Product Creation Studio

Q2 RF

August 23, 2007

Report No. PROU0016

Report Prepared By

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: August 23, 2007
Product Creation Studio
Model: Q2 RF

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074	**Pass**
Radiated Emissions from Digital Portion	EN 55022:1998 (Amended by A1:2000 and A2:2003) Class B	CISPR 22:2005 (Amended by A1:2005 and A2:2006)	**Pass**
Spurious Conducted Emissions	FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074	**Pass**
Occupied Bandwidth	FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074	**Pass**
Output Power	FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074	**Pass**
Band Edge Compliance	FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074	**Pass**
Power Spectral Density	FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074	**Pass**

Modifications made to the product
See the Modifications section of this report

Test Facility

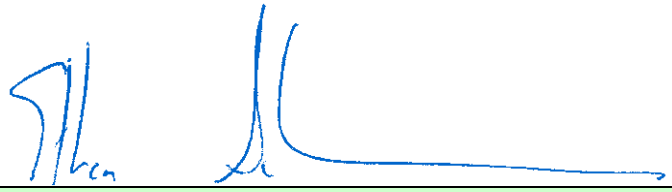
The measurement facility used to collect the data is located at:

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.

Approved By:



Ethan Schoonover, Sultan Lab 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		

Accreditations and Authorizations

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 212, Issue 1 (Provisional) 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.

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.

TÜV Product Service: Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories, available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0604C.

TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.

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).

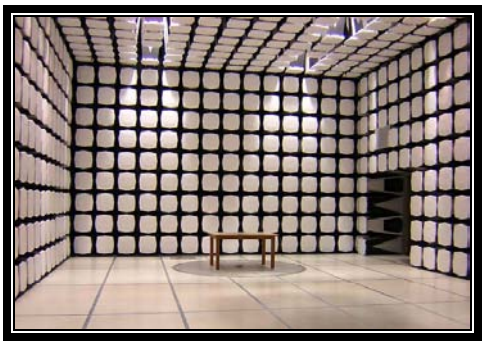
VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943,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

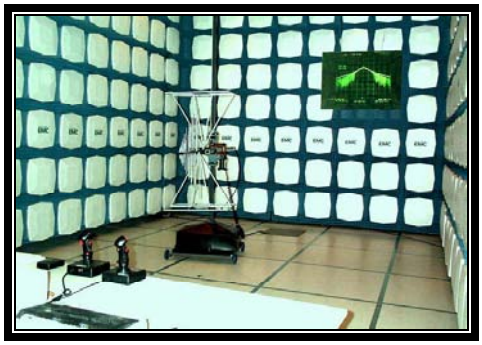
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/scope.asp



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:	Product Creation Studio
Address:	5419 Ballard Avenue NW
City, State, Zip:	Seattle, WA 98107
Test Requested By:	Scott Thielman
Model:	Q2 RF
First Date of Test:	August 6, 2007
Last Date of Test:	August 13, 2007
Receipt Date of Samples:	August 6, 2007
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

Q2 RF is a handheld device that allows the user to communicate responses to questions posed by a presenter (audience response). A keypad accepts the user input, a small display indicates the key pressed and/or status, and and the radio transceiver (Zigbee) sends the responses and receives information from a host unit connected to a PC.

Testing Objective:

Seeking TCB certification under 15.247.

CONFIGURATION 1 PROU0016

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - Direct connect unit	Qwizdom, Inc.	Q2	None

CONFIGURATION 2 PROU0016

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - Radiated spurious unit	Qwizdom, Inc.	Q2	02-001-900008

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	8/6/2007	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	8/6/2007	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.
3	8/6/2007	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.
4	8/6/2007	Power Spectral Density	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	8/6/2007	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.
6	8/9/2007	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.
7	8/13/2007	Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

RADIATED EMISSIONS

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

RX Mode

MODE USED FOR FINAL DATA

RX Mode

POWER SETTINGS INVESTIGATED

3.0 VDC

POWER SETTINGS USED FOR FINAL DATA

3.0 VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	1000MHz

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
EV11 cables a,b,c			EVL	5/1/2007	13
Antenna, Biconilog	EMCO	3142	AXB	12/28/2006	24
Pre-Amplifier	Miteq	AM-1551	AOY	5/1/2007	13
Spectrum Analyzer	Agilent	E4443A	AAS	12/7/2006	13

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. 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, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level will be detected. This requires the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search is utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance shall be 3 meters or 10 meters. At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the antenna clears the ground surface by at least 25 cm.

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2007.7.24

EUT:	Q2 RF			Work Order:	PROU0017
Serial Number:	None			Date:	08/13/07
Customer:	Product Creation Studio			Temperature:	24°C
Attendees:	None			Humidity:	41%
Project:	None			Barometric Pres.:	1015.4 mb
Tested by:	David Divergigelis	Power:	3.0 VDC	Job Site:	EV11

TEST SPECIFICATIONS	Test Method
EN 55022:1998 (Amended by A1:2000 and A2:2003) Class B	CISPR 22:2005 (Amended by A1:2005 and A2:2006)

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	10

COMMENTS

None

EUT OPERATING MODES

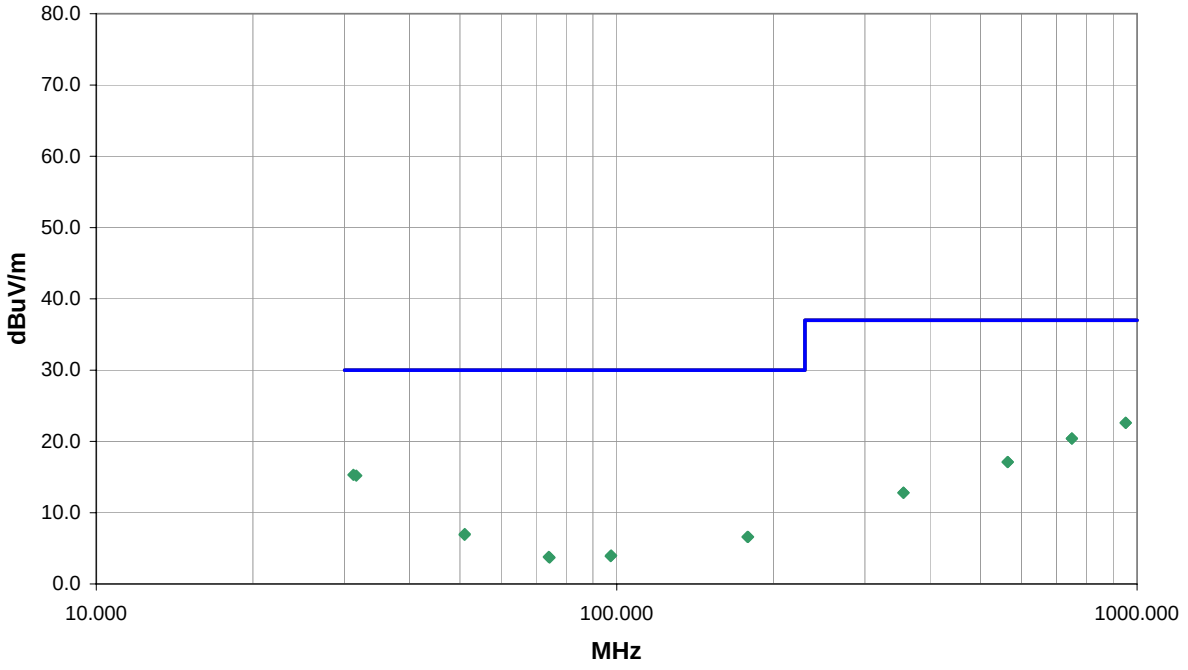
RX Mode

DEVIATIONS FROM TEST STANDARD

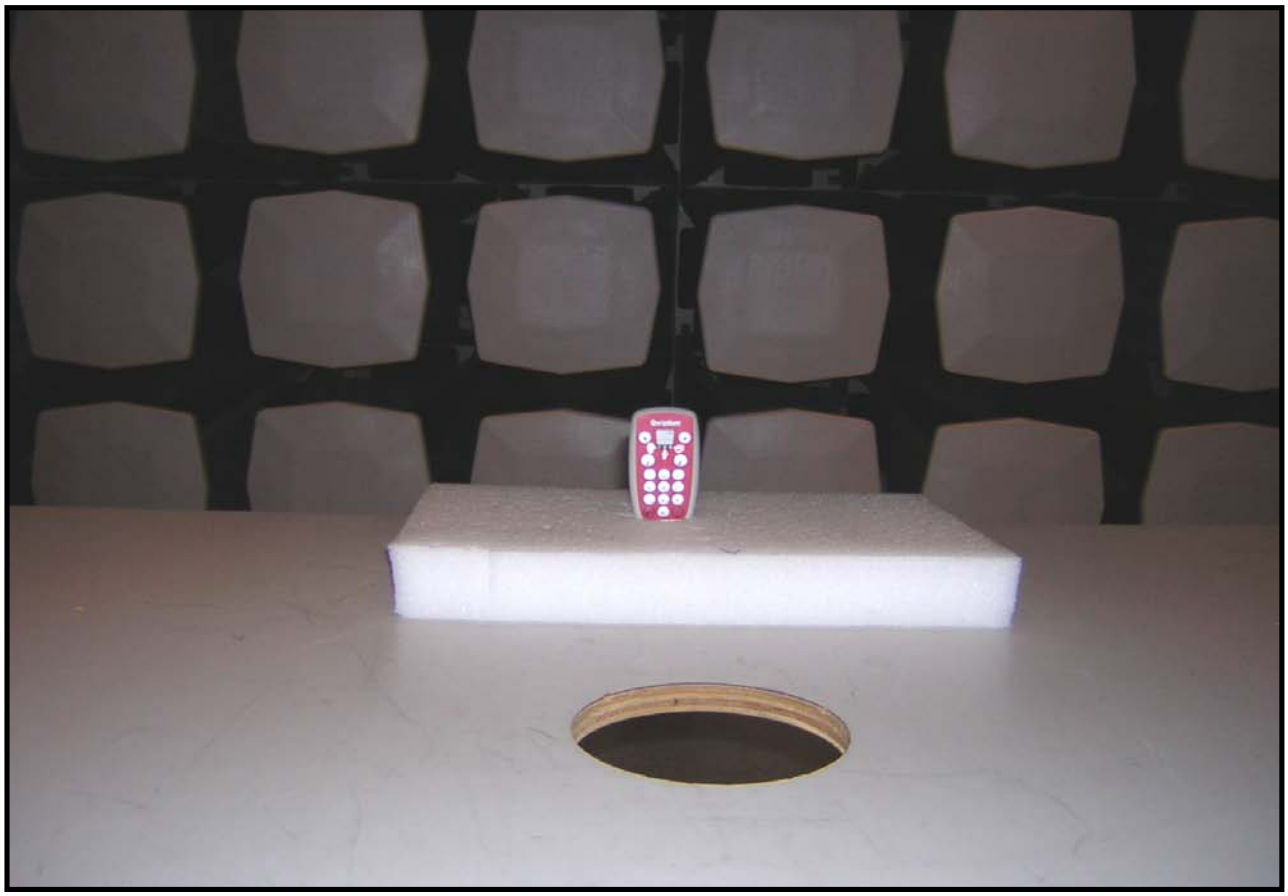
No deviations.

Run #	1
Configuration #	2
Results	Pass

Signature



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)
950.752	30.7	-8.1	0.0	1.9	10.0	0.0	V-Bilog	QP	0.0	22.6	37.0	-14.4
950.990	30.7	-8.1	137.0	1.0	10.0	0.0	H-Bilog	QP	0.0	22.6	37.0	-14.4
31.185	31.6	-16.3	104.0	2.3	10.0	0.0	H-Bilog	QP	0.0	15.3	30.0	-14.7
31.603	31.6	-16.4	359.0	2.2	10.0	0.0	V-Bilog	QP	0.0	15.2	30.0	-14.8
749.007	30.9	-10.5	207.0	2.7	10.0	0.0	V-Bilog	QP	0.0	20.4	37.0	-16.6
749.631	30.9	-10.5	83.0	3.5	10.0	0.0	H-Bilog	QP	0.0	20.4	37.0	-16.6
564.074	30.5	-13.4	360.0	1.4	10.0	0.0	H-Bilog	QP	0.0	17.1	37.0	-19.9
564.338	30.5	-13.4	123.0	1.0	10.0	0.0	V-Bilog	QP	0.0	17.1	37.0	-19.9
51.061	31.6	-24.6	289.0	1.0	10.0	0.0	V-Bilog	QP	0.0	7.0	30.0	-23.0
51.012	31.5	-24.6	156.0	1.0	10.0	0.0	H-Bilog	QP	0.0	6.9	30.0	-23.1
178.413	30.5	-23.9	318.0	2.3	10.0	0.0	H-Bilog	QP	0.0	6.6	30.0	-23.4
178.900	30.5	-23.9	30.0	3.3	10.0	0.0	V-Bilog	QP	0.0	6.6	30.0	-23.4
355.695	30.2	-17.4	32.0	1.0	10.0	0.0	V-Bilog	QP	0.0	12.8	37.0	-24.2
355.757	30.2	-17.4	360.0	1.8	10.0	0.0	H-Bilog	QP	0.0	12.8	37.0	-24.2
97.612	30.9	-26.9	257.0	2.4	10.0	0.0	H-Bilog	QP	0.0	4.0	30.0	-26.0
97.353	30.9	-27.0	0.0	2.0	10.0	0.0	V-Bilog	QP	0.0	3.9	30.0	-26.1
74.025	31.2	-27.4	177.0	1.0	10.0	0.0	V-Bilog	QP	0.0	3.8	30.0	-26.2
74.322	31.1	-27.4	177.0	1.0	10.0	0.0	H-Bilog	QP	0.0	3.7	30.0	-26.3



OCCUPIED BANDWIDTH

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	12/8/2006	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	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. 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 in a no hop mode.

NORTHWEST EMC

OCCUPIED BANDWIDTH

XMit 2007.06.13

EUT:	Q2 RF			**Work Order:**	PROU0016
Serial Number:	None			**Date:**	08/06/07
Customer:	Product Creation Studio			**Temperature:**	24°C
Attendees:	Kevin			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1015.4 mb
Tested by:	Rod Peloquin	**Power:**	3.0 VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074

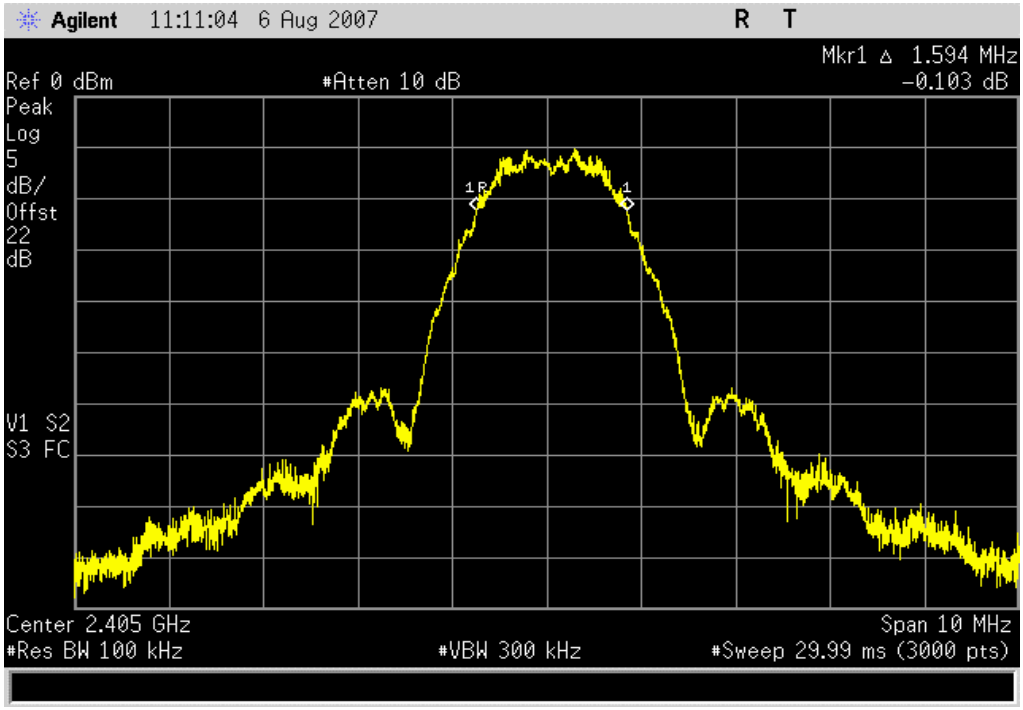
COMMENTS

DEVIATIONS FROM TEST STANDARD

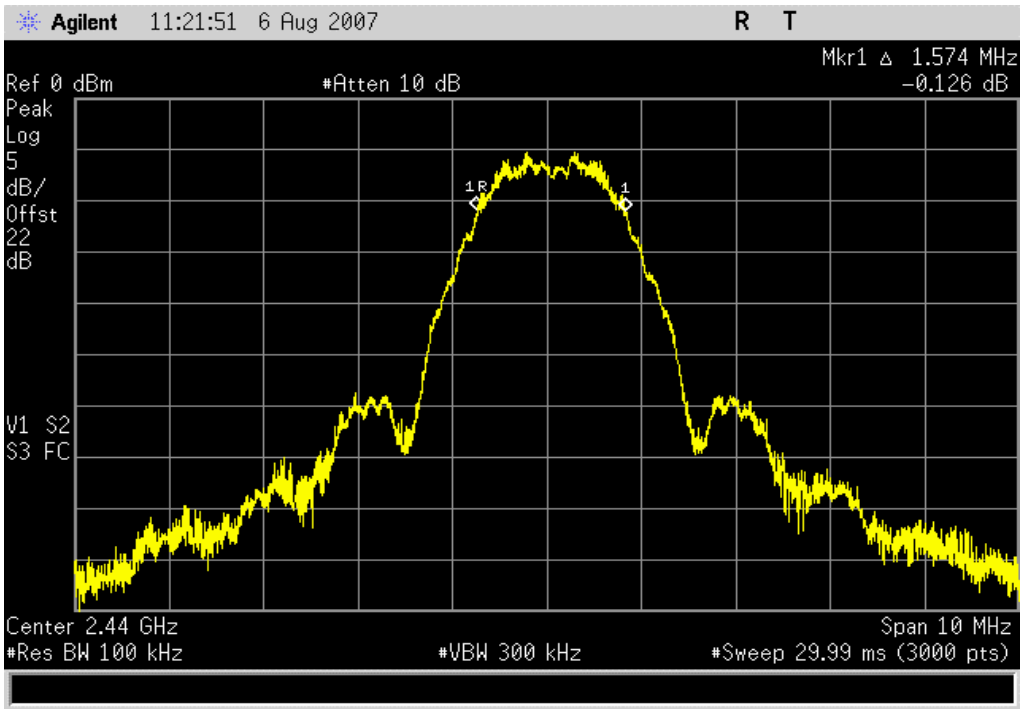
Configuration #	1	Signature

	Value	Limit	Results
Low Channel	1.594 MHz	> 500 kHz	Pass
Mid Channel	1.574 MHz	> 500 kHz	Pass
High Channel	1.601 MHz	> 500 kHz	Pass

Low Channel					
Result:	Pass	**Value:**	1.594 MHz	**Limit:**	> 500 kHz

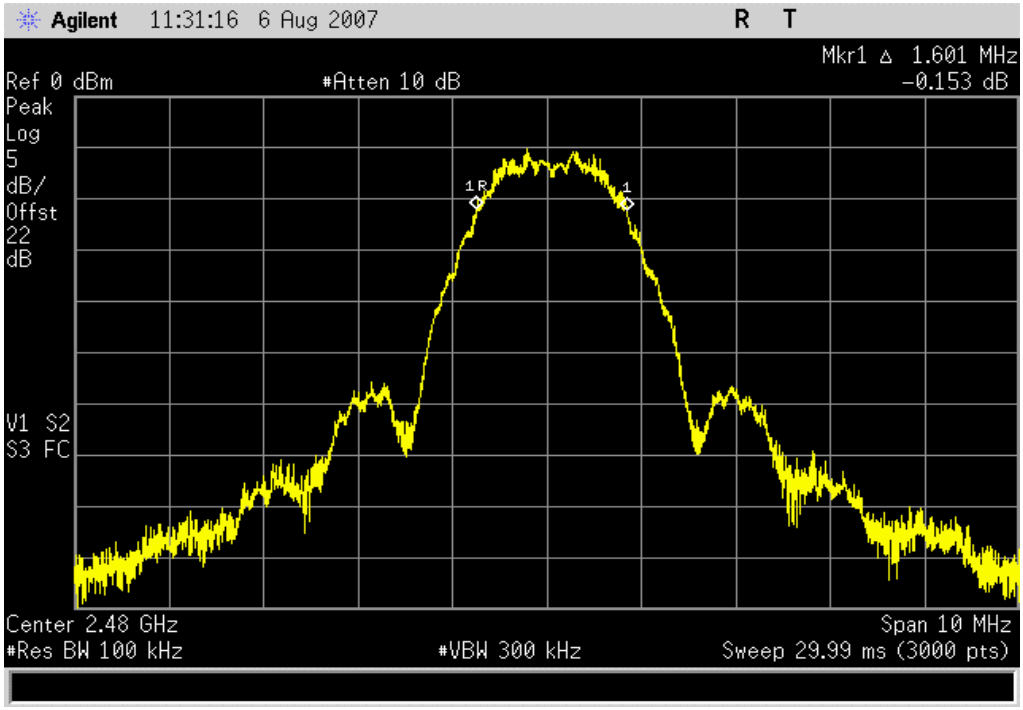


Mid Channel					
Result:	Pass	**Value:**	1.574 MHz	**Limit:**	> 500 kHz



OCCUPIED BANDWIDTH

High Channel					
Result:	Pass	**Value:**	1.601 MHz	**Limit:**	> 500 kHz



OCCUPIED BANDWIDTH

OUTPUT POWER

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
Power Sensor	Gigatronics	80701A	SPL	9/19/2006	12
Power Meter	Gigatronics	8651A	SPM	9/19/2006	12
Spectrum Analyzer	Agilent	E4407B	AAU	12/8/2006	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/7/2006	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. 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 measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.

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

NORTHWEST EMC

OUTPUT POWER

XMit 2007.06.13

EUT:	Q2 RF			**Work Order:**	PROU0016
Serial Number:	None			**Date:**	08/06/07
Customer:	Product Creation Studio			**Temperature:**	24°C
Attendees:	None			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1015.4 mb
Tested by:	Rod Peloquin	**Power:**	3.0 VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074

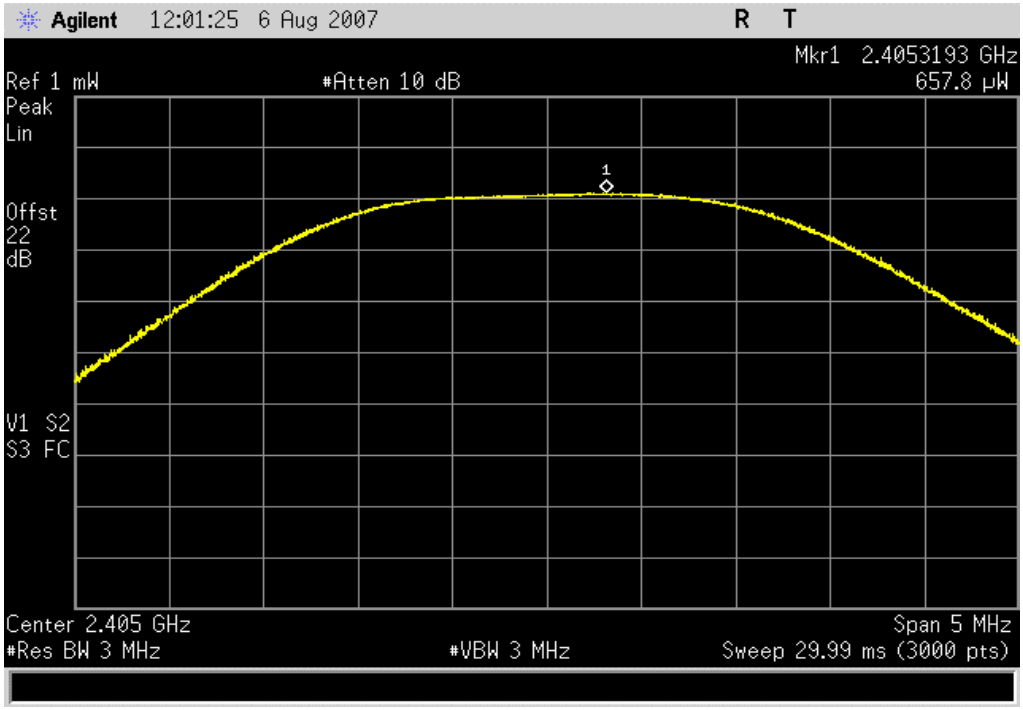
COMMENTS

DEVIATIONS FROM TEST STANDARD

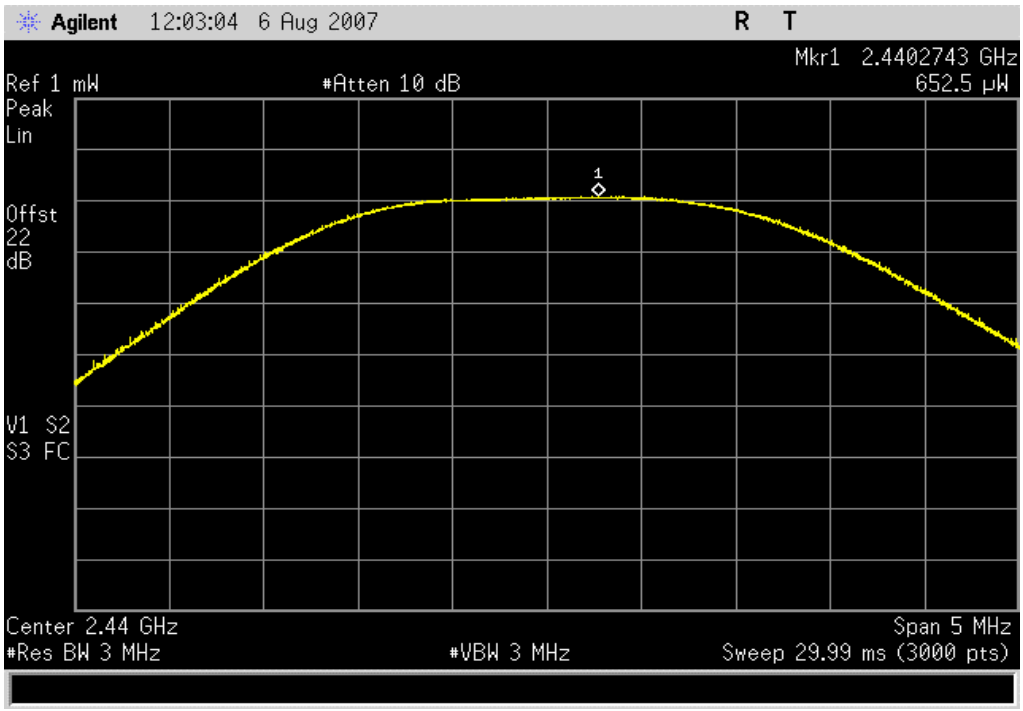
Configuration #	1	Signature

	Value	Limit	Results
Low Channel	0.658 mW	1 W	Pass
Mid Channel	0.653 mW	1 W	Pass
High Channel	0.678 mW	1 W	Pass

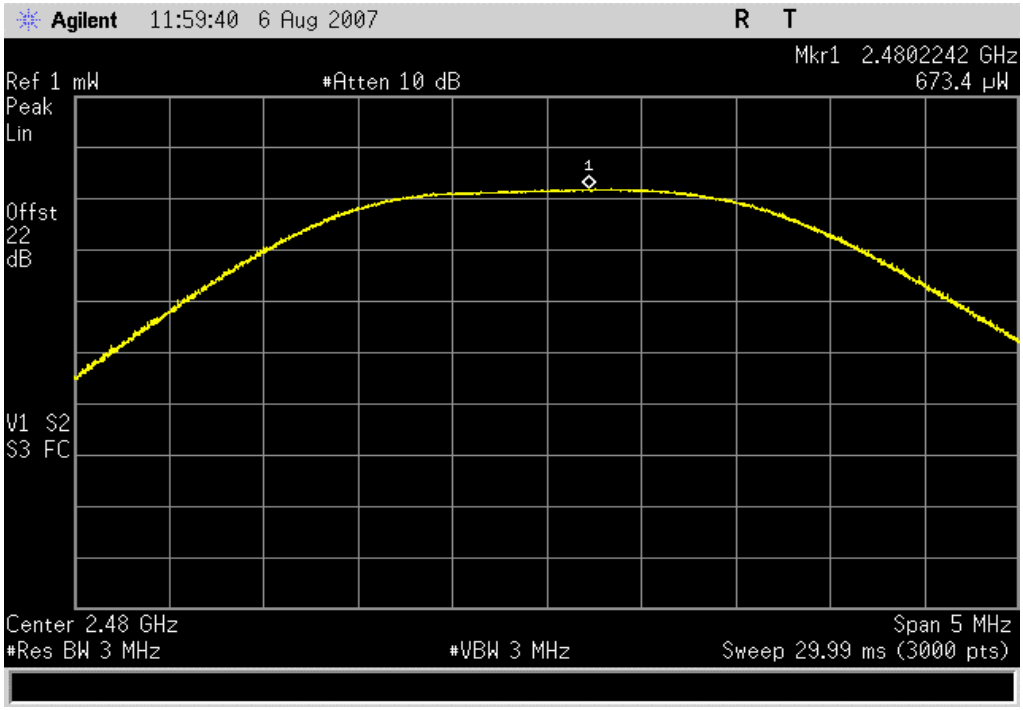
Low Channel					
Result:	Pass	**Value:**	0.658 mW	**Limit:**	1 W



Mid Channel					
Result:	Pass	**Value:**	0.653 mW	**Limit:**	1 W



High Channel					
Result:	Pass	**Value:**	0.678 mW	**Limit:**	1 W



OUTPUT POWER

BAND EDGE COMPLIANCE

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	12/8/2006	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	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. 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 data rate using direct sequence modulation. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 7.5 MHz below the band edge to 7.5 MHz above the band edge.

NORTHWEST EMC

BAND EDGE COMPLIANCE

XMit 2007.06.13

EUT:	Q2 RF			Work Order:	PROU0016
Serial Number:	None			Date:	08/06/07
Customer:	Product Creation Studio			Temperature:	24°C
Attendees:	Kevin			Humidity:	41%
Project:	None			Barometric Pres.:	1015.4 mb
Tested by:	Rod Peloquin	Power:	3.0 VDC	Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074

COMMENTS

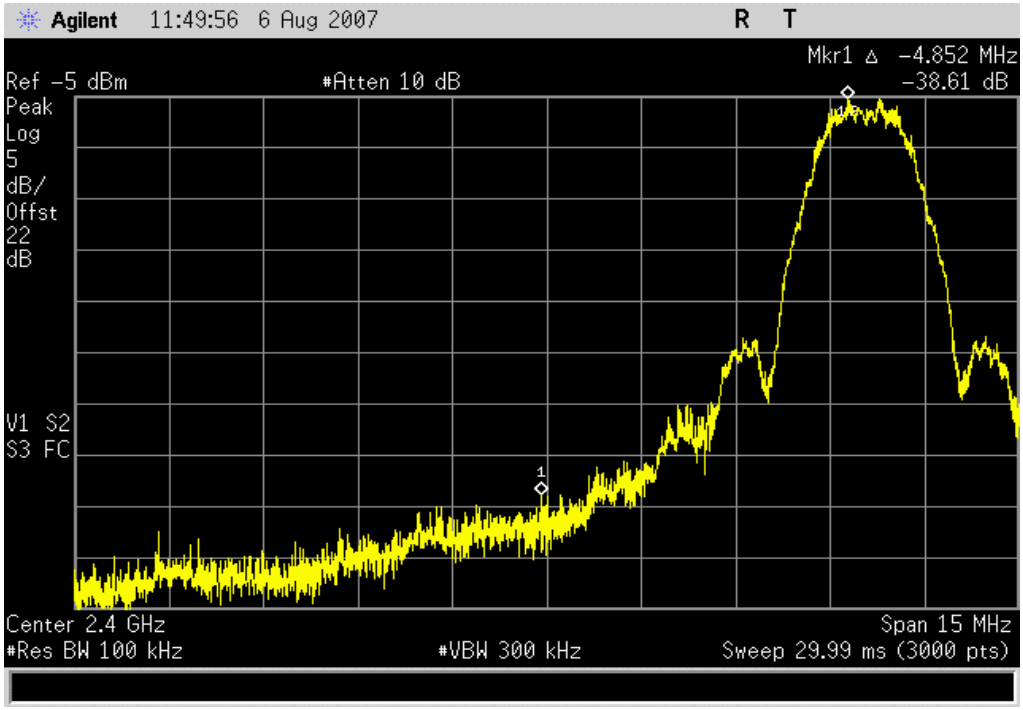
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

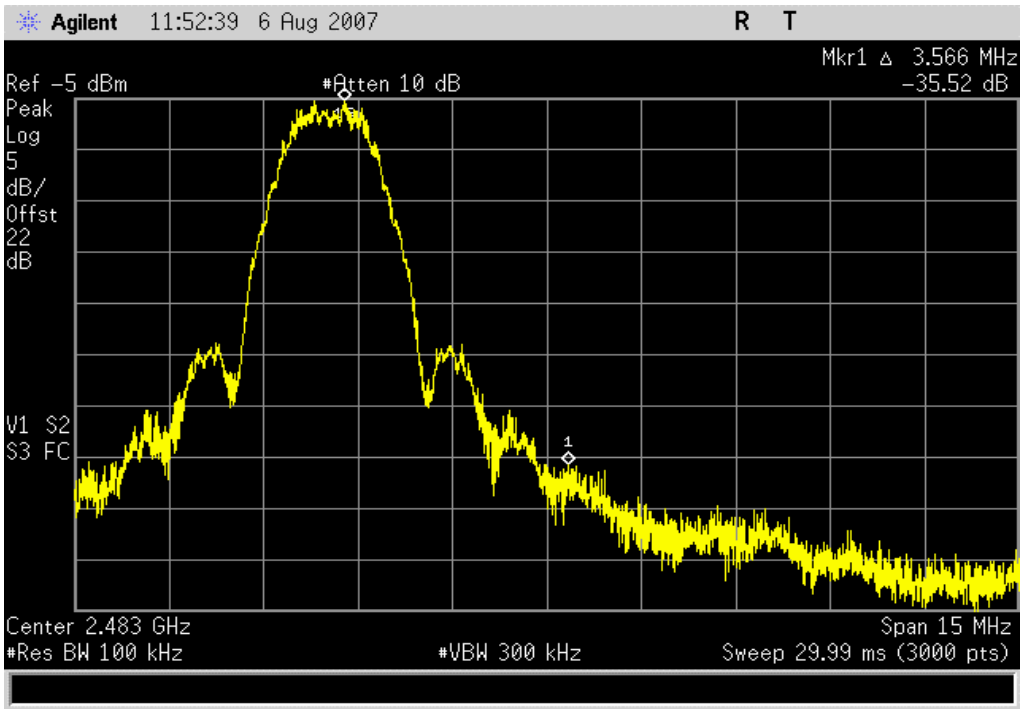
	Value	Limit	Results
Low Channel	-38.61 dBc	≤ -20 dBc	Pass
High Channel	-35.52 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

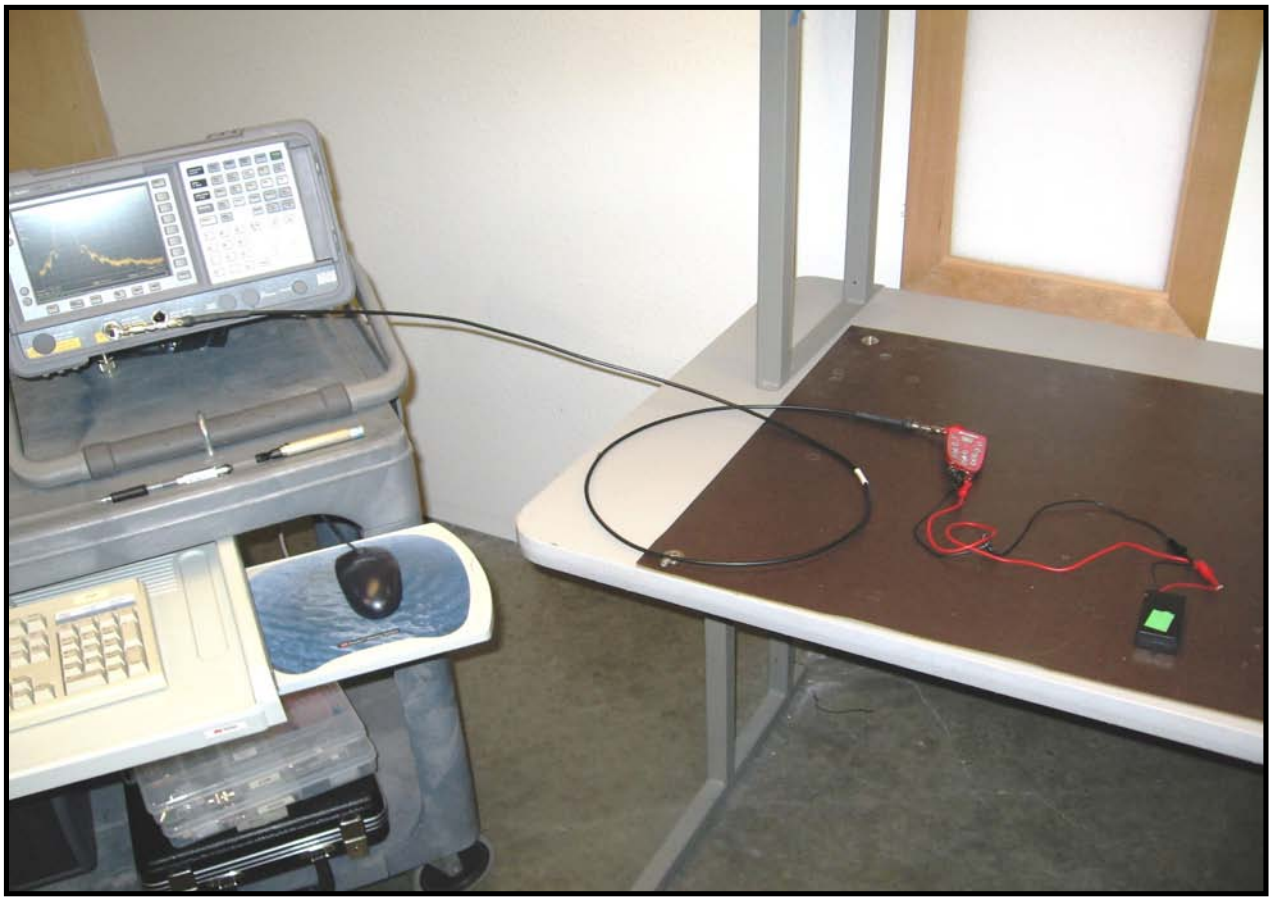
Low Channel					
Result:	Pass	**Value:**	-38.61 dBc	**Limit:**	≤ -20 dBc



High Channel					
Result:	Pass	**Value:**	-35.52 dBc	**Limit:**	≤ -20 dBc



BAND EDGE COMPLIANCE



SPURIOUS CONDUCTED EMISSIONS

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	12/8/2006	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	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. 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 data rate using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

NORTHWEST

EMC

SPURIOUS CONDUCTED EMISSIONS

XMit 2007.06.13

EUT:	Q2 RF			**Work Order:**	PROU0016
Serial Number:	None			**Date:**	08/06/07
Customer:	Product Creation Studio			**Temperature:**	24°C
Attendees:	None			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1015.4 mb
Tested by:	Rod Peloquin	**Power:**	3.0 VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074

COMMENTS

DEVIATIONS FROM TEST STANDARD

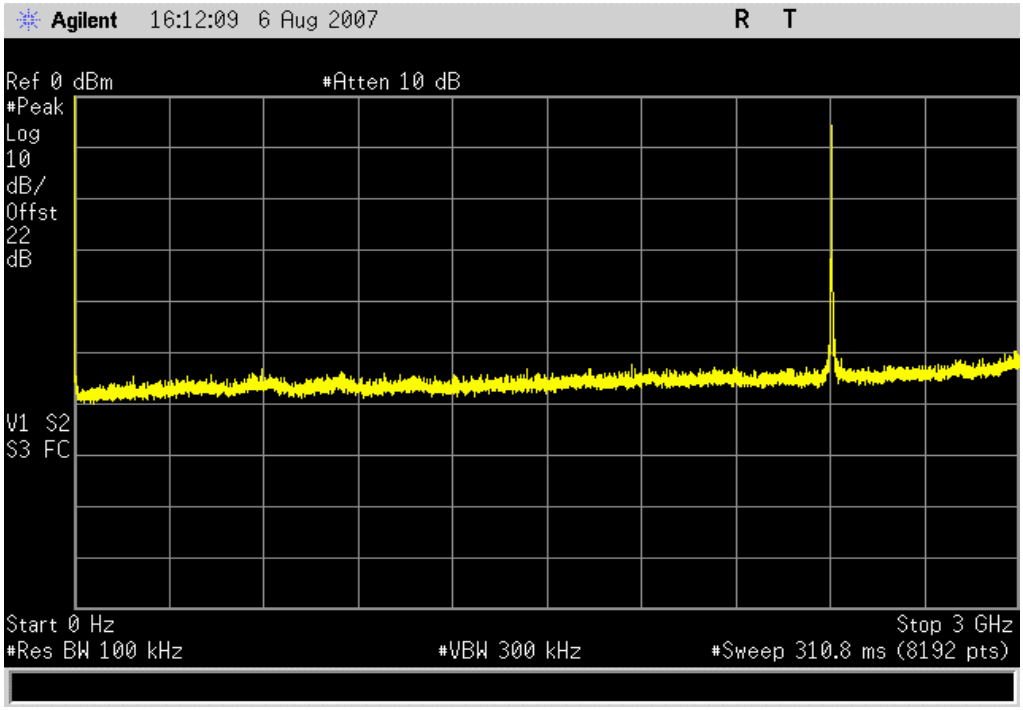
None

Configuration #	1	*Signature*

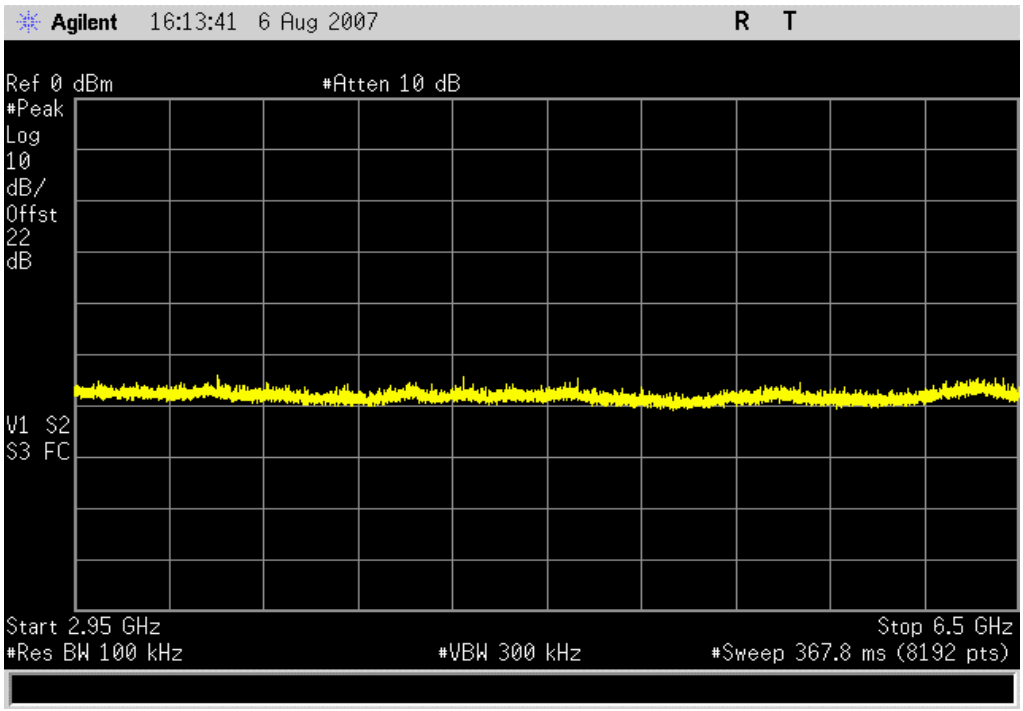
		Value	Limit	Results
Low Channel				
	0 - 3 GHz	< -40 dBc	≤ -20 dBc	Pass
	3 - 6.5 GHz	< -40 dBc	≤ -20 dBc	Pass
	6.5 - 12.8 GHz	< -40 dBc	≤ -20 dBc	Pass
	12.8 - 25 GHz	< -40 dBc	≤ -20 dBc	Pass
Mid Channel				
	0 - 3 GHz	< -40 dBc	≤ -20 dBc	Pass
	3 - 6.5 GHz	< -40 dBc	≤ -20 dBc	Pass
	6.5 - 12.8 GHz	< -40 dBc	≤ -20 dBc	Pass
	12.8 - 25 GHz	< -40 dBc	≤ -20 dBc	Pass
High Channel				
	0 - 3 GHz	< -40 dBc	≤ -20 dBc	Pass
	3 - 6.5 GHz	< -40 dBc	≤ -20 dBc	Pass
	6.5 - 12.8 GHz	< -40 dBc	≤ -20 dBc	Pass
	12.8 - 25 GHz	< -40 dBc	≤ -20 dBc	Pass

SPURIOUS CONDUCTED EMISSIONS

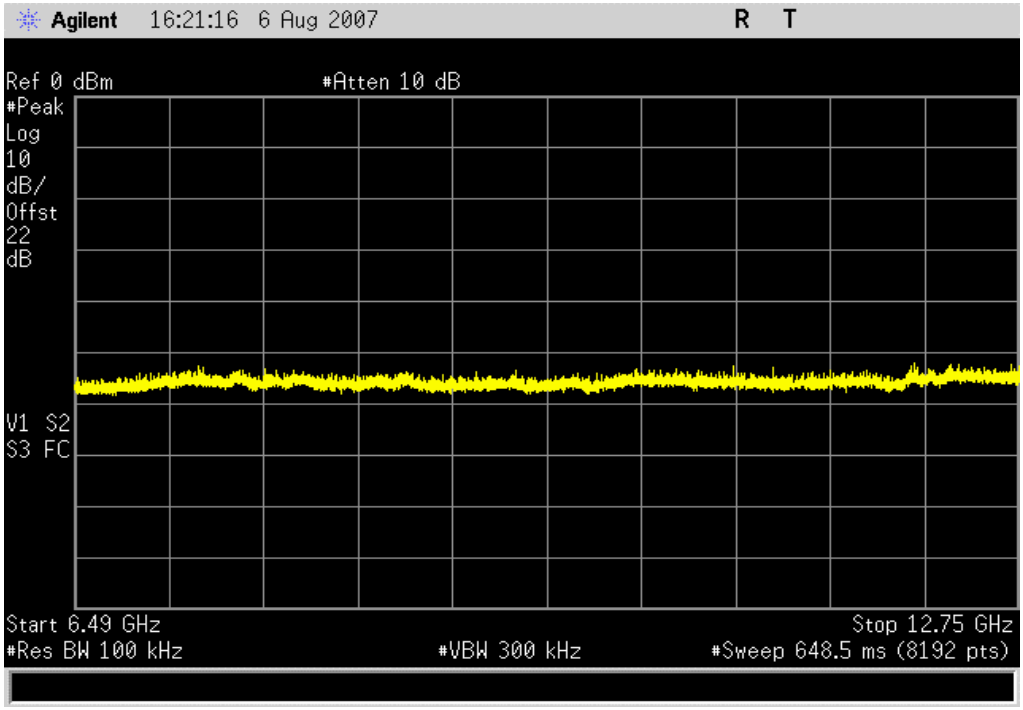
Low Channel, 0 - 3 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



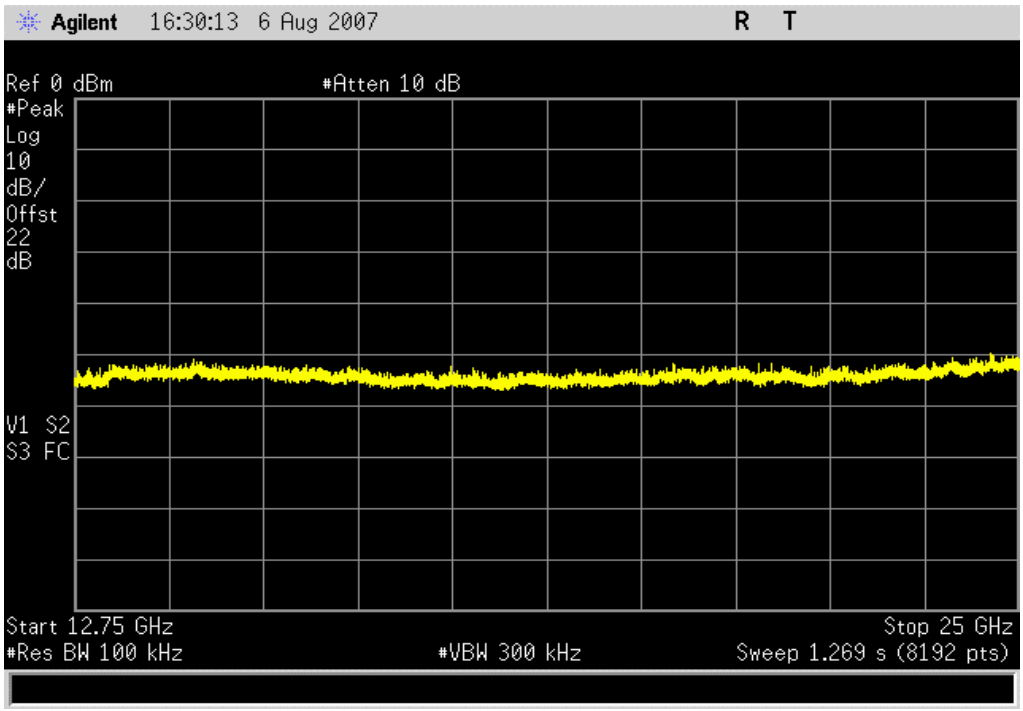
Low Channel, 3 - 6.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



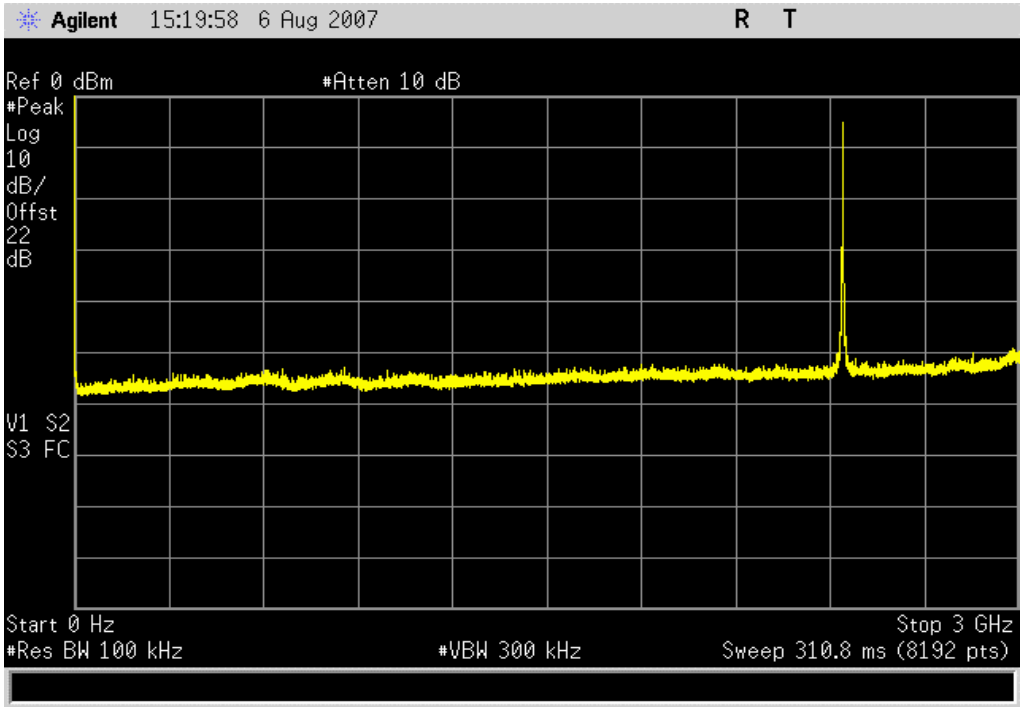
Low Channel, 6.5 - 12.8 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



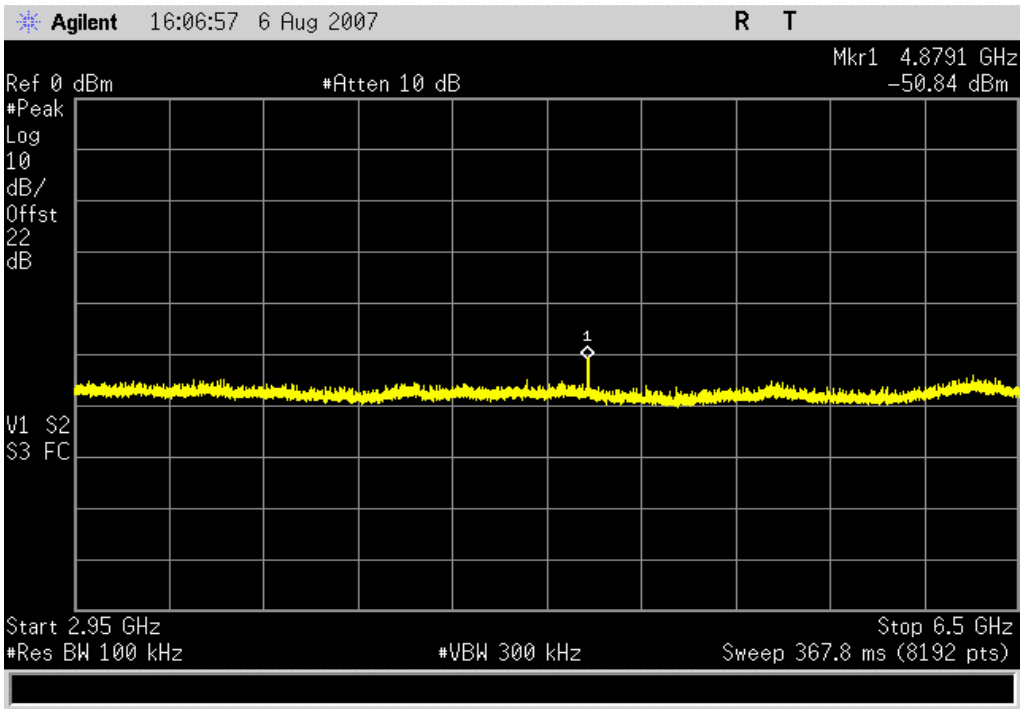
Low Channel, 12.8 - 25 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



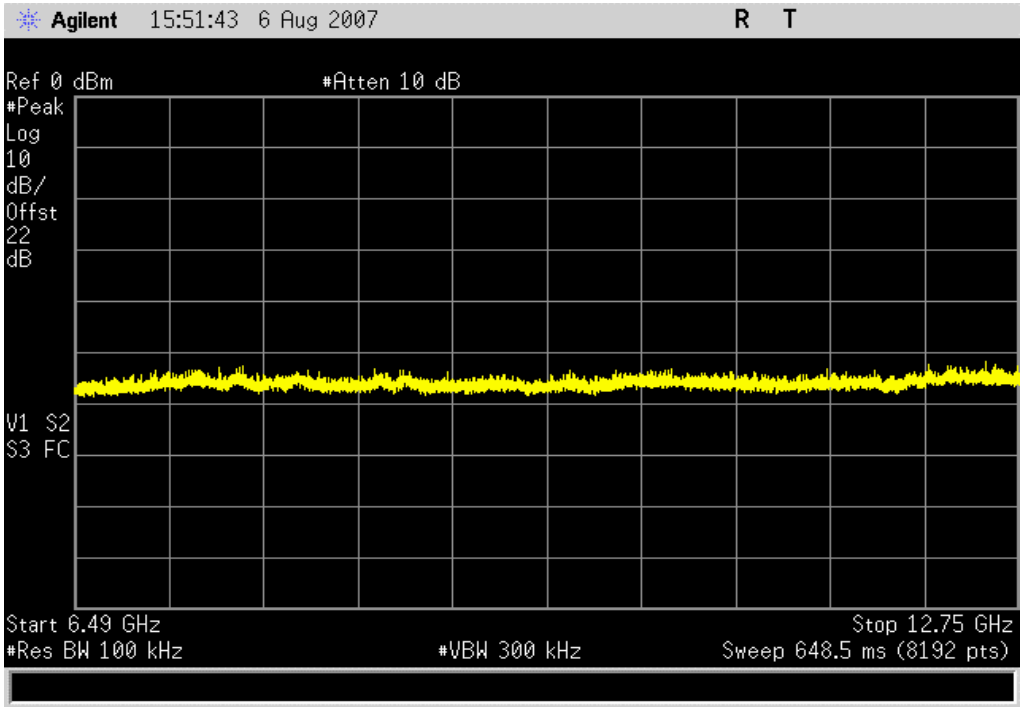
Mid Channel, 0 - 3 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



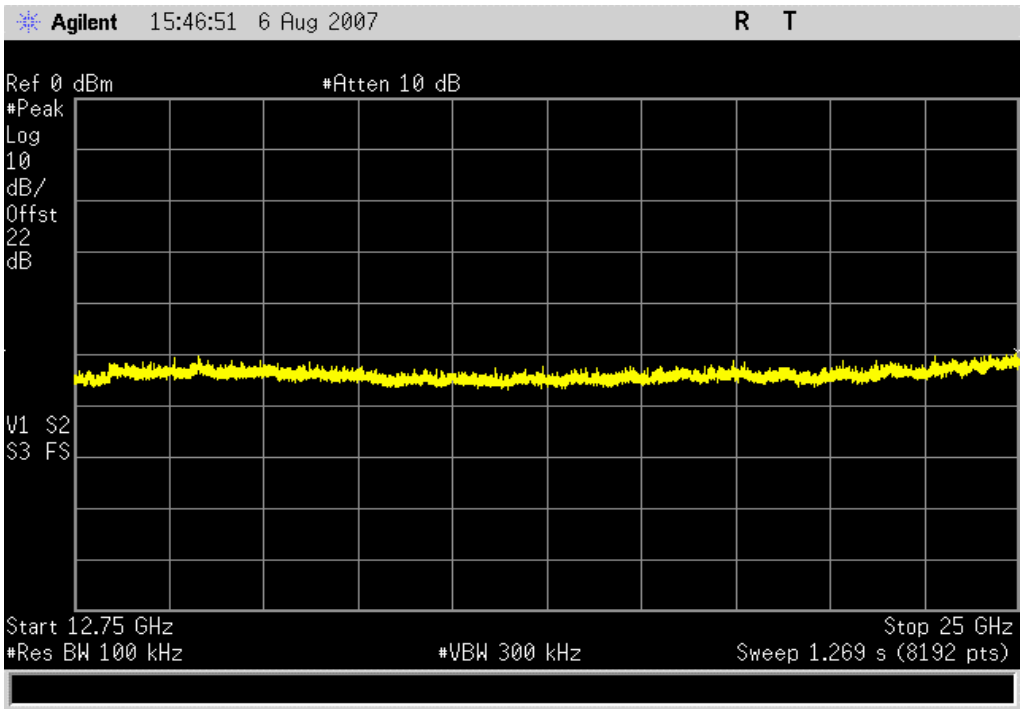
Mid Channel, 3 - 6.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



Mid Channel, 6.5 - 12.8 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc

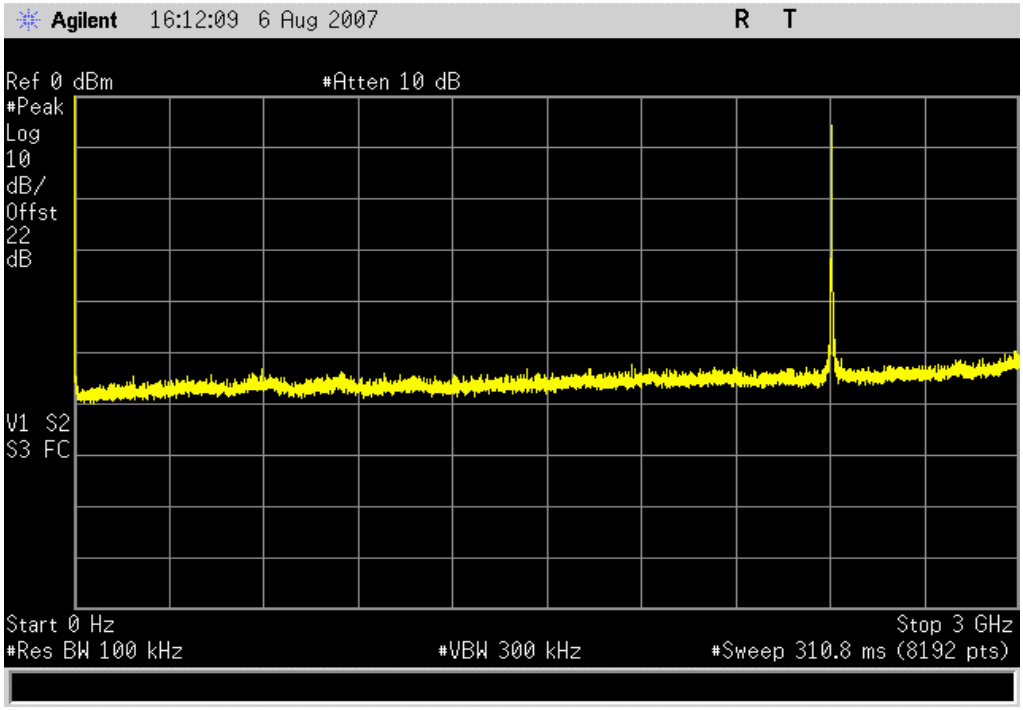


Mid Channel, 12.8 - 25 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc

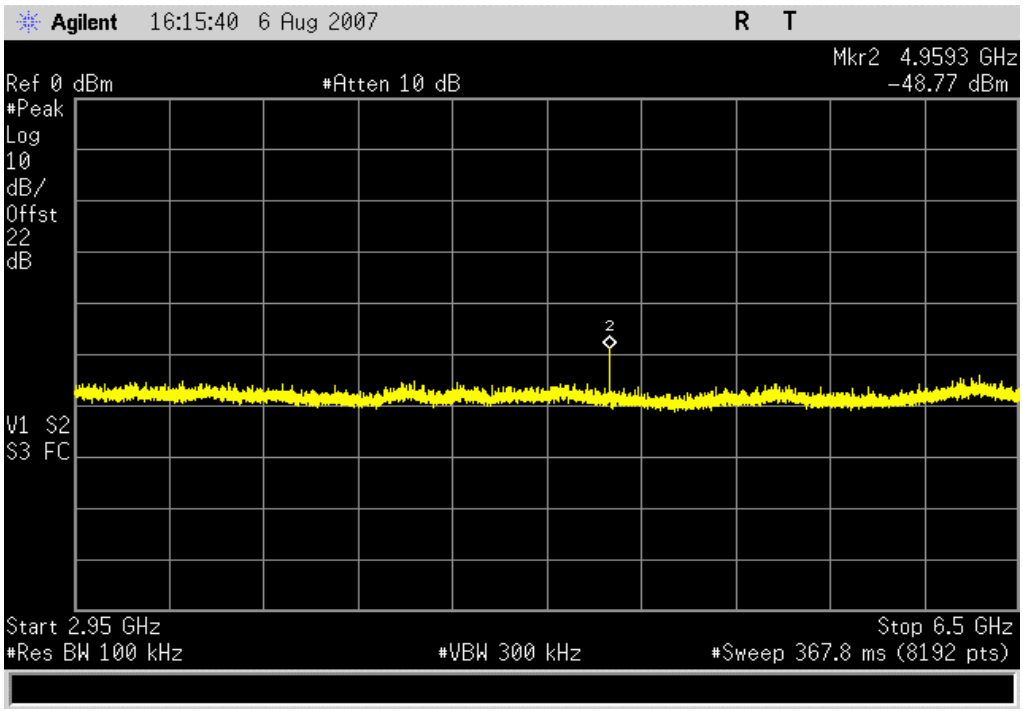


SPURIOUS CONDUCTED EMISSIONS

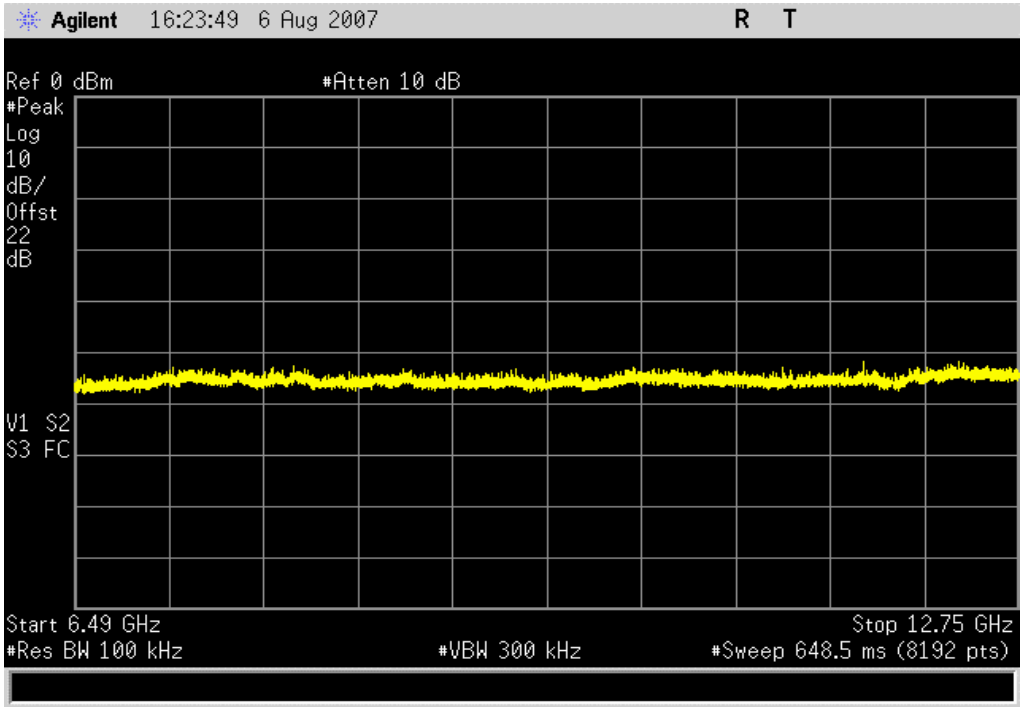
High Channel, 0 - 3 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



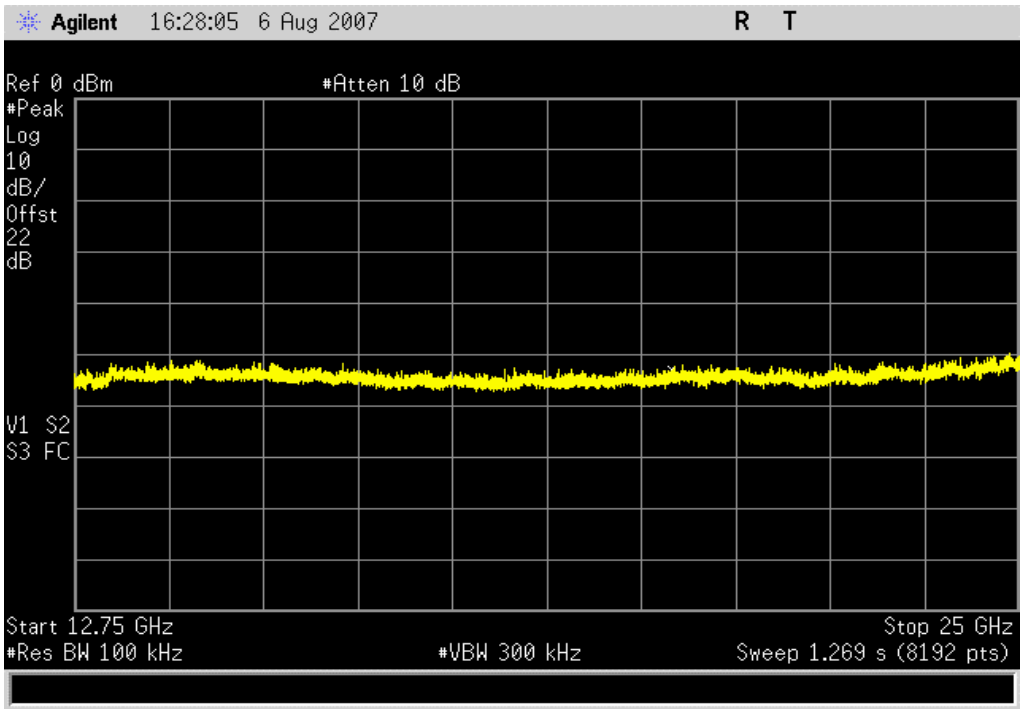
High Channel, 3 - 6.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



High Channel, 6.5 - 12.8 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



High Channel, 12.8 - 25 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



POWER SPECTRAL DENSITY

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	12/8/2006	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Power Meter	Gigatronics	8651A	SPM	9/19/2006	12
Power Sensor	Gigatronics	80701A	SPL	9/19/2006	12
Signal Generator	Hewlett-Packard	8648D	TGC	12/7/2006	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. 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 to low, mid, 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 using direct sequence modulation. Per the procedure outlined in FCC 97-114, 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 x $10^6 \div 3 \times 10^3 = 500$ 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."

NORTHWEST EMC

POWER SPECTRAL DENSITY

XMit 2007.06.13

EUT:	Q2 RF			**Work Order:**	PROU0016
Serial Number:	None			**Date:**	08/06/07
Customer:	Product Creation Studio			**Temperature:**	24°C
Attendees:	None			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1015.4 mb
Tested by:	Rod Peloquin	**Power:**	3.0 VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074

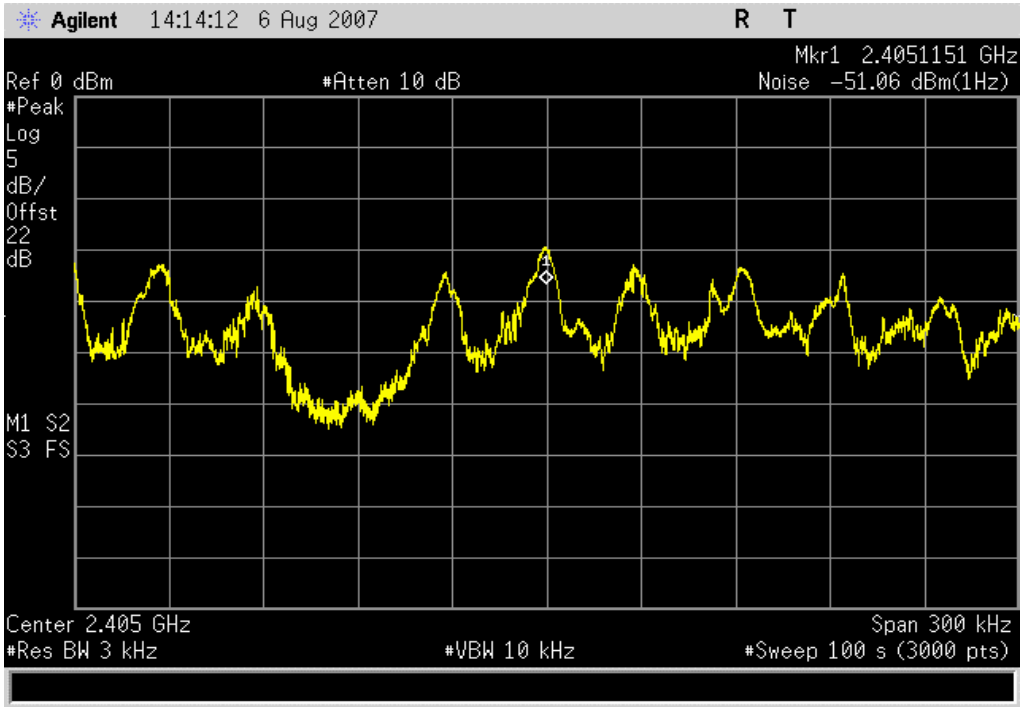
COMMENTS

DEVIATIONS FROM TEST STANDARD

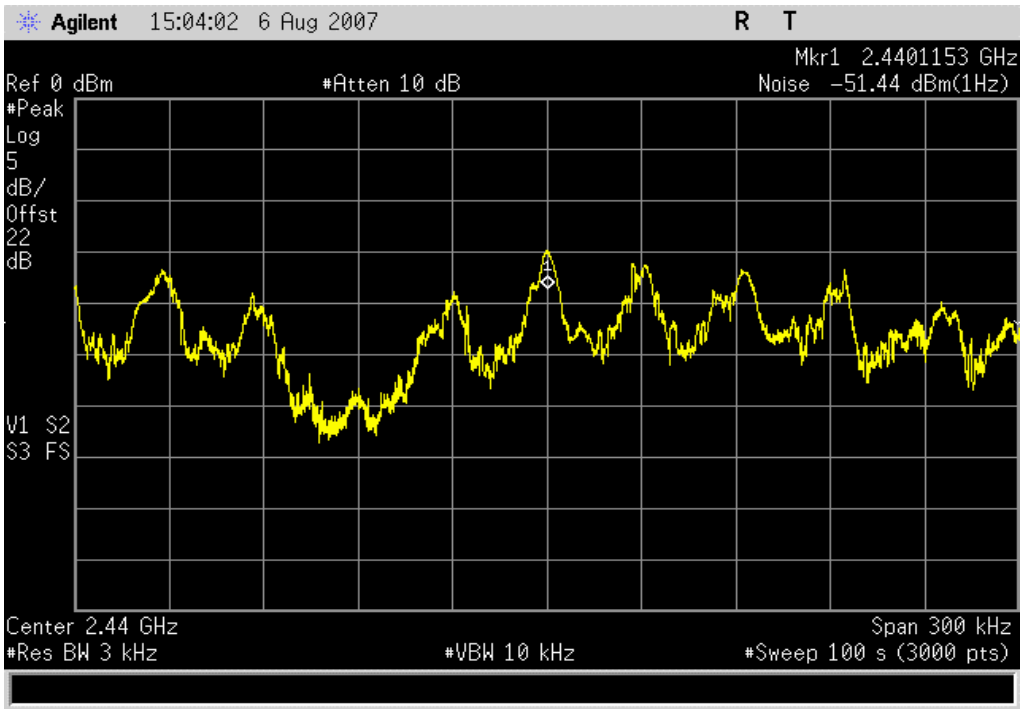
Configuration #	1	Signature

	Value	Limit	Results
Low Channel	-16.8 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Mid Channel	-16.6 dBm / 3 kHz	8 dBm / 3 kHz	Pass
High Channel	-16.3 dBm / 3 kHz	8 dBm / 3 kHz	Pass

Low Channel					
Result:	Pass	**Value:**	-16.8 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz

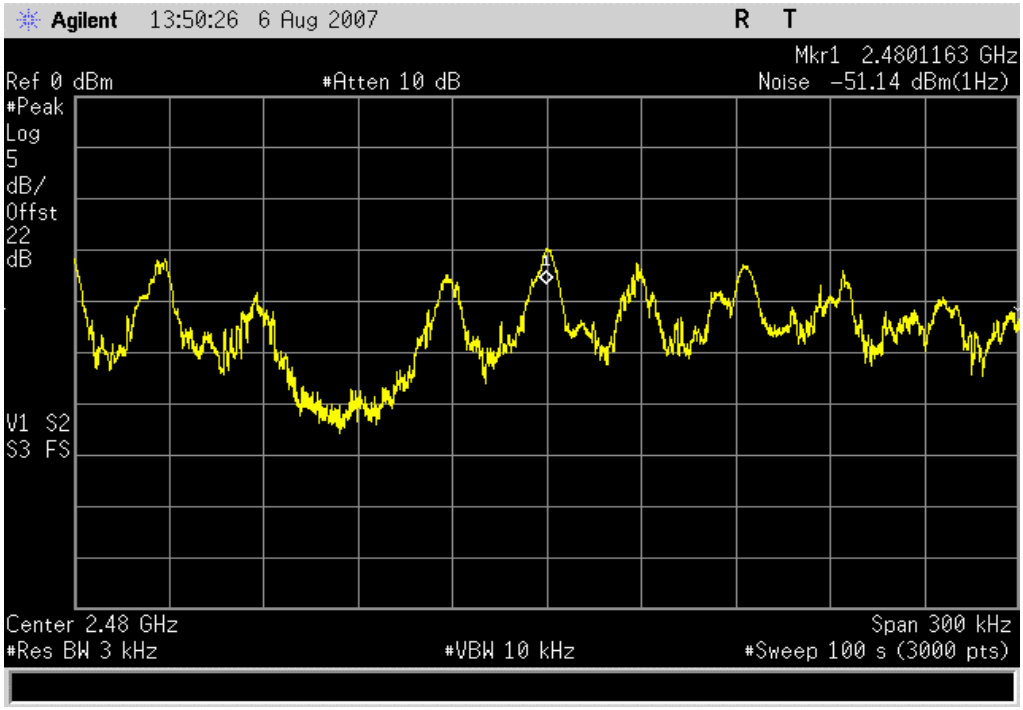


Mid Channel					
Result:	Pass	**Value:**	-16.6 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



POWER SPECTRAL DENSITY

High Channel					
Result:	Pass	**Value:**	-16.3 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



POWER SPECTRAL DENSITY

FIELD STRENGTH OF SPURIOUS EMISSIONS

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
Zigbee Transmitting mode, high channel
Zigbee Transmitting mode, mid channel
Zigbee Transmitting mode, low channel

POWER SETTINGS INVESTIGATED
3.0 VDC

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	25 GHz

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
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2006	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	12/29/2006	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	12/29/2006	13
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
EV01 cables c,g, h			EVA	12/29/2006	13
EV01 cables g,h,j			EVB	5/10/2007	13
Antenna, Horn	EMCO	3115	AHC	8/24/2006	12
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/10/2007	13
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	5/10/2007	13
Antenna, Horn	EMCO	3160-08	AHK	NCR	0
EV01 cables g,h,l			EVF	5/10/2007	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/22/2007	13
EV01 Cable D			EVD	7/25/2007	13

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. 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 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.

NORTHWEST EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	Q2 RF	Work Order:	PROU0016
Serial Number:	None	Date:	08/07/07
Customer:	Product Creation Studio	Temperature:	24°C
Attendees:	None	Humidity:	41%
Project:	None	Barometric Pres.:	1015.4 mb
Tested by:	David Divergigelis	Power: 3.0 VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247(DTS):2006	ANSI C63.4:2003, KDB No. 558074

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

COMMENTS

See comments for axis of EUT.

EUT OPERATING MODES

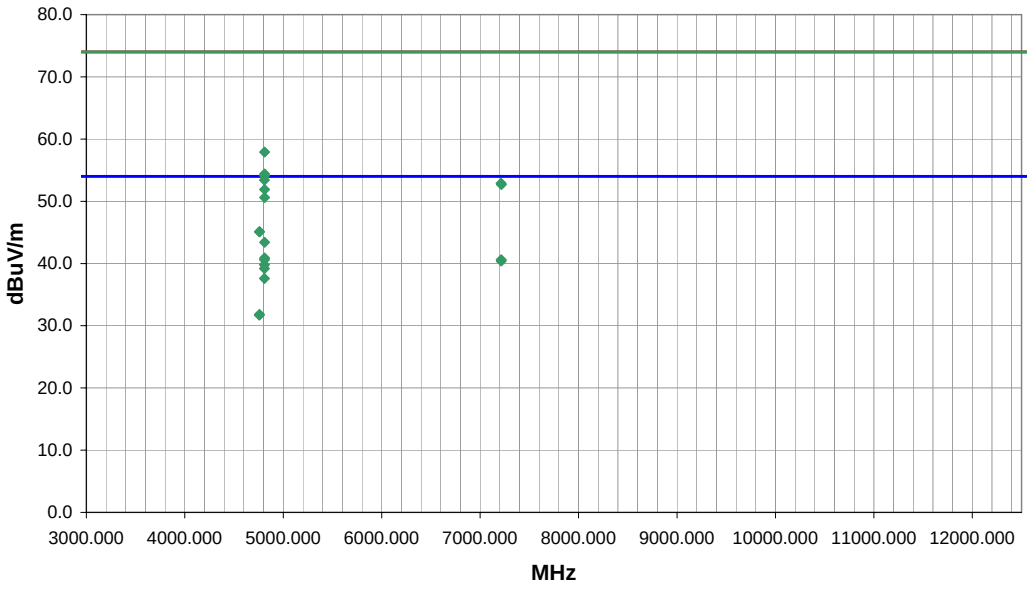
Zigbee Transmitting mode, low channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	2
Results	Pass

Signature



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)	Comments
4810.030	36.0	7.4	163.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.4	54.0	-10.6	EUT Horizontal
4811.000	33.5	7.4	190.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.9	54.0	-13.1	EUT Vertical
4809.220	33.2	7.4	222.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	EUT on side
7213.880	27.3	13.3	288.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	EUT Horizontal
7213.830	27.1	13.3	188.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.4	54.0	-13.6	EUT Horizontal
4809.200	32.4	7.4	4.0	1.0	3.0	0.0	H-Horn	AV	0.0	39.8	54.0	-14.2	EUT on side
4809.180	31.8	7.4	322.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.2	54.0	-14.8	EUT Horizontal
4811.250	50.5	7.4	163.0	1.0	3.0	0.0	H-Horn	PK	0.0	57.9	74.0	-16.1	EUT Horizontal
4809.250	30.2	7.4	106.0	1.4	3.0	0.0	V-Horn	AV	0.0	37.6	54.0	-16.4	EUT Vertical
4811.130	47.0	7.4	190.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.4	74.0	-19.6	EUT Vertical
4811.350	46.7	7.4	222.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.1	74.0	-19.9	EUT on side
4809.250	46.0	7.4	4.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.4	74.0	-20.6	EUT on side
7213.520	39.6	13.3	288.0	1.0	3.0	0.0	V-Horn	PK	0.0	52.9	74.0	-21.1	EUT Horizontal
7215.600	39.4	13.3	188.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.7	74.0	-21.3	EUT Horizontal
4811.220	44.5	7.4	322.0	1.0	3.0	0.0	V-Horn	PK	0.0	51.9	74.0	-22.1	EUT Horizontal
4758.443	24.4	7.4	177.0	1.0	3.0	0.0	H-Horn	AV	0.0	31.8	54.0	-22.2	EUT Vertical
4757.560	24.3	7.4	252.0	1.0	3.0	0.0	V-Horn	AV	0.0	31.7	54.0	-22.3	EUT Vertical
4810.870	43.2	7.4	106.0	1.4	3.0	0.0	V-Horn	PK	0.0	50.6	74.0	-23.4	EUT Vertical
4757.893	37.7	7.4	177.0	1.0	3.0	0.0	H-Horn	PK	0.0	45.1	74.0	-28.9	EUT Vertical
4758.023	37.7	7.4	252.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.1	74.0	-28.9	EUT Vertical

NORTHWEST EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	Q2 RF	Work Order:	PROU0016
Serial Number:	None	Date:	08/07/07
Customer:	Product Creation Studio	Temperature:	24°C
Attendees:	None	Humidity:	41%
Project:	None	Barometric Pres.:	1015.4 mb
Tested by:	David Divergigelis	Power: 3.0 VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247(DTS):2006	ANSI C63.4:2003, KDB No. 558074

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

COMMENTS

EUT OPERATING MODES

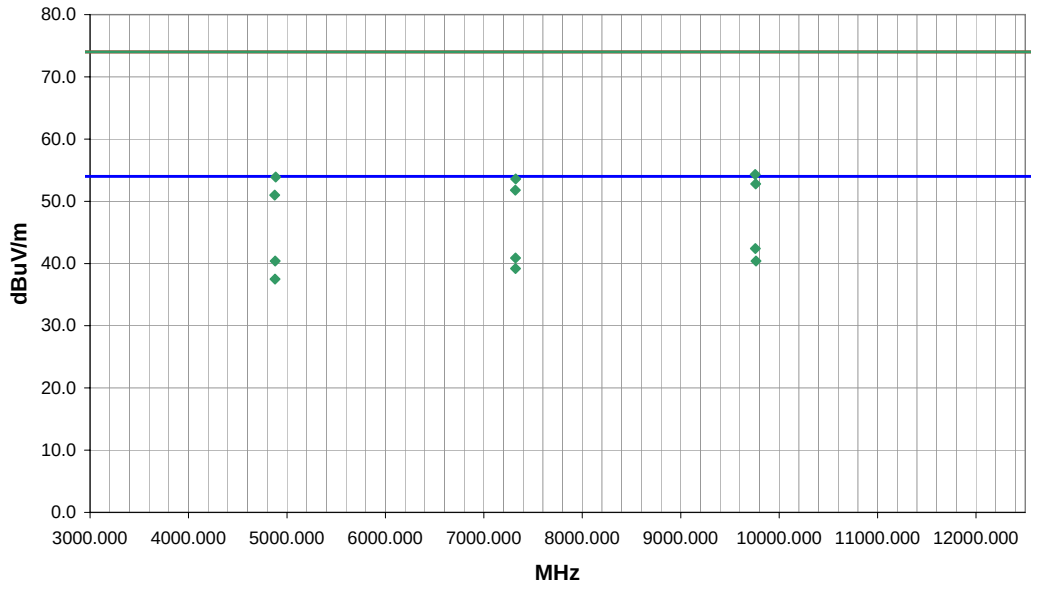
Zigbee Transmitting mode, mid channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	2
Results	Pass

Signature



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)	Comments
9758.250	26.3	16.1	250.0	1.0	3.0	0.0	H-Horn	AV	0.0	42.4	54.0	-11.6	EUT Horizontal
7321.620	26.9	14.0	189.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.9	54.0	-13.1	EUT Horizontal
9764.050	24.3	16.1	127.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.4	54.0	-13.6	EUT Horizontal
4880.950	32.7	7.7	178.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.4	54.0	-13.6	EUT Horizontal
7321.650	25.3	13.9	46.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.2	54.0	-14.8	EUT Horizontal
4879.250	29.8	7.7	360.0	1.7	3.0	0.0	V-Horn	AV	0.0	37.5	54.0	-16.5	EUT Horizontal
9756.170	38.2	16.1	250.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.3	74.0	-19.7	EUT Horizontal
4884.750	46.2	7.7	178.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.9	74.0	-20.1	EUT Horizontal
7323.920	39.7	13.9	189.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.6	74.0	-20.4	EUT Horizontal
9761.180	36.7	16.1	127.0	1.0	3.0	0.0	V-Horn	PK	0.0	52.8	74.0	-21.2	EUT Horizontal
7319.330	37.9	13.9	46.0	1.0	3.0	0.0	V-Horn	PK	0.0	51.8	74.0	-22.2	EUT Horizontal
4876.350	43.3	7.7	360.0	1.7	3.0	0.0	V-Horn	PK	0.0	51.0	74.0	-23.0	EUT Horizontal

NORTHWEST EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	Q2 RF	Work Order:	PROU0016
Serial Number:	None	Date:	08/07/07
Customer:	Product Creation Studio	Temperature:	24°C
Attendees:	None	Humidity:	41%
Project:	None	Barometric Pres.:	1015.4 mb
Tested by:	David Divergigelis	Power: 3.0 VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247(DTS):2006	ANSI C63.4:2003, KDB No. 558074

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

COMMENTS

EUT OPERATING MODES

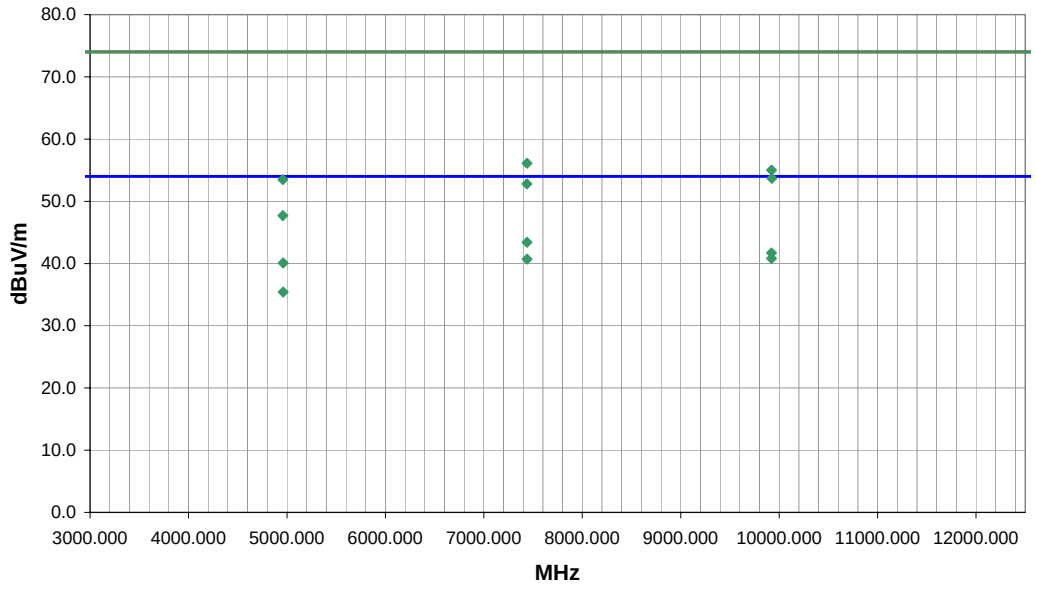
Zigbee Transmitting mode, high channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
Configuration #	2
Results	Pass

Signature



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)	Comments
7438.880	28.9	14.5	348.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.4	54.0	-10.6	EUT Horizontal
9922.200	25.4	16.3	189.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.7	54.0	-12.3	EUT Horizontal
9922.180	24.5	16.3	347.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.8	54.0	-13.2	EUT Horizontal
7438.920	26.2	14.5	54.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.7	54.0	-13.3	EUT Horizontal
4960.970	32.1	8.0	27.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.1	54.0	-13.9	EUT Horizontal
7438.530	41.6	14.5	348.0	1.0	3.0	0.0	H-Horn	PK	0.0	56.1	74.0	-17.9	EUT Horizontal
4961.020	27.4	8.0	357.0	1.6	3.0	0.0	V-Horn	AV	0.0	35.4	54.0	-18.6	EUT Horizontal
9921.950	38.7	16.3	189.0	1.0	3.0	0.0	H-Horn	PK	0.0	55.0	74.0	-19.0	EUT Horizontal
9924.680	37.4	16.3	347.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.7	74.0	-20.3	EUT Horizontal
4958.970	45.5	8.0	27.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.5	74.0	-20.5	EUT Horizontal
7437.500	38.3	14.5	54.0	1.0	3.0	0.0	V-Horn	PK	0.0	52.8	74.0	-21.2	EUT Horizontal
4958.470	39.7	8.0	357.0	1.6	3.0	0.0	V-Horn	PK	0.0	47.7	74.0	-26.3	EUT Horizontal

NORTHWEST EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	Q2 RF	Work Order:	PROU0016
Serial Number:	None	Date:	08/09/07
Customer:	Product Creation Studio	Temperature:	24°C
Attendees:	None	Humidity:	41%
Project:	None	Barometric Pres.:	1015.4 mb
Tested by:	Rod Peloquin	Power: 3.0 VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247(DTS):2006	ANSI C63.4:2003, KDB No. 558074

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

COMMENTS

EUT OPERATING MODES

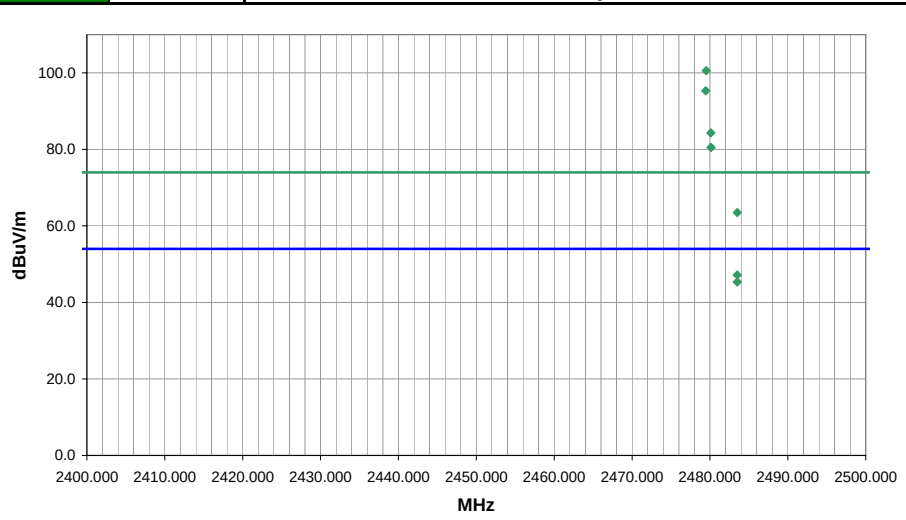
Zigbee Transmitting mode, high channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	2
Results	Pass

Signature



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)	Comments
2480.113	50.9	33.4	142.0	1.2	3.0	0.0	H-Horn	AV	0.0	84.3			Fundamental for Marker Delta, EUT horizontal
2483.500			142.0	1.2	3.0		H-Horn	AV		47.2	54.0	-6.8	Marker Delta calculated value 84.3 - 37.13 = 47.17
2480.130	47.1	33.4	332.0	1.0	3.0	0.0	V-Horn	AV	0.0	80.5			Fundamental for Marker Delta, EUT on side
2483.500			332.0	1.0	3.0		V-Horn	AV		45.4	54.0	-8.7	Marker Delta calculated value 80.5 - 35.15 = 45.35
2479.523	67.2	33.4	142.0	1.2	3.0	0.0	H-Horn	PK	0.0	100.6			Fundamental for Marker Delta, EUT horizontal
2483.500			142.0	1.2	3.0		H-Horn	PK		63.5	74.0	-10.5	Marker Delta calculated value 100.6 - 37.13 = 63.47
2479.467	61.9	33.4	332.0	1.0	3.0	0.0	V-Horn	PK	0.0	95.3			Fundamental for Marker Delta, EUT on side
2483.500			332.0	1.0	3.0		V-Horn	PK		60.2	74.0	-13.9	Marker Delta calculated value 95.3 - 35.15 = 60.15

NORTHWEST EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	Q2 RF	Work Order:	PROU0016
Serial Number:	None	Date:	08/09/07
Customer:	Product Creation Studio	Temperature:	24°C
Attendees:	None	Humidity:	41%
Project:	None	Barometric Pres.:	1015.4 mb
Tested by:	Rod Peloquin	Power: 3.0 VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247(DTS):2006	ANSI C63.4:2003, KDB No. 558074

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

COMMENTS

Vertical polarity

EUT OPERATING MODES

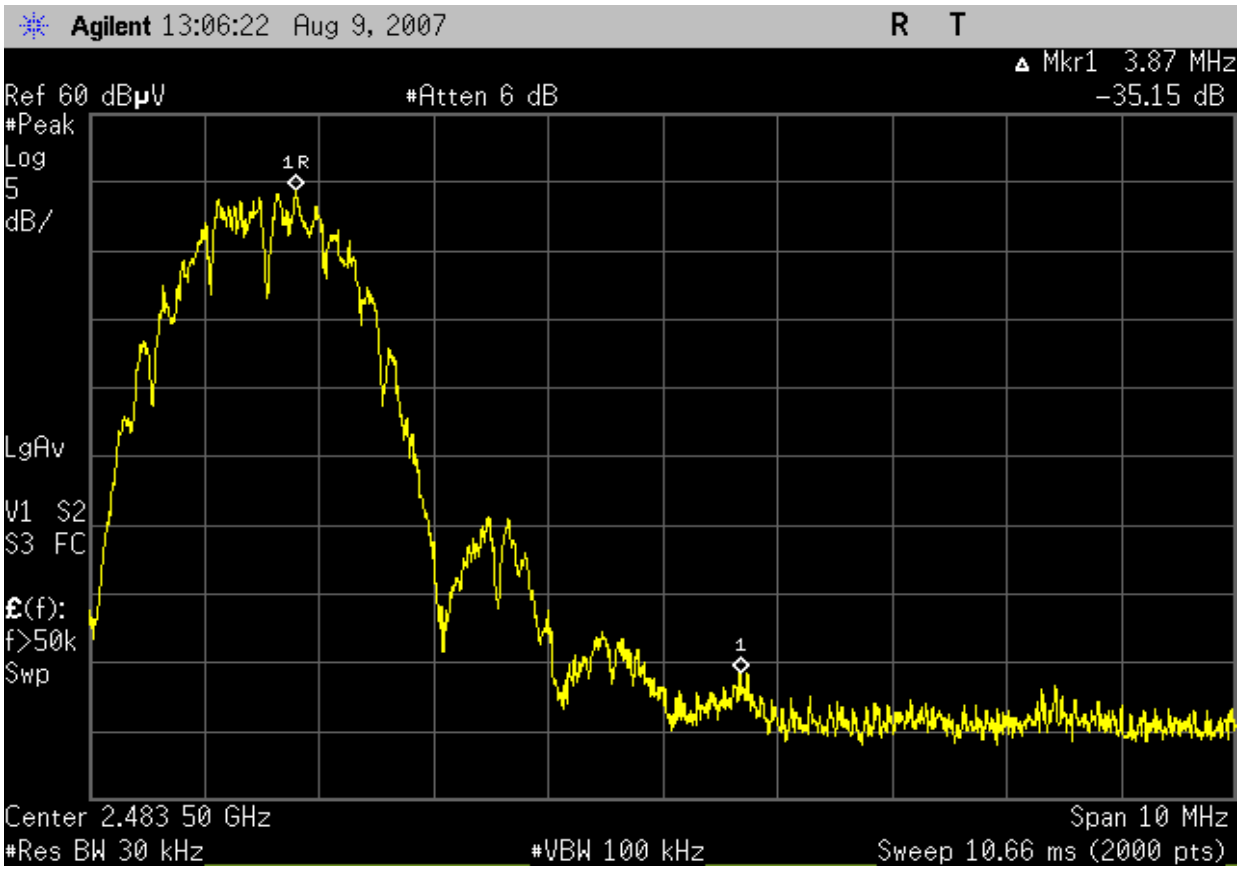
Zigbee Transmitting mode, high channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	2
Results	NA

Signature



NORTHWEST EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	Q2 RF	Work Order:	PROU0016
Serial Number:	None	Date:	08/09/07
Customer:	Product Creation Studio	Temperature:	24°C
Attendees:	None	Humidity:	41%
Project:	None	Barometric Pres.:	1015.4 mb
Tested by:	Rod Peloquin	Power: 3.0 VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247(DTS):2006	ANSI C63.4:2003, KDB No. 558074

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

COMMENTS

Horizontal polarity

EUT OPERATING MODES

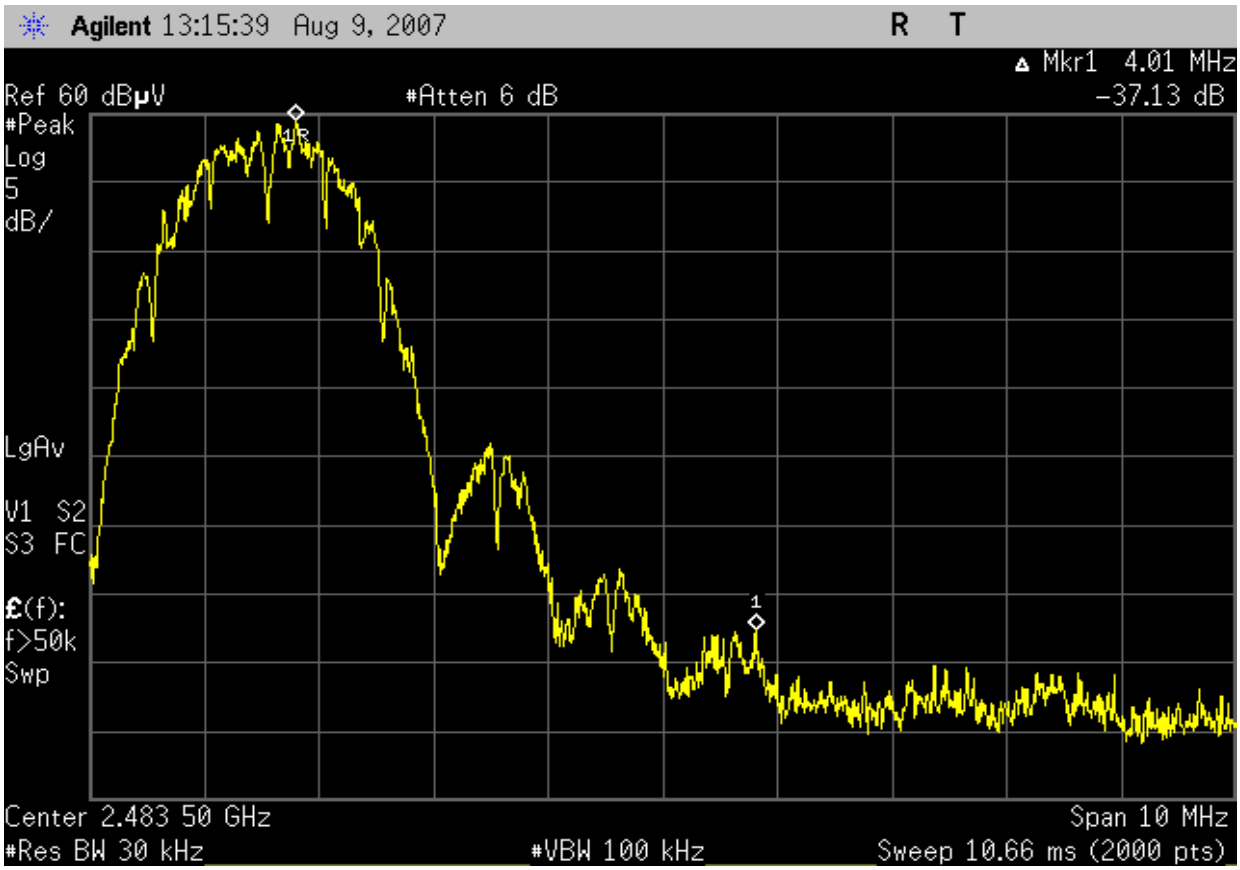
Zigbee Transmitting mode, high channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	2
Results	NA

Signature

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