Product Creation Studio

QHost (USB Dongle)

June 24, 2008

Report No. PROU0024 Rev 01

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: June 24, 2008
Product Creation Studio
Model: QHost (USB Dongle)

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Occupied Bandwidth	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Output Power	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Band Edge Compliance	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Spurious Conducted Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Power Spectral Density	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Radiated Emissions	FCC 15.109(g) (CISPR 22:1997):2007 Class B	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.
41 Tesla Ave.
Irvine, CA 92618

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 #2834B-1).

Approved By:

Ethan Schoonover, Sultan Lab Manager

NVLAP Lab Code: 200676-0
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
01	Corrected statement about modifications – no mods were made during testing	7/1/08	10

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).*

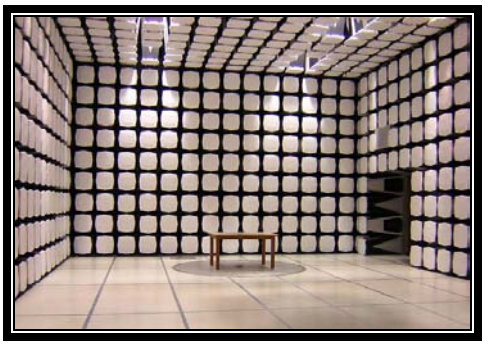
BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.

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

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

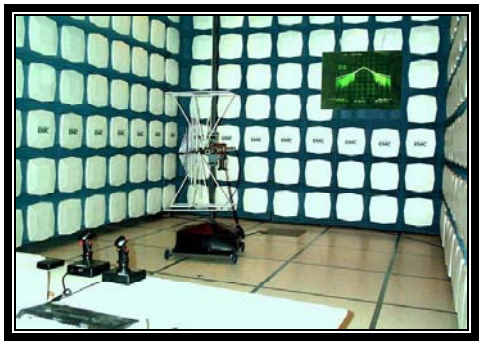
SCOPE

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:	Product Creation Studio
Address:	5419 Ballard Avenue NW
City, State, Zip:	Seattle, WA 98107
Test Requested By:	Scott Thielman
Model:	QHost (USB Dongle)
First Date of Test:	June 4, 2008
Last Date of Test:	June 19, 2008
Receipt Date of Samples:	June 4, 2008
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
The QHost is a USB dongle that acts as a bridge between wireless data collection devices and a personal computer using a 2.4GHz DSSS radio.

Testing Objective:
Seeking TCB certification under 15.247.

EUT Photo

CONFIGURATION 2 PROU0024

Software/Firmware Running during test	
Description	**Version**
QwizHID Debugger	

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Dongle	Product Creation Studio	Dongle	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Battery	BMZ	BL7144	Unknown

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC Adapter	Delta Electronics, Inc.	ADP-75FB B	S4W0326044192
Laptop	Acer	ZG1S	LXT2506001326031C2EF01

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC	PA	1.5m	Yes	AC Adapter	Laptop
AC	No	1.5m	No	AC Adapter	AC Mains
USB	Yes	3.0m	No	Laptop	Tablet
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 PROU0024

Software/Firmware Running during test	
Description	**Version**
QwizHID Debugger	

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Dongle	Product Creation Studio	Dongle	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC Adapter	Delta Electronics, Inc.	ADP-75FB B	S4W0326044192
Laptop	Acer	ZG1S	LXT2506001326031C2EF01
Printer	Epson	P850A	1YLY172977
Monitor	IBM	6558-03N	55-70151

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC	PA	1.5m	Yes	AC Adapter	Laptop
AC	No	1.5m	No	AC Adapter	AC Mains
AC	No	1.8m	No	Printer	AC Mains
AC	No	1.8m	No	Monitor	AC Mains
Video	Yes	1.4m	Yes	Monitor	Laptop
Parallel	Yes	1.4m	No	Printer	Laptop
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	6/4/2008	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.
2	6/9/2008	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.
3	6/9/2008	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.
4	6/9/2008	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	6/9/2008	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	6/9/2008	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.
7	6/19/2008	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
Normal mode

POWER SETTINGS INVESTIGATED
120VAC/60Hz

CONFIGURATIONS INVESTIGATED
3

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	1000 MHz

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
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12 mo
Pre-Amplifier	Miteq	AM-1551	AOY	5/22/2008	13 mo
EV11 Cables		10m Test Distance Cables	EVL	5/24/2008	13 mo
Antenna, Biconilog	EMCO	3142	AXB	1/15/2008	24 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. 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

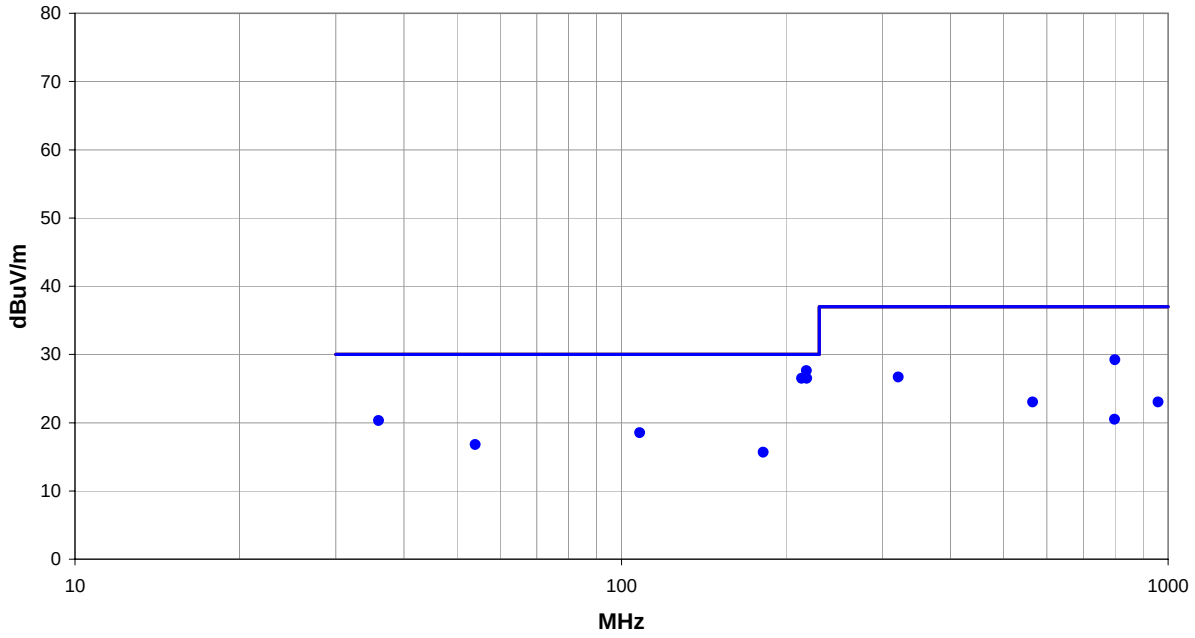
RADIATED EMISSIONS

PSA-ESCI 2008.06.19
Version 2008.3.31

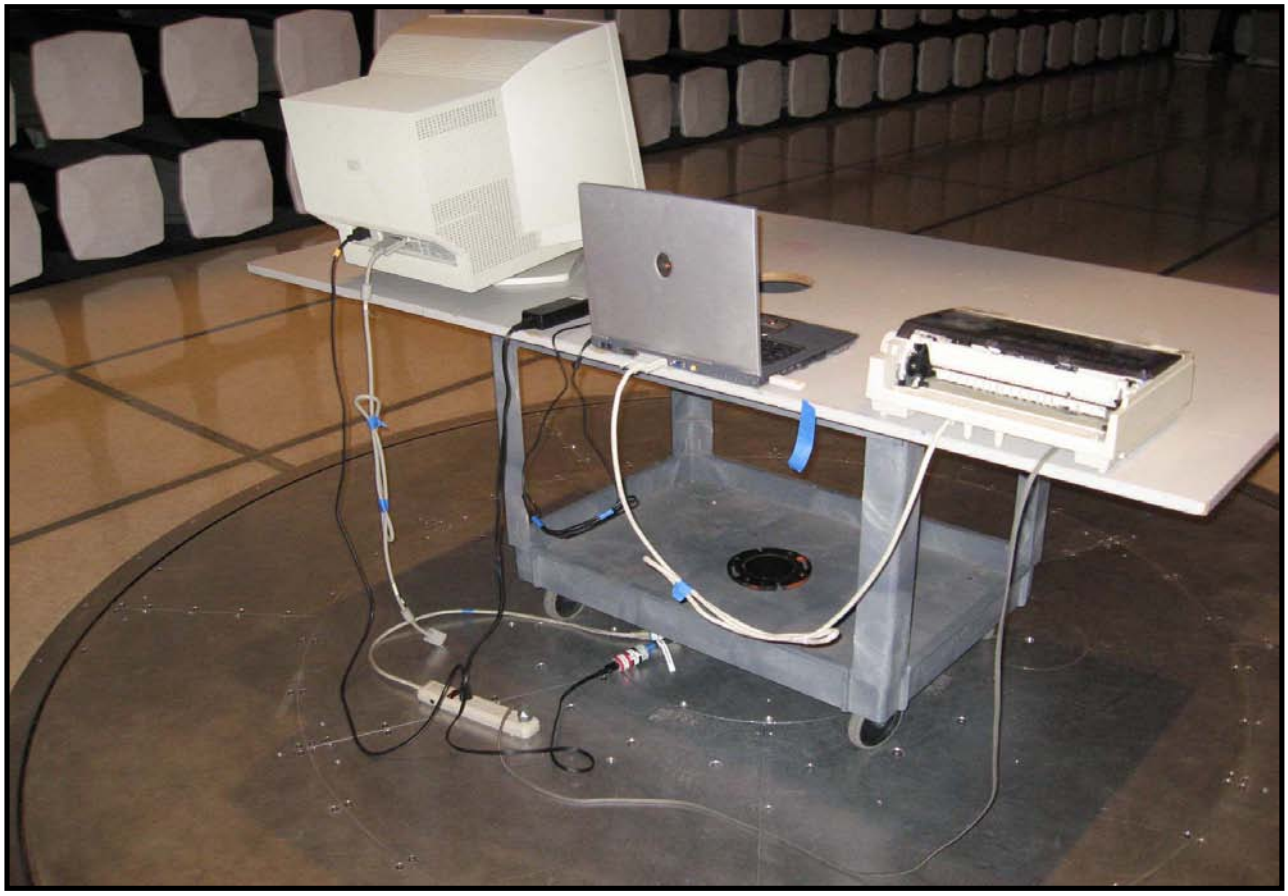
Work Order:	PROU0024	**Date:**	06/19/08		
Project:	None	**Temperature:**	22.96		
Job Site:	EV11	**Humidity:**	37.84		
Serial Number:	None	**Barometric Pres.:**	1018.8mb	**Tested by:**	David DiVergigelis
EUT:	QHost (USB Dongle)				
Configuration:	3				
Customer:	Product Creation Studio				
Attendees:	None				
EUT Power:	120VAC/60Hz				
Operating Mode:	Normal mode				
Deviations:	No deviations.				
Comments:	Testing USB Dongle as a PC peripheral.				

Test Specifications	**Class B**	**Test Method**
FCC 15.109(g) (CISPR 22:1997):2007		ANSI C63.4:2003

Run #	13	**Test Distance (m)**	10	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
218.111	50.0	-22.4	1.0	189.0	10.0	0.0	Vert	QP	0.0	27.6	30.0	-2.4
218.126	48.9	-22.4	3.1	263.0	10.0	0.0	Horz	QP	0.0	26.5	30.0	-3.5
213.722	49.1	-22.6	3.5	240.0	10.0	0.0	Horz	QP	0.0	26.5	30.0	-3.5
799.143	39.7	-10.5	1.3	40.0	10.0	0.0	Horz	QP	0.0	29.2	37.0	-7.8
35.962	38.7	-18.4	1.6	157.0	10.0	0.0	Vert	QP	0.0	20.3	30.0	-9.7
320.796	45.3	-18.6	1.0	196.0	10.0	0.0	Vert	QP	0.0	26.7	37.0	-10.3
108.008	45.4	-26.9	3.9	135.0	10.0	0.0	Horz	QP	0.0	18.5	30.0	-11.5
53.988	42.0	-25.2	1.5	329.0	10.0	0.0	Vert	QP	0.0	16.8	30.0	-13.2
565.181	36.4	-13.4	1.6	221.0	10.0	0.0	Horz	QP	0.0	23.0	37.0	-14.0
958.435	31.0	-8.0	1.0	40.0	10.0	0.0	Horz	QP	0.0	23.0	37.0	-14.0
181.768	39.5	-23.8	1.4	208.0	10.0	0.0	Vert	QP	0.0	15.7	30.0	-14.3
798.471	31.0	-10.5	1.0	229.0	10.0	0.0	Vert	QP	0.0	20.5	37.0	-16.5



SPURIOUS 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
Transmitting. Channel 0. Max Power.
Transmitting. Channel 8 Max Power.
Transmitting. Channel 15. Max Power.

MODE USED FOR FINAL DATA
Transmitting. Channel 0. Max Power.
Transmitting. Channel 8 Max Power.
Transmitting. Channel 15. Max Power.

POWER SETTINGS INVESTIGATED
Battery

POWER SETTINGS USED FOR FINAL DATA
Battery

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30	Stop Frequency	26000

CLOCKS AND OSCILLATORS
2405 MHz, 2445 MHz, 2480 MHz

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	AMF-6F-18002650-25-10P	AOI	3/3/2008	13
Antenna, Horn	EMCO	3160-09	AHN	NCR	0
OC10 SMA cable for 18026 GHz			OCK	3/3/2008	13
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	2/8/2008	13
Antenna, Horn	EMCO	3160-08	AHK	NCR	0
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVL	2/8/2008	13
Antenna, Horn	ETS	3160-07	AHX	10/25/2007	12
OC11 8-18 GHz Cables a-b-c-e			OCS	2/7/2008	13
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVJ	4/25/2008	13
Antenna, Horn	EMCO	3115	AHB	8/31/2007	24
OC11 1-8 GHz Cables a-b-c-d			OCR	2/7/2008	13
Spectrum Analyzer	Agilent	E4440A	AAX	10/1/2007	12

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

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/04/08
Customer:	Product Creation Studio			Temperature:	21.09
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	USB Powered	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

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

COMMENTS

Z-Axis. High Channel, 2485 MHz.

EUT OPERATING MODES

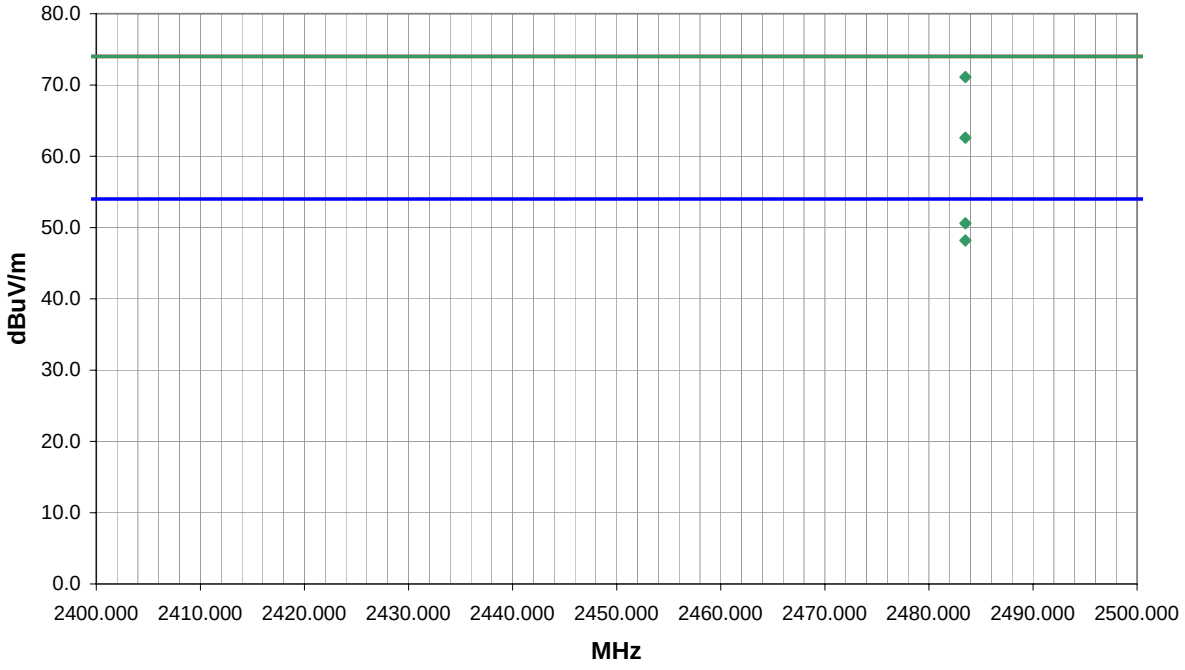
Transmitting. Channel 15. Max Power.

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)
2483.500	53.5	-2.4	257.0	1.0	3.0	20.0	H-Horn	PK	0.0	71.1	74.0	-2.9
2483.501	33.0	-2.4	257.0	1.0	3.0	20.0	H-Horn	AV	0.0	50.6	54.0	-3.4
2483.500	30.6	-2.4	262.0	1.0	3.0	20.0	V-Horn	AV	0.0	48.2	54.0	-5.8
2483.500	45.0	-2.4	262.0	1.0	3.0	20.0	V-Horn	PK	0.0	62.6	74.0	-11.4

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/04/08
Customer:	Product Creation Studio			Temperature:	21.09
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	USB Powered	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

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

COMMENTS

Z-Axis. High Channel, 2485 MHz.

EUT OPERATING MODES

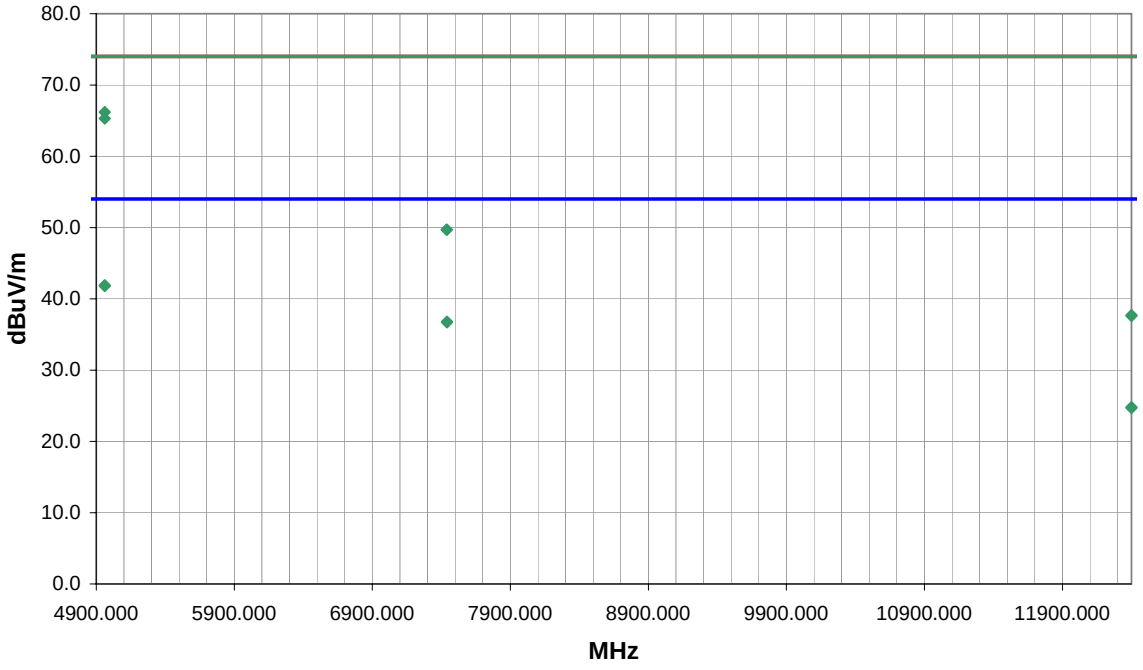
Transmitting. Channel 15. Max Power.

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)
4961.488	62.4	3.8	250.0	1.0	0.0	0.0	H-Horn	PK	0.0	66.2	74.0	-7.8
4960.957	61.5	3.8	249.0	1.6	0.0	0.0	V-Horn	PK	0.0	65.3	74.0	-8.7
4960.980	38.1	3.8	250.0	1.0	0.0	0.0	H-Horn	AV	0.0	41.9	54.0	-12.1
4961.096	38.0	3.8	249.0	1.6	0.0	0.0	V-Horn	AV	0.0	41.8	54.0	-12.2
7441.411	29.5	7.3	270.0	2.1	0.0	0.0	V-Horn	AV	0.0	36.8	54.0	-17.2
7441.503	29.4	7.3	317.0	1.0	0.0	0.0	H-Horn	AV	0.0	36.7	54.0	-17.3
7438.716	42.4	7.3	270.0	2.1	0.0	0.0	V-Horn	PK	0.0	49.7	74.0	-24.3
7439.303	42.4	7.3	317.0	1.0	0.0	0.0	H-Horn	PK	0.0	49.7	74.0	-24.3
12400.000	34.5	-9.7	168.0	1.0	0.0	0.0	H-Horn	AV	0.0	24.8	54.0	-29.2
12400.000	34.4	-9.7	321.0	2.7	0.0	0.0	V-Horn	AV	0.0	24.7	54.0	-29.3
12400.000	47.4	-9.7	168.0	1.0	0.0	0.0	H-Horn	PK	0.0	37.7	74.0	-36.3
12400.000	47.3	-9.7	321.0	2.7	0.0	0.0	V-Horn	PK	0.0	37.6	74.0	-36.4

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/04/08
Customer:	Product Creation Studio			Temperature:	21.09
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	USB Powered	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

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

COMMENTS

Z-Axis. Mid Channel, 2445 MHz.

EUT OPERATING MODES

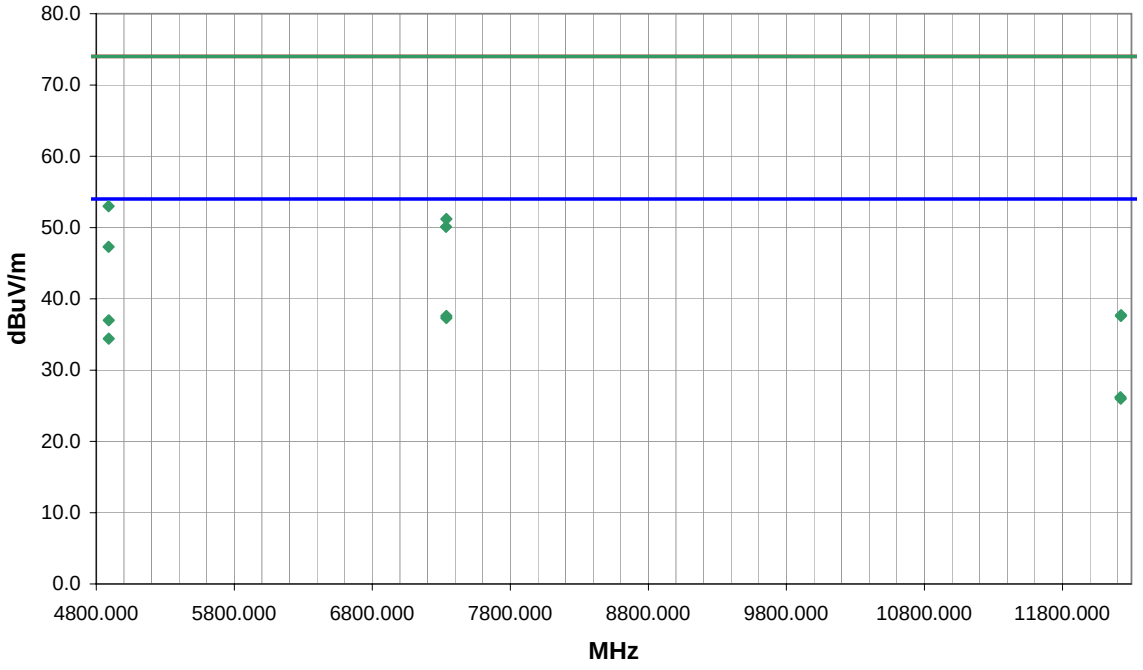
Transmitting. Channel 8. Max Power.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	6
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)
7336.428	30.6	7.0	290.0	1.0	0.0	0.0	V-Horn	AV	0.0	37.6	54.0	-16.4
7336.406	30.3	7.0	265.0	1.0	0.0	0.0	H-Horn	AV	0.0	37.3	54.0	-16.7
4890.981	33.3	3.7	259.0	1.0	0.0	0.0	H-Horn	AV	0.0	37.0	54.0	-17.0
4890.939	30.7	3.7	224.0	1.5	0.0	0.0	V-Horn	AV	0.0	34.4	54.0	-19.6
4888.958	49.3	3.7	259.0	1.0	0.0	0.0	H-Horn	PK	0.0	53.0	74.0	-21.0
7336.065	44.2	7.0	290.0	1.0	0.0	0.0	V-Horn	PK	0.0	51.2	74.0	-22.8
7334.125	43.1	7.0	265.0	1.0	0.0	0.0	H-Horn	PK	0.0	50.1	74.0	-23.9
4889.096	43.6	3.7	224.0	1.5	0.0	0.0	V-Horn	PK	0.0	47.3	74.0	-26.7
12220.290	36.5	-10.3	24.0	1.0	0.0	0.0	H-Horn	AV	0.0	26.2	54.0	-27.8
12222.470	36.3	-10.3	322.0	1.0	0.0	0.0	V-Horn	AV	0.0	26.0	54.0	-28.0
12224.940	48.0	-10.3	24.0	1.0	0.0	0.0	H-Horn	PK	0.0	37.7	74.0	-36.3
12223.870	47.9	-10.3	322.0	1.0	0.0	0.0	V-Horn	PK	0.0	37.6	74.0	-36.4

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/04/08
Customer:	Product Creation Studio			Temperature:	21.09
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	USB Powered	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

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

COMMENTS

Z-Axis. Low Channel, 2405 MHz.

EUT OPERATING MODES

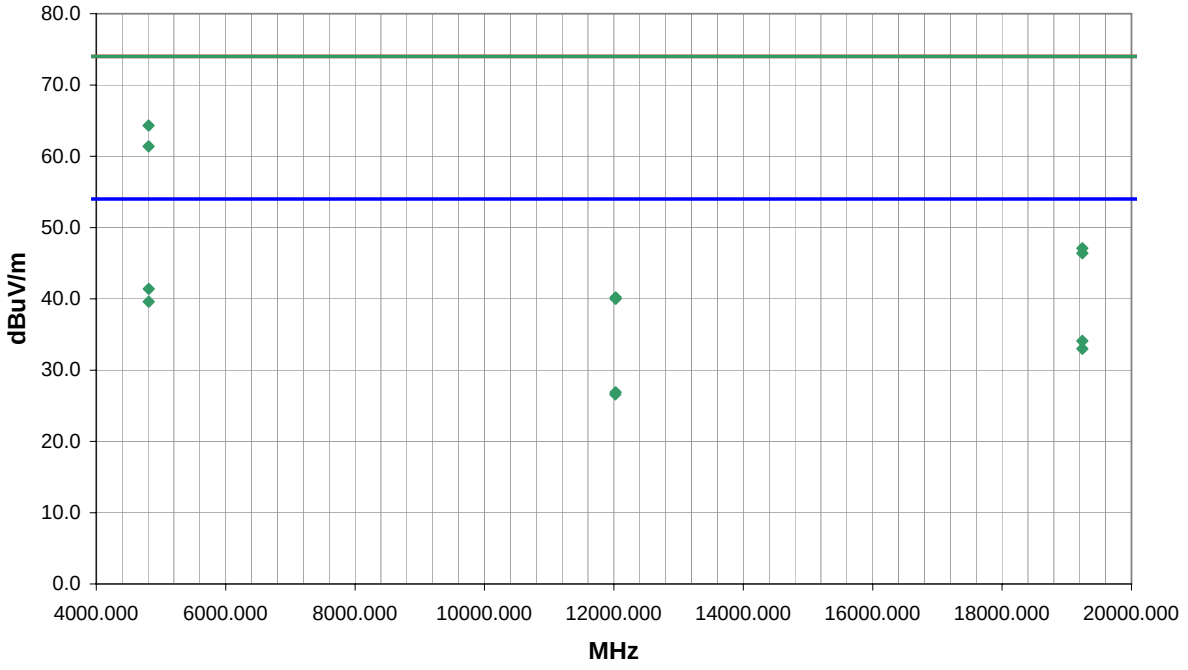
Transmitting. Channel 0. Max Power.

DEVIATIONS FROM TEST STANDARD

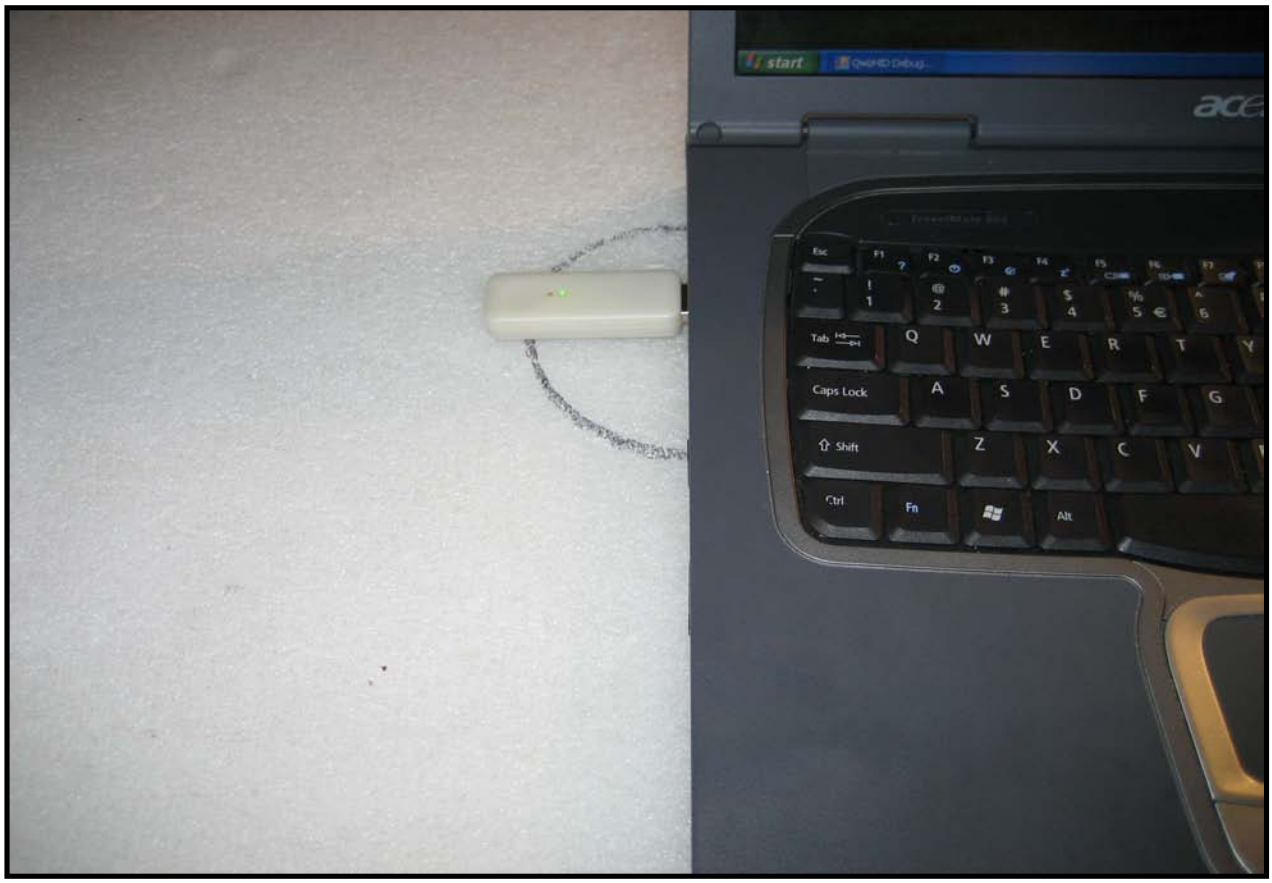
No deviations.

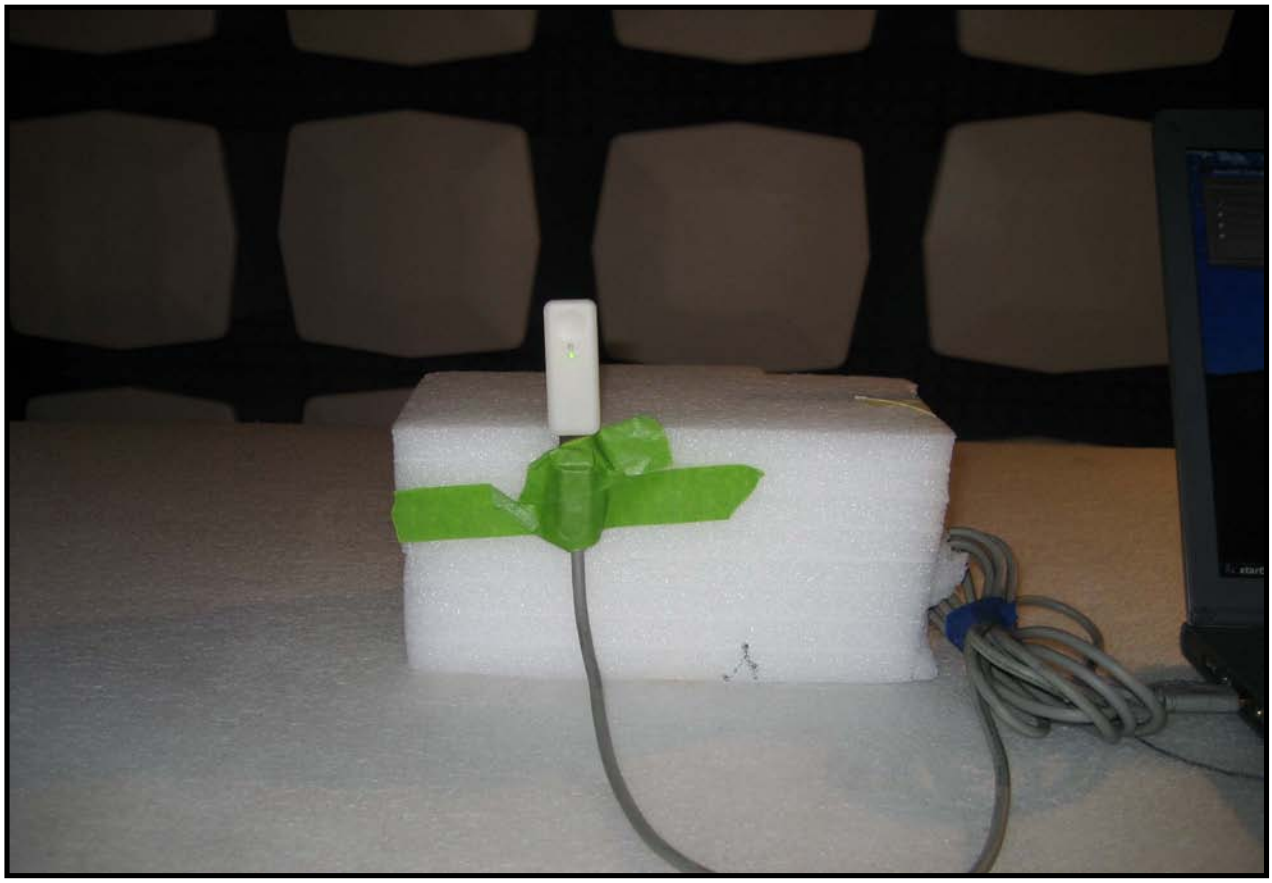
Run #	9
Configuration #	2
Results	Pass

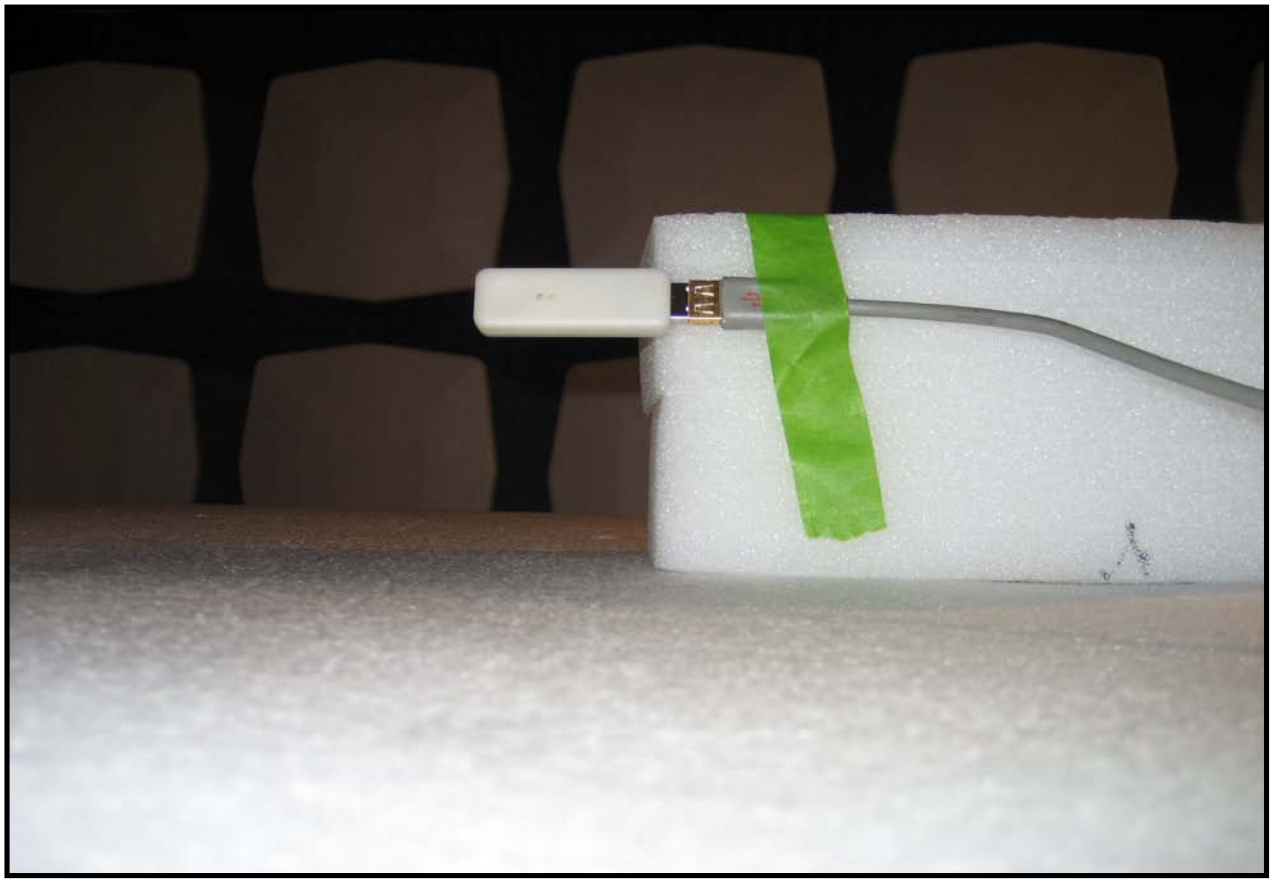
Signature



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)
4809.057	61.2	3.1	325.0	1.0	0.0	0.0	H-Horn	PK	0.0	64.3	74.0	-9.7
4810.068	38.3	3.1	325.0	1.0	0.0	0.0	H-Horn	AV	0.0	41.4	54.0	-12.6
4809.872	58.3	3.1	290.0	1.3	0.0	0.0	V-Horn	PK	0.0	61.4	74.0	-12.6
4810.021	36.5	3.1	290.0	1.3	0.0	0.0	V-Horn	AV	0.0	39.6	54.0	-14.4
19240.000	34.8	-0.7	273.0	1.0	0.0	0.0	H-High Horr	AV	0.0	34.1	54.0	-19.9
19240.000	33.7	-0.7	352.0	1.0	0.0	0.0	V-High Horr	AV	0.0	33.0	54.0	-21.0
19240.000	47.8	-0.7	352.0	1.0	0.0	0.0	V-High Horr	PK	0.0	47.1	74.0	-26.9
12027.670	37.9	-11.0	280.0	1.0	0.0	0.0	V-Horn	AV	0.0	26.9	54.0	-27.1
12022.880	37.6	-11.0	309.0	1.0	0.0	0.0	H-Horn	AV	0.0	26.6	54.0	-27.4
19240.000	47.1	-0.7	273.0	1.0	0.0	0.0	H-High Horr	PK	0.0	46.4	74.0	-27.6
12027.240	51.2	-11.0	280.0	1.0	0.0	0.0	V-Horn	PK	0.0	40.2	74.0	-33.8
12027.510	51.0	-11.0	309.0	1.0	0.0	0.0	H-Horn	PK	0.0	40.0	74.0	-34.0


start
Caps Lock
Shift
Ctrl
Fn
Alt





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	E4440A	AAX	10/1/2007	12

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:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/09/08
Customer:	Product Creation Studio			Temperature:	21.09°C
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	Battery Powered	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

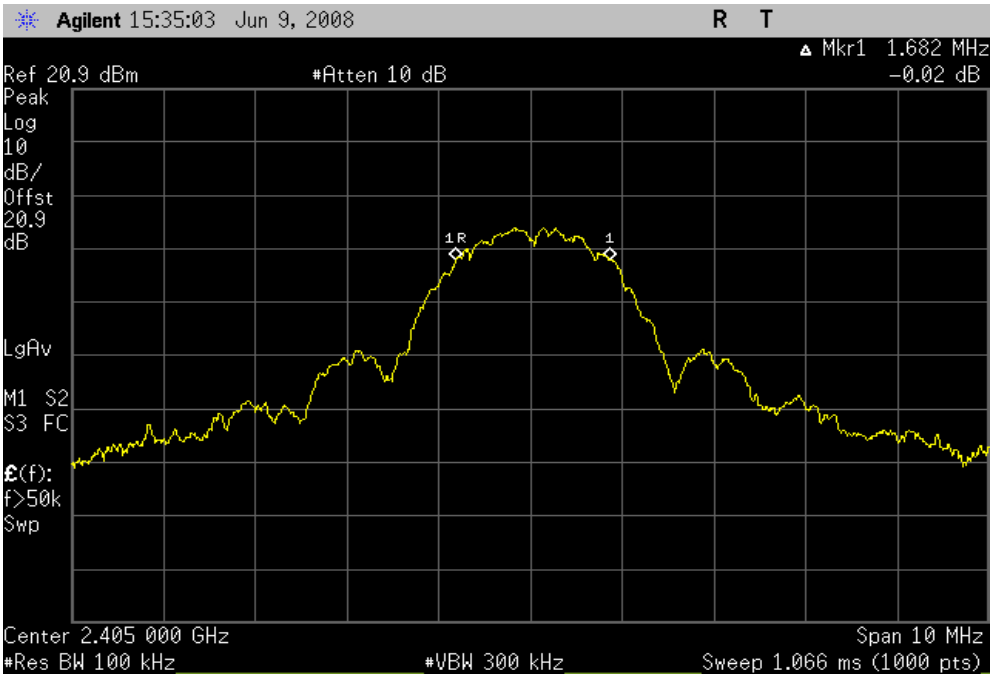
DEVIATIONS FROM TEST STANDARD

None

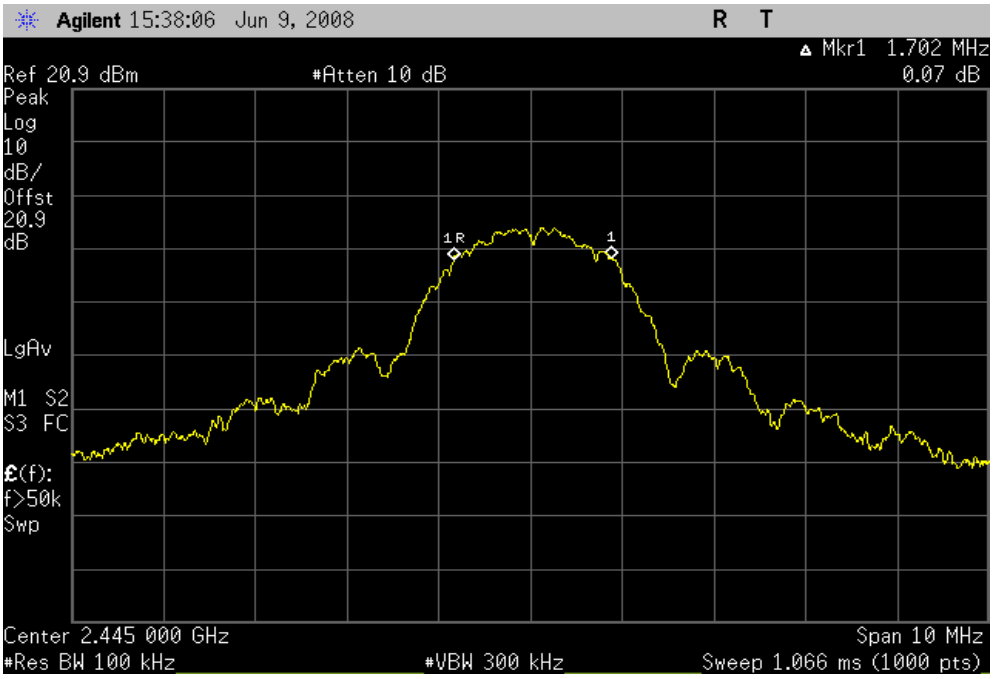
Configuration #	2	Signature

	Value	Limit	Results
Low Channel	1.682 MHz	> 500 kHz	Pass
Mid Channel	1.702 MHz	> 500 kHz	Pass
High Channel	1.752 MHz	> 500 kHz	Pass

Low Channel					
Result:	Pass	**Value:**	1.682 MHz	**Limit:**	> 500 kHz

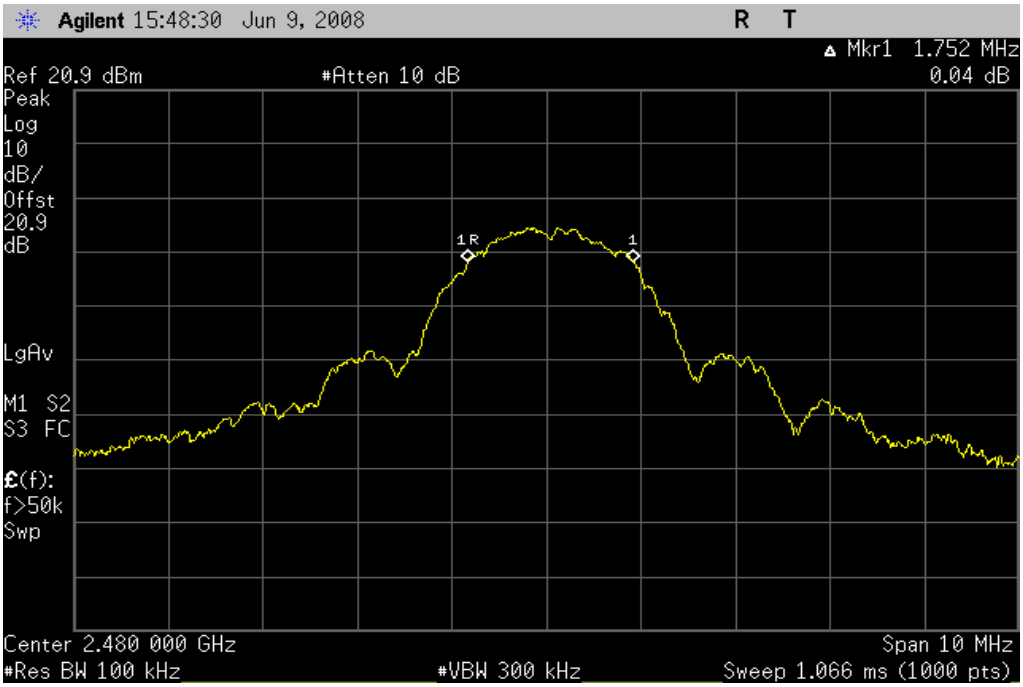


Mid Channel					
Result:	Pass	**Value:**	1.702 MHz	**Limit:**	> 500 kHz



OCCUPIED BANDWIDTH

High Channel					
Result:	Pass	**Value:**	1.752 MHz	**Limit:**	> 500 kHz




NWEMC
MO14

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	E4440A	AAX	10/1/2007	12

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.

NORTHWEST EMC

OUTPUT POWER

XMit 2007.06.13

EUT:	QHost (USB Dongle)			**Work Order:**	PROU0024
Serial Number:	None			**Date:**	06/09/08
Customer:	Product Creation Studio			**Temperature:**	21.09°C
Attendees:	None			**Humidity:**	54%
Project:	None			**Barometric Pres.:**	1008.8
Tested by:	Jaemi Suh	**Power:**	120V/60Hz	**Job Site:**	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

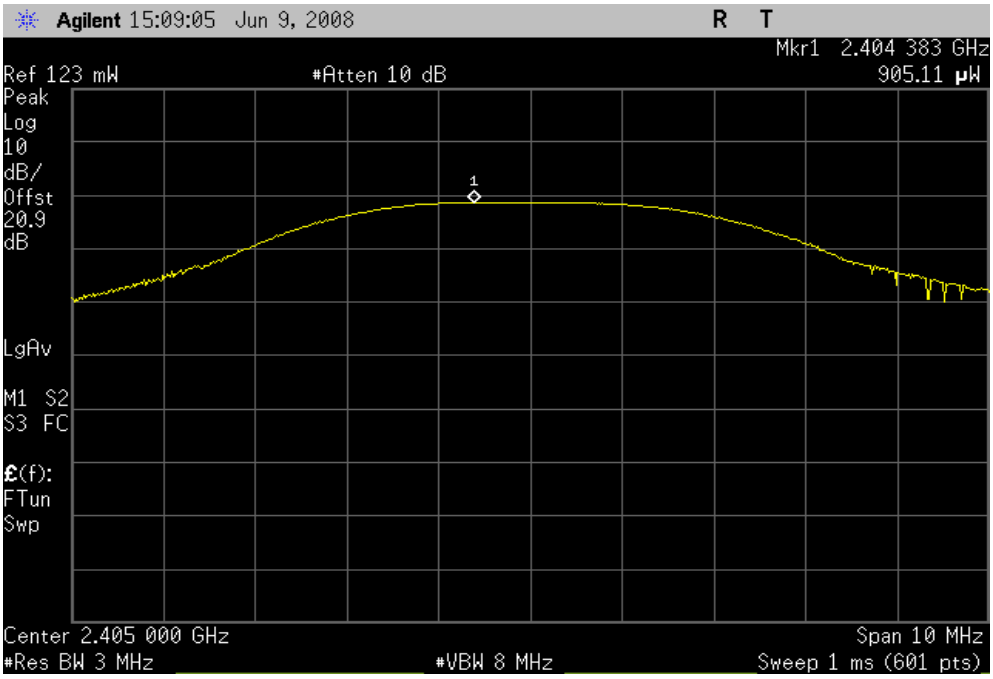
DEVIATIONS FROM TEST STANDARD

None

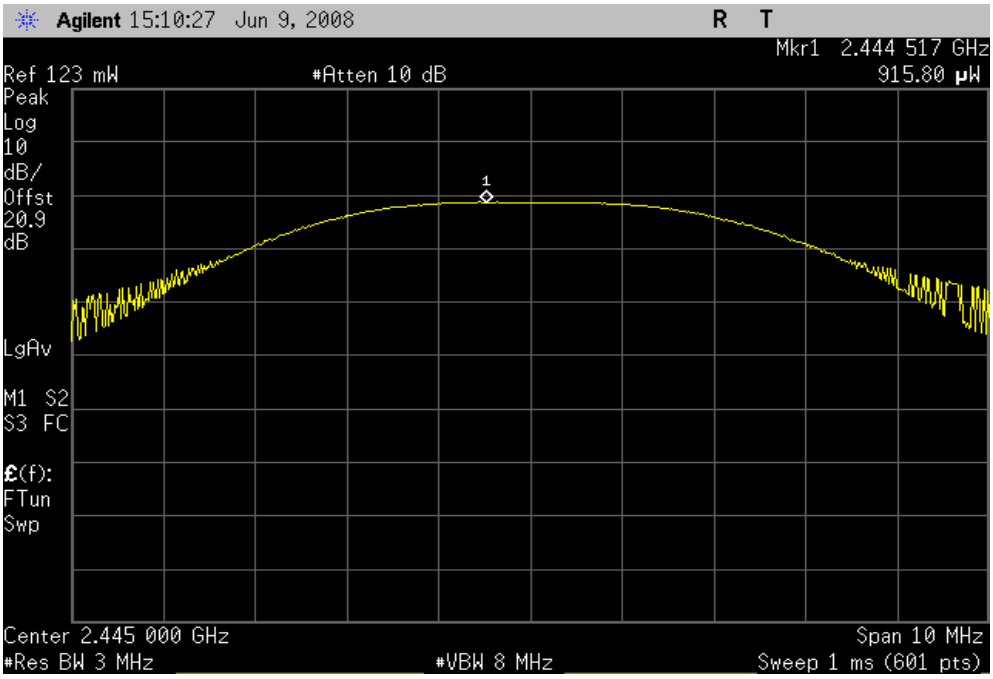
Configuration #	2	Signature

	Value	Limit	Results
Low Channel	905.11 uW	1 W	Pass
Mid Channel	915.8 uW	1 W	Pass
High Channel	928.11 uW	1 W	Pass

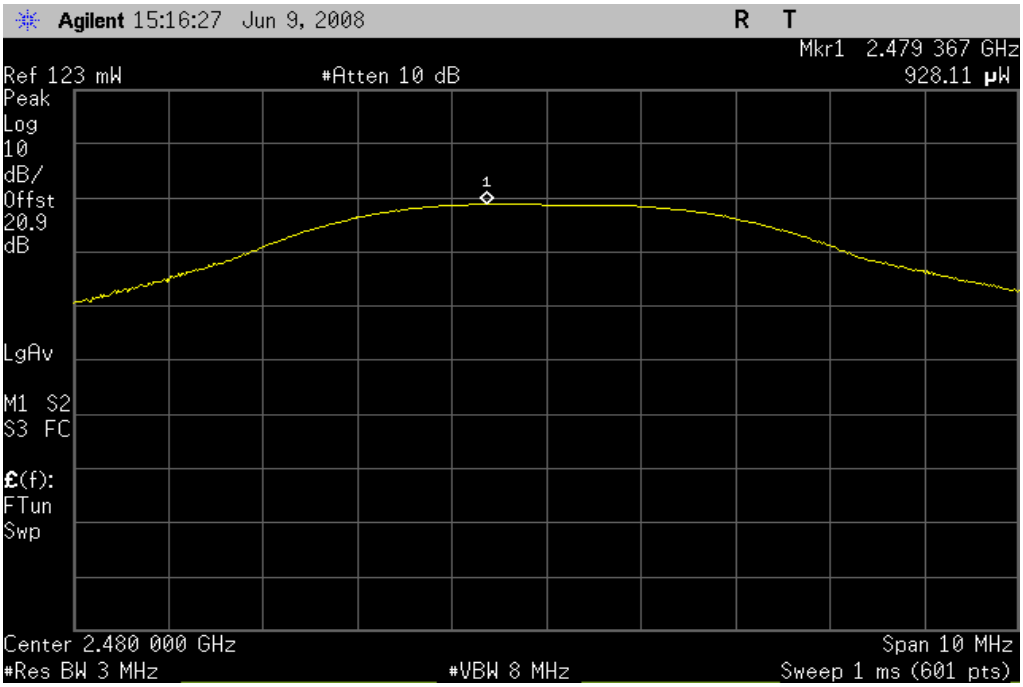
Low Channel					
Result:	Pass	**Value:**	905.11 uW	**Limit:**	1 W



Mid Channel					
Result:	Pass	**Value:**	915.8 uW	**Limit:**	1 W



High Channel					
Result:	Pass	**Value:**	928.11 uW	**Limit:**	1 W




DELL
NWEMC
MO14

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	E4440A	AAX	10/1/2007	12

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 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.

The EUT was transmitting at its maximum data rate using all three types of modulations available in Bluetooth EDR.

NORTHWEST EMC

Band Edge Compliance

XMit 2007.06.13

EUT:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/09/08
Customer:	Product Creation Studio			Temperature:	21.09°C
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	120V/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

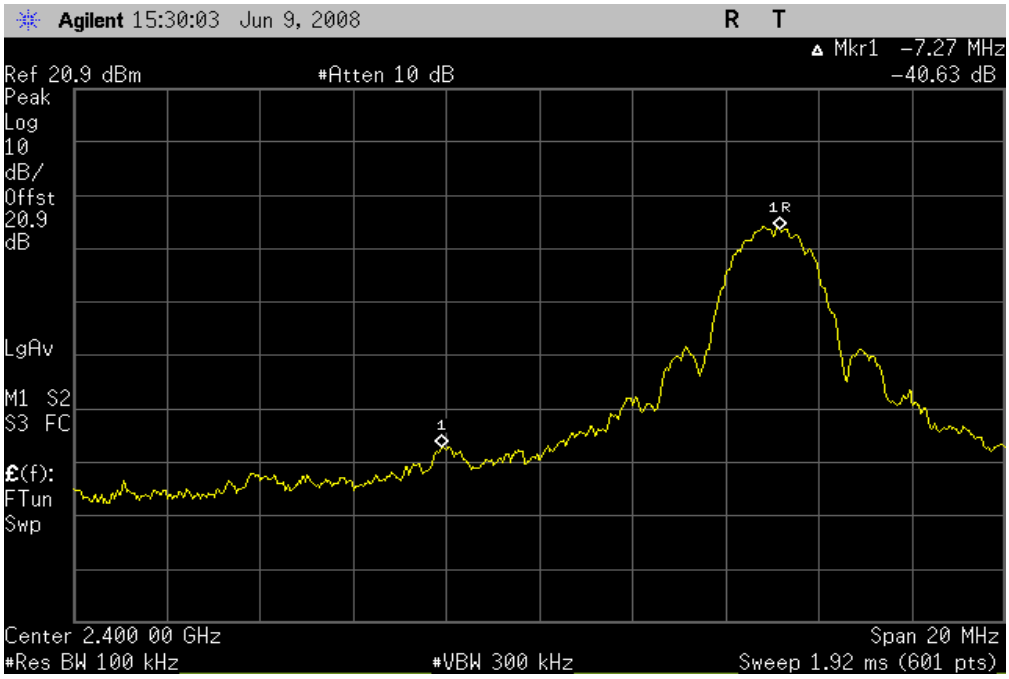
None

Configuration #	2	Signature

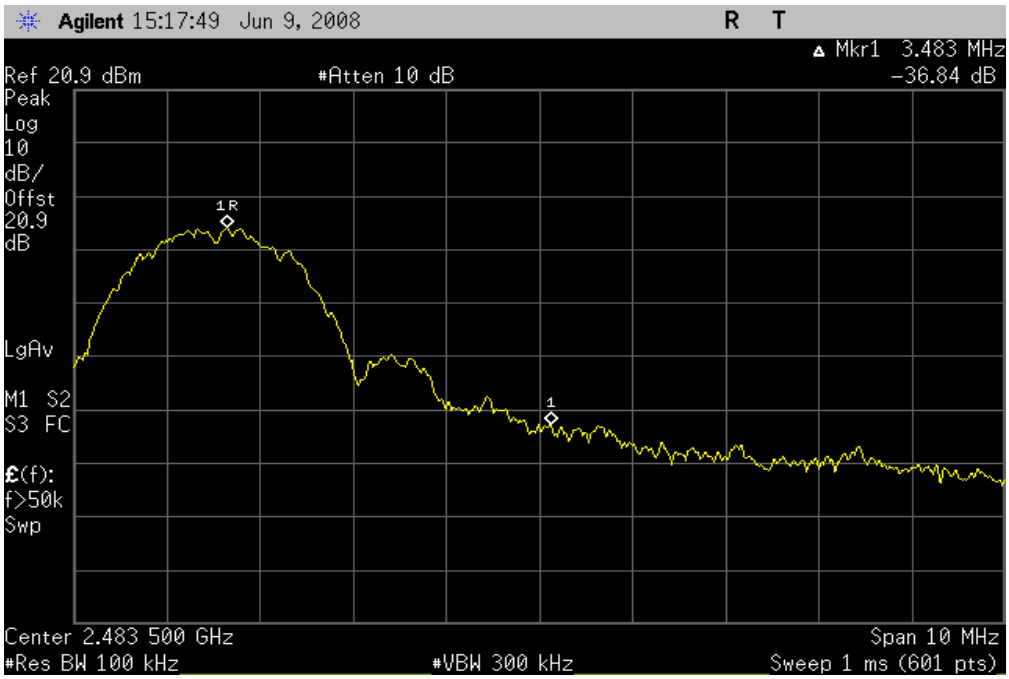
	Value	Limit	Results
Low Channel	-40.63 dB	≥ -20 dBc	Pass
High Channel	-36.84 dB	≥ -20 dBc	Pass

Band Edge Compliance

Low Channel					
Result:	Pass	**Value:**	-40.63 dB	**Limit:**	≥ -20 dBc



High Channel					
Result:	Pass	**Value:**	-36.84 dB	**Limit:**	≥ -20 dBc



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	E4440A	AAX	10/1/2007	12

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:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/09/08
Customer:	Product Creation Studio			Temperature:	21.09°C
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	Battery Powered	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

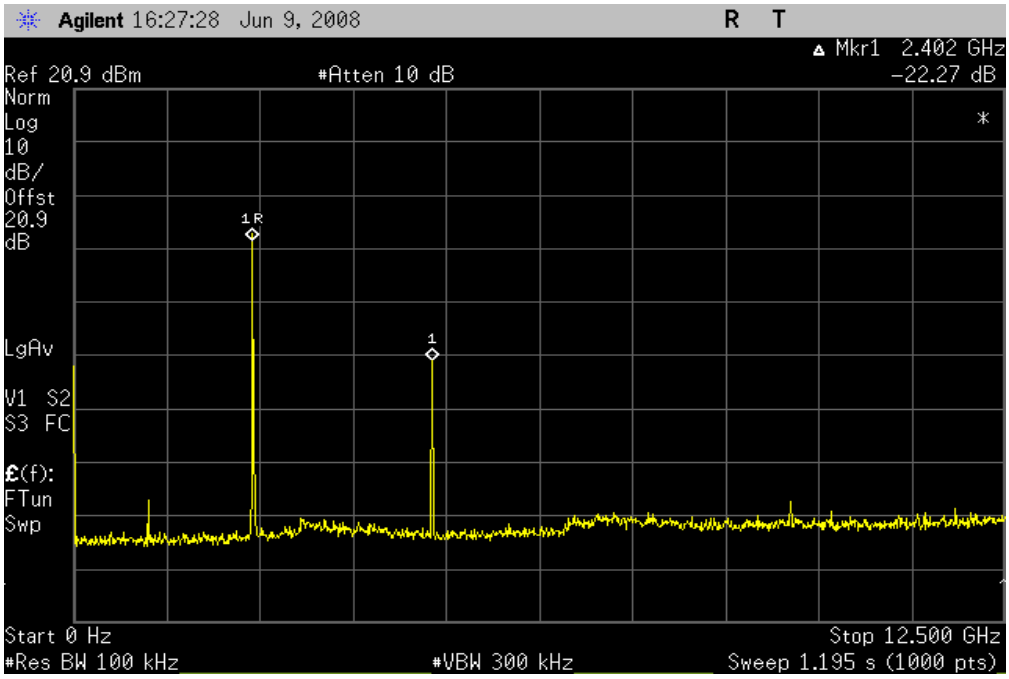
DEVIATIONS FROM TEST STANDARD

None

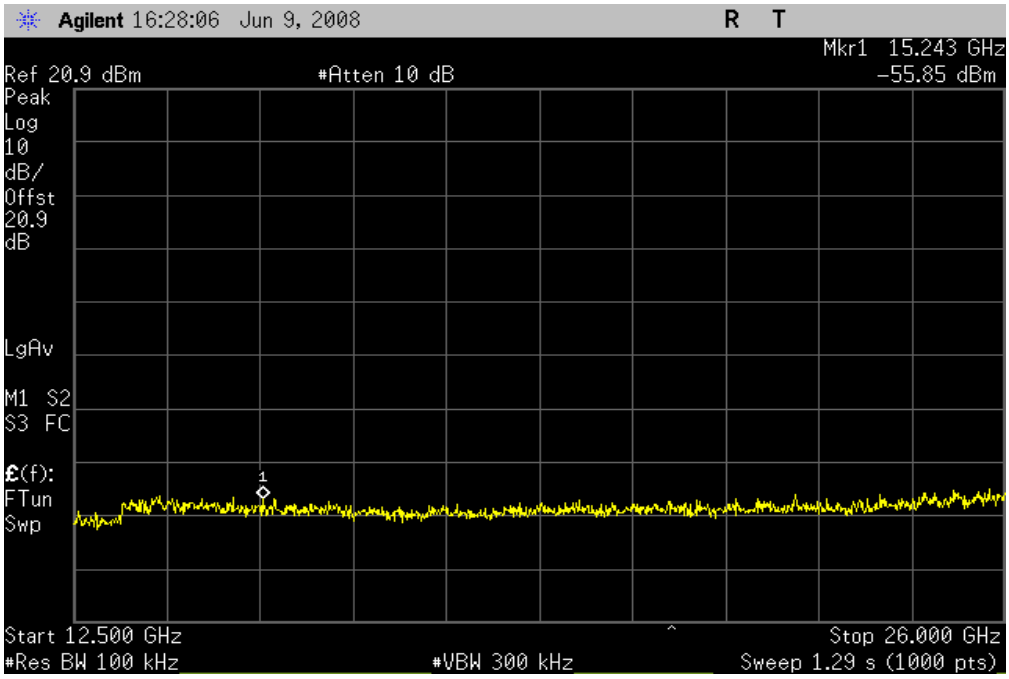
Configuration #	2	Signature

	Value	Limit	Results
Low Channel 0-12	-22.27 dB	≥ -20 dBc	Pass
Low Channel 12-26	> -50 dB	≥ -20 dBc	Pass
Mid Channel 0-12	-21.9 dB	≥ -20 dBc	Pass
Mid Channel 12-26	> -50 dB	≥ -20 dBc	Pass
High Channel 0-12	-22.31 dB	≥ -20 dBc	Pass
High Channel 12-26	> -50 dB	≥ -20 dBc	Pass

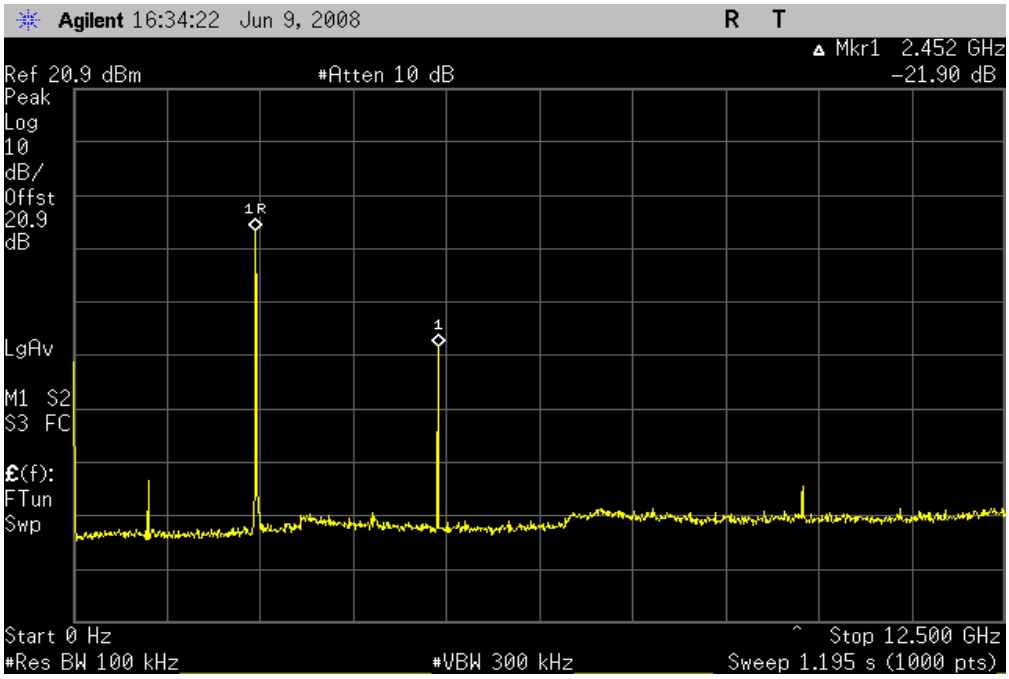
Low Channel 0-12					
Result:	Pass	**Value:**	-22.27 dB	**Limit:**	≥ -20 dBc



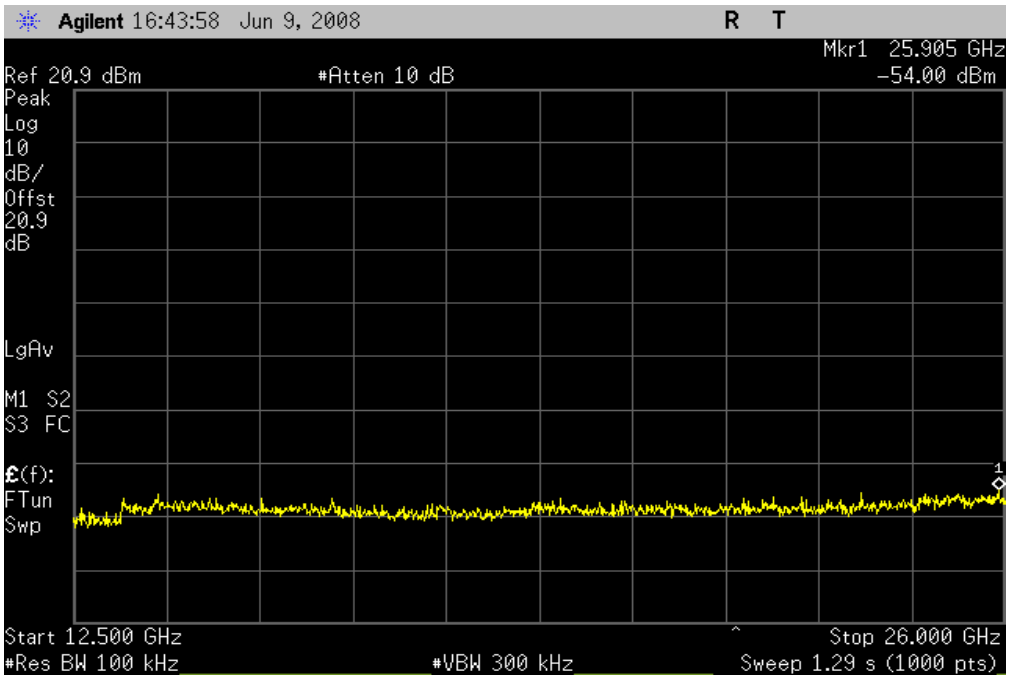
Low Channel 12-26					
Result:	Pass	**Value:**	> -50 dB	**Limit:**	≥ -20 dBc



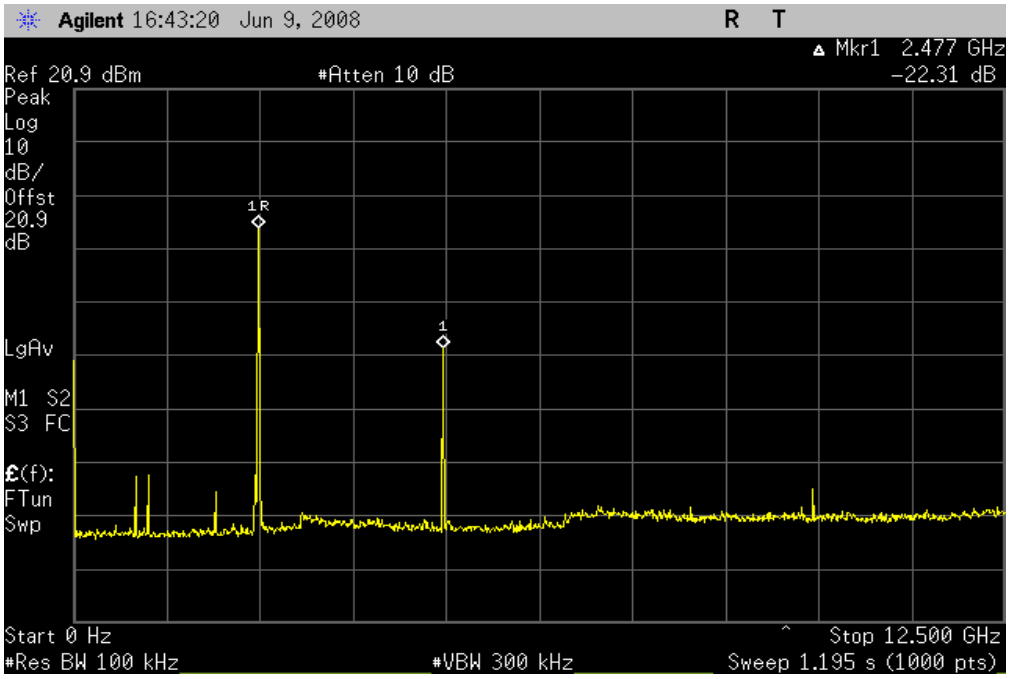
Mid Channel 0-12					
Result:	Pass	**Value:**	-21.9 dB	**Limit:**	≥ -20 dBc



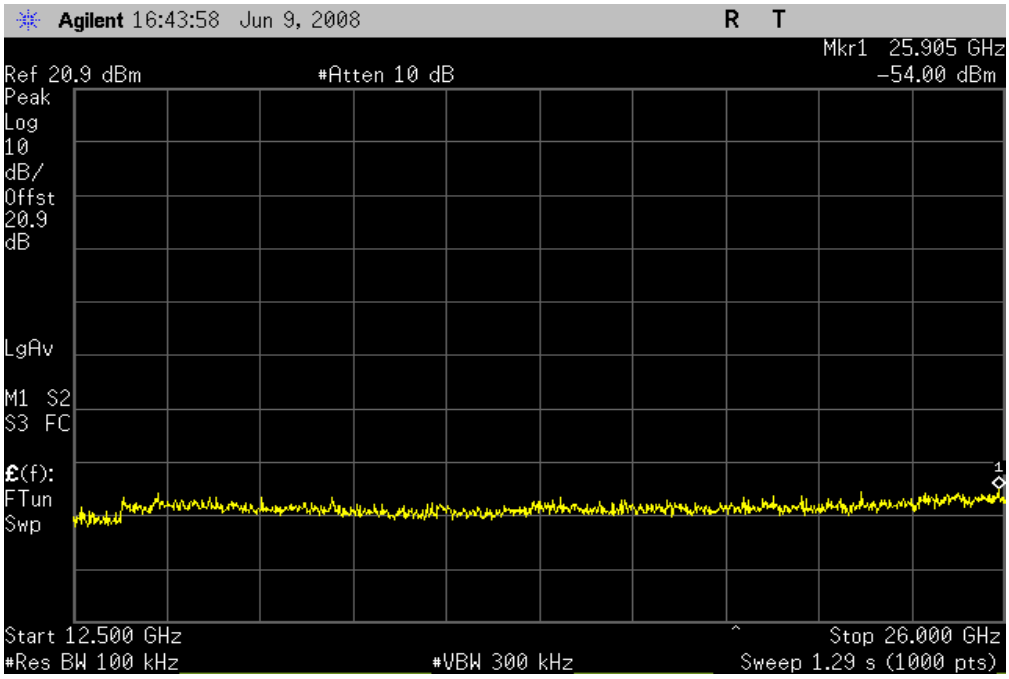
Mid Channel 12-26					
Result:	Pass	**Value:**	> -50 dB	**Limit:**	≥ -20 dBc



High Channel 0-12					
Result:	Pass	**Value:**	-22.31 dB	**Limit:**	≥ -20 dBc



High Channel 12-26					
Result:	Pass	**Value:**	> -50 dB	**Limit:**	≥ -20 dBc



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	E4440A	AAX	10/1/2007	12

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 ÷ 3 x 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 35 dB for correction to 3 kHz."

NORTHWEST EMC

Power Spectral Density

XMit 2007.06.13

EUT:	QHost (USB Dongle)			Work Order:	PROU0024
Serial Number:	None			Date:	06/09/08
Customer:	Product Creation Studio			Temperature:	21.09°C
Attendees:	None			Humidity:	54%
Project:	None			Barometric Pres.:	1008.8
Tested by:	Jaemi Suh	Power:	120V/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

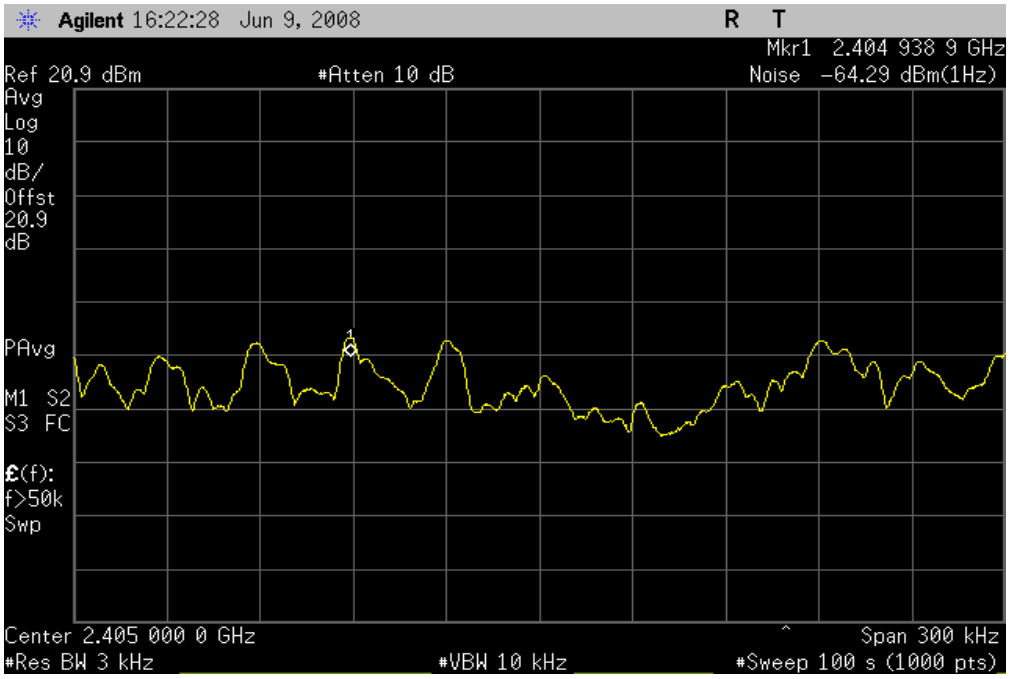
None

Configuration #	2	Signature

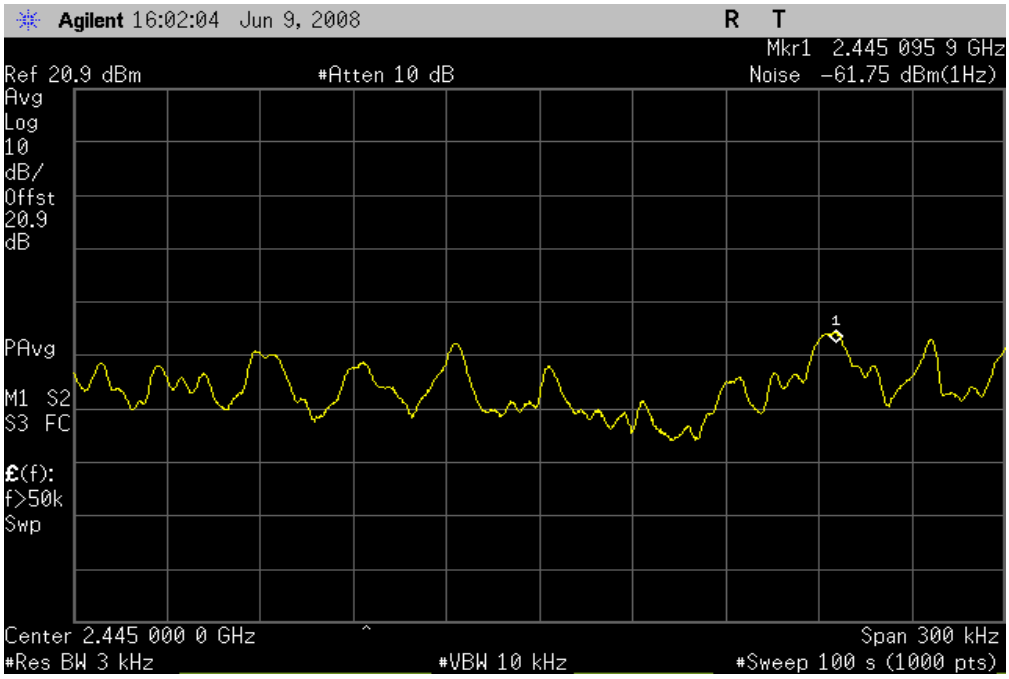
	Value	Limit	Results
Low Channel	-29.29 dBm/3kHz	8dBm/3 kHz	Pass
Mid Channel	-26.75 dBm/3 kHz	8dBm/3 kHz	Pass
High Channel	-26.03 dBm/3 kHz	8dBm/3 kHz	Pass

Power Spectral Density

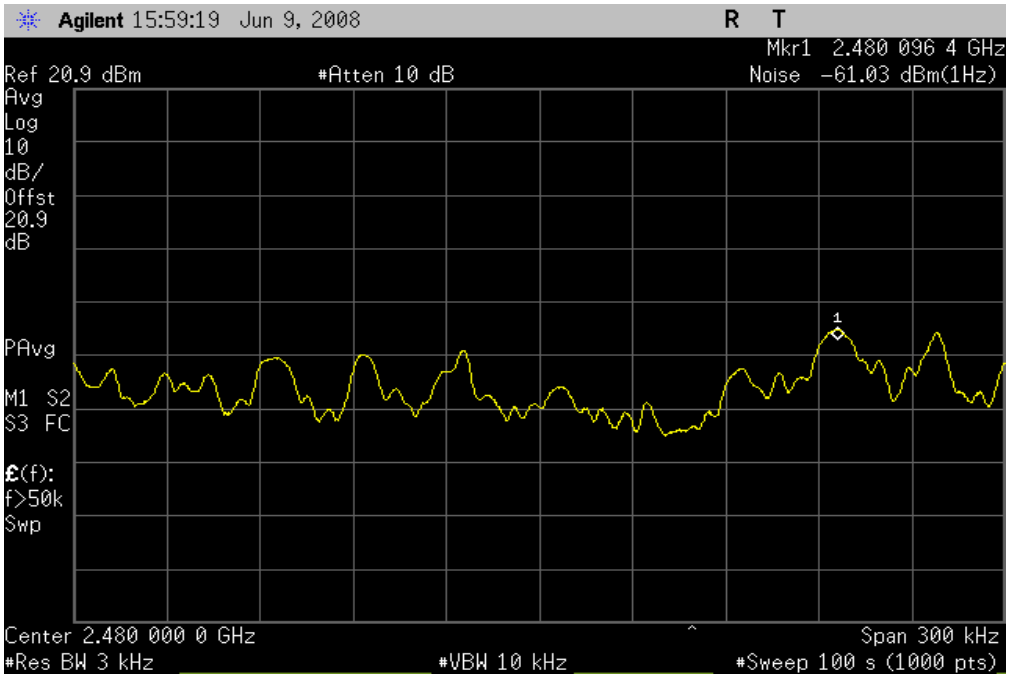
Low Channel					
Result:	Pass	**Value:**	-29.29 dBm/3kHz	**Limit:**	8dBm/3 kHz



Mid Channel					
Result:	Pass	**Value:**	-26.75 dBm/3 kHz	**Limit:**	8dBm/3 kHz



High Channel					
Result:	Pass	**Value:**	-26.03 dBm/3 kHz	**Limit:**	8dBm/3 kHz



Power Spectral Density