

NORTHWEST EMC

Etherios Design Solutions

ConnectCore i.MX6 WiFi/Bluetooth

FCC 15.207:2015

FCC 15.247:2015

Report # ETHE0018.5



NVLAP Lab Code: 200881-0

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. This Report may only be duplicated in its entirety

CERTIFICATE OF TEST

Last Date of Test: January 26, 2015
Etherios Design Solutions
Model: ConnectCore i.MX6 WiFi/Bluetooth

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2015	ANSI C63.10:2009, KDB 558074 V3 (DTS)
FCC 15.207:2015	ANSI C63.10:2009

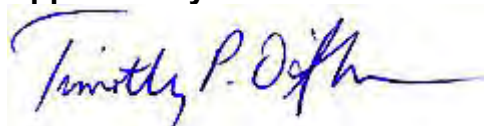
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	AC Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.7	Spurious Conducted Emissions	Yes	Pass	
6.7	Band Edge Compliance	Yes	Pass	
6.9.1	Occupied Bandwidth	Yes	Pass	
6.10.1	Output Power	Yes	Pass	
6.11.2	Power Spectral Density	Yes	Pass	
7.5	Duty Cycle	Yes	Pass	

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager

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. 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

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIP / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFTA – Recognized by OFTA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

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

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

MEASUREMENT UNCERTAINTY

Measurement Uncertainty

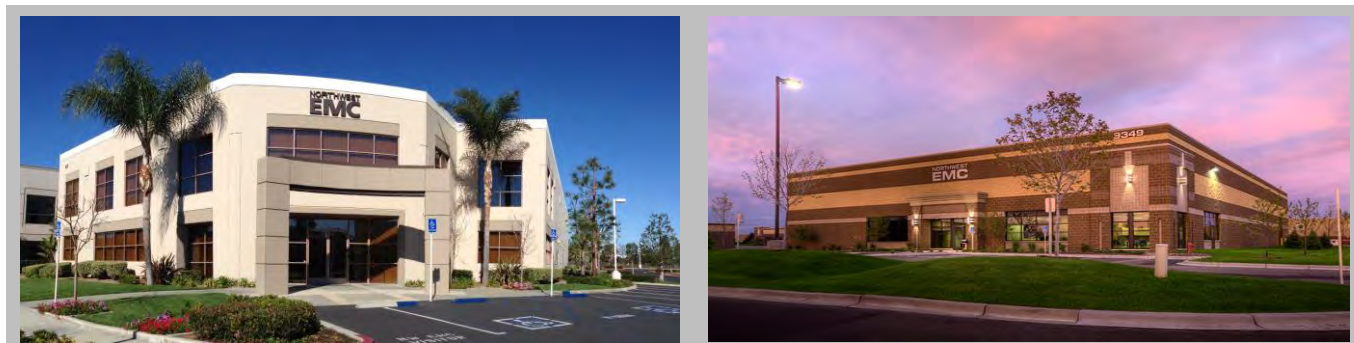
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

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 (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

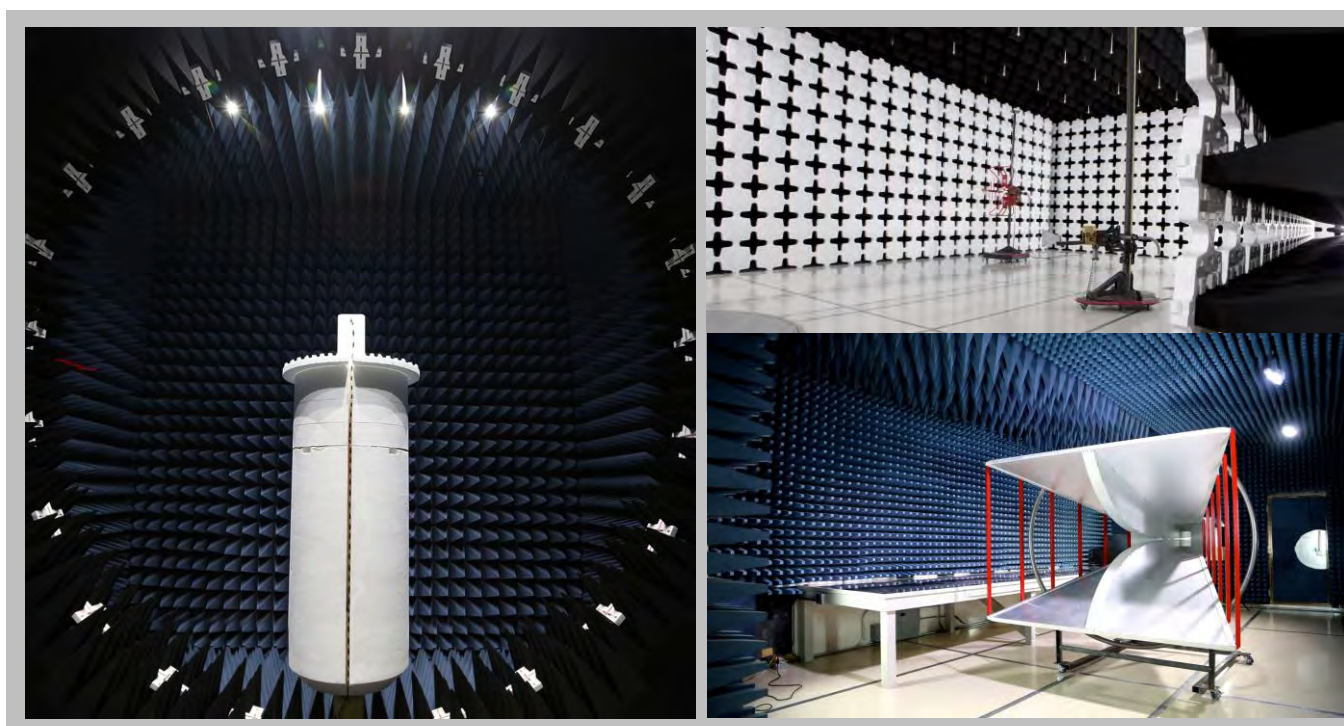
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.9 dB	-2.9 dB

FACILITIES



California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 9801 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Industry Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Digi International
Address:	11001 Bren Road East
City, State, Zip:	Minnetonka, MN 55343
Test Requested By:	Collin LaFave
Model:	ConnectCore i.MX6 WiFi/Bluetooth
First Date of Test:	January 06, 2015
Last Date of Test:	January 26, 2015
Receipt Date of Samples:	December 04, 2014
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
The EUT is an 802.11abgn SISO and Bluetooth 4.0 radio module with a Quad core i.MX6 processor. The device operates as a Wi-Fi client device and has no radar detection and no ad-hoc capability.
Testing Objective:
To demonstrate compliance of the Bluetooth Low Energy DTS radio to FCC 15.247 requirements.

CONFIGURATIONS

Configuration ETHE0018- 1

Software/Firmware Running during test					
Description				Version	
iPerf via command prompt				Unknown	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
ConnectCore i.MX6 Wi-Fi/Bluetooth	Etherios Design Solutions	5001475-02	00409D 7C03D2

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop Supply	Lenovo	92P1160	None
Laptop	Lenovo	T400	L3-A9984 08/09
DC Power Supply	EZ	GP-4303D	TPY

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Mains Cable	No	1.8m	No	AC Mains	Laptop Supply
USB to Serial	Yes	2.2m	No	Laptop	ConnectCore i.MX6 Wi-Fi/Bluetooth
AC Mains Cable	No	1.80m	No	AC Mains	Power Supply
DC Power	No	1.80m	Yes	Laptop Supply	Laptop
DC Power	No	1.20m	No	Power Supply	ConnectCore i.MX6 Wi-Fi/Bluetooth

CONFIGURATIONS

Configuration ETHE0018- 2

Software/Firmware Running during test					
Description				Version	
HyperTerminal				5.1.2600.0	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
AF Dual Band Antenna	Antenna Factor	ANT-DB1-RAF-XXX	None
ConnectCore i.MX6 Wi-Fi/Bluetooth	Etherios Design Solutions	50001475-02	00409D 7C0392

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop Supply	Lenovo	42T5276	None
Laptop	Lenovo	2738-CTO	L3-C2189 09/02
DC Power Supply	Sorensen	XEL 30-3D	TQE

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Mains Cable	No	1.8m	No	AC Mains	Laptop Supply
USB to Serial	Yes	2.2m	No	Laptop	ConnectCore i.MX6 Wi-Fi/Bluetooth
AC Mains Cable	No	1.80m	No	AC Mains	Power Supply
DC Power	No	1.80m	Yes	Laptop Supply	Laptop
DC Power	No	1.20m	No	Power Supply	ConnectCore i.MX6 Wi-Fi/Bluetooth

CONFIGURATIONS

Configuration ETHE0018- 3

Software/Firmware Running during test					
Description				Version	
HyperTerminal				5.1.2600.0	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Ethertronics Dipole Antenna	Ethertronics	1001932	None
ConnectCore i.MX6 Wi-Fi/Bluetooth	Etherios Design Solutions	50001475-02	00409D 7C0392

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop Supply	Lenovo	42T5276	None
Laptop	Lenovo	2738-CTO	L3-C2189 09/02
DC Power Supply	Sorensen	XEL 30-3D	TQE

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Mains Cable	No	1.8m	No	AC Mains	Laptop Supply
USB to Serial	Yes	2.2m	No	Laptop	ConnectCore i.MX6 Wi-Fi/Bluetooth
AC Mains Cable	No	1.80m	No	AC Mains	Power Supply
DC Power	No	1.80m	Yes	Laptop Supply	Laptop
DC Power	No	1.20m	No	Power Supply	ConnectCore i.MX6 Wi-Fi/Bluetooth

CONFIGURATIONS

Configuration ETHE0018- 4

Software/Firmware Running during test					
Description				Version	
HyperTerminal				5.1.2600.0	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Yageo Omni Antenna	Yageo	ANTX100P001B24003	None
ConnectCore i.MX6 Wi-Fi/Bluetooth	Etherios Design Solutions	50001475-02	00409D 7C0392

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop Supply	Lenovo	42T5276	None
Laptop	Lenovo	2738-CTO	L3-C2189 09/02
DC Power Supply	Sorensen	XEL 30-3D	TQE

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Mains Cable	No	1.8m	No	AC Mains	Laptop Supply
USB to Serial	Yes	2.2m	No	Laptop	ConnectCore i.MX6 Wi-Fi/Bluetooth
AC Mains Cable	No	1.80m	No	AC Mains	Power Supply
DC Power	No	1.80m	Yes	Laptop Supply	Laptop
DC Power	No	1.20m	No	Power Supply	ConnectCore i.MX6 Wi-Fi/Bluetooth

CONFIGURATIONS

Configuration ETHE0018- 5

Software/Firmware Running during test					
Description				Version	
iPerf via command prompt				Unknown	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
ConnectCore i.MX6 Wi-Fi/Bluetooth	Etherios Design Solutions	5001475-02	00409D 7C03D9

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop Supply	Lenovo	92P1160	None
Laptop	Lenovo	T400	L3-A9984 08/09
DC Power Supply	EZ	GP-4303D	TPY

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Mains Cable	No	1.8m	No	AC Mains	Laptop Supply
USB to Serial	Yes	2.2m	No	Laptop	ConnectCore i.MX6 Wi-Fi/Bluetooth
AC Mains Cable	No	1.80m	No	AC Mains	Power Supply
DC Power	No	1.80m	Yes	Laptop Supply	Laptop
DC Power	No	1.20m	No	Power Supply	ConnectCore i.MX6 Wi-Fi/Bluetooth

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	1/6/2015	Duty Cycle	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	1/6/2015	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.
3	1/6/2015	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	1/6/2015	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	1/6/2015	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	1/6/2015	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.
7	1/9/2015	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.
8	1/26/2015	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

AC POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	05/15/2014	12 mo
Attenuator 20dB, BNC	Fairview Microwave	SA01B-20	AQP	07/22/2014	12 mo
Receiver	Rohde & Schwarz	ESR7	ARI	05/06/2014	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HGN	05/23/2014	12 mo
MN03 Cables	ESM Cable Corp.	Conducted Cables	MNC	11/20/2014	12 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

ETHE0018-5

MODES INVESTIGATED

Transmitting BTLE High Channel 2480 MHz
Transmitting BTLE Low Channel 2402 MHz
Transmitting BTLE Mid Channel 2442 MHz

AC POWERLINE CONDUCTED EMISSIONS

EUT:	ConnectCore i.MX6 WiFi/Bluetooth	Work Order:	ETHE0018
Serial Number:	00409D 7C03CD	Date:	01/26/2015
Customer:	Etherios Design Solutions	Temperature:	18.1°C
Attendees:	None	Relative Humidity:	48.5%
Customer Project:	None	Bar. Pressure:	1007.4 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	5VDC	Configuration:	ETHE0018-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

TEST PARAMETERS

Run #:	10	Line:	Positive Lead	Ext. Attenuation (dB):	20
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COMMENTS

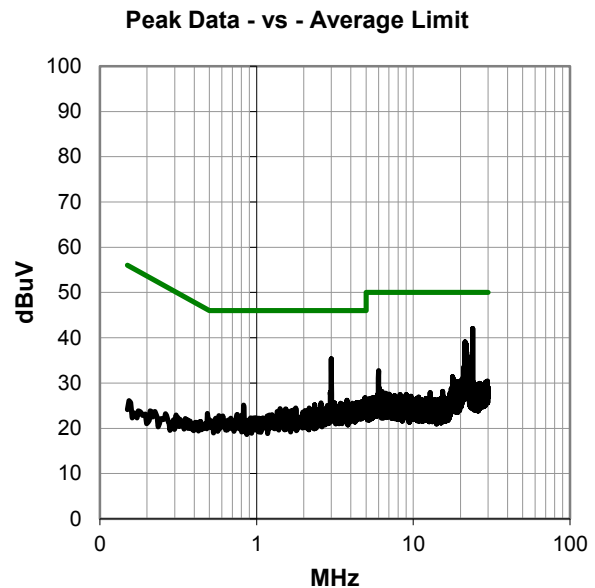
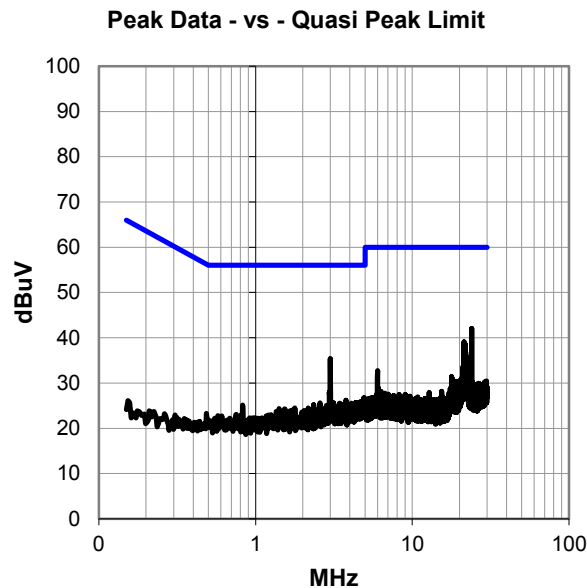
None

EUT OPERATING MODES

Transmitting BTLE Low Channel 2402 MHz
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DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	20.2	21.8	42.0	60.0	-18.0
2.997	15.0	20.3	35.3	56.0	-20.7
21.449	17.5	21.6	39.1	60.0	-20.9
21.789	16.9	21.6	38.5	60.0	-21.5
21.736	16.7	21.6	38.3	60.0	-21.7
21.621	16.6	21.6	38.2	60.0	-21.8
21.483	15.7	21.6	37.3	60.0	-22.7
21.867	15.6	21.6	37.2	60.0	-22.8
21.897	15.2	21.6	36.8	60.0	-23.2
21.595	15.1	21.6	36.7	60.0	-23.3
21.695	14.9	21.6	36.5	60.0	-23.5
21.945	14.6	21.7	36.3	60.0	-23.8
21.397	14.5	21.6	36.1	60.0	-23.9
21.382	14.5	21.6	36.1	60.0	-23.9
22.005	14.2	21.7	35.9	60.0	-24.1
21.468	14.1	21.6	35.7	60.0	-24.3
22.087	13.2	21.7	34.9	60.0	-25.1
22.136	12.9	21.7	34.6	60.0	-25.4
22.031	12.9	21.7	34.6	60.0	-25.4
21.289	12.2	21.6	33.8	60.0	-26.2
22.236	12.0	21.7	33.7	60.0	-26.3
21.121	12.1	21.6	33.7	60.0	-26.3
21.263	12.0	21.6	33.6	60.0	-26.4
21.154	11.6	21.6	33.2	60.0	-26.8
22.315	11.4	21.7	33.1	60.0	-26.9
22.206	11.1	21.7	32.8	60.0	-27.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	20.2	21.8	42.0	50.0	-8.0
2.997	15.0	20.3	35.3	46.0	-10.7
21.449	17.5	21.6	39.1	50.0	-10.9
21.789	16.9	21.6	38.5	50.0	-11.5
21.736	16.7	21.6	38.3	50.0	-11.7
21.621	16.6	21.6	38.2	50.0	-11.8
21.483	15.7	21.6	37.3	50.0	-12.7
21.867	15.6	21.6	37.2	50.0	-12.8
21.897	15.2	21.6	36.8	50.0	-13.2
21.595	15.1	21.6	36.7	50.0	-13.3
21.695	14.9	21.6	36.5	50.0	-13.5
21.945	14.6	21.7	36.3	50.0	-13.8
21.397	14.5	21.6	36.1	50.0	-13.9
21.382	14.5	21.6	36.1	50.0	-13.9
22.005	14.2	21.7	35.9	50.0	-14.1
21.468	14.1	21.6	35.7	50.0	-14.3
22.087	13.2	21.7	34.9	50.0	-15.1
22.136	12.9	21.7	34.6	50.0	-15.4
22.031	12.9	21.7	34.6	50.0	-15.4
21.289	12.2	21.6	33.8	50.0	-16.2
22.236	12.0	21.7	33.7	50.0	-16.3
21.121	12.1	21.6	33.7	50.0	-16.3
21.263	12.0	21.6	33.6	50.0	-16.4
21.154	11.6	21.6	33.2	50.0	-16.8
22.315	11.4	21.7	33.1	50.0	-16.9
22.206	11.1	21.7	32.8	50.0	-17.2

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	ConnectCore i.MX6 WiFi/Bluetooth	Work Order:	ETHE0018
Serial Number:	00409D 7C03CD	Date:	01/26/2015
Customer:	Etherios Design Solutions	Temperature:	18.1°C
Attendees:	None	Relative Humidity:	48.5%
Customer Project:	None	Bar. Pressure:	1007.4 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	5VDC	Configuration:	ETHE0018-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

TEST PARAMETERS

Run #:	11	Line:	Negative Lead	Ext. Attenuation (dB):	20
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COMMENTS

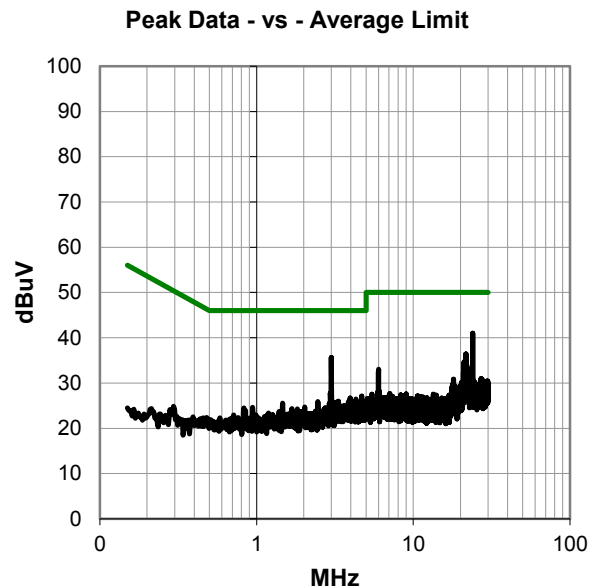
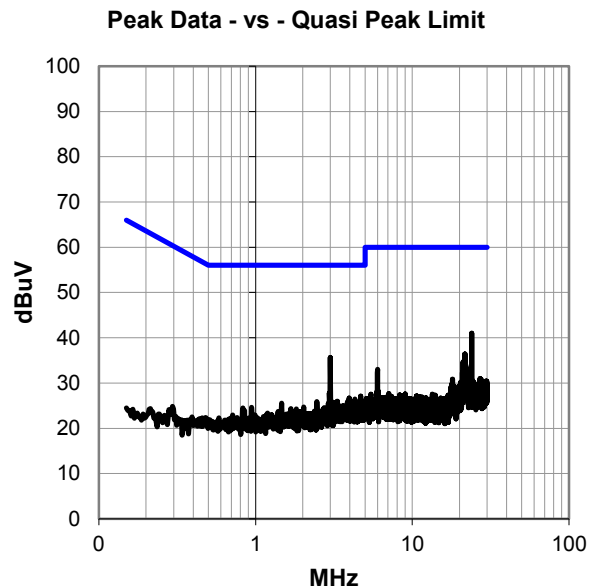
None

EUT OPERATING MODES

Transmitting BTLE Low Channel 2402 MHz
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DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.2	21.8	41.0	60.0	-19.0
3.000	15.3	20.3	35.6	56.0	-20.4
21.744	14.8	21.6	36.4	60.0	-23.6
21.636	14.7	21.6	36.3	60.0	-23.7
21.718	14.4	21.6	36.0	60.0	-24.0
21.576	14.1	21.6	35.7	60.0	-24.3
21.673	13.7	21.6	35.3	60.0	-24.7
21.606	13.7	21.6	35.3	60.0	-24.7
21.471	13.5	21.6	35.1	60.0	-24.9
21.818	13.4	21.6	35.0	60.0	-25.0
21.520	13.4	21.6	35.0	60.0	-25.0
21.695	13.2	21.6	34.8	60.0	-25.2
21.139	13.1	21.6	34.7	60.0	-25.3
21.781	12.5	21.6	34.1	60.0	-25.9
21.874	12.4	21.6	34.0	60.0	-26.0
21.997	11.6	21.7	33.3	60.0	-26.7
6.000	12.5	20.5	33.0	60.0	-27.0
21.423	11.4	21.6	33.0	60.0	-27.0
22.080	11.3	21.7	33.0	60.0	-27.0
21.956	11.3	21.7	33.0	60.0	-27.0
22.158	10.9	21.7	32.6	60.0	-27.4
21.352	10.8	21.6	32.4	60.0	-27.6
20.930	10.8	21.5	32.3	60.0	-27.7
21.281	10.6	21.6	32.2	60.0	-27.8
22.341	10.4	21.7	32.1	60.0	-27.9
20.990	10.4	21.6	32.0	60.0	-28.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.2	21.8	41.0	50.0	-9.0
3.000	15.3	20.3	35.6	46.0	-10.4
21.744	14.8	21.6	36.4	50.0	-13.6
21.636	14.7	21.6	36.3	50.0	-13.7
21.718	14.4	21.6	36.0	50.0	-14.0
21.576	14.1	21.6	35.7	50.0	-14.3
21.673	13.7	21.6	35.3	50.0	-14.7
21.606	13.7	21.6	35.3	50.0	-14.7
21.471	13.5	21.6	35.1	50.0	-14.9
21.818	13.4	21.6	35.0	50.0	-15.0
21.520	13.4	21.6	35.0	50.0	-15.0
21.695	13.2	21.6	34.8	50.0	-15.2
21.139	13.1	21.6	34.7	50.0	-15.3
21.781	12.5	21.6	34.1	50.0	-15.9
21.874	12.4	21.6	34.0	50.0	-16.0
21.997	11.6	21.7	33.3	50.0	-16.7
6.000	12.5	20.5	33.0	50.0	-17.0
21.423	11.4	21.6	33.0	50.0	-17.0
22.080	11.3	21.7	33.0	50.0	-17.0
21.956	11.3	21.7	33.0	50.0	-17.0
22.158	10.9	21.7	32.6	50.0	-17.4
21.352	10.8	21.6	32.4	50.0	-17.6
20.930	10.8	21.5	32.3	50.0	-17.7
21.281	10.6	21.6	32.2	50.0	-17.8
22.341	10.4	21.7	32.1	50.0	-17.9
20.990	10.4	21.6	32.0	50.0	-18.0

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	ConnectCore i.MX6 WiFi/Bluetooth	Work Order:	ETHE0018
Serial Number:	00409D 7C03CD	Date:	01/26/2015
Customer:	Etherios Design Solutions	Temperature:	18.1°C
Attendees:	None	Relative Humidity:	48.5%
Customer Project:	None	Bar. Pressure:	1007.4 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	5VDC	Configuration:	ETHE0018-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

TEST PARAMETERS

Run #:	12	Line:	Negative Lead	Ext. Attenuation (dB):	20
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COMMENTS

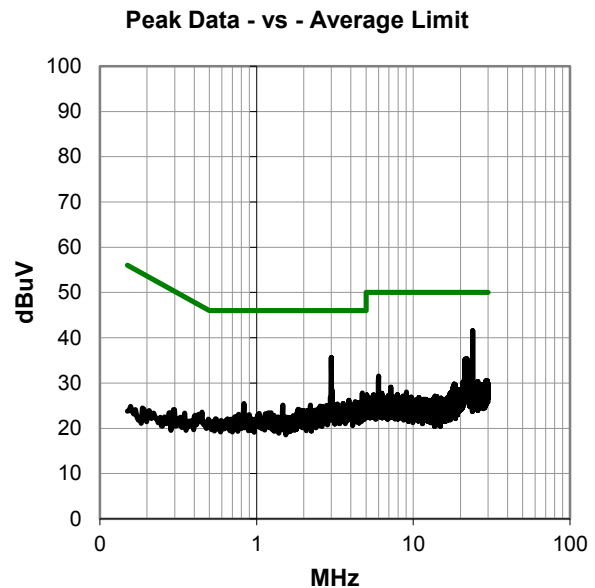
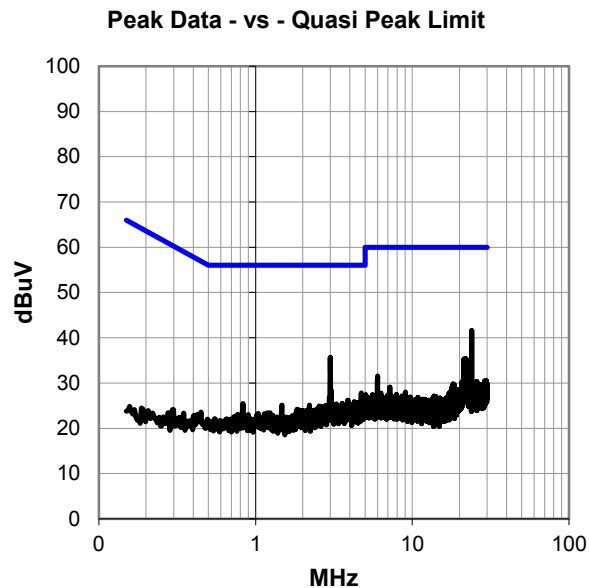
None

EUT OPERATING MODES

Transmitting BTLE Mid Channel 2442 MHz
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DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #12

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.7	21.8	41.5	60.0	-18.5
2.997	15.3	20.3	35.6	56.0	-20.4
21.986	13.7	21.7	35.4	60.0	-24.6
21.445	13.7	21.6	35.3	60.0	-24.7
21.539	13.6	21.6	35.2	60.0	-24.8
21.900	13.1	21.6	34.7	60.0	-25.3
21.673	12.8	21.6	34.4	60.0	-25.6
21.628	12.7	21.6	34.3	60.0	-25.7
21.404	12.6	21.6	34.2	60.0	-25.8
21.706	12.2	21.6	33.8	60.0	-26.2
21.938	11.8	21.6	33.4	60.0	-26.6
21.811	11.7	21.6	33.3	60.0	-26.7
22.061	11.3	21.7	33.0	60.0	-27.0
3.030	8.2	20.3	28.5	56.0	-27.5
22.136	10.7	21.7	32.4	60.0	-27.6
22.091	10.4	21.7	32.1	60.0	-27.9
4.720	7.4	20.4	27.8	56.0	-28.2
22.016	10.1	21.7	31.8	60.0	-28.2
6.000	11.0	20.5	31.5	60.0	-28.5
22.177	9.4	21.7	31.1	60.0	-28.9
22.333	9.3	21.7	31.0	60.0	-29.0
21.225	9.3	21.6	30.9	60.0	-29.1
2.967	6.5	20.3	26.8	56.0	-29.2
22.427	8.8	21.7	30.5	60.0	-29.5
29.041	8.1	22.4	30.5	60.0	-29.5
22.393	8.8	21.7	30.5	60.0	-29.5

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.7	21.8	41.5	50.0	-8.5
2.997	15.3	20.3	35.6	46.0	-10.4
21.986	13.7	21.7	35.4	50.0	-14.6
21.445	13.7	21.6	35.3	50.0	-14.7
21.539	13.6	21.6	35.2	50.0	-14.8
21.900	13.1	21.6	34.7	50.0	-15.3
21.673	12.8	21.6	34.4	50.0	-15.6
21.628	12.7	21.6	34.3	50.0	-15.7
21.404	12.6	21.6	34.2	50.0	-15.8
21.706	12.2	21.6	33.8	50.0	-16.2
21.938	11.8	21.6	33.4	50.0	-16.6
21.811	11.7	21.6	33.3	50.0	-16.7
22.061	11.3	21.7	33.0	50.0	-17.0
3.030	8.2	20.3	28.5	46.0	-17.5
22.136	10.7	21.7	32.4	50.0	-17.6
22.091	10.4	21.7	32.1	50.0	-17.9
4.720	7.4	20.4	27.8	46.0	-18.2
22.016	10.1	21.7	31.8	50.0	-18.2
6.000	11.0	20.5	31.5	50.0	-18.5
22.177	9.4	21.7	31.1	50.0	-18.9
22.333	9.3	21.7	31.0	50.0	-19.0
21.225	9.3	21.6	30.9	50.0	-19.1
2.967	6.5	20.3	26.8	46.0	-19.2
22.427	8.8	21.7	30.5	50.0	-19.5
29.041	8.1	22.4	30.5	50.0	-19.5
22.393	8.8	21.7	30.5	50.0	-19.5

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	ConnectCore i.MX6 WiFi/Bluetooth	Work Order:	ETHE0018
Serial Number:	00409D 7C03CD	Date:	01/26/2015
Customer:	Etherios Design Solutions	Temperature:	18.1°C
Attendees:	None	Relative Humidity:	48.5%
Customer Project:	None	Bar. Pressure:	1007.4 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	5VDC	Configuration:	ETHE0018-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

TEST PARAMETERS

Run #:	13	Line:	Positive Lead	Ext. Attenuation (dB):	20
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COMMENTS

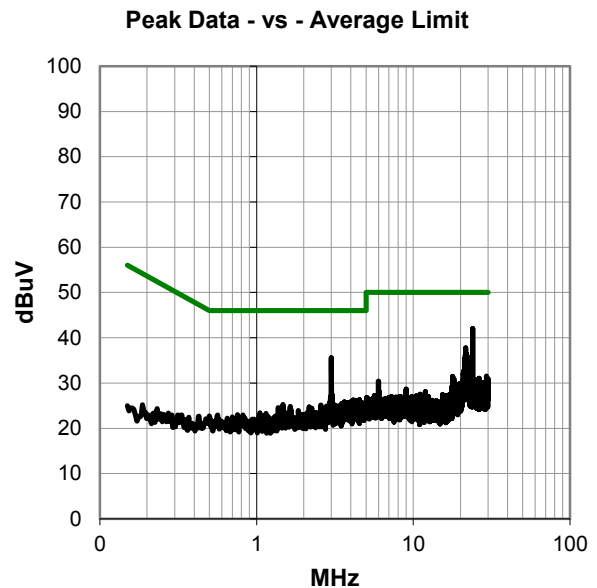
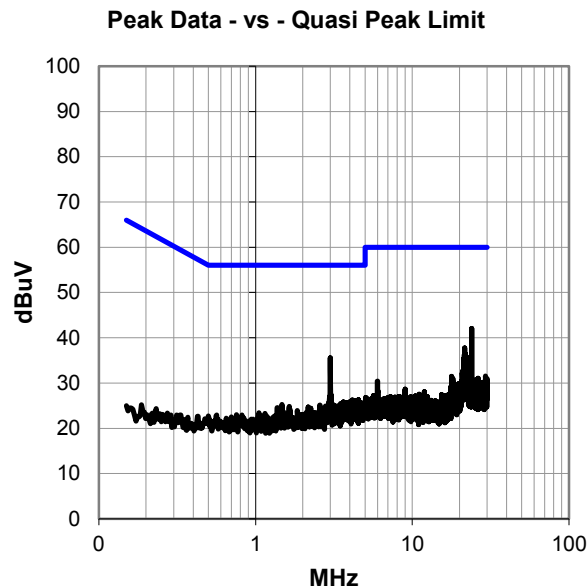
None

EUT OPERATING MODES

Transmitting BTLE Mid Channel 2442 MHz
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DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #13

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	20.2	21.8	42.0	60.0	-18.0
3.000	15.2	20.3	35.5	56.0	-20.5
21.658	16.1	21.6	37.7	60.0	-22.3
21.852	14.8	21.6	36.4	60.0	-23.6
21.468	14.7	21.6	36.3	60.0	-23.7
21.695	14.5	21.6	36.1	60.0	-23.9
22.098	14.2	21.7	35.9	60.0	-24.1
21.535	14.1	21.6	35.7	60.0	-24.3
21.822	13.7	21.6	35.3	60.0	-24.7
21.509	13.7	21.6	35.3	60.0	-24.7
21.908	13.5	21.6	35.1	60.0	-24.9
21.326	13.5	21.6	35.1	60.0	-24.9
21.886	13.4	21.6	35.0	60.0	-25.0
21.412	13.2	21.6	34.8	60.0	-25.2
21.997	13.0	21.7	34.7	60.0	-25.3
21.382	12.9	21.6	34.5	60.0	-25.5
21.975	12.8	21.7	34.5	60.0	-25.5
22.229	12.7	21.7	34.4	60.0	-25.6
22.039	11.8	21.7	33.5	60.0	-26.5
21.307	11.6	21.6	33.2	60.0	-26.8
22.199	11.4	21.7	33.1	60.0	-26.9
22.251	11.0	21.7	32.7	60.0	-27.3
21.042	11.1	21.6	32.7	60.0	-27.3
20.863	10.7	21.5	32.2	60.0	-27.8
21.113	10.4	21.6	32.0	60.0	-28.0
22.393	10.2	21.7	31.9	60.0	-28.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	20.2	21.8	42.0	50.0	-8.0
3.000	15.2	20.3	35.5	46.0	-10.5
21.658	16.1	21.6	37.7	50.0	-12.3
21.852	14.8	21.6	36.4	50.0	-13.6
21.468	14.7	21.6	36.3	50.0	-13.7
21.695	14.5	21.6	36.1	50.0	-13.9
22.098	14.2	21.7	35.9	50.0	-14.1
21.535	14.1	21.6	35.7	50.0	-14.3
21.822	13.7	21.6	35.3	50.0	-14.7
21.509	13.7	21.6	35.3	50.0	-14.7
21.908	13.5	21.6	35.1	50.0	-14.9
21.326	13.5	21.6	35.1	50.0	-14.9
21.886	13.4	21.6	35.0	50.0	-15.0
21.412	13.2	21.6	34.8	50.0	-15.2
21.997	13.0	21.7	34.7	50.0	-15.3
21.382	12.9	21.6	34.5	50.0	-15.5
21.975	12.8	21.7	34.5	50.0	-15.5
22.229	12.7	21.7	34.4	50.0	-15.6
22.039	11.8	21.7	33.5	50.0	-16.5
21.307	11.6	21.6	33.2	50.0	-16.8
22.199	11.4	21.7	33.1	50.0	-16.9
22.251	11.0	21.7	32.7	50.0	-17.3
21.042	11.1	21.6	32.7	50.0	-17.3
20.863	10.7	21.5	32.2	50.0	-17.8
21.113	10.4	21.6	32.0	50.0	-18.0
22.393	10.2	21.7	31.9	50.0	-18.1

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	ConnectCore i.MX6 WiFi/Bluetooth	Work Order:	ETHE0018
Serial Number:	00409D 7C03CD	Date:	01/26/2015
Customer:	Etherios Design Solutions	Temperature:	18.1°C
Attendees:	None	Relative Humidity:	48.5%
Customer Project:	None	Bar. Pressure:	1007.4 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	5VDC	Configuration:	ETHE0018-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

TEST PARAMETERS

Run #:	14	Line:	Positive Lead	Ext. Attenuation (dB):	20
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COMMENTS

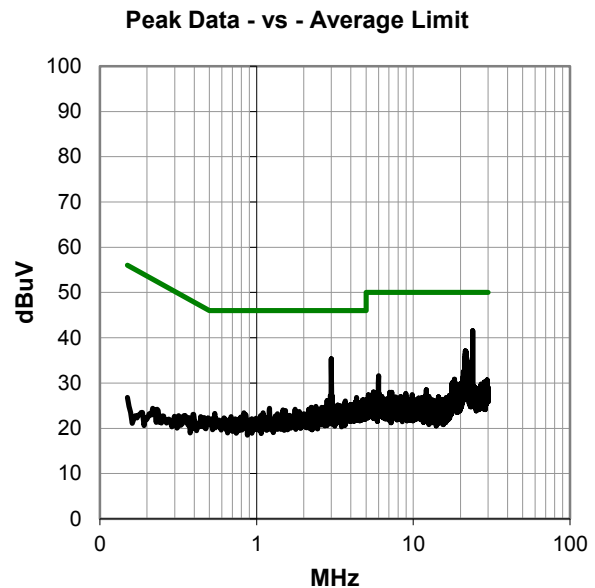
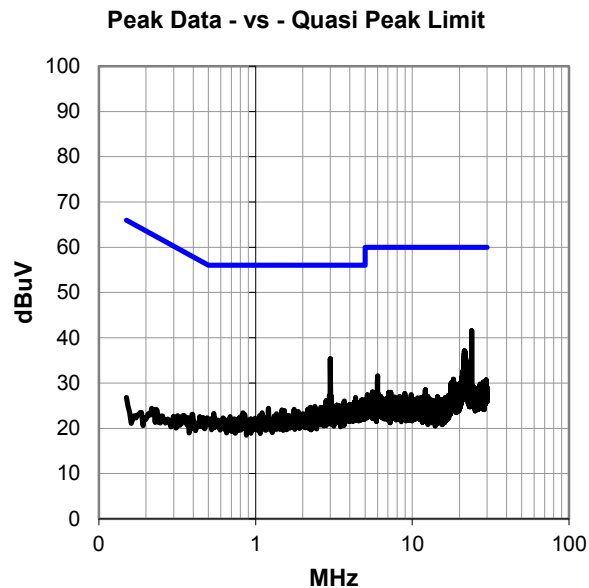
None

EUT OPERATING MODES

Transmitting BTLE High Channel 2480 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #14

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.7	21.8	41.5	60.0	-18.5
2.997	15.0	20.3	35.3	56.0	-20.7
21.542	15.5	21.6	37.1	60.0	-22.9
21.706	15.3	21.6	36.9	60.0	-23.1
21.647	15.0	21.6	36.6	60.0	-23.4
21.490	14.9	21.6	36.5	60.0	-23.5
21.613	14.6	21.6	36.2	60.0	-23.8
21.591	14.3	21.6	35.9	60.0	-24.1
21.531	14.2	21.6	35.8	60.0	-24.2
21.904	13.9	21.6	35.5	60.0	-24.5
21.266	13.9	21.6	35.5	60.0	-24.5
21.848	13.8	21.6	35.4	60.0	-24.6
21.822	13.8	21.6	35.4	60.0	-24.6
21.968	13.4	21.7	35.1	60.0	-24.9
22.012	13.2	21.7	34.9	60.0	-25.1
21.337	13.2	21.6	34.8	60.0	-25.2
21.934	12.9	21.6	34.5	60.0	-25.5
22.158	12.4	21.7	34.1	60.0	-25.9
22.065	12.4	21.7	34.1	60.0	-25.9
22.098	12.2	21.7	33.9	60.0	-26.1
21.378	12.2	21.6	33.8	60.0	-26.2
22.281	11.3	21.7	33.0	60.0	-27.0
22.195	11.1	21.7	32.8	60.0	-27.2
21.173	11.0	21.6	32.6	60.0	-27.4
20.923	11.0	21.5	32.5	60.0	-27.5
21.128	10.4	21.6	32.0	60.0	-28.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.7	21.8	41.5	50.0	-8.5
2.997	15.0	20.3	35.3	46.0	-10.7
21.542	15.5	21.6	37.1	50.0	-12.9
21.706	15.3	21.6	36.9	50.0	-13.1
21.647	15.0	21.6	36.6	50.0	-13.4
21.490	14.9	21.6	36.5	50.0	-13.5
21.613	14.6	21.6	36.2	50.0	-13.8
21.591	14.3	21.6	35.9	50.0	-14.1
21.531	14.2	21.6	35.8	50.0	-14.2
21.904	13.9	21.6	35.5	50.0	-14.5
21.266	13.9	21.6	35.5	50.0	-14.5
21.848	13.8	21.6	35.4	50.0	-14.6
21.822	13.8	21.6	35.4	50.0	-14.6
21.968	13.4	21.7	35.1	50.0	-14.9
22.012	13.2	21.7	34.9	50.0	-15.1
21.337	13.2	21.6	34.8	50.0	-15.2
21.934	12.9	21.6	34.5	50.0	-15.5
22.158	12.4	21.7	34.1	50.0	-15.9
22.065	12.4	21.7	34.1	50.0	-15.9
22.098	12.2	21.7	33.9	50.0	-16.1
21.378	12.2	21.6	33.8	50.0	-16.2
22.281	11.3	21.7	33.0	50.0	-17.0
22.195	11.1	21.7	32.8	50.0	-17.2
21.173	11.0	21.6	32.6	50.0	-17.4
20.923	11.0	21.5	32.5	50.0	-17.5
21.128	10.4	21.6	32.0	50.0	-18.0

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	ConnectCore i.MX6 WiFi/Bluetooth	Work Order:	ETHE0018
Serial Number:	00409D 7C03CD	Date:	01/26/2015
Customer:	Etherios Design Solutions	Temperature:	18.1°C
Attendees:	None	Relative Humidity:	48.5%
Customer Project:	None	Bar. Pressure:	1007.4 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	5VDC	Configuration:	ETHE0018-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

TEST PARAMETERS

Run #:	15	Line:	Negative Lead	Ext. Attenuation (dB):	20
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COMMENTS

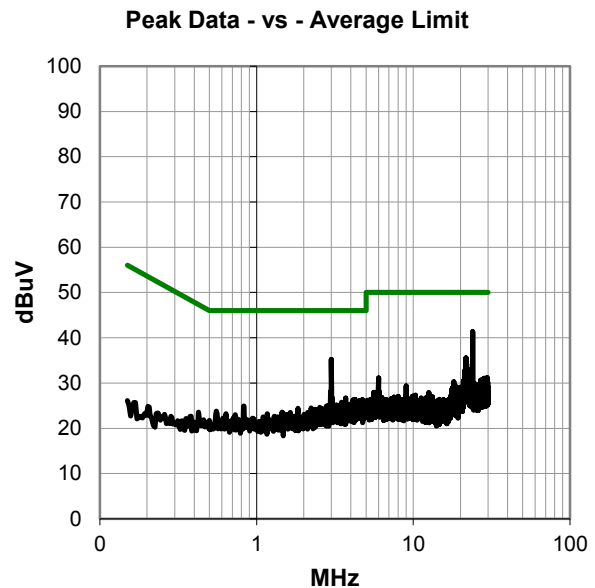
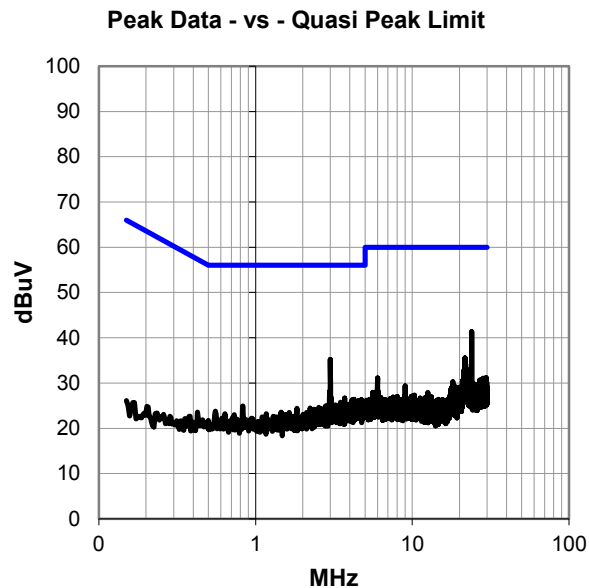
None

EUT OPERATING MODES

Transmitting BTLE High Channel 2480 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #15

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.5	21.8	41.3	60.0	-18.7
3.000	14.9	20.3	35.2	56.0	-20.8
21.710	13.9	21.6	35.5	60.0	-24.5
21.740	13.7	21.6	35.3	60.0	-24.7
21.673	13.1	21.6	34.7	60.0	-25.3
21.856	12.8	21.6	34.4	60.0	-25.6
21.639	12.7	21.6	34.3	60.0	-25.7
21.945	12.5	21.7	34.2	60.0	-25.9
21.565	12.2	21.6	33.8	60.0	-26.2
21.609	12.0	21.6	33.6	60.0	-26.4
21.520	11.5	21.6	33.1	60.0	-26.9
21.550	11.3	21.6	32.9	60.0	-27.1
21.445	11.1	21.6	32.7	60.0	-27.3
21.979	11.0	21.7	32.7	60.0	-27.3
21.389	11.0	21.6	32.6	60.0	-27.4
2.970	7.8	20.3	28.1	56.0	-27.9
29.627	8.7	22.5	31.2	60.0	-28.8
6.004	10.6	20.5	31.1	60.0	-28.9
28.429	8.7	22.3	31.0	60.0	-29.0
22.438	9.3	21.7	31.0	60.0	-29.0
21.318	9.4	21.6	31.0	60.0	-29.0
3.034	6.5	20.3	26.8	56.0	-29.2
22.412	9.1	21.7	30.8	60.0	-29.2
22.162	9.1	21.7	30.8	60.0	-29.2
27.459	8.5	22.2	30.7	60.0	-29.3
22.505	9.0	21.7	30.7	60.0	-29.3

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.997	19.5	21.8	41.3	50.0	-8.7
3.000	14.9	20.3	35.2	46.0	-10.8
21.710	13.9	21.6	35.5	50.0	-14.5
21.740	13.7	21.6	35.3	50.0	-14.7
21.673	13.1	21.6	34.7	50.0	-15.3
21.856	12.8	21.6	34.4	50.0	-15.6
21.639	12.7	21.6	34.3	50.0	-15.7
21.945	12.5	21.7	34.2	50.0	-15.9
21.565	12.2	21.6	33.8	50.0	-16.2
21.609	12.0	21.6	33.6	50.0	-16.4
21.520	11.5	21.6	33.1	50.0	-16.9
21.550	11.3	21.6	32.9	50.0	-17.1
21.445	11.1	21.6	32.7	50.0	-17.3
21.979	11.0	21.7	32.7	50.0	-17.3
21.389	11.0	21.6	32.6	50.0	-17.4
2.970	7.8	20.3	28.1	46.0	-17.9
29.627	8.7	22.5	31.2	50.0	-18.8
6.004	10.6	20.5	31.1	50.0	-18.9
28.429	8.7	22.3	31.0	50.0	-19.0
22.438	9.3	21.7	31.0	50.0	-19.0
21.318	9.4	21.6	31.0	50.0	-19.0
3.034	6.5	20.3	26.8	46.0	-19.2
22.412	9.1	21.7	30.8	50.0	-19.2
22.162	9.1	21.7	30.8	50.0	-19.2
27.459	8.5	22.2	30.7	50.0	-19.3
22.505	9.0	21.7	30.7	50.0	-19.3

CONCLUSION

Pass



Tested By

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

Transmitting BLE. Low, Mid, High Channel @ 2402, 2442, 2480 MHz.

POWER SETTINGS INVESTIGATED

5VDC

CONFIGURATIONS INVESTIGATED

ETHE0018 - 2

ETHE0018 - 3

ETHE0018 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	25000 MHz
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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
High Pass Filter	Micro-Tronics	HPM50111	HHX	8/18/2014	12 mo
Low Pass Filter	Micro-Tronics	LPM50004	HHV	8/18/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	PAK	10/27/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	PAL	10/27/2015	12 mo
TX02 Cable	NWEMC	8-18GHz	TXD	10/27/2016	12mo
Pre-Amplifier	Miteq	JSDQK42-18004000-60-5P	PAM	11/21/2014	12 mo
Cable	NWEMC	18-40GHz	TXE	11/21/2014	12 mo
Antenna, Double Ridge Guide Horn	A.H. Systems, Inc.	SAS-574	AXW	4/23/2014	36 mo
Antenna, Horn	ETS Lindgren	3160-08	AJG	NCR	0 mo
Antenna, Horn	ETS Lindgren	3160-07	AJF	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	9/22/2014	12 mo
TX02 Cable	NWEMC	1-8.2 GHz	TXC	9/22/2014	12 mo
Antenna, Horn	ETS Lindgren	3115	AJL	9/15/2014	24 mo
Pre-Amplifier	Miteq	AM-1551	PAH	9/13/2014	12 mo
TX02 Cable	N/A	RE 9kHz - 1GHz	TXB	9/22/2014	12 mo
Attenuator	Fairview Microwave	SA18H-20	TKQ	12/8/2014	0 mo
Antenna, Biconilog	ETS Lindgren	3143B	AYF	4/7/2014	36 mo
Spectrum Analyzer	Agilent	N9010A	AFL	6/20/2014	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

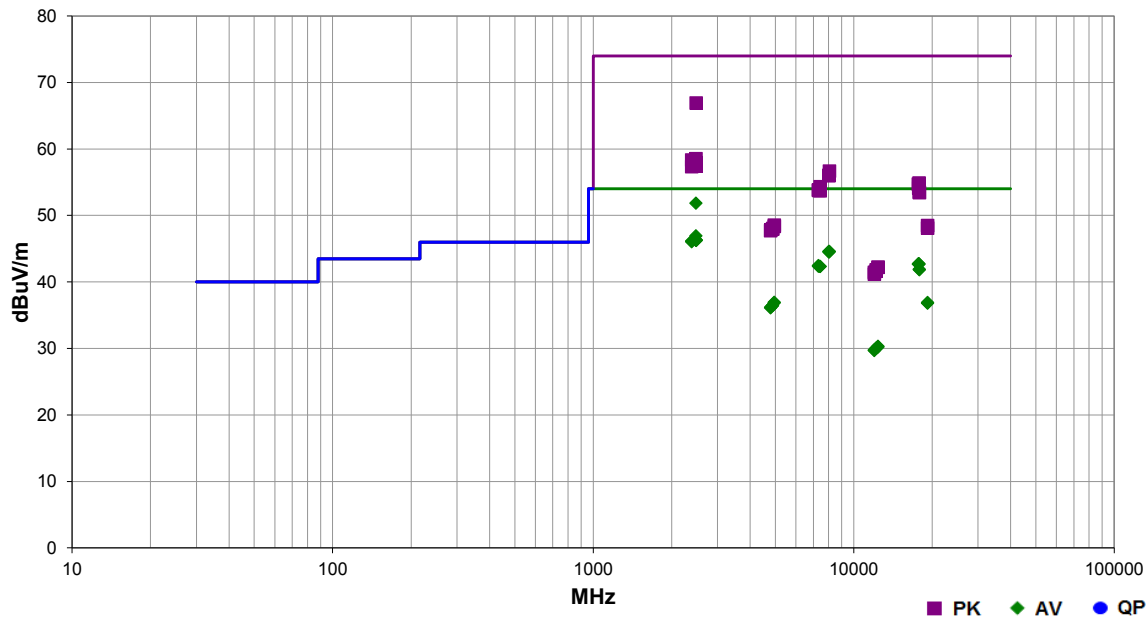
TEST DESCRIPTION

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. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Work Order:	ETHE0018	Date:	01/09/15	
Project:	None	Temperature:	22.1 °C	
Job Site:	TX02	Humidity:	15.4% RH	
Serial Number:	None	Barometric Pres.:	1035 mbar	
EUT: ConnectCore i.MX6 WiFi/Bluetooth				Tested by: Jonathan Kiefer
Configuration:	3			
Customer:	Etherios Design Solutions			
Attendees:	None			
EUT Power:	5VDC			
Operating Mode:	Transmitting BLE, Low, Mid, High Channel @ 2402, 2442, 2480 MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

Run #	61	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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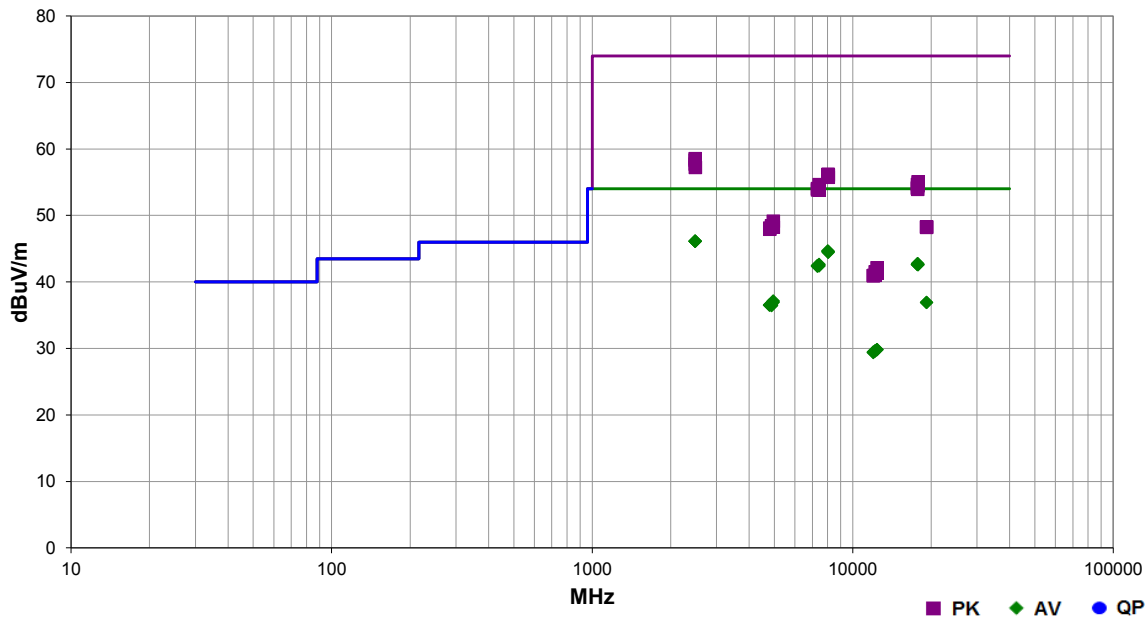
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.135	36.5	-4.7	1.0	304.9	3.0	20.0	Vert	AV	0.0	51.8	54.0	-2.2	BLE, High Ch, EUT Vertical
2483.855	51.6	-4.7	1.0	68.0	3.0	20.0	Vert	PK	0.0	66.9	74.0	-7.1	BLE, High Ch, EUT Vertical
2483.352	31.6	-4.7	1.5	196.9	3.0	20.0	Horz	AV	0.0	46.9	54.0	-7.1	BLE, High Ch, EUT On Side
2483.607	31.0	-4.7	1.0	69.0	3.0	20.0	Horz	AV	0.0	46.3	54.0	-7.7	BLE, High Ch, EUT Horizontal
2483.433	31.0	-4.7	1.0	126.0	3.0	20.0	Vert	AV	0.0	46.3	54.0	-7.7	BLE, High Ch, EUT Horizontal
2483.950	30.9	-4.7	3.9	69.0	3.0	20.0	Horz	AV	0.0	46.2	54.0	-7.8	BLE, High Ch, EUT Vertical
2483.447	30.9	-4.7	1.0	288.0	3.0	20.0	Vert	AV	0.0	46.2	54.0	-7.8	BLE, High Ch, EUT On Side
2387.692	30.9	-4.8	1.2	315.9	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	BLE, Low Ch, EUT On Side
2388.842	30.8	-4.8	1.2	267.0	3.0	20.0	Vert	AV	0.0	46.0	54.0	-8.0	BLE, Low Ch, EUT On Side
8025.882	29.0	15.6	1.2	115.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	BLE, Mid Ch, EUT On Side
8077.895	29.3	15.3	3.4	277.0	3.0	0.0	Vert	AV	0.0	44.6	54.0	-9.4	BLE, Low Ch, EUT On Side
8047.373	29.0	15.5	1.2	9.0	3.0	0.0	Horz	AV	0.0	44.5	54.0	-9.5	BLE, High Ch, EUT On Side
17811.300	26.0	16.7	1.2	196.9	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	BLE, Mid Ch, EUT Vertical
17762.500	25.8	16.9	1.2	162.0	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	BLE, High Ch, EUT Vertical
17703.120	25.9	16.8	1.2	15.0	3.0	0.0	Horz	AV	0.0	42.7	54.0	-11.3	BLE, High Ch, EUT Vertical
17829.090	26.0	16.7	1.2	295.0	3.0	0.0	Horz	AV	0.0	42.7	54.0	-11.3	BLE, Mid Ch, EUT Vertical
7327.050	29.1	13.4	1.2	217.0	3.0	0.0	Vert	AV	0.0	42.5	54.0	-11.5	BLE, Mid Ch, EUT On Side
7327.692	29.0	13.4	1.2	249.9	3.0	0.0	Horz	AV	0.0	42.4	54.0	-11.6	BLE, Mid Ch, EUT On Side
7441.400	28.9	13.4	3.3	15.0	3.0	0.0	Vert	AV	0.0	42.3	54.0	-11.7	BLE, High Ch, EUT On Side
7438.150	28.9	13.4	1.2	144.0	3.0	0.0	Horz	AV	0.0	42.3	54.0	-11.7	BLE, High Ch, EUT On Side
17842.260	25.3	16.6	1.2	33.9	3.0	0.0	Horz	AV	0.0	41.9	54.0	-12.1	BLE, Low Ch, EUT Vertical
17894.580	25.4	16.4	3.8	129.9	3.0	0.0	Vert	AV	0.0	41.8	54.0	-12.2	BLE, Low Ch, EUT Vertical
2483.255	43.2	-4.7	1.0	128.0	3.0	20.0	Vert	PK	0.0	58.5	74.0	-15.5	BLE, High Ch, EUT Horizontal
2390.500	43.1	-4.8	1.2	339.0	3.0	20.0	Vert	PK	0.0	58.3	74.0	-15.7	BLE, Low Ch, EUT On Side
2483.533	42.6	-4.7	1.0	297.0	3.0	20.0	Horz	PK	0.0	57.9	74.0	-16.1	BLE, High Ch, EUT Vertical

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
2483.983	42.5	-4.7	1.0	97.0	3.0	20.0	Horz	PK	0.0	57.8	74.0	-16.2	BLE, High Ch, EUT On Side
2483.918	42.3	-4.7	1.0	33.9	3.0	20.0	Vert	PK	0.0	57.6	74.0	-16.4	BLE, High Ch, EUT On Side
2483.677	42.1	-4.7	1.0	34.9	3.0	20.0	Horz	PK	0.0	57.4	74.0	-16.6	BLE, High Ch, EUT Horizontal
2389.358	42.1	-4.8	3.4	195.0	3.0	20.0	Horz	PK	0.0	57.3	74.0	-16.7	BLE, Low Ch, EUT On Side
4961.708	28.7	8.2	1.2	249.9	3.0	0.0	Vert	AV	0.0	36.9	54.0	-17.1	BLE, High Ch, EUT On Side
19215.580	49.2	-12.3	1.2	57.0	3.0	0.0	Horz	AV	0.0	36.9	54.0	-17.1	BLE, Low Ch, EUT Horizontal
4961.250	28.6	8.2	1.2	63.9	3.0	0.0	Horz	AV	0.0	36.8	54.0	-17.2	BLE, High Ch, EUT On Side
19215.800	49.1	-12.3	4.0	297.9	3.0	0.0	Vert	AV	0.0	36.8	54.0	-17.2	BLE, Low Ch, EUT Horizontal
8077.253	41.4	15.3	3.4	277.0	3.0	0.0	Vert	PK	0.0	56.7	74.0	-17.3	BLE, Low Ch, EUT On Side
4882.425	28.4	8.0	1.2	75.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	BLE, Mid Ch, EUT On Side
4881.717	28.4	8.0	1.2	345.0	3.0	0.0	Vert	AV	0.0	36.4	54.0	-17.6	BLE, Mid Ch, EUT On Side
4803.542	28.4	7.8	1.0	195.9	3.0	0.0	Vert	AV	0.0	36.2	54.0	-17.8	BLE, Low Ch, EUT On Side
4801.742	28.3	7.8	1.2	352.9	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	BLE, Low Ch, EUT On Side
8048.107	40.6	15.5	1.2	9.0	3.0	0.0	Horz	PK	0.0	56.1	74.0	-17.9	BLE, High Ch, EUT On Side
8029.423	40.4	15.6	1.2	115.0	3.0	0.0	Horz	PK	0.0	56.0	74.0	-18.0	BLE, Mid Ch, EUT On Side
17826.620	38.2	16.7	1.2	295.0	3.0	0.0	Horz	PK	0.0	54.9	74.0	-19.1	BLE, Mid Ch, EUT Vertical
17705.820	37.9	16.8	1.2	15.0	3.0	0.0	Horz	PK	0.0	54.7	74.0	-19.3	BLE, High Ch, EUT Vertical
17809.480	37.7	16.7	1.2	196.9	3.0	0.0	Vert	PK	0.0	54.4	74.0	-19.6	BLE, Mid Ch, EUT Vertical
7437.575	40.9	13.4	1.2	144.0	3.0	0.0	Horz	PK	0.0	54.3	74.0	-19.7	BLE, High Ch, EUT On Side
17758.450	37.2	16.9	1.2	162.0	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	BLE, High Ch, EUT Vertical
7327.333	40.5	13.4	1.2	249.9	3.0	0.0	Horz	PK	0.0	53.9	74.0	-20.1	BLE, Mid Ch, EUT On Side
7327.158	40.4	13.4	1.2	217.0	3.0	0.0	Vert	PK	0.0	53.8	74.0	-20.2	BLE, Mid Ch, EUT On Side
7441.167	40.3	13.4	3.3	15.0	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	BLE, High Ch, EUT On Side
17842.760	36.9	16.6	1.2	33.9	3.0	0.0	Horz	PK	0.0	53.5	74.0	-20.5	BLE, Low Ch, EUT Vertical
17891.840	37.0	16.4	3.8	129.9	3.0	0.0	Vert	PK	0.0	53.4	74.0	-20.6	BLE, Low Ch, EUT Vertical
12397.600	30.7	-0.4	1.2	294.0	3.0	0.0	Horz	AV	0.0	30.3	54.0	-23.7	BLE, High Ch, EUT Vertical
12397.870	30.6	-0.4	1.7	153.0	3.0	0.0	Vert	AV	0.0	30.2	54.0	-23.8	BLE, High Ch, EUT Vertical
12209.750	30.8	-0.8	1.2	202.9	3.0	0.0	Vert	AV	0.0	30.0	54.0	-24.0	BLE, Mid Ch, EUT Vertical
12209.420	30.8	-0.8	1.2	139.0	3.0	0.0	Horz	AV	0.0	30.0	54.0	-24.0	BLE, Mid Ch, EUT Vertical
12008.430	31.1	-1.3	3.9	20.0	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	BLE, Low Ch, EUT Vertical
12011.210	31.0	-1.3	1.2	54.0	3.0	0.0	Horz	AV	0.0	29.7	54.0	-24.3	BLE, Low Ch, EUT Vertical
4960.442	40.3	8.2	1.2	249.9	3.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5	BLE, High Ch, EUT On Side
19215.930	60.8	-12.3	4.0	297.9	3.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5	BLE, Low Ch, EUT Horizontal
4961.950	40.1	8.2	1.2	63.9	3.0	0.0	Horz	PK	0.0	48.3	74.0	-25.7	BLE, High Ch, EUT On Side
19218.030	60.4	-12.3	1.2	57.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	BLE, Low Ch, EUT Horizontal
4885.642	40.0	8.0	1.2	75.0	3.0	0.0	Horz	PK	0.0	48.0	74.0	-26.0	BLE, Mid Ch, EUT On Side
4886.267	39.9	8.0	1.2	345.0	3.0	0.0	Vert	PK	0.0	47.9	74.0	-26.1	BLE, Mid Ch, EUT On Side
4805.792	40.0	7.8	1.0	195.9	3.0	0.0	Vert	PK	0.0	47.8	74.0	-26.2	BLE, Low Ch, EUT On Side
4801.567	39.9	7.8	1.2	352.9	3.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	BLE, Low Ch, EUT On Side
12399.800	42.6	-0.4	1.2	294.0	3.0	0.0	Horz	PK	0.0	42.2	74.0	-31.8	BLE, High Ch, EUT Vertical
12398.630	42.6	-0.4	1.7	153.0	3.0	0.0	Vert	PK	0.0	42.2	74.0	-31.8	BLE, High Ch, EUT Vertical
12207.930	42.6	-0.8	1.2	139.0	3.0	0.0	Horz	PK	0.0	41.8	74.0	-32.2	BLE, Mid Ch, EUT Vertical
12212.280	42.4	-0.8	1.2	202.9	3.0	0.0	Vert	PK	0.0	41.6	74.0	-32.4	BLE, Mid Ch, EUT Vertical
12011.960	42.8	-1.3	1.2	54.0	3.0	0.0	Horz	PK	0.0	41.5	74.0	-32.5	BLE, Low Ch, EUT Vertical
12011.780	42.5	-1.3	3.9	20.0	3.0	0.0	Vert	PK	0.0	41.2	74.0	-32.8	BLE, Low Ch, EUT Vertical

Work Order:	ETHE0018	Date:	01/09/15	
Project:	None	Temperature:	22.1 °C	
Job Site:	TX02	Humidity:	15.4% RH	
Serial Number:	None	Barometric Pres.:	1035 mbar	
EUT:	ConnectCore i.MX6 WiFi/Bluetooth			
Configuration:	2			
Customer:	Etherios Design Solutions			
Attendees:	None			
EUT Power:	5VDC			
Operating Mode:	Transmitting BLE. Low, Mid, High Channel @ 2402, 2442, 2480 MHz.			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

Run #	61	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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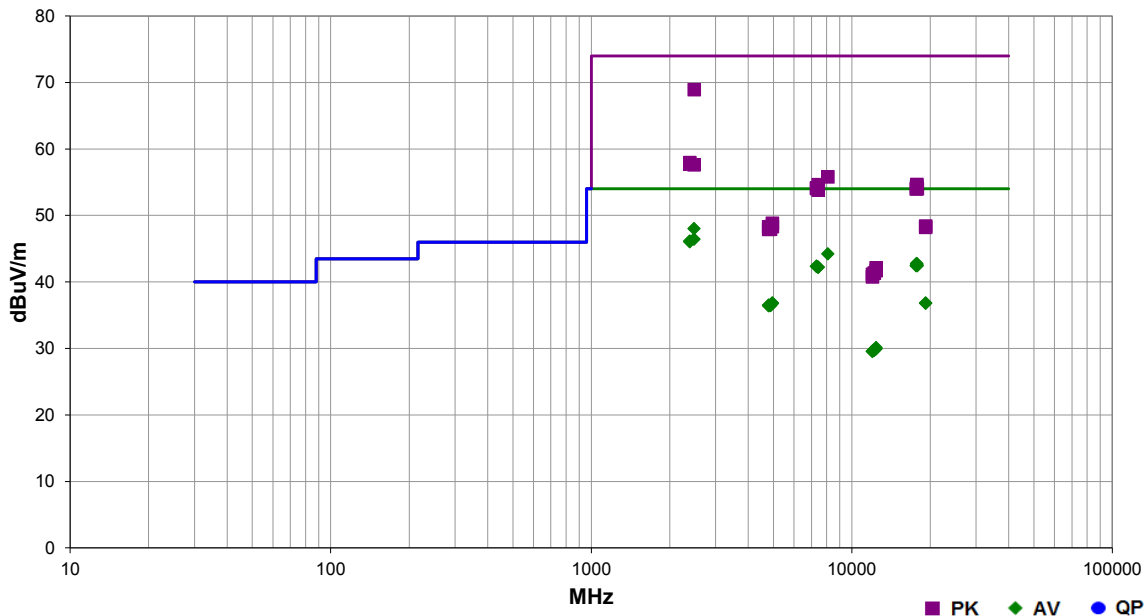
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2488.258	30.8	-4.7	1.2	333.0	3.0	20.0	Vert	AV	0.0	46.1	54.0	-7.9	BLE, High Ch, EUT Vertical
2483.817	30.8	-4.7	1.6	344.0	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	BLE, Low Ch, EUT Vertical
2483.775	30.8	-4.7	1.2	267.0	3.0	20.0	Vert	AV	0.0	46.1	54.0	-7.9	BLE, Low Ch, EUT Vertical
2483.700	30.8	-4.7	1.0	20.0	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	BLE, High Ch, EUT Vertical
8030.143	29.1	15.6	1.2	324.0	3.0	0.0	Horz	AV	0.0	44.7	54.0	-9.3	BLE, Mid Ch, EUT Horizontal
8062.387	29.2	15.4	2.4	93.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	BLE, Low Ch, EUT Horizontal
8063.743	29.2	15.4	1.2	219.0	3.0	0.0	Vert	AV	0.0	44.6	54.0	-9.4	BLE, Low Ch, EUT Vertical
8051.633	29.0	15.4	1.2	128.0	3.0	0.0	Vert	AV	0.0	44.4	54.0	-9.6	BLE, Mid Ch, EUT Vertical
17753.760	25.8	16.9	1.2	260.0	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	BLE, High Ch, EUT Horizontal
17756.680	25.8	16.9	1.7	285.0	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	BLE, Mid Ch, EUT Horizontal
17755.840	25.7	16.9	1.2	318.0	3.0	0.0	Vert	AV	0.0	42.6	54.0	-11.4	BLE, Low Ch, EUT Horizontal
17720.600	25.7	16.9	1.2	279.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	BLE, High Ch, EUT Horizontal
7441.025	29.2	13.4	1.9	56.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	BLE, High Ch, EUT Horizontal
17790.780	25.8	16.8	1.2	163.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	BLE, Mid Ch, EUT Horizontal
17827.140	25.9	16.7	1.7	85.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	BLE, Low Ch, EUT Horizontal
7327.442	29.1	13.4	1.2	0.0	3.0	0.0	Horz	AV	0.0	42.5	54.0	-11.5	BLE, Mid Ch, EUT Horizontal
7438.467	29.0	13.4	1.2	22.9	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	BLE, High Ch, EUT Vertical
7326.800	29.0	13.4	1.2	207.9	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	BLE, Mid Ch, EUT Vertical
2486.633	43.2	-4.7	1.2	22.9	3.0	20.0	Vert	PK	0.0	58.5	74.0	-15.5	BLE, Low Ch, EUT Vertical
2484.308	43.0	-4.7	1.4	328.9	3.0	20.0	Horz	PK	0.0	58.3	74.0	-15.7	BLE, High Ch, EUT Vertical
2484.800	42.4	-4.7	1.2	1.0	3.0	20.0	Horz	PK	0.0	57.7	74.0	-16.3	BLE, Low Ch, EUT Vertical
2487.600	41.9	-4.7	1.2	288.0	3.0	20.0	Vert	PK	0.0	57.2	74.0	-16.8	BLE, High Ch, EUT Vertical
4961.733	28.9	8.2	1.2	325.0	3.0	0.0	Horz	AV	0.0	37.1	54.0	-16.9	BLE, High Ch, EUT Horizontal
4961.467	28.7	8.2	1.2	9.0	3.0	0.0	Vert	AV	0.0	36.9	54.0	-17.1	BLE, High Ch, EUT Vertical
19213.810	49.2	-12.3	3.0	321.9	3.0	0.0	Horz	AV	0.0	36.9	54.0	-17.1	BLE, Low Ch, EUT Horizontal

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
19216.560	49.2	-12.3	1.2	333.0	3.0	0.0	Vert	AV	0.0	36.9	54.0	-17.1	BLE, Low Ch, EUT Horizontal
4883.017	28.5	8.0	1.5	304.9	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	BLE, Mid Ch, EUT Horizontal
4801.625	28.7	7.8	1.2	292.9	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	BLE, Low Ch, EUT Horizontal
4801.550	28.7	7.8	1.2	294.0	3.0	0.0	Vert	AV	0.0	36.5	54.0	-17.5	BLE, Low Ch, EUT Vertical
4884.142	28.4	8.0	1.2	104.0	3.0	0.0	Vert	AV	0.0	36.4	54.0	-17.6	BLE, Mid Ch, EUT Vertical
8027.485	40.6	15.6	1.2	324.0	3.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	BLE, Mid Ch, EUT Horizontal
8061.087	40.8	15.4	2.4	93.0	3.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	BLE, Low Ch, EUT Horizontal
8052.525	40.6	15.4	1.2	128.0	3.0	0.0	Vert	PK	0.0	56.0	74.0	-18.0	BLE, Mid Ch, EUT Vertical
8064.160	40.4	15.4	1.2	219.0	3.0	0.0	Vert	PK	0.0	55.8	74.0	-18.2	BLE, Low Ch, EUT Vertical
17829.940	38.4	16.7	1.7	85.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	BLE, Low Ch, EUT Horizontal
17753.320	37.7	16.9	1.2	260.0	3.0	0.0	Vert	PK	0.0	54.6	74.0	-19.4	BLE, High Ch, EUT Horizontal
7438.933	41.2	13.4	1.9	56.0	3.0	0.0	Horz	PK	0.0	54.6	74.0	-19.4	BLE, High Ch, EUT Horizontal
17791.380	37.7	16.8	1.2	163.0	3.0	0.0	Horz	PK	0.0	54.5	74.0	-19.5	BLE, Mid Ch, EUT Horizontal
17758.410	37.5	16.9	1.7	285.0	3.0	0.0	Vert	PK	0.0	54.4	74.0	-19.6	BLE, Mid Ch, EUT Horizontal
17722.520	37.2	16.9	1.2	279.0	3.0	0.0	Horz	PK	0.0	54.1	74.0	-19.9	BLE, High Ch, EUT Horizontal
7325.950	40.7	13.4	1.2	207.9	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	BLE, Mid Ch, EUT Vertical
17757.590	37.0	16.9	1.2	318.0	3.0	0.0	Vert	PK	0.0	53.9	74.0	-20.1	BLE, Low Ch, EUT Horizontal
7327.450	40.5	13.4	1.2	0.0	3.0	0.0	Horz	PK	0.0	53.9	74.0	-20.1	BLE, Mid Ch, EUT Horizontal
7439.425	40.4	13.4	1.2	22.9	3.0	0.0	Vert	PK	0.0	53.8	74.0	-20.2	BLE, High Ch, EUT Vertical
12399.430	30.2	-0.4	1.2	42.0	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	BLE, High Ch, EUT Vertical
12399.000	30.2	-0.4	1.2	91.0	3.0	0.0	Horz	AV	0.0	29.8	54.0	-24.2	BLE, High Ch, EUT Vertical
12210.050	30.4	-0.8	3.5	225.9	3.0	0.0	Vert	AV	0.0	29.6	54.0	-24.4	BLE, Mid Ch, EUT Vertical
12208.730	30.4	-0.8	1.2	3.0	3.0	0.0	Horz	AV	0.0	29.6	54.0	-24.4	BLE, Mid Ch, EUT Vertical
12009.970	30.8	-1.3	1.2	253.0	3.0	0.0	Horz	AV	0.0	29.5	54.0	-24.5	BLE, Low Ch, EUT Vertical
12008.490	30.7	-1.3	1.2	44.0	3.0	0.0	Vert	AV	0.0	29.4	54.0	-24.6	BLE, Low Ch, EUT Vertical
4961.708	40.9	8.2	1.2	325.0	3.0	0.0	Horz	PK	0.0	49.1	74.0	-24.9	BLE, High Ch, EUT Horizontal
4883.250	40.4	8.0	1.2	104.0	3.0	0.0	Vert	PK	0.0	48.4	74.0	-25.6	BLE, Mid Ch, EUT Vertical
4882.342	40.4	8.0	1.5	304.9	3.0	0.0	Horz	PK	0.0	48.4	74.0	-25.6	BLE, Mid Ch, EUT Horizontal
19213.520	60.6	-12.3	1.2	333.0	3.0	0.0	Vert	PK	0.0	48.3	74.0	-25.7	BLE, Low Ch, EUT Horizontal
4961.458	40.0	8.2	1.2	9.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	BLE, High Ch, EUT Vertical
19214.970	60.5	-12.3	3.0	321.9	3.0	0.0	Horz	PK	0.0	48.2	74.0	-25.8	BLE, Low Ch, EUT Horizontal
4802.342	40.3	7.8	1.2	292.9	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	BLE, Low Ch, EUT Horizontal
4806.225	40.1	7.8	1.2	294.0	3.0	0.0	Vert	PK	0.0	47.9	74.0	-26.1	BLE, Low Ch, EUT Vertical
12398.790	42.5	-0.4	1.2	42.0	3.0	0.0	Vert	PK	0.0	42.1	74.0	-31.9	BLE, High Ch, EUT Vertical
12210.390	42.3	-0.8	1.2	3.0	3.0	0.0	Horz	PK	0.0	41.5	74.0	-32.5	BLE, Mid Ch, EUT Vertical
12398.570	41.7	-0.4	1.2	91.0	3.0	0.0	Horz	PK	0.0	41.3	74.0	-32.7	BLE, High Ch, EUT Vertical
12207.640	41.8	-0.8	3.5	225.9	3.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	BLE, Mid Ch, EUT Vertical
12010.180	42.3	-1.3	1.2	253.0	3.0	0.0	Horz	PK	0.0	41.0	74.0	-33.0	BLE, Low Ch, EUT Vertical
12007.560	42.3	-1.3	1.2	44.0	3.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	BLE, Low Ch, EUT Vertical

Work Order:	ETHE0018	Date:	01/09/15	
Project:	None	Temperature:	22.1 °C	
Job Site:	TX02	Humidity:	15.4% RH	
Serial Number:	None	Barometric Pres.:	1035 mbar	
EUT:		ConnectCore i.MX6 WiFi/Bluetooth		
Configuration:		4		
Customer:		Etherios Design Solutions		
Attendees:		None		
EUT Power:		5VDC		
Operating Mode:		Transmitting BLE. Low, Mid, High Channel @ 2402, 2442, 2480 MHz.		
Deviations:		None		
Comments:		None		

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

Run #	61	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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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
2483.520	53.6	-4.7	3.8	309.9	3.0	20.0	Vert	PK	0.0	68.9	74.0	-5.1	BLE, High Ch, EUT Vertical
2483.227	32.7	-4.7	1.2	138.0	3.0	20.0	Vert	AV	0.0	48.0	54.0	-6.0	BLE, High Ch, EUT Vertical
2483.293	31.1	-4.7	1.2	150.0	3.0	20.0	Horz	AV	0.0	46.4	54.0	-7.6	BLE, High Ch, EUT Vertical
2389.723	30.9	-4.8	3.7	235.0	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	BLE, Low Ch, EUT Vertical
2390.202	30.8	-4.8	1.2	134.0	3.0	20.0	Vert	AV	0.0	46.0	54.0	-8.0	BLE, Low Ch, EUT Vertical
8103.608	29.1	15.1	1.2	80.0	3.0	0.0	Horz	AV	0.0	44.2	54.0	-9.8	BLE, Mid Ch, EUT Horizontal
17775.640	25.9	16.9	1.2	285.9	3.0	0.0	Vert	AV	0.0	42.8	54.0	-11.2	BLE, Low Ch, EUT On Side
17752.490	25.8	17.0	2.3	93.0	3.0	0.0	Horz	AV	0.0	42.8	54.0	-11.2	BLE, Low Ch, EUT Horizontal
17780.370	25.8	16.8	3.1	337.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	BLE, Mid Ch, EUT Horizontal
17763.710	25.7	16.9	1.2	139.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	BLE, High Ch, EUT Horizontal
17866.520	25.9	16.5	1.2	74.0	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	BLE, High Ch, EUT On Side
17680.780	25.8	16.6	1.2	132.0	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	BLE, Mid Ch, EUT On Side
7328.400	29.0	13.4	1.1	58.9	3.0	0.0	Horz	AV	0.0	42.4	54.0	-11.6	BLE, Low Ch, EUT Horizontal
7328.167	29.0	13.4	1.2	129.0	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	BLE, Mid Ch, EUT On Side
7439.992	28.8	13.4	1.2	320.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	BLE, High Ch, EUT Horizontal
7438.833	28.8	13.4	1.2	148.9	3.0	0.0	Vert	AV	0.0	42.2	54.0	-11.8	BLE, High Ch, EUT On Side
2389.885	42.7	-4.8	1.2	278.0	3.0	20.0	Vert	PK	0.0	57.9	74.0	-16.1	BLE, Low Ch, EUT Vertical
2389.688	42.5	-4.8	1.2	136.9	3.0	20.0	Horz	PK	0.0	57.7	74.0	-16.3	BLE, Low Ch, EUT Vertical
2483.197	42.3	-4.7	1.2	64.9	3.0	20.0	Horz	PK	0.0	57.6	74.0	-16.4	BLE, High Ch, EUT Vertical
4962.325	28.6	8.2	1.2	243.9	3.0	0.0	Horz	AV	0.0	36.8	54.0	-17.2	BLE, High Ch, EUT Horizontal
19213.530	49.1	-12.3	2.5	38.0	3.0	0.0	Horz	AV	0.0	36.8	54.0	-17.2	BLE, Low Ch, EUT Horizontal
19215.580	49.1	-12.3	1.2	170.0	3.0	0.0	Vert	AV	0.0	36.8	54.0	-17.2	BLE, Low Ch, EUT Horizontal
4962.450	28.5	8.2	1.2	9.0	3.0	0.0	Vert	AV	0.0	36.7	54.0	-17.3	BLE, High Ch, EUT On Side
4881.933	28.5	8.0	1.2	4.9	3.0	0.0	Vert	AV	0.0	36.5	54.0	-17.5	BLE, Mid Ch, EUT On Side
4801.625	28.7	7.8	1.2	262.9	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	BLE, Low Ch, EUT Horizontal

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
4881.658	28.4	8.0	3.3	235.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	BLE, Mid Ch, EUT Horizontal
4801.575	28.6	7.8	1.2	246.0	3.0	0.0	Vert	AV	0.0	36.4	54.0	-17.6	BLE, Low Ch, EUT On Side
8103.892	40.7	15.1	1.2	80.0	3.0	0.0	Horz	PK	0.0	55.8	74.0	-18.2	BLE, Mid Ch, EUT Horizontal
17776.530	37.8	16.9	1.2	285.9	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	BLE, Low Ch, EUT On Side
7440.942	41.2	13.4	1.2	320.0	3.0	0.0	Horz	PK	0.0	54.6	74.0	-19.4	BLE, High Ch, EUT Horizontal
17764.600	37.7	16.9	1.2	139.0	3.0	0.0	Horz	PK	0.0	54.6	74.0	-19.4	BLE, High Ch, EUT Horizontal
17751.980	37.4	17.0	2.3	93.0	3.0	0.0	Horz	PK	0.0	54.4	74.0	-19.6	BLE, Low Ch, EUT Horizontal
17781.180	37.4	16.8	3.1	337.0	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8	BLE, Mid Ch, EUT Horizontal
7326.958	40.8	13.4	1.1	58.9	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8	BLE, Mid Ch, EUT Horizontal
7324.942	40.7	13.4	1.2	129.0	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	BLE, Mid Ch, EUT On Side
17865.920	37.5	16.5	1.2	74.0	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	BLE, High Ch, EUT On Side
17678.140	37.4	16.6	1.2	132.0	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	BLE, Mid Ch, EUT On Side
7440.167	40.4	13.4	1.2	148.9	3.0	0.0	Vert	PK	0.0	53.8	74.0	-20.2	BLE, High Ch, EUT On Side
12399.330	30.5	-0.4	1.2	0.0	3.0	0.0	Horz	AV	0.0	30.1	54.0	-23.9	BLE, High Ch, EUT Horizontal
12398.660	30.3	-0.4	1.2	307.0	3.0	0.0	Vert	AV	0.0	29.9	54.0	-24.1	BLE, High Ch, EUT On Side
12212.380	30.6	-0.8	1.2	139.0	3.0	0.0	Horz	AV	0.0	29.8	54.0	-24.2	BLE, Mid Ch, EUT Horizontal
12210.150	30.5	-0.8	1.2	272.0	3.0	0.0	Vert	AV	0.0	29.7	54.0	-24.3	BLE, Mid Ch, EUT On Side
12011.230	30.9	-1.3	1.2	268.9	3.0	0.0	Horz	AV	0.0	29.6	54.0	-24.4	BLE, Low Ch, EUT Horizontal
12010.510	30.9	-1.3	1.2	273.9	3.0	0.0	Vert	AV	0.0	29.6	54.0	-24.4	BLE, Low Ch, EUT On Side
4957.825	40.6	8.2	1.2	9.0	3.0	0.0	Vert	PK	0.0	48.8	74.0	-25.2	BLE, High Ch, EUT On Side
19215.320	60.7	-12.3	2.5	38.0	3.0	0.0	Horz	PK	0.0	48.4	74.0	-25.6	BLE, Low Ch, EUT Horizontal
4959.542	40.1	8.2	1.2	243.9	3.0	0.0	Horz	PK	0.0	48.3	74.0	-25.7	BLE, High Ch, EUT Horizontal
4884.717	40.3	8.0	1.2	4.9	3.0	0.0	Vert	PK	0.0	48.3	74.0	-25.7	BLE, Mid Ch, EUT On Side
4801.875	40.5	7.8	1.2	246.0	3.0	0.0	Vert	PK	0.0	48.3	74.0	-25.7	BLE, Low Ch, EUT On Side
19213.790	60.5	-12.3	1.2	170.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	BLE, Low Ch, EUT Horizontal
4881.525	39.9	8.0	3.3	235.0	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	BLE, Mid Ch, EUT Horizontal
4802.058	40.1	7.8	1.2	262.9	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	BLE, Low Ch, EUT Horizontal
12399.920	42.5	-0.4	1.2	0.0	3.0	0.0	Horz	PK	0.0	42.1	74.0	-31.9	BLE, High Ch, EUT Horizontal
12398.310	42.1	-0.4	1.2	307.0	3.0	0.0	Vert	PK	0.0	41.7	74.0	-32.3	BLE, High Ch, EUT On Side
12210.800	42.1	-0.8	1.2	272.0	3.0	0.0	Vert	PK	0.0	41.3	74.0	-32.7	BLE, Mid Ch, EUT On Side
12210.290	42.1	-0.8	1.2	139.0	3.0	0.0	Horz	PK	0.0	41.3	74.0	-32.7	BLE, Mid Ch, EUT Horizontal
12008.240	42.5	-1.3	1.2	268.9	3.0	0.0	Horz	PK	0.0	41.2	74.0	-32.8	BLE, Low Ch, EUT Horizontal
12010.040	42.1	-1.3	1.2	273.9	3.0	0.0	Vert	PK	0.0	40.8	74.0	-33.2	BLE, Low Ch, EUT On Side

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.

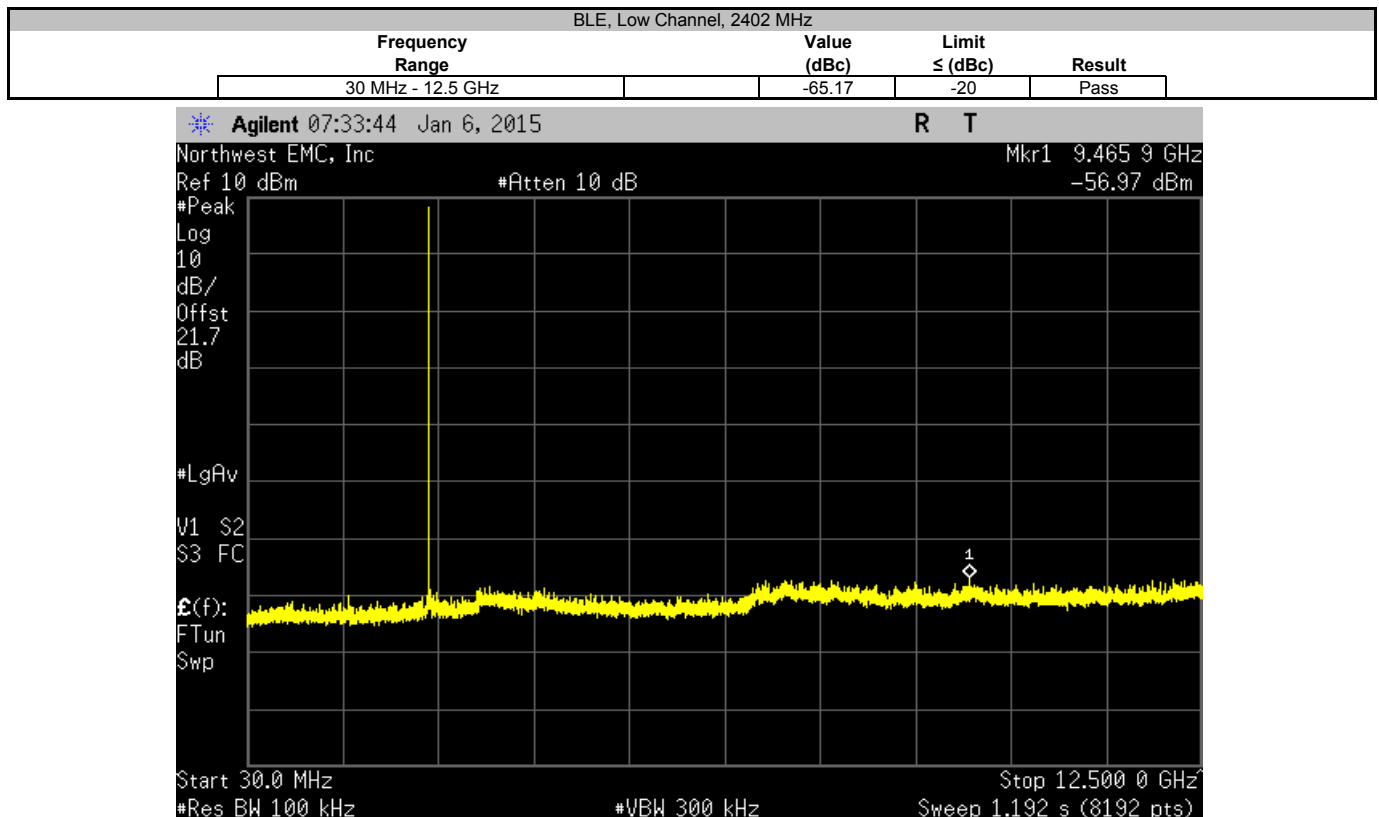
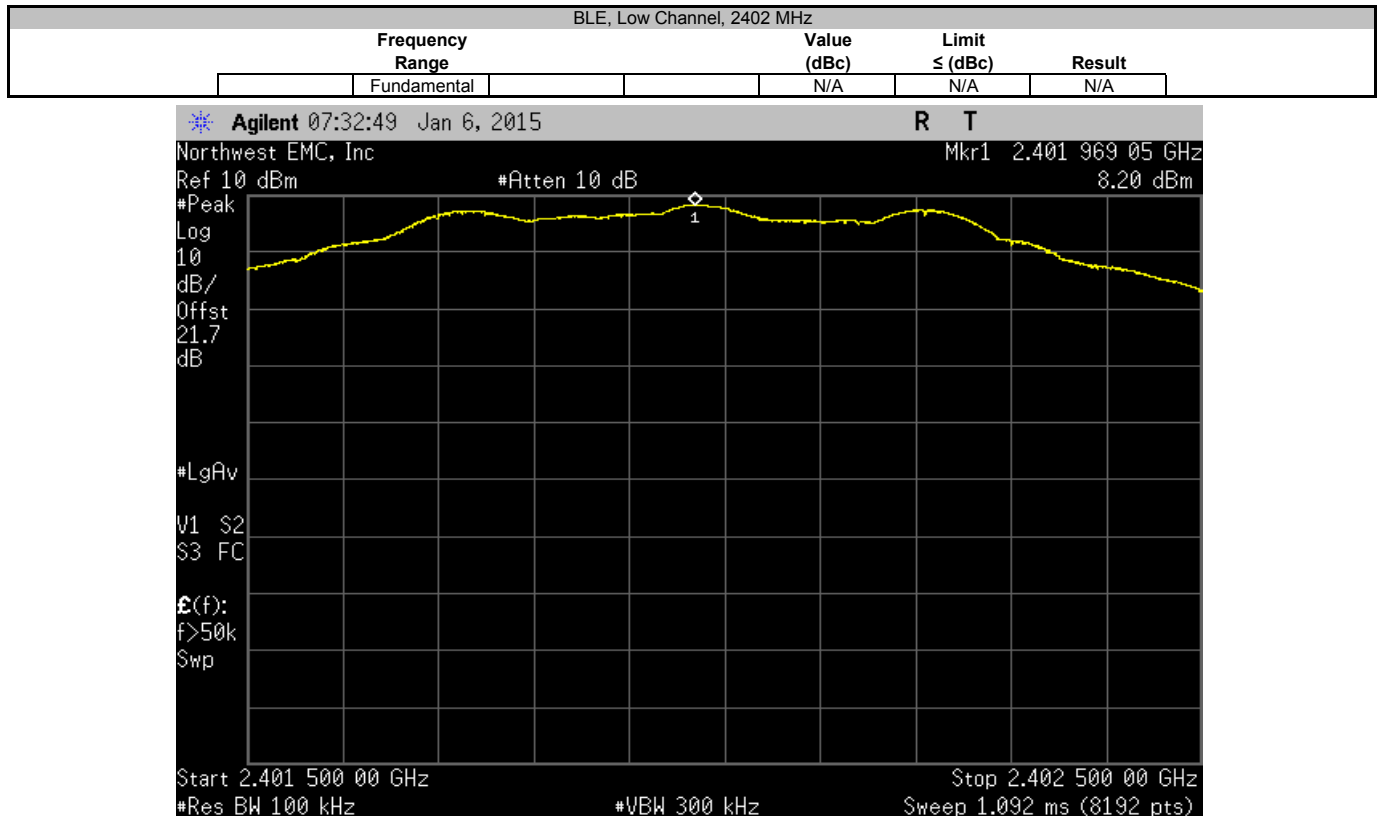
TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mos)
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC Block	Fairview Microwave	SD3379	AMI	10/2/2014	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	8/12/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

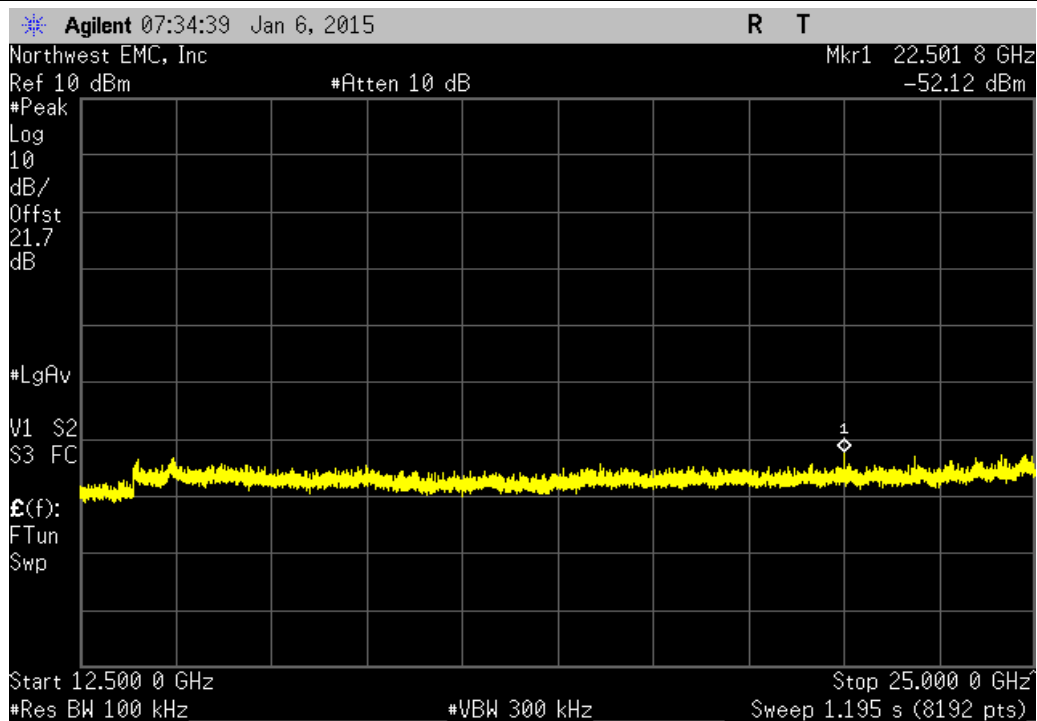
TEST DESCRIPTION

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 the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

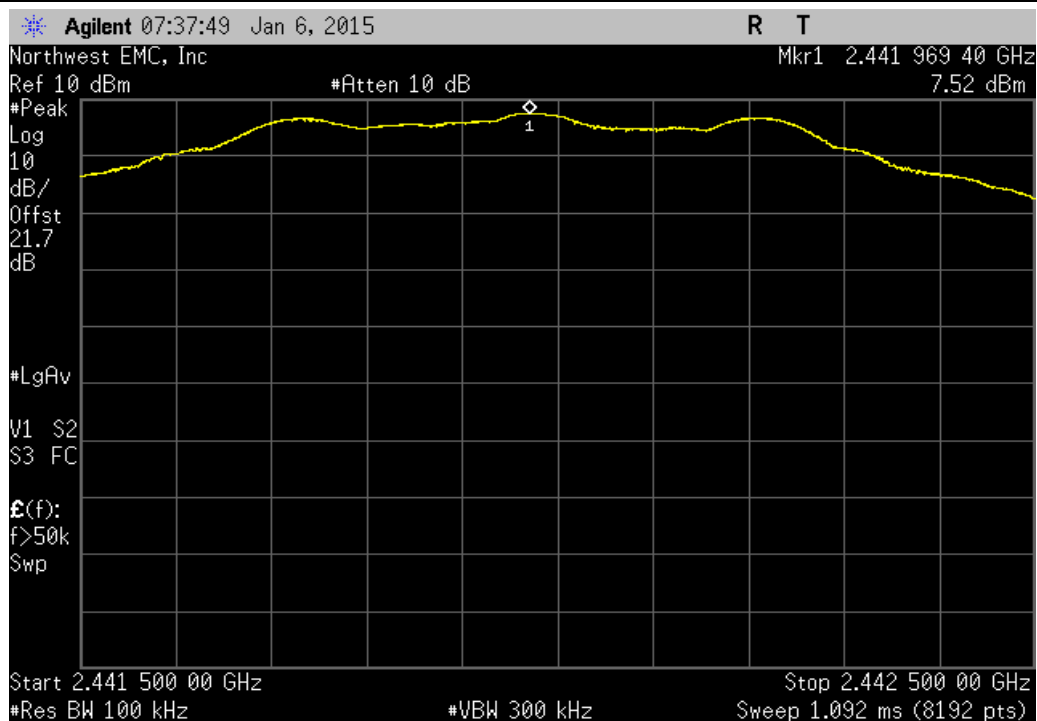
EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0018	
Serial Number: 00409D 7C03D2		Date: 01/06/15	
Customer: Etherios Design Solutions		Temperature: 22.3°C	
Attendees: None		Humidity: 11%	
Project: None		Barometric Pres.: 1030.1	
Tested by: Trevor Buls		Power: 5VDC	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Frequency Range	Value (dBc)
			Limit ≤ (dBc)
			Result
BLE			
	Low Channel, 2402 MHz	Fundamental	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	-65.17
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	-60.32
	Mid Channel, 2442 MHz	Fundamental	N/A
	Mid Channel, 2442 MHz	30 MHz - 12.5 GHz	-64.45
	Mid Channel, 2442 MHz	12.5 GHz - 25 GHz	-59.98
	High Channel, 2480 MHz	Fundamental	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	-63.57
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	-60.1

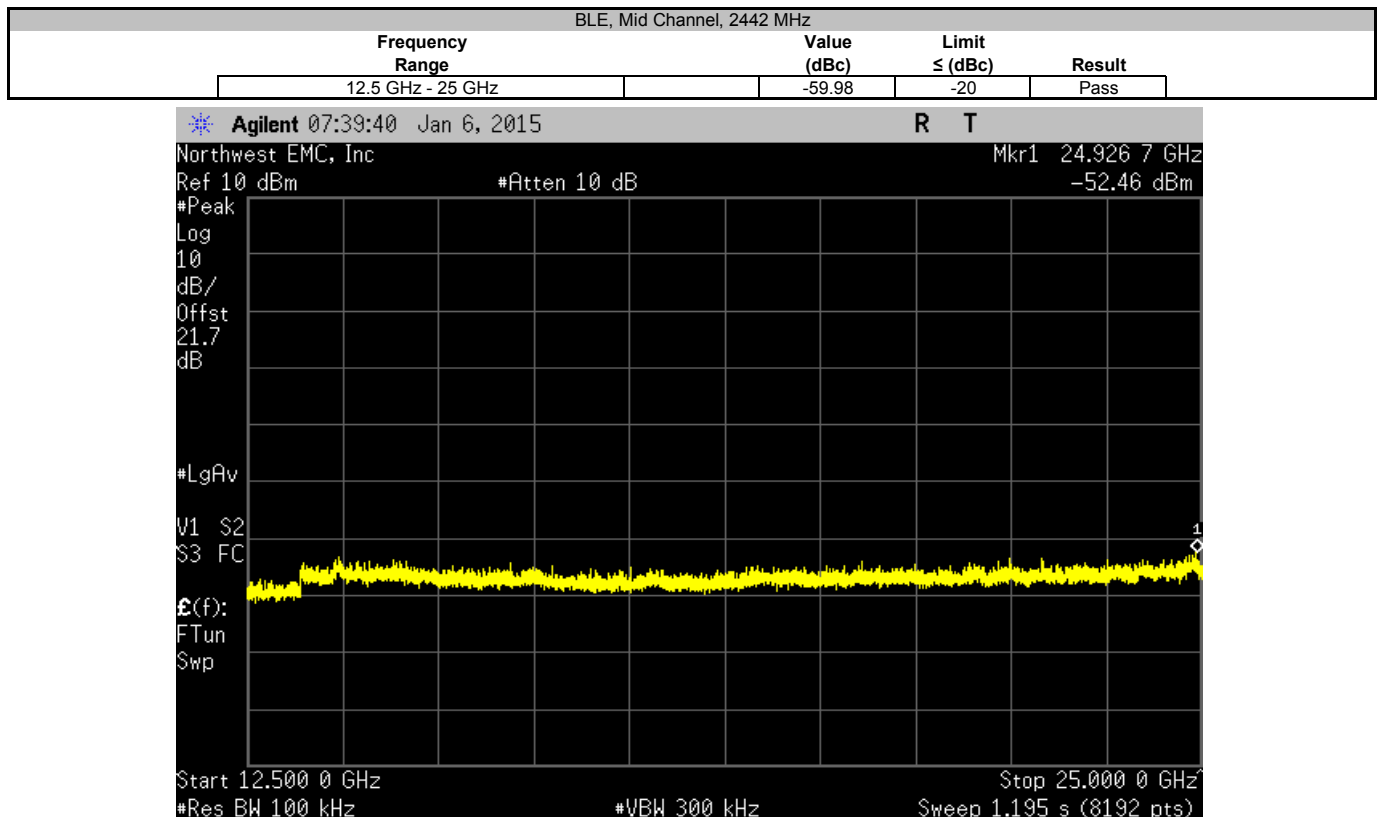
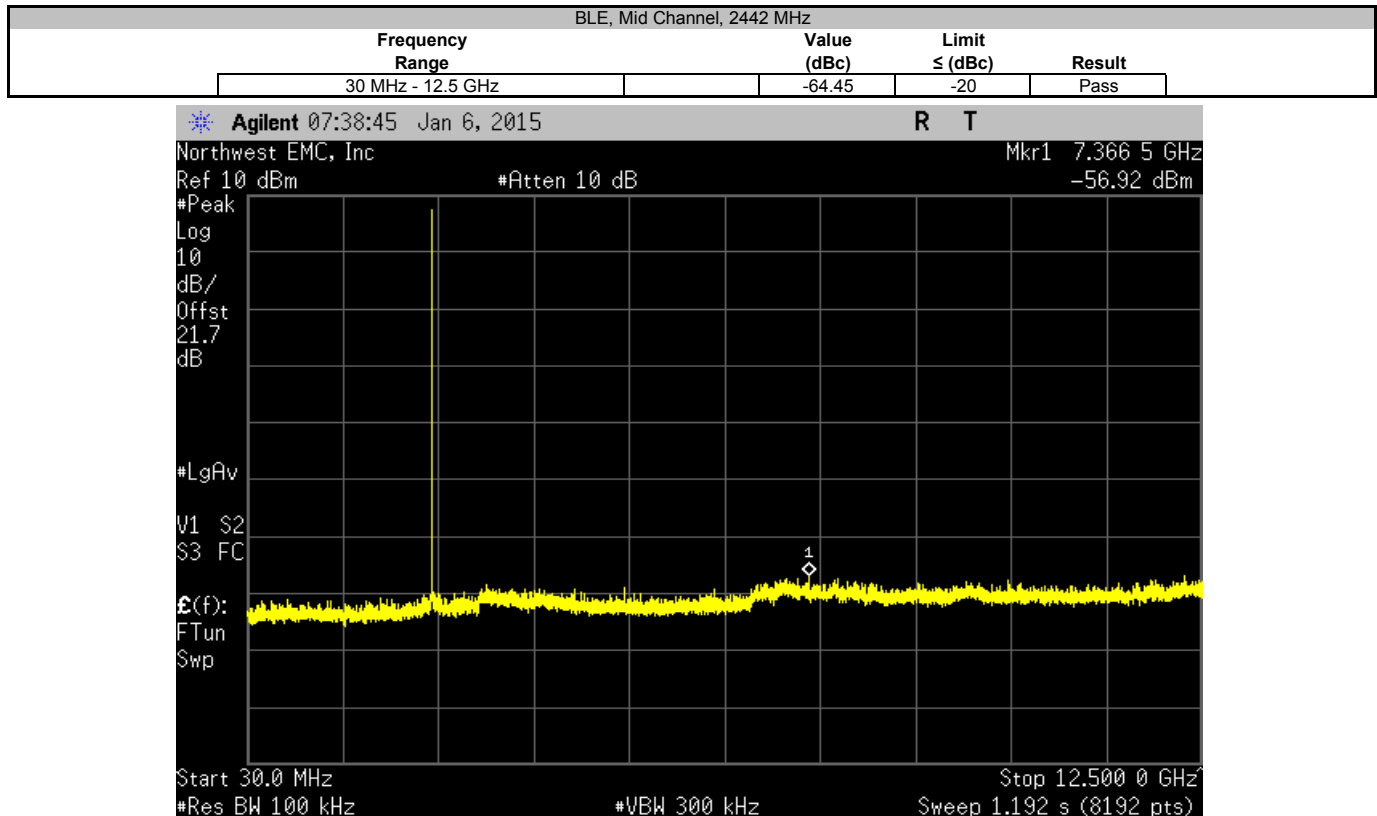


BLE, Low Channel, 2402 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-60.32	-20	Pass	

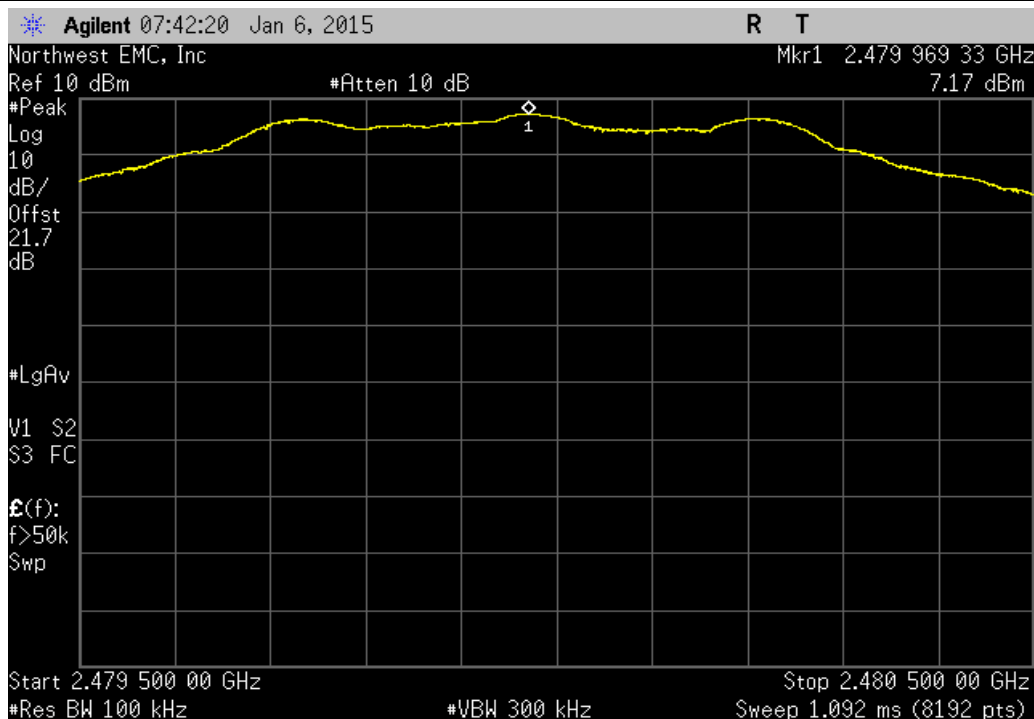


BLE, Mid Channel, 2442 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

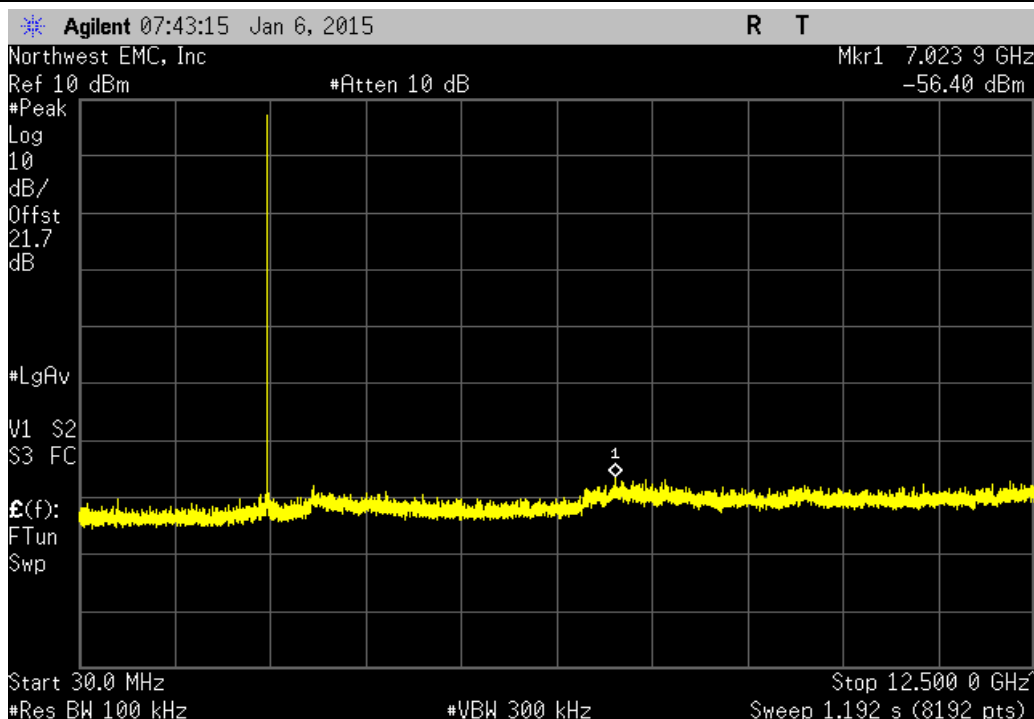




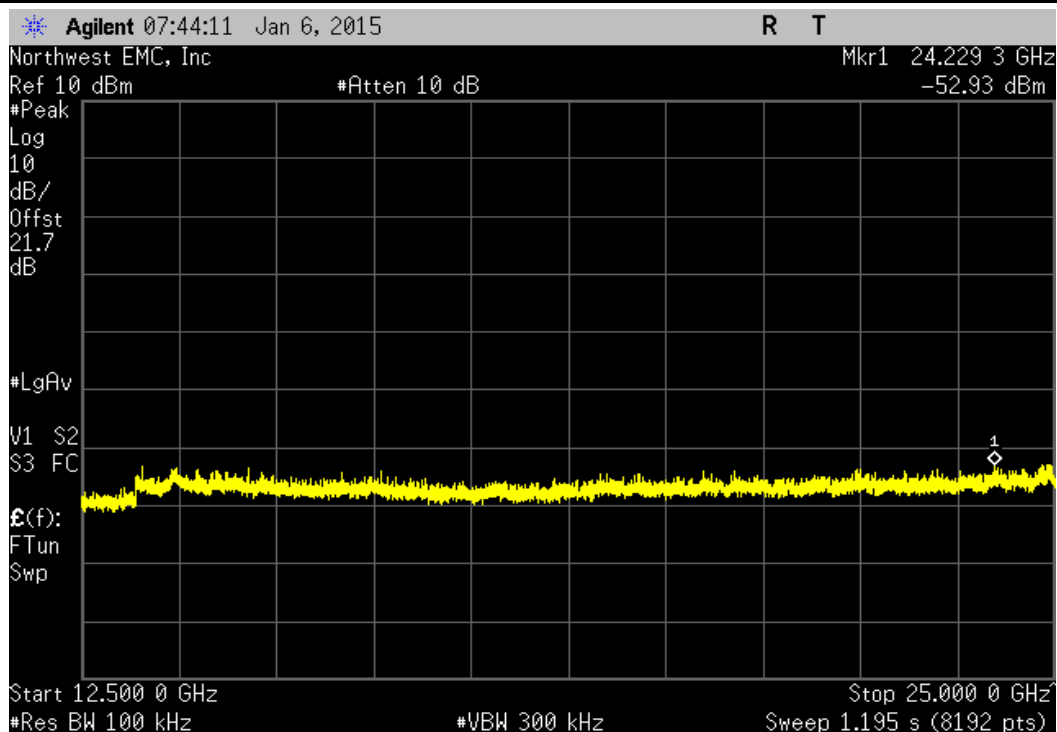
BLE, High Channel, 2480 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	



BLE, High Channel, 2480 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-63.57	-20	Pass	



BLE, High Channel, 2480 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-60.1	-20	Pass	



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 (mos)
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC Block	Fairview Microwave	SD3379	AMI	10/2/2014	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	8/12/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.9% (approximate 26 dB) emission bandwidth (EBW) was also measured at the same time.

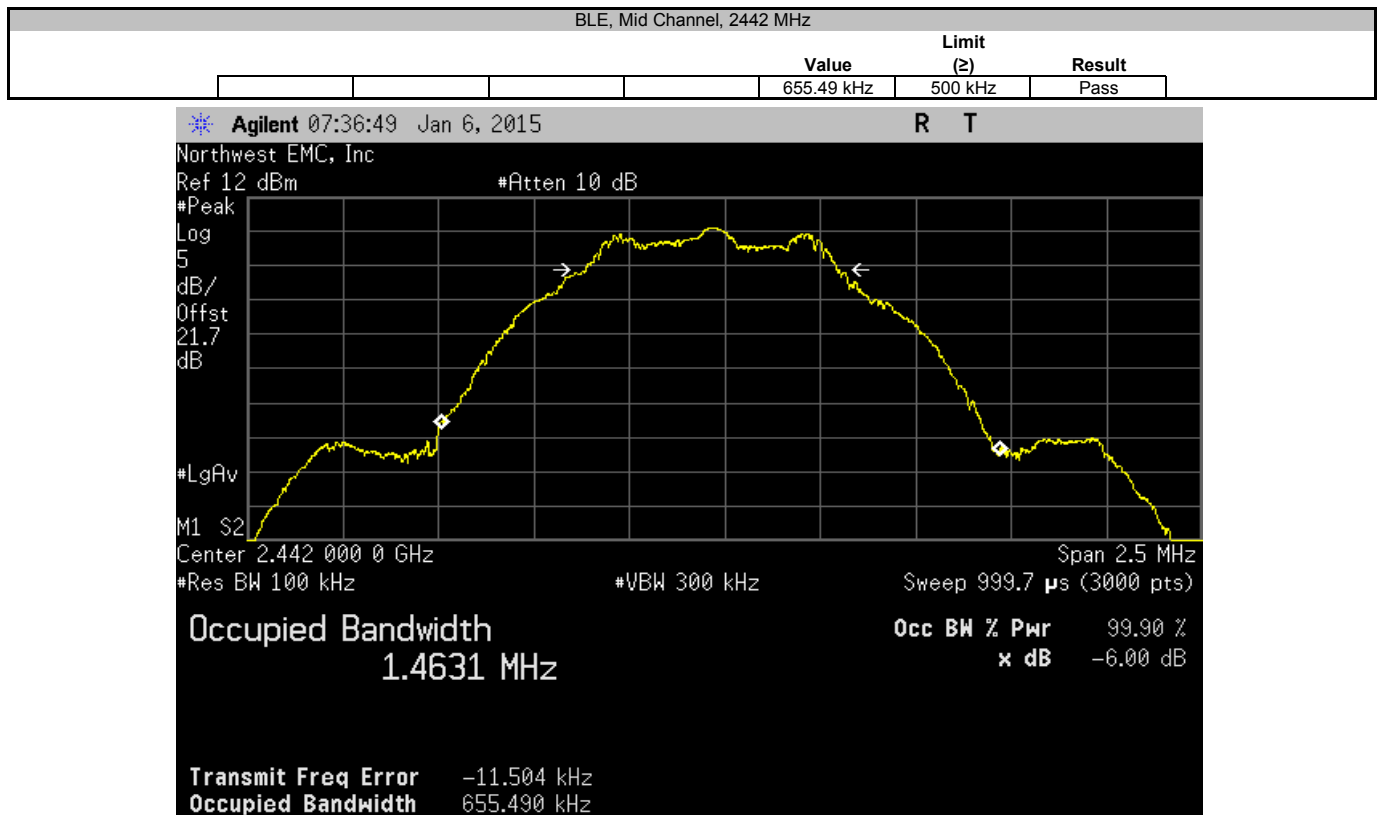
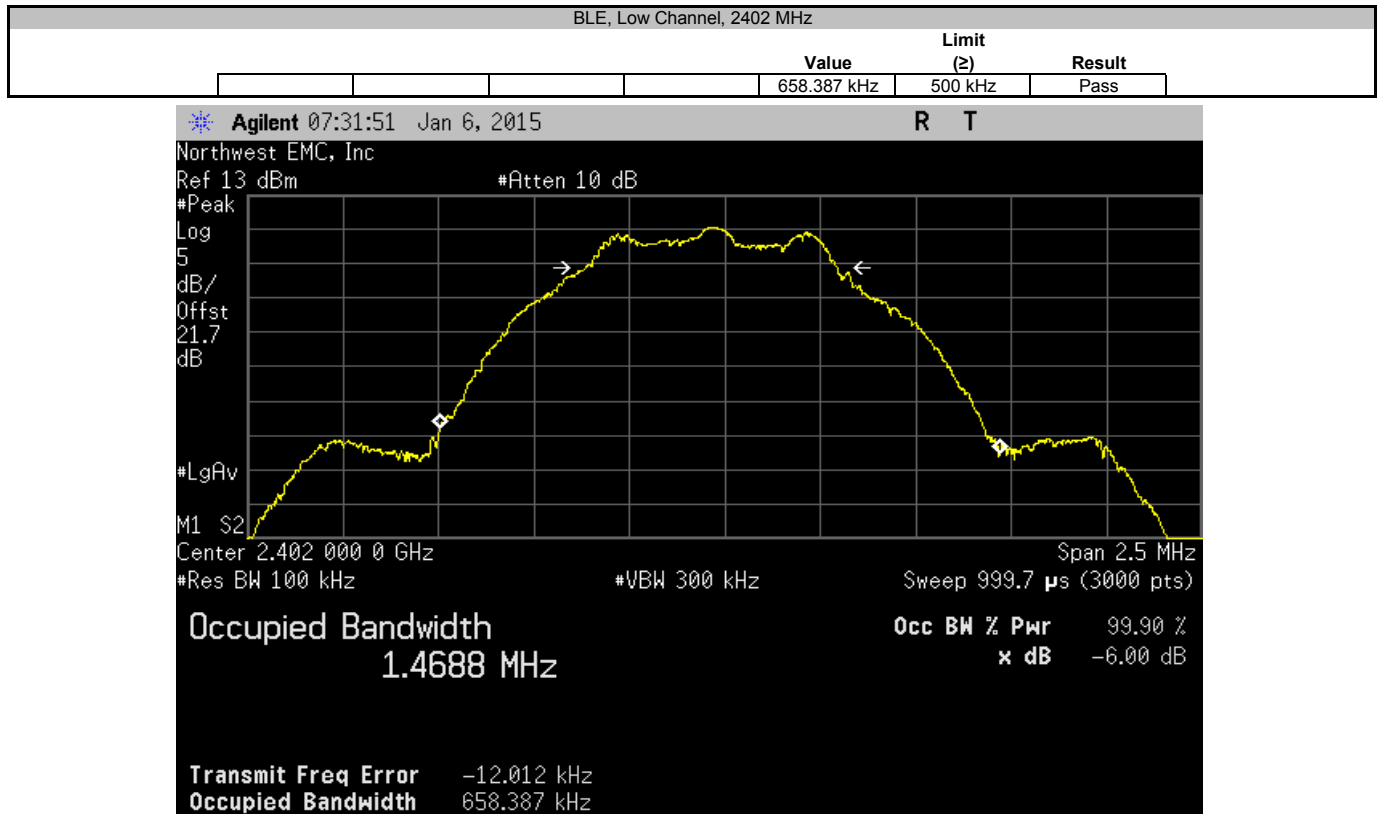
The EUT was set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.



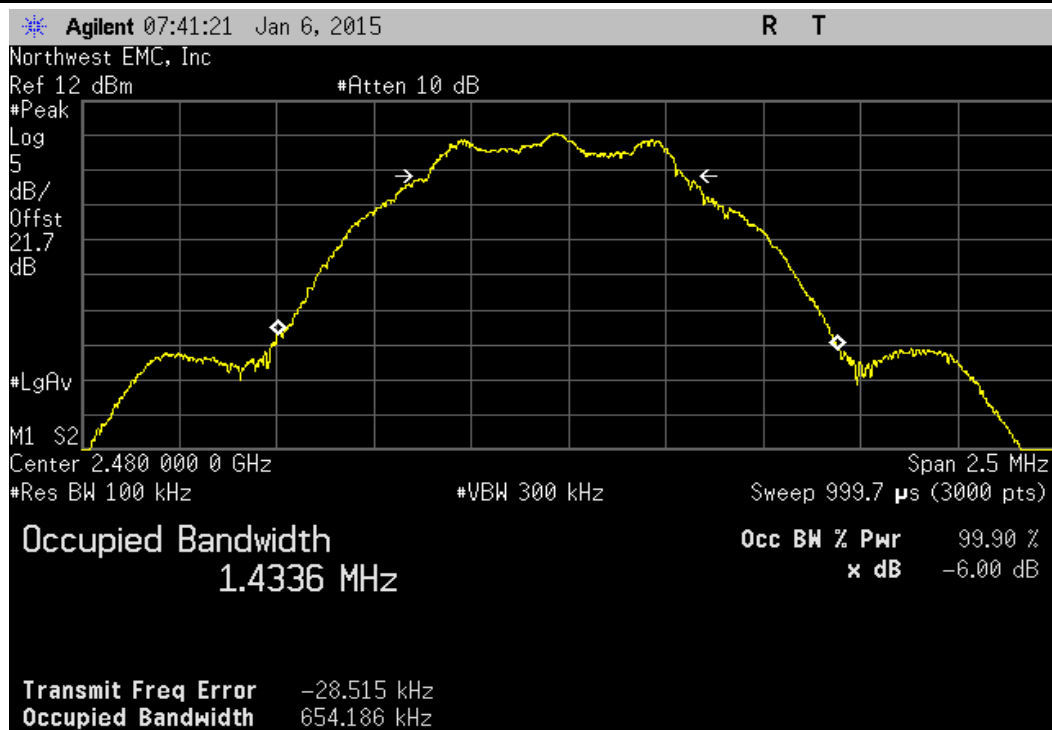
OCCUPIED BANDWIDTH

XMIT 2014.02.07
NweTx 2014.11.06

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0018	
Serial Number: 00409D 7C03D2		Date: 01/06/15	
Customer: Etherios Design Solutions		Temperature: 22.3°C	
Attendees: None		Humidity: 11%	
Project: None		Barometric Pres.: 1030.1	
Tested by: Trevor Buls		Power: 5VDC	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit (≥)
			Result
BLE			
Low Channel, 2402 MHz		658.387 kHz	500 kHz
Mid Channel, 2442 MHz		655.49 kHz	500 kHz
High Channel, 2480 MHz		654.186 kHz	500 kHz
			Pass
			Pass
			Pass



BLE, High Channel, 2480 MHz						
				Value	Limit (≥)	Result
				654.186 kHz	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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mos)
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC Block	Fairview Microwave	SD3379	AMI	10/2/2014	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	8/12/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Prior to measuring peak transmit power the DTS bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The method found in KDB 558074 DTS D01 Measurement Section 9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

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

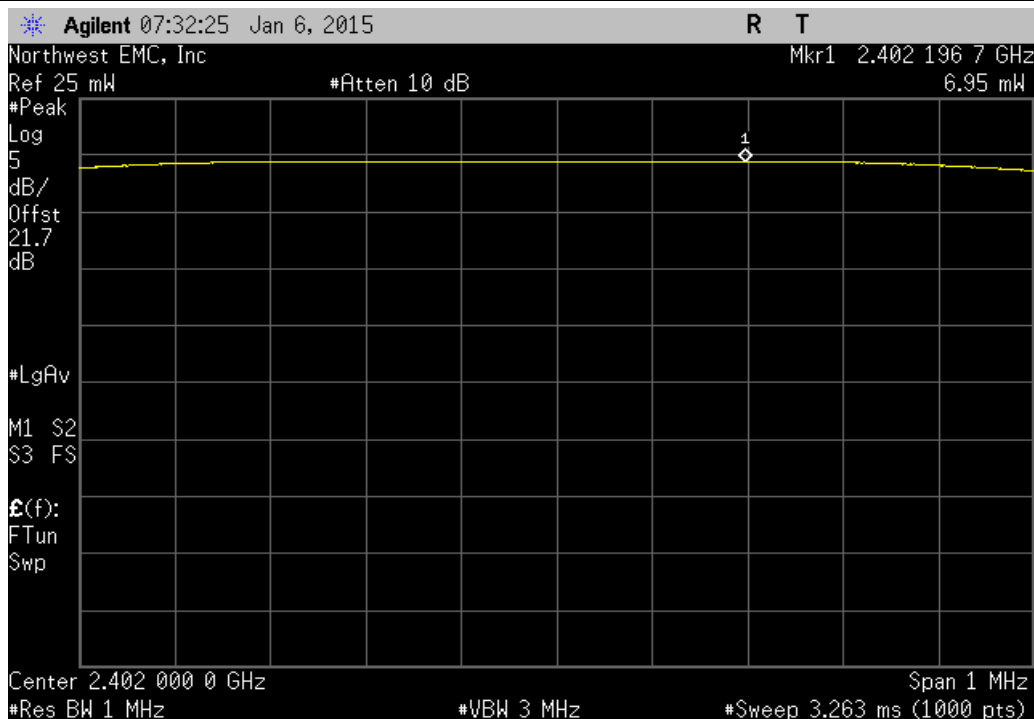


OUTPUT POWER

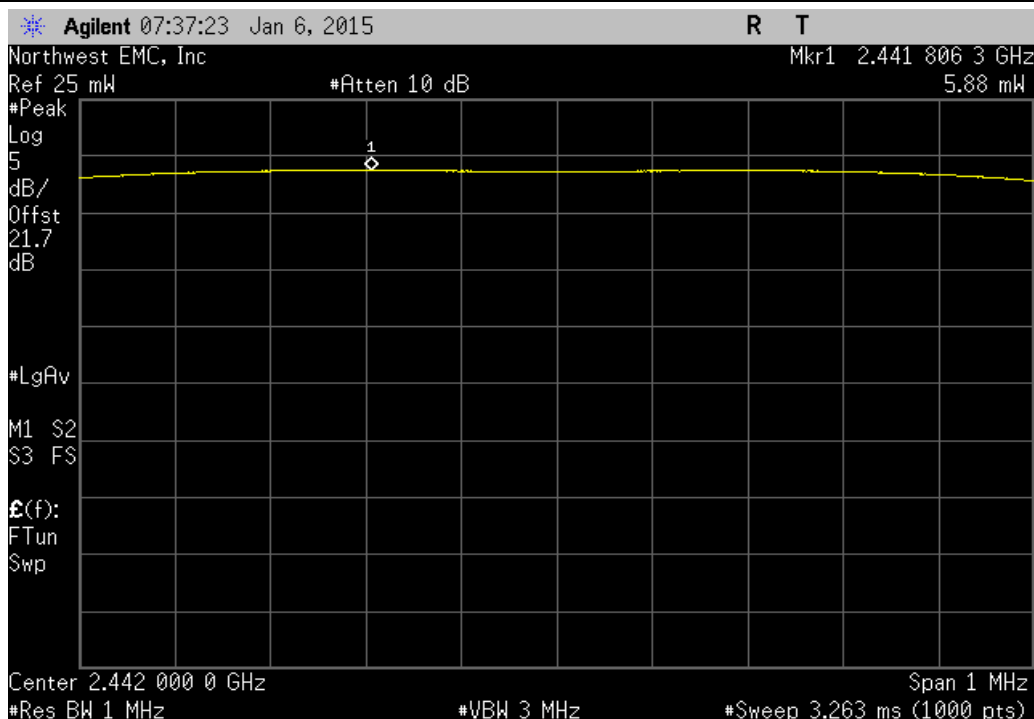
XMIT 2014.02.07
NweTx 2014.11.06

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0018	
Serial Number: 00409D 7C03D2		Date: 01/06/15	
Customer: Etherios Design Solutions		Temperature: 22.3°C	
Attendees: None		Humidity: 11%	
Project: None		Barometric Pres.: 1030.1	
Tested by: Trevor Buls		Power: 5VDC	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit (<) Result
BLE			
Low Channel, 2402 MHz		6.953 mW	1 W Pass
Mid Channel, 2442 MHz		5.882 mW	1 W Pass
High Channel, 2480 MHz		5.448 mW	1 W Pass

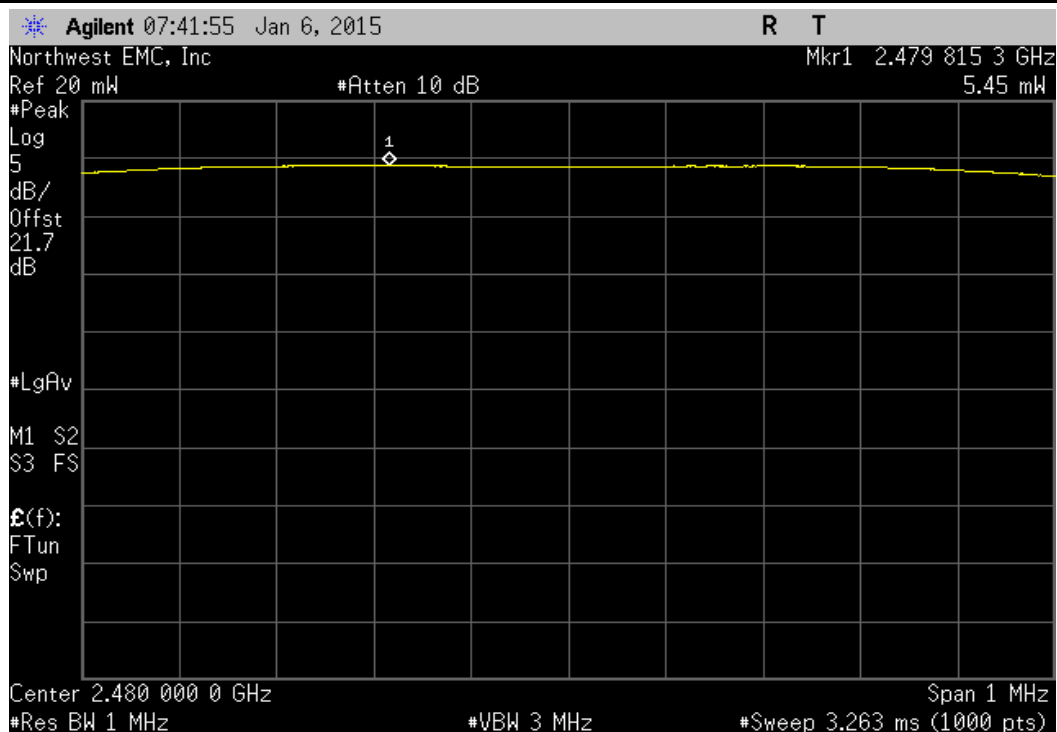
BLE, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				6.953 mW	1 W	Pass



BLE, Mid Channel, 2442 MHz						
				Value	Limit (<)	Result
				5.882 mW	1 W	Pass



BLE, High Channel, 2480 MHz						
				Value	Limit (<)	Result
				5.448 mW	1 W	Pass



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 (mos)
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC Block	Fairview Microwave	SD3379	AMI	10/2/2014	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	8/12/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

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 using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

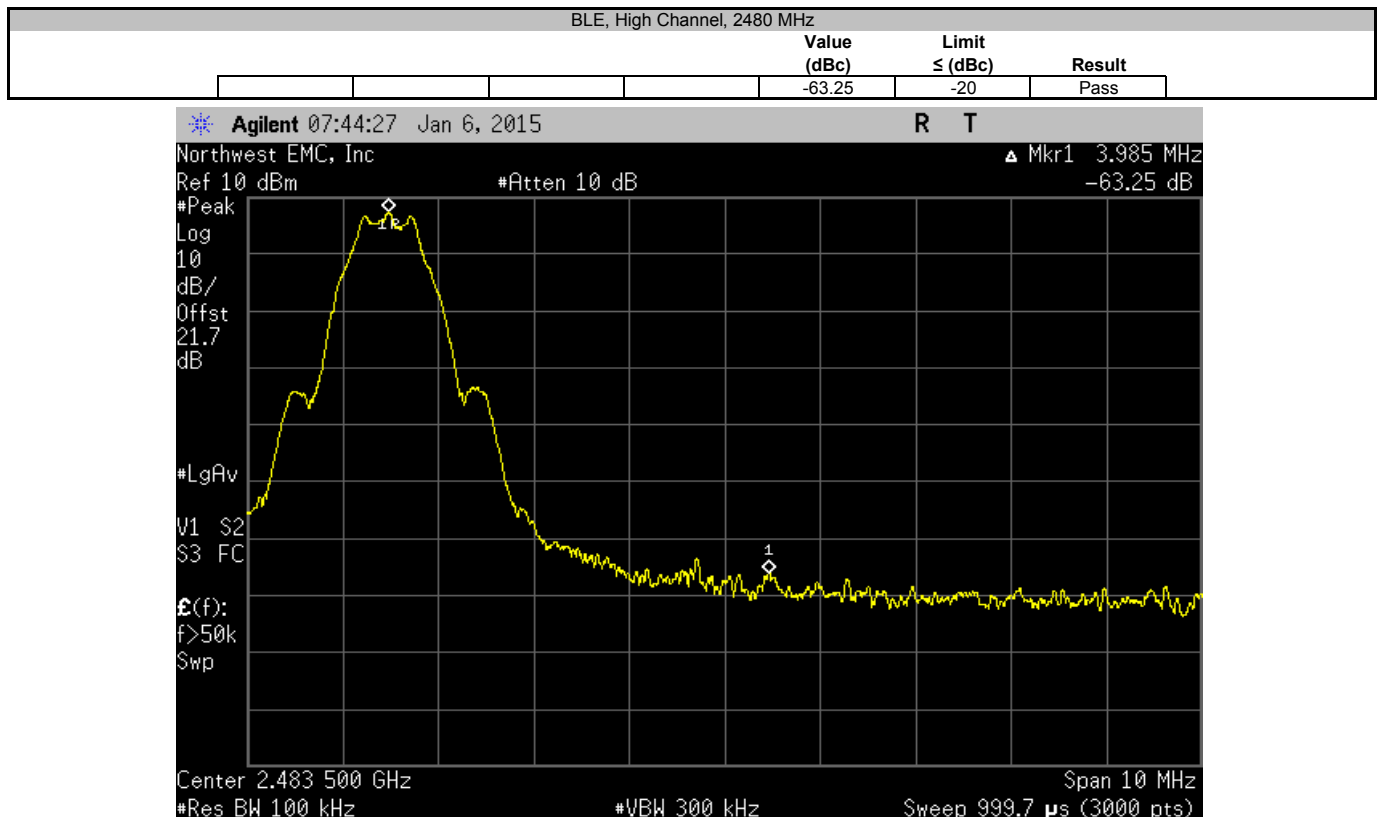
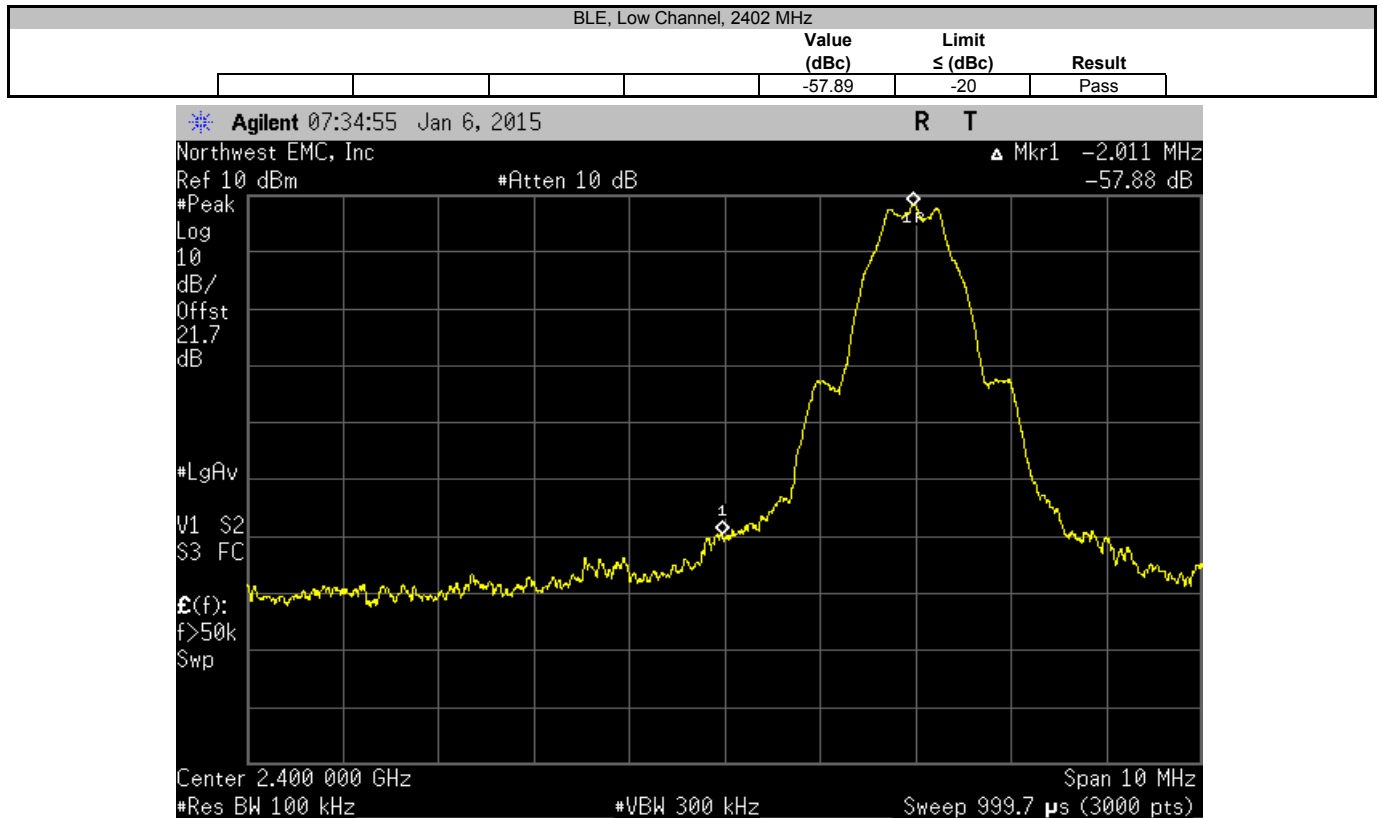
The spectrum was scanned below the lower band edge and above the higher band edge.



BAND EDGE COMPLIANCE

XMIT 2014.02.07
NweTx 2014.11.06

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0018	
Serial Number: 00409D 7C03D2		Date: 01/06/15	
Customer: Etherios Design Solutions		Temperature: 22.3°C	
Attendees: None		Humidity: 11%	
Project: None		Barometric Pres.: 1030.1	
Tested by: Trevor Buls		Power: 5VDC	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value (dBc)	Limit ≤ (dBc)
BLE			Result
Low Channel, 2402 MHz		-57.89	-20 Pass
High Channel, 2480 MHz		-63.25	-20 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 (mos)
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC Block	Fairview Microwave	SD3379	AMI	10/2/2014	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	8/12/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

TEST DESCRIPTION

The maximum power spectral density measurements were measured with the EUT set to the required transmit frequencies in each band. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the lowest, middle, and maximum data rate for each modulation type available.

Per the procedure outlined in FCC KDB 558074 D01 DTS Measurement Section 5.3.1, the spectrum analyzer was used as follows:

- RBW = 100 kHz
- VBW = 300 kHz
- Detector = Peak (to match method used for power measurement)
- Trace = Max hold

The observed power level is then scaled to an equivalent value in 3 kHz by adding a Bandwidth Correction Factor (BWCF) where:

$$BWCF = 10 \cdot \log(3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

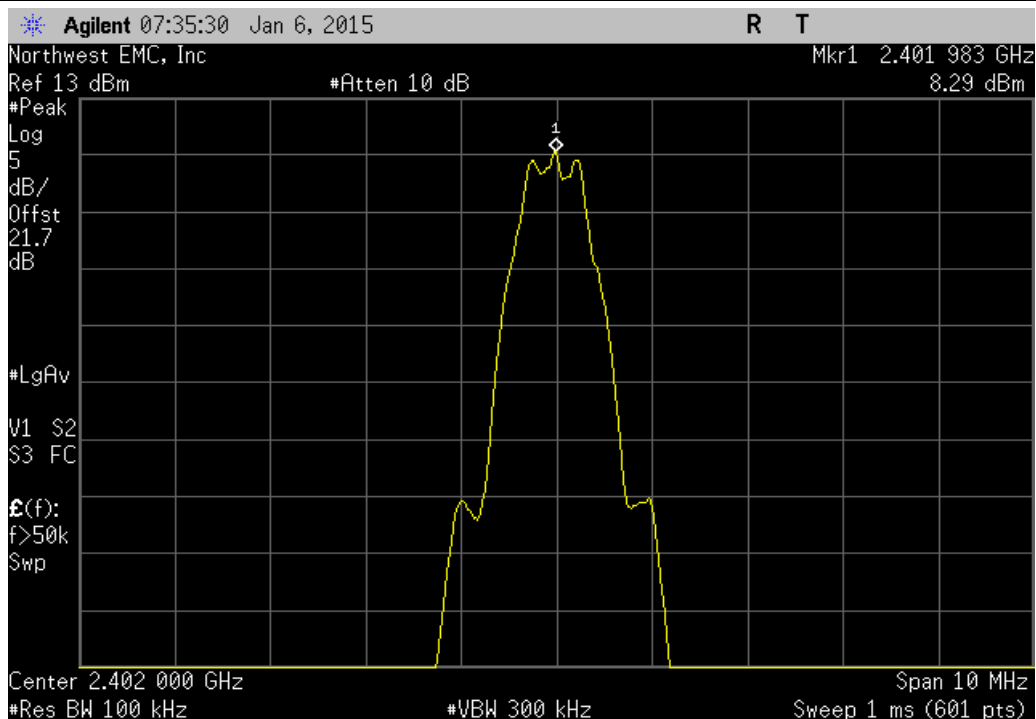


POWER SPECTRAL DENSITY

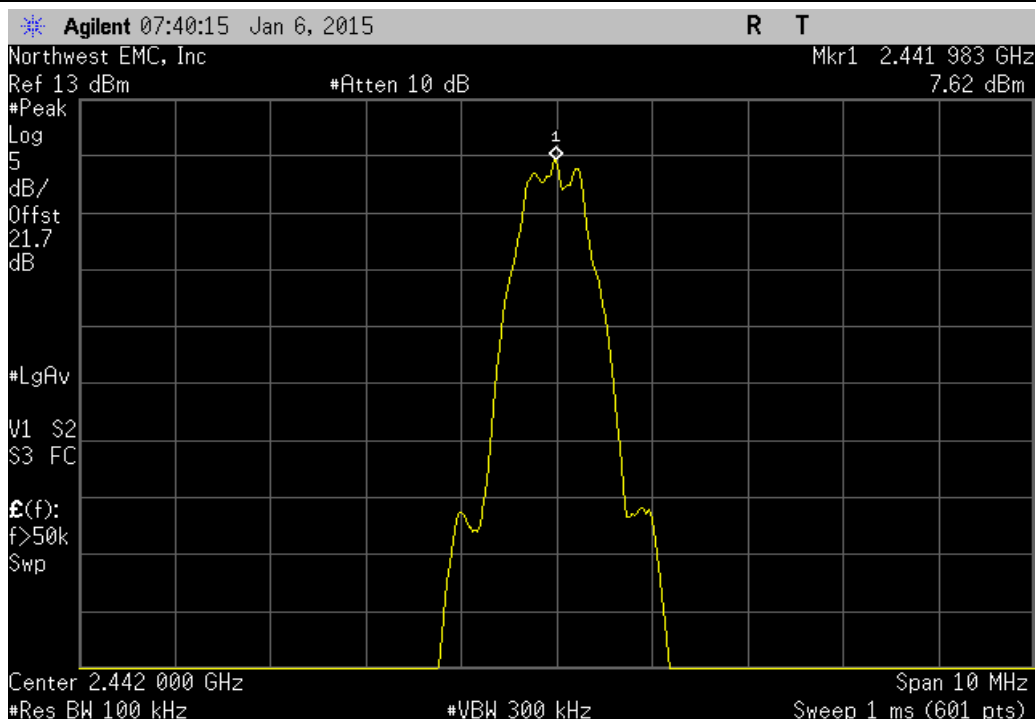
XMIT 2014.02.07
NweTx 2014.11.06

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0018				
Serial Number: 00409D 7C03D2		Date: 01/06/15				
Customer: Etherios Design Solutions		Temperature: 22.3°C				
Attendees: None		Humidity: 11%				
Project: None		Barometric Pres.: 1030.1				
Tested by: Trevor Buls		Power: 5VDC				
		Job Site: MN08				
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2015		ANSI C63.10:2009				
COMMENTS						
None						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature <i>Trevor Buls</i>				
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Results
BLE						
Low Channel, 2402 MHz		8.286	-15.2	-6.914	8	Pass
Mid Channel, 2442 MHz		7.617	-15.2	-7.583	8	Pass
High Channel, 2480 MHz		7.286	-15.2	-7.914	8	Pass

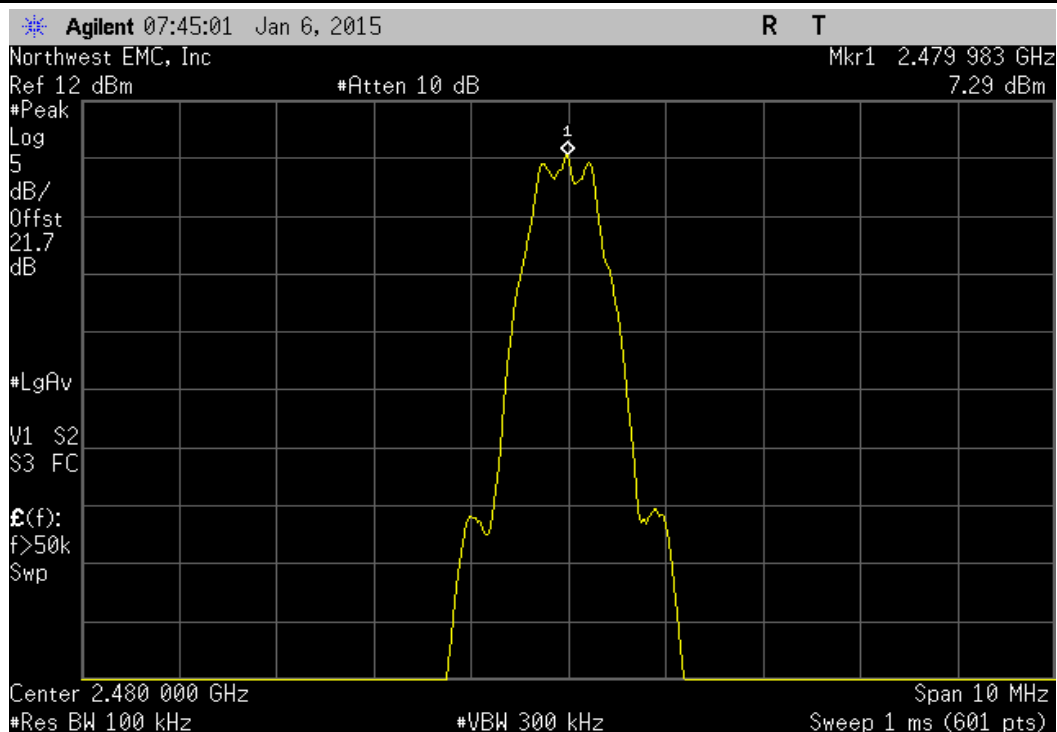
BLE, Low Channel, 2402 MHz					
Value	dBm/100kHz	Value	Limit	Results	
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
8.286	-15.2	-6.914	8	Pass	



BLE, Mid Channel, 2442 MHz					
Value	dBm/100kHz	Value	Limit	Results	
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
7.617	-15.2	-7.583	8	Pass	



BLE, High Channel, 2480 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.286	-15.2	-7.914	8	Pass



DUTY CYCLE

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 (mos)
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC Block	Fairview Microwave	SD3379	AMI	10/2/2014	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	8/12/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

TEST DESCRIPTION

The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

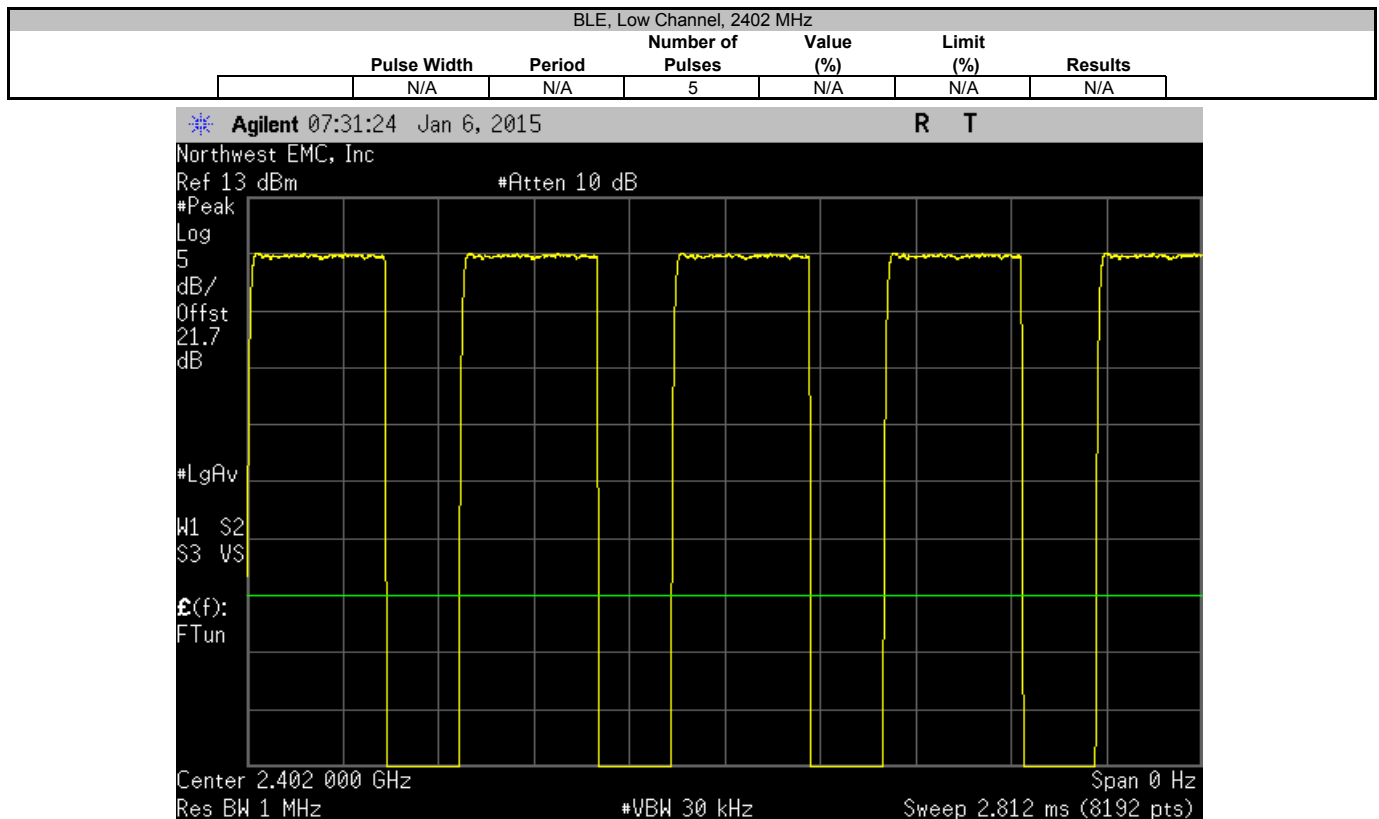
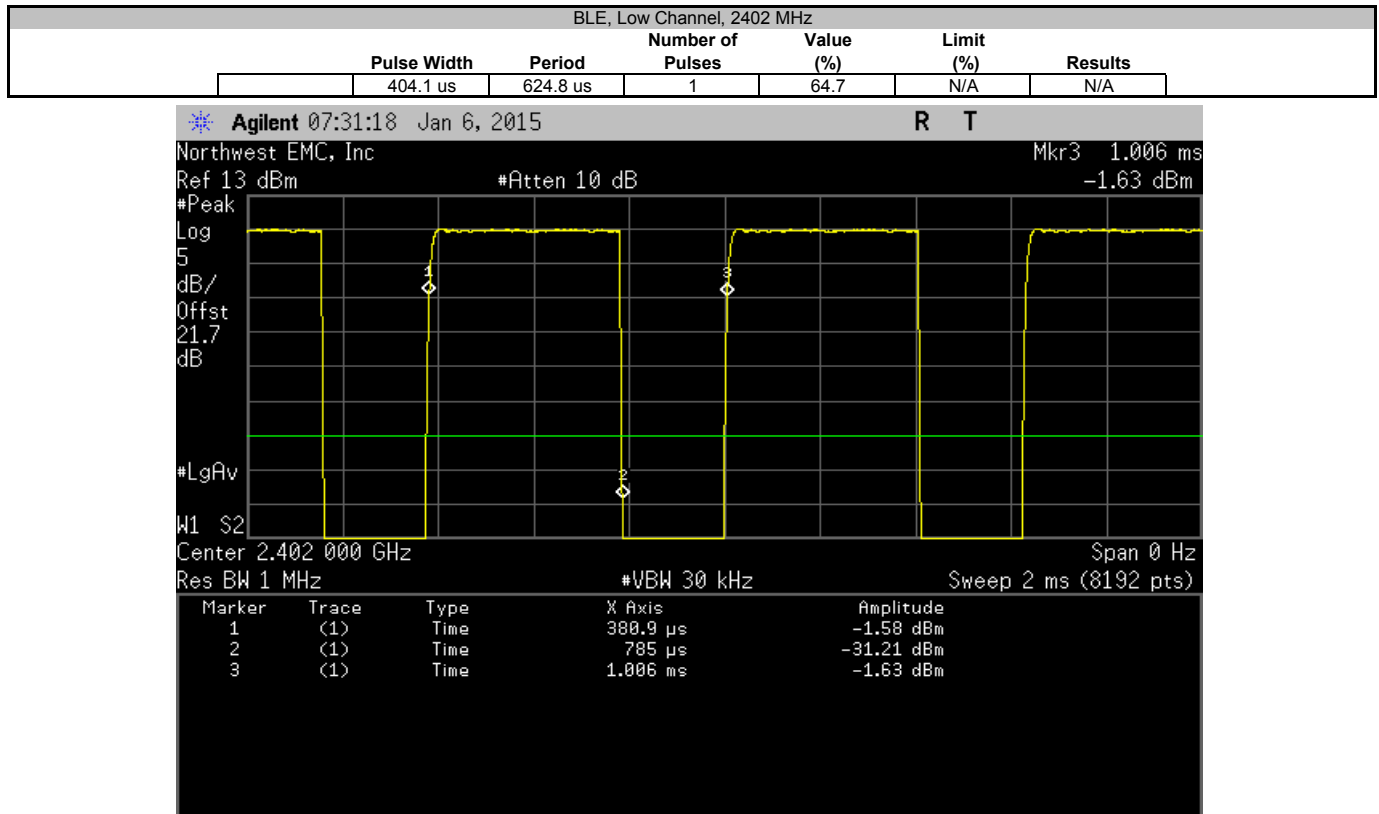
If the transmit duty cycle < 98 percent, burst gating was used during some of the other tests in this report to only measure during the burst duration.



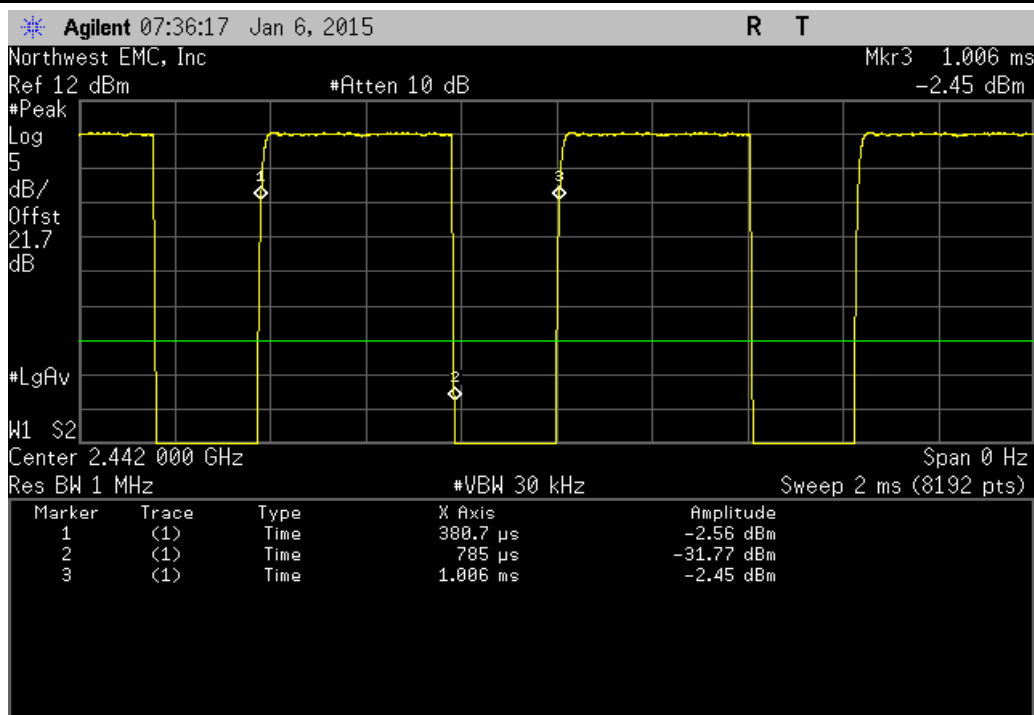
DUTY CYCLE

XMit 2014.02.07
NweTx 2014.11.06

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0018					
Serial Number: 00409D 7C03D2		Date: 01/06/15					
Customer: Etherios Design Solutions		Temperature: 22.3°C					
Attendees: None		Humidity: 11%					
Project: None		Barometric Pres.: 1030.1					
Tested by: Trevor Buls		Power: 5VDC					
		Job Site: MN08					
TEST SPECIFICATIONS		Test Method					
FCC 15.247:2015		ANSI C63.10:2009					
COMMENTS							
None							
DEVIATIONS FROM TEST STANDARD							
None							
Configuration #	1	Signature <i>Trevor Buls</i>					
		Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
BLE							
	Low Channel, 2402 MHz	404.1 us	624.8 us	1	64.7	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2442 MHz	404.3 us	625 us	1	64.7	N/A	N/A
	Mid Channel, 2442 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	404.6 us	625 us	1	64.7	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A



BLE, Mid Channel, 2442 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
404.3 us	625 us	1	64.7	N/A	N/A	



BLE, Mid Channel, 2442 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

