Test Certificate

A sample of the following product received on February 23, 2009 and tested on February 23, March 6, 11, 12, 16 and 17, 2009 complied with the requirements of

- **EN 301 893 V1.5.1 "Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive"**

given the measurement uncertainties detailed in Elliott report R87166.

Summit Data Communications
802.11abg Compact Flash Card model SDC-MCF10AG

Mark E Hill
Staff Engineer

Summit Data Communications

Printed Name

ACCREDITED
Testing Cert #0214.26

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Radio Test Report

EN 301 893 V1.5.1
ElectroMagnetic Compatibility and Radio spectrum Matters (ERM); Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN

802.11abg Compact Flash Card model SDC-MCF10AG

COMPANY:	Summit Data Communications 526 South Main St. Suite 805 Akron, OH 44311
TEST SITE(S):	Elliott Laboratories 684 West Maude Ave. Sunnyvale, CA. 94085
REPORT DATE:	April 25, 2012
FINAL TEST DATES:	February 23, March 6, 11, 12, 16 and 17, 2009
TOTAL NUMBER OF PAGES:	62

PROGRAM MGR / TECHNICAL REVIEWER:	QUALITY ASSURANCE DELEGATE / FINAL REPORT PREPARER:
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ACCREDITED
Testing Cert #0214.26

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	4-25-2012	First release	

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SCOPE

The European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI) publish standards regarding ElectroMagnetic Compatibility and Radio spectrum Matters for radio-communications devices.

Tests have been performed on the Summit Data Communications 802.11abg Compact Flash Card model SDC-MCF10AG, pursuant to the relevant requirements of the following harmonized EN standard(s) covering essential requirements under article 3.2 of the R&TTE Directive:

- EN 301 893 V1.5.1 "Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive"

OBJECTIVE

The objective of the manufacturer is to comply with the harmonized standards identified in the previous section. In the case of most equipment, this document requires testing to other EN specifications. In order to demonstrate compliance, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.

STATEMENT OF COMPLIANCE

The tested sample of Summit Data Communications 802.11abg Compact Flash Card model SDC-MCF10AG complied with the requirements of:

EN 301 893 V1.5.1

The test results recorded herein are based on a single type test of Summit Data Communications 802.11abg Compact Flash Card model SDC-MCF10AG and therefore apply only to the tested sample. The sample was selected and prepared by Sue White of Summit Data Communications.

Maintenance of compliance is the responsibility of the manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

DEVIATIONS FROM THE STANDARDS

No deviations were made from the published requirements listed in the scope of this report.

TEST RESULTS

EN 301 893 V1.5.1

Section	Description	Channel	Measured Value	Limit	Result
4.2.2	Centre Frequencies	5180MHz 5320MHz 5500MHz 5700MHz	Error = 18.2 ppm	+/- 20ppm	Complies
Mode 1					
4.3.2	Nominal Channel Bandwidth and Occupied Channel Bandwidth	5180MHz 5320MHz 5500MHz 5700MHz	802.11a: 16.49 MHz	80-100% of the nominal channel bandwidth	Complies
4.4.2.1	RF output power and power density at the highest power level (5150-5350 MHz)	5180MHz 5320MHz	18.5 dBm	23.0 dBm	Complies
			5.4 dBm/MHz	10 dBm/MHz	Complies
	RF output power and power density at the highest power level (5470-5725MHz)	5500MHz 5700MHz	20.9 dBm	30.0 dBm	Complies
			3.0 dBm/MHz	17 dBm/MHz	Complies
4.4.2.2	RF output power at the lowest power level of the TPC range	5180MHz 5320MHz	No TPC		N/A
		5180MHz 5320MHz			
4.5.2	Transmitter In-Band Spurious Emissions	5180MHz 5320MHz 5500MHz 5700MHz	complied with the mask	Figure 2 Spectral mask	Complies
Spurious Emissions - Worst-case value for all modes					
4.5.1.2	Transmitter Out-Of Band Conducted Spurious Emissions	5180MHz 5320MHz 5500MHz 5700MHz	-41.2 dBm @ 15540.5 MHz (-11.2 dB)	Table 4	Complies
	Transmitter Out-Of Band Radiated Spurious Emissions		-62.4dBm @ 489MHz (-8.4dB)	Table 4	Complies
4.6	Receiver Conducted Spurious Emissions	5180MHz 5320MHz 5500MHz 5700MHz	> 15dBm below the limit	25 – 1000 MHz: -57dBm 1 – 26.5 GHz: -47dBm	Complies
	Receiver Radiated Spurious Emissions		-58.8dBm @ 310.5MHz (-1.8dB)		Complies
DFS Requirements					
4.7.2	DFS operational modes	-	Client Device	See Elliott Report – R87167	Complies

EXTREME CONDITIONS

Voltage extremes used during testing were those for AC-powered equipment, +/-10% of nominal.

Temperature extremes used during testing were those for unrestricted use, -10°C to +55°C.

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 (based on a coverage factor (k=2) and were calculated in accordance with NAMAS document NIS 81 and M3003.

Measurement Type	Measurement Unit	Frequency Range	Expanded Uncertainty
RF frequency	Hz	25 to 7000 MHz	1.7×10^{-7}
RF power, conducted	dBm	25 to 7000 MHz	± 0.52 dB
Conducted emission of transmitter	dBm	25 to 26500 MHz	± 0.7 dB
Conducted emission of receiver	dBm	25 to 26500 MHz	± 0.7 dB
Radiated emission (substitution method)	dBm	25 to 26500 MHz	± 2.5 dB
Radiated emission (field strength)	dBµV/m	25 to 1000 MHz	± 3.6 dB
Transmitter switch off time	Seconds	-	0.1 sec

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Summit Data Communications 802.11abg Compact Flash Card model SDC-MCF10AG is an 802.11ag 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 in this position during emissions testing to simulate the end user environment. The electrical rating of the EUT is 3.3 VDC =/-5%. It's typical power consumption is 400mA (1320mW) while in transmit mode, 180mA (594mW) while in receive mode and 10mA (33mW) while in standby mode.

The sample was received on February 23, 2009 and tested on February 23, March 6, 11, 12, 16 and 17, 2009. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number
Summit Data Communications Inc.	MCF10AG	802.11AG Mini Compact Flash Module with antenna connectors	

OTHER EUT DETAILS

There were two antennas included in the testing:
Laird Centurion, m/n NanoBlade, pcb antenna, 3.8dBi @ 2.45GHz, 5.1dBi @ 5.25GHz, 4.5dBi @ 5.8GHz
Larson, p/n R380.500.314, Omni, 1.6dBi @ 2.4GHz, 5dBi @ 5GHz

OTHER EN 301 893 V1.4.1 PRODUCT INFORMATION

Refer to Appendix C.

ENCLOSURE

The EUT has no enclosure. It is designed to be installed within the enclosure of a host computer.

MODIFICATIONS

No modifications were made to the EUT during the time the product was at Elliott.

SUPPORT EQUIPMENT

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

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

No equipment was used as remote support equipment for testing.

EUT INTERFACE PORTS

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

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

EUT OPERATION

For test purposes the EUT was installed into a test jig. The test jig was comprised of a Compact Flash extender card installed into the compact flash slot of a Hewlett Packard iPaq handheld PC. The PC was used to set the operating channel, mode (transmit or receive) and data rate.

EMISSIONS TESTING

GENERAL INFORMATION

Final radiated spurious emissions measurements were taken at the Elliott Laboratories Anechoic Chambers and/or Open Area Test Site(s) listed below. The sites conform to the requirements of ANSI C63.4: 2003 *American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz* and CISPR 16-1-4:2007 - *Specification for radio disturbance and immunity measuring apparatus and methods Part 1-4: Radio disturbance and immunity measuring apparatus Ancillary equipment Radiated disturbances*. They are registered with the VCCI and are on file with the FCC and industry Canada.

	Site	VCCI Registration #	Location
	SVOATS #1	R458	684 West Maude Avenue, Sunnyvale CA 94086-3518
	SVOATS #1	C469	

In the case of Open Area Test Sites, ambient levels are at least 6 dB below the specification limits with the exception of predictable local TV, radio, and mobile communications traffic.

Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions measurements are performed with the EUT's rf input/output connected to the input of a spectrum analyzer. When required an attenuator or dc block is placed between the EUT and the spectrum analyzer.

RADIATED EMISSIONS CONSIDERATIONS

CISPR has determined that radiated measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an Open Area Test Site or anechoic chamber, as defined in CISPR 16-1-4 and Annex A of EN 300 328 / EN 301 893 / EN 300 440-1. The test site is maintained free of conductive objects within the CISPR defined elliptical area.

EMISSIONS MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1-1 is used for radiated emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 7000 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.

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.

Measurement bandwidths for the test instruments are set in accordance with the requirements of the standards referenced in this document.

INSTRUMENT CONTROL COMPUTER

Software control is used to convert the receiver measurements to the field strength at an antenna, 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 exported in a graphic and/or tabular format, as appropriate.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer runs automated data collection programs that 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 EUT antenna port or receiving antenna and the test receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A combination of biconical, log periodic or bi-log antennas are used to cover the range from 25 MHz to 1000 MHz. Broadband antennas or tuned dipole antennas are used over the entire 25 to 1000 MHz frequency range as the reference antenna for substitution measurements.

Above 1000 MHz, a dual-ridge guide horn antenna or octave horn antenna are used as reference and measurement antennas.

The antenna calibration factors are included in site factors that are programmed into the test receivers and instrument control software when measuring the radiated field strength.

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.

The test height above ground for non-body worn devices shall be 150 centimeters. Floor mounted equipment will 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.

RADIO STANDARD TEST PROCEDURES

OUTPUT POWER

Output power is measured using an average sensor head. If the device is operating with a duty cycle during the measurement the measurement time is set to exceed the on/off duty cycle and the measured value is then corrected by adding a factor of 10 log(1/duty cycle) to the measured value.

Power density is initially measured as a peak bandwidth (RBW=VBW=1MHz). If the power density is within 3dB of the limit it is re-measured via the IF output of the spectrum analyzer using an average sensor.

Power measurements made directly on the rf power port are, when appropriate, converted to an EIRP by adding the gain of the highest gain antenna that can be used with the device under test, as specified by the manufacturer.

CARRIER FREQUENCIES

If the device can operate in an un-modulated mode then the carrier frequency is measured in that mode, otherwise the carrier frequency is calculated using the (f1 +f2)/2 method, where f1 and f2 are the –10dB points.

CONDUCTED SPURIOUS EMISSIONS

Conducted emissions are measured at the output of the device using a RF cable and attenuator if required. Initial scans are made using a peak detector (RBW=VBW) and using scan rates to ensure that the EUT transmits before the sweep moves out of each resolution bandwidth (for transmit mode).

When devices being evaluated against the requirements of EN 301 893 have emissions close to the limit are tested using Video Averaging[1], with video gating used where the transmit duty cycle is less than 1.

[1] When using video averaging the span is set to ensure the analyzer bin size does not exceed one half the measurement bandwidth.

RADIATED SPURIOUS EMISSIONS

Radiated emissions measurements are performed in two phases. A preliminary scan of emissions is conducted in either an anechoic chamber or on an OATS during which all significant EUT frequencies are identified with the system in a nominal configuration.

At least two scans are performed across the complete frequency range of interest and at each operating frequency identified in the reference standard. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. Initial scans are made using a peak detector (RBW=VBW) and using scan rates to ensure that the EUT transmits before the sweep moves out of each resolution bandwidth (for transmit mode). Where applicable, final measurements may be made with video averaging enabled.

During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied and cable positions are varied to determine the highest emission relative to the limit. The limit is a field strength limit derived from the ERP limit specified in the standard(s).

All signals within 10dB of this calculated limit are re-measured on an OATS or Semi-anechoic chamber. The field strength is recorded and the EUT is then replaced with a substitution antenna of known gain (typically a dipole antenna or a double-ridged horn antenna). The erp of the substitution antenna is measured and used to calculate the erp of the EUT as outlined in section C3 of EN 300 328 and EN 301 893.

DFS – THRESHOLD, CHANNEL CLOSING TRANSMISSION TIME AND CHANNEL MOVE TIME

The threshold level for DFS radar detection is determined by using the test methods outlined in section 5.3.7 of EN 301 893 (section 5.3.6 of EN 302 502). Typically the unit under test is configured to report when it detects a burst of radar rather than to change channel on detecting radar to expedite these measurements.

Channel clearing and closing times are measured by applying a radar burst with the device configured to change channel and by observing the original channel for transmissions.

DFS CHANNEL AVAILABILITY CHECK TIME

The channel availability check time is determined by using the test methods outlined in section 5.3.7 of EN 301 893 (section 5.3.6 of EN 302 502). Radar bursts are applied during the EUT boot sequence to verify that a check for radar on the selected channel is performed for at least 60 seconds prior to commencing transmissions on that channel.

UNIFORM LOADING

The channel loading, where appropriate (i.e. when channel selection is not determined under control of the network), is determined by re-booting the EUT multiple times and recording the channel initially selected. The number of times each channel is selected is divided by the total number of times the device was re-booted to calculate the utilization. This is compared to the theoretical loading of 1/n, where n is the total number of channels available.

SAMPLE CALCULATIONS

SAMPLE CALCULATIONS - CONDUCTED SPURIOUS EMISSIONS

Measurements are compared directly to the conducted emissions specification limit (decibel form). The calculation is as follows:

$$R_r - S = M$$

where:

R_r = Measured value in dBm
S = Specification Limit in dBm
M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED SPURIOUS EMISSIONS

Receiver readings are compared directly to a converted specification limit (decibel form). The conversion uses the effective radiated power limit specified in the standard to calculate the expected field strength in free space using the following formula:

$$E = \frac{\sqrt{30\,P\,G}}{d}$$

where:

E = Field Strength in V/m
P = Power in Watts
G = Gain of antenna in numeric gain[2]
D = distance in meters

The field strength limit is then converted to decibel form (dBuV/m) and the margin of a given emission peak relative to the limit is calculated as follows:

$$M = R_c - L_s$$

where:

R_c = Corrected Receiver Reading in dBuV/m
L_s = Calculated specification Limit in dBuV/m
M = Margin in dB Relative to Spec

When substitution measurements are required (all signals with less than 6dB of margin relative the field strength limit) the margin of the emissions relative to the effective radiated power limit is calculated from:

$$P_s - S = M$$

where:

P_s = effective radiated power determined from antenna substitution (dBm)
S = Specification Limit in dBm
M = Margin to Specification in +/- dB

[2] Although the gain relative to a dipole should be used for limits expressed as an erp, the isotropic gain is used as this produces a more conservative limit.

Appendix A Test Equipment Calibration Data

Radiated Emissions, 30 - 26,500 MHz, 11-Mar-09

Manufacturer	Description	Model	Asset #	Cal Due
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	3/26/2009
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	10/9/2009
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	7/15/2010
Hewlett Packard	High Pass filter, 8.2 GHz (Red System)	P/N 84300-80039 (84125C)	1152	10/13/2009
Hewlett Packard	High Pass filter, 3.5 GHz	P/N 84300-80038	1157	10/13/2009
EMCO	Log Periodic Antenna, 0.2-1 GHz	3146	1294	9/17/2010
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	10/2/2009
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40)	8564E	CH5273	3/20/2009

Environmental Test, 12, 16 and 17-Mar-09

Manufacturer	Description	Model	Asset #	Cal Due
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	1/28/2010
Rohde & Schwarz	Attenuator, 20 dB , 50 ohm, 10W, DC-18 GHz	20dB, 10W, Type N	1556	1/28/2010
Rohde & Schwarz	Power Meter, Dual Channel	NRVD	1786	1/28/2010
Agilent	PSA	E4446A	2139	12/30/2009

Appendix B Test Data

T74797 Pages 19 - 52

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski	Project Engineer:	Mark Hill
Emissions Standard(s):	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	B
Immunity Standard(s):	EN 301 489-1 V1.8.1, EN 301 489-17 V1.3.1	Environment:	-

EMC Test Data

For The

Summit Data Communications

Model

802.11ag Compact Flash Card

Date of Last Test: 3/17/2009

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Radio Performance Test - EN 301 893 V1.4.1

RF Port Measurements

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:
Test Engineer: Mehran Birgani
Test Location: Environmental Chamber

Config. Used: 1
Config Change: None
Host Unit Voltage 230V/50Hz

General Test Configuration

The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary.

Summary of Results

Run #	Test Performed	Limit	Result	Value / Margin
1	Power spectral density at normal conditions	EN 301 893	Pass	802.11a: 5.4dBm/MHz
1	Output Power over extreme conditions (5150-5350 MHz)	EN 301 893	Pass	802.11a: 18.5 dBm
1	Output Power over extreme conditions (5470-5725 MHz)	EN 301 893	Pass	802.11a: 20.9 dBm
2	Carrier Frequency section 4.2.2 (± 20 ppm)	EN 301 893	Pass	Error = 18.2 ppm
3	Occupied Bandwidth	EN 301 893	Pass	802.11a: 16.49 MHz
4	Transmitter conducted spurious emissions, 30-26,500MHz	EN 301 893	Pass	-41.2 dBm @ 15540.5 MHz
5	Receiver conducted spurious emissions, 30-26,500MHz	EN 301 893	Pass	> 15dBm below the 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.

EUT Information: Serial Number: MCF10AG0811210044 and MAC Adress: 001723078FEC
EUT Power Setting: For all measurements Antenna Power was set to 100% .

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Normal and Extreme Operating Conditions:

Voltage extremes (nominal/normal voltage defined as 230 V):

X	Voltage extremes for AC-powered equipment +/10% of nominal

Temperature extremes:

X	-10°C to +55°C (taken from AS/NZS 4268)

Run #1: Power Measurements - Spread spectrum (Digital Modulation)

Initial measurements made on the center channel to determine the data rate with the highest output power. All final measurements made with device operating at the highest power level.

Rate	Setting	Pmeas	Duty Cycle	Pout
6	-	13.0	1	13
9	-	12.6	1	12.6
12	-	12.6	1	12.6
18	-	12.5	1	12.5
24	-	12.8	1	12.8
36	-	12.0	1	12
48	-	11.9	1	11.9
54	-	11.9	1	11.9

Setting: software power setting of EUT
Pmeas: Measured output power (average)
Duty Cycle: Duty cycleof transmissions (1 = 100%)

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #1: Power Measurements - PSD under normal conditions, Average Power under normal and extreme conditions
Single-chain or single-transmitter operation

Note 1:	Power measured using a wideband, calibrated RF power meter with a thermocouple detector (or an equivalent thereof).
Note 2:	PSD measured using a thermocouple detector (or an equivalent thereof) connected to the IF output of the spectrum analyzer, with the analyzer set to positive peak detector with RB= VB = 1MHz.
Note 3:	Gain is the maximum gain of the antenna assembly that can be used with the EUT at this power level for each individual chain.
Note 4:	Duty Cycle - the duty cycle of the transmitter during the power measurement [time on /(time off + time on)]
Note 5:	EIRP levels are the measured levels corrected for duty cycle [10log(1/duty cycle)] and EUT antenna gain.

Highest Average Power under normal and extreme operating conditions

Ports	Channel (MHz)	Average Power (dBm)[1] For Operating Condition					Max Antenna Gain[3]	Duty Cycle[4]	Max Average Power (EIRP)[5]	Maximum permitted EIRP
		Normal	Extreme							
		20°C	-10°C		55°C					
		230.0 V	207.0 V	253.0 V	207.0 V	253.0 V				
Main	5180	10.1	11.9	11.9	8.0	8.0	5.1	1.0	17.0	23.0
Main	5320	13.4	13.2	13.2	12.5	12.5	5.1	1.0	18.5	23.0
Aux	5500	14.8	15.8	15.8	14.8	14.8	5.1	1.0	20.9	30.0
Main	5700	10.3	9.5	9.5	8.6	8.6	5.1	1.0	15.4	30.0

Power spectral Density under normal operating conditions

Channel	Frequency	PSD[2]	Gain[3]	Duty	EIRP[5]	PSD[6]	
MHz	MHz	dBm	dBi	Cycle[4]	PSD	Limit	Margin
5180	5176.650	0.3	5.1	1.0	5.4	10.0	-4.6
5320	5502.500	0.1	5.1	1.0	5.2	10.0	-4.8
5500	5498.750	-2.1	5.1	1.0	3.0	17.0	-14.0
5700	5702.750	-4.7	5.1	1.0	0.4	17.0	-16.6

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #2: Carrier Frequency - Extreme and Normal Temperature

Carrier frequency measured over extreme conditions at the lowest and highest centre frequencies (carrier frequencies) in each band. The carrier frequency shall remain within 20ppm of the nominal carrier frequency.

Frequency error was measured on the modulated carrier.

Channel Frequency (MHz)	Measured Frequency (MHz) For Operating Condition					Max Frequency Error (kHz)	Max Frequency Error (ppm)
	Normal	Extreme					
	20°C	-10°C		55°C			
	230.0 V	207.0 V	253.0 V	207.0 V	253.0 V		
5180.00	5180.0710	5180.0846	5180.0846	5180.0896	5180.0896	89.600	17.297
5320.00	5320.0747	5320.0860	5320.0860	5320.0968	5320.0968	96.750	18.186
5500.00	5500.0781	5500.0909	5500.0909	5500.0952	5500.0952	95.170	17.304
5700.00	5700.0758	5700.0922	5700.0922	5700.0969	5700.0969	96.920	17.004
						Worst case error (ppm):	18.186

Run #3: Occupied Channel Bandwidth

The occupied channel bandwidth measurement is performed on the lowest and highest frequencies in each band for every declared nominal bandwidth within each band (5150 - 5350 MHz and/or 5470 - 5725 MHz). Measurements are made under normal conditions only.

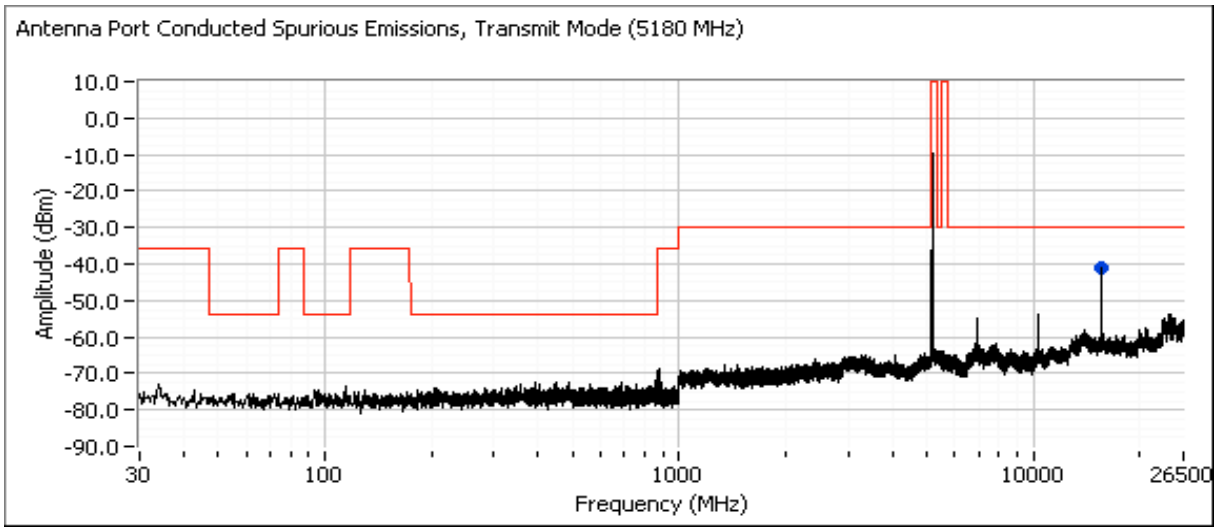
The measurement is made using the PSA to meausre the 99% bandwidth of the modulated signal. The analyzer is configred with RB=100kHz VB=300kHz, peak detector and max hold, with the span set to twice the nominal bandwidth.

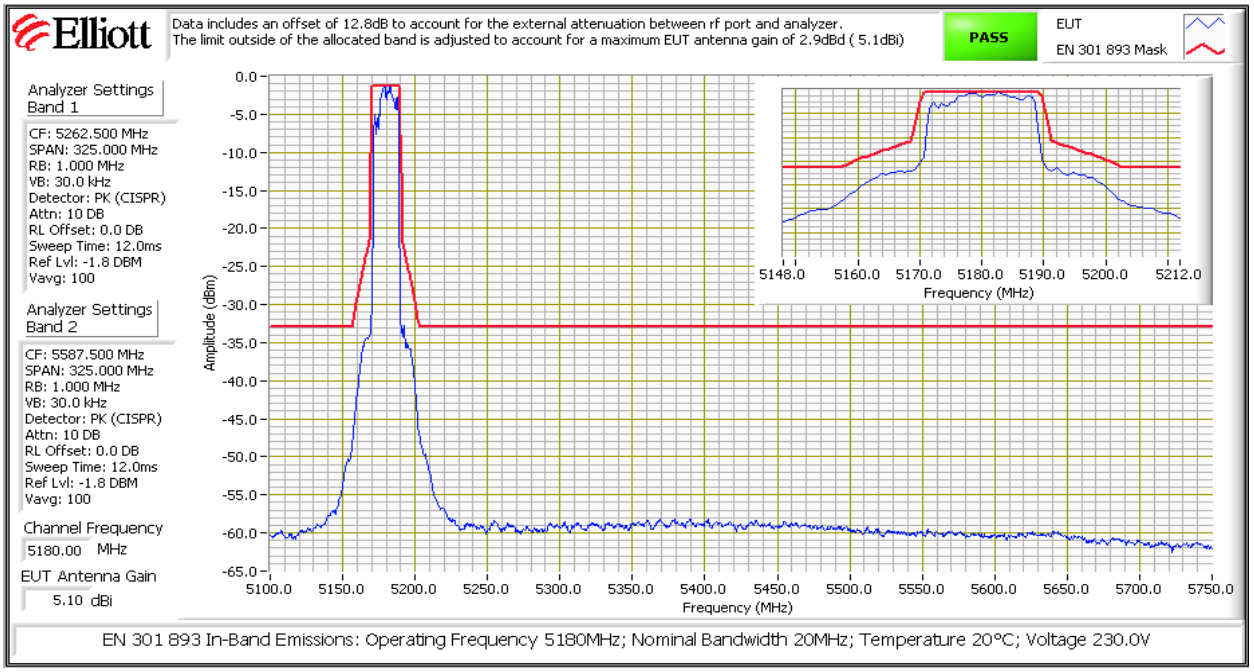
Channel frequency MHz	Mode	Nominal Bandwidth MHz	Occupied Channel Bandwidth		Result
			Measured (MHz)	Limit (MHz)	
5180	802.11a	20.00	16.49	16 - 20	Pass
5320	802.11a	20.00	16.43	16 - 20	Pass
5500	802.11a	20.00	16.42	16 - 20	Pass
5700	802.11a	20.00	16.46	16 - 20	Pass

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #4: Antenna Port Conducted Spurious Emissions, Transmit Mode, 30 - 26,500 MHz

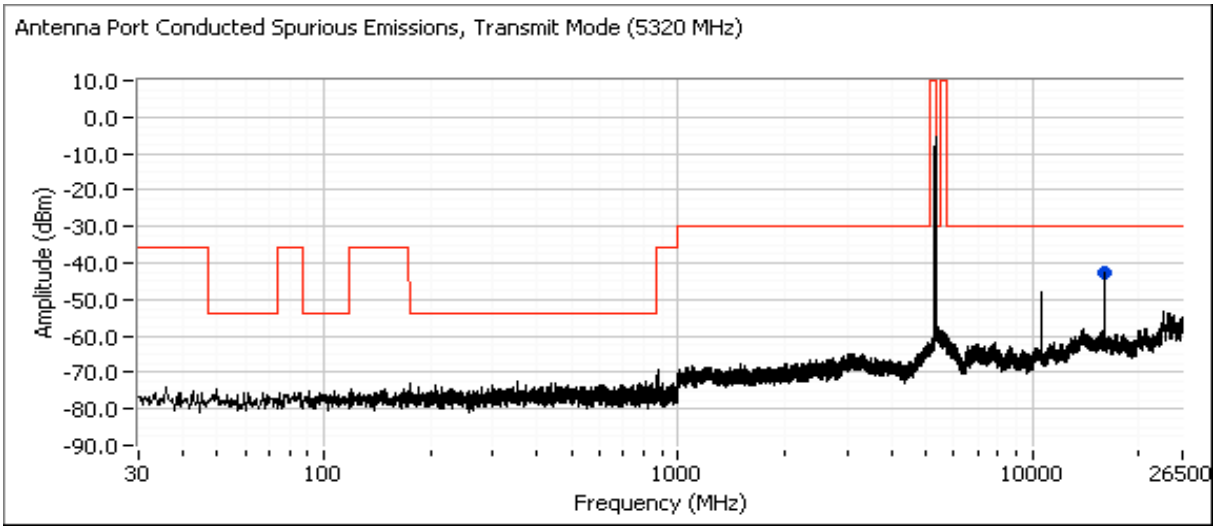
Run 4a: 802.11a at 5180 MHz

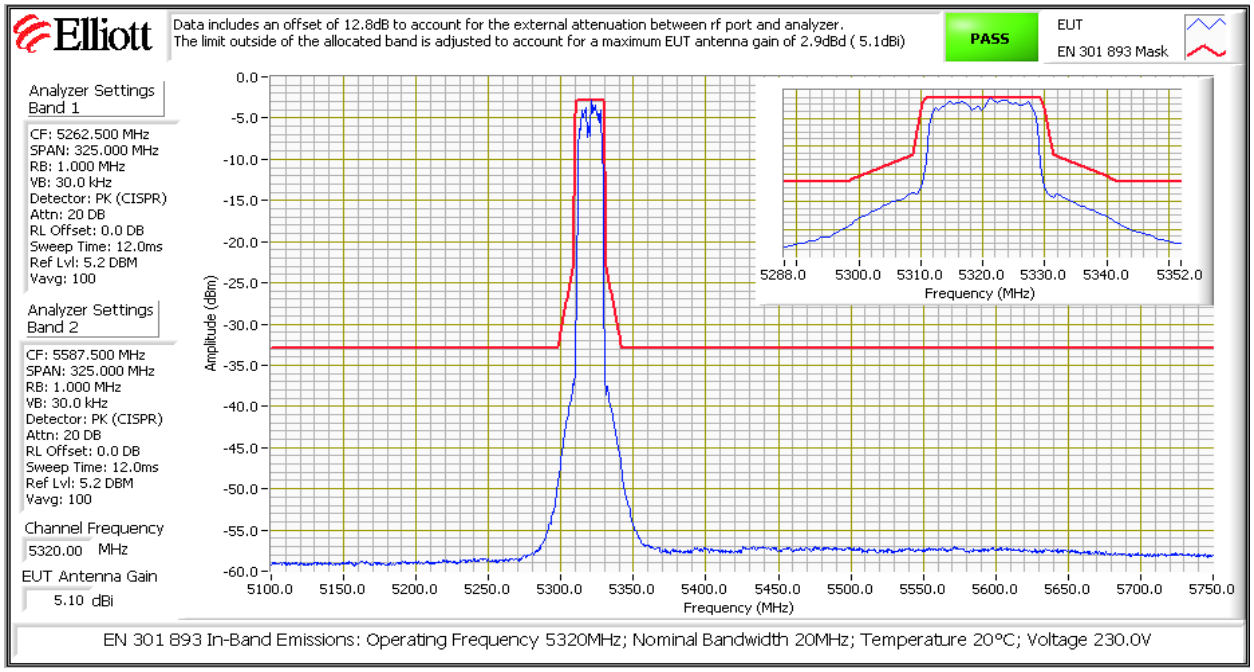




Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

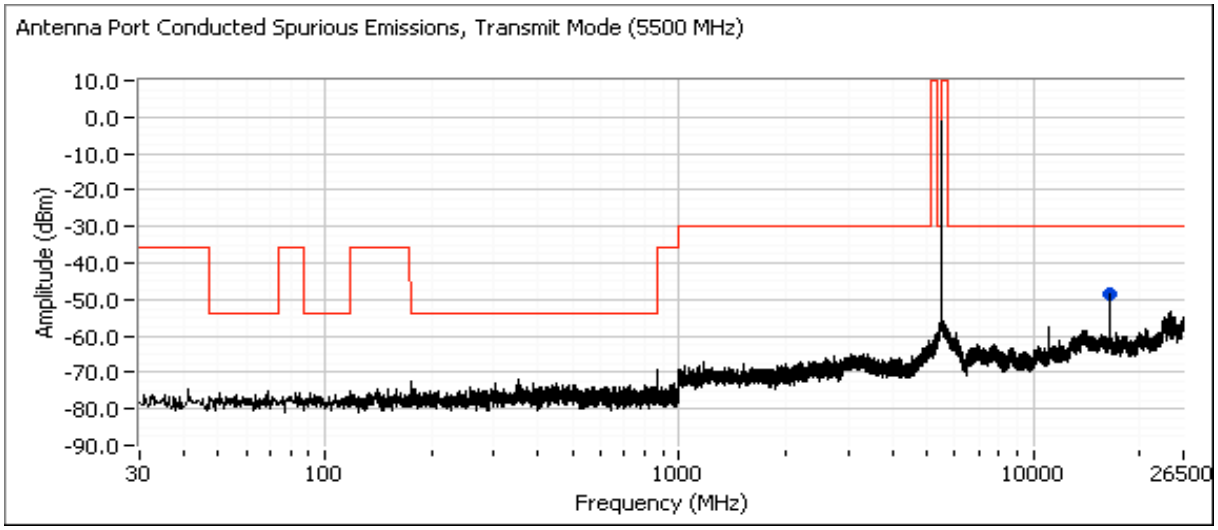
Run 4b: 802.11a at 5320 MHz

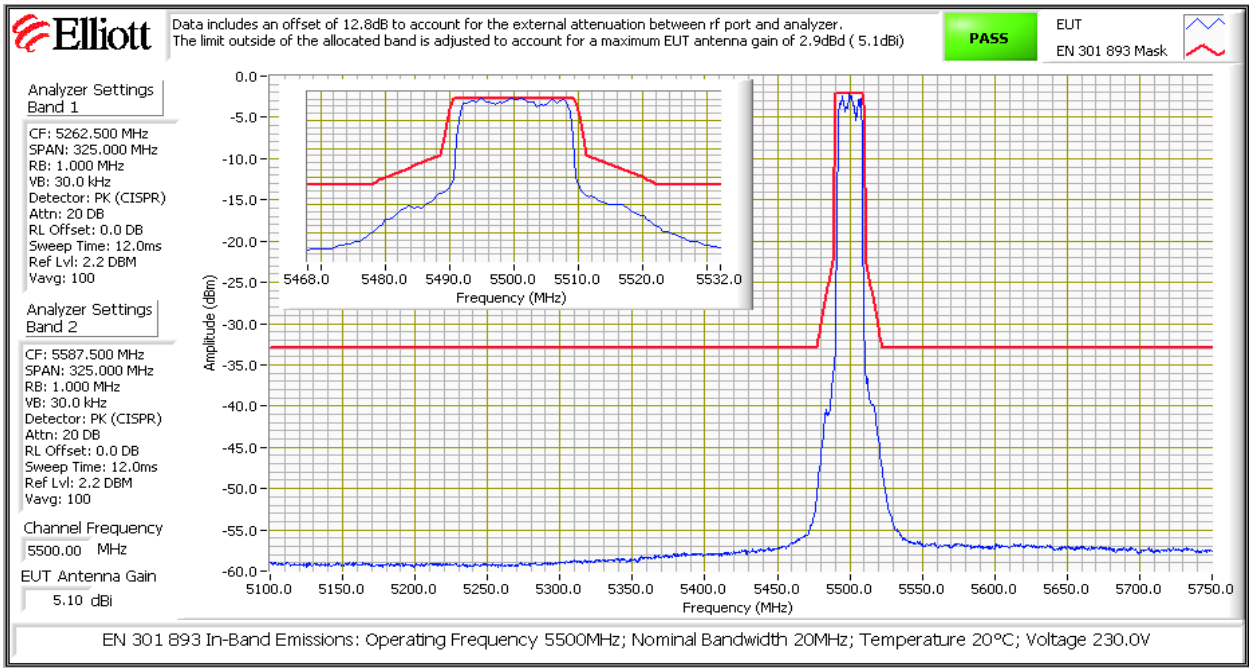




Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

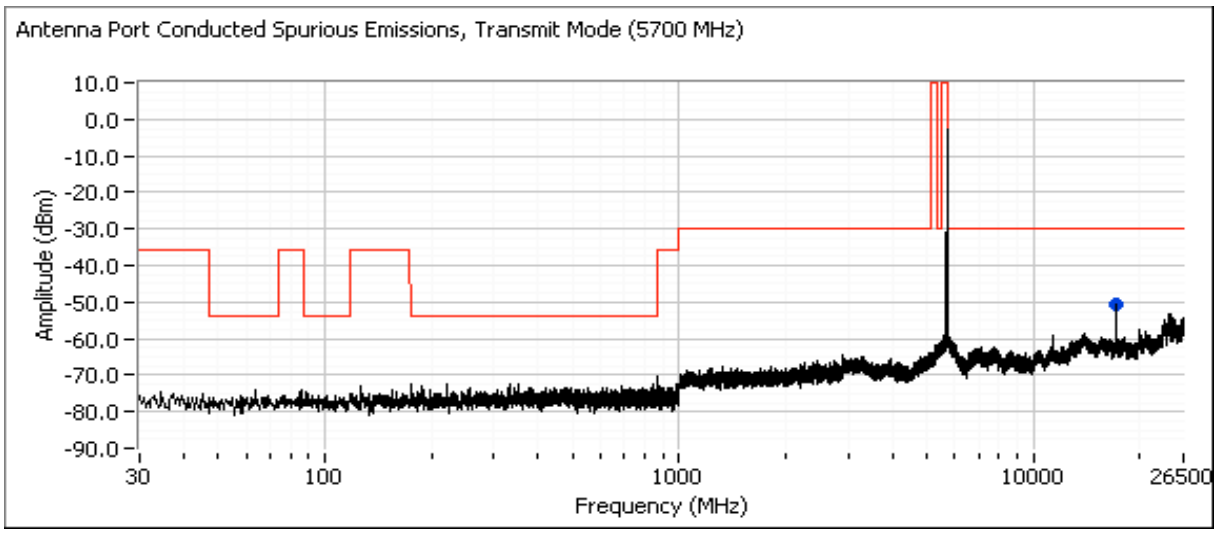
Run 4c: 802.11a at 5500 MHz

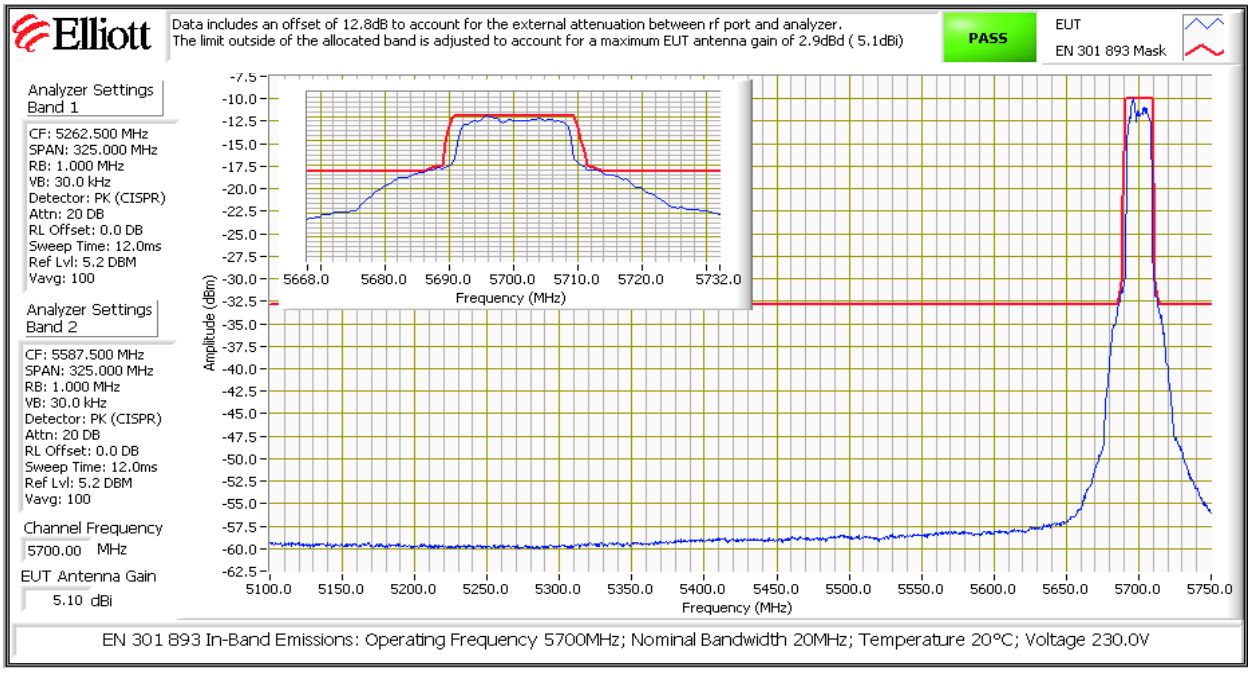




Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run 4d: 802.11a at 5700 MHz



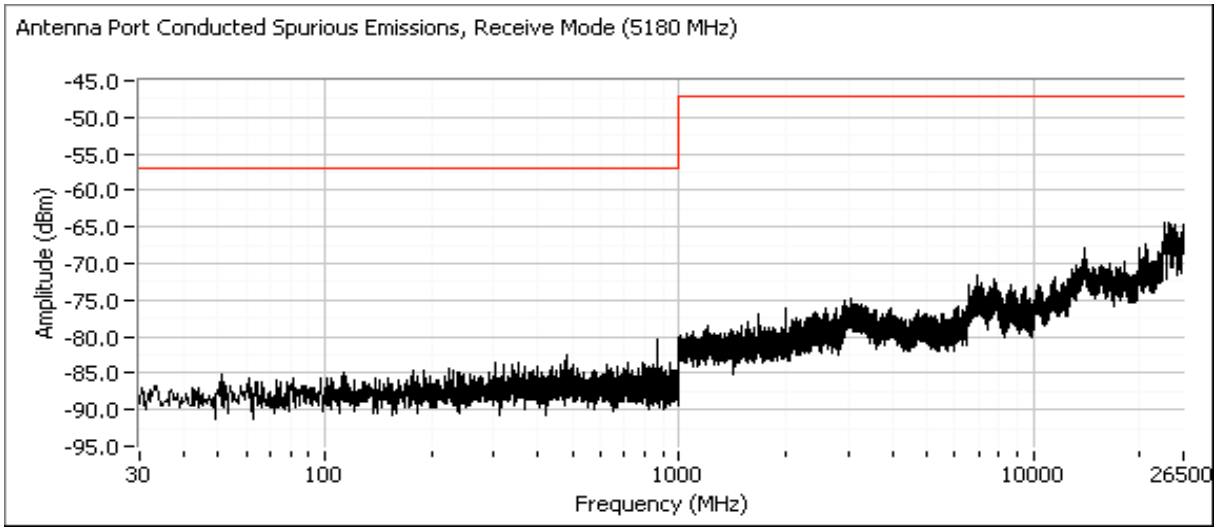


Frequency MHz	Level dBm	Port	EN 301 893 Limit	EN 301 893 Margin	Detector	Channel	Mode	Comments
15540.51	-41.2	RF Port	-30.0	-11.2	Peak	36	a	
15962.20	-42.0	RF Port	-30.0	-12.0	Peak	64	a	
16495.50	-48.6	RF Port	-30.0	-18.6	Peak	100	a	
17106.37	-50.9	RF Port	-30.0	-20.9	Peak	140	a	

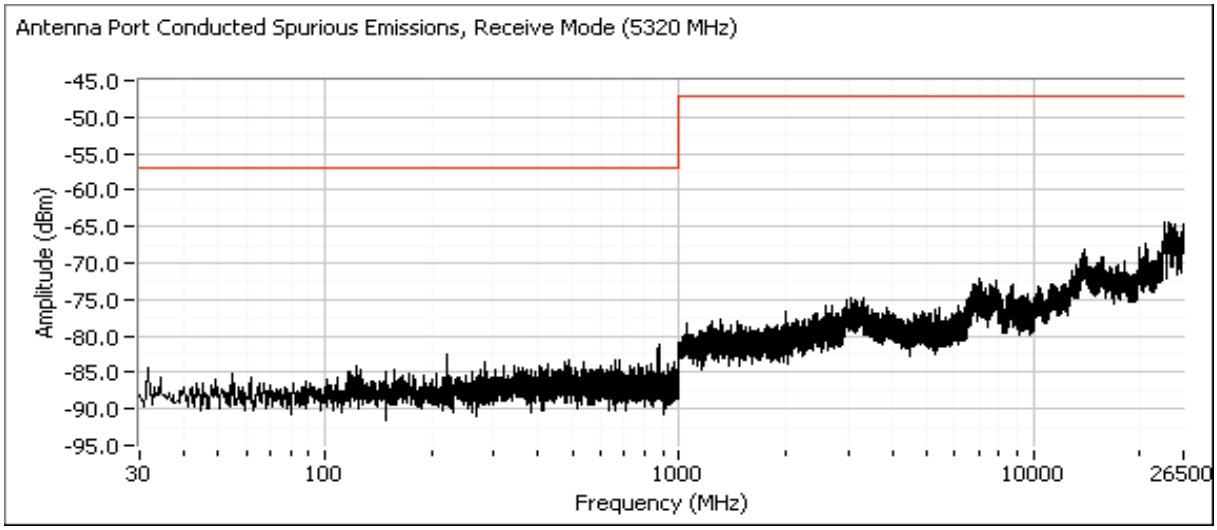
Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #5: Antenna Port Conducted Spurious Emissions, Receive Mode, 30 - 26,500 MHz

Run 5a: 802.11a at 5180 MHz

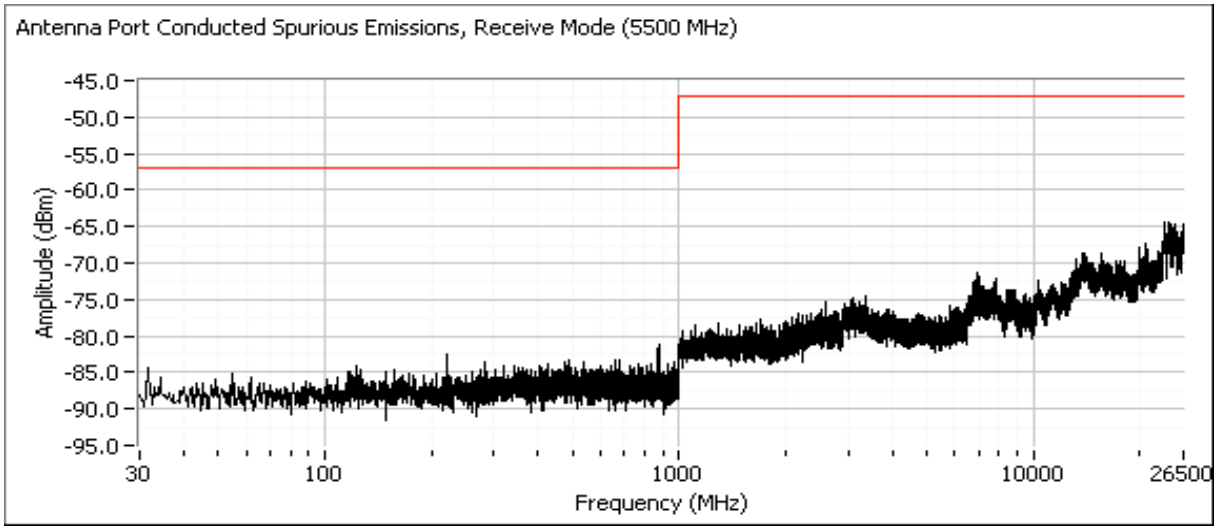


Run 5b: 802.11a at 5320 MHz

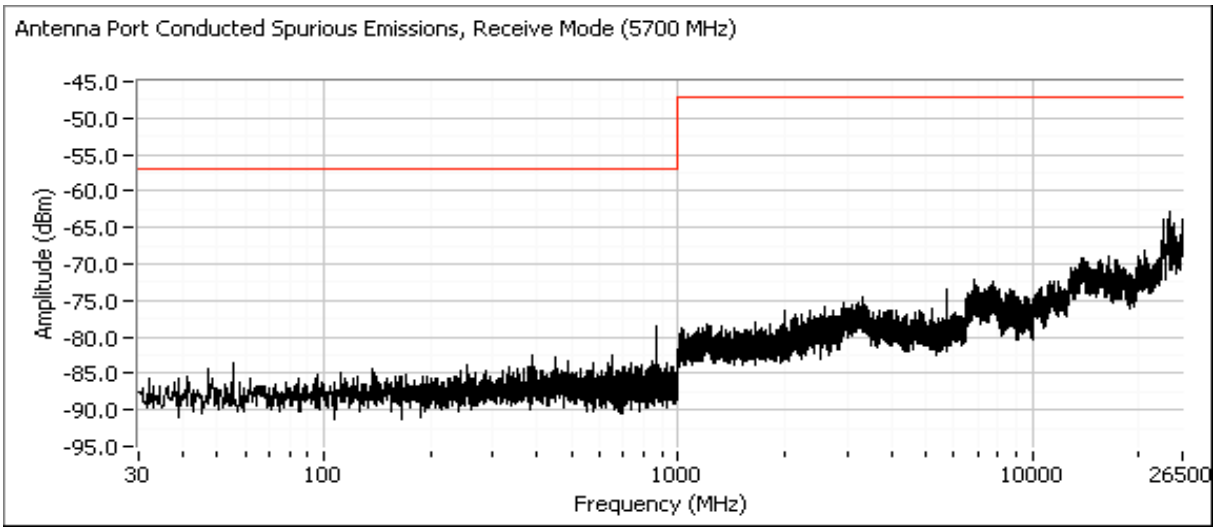


Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run 5c: 802.11a at 5500 MHz



Run 5d: 802.11a at 5700 MHz



Frequency MHz	Level dBm	Port	EN 301 893 Limit	EN 301 893 Margin	Detector	Channel	Mode	Comments
All signals were more than 15dB below the limit.								

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Radiated Spurious Emissions (EN 300 328 V1.7.1 and EN 301 893 V1.4.1)

Test Specific Details

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

Date of Test: 3/6/2009
Test Engineer: Mehran Birgani / R. varelas
Test Location: Chamber #2 / OATS #1

Config. Used: 1
Config Change: None
Host Unit Voltage 230V/50Hz

General Test Configuration

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

The measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 11 °C
Rel. Humidity: 86 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
2	Spurious Emissions Transmit Mode 30-12,750 MHz	EN 300 328	Pass	All emissions were mode than 10dB below the limit
2	Spurious Emissions Transmit Mode 30-26500 MHz	EN 301 893	Pass	-62.4dBm @ 489MHz (-8.4dB)
4	Spurious Emissions Receive/Stand-By Mode 30-12750 MHz	EN 300 328	Pass	-62.3dBm @ 301.9MHz (-5.3dB)
4	Spurious Emissions Receive/Stand-By Mode 30-26500 MHz	EN 301 893	Pass	-58.8dBm @ 310.5MHz (-1.8dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

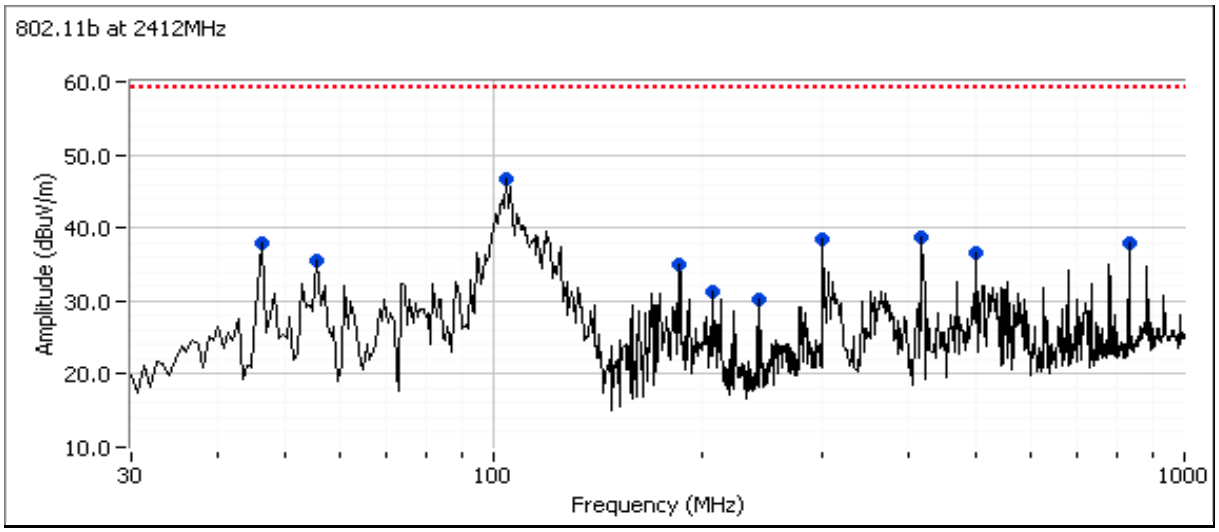
No deviations were made from the requirements of the standard.

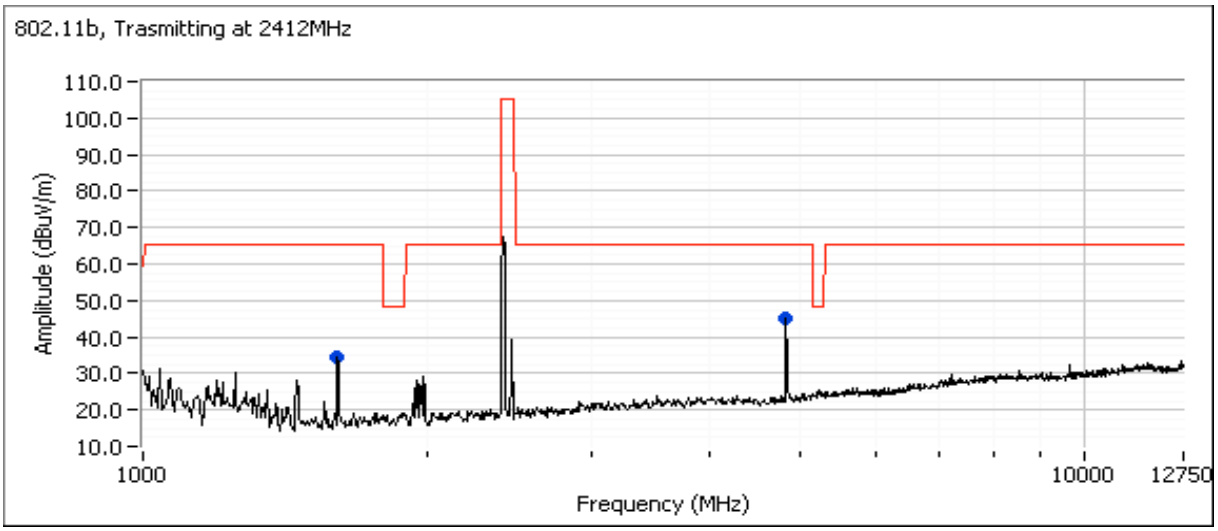
Note: Near field prescan showed there was no emission above 18GHz for transmit mode and 10GHz for receive mode.

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #1: Radiated Spurious Emissions, Transmit Mode, 30 - 26500 MHz

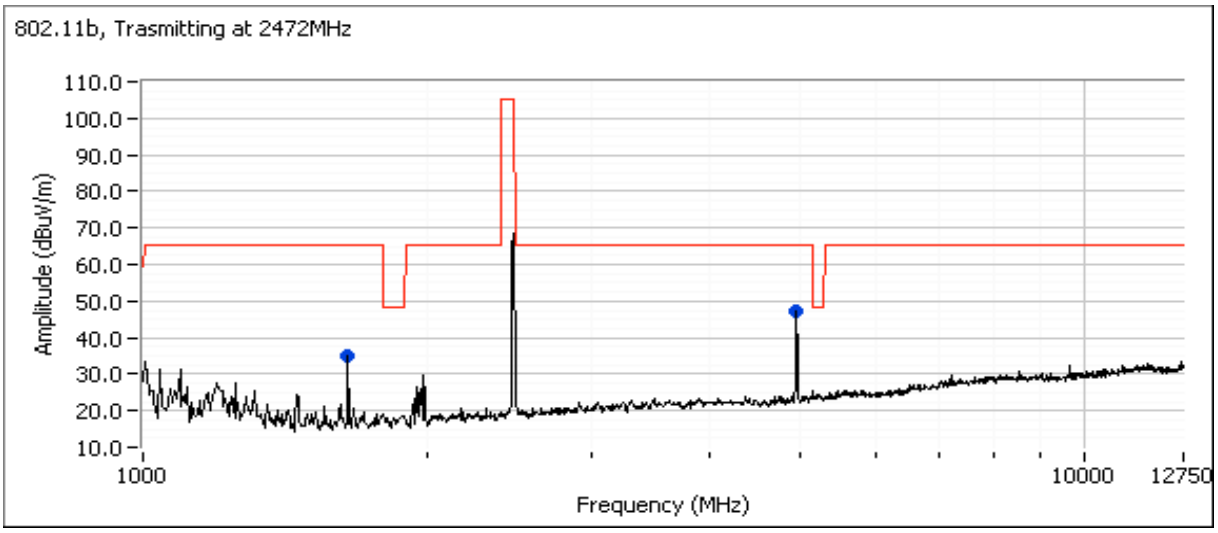
Graph - Channel: 2412 MHz, Mode: 802.11b



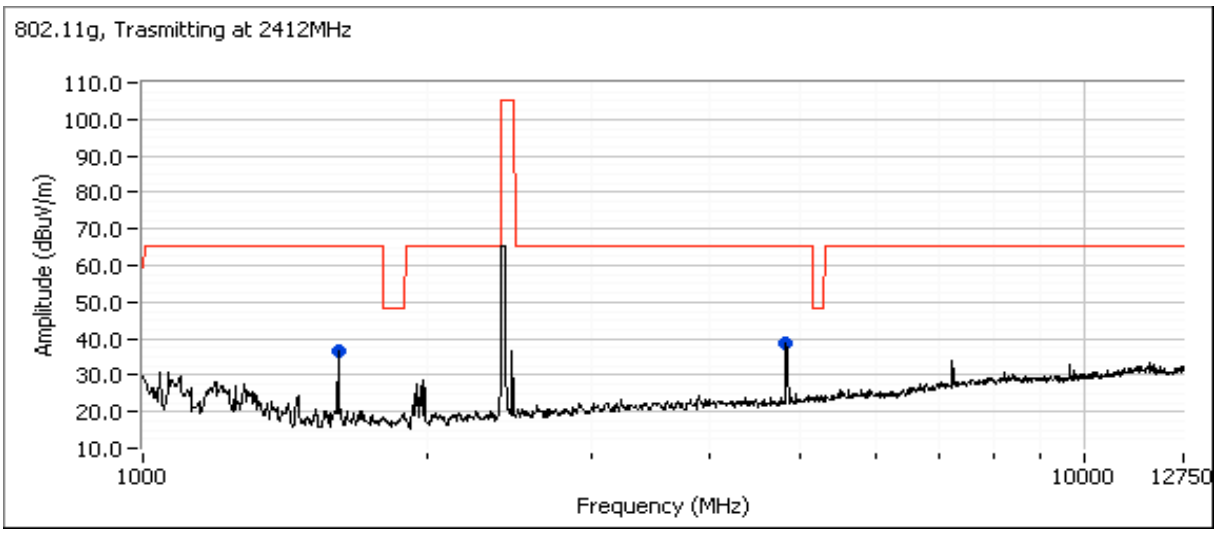


Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Graph - Channel: 2472 MHz, Mode: 802.11b

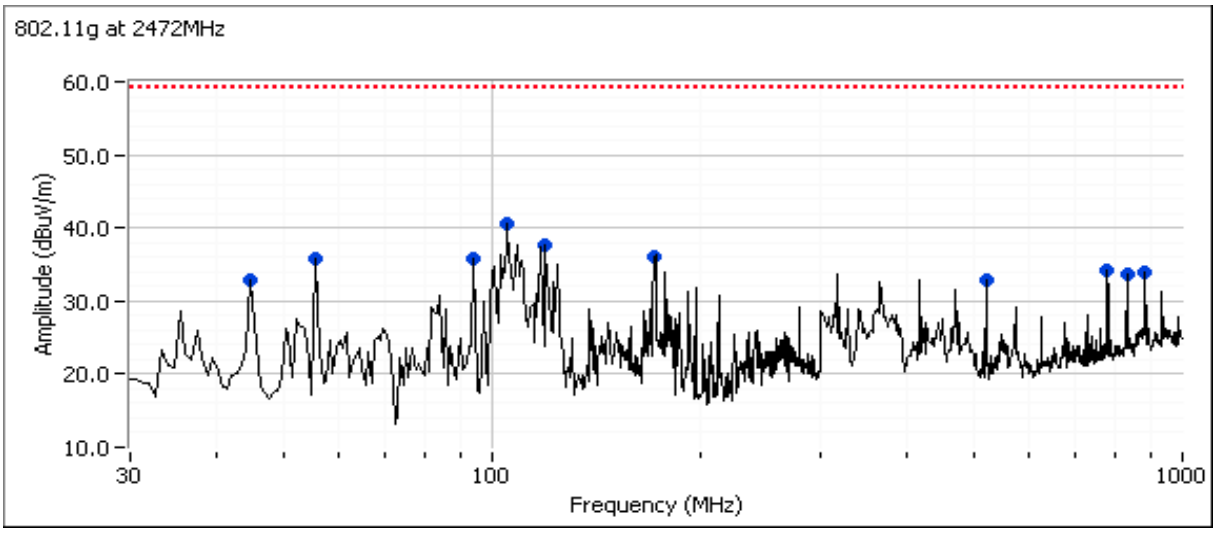


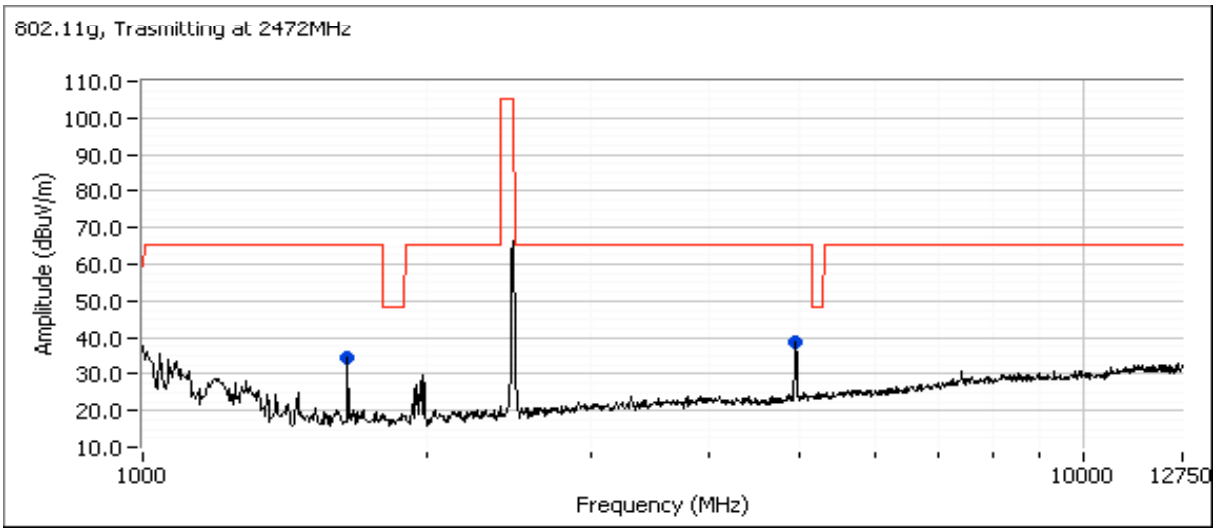
Graph - Channel: 2412 MHz, Mode: 802.11g



Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

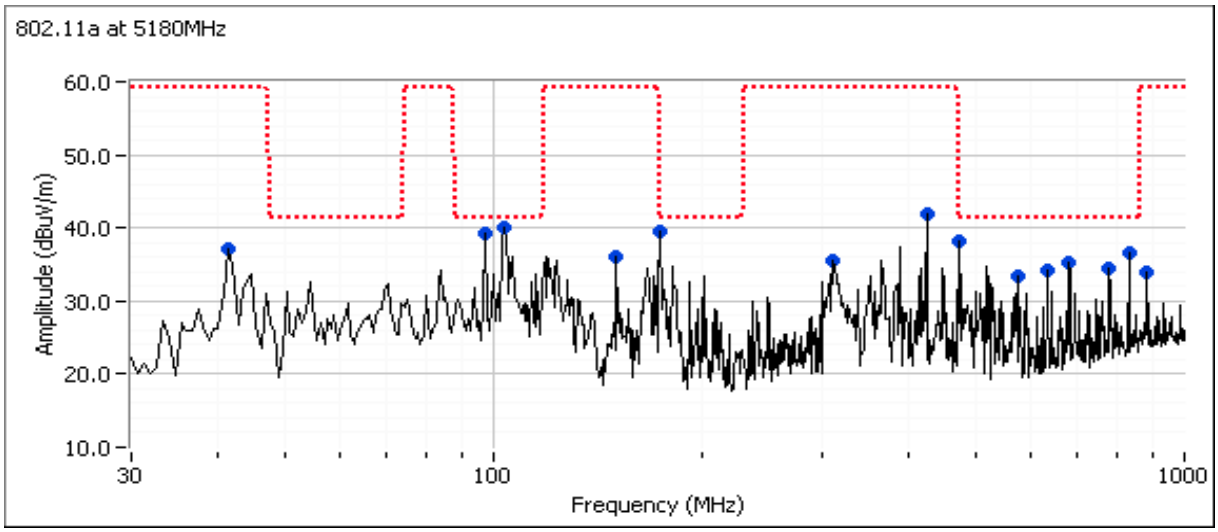
Graph - Channel: 2472 MHz, Mode: 802.11g

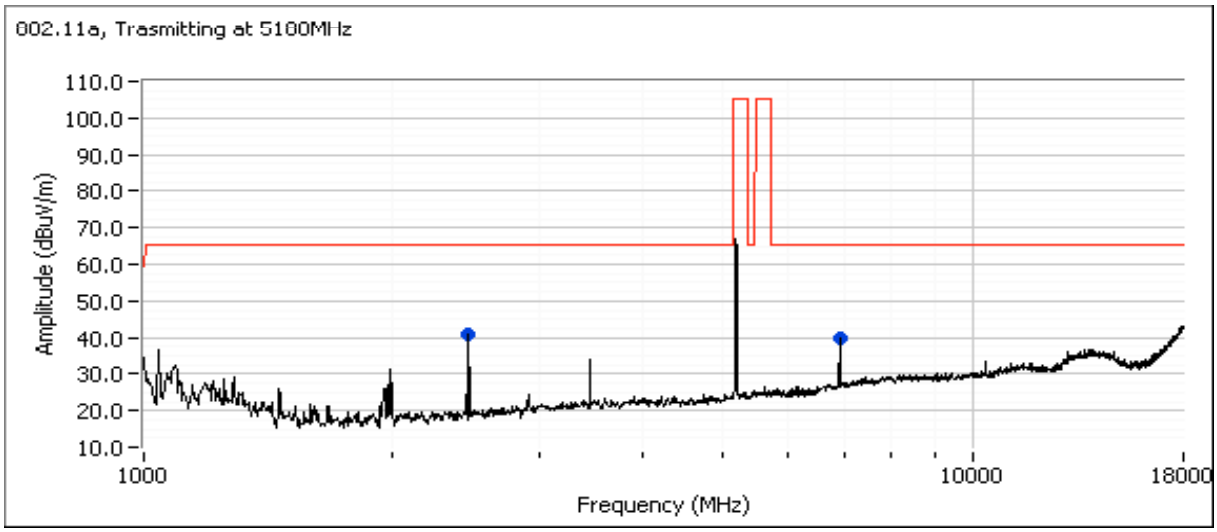




Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

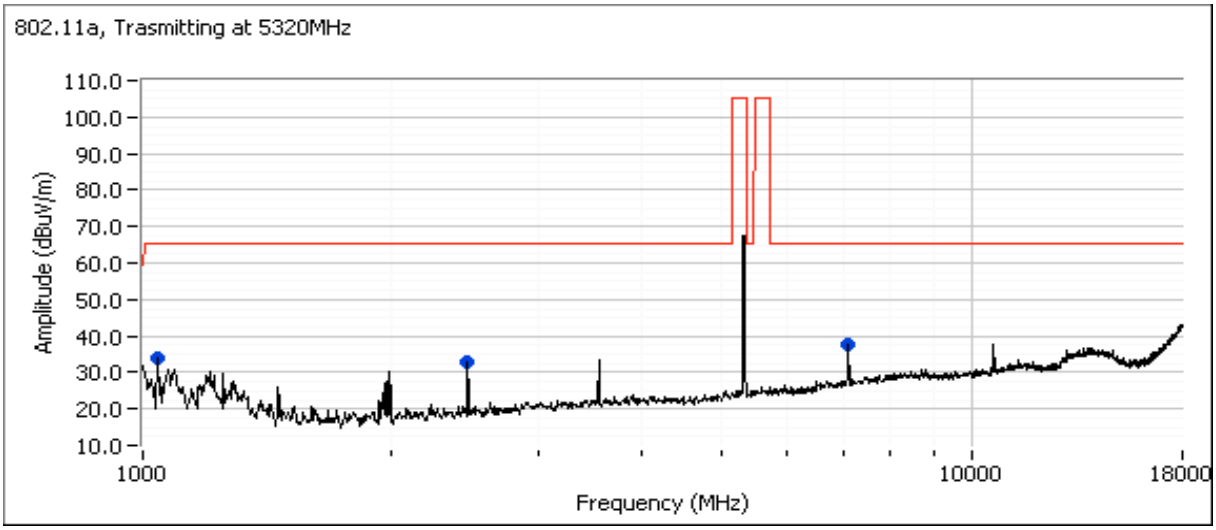
Graph - Channel: 5180 MHz, Mode: 802.11a



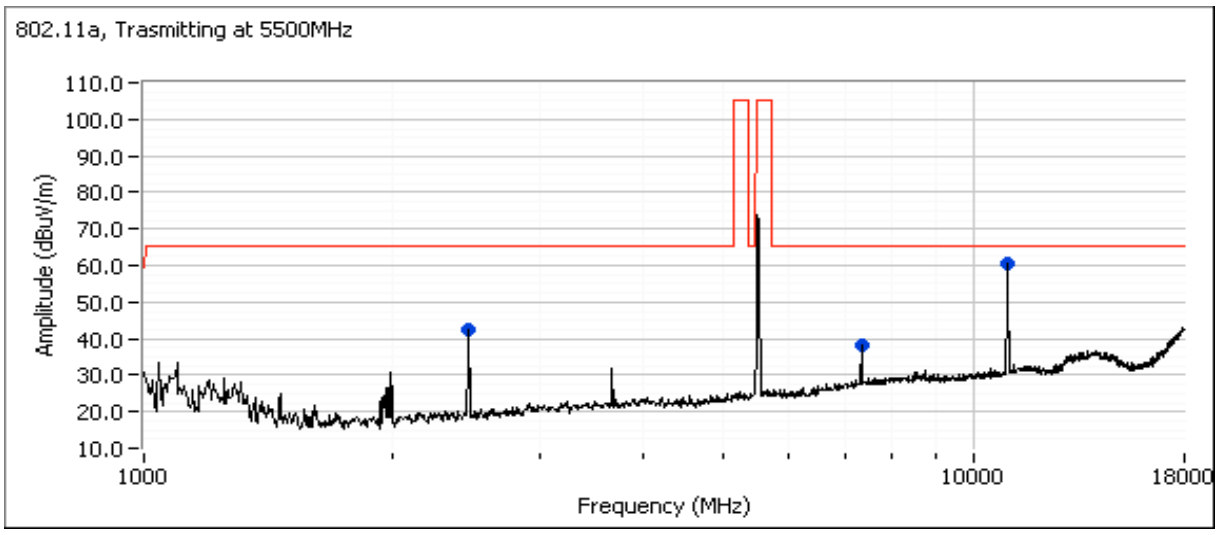


Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Graph - Channel: 5320 MHz, Mode: 802.11a

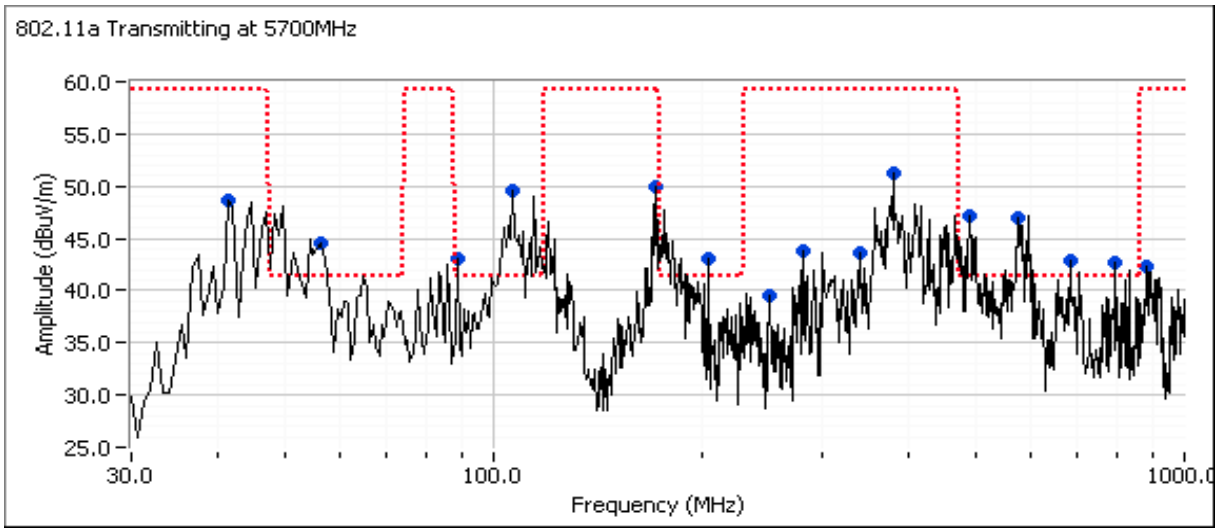


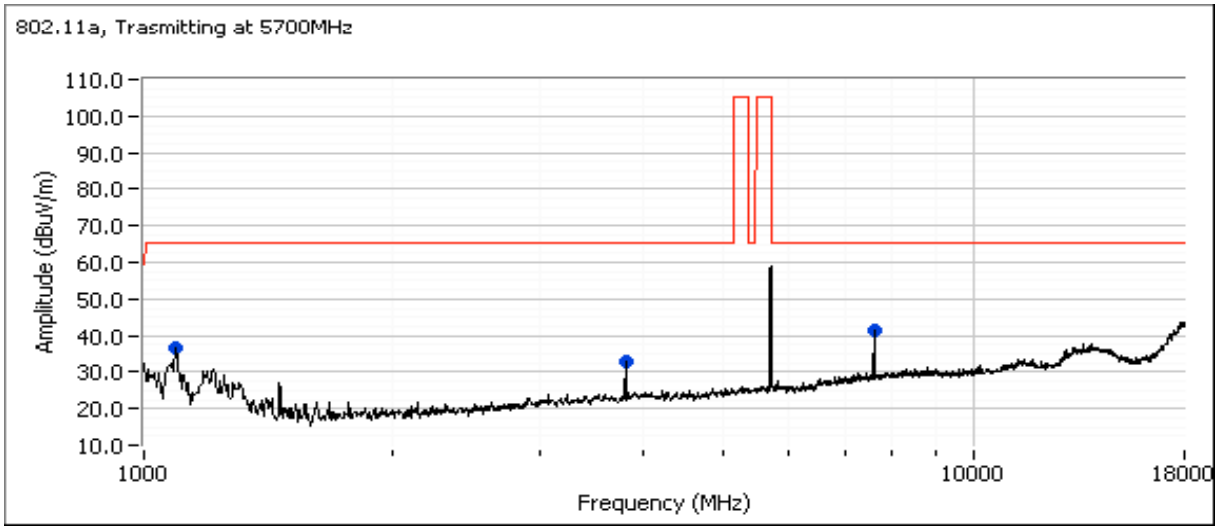
Graph - Channel: 5500 MHz, Mode: 802.11a



Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Graph - Channel: 5700 MHz, Mode: 802.11a





Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Results Table - All channels

Frequency	Level	Pol	EN 300 328 Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		and mode
104.008	46.6	V	59.3	-12.7	Peak	179	1.7	Aux Port	1, b
1608.000	34.3	V	65.3	-31.0	Peak	269	1.7	Aux Port	1, b
1612.750	36.4	H	65.3	-28.9	Peak	276	1.7	Aux Port	1, g
1650.750	35.2	H	65.3	-30.1	Peak	280	1.7	Aux Port	13, b
1650.750	34.4	V	65.3	-30.9	Peak	275	1.7	Aux Port	13, g
4826.000	45.1	V	65.3	-20.2	Peak	283	1.7	Aux Port	1, b
4826.000	38.8	V	65.3	-26.5	Peak	281	1.7	Aux Port	1, g
4952.000	47.0	V	65.3	-18.3	Peak	340	1.7	Aux Port	13, b
4952.000	38.5	V	65.3	-26.8	Peak	280	1.7	Aux Port	13, g

Results Table - All channels

Frequency	Level	Pol	EN 301 893 Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		and mode
40.125	23.4	V	59.3	-35.9	Peak	179	1.7	Aux Port	36, a
41.48	48.6	V	59.3	-10.7	Peak	211	1.7	Main Port	140, a
41.475	37.1	V	59.3	-22.2	Peak	315	1.7	Aux Port	36, a
56.33	44.6	V	41.3	3.3	Peak	211	1.7	Main Port	140, a
88.73	43.0	V	41.3	1.7	Peak	1	1.7	Main Port	140, a
97.500	39.3	V	41.3	-2.0	Peak	191	1.7	Aux Port	36, a
103.575	40.0	V	41.3	-1.3	Peak	209	1.7	Aux Port	36, a
106.95	49.5	V	41.3	8.2	Peak	151	1.7	Main Port	140, a
150.825	36.1	H	59.3	-23.2	Peak	279	1.7	Aux Port	36, a
172.43	49.9	H	59.3	-9.4	Peak	119	1.7	Main Port	140, a
174.450	39.4	H	41.3	-1.9	Peak	223	1.7	Aux Port	36, a
205.50	43.0	H	41.3	1.7	Peak	149	1.7	Main Port	140, a
250.73	39.5	H	59.3	-19.8	Peak	119	1.7	Main Port	140, a
280.43	43.8	H	59.3	-15.5	Peak	149	1.7	Main Port	140, a
310.500	35.6	H	59.3	-23.7	Peak	278	1.7	Aux Port	36, a
340.25	43.7	H	59.3	-15.6	Peak	239	1.7	Main Port	140, a
378.75	51.2	H	59.3	-8.1	Peak	242	1.7	Main Port	140, a
416.019	31.7	H	59.3	-27.6	Peak	305	1.7	Aux Port	36, a
424.250	41.9	H	41.3	0.6	Peak	151	1.7	Aux Port	36, a
468.022	31.2	H	59.3	-28.1	Peak	336	1.7	Aux Port	36, a
473.250	38.3	H	41.3	-3.0	Peak	232	1.7	Aux Port	36, a
489.00	47.1	H	41.3	5.8	Peak	245	1.7	Main Port	140, a
520.003	33.1	H	41.3	-8.2	Peak	97	1.7	Aux Port	36, a
576.50	47.0	H	41.3	5.7	Peak	87	1.7	Main Port	140, a
576.500	33.3	H	41.3	-8.0	Peak	83	1.7	Aux Port	36, a
634.250	34.2	H	41.3	-7.1	Peak	293	1.7	Aux Port	36, a
681.500	35.2	H	41.3	-6.1	Peak	272	1.7	Aux Port	36, a

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Results Table - All channels (301 893 continue)

Frequency	Level	Pol	EN 301 893 Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		and mode
685.00	42.9	H	41.3	1.6	Peak	140	1.7	Main Port	140, a
779.500	34.6	H	41.3	-6.7	Peak	80	1.7	Aux Port	36, a
779.997	35.1	H	41.3	-6.2	Peak	77	1.7	Aux Port	36, a
793.50	42.6	H	41.3	1.3	Peak	282	1.7	Main Port	140, a
832.000	36.6	H	41.3	-4.7	Peak	232	1.7	Aux Port	36, a
881.00	42.3	H	59.3	-17.0	Peak	105	1.7	Main Port	140, a
884.500	33.9	H	59.3	-25.4	Peak	105	1.7	Aux Port	36, a
885.207	33.4	H	59.3	-25.9	Peak	258	1.7	Aux Port	36, a
936.009	33.5	V	59.3	-25.8	Peak	195	1.7	Aux Port	36, a
1042.75	34.1	H	65.3	-31.2	Peak	302	1.7	Main Port	64, a
1042.750	29.9	V	65.3	-35.4	Peak	295	1.7	Aux Port	36, a
1090.25	36.8	H	65.3	-28.5	Peak	299	1.7	Main Port	140, a
1460.750	26.6	H	65.3	-38.7	Peak	295	1.7	Aux Port	36, a
2463.00	42.3	V	65.3	-23.0	Peak	251	1.7	Main Port	100, a
2463.00	40.6	V	65.3	-24.7	Peak	279	1.7	Aux Port	36, a
2467.75	32.8	V	65.3	-32.5	Peak	165	1.7	Main Port	64, a
3809.00	32.9	V	65.3	-32.4	Peak	247	1.7	Main Port	140, a
5180.000	38.0	V	65.3	-27.3	Peak	297	1.7	Aux Port	36, a
6911.250	37.3	V	65.3	-28.0	Peak	77	1.7	Aux Port	36, a
6921.87	40.0	V	65.3	-25.3	Peak	70	1.7	Aux Port	36, a
7109.37	37.4	V	65.3	-27.9	Peak	82	1.7	Main Port	64, a
7343.75	38.0	V	65.3	-27.3	Peak	68	1.7	Main Port	100, a
7602.50	41.2	V	65.3	-24.1	Peak	81	1.7	Main Port	140, a
10996.87	61.6	V	65.3	-3.7	Peak	249	1.7	Main Port	100, a

Note 1:	The field strength limit in the tables above was calculated from the erp/eirp limit detailed in the standard using the free space propagation equation: $E=\sqrt{(30PG)}/d$. This limit is conservative - it does not consider the presence of the ground plane and, for erp limits, the dipole gain (2.2dBi) has not been included. The erp or eirp for all signals with less than 10dB of margin relative to this field strength limit is determined using substitution measurements.

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #2: Radiated Spurious Emissions, Transmit Mode: Final Field Strength and Substitution Measurements
Measurements made at 3m

Frequency	Level	Pol	EN 301 893 [Note 1]		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		and mode
424.250	47.0	H	41.3	5.7	Peak	250	1.3		36, a
489.00	36.2	H	41.3	-5.1	Peak	360	1.0		140, a
832.000	35.8	H	41.3	-5.5	Peak	140	1.0		36, a
473.250	33.7	H	41.3	-7.6	Peak	292	2.6		36, a
97.500	33.2	V	41.3	-8.1	Peak	360	1.0		36, a
779.997	32.2	H	41.3	-9.1	Peak	360	1.0		36, a
681.500	31.9	H	41.3	-9.4	Peak	130	1.0		36, a
174.450	31.7	H	41.3	-9.6	Peak	360	1.0		36, a
685.00	31.5	H	41.3	-9.8	Peak	199	2.0		140, a
576.500	30.6	H	41.3	-10.7	Peak	33	20.0		36, a
576.50	30.6	H	41.3	-10.7	Peak	33	2.0		140, a
634.250	30.2	H	41.3	-11.1	Peak	330	1.2		36, a
520.003	28.4	H	41.3	-12.9	Peak	71	2.2		36, a
205.50	27.7	H	41.3	-13.6	Peak	33	2.0		140, a
56.33	27.6	V	41.3	-13.7	Peak	140	1.0		140, a
106.95	26.8	V	41.3	-14.5	Peak	130	1.0		140, a
10996.87	49.9	V	65.3	-15.4	Peak	144	2.2		100, a
103.575	25.8	V	41.3	-15.5	Peak	10	1.0		36, a
793.50	25.4	H	41.3	-15.9	Peak	140	1.0		140, a
88.73	22.9	V	41.3	-18.4	Peak	360	1.0		140, a
378.75	34.4	H	59.3	-24.9	Peak	128	1.0		140, a
172.43	31.7	H	59.3	-27.6	Peak	360	1.0		140, a

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Horizontal

Frequency	Substitution measurements			Site	EUT measurements			eirp Limit	erp Limit	Margin
MHz	Pin[1]	Gain[2]	FS[3]	Factor[4]	FS[5]	eirp (dBm)	erp (dBm)	dBm	dBm	dB
174.45	-11.0	1.6	88.5	97.9	31.7	-66.2	-68.4		-54.0	-14.4
424.25	-11.9	4.8	90.1	97.2	47.0	-50.2	-52.4		-36.0	-16.4
473.25	-12.0	7.0	92.1	97.1	33.7	-63.4	-65.6		-54.0	-11.6
489.00	-12.0	7.2	91.6	96.4	36.2	-60.2	-62.4		-54.0	-8.4
681.50	-12.7	6.6	91.2	97.3	31.9	-65.4	-67.6		-54.0	-13.6
685.00	-12.7	6.6	91.2	97.3	31.5	-65.8	-68.0		-54.0	-14.0
780.00	-12.9	8.2	91.6	96.3	32.2	-64.1	-66.3		-54.0	-12.3
832.00	-13.4	6.9	89.9	96.4	35.8	-60.6	-62.8		-54.0	-8.8

Vertical

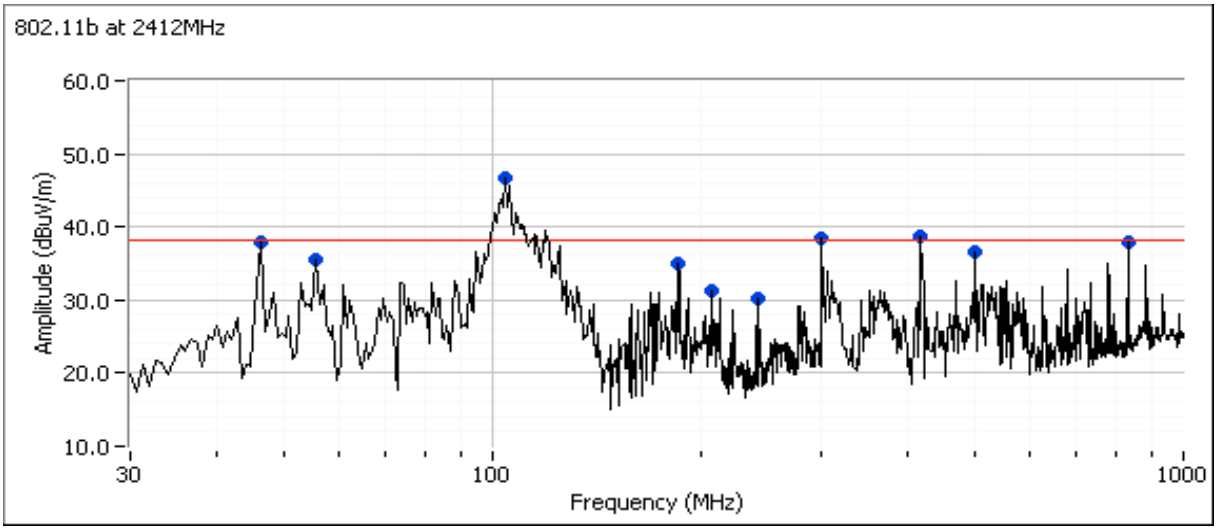
Frequency	Substitution measurements			Site	EUT measurements			eirp Limit	erp Limit	Margin
MHz	Pin[1]	Gain[2]	FS[3]	Factor[4]	FS[5]	eirp (dBm)	erp (dBm)	dBm	dBm	dB
97.50	-10.7	0.3	83.6	94.0	33.2	-60.8	-63.0		-54.0	-9.0

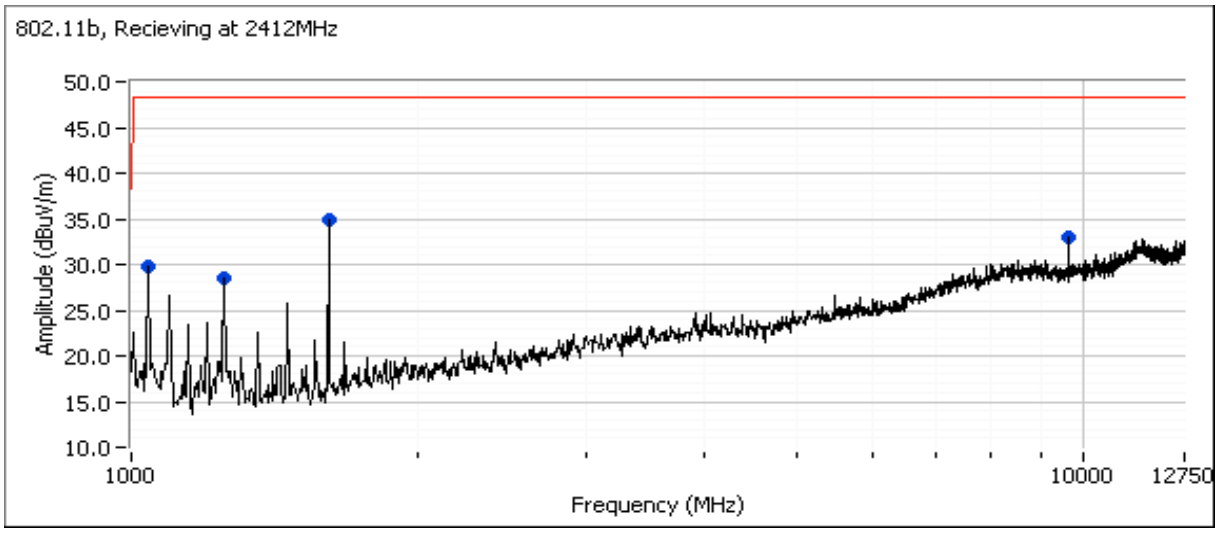
Note 1:	Pin is the input power (dBm) to the substitution antenna
Note 2:	Gain is the gain (dBi) for the substitution antenna. A dipole has a gain of 2.2dBi.
Note 3:	FS is the field strength (dBuV/m) measured from the substitution antenna.
Note 4:	Site Factor - this is the site factor to convert from a field strength in dBuV/m to an eirp in dBm.
Note 5:	EUT field strength as measured during initial run.

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #3: Radiated Spurious Emissions, Receive Mode, 30 - 26500 MHz
Measurements made at 3m

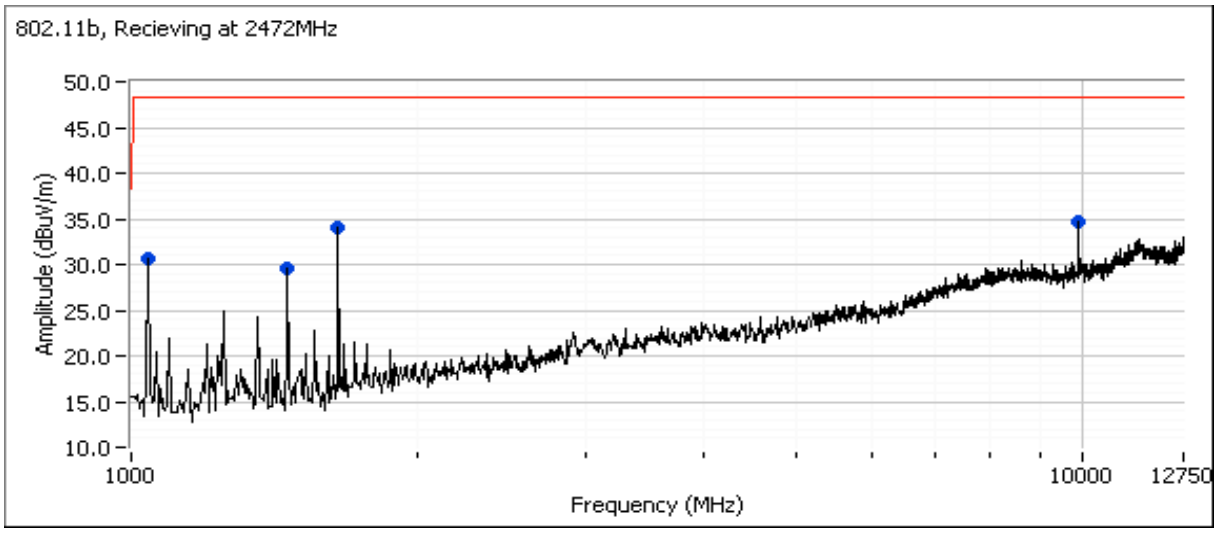
Graph - low channel at 2412 MHz, Mode: 802.11b



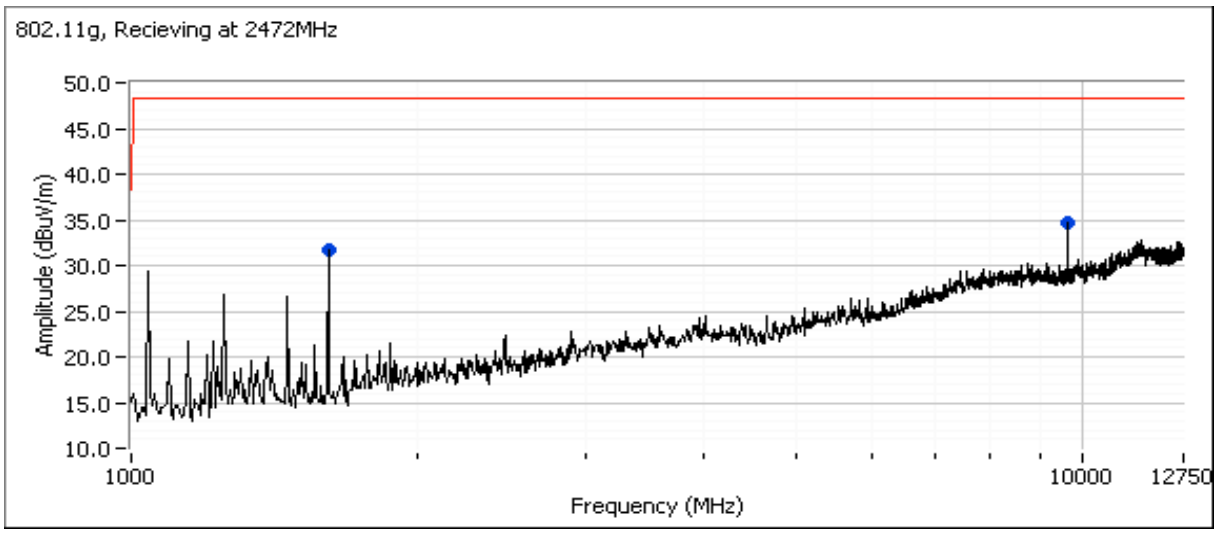


Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Graph - high channel at 2472 MHz, Mode: 802.11b

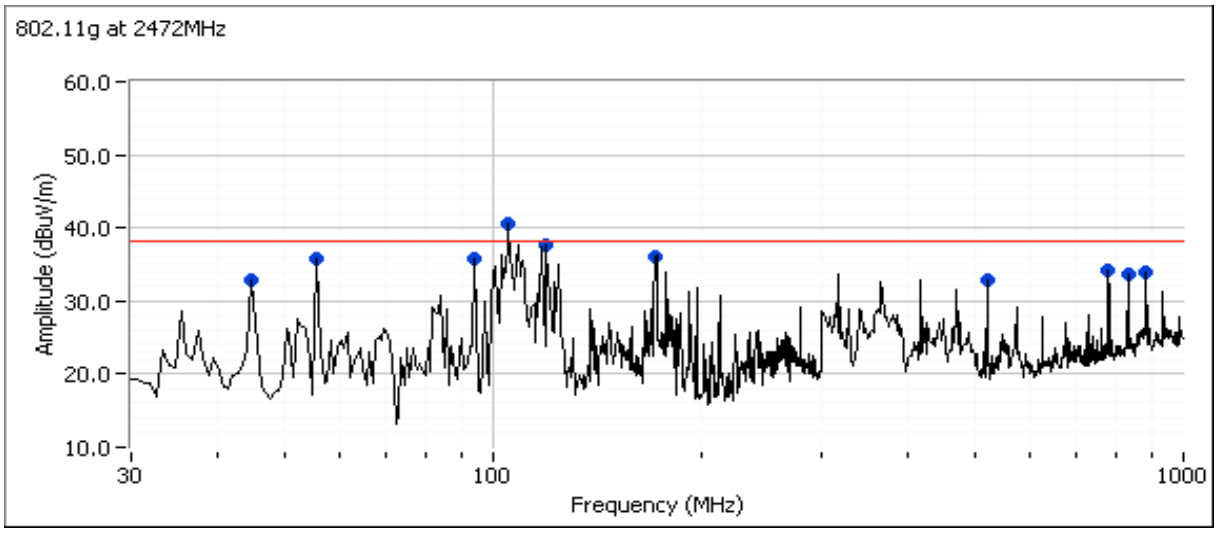


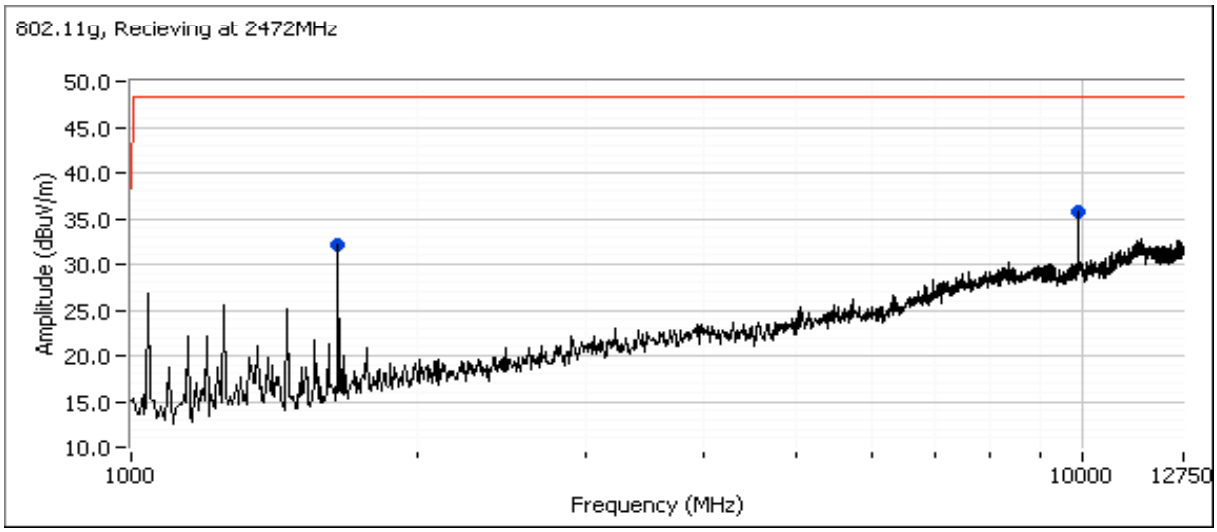
Graph - low channel at 2412 MHz, Mode: 802.11g



Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

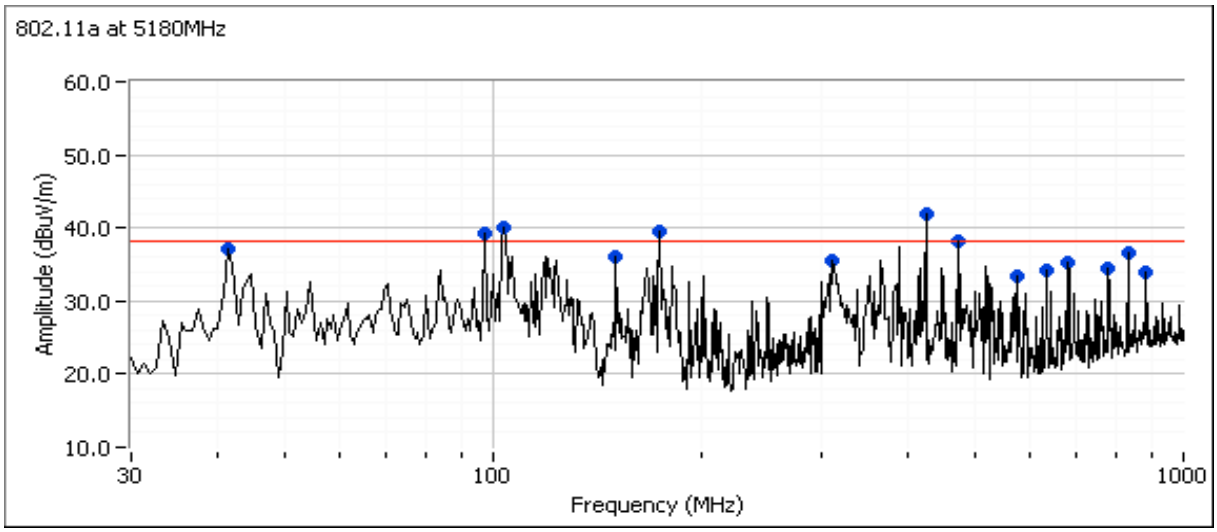
Graph - low channel at 2472 MHz, Mode: 802.11g

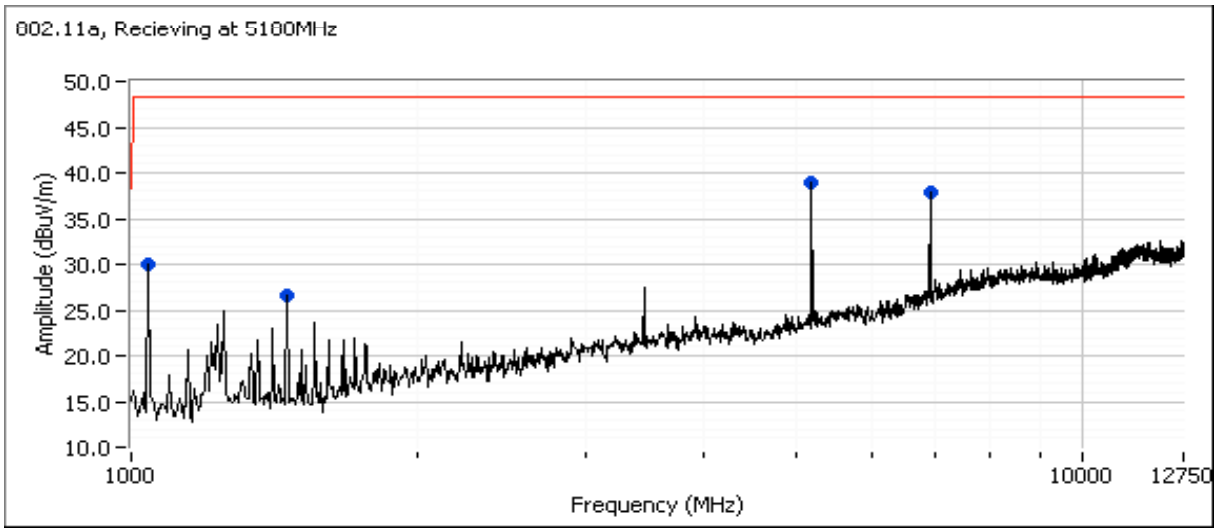




Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

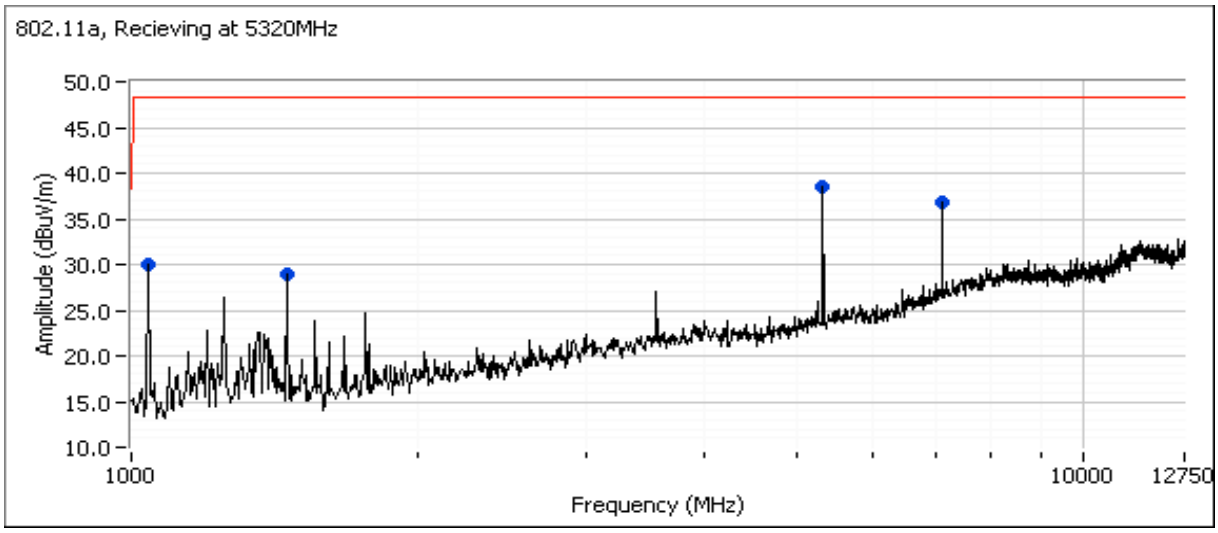
Graph - low channel at 5180 MHz, Mode 802.11a



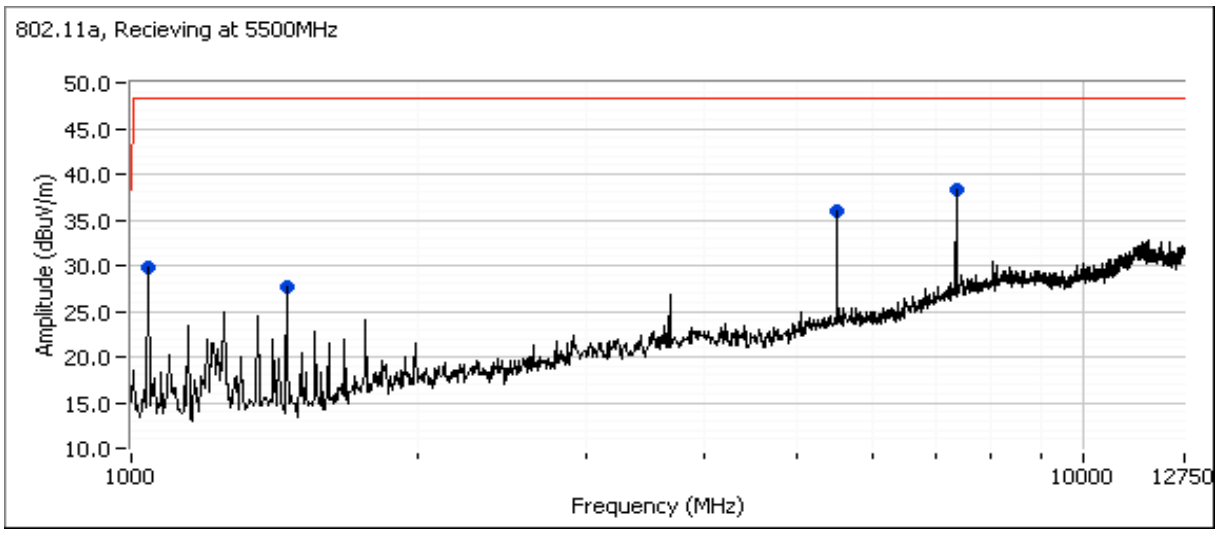


Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Graph - high channel at 5320 MHz, Mode 802.11a

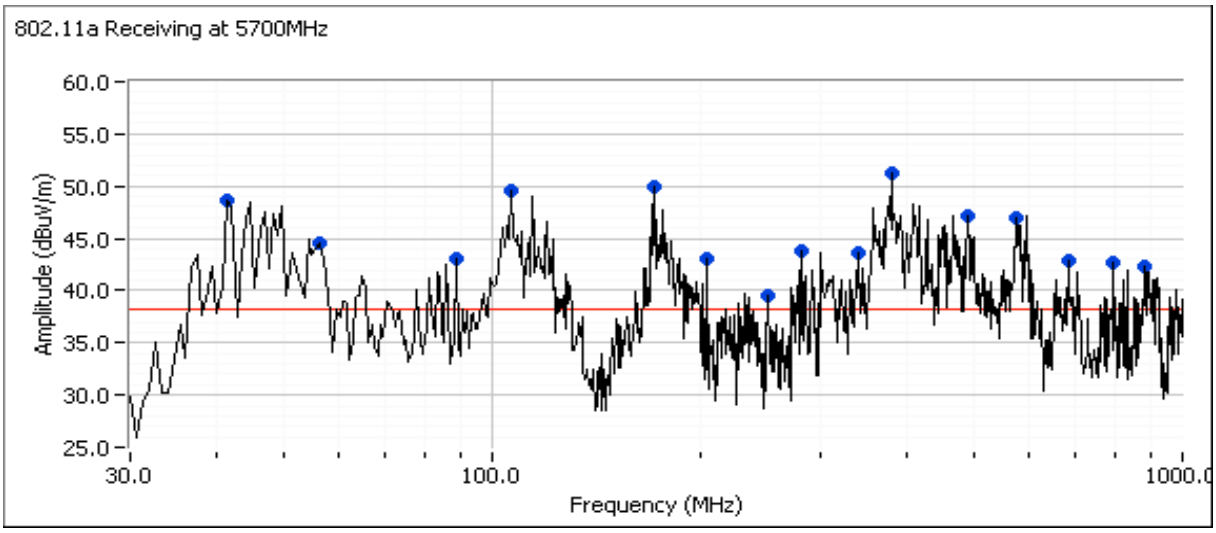


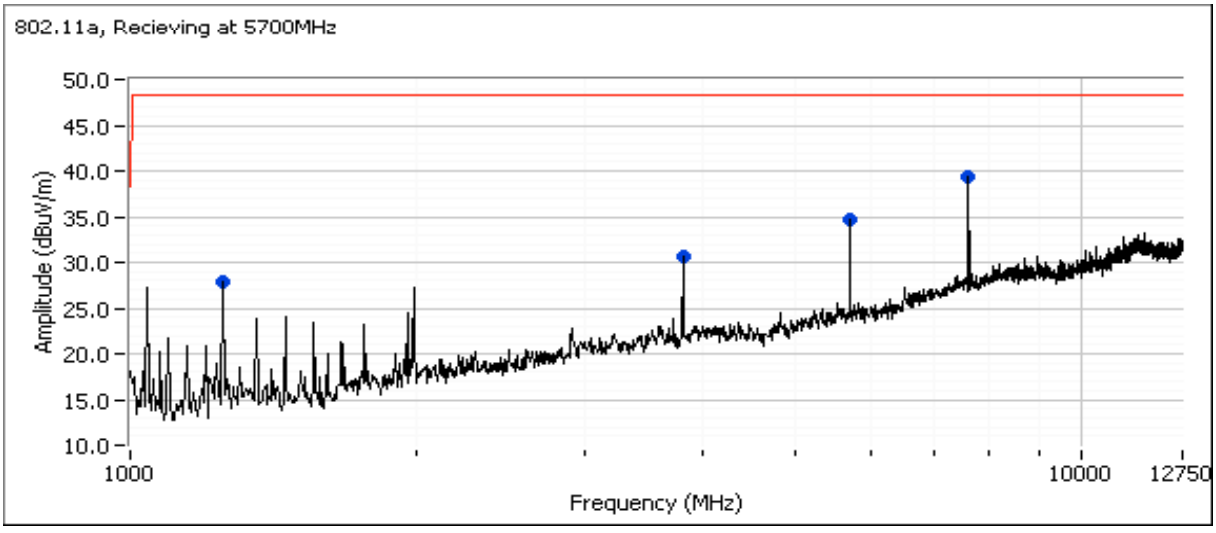
Graph - low channel at 5500 MHz, Mode 802.11a



Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Graph - high channel at 5700 MHz, Mode 802.11a





Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Results Table - All channels

Frequency	Level	Pol	EN Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		Frequency
40.125	23.4	V	38.3	-14.9	Peak	179	1.7		36, a
41.475	48.6	V	38.3	10.3	Peak	211	1.7		140, a
41.475	37.1	V	38.3	-1.2	Peak	315	1.7		36, a
44.153	32.9	V	38.3	-5.4	Peak	239	1.7		13, g
48.422	38.0	V	38.3	-0.3	Peak	149	1.7		1, b
52.004	35.5	V	38.3	-2.8	Peak	59	1.7		1, b
55.741	35.8	V	38.3	-2.5	Peak	119	1.7		13, g
56.325	44.6	V	38.3	6.3	Peak	211	1.7		140, a
88.725	43.0	V	38.3	4.7	Peak	1	1.7		140, a
92.832	35.7	V	38.3	-2.6	Peak	179	1.7		13, g
97.500	39.3	V	38.3	1.0	Peak	191	1.7		36, a
103.575	40.0	V	38.3	1.7	Peak	209	1.7		36, a
103.994	40.6	V	38.3	2.3	Peak	179	1.7		13, g
104.008	46.6	V	38.3	8.3	Peak	179	1.7		1, b
106.950	49.5	V	38.3	11.2	Peak	151	1.7		140, a
118.270	37.6	V	38.3	-0.7	Peak	119	1.7		13, g
150.825	36.1	H	38.3	-2.2	Peak	279	1.7		36, a
172.203	36.0	H	38.3	-2.3	Peak	61	1.7		13, g
172.425	49.9	H	38.3	11.6	Peak	119	1.7		140, a
174.450	39.4	H	38.3	1.1	Peak	223	1.7		36, a
174.450	26.2	H	38.3	-12.1	Peak	271	1.7		36, a
187.389	35.1	H	38.3	-3.2	Peak	121	1.7		1, b
205.500	43.0	H	38.3	4.7	Peak	149	1.7		140, a
208.008	31.2	H	38.3	-7.1	Peak	241	1.7		1, b
242.411	30.2	H	38.3	-8.1	Peak	121	1.7		1, b
250.725	39.5	H	38.3	1.2	Peak	119	1.7		140, a
280.425	43.8	H	38.3	5.5	Peak	149	1.7		140, a
301.911	38.4	H	38.3	0.1	Peak	144	1.7		1, b
310.500	35.6	H	38.3	-2.7	Peak	278	1.7		36, a
340.250	43.7	H	38.3	5.4	Peak	239	1.7		140, a
378.750	51.2	H	38.3	12.9	Peak	242	1.7		140, a
416.019	31.7	H	38.3	-6.6	Peak	305	1.7		36, a
417.643	38.8	H	38.3	0.5	Peak	317	1.7		1, b
424.250	41.9	H	38.3	3.6	Peak	151	1.7		36, a
468.022	31.2	H	38.3	-7.1	Peak	336	1.7		36, a
473.250	38.3	H	38.3	0.0	Peak	232	1.7		36, a
489.000	47.1	H	38.3	8.8	Peak	245	1.7		140, a
500.521	36.5	H	38.3	-1.8	Peak	104	1.7		1, b
520.003	33.1	H	38.3	-5.2	Peak	97	1.7		36, a
520.029	33.0	H	38.3	-5.3	Peak	104	1.7		13, g

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Results Table - All channels

Frequency	Level	Pol	EN Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		Frequency
576.500	47.0	H	38.3	8.7	Peak	87	1.7		140, a
576.500	33.3	H	38.3	-5.0	Peak	83	1.7		36, a
634.250	34.2	H	38.3	-4.1	Peak	293	1.7		36, a
681.500	35.2	H	38.3	-3.1	Peak	272	1.7		36, a
685.000	42.9	H	38.3	4.6	Peak	140	1.7		140, a
779.500	34.6	H	38.3	-3.7	Peak	80	1.7		36, a
779.997	35.1	H	38.3	-3.2	Peak	77	1.7		36, a
779.997	34.1	H	38.3	-4.2	Peak	104	1.7		13, g
793.500	42.6	H	38.3	4.3	Peak	282	1.7		140, a
831.974	38.0	H	38.3	-0.3	Peak	265	1.7		1, b
832.000	36.6	H	38.3	-1.7	Peak	232	1.7		36, a
832.000	36.5	H	38.3	-1.8	Peak	258	1.7		36, a
832.000	33.8	H	38.3	-4.5	Peak	254	1.7		13, g
881.000	42.3	H	38.3	4.0	Peak	105	1.7		140, a
884.003	33.9	H	38.3	-4.4	Peak	116	1.7		13, g
884.500	33.9	H	38.3	-4.4	Peak	105	1.7		36, a
885.207	33.4	H	38.3	-4.9	Peak	258	1.7		36, a
936.009	33.5	V	38.3	-4.8	Peak	195	1.7		36, a
1042.750	30.7	V	48.3	-17.6	Peak	285	1.7		13, b
1042.750	30.1	V	48.3	-18.2	Peak	293	1.7		64, a
1042.750	29.9	V	48.3	-18.4	Peak	295	1.7		36, a
1042.750	29.8	H	48.3	-18.5	Peak	302	1.7		100, a
1042.750	29.7	H	48.3	-18.6	Peak	18	1.7		1, b
1251.750	28.5	V	48.3	-19.8	Peak	95	1.7		1, b
1251.750	27.8	V	48.3	-20.5	Peak	250	1.7		140, a
1456.000	29.0	V	48.3	-19.3	Peak	250	1.7		64, a
1456.000	27.7	V	48.3	-20.6	Peak	302	1.7		100, a
1460.750	29.5	V	48.3	-18.8	Peak	270	1.7		13, b
1460.750	26.6	H	48.3	-21.7	Peak	295	1.7		36, a
1612.750	34.9	V	48.3	-13.4	Peak	294	1.7		1, b
1612.750	31.7	V	48.3	-16.6	Peak	289	1.7		1, g
1612.750	31.7	H	48.3	-16.6	Peak	289	1.7		1, g
1650.750	34.0	V	48.3	-14.3	Peak	275	1.7		13, b
1650.750	32.1	H	48.3	-16.2	Peak	293	1.7		13, g
3809.000	30.6	V	48.3	-17.7	Peak	247	1.7		140, a
5180.000	38.0	V	48.3	-10.3	Peak	297	1.7		36, a
5320.000	38.6	V	48.3	-9.7	Peak	290	1.7		64, a
5501.000	36.0	V	48.3	-12.3	Peak	240	1.7		100, a
5699.000	34.7	V	48.3	-13.6	Peak	297	1.7		140, a
6911.250	37.3	V	48.3	-11.0	Peak	77	1.7		36, a

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Results Table - All channels

Frequency	Level	Pol	EN Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		Frequency
7103.750	36.8	V	48.3	-11.5	Peak	80	1.7		64, a
7340.000	38.3	V	48.3	-10.0	Peak	279	1.7		100, a
7602.500	39.4	V	48.3	-8.9	Peak	86	1.7		140, a
9650.000	34.6	V	48.3	-13.7	Peak	323	1.7		1, g
9650.000	34.6	V	48.3	-13.7	Peak	323	1.7		1, g
9650.000	32.9	V	48.3	-15.4	Peak	309	1.7		1, b
9886.250	35.7	V	48.3	-12.6	Peak	319	1.7		13, g
9895.000	34.7	V	48.3	-13.6	Peak	315	1.7		13, b

Note 1:	(EN 300 328 and EN 301 893) The field strength limit in the tables above was calculated from the erp/eirp limit detailed in the standard using the free space propagation equation: E=√(30PG)/d. This limit is conservative - it does not consider the presence of the ground plane and, for erp limits, the dipole gain (2.2dBi) has not been included. The erp or eirp for all signals with less than 10dB of margin relative to this field strength limit is determined using substitution measurements.

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Run #4: Radiated Spurious Emissions, Receive Mode: Final Field Strength and Substitution Measurements
Measurements made at 3m

Frequency	Level	Pol	EN Note 1		Detector	Azimuth	Height	Comments	Channel
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters		Frequency
48.422	36.2	V	38.3	-2.1	Peak	330	1.2		1, b
104.008	26.3	V	38.3	-12.0	Peak	360	1.0		1, b
189.470	32.2	H	38.3	-6.1	Peak	330	1.6		1, b
208.008	28.5	H	38.3	-9.8	Peak	18	2.0		1, b
242.411	32.4	H	38.3	-5.9	Peak	292	2.6		1, b
301.911	34.6	H	38.3	-3.7	Peak	71	2.2		1, b
417.643	36.5	H	38.3	-1.8	Peak	132	2.3		1, b
500.521	31.5	H	38.3	-6.8	Peak	199	2.0		1, b
832.048	35.8	H	38.3	-2.5	Peak	140	1.0		1, b
7333.780	38.1	V	48.3	-10.2	Peak	61	2.2		100, a
92.832	25.9	V	38.3	-12.4	Peak	360	1.0		13, g
103.994	25.8	V	38.3	-12.5	Peak	10	1.0		13, g
118.270	27.3	V	38.3	-11.0	Peak	330	1.2		13, g
41.475	35.1	V	38.3	-3.2	Peak	199	2.0		140, a
56.325	27.6	V	38.3	-10.7	Peak	140	1.0		140, a
106.950	26.8	V	38.3	-11.5	Peak	130	1.0		140, a
172.425	31.7	H	38.3	-6.6	Peak	360	1.0		140, a
205.500	27.7	H	38.3	-10.6	Peak	33	2.0		140, a
250.725	30.9	H	38.3	-7.4	Peak	18	2.0		140, a
280.425	26.2	H	38.3	-12.1	Peak	292	2.6		140, a
340.250	35.2	H	38.3	-3.1	Peak	71	2.2		140, a
378.750	34.4	H	38.3	-3.9	Peak	128	1.0		140, a
489.000	36.2	H	38.3	-2.1	Peak	360	1.0		140, a
576.500	30.6	H	38.3	-7.7	Peak	33	2.0		140, a
685.000	31.5	H	38.3	-6.8	Peak	199	2.0		140, a
793.500	25.4	H	38.3	-12.9	Peak	140	1.0		140, a
7600.110	45.8	V	48.3	-2.5	Peak	227	1.5		140, a
97.500	33.2	V	38.3	-5.1	Peak	360	1.0		36, a
150.825	29.7	H	38.3	-8.6	Peak	33	2.0		36, a
310.500	38.1	H	38.3	-0.2	Peak	261	2.0		36, a
416.019	35.2	H	38.3	-3.1	Peak	241	1.2		36, a
424.250	28.7	H	38.3	-9.6	Peak	250	1.3		36, a
468.022	34.2	H	38.3	-4.1	Peak	18	2.0		36, a
473.250	33.7	H	38.3	-4.6	Peak	292	2.6		36, a
520.003	28.4	H	38.3	-9.9	Peak	71	2.2		36, a
634.250	30.2	H	38.3	-8.1	Peak	330	1.2		36, a
681.500	31.9	H	38.3	-6.4	Peak	130	1.0		36, a
779.997	32.2	H	38.3	-6.1	Peak	360	1.0		36, a
936.009	27.2	V	38.3	-11.1	Peak	20	1.6		36, a

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Frequency MHz	Level dBµV/m	Pol V/H	EN Note 1 Limit	Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments	Channel Frequency
884.003	25.1	H	38.3	-13.2	Peak	130	1.0		13, g
881.000	24.7	H	38.3	-13.6	Peak	360	1.0		140, a
88.725	22.9	V	38.3	-15.4	Peak	360	1.0		140, a
5320.420	30.5	V	48.3	-17.8	Peak	79	2.0		64, a

Note 1:	(EN 300 328 and EN 301 893) The field strength limit in the tables above was calculated from the erp/eirp limit detailed in the standard using the free space propagation equation: E=√(30PG)/d. This limit is conservative - it does not consider the presence of the ground plane and, for erp limits, the dipole gain (2.2dBi) has not been included. The erp or eirp for all signals with less than 10dB of margin relative to this field strength limit is determined using substitution measurements.

Horizontal

Frequency	Substitution measurements			Site	EUT measurements			eirp Limit	erp Limit	Margin
MHz	Pin[1]	Gain[2]	FS[3]	Factor[4]	FS[5]	eirp (dBm)	erp (dBm)	dBm	dBm	dB
150.825	-11.0	1.5	88.8	98.3	29.7	-68.6	-70.8		-57.0	-13.8
172.425	-11.0	1.6	88.5	97.9	31.7	-66.2	-68.4		-57.0	-11.4
189.470	-11.1	1.7	87.6	97.0	32.2	-64.8	-67.0		-57.0	-10.0
208.008	-11.2	1.3	88.2	98.1	28.5	-69.6	-71.8		-57.0	-14.8
242.411	-11.3	1.7	85.2	94.8	32.4	-62.4	-64.6		-57.0	-7.6
250.725	-11.3	1.4	85.4	95.3	30.9	-64.4	-66.6		-57.0	-9.6
301.911	-11.4	6.5	89.8	94.7	34.6	-60.1	-62.3		-57.0	-5.3
310.500	-11.4	6.5	89.8	94.7	38.1	-56.6	-58.8		-57.0	-1.8
340.250	-11.6	6.4	91.3	96.5	35.2	-61.3	-63.5		-57.0	-6.5
378.750	-11.7	6.9	91.5	96.3	34.4	-61.9	-64.1		-57.0	-7.1
416.019	-11.8	5.3	89.8	96.3	35.2	-61.1	-63.3		-57.0	-6.3
417.643	-11.8	5.3	89.8	96.3	36.5	-59.8	-62.0		-57.0	-5.0
424.250	-11.9	4.8	90.1	97.2	28.7	-68.5	-70.7		-57.0	-13.7
468.022	-12.0	7.0	92.1	97.1	34.2	-62.9	-65.1		-57.0	-8.1
473.250	-12.0	7.0	92.1	97.1	33.7	-63.4	-65.6		-57.0	-8.6
489.000	-12.0	7.2	91.6	96.4	36.2	-60.2	-62.4		-57.0	-5.4
500.521	-12.1	7.8	91.9	96.2	31.5	-64.7	-66.9		-57.0	-9.9
520.003	-12.1	7.0	90.7	95.8	28.4	-67.4	-69.6		-57.0	-12.6
576.500	-12.4	7.6	91.4	96.2	30.6	-65.6	-67.8		-57.0	-10.8
634.250	-12.6	8.3	91.4	95.7	30.2	-65.5	-67.7		-57.0	-10.7
681.500	-12.7	6.6	91.2	97.3	31.9	-65.4	-67.6		-57.0	-10.6
685.000	-12.7	6.6	91.2	97.3	31.5	-65.8	-68.0		-57.0	-11.0
779.997	-12.9	8.2	91.6	96.3	32.2	-64.1	-66.3		-57.0	-9.3
832.048	-13.4	6.9	89.9	96.4	35.8	-60.6	-62.8		-57.0	-5.8

Client:	Summit Data Communications	Job Number:	J74548
Model:	802.11ag Compact Flash Card	T-Log Number:	T74797
		Account Manager:	Christine Krebill
Contact:	Jerry Pohmurski		
Standard:	EN 300 328 V1.7.1, EN 301 893 V1.4.1	Class:	N/A

Vertical

Frequency	Substitution measurements			Site	EUT measurements			eirp Limit	erp Limit	Margin
MHz	Pin[1]	Gain[2]	FS[3]	Factor[4]	FS[5]	eirp (dBm)	erp (dBm)	dBm	dBm	dB
41.48	-10.5	-8.6	79.7	98.8	35.1	-63.7	-65.9		-57.0	-8.9
48.42	-10.5	-6.3	79.7	96.5	36.2	-60.3	-62.5		-57.0	-5.5
97.50	-10.7	0.3	83.6	94.0	33.2	-60.8	-63.0		-57.0	-6.0
7600.11	-12.1	10.3	97.9	99.7	45.8	-53.9	-56.1		-47.0	-9.1

Note 1:	Pin is the input power (dBm) to the substitution antenna
Note 2:	Gain is the gain (dBi) for the substitution antenna. A dipole has a nominal gain of 2.2dBi, however the dipole balun loss may reduce the gain of the substitution dipole used.
Note 3:	FS is the field strength (dBuV/m) measured from the substitution antenna, maximized for receive antenna height and transmit antenna azimuth.
Note 4:	Site Factor - this is the site factor to convert from a field strength in dBuV/m to an eirp in dBm.
Note 5:	EUT field strength as measured during initial run.

Appendix C Product Information Specific To EN 301 893

Information required by EN 301 893

In accordance with clause 5.3.1, the following information was provided by the submitter:

a) The occupied channel bandwidth(s):

Channel Bandwidth 1: 20 MHz

Channel Bandwidth 2: ___ MHz

Channel Bandwidth 3: ___ MHz

NOTE: Add more lines if the equipment has more channel Bandwidths.

b) The DFS related operating mode(s) of the equipment:

☐ Master

☐ Slave with radar detection

☒ Slave without radar detection

NOTE: If the equipment has more than 1 operating mode, tick all that apply.

c) The equipment can operate in the following ad-hoc modes:

☒ no ad-hoc operation

☐ ad-hoc operation in the frequency range 5 150 MHz to 5 250 MHz without DFS

☐ ad-hoc operation with DFS

NOTE: If more than 1 is applicable, tick all that apply.

d) Operating Frequency Range(s):

☒ Range 1: 5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz

☐ Range 2: 5 470 MHz to 5 725 MHz only

☐ Range 3: 5 150 MHz to 5 250 MHz (ad-hoc without DFS)

☐ Range 4: other,……..

NOTE: If the equipment has more than 1 Operating Frequency Range, tick all that apply.

e) TPC feature available:

☐ Yes – complete section (f)

☒ No – complete section (g)

NOTE 1: You may decide to declare that the equipment can operate with and without a TPC feature in which case complete both (f) and (g)

f) If the equipment has a TPC range, the lowest and highest power level (or lowest and highest EIRP level in case of integrated antenna equipment), intended antenna assemblies and corresponding operating frequency range for the TPC range (or for each of the TPC ranges if more than one is implemented).

NOTE: Add more sections similar to the ones below if the equipment has more than 2 TPC ranges.

TPC range 1:

Applicable Frequency Range:

☐ 5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz (Indoor)

☐ 5 470 MHz to 5 725 MHz only (Outdoor only)

Applicable power levels (see note): Tx out / EIRP

Lowest setting (P_{low}): ……. dBm

Highest setting (P_{high}): ……. dBm

NOTE: Indicated whether the power levels specified are Transmitter Output Power levels or EIRP levels in case of integrated antenna equipment

Intended Antenna Assemblies:

Antenna Assembly name	Antenna Gain (dBi)	EIRP for Plow (dBm)	EIRP for Phigh (dBm)

NOTE: Add more rows into the table If more antenna assemblies are intended for this TPC range.

DFS Threshold level[3]: dBm ☐ at the antenna connector

☐ in front of the antenna

3 NOTE: For equipment with a maximum EIRP below 200 mW, the DFS threshold level shall be -62 dBm or less, for equipment with an EIRP of 200 mW or above, the DFS threshold level shall be -64 dBm or less. These levels assume a 0 dBi antenna gain. To define the applicable threshold level at the (temporary) antenna connector, the gain of the antenna (in dBi) shall be added to the threshold level. If more than one antenna is intended for this TPC range or power setting, the antenna gain of the antenna with the lowest gain shall be used.

TPC range 2:

Applicable Frequency Range:

☐ 5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz (Indoor)

☐ 5 470 MHz to 5 725 MHz only (Outdoor only)

Applicable power levels (see note): ☐ TX Output Power or ☐ EIRP

Lowest setting (P_{low}): ……. dBm

Highest setting (P_{high}): ……. dBm

NOTE: Indicated whether the power levels specified are Transmitter Output Power levels or EIRP levels in case of integrated antenna equipment

Intended Antenna Assemblies:

Antenna Assembly name	Antenna Gain (dBi)	EIRP for Plow (dBm)	EIRP for Phigh (dBm)

NOTE: Add more rows into the table If more antenna assemblies are intended for this TPC range.

DFS Threshold level[4]: dBm ☐ at the antenna connector

☐ in front of the antenna

4 NOTE: For equipment with a maximum EIRP below 200 mW, the DFS threshold level shall be -62 dBm or less, for equipment with an EIRP of 200 mW or above, the DFS threshold level shall be -64 dBm or less. These levels assume a 0 dBi antenna gain. To define the applicable threshold level at the (temporary) antenna connector, the gain of the antenna (in dBi) shall be added to the threshold level. If more than one antenna is intended for this TPC range or power setting, the antenna gain of the antenna with the lowest gain shall be used.

g) If the equipment has **no TPC feature**, the maximum transmitter output power level (or maximum EIRP level in case of integrated antenna equipment), the intended antenna assemblies, the corresponding operating frequency range and the corresponding DFS threshold level. If the equipment has multiple power levels and corresponding antenna assemblies, than this information should be provided for each of the stated power levels.

NOTE 2: Add more sections similar to the ones below if the equipment has more power levels.

Power Level 1

Applicable Frequency Range:

☒ 5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz (Indoor)

☐ 5 470 MHz to 5 725 MHz only (Outdoor only)

Applicable power levels (see note): Tx out / EIRP

Power level …20.9 dBm ☐ TX Output Power or ☒ EIRP

NOTE: Indicated whether the power level specified is Transmitter Output Power level or EIRP level in case of integrated antenna equipment

Intended Antenna Assemblies[5]:

Antenna Assembly name	Antenna Gain (dBi)	EIRP (dBm)
Laird, pcb	5.1	

DFS Threshold level[6]: 62 dBm ☐ at the antenna connector

☒ in front of the antenna

[5] NOTE: Add more rows into the table If more antenna assemblies are intended for this TPC range

6 NOTE: For equipment with a maximum EIRP below 200 mW, the DFS threshold level shall be -62 dBm or less, for equipment with an EIRP of 200 mW or above, the DFS threshold level shall be -64 dBm or less. These levels assume a 0 dBi antenna gain. To define the applicable threshold level at the (temporary) antenna connector, the gain of the antenna (in dBi) shall be added to the threshold level. If more than one antenna is intended for this TPC range or power setting, the antenna gain of the antenna with the lowest gain shall be used.

Power Level 2

Applicable Frequency Range:

☐ 5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz (Indoor)

☐ 5 470 MHz to 5 725 MHz only (Outdoor only)

Applicable power levels (see note): Tx out / EIRP

Power level …….. dBm ☐ TX Output Power or ☐ EIRP

NOTE: Indicated whether the power level specified is Transmitter Output Power level or EIRP level in case of integrated antenna equipment

Intended Antenna Assemblies[7]:

Antenna Assembly name	Antenna Gain (dBi)	EIRP (dBm)

DFS Threshold level[8]: dBm ☐ at the antenna connector

☐ in front of the antenna

[7] NOTE: Add more rows into the table If more antenna assemblies are intended for this TPC range

8 NOTE: For equipment with a maximum EIRP below 200 mW, the DFS threshold level shall be -62 dBm or less, for equipment with an EIRP of 200 mW or above, the DFS threshold level shall be -64 dBm or less. These levels assume a 0 dBi antenna gain. To define the applicable threshold level at the (temporary) antenna connector, the gain of the antenna (in dBi) shall be added to the threshold level. If more than one antenna is intended for this TPC range or power setting, the antenna gain of the antenna with the lowest gain shall be used.

h) The extreme operating temperature range that apply to the equipment:

☐ -20°C to +55°C (Outdoor and Indoor usage)

☐ 0°C to +35°C (Indoor usage only)

☒ Other: .....-10°C to +55°C.....

The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices.

Details provided are for the:

☐ stand-alone equipment ☐ combined (or host) equipment ☒ test jig

Supply Voltage

☒ AC mains State AC voltage ……..

☐ DC State DC voltage …….. State DC current ……..

In case of DC, indicate the type of power source:

☐ Internal Power Supply

☐ External Power Supply or AC/DC adapter

☐ Battery Nickel Cadmium

☐ Alkaline

☐ Nickel-Metal Hydride

☐ Lithium-Ion

☐ Lead acid (Vehicle regulated)

☐ Other .....

i) The test sequences used (see also EN 301 893 [2], clause 5.1.2)

.....

.....

.....

j) Type of Equipment

☐ Stand-alone

☐ Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

☒ Plug-in radio device (Equipment intended for a variety of host systems)

☐ Other .....

Additional Information

a) Modulation:

ITU Class of emission: …G1D…….

☐ Transmitter can operate un-modulated

☐ Transmitter cannot operate un-modulated

b) Duty Cycle

☐ The transmitter is intended for: Continuous duty

☐ Intermittent duty

☒ Continuous operation possible for testing purposes

c) About the UUT

The equipment submitted are representative production models.

If not, the equipment submitted are pre-production models ?

If pre-production equipment is submitted, the final production equipment will be identical in all respects with the equipment tested.

If not, supply full details - the final version will include any appropriate labeling/marking...

.....

☐ The equipment submitted is CE marked:

☐ The CE marking does include the Class-II identifier (Alert Sign).

☐ The CE marking does include a 4 digit number referring to the Notified Body involved.

List of ancillary and/or support equipment

Where possible, the information below should include a description, brand name, model number etc. for each of the equipment provided:

.....

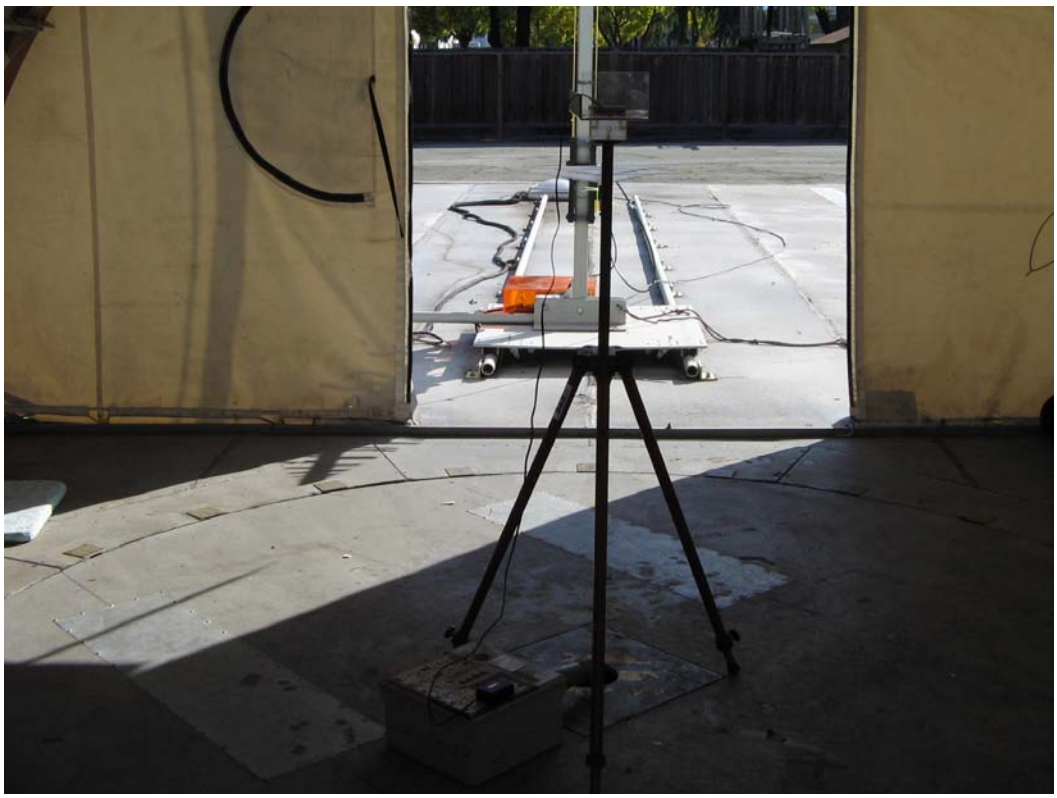
List Of Technical Requirements To Be Tested

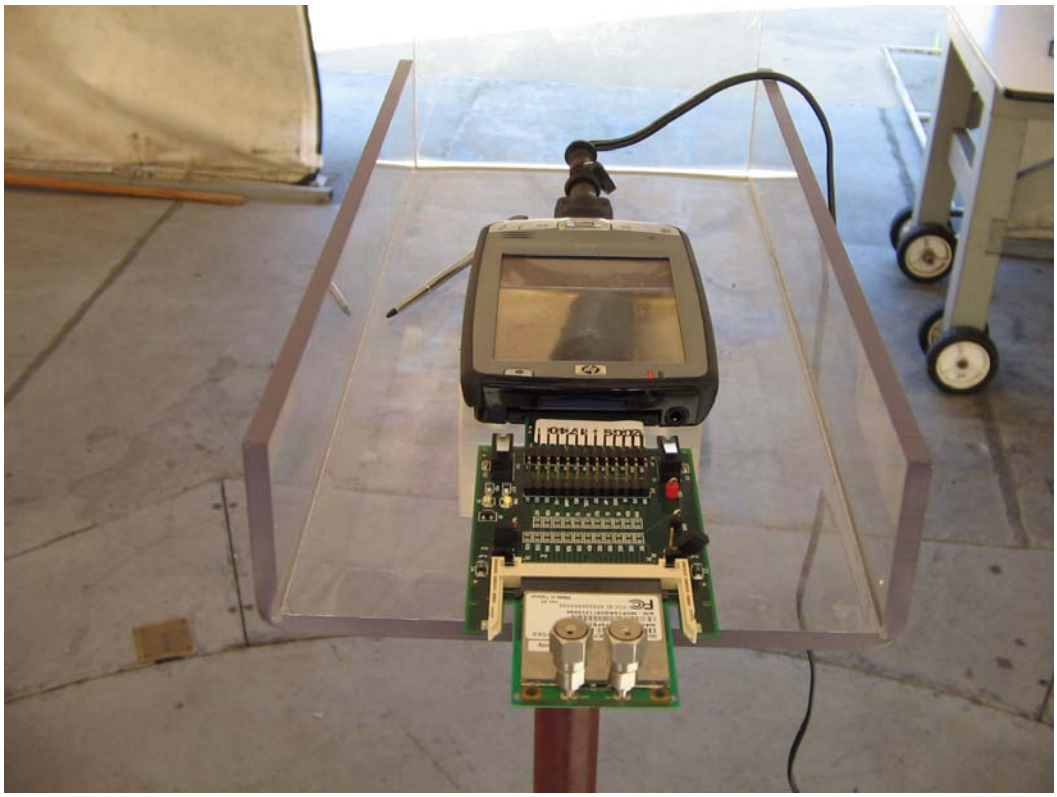
The list of technical requirements called for in EN 301 893 [2] is given below.

Transmitter parameters	
EN Clause	**Transmitter parameters**
4.2	Carrier Frequencies
4.3	RF Output power, Transmit Power Control (TPC) and power Density
4.4	Transmitter unwanted emissions
4.4.1	Transmitter unwanted emissions outside the 5 GHz RLAN bands
4.4.2	Transmitter unwanted emissions within the 5 GHz RLAN bands
4.6	Dynamic Frequency Selection (DFS)
4.6.2.1	Channel Availability Check
4.6.2.2	In-Service Monitoring
4.6.2.3	Channel Shutdown
4.6.2.4	Non-Occupancy Period
4.6.2.5	Uniform Spreading

Receiver parameters	
EN Clause	**Receiver parameters**
4.5	Receiver spurious emissions

Appendix D Photographs





End of Report

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