# Test Certificate

**A sample of the following product received on March 12, 2012 and tested on March 12, 2012 complied with the requirements of,**

- **EN 301 489-1 V1.8.1 "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements"**
- **EN 301 489-17 V2.1.1 "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems"**

**given the measurement uncertainties as detailed in Elliott report R86884.**

## Summit Data Communications

## Model SDC-MCF10G

Mark E Hill
Staff Engineer

Summit Data Communications

Printed Name

Testing Cert #0214.26

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*EMC Test Report*

*EN 301 489-1 v1.8.1*
*EN 301 489-17 V2.1.1*

*Model: SDC-MCF10G*

| | |
|---|---|
| COMPANY: | Summit Data Communications<br>526 South Main St. Suite 805<br>Akron, OH 44311 |
| TEST SITE(S): | Elliott Laboratories<br>41039 Boyce Road.<br>Fremont, CA. 94538-2435 |
| REPORT DATE: | March 23, 2012 |
| FINAL TEST DATES: | March 12, 2012 |
| TOTAL NUMBER OF PAGES: | 27 |

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Testing Cert #0214.26

## *REVISION HISTORY*

| Rev# | Date | Comments | Modified By |
|---|---|---|---|
| - | 03-23-2012 | First release | |

## *TABLE OF CONTENTS*

## *SCOPE*

The European Committee for Electrotechnical Standardization (CENELEC), the European Telecommunications Standards Institute (ETSI) and the International Electrotechnical Commission (IEC) publish standards regarding the electromagnetic compatibility of electronic devices. Electromagnetic compatibility tests have been performed on the Summit Data Communications model SDC-MCF10G in accordance with these standards. The tests were performed in accordance with the current, published versions of the basic standards referenced in the following standards, as outlined in Elliott Laboratories test procedures. The test data has been provided as an appendix to this report for reference.

| Standard | Title | Date |
|---|---|---|
| EN 301 489-1 | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements | 2008-04 (V1.8.1) |
| EN 301 489-17 | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems | 2009-05 (V2.1.1) |

Note, the SDC-MCF10G was tested previously against the requirements of EN 301 489-1, V1.6.1 and EN 301 489-17, V1.2.1. Refer to ADT report RM950331L08A, dated Apr 16, 2008. Only those specific tests or parts of specific tests were applied and documented in this report to show compliance to the latest adopted versions of the standards.

## *OBJECTIVE*

The objective of the manufacturer is to declare conformity with one of the essential requirements of the R&TTE Directive 1999/5/EC. In order to demonstrate compliance, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.

## *STATEMENT OF COMPLIANCE*

The tested sample of Summit Data Communications model SDC-MCF10G, given the performance criteria as specified by the manufacturer, complied with the requirements of the following standard(s):

| Standard/Regulation | Version | Standard Date |
|---|---|---|
| EN 301 489-1 | 1.8.1 | 2008-04 |
| EN 301 489-17 | 2.1.1 | 2009-05 |

The test results recorded herein are based on a single type test of the Summit Data Communications model SDC-MCF10G and therefore apply only to the tested sample. The sample was selected and prepared by Sue White of Summit Data Communications

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product that could result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different enclosure, different line filter or power supply, harnessing and/or interface cable changes, etc.).

## *DEVIATIONS FROM THE STANDARD*

The following deviations were made from the published requirements listed in the scope of this report:

1. Only ESD and Radiated Immunity 2-2.7GHz were applied. All other tests are either not applicable or addressed in ADT report 950331L08A, dated Apr 16, 2008.

## *TEST RESULTS*

The following tests were performed on the Summit Data Communications model SDC-MCF10G. The results are based upon performance criteria defined by the manufacturer. The actual test results and associated performance criteria are contained within an appendix of this report.

### *EMISSIONS TESTING*

| Test | Port | Basic Standard | Level (Margin) | Status |
|---|---|---|---|---|
| Radiated Emissions 30MHz – 6GHz | Enclosure | EN 55022 | dB @ MHz | Not Applicable Note 1 |
| Conducted Emissions 0.15 – 30MHz | AC Power | EN 55022 | dB @ MHz | Not Applicable Note 1 |
| Harmonic Current Emissions | | EN 61000-3-2 | Highest signal was harmonic # ? at ? % of the limit | Not Applicable Note 2 |
| Voltage Fluctuations | | EN 61000-3-3 | dt (%):<br>dc (%):<br>dmax (%):<br>Pst: | Not Applicable Note 2 |
| Conducted Emissions 0.15 – 30MHz | DC Power | EN 55022 | dB @ MHz | Not Applicable Note 3 |
| Conducted Emissions 0.15 – 30 MHz | Telecommunications Ports | EN 55022 | dB @ MHz | Not Applicable Note 4 |

Note 1 Refer to ADT report.
Note 2 The EUT does not have an AC power port.
Note 3 The EUT does not have a DC power port that would connect to a cable longer than 3m.
Note 4 The EUT does not have any telecommunication ports.

*IMMUNITY TESTING*

| Test | Basic Standard | Level Required | Level Tested | Criterion Met | Status |
|---|---|---|---|---|---|
| ElectroStatic Discharge | EN 61000-4-2 | 4 kV CD,<br>8 kV AD | 4 kV CD,<br>8 kV AD | B / TT / TR | Complied |
| Radio frequency Electromagnetic Field | EN 61000-4-3 | 80-1000 MHz<br>1400-2700 MHz<br>3 V/m<br>80% 1 kHz AM | 2000-2700 MHz<br>3 V/m<br>80% 1 kHz AM | A / CT / CR | Complied (Note 4) |
| Fast Transients AC Power Ports | EN 61000-4-4 | 1 kV | N/A – Note 1 | | |
| Fast Transients DC Power Ports | EN 61000-4-4 | 1kV | N/A – Note 1 | | |
| Fast Transients Telecommunications / Signal / Control Ports | EN 61000-4-4 | 0.5kV | N/A – Note 2 | | |
| Surge, AC Power Port | EN 61000-4-5 | 2kV CM / 1kV DM | N/A – Note 1 | | |
| Surge Transients Telecommunications Ports ( indoor cables) | EN 61000-4-5 | 0.5kV | N/A – Note 2 | | |
| Surge Transients Telecommunications Ports (outdoor cables) | EN 61000-4-5 | 1.0kV | N/A – Note 2 | | |
| Vehicular Surges | ISO 7637-1,<br>ISO 7637-2 | N/A - Note 4 | | | |
| Radio Frequency Common Mode AC Power Ports | EN 61000-4-6 | 0.15-80 MHz,<br>3 Vrms<br>80% 1 kHz AM | N/A – Note 1 | | |
| Radio Frequency Common Mode DC Power Ports | EN 61000-4-6 | | N/A – Note 1 | | |
| Radio Frequency Common Mode Telecommunications/ Signal / Control Ports | EN 61000-4-6 | | N/A – Note 2 | | |
| Voltage Dips and Interrupts | EN 61000-4-11 | 100%/ ½-cycle<br>100%/ 1-cycle<br>30% /25-cycles<br>100%/250-cycles | N/A – Note 1 | | |

Note 1 The EUT is powered directly from a host system. Testing not performed.
Note 2 The EUT does not have any signal ports that are intended to connect to cables longer than 3m in length
Note 3 The EUT is not intended to be used in a vehicular environment
Note 4 Refer to ADT report for the frequency range not covered here.

## *MEASUREMENT UNCERTAINTIES*

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the test results be included in the report. The measurement uncertainties given below are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a 95% confidence level and were calculated in accordance with NAMAS document LAB 34. For emissions tests, the uncertainties were calculated using the approach described in CISPR 16-4-2:2003 and the levels were found to be below levels of Ucispr and therefore no adjustment of the data for measurement uncertainty is required.

| Measurement Type | Measurement Unit | Frequency Range | Expanded Uncertainty |
|---|---|---|---|
| Conducted Emissions | dBuV | 0.15 to 30 MHz | ± 2.4 dB |
| Radiated Emissions | dBuV/m | 30 to 1000 MHz | ± 3.6 dB |
| AC Current Harmonics | Amps | 50 to 2,000 Hz | ± 0.12 % |
| AC Voltage Flicker | Voltage | N/A | ± 0.12 % |
| | Pst, Plt | N/A | ± 3.46 % |
| Radiated Immunity | V/m | 80 – 2500 MHz | - 26.3%, + 29.97% |
| ESD | KV | N/A | ± 8.6% |
| Fast Transients | Voltage | N/A | ± 5.98 % |
| | Timing | N/A | ± 8.60 % |
| Surge | Voltage | N/A | ± 4.92 % |
| RF Common Mode (CDN method) | Vrms | 0.15 –80 MHz | -12.64 %, +13.33 % |
| RF Common Mode (BCI method) | Vrms | 0.15 –80 MHz | -13.45 %, +15.32 % |
| Voltage Dips | Voltage | N/A | ± 2.32 % |
| | Timing | N/A | ± 0.08mS |

## *EQUIPMENT UNDER TEST (EUT) DETAILS*

### *GENERAL*

The Summit Data Communications model SDC-MCF10G is an 802.11abgn (1x1) + Bluetooth 2.1 radio module. As it has only one transmit chain, it does not support MIMO operation, but it does support SISO. The EUT was tested on a test fixture outside of a host system.

The sample was received on March 12, 2012 and tested on March 12, 2012. The EUT consisted of the following component(s):

| Company | Model | Description | Serial Number |
|---|---|---|---|
| Summit Data Communication | SDC-MCF10G | 802.11bg module | - |

### *OTHER EUT DETAILS*

Dipole Antenna #1 - 2.4 band
The antenna connects to the EUT via a non-standard u.FL antenna connector, thereby meeting the requirements of FCC 15.203.

### *EUT CLASSIFICATION*

The EUT is a radio module that can be used in either fixed use or portable applications.

### *ENCLOSURE*

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host computer or system.

### *MODIFICATIONS*

The EUT did not require modifications during testing in order to comply with the immunity specification.

*SUPPORT EQUIPMENT*

The following equipment was used as local support equipment for immunity testing:

| Manufacturer | Model | Description | Serial Number | FCC ID |
|---|---|---|---|---|
| Delta Electronics | EADP-10BB | AC/DC Adapter | 59A401Z9UP42K | N/A |
| HP | iPaQ | PDA | 2CK702010G | N/A |

The following equipment was used as remote support equipment for immunity testing:

| Manufacturer | Model | Description | Serial Number | FCC ID |
|---|---|---|---|---|
| Dell | PP41L | Laptop | 19899673777 | DoC |
| Airlink | AR430W | Router | 30008256167 | RRK-AR430W |

*EUT INTERFACE PORTS*

The I/O cabling configuration during immunity testing was as follows:

| Port | Connected To | Cable(s) | | |
|---|---|---|---|---|
| | | Description | Shielded or Unshielded | Length(m) |
| AC/DC Adapter | AC Mains | 2wire | Unshielded | 1 |

*EUT OPERATION DURING IMMUNITY TESTING*

During testing in Stand-by Mode: The EUT was monitored with a spectrum analyzer and a near field probe or antenna.

During testing in transceiver mode: The EUT was configured to continuously ping to the laptop connected to the remote AP over the wireless connection.

*EUT PERFORMANCE CRITERIA*

Criterion A /CT / CR:
In stand-by mode, the EUT shall not un-intentionally transmit during the test.
In transceiver mode, the EUT shall continue to successfully ping the remote laptop during the test.

Criterion B / TT / TR:
In stand-by mode, the EUT shall not un-intentionally transmit after the test.
In transceiver mode, the EUT shall continue or resume successful pinging to the remote laptop after the test, without user intervention.

## *IMMUNITY TEST DESCRIPTIONS*

### *GENERAL INFORMATION*

Final tests were performed at the Elliott Laboratories Test Sites located at 41039 Boyce Road, Fremont, CA 94538-2435. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent CENELEC and IEC standards.

## *MEASUREMENT INSTRUMENTATION*

### *ELECTROSTATIC DISCHARGE TEST SYSTEM*

An ESD generator is used for all testing. It is capable of applying electrostatic discharges in both contact discharge mode to 8 kV and air discharge mode to 16.5 kV in both positive and negative polarities in accordance with the EN 61000-4-2 basic EMC publication.

### *ELECTROMAGNETIC FIELD TEST SYSTEM*

A signal generator and power amplifiers are used to provide a signal at the appropriate power and frequency to an antenna to obtain the required electromagnetic field at the position of the EUT in accordance with the EN 61000-4-3 basic EMC publication.

### *INSTRUMENT CALIBRATION*

All test equipment is regularly checked to ensure that performance is maintained in accordance with the company's specifications. An appendix of this report contains the list of test equipment used and calibration information.

## *IMMUNITY TEST PROCEDURES*

### *EQUIPMENT PLACEMENT*

EN 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.
For tabletop equipment, a 1.6 by 0.8 meter metal sheet is placed on the table and connected to the ground plane via a metal strap with two 470 kOhm resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5 millimeter thick insulating material.

EN 61000-4-3 specifies that a tabletop EUT be placed on a non-conducting table 80 centimeters above a ground reference plane and that floor-mounted equipment shall be placed on an insulating support approximately 10 centimeters above a ground plane. During the EN 61000-4-3 tests, the EUT is positioned in a shielded anechoic test chamber to reduce reflections from the internal surfaces of the chamber. During the EN 61000-4-4 tests, the EUT is positioned over a ground reference plane or in a shielded chamber in conformance with this requirement.

*APPLICATION OF ELECTROSTATIC DISCHARGES*

The points of application of the test discharges directly to the EUT are determined after consideration of the parts of the EUT that are accessible to the operator during normal operation. Contact and air discharges are applied to the EUT, contact discharges to conducting surfaces and air-gap discharges to insulating surfaces. Contact discharges are also applied to the coupling planes to simulate nearby ESD events.

*APPLICATION OF ELECTROMAGNETIC FIELD*

The electromagnetic field is established at the front edge of the EUT. The frequency range is swept through the frequency range of the test using a power level necessary to obtain the required field strength at the EUT. The field is amplitude modulated using a 1 kHz or 400Hz sine wave to a depth of 80% for the swept frequency test in accordance with EN 61000-4-3.

The test is repeated with each of the four sides of the EUT facing the field generating antenna. For small, portable products the test is also performed with the top and bottom sides of the EUT facing the antenna.

# *Appendix A Test Equipment Calibration Data*

**Radiated Immunity, 2,000 - 2,700 MHz, 12-Mar-12**

| Manufacturer | Description | Model | Asset # | Cal Due |
|---|---|---|---|---|
| Rohde & Schwarz | Power Sensor, 1 uW-100 mW, DC-18 GHz, 50ohms | NRV-Z51 | 1070 | 5/25/2012 |
| EMCO | Antenna, Horn, 1-18 GHz | 3115 | 1242 | N/A |
| Werlatone | Directional Coupler, 800-2800 MHz, 30dB, 100w | C6529 | 1402 | N/A |
| Rohde & Schwarz | Power Meter, Dual Channel, DC to 40 GHz, 100 pW to 30 W, 9 kHz to 3 GHz, 200µV to 1000V | NRVD | 1787 | 1/5/2013 |
| Amplifier Research | Amplifier, 25w, 0.8-4.2GHz | 25S1G4AM3 | 1805 | N/A |
| Agilent | MXG Analog Signal Generator | N5181A | 2146 | 1/27/2013 |

**ESD, 12-Mar-12**

| Manufacturer | Description | Model | Asset # | Cal Due |
|---|---|---|---|---|
| Elliott Laboratories | ESD, Vertical Plane, 19-3/4 x 19-3/4 | ESD, VP, 19-3/4 x 19-3/4 | 610 | N/A |
| Schaffner | ESD Gun, 100pF-1500 ohm & 150pF-330 ohm tips | NSG-438 | 1424 | 9/28/2012 |

# *Appendix B Test Data Log Sheets*

*ELECTROMAGNETIC EMISSIONS*

*TEST LOG SHEETS*

*AND*

*MEASUREMENT DATA*

T86775 Pages 17 - 26

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | - |
| Emissions Standard(s): | - | Class: | B |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

# EMC Test Data

For The

# Summit Data Communications

Model

SDC-MCF10G

Date of Last Test: 12/16/2011

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

# Electrostatic Discharge (EN 61000-4-2)

## Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 3/12/2012 Config. Used: 1
Test Engineer: Peter Sales Config Change: None
Test Location: Fremont EMC Lab #2 EUT Voltage: 3.3Vdc

## General Test Configuration

The EUT was located on a 0.5-mm thick insulating layer above a horizontal coupling plane, 80 cm above a ground reference plane.

Unless otherwise stated, ten discharges at each voltage, and polarity, were applied to each test point listed. Contact discharges were applied to coupling planes and conductive surfaces of the EUT. Air discharges were applied to any non-conductive surfaces of the EUT. The VCP was located on the table top for table top.

The determination as to the test point being a part of a conductive or non-conductive surface was based on testing the surface for conductivity using an ohmmeter.

## Ambient Conditions:

Temperature: 22 °C
Relative Humidity: 29 %
Pressure: 1013 mb

## Summary of Results - Electrostatic Discharges

| Run # | Port | Test Level | | Performance Criteria | | Comments |
|---|---|---|---|---|---|---|
| | | Required | Applied | Required | Met / Result | |
| 1 | Enclosure | ±4kV CD<br>±8kV AD | ±4kV CD<br>±8kV AD | B | A / Pass | Transmit Mode |
| 2 | Enclosure | ±4kV CD<br>±8kV AD | ±4kV CD<br>±8kV AD | B | A / Pass | Receive Mode |

## Modifications Made During Testing

No modifications were made to the EUT during testing

## Deviations From The Standard

No deviations were made from the requirements of the standard.

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Run #1: Electrostatic Discharge (Transmit Mode)

| Indirect Discharges (To Coupling Planes) | Positive Polarity (kV) | | | | Negative Polarity (kV) | | | |
|---|---|---|---|---|---|---|---|---|
| Contact Mode | Level 1 2 | Level 2 4 | Level 3 6 | Level 4 8 | Level 1 2 | Level 2 4 | Level 3 6 | Level 4 8 |
| Vertical Coupling Plane (VCP) located 10cm from the front, rear, left and right sides of the EUT | X | X | | | X | X | | |
| Horizontal Coupling Plane (HCP) located 10cm from the front, rear, left and right sides of the EUT | X | X | | | X | X | | |

Note: An "X" indicates that the unit continued to operate as intended. The EUT was configured to ping wirelessly to a remote hub. There were no data errors reported by the monitoring software.

Note: ND: No discharge was possible due to the lack of a discharge path to ground from the test point.
HCP: Horizontal Coupling Plane. VCP: Vertical Coupling Plane

Run #2: Electrostatic Discharge (Receive Mode)

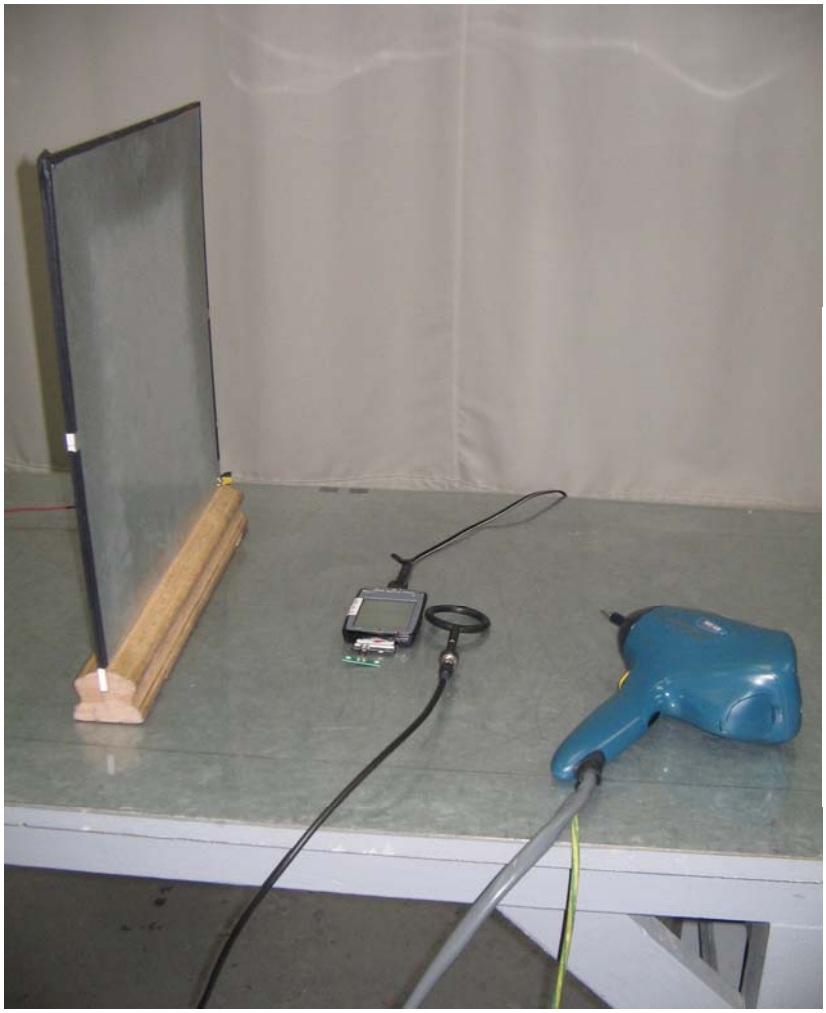
| Indirect Discharges (To Coupling Planes) | Positive Polarity (kV) | | | | Negative Polarity (kV) | | | |
|---|---|---|---|---|---|---|---|---|
| Contact Mode | Level 1 2 | Level 2 4 | Level 3 6 | Level 4 8 | Level 1 2 | Level 2 4 | Level 3 6 | Level 4 8 |
| Vertical Coupling Plane (VCP) located 10cm from the front, rear, left and right sides of the EUT | X | X | | | X | X | | |
| Horizontal Coupling Plane (HCP) located 10cm from the front, rear, left and right sides of the EUT | X | X | | | X | X | | |

Note: An "X" indicates that the unit continued to operate as intended. The EUT was configured in Rx mode during testing. There were no data errors reported by the monitoring software.

Note: ND: No discharge was possible due to the lack of a discharge path to ground from the test point.
HCP: Horizontal Coupling Plane. VCP: Vertical Coupling Plane

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Test Configuration Photograph #1
(Electrostatic Discharge, EN 61000-4-2)



| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Test Configuration Photograph #2
(Electrostatic Discharge, EN 61000-4-2)

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

# Radiated Immunity (EN 61000-4-3)

## Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 3/12/2012
Test Engineer: Jack Liu
Test Location: Chamber #6

Config. Used: 1
Config Change: None
EUT Voltage: 3.3Vdc

## General Test Configuration

The EUT and all local support equipment were located on a turntable in an anechoic chamber.

## Ambient Conditions:

Temperature: 23 °C
Rel. Humidity: 40 %

## Summary of Results-Radiated Immunity

| Run # | Port | Test Level | | Performance Criteria | | Comments |
|---|---|---|---|---|---|---|
| | | Required | Applied | Required | Met / Result | |
| EN 301 489-1 V1.8.1 Requirements | | | | | | |
| 1 | Enclosure | 80-1000 MHz 1.4GHz-2.7GHz 1kHz 80% AM 3 V/m | 2.0GHz-2.7GHz 1kHz 80% AM 3 V/m | A | A / Pass | |
| 2 | Enclosure | 80-1000 MHz 1.4GHz-2.7GHz 1kHz 80% AM 3 V/m | 2.0GHz-2.7GHz 1kHz 80% AM 3 V/m | A | A / Pass | |

## Modifications Made During Testing

No modifications were made to the EUT during testing

## Deviations From The Standard

No deviations were made from the requirements of the standard.

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Run #1: Radiated Immunity, 2000-2700 MHz (EN61000-4-3) - Transmit mode

| | | |
|---|---|---|
| Frequency: | 80-1000 MHz | 1-2.7 GHz |
| Step Size: | 1 % | 1 % |
| Dwell time: | 2874 ms | 2874 ms |
| Field Uniformity: | 1.5m x 1.5m | 1.0m x 1.0m |
| Test Distance: | - | 2m |

| Modulation Details | |
|---|---|
| Modulating Frequency: | 1 kHz |
| Modulation: | AM |
| Depth / Deviation: | 80% |

| Frequency | Level | Front | | Left Side | | Rear | | Right | | Top | | Bottom | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Range (MHz) | V/m | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. |
| 2000-2700 | 3 | x | x | x | x | x | x | X | x | N/A | N/A | N/A | N/A |

The following calibration files were used:
The following calibration files from U:\EMC Stuff\RI Playback Files FT\CH6\Current\1-2.7 GHz (April 2010)\3 Vm\ were used:
Position B 1.3m High 1000 MHz - 2700 MHz H 3Vm.crf
Position B 1.3m High 1000 MHz - 2700 MHz V 3Vm.crf

| | |
|---|---|
| Note: | An "X" indicates that the unit continued to operate as intended<br>Exclusion bands: 2280~2607.675MHz<br>Lower limit of exclusion band = lowest allocated band edge frequency -5 %,<br>Upper limit of exclusion band = highest allocated band edge frequency +5 %. |

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Run #2: Radiated Immunity, 2000-2700 MHz (EN61000-4-3) - Receive mode

| | | |
|---|---|---|
| Frequency: | 80-1000 MHz | 1-2.7 GHz |
| Step Size: | 1 % | 1 % |
| Dwell time: | 2874 ms | 2874 ms |
| Field Uniformity: | 1.5m x 1.5m | 1.0m x 1.0m |
| Test Distance: | | 2m |

| Modulation Details | |
|---|---|
| Modulating Frequency: | 1 kHz |
| Modulation: | AM |
| Depth / Deviation: | 80% |

| Frequency | Level | Front | | Left Side | | Rear | | Right | | Top | | Bottom | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Range (MHz) | V/m | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. | Vert. | Horiz. |
| 2000-2700 | 3 | x | x | x | x | x | x | x | x | N/A | N/A | N/A | N/A |

The following calibration files were used:
The following calibration files from U:\EMC Stuff\RI Playback Files FT\CH6\Current\1-2.7 GHz (April 2010)\3 Vm\ were used:
Position B 1.3m High 1000 MHz - 2700 MHz H 3Vm.crf
Position B 1.3m High 1000 MHz - 2700 MHz V 3Vm.crf

Note: An "X" indicates that the unit continued to operate as intended
Exclusion bands: 2280~2607.675MHz
Lower limit of exclusion band = lowest allocated band edge frequency -5 %,
Upper limit of exclusion band = highest allocated band edge frequency +5 %.

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Test Configuration Photograph #1
(Radiated Immunity in Chamber #6, EN 61000-4-3 - EUT in Tx mode)

| | | | |
|---|---|---|---|
| Client: | Summit Data Communications | Job Number: | J86679 |
| Model: | SDC-MCF10G | T-Log Number: | T86775 |
| | | Account Manager: | Christine Krebill |
| Contact: | Ron Seide | | |
| Immunity Standard(s): | EN 301 489-1 V1.8.1 | Environment: | - |

Test Configuration Photograph #2
(Radiated Immunity in Chamber #6, EN 61000-4-3 - EUT in Rx mode)

*End of Report*

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marks the last page of this test report.