
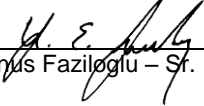




# Test Report

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

|                     |   |
|---------------------|---|
| Report No           | EP3128-1  |
| Client              | Ideal Industries, Inc.<br>Tim Tunnell   |
| Address             | Becker Place<br>Sycamore, IL 60178  |
| Phone               | 815-895-1295  |
| Items tested        | SCLINE1000  |
| FCC ID              | 2AAMXSCLINE1000   |
| IC ID               | 11250A-SCLINE1000   |
| FRN                 | 0002862225  |
| Equipment Type      | Part 15.247 Digitally Modulated, Mobile   |
| Equipment Code      | DTS   |
| Emission Designator | 763KG1D   |
| FCC/IC Rule Parts   | 47 CFR 15.247, RSS-247 Issue 1  |
| Test Dates          | October 26, 29 and November 2, 6 and 12, 2015   |
| Results             | As detailed within this report  |
| Prepared by         | <br>Jason Haley – Test Engineer            |
| Authorized by       | <br>Yunus Faziloglu – Sr. EMC Engineer     |
| Issue Date          | <u>2/9/2016</u>   |
| Conditions of Issue | This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 30 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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Form Final Report REV 12-07-15



**Summary**

This test report supports an application for certification of a transmitter operating pursuant to 47 CFR 15.247 and RSS-247. The product is the SCLINE1000. It is a transmitter that operates in the range 902-928MHz.

We found that the product met the above requirements without modifications. Nobody from Ideal Industries, Inc. was present during the testing. The test samples were received in good condition.

## Release Control Record

| Issue No. | Reason for change | Date Issued      |
|-----------|-------------------|------------------|
| 1         | Original Release  | February 9, 2016 |



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## Test Methodology

All testing was performed according to the following rules/procedures/documents;

CFR 47 Part 15.247, RSS-247 Issue 1, RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r04 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around three orthogonal 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. The EUT operating voltage was 120/277VAC at 60Hz.

RF measurements were performed at the antenna port.

The environmental conditions were as shown below.

| Date     | Temperature | Humidity |
|----------|-------------|----------|
| 10/26/15 | 21.9°C      | 35% RH   |
| 10/29/15 | 23°C        | 55% RH   |
| 11/02/15 | 21°C        | 38% RH   |
| 11/04/15 | 22.2°C      | 54% RH   |
| 11/12/15 | 22.2°C      | 31% RH   |
| 11/13/15 | 21.9°C      | 40% RH   |

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

| Frequency  | RBW    | VBW   |
|------------|--------|-------|
| 0.15-30MHz | 9kHz   | 30kHz |
| 30-1000MHz | 120kHz | 1MHz  |
| 1-25GHz    | 1MHz   | 3MHz  |

**Product Tested - Configuration Documentation**

| EUT Configuration  |   |                |                    |                   |                 |                      |   |                               |               |                       |                |
|--|---|----------------|--------------------|-------------------|-----------------|----------------------|---|-------------------------------|---------------|-----------------------|----------------|
| <b>Work Order:</b>   | P3128   |                |                    |                   |                 |                      |   |                               |               |                       |                |
| <b>Company:</b>  | Ideal Industries, Inc.                        |                |                    |                   |                 |                      |   |                               |               |                       |                |
| <b>Company Address:</b>  | Becker Place                                  |                |                    |                   |                 |                      |   |                               |               |                       |                |
|  | Sycamore, IL 60178                            |                |                    |                   |                 |                      |   |                               |               |                       |                |
| <b>Contact:</b>  | Tim Tunnell                                   |                |                    |                   |                 |                      |   |                               |               |                       |                |
|  | MN  |                |                    | PN                |                 |                      | SN  |                               |               |                       |                |
| <b>EUT:</b>  | SCLINE1000                                    |                |                    | SCLINE1000        |                 |                      | Sample 1 (integrated antenna)                   |                               |               |                       |                |
|  | SCLINE1000                                    |                |                    | SCLINE1000        |                 |                      | Sample 2 (modified with antenna port connector) |                               |               |                       |                |
| <b>EUT Description:</b>  | Smart Connector Lighting / Dimming Controller |                |                    |                   |                 |                      |   |                               |               |                       |                |
| <b>EUT Tx Frequency:</b>   | 902.7 – 927.3 MHz                             |                |                    |                   |                 |                      |   |                               |               |                       |                |
| <b>Port Label</b>  | <b>Port Type</b>                              | <b># ports</b> | <b># populated</b> | <b>cable type</b> | <b>shielded</b> | <b>ferrite<br/>s</b> | <b>length<br/>(m)</b>                           | <b>max<br/>length<br/>(m)</b> | <b>in/out</b> | <b>under<br/>test</b> | <b>comment</b> |
| Power  | Power AC                                      | 1              | 1                  | Power AC          | No              | No                   | 0.3   |                               | in            | yes                   |                |
| <b>Software Operating Mode Description:</b>  |   |                |                    |                   |                 |                      |   |                               |               |                       |                |
| EUT shall continuously transmit on a single channel from 902 to 928 MHz range when AC power applied. |   |                |                    |                   |                 |                      |   |                               |               |                       |                |

BUREAU  
VERITAS

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Testing Cert. No. 1627-01

## Statement of Conformity

The SCLINE1000 has been found to conform to the following parts of 47 CFR and RSS 247 as detailed below:

| 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 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           | The antenna for this device is integrated wired to the PCB with a gain of 4.55 dBi   |
| 8.10    |         |         | 15.205<br>15.209 | The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable |
| 8.8     |         |         | 15.207           | 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.   |

## Modifications Required for Compliance

None

**Test Results****Bandwidth****LIMIT**

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

**MEASUREMENTS / RESULTS**

| 6dB BANDWIDTH                      |  |                                 |                |  |                       |
|------------------------------------|--|---------------------------------|----------------|--|-----------------------|
| Date: 02-Nov-15                    |  | Company: Ideal Industries, Inc. |                | Work Order: P3128                            |                       |
| Engineer: Tuyen Truong             |  | EUT Desc: SCLINE1000            |                | EUT Operating Voltage/Frequency: 120Vac/60Hz |                       |
| Temp: 21°C                         |  | Humidity: 38%                   |                | Pressure: 1008mbar                           |                       |
| Frequency Range: 902.7 - 927.3 MHz |  |                                 |                |  |                       |
| Notes:                             |  |                                 |                |  |                       |
| Frequency<br><br>(MHz)             |  | Reading<br><br>(KHz)            | 6dB BW         |  |                       |
|                                    |  |                                 | Limit<br>(KHz) | Margin<br>(KHz)                              | Result<br>(Pass/Fail) |
| 902.7                              |  | 655.406                         | ≥500           | +155.406                                     | Pass                  |
| 915.0                              |  | 655.425                         | ≥500           | +155.425                                     | Pass                  |
| 927.3                              |  | 656.149                         | ≥500           | +156.149                                     | Pass                  |
| Test Site: CEM1                    |  | Attenuation: 791                |                |  |                       |
| Analyzer: 1510                     |  |                                 |                |  |                       |

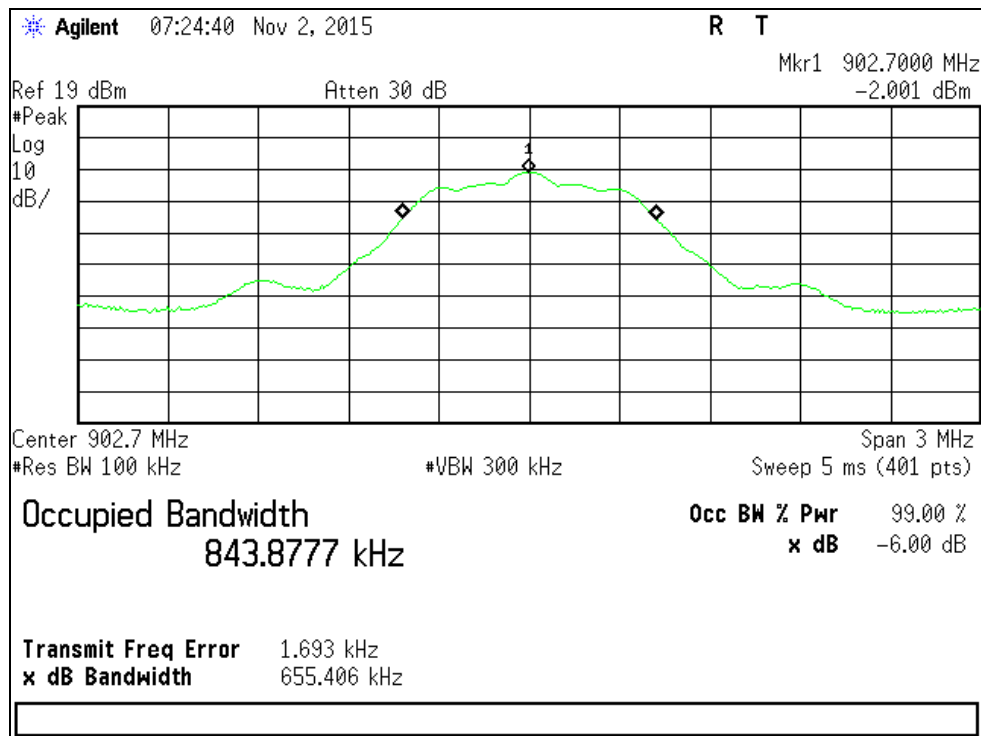
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|  |                 |                  |                   |            |              |            |                        |                      |
|--|-----------------|------------------|-------------------|------------|--------------|------------|------------------------|----------------------|
| <b>Spectrum Analyzers / Receivers / Preselectors</b> | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Brown  | 9kHz-26.5GHz    | E4407B           | Agilent           | SG44210511 | 1510         | I          | 6/30/2016              | 6/30/2015            |
| <b>Preamps / Couplers Attenuators / Filters</b>      | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| HF 20dB 50W Attenuator                               | 0.009-18 GHz    | PE 7019-20       | Pasternack        | 1          | 791          | II         | 7/31/2016              | 7/31/2015            |
| <b>Conducted Test Sites (Mains / Telco)</b>          | <b>FCC Code</b> | <b>VCCI Code</b> |                   |            |              | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| CEMI 1   | 719150          | A-0015           |                   |            |              | III        | NA                     | N/A                  |
| <b>Meteorological Meters</b>                         |                 | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Weather Clock (Pressure Only)                        |                 | BA928            | Oregon Scientific | C3166-1    | 831          | I          | 3/19/2016              | 3/19/2014            |
| TH A#2078  |                 | HTC-1            | HDE               |            | 2078         | II         | 4/2/2016               | 4/2/2015             |

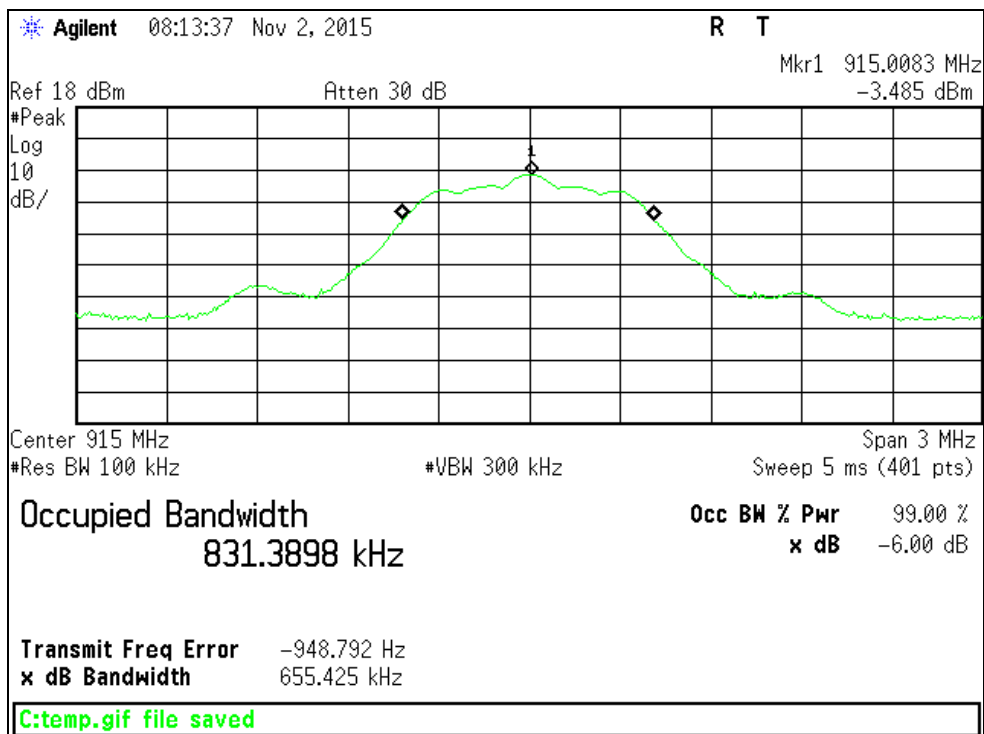
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



## PLOTS

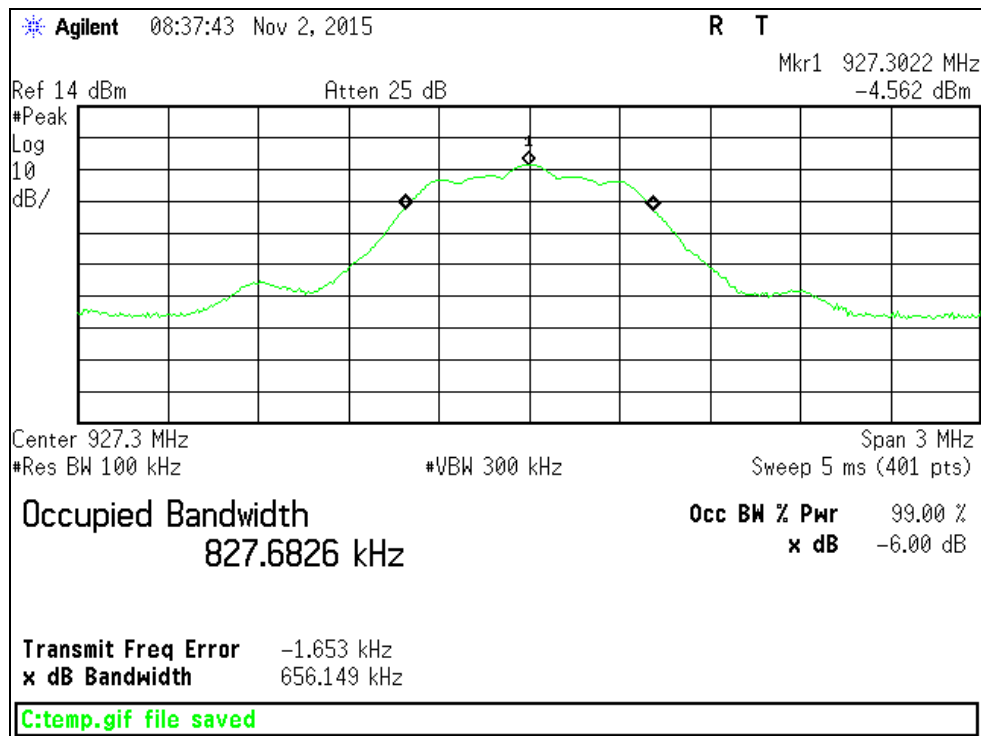


6dB Bandwidth Plot, Low Channel



6dB Bandwidth Plot, Middle Channel





6dB Bandwidth Plot, High Channel

## Fundamental Emission Output Power LIMIT

Conducted Output Power

1W = 30dBm

[15.247(b) (3)]

## MEASUREMENTS / RESULTS

| Fundamental Emission Output Power  |                  |                                 |                           |                       |  |                       |       |      |        |      |
|------------------------------------|------------------|---------------------------------|---------------------------|-----------------------|--|-----------------------|-------|------|--------|------|
| Date: 02-Nov-15                    |                  | Company: Ideal Industries, Inc. |                           |                       | Work Order: P3128                            |                       |       |      |        |      |
| Engineer: Tuyen Truong             |                  | EUT Desc: SCLINE1000            |                           |                       | EUT Operating Voltage/Frequency: 120Vac/60Hz |                       |       |      |        |      |
| Temp: 21°C                         |                  | Humidity: 38%                   |                           | Pressure: 1008mbar    |  |                       |       |      |        |      |
| Frequency Range: 902.7 - 927.3 MHz |                  |                                 |                           |                       |  |                       |       |      |        |      |
| Notes:                             |                  |                                 |                           |                       |  |                       |       |      |        |      |
| Frequency<br>(MHz)                 | Reading<br>(dBm) | Attenuation<br>(dB)             | Adjusted Reading<br>(dBm) | FCC 15.247            |  |                       |       |      |        |      |
|                                    |                  |                                 |                           | Limit<br>(dBm)        | Margin<br>(dB)                               | Result<br>(Pass/Fail) |       |      |        |      |
|                                    |                  |                                 |                           | 902.7                 | -2.17  | 19.55                 | 17.38 | 30.0 | -12.62 | Pass |
|                                    |                  |                                 |                           | 915.0                 | -3.58  | 19.55                 | 15.97 | 30.0 | -14.03 | Pass |
|                                    |                  |                                 |                           | 927.3                 | -4.63  | 19.55                 | 14.92 | 30.0 | -15.08 | Pass |
| Table Result: Pass by -12.62 dB    |                  |                                 |                           | Worst Freq: 902.7 MHz |  |                       |       |      |        |      |
| Test Site: CEMI1                   |                  | Attenuation: 791                |                           |                       |  |                       |       |      |        |      |
| Analyzer: 1510                     |                  |                                 |                           |                       |  |                       |       |      |        |      |

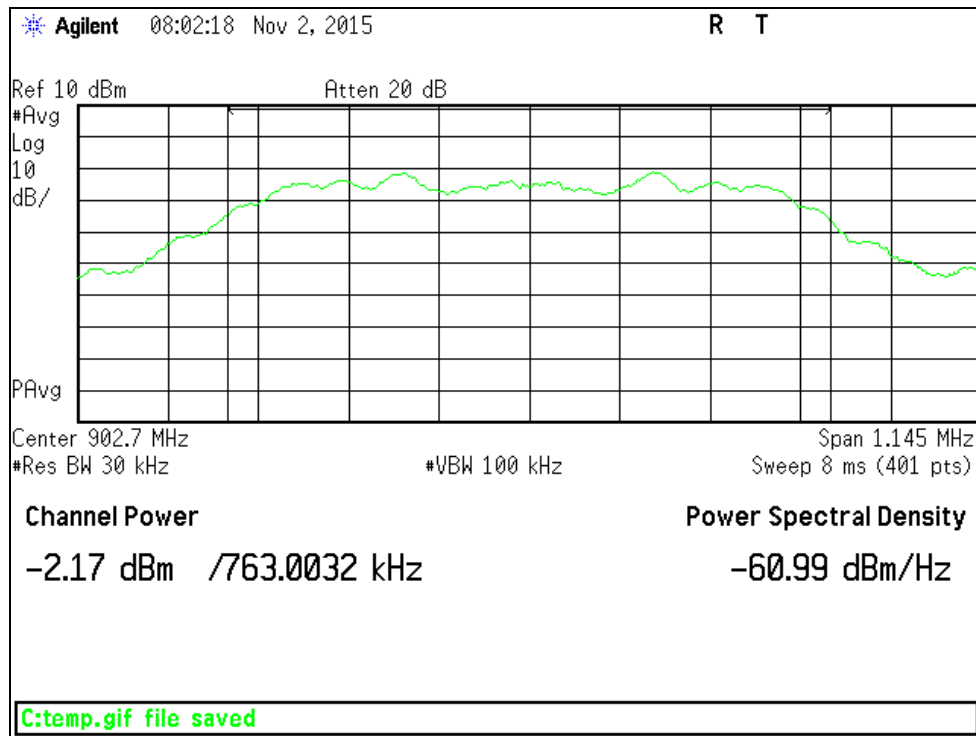
Rev. 10/19/2015

|  |                 |                  |                   |            |              |            |                        |                      |
|--|-----------------|------------------|-------------------|------------|--------------|------------|------------------------|----------------------|
| <b>Spectrum Analyzers / Receivers / Preselectors</b> | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Brown  | 9kHz-26.5GHz    | E4407B           | Agilent           | SG44210511 | 1510         | I          | 6/30/2016              | 6/30/2015            |
| <b>Preamps / Couplers Attenuators / Filters</b>      | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| HF 20dB 50W Attenuator                               | 0.009-18 GHz    | PE 7019-20       | Pasternack        | 1          | 791          | II         | 7/31/2016              | 7/31/2015            |
| <b>Conducted Test Sites (Mains / Telco)</b>          | <b>FCC Code</b> | <b>VCCI Code</b> |                   |            |              | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| CEMI 1   | 719150          | A-0015           |                   |            |              | III        | NA                     | N/A                  |
| <b>Meteorological Meters</b>                         |                 | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Weather Clock (Pressure Only)                        |                 | BA928            | Oregon Scientific | C3166-1    | 831          | I          | 3/19/2016              | 3/19/2014            |
| TH A#2078  |                 | HTC-1            | HDE               |            | 2078         | II         | 4/2/2016               | 4/2/2015             |

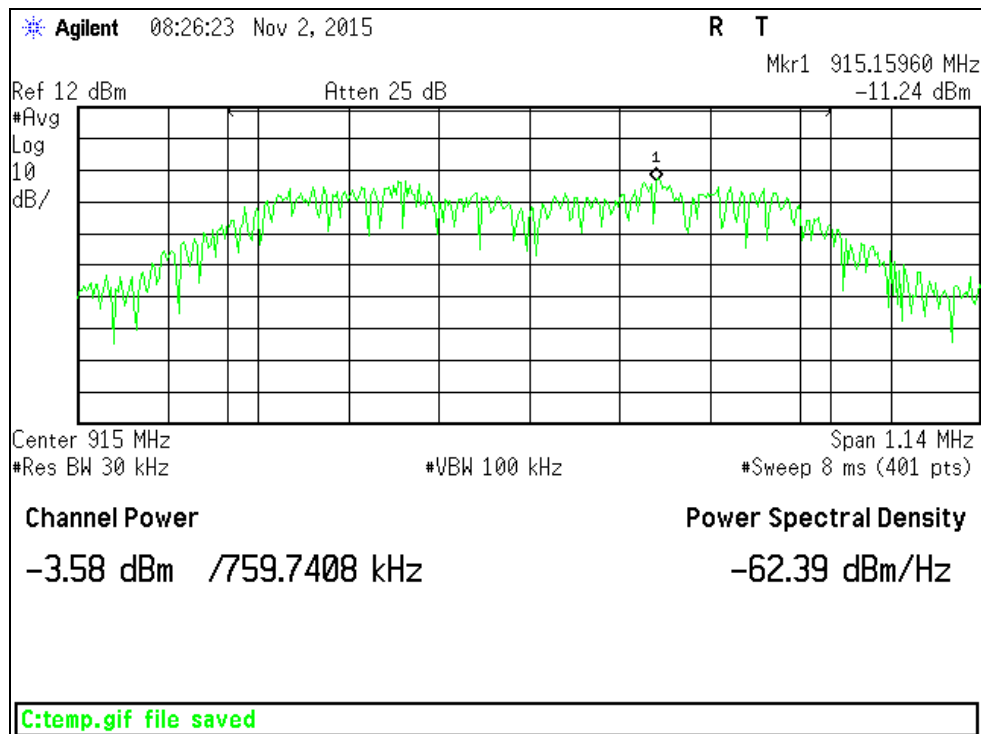
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



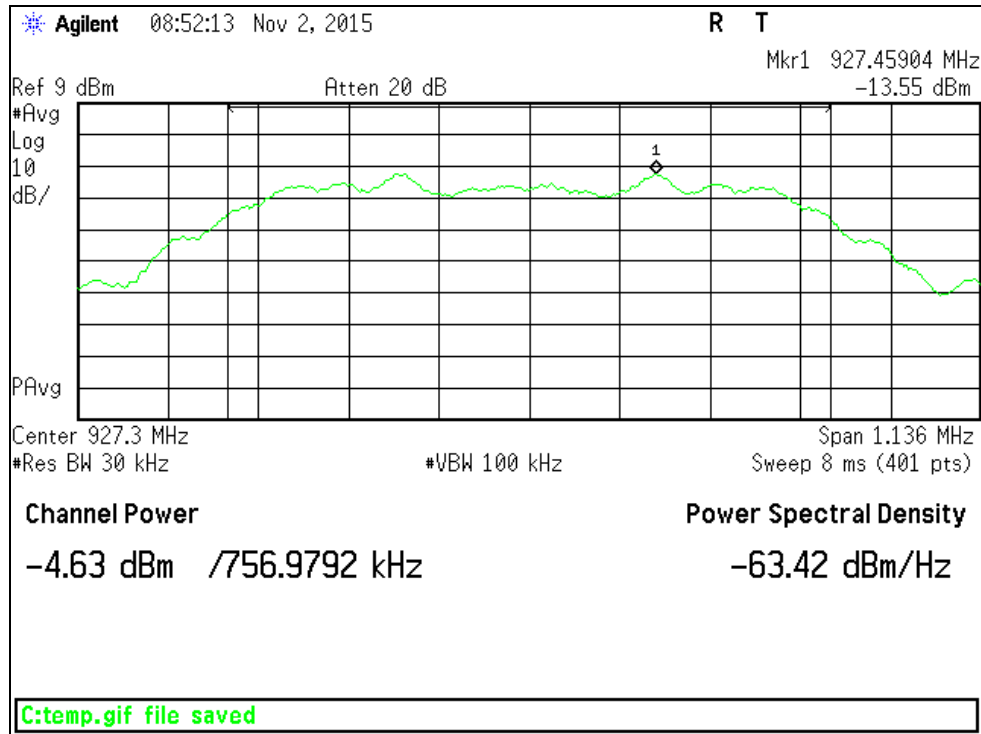
## PLOTS



Peak Output Power, Low Channel



Peak Output Power, Middle Channel



Peak Output Power, High Channel

## 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

| Radiated Emissions Table   |                    |                   |                                 |                          |                      |                              |  |  |  |                   |                |                       |
|--|--------------------|-------------------|---------------------------------|--------------------------|----------------------|------------------------------|--|--|--|-------------------|----------------|-----------------------|
| Date: 06-Nov-15  |                    |                   | Company: Ideal Industries, Inc. |                          |                      |                              | Work Order: P3128                          |  |  |                   |                |                       |
| Engineer: Jason Haley  |                    |                   | EUT Desc: SCLINE1000            |                          |                      |                              | EUT Operating Voltage/Frequency: 120V/60Hz |  |  |                   |                |                       |
| Temp: 22.2°C   |                    |                   | Humidity: 54%                   |                          |                      |                              | Pressure: 1006mBar                         |  |  |                   |                |                       |
| Frequency Range: 30-1000MHz  |                    |                   |                                 |                          |                      |                              | Measurement Distance: 3 m                  |  |  |                   |                |                       |
| Notes: Low Channel 902.7MHz, EUT in the Z-axis (Worst case)                |                    |                   |                                 |                          |                      |                              | EUT Max Freq: 928 MHz                      |  |  |                   |                |                       |
| Antenna Polarization<br>(H / V)  | Frequency<br>(MHz) | Reading<br>(dBµV) | Preamp Factor<br>(dB)           | Antenna Factor<br>(dB/m) | Cable Factor<br>(dB) | Adjusted Reading<br>(dBµV/m) |  |  |  | FCC 15.209        |                |                       |
|  |                    |                   |                                 |                          |                      |                              |  |  |  | Limit<br>(dBµV/m) | Margin<br>(dB) | Result<br>(Pass/Fail) |
| Vertical   | 42.02              | 35.1              | 25.3                            | 12.4                     | 0.4                  | 22.6                         |  |  |  | 40.0              | -17.4          | Pass                  |
| Vertical   | 66.65              | 37.7              | 25.4                            | 8.0                      | 0.5                  | 20.8                         |  |  |  | 40.0              | -19.2          | Pass                  |
| Horizontal   | 117.34             | 41.5              | 25.3                            | 13.7                     | 0.6                  | 30.5                         |  |  |  | 43.5              | -13.0          | Pass                  |
| Horizontal   | 189.63             | 39.7              | 24.4                            | 11.3                     | 0.8                  | 27.4                         |  |  |  | 43.5              | -16.1          | Pass                  |
| Horizontal   | 243.81             | 41.0              | 25.3                            | 11.7                     | 0.9                  | 28.3                         |  |  |  | 46.0              | -17.7          | Pass                  |
| Horizontal   | 564.62             | 29.8              | 25.0                            | 18.6                     | 1.4                  | 24.8                         |  |  |  | 46.0              | -21.2          | Pass                  |
| Vertical   | 589.13             | 26.3              | 24.9                            | 18.6                     | 1.3                  | 21.3                         |  |  |  | 46.0              | -24.7          | Pass                  |
| Vertical   | 845.81             | 27.1              | 25.6                            | 21.8                     | 1.8                  | 25.1                         |  |  |  | 46.0              | -20.9          | Pass                  |
| Table Result: Pass by -13.0 dB Worst Freq: 117.34 MHz                      |                    |                   |                                 |                          |                      |                              |  |  |  |                   |                |                       |
| Test Site: EMI Chamber 1   |                    |                   | Cable 1: Asset #2051            |                          |                      |                              | Cable 2: Asset #2053                       |  |  | Cable 3: ---      |                |                       |
| Analyzer: Gold   |                    |                   | Preamp: Blue-Blk                |                          |                      |                              | Antenna: Red-Brown                         |  |  | Preselector: ---  |                |                       |
| CSsoft Radiated Emissions Calculator v 1.017.148                           |                    |                   |                                 |                          |                      |                              |  |  |  |                   |                |                       |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                    |                   |                                 |                          |                      |                              |  |  |  |                   |                |                       |
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| Radiated Emissions Table   |                    |                   |                                 |                          |                      |                              |  |                |                       |            |  |  |
|--|--------------------|-------------------|---------------------------------|--------------------------|----------------------|------------------------------|--|----------------|-----------------------|------------|--|--|
| Date: 06-Nov-15  |                    |                   | Company: Ideal Industries, Inc. |                          |                      |                              | Work Order: P3128                          |                |                       |            |  |  |
| Engineer: Jason Haley  |                    |                   | EUT Desc: SCLINE1000            |                          |                      |                              | EUT Operating Voltage/Frequency: 120V/60Hz |                |                       |            |  |  |
| Temp: 22.2°C   |                    |                   | Humidity: 54%                   |                          |                      |                              | Pressure: 1006mBar                         |                |                       |            |  |  |
| Frequency Range: 30-1000MHz  |                    |                   |                                 |                          |                      |                              | Measurement Distance: 3 m                  |                |                       |            |  |  |
| Notes: Middle Channel 915MHz, EUT in the X-axis (worst case orientation)   |                    |                   |                                 |                          |                      |                              | EUT Max Freq: 928 MHz                      |                |                       |            |  |  |
| Antenna Polarization<br>(H/V)  | Frequency<br>(MHz) | Reading<br>(dBµV) | Preamp Factor<br>(dB)           | Antenna Factor<br>(dB/m) | Cable Factor<br>(dB) | Adjusted Reading<br>(dBµV/m) | FCC 15.209                                 |                |                       |            |  |  |
|  |                    |                   |                                 |                          |                      |                              | Limit<br>(dBµV/m)                          | Margin<br>(dB) | Result<br>(Pass/Fail) |            |  |  |
| Vertical   | 41.66              | 37.0              | 25.3                            | 12.7                     | 0.4                  | 24.8                         | 40.0                                       | -15.2          | Pass                  |            |  |  |
| Vertical   | 65.41              | 36.7              | 25.4                            | 7.9                      | 0.5                  | 19.7                         | 40.0                                       | -20.3          | Pass                  |            |  |  |
| Horizontal   | 114.61             | 40.6              | 25.3                            | 13.4                     | 0.6                  | 29.3                         | 43.5                                       | -14.2          | Pass                  |            |  |  |
| Horizontal   | 185.55             | 37.6              | 24.3                            | 11.0                     | 0.8                  | 25.1                         | 43.5                                       | -18.4          | Pass                  |            |  |  |
| Horizontal   | 188.09             | 37.5              | 24.4                            | 11.2                     | 0.8                  | 25.1                         | 43.5                                       | -18.4          | Pass                  |            |  |  |
| Horizontal   | 248.73             | 37.5              | 25.2                            | 11.7                     | 0.9                  | 24.9                         | 46.0                                       | -21.1          | Pass                  |            |  |  |
| Horizontal   | 344.71             | 37.5              | 25.2                            | 14.1                     | 1.1                  | 27.5                         | 46.0                                       | -18.5          | Pass                  |            |  |  |
| Vertical   | 420.32             | 32.2              | 25.3                            | 16.3                     | 1.1                  | 24.3                         | 46.0                                       | -21.7          | Pass                  |            |  |  |
| Horizontal   | 564.56             | 29.5              | 25.0                            | 18.6                     | 1.4                  | 24.5                         | 46.0                                       | -21.5          | Pass                  |            |  |  |
| Vertical   | 589.07             | 26.3              | 24.9                            | 18.6                     | 1.3                  | 21.3                         | 46.0                                       | -24.7          | Pass                  |            |  |  |
| Table Result:  |                    |                   | Pass                            | by                       |                      | -14.2 dB                     |  | Worst Freq:    |                       | 114.61 MHz |  |  |
| Test Site:   |                    |                   | EMI Chamber 1                   |                          |                      | Cable 1:                     |  |                | Asset #2051           |            |  |  |
| Analyzer:  |                    |                   | Gold                            |                          |                      | Preamp:                      |  |                | Blue-Blk              |            |  |  |
| CSsoft Radiated Emissions Calculator                                       |                    |                   | v 1.017.148                     |                          |                      | Cable 2:                     |  |                | Asset #2053           |            |  |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                    |                   |                                 |                          |                      | Antenna:                     |  |                | Red-Brown             |            |  |  |
|  |                    |                   |                                 |                          |                      |                              |  |                | Cable 3: ---          |            |  |  |
|  |                    |                   |                                 |                          |                      |                              |  |                | Preselector: ---      |            |  |  |
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**Radiated Emissions Table**

| <b>Date:</b> 06-Nov-15  |                    |                   |                             |                          |                      |                              | <b>Company:</b> Ideal Industries, Inc. |  |                         | <b>Work Order:</b> P3128                          |                |                       |
|---|--------------------|-------------------|-----------------------------|--------------------------|----------------------|------------------------------|--|--|-------------------------|---|----------------|-----------------------|
| <b>Engineer:</b> Jason Haley  |                    |                   |                             |                          |                      |                              | <b>EUT Desc:</b> SCLINE1000            |  |                         | <b>EUT Operating Voltage/Frequency:</b> 120V/60Hz |                |                       |
| <b>Temp:</b> 22.2°C   |                    |                   |                             |                          |                      |                              | <b>Humidity:</b> 54%                   |  |                         | <b>Pressure:</b> 1006mBar                         |                |                       |
| <b>Frequency Range:</b> 30-1000MHz  |                    |                   |                             |                          |                      |                              | <b>Measurement Distance:</b> 3 m       |  |                         |   |                |                       |
| <b>Notes:</b> High Channel 927.3MHz, EUT in the X-axis (worst case orientation) |                    |                   |                             |                          |                      |                              | <b>EUT Max Freq:</b> 928 MHz           |  |                         |   |                |                       |
| Antenna Polarization<br>(H / V)   | Frequency<br>(MHz) | Reading<br>(dBμV) | Preamp Factor<br>(dB)       | Antenna Factor<br>(dB/m) | Cable Factor<br>(dB) | Adjusted Reading<br>(dBμV/m) |  |  |                         | FCC 15.209  |                |                       |
|   |                    |                   |                             |                          |                      |                              |  |  |                         | Limit<br>(dBμV/m)                                 | Margin<br>(dB) | Result<br>(Pass/Fail) |
| vertical  | 34.97              | 30.5              | 25.3                        | 17.7                     | 0.3                  | 23.2                         |  |  |                         | 40.0  | -16.8          | Pass                  |
| vertical  | 42.85              | 35.3              | 25.3                        | 11.9                     | 0.4                  | 22.3                         |  |  |                         | 40.0  | -17.7          | Pass                  |
| vertical  | 54.22              | 37.0              | 25.4                        | 7.3                      | 0.5                  | 19.4                         |  |  |                         | 40.0  | -20.6          | Pass                  |
| horizontal  | 115.21             | 40.0              | 25.3                        | 13.5                     | 0.6                  | 28.8                         |  |  |                         | 43.5  | -14.7          | Pass                  |
| horizontal  | 187.86             | 34.7              | 24.4                        | 11.2                     | 0.8                  | 22.3                         |  |  |                         | 43.5  | -21.2          | Pass                  |
| horizontal  | 249.44             | 35.9              | 25.2                        | 11.7                     | 0.9                  | 23.3                         |  |  |                         | 46.0  | -22.7          | Pass                  |
| horizontal  | 347.91             | 35.3              | 25.1                        | 14.2                     | 1.1                  | 25.5                         |  |  |                         | 46.0  | -20.5          | Pass                  |
| vertical  | 352.94             | 31.7              | 25.0                        | 14.4                     | 1.0                  | 22.1                         |  |  |                         | 46.0  | -23.9          | Pass                  |
| horizontal  | 564.56             | 29.2              | 25.0                        | 18.6                     | 1.4                  | 24.2                         |  |  |                         | 46.0  | -21.8          | Pass                  |
| vertical  | 839.24             | 35.1              | 25.6                        | 21.7                     | 1.8                  | 33.0                         |  |  |                         | 46.0  | -13.0          | Pass                  |
| <b>Table Result:</b> Pass by -13.0 dB   |                    |                   |                             |                          |                      |                              | <b>Worst Freq:</b> 839.24 MHz          |  |                         |   |                |                       |
| <b>Test Site:</b> EMI Chamber 1   |                    |                   | <b>Cable 1:</b> Asset #2051 |                          |                      | <b>Cable 2:</b> Asset #2053  |  |  | <b>Cable 3:</b> ---     |   |                |                       |
| <b>Analyzer:</b> Gold   |                    |                   | <b>Preamp:</b> Blue-Blk     |                          |                      | <b>Antenna:</b> Red-Brown    |  |  | <b>Preselector:</b> --- |   |                |                       |
| CSsoft Radiated Emissions Calculator v 1.017.148                                |                    |                   |                             |                          |                      |                              |  |  |                         |   |                |                       |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor      |                    |                   |                             |                          |                      |                              |  |  |                         |   |                |                       |
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Rev.11/5/2015

|   |                                |                           |                                 |                            |                      |                  |                                      |                                    |
|---|--------------------------------|---------------------------|---------------------------------|----------------------------|----------------------|------------------|--------------------------------------|------------------------------------|
| <b>Spectrum Analyzers / Receivers / Preselectors</b><br>Gold  | <b>Range</b><br>100Hz-26.5 GHz | <b>MN</b><br>E4407B       | <b>Mfr</b><br>Agilent           | <b>SN</b><br>MY45113816    | <b>Asset</b><br>1284 | <b>Cat</b><br>I  | <b>Calibration Due</b><br>4/22/2016  | <b>Calibrated on</b><br>4/22/2015  |
| <b>Radiated Emissions Sites</b><br>EMI Chamber 1              | <b>FCC Code</b><br>719150      | <b>IC Code</b><br>2762A-6 | <b>VCCI Code</b><br>A-0015      | <b>Range</b><br>30-1000MHz |                      | <b>Cat</b><br>II | <b>Calibration Due</b><br>3/21/2017  | <b>Calibrated on</b><br>3/21/2015  |
| <b>Preamps / Couplers Attenuators / Filters</b><br>Blue-Black | <b>Range</b><br>0.009-2000MHz  | <b>MN</b><br>ZFL-1000-LN  | <b>Mfr</b><br>CS                | <b>SN</b><br>N/A           | <b>Asset</b><br>800  | <b>Cat</b><br>II | <b>Calibration Due</b><br>12/26/2015 | <b>Calibrated on</b><br>12/26/2014 |
| <b>Antennas</b><br>Red-Brown Bilog                            | <b>Range</b><br>30-2000MHz     | <b>MN</b><br>JB1          | <b>Mfr</b><br>Sunol             | <b>SN</b><br>A0032406      | <b>Asset</b><br>1218 | <b>Cat</b><br>I  | <b>Calibration Due</b><br>12/4/2016  | <b>Calibrated on</b><br>12/4/2014  |
| <b>Cables</b><br>Asset #2051                                  | <b>Range</b><br>9kHz - 18GHz   |                           | <b>Mfr</b><br>Florida RF        |                            |                      | <b>Cat</b><br>II | <b>Calibration Due</b><br>3/8/2016   | <b>Calibrated on</b><br>3/8/2015   |
| Asset #2053   | 9kHz - 18GHz                   |                           | Florida RF                      |                            |                      | II               | 3/8/2016                             | 3/8/2015                           |
| <b>Meteorological Meters</b><br>Weather Clock (Pressure Only) |                                | <b>MN</b><br>BA928        | <b>Mfr</b><br>Oregon Scientific | <b>SN</b><br>C3166-1       | <b>Asset</b><br>831  | <b>Cat</b><br>I  | <b>Calibration Due</b><br>3/19/2016  | <b>Calibrated on</b><br>3/19/2014  |
| TH A#2080   |                                | HTC-1                     | HDE                             |                            | 2080                 | II               | 4/2/2016                             | 4/2/2015                           |

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



**Radiated Emissions Table**

| Date: 12-Nov-15  |                 | Company: Ideal Industries, Inc. |                        |                      |                       |                   |                                | Work Order: P3128                          |                                  |             |                    |                                     |             |                                  |  |
|--|-----------------|---------------------------------|------------------------|----------------------|-----------------------|-------------------|--------------------------------|--|----------------------------------|-------------|--------------------|-------------------------------------|-------------|----------------------------------|--|
| Engineer: Chris LoPiccolo  |                 | EUT Desc: SCLINE1000            |                        |                      |                       |                   |                                | EUT Operating Voltage/Frequency: 120V/60Hz |                                  |             |                    |                                     |             |                                  |  |
| Temp: 22.2°C   |                 | Humidity: 31%                   |                        |                      |                       |                   |                                | Pressure: 1006mBar                         |                                  |             |                    |                                     |             |                                  |  |
| Frequency Range: 1-6 GHz   |                 |                                 |                        |                      |                       |                   |                                | Measurement Distance: 3 m                  |                                  |             |                    |                                     |             |                                  |  |
| Notes: EUT oriented x-axis (worst case)                                    |                 |                                 |                        |                      |                       |                   |                                | EUT Max Freq: 928 MHz                      |                                  |             |                    |                                     |             |                                  |  |
| Lo channel (902.7 MHz)   |                 |                                 |                        |                      |                       |                   |                                |  |                                  |             |                    |                                     |             |                                  |  |
| Antenna Polarization (H/V)   | Frequency (MHz) | Peak Reading (dBµV)             | Average Reading (dBµV) | Preamp Factor (dB)   | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m)              | FCC 15.209 High Frequency - Peak |             |                    | FCC 15.209 High Frequency - Average |             |                                  |  |
|  |                 |                                 |                        |                      |                       |                   |                                |  | Limit (dBµV/m)                   | Margin (dB) | Result (Pass/Fail) | Limit (dBµV/m)                      | Margin (dB) | Result (Pass/Fail)               |  |
| V  | 1015.0          | 35.46                           | 22.1                   | 20.8                 | 24.8                  | 2.3               | 41.8                           | 28.4                                       | 74.0                             | -32.2       | Pass               | 54.0                                | -25.6       | Pass                             |  |
| V  | 1805.4          | 39.27                           | 27.8                   | 18.8                 | 27.1                  | 3.0               | 50.6                           | 39.1                                       | 74.0                             | -23.4       | Pass               | 54.0                                | -14.9       | Pass                             |  |
| H  | 1805.4          | 35.74                           | 26.3                   | 18.8                 | 27.1                  | 3.0               | 47.0                           | 37.6                                       | 74.0                             | -27.0       | Pass               | 54.0                                | -16.4       | Pass                             |  |
| V  | 2708.0          | 35.89                           | 21.6                   | 20.3                 | 29.2                  | 4.0               | 48.8                           | 34.5                                       | 74.0                             | -25.2       | Pass               | 54.0                                | -19.5       | Pass                             |  |
| H  | 2708.0          | 36.83                           | 22.5                   | 20.3                 | 29.2                  | 4.0               | 49.7                           | 35.4                                       | 74.0                             | -24.3       | Pass               | 54.0                                | -18.6       | Pass                             |  |
| H  | 3001.0          | 35.95                           | 20.5                   | 19.9                 | 30.5                  | 4.0               | 50.6                           | 35.1                                       | 74.0                             | -23.4       | Pass               | 54.0                                | -18.9       | Pass                             |  |
| Table Result:  |                 |                                 |                        | Pass                 |                       | by                |                                | -14.9 dB                                   |                                  | Worst Freq: |                    |                                     |             | 1805.4 MHz                       |  |
| Test Site: EMI Chamber 2   |                 |                                 |                        | Cable 1: Asset #2052 |                       |                   |                                | Cable 2: Asset #1784                       |                                  |             |                    | Cable 3: ---                        |             |                                  |  |
| Analyzer: Gold   |                 |                                 |                        | Preamp: Asset #1517  |                       |                   |                                | Antenna: Black Horn                        |                                  |             |                    | Preselector: ---                    |             |                                  |  |
| CSsoft Radiated Emissions Calculator v 1.017.148                           |                 |                                 |                        |                      |                       |                   |                                |  |                                  |             |                    |                                     |             | Copyright Curtis-Straus LLC 2000 |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                 |                                 |                        |                      |                       |                   |                                |  |                                  |             |                    |                                     |             |                                  |  |

**Radiated Emissions Table**

| Date: 12-Nov-15  |                 | Company: Ideal Industries, Inc. |                        |                    |                       |                   |                                | Work Order: P3128                          |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
|--|-----------------|---------------------------------|------------------------|--------------------|-----------------------|-------------------|--------------------------------|--|----------------------------------|----------------------|--------------------|-------------------------------------|-------------|--------------------|------------------|--|--|--|--|
| Engineer: Chris LoPiccolo  |                 | EUT Desc: SCLINE1000            |                        |                    |                       |                   |                                | EUT Operating Voltage/Frequency: 120V/60Hz |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Temp: 22.2°C   |                 | Humidity: 31%                   |                        |                    |                       |                   |                                | Pressure: 1006mBar                         |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Frequency Range: 1-6 GHz   |                 |                                 |                        |                    |                       |                   |                                |  | Measurement Distance: 3 m        |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Notes: EUT oriented x-axis (worst case)                                    |                 |                                 |                        |                    |                       |                   |                                |  | EUT Max Freq: 928 MHz            |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Mid Channel (915 MHz)  |                 |                                 |                        |                    |                       |                   |                                |  |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Antenna Polarization (H/V)   | Frequency (MHz) | Peak Reading (dBµV)             | Average Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Peak Reading (dBµV/m) | Adjusted Avg Reading (dBµV/m)              | FCC 15.209 High Frequency - Peak |                      |                    | FCC 15.209 High Frequency - Average |             |                    |                  |  |  |  |  |
|  |                 |                                 |                        |                    |                       |                   |                                |  | Limit (dBµV/m)                   | Margin (dB)          | Result (Pass/Fail) | Limit (dBµV/m)                      | Margin (dB) | Result (Pass/Fail) |                  |  |  |  |  |
| H  | 1000.0          | 34.51                           | 21.5                   | 20.9               | 24.6                  | 2.2               | 40.4                           | 27.4                                       | 74.0                             | -33.6                | Pass               | 54.0                                | -26.6       | Pass               |                  |  |  |  |  |
| V  | 1830.0          | 36.06                           | 26.4                   | 18.8               | 27.2                  | 3.0               | 47.5                           | 37.8                                       | 74.0                             | -26.5                | Pass               | 54.0                                | -16.2       | Pass               |                  |  |  |  |  |
| H  | 1830.0          | 35.21                           | 22.9                   | 18.8               | 27.2                  | 3.0               | 46.6                           | 34.3                                       | 74.0                             | -27.4                | Pass               | 54.0                                | -19.7       | Pass               |                  |  |  |  |  |
| V  | 2745.0          | 36.04                           | 22.1                   | 20.2               | 29.1                  | 4.1               | 49.0                           | 35.1                                       | 74.0                             | -25.0                | Pass               | 54.0                                | -18.9       | Pass               |                  |  |  |  |  |
| H  | 2745.0          | 35.76                           | 21.7                   | 20.2               | 29.1                  | 4.1               | 48.8                           | 34.7                                       | 74.0                             | -25.2                | Pass               | 54.0                                | -19.3       | Pass               |                  |  |  |  |  |
| V  | 3001.0          | 35.07                           | 19.9                   | 19.9               | 30.5                  | 4.0               | 49.7                           | 34.5                                       | 74.0                             | -24.3                | Pass               | 54.0                                | -19.5       | Pass               |                  |  |  |  |  |
| Table Result: Pass by -16.2 dB Worst Freq: 1830.0 MHz                      |                 |                                 |                        |                    |                       |                   |                                |  |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Test Site: EMI Chamber 2   |                 |                                 |                        |                    | Cable 1: Asset #2052  |                   |                                |  |                                  | Cable 2: Asset #1784 |                    |                                     |             |                    | Cable 3: ---     |  |  |  |  |
| Analyzer: Gold   |                 |                                 |                        |                    | Preamp: Asset #1517   |                   |                                |  |                                  | Antenna: Black Horn  |                    |                                     |             |                    | Preselector: --- |  |  |  |  |
| CSsoft Radiated Emissions Calculator v 1.017.148                           |                 |                                 |                        |                    |                       |                   |                                |  |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                 |                                 |                        |                    |                       |                   |                                |  |                                  |                      |                    |                                     |             |                    |                  |  |  |  |  |
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**Radiated Emissions Table**

| Date: 12-Nov-15  |                    | Company: Ideal Industries, Inc. |                           |                       |                          |                      |                                   |                                  | Work Order: P3128                          |                |                       |                                     |                |                       |  |
|--|--------------------|---------------------------------|---------------------------|-----------------------|--------------------------|----------------------|-----------------------------------|----------------------------------|--|----------------|-----------------------|-------------------------------------|----------------|-----------------------|--|
| Engineer: Chris LoPiccolo  |                    | EUT Desc: SCLINE1000            |                           |                       |                          |                      |                                   |                                  | EUT Operating Voltage/Frequency: 120V/60Hz |                |                       |                                     |                |                       |  |
| Temp: 22.2°C   |                    | Humidity: 31%                   |                           |                       |                          |                      |                                   |                                  | Pressure: 1006mBar                         |                |                       |                                     |                |                       |  |
| Frequency Range: 1-6 GHz   |                    |                                 |                           |                       |                          |                      |                                   |                                  | Measurement Distance: 3 m                  |                |                       |                                     |                |                       |  |
| Notes: EUT oriented x-axis (worst case)<br>Hi Channel (927.3 MHz)          |                    |                                 |                           |                       |                          |                      |                                   |                                  | EUT Max Freq: 928 MHz                      |                |                       |                                     |                |                       |  |
| Antenna Polarization<br>(H/V)  | Frequency<br>(MHz) | Peak Reading<br>(dBµV)          | Average Reading<br>(dBµV) | Preamp Factor<br>(dB) | Antenna Factor<br>(dB/m) | Cable Factor<br>(dB) | Adjusted Peak Reading<br>(dBµV/m) | Adjusted Avg Reading<br>(dBµV/m) | FCC 15.209 High Frequency - Peak           |                |                       | FCC 15.209 High Frequency - Average |                |                       |  |
|  |                    |                                 |                           |                       |                          |                      |                                   |                                  | Limit<br>(dBµV/m)                          | Margin<br>(dB) | Result<br>(Pass/Fail) | Limit<br>(dBµV/m)                   | Margin<br>(dB) | Result<br>(Pass/Fail) |  |
| V  | 1855.0             | 35.15                           | 23.9                      | 18.8                  | 27.3                     | 3.1                  | 46.8                              | 35.5                             | 74.0                                       | -27.2          | Pass                  | 54.0                                | -18.5          | Pass                  |  |
| H  | 1855.0             | 34.6                            | 22.5                      | 18.8                  | 27.3                     | 3.1                  | 46.2                              | 34.1                             | 74.0                                       | -27.8          | Pass                  | 54.0                                | -19.9          | Pass                  |  |
| H  | 2454.0             | 36.04                           | 21.7                      | 20.1                  | 28.7                     | 3.8                  | 48.4                              | 34.1                             | 74.0                                       | -25.6          | Pass                  | 54.0                                | -19.9          | Pass                  |  |
| V  | 2975.0             | 36.55                           | 20.2                      | 20.0                  | 30.2                     | 4.1                  | 50.9                              | 34.5                             | 74.0                                       | -23.1          | Pass                  | 54.0                                | -19.5          | Pass                  |  |
| H  | 3235.0             | 35.93                           | 19.4                      | 19.7                  | 31.2                     | 4.3                  | 51.7                              | 35.2                             | 74.0                                       | -22.3          | Pass                  | 54.0                                | -18.8          | Pass                  |  |
| V  | 3697.0             | 34.33                           | 19.9                      | 19.1                  | 32.1                     | 4.2                  | 51.5                              | 37.1                             | 74.0                                       | -22.5          | Pass                  | 54.0                                | -16.9          | Pass                  |  |
| Table Result:  |                    |                                 |                           | Pass                  |                          | by                   |                                   | -16.9 dB                         |  | Worst Freq:    |                       |                                     |                | 3697.0 MHz            |  |
| Test Site: EMI Chamber 2   |                    |                                 |                           | Cable 1: Asset #2052  |                          |                      |                                   | Cable 2: Asset #1784             |  |                |                       | Cable 3: ---                        |                |                       |  |
| Analyzer: Gold   |                    |                                 |                           | Preamp: Asset #1517   |                          |                      |                                   | Antenna: Black Horn              |  |                |                       | Preselector: ---                    |                |                       |  |
| CSsoft Radiated Emissions Calculator v 1.017.148                           |                    |                                 |                           |                       |                          |                      |                                   |                                  |  |                |                       |                                     |                |                       |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor |                    |                                 |                           |                       |                          |                      |                                   |                                  |  |                |                       |                                     |                |                       |  |
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**Spectrum Analyzers / Receivers / Preselectors**  
Gold

| Range          | MN     | Mfr     | SN         | Asset | Cat | Calibration Due | Calibrated on |
|----------------|--------|---------|------------|-------|-----|-----------------|---------------|
| 100Hz-26.5 GHz | E4407B | Agilent | MY45113816 | 1284  | I   | 4/22/2016       | 4/22/2015     |

**Radiated Emissions Sites**  
EMI Chamber 2

| FCC Code | IC Code | VCCI Code | Range   | Cat | Calibration Due | Calibrated on |
|----------|---------|-----------|---------|-----|-----------------|---------------|
| 719150   | 2762A-7 | A-0015    | 1-18GHz | I   | 4/29/2017       | 4/29/2015     |

**Preamps / Couplers Attenuators / Filters**  
1517 HF Preamp

| Range   | MN | Mfr | SN  | Asset | Cat | Calibration Due | Calibrated on |
|---------|----|-----|-----|-------|-----|-----------------|---------------|
| 1-20GHz | CS | CS  | N/A | 1517  | II  | 8/6/2016        | 8/6/2015      |

**Antennas**  
Black Horn

| Range   | MN   | Mfr  | SN        | Asset | Cat | Calibration Due | Calibrated on |
|---------|------|------|-----------|-------|-----|-----------------|---------------|
| 1-18GHz | 3115 | EMCO | 9703-5148 | 56    | I   | 8/21/2016       | 8/21/2014     |

**Meteorological Meters**  
Weather Clock (Pressure Only)  
TH A#2081

| MN    | Mfr               | SN      | Asset | Cat | Calibration Due | Calibrated on |
|-------|-------------------|---------|-------|-----|-----------------|---------------|
| BA928 | Oregon Scientific | C3166-1 | 831   | I   | 3/19/2016       | 3/19/2014     |
| HTC-1 | HDE               |         | 2081  | II  | 4/2/2016        | 4/2/2015      |

**Cables**Asset #1784  
Asset #2052

| Range        | Mfr        | Cat | Calibration Due | Calibrated on |
|--------------|------------|-----|-----------------|---------------|
| 9kHz - 18GHz | Florida RF | II  | 3/20/2016       | 3/20/2015     |
| 9kHz - 18GHz | Florida RF | II  | 3/8/2016        | 3/8/2015      |

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

**Radiated Emissions Table**

| Date: 06-Nov-15  |                    |                        |                           | Company: Ideal Industries, Inc. |                         |                      |                                   | Work Order: P3128                          |                                  |                |                       |                                     |                |                       |  |
|--|--------------------|------------------------|---------------------------|---------------------------------|-------------------------|----------------------|-----------------------------------|--|----------------------------------|----------------|-----------------------|-------------------------------------|----------------|-----------------------|--|
| Engineer: Jason Haley  |                    |                        |                           | EUT Desc: SCLINE1000            |                         |                      |                                   | EUT Operating Voltage/Frequency: 120V/60Hz |                                  |                |                       |                                     |                |                       |  |
| Temp: 22.2°C   |                    |                        |                           | Humidity: 54%                   |                         |                      |                                   | Pressure: 1006mBar                         |                                  |                |                       |                                     |                |                       |  |
| Frequency Range: 6-10GHz   |                    |                        |                           |                                 |                         |                      |                                   | Measurement Distance: 1 m                  |                                  |                |                       |                                     |                |                       |  |
| Notes: EUT in the X-axis (worst case orientation). All Noise Floor readings. |                    |                        |                           |                                 |                         |                      |                                   | EUT Max Freq:                              |                                  |                |                       |                                     |                |                       |  |
| Antenna Polarization<br>(H/V)  | Frequency<br>(MHz) | Peak Reading<br>(dBμV) | Average Reading<br>(dBμV) | Preamp Factor<br>(dB)           | Antenna Factor<br>(dBm) | Cable Factor<br>(dB) | Adjusted Peak Reading<br>(dBμV/m) | Adjusted Avg Reading<br>(dBμV/m)           | FCC 15.209 High Frequency - Peak |                |                       | FCC 15.209 High Frequency - Average |                |                       |  |
|  |                    |                        |                           |                                 |                         |                      |                                   |  | Limit<br>(dBμV/m)                | Margin<br>(dB) | Result<br>(Pass/Fail) | Limit<br>(dBμV/m)                   | Margin<br>(dB) | Result<br>(Pass/Fail) |  |
| V Low Channel  | 6314.0             | 29.23                  | 16.7                      | 16.2                            | 35.6                    | 5.8                  | 54.4                              | 41.9                                       | 83.5                             | -29.1          | Pass                  | 63.5                                | -21.6          | Pass                  |  |
| H Mid Channel  | 6405.0             | 27.3                   | 16.6                      | 16.0                            | 35.5                    | 5.9                  | 52.7                              | 42.0                                       | 83.5                             | -30.8          | Pass                  | 63.5                                | -21.5          | Pass                  |  |
| Horz hi channel  | 6496.0             | 27.85                  | 16.3                      | 16.1                            | 35.5                    | 5.9                  | 53.2                              | 41.6                                       | 83.5                             | -30.3          | Pass                  | 63.5                                | -21.9          | Pass                  |  |
| H Low Channel  | 7216.0             | 28.9                   | 17.5                      | 15.9                            | 37.6                    | 5.8                  | 56.4                              | 45.0                                       | 83.5                             | -27.1          | Pass                  | 63.5                                | -18.5          | Pass                  |  |
| H Mid Channel  | 7320.0             | 27.6                   | 17.2                      | 15.9                            | 37.9                    | 5.8                  | 55.4                              | 45.0                                       | 83.5                             | -28.1          | Pass                  | 63.5                                | -18.5          | Pass                  |  |
| Vert Hi channel  | 7424.0             | 28.7                   | 16.7                      | 15.9                            | 37.9                    | 5.7                  | 56.4                              | 44.4                                       | 83.5                             | -27.1          | Pass                  | 63.5                                | -19.1          | Pass                  |  |
| H Low Channel  | 8118.0             | 28.65                  | 16.3                      | 15.9                            | 37.7                    | 5.8                  | 56.3                              | 43.9                                       | 83.5                             | -27.2          | Pass                  | 63.5                                | -19.6          | Pass                  |  |
| V Mid Channel  | 8235.0             | 27.16                  | 16.5                      | 16.0                            | 37.8                    | 5.8                  | 54.8                              | 44.1                                       | 83.5                             | -28.7          | Pass                  | 63.5                                | -19.4          | Pass                  |  |
| Horz hi channel  | 8352.0             | 28.56                  | 16.2                      | 16.0                            | 37.9                    | 5.9                  | 56.4                              | 44.0                                       | 83.5                             | -27.1          | Pass                  | 63.5                                | -19.5          | Pass                  |  |
| V Low Channel  | 9020.0             | 30.08                  | 16.6                      | 15.8                            | 38.5                    | 6.0                  | 58.8                              | 45.3                                       | 83.5                             | -24.7          | Pass                  | 63.5                                | -18.2          | Pass                  |  |
| H Mid Channel  | 9150.0             | 27.0                   | 16.5                      | 15.7                            | 38.3                    | 6.1                  | 55.7                              | 45.2                                       | 83.5                             | -27.8          | Pass                  | 63.5                                | -18.3          | Pass                  |  |
| Vert Hi channel  | 9280.0             | 28.79                  | 15.9                      | 15.6                            | 38.3                    | 6.1                  | 57.6                              | 44.7                                       | 83.5                             | -25.9          | Pass                  | 63.5                                | -18.8          | Pass                  |  |
| H Low Channel  | 9922.0             | 29.27                  | 15.9                      | 14.9                            | 39.2                    | 6.7                  | 60.3                              | 46.9                                       | 83.5                             | -23.2          | Pass                  | 63.5                                | -16.6          | Pass                  |  |
| Table Result:  |                    |                        |                           | Pass by -16.6 dB                |                         |                      |                                   | Worst Freq: 9922.0 MHz                     |                                  |                |                       |                                     |                |                       |  |
| Test Site: EMI Chamber 1   |                    |                        |                           | Cable 1: Asset #2051            |                         |                      |                                   | Cable 2: Asset #2053                       |                                  |                |                       | Cable 3: ---                        |                |                       |  |
| Analyzer: Gold   |                    |                        |                           | Preamp: Brown                   |                         |                      |                                   | Antenna: Black Horn                        |                                  |                |                       | Preselector: ---                    |                |                       |  |
| CSsoft Radiated Emissions Calculator v 1.017.148                             |                    |                        |                           |                                 |                         |                      |                                   | Copyright Curtis-Straus LLC 2000           |                                  |                |                       |                                     |                |                       |  |
| Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor   |                    |                        |                           |                                 |                         |                      |                                   |  |                                  |                |                       |                                     |                |                       |  |

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**Spectrum Analyzers / Receivers / Preselectors**  
Gold

| Range          | MN     | Mfr     | SN         | Asset | Cat | Calibration Due | Calibrated on |
|----------------|--------|---------|------------|-------|-----|-----------------|---------------|
| 100Hz-26.5 GHz | E4407B | Agilent | MY45113816 | 1284  | I   | 4/22/2016       | 4/22/2015     |

**Radiated Emissions Sites**  
EMI Chamber 1

| FCC Code | IC Code | VCCI Code | Range      | Cat | Calibration Due | Calibrated on |
|----------|---------|-----------|------------|-----|-----------------|---------------|
| 719150   | 2762A-6 | A-0015    | 30-1000MHz | II  | 3/21/2017       | 3/21/2015     |

**Preamps / Couplers Attenuators / Filters**  
Brown

| Range   | MN | Mfr | SN  | Asset | Cat | Calibration Due | Calibrated on |
|---------|----|-----|-----|-------|-----|-----------------|---------------|
| 1-10GHz | CS | CS  | N/A | 1523  | II  | 4/9/2016        | 10/8/2015     |

**Antennas**  
Black Horn

| Range   | MN   | Mfr  | SN        | Asset | Cat | Calibration Due | Calibrated on |
|---------|------|------|-----------|-------|-----|-----------------|---------------|
| 1-18GHz | 3115 | EMCO | 9703-5148 | 56    | I   | 8/21/2016       | 8/21/2014     |

**Cables**Asset #2051  
Asset #2053

| Range        | Mfr        | Cat | Calibration Due | Calibrated on |
|--------------|------------|-----|-----------------|---------------|
| 9kHz - 18GHz | Florida RF | II  | 3/8/2016        | 3/8/2015      |
| 9kHz - 18GHz | Florida RF | II  | 3/8/2016        | 3/8/2015      |

**Meteorological Meters**  
Weather Clock (Pressure Only)  
TH A#2080

| MN    | Mfr               | SN      | Asset | Cat | Calibration Due | Calibrated on |
|-------|-------------------|---------|-------|-----|-----------------|---------------|
| BA928 | Oregon Scientific | C3166-1 | 831   | I   | 3/19/2016       | 3/19/2014     |
| HTC-1 | HDE               |         | 2080  | II  | 4/2/2016        | 4/2/2015      |

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



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## 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 ...

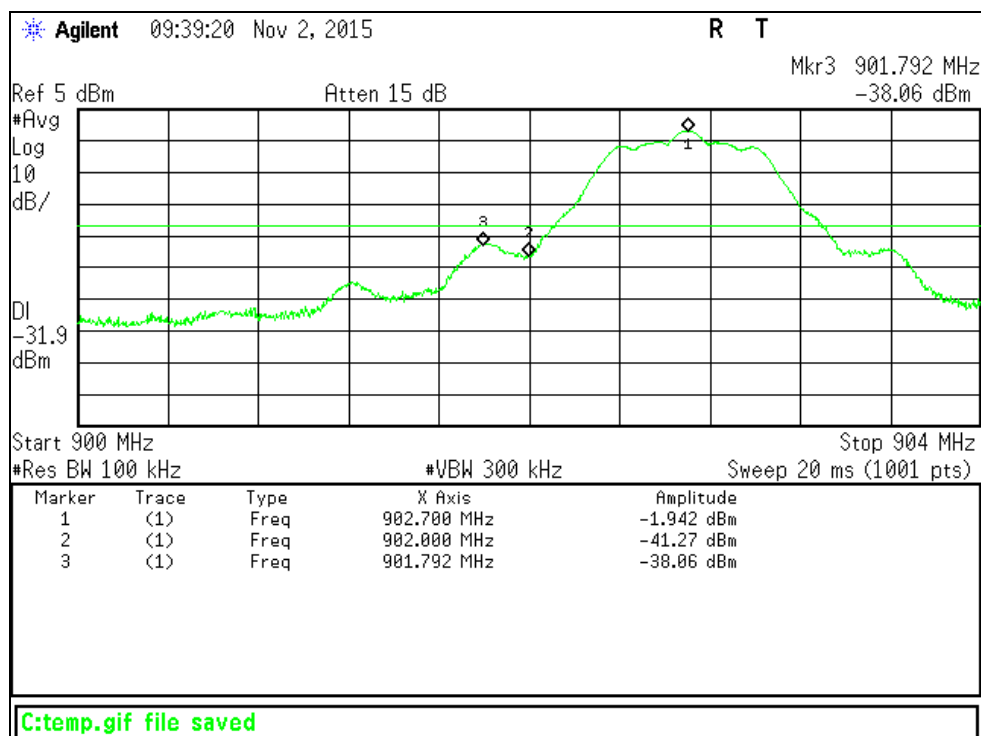
[15.247(d)]

### MEASUREMENTS / RESULTS

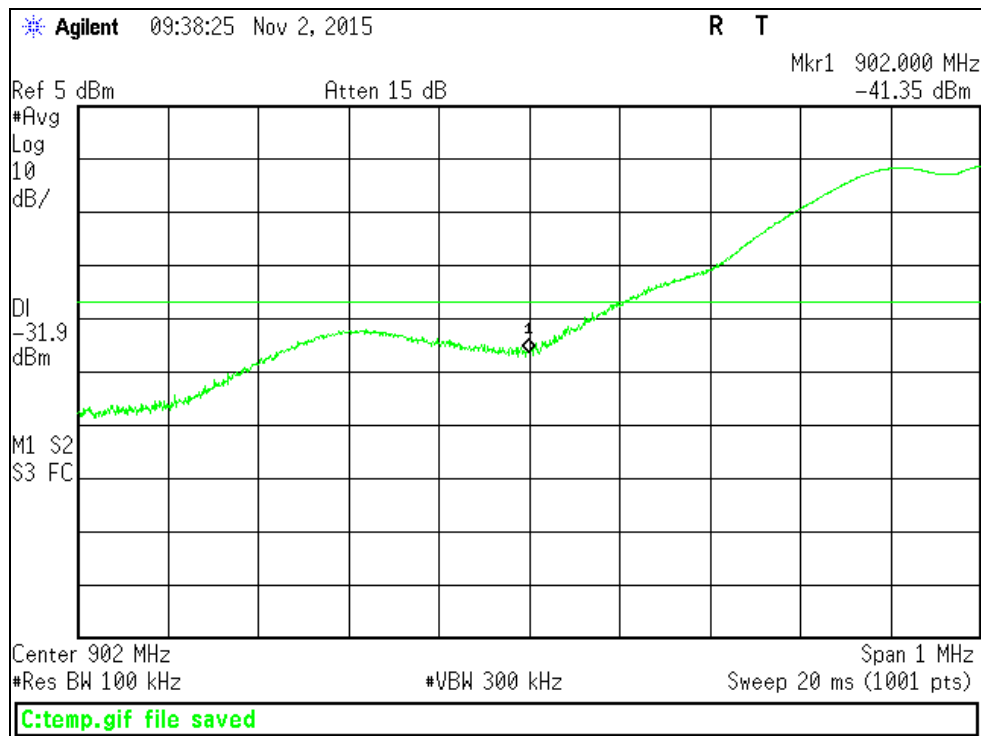
#### Band Edge Measurements

| Conducted Band Edge          |  |  |  |
|------------------------------|--|--|--|
| Date: 02-Nov-15              |  | Company: Ideal Industries, Inc.              |  |
| Engineer: Tuyen Truong       |  | Work Order: P3128                            |  |
| Temp: 21°C                   |  | EUT Desc: SCLINE1000                         |  |
| Humidity: 38%                |  | EUT Operating Voltage/Frequency: 120Vac/60Hz |  |
| Pressure: 1008mbar           |  |  |  |
| Frequency Range: 902-928 MHz |  |  |  |
| Test Site: CEMI1             |  | Attenuation: 791                             |  |
| Analyzer: 1510               |  |  |  |

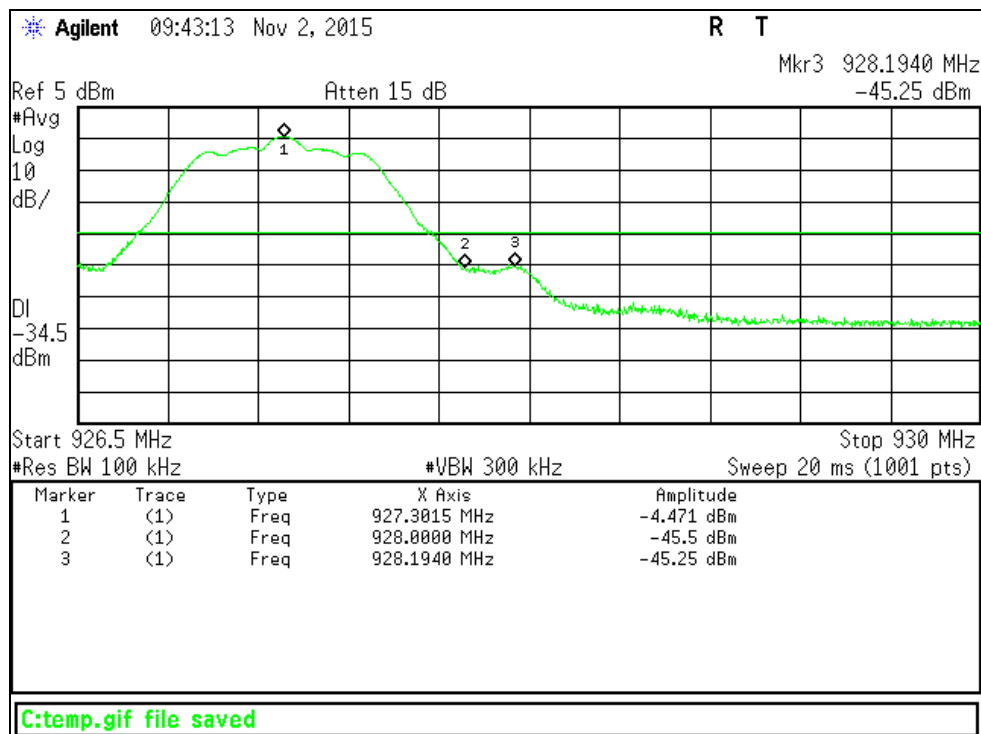
### PLOTS



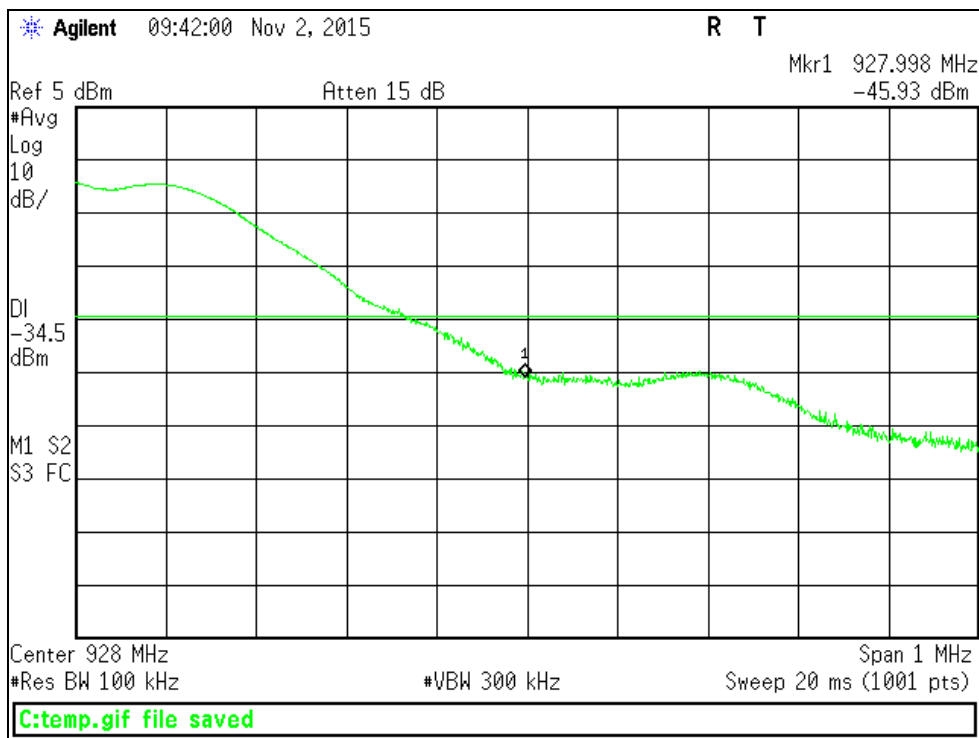
Band Edge, Lower Channel Overview



Band Edge, Lower Channel Zoomed in



Band Edge, Upper Channel Overview



Band Edge, Upper Channel Zoomed in

Rev. 10/19/2015

**Spectrum Analyzers / Receivers / Preselectors**  
Brown

| Range        | MN     | Mfr     | SN         | Asset | Cat | Calibration Due | Calibrated on |
|--------------|--------|---------|------------|-------|-----|-----------------|---------------|
| 9kHz-26.5GHz | E4407B | Agilent | SG44210511 | 1510  | I   | 6/30/2016       | 6/30/2015     |

**Preamps / Couplers Attenuators / Filters**  
HF 20dB 50W Attenuator

| Range        | MN         | Mfr        | SN | Asset | Cat | Calibration Due | Calibrated on |
|--------------|------------|------------|----|-------|-----|-----------------|---------------|
| 0.009-18 GHz | PE 7019-20 | Pasternack | 1  | 791   | II  | 7/31/2016       | 7/31/2015     |

**Conducted Test Sites (Mains / Telco)**  
CEMI 1

| FCC Code | VCCI Code | Cat | Calibration Due | Calibrated on |
|----------|-----------|-----|-----------------|---------------|
| 719150   | A-0015    | III | NA              | N/A           |

**Meteorological Meters**  
Weather Clock (Pressure Only)  
TH A#2078

| MN    | Mfr               | SN      | Asset | Cat | Calibration Due | Calibrated on |
|-------|-------------------|---------|-------|-----|-----------------|---------------|
| BA928 | Oregon Scientific | C3166-1 | 831   | I   | 3/19/2016       | 3/19/2014     |
| HTC-1 | HDE               |         | 2078  | II  | 4/2/2016        | 4/2/2015      |

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



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**Conducted Spurious Emission****Conducted Spurious Emission at The Antenna Port**

|  |  |   |
|--|--|---|
| <b>Date:</b> 29-Oct-15                     | <b>Company:</b> Ideal Industries, Inc. | <b>Work Order:</b> P3128                            |
| <b>Engineer:</b> Jason Haley               | <b>EUT Desc:</b> SCLINE1000            | <b>EUT Operating Voltage/Frequency:</b> 120Vac/60Hz |
| <b>Temp:</b> 22°C                          | <b>Humidity:</b> 56%                   | <b>Pressure:</b> 991mBar                            |
| <b>Frequency Range:</b> 9 KHz to 10000 MHz |  |   |
| <b>Test Site:</b> CEMI1                    | <b>Cable:</b> 1522                     |   |
| <b>Analyzer:</b> Brown                     |  |   |

9kHz-10GHz frequency range was investigated for all 3 channels (low, middle and high) at the EUT antenna port. Except for the fundamental, all emissions were at instrument noise floor. Highest noise floor level was less than -35dBm for the entire frequency range, which is more than 30dB below the fundamental.

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| <b>Spectrum Analyzers / Receivers / Preselectors</b> | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>   | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
|--|-----------------|------------------|--------------|------------|--------------|------------|------------------------|----------------------|
| Brown  | 9kHz-26.5GHz    | E4407B           | Agilent      | SG44210511 | 1510         | I          | 6/30/2016              | 6/30/2015            |
| <b>Conducted Test Sites (Mains / Telco)</b>          | <b>FCC Code</b> | <b>VCCI Code</b> |              |            |              | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| CEMI 1   | 719150          | A-0015           |              |            |              | III        | NA                     | N/A                  |
| <b>Cables</b>  | <b>Range</b>    | <b>Mfr</b>       |              |            |              | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Asset #1522  | 9kHz - 18GHz    | Florida RF       |              |            |              | II         | 2/15/2016              | 2/15/2015            |
| <b>Meteorological Meters</b>                         |                 | <b>MN</b>        | <b>Mfr</b>   | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Weather Clock (Pressure Only)                        |                 | BA928            | egon Scienti | C3166-1    | 831          | I          | 3/19/2016              | 3/19/2014            |
| TH A#2078  |                 | HTC-1            | HDE          |            | 2078         | II         | 4/2/2016               | 4/2/2015             |

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



## 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             |                  |                                 |                           |                       |  |                       |
|------------------------------------|------------------|---------------------------------|---------------------------|-----------------------|--|-----------------------|
| Date: 02-Nov-15                    |                  | Company: Ideal Industries, Inc. |                           |                       | Work Order: P3128                            |                       |
| Engineer: Tuyen Truong             |                  | EUT Desc: SCLINE1000            |                           |                       | EUT Operating Voltage/Frequency: 120Vac/60Hz |                       |
| Temp: 21°C                         |                  | Humidity: 38%                   |                           | Pressure: 1008mbar    |  |                       |
| Frequency Range: 902.7 - 927.3 MHz |                  |                                 |                           |                       |  |                       |
| Notes:                             |                  |                                 |                           |                       |  |                       |
|                                    |                  |                                 |                           |                       |  |                       |
| Frequency<br>(MHz)                 | Reading<br>(dBm) | Attenuation<br>(dB)             | Adjusted Reading<br>(dBm) | FCC 15.247            |  |                       |
|                                    |                  |                                 |                           | Limit<br>(dBm)        | Margin<br>(dB)                               | Result<br>(Pass/Fail) |
| 902.7                              | -15.56           | 19.55                           | 3.99                      | 8.0                   | -4.01  | Pass                  |
| 915.0                              | -16.53           | 19.55                           | 3.02                      | 8.0                   | -4.98  | Pass                  |
| 927.3                              | -18.23           | 19.55                           | 1.32                      | 8.0                   | -6.68  | Pass                  |
| Table Result: Pass by -4.01 dB     |                  |                                 |                           | Worst Freq: 902.7 MHz |  |                       |
| Test Site: CEMI1                   |                  | Attenuation: 791                |                           |                       |  |                       |
| Analyzer: 1510                     |                  |                                 |                           |                       |  |                       |

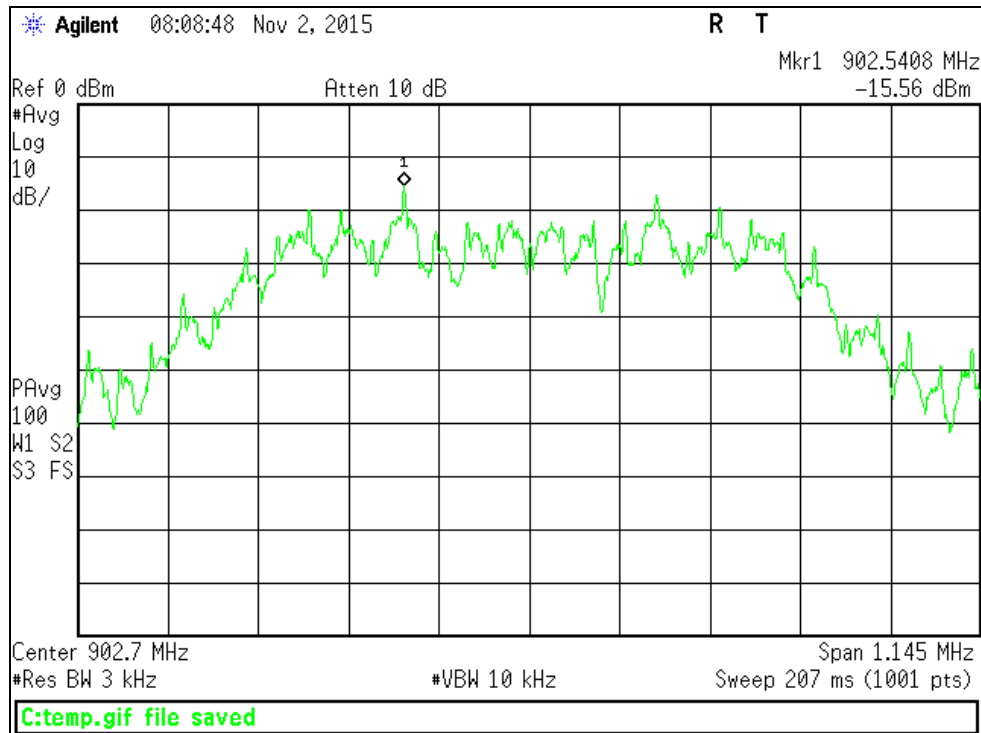
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|   |                 |                  |                   |            |              |            |                        |                      |
|---|-----------------|------------------|-------------------|------------|--------------|------------|------------------------|----------------------|
| <b>Spectrum Analyzers / Receivers / Preselectors</b>    | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Brown   | 9kHz-26.5GHz    | E4407B           | Agilent           | SG44210511 | 1510         | I          | 6/30/2016              | 6/30/2015            |
| <b>Preamplifiers / Couplers / Attenuators / Filters</b> | <b>Range</b>    | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| HF 20dB 50W Attenuator                                  | 0.009-18 GHz    | PE 7019-20       | Pasternack        | 1          | 791          | II         | 7/31/2016              | 7/31/2015            |
| <b>Conducted Test Sites (Mains / Telco)</b>             | <b>FCC Code</b> | <b>VCCI Code</b> |                   |            |              | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| CEMI 1  | 719150          | A-0015           |                   |            |              | III        | NA                     | N/A                  |
| <b>Meteorological Meters</b>                            |                 | <b>MN</b>        | <b>Mfr</b>        | <b>SN</b>  | <b>Asset</b> | <b>Cat</b> | <b>Calibration Due</b> | <b>Calibrated on</b> |
| Weather Clock (Pressure Only)                           |                 | BA928            | Oregon Scientific | C3166-1    | 831          | I          | 3/19/2016              | 3/19/2014            |
| TH A#2078   |                 | HTC-1            | HDE               |            | 2078         | II         | 4/2/2016               | 4/2/2015             |

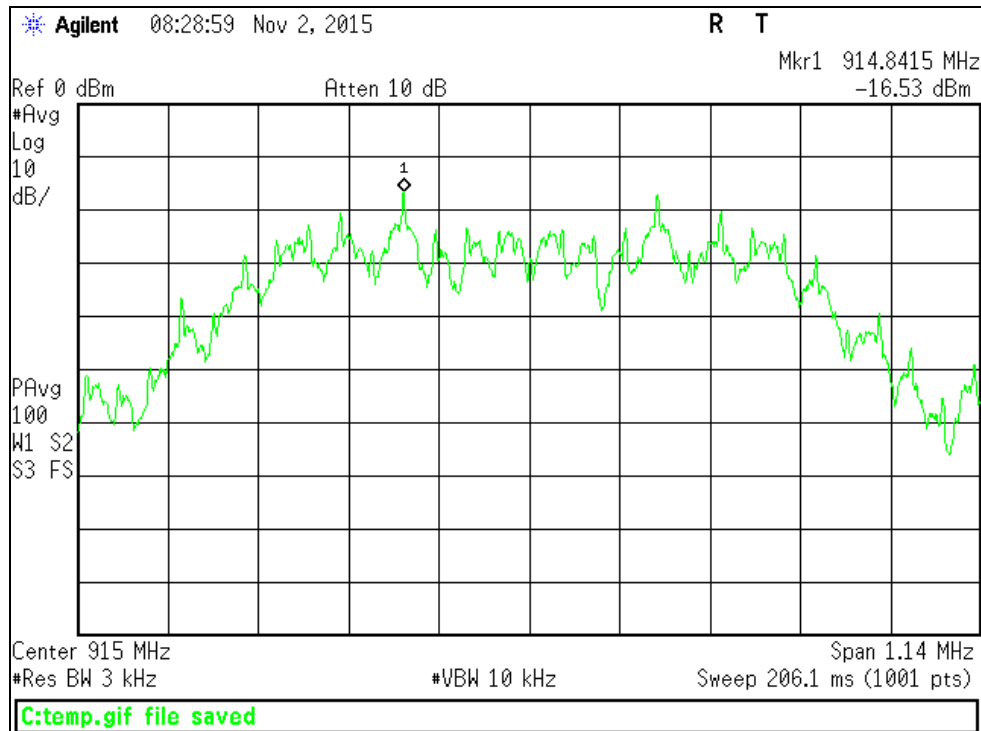
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



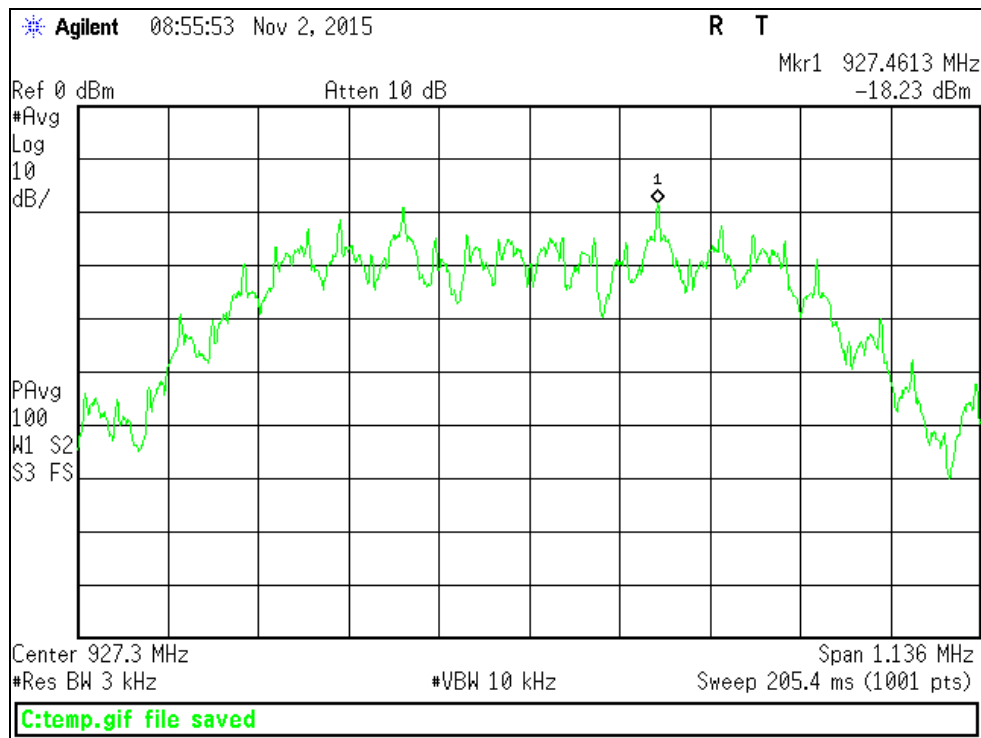
# PLOTS



Power Spectral Density, Low Channel



Power Spectral Density, Middle Channel



Power Spectral Density, High Channel

## AC Line Conducted Emissions LIMITS

| Frequency of emission (MHz) | Quasi-peak limit (dBμV) | Average limit (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

| AC Conducted Emissions Data Table                          |                        |               |                     |                |                 |            |  |                        |                    |   |  |                     |                |                       |
|--|------------------------|---------------|---------------------|----------------|-----------------|------------|--|------------------------|--------------------|---|--|---------------------|----------------|-----------------------|
| Date: 26-Oct-15<br>Engineer: Tuyen Truong<br>Temp: 21.9 °C |                        |               |                     |                |                 |            | Company: Ideal Industries, Inc.<br>EUT Desc: SCLINE1000<br>Humidity: 35% |                        |                    |   | Work Order: P3128<br>Pressure: 1021 mBar |                     |                |                       |
| Notes:   |                        |               |                     |                |                 |            |  |                        |                    |   |  |                     |                |                       |
| Frequency Range: 0.15 - 30 MHz                             |                        |               |                     |                |                 |            | EUT Input Voltage/Frequency: 120 Vac / 60Hz                              |                        |                    |   |  |                     |                |                       |
| Frequency<br>(MHz)   | Quasi-Peak<br>Readings |               | Average<br>Readings |                | LISN<br>Factors |            | Cable<br>Factor<br>(dB)  | ATTN<br>Factor<br>(dB) | FCC 15.207         |   |  | FCC 15.207          |                |                       |
|  | QP1<br>(dBµV)          | QP2<br>(dBµV) | AVG1<br>(dBµV)      | AVG2<br>(dBµV) | L1<br>(dB)      | L2<br>(dB) |  |                        | QP Limit<br>(dBµV) | Margin<br>(dB)                                  | Result<br>(Pass/Fail)                    | AVG Limit<br>(dBµV) | Margin<br>(dB) | Result<br>(Pass/Fail) |
| 0.37   | 18.9                   | 15.4          | 18.9                | 15.4           | 0.0             | 0.0        | -0.1   | -20.3                  | 58.4               | -19.1   | Pass                                     | 48.4                | -9.2           | Pass                  |
| 0.77   | 16.8                   | 13.5          | 16.8                | 13.5           | 0.0             | 0.0        | -0.1   | -20.3                  | 56.0               | -18.7   | Pass                                     | 46.0                | -8.8           | Pass                  |
| 1.14   | 19.4                   | 15.5          | 14.1                | 15.5           | -0.1            | -0.1       | -0.1   | -20.3                  | 56.0               | -16.2   | Pass                                     | 46.0                | -10.0          | Pass                  |
| 7.50   | 12.7                   | 13.0          | 12.7                | 13.0           | -0.1            | -0.1       | -0.2   | -20.3                  | 60.0               | -26.4   | Pass                                     | 50.0                | -16.4          | Pass                  |
| 18.61  | 16.5                   | 16.0          | 16.5                | 16.0           | -0.2            | -0.2       | -0.3   | -20.3                  | 60.0               | -22.8   | Pass                                     | 50.0                | -12.7          | Pass                  |
| 21.44  | 12.9                   | 11.7          | 12.9                | 11.7           | -0.2            | -0.2       | -0.3   | -20.3                  | 60.0               | -26.4   | Pass                                     | 50.0                | -16.4          | Pass                  |
| Result: Pass   |                        |               |                     |                |                 |            | Worst Margin: -8.8 dB  |                        |                    | Frequency: 0.766 MHz                            |  |                     |                |                       |
| Measurement Device: LISN Asset 2092                        |                        |               |                     |                |                 |            | Cable: CEM-01<br>Attenuator: 20dB Atten-4                                |                        |                    | Spectrum Analyzer: Rental SA #5<br>Site: CEMI 6 |  |                     |                |                       |

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|  |                               |                             |  |                            |                             |                       |   |   |
|--|-------------------------------|-----------------------------|--|----------------------------|-----------------------------|-----------------------|---|---|
| <b>Spectrum Analyzers / Receivers / Preselectors</b><br>SA #2 (1860)       | <b>Range</b><br>9kHz-26.5 GHz | <b>MN</b><br>E7405A         | <b>Mfr</b><br>Agilent                  | <b>SN</b><br>MY45104916    | <b>Asset</b><br>1860        | <b>Cat</b><br>I       | <b>Calibration Due</b><br>7/30/2016             | <b>Calibrated on</b><br>7/30/2015             |
| <b>LISNs/Measurement Probes</b><br>LISN Asset 2092                         | <b>Range</b><br>9KHz-30MHz    | <b>MN</b><br>NNLK 8121      | <b>Mfr</b><br>Schwarzbeck              | <b>SN</b><br>NNLK 8121-662 | <b>Asset</b><br>2092        | <b>Cat</b><br>I       | <b>Calibration Due</b><br>6/30/2016             | <b>Calibrated on</b><br>6/30/2015             |
| <b>Conducted Test Sites (Mains / Telco)</b><br>CEMI 6                      | <b>FCC Code</b><br>719150     |                             | <b>VCCI Code</b><br>A-0015             |                            |                             | <b>Cat</b><br>III     | <b>Calibration Due</b><br>NA                    | <b>Calibrated on</b><br>N/A                   |
| <b>Cables</b><br>CEMI-01   | <b>Range</b><br>9kHz - 2GHz   |                             | <b>Mfr</b><br>C-S                      |                            |                             | <b>Cat</b><br>II      | <b>Calibration Due</b><br>9/11/2016             | <b>Calibrated on</b><br>9/11/2015             |
| <b>Attenuators</b><br>20dB Attenuator-04                                   | <b>Range</b><br>9kHz-2GHz     | <b>MN</b>                   | <b>Mfr</b>                             | <b>SN</b><br>N/A           | <b>Asset</b>                | <b>Cat</b><br>II      | <b>Calibration Due</b><br>7/2/2016              | <b>Calibrated on</b><br>7/2/2015              |
| <b>Meteorological Meters</b><br>Weather Clock (Pressure Only)<br>TH A#2078 |                               | <b>MN</b><br>BA928<br>HTC-1 | <b>Mfr</b><br>Oregon Scientific<br>HDE | <b>SN</b><br>C3166-1       | <b>Asset</b><br>831<br>2078 | <b>Cat</b><br>I<br>II | <b>Calibration Due</b><br>3/19/2016<br>4/2/2016 | <b>Calibrated on</b><br>3/19/2014<br>4/2/2015 |

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





**AC Conducted Emissions Data Table**

|                                     |                        |               |                     |                |                 |                                |                         |                        |                    |   |                       |                                 |                |                       |  |  |  |
|-------------------------------------|------------------------|---------------|---------------------|----------------|-----------------|--------------------------------|-------------------------|------------------------|--------------------|---|-----------------------|---------------------------------|----------------|-----------------------|--|--|--|
| Date: 26-Oct-15                     |                        |               |                     |                |                 | Company: Ideal Industries, Inc |                         |                        |                    |   |                       | Work Order: P3128               |                |                       |  |  |  |
| Engineer: Tuyen Truong              |                        |               |                     |                |                 | EUT Desc: SCLINE1000           |                         |                        |                    |   |                       | Pressure: 1021 mBar             |                |                       |  |  |  |
| Temp: 21.9 °C                       |                        |               |                     |                |                 | Humidity: 35%                  |                         |                        |                    |   |                       |                                 |                |                       |  |  |  |
| Notes:                              |                        |               |                     |                |                 |                                |                         |                        |                    |   |                       |                                 |                |                       |  |  |  |
| Frequency Range: 0.15 - 30 MHz      |                        |               |                     |                |                 |                                |                         |                        |                    | EUT Input Voltage/Frequency: 277 Vac / 60Hz |                       |                                 |                |                       |  |  |  |
| Frequency<br>(MHz)                  | Quasi-Peak<br>Readings |               | Average<br>Readings |                | LISN<br>Factors |                                | Cable<br>Factor<br>(dB) | ATTN<br>Factor<br>(dB) | FCC 15.207         |   |                       | FCC 15.207                      |                |                       |  |  |  |
|                                     | QP1<br>(dBµV)          | QP2<br>(dBµV) | AVG1<br>(dBµV)      | AVG2<br>(dBµV) | L1<br>(dB)      | L2<br>(dB)                     |                         |                        | QP Limit<br>(dBµV) | Margin<br>(dB)                              | Result<br>(Pass/Fail) | AVG Limit<br>(dBµV)             | Margin<br>(dB) | Result<br>(Pass/Fail) |  |  |  |
| 0.40                                | 23.9                   | 17.4          | 16.5                | 17.3           | 0.0             | 0.0                            | -0.1                    | -20.3                  | 57.8               | -13.5                                       | Pass                  | 47.8                            | -10.9          | Pass                  |  |  |  |
| 0.78                                | 14.1                   | 8.9           | 14.1                | 8.9            | 0.0             | 0.0                            | -0.1                    | -20.3                  | 56.0               | -21.4                                       | Pass                  | 46.0                            | -11.4          | Pass                  |  |  |  |
| 1.15                                | 17.9                   | 13.5          | 10.6                | 13.4           | -0.1            | -0.1                           | -0.1                    | -20.3                  | 56.0               | -17.7                                       | Pass                  | 46.0                            | -14.9          | Pass                  |  |  |  |
| 5.24                                | 14.2                   | 15.2          | 14.2                | 15.2           | -0.1            | -0.1                           | -0.2                    | -20.3                  | 60.0               | -24.3                                       | Pass                  | 50.0                            | -14.3          | Pass                  |  |  |  |
| 17.45                               | 16.1                   | 15.4          | 16.1                | 15.4           | -0.2            | -0.2                           | -0.2                    | -20.3                  | 60.0               | -23.2                                       | Pass                  | 50.0                            | -13.2          | Pass                  |  |  |  |
| 21.30                               | 13.8                   | 12.1          | 13.8                | 12.1           | -0.2            | -0.2                           | -0.3                    | -20.3                  | 60.0               | -25.5                                       | Pass                  | 50.0                            | -15.5          | Pass                  |  |  |  |
| Result: Pass                        |                        |               |                     |                |                 | Worst Margin: -10.9 dB         |                         |                        |                    |   |                       | Frequency: 0.402 MHz            |                |                       |  |  |  |
| Measurement Device: LISN Asset 2092 |                        |               |                     |                |                 | Cable: CEMI-01                 |                         |                        |                    |   |                       | Spectrum Analyzer: Rental SA #5 |                |                       |  |  |  |
|                                     |                        |               |                     |                |                 | Attenuator: 20dB Atten-4       |                         |                        |                    |   |                       | Site: CEMI6                     |                |                       |  |  |  |

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**Spectrum Analyzers / Receivers / Preselectors**  
SA #2 (1860)

| Range         | MN     | Mfr     | SN         | Asset | Cat | Calibration Due | Calibrated on |
|---------------|--------|---------|------------|-------|-----|-----------------|---------------|
| 9kHz-26.5 GHz | E7405A | Agilent | MY45104916 | 1860  | I   | 7/30/2016       | 7/30/2015     |

**LISNs/Measurement Probes**  
LISN Asset 2092

| Range      | MN        | Mfr         | SN            | Asset | Cat | Calibration Due | Calibrated on |
|------------|-----------|-------------|---------------|-------|-----|-----------------|---------------|
| 9KHz-30MHz | NNLK 8121 | Schwarzbeck | NNLK 8121-662 | 2092  | I   | 6/30/2016       | 6/30/2015     |

**Conducted Test Sites (Mains / Telco)**  
CEMI 6

| FCC Code | VCCI Code | Cat | Calibration Due | Calibrated on |
|----------|-----------|-----|-----------------|---------------|
| 719150   | A-0015    | III | NA              | N/A           |

**Cables**

CEMI-01

| Range       | Mfr | Cat | Calibration Due | Calibrated on |
|-------------|-----|-----|-----------------|---------------|
| 9kHz - 2GHz | C-S | II  | 9/11/2016       | 9/11/2015     |

**Attenuators**

20dB Attenuator-04

| Range     | MN | Mfr | SN  | Asset | Cat | Calibration Due | Calibrated on |
|-----------|----|-----|-----|-------|-----|-----------------|---------------|
| 9kHz-2GHz |    |     | N/A |       | II  | 7/2/2016        | 7/2/2015      |

**Meteorological Meters**Weather Clock (Pressure Only)  
TH A#2078

| MN    | Mfr               | SN      | Asset | Cat | Calibration Due | Calibrated on |
|-------|-------------------|---------|-------|-----|-----------------|---------------|
| BA928 | Oregon Scientific | C3166-1 | 831   | I   | 3/19/2016       | 3/19/2014     |
| HTC-1 | HDE               |         | 2078  | II  | 4/2/2016        | 4/2/2015      |

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 to be its 99% emission bandwidth, as calculated or measured. [RSS-GEN 4.6.1]

### MEASUREMENTS / RESULTS

| 99% OCCUPIED BANDWIDTH             |                                     |                                 |  |
|------------------------------------|-------------------------------------|---------------------------------|--|
| Date: 02-Nov-15                    |                                     | Company: Ideal Industries, Inc. | Work Order: P3128                            |
| Engineer: Tuyen Truong             |                                     | EUT Desc: SCLINE1000            | EUT Operating Voltage/Frequency: 120Vac/60Hz |
| Temp: 21°C                         |                                     | Humidity: 38%                   | Pressure: 1008mbar                           |
| Frequency Range: 902.7 - 927.3 MHz |                                     |                                 |  |
| Notes:                             |                                     |                                 |  |
| Frequency<br>(MHz)                 | Occupied Bandwidth Reading<br>(KHz) |                                 |  |
| 902.7                              | 763.0032                            |                                 |  |
| 915.0                              | 759.7408                            |                                 |  |
| 927.3                              | 756.9792                            |                                 |  |
| Test Site: CEMI1                   |                                     | Attenuation: 791                |  |
| Analyzer: 1510                     |                                     |                                 |  |

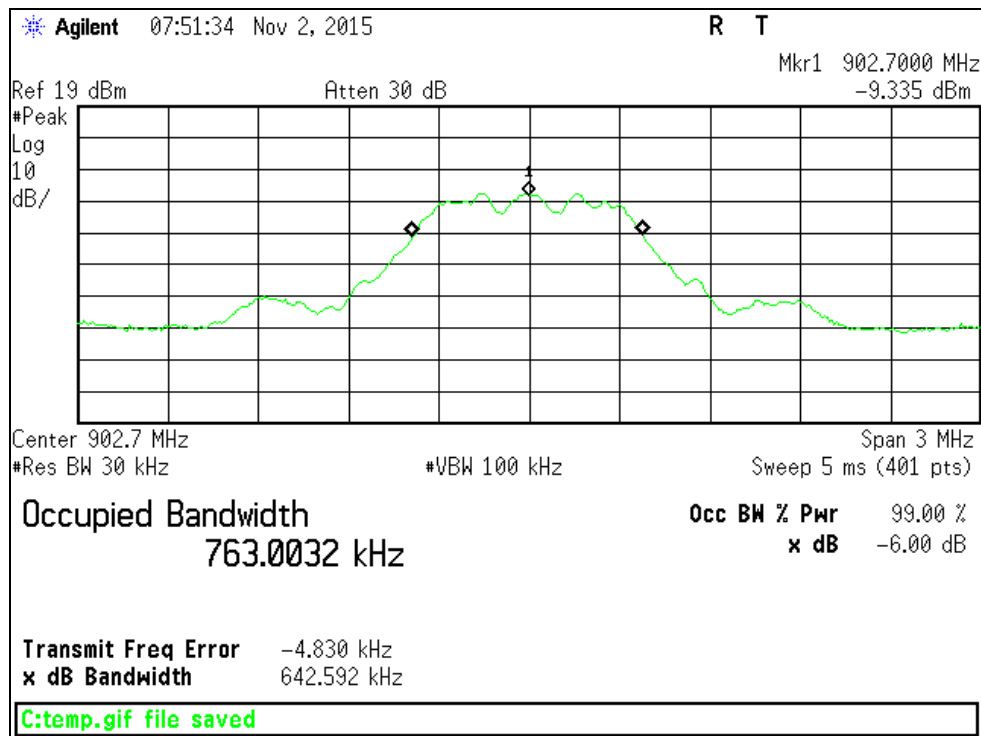
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|  |              |            |                   |            |       |     |                 |               |
|--|--------------|------------|-------------------|------------|-------|-----|-----------------|---------------|
| Spectrum Analyzers / Receivers /Preselectors | Range        | MN         | Mfr               | SN         | Asset | Cat | Calibration Due | Calibrated on |
| Brown  | 9kHz-26.5GHz | E4407B     | Agilent           | SG44210511 | 1510  | I   | 6/30/2016       | 6/30/2015     |
| Preamps /Couplers Attenuators / Filters      | Range        | MN         | Mfr               | SN         | Asset | Cat | Calibration Due | Calibrated on |
| HF 20dB 50W Attenuator                       | 0.009-18 GHz | PE 7019-20 | Pasternack        | 1          | 791   | II  | 7/31/2016       | 7/31/2015     |
| Conducted Test Sites (Mains / Telco)         | FCC Code     | VCCI Code  |                   |            |       | Cat | Calibration Due | Calibrated on |
| CEMI 1                                       | 719150       | A-0015     |                   |            |       | III | NA              | N/A           |
| Meteorological Meters                        |              | MN         | Mfr               | SN         | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only)                |              | BA928      | Oregon Scientific | C3166-1    | 831   | I   | 3/19/2016       | 3/19/2014     |
| TH A#2078                                    |              | HTC-1      | HDE               |            | 2078  | II  | 4/2/2016        | 4/2/2015      |

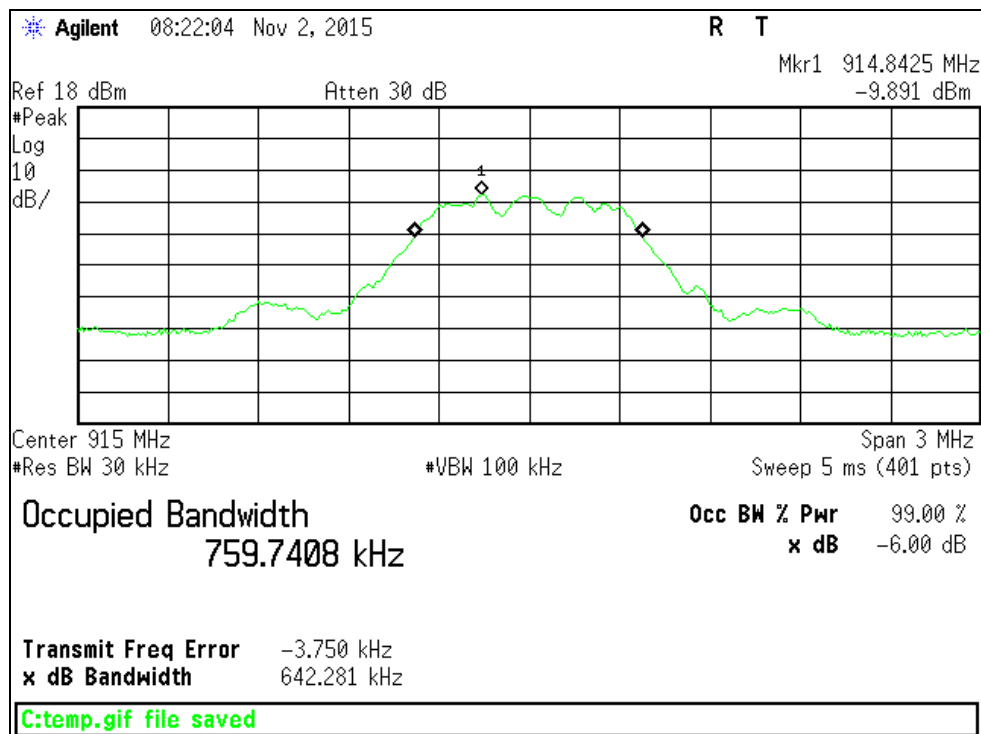
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



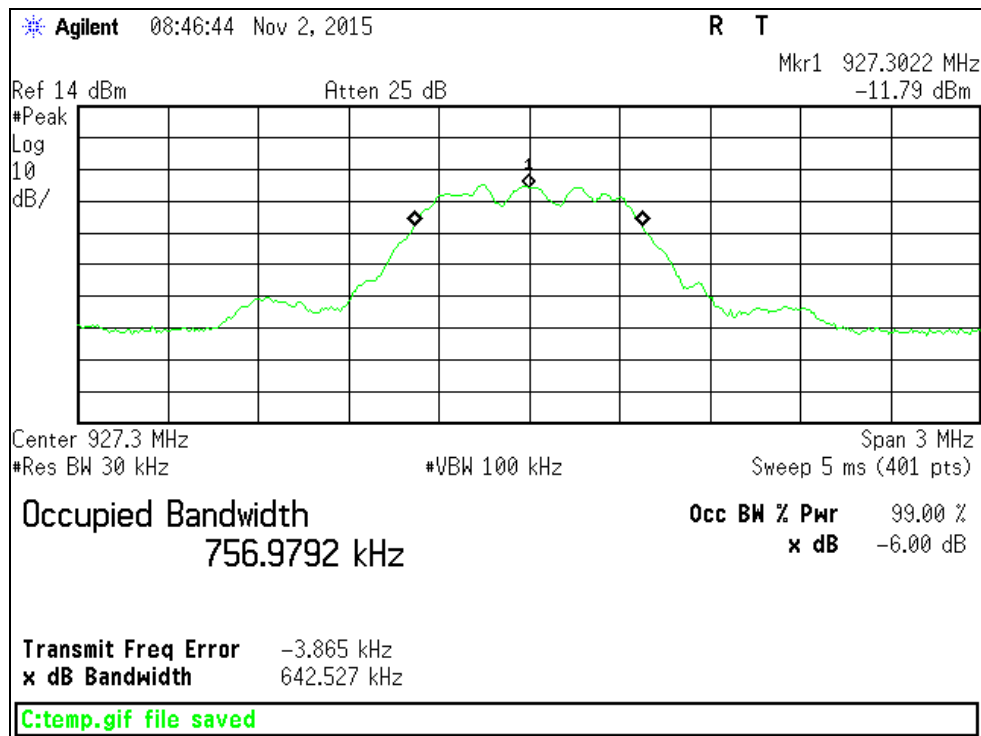
## PLOTS



Occupied Bandwidth, Low Channel



Occupied Bandwidth, Middle Channel



Occupied Bandwidth, High Channel

## Measurement Uncertainty

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

| Measurement   | Expanded Uncertainty k=2 | Maximum allowable uncertainty |
|---|--------------------------|-------------------------------|
| Radiated Emissions (30-1000MHz)   | 5.6dB                    | N/A                           |
| NIST  | 4.6dB                    | 5.2dB (Ucisprr)               |
| CISPR   |                          |                               |
| Radiated Emissions (1-26.5GHz)  | 4.6dB                    | N/A                           |
| Radiated Emissions (above 26.5GHz)  | 4.9dB                    | N/A                           |
| RF power, conducted   | 0.40dB                   | 0.75dB                        |
| Maximum frequency deviation:  |                          |                               |
| • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency | 3.4%                     | 5%                            |
|   | 0.3dB                    | 3dB                           |
| Adjacent channel power  | 1.9dB                    | 3dB                           |
| Conducted spurious emission of transmitter, valid up to 12.75GHz                      | 2.39dB                   | 3dB                           |
| Conducted emission of receivers   | 1.3dB                    | 3dB                           |
| Radiated emission of transmitter, valid up to 26.5GHz                                 | 3.9dB                    | 6dB                           |
| Radiated emission of transmitter, valid up to 80GHz                                   | 3.3dB                    | 6dB                           |
| Radiated emission of receiver, valid up to 26.5GHz                                    | 3.9dB                    | 6dB                           |
| Radiated emission of receiver, valid up to 80GHz                                      | 3.3dB                    | 6dB                           |
| Humidity  | 2.37%                    | 5%                            |
| Temperature   | 0.7°C                    | 1.0°C                         |
| Time  | 4.1%                     | 10%                           |
| RF Power Density, Conducted   | 0.4dB                    | 3dB                           |
| DC and low frequency voltages   | 1.3%                     | 3%                            |
| Voltage (AC, <10kHz)  | 1.3%                     | 2%                            |
| Voltage (DC)  | 0.62%                    | 1%                            |
| The above reflects a 95% confidence level   |                          |                               |

## Conditions Of Testing

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

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS," "MTL," "ACTS," "MTL-ACTS" and CURTIS-STRAUS (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.



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

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.  
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