

# Product Creation Studio

## Q Tablet

July 1, 2008

Report No. PROU0024.5

Report Prepared By



[www.nwemc.com](http://www.nwemc.com)  
1-888-EMI-CERT

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EMC Test Report

**Certificate of Test**  
**Issue Date: July 1, 2008**  
**Product Creation Studio**  
**Model: Q Tablet**

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).

Approved By:

Don Factice, IT 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
00	None		

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



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



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

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



**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 TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories, available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV'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

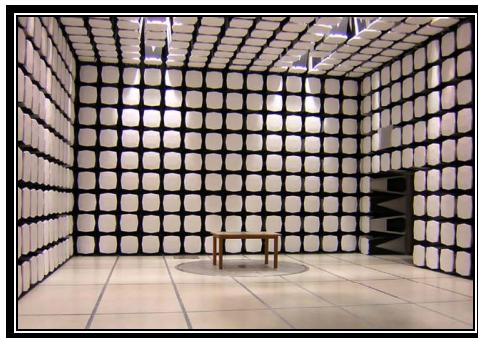


**MIC:** Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)



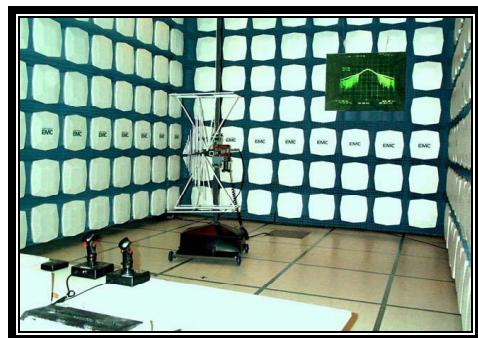
## SCOPE

For details on the Scopes of our Accreditations, please visit:  
<http://www.nwemc.com/accreditations/>



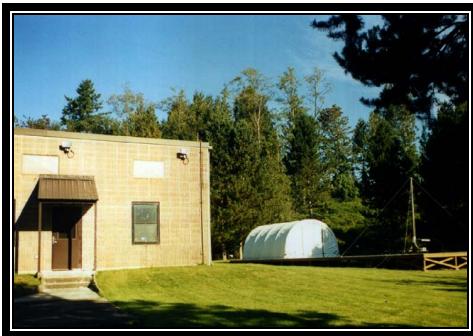
### **California – Orange County Facility Labs OC01 – OC13**

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 339<sup>th</sup> Ave. SE Sultan, WA 98294  
(888) 364-2378

**Party Requesting the Test**

<b>Company Name:</b>	Product Creation Studio
<b>Address:</b>	5419 Ballard Avenue NW
<b>City, State, Zip:</b>	Seattle, WA 98107
<b>Test Requested By:</b>	Scott Thielman
<b>Model:</b>	Q Tablet
<b>First Date of Test:</b>	June 6, 2008
<b>Last Date of Test:</b>	June 26, 2008
<b>Receipt Date of Samples:</b>	June 4, 2008
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

**Information Provided by the Party Requesting the Test****Functional Description of the EUT (Equipment Under Test):**

Wireless digitizing tablet that contains a Zigbee radio (DTS device operating in 2.4 GHz band).

**Testing Objective:**

Seeking TCB certification under 15.247.

**EUT Photo**

**CONFIGURATION 1 PROU0024**

<b>Software/Firmware Running during test</b>	
<b>Description</b>	<b>Version</b>
QwizHID Debugger	

<b>EUT</b>			
<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>
Pen	Product Creation Studio	Q Pen	Unknown

<b>Peripherals in test setup boundary</b>			
<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>
Writing Tablet	Product Creation Studio	Q Tablet	Unknown

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

<b>Cables</b>					
<b>Cable Type</b>	<b>Shield</b>	<b>Length (m)</b>	<b>Ferrite</b>	<b>Connection 1</b>	<b>Connection 2</b>
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 2 PROU0024**

<b>Software/Firmware Running during test</b>	
<b>Description</b>	<b>Version</b>
QwizHID Debugger	

<b>EUT</b>			
<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>
Dongle	Product Creation Studio	Dongle	Unknown

<b>Peripherals in test setup boundary</b>			
<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>
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 4 PROU0024

Software/Firmware Running during test	
Description	Version
QwizHID Debugger	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Pen	Product Creation Studio	Q Pen	Unknown
Writing Tablet	Product Creation Studio	Q Tablet	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
USB	Yes	3.0m	No	Laptop	Tablet
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	6/6/2008	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	6/26/2008	Radiated Emissions	Modified from delivered configuration. Initial or No Modification	Turned off programming clock-out signal. Modification done by Scott Thielman, Product Creations.	Scheduled testing was completed.

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

Power over USB

#### CONFIGURATIONS INVESTIGATED

4 - RE EV12 - Tablet PC Peripheral

#### FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	1000 MHz
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#### 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
EV11 Cables		10m Test Distance Cables	EVL	5/24/2008	13 mo
Spectrum Analyzer	Agilent	E4443A	AAS	12/7/2007	13 mo
Pre-Amplifier	Miteq	AM-1551	AOY	5/22/2008	13 mo
Antenna, Biconilog	EMCO	3142	AXB	1/15/2008	24 mo

#### MEASUREMENT BANDWIDTHS

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

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

#### MEASUREMENT UNCERTAINTY

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.

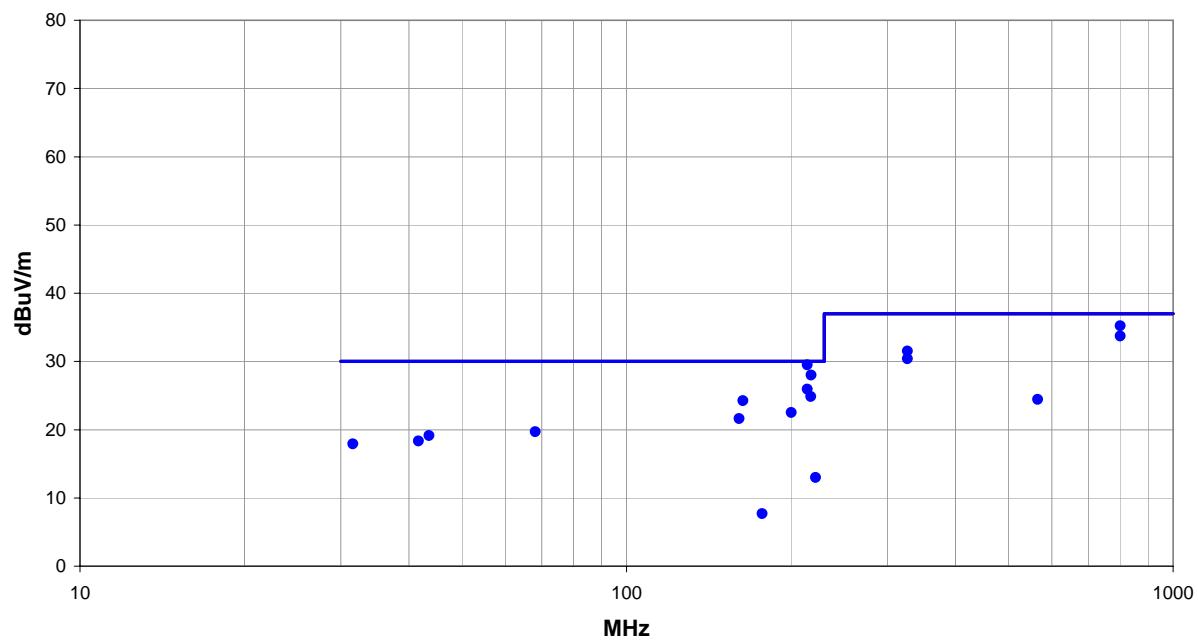
#### TEST DESCRIPTION

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.

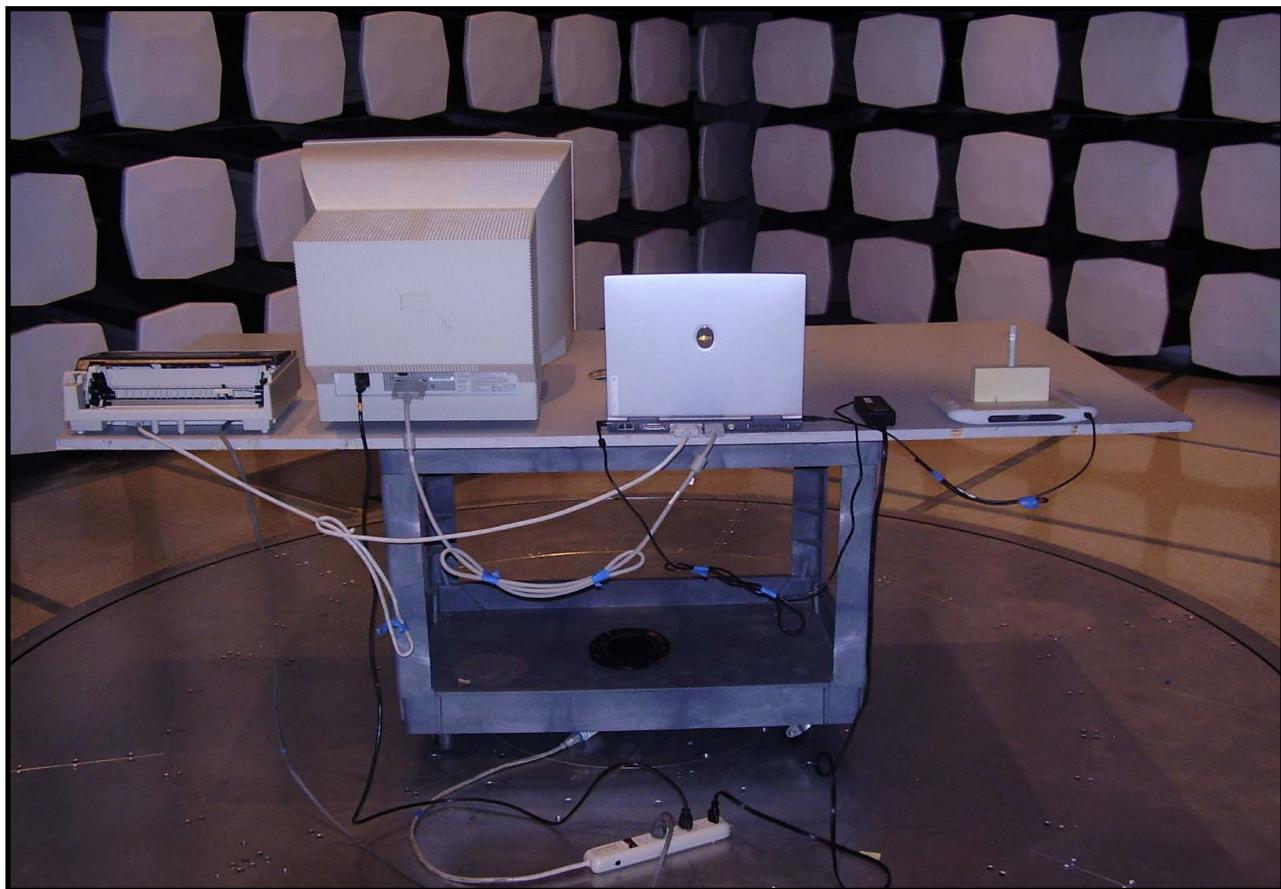
Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance shall be 3 meters or 10 meters. At 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.

Work Order:	PROU0024	Date:	06/26/08	<i>Holly Ashkannnejhad</i>
Project:	None	Temperature:	23.13	
Job Site:	EV11	Humidity:	36.47	
Serial Number:	Unknown	Barometric Pres.:	1024.5mb	Tested by: Holly Ashkannnejhad
EUT:	Q Tablet			
Configuration:	4 - RE EV12 - Tablet PC Peripheral			
Customer:	Product Creation Studio			
Attendees:	None			
EUT Power:	Power over USB			
Operating Mode:	Normal mode			
Deviations:	No deviations.			
Comments:	Testing Tablet and Pen with USB Cable. Host laptop does not have a mouse/keyboard port. Modifications: Turned off programming clock-out signal.			
Test Specifications	Class B		Test Method	
FCC 15.109(g) (CISPR 22:1997):2007			ANSI C63.4:2003	

Run #	19	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)
214.211	52.1	-22.6	1.2	256.0	10.0	0.0	Vert	QP	0.0	29.5	30.0	-0.5
801.011	45.7	-10.5	2.9	167.0	10.0	0.0	Vert	QP	0.0	35.2	37.0	-1.8
217.670	50.4	-22.4	3.5	281.0	10.0	0.0	Horz	QP	0.0	28.0	30.0	-2.0
801.026	44.2	-10.5	1.0	317.0	10.0	0.0	Horz	QP	0.0	33.7	37.0	-3.3
214.194	48.5	-22.6	3.0	310.0	10.0	0.0	Horz	QP	0.0	25.9	30.0	-4.1
217.523	47.3	-22.4	1.4	230.0	10.0	0.0	Vert	QP	0.0	24.9	30.0	-5.1
326.643	49.9	-18.4	1.3	180.0	10.0	0.0	Vert	QP	0.0	31.5	37.0	-5.5
163.288	48.8	-24.5	1.1	64.0	10.0	0.0	Vert	QP	0.0	24.3	30.0	-5.7
326.686	48.8	-18.4	3.1	105.0	10.0	0.0	Horz	QP	0.0	30.4	37.0	-6.6
200.111	45.8	-23.3	1.3	297.0	10.0	0.0	Vert	QP	0.0	22.5	30.0	-7.5
160.707	46.3	-24.7	1.1	151.0	10.0	0.0	Vert	QP	0.0	21.6	30.0	-8.4
68.064	47.0	-27.3	3.1	96.0	10.0	0.0	Vert	QP	0.0	19.7	30.0	-10.3
43.526	40.6	-21.5	1.0	95.0	10.0	0.0	Vert	QP	0.0	19.1	30.0	-10.9
41.651	39.3	-21.0	3.2	16.0	10.0	0.0	Vert	QP	0.0	18.3	30.0	-11.7
31.575	34.3	-16.4	1.0	272.0	10.0	0.0	Vert	QP	0.0	17.9	30.0	-12.1
565.490	37.8	-13.4	1.2	258.0	10.0	0.0	Horz	QP	0.0	24.4	37.0	-12.6
221.778	35.2	-22.2	3.4	310.0	10.0	0.0	Horz	QP	0.0	13.0	30.0	-17.0
177.052	31.7	-24.0	2.9	79.0	10.0	0.0	Vert	QP	0.0	7.7	30.0	-22.3



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
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#### CLOCKS AND OSCILLATORS

2480 MHz, 2445 MHz, 2405 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	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(kHz)
0.01 - 0.15	1.0	0.2		0.2
0.15 - 30.0	10.0	9.0		9.0
30.0 - 1000	100.0	120.0		120.0
Above 1000	1000.0	N/A		1000.0

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

#### MEASUREMENT UNCERTAINTY

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.

EUT: Q Tablet	Work Order: PROU0024
Serial Number: None	Date: 06/06/08
Customer: Product Creation Studio	Temperature: 21.09
Attendees: None	Humidity: 54%
Project: None	Barometric Pres.: 1008.8
Tested by: Jaemi Suh	Power: Battery
	Job Site: OC11

## TEST SPECIFICATIONS

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

X-Axis. High Channel, 2480 MHz.

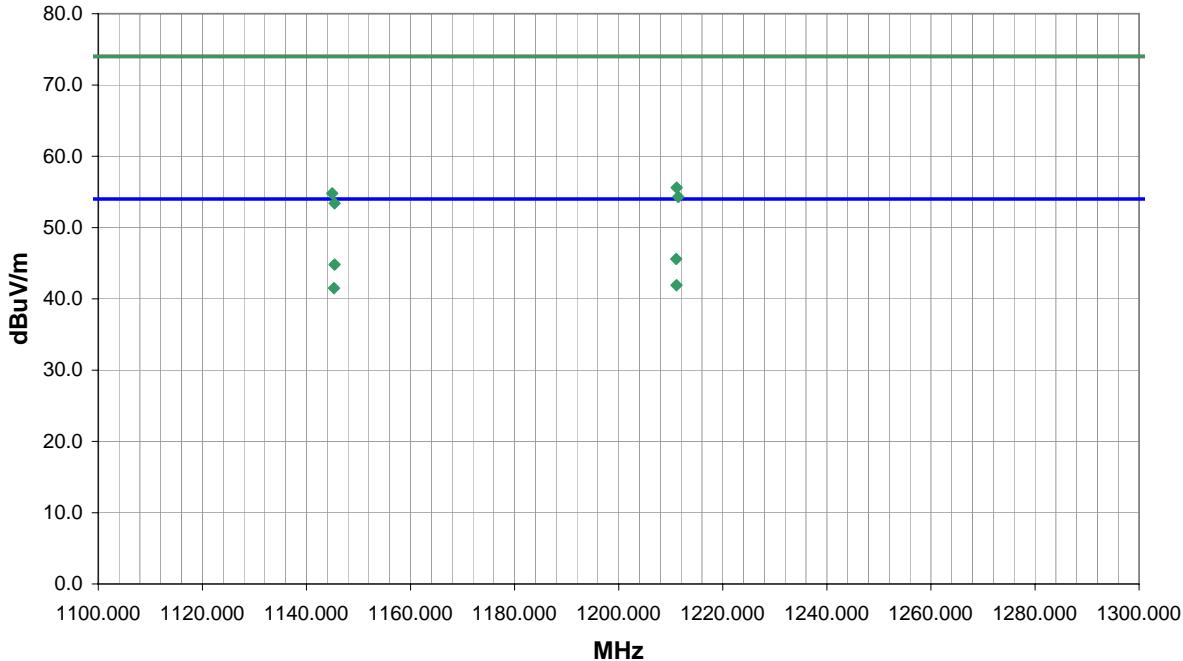
## EUT OPERATING MODES

Transmitting. Channel 15. Max Power.

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	15
Configuration #	1
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)
1211.041	33.6	-8.0	306.0	1.2	3.0	20.0	H-Horn	AV	0.0	45.6	54.0	-8.4
1145.412	33.6	-8.8	295.0	1.2	3.0	20.0	H-Horn	AV	0.0	44.8	54.0	-9.2
1211.100	29.9	-8.0	164.0	1.2	3.0	20.0	V-Horn	AV	0.0	41.9	54.0	-12.1
1145.276	30.3	-8.8	241.0	1.2	3.0	20.0	V-Horn	AV	0.0	41.5	54.0	-12.5
1211.160	43.6	-8.0	306.0	1.2	3.0	20.0	H-Horn	PK	0.0	55.6	74.0	-18.4
1144.950	43.6	-8.8	295.0	1.2	3.0	20.0	H-Horn	PK	0.0	54.8	74.0	-19.2
1211.457	42.3	-8.0	164.0	1.2	3.0	20.0	V-Horn	PK	0.0	54.3	74.0	-19.7
1145.405	42.2	-8.8	241.0	1.2	3.0	20.0	V-Horn	PK	0.0	53.4	74.0	-20.6

NORTHWEST  
EMC

## RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07  
EMI 2006.4.26

EUT: Q Tablet	Work Order: PROU0024
Serial Number: None	Date: 06/06/08
Customer: Product Creation Studio	Temperature: 21.09
Attendees: None	Humidity: 54%
Project: None	Barometric Pres.: 1008.8
Tested by: Jaemi Suh	Job Site: OC11

## TEST SPECIFICATIONS

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

X-Axis. High Channel, 2480 MHz.

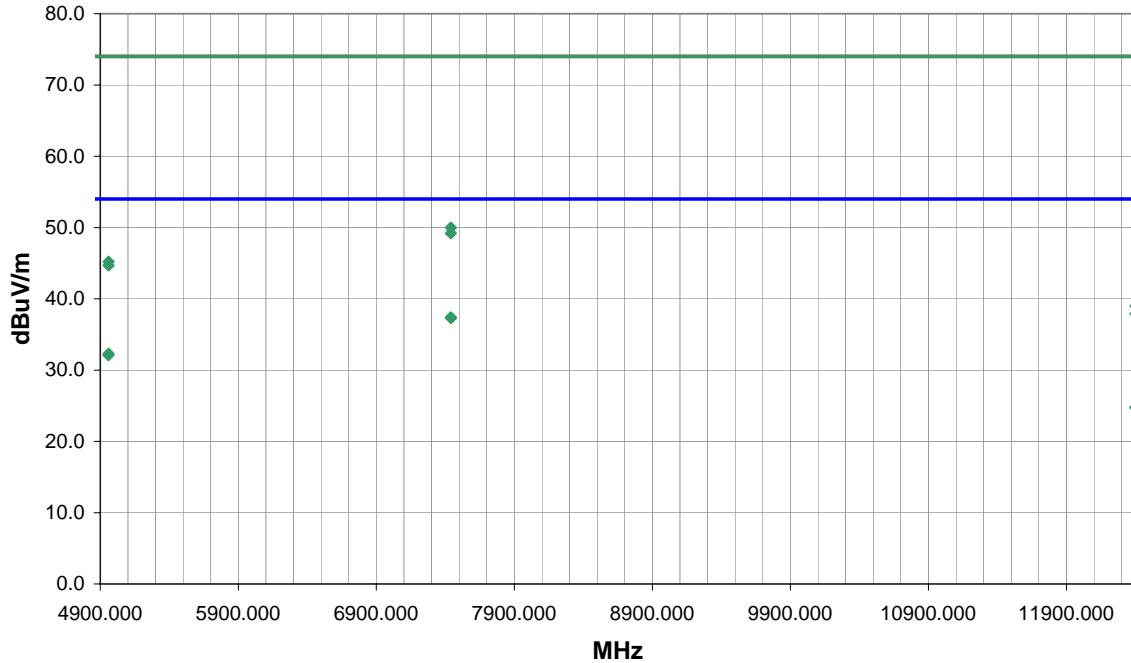
## EUT OPERATING MODES

Transmitting, Channel 15, Max Power.

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	17
Configuration #	1
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)
7439.711	28.7	8.7	359.0	1.7	3.0	0.0	H-Horn	AV	0.0	37.4	54.0	-16.6
7440.392	28.6	8.7	282.0	1.0	3.0	0.0	V-Horn	AV	0.0	37.3	54.0	-16.7
4960.726	28.7	3.6	88.0	1.0	3.0	0.0	V-Horn	AV	0.0	32.3	54.0	-21.7
4959.509	28.5	3.6	235.0	1.0	3.0	0.0	H-Horn	AV	0.0	32.1	54.0	-21.9
7440.091	41.3	8.7	282.0	1.0	3.0	0.0	V-Horn	PK	0.0	50.0	74.0	-24.0
7439.853	40.5	8.7	359.0	1.7	3.0	0.0	H-Horn	PK	0.0	49.2	74.0	-24.8
4960.176	41.6	3.6	88.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.2	74.0	-28.8
12400.000	34.5	-9.7	319.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.8	54.0	-29.2
12400.000	34.4	-9.7	304.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.7	54.0	-29.3
4959.959	41.1	3.6	235.0	1.0	3.0	0.0	H-Horn	PK	0.0	44.7	74.0	-29.3
12400.000	48.7	-9.7	319.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.0	74.0	-35.0
12400.000	47.6	-9.7	304.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.9	74.0	-36.1

NORTHWEST  
EMC

## RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07  
EMI 2006.4.26

EUT: Q Tablet	Work Order: PROU0024
Serial Number: None	Date: 06/06/08
Customer: Product Creation Studio	Temperature: 21.09
Attendees: None	Humidity: 54%
Project: None	Barometric Pres.: 1008.8
Tested by: Jaemi Suh	Job Site: OC11

## TEST SPECIFICATIONS

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

X-Axis. Mid Channel, 2445 MHz.

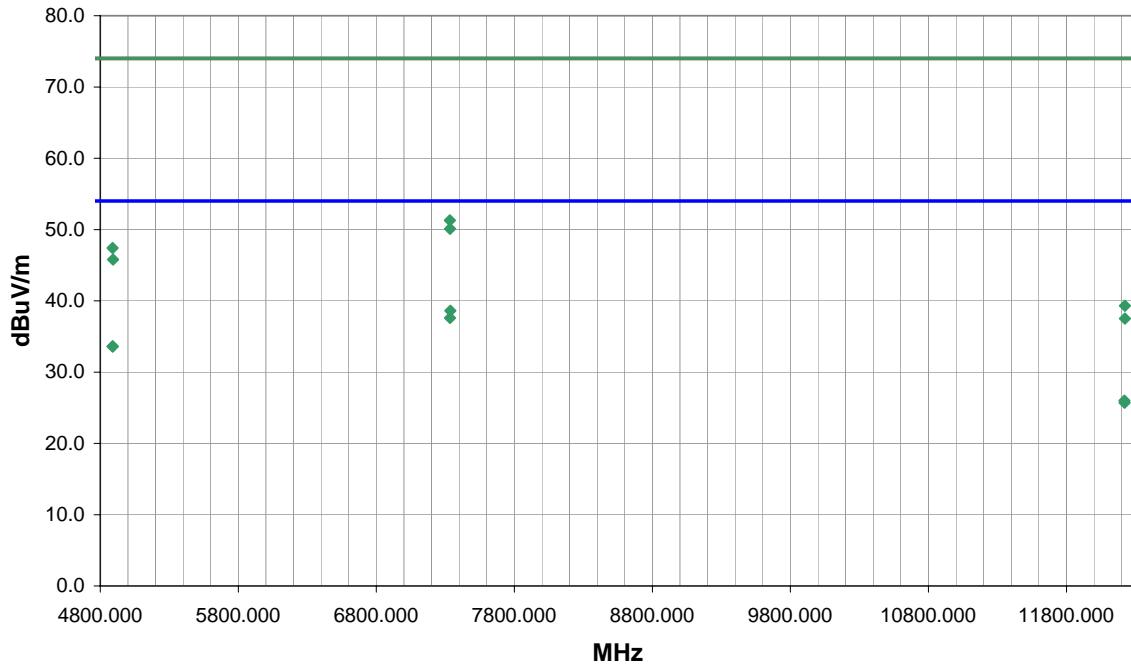
## EUT OPERATING MODES

Transmitting, Channel 8 Max Power.

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	20
Configuration #	1
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)
7336.602	30.1	8.5	169.0	1.0	3.0	0.0	V-Horn	AV	0.0	38.6	54.0	-15.4
7333.733	29.1	8.5	196.0	1.7	3.0	0.0	H-Horn	AV	0.0	37.6	54.0	-16.4
4889.179	30.2	3.4	198.0	1.0	3.0	0.0	H-Horn	AV	0.0	33.6	54.0	-20.4
4890.979	30.2	3.4	359.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.6	54.0	-20.4
7333.260	42.8	8.5	169.0	1.0	3.0	0.0	V-Horn	PK	0.0	51.3	74.0	-22.7
7333.908	41.6	8.5	196.0	1.7	3.0	0.0	H-Horn	PK	0.0	50.1	74.0	-23.9
4889.615	44.0	3.4	198.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.4	74.0	-26.6
122219.510	36.3	-10.3	328.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.0	54.0	-28.0
4892.533	42.4	3.4	359.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.8	74.0	-28.2
122221.210	36.0	-10.3	79.0	1.9	3.0	0.0	H-Horn	AV	0.0	25.7	54.0	-28.3
122223.410	49.6	-10.3	328.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.3	74.0	-34.7
122223.360	47.8	-10.3	79.0	1.9	3.0	0.0	H-Horn	PK	0.0	37.5	74.0	-36.5

NORTHWEST  
EMC

## RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07  
EMI 2006.4.26

EUT: Q Tablet	Work Order: PROU0024
Serial Number: None	Date: 06/06/08
Customer: Product Creation Studio	Temperature: 21.09
Attendees: None	Humidity: 54%
Project: None	Barometric Pres.: 1008.8
Tested by: Jaemi Suh	Job Site: OC11

## TEST SPECIFICATIONS

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

X-Axis. Mid Channel, 2445 MHz.

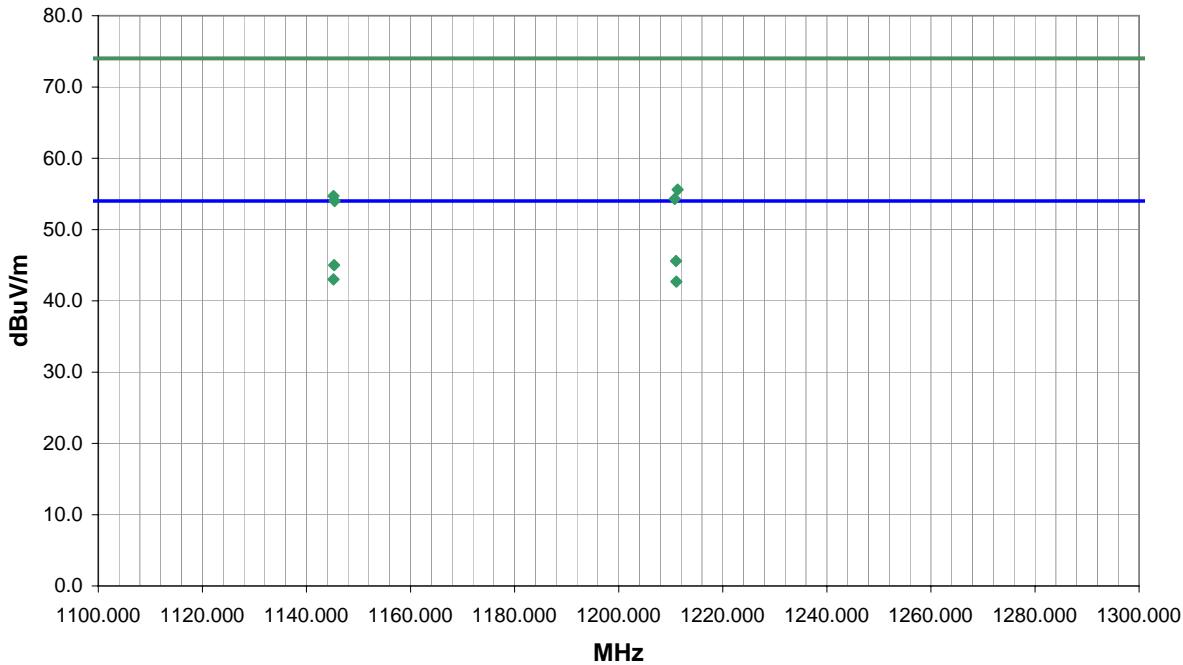
## EUT OPERATING MODES

Transmitting. Channel 8. Max Power.

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	21	Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
1211.012	33.6	-8.0	305.0	1.2	3.0	20.0	H-Horn	AV	0.0	45.6	54.0	-8.4
1145.310	33.8	-8.8	300.0	1.2	3.0	20.0	H-Horn	AV	0.0	45.0	54.0	-9.0
1145.203	31.8	-8.8	31.0	1.2	3.0	20.0	V-Horn	AV	0.0	43.0	54.0	-11.0
1211.087	30.7	-8.0	59.0	1.2	3.0	20.0	V-Horn	AV	0.0	42.7	54.0	-11.3
1211.343	43.6	-8.0	305.0	1.2	3.0	20.0	H-Horn	PK	0.0	55.6	74.0	-18.4
1145.198	43.5	-8.8	300.0	1.2	3.0	20.0	H-Horn	PK	0.0	54.7	74.0	-19.3
1210.787	42.3	-8.0	59.0	1.2	3.0	20.0	V-Horn	PK	0.0	54.3	74.0	-19.7
1145.398	42.8	-8.8	31.0	1.2	3.0	20.0	V-Horn	PK	0.0	54.0	74.0	-20.0

NORTHWEST  
EMC

## RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07  
EMI 2006.4.26

EUT: Q Tablet	Work Order: PROU0024
Serial Number: None	Date: 06/06/08
Customer: Product Creation Studio	Temperature: 21.09
Attendees: None	Humidity: 54%
Project: None	Barometric Pres.: 1008.8
Tested by: Jaemi Suh	Power: Battery
	Job Site: OC11

## TEST SPECIFICATIONS

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

X-Axis. Low Channel, 2405 MHz.

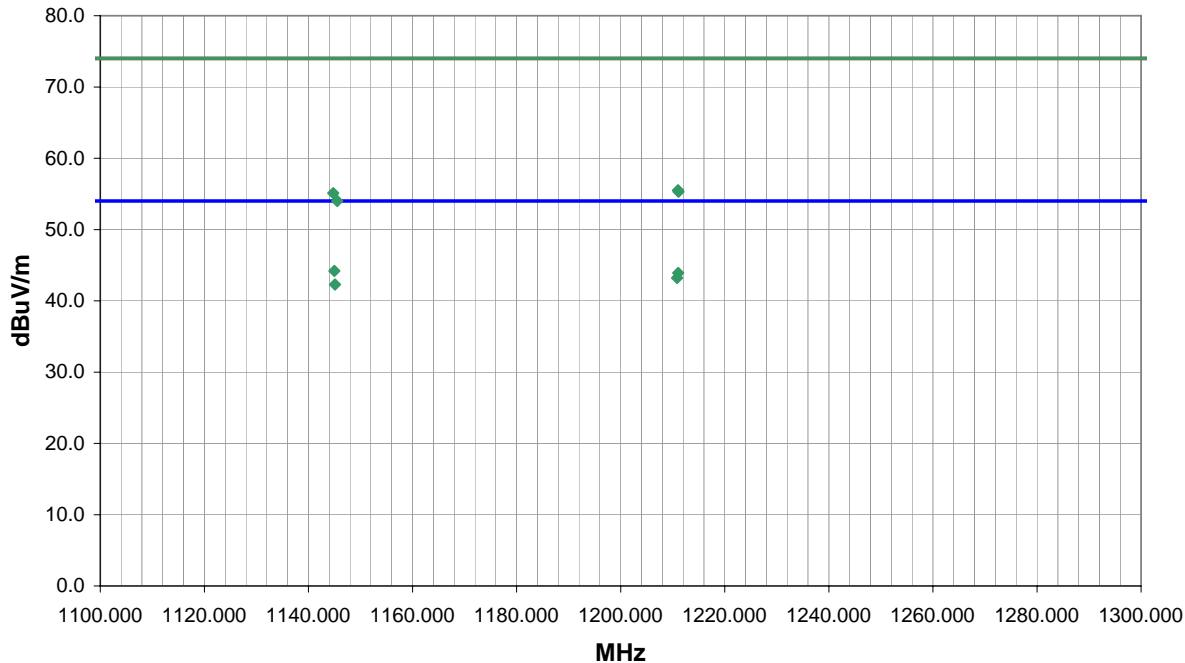
## EUT OPERATING MODES

Transmitting. Channel 0. Max Power.

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	21	Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
1144.977	33.0	-8.8	297.0	1.2	3.0	20.0	H-Horn	AV	0.0	44.2	54.0	-9.8
1211.059	31.9	-8.0	298.0	1.1	3.0	20.0	H-Horn	AV	0.0	43.9	54.0	-10.1
1210.827	31.2	-8.0	26.0	1.1	3.0	20.0	V-Horn	AV	0.0	43.2	54.0	-10.8
1145.110	31.1	-8.8	308.0	1.1	3.0	20.0	V-Horn	AV	0.0	42.3	54.0	-11.7
1211.026	43.5	-8.0	26.0	1.1	3.0	20.0	V-Horn	PK	0.0	55.5	74.0	-18.5
1211.100	43.3	-8.0	298.0	1.1	3.0	20.0	H-Horn	PK	0.0	55.3	74.0	-18.7
1144.770	43.9	-8.8	297.0	1.2	3.0	20.0	H-Horn	PK	0.0	55.1	74.0	-18.9
1145.542	42.8	-8.8	308.0	1.1	3.0	20.0	V-Horn	PK	0.0	54.0	74.0	-20.0

NORTHWEST  
EMC

## RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07  
EMI 2006.4.26

EUT: Q Tablet	Work Order: PROU0024
Serial Number: None	Date: 06/06/08
Customer: Product Creation Studio	Temperature: 21.09
Attendees: None	Humidity: 54%
Project: None	Barometric Pres.: 1008.8
Tested by: Jaemi Suh	Job Site: OC11

## TEST SPECIFICATIONS

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

X-Axis. Low Channel, 2405 MHz.

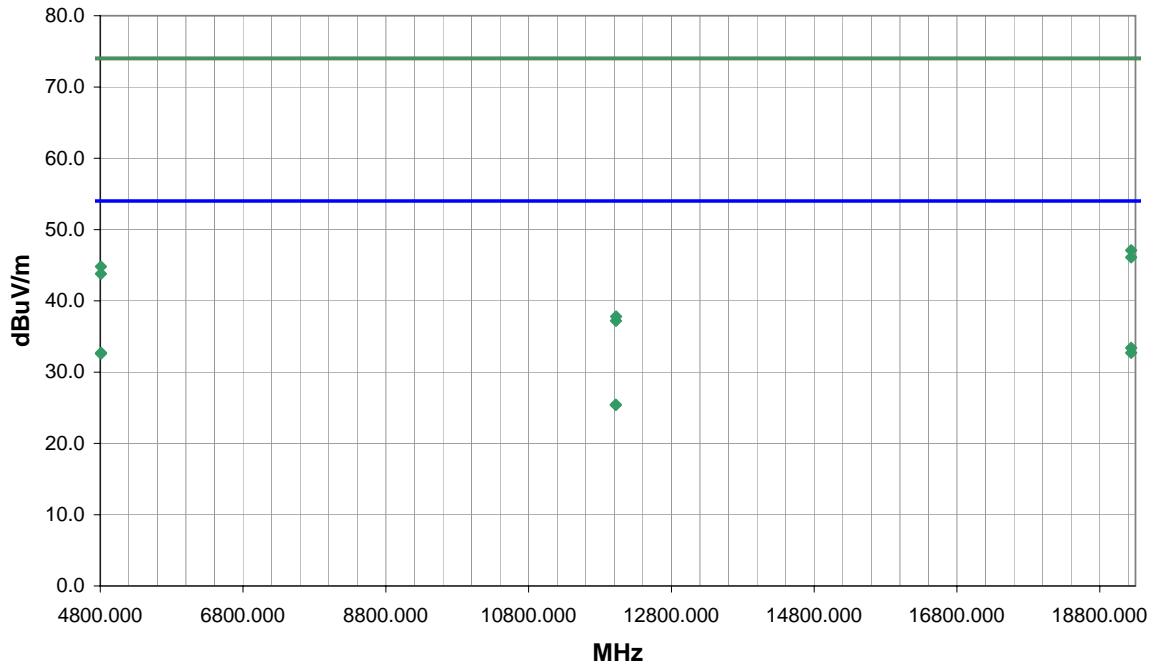
## EUT OPERATING MODES

Transmitting, Channel 0, Max Power.

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	24	Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
19240.000	34.1	-0.7	332.0	1.0	3.0	0.0	V-High Horn	AV	0.0	33.4	54.0	-20.6
19240.000	33.4	-0.7	210.0	1.0	3.0	0.0	H-High Horn	AV	0.0	32.7	54.0	-21.3
4810.974	29.6	3.1	359.0	3.0	3.0	0.0	V-Horn	AV	0.0	32.7	54.0	-21.3
4809.033	29.5	3.1	203.0	1.0	3.0	0.0	H-Horn	AV	0.0	32.6	54.0	-21.4
19240.000	47.8	-0.7	332.0	1.0	3.0	0.0	V-High Horn	PK	0.0	47.1	74.0	-26.9
19240.000	46.8	-0.7	210.0	1.0	3.0	0.0	H-High Horn	PK	0.0	46.1	74.0	-27.9
12020.320	36.4	-11.0	214.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.4	54.0	-28.6
12021.940	36.4	-11.0	196.0	1.7	3.0	0.0	V-Horn	AV	0.0	25.4	54.0	-28.6
4808.108	41.7	3.1	203.0	1.0	3.0	0.0	H-Horn	PK	0.0	44.8	74.0	-29.2
4809.570	40.7	3.1	359.0	3.0	3.0	0.0	V-Horn	PK	0.0	43.8	74.0	-30.2
12024.760	48.8	-11.0	214.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.8	74.0	-36.2
12023.850	48.2	-11.0	196.0	1.7	3.0	0.0	V-Horn	PK	0.0	37.2	74.0	-36.8





# 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	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.

EMC

## OCCUPIED BANDWIDTH

EUT: Zigbee Radio in Host 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 Method

## TEST SPECIFICATIONS

FCC 15.247 (DTS):2007

ANSI C63.4:2003 KDB No. 558074

## COMMENTS

## DEVIATIONS FROM TEST STANDARD

None

Configuration #

2

Signature

Low Channel  
Mid Channel  
High Channel

	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

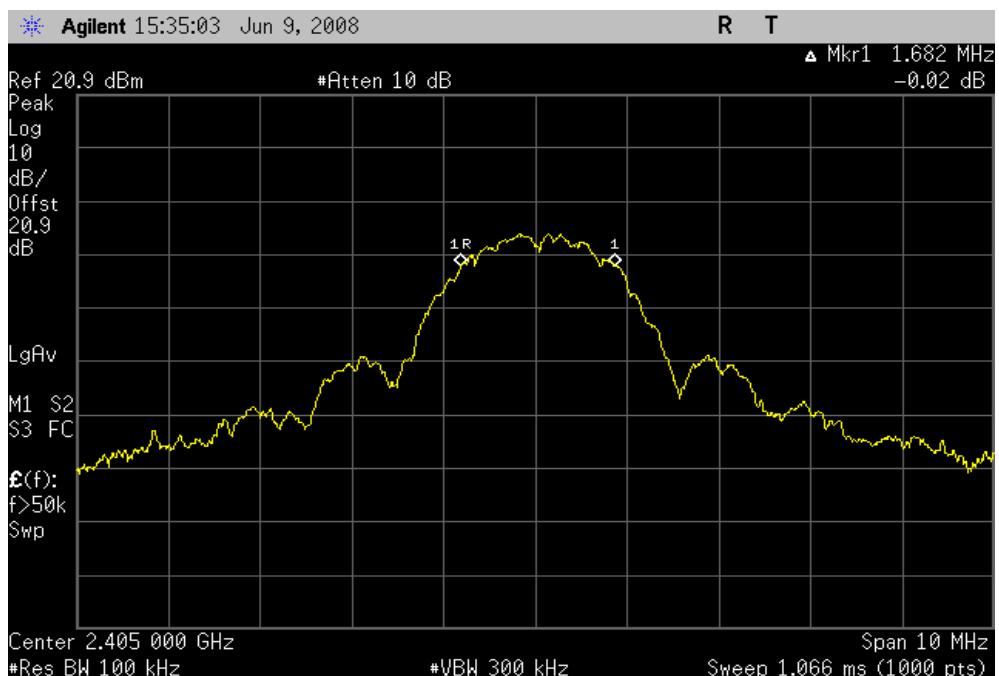
## OCCUPIED BANDWIDTH

Low Channel

Result: Pass

Value: 1.682 MHz

Limit: &gt; 500 kHz

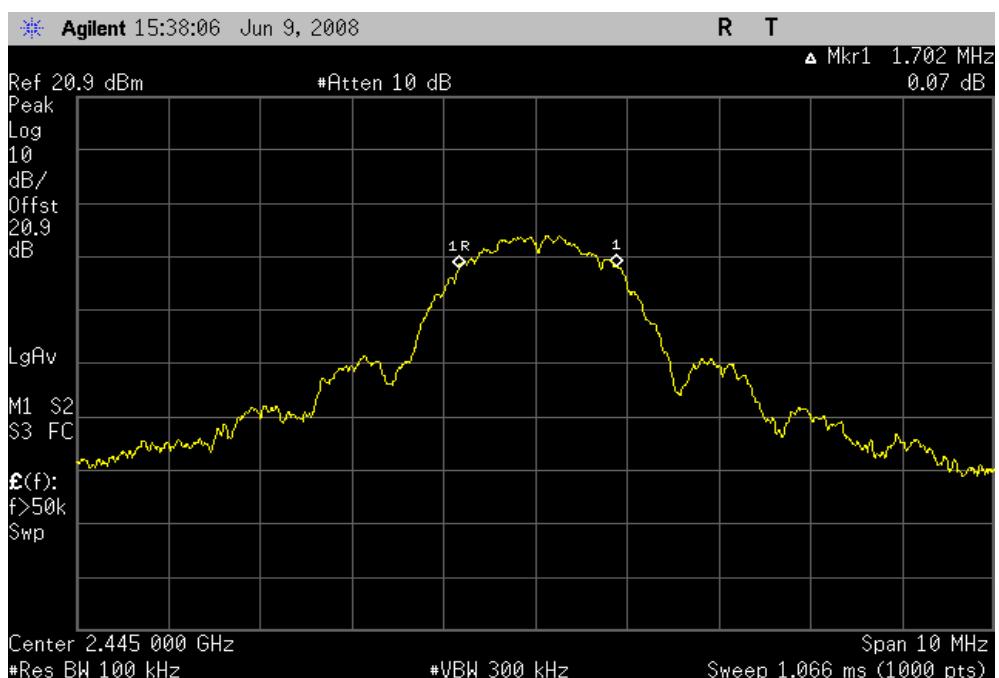


Mid Channel

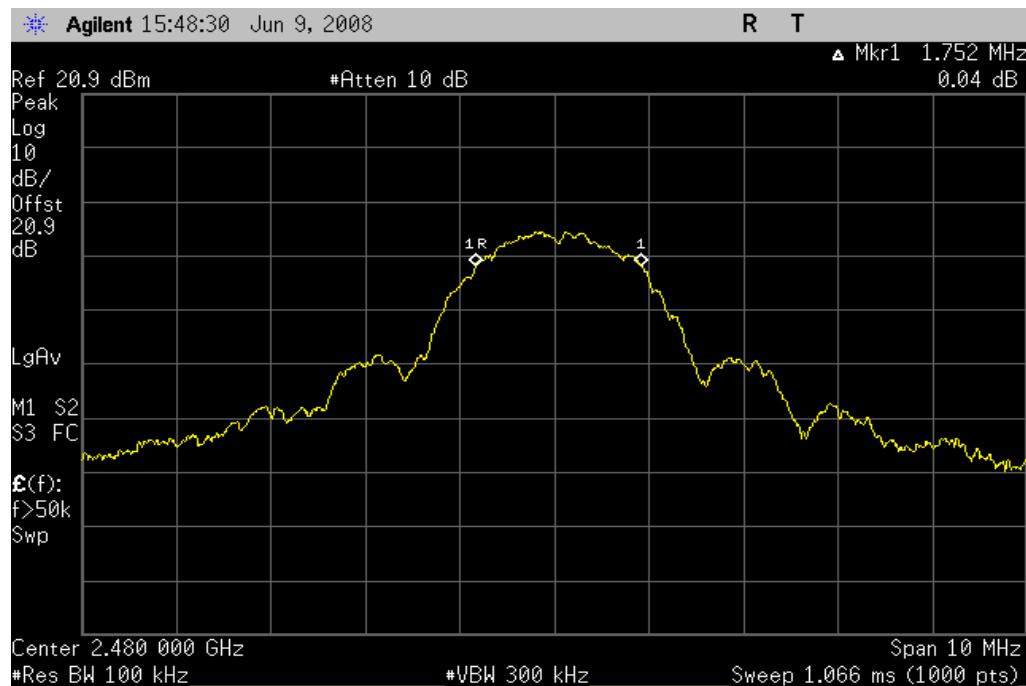
Result: Pass

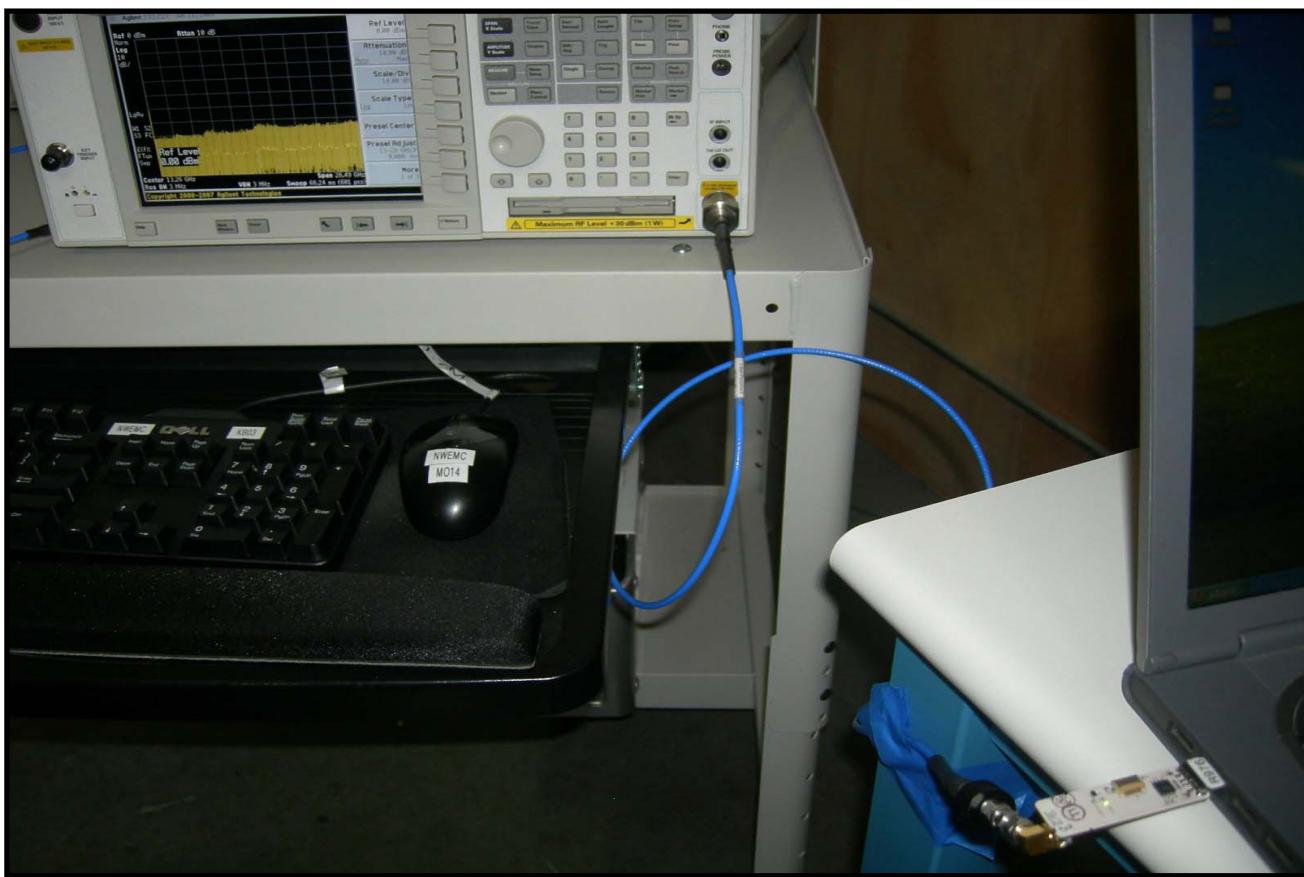
Value: 1.702 MHz

Limit: &gt; 500 kHz



High Channel		
<b>Result:</b> Pass	<b>Value:</b> 1.752 MHz	<b>Limit:</b> > 500 kHz





# 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
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.

## OUTPUT POWER

EUT: Zigbee Radio in Host 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	Job Site: OC11

## TEST SPECIFICATIONS

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

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

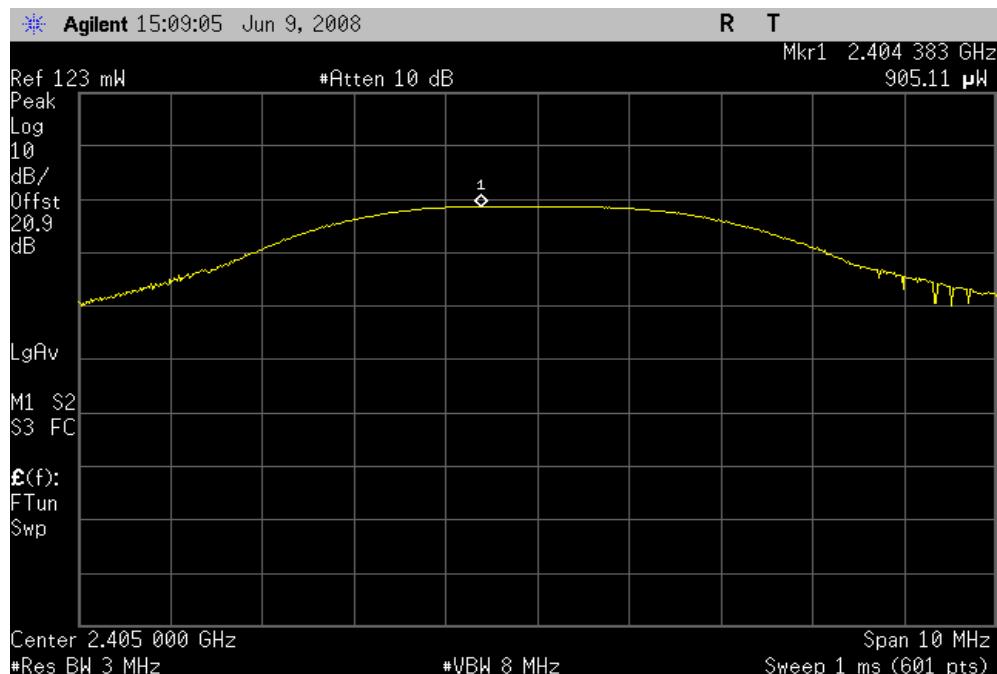
Configuration #	2	Signature	Value	Limit	Results
Low Channel			905.11 uW	1 W	Pass
Mid Channel			915.8 uW	1 W	Pass
High Channel			928.11 uW	1 W	Pass

## Low Channel

Result: Pass

Value: 905.11 uW

Limit: 1 W

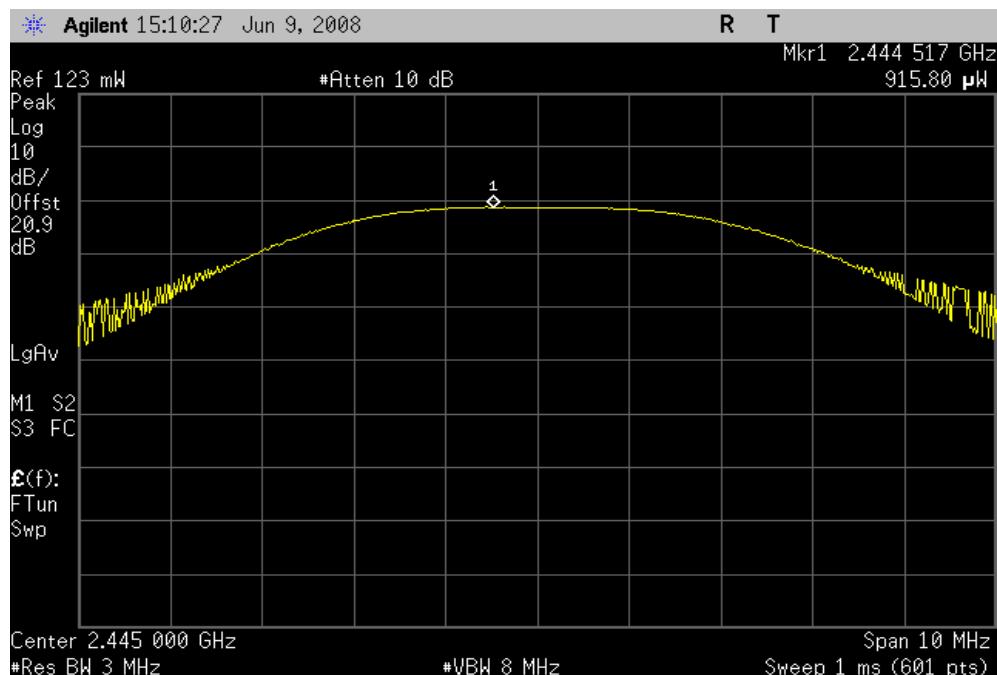


## Mid Channel

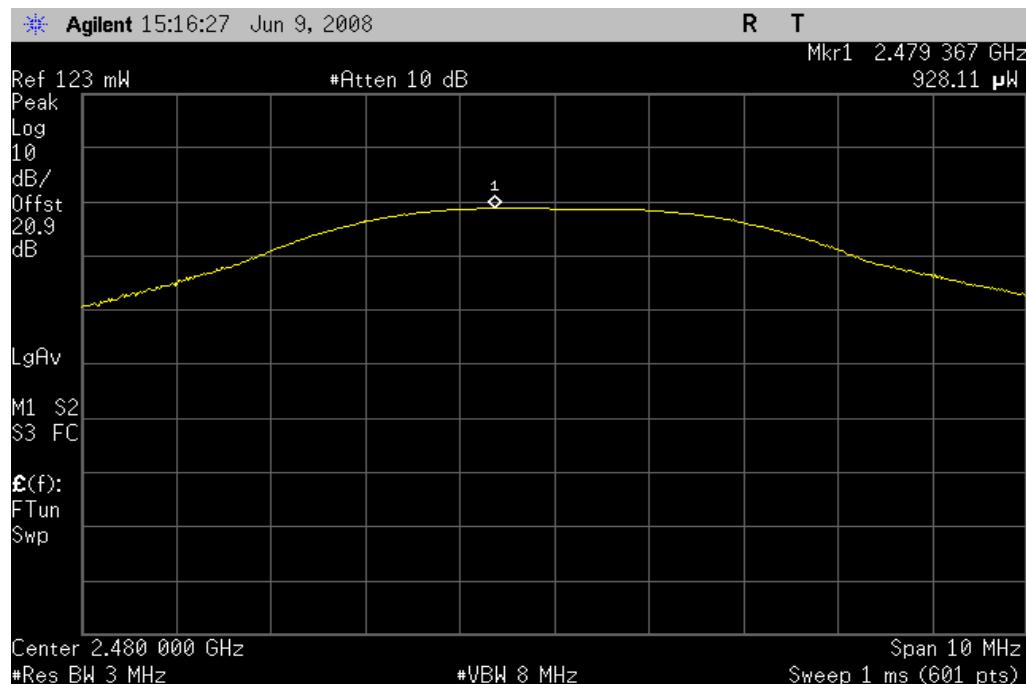
Result: Pass

Value: 915.8 uW

Limit: 1 W



High Channel		
<b>Result:</b> Pass	<b>Value:</b> 928.11 uW	<b>Limit:</b> 1 W





# 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.

## EMC

## Band Edge Compliance

EUT: Zigbee Radio in Host 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		
TEST SPECIFICATIONS			
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 dBc	≥ -20 dBc	Pass
High Channel	-36.84 dBc	≥ -20 dBc	Pass

## Band Edge Compliance

Low Channel

Result: Pass

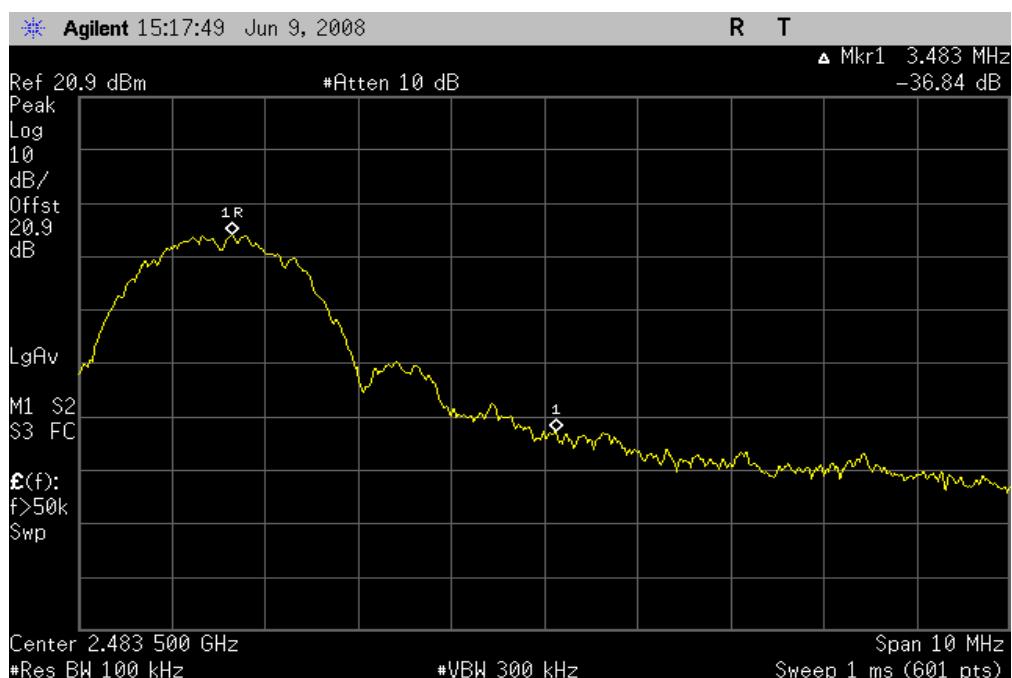
Value: -40.63 dBc

Limit:  $\geq -20$  dBc

High Channel

Result: Pass

Value: -36.84 dBc

Limit:  $\geq -20$  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.

## Spurious Conducted Emissions

EUT: Zigbee Radio in Host 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	Job Site: OC11

## TEST SPECIFICATIONS

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

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

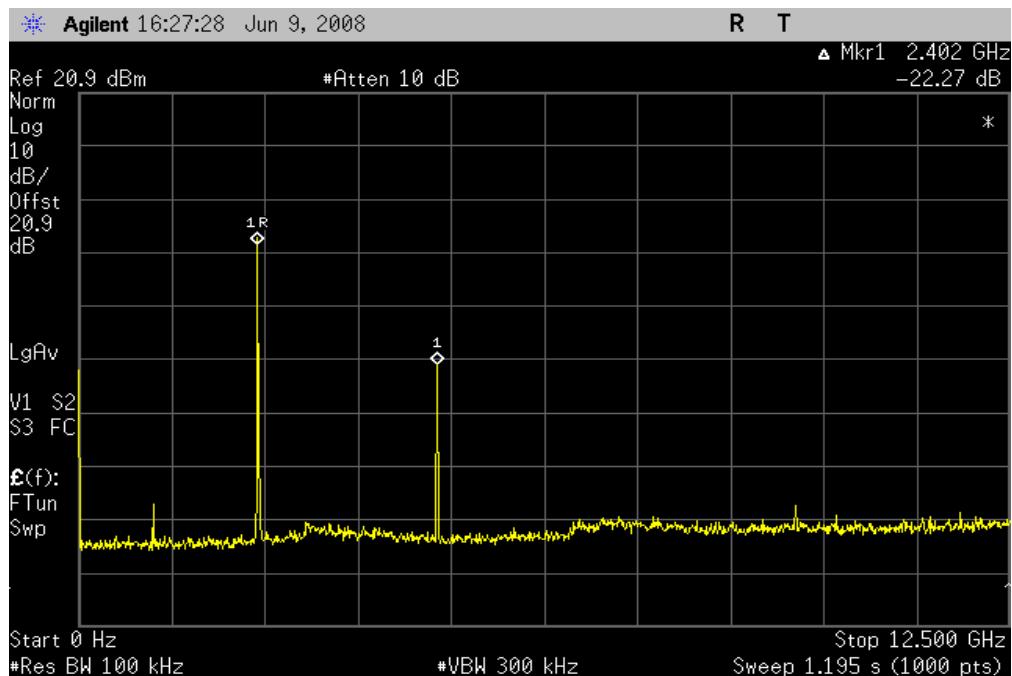
Configuration #	2	
		Signature

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

## Low Channel 0-12

Result: Pass

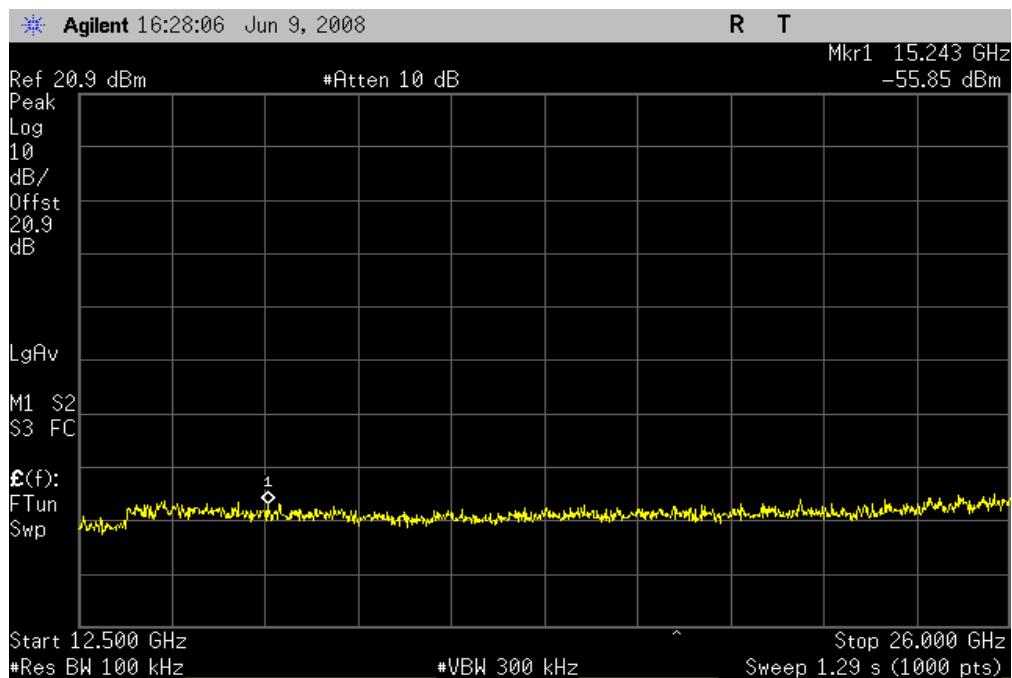
Value: -22.27 dBc

Limit:  $\geq -20$  dBc

## Low Channel 12-26

Result: Pass

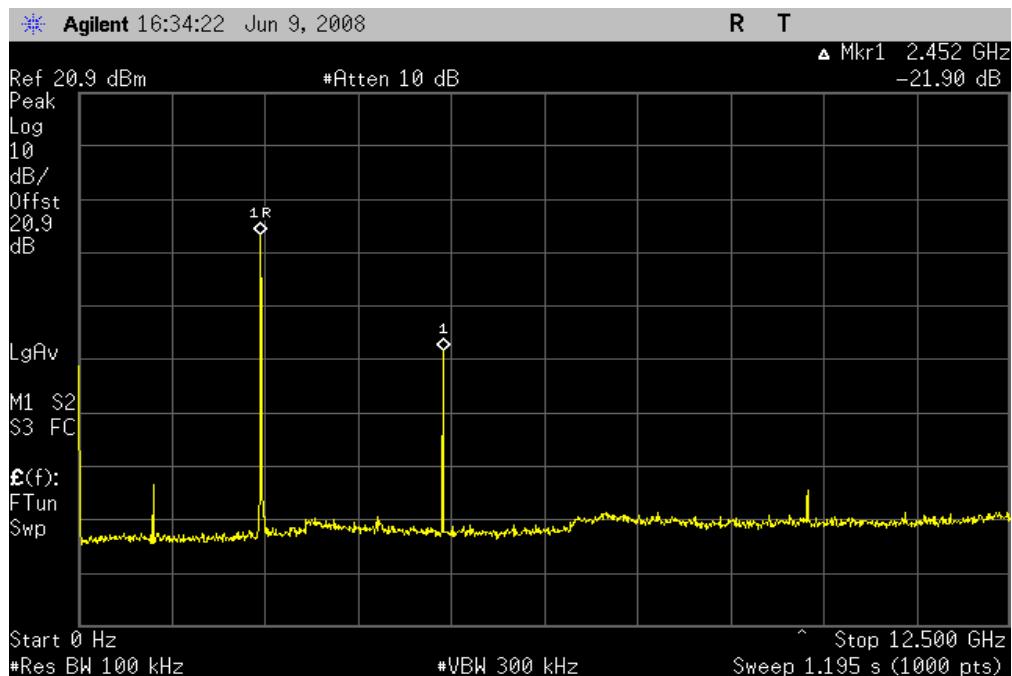
Value: &lt; -50 dBc

Limit:  $\geq -20$  dBc

## Mid Channel 0-12

Result: Pass

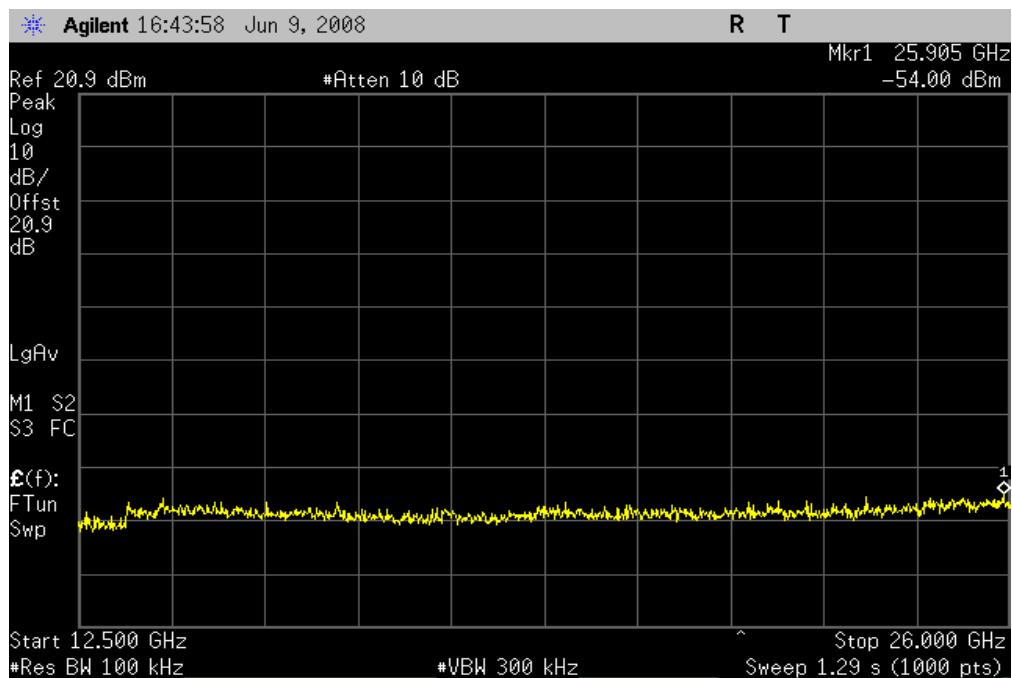
Value: -20 dBc

Limit:  $\geq -20$  dBc

## Mid Channel 12-26

Result: Pass

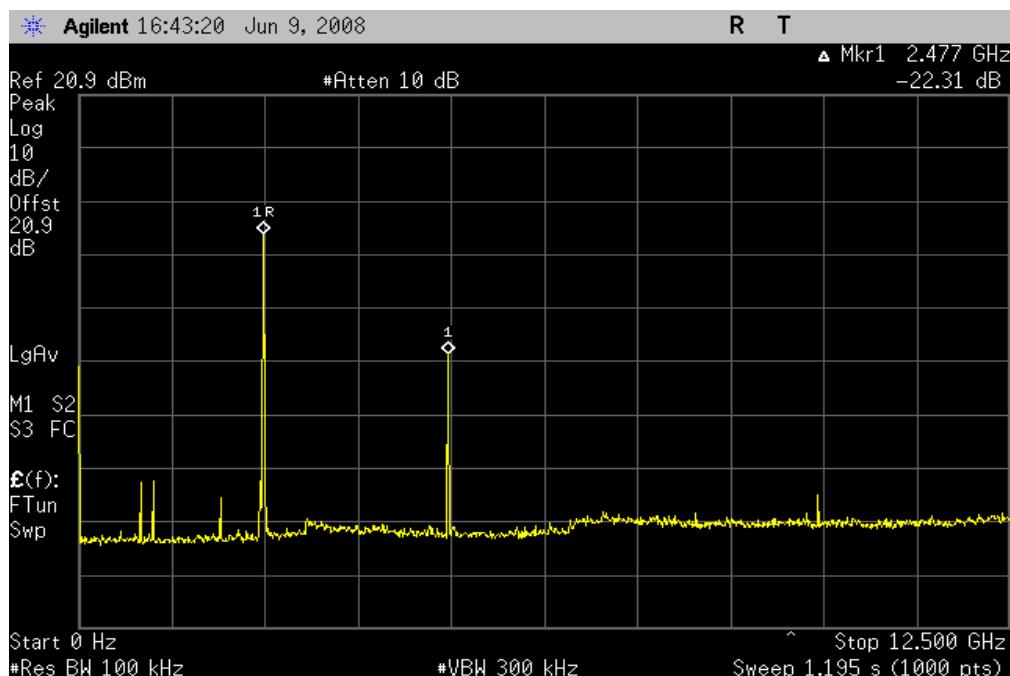
Value: &lt; -50 dBc

Limit:  $\geq -20$  dBc

## High Channel 0-12

Result: Pass

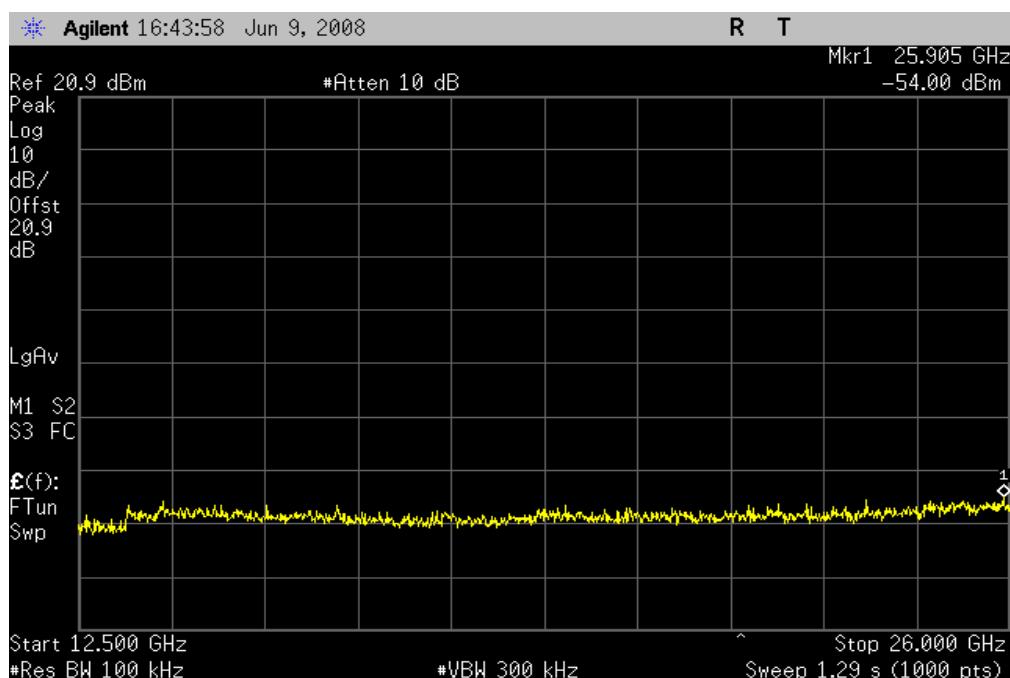
Value: -22.31 dBc

Limit:  $\geq -20$  dBc

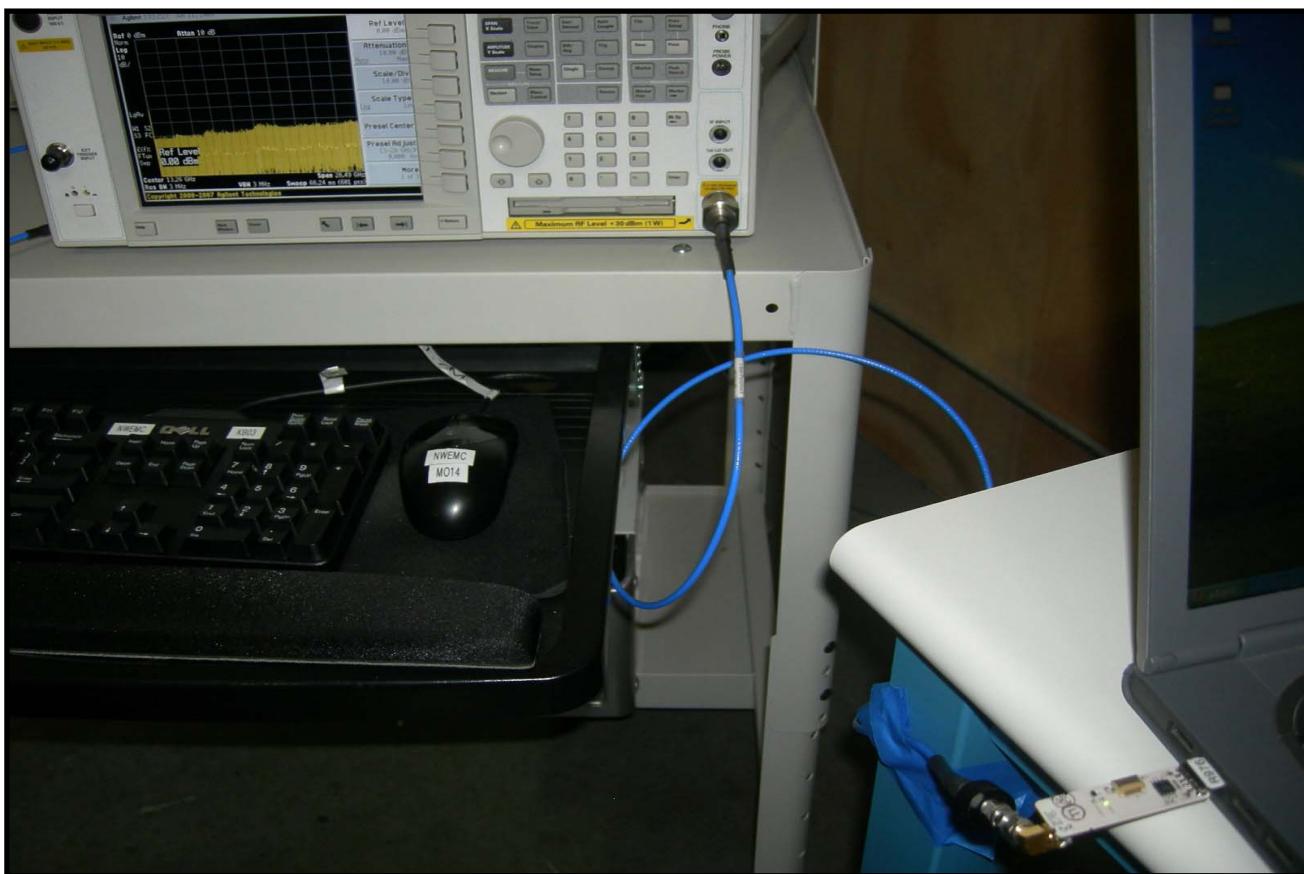
## High Channel 12-26

Result: Pass

Value: &lt; -50 dBc

Limit:  $\geq -20$  dBc

# Spurious Conducted Emissions



# 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	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  $1.5 \times 10^6 \div 3 \times 10^3 = 500$  seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

*"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 35 dB for correction to 3 kHz."*

## Power Spectral Density

EUT: Zigbee Radio in Host 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



Low Channel

Value Limit Results

Mid Channel

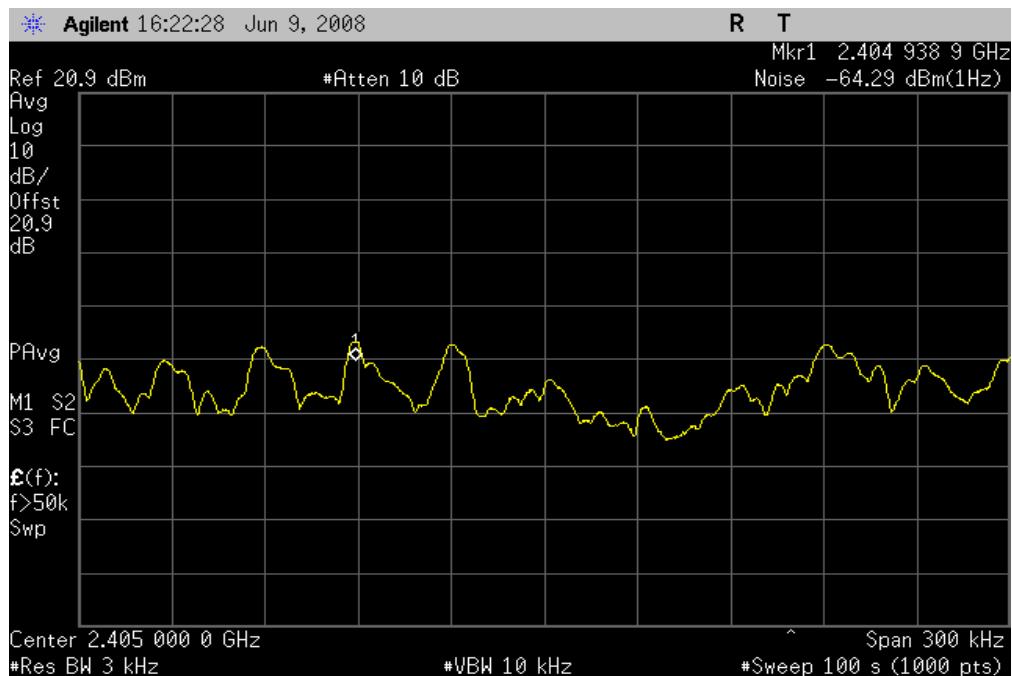
-29.29 dBm/3 kHz 8dBm/3 kHz Pass

High Channel

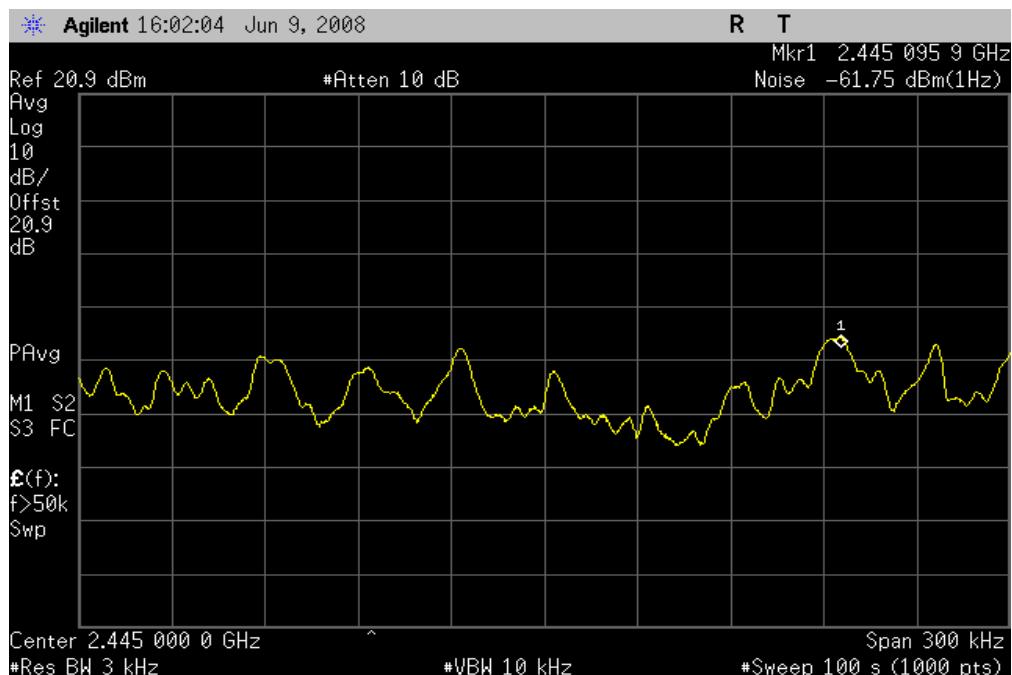
-26.75 dBm/3 kHz 8dBm/3 kHz Pass

-26.03 dBm/3 kHz 8dBm/3 kHz Pass

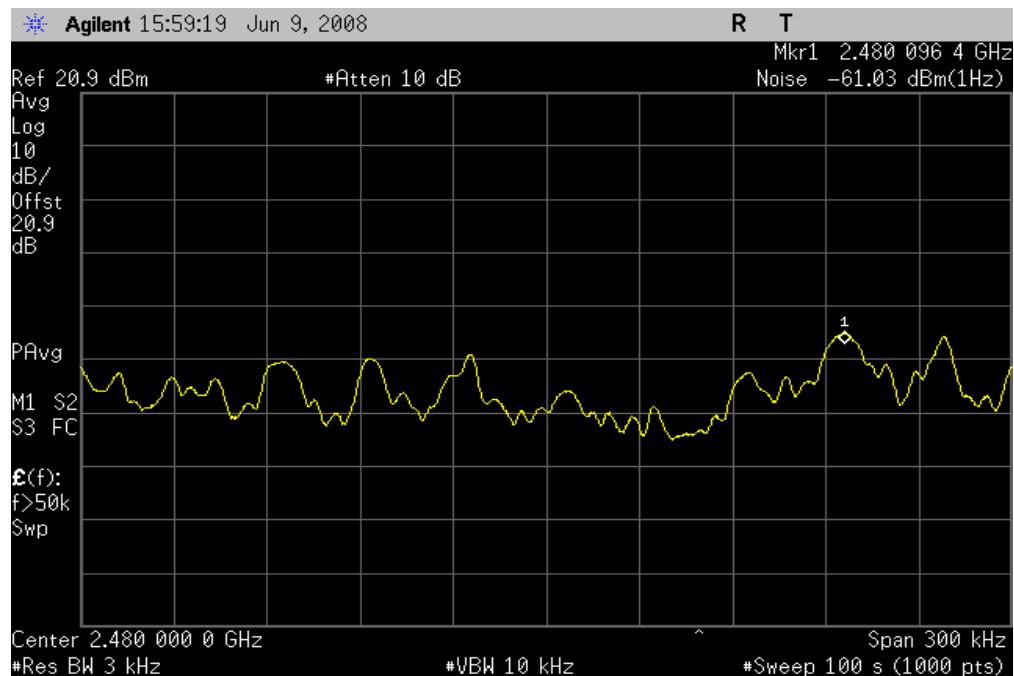
Low Channel		
Result: Pass	Value: -29.29 dBm/3kHz	Limit: 8dBm/3 kHz



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

