Test Report



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

| Report No | EL0846-2 |
|---------------------|--|
| Client | Mobile Aspects Khang Le |
| Address | 24 South 18 th Suite 300 Pittsburgh, PA 15203 |
| Phone | 412-325-1690 |
| Items tested | iRISCart 1.0 RFID supply cabinet system R4FIRISCART10 |
| FCC ID FRN | 0010877447 |
| Standards | FCC 47 CFR Part 15.225 |
| Test Dates | June 23 rd , 24 th , and August 5 th , 2011 |
| Results | As detailed within this report |
| Prepared by | John Cale |
| | John Cushing– Test Engineer |
| Authorized by | M.Human Mairaj Hussain – EMC Supervisor |
| Issue Date | August 11, 2011 |
| Conditions of Issue | This Test Report is issued subject to the conditions stated in the ' <i>Conditions of Testing</i> ' section on page 17 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 8-18-08 (DW)



Summary

This test report supports an application for certification of a transmitter operating pursuant to 47 CFR 15.225. The product is the Mobile Aspects iRISCart 1.0 RFID supply cabinet system. The transmitter operates at 13.56MHz.

The unit contains multiple antenna of the same design, which can be located at multiple heights within the cabinet. The transmitter can only operate on a single antenna at a time. The worst case antenna location was used for testing.

The transmitter used is the FEIG Electronic ID ISC.LRM2500-A/B Reader Module (FCC ID PJMLRM2500). Frequency stability was not performed on the iRISCart 1.0 because Mobile Aspects uses the FEIG radio with their antenna. The test report for the FEIG radio is attached with this application.

This test report also serves as a verification of the digital circuitry.

Test Methodology

Radiated emission testing was performed according to the procedures specified in ANSI C63.4 (2003). Emissions were maximized by rotating the system around its vertical axis as well as varying the test antenna's height and polarity. EUT antenna was maximized separately by varying the height at which it was installed in the cabinet.

| Frequency range investigated: | 0.009MHz – 10.6GH | Ζ | | |
|-------------------------------|--|--------------------------------------|--|--|
| Measurement distance: | 0.15 - 30MHz 0.009 – 30MHz 30MHz – 10.6GHz | Conducted 3m (loop antenna) 3m | | |

AC Line conducted emissions testing was performed with a $50\Omega/50\mu$ H LISN.





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Statement of Conformity

The iRISCart 1.0 RFID supply cabinet system has been found to conform to the following parts of 47 CFR as detailed below:

| Part 2 | Part 15 | Comments |
|--------|------------------|--|
| | 15.15(b) | There are no controls accessible to the user that vary the output power. |
| 2.925 | 15.19 | The label is shown in the label exhibit. |
| | 15.21 | Information to the user is shown in the instruction manual exhibit. |
| | 15.27 | No special accessories are required for compliance. |
| | 15.31(e) | Frequency stability and voltage variation were performed on the system. Please see attached test report for Feig radio. |
| | 15.203 | This product is professionally installed. |
| | 15.205 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. |
| | 15.207 | The unit meets the AC conducted emissions requirements of 15.207. |
| | 15.225(a-d) | The unit complies with these requirements as shown in this test report |
| | 15.225(e) | See attached PJMLRM2500 Test Report for frequency stability test data (p 33). |





ACCREDITED

EUT Configuration

| | | | | EUT Con | figuratio | n | | | | | | |
|-------------------------------------|--|---------------|------------------|-------------------|-----------|--------------|-----------|---------------|---------------------|--------------------|--|--|
| Company Addres | y: Mobile Aspe s: 24 South 18 Pittsburgh, F t: Khang Le | th, Suite 300 | | | | | | | | | | |
| | | MN | | | PN | | | SN | | | | |
| EU. | Г: | iRISCart 1.0 | | | | | 1 | Fest Sample | 1 | | | |
| EUT Description EUT Max Frequenc | | | | | | | | | | | | |
| Support Equipment: | | MN | | | | | | SN | | | | |
| PC | | OT7570 | | | | | | 1XQ8L61 | | | | |
| EUT Ports: | | | | | | | | | | | | |
| Port Label | Port Type | No. of ports | No. Populated | Cable Type | Shielded | Ferrites | Length | Max Length | In/Out NEBS Type | Unpopulated Reason | | |
| AC Main Ethernet | AC Ethernet | 1 1 | All All | 3-wire AC Cat5 | No No | None None | 3m 10m | 3m 100m | In In | | | |
| | ransmitting on the antenna at EUT's highest output power. | | | | | | | | | | | |







Fundamental Measurements

LIMITS

| Frequency Range | Limit @ 30m | Limit @ 30m |
|-----------------|-------------|-------------|
| (MHz) | (μV/m) | (dBµV/m) |
| 13.553-13.567 | 15,848 | 83.9 |
| 13.410-13.553 | 334 | 50.4 |
| 13.567-13.710 | | |
| 13.110-13.410 | 106 | 40.5 |
| 13.710-14.010 | | |

[15.225(a-c)] Note: If Peak measurements meet Quasi-Peak limits, then Quasi-Peak measurements are not required.

The limits of 15.209 apply outside the range 13.110-14.010 MHz.

MEASUREMENTS

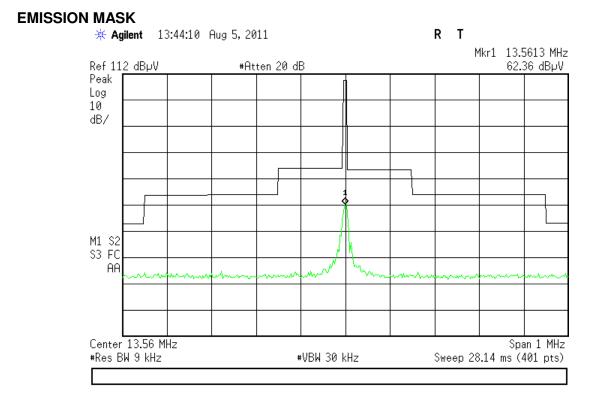
| Date: | 05-Aug-11 | | Company: | Mobile Asp | ects | | V | Vork Order: | L0846 |
|----------------------------|--------------------|----------------|--------------|----------------|-------------|------------------|-------------------|---------------|-------------------|
| Engineer: | John Cushing | | EUT Desc: | iRISCart 1. | 0 | EUT Oper | ating Voltage/ | Frequency: | 120V/60Hz |
| Temp: | 24.4℃ | | Humidity: | 38% | | Pressure | : 1011mBar | | |
| | Freque | ency Range: | 13.56MHz | | | Measurem | ent Distance: | 3 m | |
| Notes: | | | | | | | | | |
| Antenna | | | Preamp | Antenna | Cable | Adjusted | 47 CFR 15.225 | | |
| Antonna | _ | Reading | Factor | Factor | Factor | Reading | Limit | Margin | Result |
| Polarization | Frequency | | | | | • | | - | |
| Polarization (0° - 90°) | Frequency (MHz) | (dBµV) | (dB) | (dB/m) | (dB) | (dBµV/m) | (dBµV/m) | (dB) | (Pass/Fail |
| | | 0 | (dB) 25.5 | (dB/m) 39.6 | (dB) 0.4 | (dBµV/m) 76.9 | (dBµV/m) 124.0 | (dB) -47.1 | (Pass/Fai Pass |
| (0° - 90°) | (MHz) | (dBµV) | . , | . , | () | | | 1 | |
| 0 90 | (MHz) 13.56 | (dBµV) 62.4 | 25.5 | 39.6 | 0.4 0.4 | 76.9 71.3 | 124.0 | -47.1 | Pass |

No other emissions were detected in any of the other frequency ranges listed above.















Radiated Spurious Emissions

LIMITS

"The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209" [15.225(d)]

| Bandwidth Settings: | |
|---------------------|----------------------------|
| 0.009-30MHz | RBW= 9 kHz, VBW= 30 kHz |
| 30-140MHz | RBW= 120 kHz, VBW= 300 kHz |

"...Field strength of radiated emissions from *unintentional radiators* at a distance of 3 meters shall not exceed the following values: .etc *in* § 15.109(a)

Bandwidth Settings:

| 30-1000MHz | RBW= 120 kHz, VBW= 1 MHz |
|---------------|--------------------------|
| Above 1000MHz | RBW= 1 MHz, VBW= 3 MHz |

MEASUREMENTS

Intentional Radiator - 0.009 to 135.6 MHz

| Radiated | Emissio | ns Table | е | | | | | | | | | | |
|--------------------|---------------------------------------|-------------|-----------|--------------|----------|---------|-------------------|------------|-------------------|----------------|-------------|--|--|
| Date: 2 | 23-Jun-11 | | Company: | Mobile Aspe | ects | | Work Order: L0846 | | | | | | |
| Engineer: | Iohn Cushing | | EUT Desc: | iRISCart 1.0 |) | | | EUT Opera | ating Voltage/Fre | equency: 120V | 60Hz | | |
| Temp: 2 | 24.5℃ | | Humidity: | 40% | | Pres | ssure: 100 | 6mBar | | | | | |
| | Freque | ency Range: | .009-5MHz | | | | | | Measurement I | Distance: 3 m | | | |
| Notes: | | | | | | | | | EUT N | lax Freq: 2.4G | Ηz | | |
| Antenna | | | Preamp | Antenna | Cable | Adjust | ted | | 47 CFR 15. | 209(a) | | | |
| Polarization | Frequency | Reading | Factor | Factor | Factor | Readi | ng | Limit | Margir | 1 | Result | | |
| (0°-90°) | (MHz) | (dBµV) | (dB) | (dB/m) | (dB) | (dBµV | /m) | (dBµV/m) | (dB) | | (Pass/Fail) | | |
| NO EI | MISSIONS FO | UND | | | | | | | | | | | |
| Tabl | e Result: | | by | (| dΒ | | | Worst Freq | : | MHz | | | |
| | MI Chamber | 1 | | Asset #150 | 5 | | | | | Cable 2: Asset | | | |
| Analyzer: / | Asset #1328 | | Preamp: | Blue | | | | | | Antenna: Lg Lo | ор | | |
| | | | | | | | | | | | | | |
| Radiate | d Emio | aiana | Table | | | | | | | | | | |
| naulale | | 510115 | labie | , | | | | | | | | | |
| Dat | e: 05-Aug-1 | 11 | | Company | : Mobile | e Aspe | cts | | , | Work Order: | L0846 | | |
| Enginee | r: John Cu | shing | | EUT Desc | : iRISC | art 1.0 | | EUT Opera | ating Voltage | /Frequency: | 120V/60Hz | | |
| - | p: 24.4℃ | - 3 | | Humidity | . 38% | | | Pressure: | 0 0 | | | | |
| Tem | | | | | | | | | | | | | |
| | F | Frequency | Range: | 5 - 30MH | Z | | | Measureme | nt Distance: | 3 m | | | |
| Note | s: | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | T | | | 47 | 7 CFR 15.209 |) (a) | | |
| Antenna Preamp Ant | | | | | | | Cable | Adjusted | | | | | |
| Polarization | Polarization Frequency Reading Factor | | | | | | Factor | Reading | Limit | Margin | Result | | |
| (0° - 90°) | (MHz | | (dBµV) | (dB) | (dB/ | /m) | (dB) | (dBµV/m) | (dBµV/m) | (dB) | (Pass/Fail) | | |
| 0 | 27.1 | 2 | 18.0 | 25.4 | 38 | 0 | 0.5 | 33.0 | 69.5 | -37.5 | Pass | | |

Table Result:Passby-37.5 dBWorst Freq:27.12 MHzTest Site:EMI Chamber 1Cable 1: Asset #1505Cable 2: EMIR-HIGH-21Analyzer:GoldPreamp: OrangeAntenna:Sm Loop (high)







| Date: | 05-Aug-11 | | Company: | Mobile Asp | ects | | v | /ork Order: | L0846 | | | | | | |
|-------------------------|-----------------|-------------|---------------------|-------------------|--------|---|----------------------|-------------|------------|--|--|--|--|--|--|
| Engineer: | John Cushing | | EUT Desc: | iRISCart 1. | 0 | EUT Oper | ating Voltage/ | Frequency: | 120V/60Hz | | | | | | |
| Temp: | 24.4 <i>°</i> C | | Humidity: | 38% | | Pressure | 1011mBar | | | | | | | | |
| | Freque | ency Range: | 30 - 135.6 | ЛНz | | Measurem | ent Distance: | 3 m | | | | | | | |
| Notes: | Notes: | | | | | | | | | | | | | | |
| Antenna | | | Cable | Adjusted | 47 | CFR 15.209 |) (a) | | | | | | | | |
| Polarization | Frequency | Reading | Preamp Factor | Antenna Factor | Factor | Reading | Limit | Margin | Result | | | | | | |
| (H / V) | (MHz) | (dBµV) | (dB) | (dB/m) | (dB) | (dBµV/m) | (dBµV/m) | (dB) | (Pass/Fail | | | | | | |
| Н | 40.68 | 50.4 | 25.4 | 13.2 | 0.6 | 38.8 | 40.0 | -1.2 | Pass | | | | | | |
| н | 54.24 | 52.8 | 25.3 | 7.1 | 0.7 | 35.3 | 40.0 | -4.7 | Pass | | | | | | |
| н | 67.8 | 55.6 | 25.3 | 8.1 | 0.7 | 39.1 | 40.0 | -0.9 | Pass | | | | | | |
| н | 81.36 | 42.9 | 25.3 | 7.6 | 0.7 | 25.9 | 40.0 | -14.1 | Pass | | | | | | |
| Н | 94.92 | 50.7 | 25.3 | 8.7 | 0.8 | 34.9 | 43.5 | -8.6 | Pass | | | | | | |
| Н | 108.48 | 45.8 | 25.3 | 12.1 | 0.8 | 33.4 | 43.5 | -10.1 | Pass | | | | | | |
| Н | 122.04 | 34.3 | 25.3 | 13.9 | 0.9 | 23.8 | 43.5 | -19.7 | Pass | | | | | | |
| Н | 135.6 | 37.9 | 25.4 | 13.6 | 0.9 | 27.0 | 43.5 | -16.5 | Pass | | | | | | |
| Tab | le Result: | Pass | by | by -0.9 dB | | | Worst Freq: 67.8 MHz | | | | | | | | |
| Test Site: Analyzer: | EMI Chamber | 1 | Cable 1: Preamp: | Asset #150 | 05 | Cable 2: EMIR-HIGH-21 Antenna: Red-Black | | | | | | | | | |



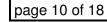




Unintentional Radiator - 135.6 - 12000 MHz

| | Radiated | d Emissi | ons Tab | le | | | | | | | | | | | |
|--|---|---------------|------------|---------------------|-------------|---------|-----------|-----------|----------|------------------|-------------|-------------------|---------------------------|-------------|-----|
| Table Result: Pressure: Measurement Datame:: 3 m Notes: EUT Max Preq:: 2.401+2 American bit for the set of | Date | : 23-Jun-11 | | Company | Mobile Asp | ects | | | | | | | Work Order: L | 0846 | |
| Trequency Range: 30-135.04/tz Measurement Distance: 3 m Noise: EUT Max Freq: 2.40/tz Adverse Preserved V Frequency 50,3 Attempt Frequency Frequency V Means Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency Frequency V Attempt Frequency Freque | Engineer | : John Cushin | q | | | | | | | | | | | | |
| Trequency Range: 30-135.04/tz Measurement Distance: 3 m Noise: EUT Max Freq: 2.40/tz Adverse Preserved V Frequency 50,3 Attempt Frequency Frequency V Means Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency V Attempt Frequency Frequency Frequency V Attempt Frequency Freque | | | 5 | Humidity | 40% | | Pressure: | 1006mBar | | | | | , | | |
| Notes: EUT Max Freq: 2.401/2 Addemain Frequency Reading Frequency Reading EUT Max Freq: 2.401/2 Addemain Frequency Reading Addemain Frequency Reading Frequency Reading <td></td> <td></td> <td>uency Rang</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Measur</td> <td>ement Distance: 3</td> <td>n</td> <td></td> | | | uency Rang | | | | | | | | Measur | ement Distance: 3 | n | | |
| Attenue Particip Attenue Cale Adjusted Process Particip Process Proc | Notes | | uonoy nung | 00 100.00 | | | | | | | mououn | | | | |
| Production Product of production Production Production Production Production Production Production | | | | | | | | | | | | 201 max 1 roq. 2. | TOT 12 | | |
| Production Product of production Production Production Production Production Production Production | Antenna | | | Preamp | Antenna | Cable | Adjusted | | | | | | FCC Class B | | |
| mit /v data /v <thdata th="" v<=""> <thdata th="" v<=""> <thda< td=""><td></td><td>Frequency</td><td>Reading</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Limit</td><td></td><td>Result</td></thda<></thdata></thdata> | | Frequency | Reading | | | | | | | | | Limit | | Result | |
| v 60.98 bit 53.1 bit 22.9 bit 77 bit 78 bit 78 bit 77 bit 78 bit 78 bit 77 bit 78 bit 78 bit <th78 bit <th78 bit <th78 bit<!--</td--><td>(H / V)</td><td>(MHz)</td><td>(dBµV)</td><td>(dB)</td><td>(dB/m)</td><td>(dB)</td><td></td><td></td><td></td><td></td><td></td><td>(dBµV/m)</td><td>(dB)</td><td>(Pass/Fail)</td></th78 </th78 </th78 | (H / V) | (MHz) | (dBµV) | (dB) | (dB/m) | (dB) | | | | | | (dBµV/m) | (dB) | (Pass/Fail) | |
| V 68.73 (3.0.) 49.2 (2.2.8) 8.0 (2.2.8) 0.4 (2.2.8) 49.0 (2.2.8) -5.2 (2.3.0) Pass (2.3.0) Table Result: Pass (2.3.0) 0.5 (2.6.7) Chile 1: Accel #1505 (2.6.7) Worst Freq: 50.98 MHz Test Site: Mit Outsmine H Chile 1: Accel #1505 (Anityper: Accel #1522) More Model State #1502 (Mit Order: L0846 Date: Chile 1: Accel #1505 (Mit Order: L0846 Chile 2: Accel #1502 (Mit Order: L0846 Work Order: L0846 Engines: Outsing Company: Mobile Aspects (Mit Order: L0846 Work Order: L0846 Engines: Outsing: State #1500 Work Order: L0846 Motes: EUT Desc: #RISCan 1:0 Messurement Distance: 3 m Notes: EUT Max Freq: 2:4GHz Messurement Distance: 3 m EUT Max Freq: 2:4GHz Motes: EUT Max Freq: 2:4GHz Messarement Distance: 3 m EUT Max Freq: 2:4GHz Messarement Distance: 3 m EUT Max Freq: 2:4GHz Messarement Distance: 3 m EUT Max Freq: 2:4GHz Mit 300.0 40.8 32.2 3.0 32.2 Mit 300.0 40.8 | V | | | | | | | | | | | | | Pass | |
| H 94.9 34.1 22.8 10.2 0.5 20.5 20.5 20.5 43. | | | | | | | | | | | | | | | |
| V 1032 38.0 2.7 10.9 0.5 28.7 Table Result: Pass by -1.7 dB Color 1.7 dB Worst Freq: 50.98 MHz Test Site: K0 (kmmber) Cable 1.7 dB/s fields H305 Cable 3.7 dask H305 Cable 3.7 dask H305 Worst Freq: 50.98 MHz Redicted Emissions Table Europeanse: Mobile Aspects Work Order: L0846 Work Order: L0846 Enginese: John Cushing Europeanse: Mobile Aspects Pessure: 1000mBar EUT Operating Voltage Frequency: 120V/60Hz Teng: 24.5 °C Humidity: 40% Pessure: 1000mBar EUT Operating Voltage Frequency: 120V/60Hz Motes: Pessure: 1000mBar EUT Mas: Freq: 2.4GHz Messurement Distance: 3 m Notes: Frequency Reden mark fields Adjusted Company: Mobile Aspects EUT Mas: Freq: 2.4GHz Motes: Feeder Freader frea | | | | | | | | | | | | | | | |
| Table Result: Pass by 1.7 dB Work Freq:: 50.39 MHz Test Site: EMI Chamber 1 Analyzer: Asset #1503 Cable 1: Asset #1503 Cable 2: Asset #1502 Antenna: Red Black Radiated Emissions Table Company: Mobile Aspects Work Order: L0646 EUT Operating VoltageFrequency: 120V/60Hz Englineer: John Cushing EUT Desc: RISCart 1.0 Pressure: 1006mBar EUT Operating VoltageFrequency: 120V/60Hz Test Site Site Site Site Site Site Site Sit | | | | | | | | | | | | | | | |
| Test Sile: EMI Chamber 1 Analyzer: Asset #1523 Cable 1: Asset #1502 Antenna: Rod-Black Cable 2: Asset #1522 Antenna: Rod-Black Cable 2: Asset #1523 Antenna: Rod-Black Cable 2: Asset #1523 Antenna: Rod-Black Cable 2: Asset #1523 Antenna: Rod-Black Date: 23-Jun-11 Tem; 24-5° Company: Mobile Aspects EUT Operating Volgee/Frequency: 120/V60Hz Motes: Besure: 1006mBar Mesurement Distance: 3 m EUT Max Freq: 24-GHz Motes: Besure: 1006mBar Mesurement Distance: 3 m EUT Max Freq: 24-GHz Motes: Besure: 1006mBar Mesurement Distance: 3 m EUT Max Freq: 24-GHz Motes: Besure: 1006mBar Mesure (dg,Wm) | | | | | | | 20.7 | | | | II | | | | |
| Anslyzer Assit #1320 Pramp: Blue Antanna: Rei-Black Radiated Emissions Table Engineer: John Curhing Company: Mobile Aspects EUT Operating VoltageFrequency: 120/V60Hz Temp: 24.5 °C Humidity: 40% Presure: 1006mBar EUT Operating VoltageFrequency: 120/V60Hz Notes: Frequency Range: 13.5 6-1000MHz Masurement Distance: 3 m EUT Max Freq: 2.4GHz Antenna Feder Factor Factor Assit # 13.0 (Gabring) EUT Max Freq: 2.4GHz Antenna Feder Factor Factor Resting Resting (Gabring) (Gabring) (Gabring) V 217.0 46.7 22.8 10.5 0.8 35.2 0 46.0 1.70.8 Press Press V 217.0 46.7 22.8 10.8 0.8 35.2 0 46.0 1.70.8 Press Press V 217.0 46.7 22.8 10.8 0.8 35.2 0 46.0 1.70.8 Press Press V 258.7 44.8 0.9 7.4 4.8 0.9 17.05 0.8 35.2 0 46.0 1.70.8 Press Press Table Result: Pass by - 7.9 dB Work Order: 1.046 Engineer: John Curhong EUT Operating VoltagePrequency: 1.00001z Press Table Result: Press Press Press Mattrians: Roif-Black | Tal | ole Result | : Pass | by | -1.7 | dB | | | | | | Worst Freq: | 50.98 N | IHz | |
| Additional and the section of the sectin of the sectin of the section of the section of the section of | Test Site | : EMI Chambe | er 1 | Cable 1 | Asset #150 |)5 | | | Ca | ble 2: Asset #15 | 22 | | | | |
| Date: 23-Jun-11 Engineer: Company: June (Juski) Teng: Company: LUT Desc: Models (LUT Descing (LUT Descing) EUT Descing (LUT Descing) EUT Descing (LUT Descing) Frequency Range: 135.6-1000MHz Presure: Measurement Distance: measure measure Polarization (HV) Frequency Reading (LBN) Adjusted Measure (LBN) | Analyzer | : Asset #1328 | | Preamp | Blue | | | | Ant | enna: Red-Black | | | | | |
| Date: 23-Jun-11 Engineer: Company: June (Juski) Teng: Company: LUT Desc: Models (LUT Descing (LUT Descing) EUT Descing (LUT Descing) EUT Descing (LUT Descing) Frequency Range: 135.6-1000MHz Presure: Measurement Distance: measure measure Polarization (HV) Frequency Reading (LBN) Adjusted Measure (LBN) | | | | | | | | | | | | | | | |
| Date: 23-Jun-11 Engineer: Company: June (Juski) Teng: Company: LUT Desc: Models (LUT Descing (LUT Descing) EUT Descing (LUT Descing) EUT Descing (LUT Descing) Frequency Range: 135.6-1000MHz Presure: Measurement Distance: measure measure Polarization (HV) Frequency Reading (LBN) Adjusted Measure (LBN) | | | | | | | | | | | | | | | |
| Engineer: UPT Dess: IPEUT Dess: Pressure: IPEUT Dess: IPEUT Dess: <th< td=""><td>Radiated</td><td>d Emissi</td><td>ons Tab</td><td>le</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | Radiated | d Emissi | ons Tab | le | | | | | | | | | | | |
| Engineer: UPT Dess: IPEUT Dess: Pressure: IPEUT Dess: IPEUT Dess: <th< td=""><td></td><td></td><td></td><td></td><td>Mobile Asr</td><td>ects</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Work Order:</td><td>0846</td></th<> | | | | | Mobile Asr | ects | | | | | | | Work Order: | 0846 | |
| Temp: 24.5°C Humidity: 40% Pressure: 1006mBar Frequency Range: 135.6-1000MHz Measurement Distance: 3 m Notes: EUT Max Freq: 2.4GHz Polarization Frequency Reading Adjusted Frequency Reading Readin | | | 'n | | | | | | | | | FUT Operating | | | |
| Measurement Distance: 3 m EUT Max Freq: 2.4GHz EUT Max Freq: 2.4GHz CUT Max Freq: 2.4GHz V V CC Class B Motes: V CC Class B Motes: Cable 7.48.8 V Autemax Freq: 2.4GHz Limit Margin Marg | • | | 9 | | | | Pressure | 1006mBar | | | | 201 optimit | , ronago, roquonoj, n | LOVIDONIL | |
| Notes: EUT Max Freq: 2.4GHz Antenna Polarization (H/V) Frequency (Met/) Reading (BB/V) Preamp Factor (BB/V) Antenna Factor (BB/V) Adjusted Reading (BB/V) Adjusted Reading (BB/V) FCC Class B V 217.0 46.7 22.8 10.5 0.8 35.2 46.0 -10.8 Pass 46.0 -10.8 Pass 46.0 -13.8 Pass 46.0 -13.8 Pass 46.0 -13.8 Pass 46.0 -14.5 Pass 46.0 Pass 46.0 Pass 46.0 <t< td=""><td></td><td></td><td>uency Rang</td><td>,</td><td></td><td></td><td>110000101</td><td>rooomba</td><td></td><td></td><td>Мозеци</td><td>ement Distance: 3</td><td>n</td><td></td></t<> | | | uency Rang | , | | | 110000101 | rooomba | | | Мозеци | ement Distance: 3 | n | | |
| Antenna (H/V) Frequency (dByV) Reading (dByV) Antenna (dByV) Automa (dByV) Automa (dByV) Factor (dByV) Automa (dByV) Factor (dByV) Result (dByV) Res | Natao | | uency nany | e. 133.0-100 | | | | | | | Measure | | | | |
| Polarization (H / V) Frequency (H / V) Reading (H / V) Frequency (H / V) Reading (H / V) Limit (H / V) Margin (H / V) Result (H / V) Reading (H / V) Imit (H / V) Margin (H / V) Result (H / V) Reading (H / V) Imit (H / V) Margin (H / V) Result (H / V) Reading (H / V) Imit (H / V) Margin (H / V) Result (H / V) Reading (H / V) (H / V) | Notes | • | | | | | | | | | | EUT Max Freq: 2.4 | +GHZ | | |
| Polarization (H / V) Frequency (H / V) Reading (H / V) Frequency (H / V) Reading (H / V) Limit (H / V) Margin (H / V) Result (H / V) Reading (H / V) Imit (H / V) Margin (H / V) Result (H / V) Reading (H / V) Imit (H / V) Margin (H / V) Result (H / V) Reading (H / V) Imit (H / V) Margin (H / V) Result (H / V) Reading (H / V) (H / V) | Antonna | Т | 1 | Proamp | Antonna | Cable | Adjusted | | | | | | FCC Class B | | |
| (H/V) (MHo) (dBy/m) (d | | Frequency | Reading | | | | | | | | | Limit | | Result | |
| H 300.0 40.8 22.8 13.3 0.9 32.2 H 306.7 44.8 22.8 13.3 0.9 32.2 16.8 1.2 31.5 46.0 -13.8 Pass Table Result: Pass by -7.9 dB Worst Freq: 366.7 MHz Test Site: EM Chamber 1 Cable 1: Asset #1505 Cable 2: Asset #1522 Antenna: Red-Black Malyzer: Asset #1328 Diamander Site 11 Cable 3: Asset #1505 Cable 2: Asset #1522 Analyzer: Asset #1328 Company: Mobile Aspects Event: Mode Aspects Work Order: L0846 Engineer: John Cushing EUT Dess: IRISCart 1.0 Pressure: 1006mBar Measurement Distance: 1 m Temp: 24.5°C Humidity: dtb Adepuist Adepuist Adepuist Adepuist Adepuist Motes: Eut margin (db)//(db///) dtb//(db////(db///) Adepuist Average Presure feature Adepuist Average | (H / V) | (MHz) | (dBµV) | (dB) | (dB/m) | (dB) | (dBµV/m) | | | | | (dBµV/m) | (dB) | (Pass/Fail) | |
| H 36.7 44.8 22.8 14.9 1.0 38.1 46.0 -7.9 Pass Table Result: Pass by -7.9 dB 36.7 44.5 98.8 Table Result: Pass by -7.9 dB V 36.7 46.0 -7.9 dB Pass Table Result: Pass by -7.9 dB V 36.7 46.0 -7.9 dB Pass Test Ste: EM Chamber I Cable 1: Asset #150° Cable 2: Asset #152° Cable 2: Asset #152° Cable 2: Asset #152° Antenna: Red-Black Test Ste: 23-Jun 11 Company: Mobile Aspects Pressure: 1006mBar EUT Desc: IRISCart 1.0 Pressure: 1006mBar Tenp: 24.5 ° Humidity: 40% Pressure: 1006mBar Messurement Distance: 1 m EUT Max Freq: 2.4GHz Notes: Frequency Pask Amering Freder Freder Freder Freder Freder Antenna (db)/min (d | | | | | | | | | | | | | | Pass | |
| v 452.9 36.3 22.8 16.8 1.2 31.5 46.0 -14.5 Pass Table Result: Pass by -7.9 dB Worst Freq: 366.7 MHz Test Site: EMI Chamber 1 Analyzer: Asset #1328 Cable 1: Asset #1505 Cable 2: Asset #1522 Antenna: Red-Black Radiated Emissions Table Bate: 23-Jun-11 Temp: 24.5° Company: Mobile Aspects EUT Desc: IRISCart 1.0 Humidity: Presume: 1006mBar Work Order: L0846 EUT Operating Voltage/Frequency: 120Vi60Hz Frequency Range: 1-12GHz Company: Mobile Aspects Eut 23-Jun-11 Temp: 24.5° Measurement Distance: 1 m EUT Desc: IRISCart 1.0 Humidity: Measurement Distance: 1 m EUT Max Freq: 24.0Hz Presume: 106mBar Measurement Distance: 1 m EUT Max Freq: 24.0Hz Measurement Distance: 1 m EUT Max Freq: 24.0Hz Pass Presume Antenna (dBµVm) Gable Gable Gable Presume (dBµVm) Margin (dBµVm) Margin (dBµVm) </td <td></td> | | | | | | | | | | | | | | | |
| Table Result: Pass Table Result: Pass Pramp: Blue by -7.9 dB -7.9 dB Worst Freq: Cable 2: Asset #1522 Antenna: Red-Black Test Site: EM Chamber 1 Analyzer: Asset #1328 Cable 1: Asset #1505 Cable 2: Asset #1522 Antenna: Red-Black Bate: 23-Juni 1 Enginee: John Cushing Company: Mobile Aspects EUT Dess: IRISCarl 1.0 Work Order: L0846 EUT Operating Voltage/Frequency: 120V/60Hz Frequency Range: 1-12CHz Measurement Distance: 1 m EUT Nets: Measurement Distance: 1 m EUT Margin (dBy//m) EUT Regreger (dBy//m) Frequency - Verage (dBy//m) Measurement Distance: 1 m EUT Regreger. 2.4.5Hz Potersition Frequency Range: 1-12CHz Measurement Distance: 1 m EUT Regreger. 2.4.5Hz EUT Regreger. 2.4.5Hz Potersition Frequency Range: 1-12CHz Antenna Factor Frequency - Average Factor Antenna Factor Frequency - Average Antenna (dBy//m) Measurement Distance: 1 m (dBy//m) EUT Result Item Margin (dBy//m) Frequency - Average (dBy//m) High Frequency - Average (dBy//m | | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 Analyzer: Asset #1328 Cable 1: Asset #1505 Preamp: Blue Cable 2: Asset #1522 Antenna: Red-Black Bate: 23-Jun-11 Engineer: John Cushing Company: Mobile Aspects EUT Dess: (RISCart 1.0 Humidity: 40% Work Order: L0846 EUT Operating Voltage/Frequency: 120//60Hz Engineer: John Cushing EUT Dess: (RISCart 1.0 Humidity: 40% Pressure: 1006mBar Frequency Range: 1-12GHz Measurement Distance: 1 m EUT Max Freq: 2:4GHz EUT Max Freq: 2:4GHz Antenna Folder Marking Prequency Range: 1-12GHz Measurement Distance: 1 m EUT Max Freq: 2:4GHz Cable 2: Kartenna Folder (H/V) Mitho: (#Bay)/m) (#Bay)/m) (#Bay/m) | - | | | 22.0 | | | 31.5 | | | | | | | | |
| Analyzer: Asset #1928 Preamp: Blue Antennas: Red-Black Radiated Emissions Table Bate: 23-Jun-11 Enginee:: 24-Jun-11 Temp: 24.5°C Company: Mobile Aspects EUT Des: iRISCart 1.0 EUT Des: iRISCart 1.0 Temp: 24.5°C Humidity: 40% Pressure: 1006mBar Terquency Range: 1-12GHz Measurement Distance: 1 m EUT Des: iRISCart 1.0 Terquency Range: 1-12GHz Measurement Distance: 1 m EUT Max Freq: 2.4GHz Poly internation in Frequency Peak Average Frequency - Peak Average (dbim) Measurement Distance: 1 m EUT Max Freq: 2.4GHz Poly internation in Frequency Peak Average Frequency - Peak Average (dbim) Margin (dbiµ/) Margin (dbiµ/) (dbiµ/) <td colspa<="" td=""><td>Tal</td><td>ble Result</td><td>: Pass</td><td>by</td><td>-7.9</td><td>dB</td><td></td><td></td><td></td><td></td><td></td><td>Worst Freq:</td><td>366.7 N</td><td>IHz</td></td> | <td>Tal</td> <td>ble Result</td> <td>: Pass</td> <td>by</td> <td>-7.9</td> <td>dB</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Worst Freq:</td> <td>366.7 N</td> <td>IHz</td> | Tal | ble Result | : Pass | by | -7.9 | dB | | | | | | Worst Freq: | 366.7 N | IHz |
| Model Aspects Work Order: L0846 Eutroperating Voltage/Frequency: 120V/60Hz Eutroperating Voltage/Frequency: 120V/60Hz Terup: 24.5°C Measurement Distance: 1 m EUT Operating Voltage/Frequency: 120V/60Hz Terup: 24.5°C Measurement Distance: 1 m EUT Max Freq: 2.4GHz Company: Mobile Aspects Measurement Distance: 1 m EUT Max Freq: 2.4GHz Measing Preaming Frequency Amage: 1-12GHz Measurement Distance: 1 m EUT Max Freq: 2.4GHz Measing Preaming Frequency Amage: 1-12GHz Measing Preaming Frequency - Average Measing Reading Frequency Class B High Frequency - Veak EUT Max Freq: 2.4GHz Measing Reading Frequency - Measing Reading Reading Reading Colspan="2">May antenna Frequency - Measing Reading Colspan="2">May antenna Frequency - Measing Reading Colspan="2">May antenna Frequency - Measing Colspan="2">May antenna Frequency - Measing Reading Colspan="2">May antenna Frequency | Test Site | : EMI Chambe | er 1 | Cable 1 | Asset #150 |)5 | | | Ca | ble 2: Asset #15 | 22 | | | | |
| Date: 23-Jun:11 Engineer: Company: Mobile Aspects EUT Desc: Work Order: Date: Engineer: Lohn Cushing Temp: EUT Desc: EUT Operating Voltage/Frequency: 120V/b0Hz Temp: 24.5°C Humidity: 0% Pressure: 1006mBar Frequency Range: 1:1:2GHz Measurement Distance: Im Antenna Presure: Measurement Margin Frequency - Average Frequency - Average Polarization Frequency (db,V) (db) (db,V) (db) (db,V) (db) (db,V) (db) (Pass-Fail) H 1100:0 62.6 57.0 41.2 25.6 3.1 50.1 44.5 83.5 -33.4 Pass 63.5 -15.2 Pass H 1811.5 59.08 54.2 37.8 28.2 3.7 53.2 48.3 83.5 -33.4 Pass 63.5 -15.2 Pass H 1811.5 59.08 54.2 37.8 28.2 | Analyzer | : Asset #1328 | | Preamp | Blue | | | | Ant | enna: Red-Black | | | | | |
| Date: 23-Jun:11 Engineer: Company: Mobile Aspects EUT Desc: Work Order: Date: Engineer: Lohn Cushing Temp: EUT Desc: EUT Operating Voltage/Frequency: 120V/b0Hz Temp: 24.5°C Humidity: 0% Pressure: 1006mBar Frequency Range: 1:1:2GHz Measurement Distance: Im Antenna Presure: Measurement Margin Frequency - Average Frequency - Average Polarization Frequency (db,V) (db) (db,V) (db) (db,V) (db) (db,V) (db) (Pass-Fail) H 1100:0 62.6 57.0 41.2 25.6 3.1 50.1 44.5 83.5 -33.4 Pass 63.5 -15.2 Pass H 1811.5 59.08 54.2 37.8 28.2 3.7 53.2 48.3 83.5 -33.4 Pass 63.5 -15.2 Pass H 1811.5 59.08 54.2 37.8 28.2 | | | | | | | | | | | | | | | |
| Date: 23-Jun:11 Engineer: Company: Mobile Aspacts EUT Desc: Work Order: L084 EUT Operating Voltage/Frequency: 120/V6Hz Engineer: John: Coloring EUT Desc: IRISCAT 1.0 EUT Operating Voltage/Frequency: 120/V6Hz EUT Operating Voltage/Frequency: 120/V6Hz Tere: 24.5°C Measurement Distance: 1m Frequency Range: 1:12GHz Measurement Distance: TEUT Max Freq: Addition of the span" Antenna (H/V) Peak Reading Reading Feator Factor Adjusted Aug Reading FCC Class B High Frequency - Veeta (dbpV/m) (db Margin (dbpV/m) Margin (dbpV/m) Motion (dbpV/m) (db Margin (dbpV/m) Margin (dbpV/m) (db Margin (dbpV/m) | | | | | | | | | | | | | | | |
| Engineer: John Cushing EUT Desc: IRUID Sec: EUT Desc: IRUID Sec: IRUID Se | Radiated | Emission | s Table | | | | | | | | | | | | |
| Engineer: John Cushing EUT Desc: IRUID Sec: EUT Desc: IRUID Sec: IRUID Se | Date: | 23-Jun-11 | | Com | any: Mobile | Aspects | | | | | | | Work Order | : L0846 | |
| Measurement Distance: 1 m EUT Max Freq: 2.4GHz Colspan="6">EUT Max Freq: 2.4GHz Antenna Polarization (H/V) Peak (dByV) Antenna Factor (dByV) Colas B High Frequency - Peak Avg Reading (dByV) Antenna Factor (dByV) Colas B High Frequency - Peak Avg Reading (dByV) FCC Class B High Frequency - Average H 1100.0 C2.6 57.0 41.2 25.6 3.1 50.1 44.5 83.5 -33.4 Pass Pass 63.5 -15.2 Pass Pass Worst Freq: Worst Freq: Worst Freq: 1811.5 MHz Table Result: Past #1/5 CdB Cable 2: EMIR+HIGH-14 | Engineer: | John Cushing | | | | | | | | | | EUT Ope | erating Voltage/Frequency | : 120V/60Hz | |
| EUT Max Freq: 2.4GHz Antenna Polarization Frequency (H/V) Peak (Bayly) Average (Bayly) Preamp (Bayly) Antenna (Bayly) Cable (Bayly) Adjusted (Bayly) Cable (Bayly) Adjusted (Bayly) FCC Class B High Frequency - Peak FCC Class B High Frequency - Average (H/V) (MHz) (dBiy) | Temp: | 24.5℃ | | Hum | idity: 40% | | | Pressure: | 1006mBar | | | | | | |
| Antenna (H/V) Peak (Max Average (Max FCC Class B High Frequency - Peak FCC Class B High Frequency - Average H 1100.0 65.0 57.0 41.2 25.6 3.1 50.1 44.5 83.5 -33.4 Pass 63.5 -15.2 Pass H 1811.5 59.08 54.2 37.8 28.2 3.7 53.2 48.3 83.5 -30.3 Pass 63.5 -15.2 Pass H 1941.0 59.3 53.2 28.0 3.9 54.0 48.2 83.5 -31.0 Pass 63.5 -15.2 Pass H 2005.0 57.3 50.2 37.0 28.2 4.0 52.5 45.4 83.5 -31.0 Pass 63.5 -15.1 Pass | | | Frequency | Range: 1-120 | GHz | | | | | | | | | | |
| Polarization Frequency Reading Factor Factor Factor Factor Peak Reading Linit Margin Result (H/V) (MHz) | Notes: | | | | | | | | | | | EUT Max Fre | eq: 2.4GHz | | |
| Polarization Frequency Reading Factor Factor Factor Factor Peak Reading Linit Margin Result (H/V) (MHz) | | | | - | | | | | F00 0 | Dillink Fra | Bask | | Olara D Llink Form | A | |
| (H / V) (MH / V) (dB/V) (dB) (dB) (dB/V) (dB) (dB/V) (dB) (dB/V) | | Frequency | | | | | | | | | | | | | |
| H 1811.5 59.08 54.2 37.8 28.2 3.7 53.2 48.3 83.5 -30.3 Pass 63.5 -15.2 Pass V 1941.0 59.3 53.5 37.2 28.0 3.9 54.0 48.2 83.5 -29.5 Pass 63.5 -15.3 Pass 2005.0 57.3 50.2 37.0 28.2 4.0 52.5 45.4 83.5 -30.0 Pass 63.5 -15.3 Pass Table Result: Pass by -15.2 45.4 83.5 -30.0 Pass 63.5 -16.1 Pass Table Result: Pass by -15.2 45.4 83.5 -30.0 Pass 63.5 -16.1 Pass Table Result: Pass by -15.2 45.4 83.5 -30.0 Pass 63.5 -16.1 Pass Table Result: Pass by -15.2 45.4 83.5 -30.0 Pass 63.5 -18.1 Pass Table Result: <td>(H / V)</td> <td></td> <td></td> <td></td> <td>B) (dB/m</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>(Pass/Fail)</td> <td></td> <td></td> <td></td> | (H / V) | | | | B) (dB/m | | | | | | (Pass/Fail) | | | | |
| V 1941.0 59.3 53.5 37.2 28.0 3.9 54.0 48.2 83.5 -29.5 Pass 63.5 -16.3 Pass Description 50.2 37.0 28.2 4.0 52.5 45.4 83.5 -31.0 Pass 63.5 -16.3 Pass Table Result: Pass by -15.2 dB 25.5 45.4 83.5 -31.0 Pass 63.5 -18.1 Pass Test Site EM Chamber J Cable 1: Asset #150 Cable 2: EMIR+HIGH-14 | | | | | | | | | | | | | | | |
| H 2005.0 57.3 50.2 37.0 28.2 4.0 52.5 45.4 83.5 -31.0 Pass 63.5 -18.1 Pass Table Result: Pass by -15.2 dB -15.2 dB -15.2 dB -15.2 dB -15.2 dB -15.2 dB -16.1 Pass -18.1 Pass Test Site: EMI Chamber 1 Cable 1: Asset#1505 Cable 2: EMIR+HIGH-14 Cable 2: EMIR+HIGH-14 Cable 2: EMIR+HIGH-14 | | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 Cable 1: Asset #1505 Cable 2: EMIR-HIGH-14 | | | | | | | | | | | | | | | |
| Test Site: EMI Chamber 1 Cable 1: Asset #1505 Cable 2: EMIR-HIGH-14 | Tah | e Result. | | ass h | v _1 | 5.2 dB | | | | | | Worst Fre | a. 1811 F | MHz | |
| | | | r | | , | | | | | Cable Or | | noistine | 4. 1011.0 | | |
| | | | | | | | | | | | | | | | |





ACCREDITED Testing Cert. No. 1627-0

AC Line Conducted Emission Measurements LIMITS

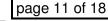
| Frequency of emission (MHz) | Quasi-peak limit (dBµV) | Average limit (dBµV) |
|-----------------------------|----------------------------|-------------------------|
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency. [47 CFR 15.207(a)]

MEASUREMENTS

| Q.P. Readings Ave. Readings Factor qp Limit qp Margin AVE Lim (MHz) (dBµV) dB AVE Lim (dBµV) (dBµV) (dBµV) dB (dBµV) dB (dBµV) (dBµV) dB dB <td< th=""><th>yzer: Black FCC/CISPR B</th><th>-</th></td<> | yzer: Black FCC/CISPR B | - |
|--|---|-------------------|
| Notes: Measurement Device: Asset #1495 LISN EUT Operating Voltage/Frequent Range: 0.15-30MHz Spectrum Analyz G.15-30MHz Spectrum Analyz G.15-30MHz Spectrum Analyz G.15-30MHz Spectrum Analyz Generating OP1 OP2 AV1 AV2 Measurement OPERturn Analyz G.P. Readings Ave. Readings Factor FCC/CISPR B FC Measurement OPERturn Analyz Measurement Ave. Readings Impedance FCC/CISPR B FCC/CISPR B Measurement OPERturn (dBµV) (dBµV) dB Measurement OPERturn (dBµV) OPERturn (dBµV) < | ency: 120V/60Hz yzer: Black FCC/CISPR B | Overall Result |
| Measurement Device: Asset #1495 LISN EUT Operating Voltage/Frequent Range: 0.15-30MHz Spectrum Analyz Q.P. Readings Ave. Readings Impedance Factor FCC/CISPR B FC Frequency (MHz) QP1 (dBµV) QP2 (dBµV) AV1 (dBµV) AV2 (dBµV) Impedance (dBµV) FCC/CISPR B FC 0.17 31.3 31.2 30.8 30.5 20.1 65.0 -13.6 55.0 0.40 8.2 8.2 3.5 3.3 20.1 57.9 -29.6 47.9 9.50 13.6 15.4 7.0 6.9 20.2 60.0 -24.4 50.0 13.56 45.7 45.7 45.7 57.0 57.0 57.9 57.9 57.9 57.9 57.9 57.9 57.9 57.9 57.9 57.9 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 57.0 </th <th>yzer: Black FCC/CISPR B</th> <th>Result</th> | yzer: Black FCC/CISPR B | Result |
| Spectrum Analyz Range: 0.15-30MHz Spectrum Analyz G.P. Readings Ave. Readings Frequency (MHz) (dBµV) | | |







Measurement Uncertainty

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

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



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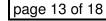


Test Equipment Used

| Rev: 9-Aug-2011 | | | | | | | |
|---|----------------|--------------------------|-----------------|------------|-------|-----|-----------------|
| Spectrum Analyzers / Receivers / Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Black | 9kHz-12.8GHz | 8596E | Agilent | 3710A00944 | 337 | 1 | 12-Oct-2011 |
| Gold | 100Hz-26.5 GHz | E4407B | Agilent | MY45113816 | 1284 | 1 | Out of Service |
| SA EMI Chamber (1328) | 9kHz-13.2 GHz | E4405B | Agilent | MY44210241 | 1328 | Т | 4-Mar-2012 |
| Preamps /Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Blue | 0.009-2000MHz | ZFL-1000-LN | CS | N/A | 759 | 11 | 1-Jun-2012 |
| Orange | 0.009-2000MHz | ZFL-1000-LN | CS | N/A | 765 | Ш | 20-Jun-2012 |
| Red-Blue | 1-18GHz | PE2-38-218-4R5-17-15-SFF | CS | NA | 1257 | Ш | 8-Jun-2012 |
| Cables | Range | | Mfr | | | Cat | Calibration Due |
| Asset #1505 | 9kHz - 18GHz | | Florida RF | | | Ш | 18-Aug-2011 |
| Asset #1522 | 9kHz - 26.5GHz | | Florida RF | | | Ш | 17-Sep-2011 |
| REMI-High-14 | 9kHz - 26.5GHz | | C-S | | | Ш | 18-Jan-2012 |
| REMI-High-21 | 9kHz - 26.5GHz | | C-S | | | Ш | 18-Jan-2012 |
| Antennas | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Red-Black Bilog | 30-2000MHz | JB1 | Sunol | A091604-2 | 1106 | 1 | 3-Dec-2012 |
| Orange Horn | 1-18GHz | 3115 | EMCO | 0004-6123 | 390 | 1 | 27-Jul-2013 |
| Small Loop | 10kHz-30MHz | PLA-130/A | ARA | 1024 | 755 | 1 | 26-Mar-2012 |
| Large Loop | 20Hz-5MHz | 6511 | EMCO | 9704-1154 | 67 | T | 29-Mar-2012 |
| Radiated Emissions Sites | FCC Code | IC Code | VCCI Code | | | Cat | Calibration Due |
| EMI Chamber 1 | 17-Dec-3868 | 2762A-6 | R-3032, G-106 | | | T | 12-Mar-2013 |
| Conducted Test Sites (Mains / Telco) | FCC Code | | VCCI Code | | | Cat | Calibration Due |
| CEMI 1 | 719150 | | C-3360, T-1575 | | | Ш | NA |
| LISNs/Measurement Probes | Range | MN | Mfr | SN | Asset | Cat | Calibration Due |
| 230VAC LISN Asset 1495 | 10kHz-50MHz | 9252-50-R-24-BNC | Solar | 84716 | 1495 | Ι | 26-May-2012 |
| Meteorological Meters | | MN | Mfr | SN | Asset | Cat | Calibration Due |
| Temp./Humidity/Atm. Pressure Gauge | | 7400 Perception II | Davis | N/A | 965 | 1 | 4-Apr-2013 |
| Thermohygrometer | | 35519-044 | Control Company | 72457628 | 1337 | Ш | 8-Jan-2012 |
| | | | | | | | |

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





ACCREDITED Testing Cert. No. 1627-0

Jurisdictional Labeling and Required Instruction Manual Inserts

FCC Requirements

Required Equipment Authorization for Device Type

| Type of Device | Equipment Authorization Required | | | |
|--|--|--|--|--|
| TV broadcast receiver | Verification | | | |
| FM broadcast receiver | Verification | | | |
| CB receiver | Declaration of Conformity or Certification | | | |
| Superregenerative receiver | Declaration of Conformity or Certification | | | |
| Scanning receiver | Certification | | | |
| Radar detector | Certification | | | |
| All other receivers subject to part 15 | Declaration of Conformity or Certification | | | |
| TV interface device | Declaration of Conformity or Certification | | | |
| Cable system terminal device | Declaration of Conformity | | | |
| Stand-alone cable input selector switch | Verification | | | |
| Class B personal computers and peripherals | Declaration of Conformity or Certification | | | |
| CPU boards and internal power supplies used with | Declaration of Conformity or Certification | | | |
| Class B personal computers | | | | |
| Class B personal computers assembled using | Declaration of Conformity | | | |
| authorized CPU boards or power supplies | | | | |
| Class B external switching power supplies | Verification | | | |
| Other Class B digital devices & peripherals | Verification | | | |
| Class A digital devices, peripherals & external | Verification | | | |
| switching power supplies | | | | |
| Access Broadband over Power Line (Access BPL) | Certification | | | |
| All other devices | Verification | | | |

FCC Required labeling for Verified Devices 47 CFR Part 15.19

Verified devices must have the following label permanently affixed in a location accessible to the user:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

No distinction is made between Class A or Class B devices on the label.

When the device is so small or for such use that it is not practicable to place label on it, the information shall be placed in a prominent location in the instruction manual supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

Where a device is constructed in two or more sections connected by wires and marketed together, the label is only required to be affixed to the main control unit.



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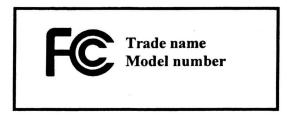


FCC Required labeling for Class B Personal Computers and Peripherals Devices 47 CFR Part 15.19 subject to Declaration of Conformity

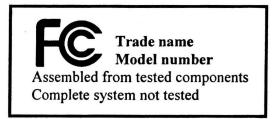
Personal computers and peripherals subject to authorization under a Declaration of Conformity shall be labeled as follows:

(1) The label shall be located in a conspicuous location on the device and shall contain the unique identification described in Section 2.1074 and the following logo:

(i) If the product is authorized based on testing of the product or system:



(ii) If the product is authorized based on assembly using separately authorized components and the resulting product is not separately tested:



(2) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (b)(1) of this section on it, such as for a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.

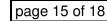
(3) The label shall not be a stick-on, paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in Section 2.925(d). "Permanently affixed" means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

FCC Required Instruction Manual Inserts CFR 47 Part 15.21 and 15.105

The user's manual must caution the user that changes or modifications not expressly approved by the manufacturer could void the user's FCC granted authority to operate the equipment. In addition the following information should be inserted:



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(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: this equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(c) The provisions of paragraphs (a) and (b) of this section do not apply to digital devices exempted from the technical standards under the provisions of § 15.103.

(d) For systems incorporating several digital devices, the statement shown in paragraph (a) or (b) of this section needs to be contained only in the instruction manual for the main control unit.

Our facility codes can be found in the *Test Equipment Used* Section starting on page 12.





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.

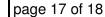
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (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 were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.

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



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

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

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

(B)NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10.000. WHICHEVER IS THE LESSER AMOUNT.

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

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

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