# TEST RESULT SUMMARY

## FCC Part 15 Subpart C Section 15.231
## Industry Canada RSS-210 Issue 7

| | |
|---|---|
| MANUFACTURER | GE Security Incorporated<br>1275 Red Fox Road<br>Arden Hills MN 55112 |
| PRODUCT NAME | Simon iXT – Residential Security System |
| MODEL NUMBER(S) TESTED | 600-1054-95R-iXT |
| TEST REPORT NUMBER | WC907293.3 |
| TEST DATE(S) | 15 June – 05 October 2009 |

TÜV SÜD America Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the applicable requirements of FCC Part 15, Subpart C, Section 15.231 *"Periodic operation in the band 40.66 - 40.70 MHz and above 70 MHz"* and Industry Canada RSS-210 Issue 7 *"Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"* Annex 1 "*Momentarily Operated Devices*"

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

| | | Tested by: | Approved by: |
|---|---|---|---|
| Date: | 20 October 2009 | | |
| Location: | Taylors Falls MN<br>USA | Greg S Jakubowski<br>Senior EMC Technician | Joel T Schneider<br>Senior EMC Engineer |

**Not Transferable**

# EMC TEST REPORT

| | | |
|---|---|---|
| Test Report No. | **WC903293.3** | Date of issue: 20 October 2009 |
| Model / Serial No(s) Tested | 600-1054-95R-iXT / Rev. A | |
| Product Description | Simon iXT – Residential Security System | |
| Manufacturer | GE Security Incorporated | |
| | 1275 Red Fox Road | |
| | Arden Hills MN 55112 | |

Test Result ■ **Positive** ☐ **Negative**

*TÜV SÜD America Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV SÜD America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD America Inc issued reports.*

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**REVISION RECORD**

| REVISION | TOTAL NUMBER OF PAGES | DATE | DESCRIPTION |
|---|---|---|---|
| | 43 | 20 October 2009 | Initial Release |

**TEST REPORT CONTENTS** **Page(s)**

**EMC TEST REGULATIONS:**
**The tests were performed according to the following regulations:**
- FCC Part 15 Subpart C Section 15.231
- Industry Canada RSS-210 Issue 7 Annex 1

**ENVIRONMENTAL CONDITIONS IN THE LAB**

| | Actual |
|---|---|
| Temperature: | : 22-25 °C |
| Relative Humidity | : 32-41 % |
| Atmospheric pressure | : 98-99 kPa |

**POWER SUPPLY UTILIZED**

| | |
|---|---|
| Power supply system | : 110-120V / 60 Hz / 1ϕ |

**TEST EQUIPMENT**

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

**SIGN EXPLANATIONS**

☐ - not applicable
■ - applicable

## Activation time

**FCC 15.231(a)(1) - IC RSS 210 A1.1.1(1)**

**Test limit**

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

**Test summary**

The requirements are: ☐ - MET ☐ - NOT MET ■ - NOT APPLICABLE
The transmitter is not manually operated.

**FCC 15.231(a)2), IC RSS 210 A1.1.1(2)**

**Test limit**

A transmitter activated automatically shall cease transmission within 5 seconds after activation

**Test summary**

The requirements are: ■ - MET ☐ - NOT MET
The transmitter activates automatically and does cease transmission within 5 seconds after activation

**Test location**

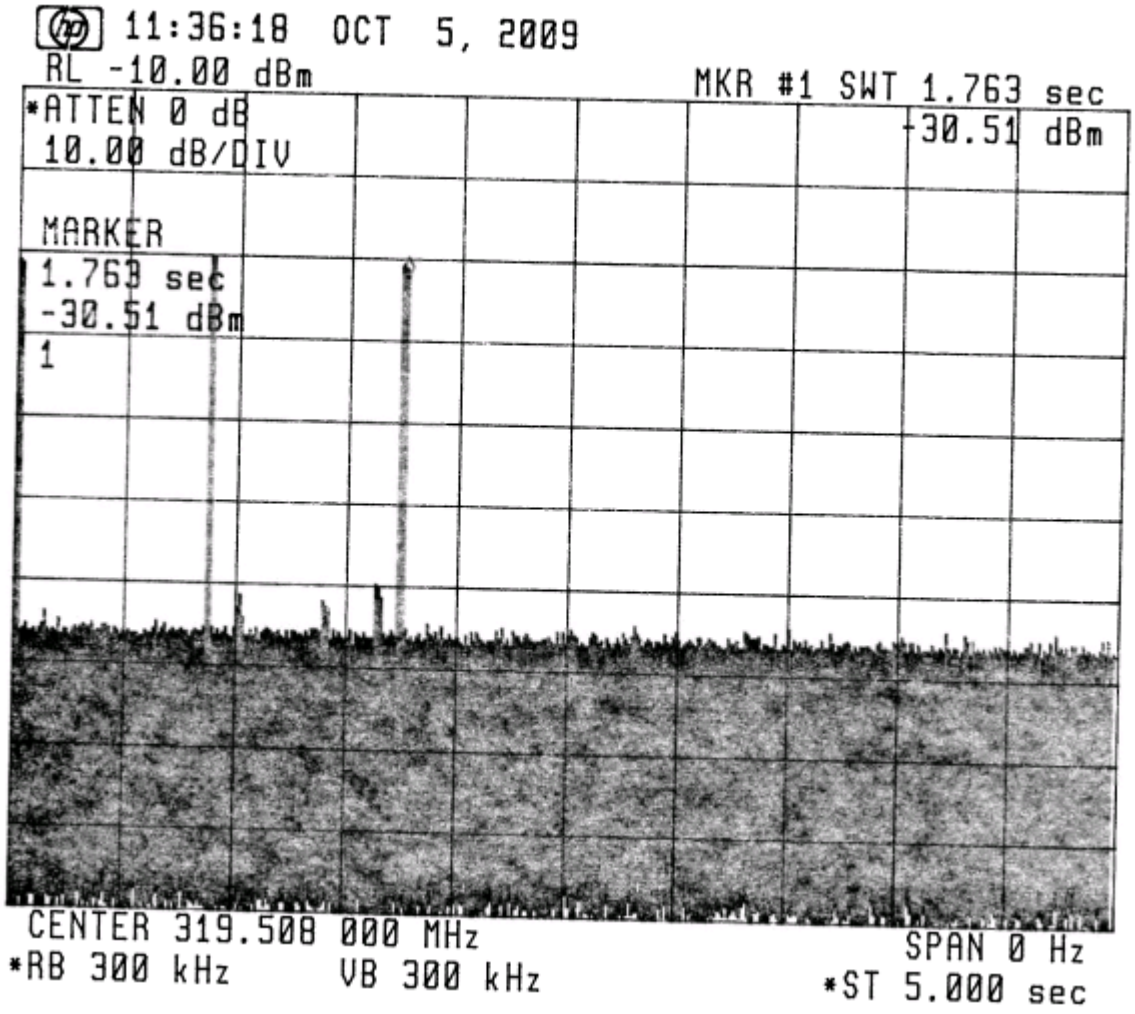
☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
■ - GE Security

**Test equipment**

| TUV ID | Model | Manufacturer | Description | Serial | Cal Due |
|---|---|---|---|---|---|
| N/A | 70000 | Agilent Technologies | Spectrum Analyzer System | G480119x | 19 Sep 10 |

**Test data**

See plot on next page


11:36:18 OCT 5, 2009
RL -10.00 dBm
MKR #1 SWT 1.763 sec
*ATTEN 0 dB
10.00 dB/DIV
-30.51 dBm
MARKER
1.763 sec
-30.51 dBm
1
CENTER 319.500 000 MHz
SPAN 0 Hz
*RB 300 kHz
VB 300 kHz
*ST 5.000 sec

## Periodic transmissions
**FCC 15.231(a)(3), IC RSS-210 A1.1.1(3)**

**Test limit**
Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

**Test summary**
The requirements are: ■ - MET ☐ - NOT MET

As permitted, this device will transmit three packets for supervision purposes. The interpacket delay is a random time between 100 ms and 450 ms. The packet itself may be as long as 18.63 ms depending on the data sent. The longest time to conclude a supervisory transmission is then

3 * 18.63 ms + 2 * 450 ms = 955.89 ms.

Supervisory transmissions are sent every 64 minutes.

## Transmission of set-up information
**FCC 15.231(a)(5)**

**Test limit**
Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

**Test summary**
The requirements are: ☐ - MET ☐ - NOT MET ■ - NOT APPLICABLE

## Field strength of fundamental
**FCC 15.231(b) - IC RSS 210 A1.1.2**

**Test limit**
The limits are specified at a distance of 3 meters.

| Frequency (MHz) | Field Strength of Fundamental (uV/m) |
|---|---|
| 319.5 | 6229.1 uV/m - (75.8 dBuV/m) average limit |
| | 62291 uV/m – (95.8 dBuV/m) peak limit |

**Test summary**
The requirements are: ■ - MET ☐ - NOT MET

The fundamental was measured to be 48979 uV/m (93.8 dBuV/m) in peak detector mode at 3 meters - (2 dB below limit)

The fundamental was calculated to be 4897.9 uV/m (73.8 dBuV/m) in average mode – (2 dB below limit)

The average level was obtained by subtracting the duty cycle from the measured peak level. The duty cycle of the transmitted signal was measured to be – the worst case on time over 100 msec is 18.63 msec. In this time frame there are 58 pulses of 100 usec width, 1 pulse of 475 usec width, and 1 pulse of 825 usec width. The duty cycle is thus measured to be 5.8 msec + 0.475 msec + 0.825msec / 100 msec = 7.1 %, which allows for a 22.9 dB reduction. 20 dB duty cycle correction factor was used to demonstrate compliance.

Below 1 GHz, rbw and vbw = 120 kHz for peak readings.

Antenna Height: ■ - 1 to 4 meters

Antenna Polarization: ■ - Horizontal ■ - Vertical

: ■ - EUT rotated 360 degrees

**Test location**
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - GE Security

**Test equipment**

| TUV ID | Model | Manufacturer | Description | Serial | Cal Due |
|---|---|---|---|---|---|
| WRLE03204 | EM-6917B | Electro-Metrics | Biconicalog Periodic | 102 | 17-Dec-09 |
| NBLE02683 | 85650A | Hewlett-Packard | Quasi-peak Adapter | 2430A00495 | 23-Feb-10 |
| WRLE02673 | 85662A | Hewlett-Packard | Analyzer Display | 2152A03687 | 19-Mar-10 |
| WRLE03294 | 8566B | Hewlett-Packard | Spectrum Analyzer | 2349A03098 | 19-Mar-10 |

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

**Test data**
See data on following pages.

# RADIATED EMISSIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 7 | Test Area: | LTS | | | |
| EUT Model #: | NX-801-IXT | Date: | 10/1/2009 | | | |
| EUT Serial #: | 57623760101866 | EUT Power: | 9VAC / 60Hz | Temperature: | 22.0 | °C |
| Test Method: | FCC 15.231 | | | Air Pressure: | 98.0 | kPa |
| Customer: | GE Security | | | Rel. Humidity: | 32.0 | % |
| EUT Description: | Simon XT-IXT | | | | | |
| Notes: | Fundamental transmit signal | | | | | |
| Data File Name: | 7293.dat | | | Page: | 1 of 3 | |

## List of measurements for run #: 7

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA1 15.231 319.5MHz fund pk 3m | DELTA2 |
|---|---|---|---|---|---|---|
| Duty cycle correction = -20 dB | | | | | | |
| If peak measurement complies with peak limit of 95.8 dBuV/m, | | | | | | |
| then corrected peak-average value will comply with average limit of 75.8 dBuV/m | | | | | | |
| | | | | | | |
| Fundamental signal fixed CW | | | | | | |
| EUT upright, 0 degrees azimuth is EUT front face | | | | | | |
| | | | | | | |
| Right antenna, maximized | | | | | | |
| 319.413 MHz | 73.2 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 88.3 | H / 1.00 / 131 | -7.5 | n/a |
| | | | | | | |
| Left antenna, mazimized | | | | | | |
| 319.449 MHz | 78.7 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 93.8 | H / 1.00 / 121 | -2.0 | n/a |
| | | | | | | |
| EUT on its left side, 0 degrees azimuth is EUT front face | | | | | | |
| Left antenna, mazimized | | | | | | |
| 319.451 MHz | 70.15 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 85.25 | H / 1.00 / 124 | -10.55 | n/a |
| | | | | | | |
| right antenna, maximized | | | | | | |
| 319.451 MHz | 70.0 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 85.1 | H / 1.00 / 124 | -10.7 | n/a |
| | | | | | | |
| EUT on its back, 0 degrees azimuth is EUT top | | | | | | |
| right antenna, maximized | | | | | | |
| 319.453 MHz | 71.35 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 86.45 | H / 1.00 / 211 | -9.35 | n/a |
| | | | | | | |
| left antenna, maximized | | | | | | |
| 319.452 MHz | 78.6 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 93.7 | H / 1.00 / 146 | -2.1 | n/a |
| | | | | | | |

Tested by: Greg Jakubowski (Printed) — G Jakubowski (Signature)

Reviewed by: Joel T Schneider (Printed) — Joel T. Schneider (Signature)

# RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 7 | Test Area: | LTS | | |
| EUT Model #: | NX-801-IXT | Date: | 10/1/2009 | | |
| EUT Serial #: | 57623760101866 | EUT Power: | 9VAC / 60Hz | Temperature: | 22.0 °C |
| Test Method: | FCC 15.231 | | | Air Pressure: | 98.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 32.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | Fundamental transmit signal | | | | |
| Data File Name: | 7293.dat | | | Page: | 2 of 3 |

## List of measurements for run #: 7

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA1 15.231 319.5MHz fund pk 3m | DELTA2 |
|---|---|---|---|---|---|---|
| EUT back to highest fundamental emission position, upright, left antenna, for remainder of testing | | | | | | |

## Measurement summary for limit1: 15.231 319.5MHz fund pk 3m (Pk)

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA1 15.231 319.5MHz fund pk 3m |
|---|---|---|---|---|---|
| 319.449 MHz | 78.7 Pk | 1.27 / 13.83 / 0.0 / 0.0 | 93.8 | H / 1.00 / 121 | -2.0 |

## Measurement summary for average limit: 15.231 319.5MHz fund avg 3m (Av). -20 dB duty cycle correction applied

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN / CORRECTION (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA1 15.231 319.5MHz fund av 3m |
|---|---|---|---|---|---|
| 319.449 MHz | 78.7 Pk | 1.27 / 13.83 / 0.0 / 0.0 / -20 | 73.8 | H / 1.00 / 121 | -2.0 |

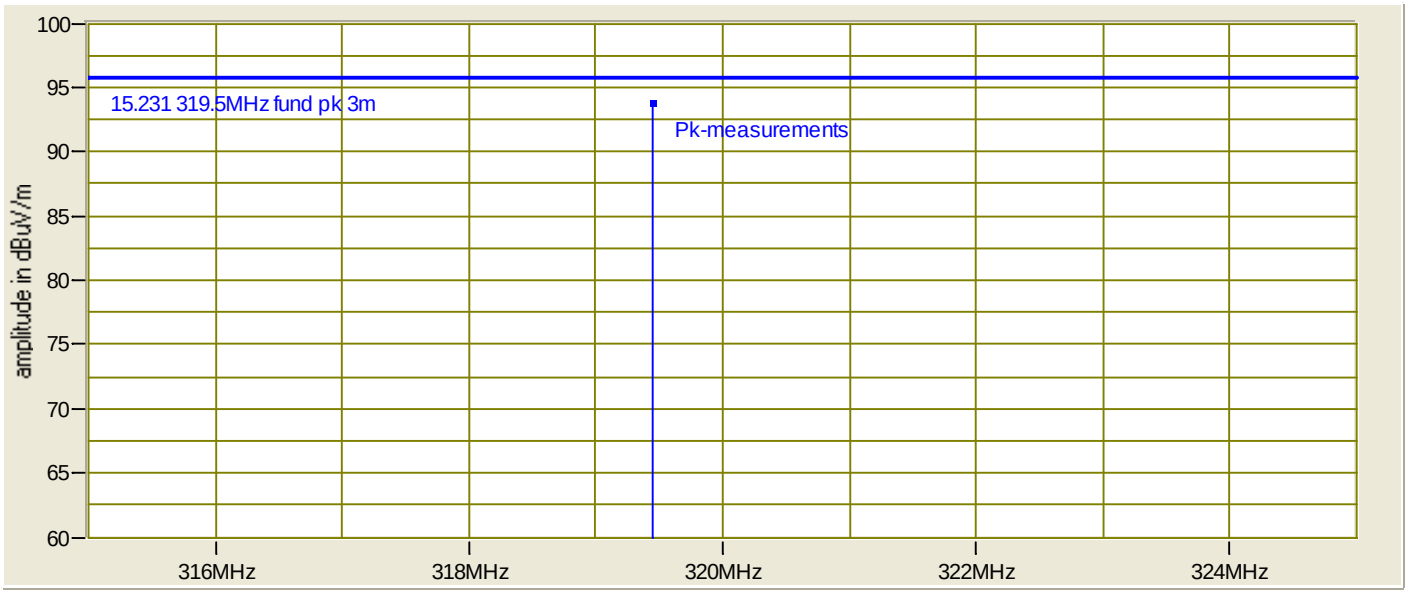
Tested by: Greg Jakubowski (Printed) — G Jakubowski (Signature)

Reviewed by: Joel T Schneider (Printed) — Joel T. Schneider (Signature)

# RADIATED EMISSIONS

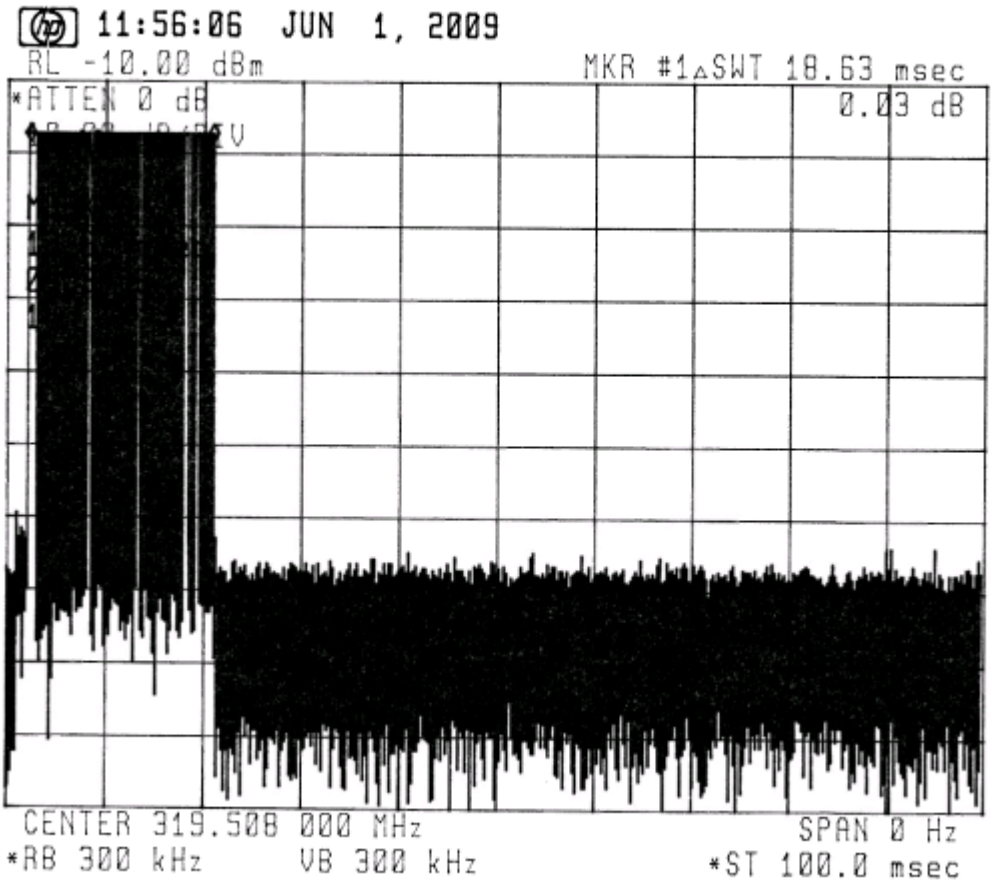
| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 7 | Test Area: | LTS | | |
| EUT Model #: | NX-801-IXT | Date: | 10/1/2009 | | |
| EUT Serial #: | 57623760101866 | EUT Power: | 9VAC / 60Hz | Temperature: | 22.0 °C |
| Test Method: | FCC 15.231 | | | Air Pressure: | 98.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 32.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | Fundamental transmit signal | | | | |
| Data File Name: | 7293.dat | | | Page: | 3 of 3 |

## Graph:



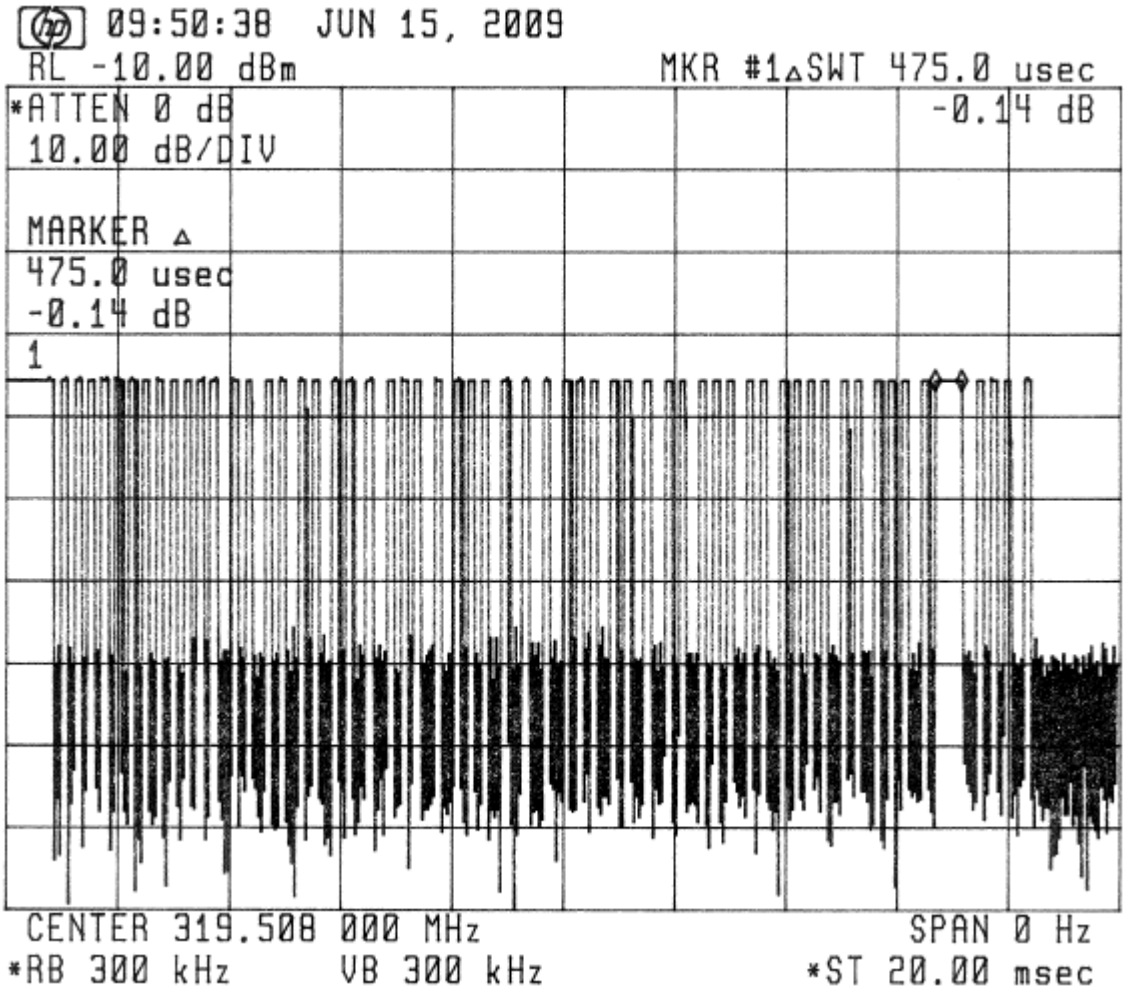

Tested by: Greg Jakubowski (Printed) _____ (Signature)

Reviewed by: Joel T Schneider (Printed) _____ (Signature)

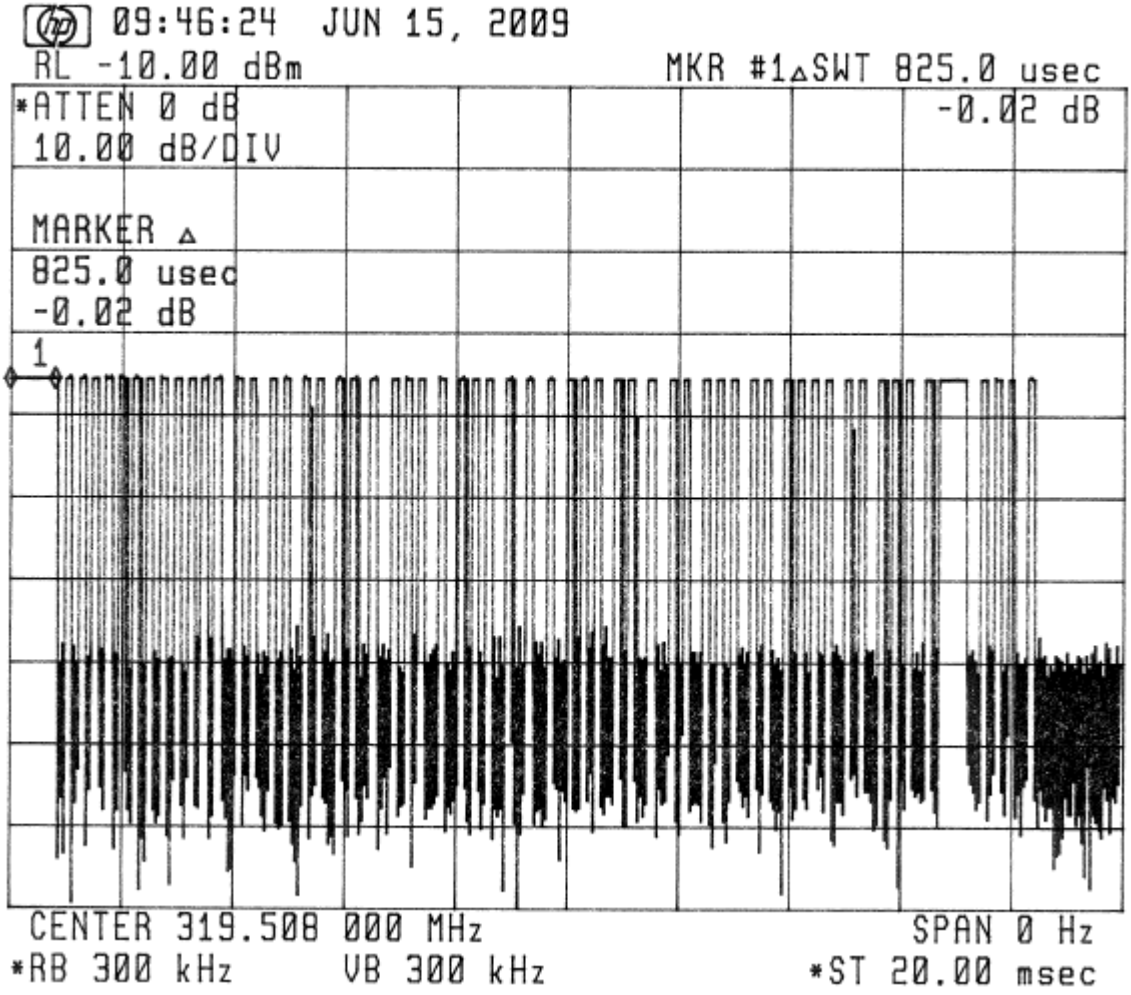



**Worst case 100 msec on time = 18.63 msec**

**The smallest width pulses are 100 usec wide, there are 58 pulses.**




**1 pulse at 475 usec**




**1 pulse at 825 usec**

## Field strength of spurious emissions
**FCC 15.231(b) - IC RSS 210 A1.1.2**

**Test limit**
The limits are specified at a distance of 3 meters – for fundamental frequency of 319.5 MHz.

| Frequency (MHz) | Field Strength of Spurious Emissions (uV/m) | | |
|---|---|---|---|
| 30-3195 | 622.9 uV/m | (55.8 dBuV/m) | average limit |
| | 6229 uV/m | (75.8 dBuV/m) | peak limit |
| Except for 15.205 bands | | | |
| 30-88 | 100 | (40 dBuV/m) | quasi-peak |
| 88-216 | 150 | (43.5 dBuV/m) | quasi-peak |
| 216-960 | 200 | (46 dBuV/m) | quasi-peak |
| 960-1000 | 500 | (54 dBuV/m) | quasi-peak |
| 1000-3195 | 500 | (54 dBuV/m) | average |
| | 5000 | (74 dBuV/m) | peak |

**Test summary**
The requirements are: ■ - MET ☐ - NOT MET

The highest spurious emission below 1 GHz was measured to be 75.6 uV/m (37.57 dBuV/m), peak, 958.44 MHz

The highest spurious emission below 1 GHz was calculated to be 7.56 uV/m (17.57 dBuV/m), average, 958.44 MHz

The average level was obtained by subtracting the duty cycle from the measured peak level. The duty cycle of the transmitted signal was measured to be – the worst case on time over 100 msec is 18.63 msec. In this time frame there are 58 pulses of 100 usec width, 1 pulse of 475 usec width, and 1 pulse of 825 usec width. The duty cycle is thus measured to be 5.8 msec + 0.475 msec + 0.825msec / 100 msec = 7.1 %, which allows for a 22.9 dB reduction. 20 dB duty cycle correction factor was used to demonstrate compliance.

The highest spurious emission above 1 GHz was measured to be 204 uV/m (46.19 dBuV/m), peak, 1.2 GHz)

The highest spurious emission above 1 GHz was measured to be 141 uV/m (42.99 dBuV/m), average, 1.2 GHz

Below 1 GHz, rbw and vbw = 120 kHz for peak readings.
Above 1 GHz, rbw and vbw = 1 MHz for peak readings, rbw = 1 MHz and vbw = 10 Hz for average readings.
Antenna Height - 1 to 4 meters; Ant. Distance - 3m; Antenna Polarization – Horizontal/Vertical; EUT rotated 360 degrees

**Test location**
■ - Wild River Lab Large Test Site (Open Area Test Site)

**Test equipment**

| TUV ID | Model | Manufacturer | Description | Serial | Cal Due |
|---|---|---|---|---|---|
| WRLE03204 | EM-6917B | Electro-Metrics | Biconicalog Periodic | 102 | 17-Dec-09 |
| NBLE02683 | 85650A | Hewlett-Packard | Quasi-peak Adapter | 2430A00495 | 23-Feb-10 |
| WRLE02673 | 85662A | Hewlett-Packard | Analyzer Display | 2152A03687 | 19-Mar-10 |
| WRLE03294 | 8566B | Hewlett-Packard | Spectrum Analyzer | 2349A03098 | 19-Mar-10 |
| WRLE03847 | ZHL-1042J | Mini-Circuits | Preamplifier 10 - 3000 MHz | 0607 | Code B 14-May-10 |
| WRLE03895 | NHP-600 | Mini-Circuits | 30-600 MHz Stopband Filter | 3 | Code B 28-Oct-09 |

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

**Test data**
See data sheets on next pages.

# RADIATED EMISSIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 8 | Test Area: | LTS | | | |
| EUT Model #: | NX-801-IXT | Date: | 10/1/2009 | | | |
| EUT Serial #: | 57623760101866 | EUT Power: | 9VAC / 60Hz | Temperature: | 22.0 | °C |
| Test Method: | FCC 15.231 | | | Air Pressure: | 98.0 | kPa |
| Customer: | GE Security | | | Rel. Humidity: | 32.0 | % |
| EUT Description: | Simon XT-IXT | | | | | |
| Notes: | Spurious / harmonics, 30-3200 MHz | | | | | |
| Data File Name: | 7293.dat | | | Page: | 1 of 3 | |

## List of measurements for run #: 8

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA1 GE 319.5MHz harms/spurs av 3m | DELTA2 GE 319.5MHz harms/spurs pk 3m |
|---|---|---|---|---|---|---|
| | | | | | | |
| 638.958 MHz | 37.35 Pk | 1.72 / 19.33 / 30.07 / 0.45 | 28.78 | V / 1.00 / 0 | n/a | -47.02 |
| 958.44 MHz | 38.55 Pk | 2.82 / 22.83 / 29.59 / 0.32 | 34.92 | V / 1.00 / 0 | n/a | -40.88 |
| 1.2 GHz | 43.4 Pk | 3.32 / 24.1 / 29.18 / 0.35 | 41.99 | V / 1.00 / 0 | n/a | -33.81 |
| | | | | | | |
| maximized | | | | | | |
| 638.956 MHz | 43.25 Pk | 1.72 / 19.33 / 30.07 / 0.45 | 34.68 | H / 1.21 / 210 | n/a | -41.12 |
| 958.447 MHz | 41.2 Pk | 2.82 / 22.83 / 29.59 / 0.32 | 37.57 | V / 1.05 / 219 | n/a | -38.23 |
| 1.2 GHz | 44.4 Av | 3.32 / 24.1 / 29.18 / 0.35 | 42.99 | H / 1.00 / 144 | -11.01 | n/a |
| 1.2 GHz | 47.6 Pk | 3.32 / 24.1 / 29.18 / 0.35 | 46.19 | H / 1.00 / 144 | n/a | -27.81 |
| | | | | | | |
| No other significant emissions detected | | | | | | |
| End spurious / harmonic scan for FCC 15.231, 30 - 3200 MHz | | | | | | |

Tested by: Greg Jakubowski (Printed) — G Jakubowski (Signature)

Reviewed by: Joel T Schneider (Printed) — Joel T. Schneider (Signature)

# RADIATED EMISSIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 8 | Test Area: | LTS | | | |
| EUT Model #: | NX-801-IXT | Date: | 10/1/2009 | | | |
| EUT Serial #: | 57623760101866 | EUT Power: | 9VAC / 60Hz | Temperature: | 22.0 | °C |
| Test Method: | FCC 15.231 | | | Air Pressure: | 98.0 | kPa |
| Customer: | GE Security | | | Rel. Humidity: | 32.0 | % |
| EUT Description: | Simon XT-IXT | | | | | |
| Notes: | Spurious / harmonics, 30-3200 MHz | | | | | |
| Data File Name: | 7293.dat | | | Page: | 2 of 3 | |

## Measurement summary for limit1: GE 319.5MHz harms/spurs av 3m (Av)

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA1 GE 319.5MHz harms/spurs av 3m |
|---|---|---|---|---|---|
| 1.2 GHz | 44.4 Av | 3.32 / 24.1 / 29.18 / 0.35 | 42.99 | H / 1.00 / 144 | -11.01 |

## Measurement summary for limit2: GE 319.5MHz harms/spurs pk 3m (Pk)

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | POL / HGT / AZ (m)(DEG) | DELTA2 GE 319.5MHz harms/spurs pk 3m |
|---|---|---|---|---|---|
| 1.2 GHz | 47.6 Pk | 3.32 / 24.1 / 29.18 / 0.35 | 46.19 | H / 1.00 / 144 | -27.81 |
| 958.447 MHz | 41.2 Pk | 2.82 / 22.83 / 29.59 / 0.32 | 37.57 | V / 1.05 / 219 | -38.23 |
| 638.956 MHz | 43.25 Pk | 1.72 / 19.33 / 30.07 / 0.45 | 34.68 | H / 1.21 / 210 | -41.12 |

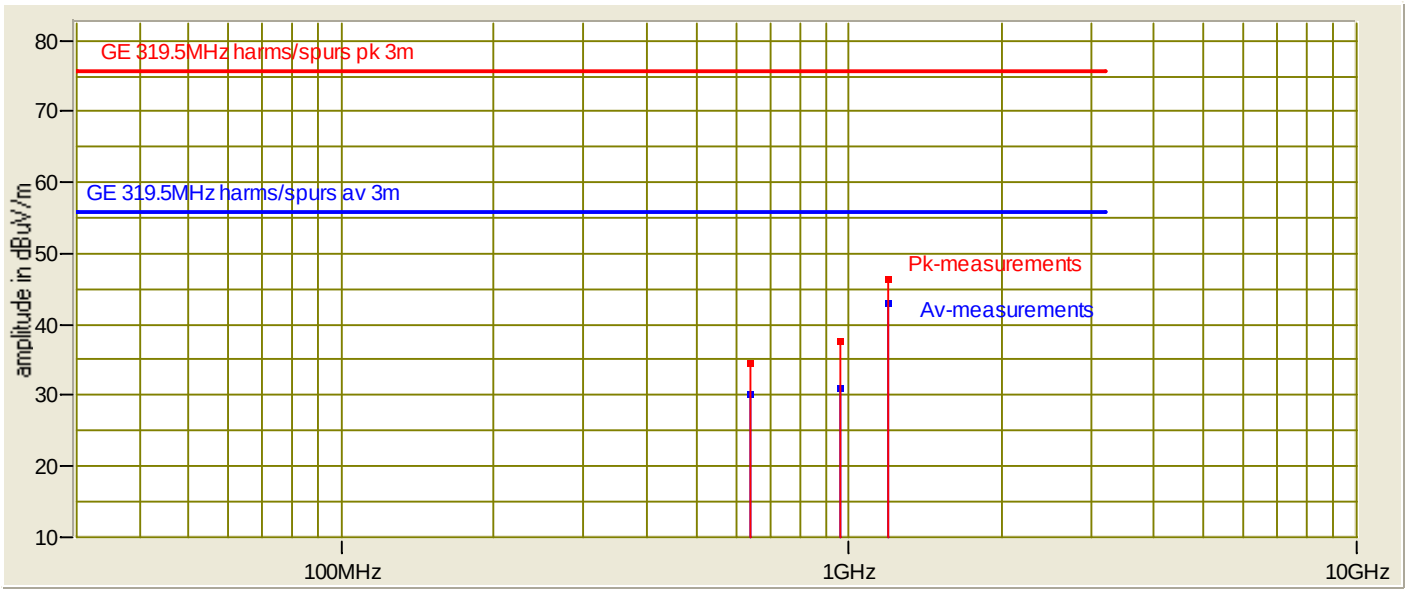
Tested by: Greg Jakubowski (Printed) — G Jakubowski (Signature)

Reviewed by: Joel T Schneider (Printed) — Joel T. Schneider (Signature)

# RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 8 | Test Area: | LTS | | |
| EUT Model #: | NX-801-IXT | Date: | 10/1/2009 | | |
| EUT Serial #: | 57623760101866 | EUT Power: | 9VAC / 60Hz | Temperature: | 22.0 °C |
| Test Method: | FCC 15.231 | | | Air Pressure: | 98.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 32.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | Spurious / harmonics, 30-3200 MHz | | | | |
| Data File Name: | 7293.dat | | | Page: | 3 of 3 |

## Graph:




Tested by: Greg Jakubowski (Printed) _____ (Signature)

Reviewed by: Joel T Schneider (Printed) _____ (Signature)

## Bandwidth of emission
**FCC 15.231(c) - IC RSS 210 A1.1.3**

**Test limit**
The bandwidth of the emission shall be no wider than 0.25% of the center frequency, as determined at the points 20 dB down from the modulated carrier. The emission shall be no wider than 798.75 kHz.

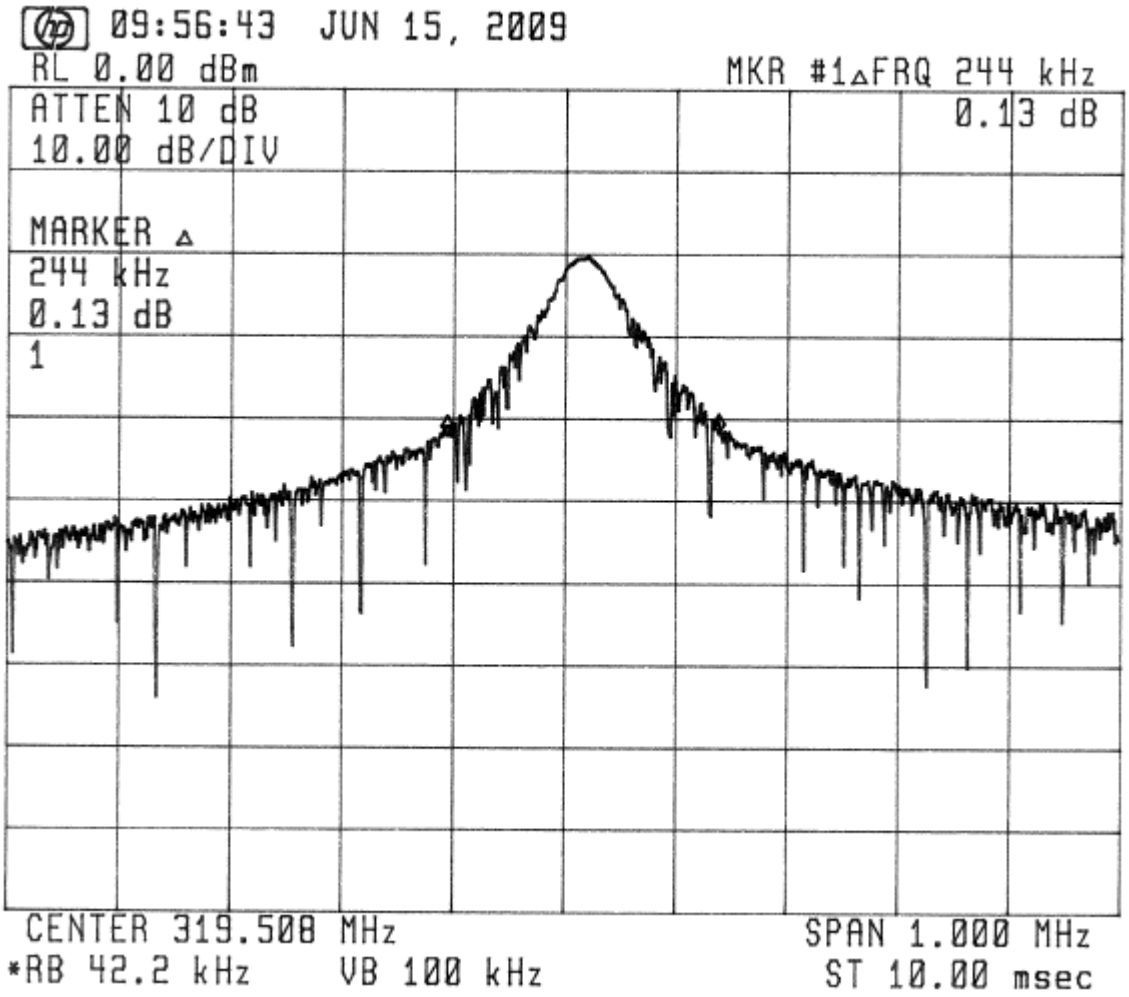
**Test summary**
The requirements are: ■ - MET ☐ - NOT MET
The bandwidth of the emission was measured to be 244 kHz.

**Test location**
☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
■ - GE Security

**Test equipment**

| TUV ID | Model | Manufacturer | Description | Serial | Cal Due |
|---|---|---|---|---|---|
| N/A | N9010A | Agilent Technologies | EXA Signal Analyzer | MY48031158 | 15 Oct 09 |

**Test data**
See plot on next page


09:56:43 JUN 15, 2009
RL 0.00 dBm
MKR #1ΔFRQ 244 kHz
ATTEN 10 dB
0.13 dB
10.00 dB/DIV
MARKER Δ
244 kHz
0.13 dB
1
CENTER 319.500 MHz
SPAN 1.000 MHz
*RB 42.2 kHz
VB 100 kHz
ST 10.00 msec

## Conducted emissions – AC power lines
**FCC 15.207, IC RSS-Gen 7.2.2**

**Test summary**
The requirements are: ■ - MET ☐ - NOT MET
Test was performed in accordance with the test procedures of ANSI C63.4 2003, clause 7.2
Minimum margin of compliance = 22 dB at 14.21 MHz (quasi-peak)
Minimum margin of compliance = 12 dB at 14.21 MHz (average)

**Test location**
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Wild River Lab Tech Area, conducted measurement

**Test equipment**

| TUV ID | Model | Manufacturer | Description | Serial | Cal Due |
|---|---|---|---|---|---|
| WRLE02416 | 3825/2 | Electro-Mechanics (EMCO) | 50 Ω LISN | 8812-1437 | Code B 14-Jan-10 |
| WRLE02534 | ESHS-20 | Rohde & Schwarz | EMI Receiver | 837055/003 | 09-Apr-10 |

Cal Code B = Calibration verification performed internally.

**Test limit**

| Frequncy (MHz) | Quasi-peak (dBμV) | Average (dBμV) |
|---|---|---|
| 0.15 – 0.5 | 66 to 56* | 56 to 46* |
| 0.5 – 5 | 56 | 46 |
| 5 – 30 | 60 | 50 |

**Test data**
See following pages

# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 3 | Test Area: | LTS | | |
| EUT Model #: | NA-801-IXT | Date: | 9/24/2009 | | |
| EUT Serial #: | 00603504021F | EUT Power: | 60 Hz 110 VAC | Temperature: | 25.0 °C |
| Test Method: | FCC B | | | Air Pressure: | 99.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 41.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | shields used 444-1812-b, 444-1813-b, Simon base s/n 66225801355538, z-wave or wi-fi | | | | |
| Data File Name: | 7293re1below1g.dat | | | Page: | 1 of 5 |

## List of measurements for run #: 3

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | EUT Lead | DELTA1 EN55022 B Qp | DELTA2 EN55022 B Avg |
|---|---|---|---|---|---|---|
| 150.0 kHz | 27.49 Qp | 0.11 / 0.3 / 0.0 / 0.0 | 27.9 | L1 | -38.1 | n/a |
| 202.47 kHz | 30.46 Qp | 0.12 / 0.16 / 0.0 / 0.0 | 30.74 | L1 | -32.77 | n/a |
| 270.59 kHz | 25.69 Qp | 0.13 / 0.1 / 0.0 / 0.0 | 25.92 | L1 | -35.18 | n/a |
| 338.27 kHz | 21.94 Qp | 0.14 / 0.1 / 0.0 / 0.0 | 22.18 | L1 | -37.07 | n/a |
| 542.35 kHz | 30.95 Qp | 0.16 / 0.1 / 0.0 / 0.0 | 31.21 | L1 | -24.79 | n/a |
| 881.02 kHz | 22.6 Qp | 0.21 / 0.1 / 0.0 / 0.0 | 22.91 | L1 | -33.09 | n/a |
| 1.49 MHz | 21.02 Qp | 0.29 / 0.0 / 0.0 / 0.0 | 21.31 | L1 | -34.69 | n/a |
| 1.97 MHz | 23.31 Qp | 0.33 / 0.0 / 0.0 / 0.0 | 23.64 | L1 | -32.36 | n/a |
| 2.17 MHz | 24.92 Qp | 0.35 / 0.0 / 0.0 / 0.0 | 25.27 | L1 | -30.73 | n/a |
| 3.19 MHz | 23.04 Qp | 0.43 / 0.0 / 0.0 / 0.0 | 23.47 | L1 | -32.53 | n/a |
| 5.91 MHz | 25.66 Qp | 0.58 / 0.0 / 0.0 / 0.0 | 26.24 | L1 | -33.76 | n/a |
| 8.0 MHz | 27.5 Qp | 0.68 / 0.04 / 0.0 / 0.0 | 28.22 | L1 | -31.78 | n/a |
| 9.6 MHz | 31.17 Qp | 0.77 / 0.17 / 0.0 / 0.0 | 32.11 | L1 | -27.89 | n/a |
| 14.03 MHz | 34.62 Qp | 0.92 / 0.24 / 0.0 / 0.0 | 35.78 | L1 | -24.22 | n/a |
| 16.17 MHz | 31.07 Qp | 0.99 / 0.26 / 0.0 / 0.0 | 32.32 | L1 | -27.68 | n/a |
| 26.61 MHz | 31.18 Qp | 1.26 / 0.83 / 0.0 / 0.0 | 33.27 | L1 | -26.73 | n/a |
| 14.21 MHz | 36.61 Qp | 0.92 / 0.24 / 0.0 / 0.0 | 37.78 | L1 | -22.22 | n/a |
| 150.0 kHz | 8.36 Av | 0.11 / 0.3 / 0.0 / 0.0 | 8.77 | L1 | n/a | -47.23 |
| 202.47 kHz | 25.34 Av | 0.12 / 0.16 / 0.0 / 0.0 | 25.62 | L1 | n/a | -27.89 |
| 270.59 kHz | 21.84 Av | 0.13 / 0.1 / 0.0 / 0.0 | 22.07 | L1 | n/a | -29.03 |
| 338.27 kHz | 18.52 Av | 0.14 / 0.1 / 0.0 / 0.0 | 18.76 | L1 | n/a | -30.49 |
| 542.35 kHz | 27.63 Av | 0.16 / 0.1 / 0.0 / 0.0 | 27.89 | L1 | n/a | -18.11 |
| 881.02 kHz | 18.35 Av | 0.21 / 0.1 / 0.0 / 0.0 | 18.66 | L1 | n/a | -27.34 |
| 1.49 MHz | 15.82 Av | 0.29 / 0.0 / 0.0 / 0.0 | 16.11 | L1 | n/a | -29.89 |
| 1.97 MHz | 17.1 Av | 0.33 / 0.0 / 0.0 / 0.0 | 17.43 | L1 | n/a | -28.57 |
| 2.17 MHz | 19.84 Av | 0.35 / 0.0 / 0.0 / 0.0 | 20.19 | L1 | n/a | -25.81 |
| 3.19 MHz | 13.82 Av | 0.43 / 0.0 / 0.0 / 0.0 | 14.25 | L1 | n/a | -31.75 |
| 5.91 MHz | 19.55 Av | 0.58 / 0.0 / 0.0 / 0.0 | 20.13 | L1 | n/a | -29.87 |

Tested by: Joel T Schneider (Printed) — Joel T. Schneider (Signature)

Reviewed by: Robert J Behringer (Printed) — Robert Behringer (Signature)

# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 3 | Test Area: | LTS | | |
| EUT Model #: | NA-801-IXT | Date: | 9/24/2009 | | |
| EUT Serial #: | 00603504021F | EUT Power: | 60 Hz 110 VAC | Temperature: | 25.0 °C |
| Test Method: | FCC B | | | Air Pressure: | 99.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 41.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | shields used 444-1812-b, 444-1813-b, Simon base s/n 66225801355538, z-wave or wi-fi | | | | |
| Data File Name: | 7293re1below1g.dat | | | Page: | 2 of 5 |

## List of measurements for run #: 3

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | EUT Lead | DELTA1 EN55022 B Qp | DELTA2 EN55022 B Avg |
|---|---|---|---|---|---|---|
| 8.0 MHz | 18.6 Av | 0.68 / 0.04 / 0.0 / 0.0 | 19.32 | L1 | n/a | -30.68 |
| 9.6 MHz | 29.84 Av | 0.77 / 0.17 / 0.0 / 0.0 | 30.78 | L1 | n/a | -19.22 |
| 14.03 MHz | 34.62 Av | 0.92 / 0.24 / 0.0 / 0.0 | 35.78 | L1 | n/a | -14.22 |
| 14.21 MHz | 35.94 Av | 0.92 / 0.24 / 0.0 / 0.0 | 37.11 | L1 | n/a | -12.89 |
| 16.17 MHz | 28.85 Av | 0.99 / 0.26 / 0.0 / 0.0 | 30.1 | L1 | n/a | -19.9 |
| 26.61 MHz | 27.1 Av | 1.26 / 0.83 / 0.0 / 0.0 | 29.19 | L1 | n/a | -20.81 |
| 14.21 MHz | 34.4 Qp | 0.92 / 0.24 / 0.0 / 0.0 | 35.57 | N | -24.43 | n/a |
| 14.21 MHz | 33.6 Av | 0.92 / 0.24 / 0.0 / 0.0 | 34.77 | N | n/a | -15.23 |

Tested by: Joel T Schneider (Printed) _____ (Signature)

Reviewed by: Robert J Behringer (Printed) _____ (Signature)

# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 3 | Test Area: | LTS | | |
| EUT Model #: | NA-801-IXT | Date: | 9/24/2009 | | |
| EUT Serial #: | 00603504021F | EUT Power: | 60 Hz 110 VAC | Temperature: | 25.0 °C |
| Test Method: | FCC B | | | Air Pressure: | 99.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 41.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | shields used 444-1812-b, 444-1813-b, Simon base s/n 66225801355538, z-wave or wi-fi | | | | |
| Data File Name: | 7293re1below1g.dat | | | Page: | 3 of 5 |

**Measurement summary for limit1: EN55022 B Qp (Qp)**

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | EUT Lead | DELTA1 EN55022 B Qp |
|---|---|---|---|---|---|
| 14.21 MHz | 36.61 Qp | 0.92 / 0.24 / 0.0 / 0.0 | 37.78 | L1 | -22.22 |
| 14.03 MHz | 34.62 Qp | 0.92 / 0.24 / 0.0 / 0.0 | 35.78 | L1 | -24.22 |
| 542.35 kHz | 30.95 Qp | 0.16 / 0.1 / 0.0 / 0.0 | 31.21 | L1 | -24.79 |
| 26.61 MHz | 31.18 Qp | 1.26 / 0.83 / 0.0 / 0.0 | 33.27 | L1 | -26.73 |
| 16.17 MHz | 31.07 Qp | 0.99 / 0.26 / 0.0 / 0.0 | 32.32 | L1 | -27.68 |
| 9.6 MHz | 31.17 Qp | 0.77 / 0.17 / 0.0 / 0.0 | 32.11 | L1 | -27.89 |
| 2.17 MHz | 24.92 Qp | 0.35 / 0.0 / 0.0 / 0.0 | 25.27 | L1 | -30.73 |
| 8.0 MHz | 27.5 Qp | 0.68 / 0.04 / 0.0 / 0.0 | 28.22 | L1 | -31.78 |
| 1.97 MHz | 23.31 Qp | 0.33 / 0.0 / 0.0 / 0.0 | 23.64 | L1 | -32.36 |
| 3.19 MHz | 23.04 Qp | 0.43 / 0.0 / 0.0 / 0.0 | 23.47 | L1 | -32.53 |
| 202.47 kHz | 30.46 Qp | 0.12 / 0.16 / 0.0 / 0.0 | 30.74 | L1 | -32.77 |
| 881.02 kHz | 22.6 Qp | 0.21 / 0.1 / 0.0 / 0.0 | 22.91 | L1 | -33.09 |
| 5.91 MHz | 25.66 Qp | 0.58 / 0.0 / 0.0 / 0.0 | 26.24 | L1 | -33.76 |
| 1.49 MHz | 21.02 Qp | 0.29 / 0.0 / 0.0 / 0.0 | 21.31 | L1 | -34.69 |
| 270.59 kHz | 25.69 Qp | 0.13 / 0.1 / 0.0 / 0.0 | 25.92 | L1 | -35.18 |
| 338.27 kHz | 21.94 Qp | 0.14 / 0.1 / 0.0 / 0.0 | 22.18 | L1 | -37.07 |
| 150.0 kHz | 27.49 Qp | 0.11 / 0.3 / 0.0 / 0.0 | 27.9 | L1 | -38.1 |

Tested by: Joel T Schneider (Printed) — Joel T. Schneider (Signature)

Reviewed by: Robert J Behringer (Printed) — Robert Behringer (Signature)

# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 3 | Test Area: | LTS | | |
| EUT Model #: | NA-801-IXT | Date: | 9/24/2009 | | |
| EUT Serial #: | 00603504021F | EUT Power: | 60 Hz 110 VAC | Temperature: | 25.0 °C |
| Test Method: | FCC B | | | Air Pressure: | 99.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 41.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | shields used 444-1812-b, 444-1813-b, Simon base s/n 66225801355538, z-wave or wi-fi | | | | |
| Data File Name: | 7293re1below1g.dat | | | Page: | 4 of 5 |

**Measurement summary for limit2: EN55022 B Avg (Av)**

| FREQ | LEVEL (dBuV) | CABLE / ANT / PREAMP / ATTEN (dB) | FINAL (dBuV / m) | EUT Lead | DELTA2 EN55022 B Avg |
|---|---|---|---|---|---|
| 14.21 MHz | 35.94 Av | 0.92 / 0.24 / 0.0 / 0.0 | 37.11 | L1 | -12.89 |
| 14.03 MHz | 34.62 Av | 0.92 / 0.24 / 0.0 / 0.0 | 35.78 | L1 | -14.22 |
| 542.35 kHz | 27.63 Av | 0.16 / 0.1 / 0.0 / 0.0 | 27.89 | L1 | -18.11 |
| 9.6 MHz | 29.84 Av | 0.77 / 0.17 / 0.0 / 0.0 | 30.78 | L1 | -19.22 |
| 16.17 MHz | 28.85 Av | 0.99 / 0.26 / 0.0 / 0.0 | 30.1 | L1 | -19.9 |
| 26.61 MHz | 27.1 Av | 1.26 / 0.83 / 0.0 / 0.0 | 29.19 | L1 | -20.81 |
| 2.17 MHz | 19.84 Av | 0.35 / 0.0 / 0.0 / 0.0 | 20.19 | L1 | -25.81 |
| 881.02 kHz | 18.35 Av | 0.21 / 0.1 / 0.0 / 0.0 | 18.66 | L1 | -27.34 |
| 202.47 kHz | 25.34 Av | 0.12 / 0.16 / 0.0 / 0.0 | 25.62 | L1 | -27.89 |
| 1.97 MHz | 17.1 Av | 0.33 / 0.0 / 0.0 / 0.0 | 17.43 | L1 | -28.57 |
| 270.59 kHz | 21.84 Av | 0.13 / 0.1 / 0.0 / 0.0 | 22.07 | L1 | -29.03 |
| 5.91 MHz | 19.55 Av | 0.58 / 0.0 / 0.0 / 0.0 | 20.13 | L1 | -29.87 |
| 1.49 MHz | 15.82 Av | 0.29 / 0.0 / 0.0 / 0.0 | 16.11 | L1 | -29.89 |
| 338.27 kHz | 18.52 Av | 0.14 / 0.1 / 0.0 / 0.0 | 18.76 | L1 | -30.49 |
| 8.0 MHz | 18.6 Av | 0.68 / 0.04 / 0.0 / 0.0 | 19.32 | L1 | -30.68 |
| 3.19 MHz | 13.82 Av | 0.43 / 0.0 / 0.0 / 0.0 | 14.25 | L1 | -31.75 |
| 150.0 kHz | 8.36 Av | 0.11 / 0.3 / 0.0 / 0.0 | 8.77 | L1 | -47.23 |

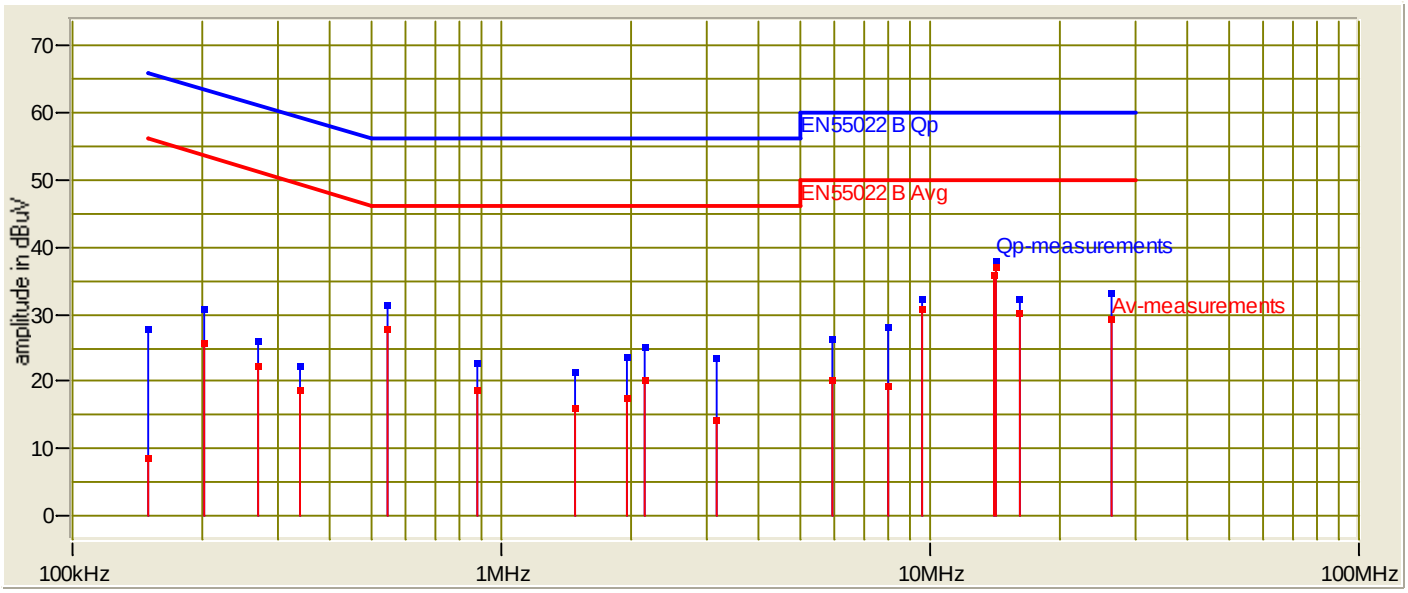
Tested by: Joel T Schneider (Printed) _____ (Signature)

Reviewed by: Robert J Behringer (Printed) _____ (Signature)

# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| Test Report #: | WC907293 Run 3 | Test Area: | LTS | | |
| EUT Model #: | NA-801-IXT | Date: | 9/24/2009 | | |
| EUT Serial #: | 00603504021F | EUT Power: | 60 Hz 110 VAC | Temperature: | 25.0 °C |
| Test Method: | FCC B | | | Air Pressure: | 99.0 kPa |
| Customer: | GE Security | | | Rel. Humidity: | 41.0 % |
| EUT Description: | Simon XT-IXT | | | | |
| Notes: | shields used 444-1812-b, 444-1813-b, Simon base s/n 66225801355538, z-wave or wi-fi | | | | |
| Data File Name: | 7293re1below1g.dat | | | Page: | 5 of 5 |

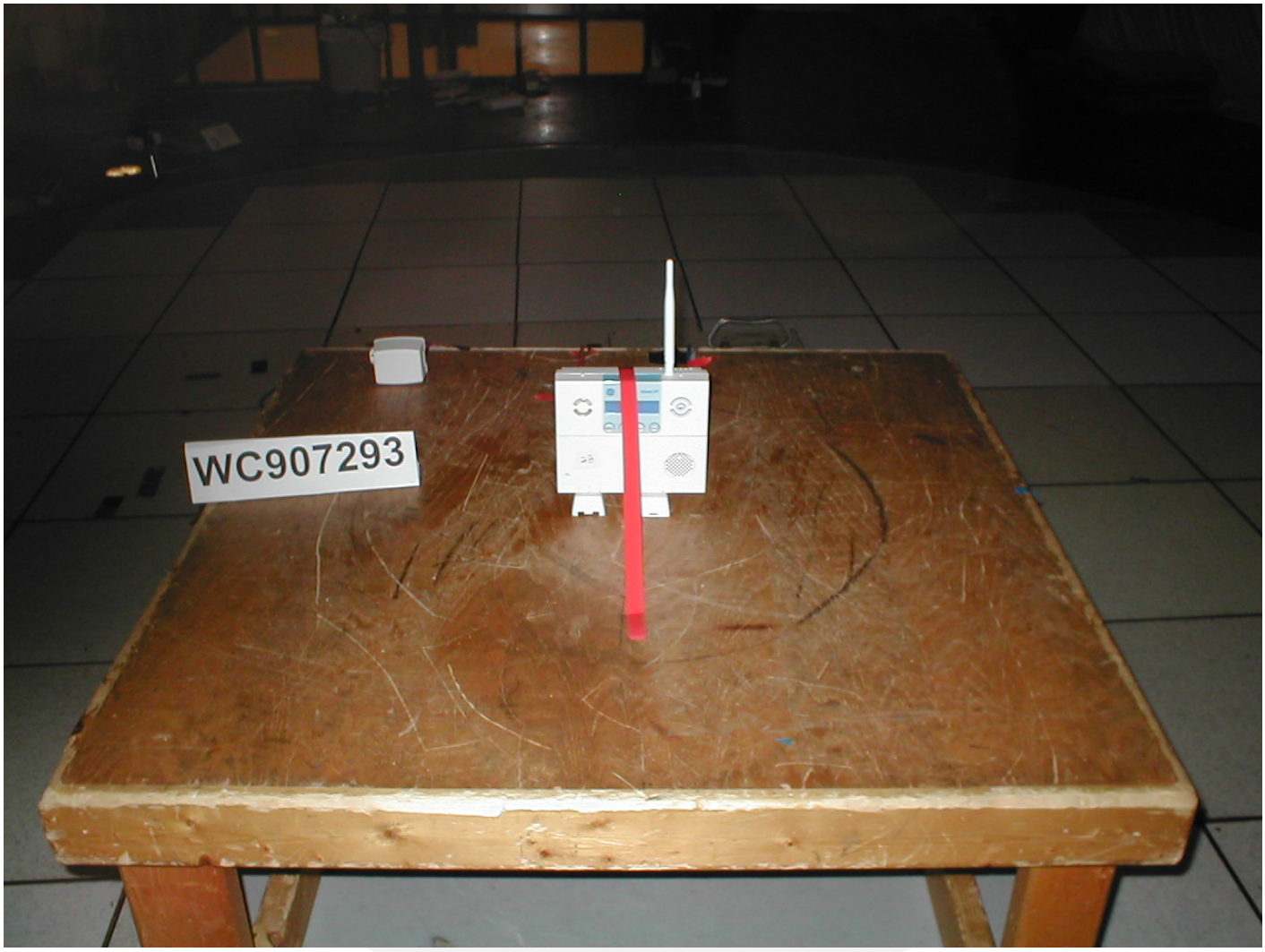
## Graph:



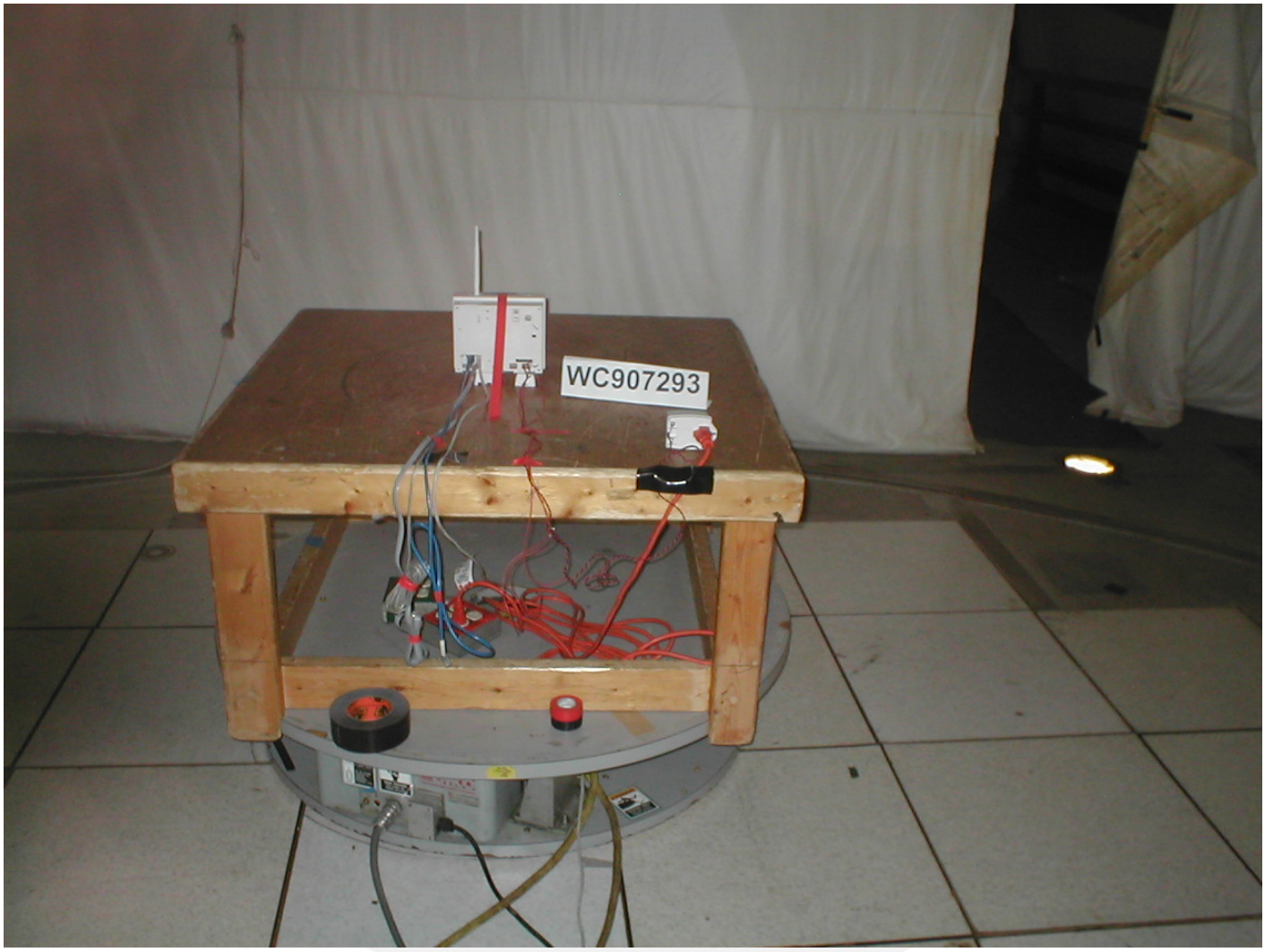

Tested by: Joel T Schneider (Printed) _____ (Signature)

Reviewed by: Robert J Behringer (Printed) _____ (Signature)

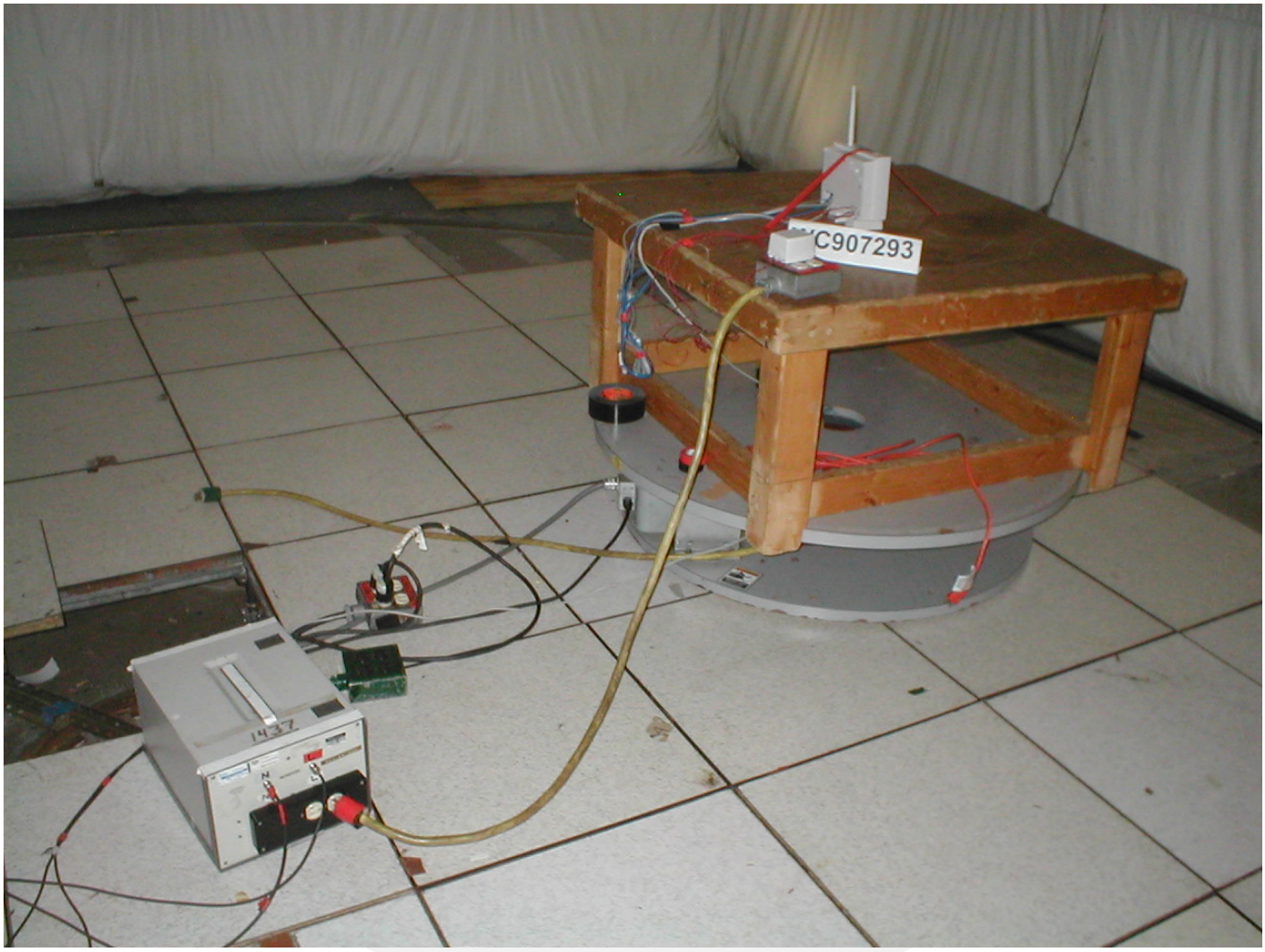
**Test Setup Photo - Field strength of emissions**
FCC 15.231(b) - IC RSS 210 A1.1.2



**Test Setup Photo - Field strength of emissions**
FCC 15.231(b) - IC RSS 210 A1.1.2



**Test-setup photo(s):**
**Conducted measurements – AC power lines**



**Equipment Under Test (EUT) Test Operation Mode:**

**The device under test was operated under the following conditions during emissions testing:**

☐ - Standby

☐ - Test program (H - Pattern)

☐ - Test program (color bar)

☐ - Test program (customer specific)

☐ - Practice operation

☐ - Normal Operating Mode

■ - See Software and/or Operating Modes in Appendix A

**Configuration of the device under test:**

■ - See Constructional Data Form and Block Diagram in Appendix A

☐ - See Product Information Form in Appendix B

## GENERAL REMARKS:

None

Modifications required to pass:

■ None
☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:

■ None
☐ As indicated in the Test Plan
☐

## SUMMARY:

The requirements according to the technical regulations are
■ - met and the equipment under test does fulfill the general approval requirements.
☐ - **not** met and the equipment under test does **not** fulfill the general approval requirements.

| | |
|---|---|
| EUT Received Date: | 15 June 2009 |
| Condition of EUT: | Normal |
| Testing Start Date: | 15 June 2009 |
| Testing End Date: | 05 October 2009 |

TÜV SÜD AMERICA INC

Tested by:

Greg Jakubowski
Senior EMC Technician

Approved by:

Joel T Schneider
Senior EMC Engineer

# Appendix A

Constructional Data Form

and

Block Diagram

**Form**

# EMC Test Plan and Constructional Data Form

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.
***NOTE: This information will be input into your test report as shown below. Press the F1 key at any time to get HELP for the current field selected.***

| | | | |
|---|---|---|---|
| Company: | GE Security Inc | | |
| Address: | 1275 Red Fox Road | | |
| | Arden Hills | | |
| | Minnesota, USA 55112 | | |
| Contact: | Rick Conner | Position: | Regulatory Compliance Leader |
| Phone: | 651-779-4824 | Fax: | 651-779-4884 |
| E-mail Address: | Rick.Conner@GE.com | | |

**General Equipment Description --** ***NOTE: This information will be input into your test report as shown below.***

| | |
|---|---|
| EUT Description | Residential Security System |
| EUT Name | Simon iXT |
| Model No.: | 600-1054-95R-iXT  Serial No.: Rev A |
| Product Options: | Transmiter - Receiver |
| Configurations to be tested: | Transmit - Recieve |

**Equipment Modification (***If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)*

| | |
|---|---|
| Modifications since last test: | None |
| Modifications made during test: | None |

**Test Objective(s):** ***Please indicate the tests to be performed, entering the applicable standard(s) where noted.***

- ☐ EMC Directive 2004/108/EC (EMC) Std: _____
- ☐ Machinery Directive 89/392/EEC (EMC) Std: _____
- ☐ Medical Device Directive 93/42/EEC (EMC) Std: _____
- ☐ Vehicle Directive: ☐ 2001/3/EC (EMC) ☐ 2004/104/EC (EMC)
  ☐ Other Vehicle Std: _____
- ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)

- ☒ FCC: Class ☐ A ☒ B Part 15
- ☐ VCCI: Class ☐ A ☐ B
- ☐ BSMI: Class ☐ A ☐ B (Separate Report)
- ☐ Canada: Class ☐ A ☒ B
- ☐ Australia: Class ☐ A ☐ B
- ☐ Other: _____

**Third Party Certification, if applicable (*Signature on Page 6 Required)**

- ☐ Attestation of Conformity (AoC)*
- ☐ Statement of Compliance (previously CoC)*
- ☐ EMC Certification (used with Octagon Mark)*
- ☐ Compliance Document*

Protection Class (N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III
(Press **F1** when field is selected to show additional information on Protection Class.)

- ☒ FCC / TCB Certification
- ☐ E-Mark Certification
- ☒ Industry Canada / FCB Certification
- ☐ Taiwan Certification

# EMC Test Plan and Constructional Data Form

## Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

## Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TÜV SÜD America should:

☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____

☐ Continue testing to complete test series.

☐ Continue testing to define corrective action.

☐ Stop testing.

## EUT Specifications and Requirements

Length: 7" Width: 2 3/4" Height: 5 3/4" Weight: 3 lbs.

## Power Requirements

***Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)***

Voltage: 120 (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current (Amps/phase(max)): 0.30A Current (Amps/phase(nominal)): 0.30A

Other _____

## Other Special Requirements

## Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Residential

## EUT Power Cable

☐ Permanent OR ☒ Removable Length (in meters): 1.5

☐ Shielded OR ☒ Unshielded

☐ Not Applicable

# EMC Test Plan and Constructional Data Form

**EUT Interface Ports and Cables**

| Type | During Test: Analog | During Test: Digital | During Test: Active | During Test: Passive | Qty | Shielding: Yes | Shielding: No | Shielding: Type | Termination | Connector Type | Port Termination | Length tested (in meters) | Removable | Permanent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***EXAMPLE:*** *RS232* | ☐ | ☒ | ☒ | ☐ | *2* | ☒ | ☐ | *Foil over braid* | *Coaxial* | *Metallized 9-pin D-Sub* | *Characteristic Impedance* | *6* | ☒ | ☐ |
| Phone | ☒ | ☐ | ☐ | ☒ | 1 | ☐ | ☒ | | | 4-pin phone | | > 1m | ☒ | ☐ |
| Line | ☐ | ☐ | ☐ | ☒ | 1 | ☐ | ☒ | | | 4-pin phone | | > 1m | ☒ | ☐ |
| 9V AC In | ☒ | ☐ | ☒ | ☐ | 1 | ☐ | ☐ | | Twisted Pair | Screw-down | | > 1m | ☒ | ☐ |
| 9V AC In | ☒ | ☐ | ☒ | ☐ | 1 | ☐ | ☒ | | Twisted Pair | Screw-down | | > 1m | ☒ | ☐ |
| HW2 In | ☐ | ☐ | ☐ | ☒ | 1 | ☐ | ☒ | | Single wire | Screw-down | | > 1m | ☒ | ☐ |
| DC Out/HW 1 & 2 | ☒ | ☐ | ☐ | ☒ | 1 | ☐ | ☐ | | Single wire | Screw-down | | > 1m | ☒ | ☐ |
| HW1 I/O | ☐ | ☐ | ☐ | ☒ | 1 | ☐ | ☒ | | Single wire | Screw-down | | > 1m | ☒ | ☐ |
| WAN | ☐ | ☒ | ☐ | ☒ | 1 | ☐ | ☒ | | 8-pin ethernet | | | > 1m | ☒ | ☐ |
| LAN | ☐ | ☒ | ☒ | ☐ | 1 | ☐ | ☒ | | 8-pin ethernet | | | 10m | ☒ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | | ☐ | ☐ | | | | | | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | | ☐ | ☐ | | | | | | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | | ☐ | ☐ | | | | | | ☐ | ☐ |

# EMC Test Plan and Constructional Data Form

**EUT Software**.

Revision Level: NA801_iXT_32M_trunk_r41_newbsp.bin

Description: Test firmware to allow WiFi to transmit at maximum power, select channel, and select data rate.

**Equipment Under Test (EUT) Operating Modes to be Tested --** list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. WiFi OFDM (802.11g) 54Mbps transmit mode

2. WiFi DSSS-CCK (802.11b) 11Mbps transmit mode

3. ZWave continuous transmit mode at maximum data rate (40kbps)

**Equipment Under Test (EUT) System Components --** List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

| Description | Model # | Serial # | FCC ID # |
|---|---|---|---|
| SimonXT-iXT | 600-1054-95R-iXT | | |
| White GSM wand antenna | 50-075 | | |

# EMC Test Plan and Constructional Data Form

**Support Equipment --** List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc) This information is required for FCC & Taiwan testing.

| *Description* | *Model #* | *Serial #* | *FCC ID #* |
|---|---|---|---|
| Lenovo IdeaPad Netbook | S9e | L3BZL4B | HFS-FL |

## Oscillator Frequencies

| *Manufacturer* | *Frequency* | *Derived Frequency* | *Component # / Location* | *Description of Use* |
|---|---|---|---|---|
| | 6MHz | | Y5 | |
| | 8MHz | | Y6 | |
| | 12MHz | | Y2 | |
| | 25MHz | | Y1 | |
| | | | | |
| | | | | |

## Power Supply

| *Manufacturer* | *Model #* | *Serial #* | *Type* |
|---|---|---|---|
| | | | ☐ Switched-mode: (Frequency) _____<br>☐ Linear ☐ Other: _____ |
| | | | ☐ Switched-mode: (Frequency) _____<br>☐ Linear ☐ Other: _____ |

## Power Line Filters

| *Manufacturer* | *Model #* | *Location in EUT* |
|---|---|---|
| | | |
| | | |

# EMC Test Plan and Constructional Data Form

**Critical EMI Components (Capacitors, ferrites, etc.)**

| *Description* | *Manufacturer* | *Part # or Value* | *Qty* | *Component # / Location* |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**EMC Critical Detail --** Describe other EMC Design details used to reduce high frequency noise.

PLEASE ENTER NAMES BELOW (INSERT ELECTRONIC SIGNATURE IF POSSIBLE)

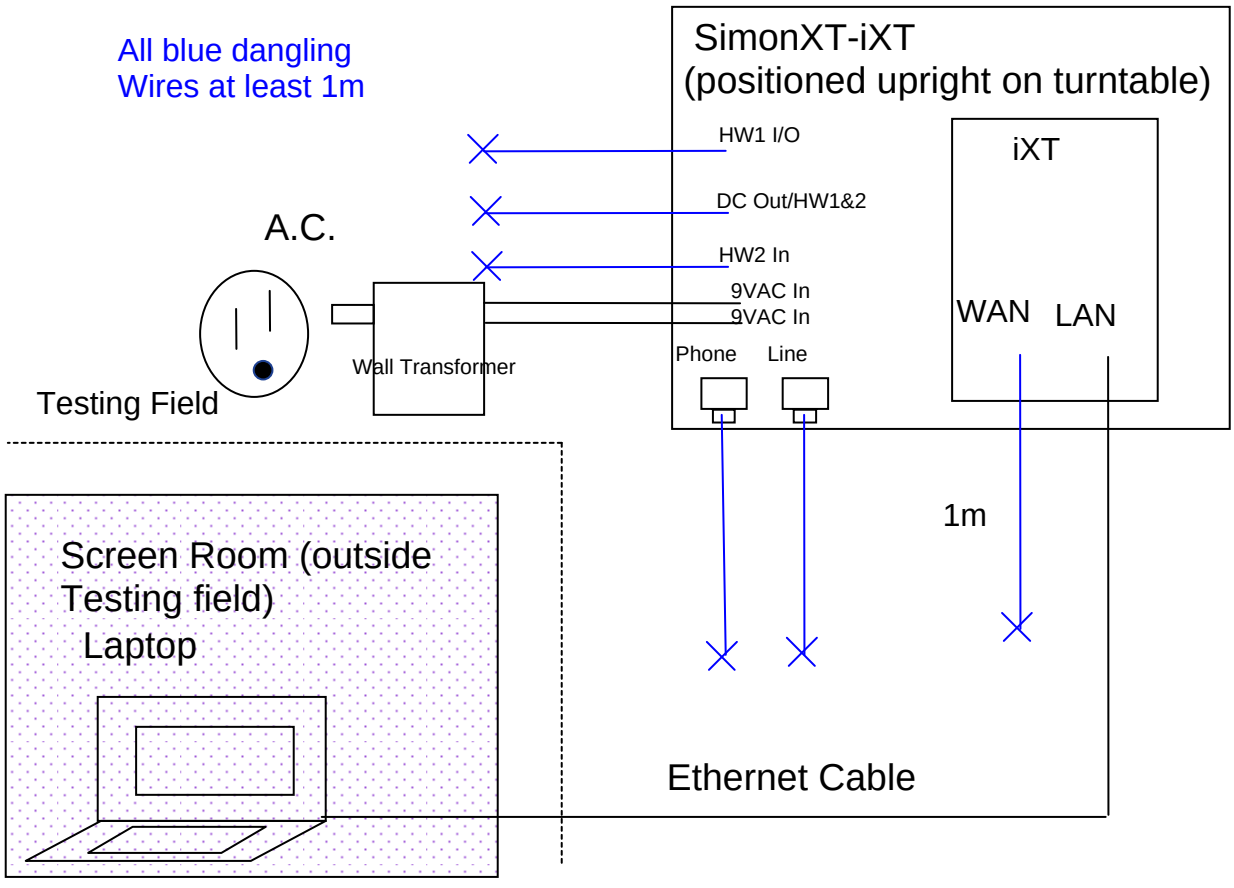
**Authorization (Signature Required if a Third Party Certification is checked on pg 1)**

Customer authorization to perform tests according to this test plan. — Date

Test Plan/CDF Prepared By (please print) — Date

# EMC Block Diagram Form

**System Configuration Block Diagram --** Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.




**Authorization Signatures**

| | |
|---|---|
| Customer authorization to perform tests according to this test plan. | Date |
| Test Plan/CDF Prepared By (please print) | Date |

# Appendix B

Measurement Protocol

# MEASUREMENT PROTOCOL
## GENERAL INFORMATION

**Test Methodology**

Emissions testing is performed according to the procedures in ANSI C63.4-2003, FCC KDB Publication 558074, the article “The Measurement of Occupied Bandwidth” by Industry Canada’s certification bureau, & FCC Public Notice DA 02-2138.

**Measurement Uncertainty**

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ±1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ±4.8 dB. The equipment comprising the test systems is calibrated on an annual basis.

**Justification**

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

**Conducted Emissions**

Final measurement levels are determined by connecting the antenna port of the DUT to a spectrum analyzer input via coaxial adapters, high frequency coax, and attenuators as necessary. The loss created by the interconnect apparatus is offset by settings within the analyzer. Specific analyzer settings are determined by the procedures throughout this report.

**Radiated Emissions**

Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth, and peak and average detection. The antenna is positioned 3 meters horizontally from the EUT. The antenna height is positioned 1-4 meters above the ground plane. Measurement scans are made with both horizontal and vertical antenna polarizations. Average measurements above 1 GHz are achieved using a peak detector with 1 MHz RBW and 10 Hz VBW.

The final level, in dBμV/m, equals the reading from the spectrum analyzer (Level dBμV), adding the antenna correction factor and cable loss factor (Factor dB) to it, and subtracting the preamp gain (and duty cycle correction factor, if applicable). This result then has the limit subtracted from it to provide the Delta, which gives the tabular data as shown in the data. Intentional radiators are rotated through 3 orthogonal axes to determine the maximum emission test position.

Example:

| FREQ (MHz) | LEVEL (dBuV) | | CABLE/ANT/PREAMP (dB) (dB/m) (dB) | | | FINAL (dBuV/m) | | POL/HGT/AZ (m) (deg) | | DELTA1 |
|---|---|---|---|---|---|---|---|---|---|---|
| 60.80 | 42.5Qp | + | 1.2 | + 10.9 | - 25.5 = | 29.1 | V | 1.0 | 0.0 | -10.9 |

.

**Test Equipment**

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.