

Electromagnetic Emissions Test Report

*Application for Grant of Equipment Authorization
Class II Permissive Change
pursuant to
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15, Subpart E
on the
Summit Data Communications, Inc.
Transmitter
Model: SDC-CF10AG*

UPN: 6616A-SDCCF10AG
FCC ID: TWG-SDCCF10AG

GRANTEE: Summit Data Communications, Inc.
526 South Market Suite 407
Akron, OH 44311

TEST SITE: Elliott Laboratories, Inc.
684 W. Maude Ave
Sunnyvale, CA 94086

REPORT DATE: May 20, 2008

FINAL TEST DATE: April 30, May 2, May 5 and May 6, 2008

AUTHORIZED SIGNATORY:



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Testing Cert #2016-01

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REVISION HISTORY

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SCOPE

An electromagnetic emissions test has been performed on the Summit Data Communications model SDC-CF10AG pursuant to the following rules:

Industry Canada RSS-Gen Issue 2
RSS 210 Issue 7 “Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment”
FCC Part 15, Subpart E requirements for UNII Devices (using FCC DA 02-2138, August 30, 2002)

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003
FCC UNII test procedure 2002-08 DA-02-2138, August 2002

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the Summit Data Communications model SDC-CF10AG and therefore apply only to the tested sample. The sample was selected and prepared by Ron Seide of Summit Data Communications, Inc.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer’s declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

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

STATEMENT OF COMPLIANCE

The tested sample of Summit Data Communications model SDC-CF10AG complied with the requirements of the following regulations:

RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15, Subpart E requirements for UNII Devices

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

TEST RESULTS SUMMARY**UNII / LELAN DEVICES****Operation in the 5.25 – 5.35 GHz Band**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a)(2)		26dB Bandwidth	21.0 MHz	N/A – limits output power if < 20MHz	N/A
15.407(a)(2)	A9.2(2)	Output Power	15.6 dBm (0.0363W)	24.0 dBm	Complies
15.407(a)(2))		Power Spectral Density	2.9 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)	Power Spectral Density		11 dBm / MHz ¹	Complies
	A9.5 (2)	Peak Spectral Density	2.9 dBm/MHz	Shall not exceed the average value by more than 3dB	Complies

Operation in the 5.47 – 5.725 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a)(2)		26dB Bandwidth	21.3 MHz	N/A – limits output power if < 20MHz	N/A
15.407(a)(2)	A9.2(2)	Output Power	12.5 dBm (0.0178W)	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a)(2))		Power Spectral Density	-0.1 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)	Power Spectral Density		11 dBm / MHz ²	Complies
N/A	A9.4	Non-operation in 5600 – 5650 MHz sub band	Device is a client device, and would not initiate transmission in DFS bands		Complies

¹ Reduced from 11dBm because highest value exceeded the average value by more than 3dB² Reduced from 11dBm because highest value exceeded the average value by more than 3dB

General requirements for all UNII bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	A9.5a	Modulation	Digital Modulation is used	Digital modulation is required	Complies
	RSP 100	99% bandwidth	17.3 MHz for 5250-5350 MHz 17.4 MHz for 5470-5725 MHz	Information only	
15.407(b)(5) / 15.209	A9.3	Spurious Emissions below 1GHz	No emissions below 1 GHz were detected	Refer to Standard	Complies
15.407(b)(2)	A9.3	Spurious Emissions above 1GHz	53.6dB μ V/m @ 10602.1MHz	Refer to Standard	Complies (- 0.4 dB)
15.407(a)(6)	-	Peak Excursion Ratio	11.6 dB	< 13dB	Complies
	A9.5 (3)	Channel Selection	Spurious emissions tested at outermost channels in each band	Device was tested on the top, bottom and center channels in each band	N/A
15			Measurements on three channels in each band		Complies
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	Operation is discontinued in the absence of information	Device shall automatically discontinue operation in the absence of information to transmit	Complies
15.407 (g)	A9.5 (5)	Frequency Stability	Frequency stability is better than 20ppm		Complies
15.407 (h1)	A9.4	Transmit Power Control	TPC is not required as the device operates at below 500mW eirp	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	Complies
15.407 (h2)	A9.4	Dynamic frequency Selection (device without radar detection)	Refer to separate test report, reference R71976	Channel move time < 10s Channel closing transmission time < 260ms	Complies
	A9.7	User Manual information	Refer to Exhibit 6 for details		Complies

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	The radio module uses a unique connector type		Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	45.9dB μ V/m @ 17545.4MHz	Refer to standard	Complies (- 8.1 dB)
15.207	RSS GEN Table 2	AC Conducted Emissions	-	Refer to standard	N/A – Note 1
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
	RSP 100 RSS GEN 7.1.5	User Manual		Statement required regarding non-interference	

Note 1 – Not included in this permissive change. Original data showed no change in AC conducted emissions based on frequency of transmission.

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS**GENERAL**

The Summit Data Communications model SDC-CF10AG is an 802.11a/g compliant wireless LAN radio module which is designed to provide wireless local area networking connectivity. Normally, the EUT would be embedded in various types of mobile and stationary computing devices such as handheld and vehicle mounted data terminals during operation. The EUT was, therefore, placed on a tabletop during emissions testing to simulate the end user environment. The electrical rating of the EUT is 3.3 VDC +/- 5% with typical power consumption of 400 mA (1320mW) while in transmit mode, 180 mA (594mW) while in receive mode and 10 mA (33 mW) while in standby mode.

The sample was received on April 30, 2008 and tested on April 30, May 2, May 5 and May 6, 2008. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Summit Data Communications, Inc.	SDC-CF10AG	802.11 a/g Compact Flash Adapter with Antenna Connectors	Various	TWG-SDCCF10AG

ANTENNA SYSTEM

There were three antennas included in the testing:

Laird Centurion, m/n NanoBlade, pcb antenna, 3.8dBi @ 2.45GHz, 5.1dBi @ 5.25GHz, 4.5dBi @ 5.8GHz

Volex, p/n VLX-51004-A, Omni, 2.3dBi @ 2.4GHz, 1.9dBi @ 5GHz

Larson, p/n R380.500.314, Omni, 1.6dBi @ 2.4GHz, 5dBi @ 5GHz

Note: The Volex Omni was used in the 2.4GHz band and the Larson Omni was used in the 5GHz bands. The Laird pcb antenna was also tested for both 2.4GHz and 5GHz.

ENCLOSURE

The EUT enclosure is primarily constructed of Stainless steel. It measures approximately 4.3 cm wide by 5.5 cm deep by 0.5 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

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

Manufacturer	Model	Description	Serial Number	FCC ID
Hewlett Packard	iPAQ	Handheld Computer	-	-

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
iPAQ Power	AC Mains	2wire	Unshielded	1.5
Flash Module	iPAQ Module Port	-	-	-

EUT OPERATION

During emissions testing the EUT was configured to transmit at the Low, Middle, and High Channel.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on April 30, May 2, May 5 and May 6, 2008 at the Elliott Laboratories Open Area Test Site #1 located at 684 West Maude Avenue, Sunnyvale, California. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4:2003.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

ANSI C63.4:2003 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

TEST PROCEDURES**EUT AND CABLE PLACEMENT**

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4:2003, and the worst-case orientation is used for final measurements.

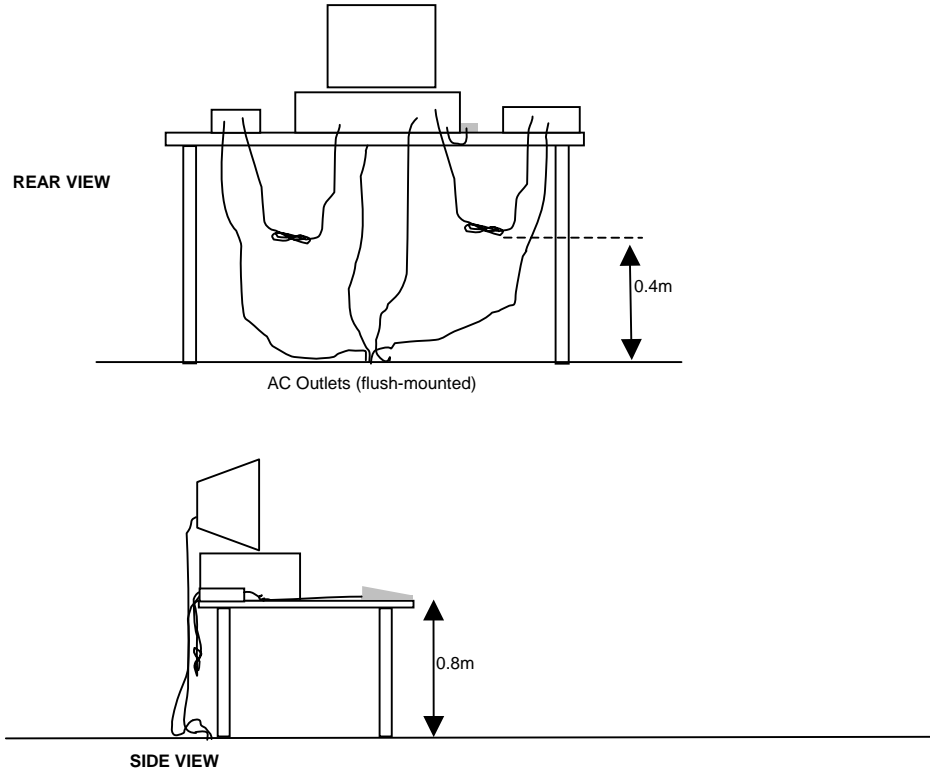
RADIATED EMISSIONS

A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

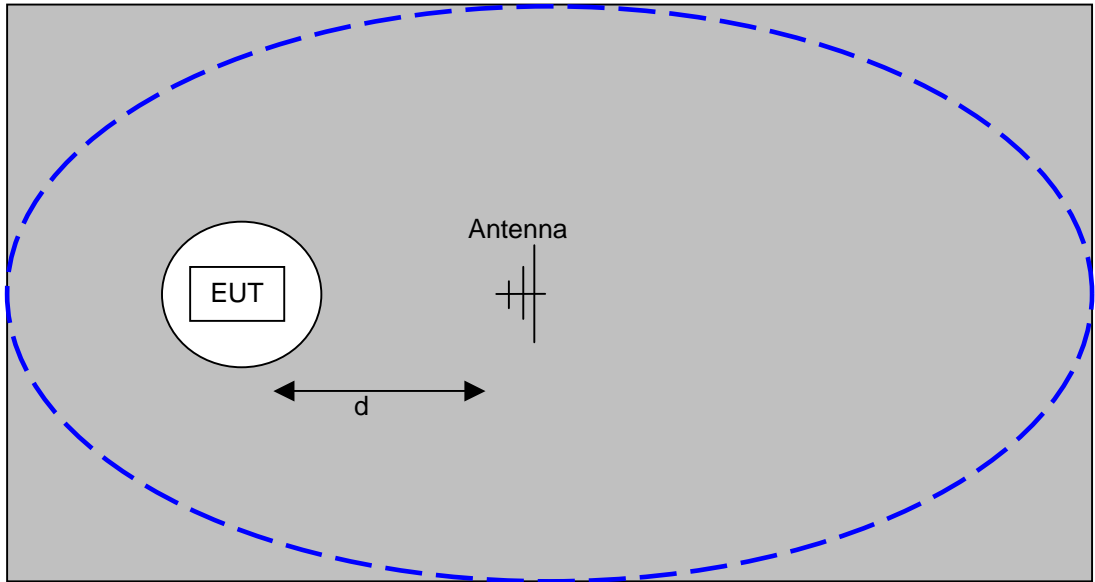
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

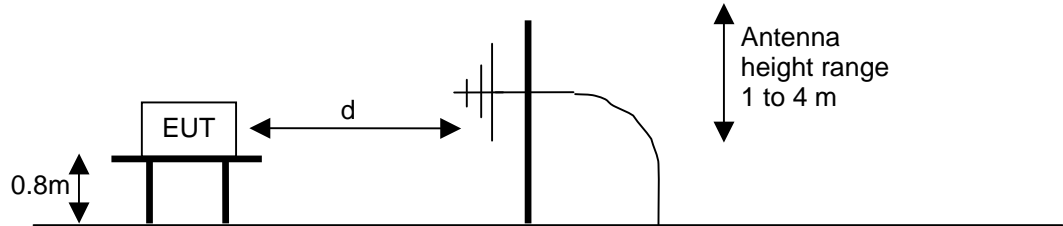
When testing above 18 GHz, the receive antenna is located at 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



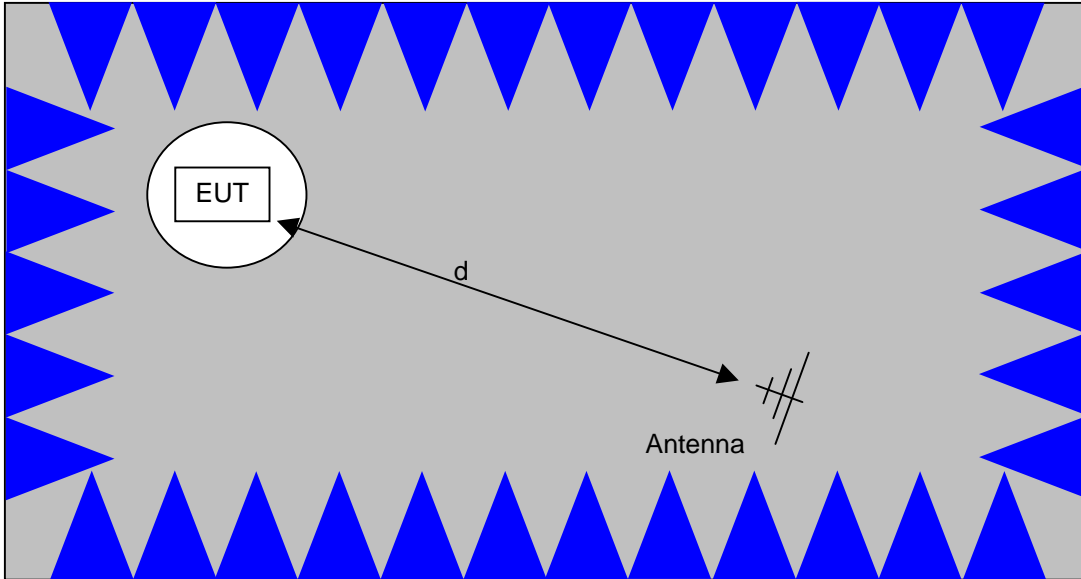
Typical Test Configuration for Radiated Field Strength Measurements



The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.

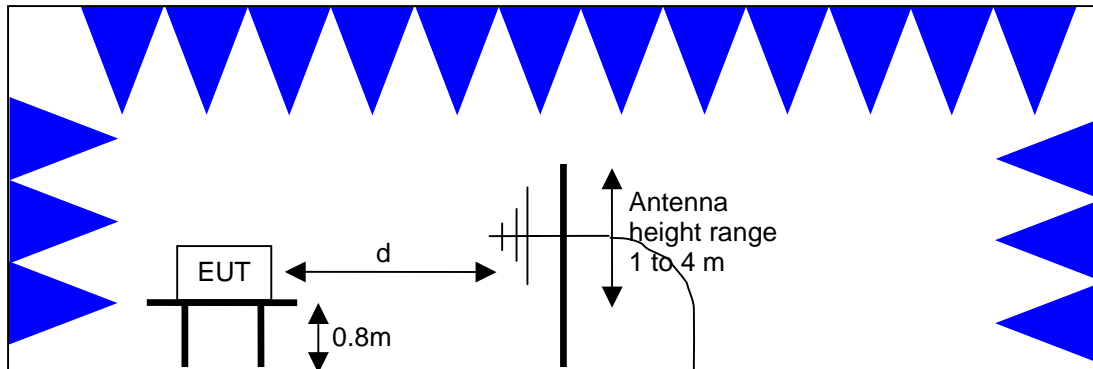


Test Configuration for Radiated Field Strength Measurements
OATS- Plan and Side Views



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

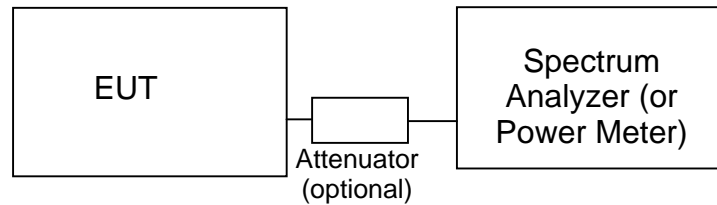
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements
Semi-Anechoic Chamber, Plan and Side Views

CONDUCTED EMISSIONS FROM ANTENNA PORT

Direct measurements of power, bandwidth and power spectral density are performed, where possible, with the antenna port of the EUT connected to either the power meter or spectrum analyzer via a suitable attenuator and/or filter. These are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission.



Test Configuration for Antenna Port Measurements

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and Elliott's test procedures for the type of radio being tested. When power measurements are made using a resolution bandwidth less than the signal bandwidth the power is calculated by summing the power across the signal bandwidth using either the analyzer channel power function or by capturing the trace data and calculating the power using software. In both cases the summed power is corrected to account for the equivalent noise bandwidth (ENBW) of the resolution bandwidth used.

If power averaging is used (typically for certain digital modulation techniques), the EUT is configured to transmit continuously. Power averaging is performed using either the built-in function of the analyzer or, if the analyzer does not feature power averaging, using external software. In both cases the average power is calculated over a number of sweeps (typically 100). When the EUT cannot be configured to continuously transmit then either the analyzer is configured to perform a gated sweep to ensure that the power is averaged over periods that the device is transmitting or power averaging is disabled and a max-hold feature is used.

If a power meter is used to make output power measurements the sensor head type (peak or average) is stated in the test data table.

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands¹ (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	2400/F _{KHz} @ 300m	67.6-20*log ₁₀ (F _{KHz}) @ 300m
0.490-1.705	24000/F _{KHz} @ 30m	87.6-20*log ₁₀ (F _{KHz}) @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

FCC 15.407 (a) OUTPUT POWER LIMITS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	50mW (17 dBm)	4 dBm/MHz
5250 - 5350	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm)	17 dBm/MHz

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

¹ The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

OUTPUT POWER AND SPURIOUS LIMITS –LE-LAN DEVICES

The table below shows the limits for output power and output power density defined by RSS 210. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	200mW (23 dBm) eirp	10 dBm/MHz eirp
5250 - 5350	250 mW (24 dBm) ¹ 1W (30dBm) eirp	11 dBm/MHz
5470 - 5725	250 mW (24 dBm) ² 1W (30dBm) eirp	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm) 4W eirp	17 dBm/MHz

In addition, the power spectral density limit shall be reduced by 1dB for every dB the highest power spectral density exceeds the “average” power spectral density, determined by dividing the output power by $10\log(99\% \text{ bandwidth})$, by more than 3dB.

Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

OUTPUT POWER AND SPURIOUS LIMITS –UNII DEVICES

The table below shows the limits for output power and output power density defined by FCC Part 15 Subpart E. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	50mW (17 dBm)	10 dBm/MHz
5250 - 5350	250 mW (24 dBm)	11 dBm/MHz
5470 - 5725	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm)	17 dBm/MHz

The peak excursion envelope is limited to 13dB.

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

¹ If EIRP exceeds 500mW the device must employ TPC

² If EIRP exceeds 500mW the device must employ TPC

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30MHz, is calculated by using the following formula:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40 * \text{LOG}_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

$$R_r = \text{Receiver Reading in dBuV/m}$$

$$F_d = \text{Distance Factor in dB}$$

$$R_c = \text{Corrected Reading in dBuV/m}$$

$$L_s = \text{Specification Limit in dBuV/m}$$

$$M = \text{Margin in dB Relative to Spec}$$

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{3} \quad \text{microvolts per meter}$$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Radio Spurious Emissions, 30-Apr-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	487	24-May-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	08-Nov-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz	8564E (84125C)	Rental	20-Jul-08

Radio Spurious Emissions, 02-May-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	487	24-May-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	08-Nov-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz	8564E (84125C)	Rental	20-Jul-08

Radio Spurious Emissions, 05-May-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	487	24-May-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	08-Nov-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz	8564E (84125C)	Rental	20-Jul-08

Radio Spurious Emissions, 06-May-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	487	24-May-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	08-Nov-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz	8564E (84125C)	Rental	20-Jul-08

EXHIBIT 2: Test Measurement Data

55 Pages



EMC Test Data

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Emissions Standard(s):	FCC	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Summit Data Communications

Model

SDC-CF00AG(DFS Bands)

Date of Last Test: 5/6/2008

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manger:	Dean Eriksen
Emissions Standard(s):	FCC	Class:	-
Immunity Standard(s):	-	Environment:	-

EUT INFORMATION

*The following information was collected during the test session(s).
The client agreed to provide the following information after the test session(s).*

General Description

The EUT is an 802.11a/g compliant wireless LAN radio module which is designed to provide wireless local area networking connectivity . Normally, the EUT would be embedded in various types of mobile and stationary computing devices such as handheld and vehicle mounted data terminals during operation. The EUT was, therefore, placed on a tabletop during emissions testing to simulate the end user environment. The electrical rating of the EUT is 3.3 VDC +/- 5% With typical power consumption of 400 mA (1320mW) while in transmit mode, 180 mA (594mW) while in receive mode and 10 mA (33 mW) while in standby mode.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Summit Data	SDC-CF10AG	802.11 a/g Compact Flash	Various	TWG-SDCCF10AG

EUT Antenna (Intentional Radiators Only)

There were three antennas included in the testing:

Laird Centurion, m/n NanoBlade, pcb antenna, 3.8dBi @ 2.45GHz, 5.1dBi @ 5.25GHz, 4.5dBi @ 5.8GHz

Volex, p/n VLX-51004-A, Omni, 2.3dBi @ 2.4GHz, 1.9dBi @ 5GHz

Larson, p/n R380.500.314, Omni, 1.6dBi @ 2.4GHz, 5dBi @ 5GHz

Note: The Volex Omni was used in the 2.4GHz band and the Larson Omni was used in the 5GHz bands. The Laird pcb antenna was also tested for both 2.4GHz and 5GHz.

The antenna connects to the EUT via a non-standard antenna connector, thereby meeting the requirements of FCC 15.203.

EUT Enclosure

The EUT enclosure is primarily constructed of Stainless steel. It measures approximately 4.3 cm wide by 5.5 cm deep by 0.5 cm high.

Modification History

Mod. #	Test	Date	Modification
1	-	-	None

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manger: Dean Eriksen
Emissions Standard(s): FCC	Class: -
Immunity Standard(s): -	Environment: -

Test Configuration #1

The following information was collected during the test session(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Hewlett Packard	iPAQ	Handheld Computer	-	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
-	-	-	-	-

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
iPAQ Power	AC Mains	2wire	Unshielded	1.5
Flash Module	iPAQ Module Port	-	-	-

EUT Operation During Emissions Tests

During emissions testing the EUT was configured to transmit at the Low, Middle, and High Channel

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

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: 4/30/2008 8:49
 Test Engineer: Suhaila Khushzad
 Test Location: OATS # 1

Config. Used: 1
 Config Change: None
 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions: Temperature: 21 °C
 Rel. Humidity: 50 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5250-5350 Low	100%	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.7dBµV/m @ 17707.4MHz (-7.3dB)
	802.11a Chain A	5250-5350 Center	100%	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	47.8dBµV/m @ 17851.0MHz (-6.2dB)
	802.11a Chain A	5250-5350 High	100%	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	49.1dBµV/m @ 10638.7MHz (-4.9dB)
	802.11a Chain A	5250-5350 High	100%	-	Restricted Band Edge at 5350 MHz	15.209	51.6dBµV/m @ 5350.0MHz (-2.4dB)
2	802.11a Chain A	5470-5725 Low	100%	-	Restricted Band Edge at 5460 & 5470 MHz	15.209	49.7dBµV/m @ 5457.1MHz (-4.3dB)
	802.11a Chain A	5470-5725 Low	100%	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.1dBµV/m @ 11000.3MHz (-8.9dB)
	802.11a Chain A	5470-5725 Center	100%	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	42.1dBµV/m @ 11200.0MHz (-11.9dB)
	802.11a Chain A	5470-5725 High	100%	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.2dBµV/m @ 11400.3MHz (-9.8dB)
	802.11a Chain A	5470-5725 High	100%	-	Band Edge at 5725 MHz	15.209	51.9dBµV/m @ 5725.0MHz (-2.1dB)

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

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.

Note :	All final measurements shall be perform at 6 Mbps data rate.
Note :	Preliminary testing showed no emissions below 1 GHz related to the transmitter.

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
Run #1a: Low Channel @ 5280 MHz, Data Rate=6 Mbps, With Laird PCB

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5275.330	102.7	H	54.0	48.7	AVG	144	2.0	RB = 1MHz, VB = 10Hz
5275.330	111.2	H	74.0	37.2	PK	144	2.0	RB = VB = 1MHz
5275.250	97.3	V	54.0	43.3	AVG	71	1.0	RB = 1MHz, VB = 10Hz
5275.250	105.5	V	74.0	31.5	PK	71	1.0	RB = VB = 1MHz

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
17707.370	46.7	H	54.0	-7.3	AVG	34	1.0	
10561.500	45.9	H	54.0	-8.1	AVG	211	1.4	
17467.560	45.3	V	54.0	-8.7	AVG	132	1.0	
10561.500	62.5	H	74.0	-11.5	PK	211	1.4	
15849.170	40.2	V	54.0	-13.8	AVG	119	1.0	
15846.670	39.6	H	54.0	-14.4	AVG	33	1.0	
10551.670	39.2	V	54.0	-14.8	AVG	40	1.0	
17707.370	58.2	H	74.0	-15.8	PK	34	1.0	
17467.560	56.6	V	74.0	-17.4	PK	132	1.0	
15849.170	52.2	V	74.0	-21.8	PK	119	1.0	
10551.670	52.0	V	74.0	-22.0	PK	40	1.0	
15846.670	51.9	H	74.0	-22.1	PK	33	1.0	

Note 1:	For all emissions in restricted bands, the limit of 15.209 was used. Any emission outside a restricted band that failed to meet the 15.209 limit was tested against the -27dBm/MHz (-68dBuV/m @3m) requirement.
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Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
 Run #1b: Center Channel @ 5300 MHz, Data Rate=6 Mbps, With Laird PCB

Fundamental Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments Data Rate=6 Mbps
			Limit	Margin				
5301.250	96.1	V	54.0	42.1	AVG	63	1.3	RB = 1MHz, VB = 10Hz
5301.250	104.2	V	74.0	30.2	PK	63	1.3	RB = VB = 1MHz
5305.000	102.8	H	54.0	48.8	AVG	163	2.0	RB = 1MHz, VB = 10Hz
5305.000	110.1	H	74.0	36.1	PK	163	2.0	RB = VB = 1MHz

Spurious Radiated Emissions:

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments Data Rate=6 Mbps
			Limit	Margin				
17851.040	47.8	V	54.0	-6.2	AVG	62	1.0	
10598.920	47.0	H	54.0	-7.0	AVG	210	1.4	
17790.650	47.0	H	54.0	-7.0	AVG	0	1.0	
10601.500	47.0	V	54.0	-7.0	AVG	215	2.2	
10601.500	63.5	V	74.0	-10.5	PK	215	2.2	
10598.920	63.0	H	74.0	-11.0	PK	210	1.4	
15868.750	39.9	H	54.0	-14.1	AVG	99	1.0	
15913.080	39.6	V	54.0	-14.4	AVG	241	1.0	
17851.040	59.6	V	74.0	-14.4	PK	62	1.0	
17790.650	58.6	H	74.0	-15.4	PK	0	1.0	
15868.750	51.1	H	74.0	-22.9	PK	99	1.0	
15913.080	50.6	V	74.0	-23.4	PK	241	1.0	

Note 1: For all emissions in restricted bands, the limit of 15.209 was used. Any emission outside a restricted band that failed to meet the 15.209 limit was tested against the -27dBm/MHz (-68dBuV/m @3m) requirement.

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Standard:	FCC	Class:	N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
Run #1c: High Channel @ 5320 MHz, Data Rate=6 Mbps, With Laird PCB

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5321.250	100.7	H	-	-	AVG	185	2.1	RB = 1MHz, VB = 10Hz
5321.250	107.9	H	-	-	PK	185	2.1	RB = VB = 1MHz
5325.080	97.4	V	-	-	AVG	81	1.0	RB = 1MHz, VB = 10Hz
5325.080	105.2	V	-	-	PK	81	1.0	RB = VB = 1MHz

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5350.000	51.6	H	54.0	-2.4	AVG	185	2.1	
5352.490	66.6	H	74.0	-7.4	PK	185	2.1	
5350.000	50.2	V	54.0	-3.8	AVG	81	1.0	
5352.230	63.1	V	74.0	-10.9	PK	81	1.0	

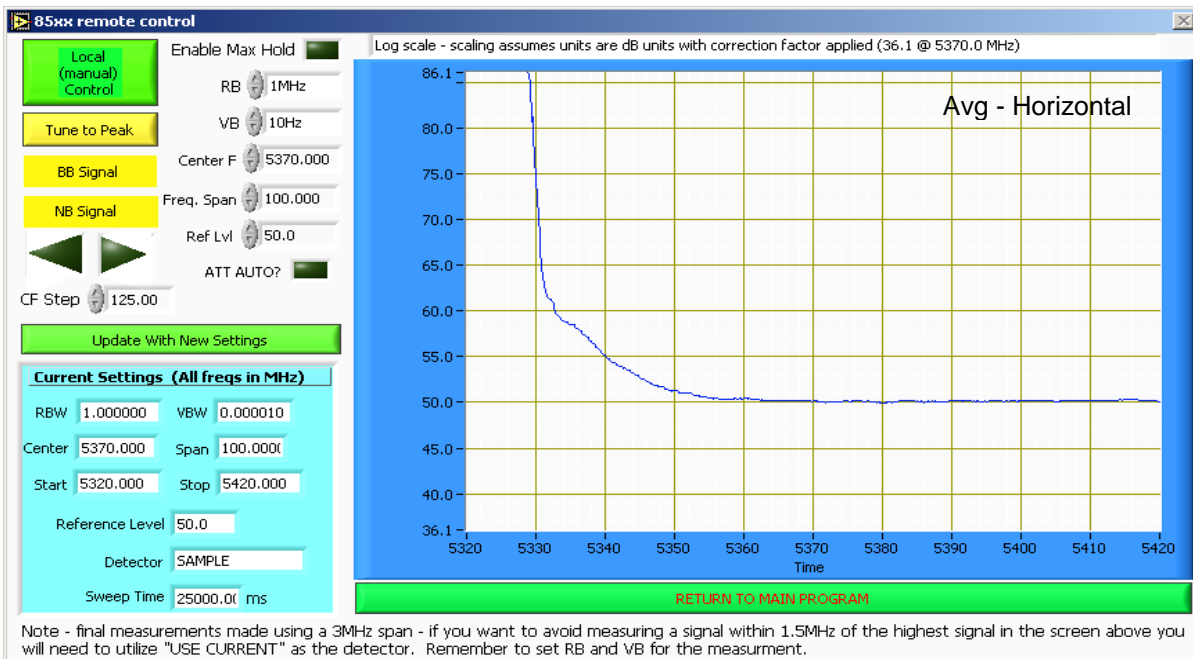
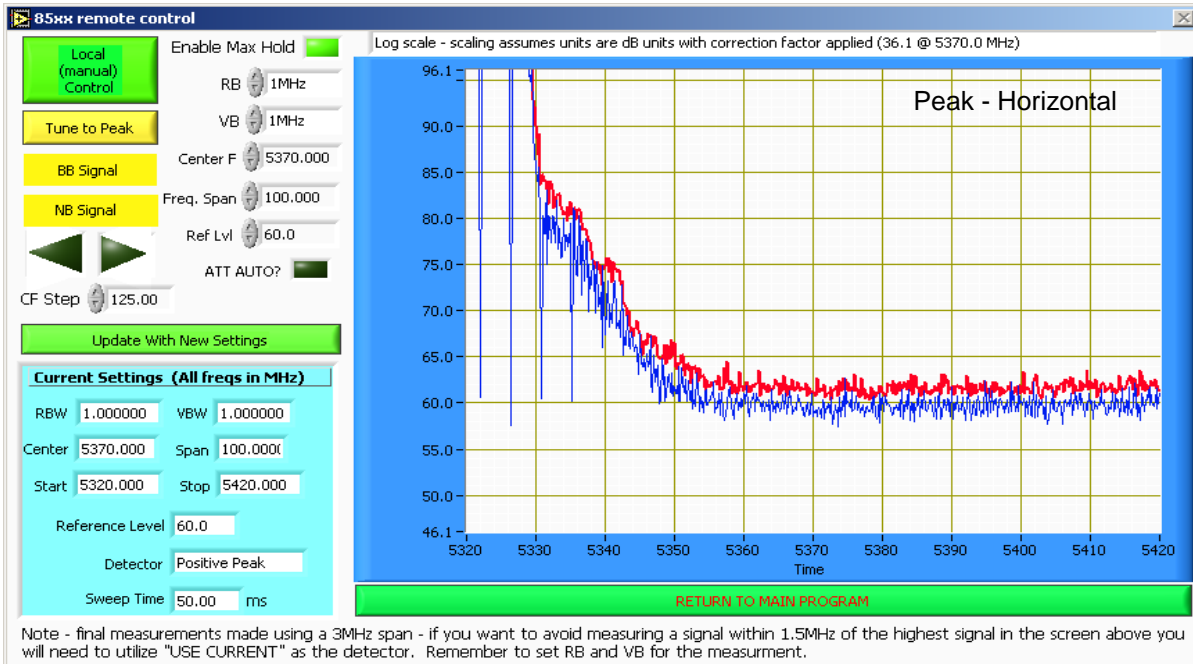
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10638.670	49.1	H	54.0	-4.9	AVG	221	1.4	
17935.970	48.5	H	54.0	-5.5	AVG	335	1.0	
17844.490	48.3	V	54.0	-5.7	AVG	0	1.0	
10641.830	45.9	V	54.0	-8.1	AVG	114	1.4	
10638.670	65.0	H	74.0	-9.0	PK	221	1.4	
10641.830	60.9	V	74.0	-13.1	PK	114	1.4	
15997.330	40.4	V	54.0	-13.6	AVG	67	1.0	
15995.000	40.2	H	54.0	-13.8	AVG	129	1.0	
17935.970	60.0	H	74.0	-14.0	PK	335	1.0	
17844.490	60.0	V	74.0	-14.0	PK	0	1.0	
15997.330	53.8	V	74.0	-20.2	PK	67	1.0	
15995.000	51.9	H	74.0	-22.1	PK	129	1.0	

Note 1: For all emissions in restricted bands, the limit of 15.209 was used. Any emission outside a restricted band that failed to meet the 15.209 limit was tested against the -27dBm/MHz (-68dBuV/m @3m) requirement.

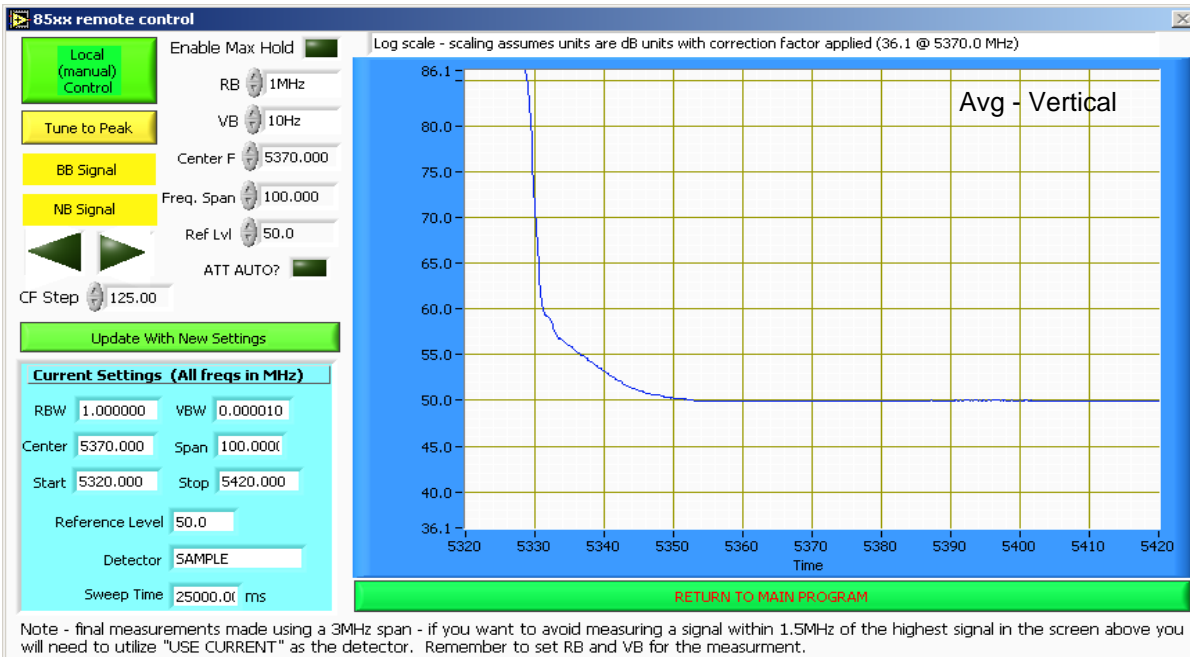
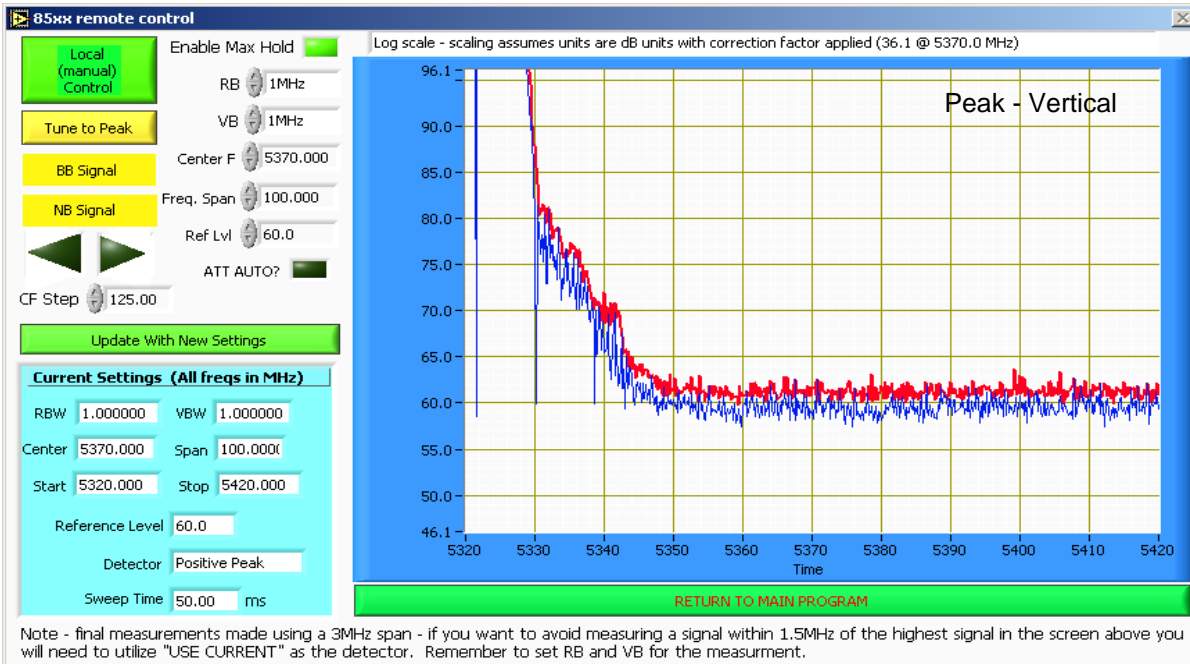
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
 Run #1c: High Channel @ 5320 MHz, Data Rate=6 Mbps, With Laird PCB



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
 Run #1c: High Channel @ 5320 MHz, Data Rate=6 Mbps, With Laird PCB



Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2a: Low Channel @ 5500 MHz, Data Rate=6 Mbps, With Lair PCB

Date of Test: 5/5/2008 0:00
Test Engineer: Suhaila Khushzad
Test Location: OATS # 1

Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5497.170	95.0	H	-	-	AVG	183	2.2	RB = 1MHz, VB = 10Hz
5497.170	103.1	H	-	-	PK	183	2.2	RB = VB = 1MHz
5501.170	90.1	V	-	-	AVG	96	1.0	RB = 1MHz, VB = 10Hz
5501.170	98.2	V	-	-	PK	96	1.0	RB = VB = 1MHz

5350-5460 MHz Restricted Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5457.070	49.7	V	54.0	-4.3	AVG	96	1.0	
5459.460	62.6	V	74.0	-11.4	PK	96	1.0	
5458.050	49.5	H	54.0	-4.5	AVG	183	2.2	
5458.080	62.2	H	74.0	-11.8	PK	183	2.2	

5460 - 5470 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5468.020	49.7	V	68.3	-18.6	AVG	96	1.0	
5469.600	62.7	V	88.3	-25.6	PK	96	1.0	
5467.120	49.7	H	68.3	-18.6	AVG	184	2.2	
5467.770	62.5	H	88.3	-25.8	PK	184	2.2	

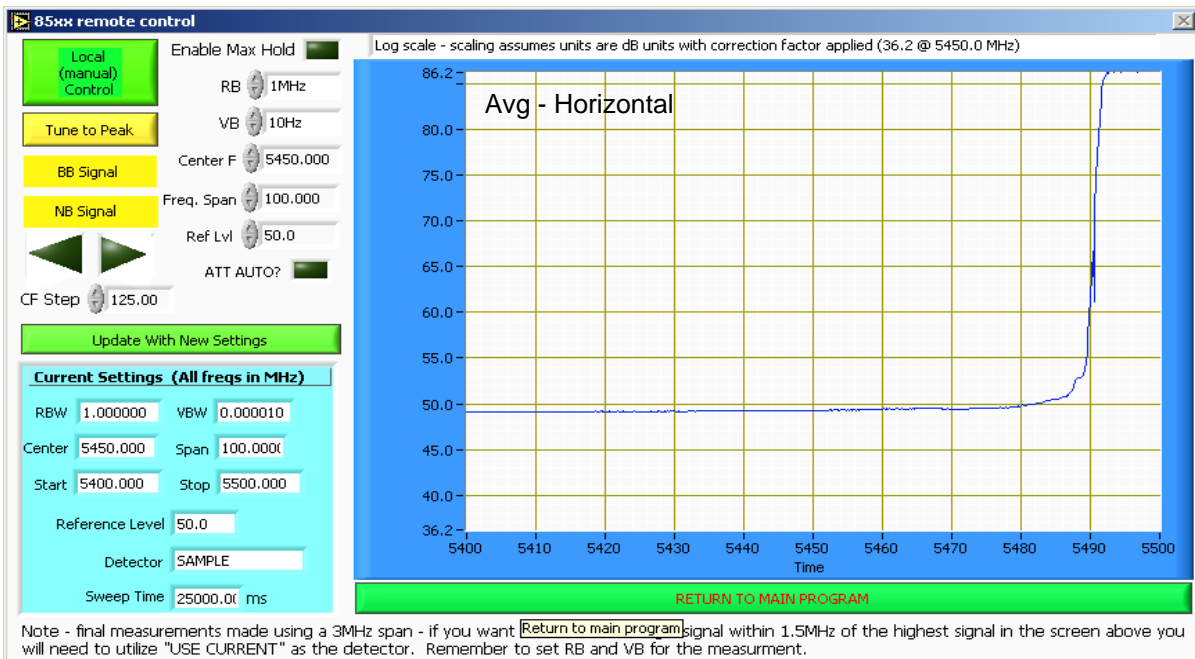
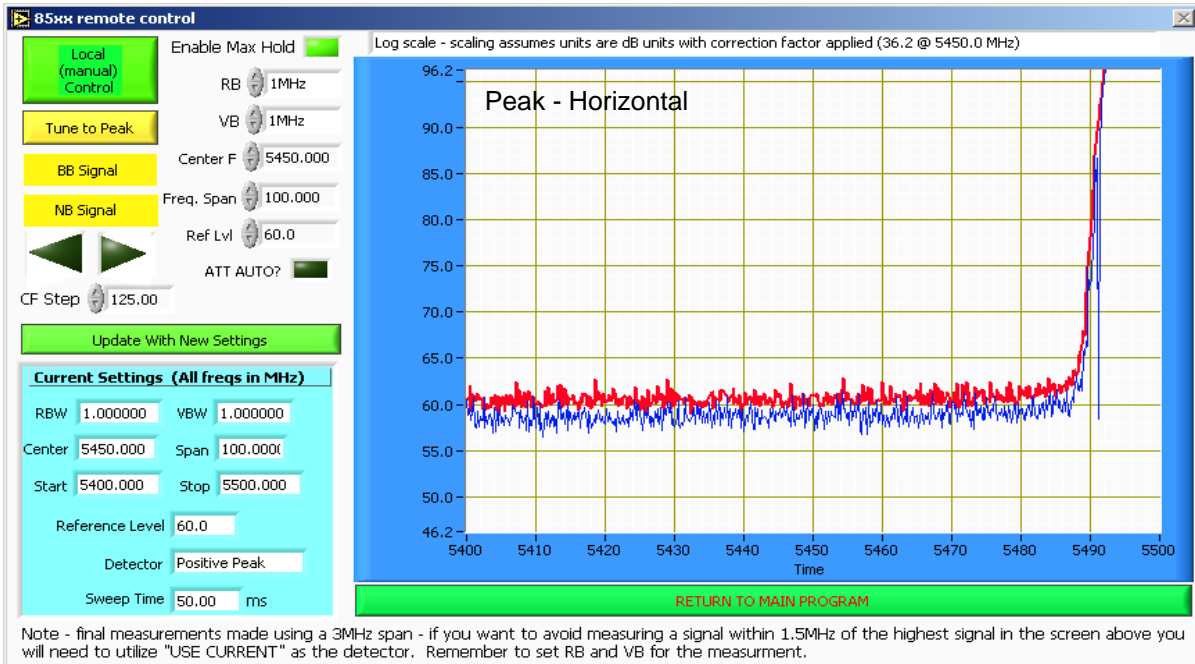
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
11000.330	45.1	H	54.0	-8.9	AVG	194	1.4	
11000.420	43.3	V	54.0	-10.7	AVG	360	1.5	
16499.920	41.3	V	54.0	-12.7	AVG	219	1.0	
16504.080	41.2	H	54.0	-12.8	AVG	105	1.0	
11000.330	57.4	H	74.0	-16.6	PK	194	1.4	
11000.420	55.2	V	74.0	-18.8	PK	360	1.5	
16504.080	54.0	H	74.0	-20.0	PK	105	1.0	
16499.920	52.3	V	74.0	-21.7	PK	219	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

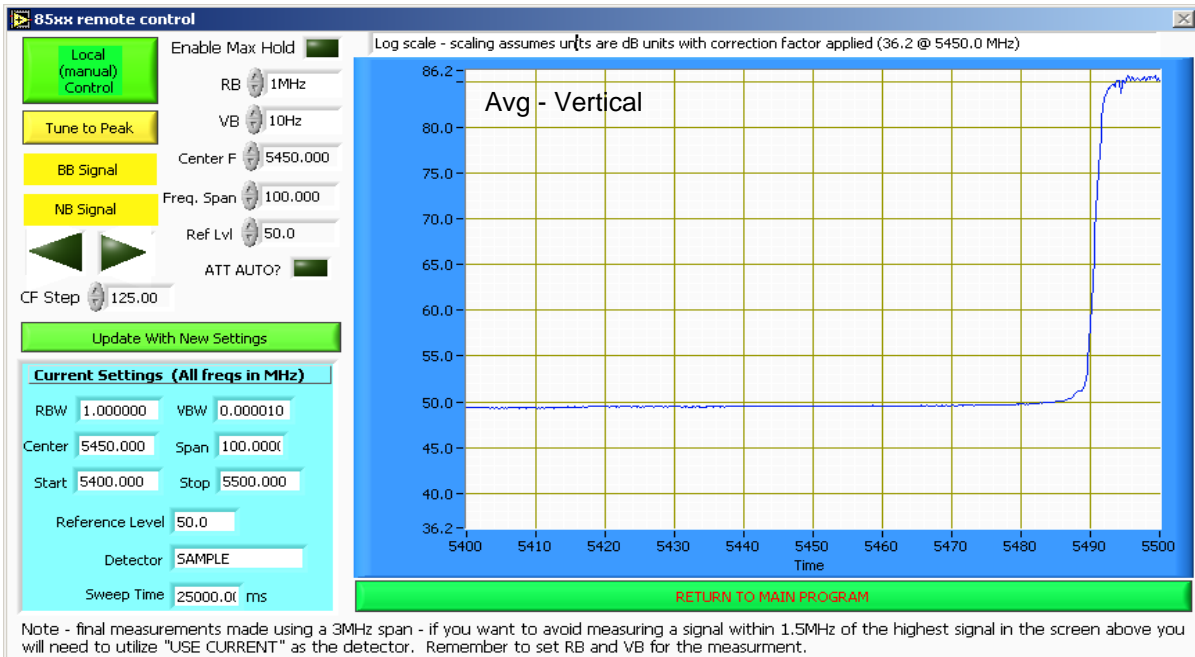
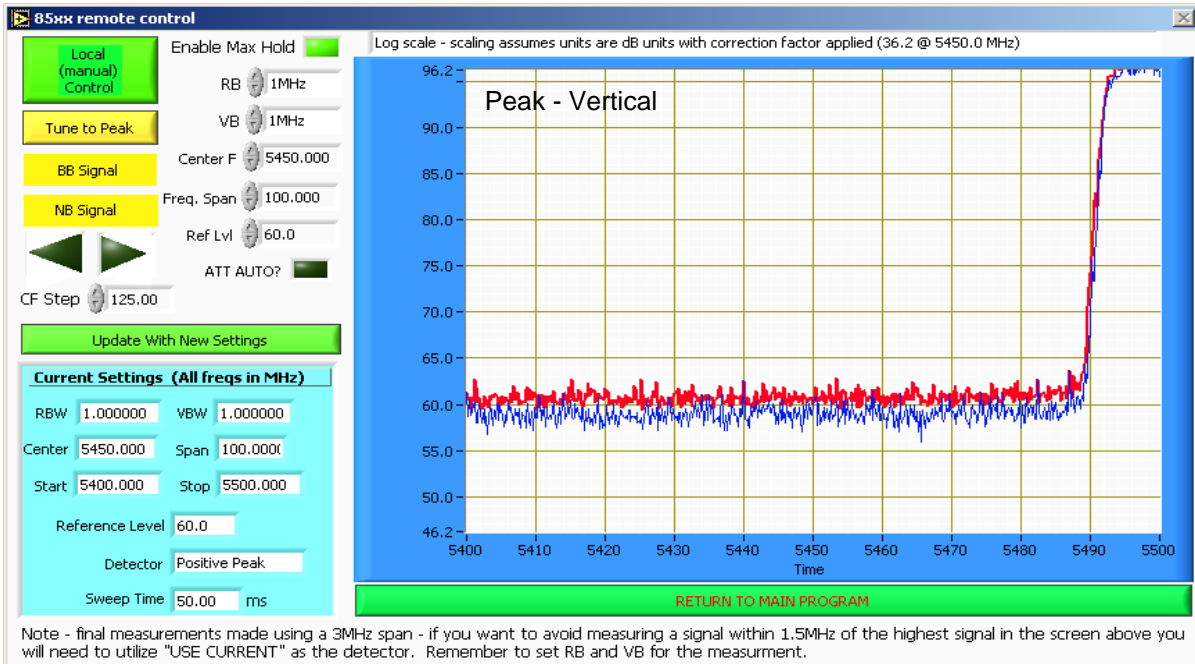
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2a: Low Channel @ 5500 MHz, Data Rate=6 Mbps, With Lair PCB



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2a: Low Channel @ 5500 MHz, Data Rate=6 Mbps, With Lair PCB



Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2b: Center Channel @ 5600 MHz, Data Rate=6 Mbps, With Laird PCB

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5605.000	97.7	H	-	-	AVG	172	2.2	RB = 1MHz, VB = 10Hz
5605.000	105.4	H	-	-	PK	172	2.2	RB = VB = 1MHz
5604.920	90.0	V	-	-	AVG	93	1.0	RB = 1MHz, VB = 10Hz
5604.920	98.2	V	-	-	PK	93	1.0	RB = VB = 1MHz

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
11200.000	42.1	V	54.0	-11.9	AVG	310	1.5	
16825.000	41.9	V	54.0	-12.1	AVG	73	2.5	
16779.420	41.8	H	54.0	-12.2	AVG	0	1.0	
11200.420	41.3	H	54.0	-12.7	AVG	360	1.5	
16779.420	53.6	H	74.0	-20.4	PK	0	1.0	
11200.000	53.4	V	74.0	-20.6	PK	310	1.5	
16825.000	53.0	V	74.0	-21.0	PK	73	2.5	
11200.420	52.5	H	74.0	-21.5	PK	360	1.5	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2c: High Channel @ 5700 MHz, Data Rate=6 Mbps, With Laird PCB

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5694.580	94.3	V	-	-	AVG	90	1.0	RB = 1MHz, VB = 10Hz
5694.580	102.6	V	-	-	PK	90	1.0	RB = VB = 1MHz
5695.330	96.4	H	-	-	AVG	157	2.2	RB = 1MHz, VB = 10Hz
5695.330	104.4	H	-	-	PK	157	2.2	RB = VB = 1MHz

5725 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5725.020	51.9	H	54.0	-2.1	AVG	157	2.2	
5725.000	66.3	H	74.0	-7.7	PK	157	2.2	
5725.000	51.7	V	54.0	-2.3	AVG	90	1.0	
5725.960	65.3	V	74.0	-8.7	PK	90	1.0	

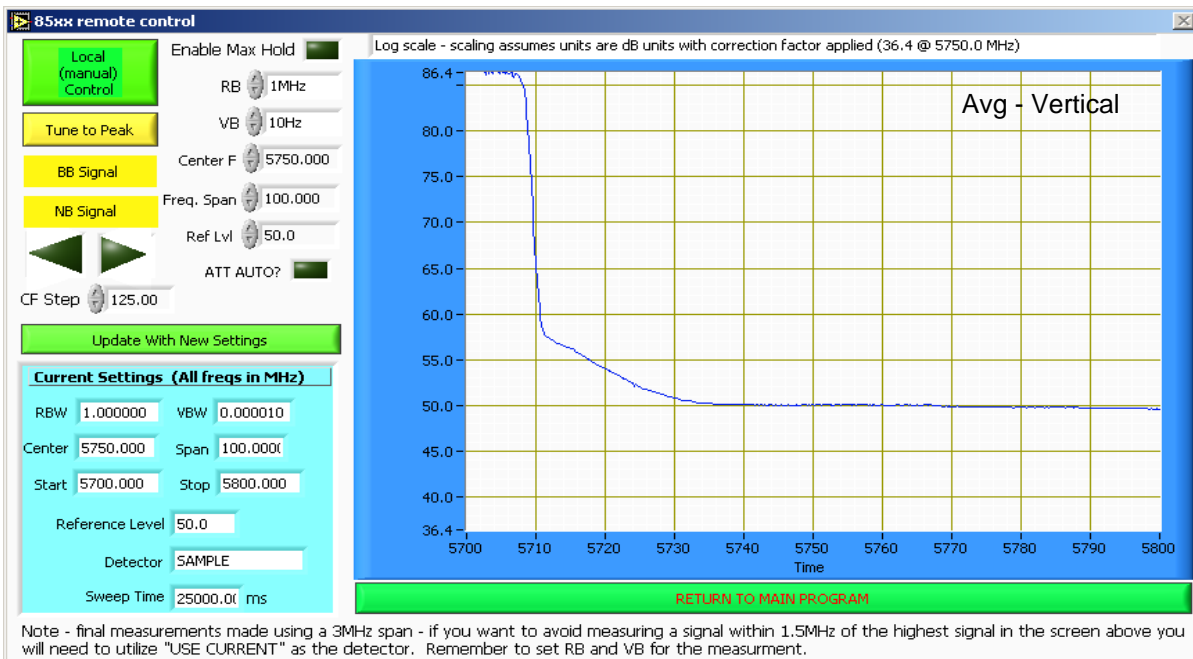
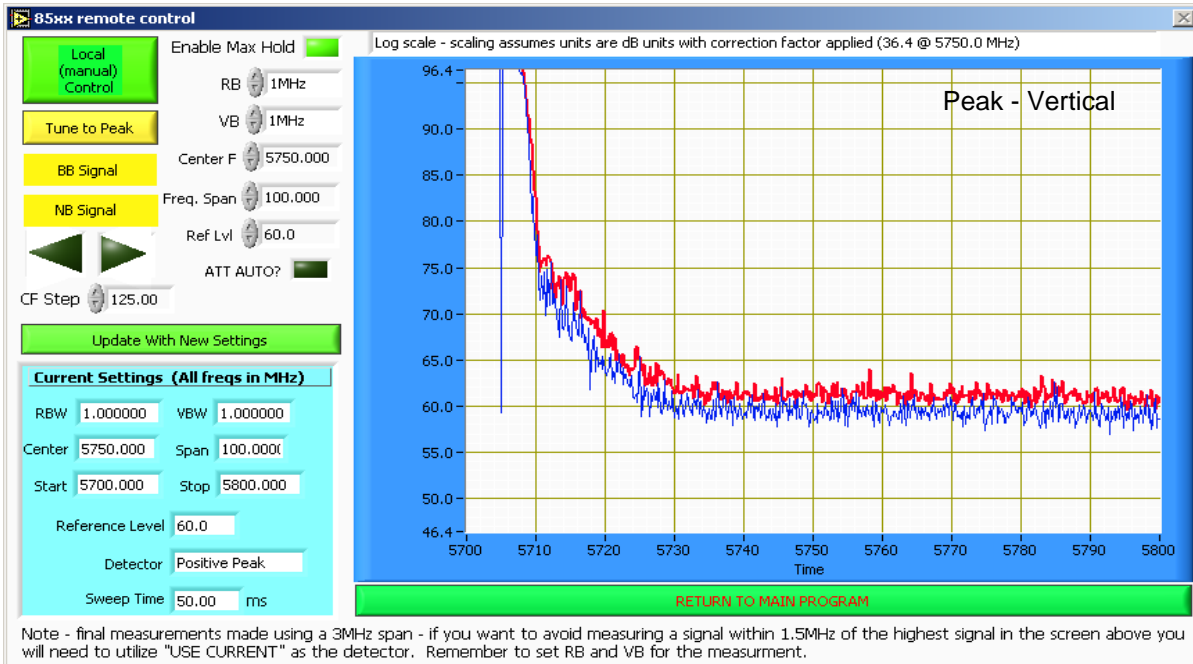
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
11400.330	44.2	V	54.0	-9.8	AVG	325	1.3	
11395.750	43.5	H	54.0	-10.5	AVG	205	1.6	
17083.500	43.5	V	54.0	-10.5	AVG	55	1.0	
17096.170	42.8	H	54.0	-11.2	AVG	58	1.0	
11400.330	55.4	V	74.0	-18.6	PK	325	1.3	
11395.750	55.2	H	74.0	-18.8	PK	205	1.6	
17083.500	55.2	V	74.0	-18.8	PK	55	1.0	
17096.170	54.3	H	74.0	-19.7	PK	58	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

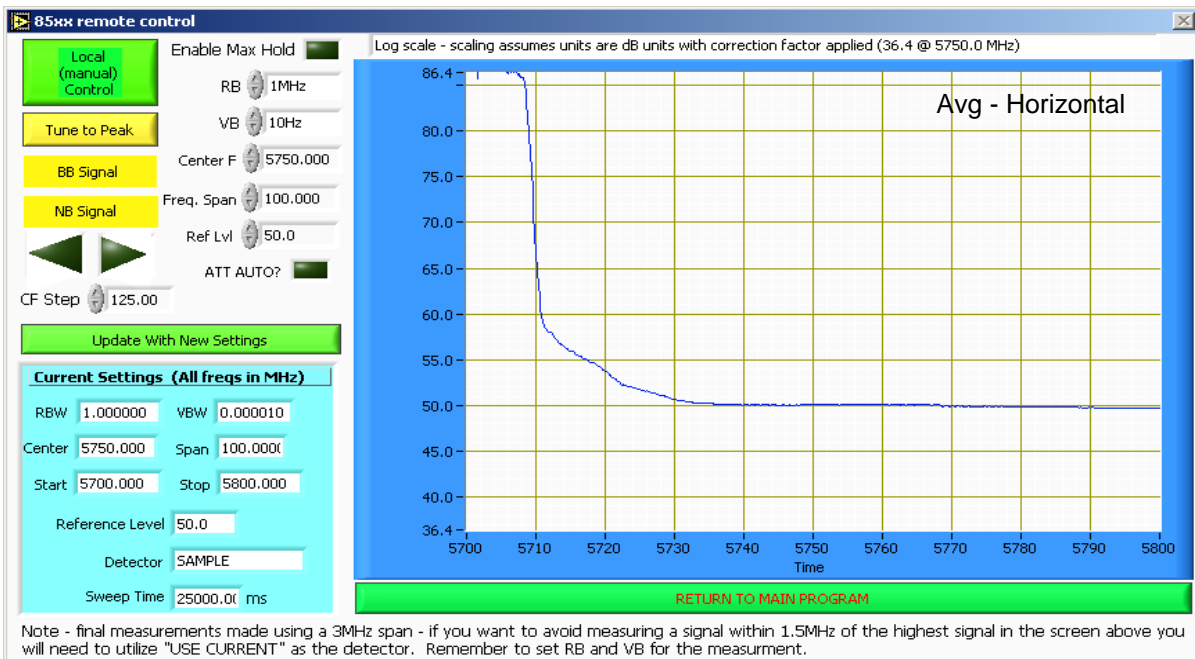
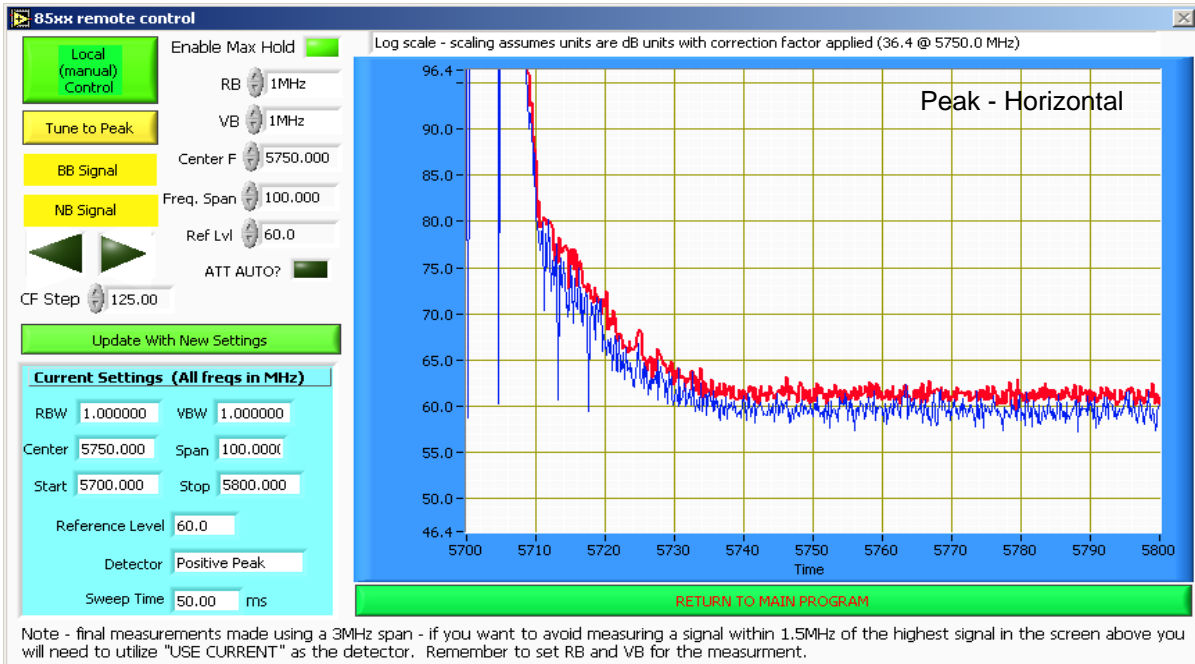
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2c: High Channel @ 5700 MHz, Data Rate=6 Mbps, With Laird PCB



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2c: High Channel @ 5700 MHz, Data Rate=6 Mbps, With Laird PCB



Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

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: 4/30/2008& 05/02/08	Config. Used: 1
Test Engineer: Suhaila Khushzad	Config Change: None
Test Location: OATS # 1& 2	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature:	21 °C
Rel. Humidity:	50 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5250-5350 Low	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	46.3dBµV/m @ 17766.7MHz (-7.7dB)
	802.11a Chain A	5250-5350 Center	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	53.6dBµV/m @ 10602.1MHz (-0.4dB)
	802.11a Chain A	5250-5350 High	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	52.4dBµV/m @ 10639.8MHz (-1.6dB)
	802.11a Chain A	5250-5350 High	100%		Restricted Band Edge at 5350 MHz	15.209	53.5dBµV/m @ 5350.0MHz (-0.5dB)
2	802.11a Chain A	5470-5725 Low	100%		Restricted Band Edge at 5460 & 5470 MHz	15.209	50.3dBµV/m @ 5458.0MHz (-3.7dB)
	802.11a Chain A	5470-5725 Low	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	43.4dBµV/m @ 11000.2MHz (-10.6dB)
	802.11a Chain A	5470-5725 Center	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	48.4dBµV/m @ 11200.6MHz (-5.6dB)
	802.11a Chain A	5470-5725 High	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.2dBµV/m @ 11400.3MHz (-9.8dB)
	802.11a Chain A	5470-5725 High	100%		Band Edge at 5725 MHz	15.209	51.5dBµV/m @ 5725.0MHz (-16.8dB)

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

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.

Note :	All final measurements shall be perform at 6 Mbps data rate.
Note :	Preliminary testing showed no emissions below 1 GHz related to the transmitter.

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
Run #1a: Low Channel @ 5280 MHz, Data Rate=6 Mbps, With Flat Omni

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	Data Rate=6 Mbps
5275.250	103.2	V	-	-	AVG	134	1.1	RB = 1MHz, VB = 10Hz
5275.250	111.5	V	-	-	PK	134	1.1	RB = VB = 1MHz
5284.920	92.9	H	-	-	AVG	143	1.0	RB = 1MHz, VB = 10Hz
5284.920	100.8	H	-	-	PK	143	1.0	RB = VB = 1MHz

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	Data Rate=6 Mbps
17766.710	46.3	H	54.0	-7.7	AVG	0	1.0	
17532.270	46.1	V	54.0	-7.9	AVG	0	1.0	
10563.750	43.7	V	54.0	-10.3	AVG	15	1.0	
10563.750	63.1	V	74.0	-10.9	PK	15	1.0	
10563.420	39.5	H	54.0	-14.5	AVG	72	2.0	
15844.800	39.4	H	54.0	-14.6	AVG	184	1.0	
15852.170	39.2	V	54.0	-14.8	AVG	196	1.0	
17766.710	57.7	H	74.0	-16.3	PK	0	1.0	
17532.270	57.4	V	74.0	-16.6	PK	0	1.0	
10563.420	55.7	H	74.0	-18.3	PK	72	2.0	
15852.170	51.7	V	74.0	-22.3	PK	196	1.0	
15844.800	50.8	H	74.0	-23.2	PK	184	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).
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Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
 Run #1b: Center Channel @ 5300 MHz, Data Rate=6 Mbps, With Laird PCB

Fundamental Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments Data Rate=6 Mbps
			Limit	Margin				
5301.420	91.3	H	-	-	AVG	169	1.0	RB = 1MHz, VB = 10Hz
5301.420	99.2	H	-	-	PK	169	1.0	RB = VB = 1MHz
5298.920	103.9	V	-	-	AVG	93	1.1	RB = 1MHz, VB = 10Hz
5298.920	112.1	V	-	-	PK	93	1.1	RB = VB = 1MHz

Spurious Radiated Emissions:

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments Data Rate=6 Mbps
			Limit	Margin				
10602.080	53.6	V	54.0	-0.4	AVG	32	1.3	
10602.080	70.1	V	74.0	-3.9	PK	32	1.3	
10601.920	49.8	H	54.0	-4.2	AVG	163	1.4	
17863.740	47.5	V	54.0	-6.5	AVG	147	1.0	
17846.260	47.4	H	54.0	-6.6	AVG	0	0.0	
10601.920	65.5	H	74.0	-8.5	PK	163	1.4	
15916.750	39.3	V	54.0	-14.7	AVG	182	0.0	
15919.840	39.0	H	54.0	-15.0	AVG	221	1.0	
17863.740	58.9	V	74.0	-15.1	PK	147	1.0	
17846.260	58.4	H	74.0	-15.6	PK	0	0.0	
15919.840	50.4	H	74.0	-23.6	PK	221	1.0	
15916.750	50.2	V	74.0	-23.8	PK	182	0.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the **average** limit was set to -27dBm/MHz (-68dBuV/m).

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Standard:	FCC	Class:	N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
Run #1c: High Channel @ 5320 MHz, Data Rate=6 Mbps, With Flat Omni

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5322.750	103.4	V	-	-	AVG	129	1.1	RB = 1MHz, VB = 10Hz
5322.750	111.6	V	-	-	PK	129	1.1	RB = VB = 1MHz
5323.080	93.1	H	-	-	AVG	136	1.1	RB = 1MHz, VB = 10Hz
5323.080	101.3	H	-	-	PK	136	1.1	RB = VB = 1MHz

5350 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5350.000	53.5	V	54.0	-0.5	AVG	129	1.1	
5352.780	70.9	V	74.0	-3.1	PK	129	1.1	
5350.000	50.2	H	54.0	-3.8	AVG	136	1.1	
5351.940	64.4	H	74.0	-9.6	PK	136	1.1	

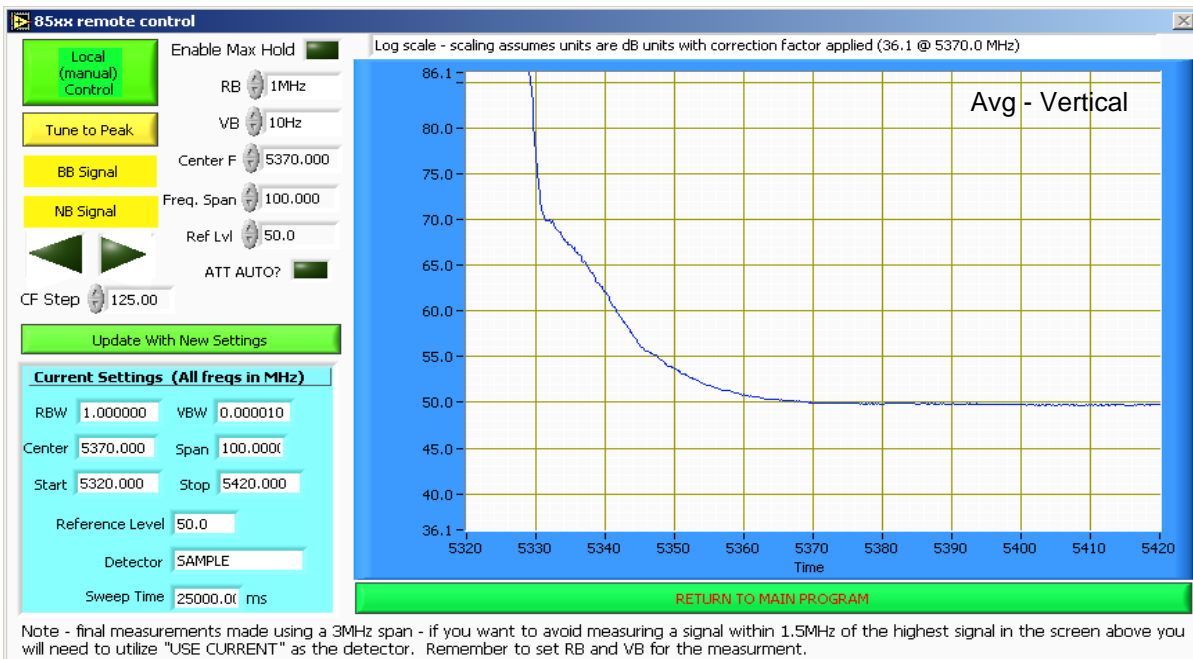
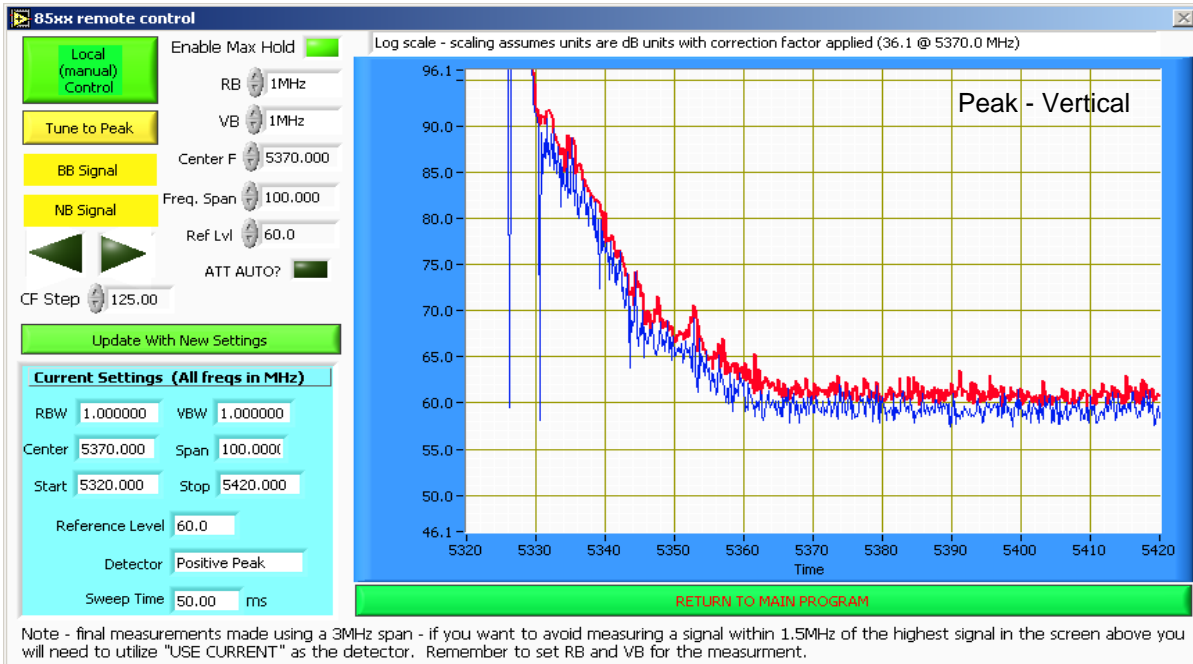
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
10639.830	52.4	V	54.0	-1.6	AVG	231	2.0	
17845.800	47.8	H	54.0	-6.2	AVG	97	1.0	
17865.290	47.4	V	54.0	-6.6	AVG	35	1.0	
10639.830	66.8	V	74.0	-7.2	PK	231	2.0	
10643.580	45.0	H	54.0	-9.0	AVG	355	1.2	
10643.580	60.0	H	74.0	-14.0	PK	355	1.2	
15978.500	39.9	V	54.0	-14.1	AVG	53	1.0	
15981.080	39.8	H	54.0	-14.2	AVG	256	1.0	
17845.800	59.6	H	74.0	-14.4	PK	97	1.0	
17865.290	58.6	V	74.0	-15.4	PK	35	1.0	
15978.500	51.4	V	74.0	-22.6	PK	53	1.0	
15981.080	51.2	H	74.0	-22.8	PK	256	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (~68dBuV/m).

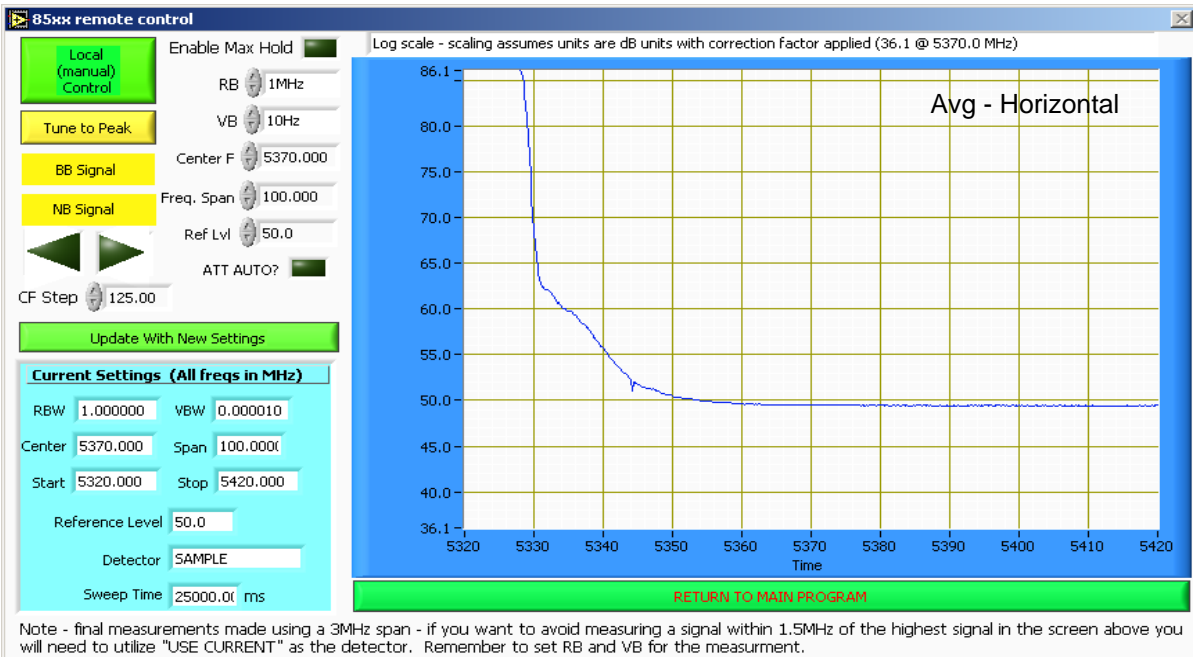
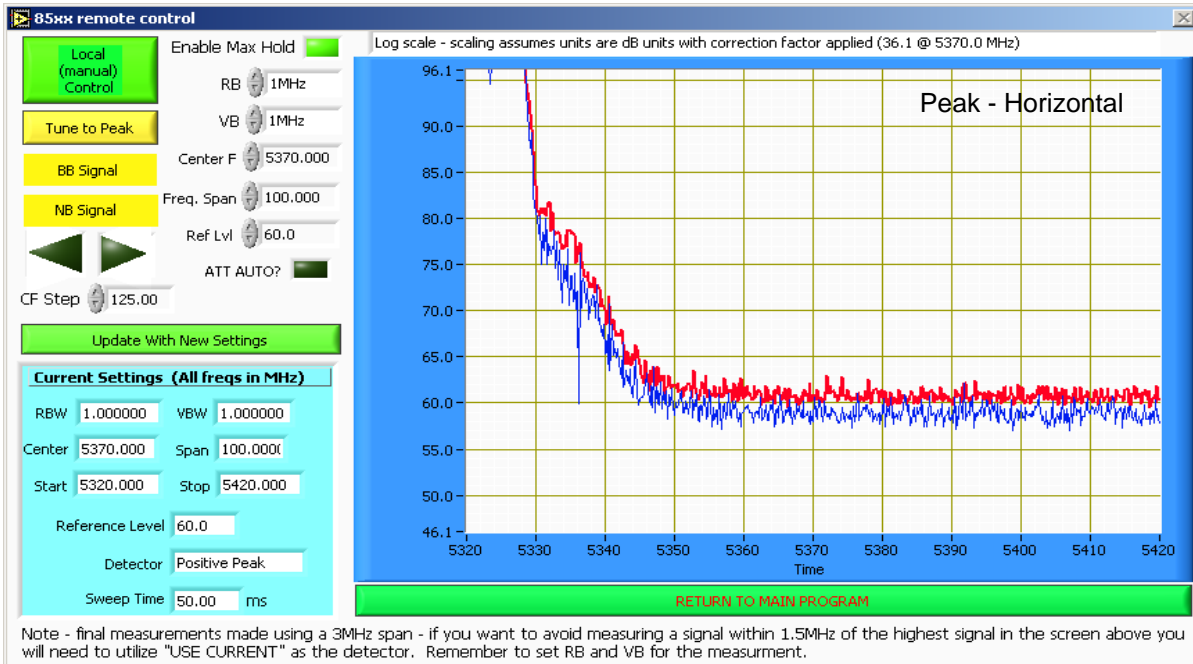
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
 Run #1c: High Channel @ 5320 MHz, Data Rate=6 Mbps, With Flat Omni



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run #1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
 Run #1c: High Channel @ 5320 MHz, Data Rate=6 Mbps, With Flat Omni



Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2a: Low Channel @ 5500 MHz, Data Rate=6 Mbps, With Flat Omni

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5505.330	98.3	V	-	-	AVG	210	1.0	RB = 1MHz, VB = 10Hz
5505.330	106.7	V	-	-	PK	210	1.0	RB = VB = 1MHz
5506.000	90.5	H	-	-	AVG	130	1.9	RB = 1MHz, VB = 10Hz
5506.000	98.8	H	-	-	PK	130	1.9	RB = VB = 1MHz

5350-5460 MHz Restricted Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5457.980	50.3	V	54.0	-3.7	AVG	210	1.0	
5459.350	62.8	V	74.0	-11.2	PK	210	1.0	
5457.150	50.1	H	54.0	-3.9	AVG	130	1.9	
5458.190	62.7	H	74.0	-11.3	PK	130	1.9	

5460 - 5470 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5467.020	50.0	H	68.3	-18.3	AVG	130	1.9	
5467.880	62.8	H	88.3	-25.5	PK	130	1.9	
5467.590	50.4	V	68.3	-17.9	AVG	210	1.0	
5469.890	62.8	V	88.3	-25.5	PK	210	1.0	

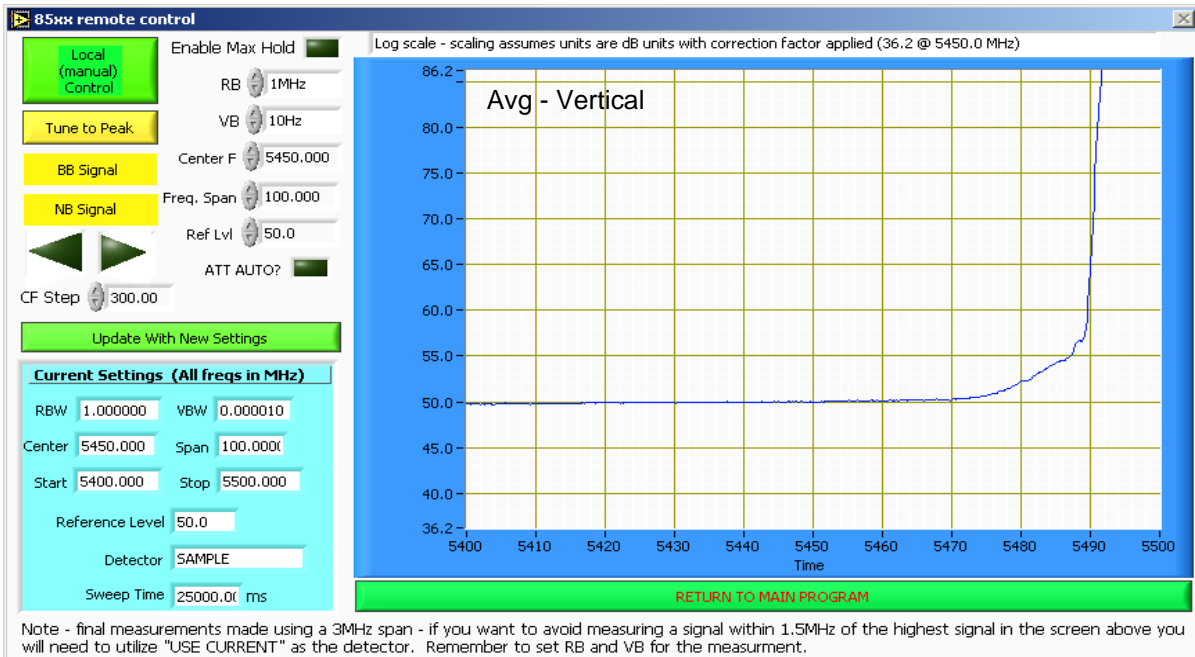
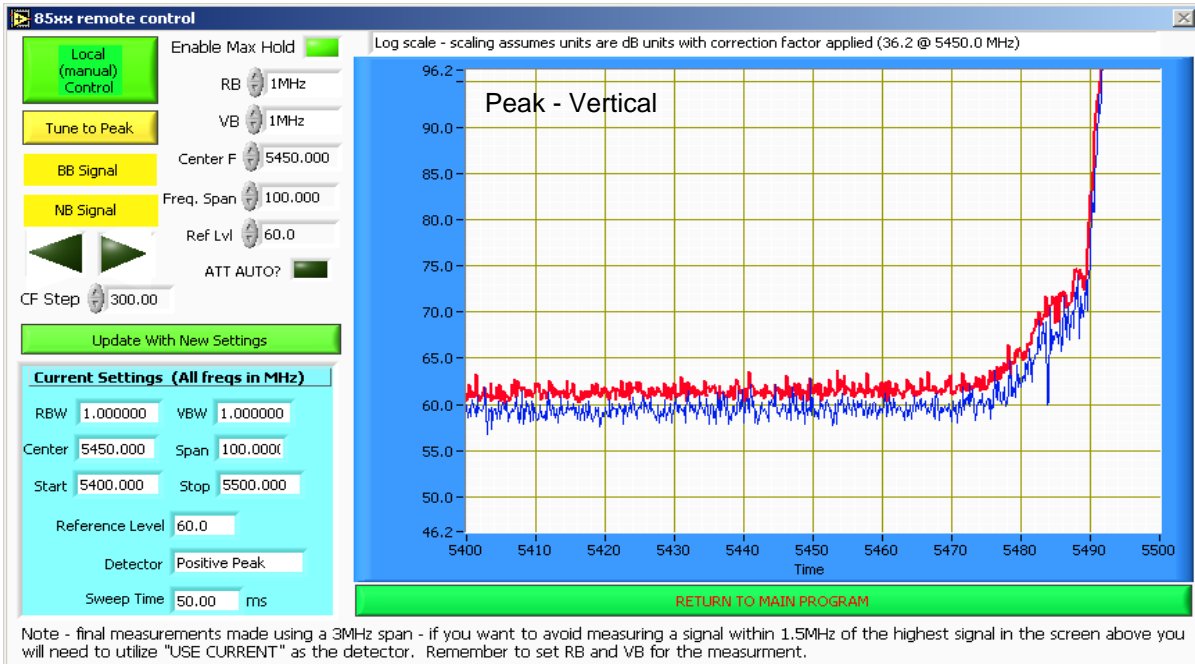
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
11000.170	43.4	H	54.0	-10.6	AVG	210	2.0	
11001.170	42.7	V	54.0	-11.3	AVG	77	2.2	
16475.420	40.1	H	54.0	-13.9	AVG	132	1.0	
16522.500	39.9	V	54.0	-14.1	AVG	286	1.0	
11000.170	55.7	H	74.0	-18.3	PK	210	2.0	
11001.170	54.5	V	74.0	-19.5	PK	77	2.2	
16475.420	51.5	H	74.0	-22.5	PK	132	1.0	
16522.500	51.2	V	74.0	-22.8	PK	286	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

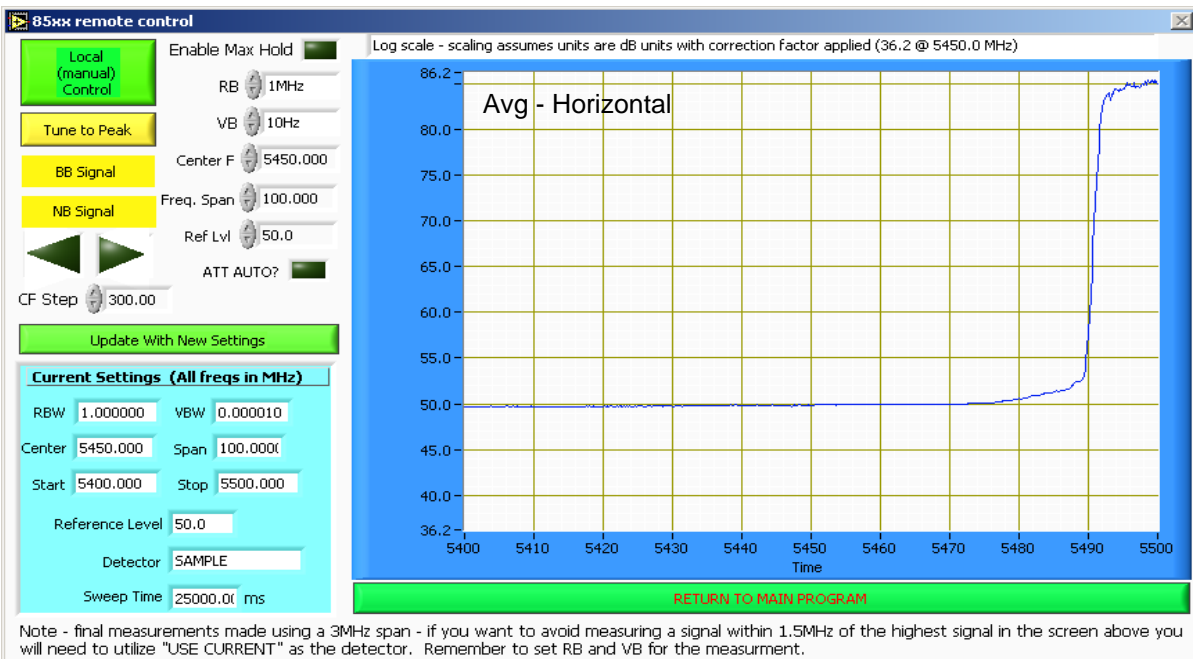
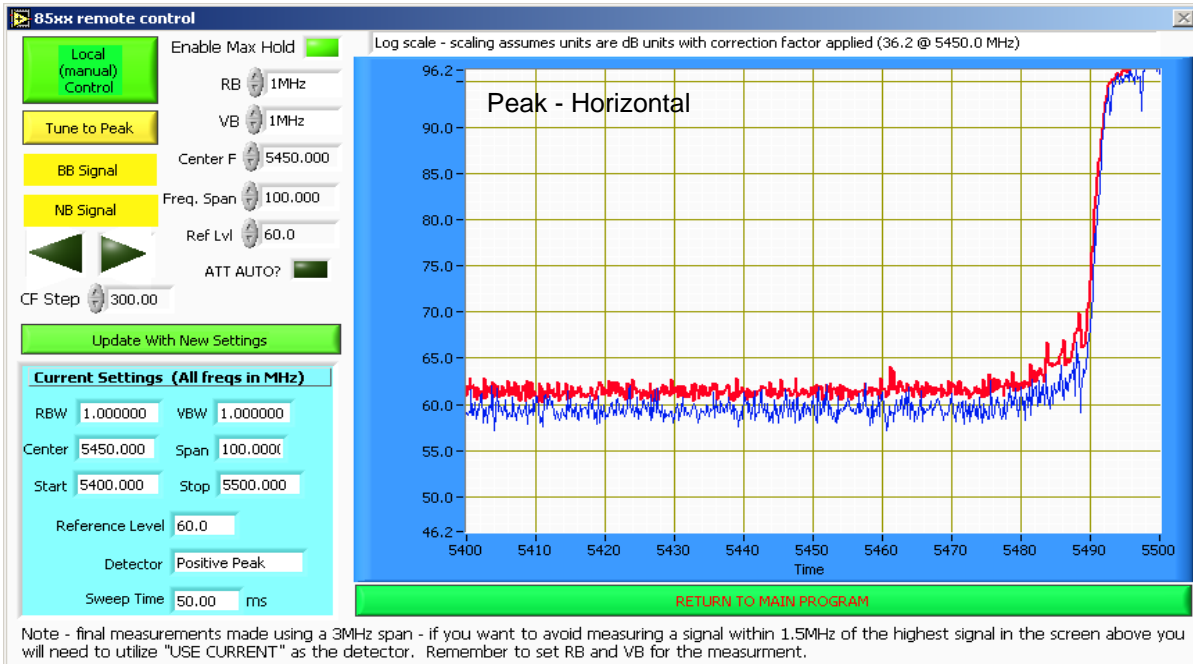
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2a: Low Channel @ 5500 MHz, Data Rate=6 Mbps, With Flat Omni



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2a: Low Channel @ 5500 MHz, Data Rate=6 Mbps, With Flat Omni



Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2b: Center Channel @ 5600 MHz, Data Rate=6 Mbps, With Flat Omni

Fundamental Signal Field Strength

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
5600.670	100.4	V	-	-	AVG	69	1.0	RB = 1MHz, VB = 10Hz
5600.670	108.9	V	-	-	PK	69	1.0	RB = VB = 1MHz
5597.000	88.8	H	-	-	AVG	126	1.9	RB = 1MHz, VB = 10Hz
5597.000	96.6	H	-	-	PK	126	1.9	RB = VB = 1MHz

Spurious Radiated Emissions:

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
11200.580	48.4	V	54.0	-5.6	AVG	19	1.6	Data Rate=6 Mbps
16782.750	41.3	V	54.0	-12.7	AVG	355	1.0	
16781.160	41.2	H	54.0	-12.8	AVG	0	0.0	
11200.580	60.7	V	74.0	-13.3	PK	19	1.6	
11201.830	39.5	H	54.0	-14.5	AVG	109	1.0	
16781.160	53.2	H	74.0	-20.8	PK	0	0.0	
16782.750	52.8	V	74.0	-21.2	PK	355	1.0	
11201.830	51.3	H	74.0	-22.7	PK	109	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2c: High Channel @ 5700 MHz, Data Rate=6 Mbps, With Flat Omni

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5695.330	97.2	V	-	-	AVG	82	1.0	RB = 1MHz, VB = 10Hz
5695.330	105.4	V	-	-	PK	82	1.0	RB = VB = 1MHz
5695.420	89.4	H	-	-	AVG	129	2.0	RB = 1MHz, VB = 10Hz
5695.420	97.4	H	-	-	PK	129	2.0	RB = VB = 1MHz

5725 MHz Band Edge Radiated Field Strength

Frequency	Level	Pol	15 E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
5725.000	51.5	V	68.3	-16.8	AVG	82	1.0	
5726.150	63.9	V	88.3	-24.4	PK	82	1.0	
5725.000	50.6	H	68.3	-17.7	AVG	129	2.0	
5726.520	63.7	H	88.3	-24.6	PK	129	2.0	

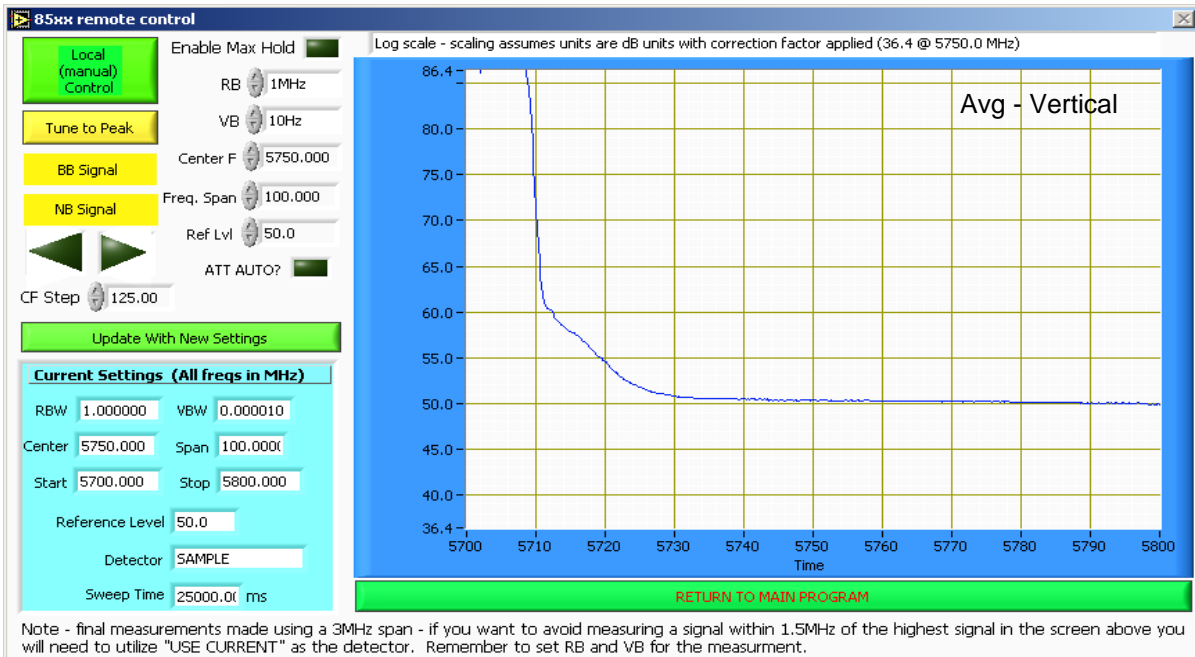
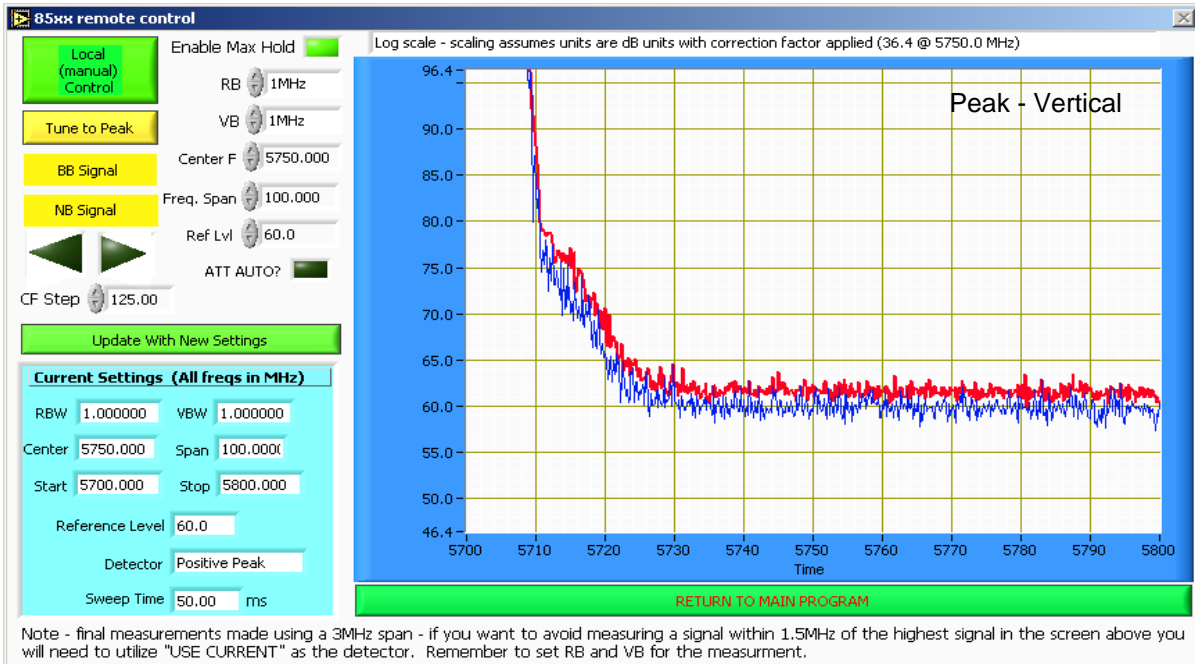
Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	Data Rate=6 Mbps
11400.330	44.2	V	54.0	-9.8	AVG	352	1.0	
11400.170	43.7	H	54.0	-10.3	AVG	260	1.6	
17075.830	42.9	V	54.0	-11.1	AVG	110	1.0	
17082.420	42.6	H	54.0	-11.4	AVG	4	1.0	
11400.170	56.0	H	74.0	-18.0	PK	260	1.6	
11400.330	55.8	V	74.0	-18.2	PK	352	1.0	
17075.830	54.1	V	74.0	-19.9	PK	110	1.0	
17082.420	54.0	H	74.0	-20.0	PK	4	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

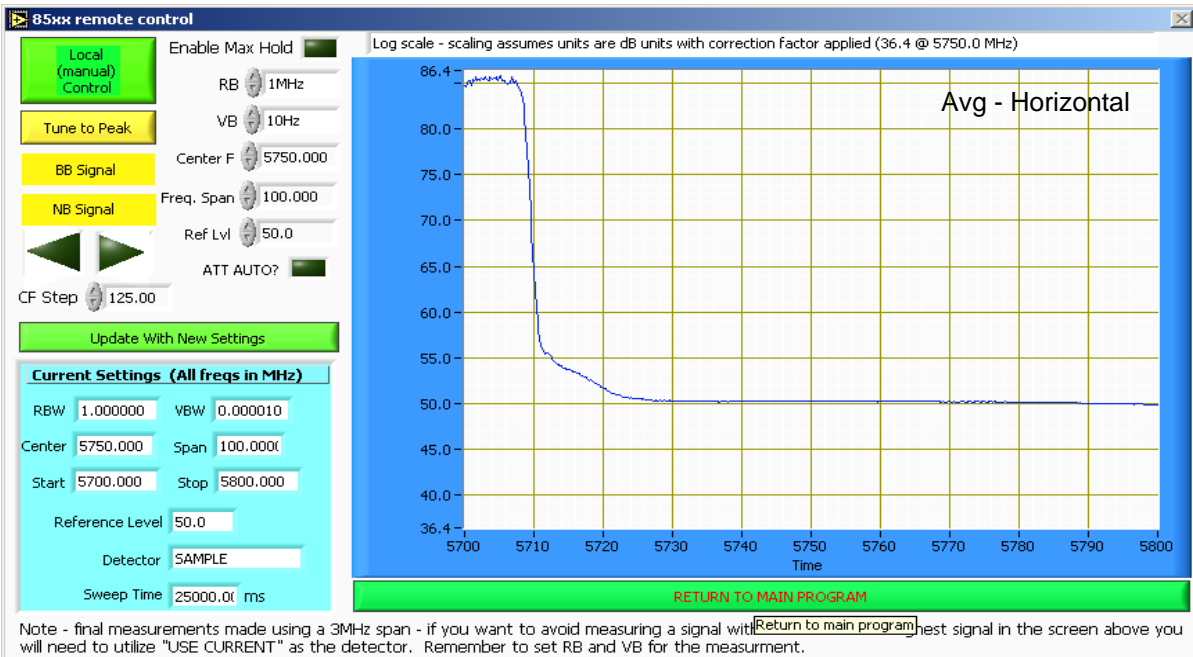
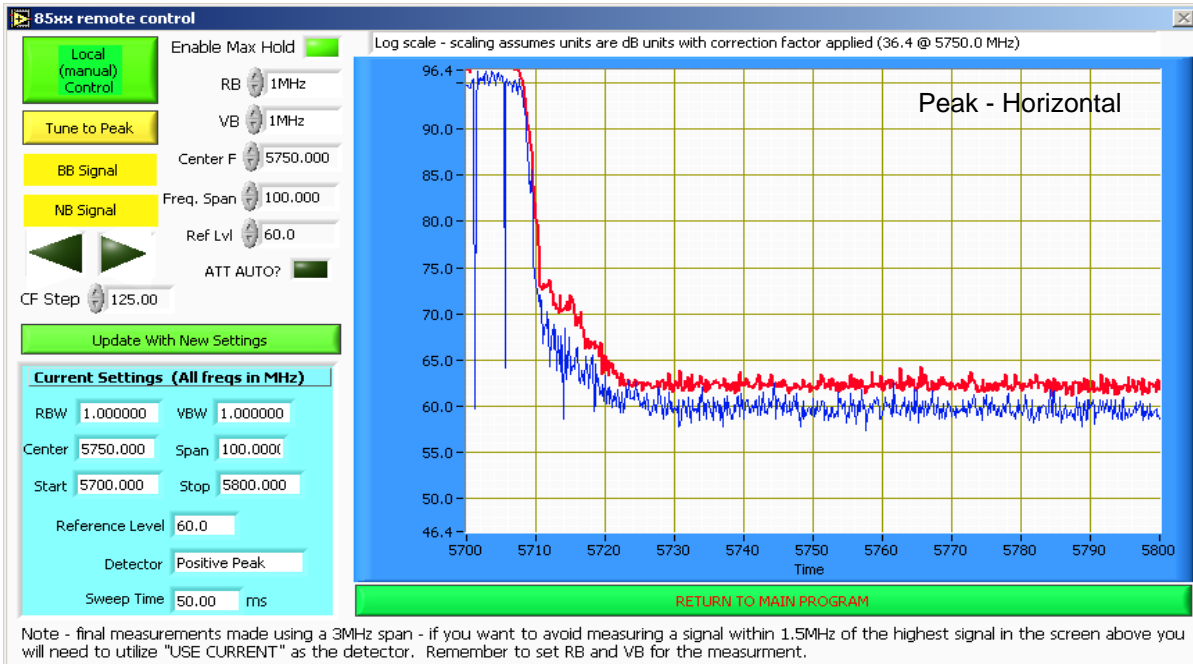
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2c: High Channel @ 5700 MHz, Data Rate=6 Mbps, With Flat Omni



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
 Run #2c: High Channel @ 5700 MHz, Data Rate=6 Mbps, With Flat Omni



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

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: 5/6/2008 8:15	Config. Used: 1
Test Engineer: Suhaila Khushzad	Config Change: None
Test Location: SVOATS #1	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions: Temperature: 20 °C
 Rel. Humidity: 50 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5250-5350 Center	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.6dBµV/m @ 17415.6MHz (-9.4dB)
2	802.11a Chain A	5470-5725 Center	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.4dBµV/m @ 17316.9MHz (-9.6dB)

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.

Note: Preliminary testing showed that there were no receiver related emissions below 1 GHz.

Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

Run # 1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
Run #1a: Center Channel @ 5300 MHz, Rx Mode with Laird PCB

Spurious Radiated Emissions:

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
17415.590	44.6	V	54.0	-9.4	AVG	57	1.0	
17084.940	43.4	H	54.0	-10.6	AVG	2	1.0	
15927.080	39.3	H	54.0	-14.7	AVG	103	1.0	
15914.590	38.8	V	54.0	-15.2	AVG	0	1.0	
10620.080	38.5	H	54.0	-15.5	AVG	162	1.6	
10613.580	38.4	V	54.0	-15.6	AVG	285	1.0	
17415.590	56.2	V	74.0	-17.8	PK	57	1.0	
17084.940	55.1	H	74.0	-18.9	PK	2	1.0	
15914.590	51.3	V	74.0	-22.7	PK	0	1.0	
15927.080	50.6	H	74.0	-23.4	PK	103	1.0	
10620.080	50.5	H	74.0	-23.5	PK	162	1.6	
10613.580	49.8	V	74.0	-24.2	PK	285	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the **average** limit was set to -27dBm/MHz (-68dBuV/m).

Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #2a: Center Channel @ 5500 MHz, Rx Mode with Laird PCB

Spurious Radiated Emissions:

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
17316.870	44.4	H	54.0	-9.6	AVG	205	1.0	
17335.390	44.2	V	54.0	-9.8	AVG	0	1.0	
16521.720	41.2	H	54.0	-12.8	AVG	64	1.0	
16493.580	41.0	V	54.0	-13.0	AVG	209	1.0	
11020.250	38.2	H	54.0	-15.8	AVG	55	1.0	
11001.080	37.9	V	54.0	-16.1	AVG	186	1.0	
17335.390	56.5	V	74.0	-17.5	PK	0	1.0	
17316.870	55.9	H	74.0	-18.1	PK	205	1.0	
16493.580	53.1	V	74.0	-20.9	PK	209	1.0	
16521.720	52.4	H	74.0	-21.6	PK	64	1.0	
11020.250	49.3	H	74.0	-24.7	PK	55	1.0	
11001.080	49.2	V	74.0	-24.8	PK	186	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the **average** limit was set to -27dBm/MHz (-68dBuV/m).

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

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: 5/6/2008 8:15
 Test Engineer: Suhaila Khushzad
 Test Location: SVOATS #1

Config. Used: 1
 Config Change: None
 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions: Temperature: 20 °C
 Rel. Humidity: 50 %

Summary of Results

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1	802.11a Chain A	5250-5350 Center	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	44.7dBµV/m @ 17418.9MHz (-9.3dB)
2	802.11a Chain A	5470-5725 Center	100%		Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15 E	45.9dBµV/m @ 17545.4MHz (-8.1dB)

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.

Note: Preliminary testing showed that there were no receiver related emissions below 1 GHz.

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run # 1, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5250-5350 MHz Band
Run #1a: Center Channel @ 5300 MHz, Rx Mode with Flat Omni

Spurious Radiated Emissions:

Frequency MHz	Level dBμV/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
17418.860	44.7	V	54.0	-9.3	AVG	0	1.0	
17072.280	44.1	H	54.0	-9.9	AVG	0	1.0	
15939.500	39.3	H	54.0	-14.7	AVG	118	1.0	
15934.410	39.1	V	54.0	-14.9	AVG	189	1.0	
10613.080	38.6	V	54.0	-15.4	AVG	98	1.0	
10619.000	38.5	H	54.0	-15.5	AVG	97	1.0	
17418.860	55.5	V	74.0	-18.5	PK	0	1.0	
17072.280	55.2	H	74.0	-18.8	PK	0	1.0	
15939.500	50.9	H	74.0	-23.1	PK	118	1.0	
10613.080	50.4	V	74.0	-23.6	PK	98	1.0	
15934.410	50.4	V	74.0	-23.6	PK	189	1.0	
10619.000	50.1	H	74.0	-23.9	PK	97	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run # 2, Radiated Spurious Emissions, 30 - 40,000 MH. Operation in the 5470-5725 MHz Band
Run #1a: Center Channel @ 5500 MHz, Rx Mode with Flat Omni

Spurious Radiated Emissions:

Frequency MHz	Level dB μ V/m	Pol v/h	15.209 / 15E		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
17545.410	45.9	H	54.0	-8.1	AVG	12	2.3	
17424.360	44.5	V	54.0	-9.5	AVG	204	1.0	
16470.330	41.2	H	54.0	-12.8	AVG	64	1.0	
16516.840	41.2	V	54.0	-12.8	AVG	173	1.0	
11001.920	38.1	V	54.0	-15.9	AVG	360	1.0	
10993.330	37.9	H	54.0	-16.1	AVG	350	1.0	
17545.410	57.6	H	74.0	-16.4	PK	12	2.3	
17424.360	55.5	V	74.0	-18.5	PK	204	1.0	
16470.330	52.5	H	74.0	-21.5	PK	64	1.0	
16516.840	52.4	V	74.0	-21.6	PK	173	1.0	
11001.920	50.4	V	74.0	-23.6	PK	360	1.0	
10993.330	49.1	H	74.0	-24.9	PK	350	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the average limit was set to -27dBm/MHz (-68dBuV/m).

Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, Bandwidth and Spurious Emissions

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: 5/5/2008 18:46
Test Engineer: Rafael Varelas
Test Location: Chamber #2

Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators and cables used.

Ambient Conditions: Temperature: 23.2 °C
 Rel. Humidity: 35 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	15.6dBm / 26mW
1	Power, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	12.5dBm / 18mW
1	PSD, 5250 - 5350MHz	15.407(a) (1), (2)	Pass	2.9 dBm/MHz
1	PSD, 5470 - 5725MHz	15.407(a) (1), (2)	Pass	-0.1 dBm/MHz
1	26dB Bandwidth	15.407	-	25.3 MHz
1	99% Bandwidth	RSS 210	-	17.4 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	11.6dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the 27dBm/MHz limit

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.

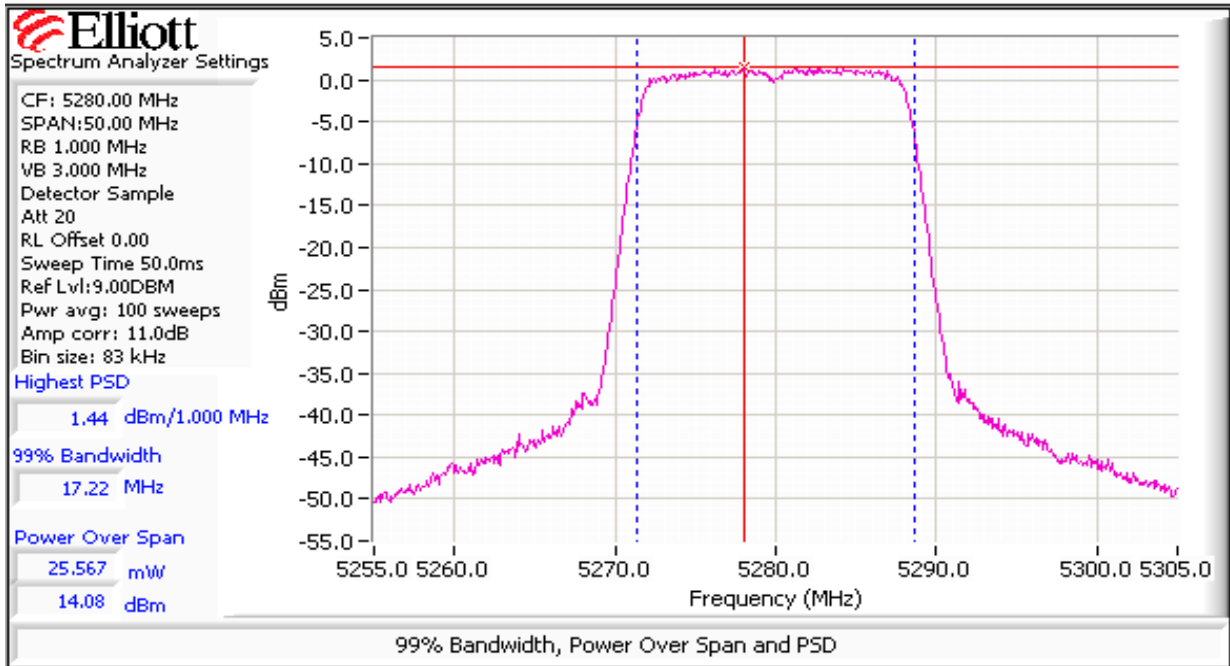
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

Run #1: Bandwidth, Output Power and Power spectral Density

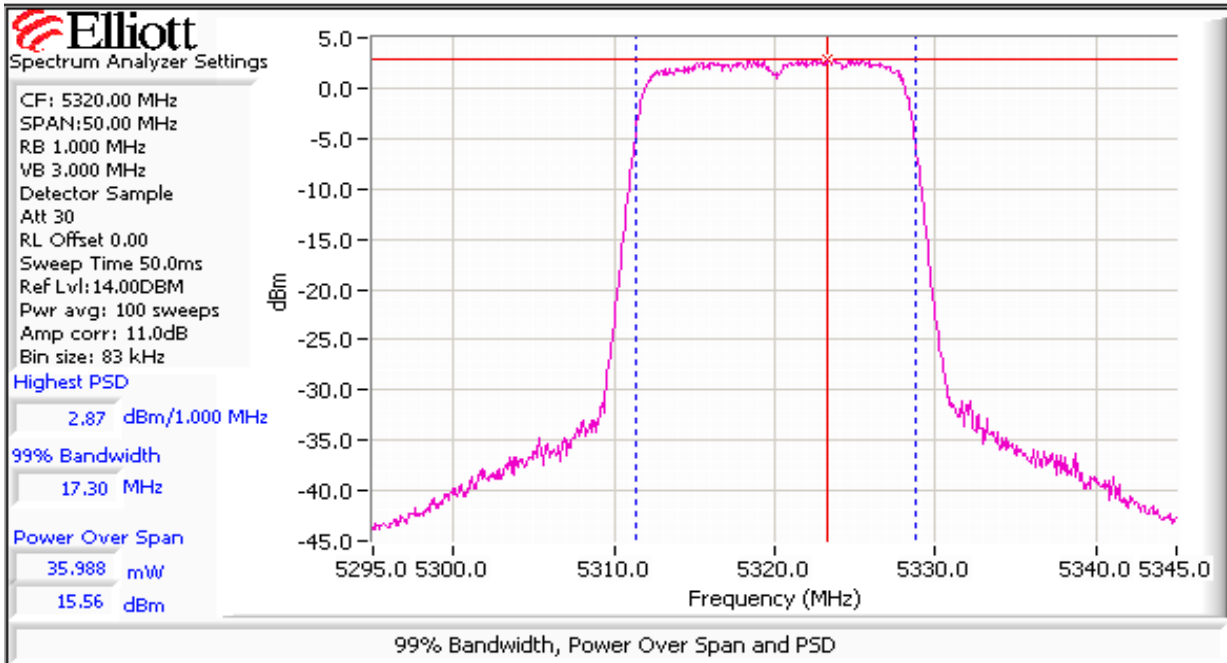
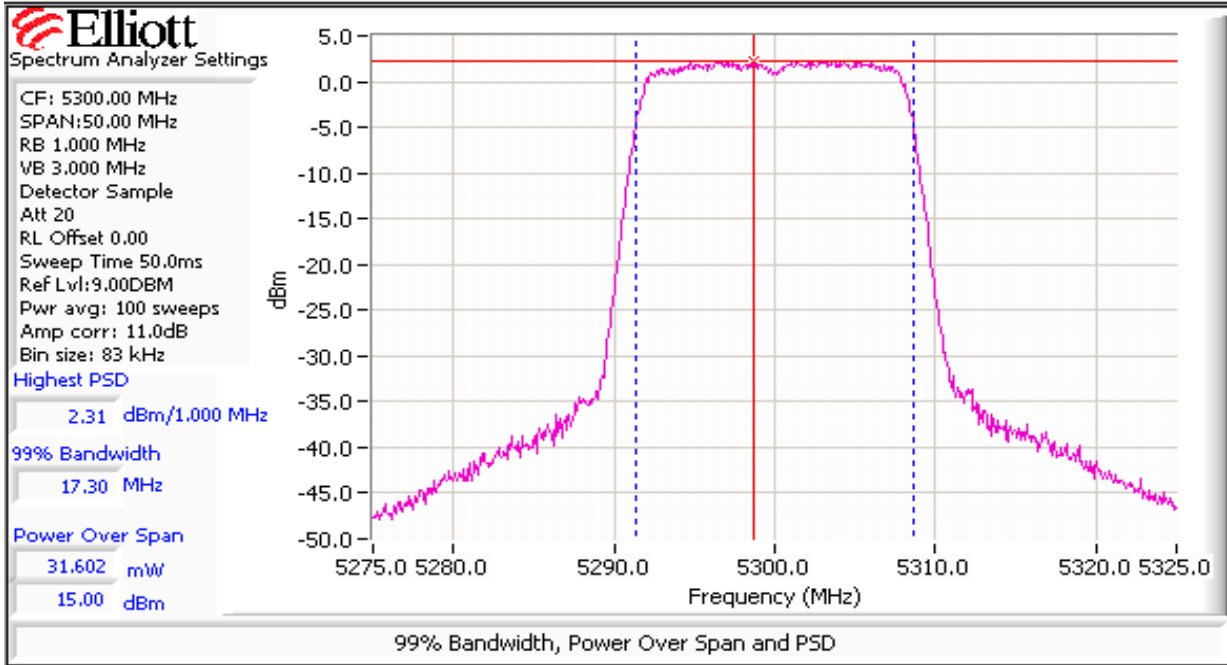
Antenna Gain (dBi): 5.1

Frequency (MHz)	Software Setting	Bandwidth		Output Power ¹ dBm		Power (Watts)	PSD ² dBm/MHz			Result
		26dB	99% ⁴	Measured	Limit		Measured	FCC Limit	RSS Limit ³	
5280	Full	21.0	17.2	14.1	24.0	0.026	1.4	11.0	11.0	Pass
5300	Full	24.4	17.3	15.0	24.0	0.032	2.3	11.0	11.0	Pass
5320	Full	25.3	17.3	15.6	24.0	0.036	2.9	11.0	11.0	Pass
5500	Full	21.3	17.3	12.5	24.0	0.018	-0.1	11.0	11.0	Pass
5600	Full	21.3	17.3	12.2	24.0	0.017	-0.3	11.0	11.0	Pass
5700	Full	20.8	17.4	11.0	24.0	0.013	-1.5	11.0	11.0	Pass

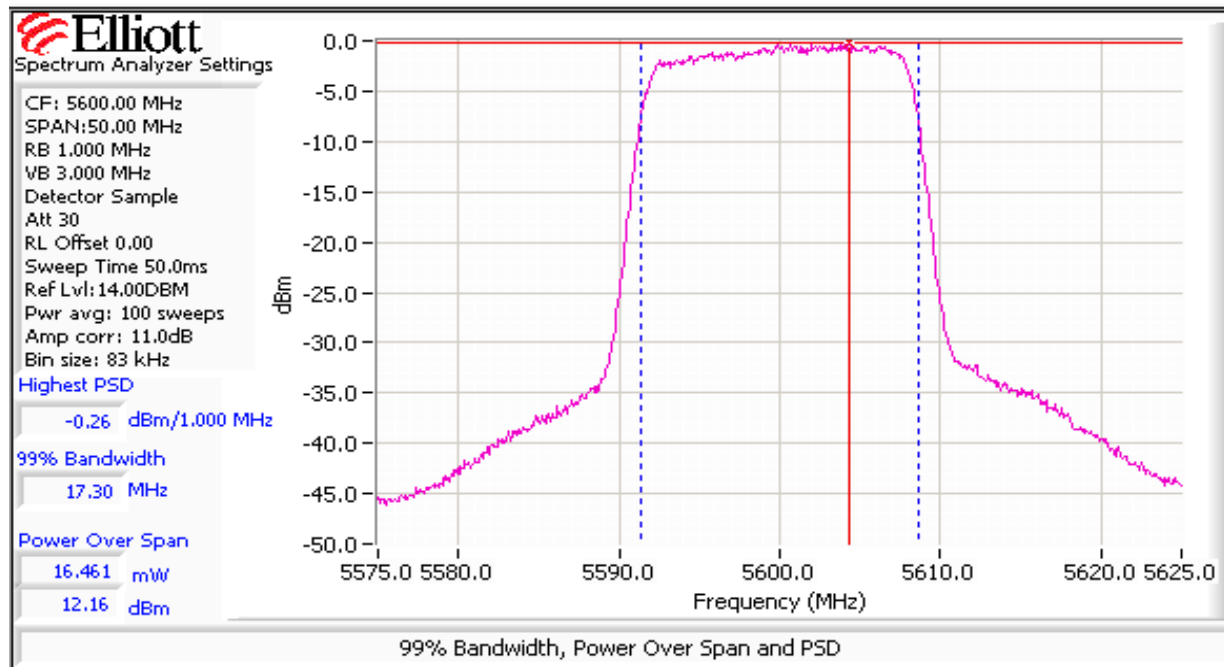
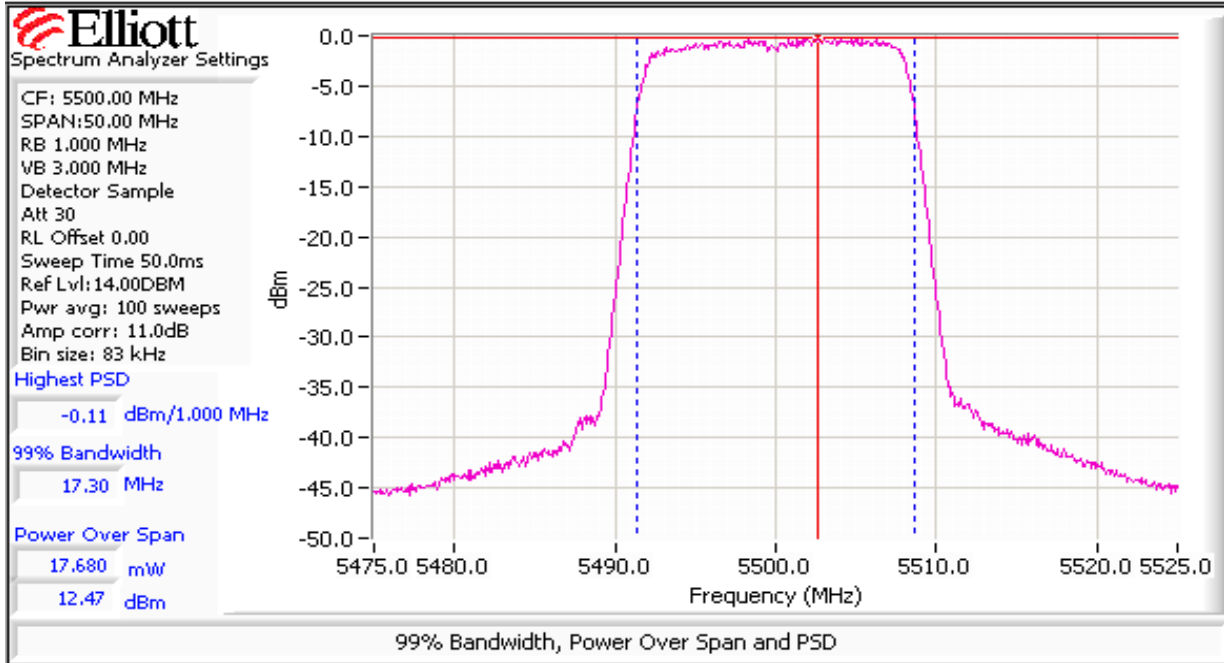
- Note 1: Output power measured using a spectrum analyzer (see plots below):
RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz
- Note 2: Measured using the same analyzer settings used for output power.
- Note 3: For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
- Note 4: 99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB



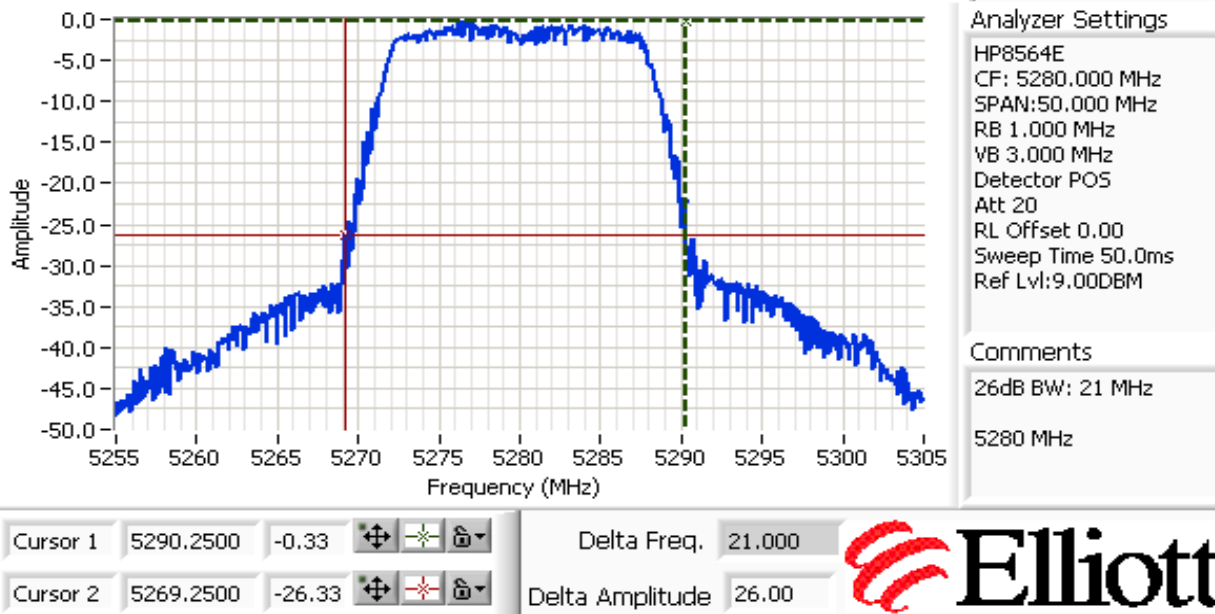
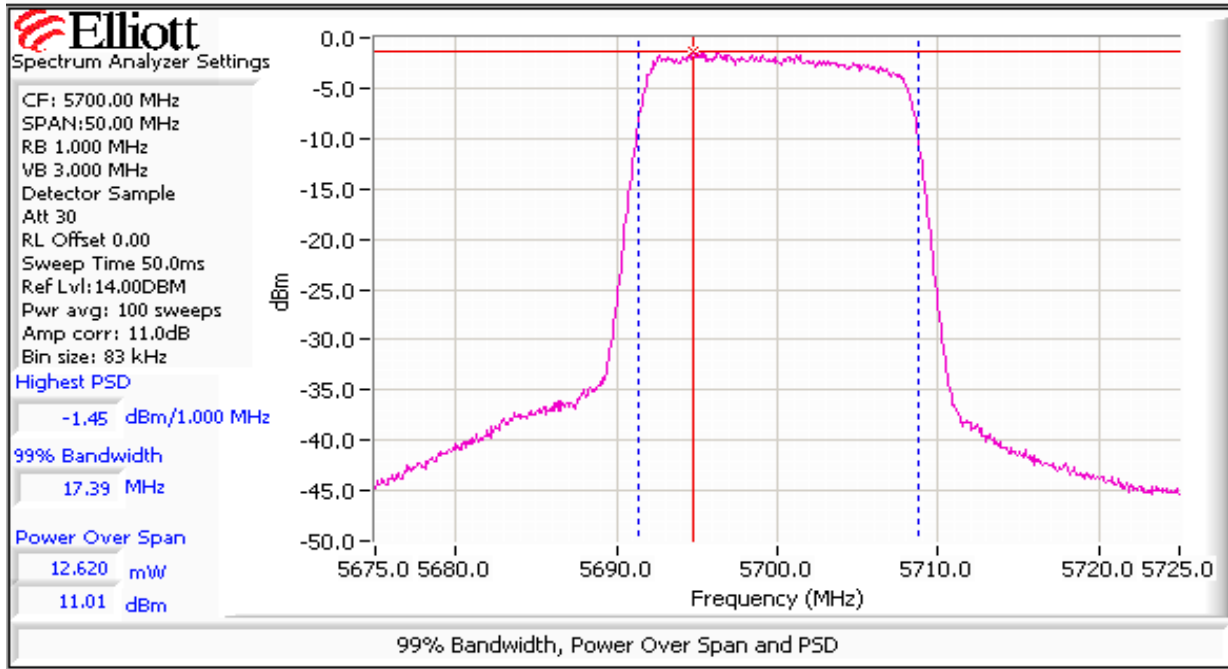
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



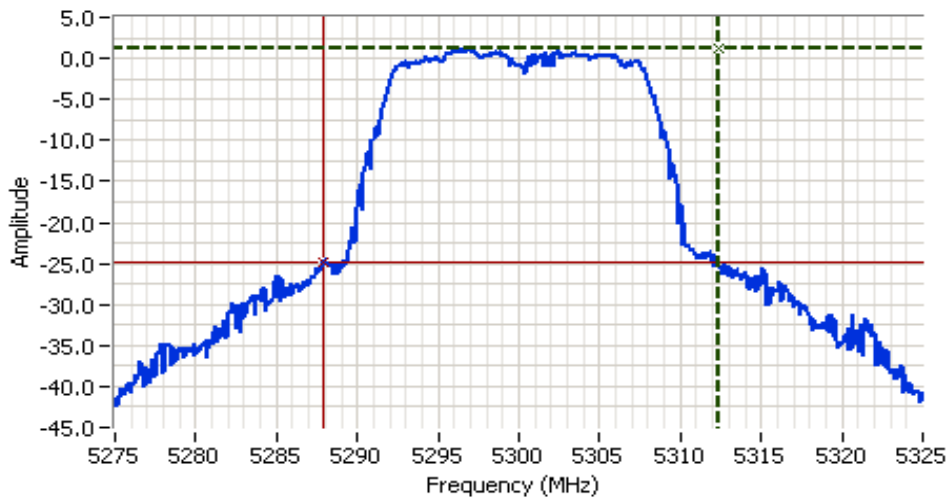
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



Analyzer Settings

HP8564E
 CF: 5300.000 MHz
 SPAN: 50.000 MHz
 RB 1.000 MHz
 VB 3.000 MHz
 Detector POS
 Att 20
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl: 9.00DBM

Comments

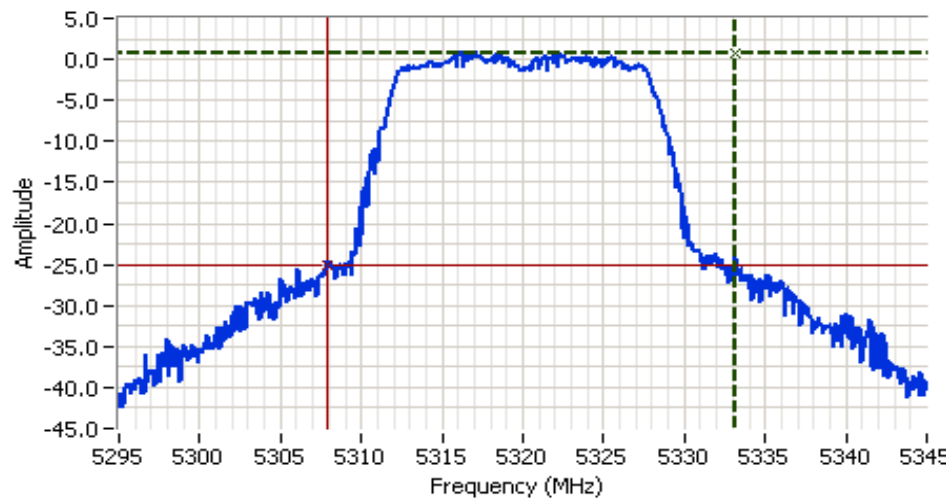
26dB BW: 24.417 MHz
 5300 MHz

Cursor 1 5312.3333 1.17 

Cursor 2 5287.9167 -24.83 

Delta Freq. 24.417

Delta Amplitude 26.00



Analyzer Settings

HP8564E
 CF: 5320.000 MHz
 SPAN: 50.000 MHz
 RB 1.000 MHz
 VB 3.000 MHz
 Detector POS
 Att 30
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl: 14.00DBM

Comments

26dB BW: 25.250 MHz
 5320 MHz

Cursor 1 5333.1667 0.83 

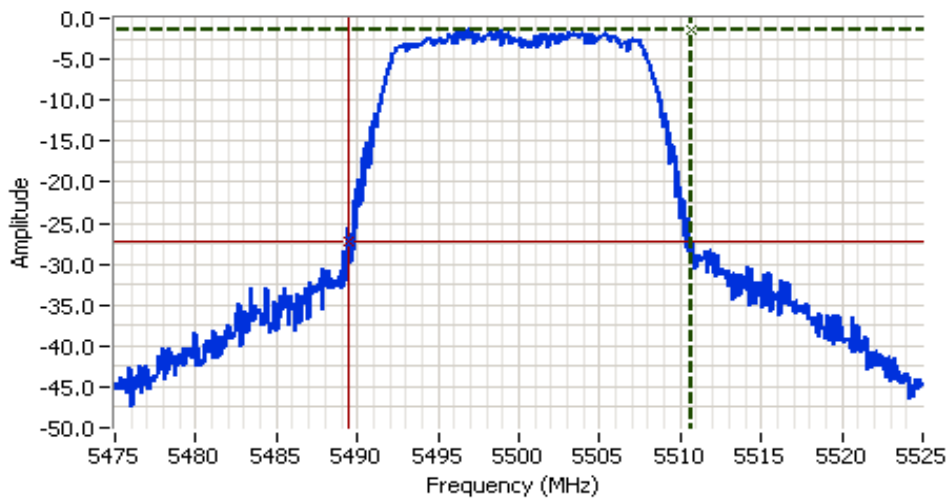
Cursor 2 5307.9167 -25.17 

Delta Freq. 25.250

Delta Amplitude 26.00



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A



Analyzer Settings

HP8564E
 CF: 5500.000 MHz
 SPAN:50.000 MHz
 RB 1.000 MHz
 VB 3.000 MHz
 Detector POS
 Att 30
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl:14.00DBM

Comments

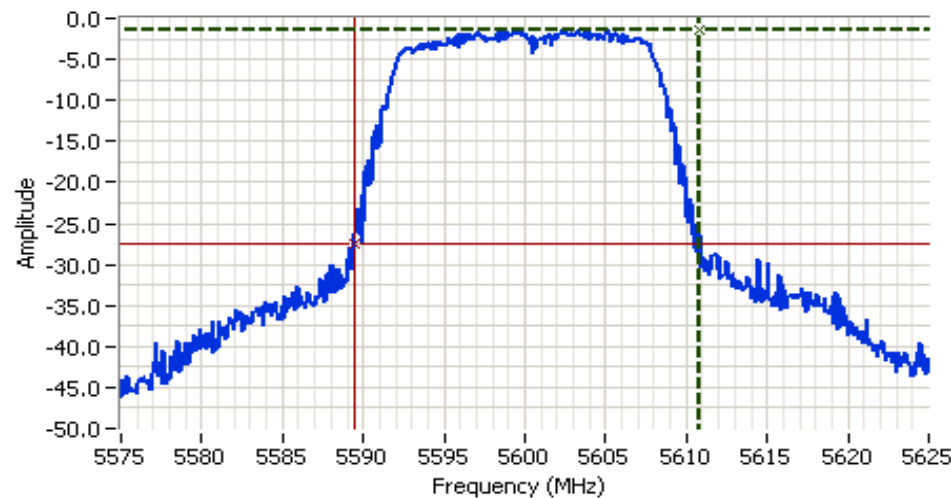
26dB BW: 21.250 MHz
 5500 MHz

Cursor 1 5510.6667 -1.33

Cursor 2 5489.4167 -27.33

Delta Freq. 21.250

Delta Amplitude 26.00



Analyzer Settings

HP8564E
 CF: 5600.000 MHz
 SPAN:50.000 MHz
 RB 1.000 MHz
 VB 3.000 MHz
 Detector POS
 Att 30
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl:14.00DBM

Comments

26dB BW: 21.33 MHz
 5600 MHz

Cursor 1 5610.8333 -1.50

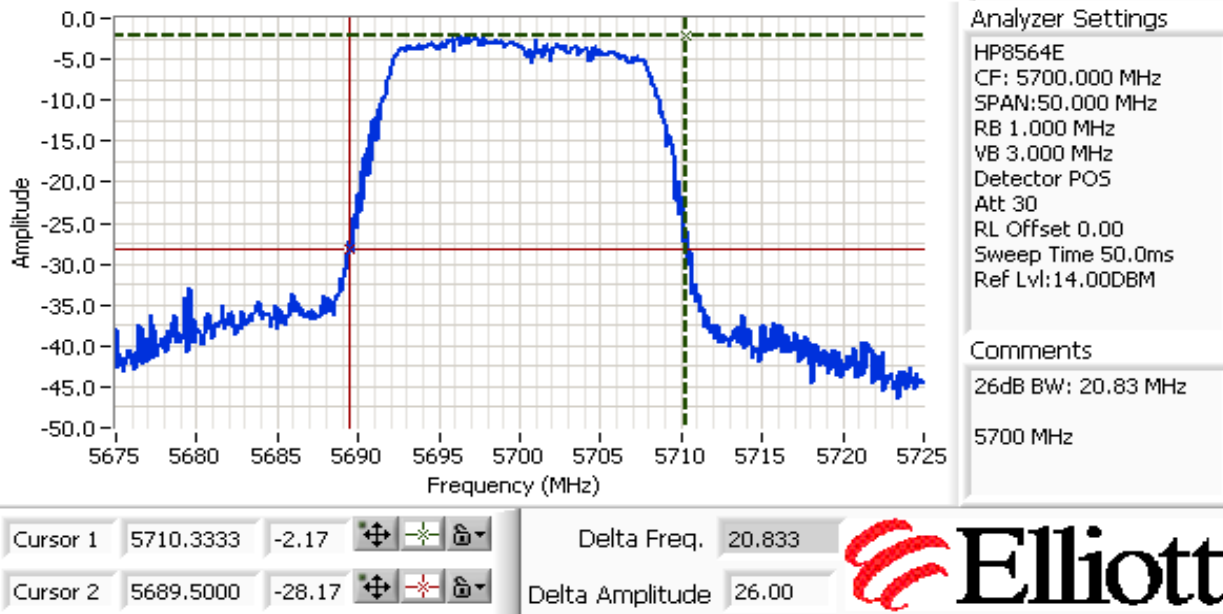
Cursor 2 5589.5000 -27.50

Delta Freq. 21.333

Delta Amplitude 26.00



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



Power measurements taken using an average power meter for reference only

Frequency (MHz)	Software Setting	Output Power dBm		Power (Watts)
		Measured	Limit	
5280	Full	14.4	-	0.028
5300	Full	14.8	-	0.030
5320	Full	14.6	-	0.029
5500	Full	11.8	-	0.015
5600	Full	11.2	-	0.013
5700	Full	11.0	-	0.013

Client:	Summit Data Communications	Job Number:	J71524
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		Account Manager:	Dean Eriksen
Contact:	Ron Seide		
Standard:	FCC	Class:	N/A

Run #2: Peak Excursion Measurement

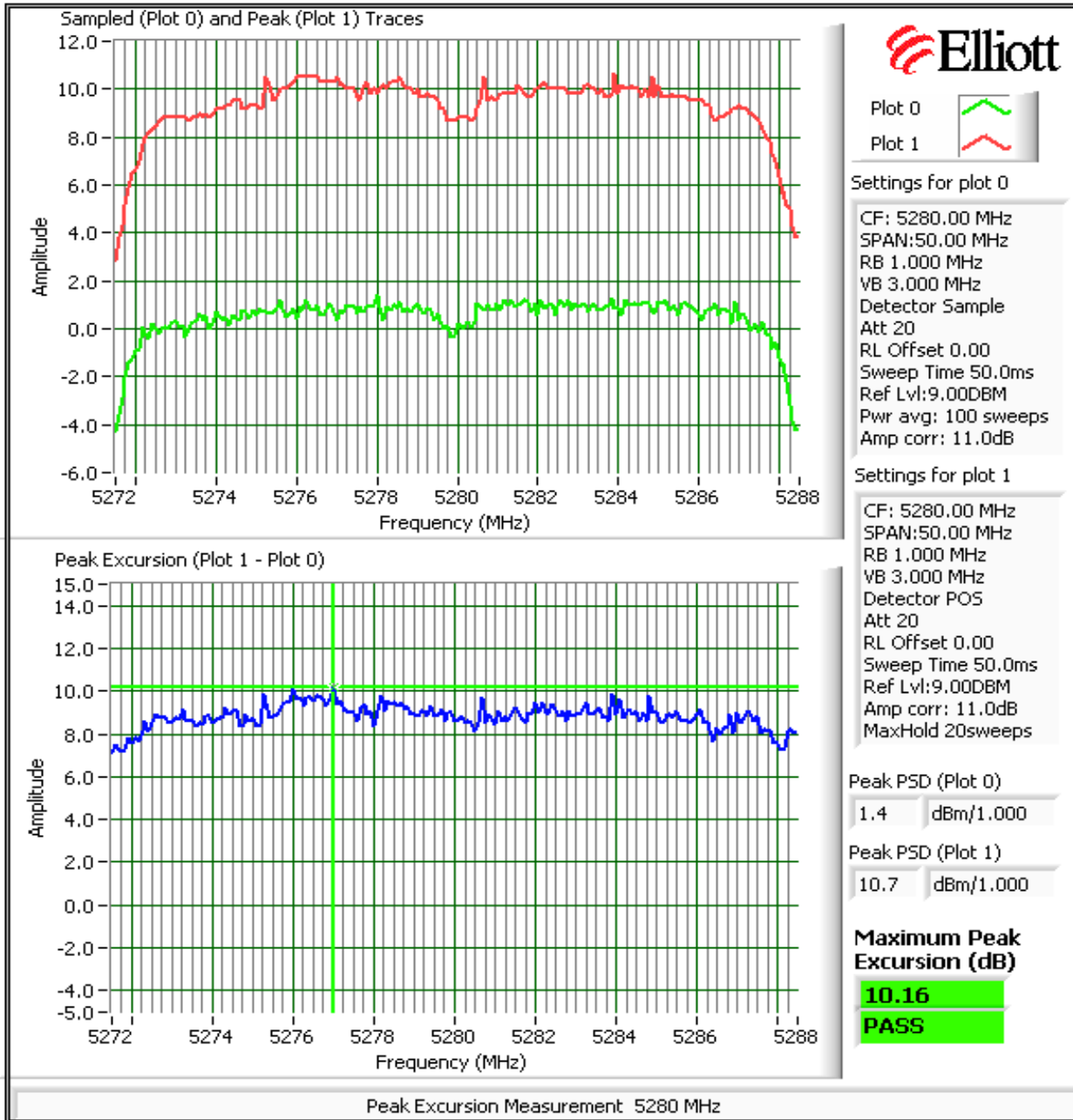
Device meets the requirement for the peak excursion

Freq		Peak Excursion(dB)		Freq		Peak Excursion(dB)		Freq		Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180		13.0	5280	10.2	13.0	5500	11.6	13.0			
5200		13.0	5300	10.8	13.0	5600	10.2	13.0			
5240		13.0	5320	11.0	13.0	5700	11.0	13.0			

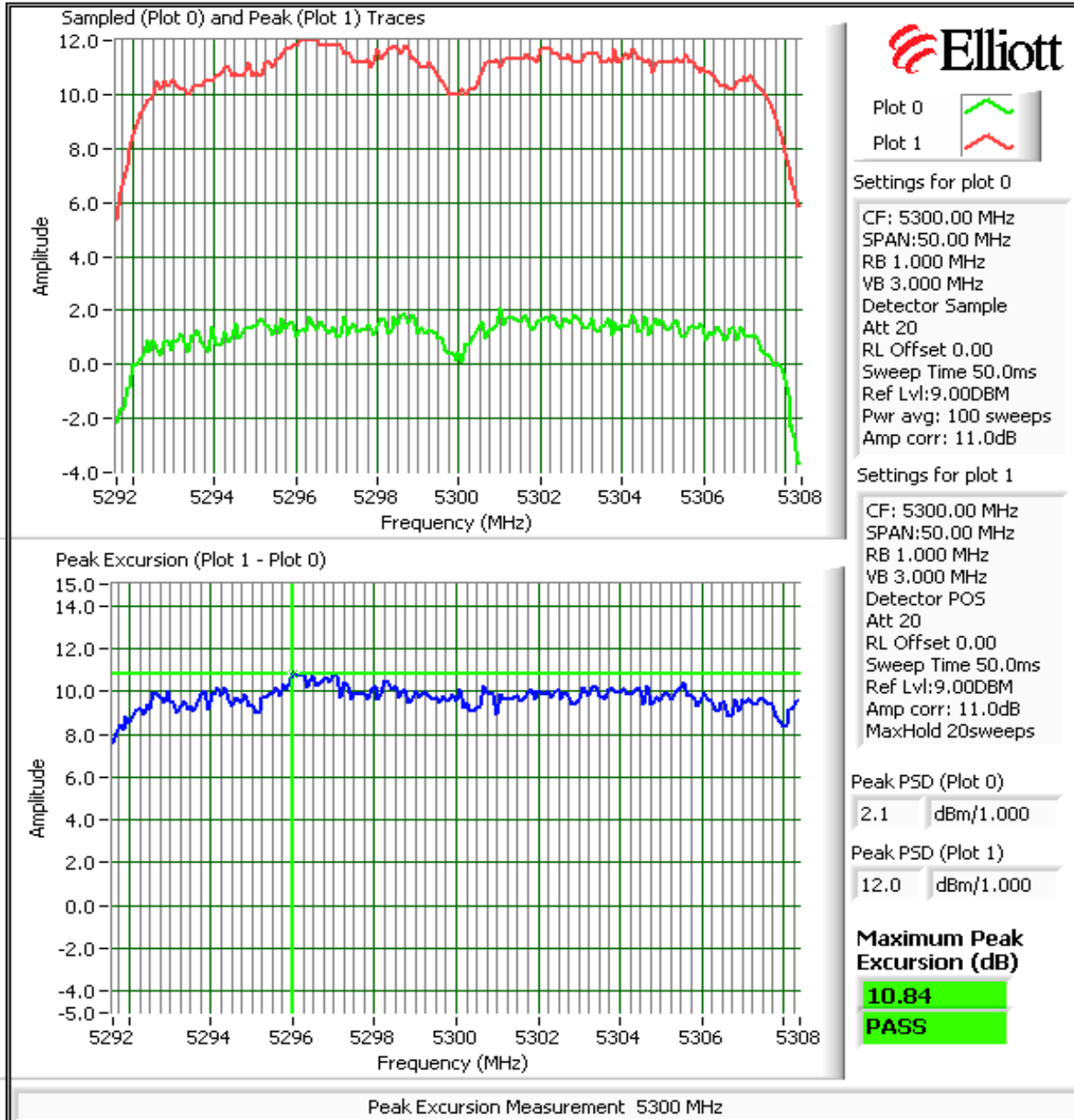
Plots Showing Peak Excursion

Trace A: RBW = VBW = 3MHz, Peak hold
Trace B: RBW = 1 MHz, VBW = 3MHz, Integrated average power

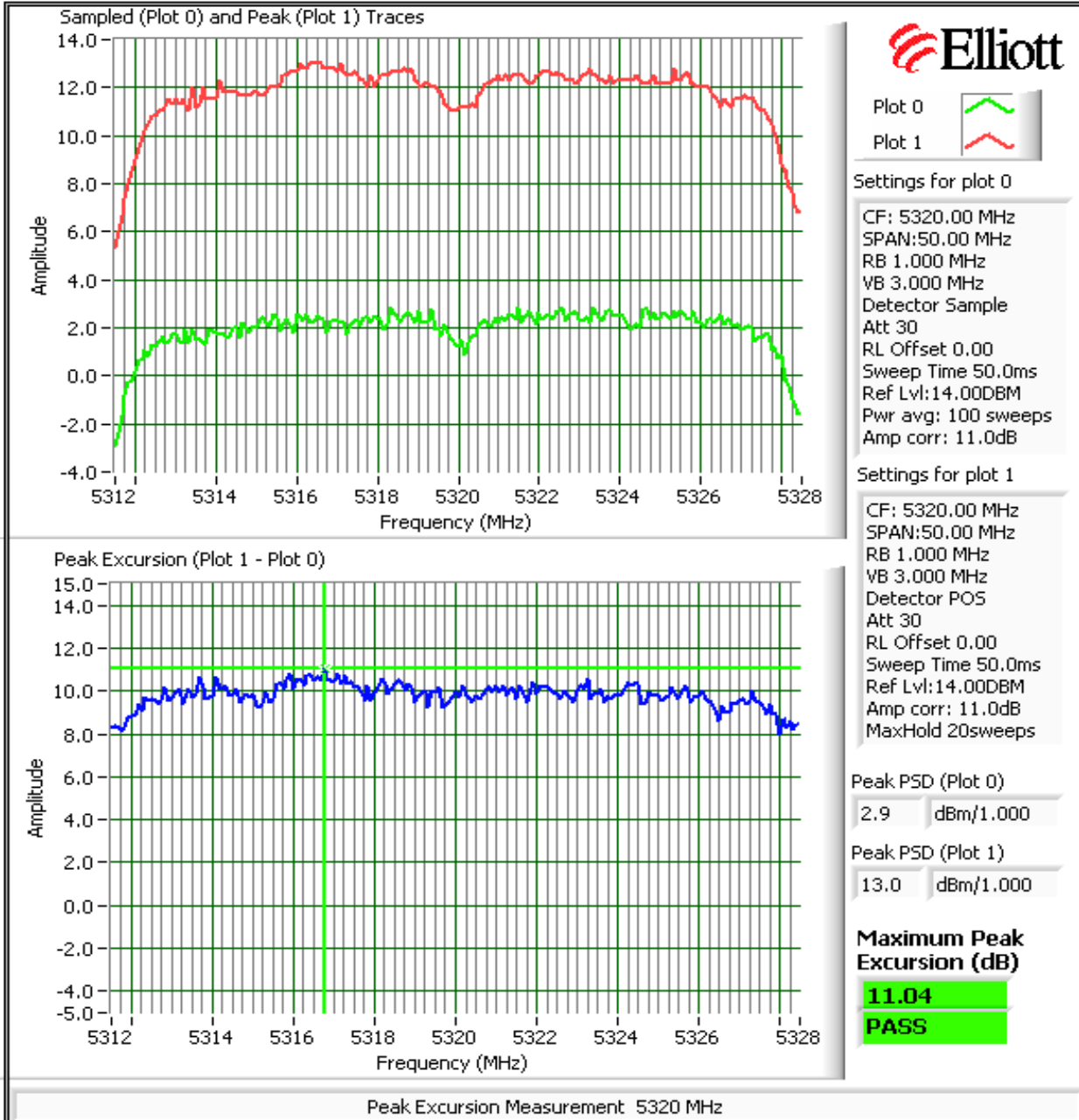
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A



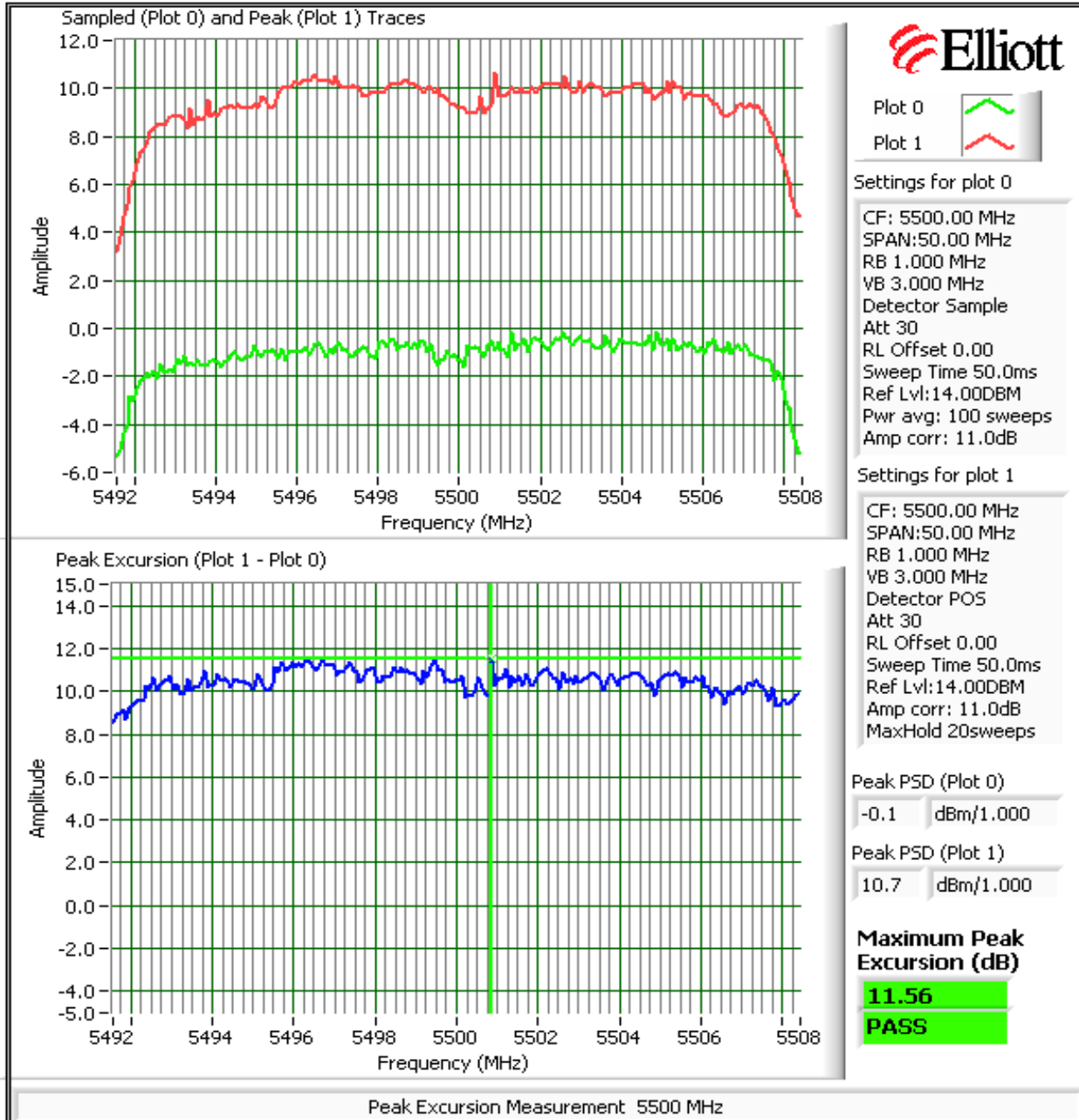
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A



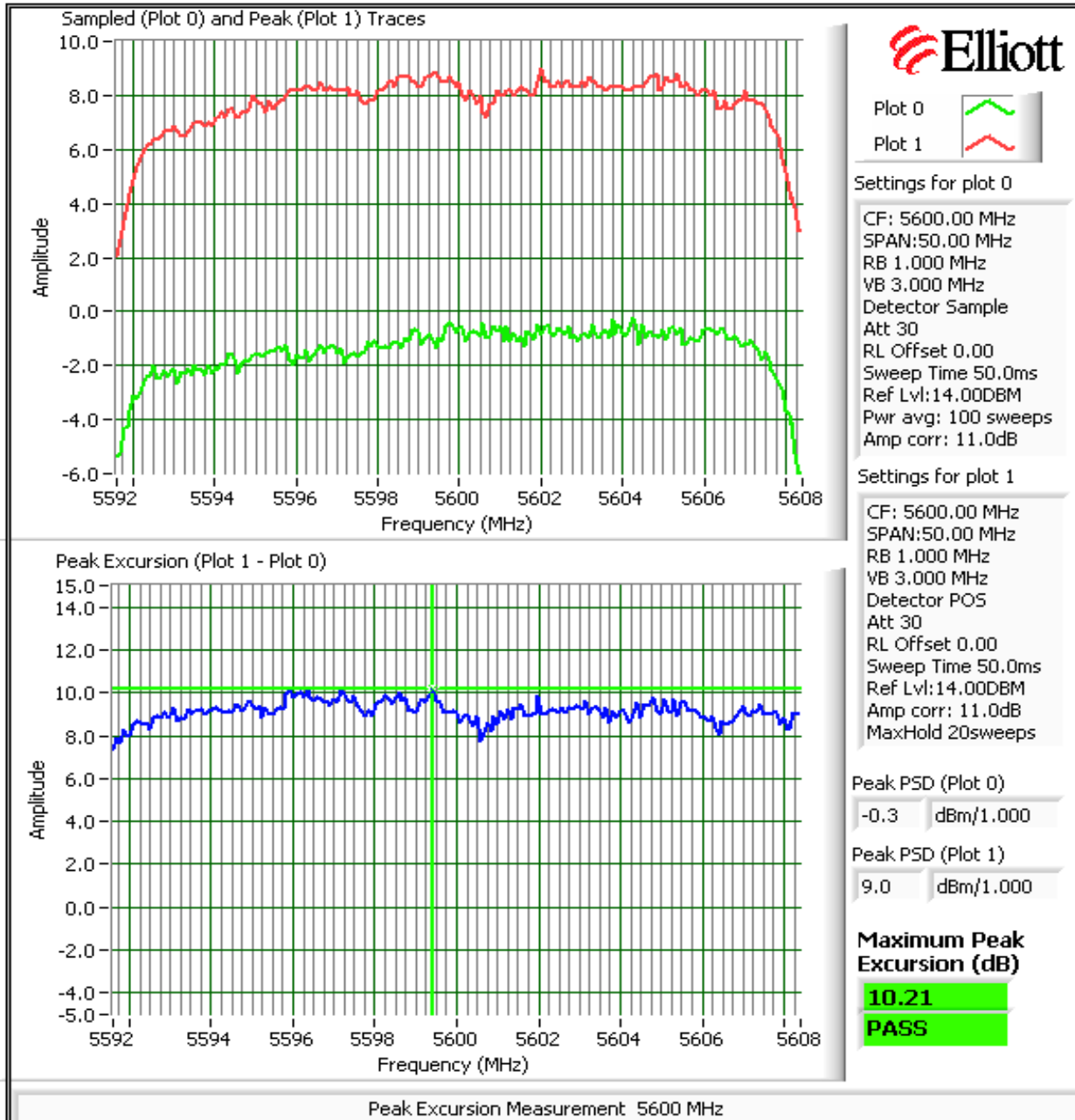
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



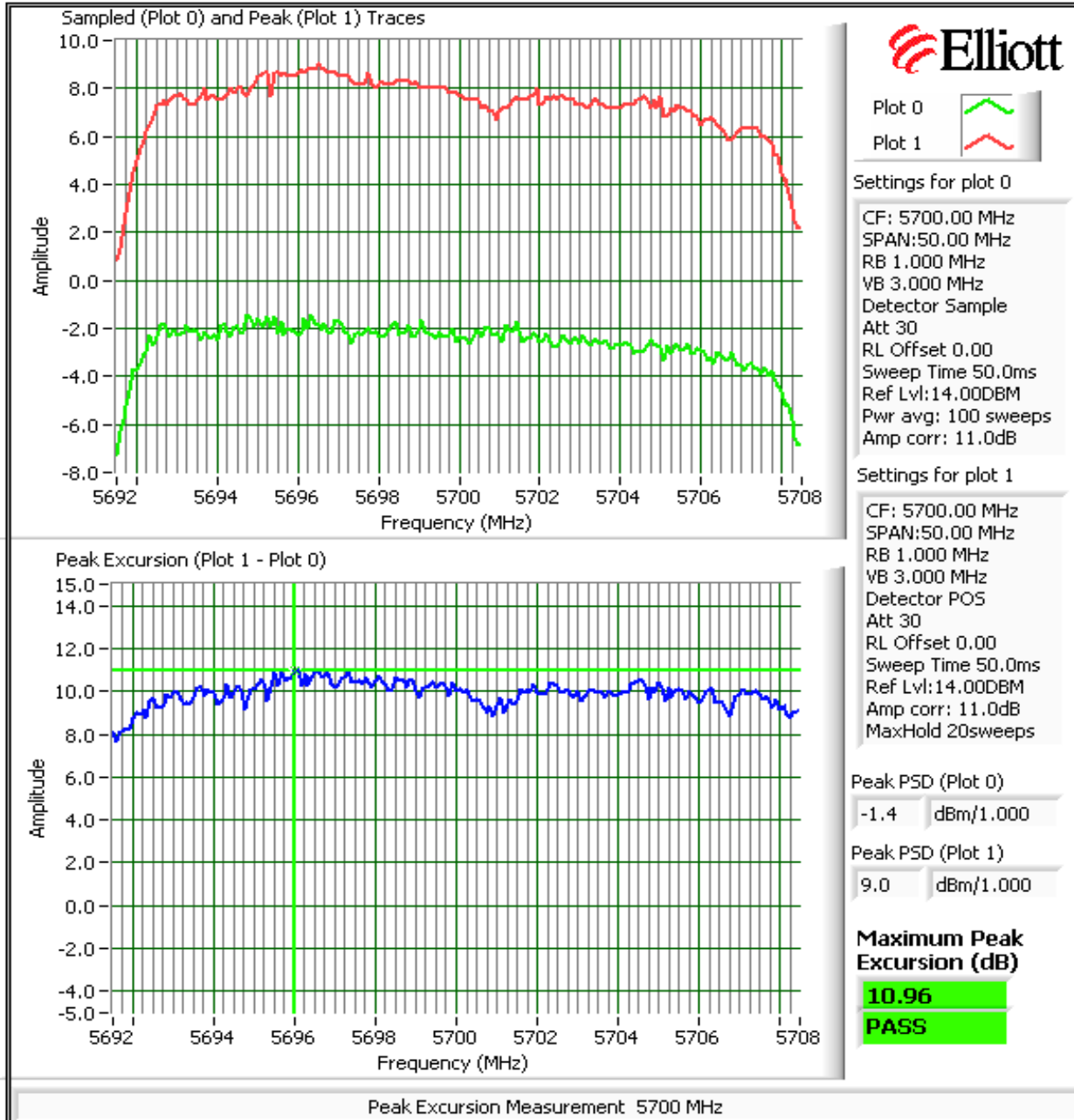
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
Contact: Ron Seide	Account Manager: Dean Eriksen
Standard: FCC	Class: N/A



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A



Client:	Summit Data Communications	Job Number:	J71524
Model:	SDC-CF00AG(DFS Bands)	T-Log Number:	T71529
Contact:	Ron Seide	Account Manager:	Dean Eriksen
Standard:	FCC	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted			
Maximum Antenna Gain:	5.1 dBi		
Spurious Limit:	-27.0 dBm/MHz eirp		
Limit Used On Plots ^{Note 1} :	-32.1 dBm/MHz	Average Limit (RB=1MHz, VB=10Hz)	
	-12.1 dBm/MHz	Peak Limit (RB=VB=1MHz)	

Note 1: The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.

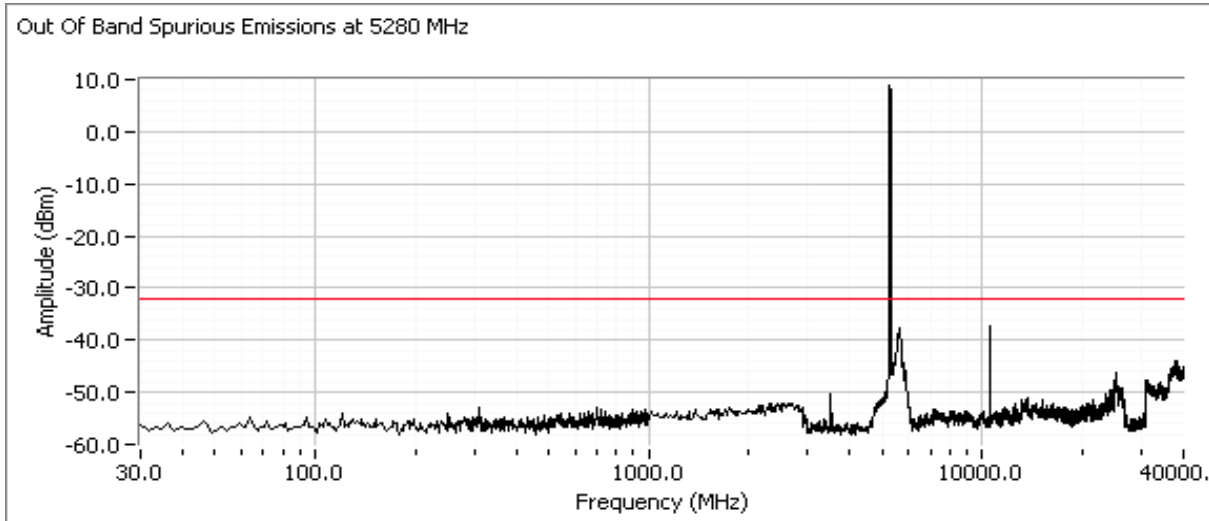
Note 2: All spurious signals below 1GHz are measured during digital device radiated emissions test.

Note 5: Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)

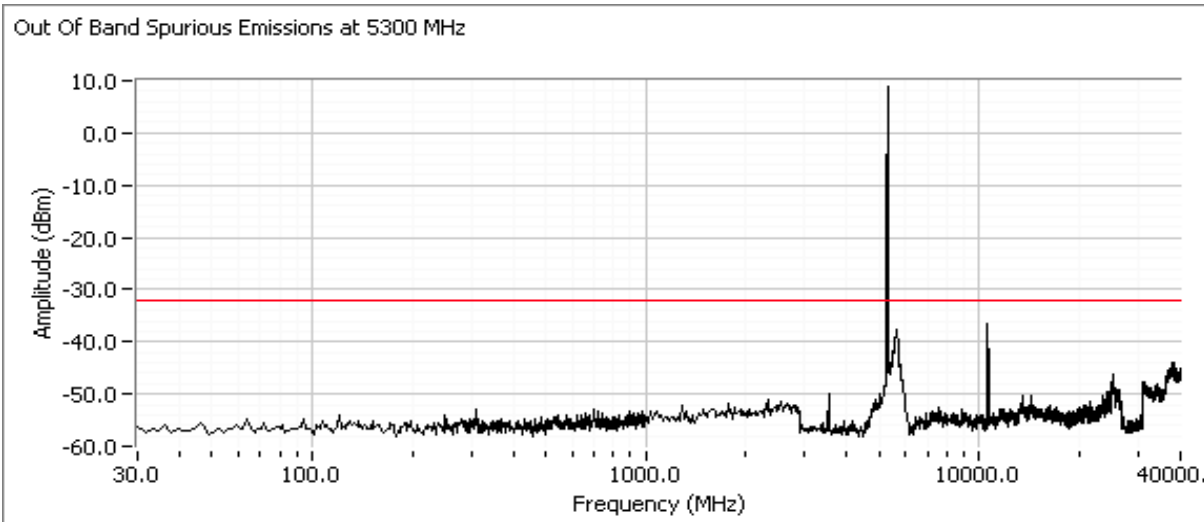
Low channel, 5250 - 5350 MHz Band

Note: If device does not operate in the 5150 - 5250 MHz band include a plot showing compliance with the limit in the 5150 - 5250 MHz band.



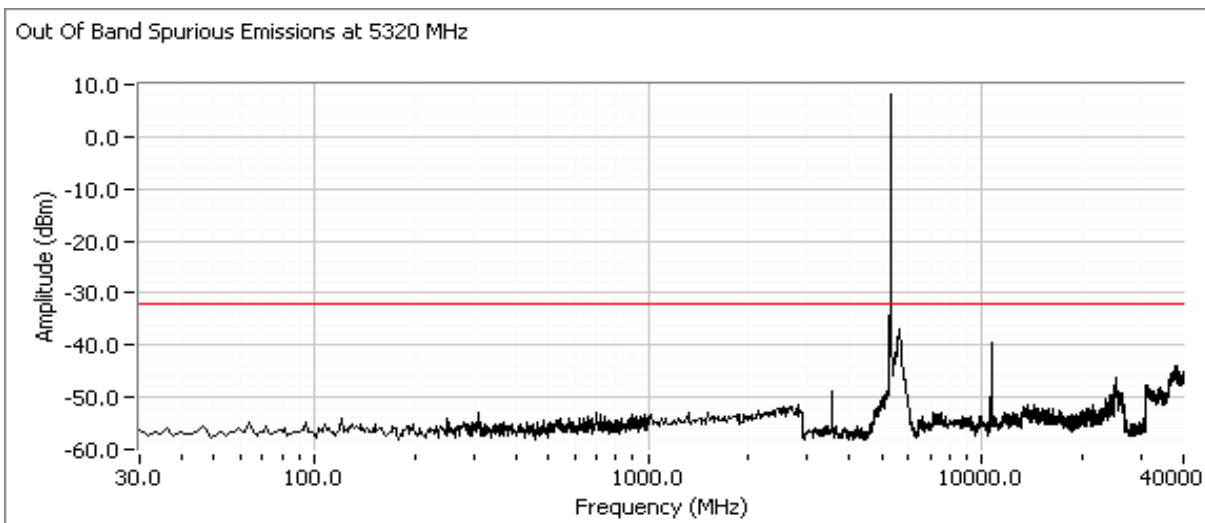
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

Center channel, 5250 - 5350 MHz Band



High channel, 5250 - 5350 MHz Band

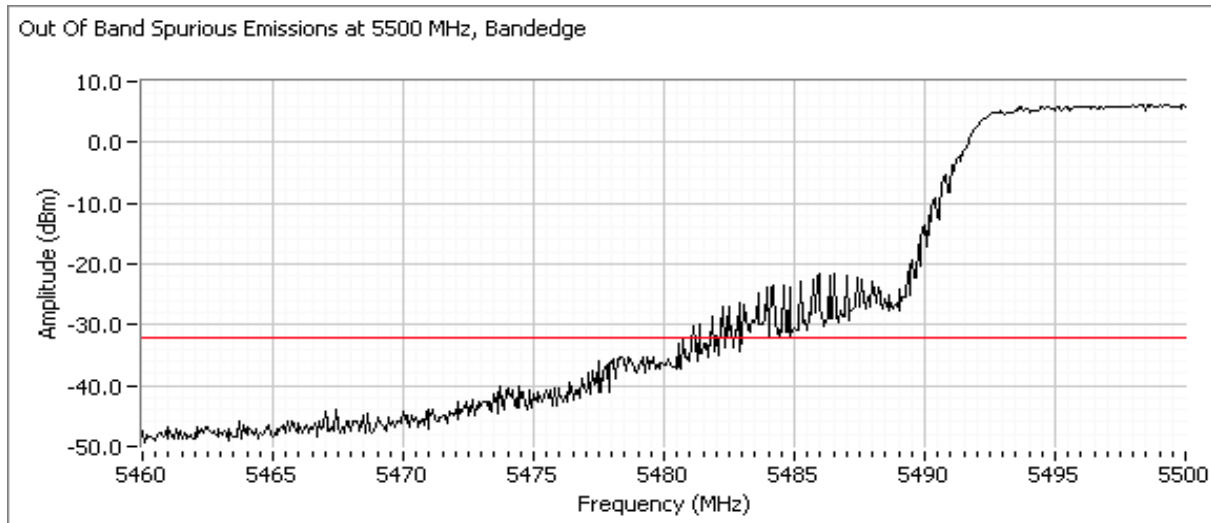
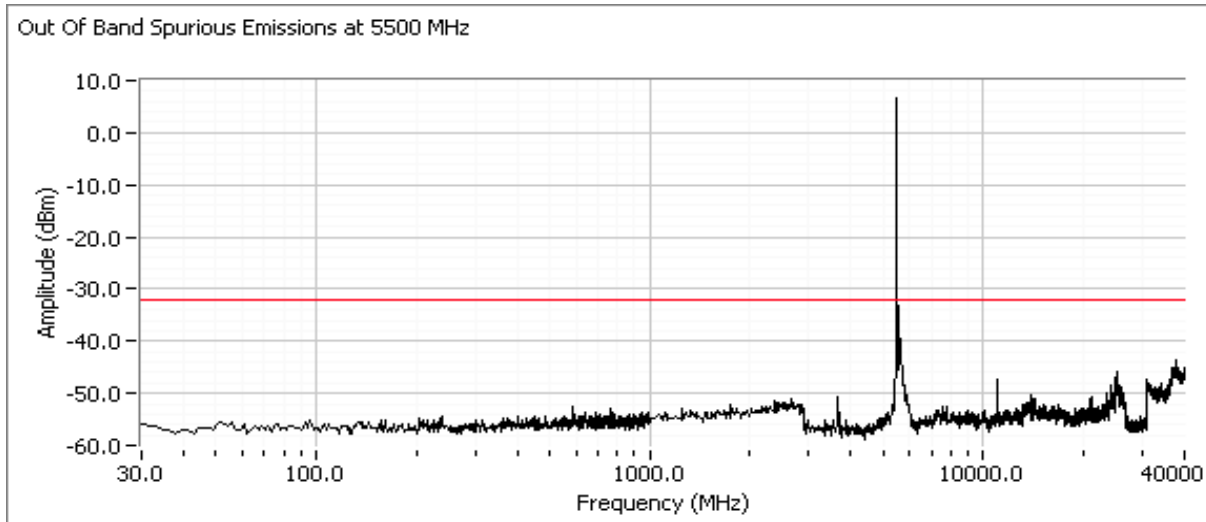
Compliance with the radiated limits for the restricted band immediately above 5350MHz is demonstrated through the radiated emissions tests.



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
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Standard: FCC	Class: N/A

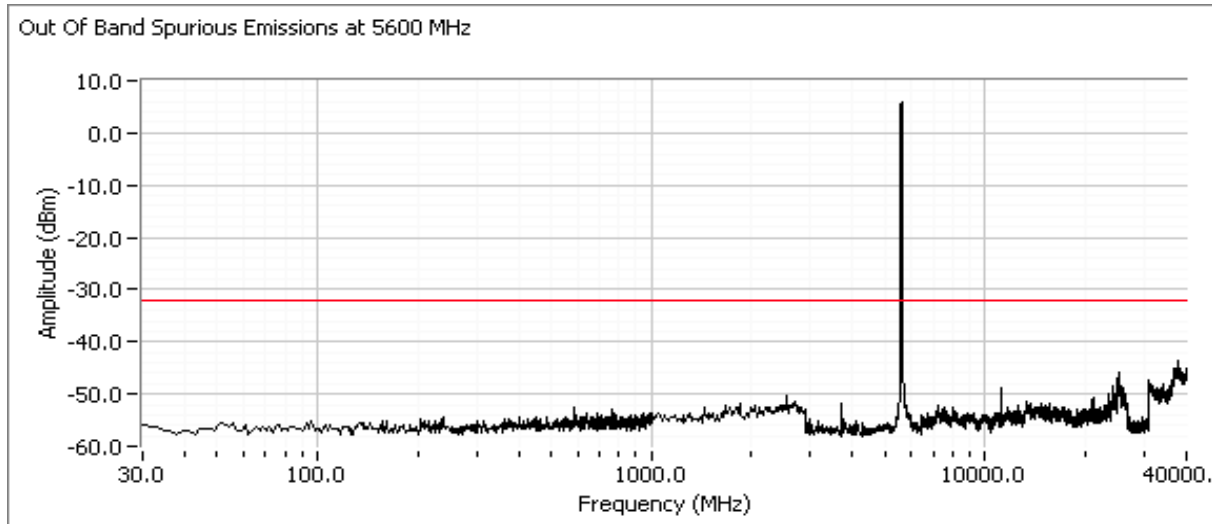
Low channel, 5470 - 5725 MHz Band

Includes a plot from 5460 - 5500 MHz showing compliance with the limit immediately below the allocated band from 5460-5470 MHz. Compliance with the radiated limits for the restricted band below 5460 MHz is demonstrated through the radiated emissions tests.



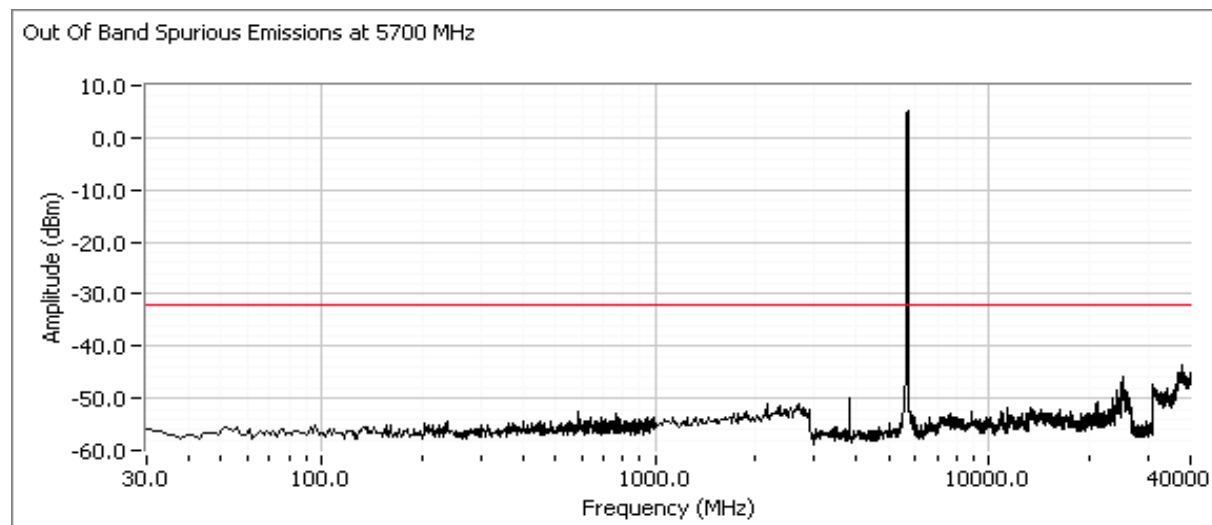
Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

Center channel, 5470 - 5725 MHz Band



High channel, 5470 - 5725 MHz Band

Includes a plot from 5700 - 5780 MHz showing compliance with the limit immediately above the allocated band.



Client: Summit Data Communications	Job Number: J71524
Model: SDC-CF00AG(DFS Bands)	T-Log Number: T71529
	Account Manager: Dean Eriksen
Contact: Ron Seide	
Standard: FCC	Class: N/A

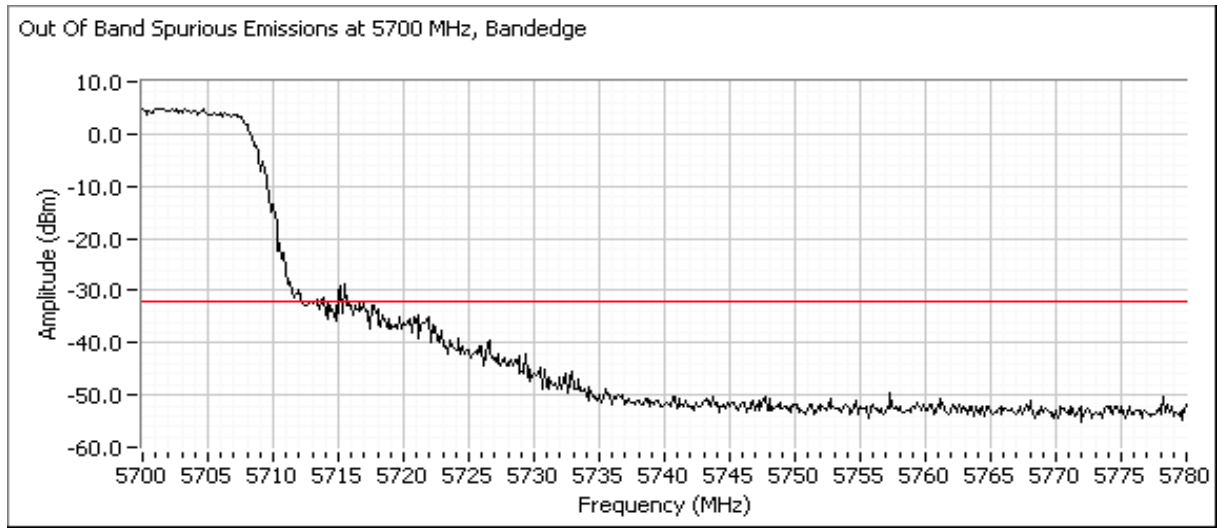


EXHIBIT 3: Photographs of Test Configurations

EXHIBIT 4: Proposed FCC ID Label & Label Location

Unchanged from previous application

***EXHIBIT 5: Detailed Photographs
of Summit Data Communications, Inc. Model SDC-CF10AG Construction***

Unchanged from previous application

***EXHIBIT 6: Operator's Manual
for Summit Data Communications, Inc. Model SDC-CF10AG***

***EXHIBIT 7: Block Diagram
of Summit Data Communications, Inc. Model SDC-CF10AG***

Unchanged from previous application

***EXHIBIT 8: Schematic Diagrams
for Summit Data Communications, Inc. Model SDC-CF10AG***

Unchanged from previous application

***EXHIBIT 9: Theory of Operation
for Summit Data Communications, Inc. Model SDC-CF10AG***

EXHIBIT 10: RF Exposure Information