

Focus Enhancements

Summit FS848 Slave module (Brighton)

Report No. FOCU0053.1

Report Prepared By



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1-888-EMI-CERT

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EMC Test Report

Certificate of Test
Last Date of Test: May 7, 2009
Focus Enhancements
Model: Summit FS848 Slave Module

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Occupied Bandwidth	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Peak Output Power	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Power Spectral Density	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Spurious Conducted Emissions	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Band Edge Compliance	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
AC Powerline Conducted Emissions	FCC 15.207:2009	ANSI C63.4:2003	Pass

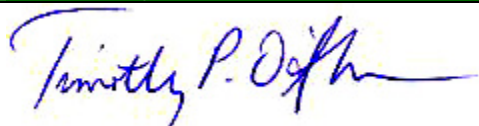
Modifications made to the product**See the Modifications section of this report****Test Facility**

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

Approved By:**Tim O'Shea, Operations Manager****NVLAP Lab Code: 200630-0**

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.



NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.



NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0
NVLAP LAB CODE 200761-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2*)



CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (*Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294.*)



BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.



GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



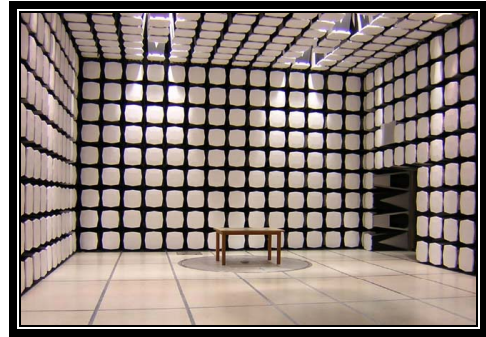
KCC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157*)



SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>



**California – Orange County Facility
Labs OC01 – OC13**

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



**Oregon – Evergreen Facility
Labs EV01 – EV11**

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826



**Washington – Sultan Facility
Labs SU01 – SU07**

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Focus Enhancements
Address:	22867 NW Bennett St., Suite 200
City, State, Zip:	Hillsboro, OR 97124
Test Requested By:	Jim Svoboda
Model:	444-2196
First Date of Test:	April 27, 2009
Last Date of Test:	May 7, 2009
Receipt Date of Samples:	April 27, 2009
Equipment Design Stage:	Preproduction
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

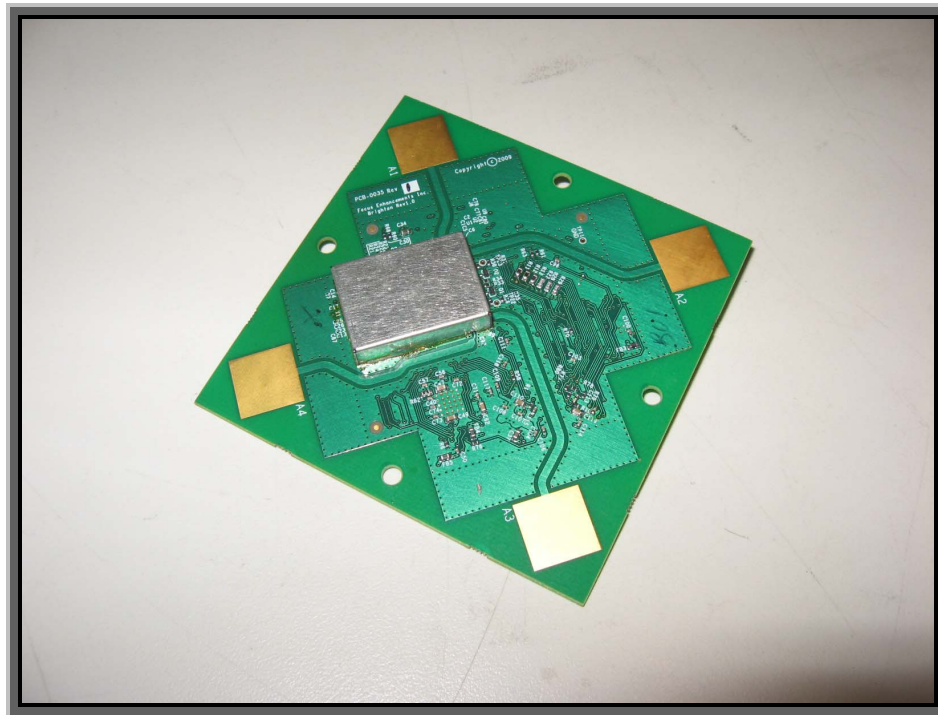
Functional Description of the EUT (Equipment Under Test):

UNII radio module

Testing Objective:

Seeking modular approval of the client under FCC 15.247 for operation in the 5.8 GHz band

EUT Photo



CONFIGURATION 1 FOCU0053**Software/Firmware Running during test**

Description	Version
Terminal	1.9B

EUT

Description	Manufacturer	Model/Part Number	Serial Number
Summit FS848 Slave Module - Direct Connect	Focus Enhancements	444-2196	30

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
DC Power / RS-232 Serial Interface	Focus Enhancements	Hermiston	None
DC Block	MCL	BLK-89	15542
AC Adapter	PHIHONG	PSA21R-033	None

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
Remote PC	Dell	Latitude D820	2006-00516

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Multi-pin Flex Cable	No	0.3m	No	Summit FS848 Slave Module - Direct Connect	DC Power / RS-232 Serial Interface
Serial	Yes	2.0m	No	DC Power / RS-232 Serial Interface	Remote PC
DC Lead	PA	1.8m	PA	AC Adapter	DC Power / RS-232 Serial Interface

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 2 FOCU0053**Software/Firmware Running during test**

Description	Version
Terminal	1.9B

EUT

Description	Manufacturer	Model/Part Number	Serial Number
Summit FS848 Slave Module - Radiated	Focus Enhancements	444-2196	2

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
DC Power / RS-232 Serial Interface	Focus Enhancements	Hermiston	None
AC Adapter	PHIHONG	PSA21R-033	None

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
Remote PC	Dell	Latitude D820	2006-00516

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Multi-pin Flex Cable	No	0.3m	No	Summit FS848 Slave Module Radiated	DC Power / RS-232 Serial Interface
Serial	Yes	2.0m	No	DC Power / RS-232 Serial Interface	Remote PC
DC Lead	PA	1.8m	PA	AC Adapter	DC Power / RS-232 Serial Interface

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 3 FOCU0053**Software/Firmware Running during test**

Description	Version
Terminal	1.9B

EUT

Description	Manufacturer	Model/Part Number	Serial Number
Summit FS848 Slave Module - Radiated 2	Focus Enhancements	444-2196	2

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
DC Power / RS-232 Serial Interface	Focus Enhancements	Hermiston	None
DC Power Supply	Topward	6303D	743645

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
Remote PC	Dell	Latitude D820	2006-00516

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Multi-pin Flex Cable	No	0.3m	No	Summit FS848 Slave Module - Radiated 2	DC Power / RS-232 Serial Interface
AC Power	No	1.8m	No	AC Mains	DC Power Supply
DC Lead	No	1.9m	No	DC Power Supply	DC Power / RS-232 Serial Interface
Serial	Yes	1.9m	No	DC Power / RS-232 Serial Interface	Remote PC

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	4/27/2009	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	5/4/2009	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	5/5/2009	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	5/6/2009	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	5/7/2009	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	5/7/2009	Peak Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	5/7/2009	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was complete.

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate with the typical modulation.

EMC

OCCUPIED BANDWIDTH

EUT: Summit FS848 Slave Module		Work Order: FOCU0053
Serial Number: 30		Date: 04/27/09
Customer: Focus Enhancements		Temperature: 21°C
Attendees: Ponnappa Pasura		Humidity: 34%
Project: None		Barometric Pres.: 1016.0 mb
Tested by: Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV06

TEST SPECIFICATIONS		Test Method
FCC 15.247 (DTS):2009		ANSI C63.4:2003 KDB No. 558074

COMMENTS
None

DEVIATIONS FROM TEST STANDARD
No Deviations

Configuration #	1	 Signature
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	Value	Limit	Results
Low Channel, 147, 5745 MHz	16.348 MHz	> 500 kHz	Pass
Mid Channel, 157, 5785 MHz	16.348 MHz	> 500 kHz	Pass
High Channel, 165, 5825 MHz	16.342 MHz	> 500 kHz	Pass

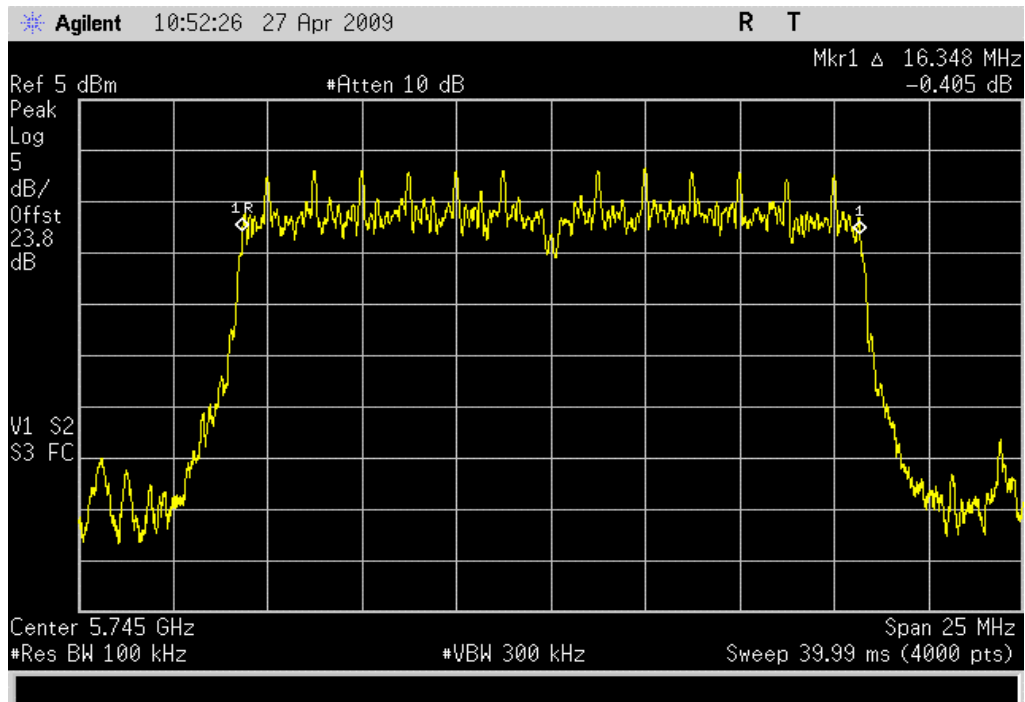
OCCUPIED BANDWIDTH

Low Channel, 147, 5745 MHz

Result: Pass

Value: 16.348 MHz

Limit: > 500 kHz

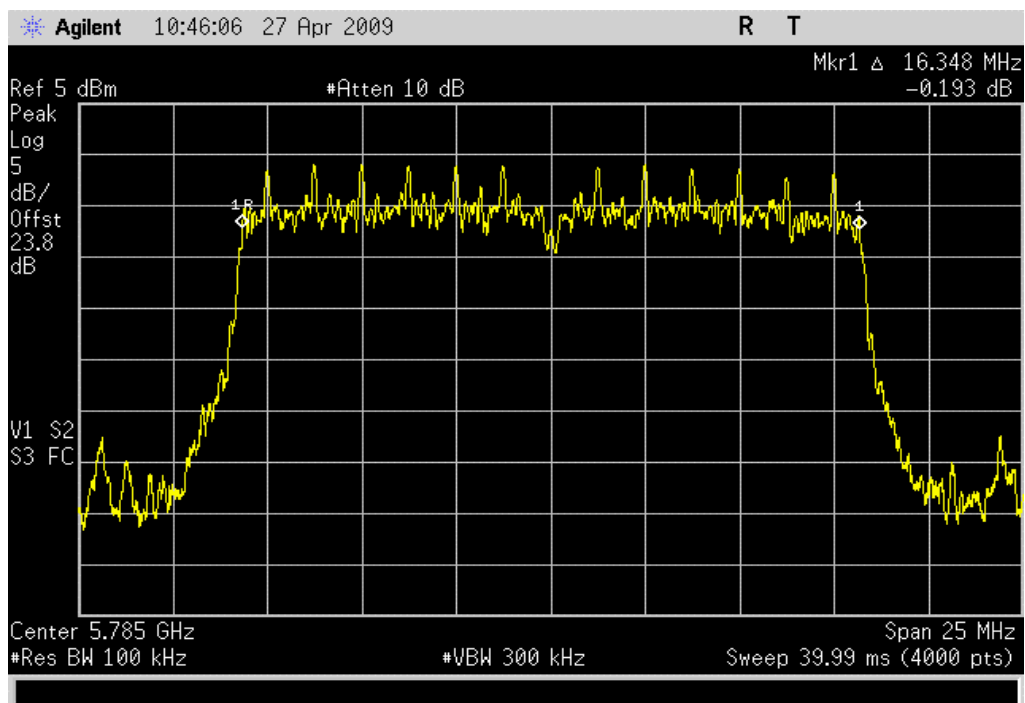


Mid Channel, 157, 5785 MHz

Result: Pass

Value: 16.348 MHz

Limit: > 500 kHz

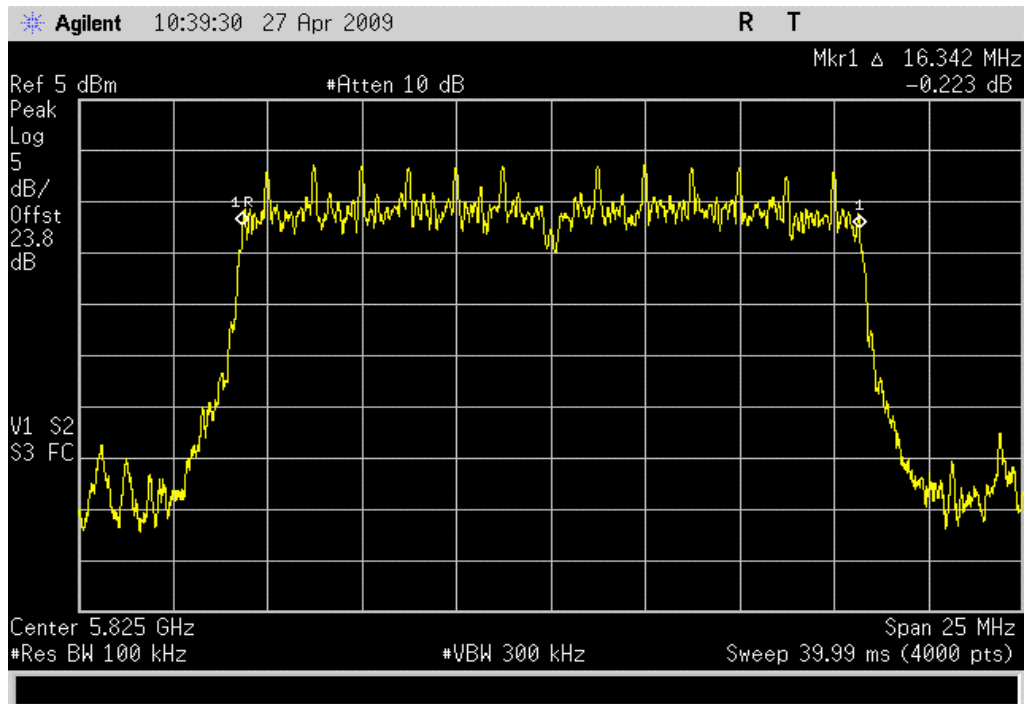


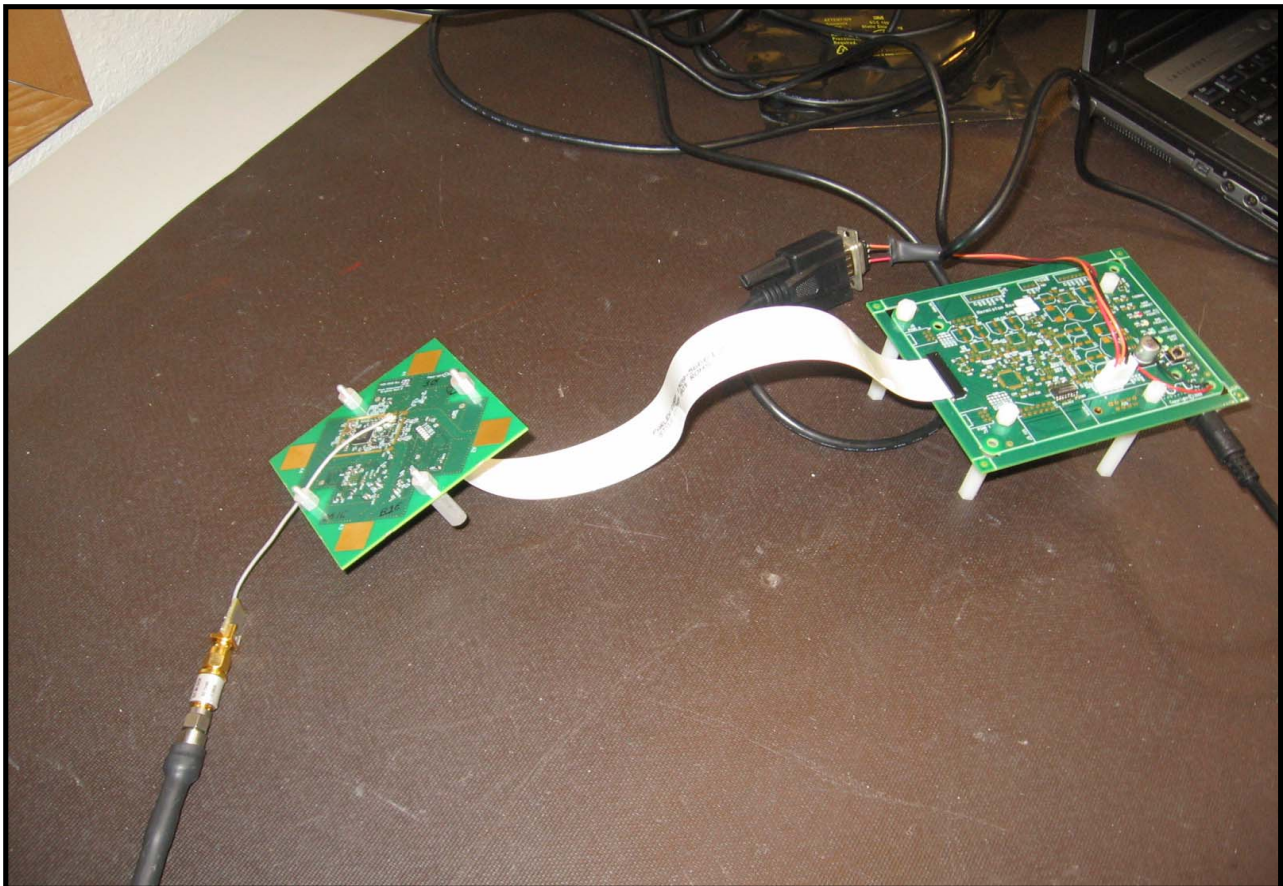
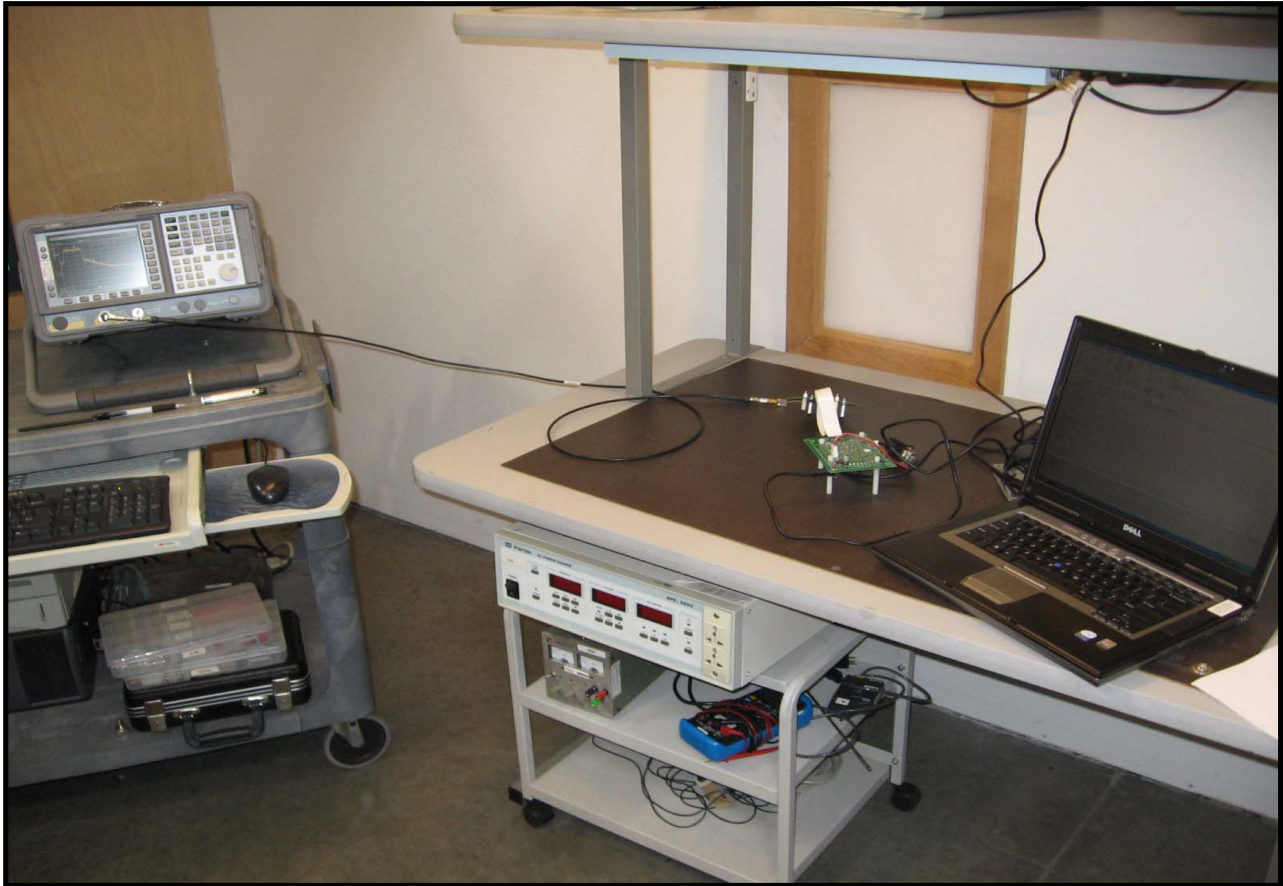
High Channel, 165, 5825 MHz

Result: Pass

Value: 16.342 MHz

Limit: > 500 kHz





Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator		93459 3330A-6	AUF	3/13/2009	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
RF Detector	RLC Electronics	CR-133-R	ZZA	NCR	0
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

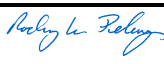
The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The EUT was transmitting at its maximum output power. The data rate of the radio was varied to determine the level that produced the highest output power.

The measurement was made using a direct connection between the RF output of the EUT and a RF detector diode. The DC output of the diode was measured with the oscilloscope. The signal generator, tuned to the transmit frequency, was then substituted for the EUT. The CW output of the signal generator was adjusted until the DC output of the RF detector diode match the peak level produced when connected to the EUT. To further reduce measurement error, the power meter and sensor were then used to measure the output power level of the signal generator.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

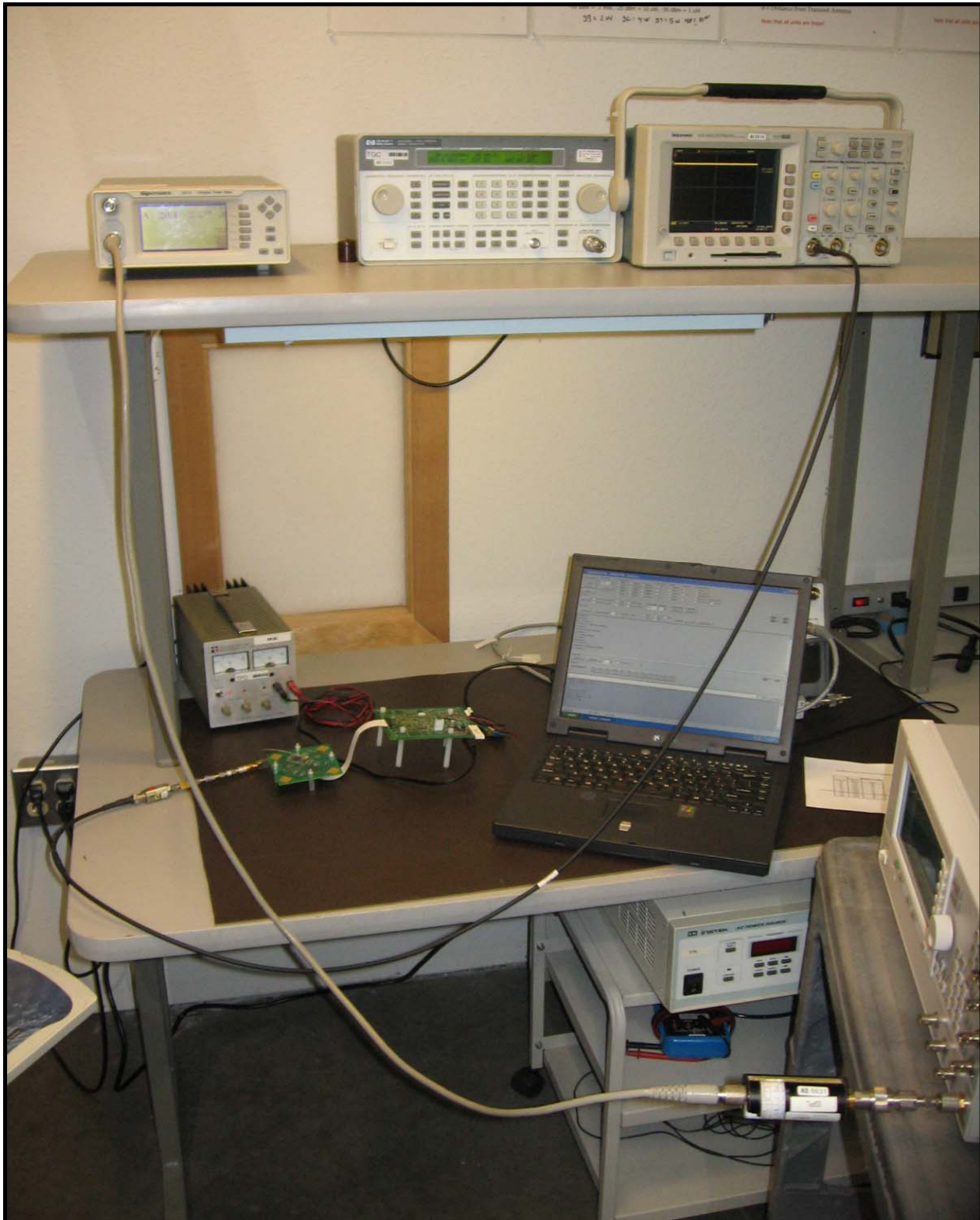
EMC

PEAK OUTPUT POWER

EUT: Summit FS848 Slave Module		Work Order: FOCU0053	
Serial Number: 30		Date: 05/07/09	
Customer: Focus Enhancements		Temperature: 21°C	
Attendees: Ponnappa Pasura		Humidity: 6%	
Project: None		Barometric Pres.: 1023.0 mb	
Tested by: Rod Peloquin		Power: 3.3 VDC	Job Site: EV06
TEST SPECIFICATIONS			
FCC 15.247 (DTS):2009		Test Method ANSI C63.4:2003 KDB No. 558074	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
No Deviations			
Configuration #	1	 Signature	

PEAK OUTPUT POWER

Xmit Frequency (MHz)	Channel	DC on Scope (mV)	Attenuator Specific Ref.Offset (dB)	Jig Gen Output (dBm)	Power Meter (dBm)	Power Meter (mW)	Limit (mW)
5745	149	-50.6	19.56	-8.82	10.7	11.6	1000
5785	157	-48.8	19.56	-9.02	10.5	11.1	1000
5825	165	-49.0	19.56	-8.98	10.5	11.2	1000



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13

MEASUREMENT UNCERTAINTY


Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The requirements of FCC 15.247(d) for emissions at least 20dB below the carrier in any 100kHz bandwidth outside the allowable band was measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum available data rate using OFDM type modulation. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 10 MHz below the band edge to 10 MHz above the band edge.

EMC

BAND EDGE COMPLIANCE

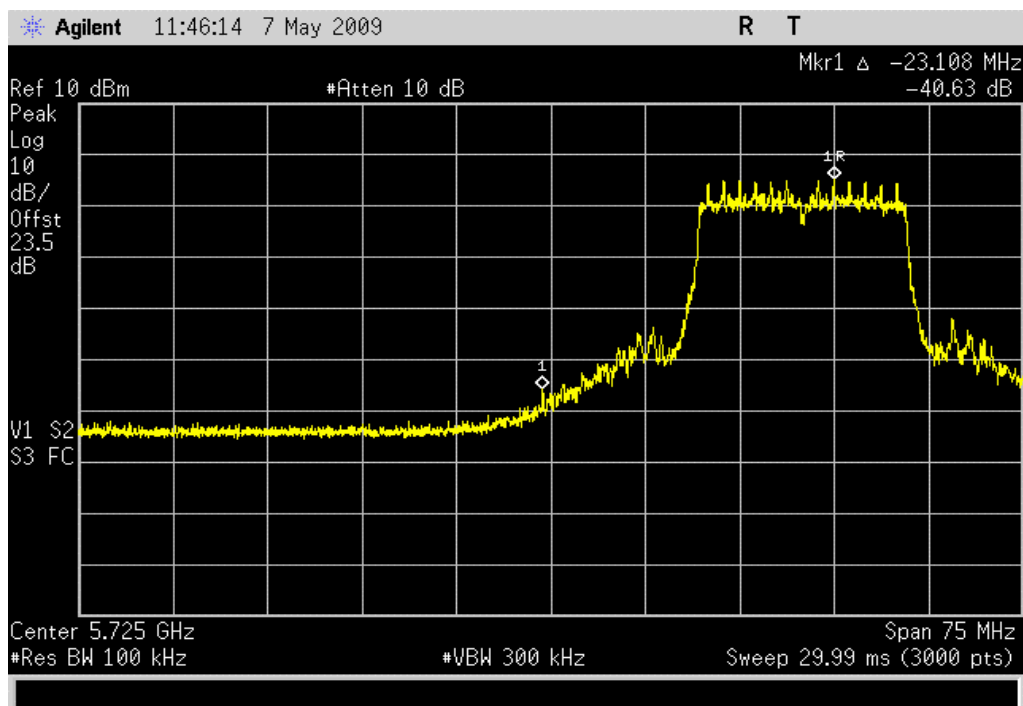
EUT: Summit FS848 Slave Module		Work Order: FOCU0053	
Serial Number: 30		Date: 05/07/09	
Customer: Focus Enhancements		Temperature: 22°C	
Attendees: None		Humidity: 34%	
Project: None		Barometric Pres.: 1016.0 mb	
Tested by: Rod Peloquin		Power: 120VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247 (DTS):2009		Test Method	
		ANSI C63.4:2003 KDB No. 558074	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
No Deviations			
Configuration #	1	Signature 	
		Value	Limit
Low Channel 147, 5745 MHz		-40.6 dB	≥ 20 dBc
High Channel 165, 5785 MHz		-47.1 dB	≥ 20 dBc
			Results
			Pass
			Pass

BAND EDGE COMPLIANCE

Low Channel 147, 5745 MHz

Result: Pass

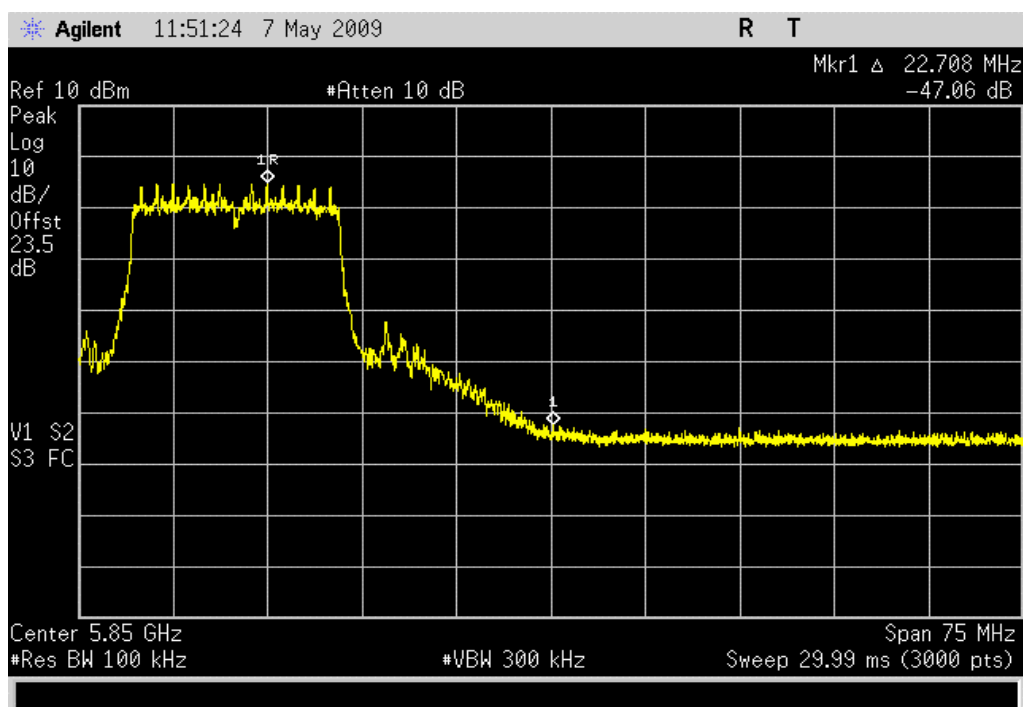
Value: -40.6 dB

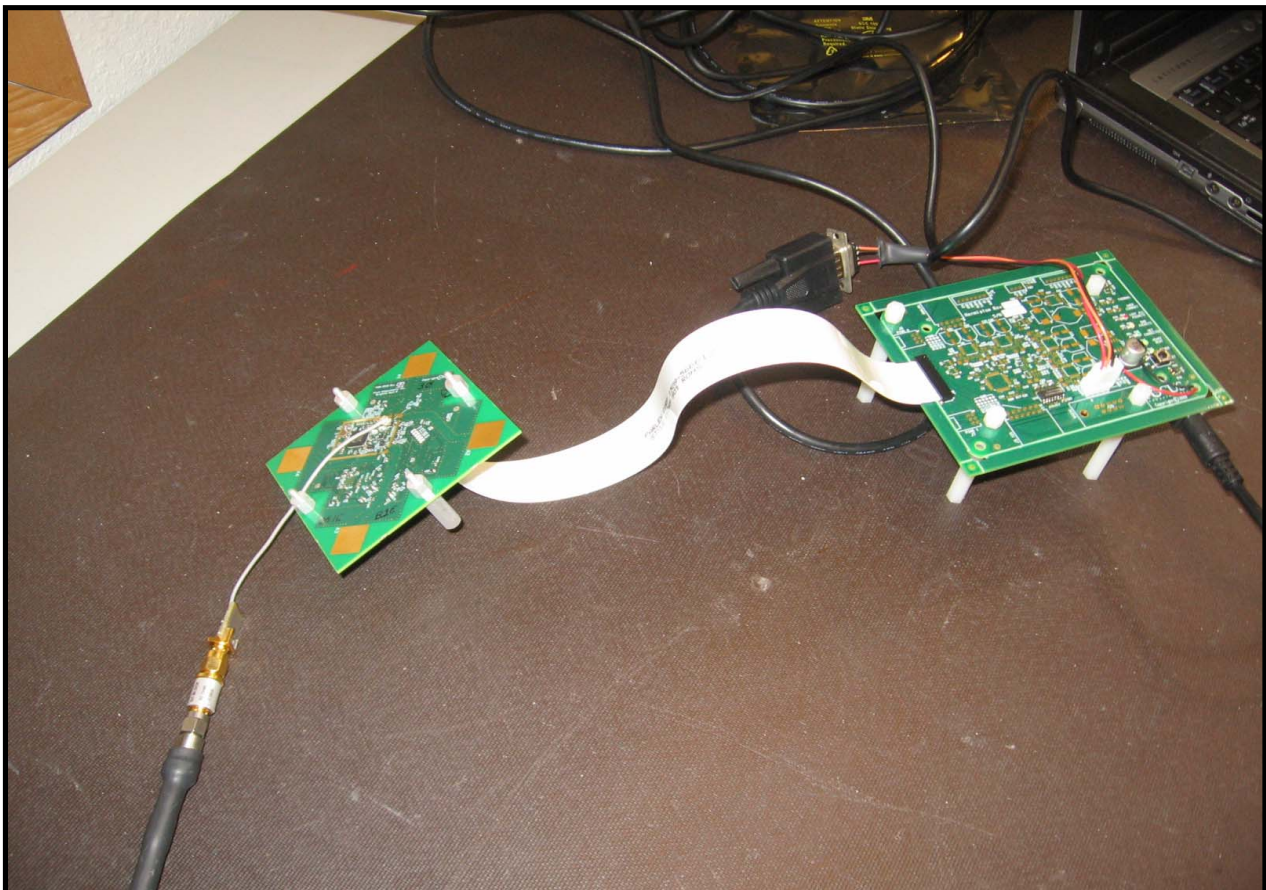
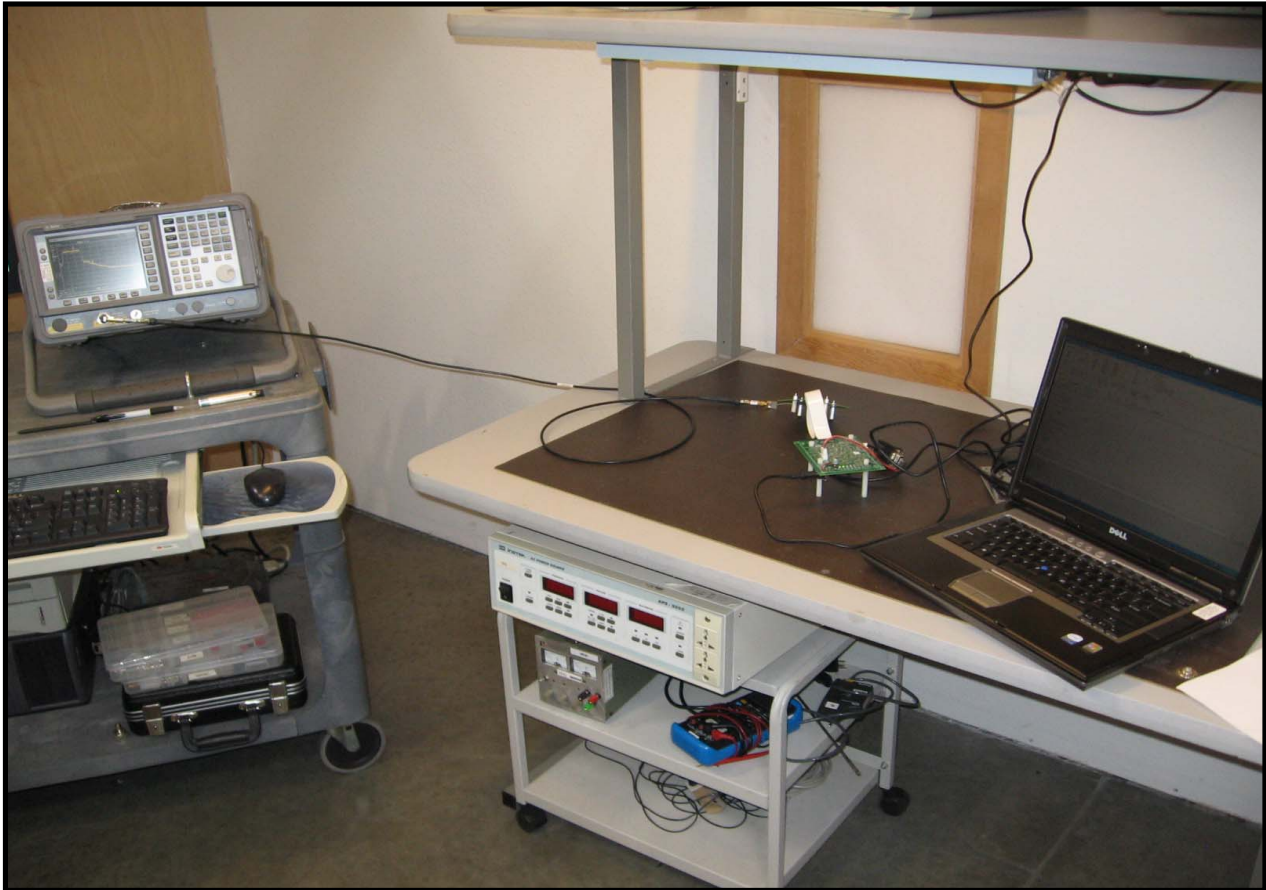
Limit: ≥ 20 dBc

High Channel 165, 5785 MHz

Result: Pass

Value: -47.1 dB

Limit: ≥ 20 dBc



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAY	12/11/2008	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum available data rate using OFDM type modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

EMC

SPURIOUS CONDUCTED EMISSIONS

EUT:	Summit FS848 Slave Module	Work Order:	FOCU0053
Serial Number:	30	Date:	05/04/09
Customer:	Focus Enhancements	Temperature:	22°C
Attendees:	Ponnappa Pasura	Humidity:	34%
Project:	None	Barometric Pres.:	1016.0 mb
Tested by:	Rod Peloquin	Power:	3.3 VDC
		Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074

COMMENTS
None

DEVIATIONS FROM TEST STANDARD
No Deviations

Configuration #	1	Signature 
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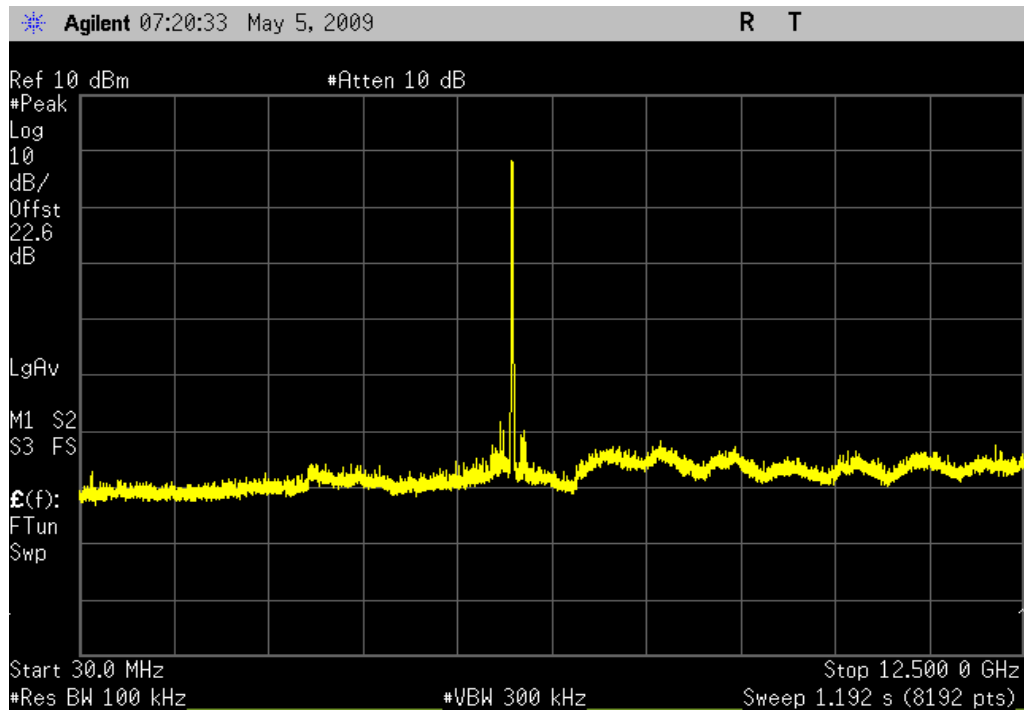
	Value	Limit	Results
6 Mbps			
Low Channel, 5745 MHz			
30 MHz - 12.5 GHz	< -40 dBc	≤ -20 dBc	Pass
12.5 GHz - 26.5 GHz	< -40 dBc	≤ -20 dBc	Pass
26.5 GHz - 31 GHz	< -40 dBc	≤ -20 dBc	Pass
31 GHz - 40 GHz	< -40 dBc	≤ -20 dBc	Pass
Mid Channel, 5785 MHz			
30 MHz - 12.5 GHz	< -40 dBc	≤ -20 dBc	Pass
12.5 GHz - 26.5 GHz	< -40 dBc	≤ -20 dBc	Pass
26.5 GHz - 31 GHz	< -40 dBc	≤ -20 dBc	Pass
31 GHz - 40 GHz	< -40 dBc	≤ -20 dBc	Pass
High Channel, 5825 MHz			
30 MHz - 12.5 GHz	< -40 dBc	≤ -20 dBc	Pass
12.5 GHz - 26.5 GHz	< -40 dBc	≤ -20 dBc	Pass
26.5 GHz - 31 GHz	< -40 dBc	≤ -20 dBc	Pass
31 GHz - 40 GHz	< -40 dBc	≤ -20 dBc	Pass

SPURIOUS CONDUCTED EMISSIONS

6 Mbps, Low Channel, 5745 MHz, 30 MHz - 12.5 GHz

Result: Pass

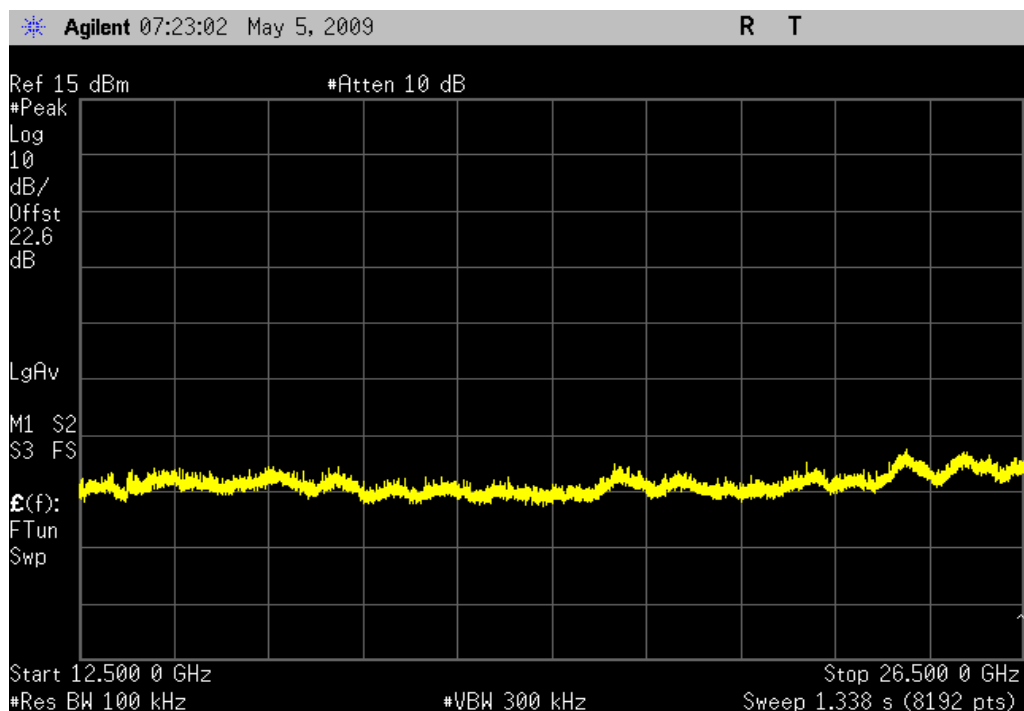
Value: < -40 dBc

Limit: ≤ -20 dBc

6 Mbps, Low Channel, 5745 MHz, 12.5 GHz - 26.5 GHz

Result: Pass

Value: < -40 dBc

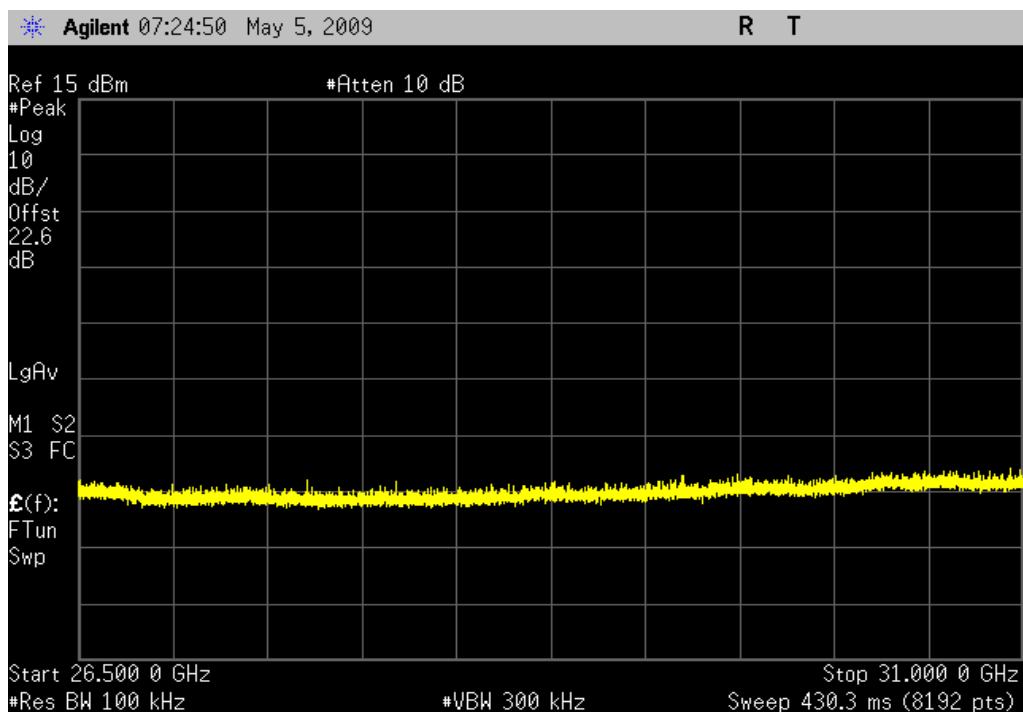
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

6 Mbps, Low Channel, 5745 MHz, 26.5 GHz - 31 GHz

Result: Pass

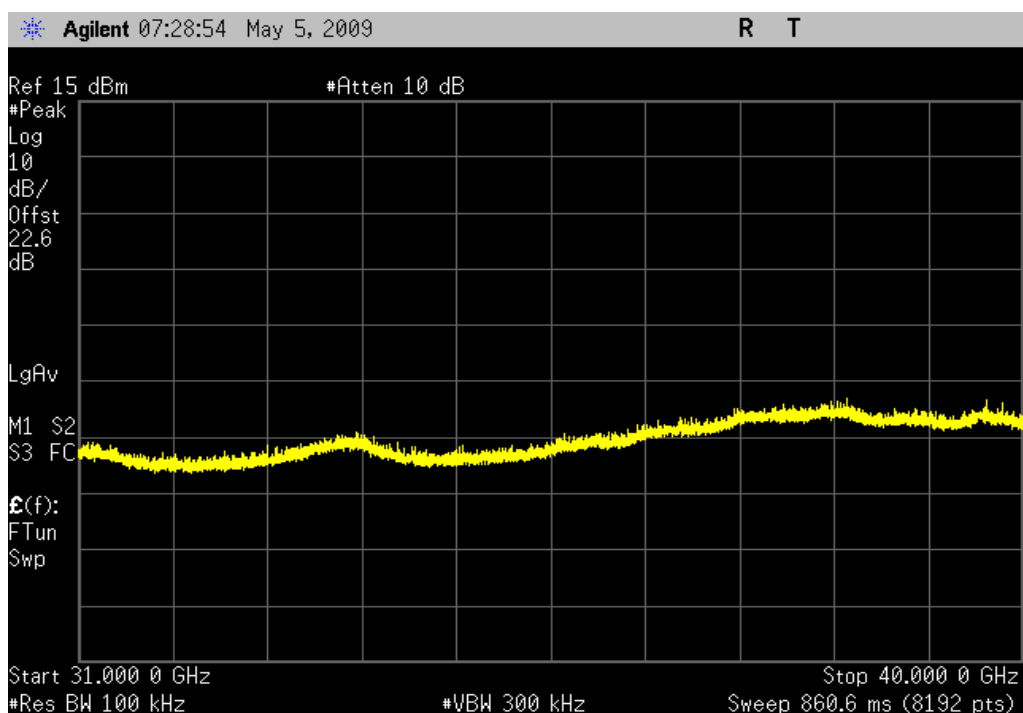
Value: < -40 dBc

Limit: ≤ -20 dBc

6 Mbps, Low Channel, 5745 MHz, 31 GHz - 40 GHz

Result: Pass

Value: < -40 dBc

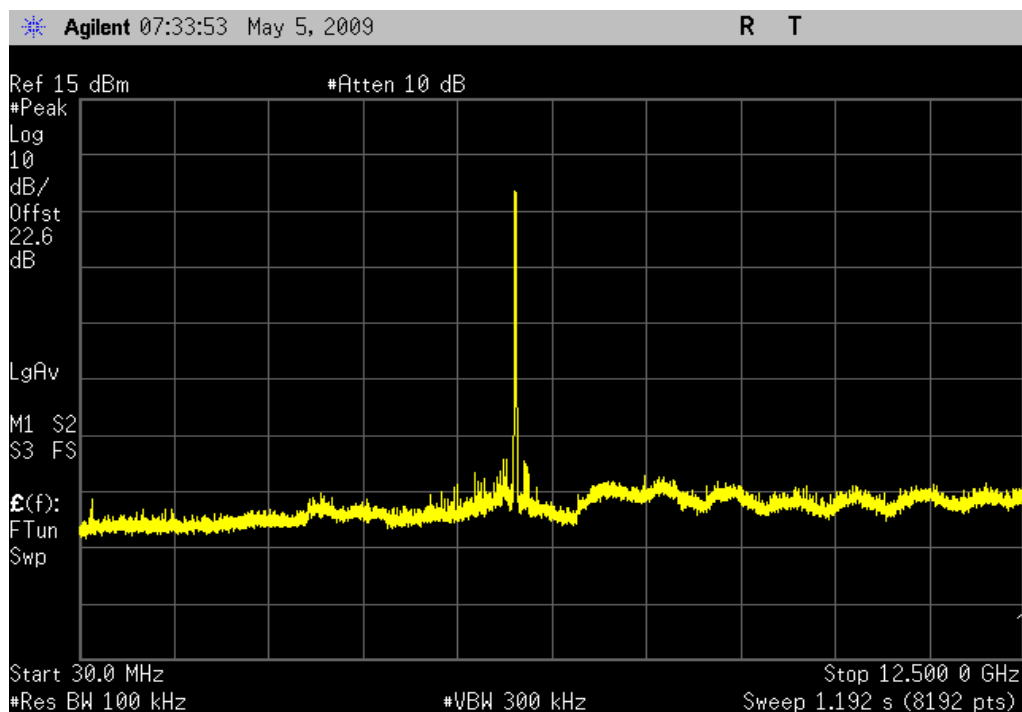
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

6 Mbps, Mid Channel, 5785 MHz, 30 MHz - 12.5 GHz

Result: Pass

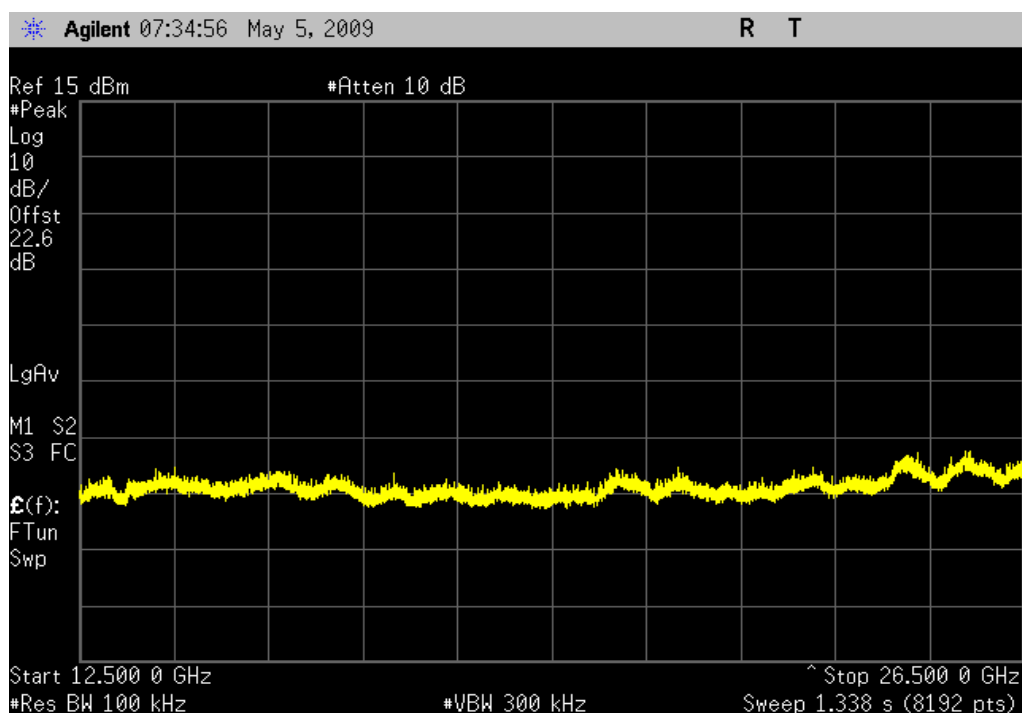
Value: < -40 dBc

Limit: ≤ -20 dBc

6 Mbps, Mid Channel, 5785 MHz, 12.5 GHz - 26.5 GHz

Result: Pass

Value: < -40 dBc

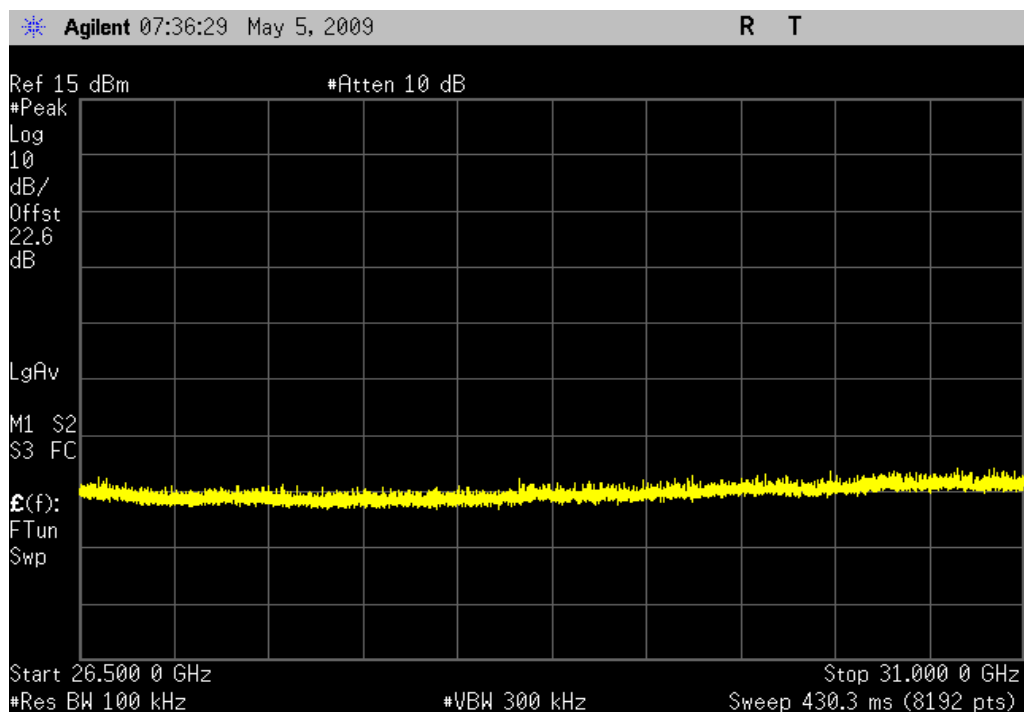
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

6 Mbps, Mid Channel, 5785 MHz, 26.5 GHz - 31 GHz

Result: Pass

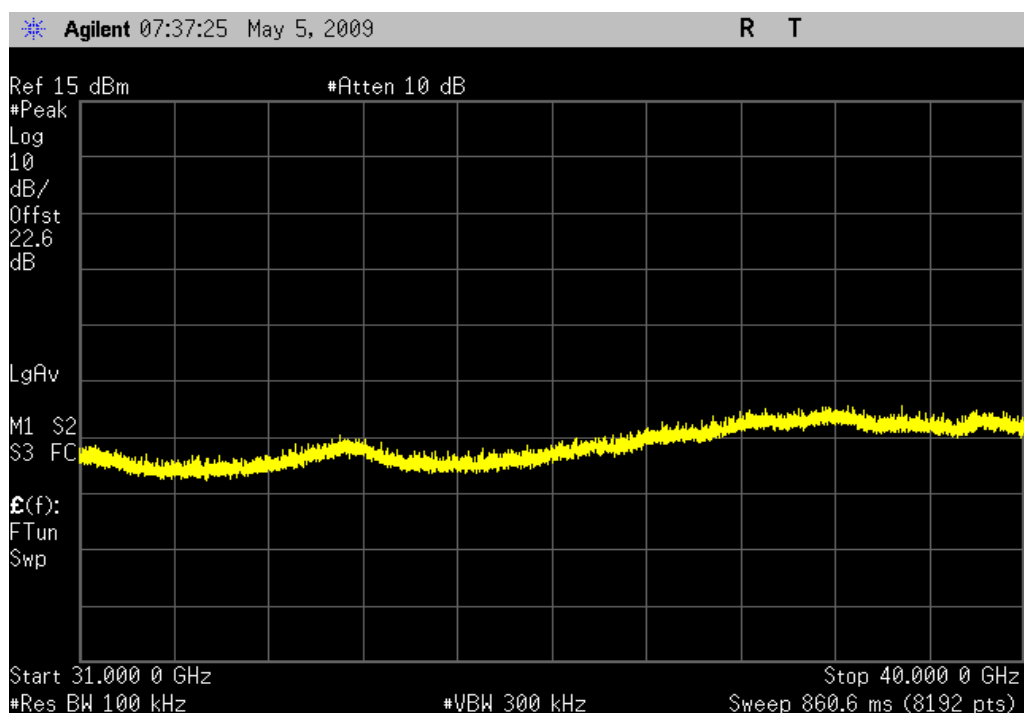
Value: < -40 dBc

Limit: ≤ -20 dBc

6 Mbps, Mid Channel, 5785 MHz, 31 GHz - 40 GHz

Result: Pass

Value: < -40 dBc

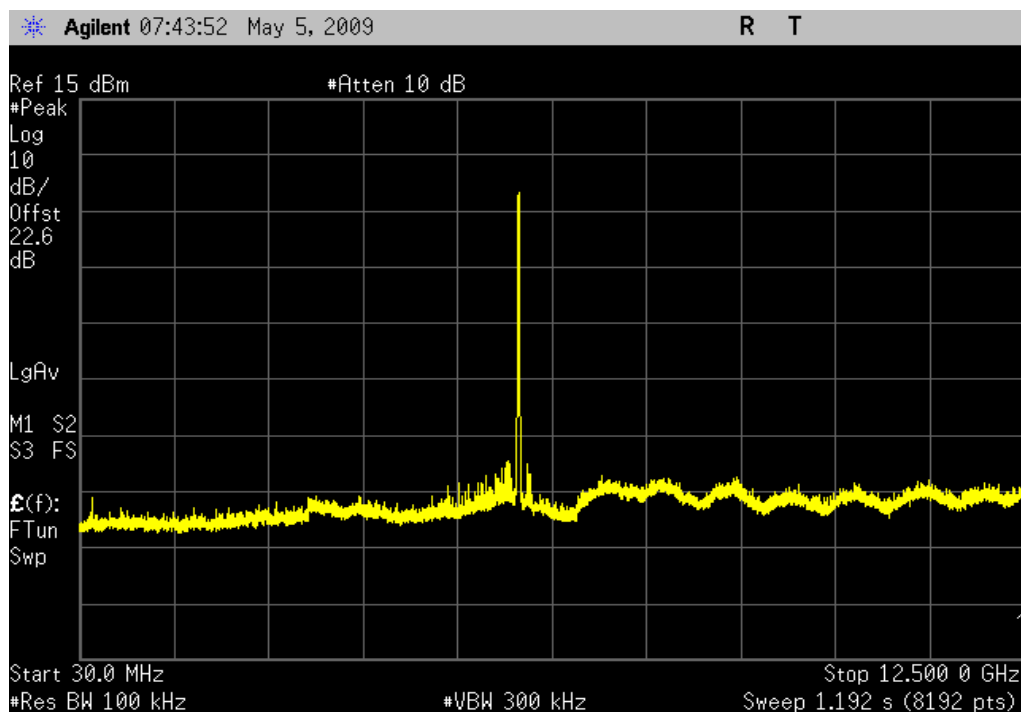
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

6 Mbps, High Channel, 5825 MHz, 30 MHz - 12.5 GHz

Result: Pass

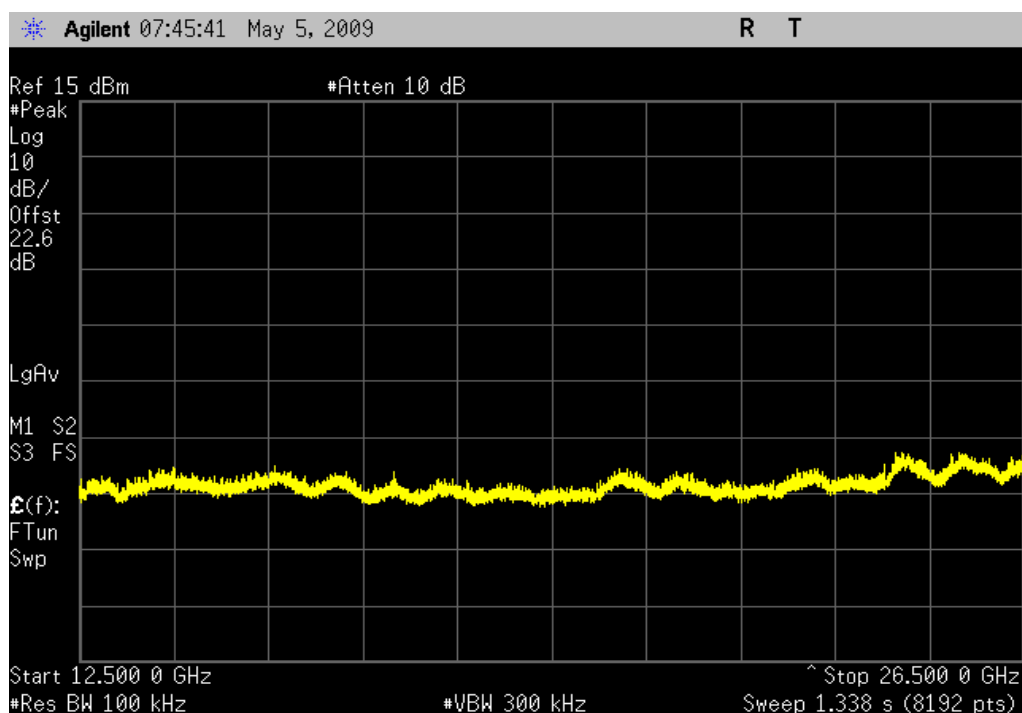
Value: < -40 dBc

Limit: ≤ -20 dBc

6 Mbps, High Channel, 5825 MHz, 12.5 GHz - 26.5 GHz

Result: Pass

Value: < -40 dBc

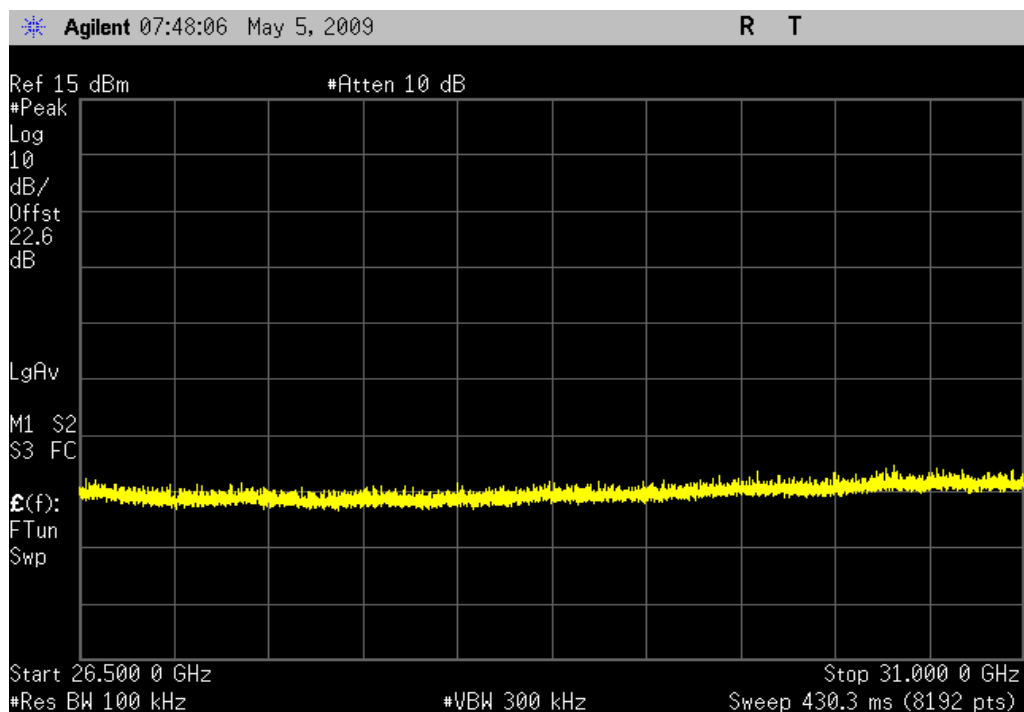
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

6 Mbps, High Channel, 5825 MHz, 26.5 GHz - 31 GHz

Result: Pass

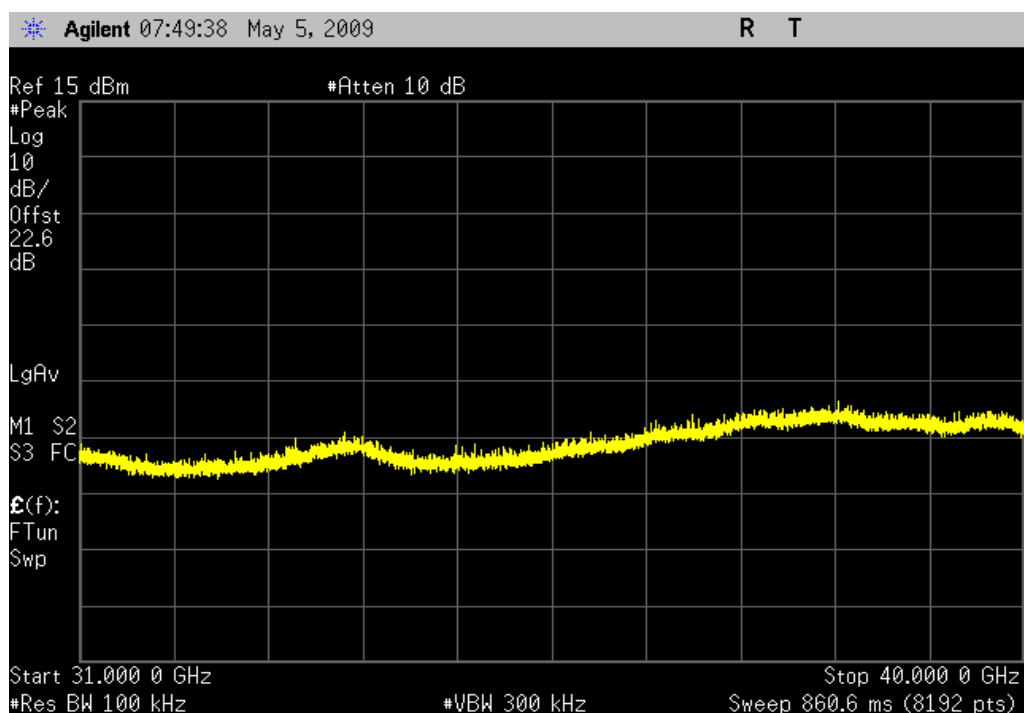
Value: < -40 dBc

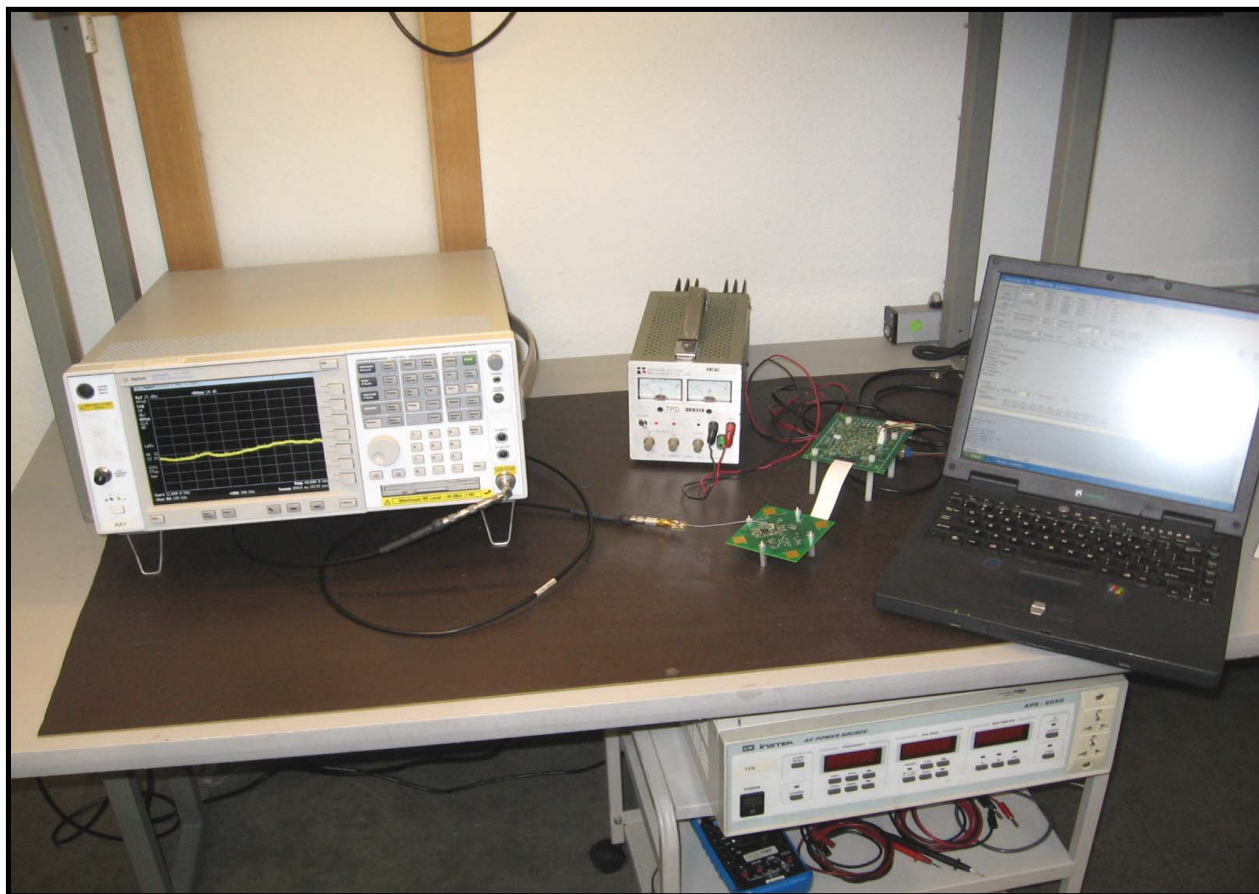
Limit: ≤ -20 dBc

6 Mbps, High Channel, 5825 MHz, 31 GHz - 40 GHz

Result: Pass

Value: < -40 dBc

Limit: ≤ -20 dBc



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

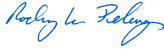
The peak power spectral density measurements were measured with the EUT set the required transmit frequencies in each band. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the maximum available data rate using OFDM type of modulation. Per the procedure outlined in FCC KDB 558074, March 23, 2005, the spectrum analyzer was used as follows:

The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.8 dB for correction to 3 kHz."

EMC

POWER SPECTRAL DENSITY

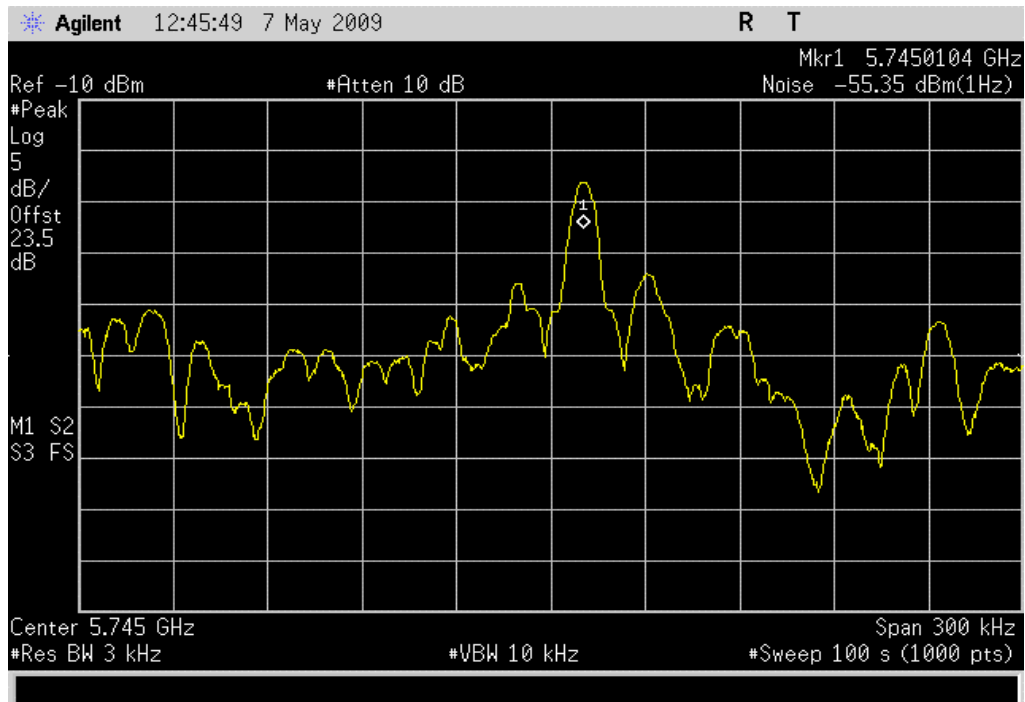
EUT: Summit FS848 Slave Module		Work Order: FOCU0053	
Serial Number: 30		Date: 05/07/09	
Customer: Focus Enhancements		Temperature: 21°C	
Attendees: Ponnappa Pasura		Humidity: 39%	
Project: None		Barometric Pres.: 1026.9 mb	
Tested by: Rod Peloquin		Power: 3.3 VDC	Job Site: EV06
TEST SPECIFICATIONS			
FCC 15.247 (DTS):2009		Test Method ANSI C63.4:2003 KDB No. 558074	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
No Deviations			
Configuration #	1	Signature 	
		Value	Limit
Low Channel, 5745 MHz		-20.6 dBm / 3 kHz	8 dBm / 3 kHz
Mid Channel, 5785 MHz		-21.7 dBm / 3 kHz	8 dBm / 3 kHz
High Channel, 5825 MHz		-21.3 dBm / 3 kHz	8 dBm / 3 kHz
			Results
			Pass
			Pass
			Pass

Low Channel, 5745 MHz

Result: Pass

Value: -20.6 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

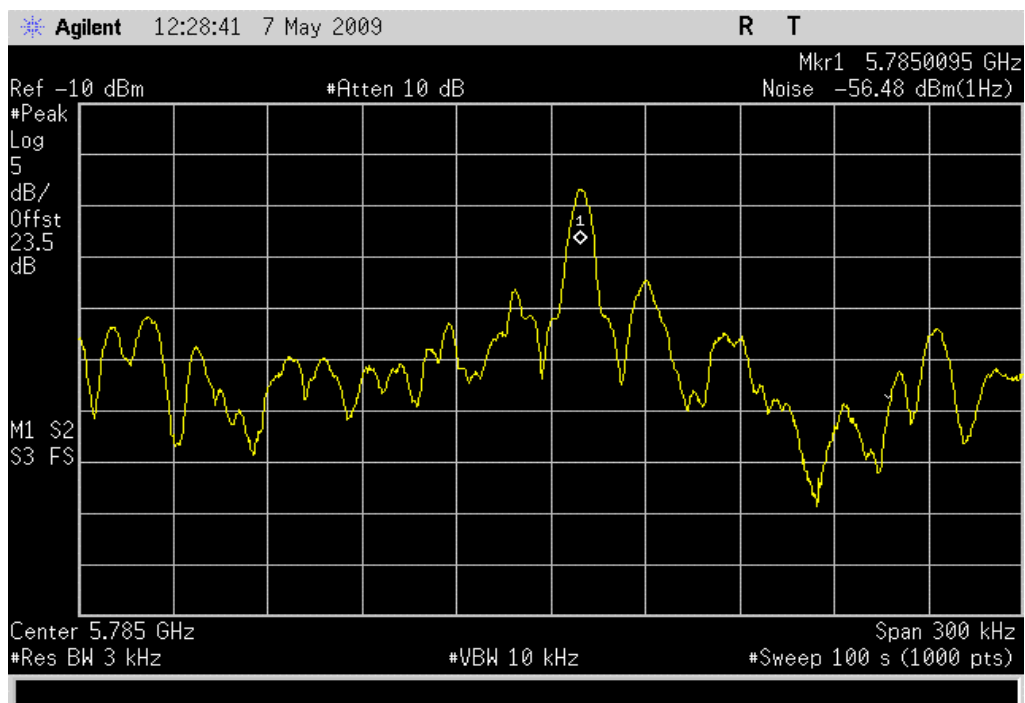


Mid Channel, 5785 MHz

Result: Pass

Value: -21.7 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

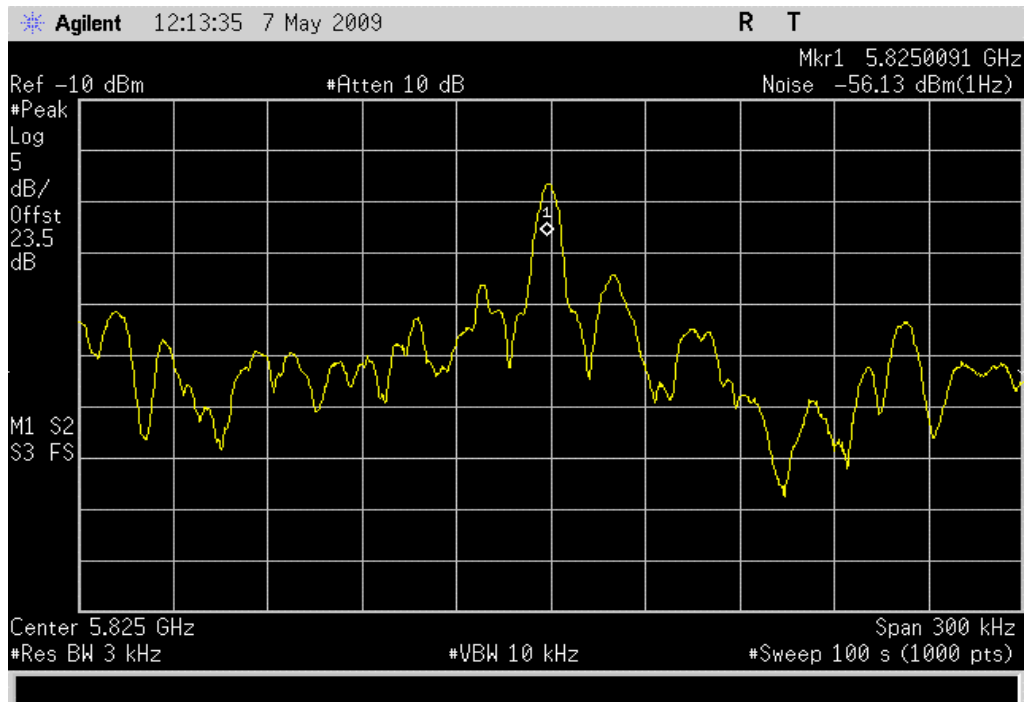


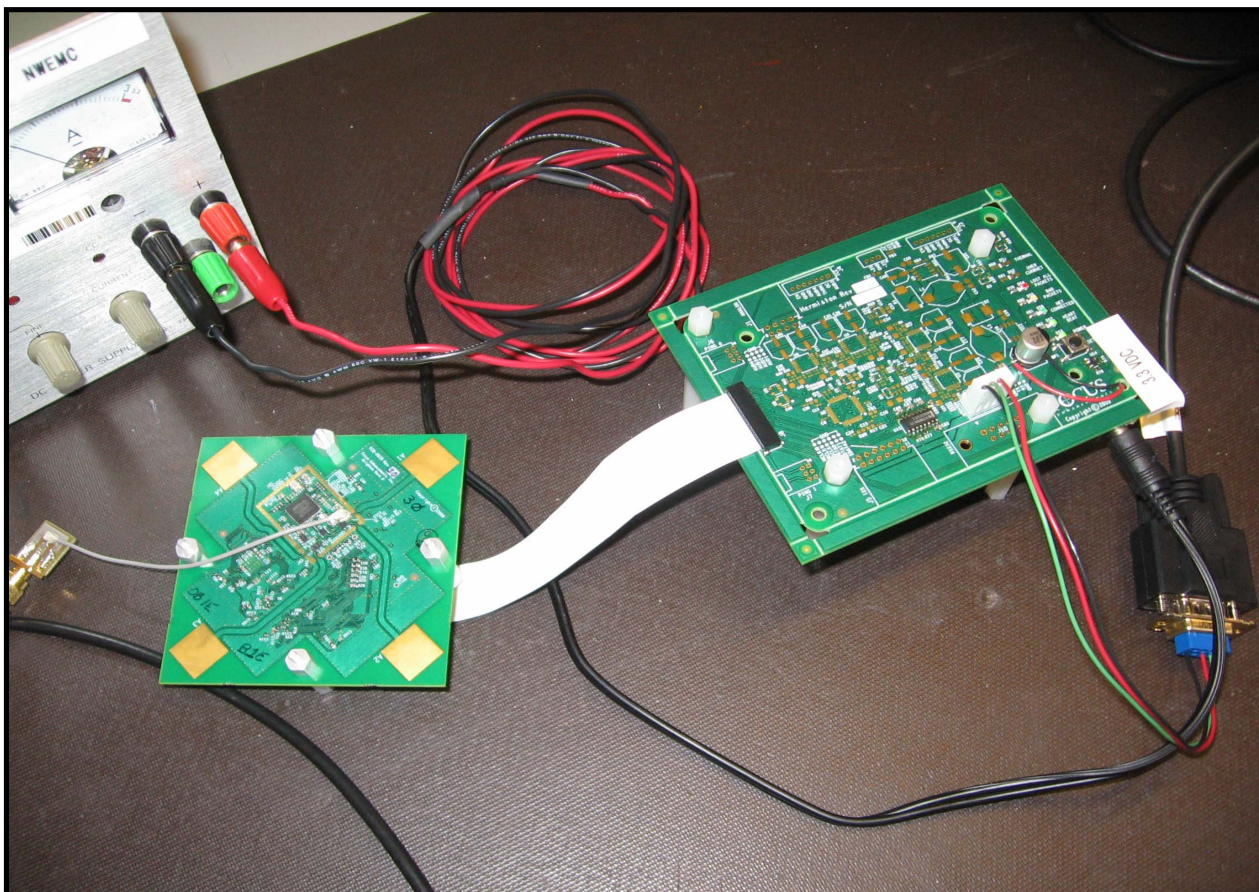
High Channel, 5825 MHz

Result: Pass

Value: -21.3 dBm / 3 kHz

Limit: 8 dBm / 3 kHz





Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmitting channel 165, 5825 MHz

Transmitting channel 157, 5785 MHz

Transmitting channel 149, 5745 MHz

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 40 GHz

CLOCKS AND OSCILLATORS

None Provided

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
Spectrum Analyzer	Agilent	E4446A	AAY	12/11/2008	13
5.725-5.875 Notch Filter	Micro-Tronics	BRC50705	HGJ	5/7/2008	12
26-40GHz Cable		TTBJ141-KMKM-72	EVX	7/30/2008	13
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVN	7/30/2008	13
Antenna, Horn	ETS	3160-10	AIC	NCR	0
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	12/2/2008	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12/2/2008	13
Antenna, Horn	ETS	3160-09	AHG	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	11/13/2008	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/30/2008	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	11/13/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	6/30/2008	13
Antenna, Horn	ETS	3160-07	AHU	NCR	0
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24

MEASUREMENT BANDWIDTHS

Frequency Range	Peak Data	Quasi-Peak Data	Average Data
(MHz)	(kHz)	(kHz)	(kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

EUT:	Summit FS848 Slave Module	Work Order:	FOCU0053
Serial Number:	2	Date:	05/05/09
Customer:	Focus Enhancements	Temperature:	20.4°C
Attendees:	Ponnappa Pasura	Humidity:	29%
Project:	None	Barometric Pres.:	1015.1mb
Tested by:	Dan Haas	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS

FCC 15.247 (DTS):2009

Test Method

ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS

Antenna Height(s) (m)	1 - 4	Test Distance (m)	3
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COMMENTS

12inch cable w/o ferrites. R43 to R58 = 75ohm, 100pF caps to GND on pins 17 & 18 of FS848, R11-13 = 56.2ohms. R31&R32 = 33ohms, 100pF cap from GPIO8 to GND. RC filter on 14 pins of J8 of the Hermiston board, Bead on regulator. 100pF on GPIO 11. See notes for Tx channel and board orientation.

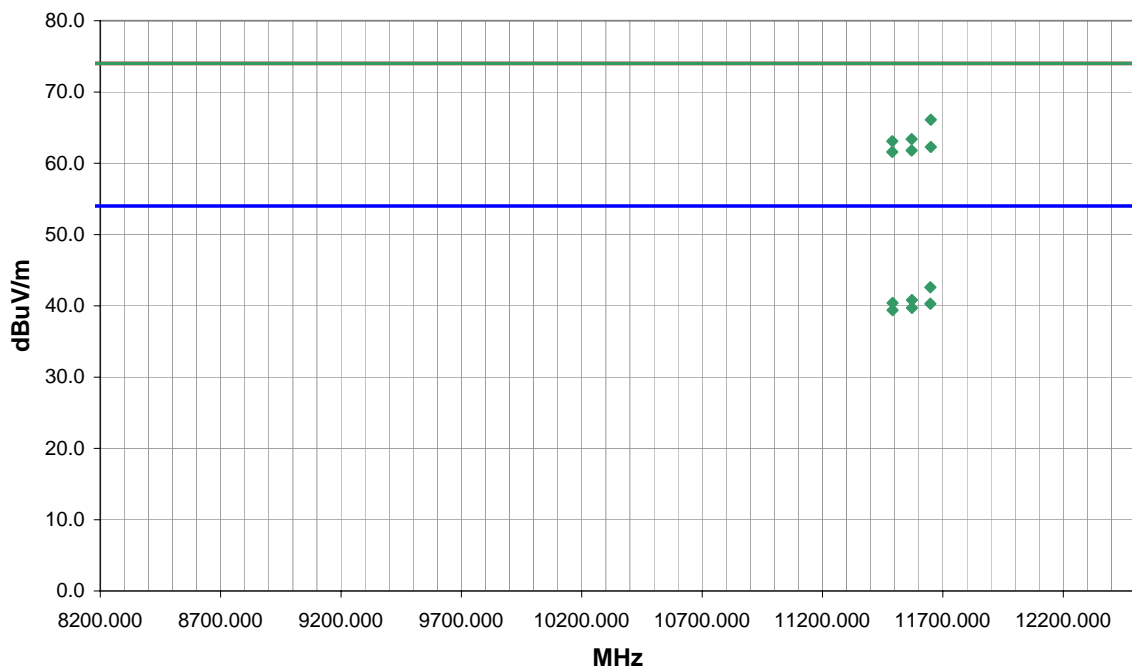
EUT OPERATING MODES

Transmitting, +8dBm

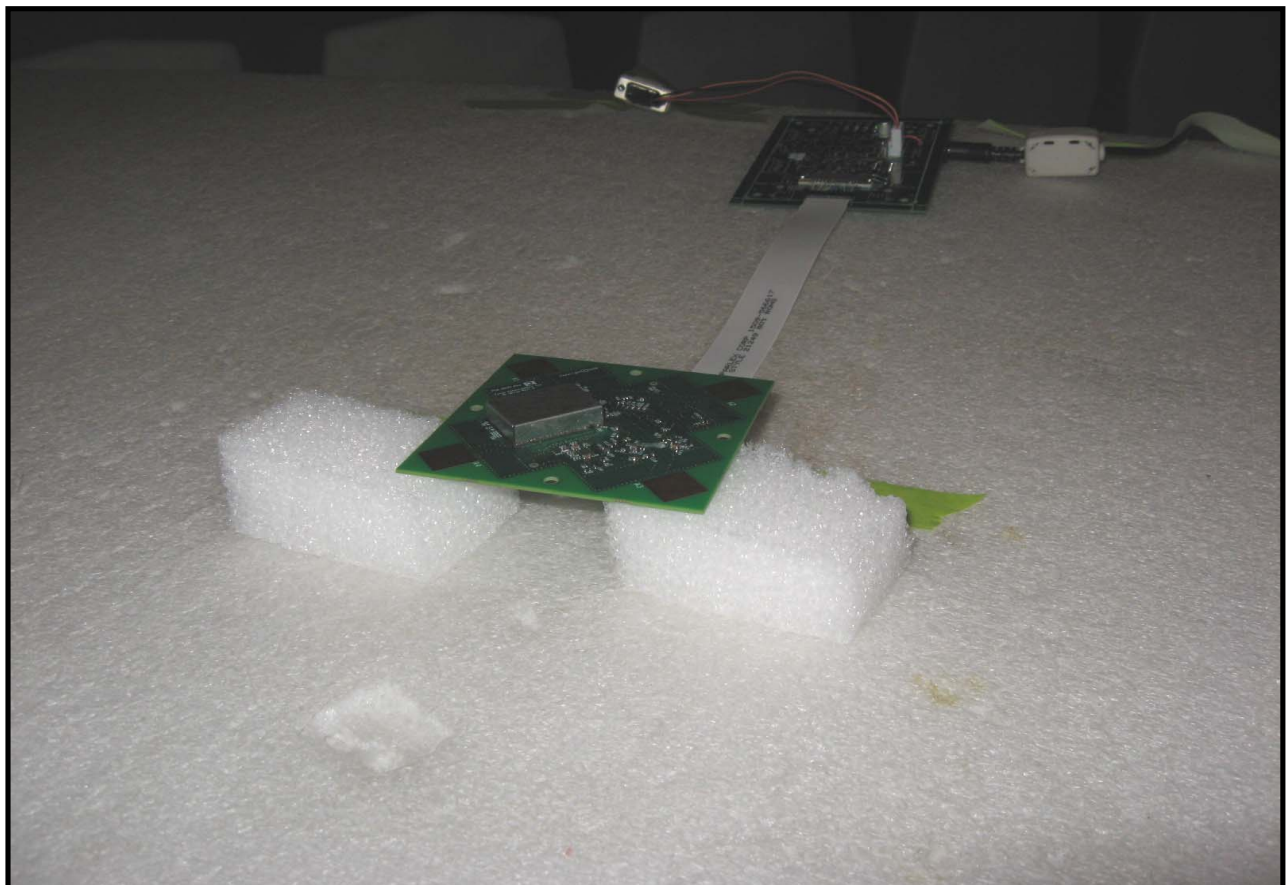
DEVIATIONS FROM TEST STANDARD

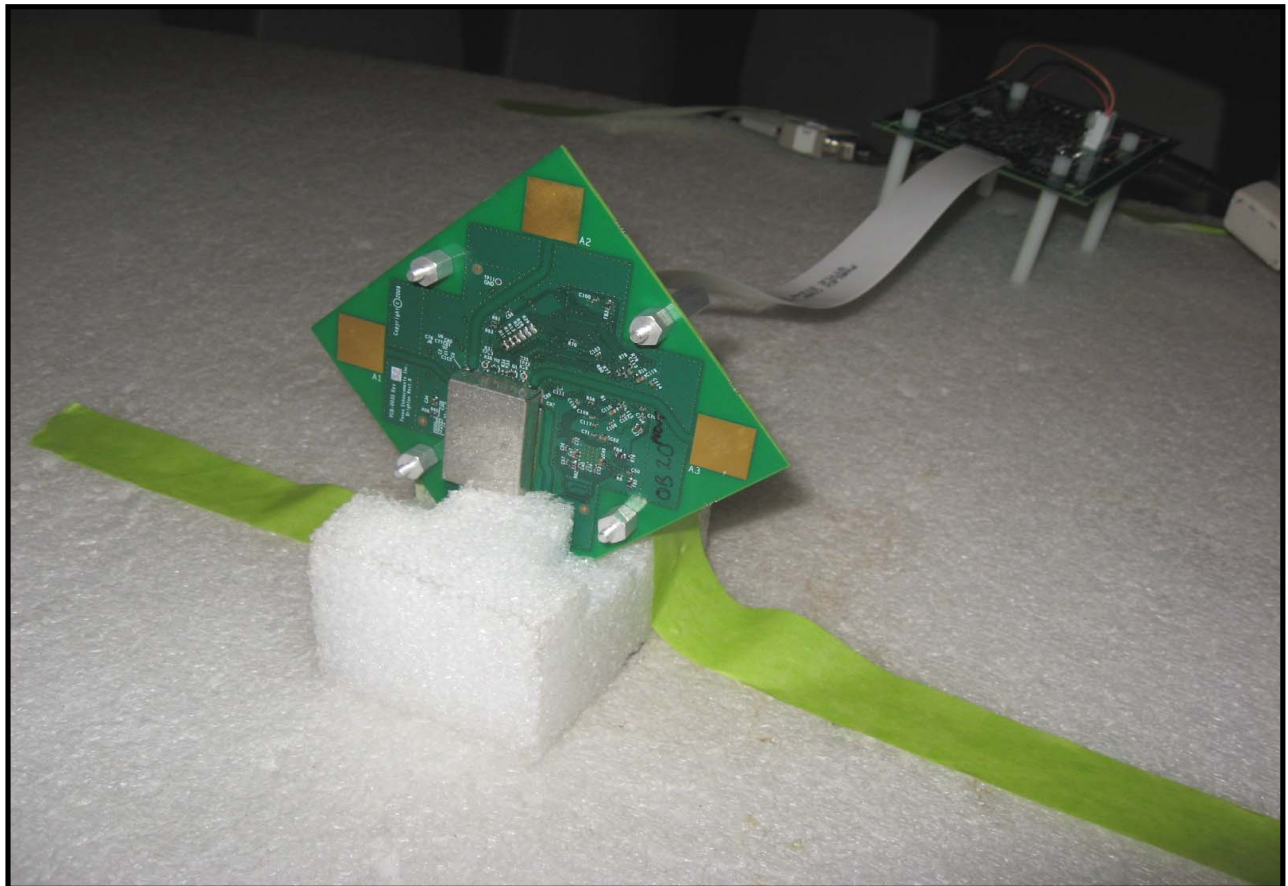
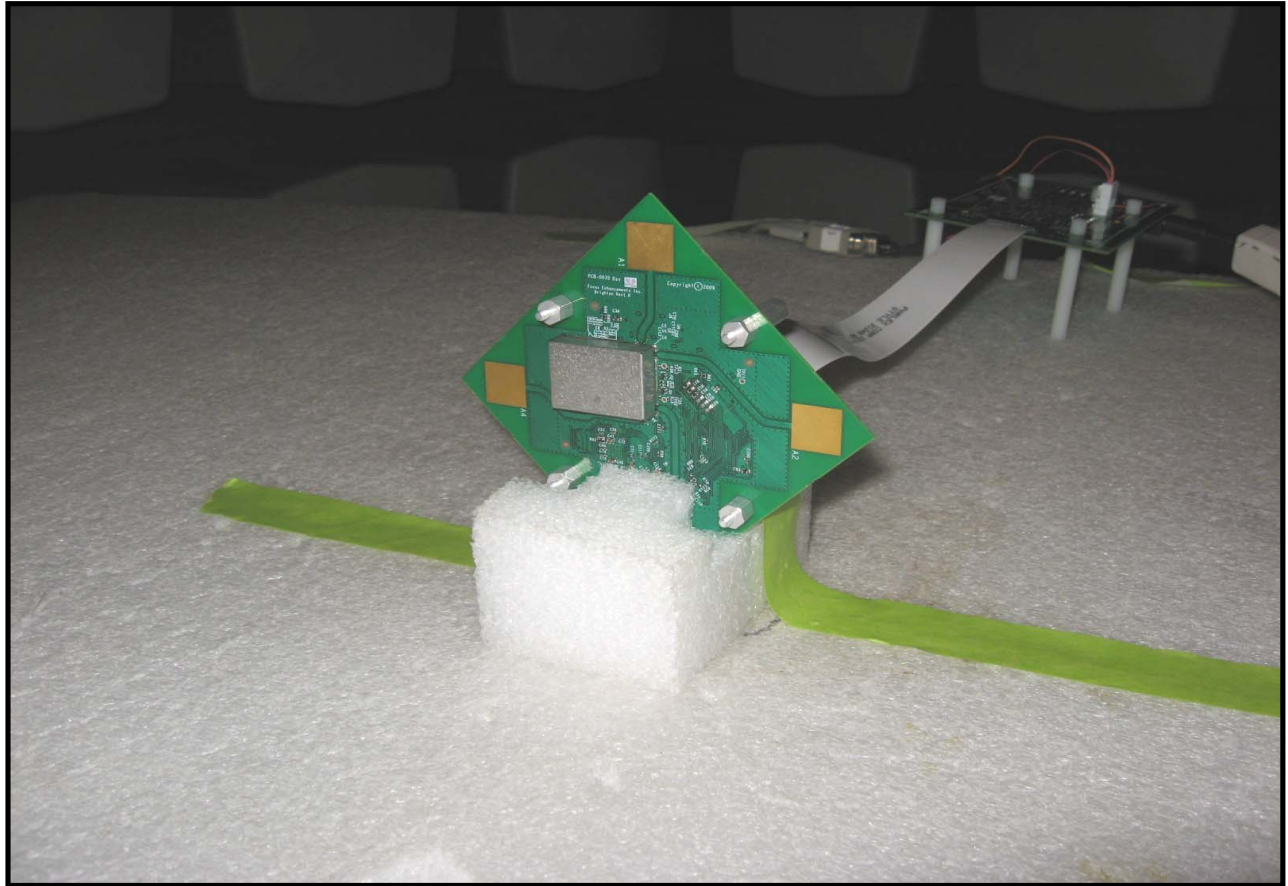
No deviations.

Run #	8	Signature 
Configuration #	2	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
11650.200	71.8	-5.7	225.0	1.1	3.0	0.0	H-Horn	PK	0.0	66.1	74.0	-7.9
11570.170	69.5	-6.1	38.0	1.3	3.0	0.0	H-Horn	PK	0.0	63.4	74.0	-10.6
11489.800	69.5	-6.4	37.0	1.3	3.0	0.0	H-Horn	PK	0.0	63.1	74.0	-10.9
11648.070	48.3	-5.7	225.0	1.1	3.0	0.0	H-Horn	AV	0.0	42.6	54.0	-11.4
11650.170	68.0	-5.7	41.0	1.7	3.0	0.0	V-Horn	PK	0.0	62.3	74.0	-11.7
11570.130	67.9	-6.1	18.0	1.2	3.0	0.0	V-Horn	PK	0.0	61.8	74.0	-12.2
11490.030	68.0	-6.4	15.0	1.5	3.0	0.0	V-Horn	PK	0.0	61.6	74.0	-12.4
11571.370	46.9	-6.1	38.0	1.3	3.0	0.0	H-Horn	AV	0.0	40.8	54.0	-13.2
11491.430	46.8	-6.4	37.0	1.3	3.0	0.0	H-Horn	AV	0.0	40.4	54.0	-13.6
11648.000	46.0	-5.7	41.0	1.7	3.0	0.0	V-Horn	AV	0.0	40.3	54.0	-13.7
11571.430	45.8	-6.1	18.0	1.2	3.0	0.0	V-Horn	AV	0.0	39.7	54.0	-14.3
11491.270	45.8	-6.4	15.0	1.5	3.0	0.0	V-Horn	AV	0.0	39.4	54.0	-14.6





Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmitting, +8dBm, CH165, 5825MHz

Transmitting, +8dBm, CH157, 5785MHz

Transmitting, +8dBm, CH149, 5745MHz

POWER SETTINGS INVESTIGATED

3.3VDC

CONFIGURATIONS INVESTIGATED

FOCU0053 - 3

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	8/28/2008	24 mo
Attenuator	Coaxicom	66702 2910-20	ATO	6/30/2008	13 mo
High Pass Filter	T.T.E.	7766	HFG	2/23/2009	13 mo
EV07 Cables		Conducted Cables	EVG	5/2/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIP	2/4/2009	13 mo
LISN	Solar	9252-50-R-24-BNC	LIR	2/4/2009	13 mo

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0


Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

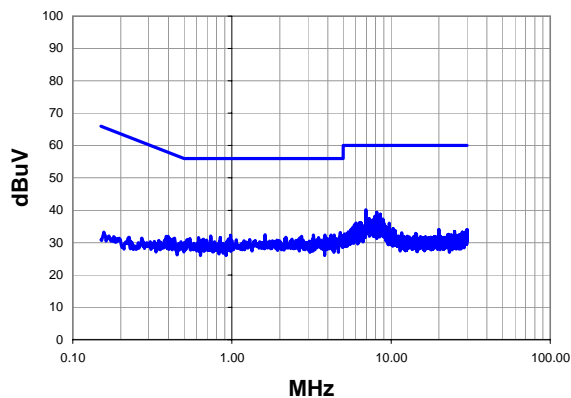
Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

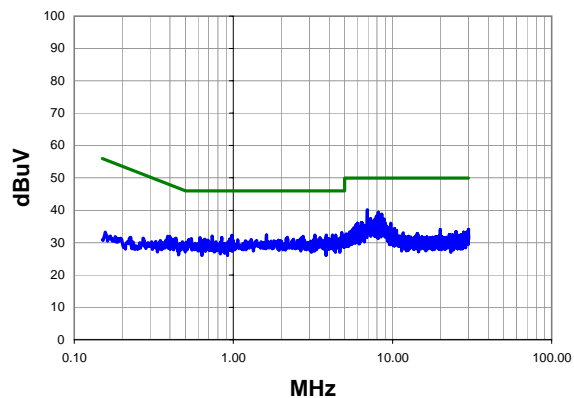
Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

Work Order:	FOCU0053	Date:	05/06/09				
Project:	None	Temperature:	21.0°C				
Job Site:	EV07	Humidity:	42.1				
Serial Number:	2	Barometric Pres.:	1011.1mb	Tested by: Dan Haas			
EUT:	Summit FS848 Slave Module						
Configuration:	3 - AC Conducted Emissions						
Customer:	Focus Enhancements						
Attendees:	Ponnappa Pasura						
EUT Power:	3.3VDC						
Operating Mode:	Transmitting, +8dBm, CH149, 5745MHz						
Deviations:	No deviations.						
Comments:	12inch cable w/o ferrites.						
Test Specifications FCC 15.207:2009			Test Method ANSI C63.4:2003				
Run #	15	Line:	High Line	Ext. Attenuation:	20	Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit




Peak Data - vs - Quasi Peak Limit

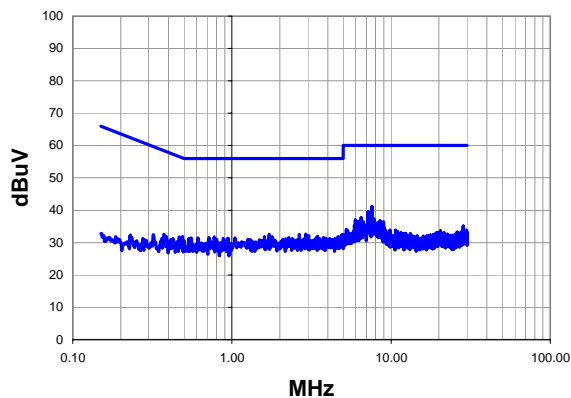
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.950	19.5	20.7	40.2	60.0	-19.8
8.140	18.7	20.7	39.4	60.0	-20.6
8.560	18.1	20.7	38.8	60.0	-21.2
8.330	17.6	20.7	38.3	60.0	-21.7
7.900	17.5	20.7	38.2	60.0	-21.8
7.980	17.0	20.7	37.7	60.0	-22.3
7.270	16.7	20.7	37.4	60.0	-22.6
8.900	16.6	20.7	37.3	60.0	-22.7
4.792	12.5	20.6	33.1	56.0	-22.9
8.470	16.4	20.7	37.1	60.0	-22.9
7.680	16.4	20.7	37.1	60.0	-22.9
8.420	16.2	20.7	36.9	60.0	-23.1
7.640	16.0	20.7	36.7	60.0	-23.3
7.940	15.9	20.7	36.6	60.0	-23.4
8.060	15.9	20.7	36.6	60.0	-23.4
1.616	11.9	20.6	32.5	56.0	-23.5
4.400	11.7	20.6	32.3	56.0	-23.7
4.192	11.7	20.6	32.3	56.0	-23.7
3.840	11.7	20.6	32.3	56.0	-23.7
3.256	11.7	20.6	32.3	56.0	-23.7

Peak Data - vs - Average Limit

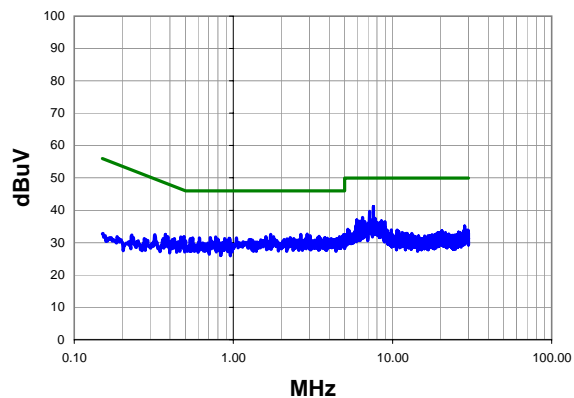
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.950	19.5	20.7	40.2	50.0	-9.8
8.140	18.7	20.7	39.4	50.0	-10.6
8.560	18.1	20.7	38.8	50.0	-11.2
8.330	17.6	20.7	38.3	50.0	-11.7
7.900	17.5	20.7	38.2	50.0	-11.8
7.980	17.0	20.7	37.7	50.0	-12.3
7.270	16.7	20.7	37.4	50.0	-12.6
8.900	16.6	20.7	37.3	50.0	-12.7
4.792	12.5	20.6	33.1	46.0	-12.9
8.470	16.4	20.7	37.1	50.0	-12.9
7.680	16.4	20.7	37.1	50.0	-12.9
8.420	16.2	20.7	36.9	50.0	-13.1
7.640	16.0	20.7	36.7	50.0	-13.3
7.940	15.9	20.7	36.6	50.0	-13.4
8.060	15.9	20.7	36.6	50.0	-13.4
1.616	11.9	20.6	32.5	46.0	-13.5
4.400	11.7	20.6	32.3	46.0	-13.7
4.192	11.7	20.6	32.3	46.0	-13.7
3.840	11.7	20.6	32.3	46.0	-13.7
3.256	11.7	20.6	32.3	46.0	-13.7

Work Order:	FOCU0053	Date:	05/06/09				
Project:	None	Temperature:	21.0°C				
Job Site:	EV07	Humidity:	42.1				
Serial Number:	2	Barometric Pres.:	1011.1mb	Tested by: Dan Haas			
EUT:	Summit FS848 Slave Module						
Configuration:	3 - AC Conducted Emissions						
Customer:	Focus Enhancements						
Attendees:	Ponnappa Pasura						
EUT Power:	3.3VDC						
Operating Mode:	Transmitting, +8dBm, CH149, 5745MHz						
Deviations:	No deviations.						
Comments:	12inch cable w/o ferrites.						
Test Specifications FCC 15.207:2009			Test Method ANSI C63.4:2003				
Run #	16	Line:	Neutral	Ext. Attenuation:	20	Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit




Peak Data - vs - Quasi Peak Limit

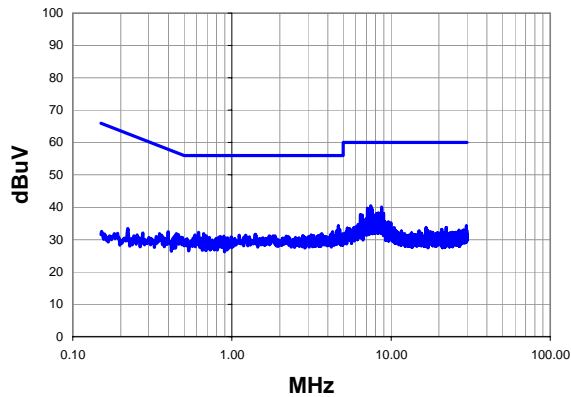
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.590	20.5	20.7	41.2	60.0	-18.8
7.160	19.0	20.7	39.7	60.0	-20.3
7.610	17.2	20.7	37.9	60.0	-22.1
6.490	17.1	20.7	37.8	60.0	-22.2
7.810	16.7	20.7	37.4	60.0	-22.6
7.790	16.3	20.7	37.0	60.0	-23.0
5.960	16.3	20.7	37.0	60.0	-23.0
6.400	16.1	20.7	36.8	60.0	-23.2
8.510	16.0	20.7	36.7	60.0	-23.3
5.990	16.0	20.7	36.7	60.0	-23.3
2.904	12.0	20.6	32.6	56.0	-23.4
6.180	15.9	20.7	36.6	60.0	-23.4
2.648	11.9	20.6	32.5	56.0	-23.5
1.720	11.9	20.6	32.5	56.0	-23.5
5.000	11.8	20.7	32.5	56.0	-23.5
8.980	15.7	20.7	36.4	60.0	-23.6
8.590	15.7	20.7	36.4	60.0	-23.6
6.690	15.7	20.7	36.4	60.0	-23.6
4.912	11.7	20.6	32.3	56.0	-23.7
8.390	15.6	20.7	36.3	60.0	-23.7

Peak Data - vs - Average Limit

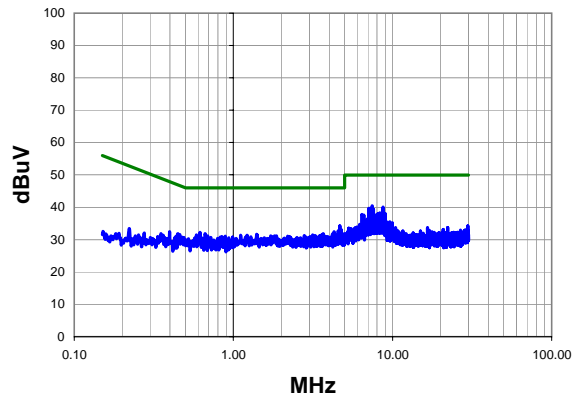
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.590	20.5	20.7	41.2	50.0	-8.8
7.160	19.0	20.7	39.7	50.0	-10.3
7.610	17.2	20.7	37.9	50.0	-12.1
6.490	17.1	20.7	37.8	50.0	-12.2
7.810	16.7	20.7	37.4	50.0	-12.6
7.790	16.3	20.7	37.0	50.0	-13.0
5.960	16.3	20.7	37.0	50.0	-13.0
6.400	16.1	20.7	36.8	50.0	-13.2
8.510	16.0	20.7	36.7	50.0	-13.3
5.990	16.0	20.7	36.7	50.0	-13.3
2.904	12.0	20.6	32.6	46.0	-13.4
6.180	15.9	20.7	36.6	50.0	-13.4
2.648	11.9	20.6	32.5	46.0	-13.5
1.720	11.9	20.6	32.5	46.0	-13.5
5.000	11.8	20.7	32.5	46.0	-13.5
8.980	15.7	20.7	36.4	50.0	-13.6
8.590	15.7	20.7	36.4	50.0	-13.6
6.690	15.7	20.7	36.4	50.0	-13.6
4.912	11.7	20.6	32.3	46.0	-13.7
8.390	15.6	20.7	36.3	50.0	-13.7

Work Order:	FOCU0053	Date:	05/06/09				
Project:	None	Temperature:	21.0°C				
Job Site:	EV07	Humidity:	42.1				
Serial Number:	2	Barometric Pres.:	1011.1mb	Tested by: Dan Haas			
EUT:	Summit FS848 Slave Module						
Configuration:	3 - AC Conducted Emissions						
Customer:	Focus Enhancements						
Attendees:	Ponnappa Pasura						
EUT Power:	3.3VDC						
Operating Mode:	Transmitting, +8dBm, CH157, 5785MHz						
Deviations:	No deviations.						
Comments:	12inch cable w/o ferrites.						
Test Specifications FCC 15.207:2009			Test Method ANSI C63.4:2003				
Run #	17	Line:	High Line	Ext. Attenuation:	20	Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit




Peak Data - vs - Quasi Peak Limit

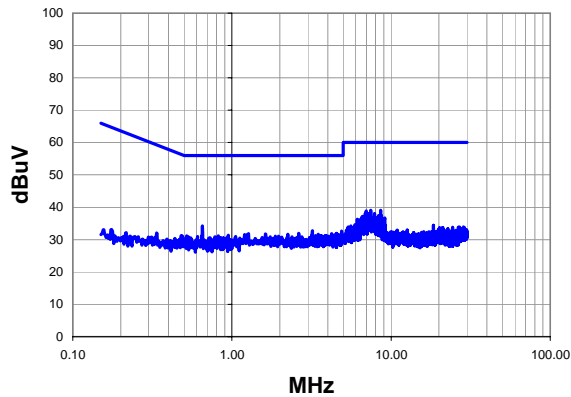
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.460	19.8	20.7	40.5	60.0	-19.5
8.730	19.4	20.7	40.1	60.0	-19.9
7.110	19.0	20.7	39.7	60.0	-20.3
7.580	18.7	20.7	39.4	60.0	-20.6
8.340	17.6	20.7	38.3	60.0	-21.7
4.664	13.6	20.6	34.2	56.0	-21.8
8.960	17.4	20.7	38.1	60.0	-21.9
8.090	17.3	20.7	38.0	60.0	-22.0
6.410	17.1	20.7	37.8	60.0	-22.2
7.810	16.9	20.7	37.6	60.0	-22.4
6.590	16.9	20.7	37.6	60.0	-22.4
4.744	12.5	20.6	33.1	56.0	-22.9
8.170	16.4	20.7	37.1	60.0	-22.9
4.552	12.1	20.6	32.7	56.0	-23.3
8.420	15.9	20.7	36.6	60.0	-23.4
7.350	15.8	20.7	36.5	60.0	-23.5
4.296	11.8	20.6	32.4	56.0	-23.6
8.910	15.7	20.7	36.4	60.0	-23.6
6.980	15.7	20.7	36.4	60.0	-23.6
0.616	11.4	20.8	32.2	56.0	-23.8

Peak Data - vs - Average Limit

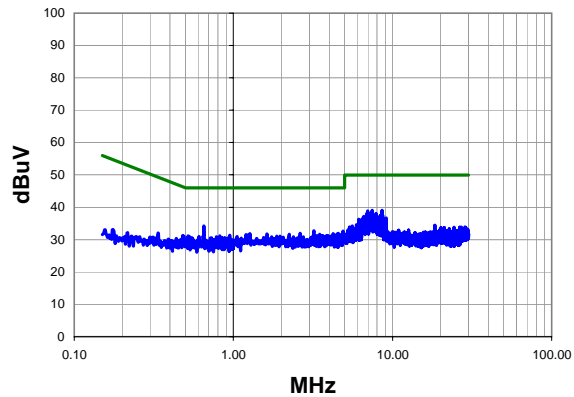
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.460	19.8	20.7	40.5	50.0	-9.5
8.730	19.4	20.7	40.1	50.0	-9.9
7.110	19.0	20.7	39.7	50.0	-10.3
7.580	18.7	20.7	39.4	50.0	-10.6
8.340	17.6	20.7	38.3	50.0	-11.7
4.664	13.6	20.6	34.2	46.0	-11.8
8.960	17.4	20.7	38.1	50.0	-11.9
8.090	17.3	20.7	38.0	50.0	-12.0
6.410	17.1	20.7	37.8	50.0	-12.2
7.810	16.9	20.7	37.6	50.0	-12.4
6.590	16.9	20.7	37.6	50.0	-12.4
4.744	12.5	20.6	33.1	46.0	-12.9
8.170	16.4	20.7	37.1	50.0	-12.9
4.552	12.1	20.6	32.7	46.0	-13.3
8.420	15.9	20.7	36.6	50.0	-13.4
7.350	15.8	20.7	36.5	50.0	-13.5
4.296	11.8	20.6	32.4	46.0	-13.6
8.910	15.7	20.7	36.4	50.0	-13.6
6.980	15.7	20.7	36.4	50.0	-13.6
0.616	11.4	20.8	32.2	46.0	-13.8

Work Order:	FOCU0053	Date:	05/06/09				
Project:	None	Temperature:	21.0°C				
Job Site:	EV07	Humidity:	42.1				
Serial Number:	2	Barometric Pres.:	1011.1mb	Tested by: Dan Haas			
EUT:	Summit FS848 Slave Module						
Configuration:	3 - AC Conducted Emissions						
Customer:	Focus Enhancements						
Attendees:	Ponnappa Pasura						
EUT Power:	3.3VDC						
Operating Mode:	Transmitting, +8dBm, CH157, 5785MHz						
Deviations:	No deviations.						
Comments:	12inch cable w/o ferrites.						
Test Specifications FCC 15.207:2009			Test Method ANSI C63.4:2003				
Run #	18	Line:	Neutral	Ext. Attenuation:	20	Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit




Peak Data - vs - Quasi Peak Limit

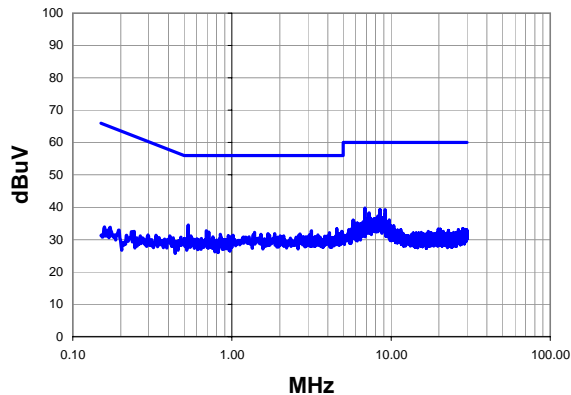
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
8.580	18.4	20.7	39.1	60.0	-20.9
7.460	18.4	20.7	39.1	60.0	-20.9
6.970	18.2	20.7	38.9	60.0	-21.1
0.653	13.4	20.8	34.2	56.0	-21.8
7.380	17.5	20.7	38.2	60.0	-21.8
6.890	17.4	20.7	38.1	60.0	-21.9
7.880	17.3	20.7	38.0	60.0	-22.0
7.240	17.3	20.7	38.0	60.0	-22.0
7.040	17.1	20.7	37.8	60.0	-22.2
8.670	16.8	20.7	37.5	60.0	-22.5
8.370	16.7	20.7	37.4	60.0	-22.6
7.850	16.5	20.7	37.2	60.0	-22.8
7.160	16.5	20.7	37.2	60.0	-22.8
6.590	16.5	20.7	37.2	60.0	-22.8
8.310	16.3	20.7	37.0	60.0	-23.0
7.990	16.2	20.7	36.9	60.0	-23.1
7.180	16.2	20.7	36.9	60.0	-23.1
8.230	16.1	20.7	36.8	60.0	-23.2
3.200	12.1	20.6	32.7	56.0	-23.3
9.110	16.0	20.7	36.7	60.0	-23.3

Peak Data - vs - Average Limit

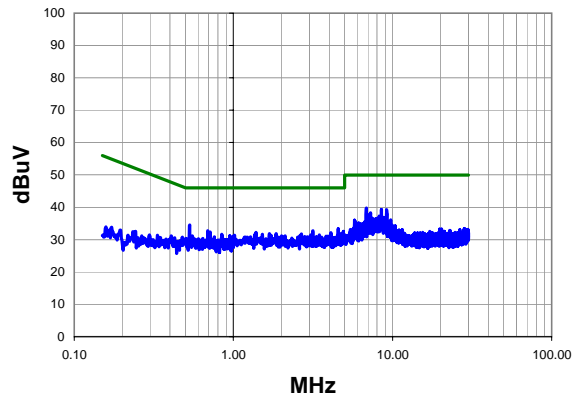
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
8.580	18.4	20.7	39.1	50.0	-10.9
7.460	18.4	20.7	39.1	50.0	-10.9
6.970	18.2	20.7	38.9	50.0	-11.1
0.653	13.4	20.8	34.2	46.0	-11.8
7.380	17.5	20.7	38.2	50.0	-11.8
6.890	17.4	20.7	38.1	50.0	-11.9
7.880	17.3	20.7	38.0	50.0	-12.0
7.240	17.3	20.7	38.0	50.0	-12.0
7.040	17.1	20.7	37.8	50.0	-12.2
8.670	16.8	20.7	37.5	50.0	-12.5
8.370	16.7	20.7	37.4	50.0	-12.6
7.850	16.5	20.7	37.2	50.0	-12.8
7.160	16.5	20.7	37.2	50.0	-12.8
6.590	16.5	20.7	37.2	50.0	-12.8
8.310	16.3	20.7	37.0	50.0	-13.0
7.990	16.2	20.7	36.9	50.0	-13.1
7.180	16.2	20.7	36.9	50.0	-13.1
8.230	16.1	20.7	36.8	50.0	-13.2
3.200	12.1	20.6	32.7	46.0	-13.3
9.110	16.0	20.7	36.7	50.0	-13.3

Work Order:	FOCU0053	Date:	05/06/09				
Project:	None	Temperature:	21.0°C				
Job Site:	EV07	Humidity:	42.1				
Serial Number:	2	Barometric Pres.:	1011.1mb	Tested by: Dan Haas			
EUT:	Summit FS848 Slave Module						
Configuration:	3 - AC Conducted Emissions						
Customer:	Focus Enhancements						
Attendees:	Ponnappa Pasura						
EUT Power:	3.3VDC						
Operating Mode:	Transmitting, +8dBm, CH165, 5825MHz						
Deviations:	No deviations.						
Comments:	12inch cable w/o ferrites.						
Test Specifications FCC 15.207:2009			Test Method ANSI C63.4:2003				
Run #	19	Line:	High Line	Ext. Attenuation:	20	Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit




Peak Data - vs - Quasi Peak Limit

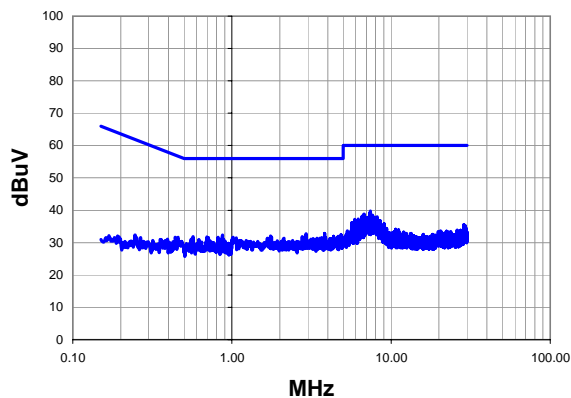
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.840	19.1	20.7	39.8	60.0	-20.2
9.190	18.6	20.7	39.3	60.0	-20.7
8.520	18.6	20.7	39.3	60.0	-20.7
0.531	13.6	20.9	34.5	56.0	-21.5
7.260	17.6	20.7	38.3	60.0	-21.7
9.160	17.4	20.7	38.1	60.0	-21.9
7.210	17.2	20.7	37.9	60.0	-22.1
4.560	12.7	20.6	33.3	56.0	-22.7
8.230	16.6	20.7	37.3	60.0	-22.7
8.570	16.6	20.7	37.3	60.0	-22.7
8.430	16.2	20.7	36.9	60.0	-23.1
8.880	16.1	20.7	36.8	60.0	-23.2
0.691	12.0	20.8	32.8	56.0	-23.2
3.160	12.1	20.6	32.7	56.0	-23.3
8.320	15.9	20.7	36.6	60.0	-23.4
7.440	15.9	20.7	36.6	60.0	-23.4
7.140	15.9	20.7	36.6	60.0	-23.4
4.912	11.9	20.6	32.5	56.0	-23.5
7.020	15.8	20.7	36.5	60.0	-23.5
7.830	15.7	20.7	36.4	60.0	-23.6

Peak Data - vs - Average Limit

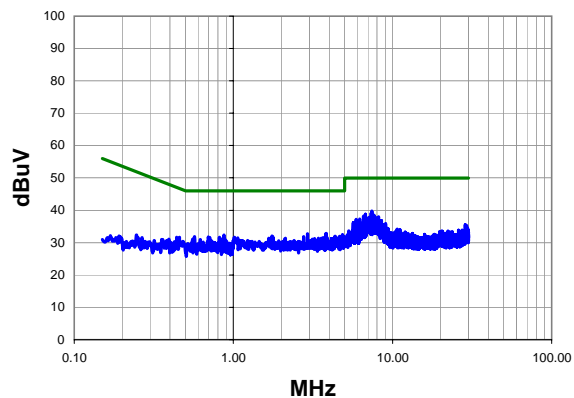
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.840	19.1	20.7	39.8	50.0	-10.2
9.190	18.6	20.7	39.3	50.0	-10.7
8.520	18.6	20.7	39.3	50.0	-10.7
0.531	13.6	20.9	34.5	46.0	-11.5
7.260	17.6	20.7	38.3	50.0	-11.7
9.160	17.4	20.7	38.1	50.0	-11.9
7.210	17.2	20.7	37.9	50.0	-12.1
4.560	12.7	20.6	33.3	46.0	-12.7
8.230	16.6	20.7	37.3	50.0	-12.7
8.570	16.6	20.7	37.3	50.0	-12.7
8.430	16.2	20.7	36.9	50.0	-13.1
8.880	16.1	20.7	36.8	50.0	-13.2
0.691	12.0	20.8	32.8	46.0	-13.2
3.160	12.1	20.6	32.7	46.0	-13.3
8.320	15.9	20.7	36.6	50.0	-13.4
7.440	15.9	20.7	36.6	50.0	-13.4
7.140	15.9	20.7	36.6	50.0	-13.4
4.912	11.9	20.6	32.5	46.0	-13.5
7.020	15.8	20.7	36.5	50.0	-13.5
7.830	15.7	20.7	36.4	50.0	-13.6

Work Order:	FOCU0053	Date:	05/06/09				
Project:	None	Temperature:	21.0°C				
Job Site:	EV07	Humidity:	42.1				
Serial Number:	2	Barometric Pres.:	1011.1mb	Tested by: Dan Haas			
EUT:	Summit FS848 Slave Module						
Configuration:	3 - AC Conducted Emissions						
Customer:	Focus Enhancements						
Attendees:	Ponnappa Pasura						
EUT Power:	3.3VDC						
Operating Mode:	Transmitting, +8dBm, CH165, 5825MHz						
Deviations:	No deviations.						
Comments:	12inch cable w/o ferrites.						
Test Specifications FCC 15.207:2009			Test Method ANSI C63.4:2003				
Run #	20	Line:	Neutral	Ext. Attenuation:	20	Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.420	19.1	20.7	39.8	60.0	-20.2
7.340	18.4	20.7	39.1	60.0	-20.9
6.760	18.1	20.7	38.8	60.0	-21.2
7.670	17.8	20.7	38.5	60.0	-21.5
6.560	17.5	20.7	38.2	60.0	-21.8
8.160	17.3	20.7	38.0	60.0	-22.0
7.110	17.1	20.7	37.8	60.0	-22.2
6.710	17.1	20.7	37.8	60.0	-22.2
7.940	16.9	20.7	37.6	60.0	-22.4
8.080	16.9	20.7	37.6	60.0	-22.4
6.640	16.8	20.7	37.5	60.0	-22.5
6.230	16.6	20.7	37.3	60.0	-22.7
5.920	16.5	20.7	37.2	60.0	-22.8
7.810	16.4	20.7	37.1	60.0	-22.9
7.560	16.4	20.7	37.1	60.0	-22.9
7.610	16.2	20.7	36.9	60.0	-23.1
3.824	12.2	20.6	32.8	56.0	-23.2
8.520	16.1	20.7	36.8	60.0	-23.2
2.928	12.1	20.6	32.7	56.0	-23.3
8.110	16.0	20.7	36.7	60.0	-23.3

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.420	19.1	20.7	39.8	50.0	-10.2
7.340	18.4	20.7	39.1	50.0	-10.9
6.760	18.1	20.7	38.8	50.0	-11.2
7.670	17.8	20.7	38.5	50.0	-11.5
6.560	17.5	20.7	38.2	50.0	-11.8
8.160	17.3	20.7	38.0	50.0	-12.0
7.110	17.1	20.7	37.8	50.0	-12.2
6.710	17.1	20.7	37.8	50.0	-12.2
7.940	16.9	20.7	37.6	50.0	-12.4
8.080	16.9	20.7	37.6	50.0	-12.4
6.640	16.8	20.7	37.5	50.0	-12.5
6.230	16.6	20.7	37.3	50.0	-12.7
5.920	16.5	20.7	37.2	50.0	-12.8
7.810	16.4	20.7	37.1	50.0	-12.9
7.560	16.4	20.7	37.1	50.0	-12.9
7.610	16.2	20.7	36.9	50.0	-13.1
3.824	12.2	20.6	32.8	46.0	-13.2
8.520	16.1	20.7	36.8	50.0	-13.2
2.928	12.1	20.6	32.7	46.0	-13.3
8.110	16.0	20.7	36.7	50.0	-13.3

