 21.5 21.5 21.5 21 | Company EUT Des Humidity :: 1-6GHz Iz frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 17.6 18.8 20.3 19.1 17.9 | 9kHz ST or other : ESCGRID : ESCGRID : 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 32.4 33.9 27.2 28.8 31.5 32.4 | - 18GHz - 18GHz nationally stries, Inc. 1000 - a restrict Factor (dB) 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.0 | Adjusted Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.0 54.0 58.7 46.3 50.9 52.6 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adgusted Adgusted Adgusted Adgusted Ag Reading (dBµV/m) 71.1 36.9 39.1 41.2 43.2 72.0 41.8 39.1 41.3 43.3 57.7 33.9 39.0 40.7 42.6 51.8 33.9 38.9 40.7 | 1005mBar o 30dB down fi FCC 15.209 H Limit (dBμV/m) 101.6 74.0 74 | m the margin (dB) -25.0 -25.0 -25.0 -25.0 -25.0 -22.0 -22.0 -22.0 -24.2 -24.2 -24.2 -22.0 -19.6 -17.8 -41.6 -26.7 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.0 -22.4 -22.1 -22.1 -21.1 -21.1 -21.1 -22.1 -21.1 -2 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ent Distance EUT Tx Free k FCC Limit (dBµV/m 81.6 54.0 | 117 17 17 17 17 17 17 17 17 17 | 3/ rder: C 2 327.3M h Freq agin) 5.5 1.1 .9 .8 .8 .6 .2 .9 .7 .7 .2 .1 .0 .3 .4 .1 .1 .1 .3 .3 .0 .0 .3 .4 .4 .5 .5 .1 .1 .3 .4 .5 .5 .1 .1 .3 .4 .5 .5 .1 .1 .3 .4 .5 .5 .1 .1 .3 .4 .5 .5 .1 .1 .3 .5 .5 .1 .1 .3 .4 .5 .5 .1 .1 .3 .4 .5 .5 .1 .1 .3 .5 .5 .1 .1 .3 .3 .4 .5 .5 .1 .1 .3 .3 .5 .1 .1 .3 .4 .5 .1 .1 .3 .4 .5 .1 .1 .3 .5 .1 .1 .3 .4 .1 .1 .3 .3 .4 .1 .1 .3 .3 .4 .1 .1 .3 .3 .4 .1 .1 .3 .3 .4 .1 .1 .3 .3 .4 .1 .1 .3 .3 .4 .1 .1 .3 .3 .3 .4 .1 .1 .3 .3 .3 .3 .4 .1 .1 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 | 2/2/2016 Q1779 24VDC Hz Quency - Result (Pass/Fa Pass |
| Addiated Date: 2 Engineer: J Temp: 2 Notes: 1 Notes: 1 Notes: 1 Vertical Vertical Noise Floor Noise Floor | Ass is calibrated u 23-Jun-16 Jason Haley 22°C 1854.6MHz, 18 corresponding Frequency (M+tz) 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1854.6 2781.9 3709.2 4636.5 5563.8 1805.4 2708.1 3610.8 4513.5 5416.2 1805.4 2708.1 3610.8 | Preque 0052 Preque 005.4MH2 at 1010 005.4MH2 at 1010 64.8 33.9 34.1 34.0 65.6 39.5 34.8 34.7 35.2 34.4 50.7 34.5 34.4 50.7 34.2 34.1 34.0 65.6 39.5 34.1 34.0 65.2 34.4 50.7 32.5 32.2 47.1 32.9 51.0 | Average Reading (dBµV) 59.3 24.4 21.9 21.3 21.4 21.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.8 22.9 21.9 21.8 22.9 21.8 21.8 21.8 21.8 21.8 21.8 21.8 21.8 | Company EUT Des Humidit :: 1-6GHz z frequenci gth level. Preamp Factor (dB) 18.8 20.1 19.1 17.9 17.6 18.8 20.3 19.1 17.9 | 9kHz ST or other : ESCGRIE y: 37% Antenna Factor (dB/m) 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.4 28.9 32.1 32.6 33.9 27.2 28.8 31.5 32.4 33.9 27.2 28.8 31.5 32.4 33.9 27.3 | - 18GHz - 18GHz nationally stries, Inc. 01000 Cable Factor (dB) 3.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.5 3.2 3.6 4.5 5.5 3.2 3.6 4.5 5.5 3.2 3.7 4.2 5.5 3.2 3.6 4.5 5.5 3.2 3.7 4.5 5.5 3.2 3.6 4.5 5.5 3.2 3.7 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5 | ed band, therefor Peak Reading (dBµV/m) 76.6 48.4 51.1 54.0 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 56.2 62.3 47.3 51.6 52.0 54.0 54.2 62.3 47.3 51.6 52.0 54.0 54.0 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 52.0 54.4 55.8 77.4 55.0 54.0 55.8 77.4 55.0 54.0 55.7 46.3 50.9 52.6 54.7 62.7 | Florida RF Florida RF ibration standa Pressure: e limit was set t Adjusted Adguste | 1005mBar o 30dB down fi FCC 15.209 H Limit (dBuV/m) 101.6 74.0 74. | Margin (dB) -25.6 -25.6 -22.9 -20.0 -18.2 -24.2 -22.0 -19.6 -17.8 -22.0 -22.0 -22.0 -22.0 -22.0 -22.0 -22.0 -20.0 -21.7 -22.0 -20.0 -41.6 -26.7 -27.7 -23.1 -21.9.3 -41.2 | II II II II II II II II II II II II II | 2/14/20 3/2/20 ating Volta ating Volta a | 117 17 17 17 17 17 17 17 17 17 | 3/ rder: C 2 027.3M/ b) 55 5 9 9 8 8 6 6 2 9 7 7 2 1 1 3 3 4 1 1 1 3 3 0 1 1 9 9 8 8 8 8 6 6 2 9 9 7 7 7 7 7 7 7 7 7 7 7 7 7 | 2/2/2016 24VDC Hz quency - Result (Pass/Fa Pass |





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ACCREDITED Testing Cert. No. 1627-0

| Sep | 28, | 2016 | |
|-----|-----|------|--|
|-----|-----|------|--|

| | 23-Jun-16 | | | Company: | | | | | | | | | Vork Order: | |
|----------------------------------|------------------|--------------|--------------------------|--------------|--------------|------------|--------------|--------------|--------------|----------------|--------------|--------------|-------------------------|--------------|
| Engineer: | Jason Haley | | | EUT Desc: | | 1000 | | | | | EUT Operat | ing Voltage/ | Frequency: | 24Vdc |
| Temp: | 22°C | | | Humidity: | 37% | | | Pressure: | 1005mBar | | | | | |
| | | Freque | ncy Range: | 6-10GHz | | | | | | | Measureme | nt Distance: | 1m | |
| Notes: | | | EUT Tx Freq: 902.7-927.3 | | | | | | 902.7-927.3 | ЛНz | | | | |
| Antenna | | Peak | Average | Preamp | Antenna | Cable | Adjusted | Adjusted | FCC 15.209 | High Frequ | ency - Peak | FCC 15.2 | 209 High Fre Average | quency - |
| Polarization | Frequency | Reading | Reading | Factor | Factor | Factor | Peak Reading | Avg Reading | Limit | Margin | Result | Limit | Margin | Result |
| (H / V) | (MHz) | (dBµV) | (dBµV) | (dB) | (dB/m) | (dB) | (dBµV/m) | (dBµV/m) | (dBµV/m) | (dB) | (Pass/Fail) | (dBµV/m) | (dB) | (Pass/Fai |
| /, Noise floor | 6405.0 | 32.4 | 20.8 | 17.3 | 34.9 | 6.1 | 56.1 | 44.5 | 83.5 | -27.4 | Pass | 63.5 | -19.0 | Pass |
| /, Noise floor | 7320.0 | 32.0 | 20.7 | 17.0 | 37.6 | 6.7 | 59.3 | 48.0 | 83.5 | -24.2 | Pass | 63.5 | -15.5 | Pass |
| , Noise floor | 8235.0 | 33.1 | 21.1 | 17.4 | 37.5 | 6.7 | 59.9 | 47.9 | 83.5 | -23.6 | Pass | 63.5 | -15.6 | Pass |
| , Noise floor | 9150.0 | 34.2 | 21.6 | 17.2 | 37.8 | 7.1 | 61.9 | 49.3 | 83.5 | -21.6 | Pass | 63.5 | -14.2 | Pass |
| I, noise floor | 6405.0 | 32.6 | 20.8 | 17.3 | 34.9 | 6.1 | 56.3 | 44.5 | 83.5 | -27.2 | Pass | 63.5 | -19.0 | Pass |
| l, noise floor | 7320.0 | 33.5 | 20.8 | 17.0 | 37.6 | 6.7 | 60.8 | 48.1 | 83.5 | -22.7 | Pass | 63.5 | -15.4 | Pass |
| l, noise floor | 8235.0 | 33.0 | 21.0 | 17.4 | 37.5 | 6.7 | 59.8 | 47.8 | 83.5 | -23.7 | Pass | 63.5 | -15.7 | Pass |
| l, noise floor | 9150.0 | 33.1 | 21.7 | 17.2 | 37.8 | 7.1 | 60.8 | 49.4 | 83.5 | -22.7 | Pass | 63.5 | -14.1 | Pass |
| l, noise floor | 6318.9 | 31.8 | 20.8 | 17.2 | 35.0 | 6.0 | 55.6 | 44.6 | 83.5 | -27.9 | Pass | 63.5 | -18.9 | Pass |
| I, noise floor | 7221.6 | 33.2 | 21.7 | 16.6 | 37.1 | 6.6 | 60.3 | 48.8 | 83.5 | -23.2 | Pass | 63.5 | -14.7 | Pass |
| l, noise floor | 8124.3 | 31.9 | 21.1 | 16.9 | 37.4 | 6.7 | 59.1 | 48.3 | 83.5 | -24.4 | Pass | 63.5 | -15.2 | Pass |
| l, noise floor | 9027.0 | 32.9 | 21.2 | 17.2 | 37.9 | 7.1 | 60.7 | 49.0 | 83.5 | -22.8 | Pass | 63.5 | -14.5 | Pass |
| /, Noise floor | 6318.9 | 31.8 | 20.8 | 17.2 | 35.0 | 6.0 | 55.6 | 44.6 | 83.5 | -27.9 | Pass | 63.5 | -18.9 | Pass |
| Vertical | 7221.6 | 34.6 | 25.0 | 16.6 | 37.1 | 6.6 | 61.7 | 52.1 | 83.5 | -21.8 | Pass | 63.5 | -11.4 | Pass |
| /, Noise floor | 8124.3 | 33.4 | 21.2 | 16.9 | 37.4 | 6.7 | 60.6 | 48.4 | 83.5 | -22.9 | Pass | 63.5 | -15.1 | Pass |
| /, Noise floor | 9027.0 | 32.4 | 21.2 | 17.2 | 37.9 | 7.1 | 60.2 | 49.0 | 83.5 | -23.3 | Pass | 63.5 | -14.5 | Pass |
| /, Noise floor | 6491.1 7418.4 | 31.7 36.2 | 21.0 28.8 | 17.4 17.2 | 34.9 37.5 | 6.2 6.7 | 55.4 63.2 | 44.7 55.8 | 83.5 83.5 | -28.1 -20.3 | Pass Pass | 63.5 63.5 | -18.8 -7.7 | Pass Pass |
| Vertical | | | | | | - | | | | | | | | |
| /, Noise floor | 8345.7 9273.0 | 32.1 33.3 | 20.9 21.1 | 17.5 17.3 | 37.7 37.9 | 6.7 7.1 | 59.0 61.0 | 47.8 48.8 | 83.5 83.5 | -24.5 -22.5 | Pass Pass | 63.5 63.5 | -15.7 -14.7 | Pass Pass |
| /, Noise floor H, noise floor | 9273.0 6491.1 | 33.3 | 21.1 | 17.3 | 37.9 | 6.2 | 56.0 | 48.8 44.6 | 83.5 83.5 | -22.5 -27.5 | Pass | 63.5 | -14.7 | Pass |
| H, noise floor | 7418.4 | 32.3 | 20.9 | 17.4 | 34.9 | 6.7 | 60.1 | 44.6 | 83.5 | -27.5 | Pass | 63.5 | -16.9 | Pass |
| H, noise floor | 8345.7 | 31.4 | 20.9 | 17.5 | 37.5 | 6.7 | 58.3 | 48.0 | 83.5 | -25.2 | Pass | 63.5 | -15.5 | Pass |
| H, noise floor | 9273.0 | 32.6 | 20.9 | 17.3 | 37.9 | 7.1 | 60.3 | 48.8 | 83.5 | -23.2 | Pass | 63.5 | -13.7 | Pass |
| | e Result: | | Pass | by | -7.7 | dB | | | | | | orst Freq: | 7418.4 | |
| Test Site: | EMI Chamber | 2 | | Cable 1: | Asset #15 | 07 | | _ | _ | Cable 2: | Asset #2052 | | _ | |
| | Rental SA#5 | | | Preamp: | Asset #15 | 17 | | | | Antenna: | Orange Horn | | | |
| Soft Radiate | d Emissions C | alculator | v 1.017.164 | | | | | | | | | | Copyright Curtis | Straug LLC |

| Rev. 9/25/2016 Spectrum Analyzers / Receivers /Preselectors MXE EMI Receiver | Range 20Hz-26.5GHz | MN N9038A | Mfr Agilent | SN MY51210181 | Asset 2093 | Cat | Calibration Due 8/9/2017 | Calibrated on 8/9/2016 |
|--|--|----------------------|--|-------------------------|----------------------|-----------------|---|--|
| Radiated Emissions Sites EMI Chamber 2 | FCC Code 719150 | IC Code 2762A-7 | VCCI Code A-0015 | Range 30-1000MHz | | Cat II | Calibration Due 3/22/2017 | Calibrated on 3/22/2015 |
| Preamps /Couplers Attenuators / Filters 1517 HF Preamp | Range 1-20GHz | MN CS | Mfr CS | SN N/A | Asset 1517 | Cat II | Calibration Due 8/14/2017 | Calibrated on 8/14/2016 |
| Antennas Orange Horn | Range 1-18GHz | MN 3115 | Mfr EMCO | SN 0004-6123 | Asset 390 | Cat | Calibration Due 10/13/2016 | Calibrated on 10/13/2014 |
| Meteorological Meters Weather Clock (Pressure Only) TH A#2081 | | MN BA928 HTC-1 | Mfr Oregon Scientific HDE | SN C3166-1 | Asset 831 2081 | Cat I | Calibration Due 4/28/2018 4/5/2017 | Calibrated on 4/28/2016 4/5/2016 |
| Cables Asset #1507 Asset #2052 | Range 9kHz - 18GHz 9kHz - 18GHz | | Mfr Florida RF Florida RF | | | Cat II II | Calibration Due 2/14/2017 3/2/2017 | Calibrated on 2/14/2016 3/2/2016 |

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





Conducted Spurious Emissions

LIMITS

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 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be **30 dB** instead of 20 dB ...

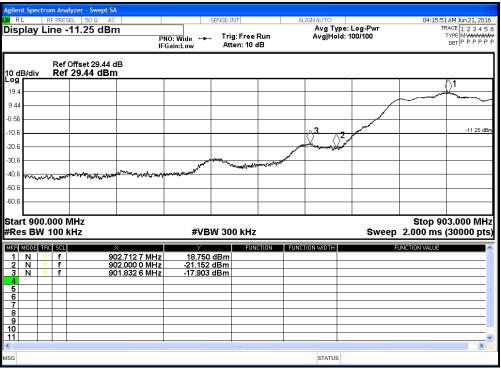
[15.247(d)]

MEASUREMENTS / RESULTS

| Engineer | Yunus Faziloglu |
|---------------|-----------------------|
| Date | June 20, 2016 |
| Site | Wireless Test Room |
| Environmental | 24.5°C, 44%, 1008mBar |
| Conditions | |

Conducted Band Edge

Plot(s)



Lowest Channel Bandedge





| gilent Spectrum Analyze R L RF PRESEL | 50 Ω AC | SENSE:If | JT | ALIGN AUTO | | | AM Jun 21, 201 |
|--|---|--|---------------------------|--------------------------|--------------------------|-----------------------------|---|
| isplay Line -13 | Р | | g: Free Run en: 10 dB | Avg Typ Avg Hold | e: Log-Pwr I: 100/100 | | RACE 1 2 3 4 5 TYPE MWWWW DET P P P P P |
| | et 29.44 dB .44 dBm | | | | | | |
| 9.4 | | | | | _ | | |
| .44 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | |
| 56 | - North | | | | | | |
|).6 | vvví | \sim^2 $\sqrt{^3}$ | | | | | -13.50 dl |
|).6 | | Marine Ma | | | | | |
|).6 | | | Washin Warner Confliction | Margar Cort and Margaret | a | 2 | |
| .6 | | | | | danden berkeden av er | - And a grant of the second | ቁሳከሥ _ተ ን እንስት የሚ |
| .6 | | | | | | | |
| art 927.000 MH tes BW 100 kHz | | #VBW 300 | 0 kHz | | Sweep | Stop 93 2.000 ms | 0.000 Mi (30000 pt |
| R MODE TRC SCL | × 927.300 3 MHz | Y 16.423 dBm | FUNCTION | FUNCTION WIDTH | | FUNCTION VALUE | |
| N 1 f | 928.000 0 MHz 928.207 7 MHz | -23.416 dBm -21.064 dBm | | | | | |
| | 928.207 7 MHZ | -21.064 dBm | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | > |
| | | | | STATUS | | | |

Highest Channel Bandedge

Rev. 6/8/2016

| Spectrum Analyzers / Receivers / Preselectors MXE EMI Receiver | Range 20Hz-26.5GHz | MN N9038A | Mfr Agilent | SN MY51210181 | Asset 2093 | Cat | Calibration Due 7/21/2016 | Calibrated on 7/21/2015 |
|--|----------------------------|-----------------------|------------------------------------|-------------------------|-----------------------------|----------|---|---|
| Preamps /Couplers Attenuators / Filters API - 30dB 20W Attenuator | Range 9KHz-40GHz | MN 89-30-11 | Mfr PI Weinsche | SN 703 | Asset 2121 | Cat | Calibration Due 2/10/2017 | Calibrated on 2/10/2016 |
| Meteorological Meters Weather Clock (Pressure Only) TH A#2082 | | MN BA928 HTC-1 | Mfr regon Scienti HDE | SN C3166-1 | Asset 831 2082 | Cat I | Calibration Due 4/28/2017 4/5/2017 | Calibrated on 4/28/2016 4/5/2016 |

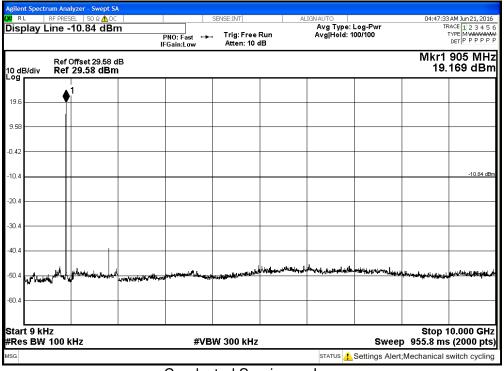
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



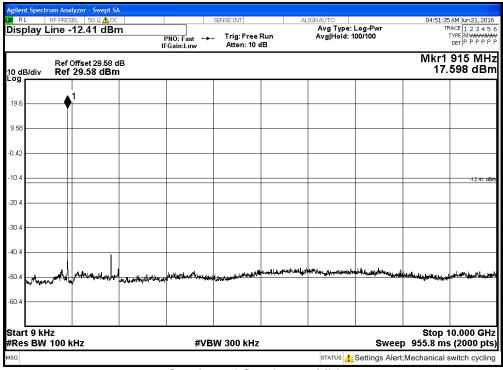


Sep 28, 2016

Conducted Spurious Emission



Conducted Spurious - Low



Conducted Spurious - Mid





page 18 of 29

| | rum Analyzer - Swept | | | | | | | | |
|-----------------------|----------------------------------|--------------------|---|---|------------------------|--|---------------------------|---------------------------|---|
| Display I | | | PNO: Fast ++ | SENSE:INT Trig: Free R Atten: 10 dl | un | IGN AUTO Avg Type: I Avg Hold: 1 | | TF | AM Jun 21, 2016 RACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P |
| 10 dB/div | Ref Offset 29.58 Ref 29.58 dB | | | | | | | Mkr1 16. | 925 MHz 574 dBm |
| 19.6 | 1 | | | | | | | | |
| 9.58 | | | | | | | | | |
| -0.42 | | | | | | | | | |
| -10.4 | | | | | | | | | -13.43 dBm |
| -20.4 | | | | | | | | | |
| -30.4 | | | | | | | | | |
| -50.4 | AL MUMAL MUMAL | and white way that | and a first of the second s | Lought & Martin Street and | ورمورا ويقار المقاورون | arthe heaving that is had a los | handlesson der generation | and a standing the second | ور النهايسالير وروانين |
| -60.4 | eek Ma | | | | | | | | |
| Start 9 ki #Res BW | | | #VB | W 300 kHz | | | Sweet | Stop 1 p 955.8 ms | 10.000 GHz s (2000 pts) |
| MSG | | | <u> </u> | | | STATUS 🚹 | Settings Alert | ;Mechanical s | switch cycling |

Conducted Spurious - High

Conducted spurious emissions within 9kHz-10GHz frequency range were measured at the antenna port on 3 channels. No emissions observed within 30dB of the fundamental.

| Rev. 6/8/2016 | | | | | | | | |
|---|--------------|----------|--------------|------------|-------|-----|------------------------|---------------|
| Spectrum Analyzers / Receivers / Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| MXE EMI Receiver | 20Hz-26.5GHz | N9038A | Agilent | MY51210181 | 2093 | Ι | 7/21/2016 | 7/21/2015 |
| Preamps /Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| API - 30dB 20W Attenuator | 9KHz-40GHz | 89-30-11 | .PI Weinsche | 703 | 2121 | Ι | 2/10/2017 | 2/10/2016 |
| Meteorological Meters | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | BA928 | egon Scienti | C3166-1 | 831 | 1 | 4/28/2017 | 4/28/2016 |
| TH A#2082 | | HTC-1 | HDE | | 2082 | Ш | 4/5/2017 | 4/5/2016 |

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





page 19 of 29

Power Spectral Density

LIMIT

...the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. [15.247(e)]

MEASUREMENTS / RESULTS

| Power Spectral Density (Conducted) | | | | | | | | | |
|------------------------------------|--|---|--|--|--|--|--|--|--|
| | Company: Ideal Industries, Inc. Work Ord | | | | | | | | |
| l | EUT Desc: ESCGRID1000 | | | | ting Voltage/Frequency: 24VDC | | | | |
| | Humidity: 44% Pressure: 1008mBar | | | | | | | | |
| equency Range: 902.7MHz - 927.3MHz | | | | | | | | | |
| 4 D01 DTS Meas Guid | ance v03r05 Section 10.3 | 3 Method AVGPS | D-1 | | | | | | |
| Reading (dBm) | Attenuator Loss (dB) | PSD (dBm) | Limit (dBm) | Margin (dB) | Result | | | | |
| -22.499 | 29.44 | 6.941 | 8.00 | -1.059 | Pass | | | | |
| -23.503 | 29.44 | 5.937 | 8.00 | -2.063 | Pass | | | | |
| -24,224 | 29.44 5.216 8.00 -2.784 Pass | | | | | | | | |
| | - 927.3MHz 4 D01 DTS Meas Guid Reading (dBm) -22.499 -23.503 | Company: Ideal Indust EUT Desc: ESCGRID10 Humidity: 44% - 927.3MHz 4 4 D01 DTS Meas Guidance v03r05 Section 10.3 Reading (dBm) Attenuator Loss (dB) -22.499 29.44 -23.503 29.44 | Company: Ideal Industries, Inc. EUT Desc: ESCGRID1000 Humidity: 44% - 927.3MHz 44% 4 D01 DTS Meas Guidance v03r05 Section 10.3 Method AVGPS Reading (dBm) Attenuator Loss (dB) PSD (dBm) -22.499 29.44 6.941 -23.503 29.44 5.937 | Company: Ideal Industries, Inc. EUT Desc: ESCGRID1000 Humidity: 44% Pressure: 1008mBar - 927.3MHz Pressure: 1008mBar 4 D01 DTS Meas Guidance v03r05 Section 10.3 Method AVGPSD-1 Imit (dBm) Reading (dBm) Attenuator Loss (dB) PSD (dBm) Limit (dBm) -22.499 29.44 6.941 8.00 -23.503 29.44 5.937 8.00 | Company: Ideal Industries, Inc. EUT Opera EUT Opera Humidity: 44% Pressure: 1008mBar - 927.3MHz 4 D01 DTS Meas Guidance v03r05 Section 10.3 Method AVGPSD-1 Reading (dBm) Attenuator Loss (dB) PSD (dBm) Limit (dBm) Margin (dB) - 927.3MHz 4 D01 DTS Meas Guidance v03r05 Section 10.3 Method AVGPSD-1 Reading (dBm) Attenuator Loss (dB) PSD (dBm) Limit (dBm) Margin (dB) - 922.44 6.991 8.00 - 2.063 - 23.503 29.44 5.937 8.00 - 2.063 | | | | |

Rev. 6/8/2016 Spectrum Analyzers / Receivers / Preselectors Range MN Mfr SN Calibration Due Calibrated on Asset Cat MXE EMI Receiver 20Hz-26.5GHz MY51210181 2093 7/21/2016 7/21/2015 N9038A Agilent 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 2/10/2017 2/10/2016 Т Meteorological Meters MN Mfr SN Cat Calibration Due Calibrated on Asset Weather Clock (Pressure Only) BA928 Oregon Scientific C3166-1 831 4/28/2017 4/28/2016 Т TH A#2082 HTC-1 HDE 2082 Ш 4/5/2017 4/5/2016

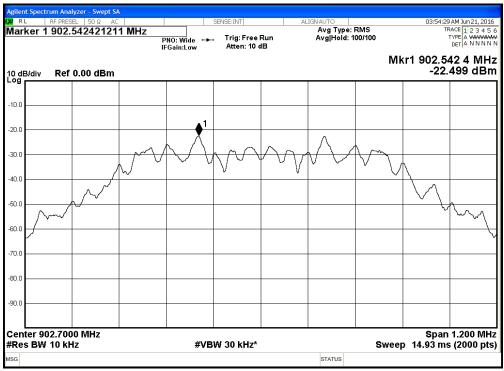
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.





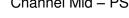
page 20 of 29

PLOTS



Channel Low – PSD

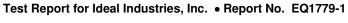


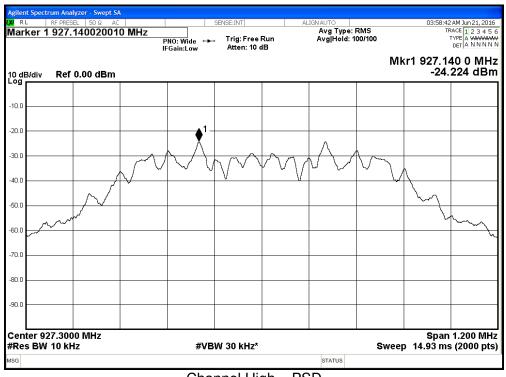






page 21 of 29











page 22 of 29

AC Line Conducted Emissions

LIMITS

| Frequency of | Quasi-peak limit | Average limit |
|----------------|------------------|---------------|
| emission (MHz) | (dBµV) | (dBµV) |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a)]

MEASUREMENTS / RESULTS

| | e: 01-Jul-16 | | | | | | Company: Ideal Indu | | | | v | Vork Order | : Q1779 |
|--|---|--|---------------------------------|--|-------------------------------------|-------------------------------|--|--|--------------------------------|-----------------|---|--|---|
| | r: Fatou Faye | | | | | | EUT Desc: ESCGRI | 1000 | | | | | |
| | p: 24.1 °C | | | | | | Humidity: 46% | | | | | Pressure | : 1007 mBar |
| Note | s: Tested the AC | side of 24VDC | power suppl | ly | | F | B 0.45.00M | 1- | EUT I. | | (F | 1001//0011 | |
| | Quasi | Beek | A.m. | rage | LIS | | cy Range: 0.15-30M | 1Z | EUTIN | but voltage | /Frequency: | 120Vac/60H | Z |
| | Read | | | dings | Fact | | Cable ATTN | E/ | C 15.207 | | | FCC 1 | 5 207 |
| Frequency | QP1 | QP2 | AVG1 | AVG2 | L1 | L2 | Factor Facto | QP Limit | Margin | Result | AVG Limit | Margin | Result |
| (MHz) | (dBuV) | (dBµV) | (dBuV) | (dBuV) | (dB) | (dB) | (dB) (dB) | (dBuV) | (dB) | (Pass/Fail) | (dBuV) | (dB) | (Pass/Fail) |
| 0.15 | 26.1 | 25.9 | 15.9 | 16.7 | -0.1 | -0.1 | -0.1 -20.4 | 66.0 | -19.3 | Pass | 56.0 | -18.7 | Pass |
| 0.19 | 21.5 | 20.6 | 14.9 | 15.7 | -0.1 | -0.1 | -0.1 -20.4 | 64.2 | -22.1 | Pass | 54.2 | -17.9 | Pass |
| 0.31 | 20.4 | 20.9 | 17.8 | 18.2 | 0.0 | -0.1 | -0.1 -20.4 | 60.0 | -18.6 | Pass | 50.0 | -11.3 | Pass |
| 0.44 | 11.9 | 11.6 | 7.9 | 7.5 | 0.0 | 0.0 | -0.1 -20.4 | 57.0 | -24.6 | Pass | 47.0 | -18.6 | Pass |
| 0.76 | 11.3 | 11.1 | 6.9 | 6.9 | 0.0 | 0.0 | -0.1 -20.4 | 56.0 | -24.1 | Pass | 46.0 | -18.5 | Pass |
| 1.05 | 10.4 | 10.1 | 6.3 | 5.6 | 0.0 | 0.0 | -0.1 -20.4 | 56.0 | -25.1 | Pass | 46.0 | -19.2 | Pass |
| | | | | | | | | | | | | | |
| Result | : Pass | | | | | | Worst Margi | 1: -11.3 d | В | Freq | uency: | 0.308 | MHz |
| easurement Device | : LISN ASSE | T 1727(Line | 1) LISN AS | SSET 1726 | (Line 2) | | Worst Margi Cable: CEMI-0 enuator: 20dB A | 2 | | | Analyzer: Site: | 1327 CEMI 1 | , |
| easurement Device | 3.0.14 | | | | (Line 2) | | Cable: CEMI-0 | 2 | | | Analyzer: Site: | 1327 CEMI 1 | , |
| easurement Device CEMI Calculator Version sted Reading = Raw Rea : 9/25/2016 Spectrum Analy | 2: LISN ASSE 3.0.14 ding + LISN Inser zers / Receiv | tion Loss + Ca ers /Prese | , able Loss + A | <u>ittenuation</u> | ange | Atte | Cable: CEMI-0 enuator: 20dB A | 2 tenuator-64 SN | Asset | spectrum | Analyzer: Site: Equ Calibratio | 1327 CEMI 1 ipment Fact | tor Sheet rev: 5/11/ Calibrated |
| easurement Device CEMI Calculator Version sted Reading = Raw Rea 9/25/2016 Spectrum Analy | 3.0.14 ding + LISN Inser | tion Loss + Ca ers /Prese | , able Loss + A | <u>ittenuation</u> | | Atte | Cable: CEMI-0 enuator: 20dB A | 2 tenuator-64 | Asset | spectrum | Analyzer: Site: Equ | 1327 CEMI 1 ipment Fact | |
| easurement Device CEMI Calculator Version sted Reading = Raw Rea 9/25/2016 Spectrum Analy SA E | 2: LISN ASSE 3.0.14 ding + LISN Inser zers / Receiv | tion Loss + Ca ers /Prese 1327) | , able Loss + A | <u>ittenuation</u> Ra 9kHz- ⁻ | ange | Atte | Cable: CEMI-0 enuator: 20dB A | 2 tenuator-64 SN | Asset | spectrum Cat | Analyzer: Site: Equ Calibratio | 1327 CEMI1 ipment Fact on Due D17 | tor Sheet rev: 5/11/ Calibrated |
| easurement Device CEM Calculator Version sted Reading – Raw Rea : 9/25/2016 Spectrum Analy SA E LISNs// | 2: LISN ASSE 3.0.14 ding + LISN Inser Zers / Receiv EMI Chamber (Measurement | tion Loss + Ca ers /Prese (1327) t Probes | , able Loss + A | ttenuation Ra 9kHz- ⁻ Ra | ange 13.2 GHz ange | MN E4405B MN | Cable: CEMI+0 enuator: 20dB A Mfr Agilent Mfr | 2 tenuator-64 SN MY45103416 SN | Asset 1327 Asset | spectrum Cat | Analyzer: Site: Equ Calibratio 8/4/20 Calibratio | 1327 CEMI 1 inprent Fact on Due D17 on Due | calibrated 8/4/2016 Calibrated |
| easurement Device CEMI Calculator Version Isted Reading = Raw Rea 9/25/2016 Spectrum Analy SA E LISNs/I | 2: LISN ASSE 3.0.14 ding + LISN Inser zers / Receiv EMI Chamber (| tion Loss + Ca ers /Prese (1327) t Probes 26 | , able Loss + A | ttenuation Ra 9kHz- ⁻ Ra 150kH | ange 13.2 GHz | MN E4405B | Cable: CEMI+0 enuator: 20dB A Mfr Agilent | 2 tenuator-64 SN MY45103416 | Asset 1327 | spectrum Cat | Analyzer: Site: Equ Calibratio 8/4/20 | 1327 CEMI 1 inprent Fact on Due D17 on Due D17 | tor Sheet rev: 5/11/ Calibrated 8/4/2016 |
| easurement Device CEMI Calculator Version Isted Reading = Raw Rea 9/25/2016 Spectrum Analy SA E LISNs/I | :: LISN ASSE 3.0.14 ding + LISN Inser zers / Receiv EMI Chamber (Measurement ISN Asset 172 | tion Loss + Ca ers /Prese (1327) t Probes 26 | , able Loss + A | ttenuation Ra 9kHz- ⁻ Ra 150kH | ange 13.2 GHz ange z-30MHz | MN E4405B MN LI-150A | Cable: CEMI-0 enuator: 20dB A Mfr Agilent Mfr Com-Power | 2 tenuator-64 SN MY45103416 SN 201092 | Asset 1327 Asset 1726 | spectrum Cat | Analyzer: Site: Equ Calibratio 8/4/20 Calibratio 2/4/20 | 1327 CEMI 1 inprent Fact on Due D17 on Due D17 | or Sheet rev: 5/11/ Calibrated 8/4/2016 Calibrated 2/4/2016 |
| easurement Device CEM Calculator Version sted Reading – Raw Rea 9/25/2016 Spectrum Analy SA E LISNs/I L | :: LISN ASSE 3.0.14 ding + LISN Inser zers / Receiv EMI Chamber (Measurement ISN Asset 172 | ers /Prese 1327) t Probes 26 27 | <u>able Loss + A</u> lectors | ttenuation Ra 9kHz- ⁻ Ra 150kH 150kH | ange 13.2 GHz ange z-30MHz | MN E4405B MN LI-150A | Cable: CEMI-0 enuator: 20dB A Mfr Agilent Mfr Com-Power | 2 tenuator-64 SN MY45103416 SN 201092 | Asset 1327 Asset 1726 | spectrum Cat | Analyzer: Site: Equ Calibratio 8/4/20 Calibratio 2/4/20 | 1327 CEMI 1 ipment Fact on Due 017 017 017 | or Sheet rev: 5/11) Calibrated 8/4/2016 Calibrated 2/4/2016 |

| Meteorological Meters | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|-------------------------------|-------------|-------|-------------------|---------|-------|-----|-----------------|---------------|
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | 1 | 4/28/2018 | 4/28/2016 |
| TH A#2084 | | HTC-1 | HDE | | 2084 | Ш | 4/5/2017 | 4/5/2016 |
| Cables | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| CEMI-02 | 9kHz - 2GHz | | C-S | | | П | 4/10/2017 | 4/10/2016 |
| Attenuators | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| 20dB Attenuator-64 | 9kHz-2GHz | | | N/A | | Ш | 11/15/2016 | 11/15/2015 |
| | | | | | | | | |

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





Occupied Bandwidth

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 6.6]

MEASUREMENTS / RESULTS

| D | ate: 20-Jun-16 | Company: Ideal Industries, Ind | c. Work Order: Q1779 |
|---------|-----------------------------|--|--|
| Engin | eer: Yunus Faziloglu | EUT Desc: ESCGRID1000 | EUT Operating Voltage/Frequency: 24VDC |
| Те | mp: 24.5°C | Humidity: 44% | Pressure: 1008mBar |
| requenc | y Range: 902.7MHz - 927.3MH | z | |
| lotes: | Per RSS-Gen Section 6.6 | | |
| | Frequency (MHz) | Oc | cupied Bandwidth (kHz) |
| | 902.7 | | 789.09 |
| | | | |
| | 915.0 | | 779.40 |

| Spectrum Analyzers / Receivers / Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
|---|--------------|----------|--------------|------------|-------|-----|------------------------|---------------|
| MXE EMI Receiver | 20Hz-26.5GHz | N9038A | Agilent | MY51210181 | 2093 | Ι | 7/21/2016 | 7/21/2015 |
| Preamps / Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| API - 30dB 20W Attenuator | 9KHz-40GHz | 89-30-11 | .PI Weinsche | 703 | 2121 | I | 2/10/2017 | 2/10/2016 |
| Meteorological Meters | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | BA928 | egon Scienti | C3166-1 | 831 | 1 | 4/28/2017 | 4/28/2016 |
| TH A#2082 | | HTC-1 | HDE | | 2082 | II | 4/5/2017 | 4/5/2016 |

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



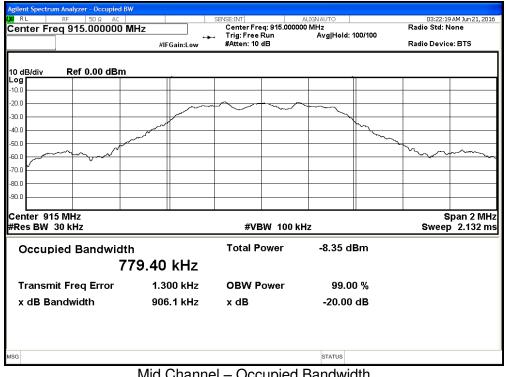


page 24 of 29

Plot(s)

| | m Analyzer - Occupied BV | V | | | |
|-----------------------|--------------------------|-------------|-------------------------------------|-------------------|--|
| (XIRL Contor Fra | RF 50 Ω AC | ALI | SENSE:INT Center Freq: 902.70000 | | 03:19:09 AM Jun 21, 2016 Radio Std: None |
| | eq 902.700000 N | | Trig: Free Run | Avg Hold: 100/100 | |
| | | #IFGain:Low | #Atten: 10 dB | | Radio Device: BTS |
| | | | | | |
| 10 dB/div Log | Ref 0.00 dBm | ŕ | | · · · | |
| -10.0 | | | | | |
| -20.0 | | | \sim | | |
| -30.0 | | | | | |
| -40.0 | | | | ~~~~ | |
| -50.0 | | ~~ | | ~ | |
| -60.0 | m ~ ~ ~ | | | | how have here here here here here here here he |
| -70.0 | | | | | |
| -80.0 | _ | | | | |
| -90.0 | | | | | |
| | | | | | |
| Center 902 #Res BW | | | #VBW 100 k | Hz | Span 2 MHz Sweep 2.132 ms |
| 0.000 | ied Bandwidth | _ | Total Power | -6.84 dBm | |
| Occup | | | Total Tower | -0.04 0.011 | |
| | 1 | 39.09 kHz | | | |
| Transm | it Freq Error | 742 Hz | OBW Power | 99.00 % | |
| x dB Ba | ndwidth | 918.4 kHz | x dB | -20.00 dB | |
| | | | | | |
| | | | | | |
| | | | | | |
| MSG | | | | STATUS | |

Low Channel – Occupied Bandwidth



Mid Channel - Occupied Bandwidth





| | rum Analyzer - Occupie | | | | | | | | |
|--------------------|------------------------|----------|-----------|----------------------------|---------------|-------------|--------|--------------------------|-------------------|
| (XI RL Center F | RF 50 Ω AC | | | SENSE:INT | eq: 927.30000 | ALIGN AUTO | | 03:16:33 Radio Std: N | 3 AM Jun 21, 2016 |
| Center I | | | -Gain:Low | _ Trig: Free #Atten: 10 | Run | Avg Hold: 1 | 00/100 | Radio Devic | |
| 10 dB/div | Ref 0.00 dB | m | | | | | | | |
| Log -10.0 | | | | | | | | | |
| -20.0 | | | | | | | | | |
| -30.0 | | | | | ~~~~ | June | | | |
| -40.0 | | | - | | | | have | | |
| -50.0 | | - Martin | | | | | ~~~ | Mar and | |
| -60.0 | man | | | | | | | ~~~~~ | m |
| -70.0 | | | | | | - | | | ` |
| -80.0 | | | | | | | | | |
| -90.0 | | | | | | | | | |
| | 27.3 MHz | I | | | | - | | S | pan 2 MHz |
| #Res BW | 30 KHZ | | | #VE | 3W 100 kł | 1Z | | Sweep | 2.132 ms |
| Occu | pied Bandwid | dth | | Total P | ower | -9.25 di | Зm | | |
| | | 794.78 | kHz | | | | | | |
| Trans | mit Freq Error | 1.2 | 46 kHz | OBW P | ower | 99.00 |)% | | |
| x dB E | Bandwidth | 922 | 2.0 kHz | x dB | | -20.00 | dB | | |
| | | | | | | | | | |
| | | | | | | | | | |
| MSG | | | | <u> </u> | | STATUS | | | |

High Channel - Occupied Bandwidth





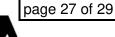
Measurement Uncertainty

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) NIST | 5.6dB | N/A |
| CISPR | 4.6dB | 5.2dB (Ucispr) |
| Radiated Emissions (1-26.5GHz) | 4.6dB | N/A |
| Radiated Emissions (above 26.5GHz) | 4.9dB | N/A |
| Magnetic Radiated Emissions Conducted Emissions | 5.6dB | N/A |
| NIST CISPR | 3.9dB 3.6dB | N/A 3.6dB (Ucispr) |
| 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 x 10 ⁻⁸ | 1 x 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% 0.3dB | 5% 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 | | |



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ACCREDITED

Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the k"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

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.

 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.
These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof

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

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

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

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





Sep 28, 2016

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 litigation arising hereunder.

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





page 29 of 29