iTextAlert LLC

ITA-1

Report #: 7LAY0059.1

Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: December 27, 2011
iTextAlert LLC
Model: ITA-1

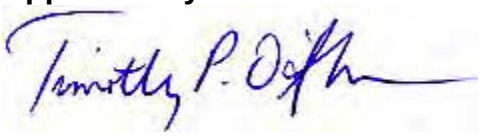
Emissions

Test Description	Specification	Test Method	Pass/Fail
Occupied Bandwidth	FCC 15.247:2011	ACSI C63.10:2009	**Pass**
Output Power	FCC 15.247:2011	ACSI C63.10:2009	**Pass**
Band Edge Compliance	FCC 15.247:2011	ACSI C63.10:2009	**Pass**
Power Spectral Density	FCC 15.247:2011	ACSI C63.10:2009	**Pass**
Spurious Radiated Emissions	FCC 15.247:2011	ACSI C63.10:2009	**Pass**
Spurious Radiated Emissions	FCC 15.209:2011	ACSI C63.10:2009	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2011	ACSI C63.10:2009	**Pass**

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager

NVLAP Lab Code: 200676-0

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).

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 History

Revision Number	Description	Date	Page Number
00	None		

Accreditations and Authorizations

FCC

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

NVLAP

Northwest EMC, Inc. is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. 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.

Industry Canada

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

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).

Accreditations and Authorizations

Revision 09/01/11

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, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-3265, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

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).

GOST

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

KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157, Brooklyn Park: US0175)*

VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

SCOPE

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

Locations

Revision 09/01/11

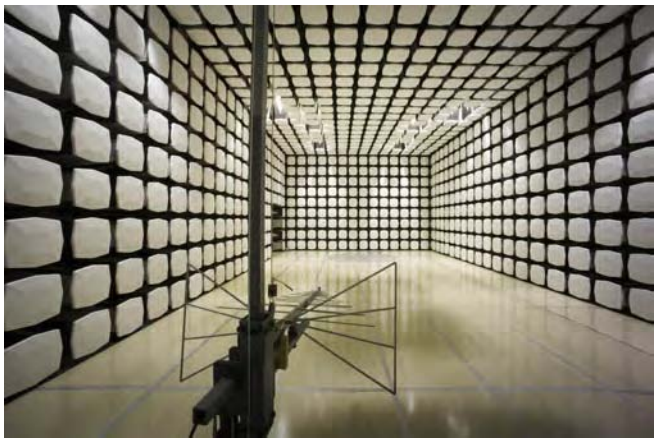
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

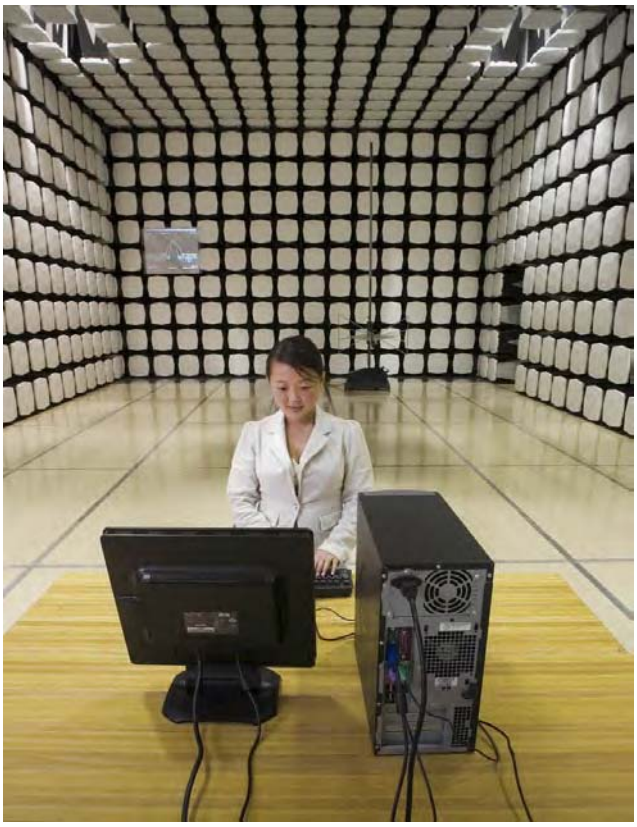
California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796





Product Description

Client and Equipment Under Test (EUT) Information

Company Name:	iTextAlert LLC
Address:	111 East First Street
City, State, Zip:	Geneseo, IL 61254
Test Requested By:	Rick Trueblood
Model:	ITA-1
First Date of Test:	December 13, 2011
Last Date of Test:	December 27, 2011
Receipt Date of Samples:	December 12, 2011
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
ITA-1 Monitoring Hub with Integral antenna. Contains 802.11b/g/n and Zigbee radios.

Testing Objective:
To demonstrate compliance of the Zigbee radio to FCC 15.247 specifications.

Configurations

Configuration 1 7LAY0059

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
ITA-1 Monitoring Hub	iTextAlert LLC	ITA-1	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Cable	V-Infinity	EPS050100	EPS050100-P5P
Dell Remote Laptop	Dell Corporation	RP05L	7T390 A03
AC/DC Adapter	Dell Corporation	AA22850	CN-0T2357-16291-446-046F

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Cable	No	1.8m	No	ITA-1 Monitoring Hub	AC Mains
USB Cable	No	2.0m	No	Dell Remote Laptop	ITA-1 Monitoring Hub
AC Cable	No	0.7m	No	AC/DC Adapter	AC Mains
DC Cable	No	1.2m	No	AC/DC Adapter	Dell Remote Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Modifications

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	12/13/2011	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	12/14/2011	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	12/20/2011	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.
4	12/20/2011	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.
5	12/21/2011	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.
6	12/27/2011	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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
Antenna, Horn	EMCO	3115	AHB	3/8/2011	24
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	10/13/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are 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 in a radiated configuration in a semi-anechoic chamber with the fundamental of the carrier full maximized for its highest radiated power. The EUT was transmitting at its maximum data rate with the typical modulation.

NORTHWEST
EMC

Occupied Bandwidth

XMit 2011.10.26
PsaTx 2011.09.28

EUT:	ITA-1			**Work Order:**	7LAY0059
Serial Number:	Not Available			**Date:**	12/27/11
Customer:	iTextAlert LLC			**Temperature:**	22.63°C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1012
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2011	ANSI C63.10:2009

COMMENTS

Power Level set to 16. Continously transmitting a modulating carrier wave.

DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

Channel	Value	Limit	Result
Low (2405 MHz)	1.478 MHz	> 500 kHz	Pass
Mid (2440 MHz)	1.480 MHz	> 500 kHz	Pass
High (2480 MHz)	1.484 MHz	> 500 kHz	Pass

Low

				Value	Limit	Result
				1.478 MHz	> 500 kHz	Pass

Mid

				Value	Limit	Result
				1.480 MHz	> 500 kHz	Pass

High

				Value	Limit	Result
				1.484 MHz	> 500 kHz	Pass

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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Power Level set to 16. Continously transmitting a modulating carrier wave.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

7LAY0059 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	2400 MHz	Stop Frequency	2480 MHz

CLOCKS AND OSCILLATORS

2405 MHz, 2440 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
Antenna, Horn	EMCO	3115	AHB	3/8/2011	24 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	10/13/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12 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 IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth was used.

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The radiated power was measured using a spectrum analyzer and horn antenna in a semi-anechoic chamber. The resolution bandwidth was set to 3 MHz and the video bandwidth was to set to 8 MHz. A peak detector was used. The EUT was transmitting at its maximum data rate. The level of fundamental emission was maximized by rotating the turntable and moving the measurement antenna from 1 – 4 meters in height.

The field strength measurement was converted to effective radiated power (EIRP) using the Friis transmission equation. A simplified version is found in ANSI C63.10:2009, Equation 5.

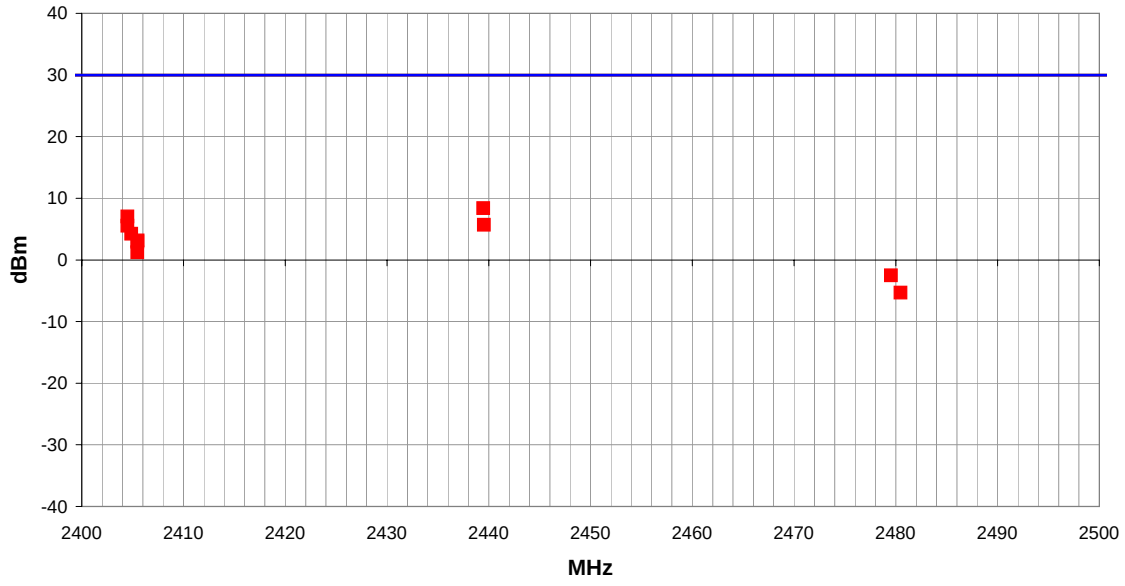
De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

OUTPUT POWER

Work Order:	7LAY0059	**Date:**	12/14/11		
Project:	None	**Temperature:**	17.84 °C		
Job Site:	OC10	**Humidity:**	46.3% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 16. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	EUT set to Y-Axis				

Test Specifications	**Test Method**
FCC 15.247:2011	ANSI C63.10:2009

Run #	1	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



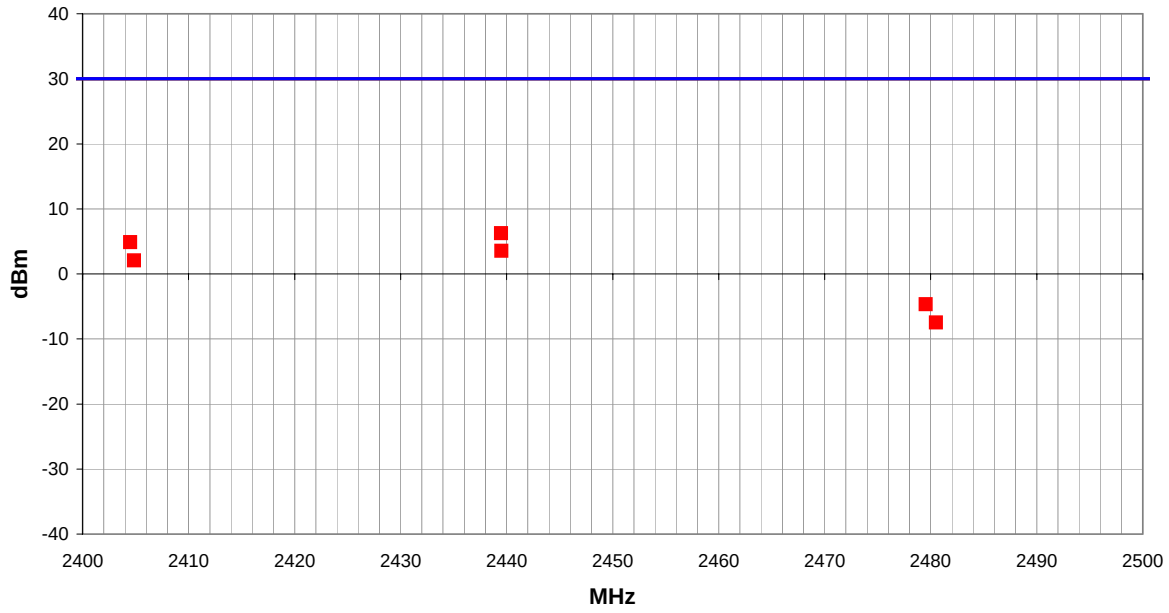
Freq (MHz)			Antenna Height (meters)	Azimuth (degrees)			Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2439.480			1.0	346.0			Vert	PK	6.90E-03	8.4	30.0	-21.6	Y-Axis
2404.498			1.2	245.0			Vert	PK	5.05E-03	7.0	30.0	-23.0	Y-Axis
2439.520			1.5	304.0			Horz	PK	3.71E-03	5.7	30.0	-24.3	Y-Axis
2404.485			1.2	316.0			Horz	PK	3.58E-03	5.5	30.0	-24.5	X-Axis
2404.872			1.2	297.0			Horz	PK	2.65E-03	4.2	30.0	-25.8	Y-Axis
2405.498			1.2	99.0			Vert	PK	2.06E-03	3.1	30.0	-26.9	Z-Axis
2405.472			1.2	98.0			Vert	PK	1.97E-03	2.9	30.0	-27.1	Z-Axis
2405.471			1.2	238.0			Vert	PK	1.33E-03	1.2	30.0	-28.8	X-Axis
2479.533			1.0	331.0			Vert	PK	5.59E-04	-2.5	30.0	-32.5	Y-Axis
2480.487			1.0	189.0			Horz	PK	2.93E-04	-5.3	30.0	-35.3	Y-Axis

OUTPUT POWER

Work Order:	7LAY0059	**Date:**	12/14/11		
Project:	None	**Temperature:**	17.84 °C		
Job Site:	OC10	**Humidity:**	46.3% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 16. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	EUT set to Y-Axis				

Test Specifications	**Test Method**
FCC 15.247:2011	ANSI C63.10:2009

Run #	1	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)			Antenna Height (meters)	Azimuth (degrees)			Polarity/ Transducer Type	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
2439.480			1.0	346.0			Vert	PK	4.21E-03	6.2	30.0	-23.8
2404.498			1.2	245.0			Vert	PK	3.08E-03	4.9	30.0	-25.1
2439.520			1.5	304.0			Horz	PK	2.26E-03	3.5	30.0	-26.5
2404.872			1.2	297.0			Horz	PK	1.62E-03	2.1	30.0	-27.9
2479.533			1.0	331.0			Vert	PK	3.40E-04	-4.7	30.0	-34.7
2480.487			1.0	189.0			Horz	PK	1.79E-04	-7.5	30.0	-37.5

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
Antenna, Horn	EMCO	3115	AHB	3/8/2011	24
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	10/13/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made in a radiated configuration in a semi-anechoic chamber with the fundamental of the carrier full maximized for its highest radiated power. The EUT was transmitting at its only data rate.

The spectrum was scanned across each band edge from at least 10 MHz below the band edge to 10 MHz above the band edge.

NORTHWEST
EMC

Band Edge Compliance

XMit 2011.10.26
PsaTx 2011.09.28

EUT:	ITA-1			**Work Order:**	7LAY0059
Serial Number:	None			**Date:**	12/20/11
Customer:	iTextAlert LLC			**Temperature:**	22.63°C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1012
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2011	ANSI C63.10:2009

COMMENTS

Power Level set to 16. Continously transmitting a modulating carrier wave.

DEVIATIONS FROM TEST STANDARD

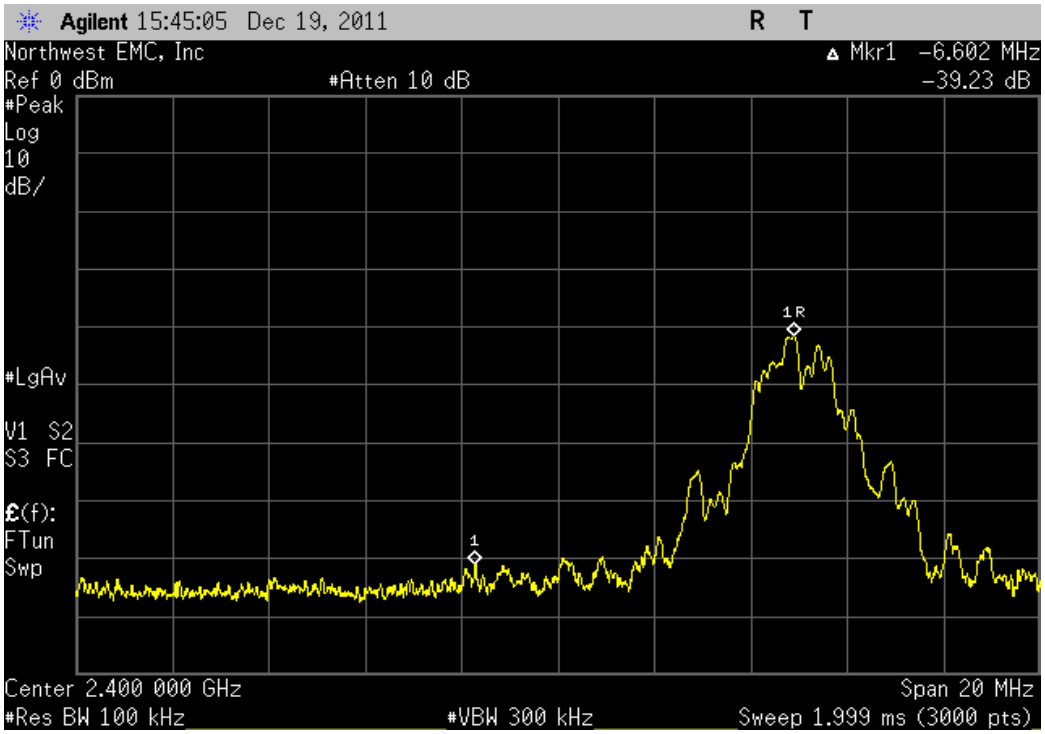
No Deviations

Configuration #	1	Signature

Channel	Value	Limit	Result
Low 2405 MHz	-39.23 dBc	≤ -20 dBc	Pass
High 2480 MHz	-28.93 dBc	≤ -20 dBc	Pass

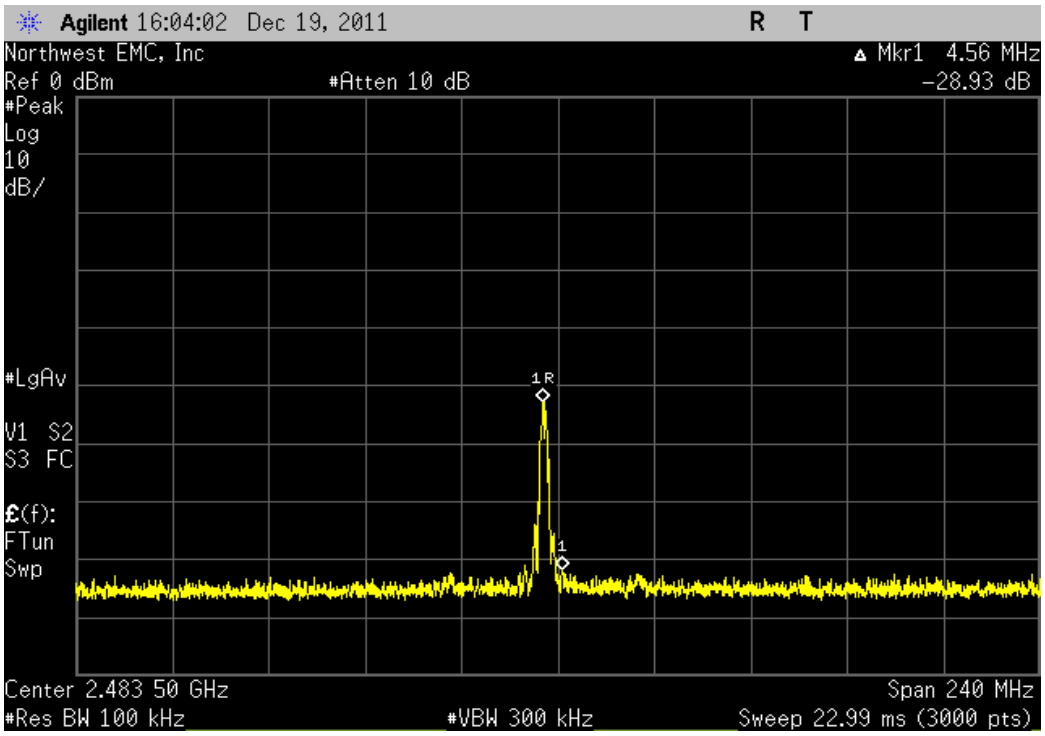
Low

				Value	Limit	Result
				-39.23 dBc	≤ -20 dBc	Pass



High

				Value	Limit	Result
				-28.93 dBc	≤ -20 dBc	Pass



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
Antenna, Horn	EMCO	3115	AHB	3/8/2011	24
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	6/10/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The peak power spectral density was measured with the EUT set to low, medium, and high transmit frequencies. The radiated power spectral density was measured using a spectrum analyzer and horn antenna in a semi-anechoic chamber. The EUT was transmitting at its maximum data rate for each modulation type available. The level of fundamental emission was maximized by rotating the turntable and moving the measurement antenna from 1 – 4 meters in height. Per the procedure outlined in ANSI C63.10:2009, 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. 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."

The field strength measurement of power spectral density was converted to effective radiated power spectral density (dBm/3kHz) (EIRP) using the Friis transmission equation. A simplified version is found in ANSI C63.10:2009, Equation 6.

NORTHWEST

EMC

POWER SPECTRAL DENSITY

XMit 2010.01.14

EUT:	**ITA-1**			**Work Order:**	**7LAY0059**
Serial Number:	**None**			**Date:**	**12/20/11**
Customer:	**iTextAlert LLC**			**Temperature:**	**22.63°C**
Attendees:	**None**			**Humidity:**	**33%**
Project:	**None**			**Barometric Pres.:**	**1012**
Tested by:	**Jaemi Suh**	**Power:**	**110VAC/60Hz**	**Job Site:**	**OC10**

TEST SPECIFICATIONS	Test Method
FCC 15.247:2011	ANSI C63.10:2009

COMMENTS

Zigbee Mode. Power Level Set to 17.

DEVIATIONS FROM TEST STANDARD

No Deviations

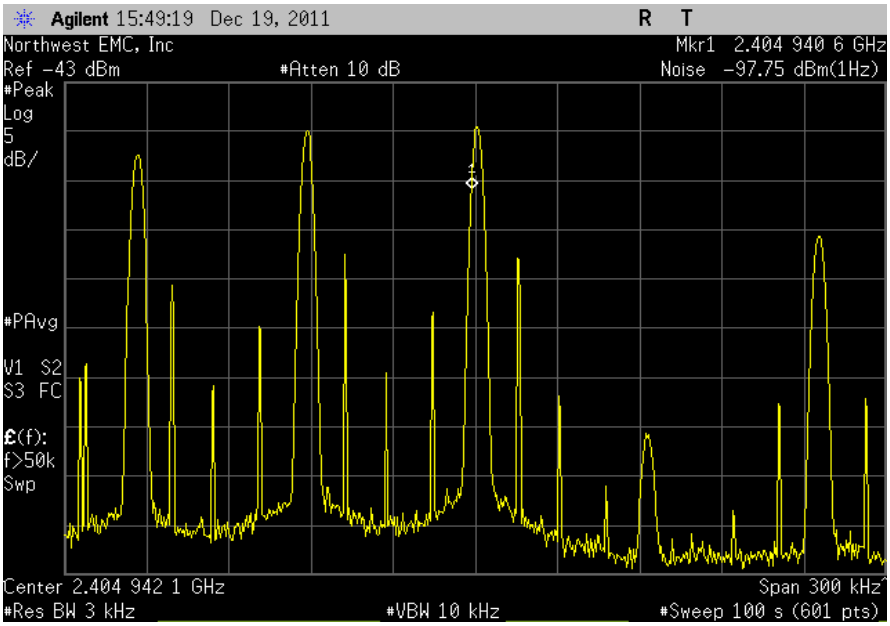
Configuration #	**1**	*Signature*

	Value	**Limit**	**Results**
Low Channel	-17.1 dBm/3kHz, EIRP	<= 8 dBm/3kHz	Pass
Mid Channel	-15.5 dBm/3kHz, EIRP	<= 8 dBm/3kHz	Pass
High Channel	-27.5 dBm/3kHz, EIRP	<= 8 dBm/3kHz	Pass

POWER SPECTRAL DENSITY

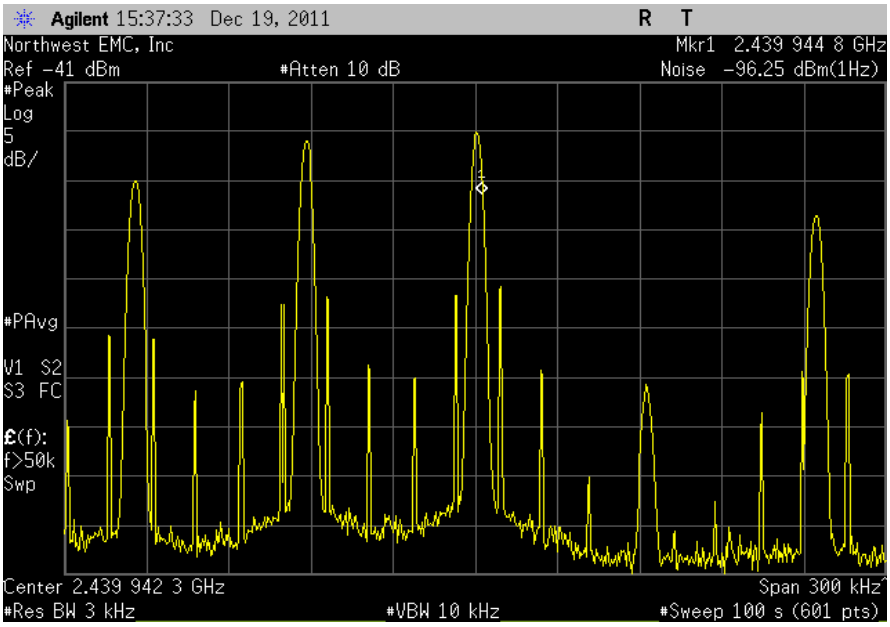
Low Channel					
Result:	Pass	**Value:**	-17.1 dBm/3kHz, EIRP	**Limit:**	<= 8 dBm/3kHz

Meter Reading (dBm/Hz)	Meter Reading (dBm/3kHz)	Factor (dB)	Field Strength PSD (dBm/3kHz/meter)	PSD EIRP (dBm/3kHz) (EIRP)
-97.75	-62.75	33.9	-28.85	-17.1



Mid Channel					
Result:	Pass	**Value:**	-15.5 dBm/3kHz, EIRP	**Limit:**	<= 8 dBm/3kHz

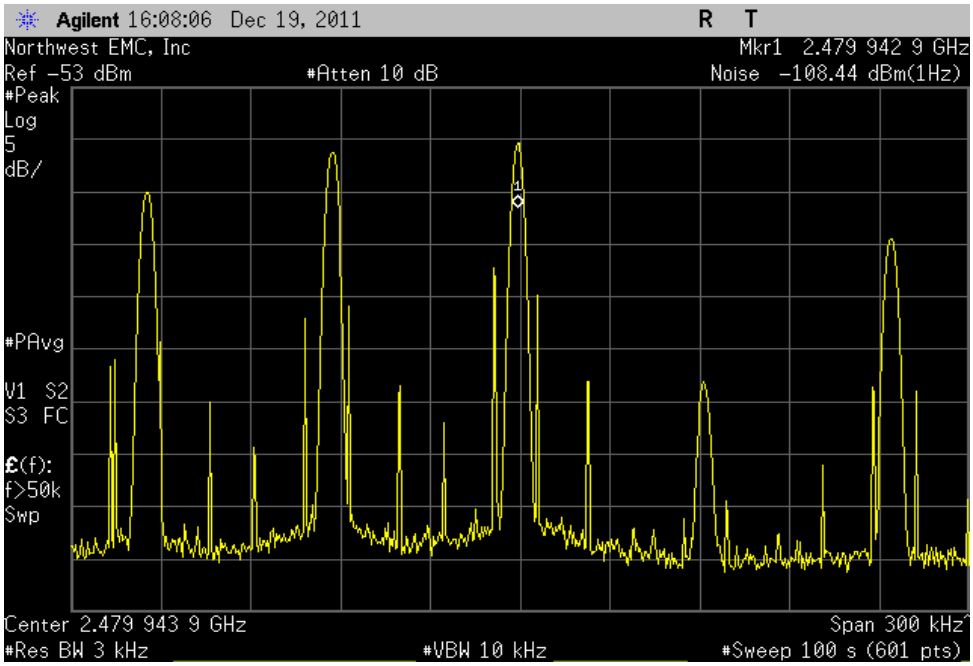
Meter Reading (dBm/Hz)	Meter Reading (dBm/3kHz)	Factor (dB)	Field Strength PSD (dBm/3kHz/meter)	PSD EIRP (dBm/3kHz) (EIRP)
-96.25	-61.25	34	-27.25	-15.5



POWER SPECTRAL DENSITY

High Channel					
Result:	Pass	**Value:**	-27.5 dBm/3kHz, EIRP	**Limit:**	<= 8 dBm/3kHz

Meter Reading (dBm/Hz)	Meter Reading (dBm/3kHz)	Factor (dB)	Field Strength PSD (dBm/3kHz/meter)	PSD EIRP (dBm/3kHz) (EIRP)
-108.44	-73.44	34.2	-39.24	-27.5



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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Power Level set to 16. Continously transmitting a modulating carrier wave.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

7LAY0059 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26 GHz

CLOCKS AND OSCILLATORS

2405 MHz, 2440 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	4/29/2011	12 mo
Antenna, Horn	EMCO	3160-09	AHN	NCR	0 mo
OC floating Cable	N/A	18-26GHz RE Cables	OCK	4/29/2011	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	11/21/2011	12 mo
Antenna, Horn	ETS	3160-08	AHT	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	11/21/2011	12 mo
Antenna, Horn	ETS	3160-07	AHR	NCR	0 mo
OC 10 Cables	N/A	12-18GHz RE Cables	OCO	10/13/2011	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	6/24/2011	12 mo
Antenna, Horn	EMCO	3115	AHB	3/8/2011	24 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	10/13/2011	12 mo
Antenna, Biconilog	EMCO	3142	AXB	3/28/2011	12 mo
OC10 Cables	N/A	10kHz-1GHz RE Cables	OCH	6/24/2011	12 mo
Pre-Amplifier	Miteq	AM-1064-9079	AOO	6/28/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12 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 IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth was used.

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

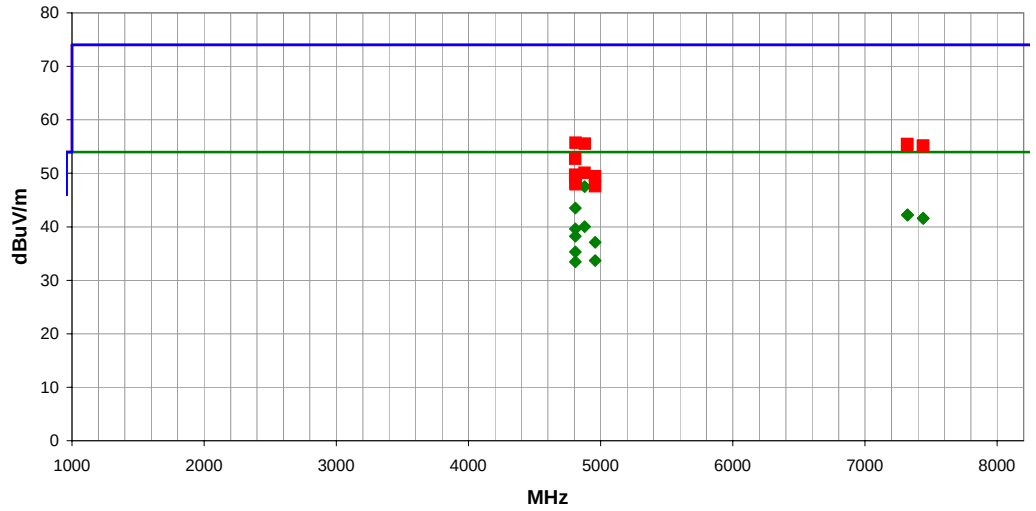
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify 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 C63.10:2009). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/21/11		
Project:	None	**Temperature:**	21.95 °C		
Job Site:	OC10	**Humidity:**	42.22% RH		
Serial Number:	None	**Barometric Pres.:**	1011 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 12. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.209:2011	ANSI C63.10:2009

Run #	4	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



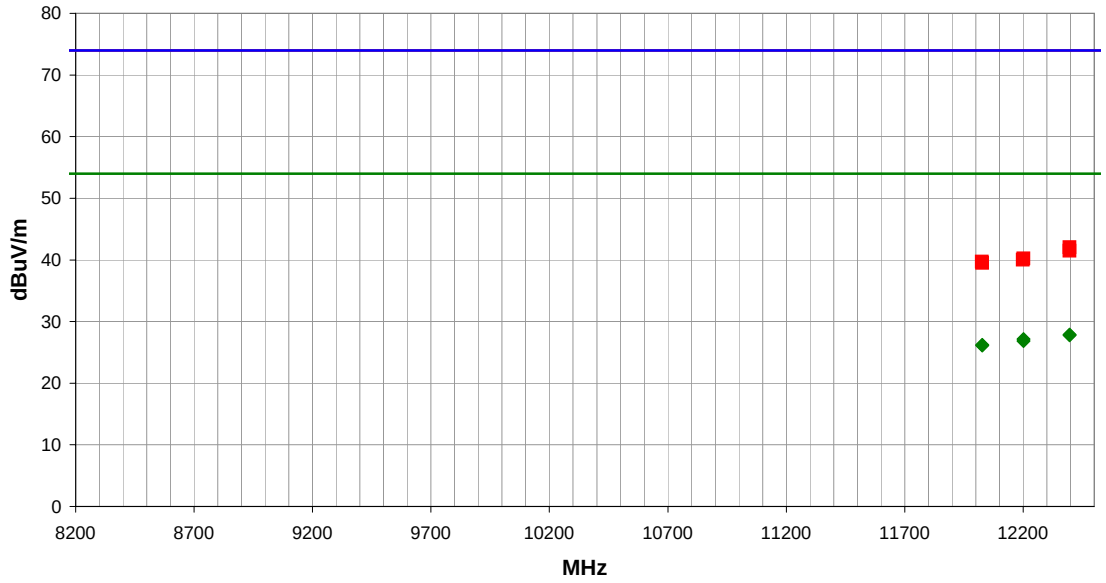
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4809.020	38.8	9.5	1.0	163.0	3.0	0.0	Vert	AV	0.0	48.3	54.0	-5.7	Ch.11, EUT vertical
4879.047	37.7	9.8	1.0	169.0	3.0	0.0	Horz	AV	0.0	47.5	54.0	-6.5	Ch.18, EUT vertical
4809.053	34.0	9.5	1.0	171.0	3.0	0.0	Horz	AV	0.0	43.5	54.0	-10.5	Ch.11, EUT on side
7321.553	25.6	16.7	1.0	219.0	3.0	0.0	Vert	AV	0.0	42.3	54.0	-11.7	Ch.18, EUT vertical
7321.640	25.5	16.7	1.0	142.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	Ch.18, EUT vertical
7439.667	25.0	16.6	2.3	245.0	3.0	0.0	Horz	AV	0.0	41.6	54.0	-12.4	Ch.26, EUT vertical
7438.813	25.0	16.6	1.0	263.0	3.0	0.0	Vert	AV	0.0	41.6	54.0	-12.4	Ch.26, EUT vertical
4879.067	30.2	9.8	1.0	52.0	3.0	0.0	Vert	AV	0.0	40.0	54.0	-14.0	Ch.18, EUT vertical
4809.007	30.1	9.5	1.0	132.0	3.0	0.0	Horz	AV	0.0	39.6	54.0	-14.4	Ch.11, EUT vertical
4809.047	28.7	9.5	1.0	243.0	3.0	0.0	Vert	AV	0.0	38.2	54.0	-15.8	Ch.11, EUT on side
4959.027	26.9	10.2	1.0	169.0	3.0	0.0	Vert	AV	0.0	37.1	54.0	-16.9	Ch.26, EUT vertical
4811.007	46.2	9.5	1.0	163.0	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	Ch.11, EUT vertical
4880.967	45.7	9.8	1.0	169.0	3.0	0.0	Horz	PK	0.0	55.5	74.0	-18.5	Ch.18, EUT vertical
7318.173	38.8	16.7	1.0	142.0	3.0	0.0	Horz	PK	0.0	55.5	74.0	-18.5	Ch.18, EUT vertical
7321.520	38.7	16.7	1.0	219.0	3.0	0.0	Vert	PK	0.0	55.4	74.0	-18.6	Ch.18, EUT vertical
4809.013	25.8	9.5	1.8	122.0	3.0	0.0	Horz	AV	0.0	35.3	54.0	-18.7	Ch.11. EUT horizontal
7439.033	38.6	16.6	1.0	263.0	3.0	0.0	Vert	PK	0.0	55.2	74.0	-18.8	Ch.26, EUT vertical
7439.507	38.5	16.6	2.3	245.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	Ch.26, EUT vertical
4959.047	23.5	10.2	1.0	331.0	3.0	0.0	Horz	AV	0.0	33.7	54.0	-20.3	Ch.26, EUT vertical
4808.987	23.9	9.5	2.7	36.0	3.0	0.0	Vert	AV	0.0	33.4	54.0	-20.6	Ch.11. EUT horizontal
4809.207	43.2	9.5	1.0	171.0	3.0	0.0	Horz	PK	0.0	52.7	74.0	-21.3	Ch.11, EUT on side
4878.800	40.3	9.8	1.0	52.0	3.0	0.0	Vert	PK	0.0	50.1	74.0	-23.9	Ch.18, EUT on vertical
4808.940	40.2	9.5	1.0	132.0	3.0	0.0	Horz	PK	0.0	49.7	74.0	-24.3	Ch.11, EUT vertical
4808.993	40.1	9.5	1.0	243.0	3.0	0.0	Vert	PK	0.0	49.6	74.0	-24.4	Ch.11, EUT on side
4959.160	39.2	10.2	1.0	169.0	3.0	0.0	Vert	PK	0.0	49.4	74.0	-24.6	Ch.26, EUT vertical
4811.093	38.7	9.5	2.7	36.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	Ch.11. EUT horizontal
4810.653	38.4	9.5	1.8	122.0	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	Ch.11. EUT horizontal
4958.580	37.4	10.2	1.0	331.0	3.0	0.0	Horz	PK	0.0	47.6	74.0	-26.4	Ch.26, EUT vertical

SPURIOUS RADIATED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/21/11		
Project:	None	**Temperature:**	21.95 °C		
Job Site:	OC10	**Humidity:**	42.22% RH		
Serial Number:	None	**Barometric Pres.:**	1011 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 12. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.209:2011	ANSI C63.10:2009

Run #	5	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



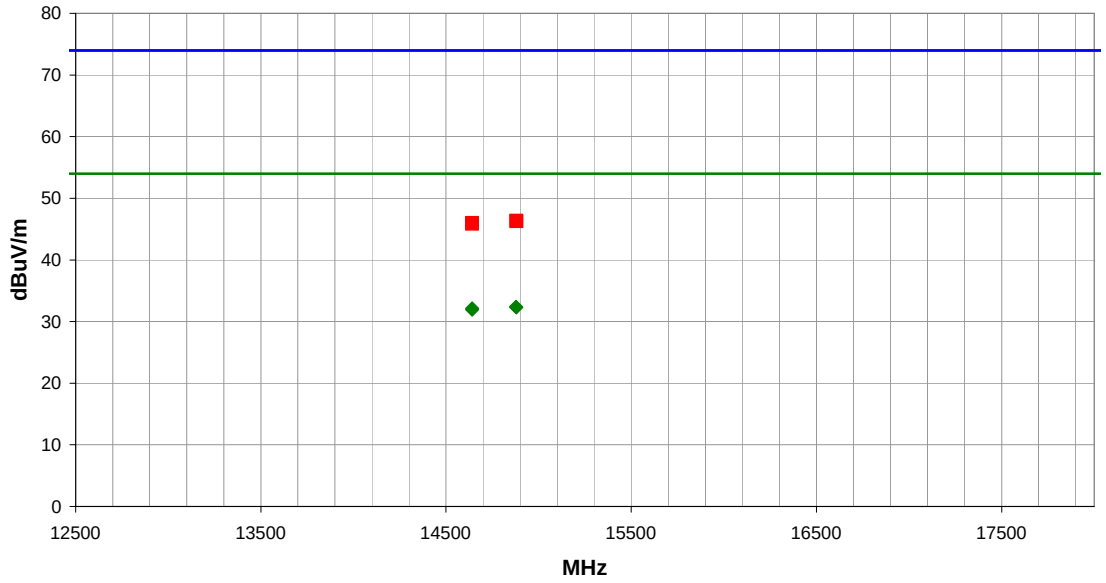
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
12396.030	34.1	-6.2	1.0	163.0	3.0	0.0	Vert	AV	0.0	27.9	54.0	-26.1	Ch.26, EUT vertical
12396.450	34.0	-6.2	1.0	309.0	3.0	0.0	Horz	AV	0.0	27.8	54.0	-26.2	Ch.26, EUT vertical
12201.960	34.5	-7.4	1.0	131.0	3.0	0.0	Vert	AV	0.0	27.1	54.0	-26.9	Ch.18, EUT vertical
12201.930	34.2	-7.4	3.1	1.0	3.0	0.0	Horz	AV	0.0	26.8	54.0	-27.2	Ch.18, EUT vertical
12026.880	34.6	-8.4	1.0	3.0	3.0	0.0	Horz	AV	0.0	26.2	54.0	-27.8	Ch.11, EUT vertical
12026.910	34.5	-8.4	1.2	146.0	3.0	0.0	Vert	AV	0.0	26.1	54.0	-27.9	Ch.11, EUT vertical
12396.020	48.3	-6.2	1.0	163.0	3.0	0.0	Vert	PK	0.0	42.1	74.0	-31.9	Ch.26, EUT vertical
12396.010	47.7	-6.2	1.0	309.0	3.0	0.0	Horz	PK	0.0	41.5	74.0	-32.5	Ch.26, EUT vertical
12201.590	47.6	-7.4	3.1	1.0	3.0	0.0	Horz	PK	0.0	40.2	74.0	-33.8	Ch.18, EUT vertical
12198.640	47.4	-7.4	1.0	131.0	3.0	0.0	Vert	PK	0.0	40.0	74.0	-34.0	Ch.18, EUT vertical
12025.450	48.1	-8.4	1.0	3.0	3.0	0.0	Horz	PK	0.0	39.7	74.0	-34.3	Ch.11, EUT vertical
12026.540	47.9	-8.4	1.2	146.0	3.0	0.0	Vert	PK	0.0	39.5	74.0	-34.5	Ch.11, EUT vertical

SPURIOUS RADIATED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/21/11		
Project:	None	**Temperature:**	21.95 °C		
Job Site:	OC10	**Humidity:**	42.22% RH		
Serial Number:	None	**Barometric Pres.:**	1011 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 12. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	Power Level set to 16				

Test Specifications	**Test Method**
FCC 15.209:2011	ANSI C63.10:2009

Run #	6	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



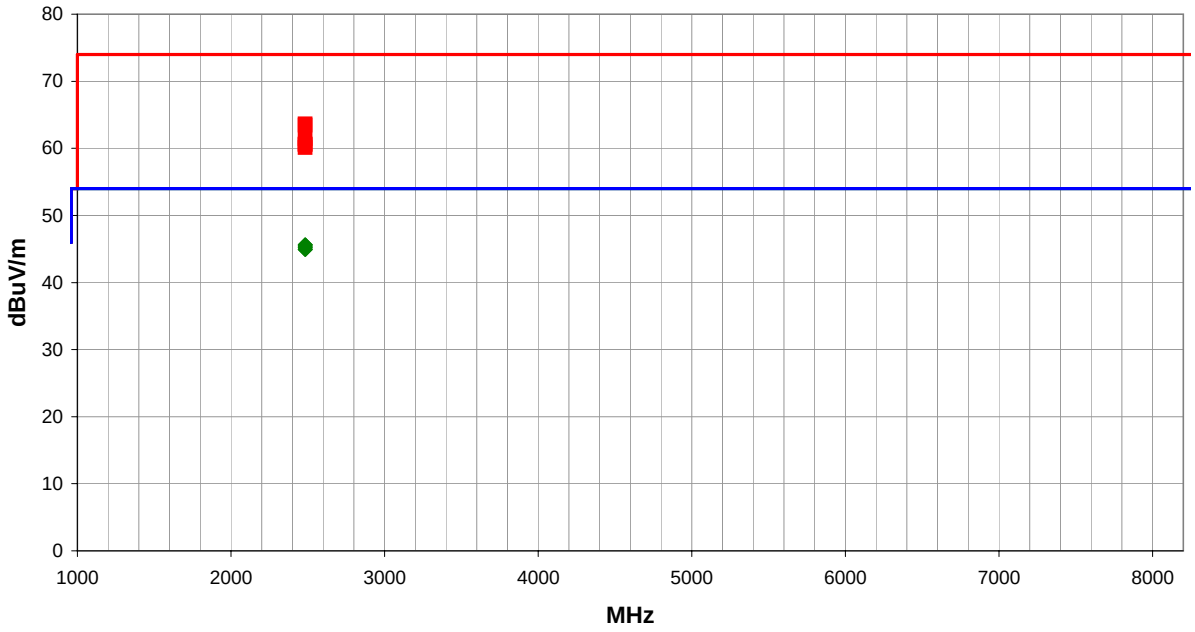
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
14878.030	27.5	4.9	1.0	305.0	3.0	0.0	Vert	AV	0.0	32.4	54.0	-21.6	Ch.26, EUT vertical
14878.690	27.4	4.9	2.1	62.0	3.0	0.0	Horz	AV	0.0	32.3	54.0	-21.7	Ch.26, EUT vertical
14641.530	27.4	4.7	1.0	4.0	3.0	0.0	Vert	AV	0.0	32.1	54.0	-21.9	Ch.18, EUT vertical
14641.630	27.2	4.7	2.6	337.0	3.0	0.0	Horz	AV	0.0	31.9	54.0	-22.1	Ch.18, EUT vertical
14880.140	41.5	4.9	2.1	62.0	3.0	0.0	Horz	PK	0.0	46.4	74.0	-27.6	Ch.26, EUT vertical
14881.900	41.4	4.9	1.0	305.0	3.0	0.0	Vert	PK	0.0	46.3	74.0	-27.7	Ch.26, EUT vertical
14641.480	41.3	4.7	2.6	337.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	Ch.18, EUT vertical
14641.310	41.1	4.7	1.0	4.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch.18, EUT vertical

SPURIOUS RADIATED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/22/11		
Project:	None	**Temperature:**	22.15 °C		
Job Site:	OC10	**Humidity:**	38.15% RH		
Serial Number:	None	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 12. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	Power Level set to 16				

Test Specifications	**Test Method**
FCC 15.209:2011	ANSI C63.10:2009

Run #	13	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



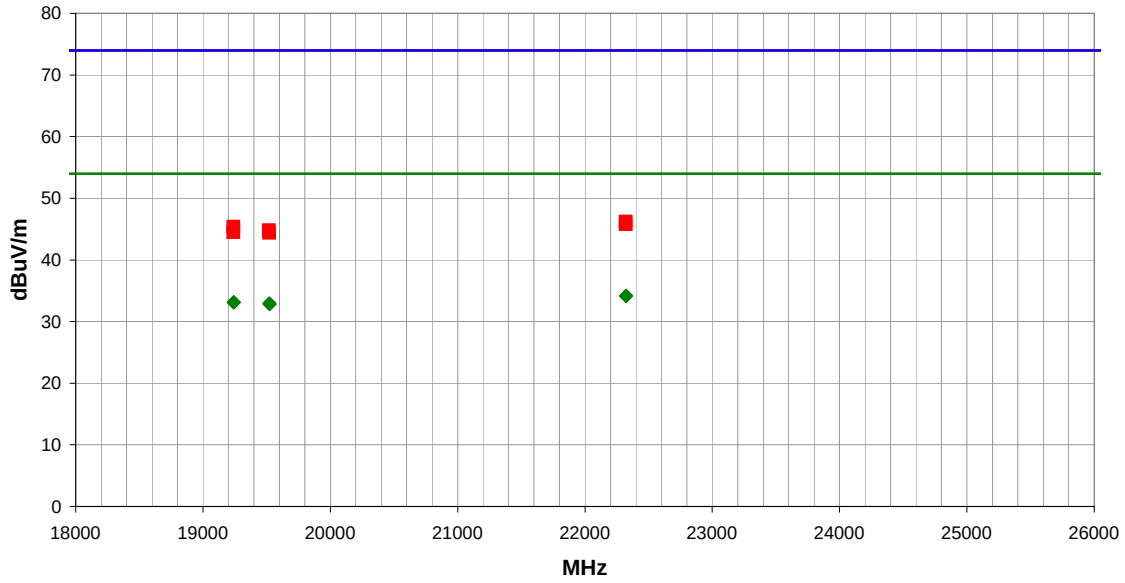
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	23.8	1.8	1.0	191.0	3.0	20.0	Horz	AV	0.0	45.6	54.0	-8.4	Y-Axis
2483.500	23.8	1.8	2.3	228.0	3.0	20.0	Horz	AV	0.0	45.6	54.0	-8.4	Z-Axis
2483.500	23.5	1.8	1.6	12.0	3.0	20.0	Horz	AV	0.0	45.3	54.0	-8.7	X-Axis
2483.500	23.4	1.8	2.2	232.0	3.0	20.0	Vert	AV	0.0	45.2	54.0	-8.8	X-Axis
2483.500	23.1	1.8	1.0	198.0	3.0	20.0	Vert	AV	0.0	44.9	54.0	-9.1	Y-Axis
2483.500	23.1	1.8	1.0	266.0	3.0	20.0	Vert	AV	0.0	44.9	54.0	-9.1	Z-Axis
2483.500	41.8	1.8	2.3	228.0	3.0	20.0	Horz	PK	0.0	63.6	74.0	-10.4	Z-Axis
2483.500	41.6	1.8	1.0	191.0	3.0	20.0	Horz	PK	0.0	63.4	74.0	-10.6	Y-Axis
2483.500	39.6	1.8	1.6	12.0	3.0	20.0	Horz	PK	0.0	61.4	74.0	-12.6	X-Axis
2483.500	38.8	1.8	1.0	266.0	3.0	20.0	Vert	PK	0.0	60.6	74.0	-13.4	Z-Axis
2483.500	38.7	1.8	2.2	232.0	3.0	20.0	Vert	PK	0.0	60.5	74.0	-13.5	X-Axis
2483.500	38.3	1.8	1.0	198.0	3.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	Y-Axis

SPURIOUS RADIATED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/21/11		
Project:	None	**Temperature:**	21.95 °C		
Job Site:	OC10	**Humidity:**	42.22% RH		
Serial Number:	None	**Barometric Pres.:**	1011 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 12. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	Power Level set to 16				

Test Specifications	**Test Method**
FCC 15.209:2011	ANSI C63.10:2009

Run #	14	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



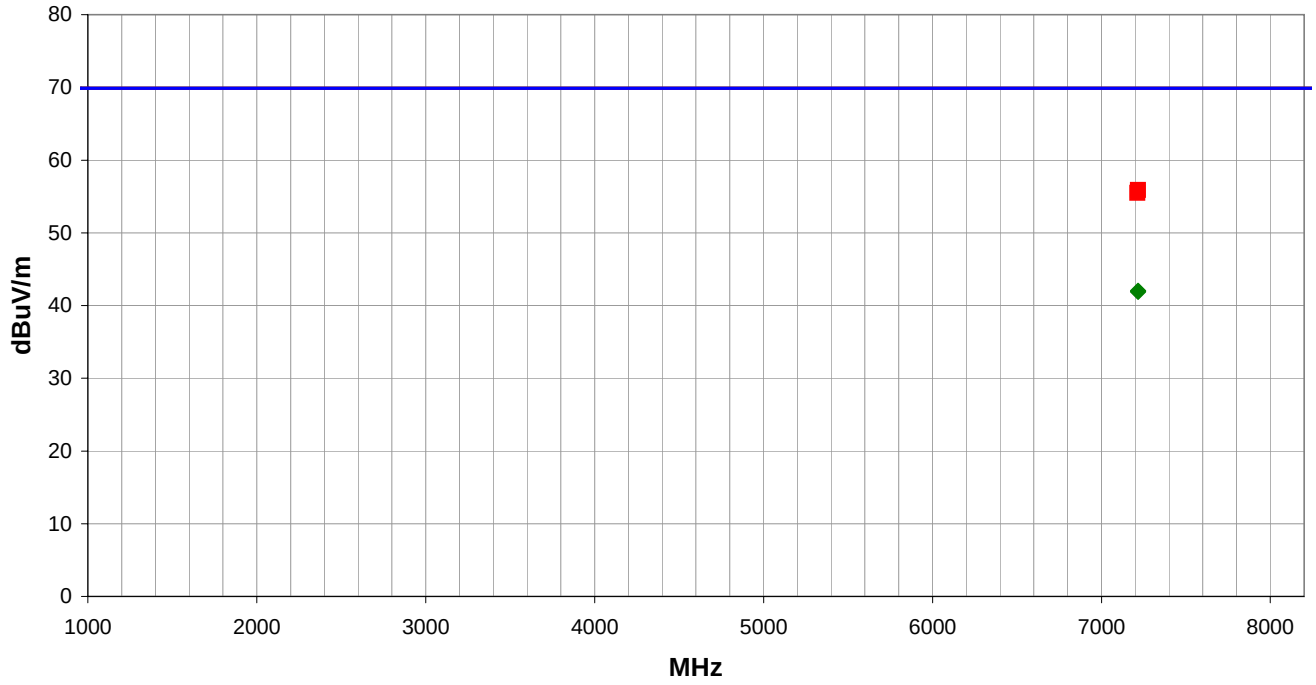
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
22321.870	31.7	2.5	1.0	0.0	3.0	0.0	Vert	AV	0.0	34.2	54.0	-19.8	Ch.26, EUT vertical
22322.000	31.6	2.5	1.0	0.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	Ch.26, EUT vertical
19241.650	33.3	-0.1	1.0	359.0	3.0	0.0	Horz	AV	0.0	33.2	54.0	-20.8	Ch.11, EUT vertical
19241.490	33.2	-0.1	1.0	359.0	3.0	0.0	Vert	AV	0.0	33.1	54.0	-20.9	Ch.11, EUT vertical
19521.790	32.8	0.2	1.0	0.0	3.0	0.0	Vert	AV	0.0	33.0	54.0	-21.0	Ch.18, EUT vertical
19521.950	32.6	0.2	1.0	0.0	3.0	0.0	Horz	AV	0.0	32.8	54.0	-21.2	Ch.18, EUT vertical
22321.090	43.7	2.5	1.0	0.0	3.0	0.0	Horz	PK	0.0	46.2	74.0	-27.8	Ch.26, EUT vertical
22320.870	43.3	2.5	1.0	0.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch.26, EUT vertical
19240.310	45.5	-0.1	1.0	359.0	3.0	0.0	Vert	PK	0.0	45.4	74.0	-28.6	Ch.11, EUT vertical
19518.550	44.6	0.2	1.0	0.0	3.0	0.0	Vert	PK	0.0	44.8	74.0	-29.2	Ch.18, EUT vertical
19240.170	44.6	-0.1	1.0	359.0	3.0	0.0	Horz	PK	0.0	44.5	74.0	-29.5	Ch.11, EUT vertical
19520.990	44.2	0.2	1.0	0.0	3.0	0.0	Horz	PK	0.0	44.4	74.0	-29.6	Ch.18, EUT vertical

SPURIOUS RADIATED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/21/11		
Project:	None	**Temperature:**	21.95 °C		
Job Site:	OC10	**Humidity:**	42.22% RH		
Serial Number:	None	**Barometric Pres.:**	1011 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Power Level set to 12. Continously transmitting a modulating carrier wave.				
Deviations:	None				
Comments:	Power Level set to 12. Limit = Lowest Radiated Output power - 20dB = 89.9 dBuV/m - 20dB = 69.9 dBuV/m				

Test Specifications	**Class B**	**Test Method**
FCC 15.247:2011		ANSI C63.10:2009

Run #	8	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
7216.807	25.5	16.5	1.0	28.0	3.0	0.0	Horz	AV	0.0	42.0	69.0	-12.0
7216.873	25.4	16.5	3.1	10.0	3.0	0.0	Vert	AV	0.0	41.9	69.0	-12.1
7216.987	39.4	16.5	3.1	10.0	3.0	0.0	Vert	PK	0.0	55.9	69.0	-18.1
7214.047	39.0	16.5	1.0	28.0	3.0	0.0	Horz	PK	0.0	55.5	69.0	-18.5

AC POWERLINE 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.

MODES OF OPERATION

Zigbee Radio. Transmitting at 2480 MHz. High Channel 26
Zigbee Radio. Transmitting at 2440 MHz. Mid Channel 18.
Zigbee Radio. Transmitting at 2405 MHz. Low Channel 11.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

7LAY0059-1

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-R-24-BNC	LIC	4/26/2011	12 mo
LISN	Solar	9252-50-24-BNC	LIA	6/13/2011	12 mo
Attenuator	Pasternack	6N10W-20	AWC	3/2/2011	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HFP	3/8/2010	24 mo
OC06 Cables	N/A	Telecom Cables	OCP	4/7/2011	12 mo
OC06 Cables	N/A	CE Cables	OCM	4/7/2011	12 mo
Receiver	Rohde & Schwarz	ESCI	ARF	4/1/2011	12 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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

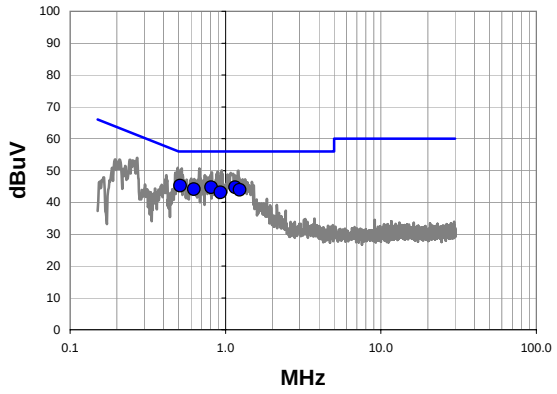
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/13/11		
Project:	None	**Temperature:**	18.43 °C		
Job Site:	OC06	**Humidity:**	47.15% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012.5 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Zigbee Radio. Transmitting at 2405 MHz. Low Channel 11.				
Deviations:	None				
Comments:	Power Level set to 16.				

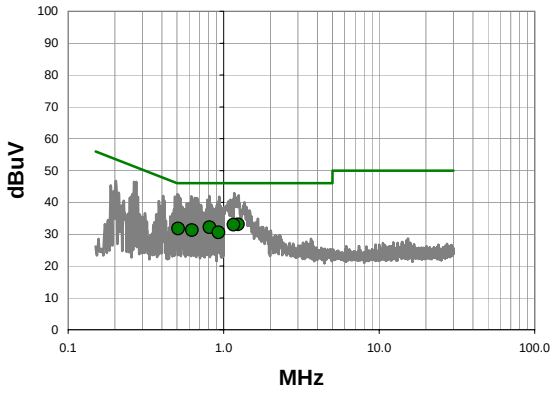
Test Specifications	**Test Method**
FCC 15.207:2011	ANSI C63.10:2009

Run #	10	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.510	25.1	20.1	45.2	56.0	-10.8
1.156	24.6	20.1	44.7	56.0	-11.3
0.810	24.6	20.1	44.7	56.0	-11.3
0.625	24.0	20.1	44.1	56.0	-11.9
1.236	23.8	20.1	43.9	56.0	-12.1
0.927	23.0	20.1	43.1	56.0	-12.9

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.236	13.0	20.1	33.1	46.0	-12.9
1.156	12.9	20.1	33.0	46.0	-13.0
0.810	12.1	20.1	32.2	46.0	-13.8
0.510	11.7	20.1	31.8	46.0	-14.2
0.625	11.2	20.1	31.3	46.0	-14.7
0.927	10.5	20.1	30.6	46.0	-15.4

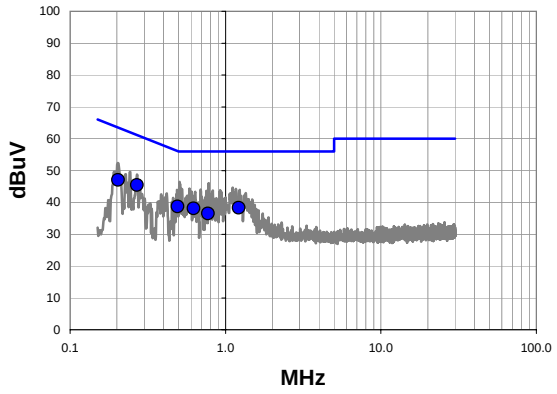
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/13/11		
Project:	None	**Temperature:**	18.43 °C		
Job Site:	OC06	**Humidity:**	47.15% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012.5 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Zigbee Radio. Transmitting at 2405 MHz. Low Channel 11.				
Deviations:	None				
Comments:	Power Level set to 16.				

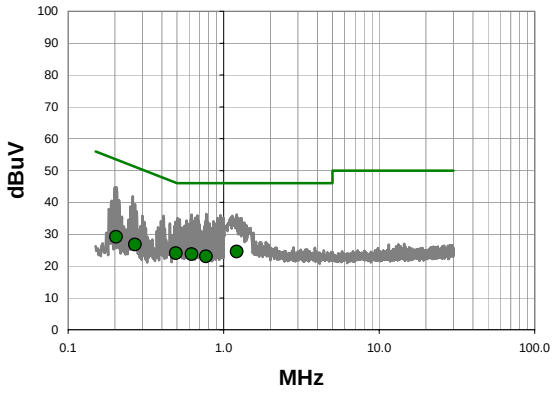
Test Specifications	**Test Method**
FCC 15.207:2011	ANSI C63.10:2009

Run #	9	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.269	25.3	20.1	45.4	61.1	-15.7
0.204	26.9	20.1	47.0	63.4	-16.4
0.493	18.6	20.1	38.7	56.1	-17.4
1.216	18.2	20.1	38.3	56.0	-17.7
0.623	18.0	20.1	38.1	56.0	-17.9
0.770	16.4	20.1	36.5	56.0	-19.5

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.216	4.4	20.1	24.5	46.0	-21.5
0.493	3.9	20.1	24.0	46.1	-22.1
0.623	3.6	20.1	23.7	46.0	-22.3
0.770	2.9	20.1	23.0	46.0	-23.0
0.204	9.0	20.1	29.1	53.4	-24.3
0.269	6.6	20.1	26.7	51.1	-24.4

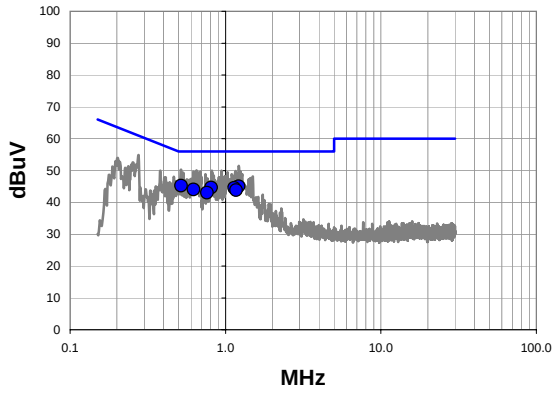
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/13/11		
Project:	None	**Temperature:**	18.43 °C		
Job Site:	OC06	**Humidity:**	47.15% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012.5 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Zigbee Radio. Transmitting at 2440 MHz. Mid Channel 18.				
Deviations:	None				
Comments:	Power Level set to 16				

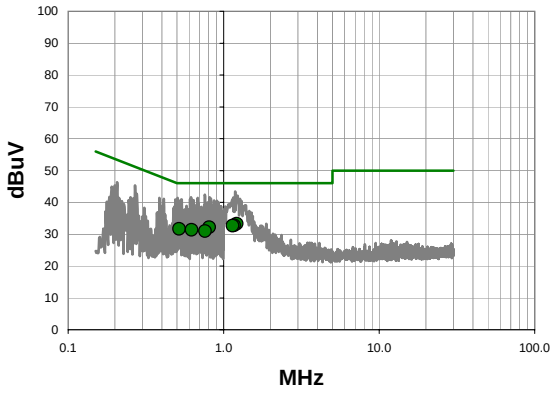
Test Specifications	**Test Method**
FCC 15.207:2011	ANSI C63.10:2009

Run #	11	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.517	25.1	20.1	45.2	56.0	-10.8
1.216	24.9	20.1	45.0	56.0	-11.0
0.809	24.5	20.1	44.6	56.0	-11.4
1.140	24.4	20.1	44.5	56.0	-11.5
0.624	23.9	20.1	44.0	56.0	-12.0
1.172	23.7	20.1	43.8	56.0	-12.2
0.761	22.9	20.1	43.0	56.0	-13.0

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.216	13.2	20.1	33.3	46.0	-12.7
1.172	12.7	20.1	32.8	46.0	-13.2
1.140	12.6	20.1	32.7	46.0	-13.3
0.809	12.1	20.1	32.2	46.0	-13.8
0.517	11.6	20.1	31.7	46.0	-14.3
0.624	11.3	20.1	31.4	46.0	-14.6
0.761	10.9	20.1	31.0	46.0	-15.0

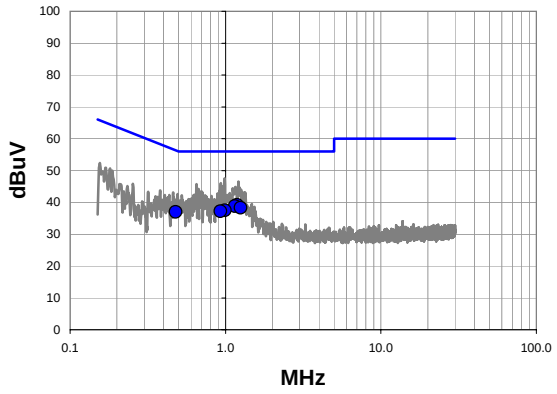
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/13/11		
Project:	None	**Temperature:**	18.43 °C		
Job Site:	OC06	**Humidity:**	47.15% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012.5 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Zigbee Radio. Transmitting at 2440 MHz. Mid Channel 18.				
Deviations:	None				
Comments:	Power Level set to 16				

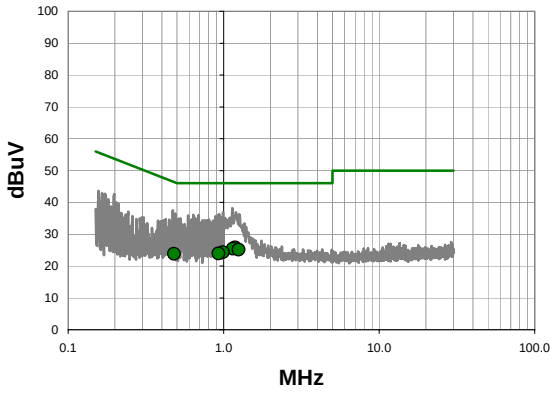
Test Specifications	**Test Method**
FCC 15.207:2011	ANSI C63.10:2009

Run #	12	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.188	19.1	20.1	39.2	56.0	-16.8
1.148	18.7	20.1	38.8	56.0	-17.2
1.252	18.2	20.1	38.3	56.0	-17.7
0.991	17.4	20.1	37.5	56.0	-18.5
0.929	17.1	20.1	37.2	56.0	-18.8
0.479	16.9	20.1	37.0	56.4	-19.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.188	5.7	20.1	25.8	46.0	-20.2
1.148	5.3	20.1	25.4	46.0	-20.6
1.252	5.0	20.1	25.1	46.0	-20.9
0.991	4.2	20.1	24.3	46.0	-21.7
0.929	3.8	20.1	23.9	46.0	-22.1
0.479	3.7	20.1	23.8	46.4	-22.6

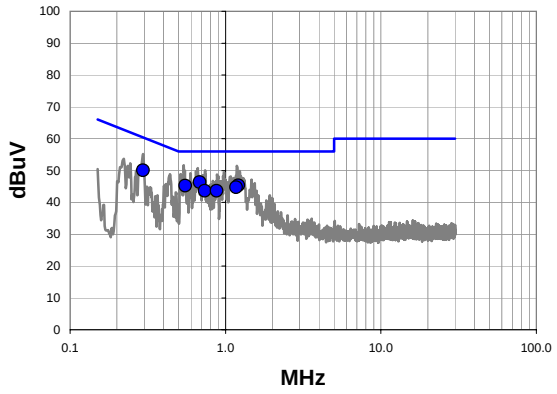
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/13/11		
Project:	None	**Temperature:**	18.43 °C		
Job Site:	OC06	**Humidity:**	47.15% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012.5 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Zigbee Radio. Transmitting at 2480 MHz. High Channel 26				
Deviations:	None				
Comments:	Power Level set to 16				

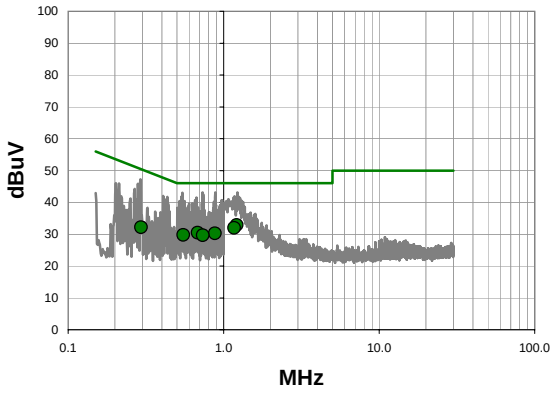
Test Specifications	**Test Method**
FCC 15.207:2011	ANSI C63.10:2009

Run #	13	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.681	26.2	20.1	46.3	56.0	-9.7
0.295	30.0	20.1	50.1	60.4	-10.3
1.212	25.2	20.1	45.3	56.0	-10.7
0.551	25.1	20.1	45.2	56.0	-10.8
1.172	24.6	20.1	44.7	56.0	-11.3
0.735	23.5	20.1	43.6	56.0	-12.4
0.879	23.5	20.1	43.6	56.0	-12.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.212	12.8	20.1	32.9	46.0	-13.1
1.172	11.9	20.1	32.0	46.0	-14.0
0.681	10.4	20.1	30.5	46.0	-15.5
0.879	10.2	20.1	30.3	46.0	-15.7
0.551	9.6	20.1	29.7	46.0	-16.3
0.735	9.5	20.1	29.6	46.0	-16.4
0.295	12.1	20.1	32.2	50.4	-18.2

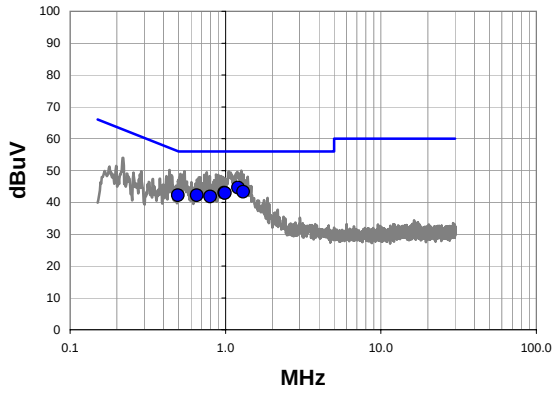
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	7LAY0059	**Date:**	12/13/11		
Project:	None	**Temperature:**	18.43 °C		
Job Site:	OC06	**Humidity:**	47.15% RH		
Serial Number:	Not Available	**Barometric Pres.:**	1012.5 mbar	**Tested by:**	Jaemi Suh
EUT:	ITA-1				
Configuration:	1				
Customer:	iTextAlert LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Zigbee Radio. Transmitting at 2480 MHz. High Channel 26				
Deviations:	None				
Comments:	Power Level set to 16				

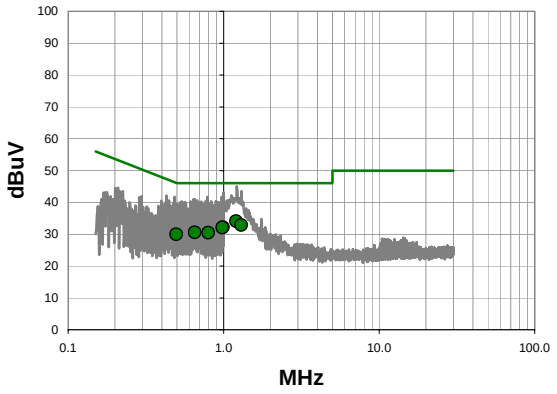
Test Specifications	**Test Method**
FCC 15.207:2011	ANSI C63.10:2009

Run #	14	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.204	24.5	20.1	44.6	56.0	-11.4
1.300	23.2	20.1	43.3	56.0	-12.7
0.981	22.9	20.1	43.0	56.0	-13.0
0.992	22.8	20.1	42.9	56.0	-13.1
0.653	22.1	20.1	42.2	56.0	-13.8
0.495	22.1	20.1	42.2	56.1	-13.9
0.796	21.7	20.1	41.8	56.0	-14.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.204	14.0	20.1	34.1	46.0	-11.9
1.300	12.8	20.1	32.9	46.0	-13.1
0.992	12.1	20.1	32.2	46.0	-13.8
0.981	12.0	20.1	32.1	46.0	-13.9
0.653	10.5	20.1	30.6	46.0	-15.4
0.796	10.4	20.1	30.5	46.0	-15.5
0.495	9.8	20.1	29.9	46.1	-16.2