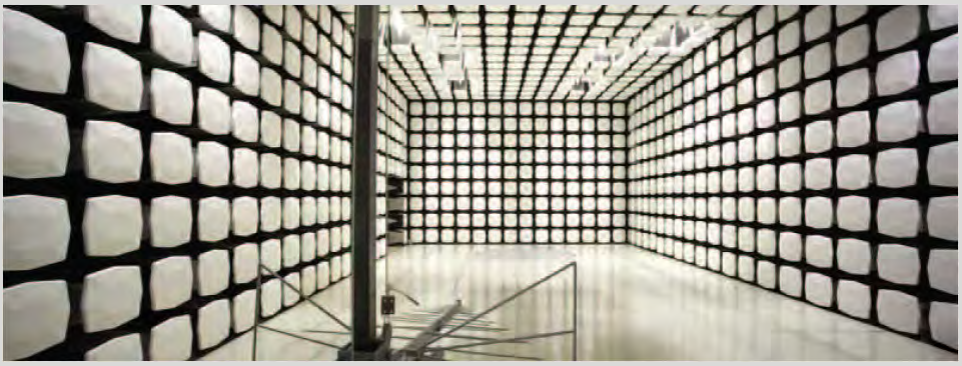
Supra, A Division of UTCFS

WTI SMART

FCC 15.247:2014 (FHSS)

Bluetooth EDR Radio

Report #: SUPR0115



Report Prepared By Northwest EMC Inc.

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

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

WTD 12.5.23

Last Date of Test: March 24, 2014
Supra, A Division of UTCFS
Model: WTI SMART

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2014	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2014	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2014	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2014	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2014	ANSI C63.10:2009	Pass
Channel Separation	FCC 15.247:2014	ANSI C63.10:2009	Pass
Number of Hopping Channels	FCC 15.247:2014	ANSI C63.10:2009	Pass
Dwell Time	FCC 15.247:2014	ANSI C63.10:2009	Pass
Band Edge Compliance – Hopping Mode	FCC 15.247:2014	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2014	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:

Kyle Holgate, Operations Manager

NVLAP Lab Code: 200630-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

NORTHWEST EMC
REV 2012.08.02

REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

REV 2012.05.24

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 Guide 65 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

KCC / 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.

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.

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

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 16-4-1 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.

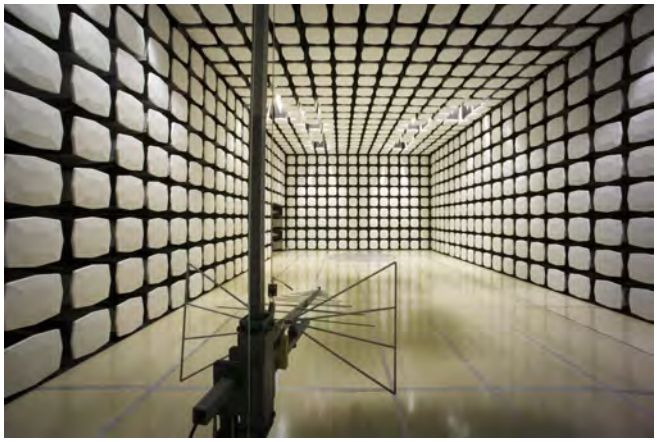
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	4.00	-4.00
AC Powerline Conducted Emissions (dB)	2.70	-2.70

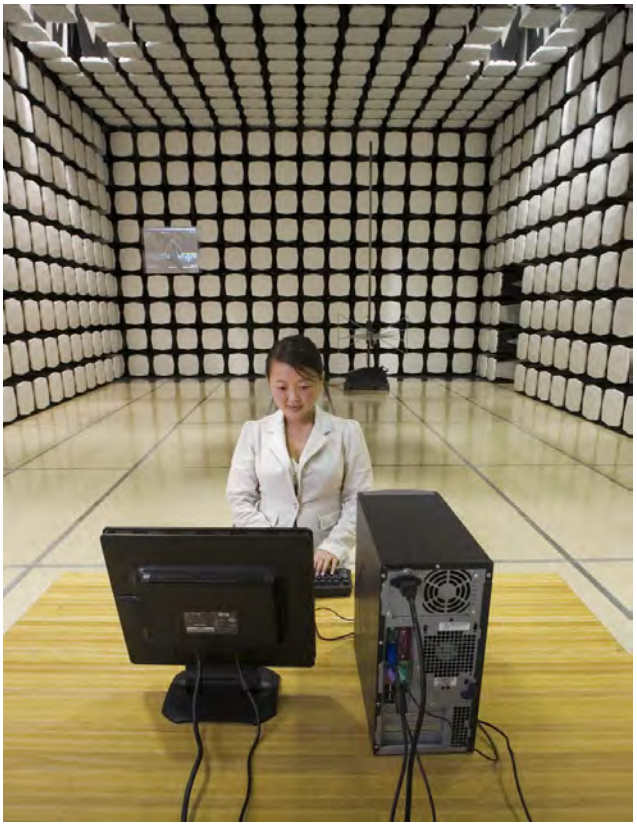
NORTHWEST EMC

REV 2013.06.28

FACILITIES

Oregon	California	New York	Minnesota	Washington
Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Labs NC01-05,SU02,SU07 19201 120th Ave. NE Bothell, WA 98011 (425) 984-6600
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-*2*	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0





PRODUCT DESCRIPTION

WTD 12.5.23

Client and Equipment Under Test (EUT) Information

Company Name:	Supra, A Division of UTCFS
Address:	4001 Fairview Industrial Drive SE
City, State, Zip:	Salem, OR 97302-0167
Test Requested By:	Dean Sinn
Model:	WTI SMART
First Date of Test:	January 14, 2014
Last Date of Test:	March 24, 2014
Receipt Date of Samples:	January 13, 2014
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
Wireless interface assembly utilizing a Bluetooth 4.0 radio interface for use on a mechanical lockset for commercial door applications.

Testing Objective:
To demonstrate compliance to FCC 15.247 FHSS requirements for the Bluetooth EDR portion of the radio.

CONFIGURATIONS

Configuration SUPR0115- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Wireless TRACcess Interface	Supra, A Division of UTCF	WTI SMART	0074

Configuration SUPR0115- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Wireless TRACcess Interface	Supra, A Division of UTCF	WTI SMART	0003

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Programming Station	Supra	None	None
AC/DC Power Adapter	LEI	410905OO3CT	None
Laptop	Dell	Latitude E6410	7V0DTM1
Mouse	Lenovo	M-U0025-O	HS421HD16E1
AC/DC Power Adapter	Dell	AA22850	CN-0T2357-16291-44L-046F

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power Cable	PA	1.5m	PA	AC mains	Programming Station
Serial to USB	Yes	1m	No	Laptop	Programming Station
Mouse USB cable	PA	1.6m	PA	Laptop	Mouse
AC Power Cable	No	1m	No	AC mains	AC/DC Adapter
DC Power Cable	PA	1.7m	Yes	AC/DC Adapter	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

WTD 12.5.23

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	1/14/2014	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.
2	1/14/2014	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	1/14/2014	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.
4	1/14/2014	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	1/16/2014	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	1/23/2014	Number of Hopping Channels	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	1/23/2014	Band Edge Compliance – Hopping Mode	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	1/23/2014	Channel Separation	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.
9	3/24/2014	Dwell Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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 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 test software provided for operation in a fixed, single channel mode allows the EUT to operate continuously at 100% Duty Cycle.

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
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +27dBm.

OUTPUT POWER

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/14/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating at 100% duty cycle.

DEVIATIONS FROM TEST STANDARD

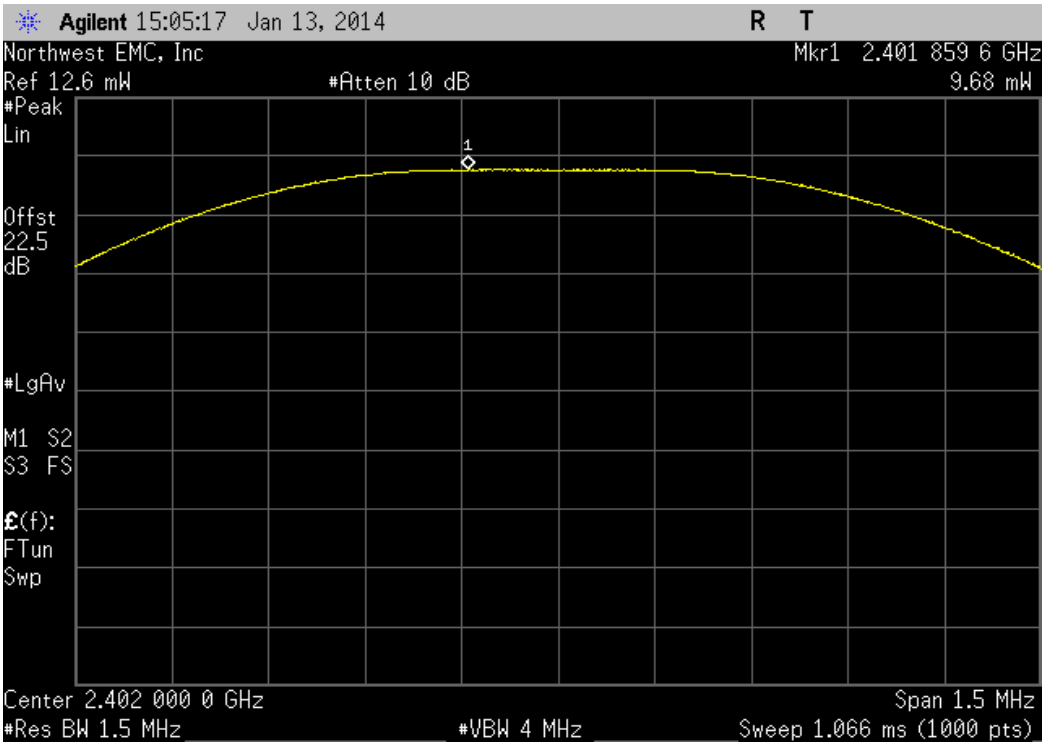
Configuration #	2	Signature

		Value	Limit	Result
DH5, GFSK				
	Low Channel, 2402 MHz	9.683 mW	< 125 mW	Pass
	Mid Channel, 2440 MHz	9.694 mW	< 125 mW	Pass
	High Channel, 2480 MHz	9.927 mW	< 125 mW	Pass
2DH5, pi/4-DQPSK				
	Low Channel, 2402 MHz	9.768 mW	< 125 mW	Pass
	Mid Channel, 2440 MHz	9.815 mW	< 125 mW	Pass
	High Channel, 2480 MHz	10.018 mW	< 125 mW	Pass
3DH5, 8-DPSK				
	Low Channel, 2402 MHz	11.484 mW	< 125 mW	Pass
	Mid Channel, 2440 MHz	11.607 mW	< 125 mW	Pass
	High Channel, 2480 MHz	11.907 mW	< 125 mW	Pass

OUTPUT POWER

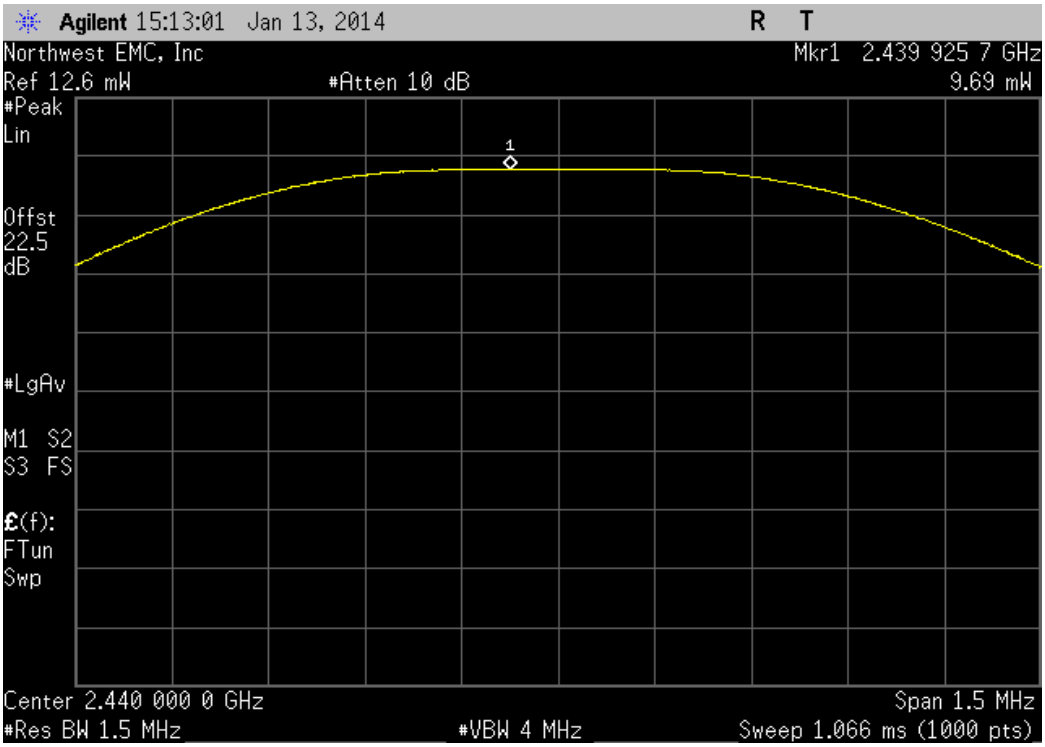
DH5, GFSK, Low Channel, 2402 MHz

				Value	Limit	Result
				9.683 mW	< 125 mW	Pass



DH5, GFSK, Mid Channel, 2440 MHz

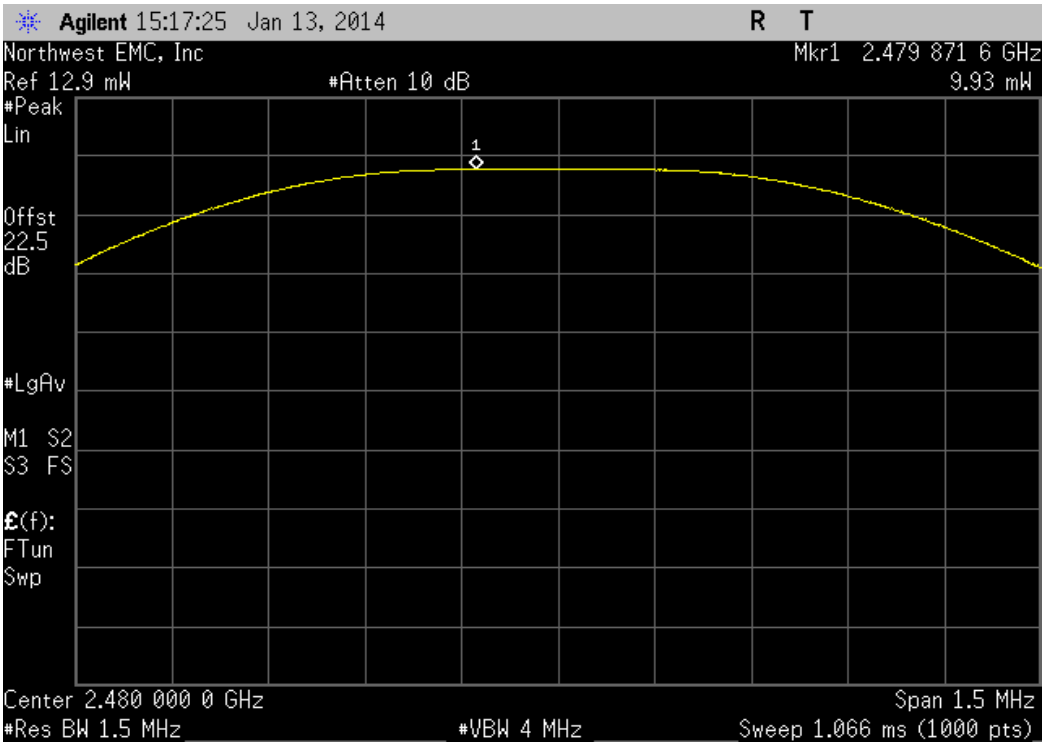
				Value	Limit	Result
				9.694 mW	< 125 mW	Pass



OUTPUT POWER

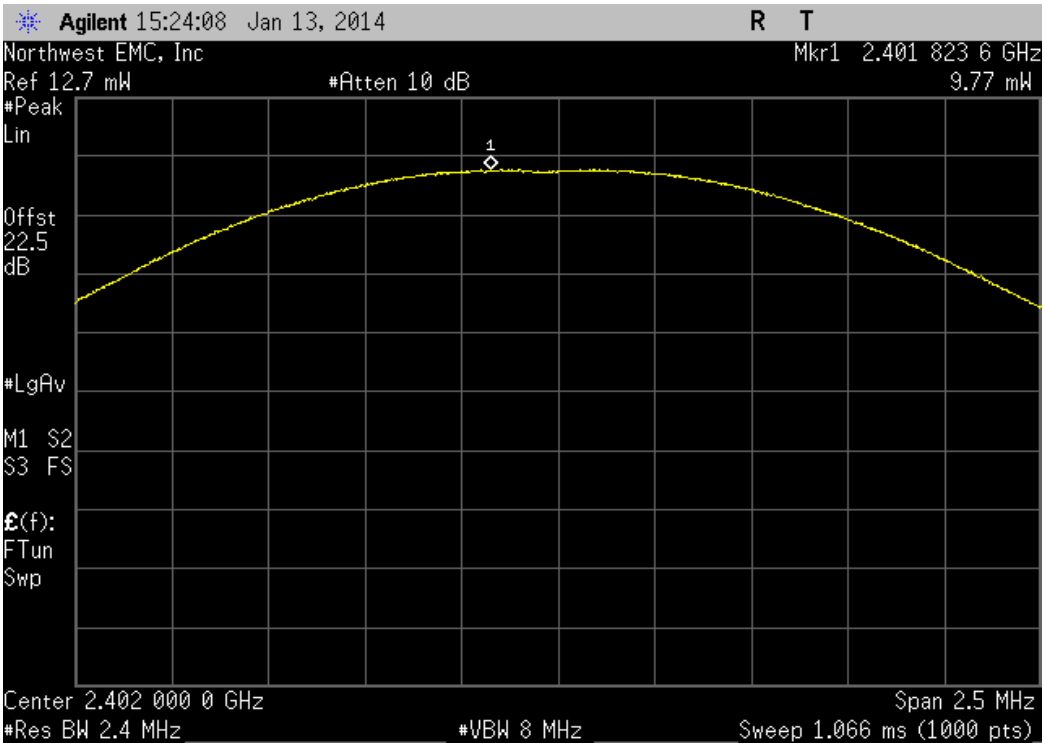
DH5, GFSK, High Channel, 2480 MHz

				Value	Limit	Result
				9.927 mW	< 125 mW	Pass



2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

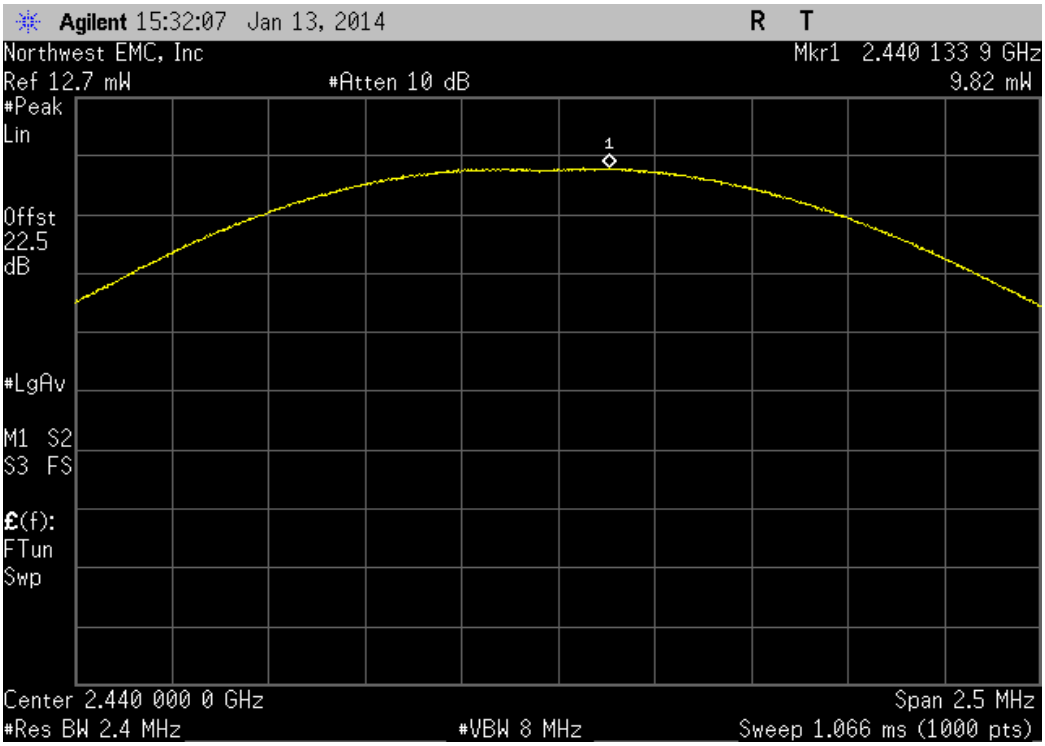
				Value	Limit	Result
				9.768 mW	< 125 mW	Pass



OUTPUT POWER

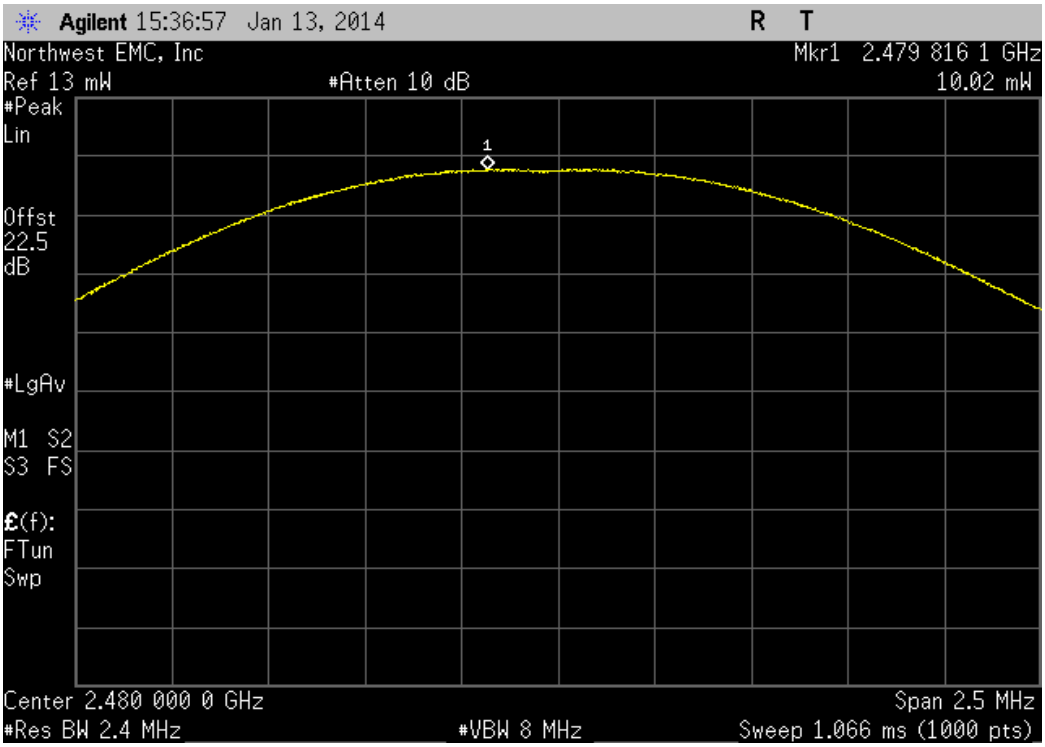
2DH5, pi/4-DQPSK, Mid Channel, 2440 MHz

				Value	Limit	Result
				9.815 mW	< 125 mW	Pass



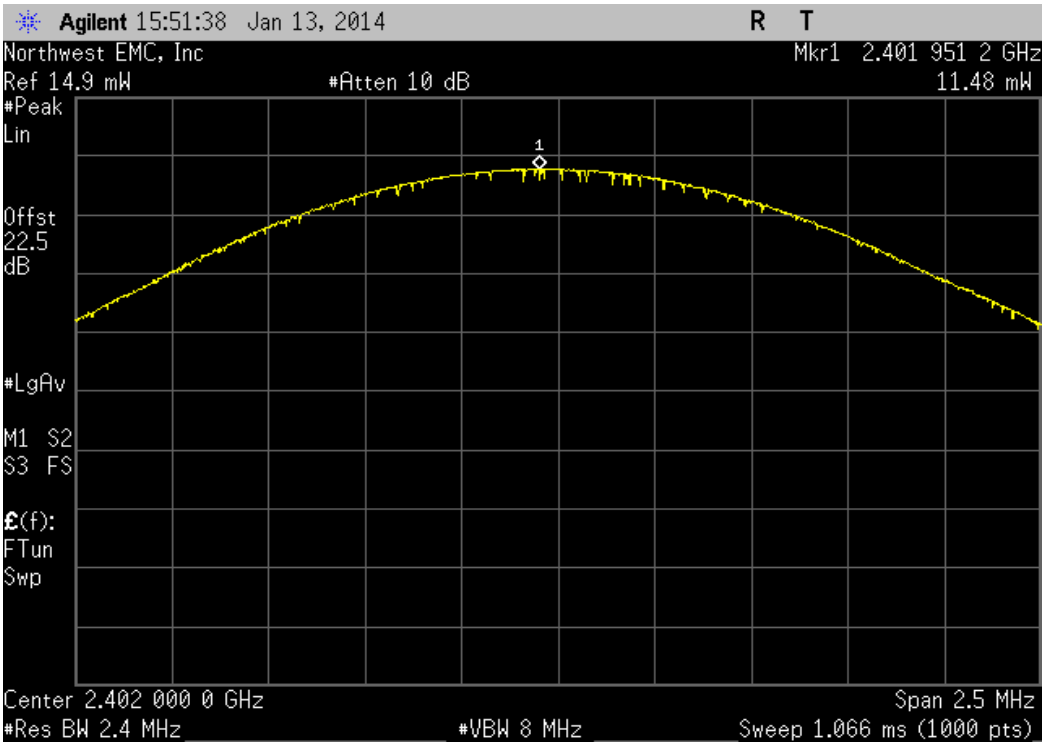
2DH5, pi/4-DQPSK, High Channel, 2480 MHz

				Value	Limit	Result
				10.018 mW	< 125 mW	Pass

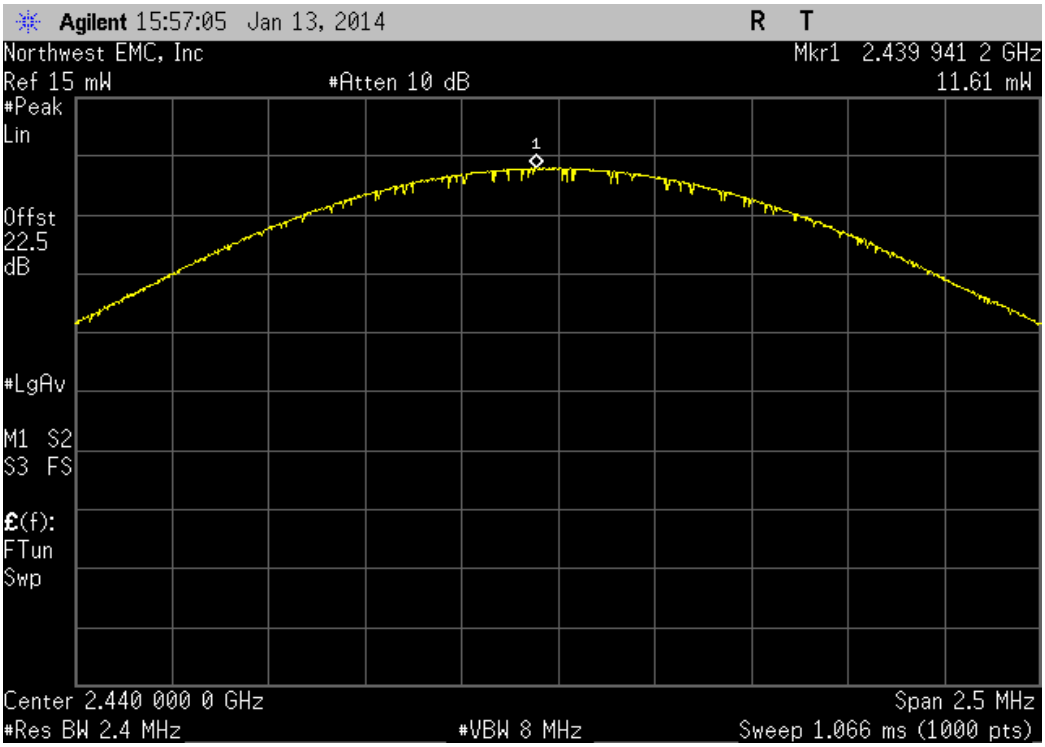


OUTPUT POWER

3DH5, 8-DPSK, Low Channel, 2402 MHz							
					Value	Limit	Result
					11.484 mW	< 125 mW	Pass

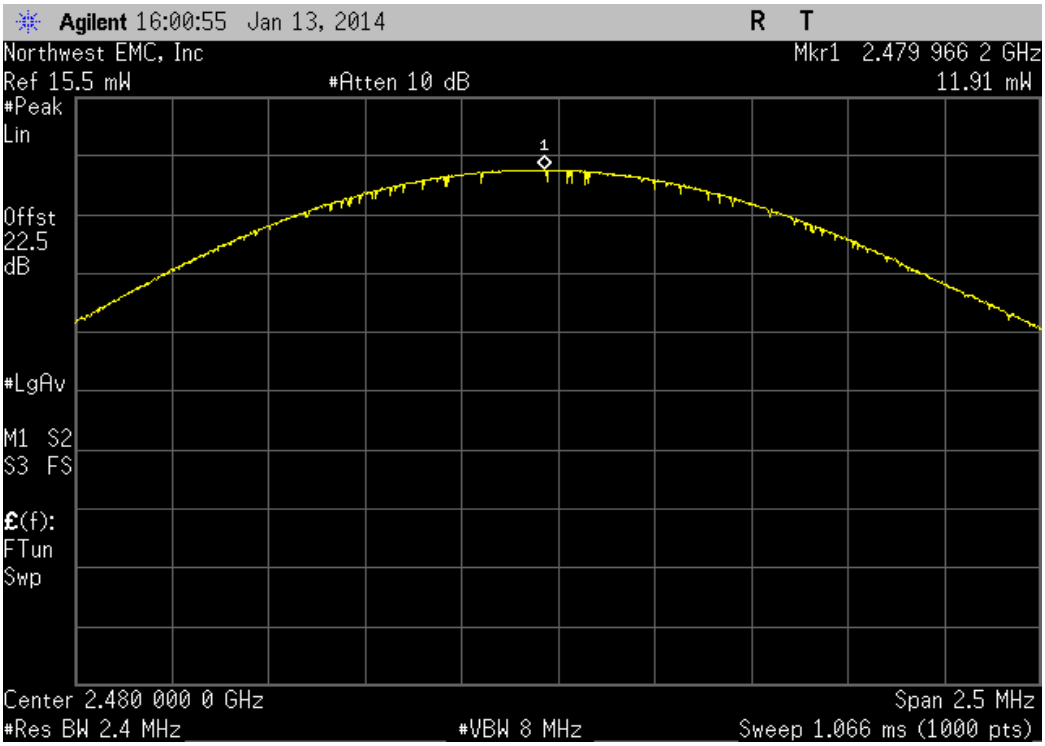


3DH5, 8-DPSK, Mid Channel, 2440 MHz							
					Value	Limit	Result
					11.607 mW	< 125 mW	Pass



OUTPUT POWER

3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value	Limit	Result
				11.907 mW	< 125 mW	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

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MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode.

OCCUPIED BANDWIDTH

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/14/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating at 100% duty cycle.

DEVIATIONS FROM TEST STANDARD

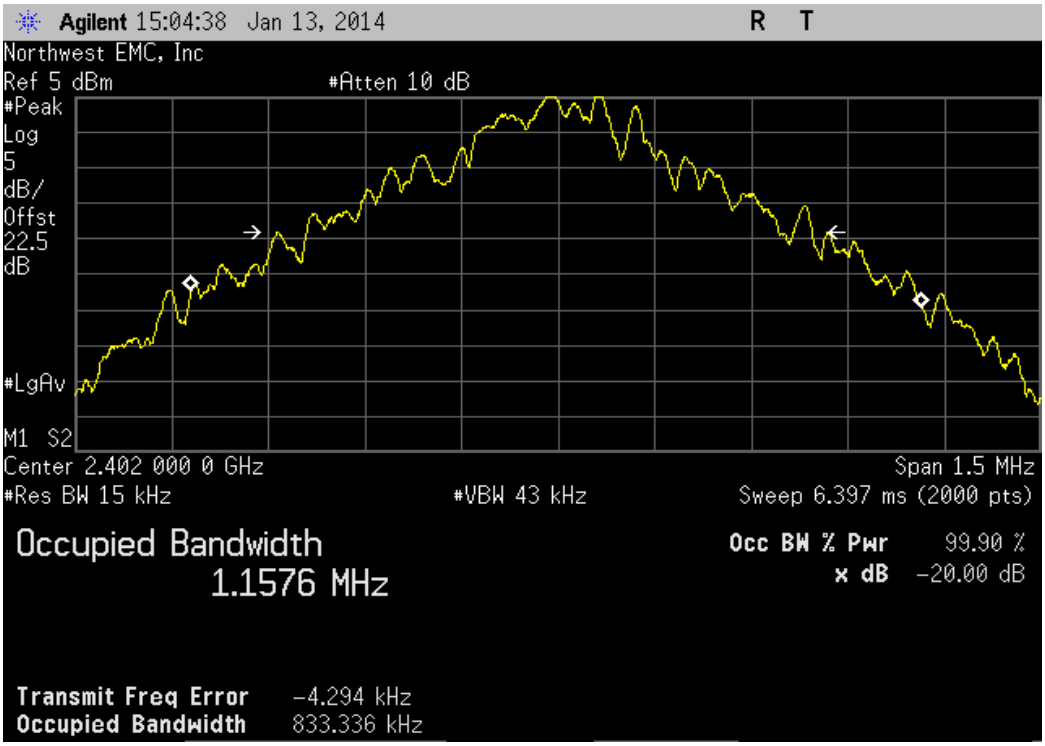
Configuration #	2	Signature

		Value	Limit	Result
DH5, GFSK				
	Low Channel, 2402 MHz	833.336 kHz	< 1.5 MHz	Pass
	Mid Channel, 2440 MHz	869.665 kHz	< 1.5 MHz	Pass
	High Channel, 2480 MHz	883.612 kHz	< 1.5 MHz	Pass
2DH5, pi/4-DQPSK				
	Low Channel, 2402 MHz	1.374 MHz	< 1.5 MHz	Pass
	Mid Channel, 2440 MHz	1.373 MHz	< 1.5 MHz	Pass
	High Channel, 2480 MHz	1.371 MHz	< 1.5 MHz	Pass
3DH5, 8-DPSK				
	Low Channel, 2402 MHz	1.356 MHz	< 1.5 MHz	Pass
	Mid Channel, 2440 MHz	1.354 MHz	< 1.5 MHz	Pass
	High Channel, 2480 MHz	1.356 MHz	< 1.5 MHz	Pass

OCCUPIED BANDWIDTH

DH5, GFSK, Low Channel, 2402 MHz

				Value	Limit	Result
				833.336 kHz	< 1.5 MHz	Pass



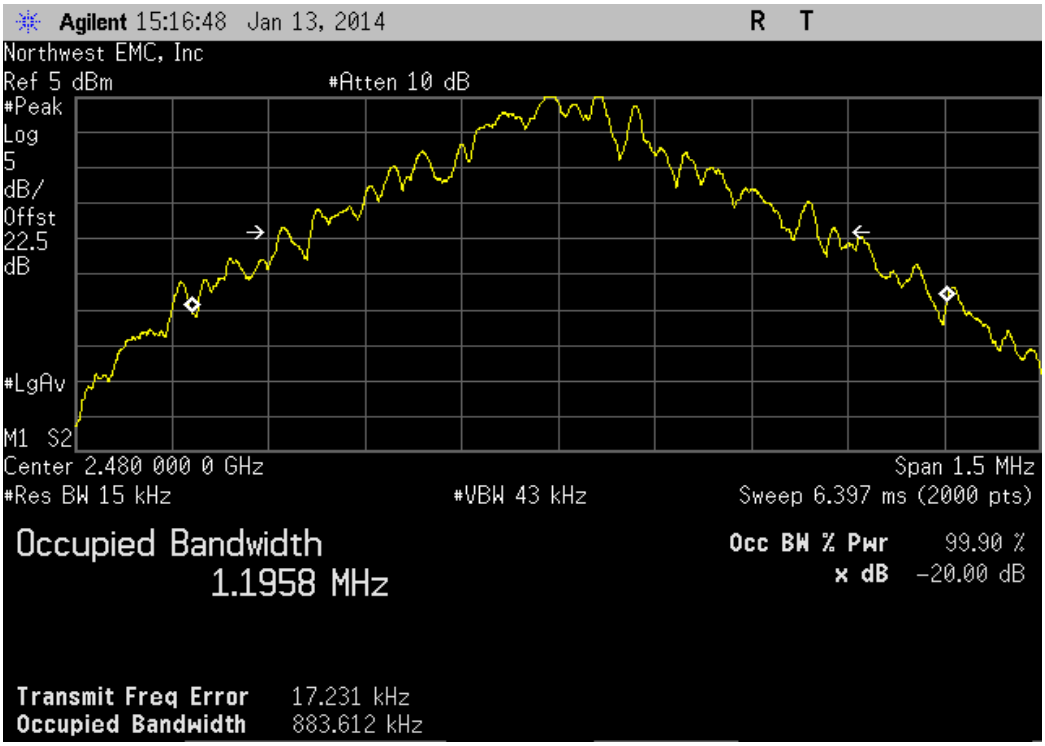
DH5, GFSK, Mid Channel, 2440 MHz

				Value	Limit	Result
				869.665 kHz	< 1.5 MHz	Pass

OCCUPIED BANDWIDTH

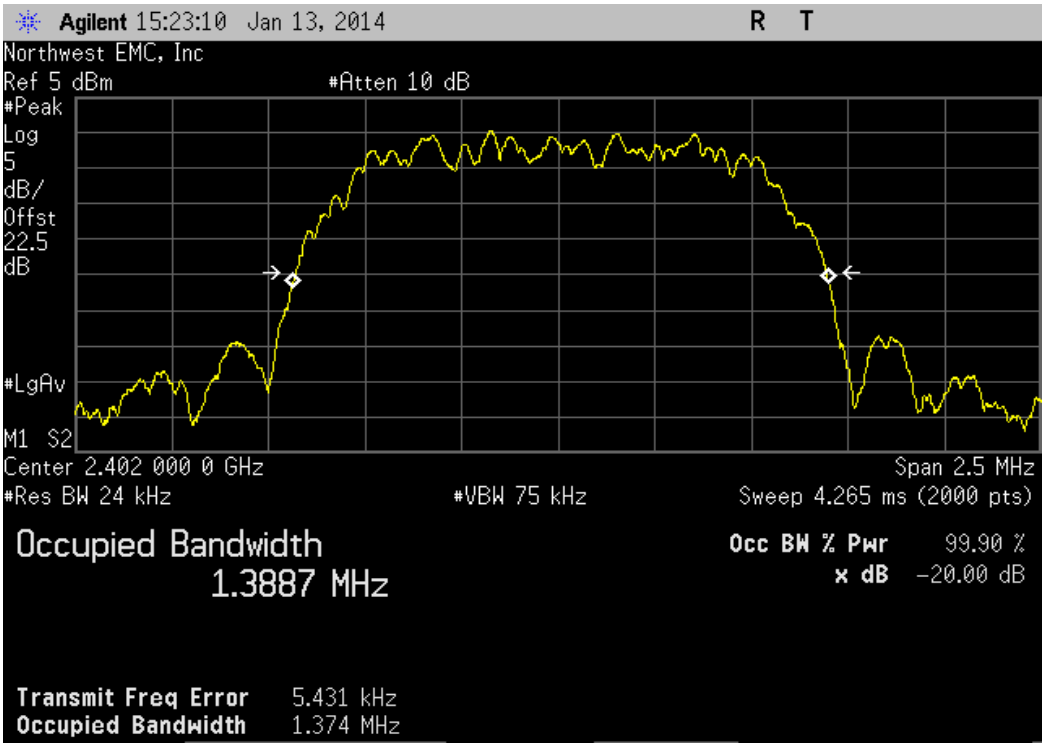
DH5, GFSK, High Channel, 2480 MHz

				Value	Limit	Result
				883.612 kHz	< 1.5 MHz	Pass



2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

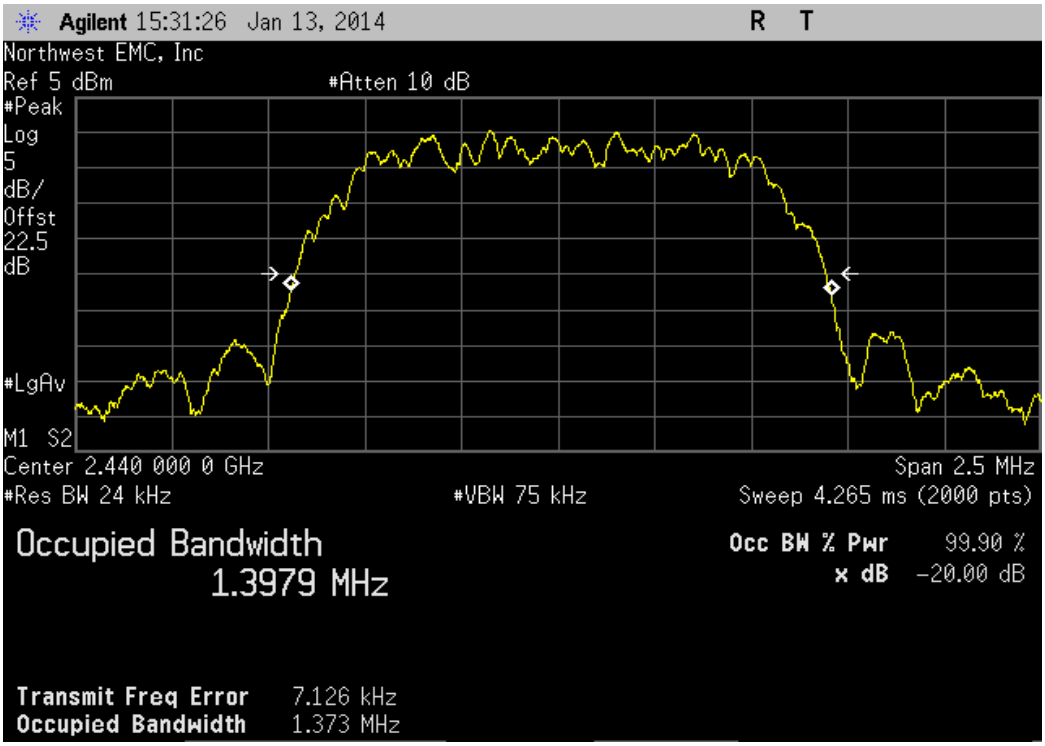
				Value	Limit	Result
				1.374 MHz	< 1.5 MHz	Pass



OCCUPIED BANDWIDTH

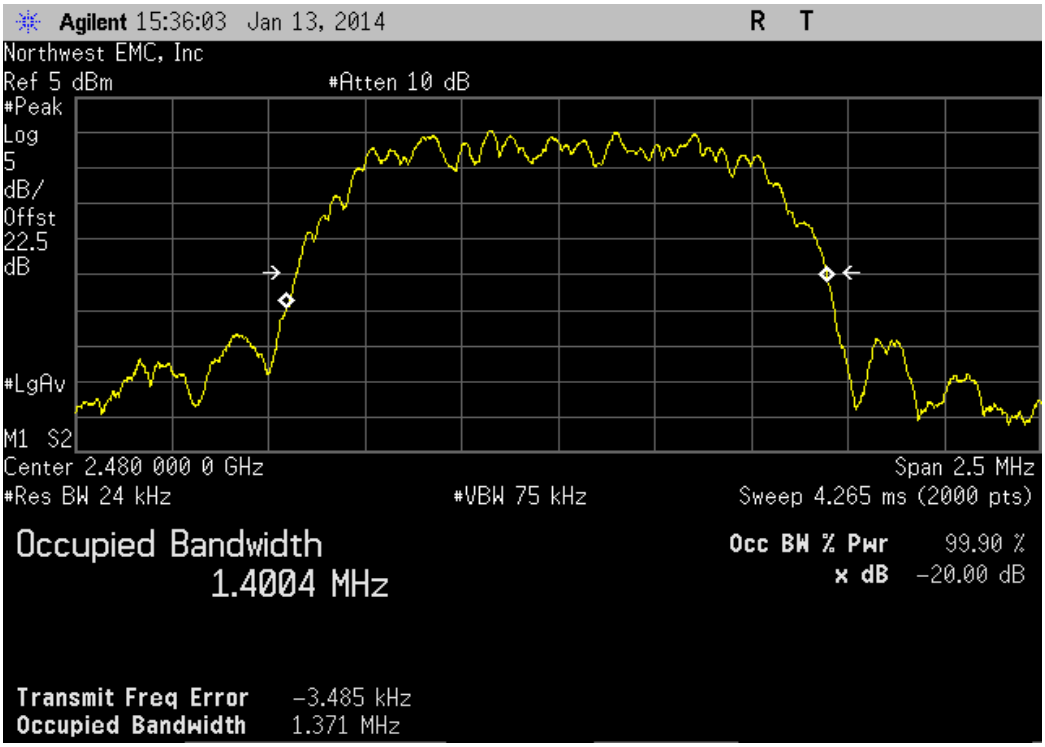
2DH5, pi/4-DQPSK, Mid Channel, 2440 MHz

				Value	Limit	Result
				1.373 MHz	< 1.5 MHz	Pass



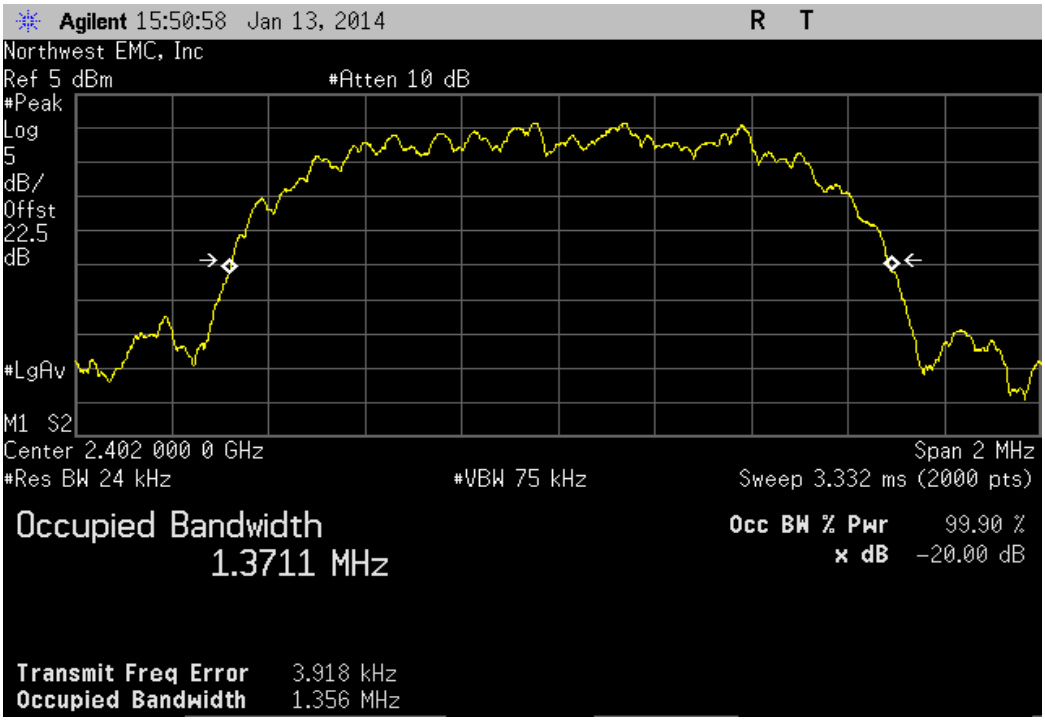
2DH5, pi/4-DQPSK, High Channel, 2480 MHz

				Value	Limit	Result
				1.371 MHz	< 1.5 MHz	Pass



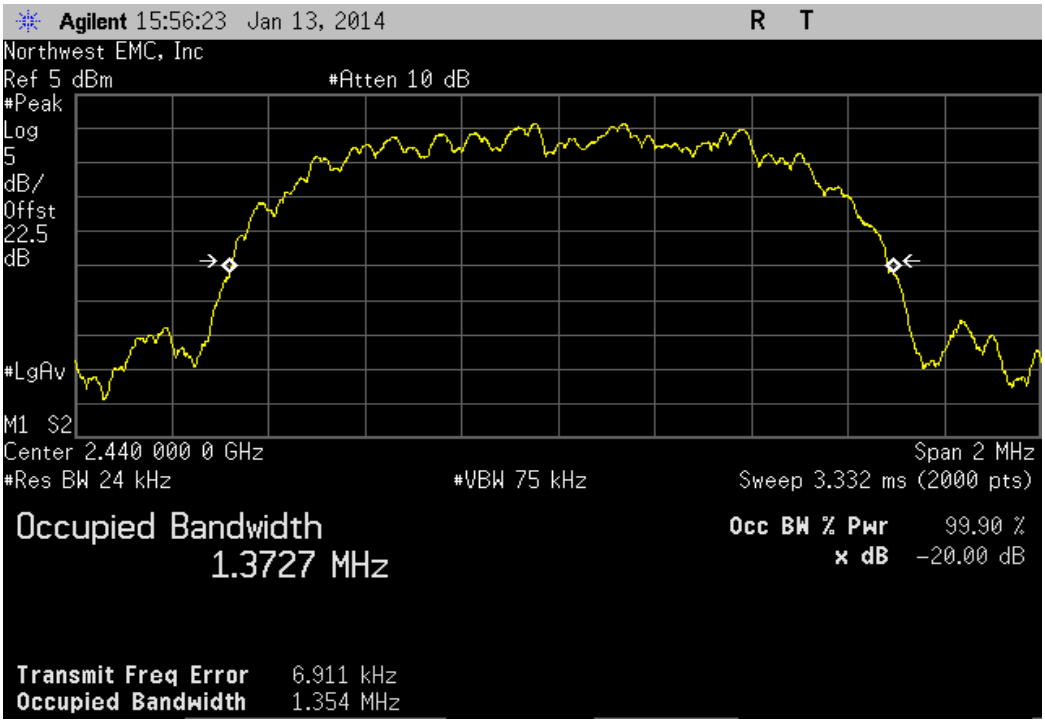
3DH5, 8-DPSK, Low Channel, 2402 MHz

				Value	Limit	Result
				1.356 MHz	< 1.5 MHz	Pass



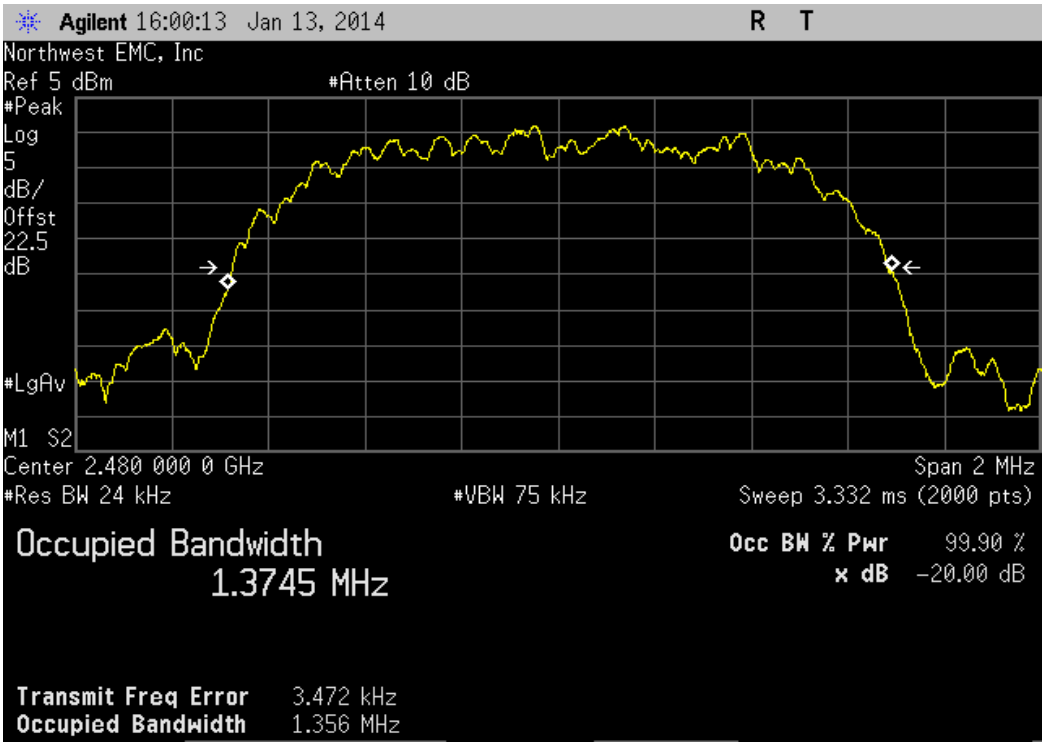
3DH5, 8-DPSK, Mid Channel, 2440 MHz

				Value	Limit	Result
				1.354 MHz	< 1.5 MHz	Pass



OCCUPIED BANDWIDTH

3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value	Limit	Result
				1.356 MHz	< 1.5 MHz	Pass



SPURIOUS CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

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 in a no-hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/14/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating at 100% duty cycle.

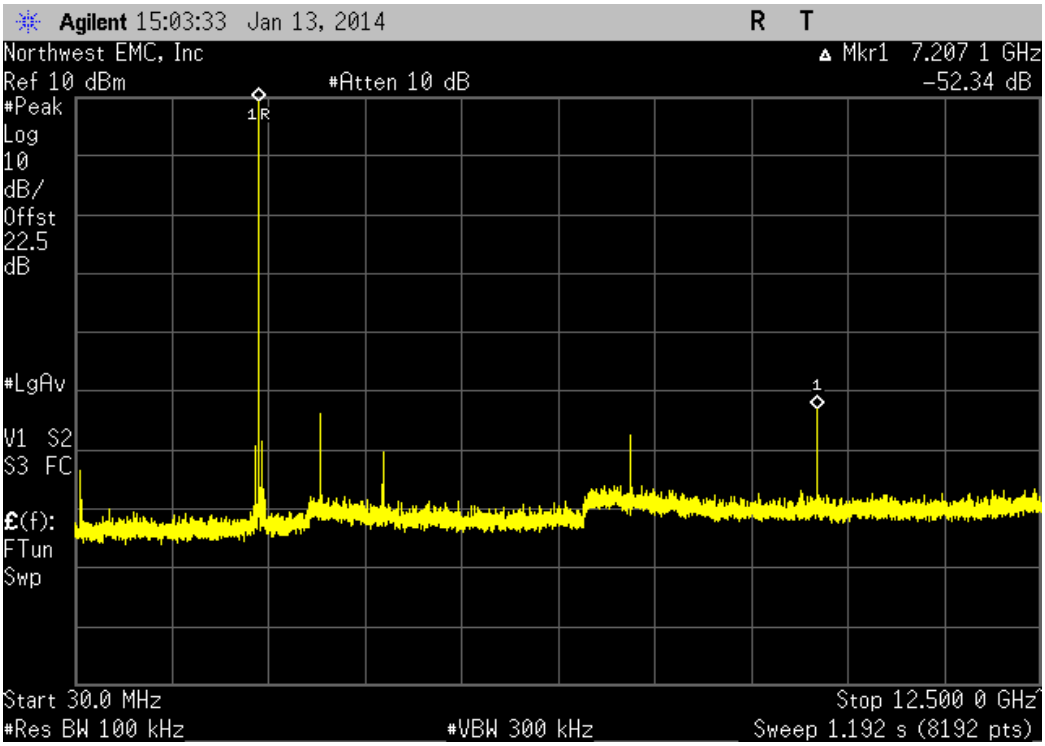
DEVIATIONS FROM TEST STANDARD

Configuration #	2	Signature

		Frequency Range	Value	Limit	Result
DH5, GFSK					
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	-52.34 dBc	≤ -20 dBc	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	-51.55 dBc	≤ -20 dBc	Pass
	Mid Channel, 2440 MHz	30 MHz - 12.5 GHz	-53.73 dBc	≤ -20 dBc	Pass
	Mid Channel, 2440 MHz	12.5 GHz - 25 GHz	-53.62 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	-52.32 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	-53.98 dBc	≤ -20 dBc	Pass
2DH5, pi/4-DQPSK					
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	-50.98 dBc	≤ -20 dBc	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	-50.96 dBc	≤ -20 dBc	Pass
	Mid Channel, 2440 MHz	30 MHz - 12.5 GHz	-51.43 dBc	≤ -20 dBc	Pass
	Mid Channel, 2440 MHz	12.5 GHz - 25 GHz	-53.04 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	-52.44 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	-52.21 dBc	≤ -20 dBc	Pass
3DH5, 8-DPSK					
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	-53.11 dBc	≤ -20 dBc	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	-53.61 dBc	≤ -20 dBc	Pass
	Mid Channel, 2440 MHz	30 MHz - 12.5 GHz	-53.96 dBc	≤ -20 dBc	Pass
	Mid Channel, 2440 MHz	12.5 GHz - 25 GHz	-51.63 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	-53.15 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	-54.66 dBc	≤ -20 dBc	Pass

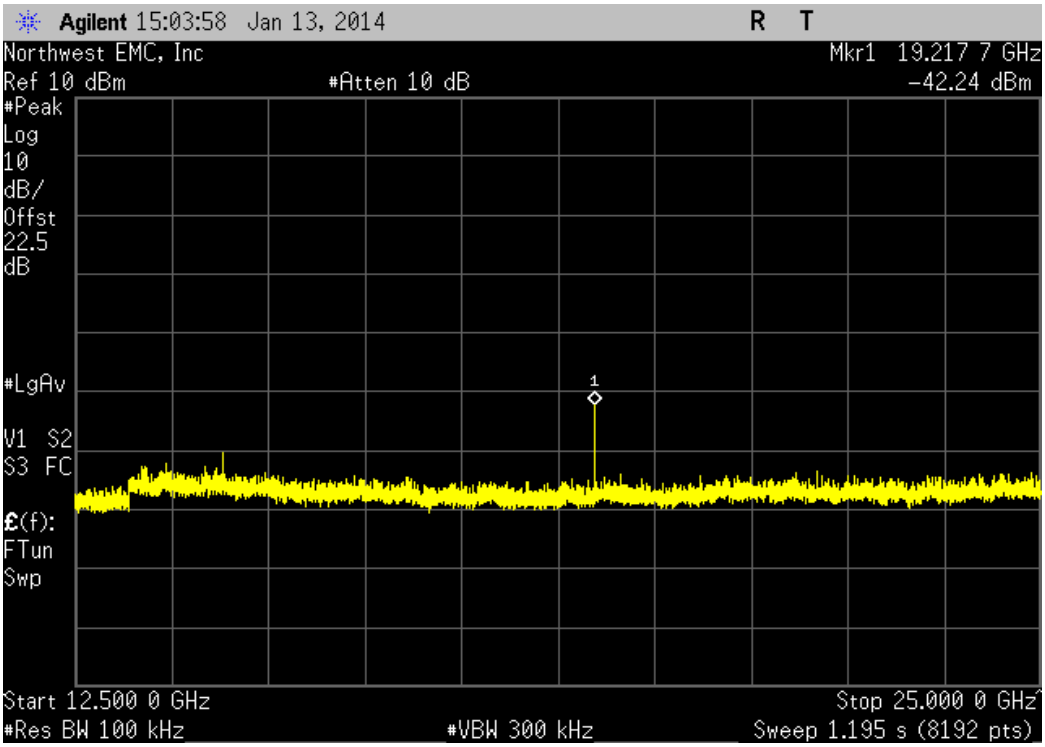
DH5, GFSK, Low Channel, 2402 MHz

Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-52.34 dBc	≤ -20 dBc	Pass

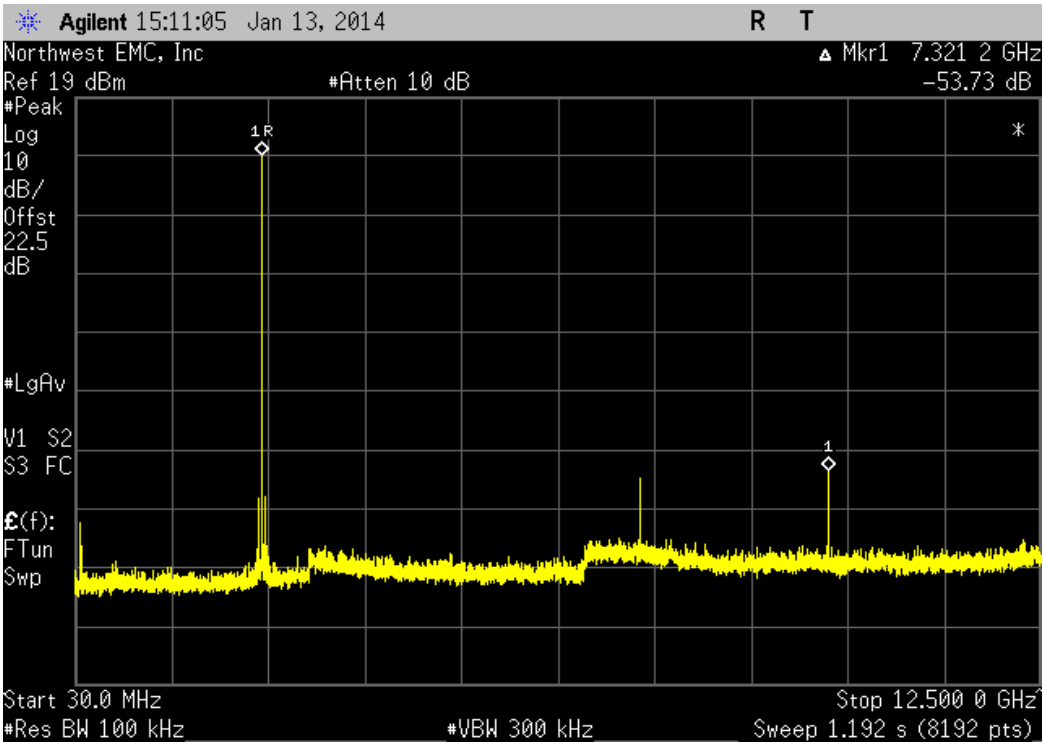


DH5, GFSK, Low Channel, 2402 MHz

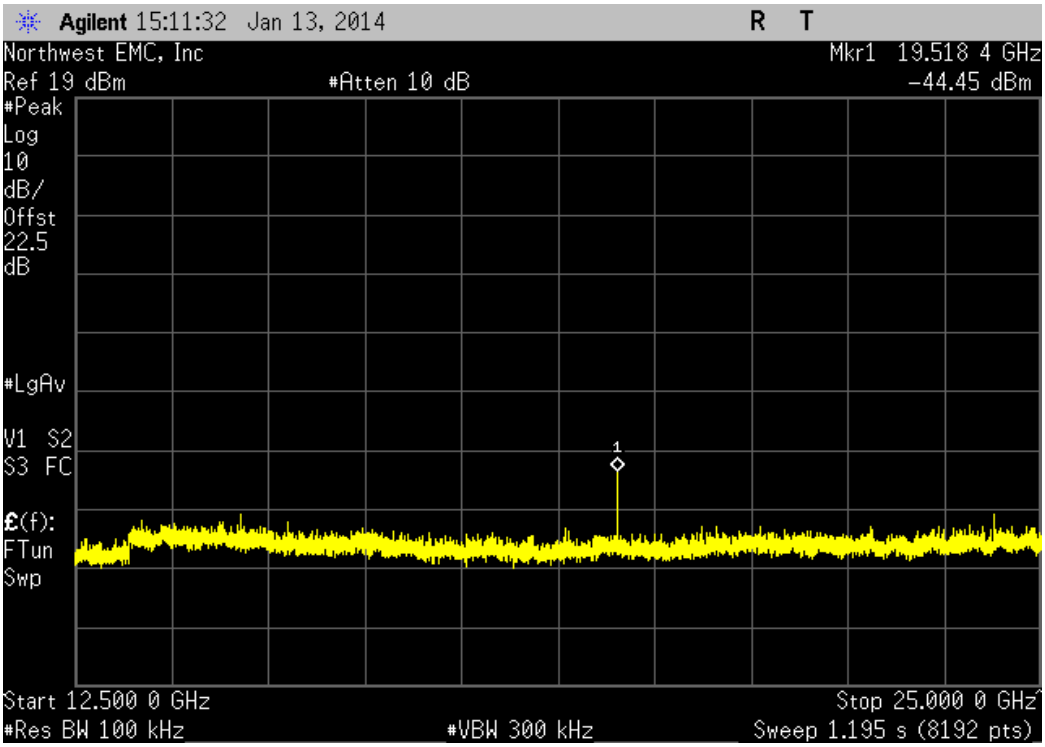
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51.55 dBc	≤ -20 dBc	Pass



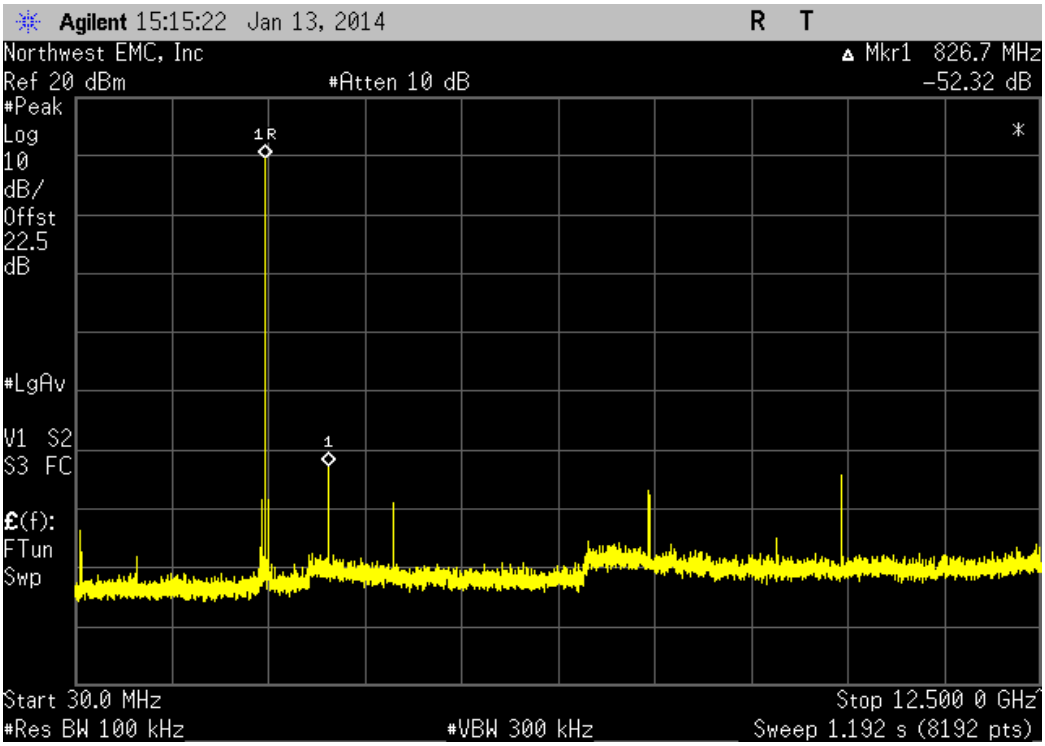
DH5, GFSK, Mid Channel, 2440 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-53.73 dBc	≤ -20 dBc	Pass



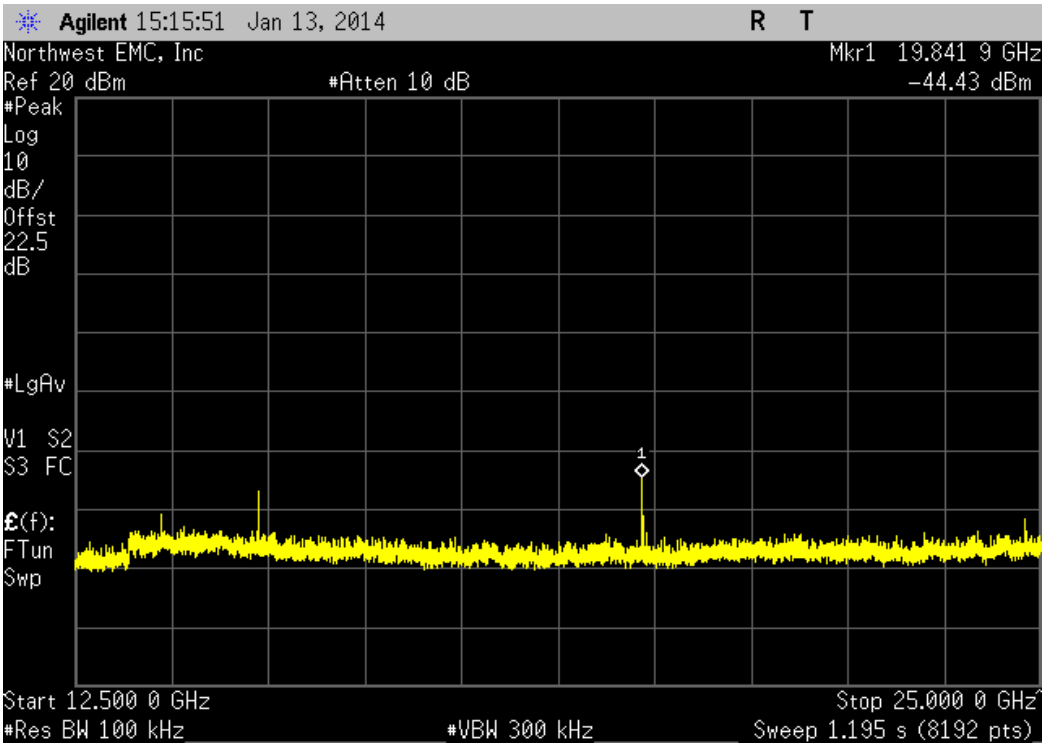
DH5, GFSK, Mid Channel, 2440 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-53.62 dBc	≤ -20 dBc	Pass



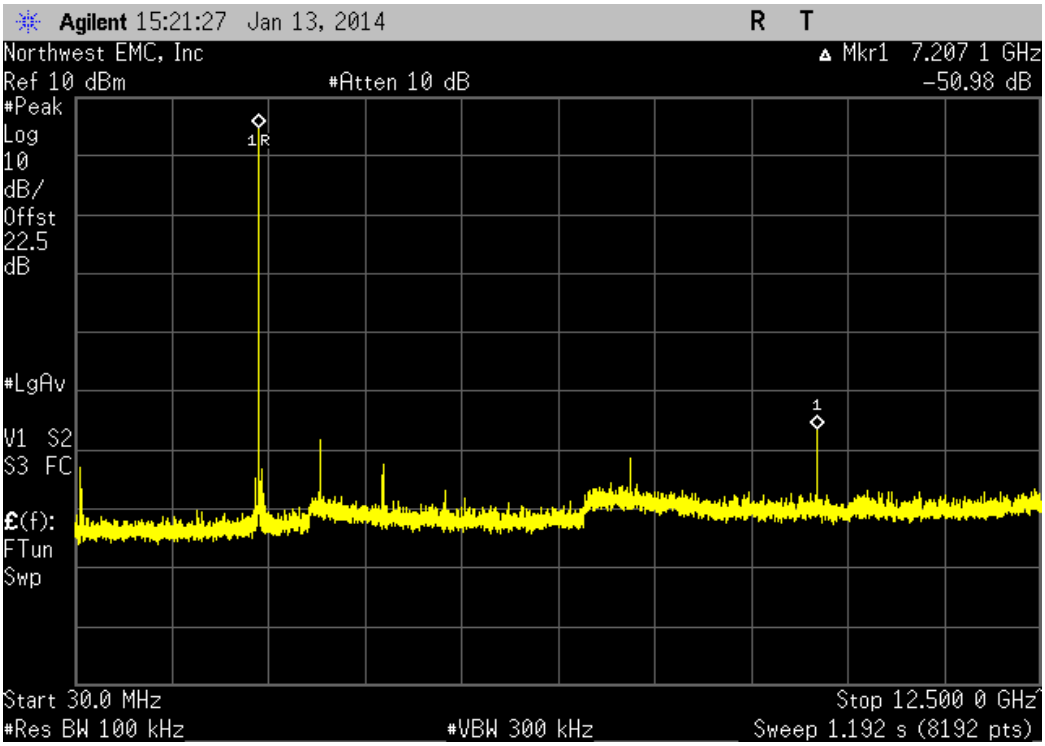
DH5, GFSK, High Channel, 2480 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-52.32 dBc	≤ -20 dBc	Pass



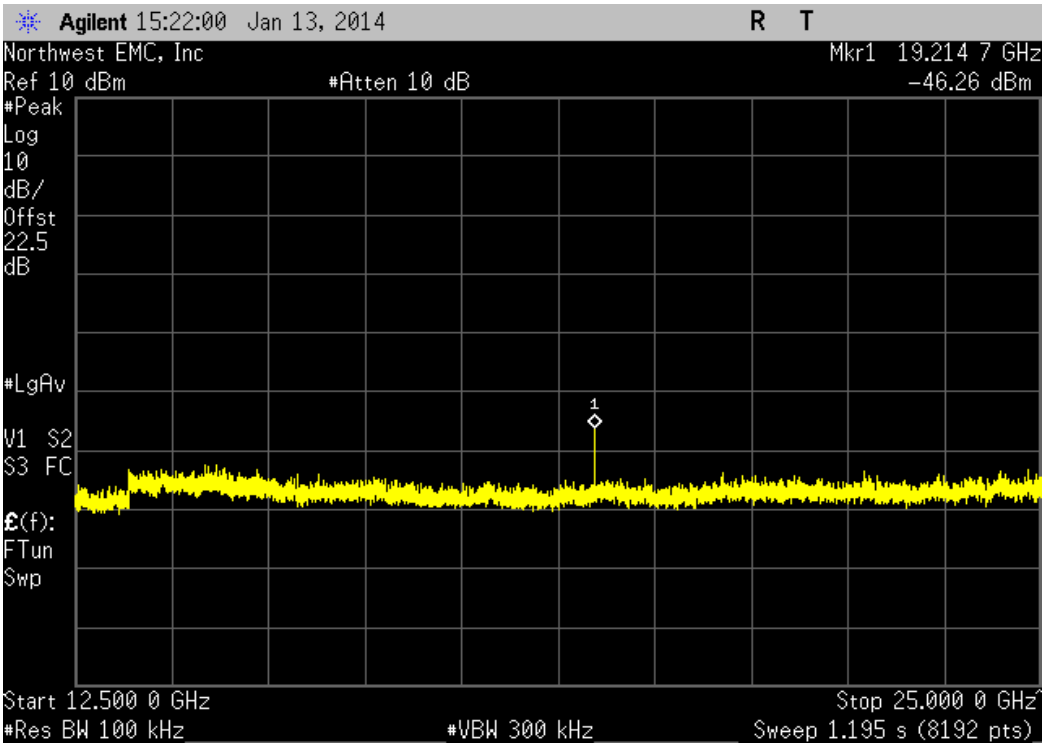
DH5, GFSK, High Channel, 2480 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-53.98 dBc	≤ -20 dBc	Pass



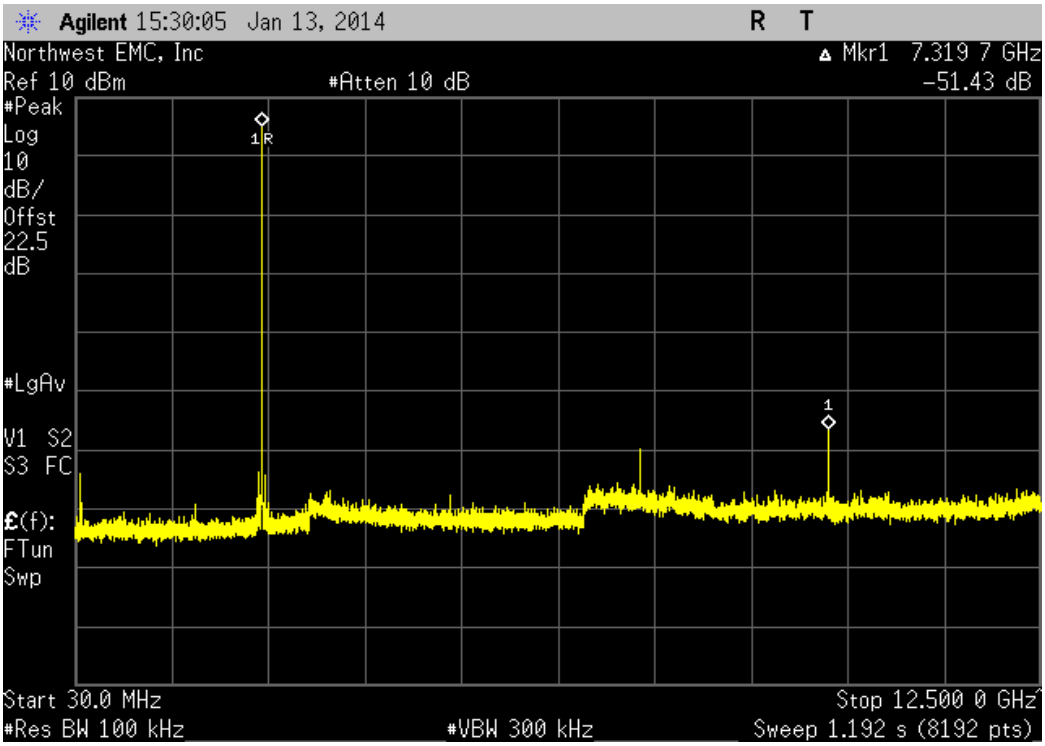
2DH5, pi/4-DQPSK, Low Channel, 2402 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-50.98 dBc	≤ -20 dBc	Pass



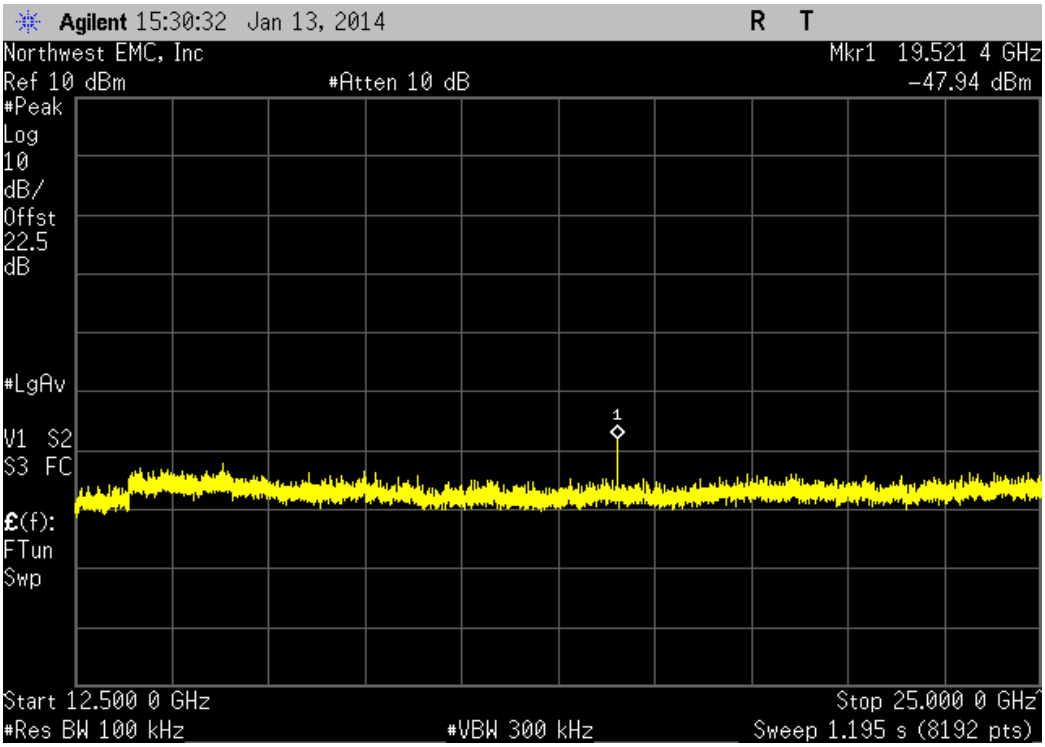
2DH5, pi/4-DQPSK, Low Channel, 2402 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-50.96 dBc	≤ -20 dBc	Pass



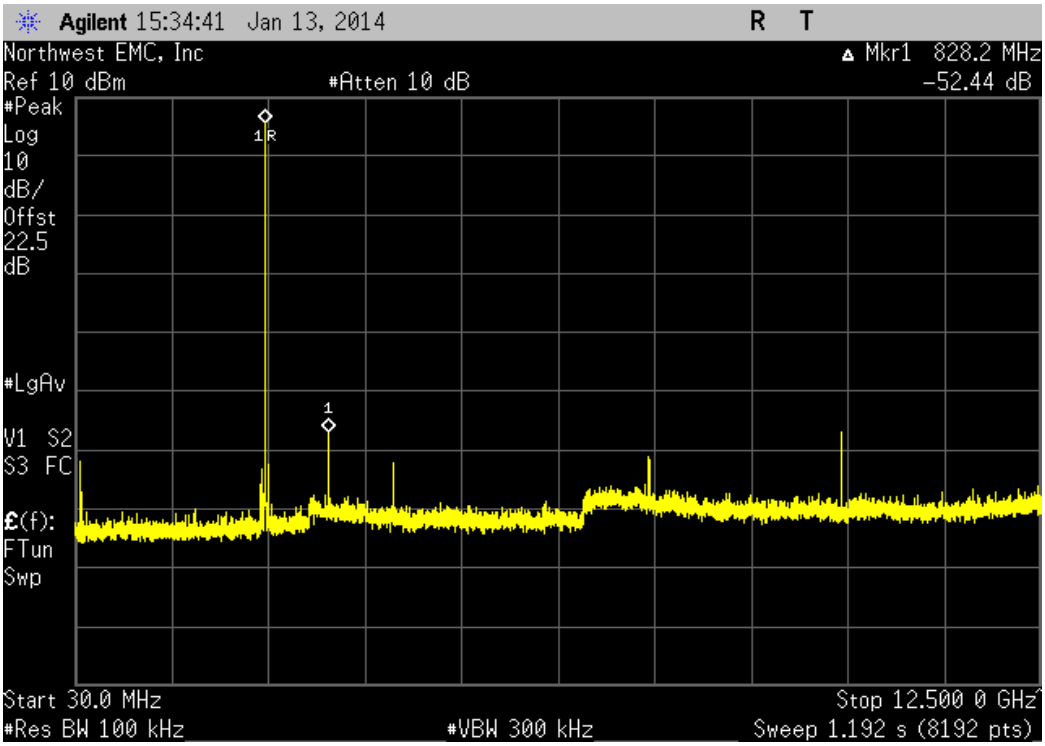
2DH5, pi/4-DQPSK, Mid Channel, 2440 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-51.43 dBc	≤ -20 dBc	Pass



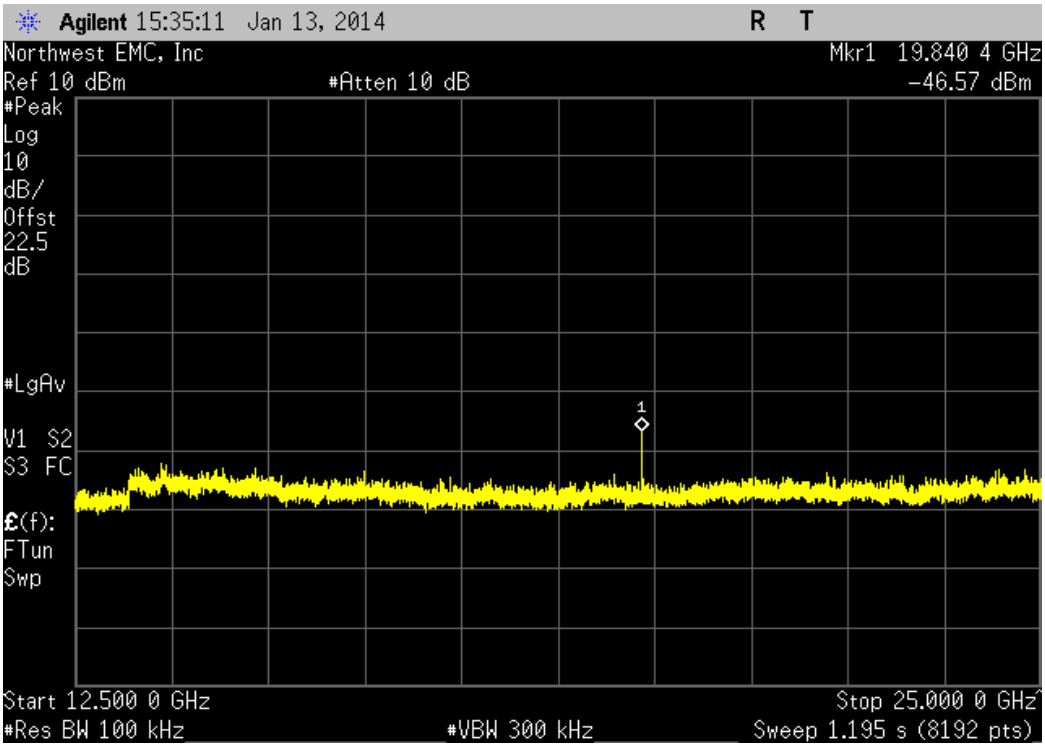
2DH5, pi/4-DQPSK, Mid Channel, 2440 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-53.04 dBc	≤ -20 dBc	Pass



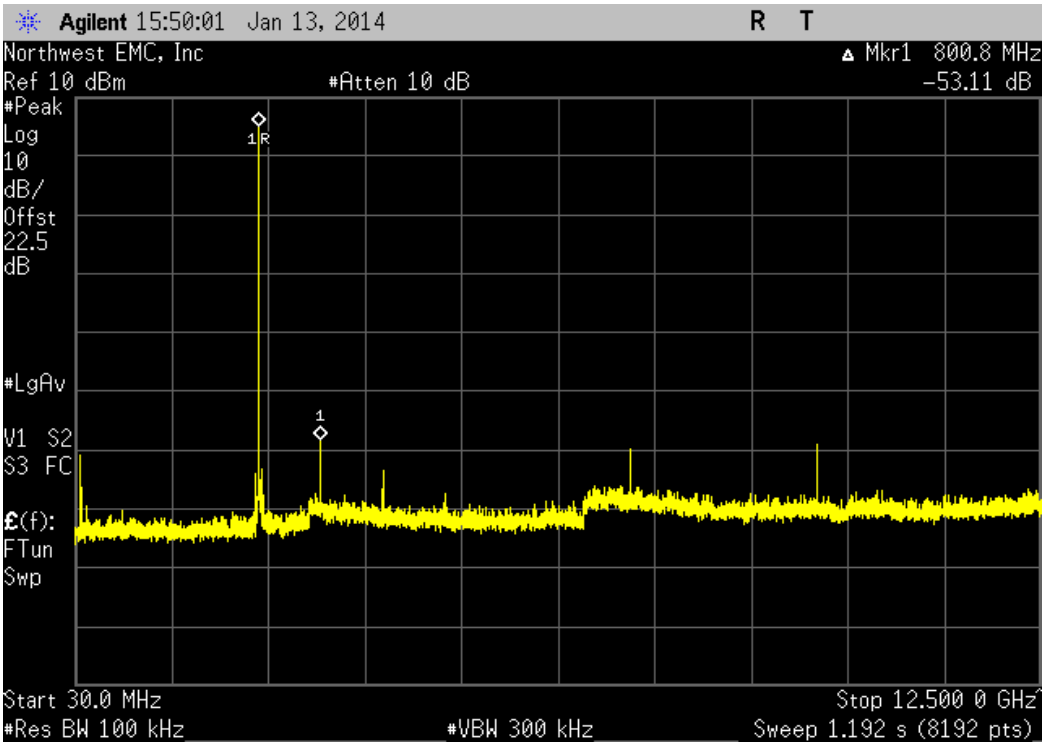
2DH5, pi/4-DQPSK, High Channel, 2480 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-52.44 dBc	≤ -20 dBc	Pass



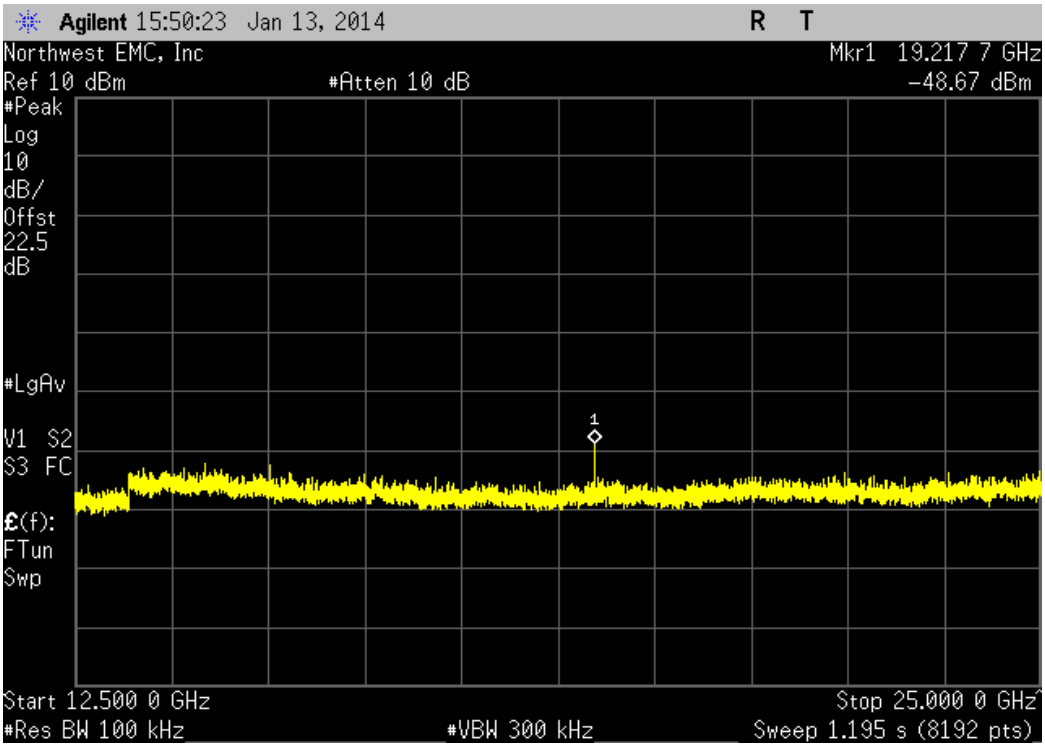
2DH5, pi/4-DQPSK, High Channel, 2480 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-52.21 dBc	≤ -20 dBc	Pass



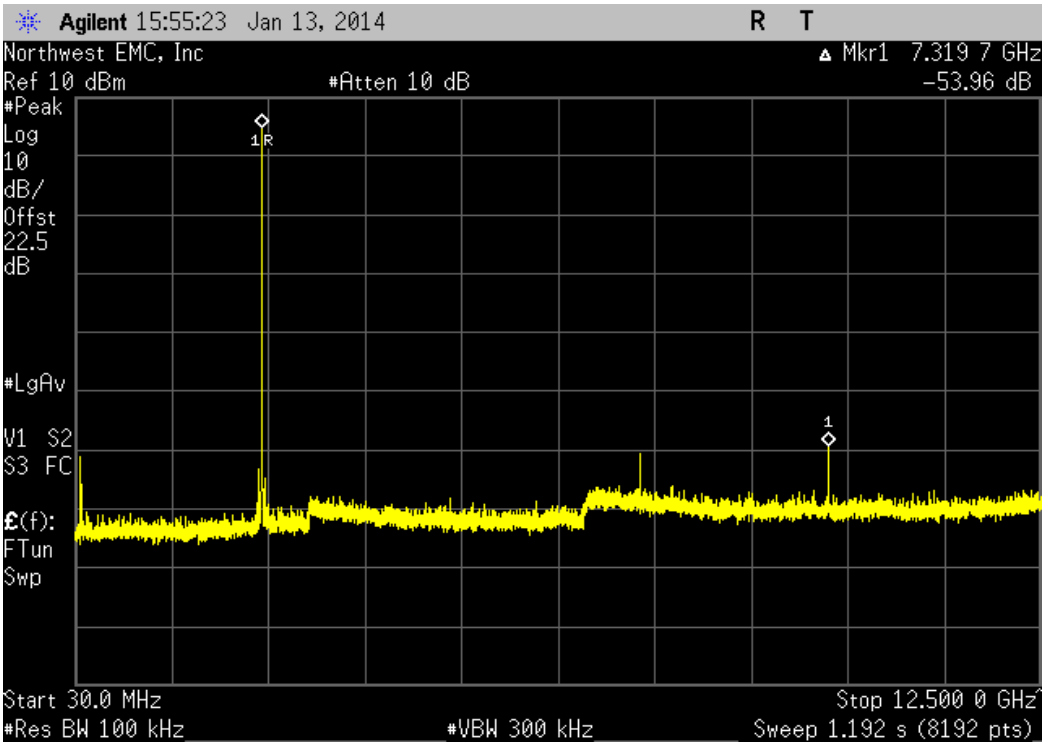
3DH5, 8-DPSK, Low Channel, 2402 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-53.11 dBc	≤ -20 dBc	Pass



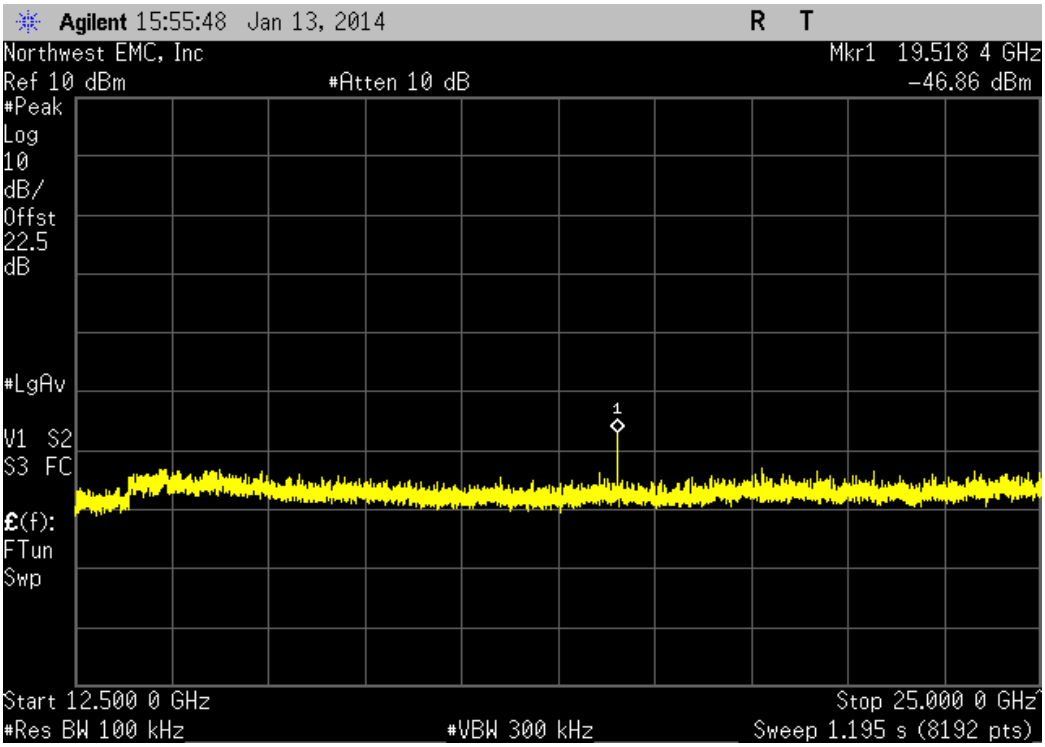
3DH5, 8-DPSK, Low Channel, 2402 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-53.61 dBc	≤ -20 dBc	Pass



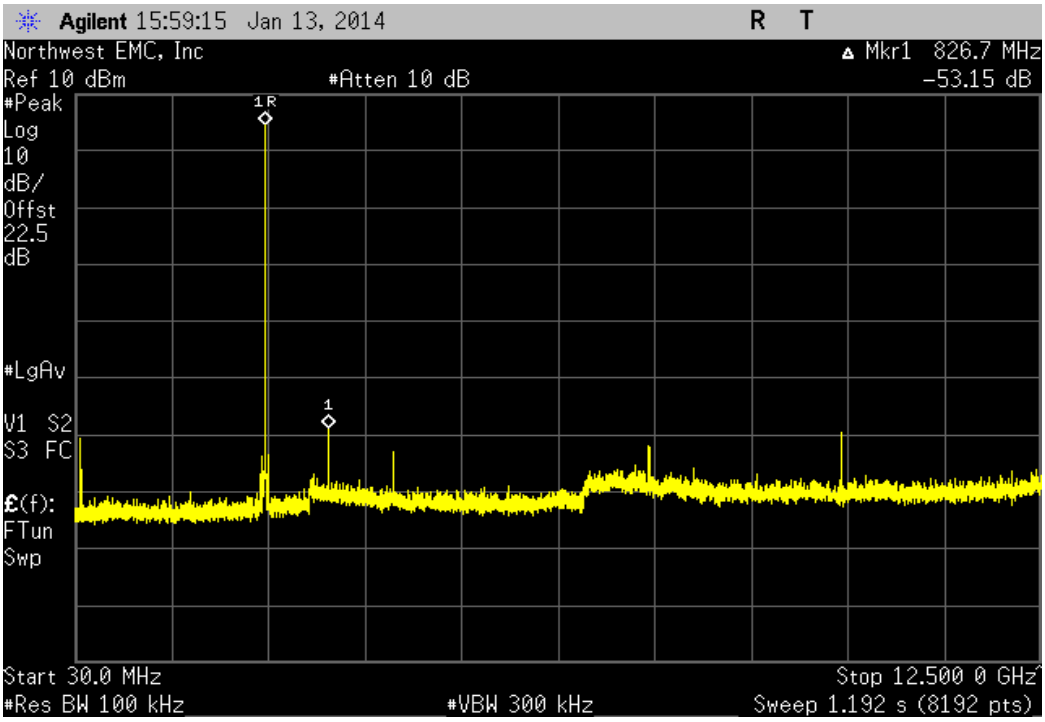
3DH5, 8-DPSK, Mid Channel, 2440 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-53.96 dBc	≤ -20 dBc	Pass



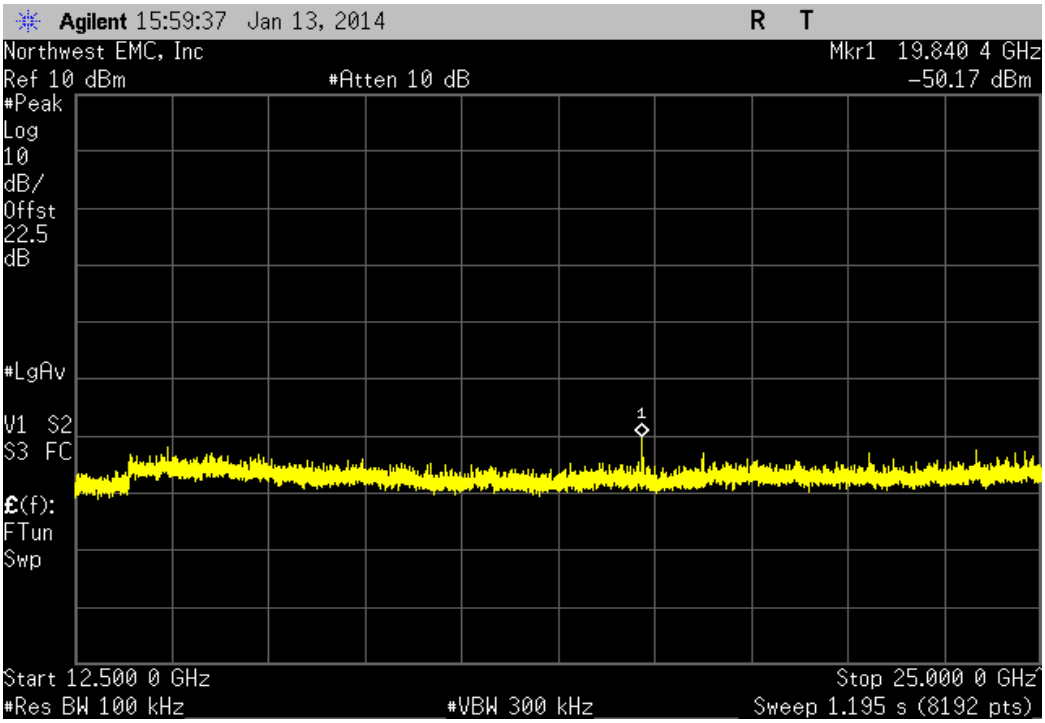
3DH5, 8-DPSK, Mid Channel, 2440 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-51.63 dBc	≤ -20 dBc	Pass



3DH5, 8-DPSK, High Channel, 2480 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-53.15 dBc	≤ -20 dBc	Pass



3DH5, 8-DPSK, High Channel, 2480 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-54.66 dBc	≤ -20 dBc	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
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet in a no hop mode. The channels closest to the band edges were selected.

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

BAND EDGE COMPLIANCE

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/14/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating at 100% duty cycle.

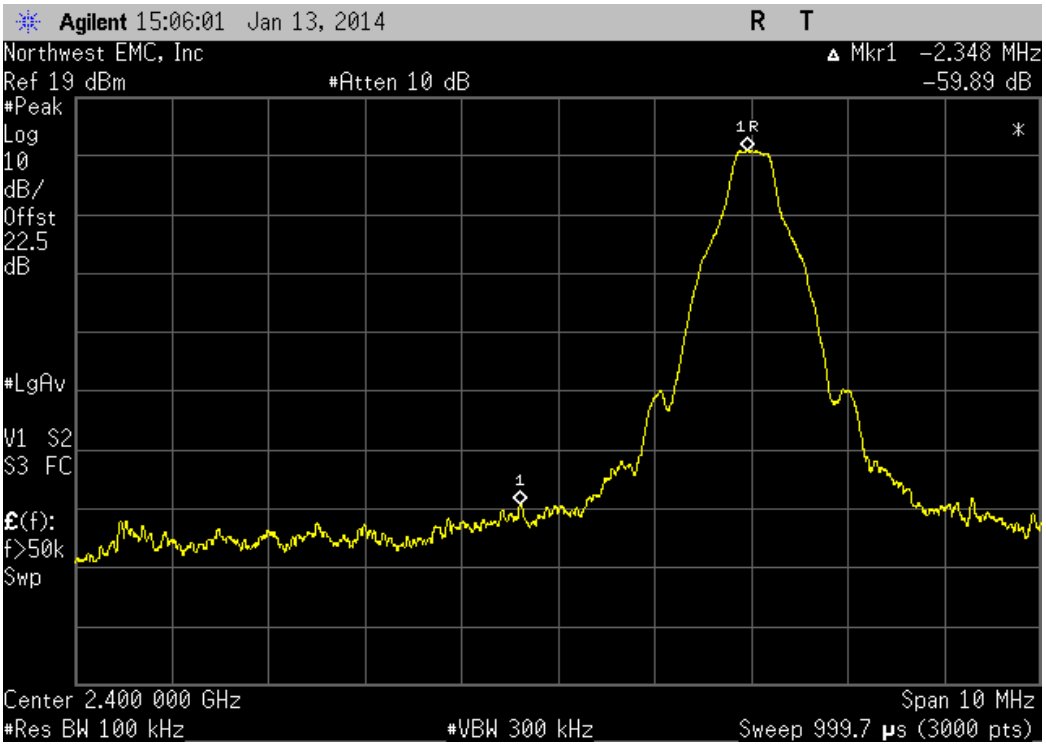
DEVIATIONS FROM TEST STANDARD

Configuration #	2	Signature

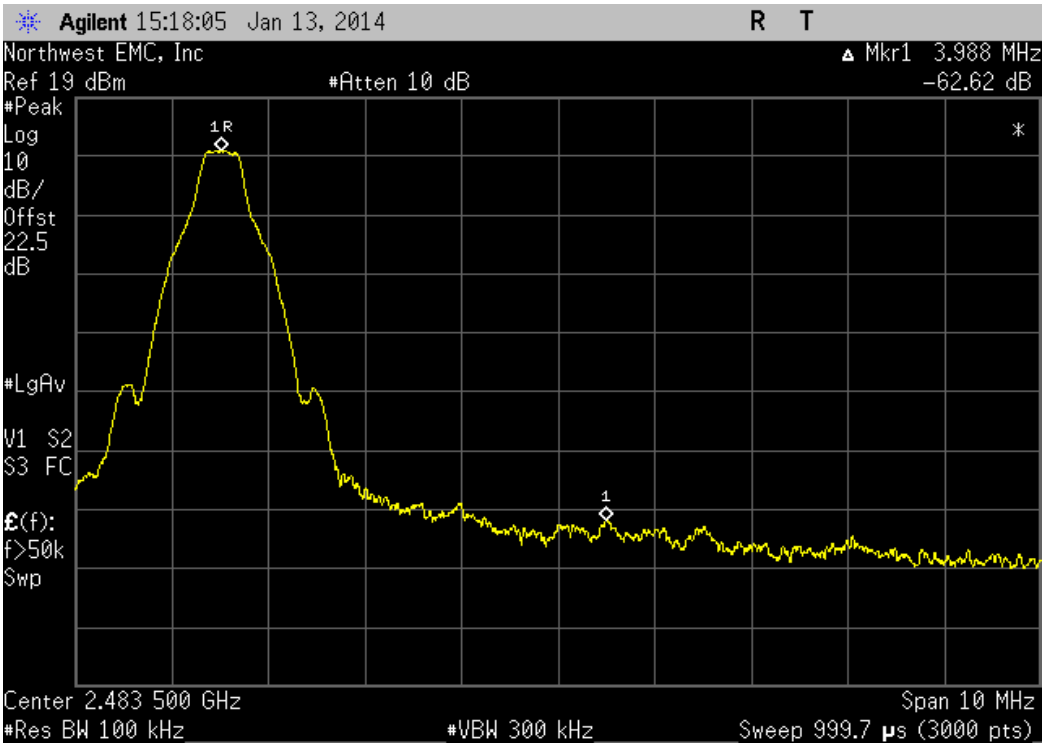
		Value	Limit	Result
DH5, GFSK				
	Low Channel, 2402 MHz	-59.89 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	-62.62 dBc	≤ -20 dBc	Pass
2DH5, pi/4-DQPSK				
	Low Channel, 2402 MHz	-48.99 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	-56.56 dBc	≤ -20 dBc	Pass
3DH5, 8-DPSK				
	Low Channel, 2402 MHz	-47.23 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	-54.99 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

DH5, GFSK, Low Channel, 2402 MHz							
					Value	Limit	Result
					-59.89 dBc	≤ -20 dBc	Pass

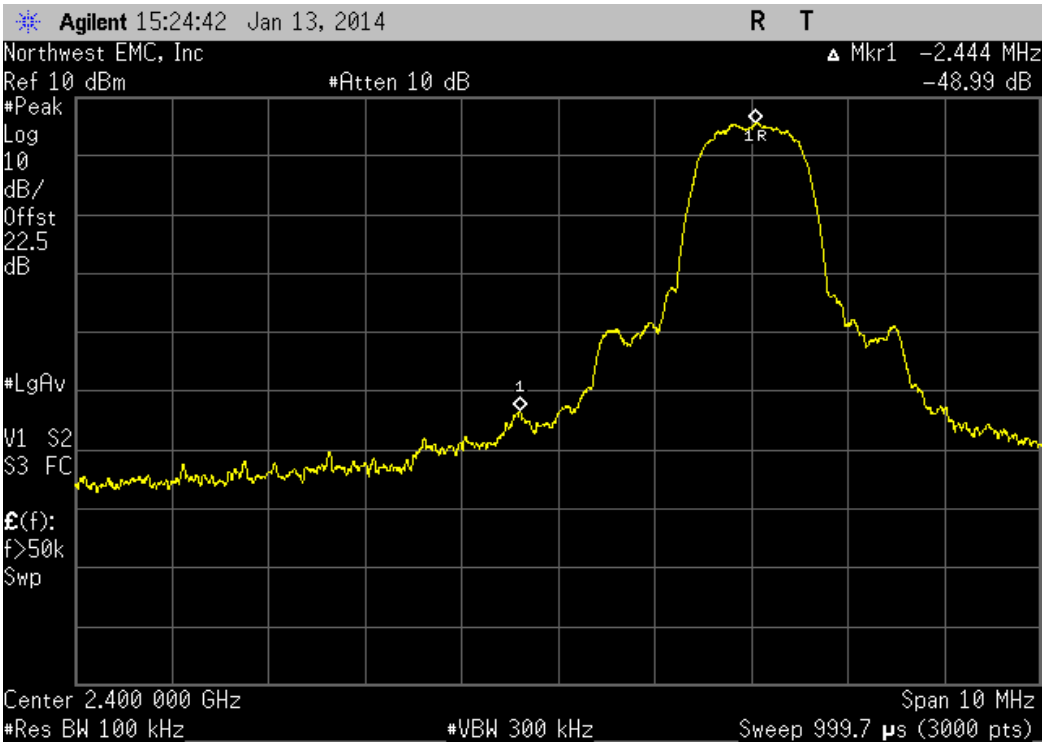


DH5, GFSK, High Channel, 2480 MHz							
					Value	Limit	Result
					-62.62 dBc	≤ -20 dBc	Pass



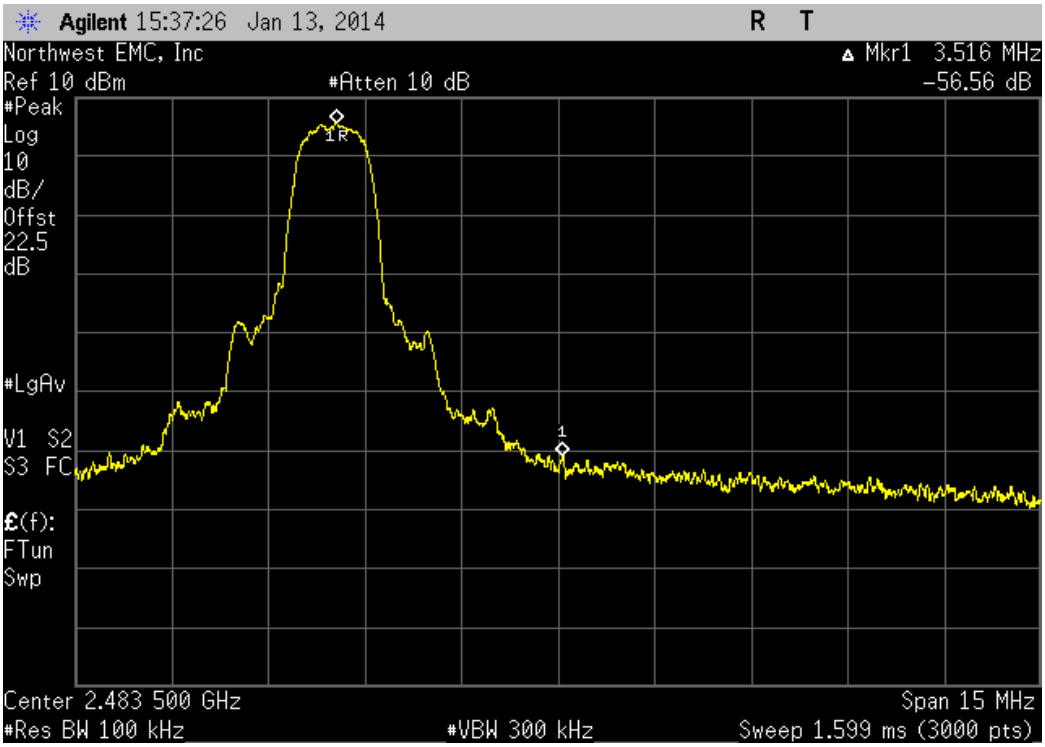
2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

				Value	Limit	Result
				-48.99 dBc	≤ -20 dBc	Pass



2DH5, pi/4-DQPSK, High Channel, 2480 MHz

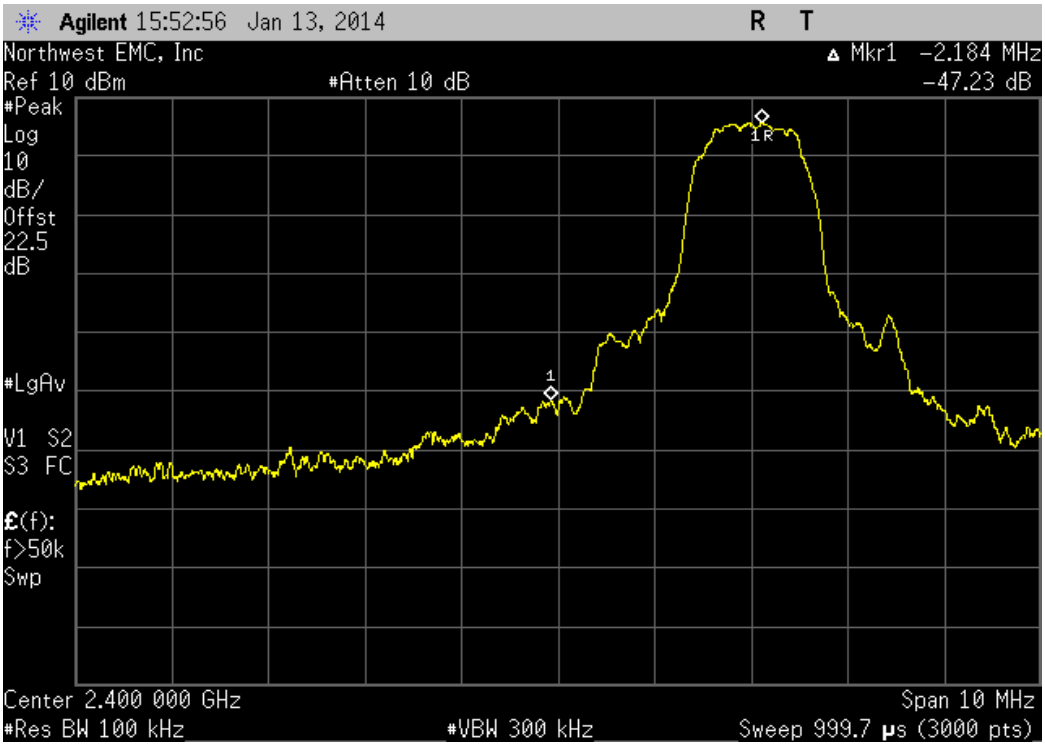
				Value	Limit	Result
				-56.56 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

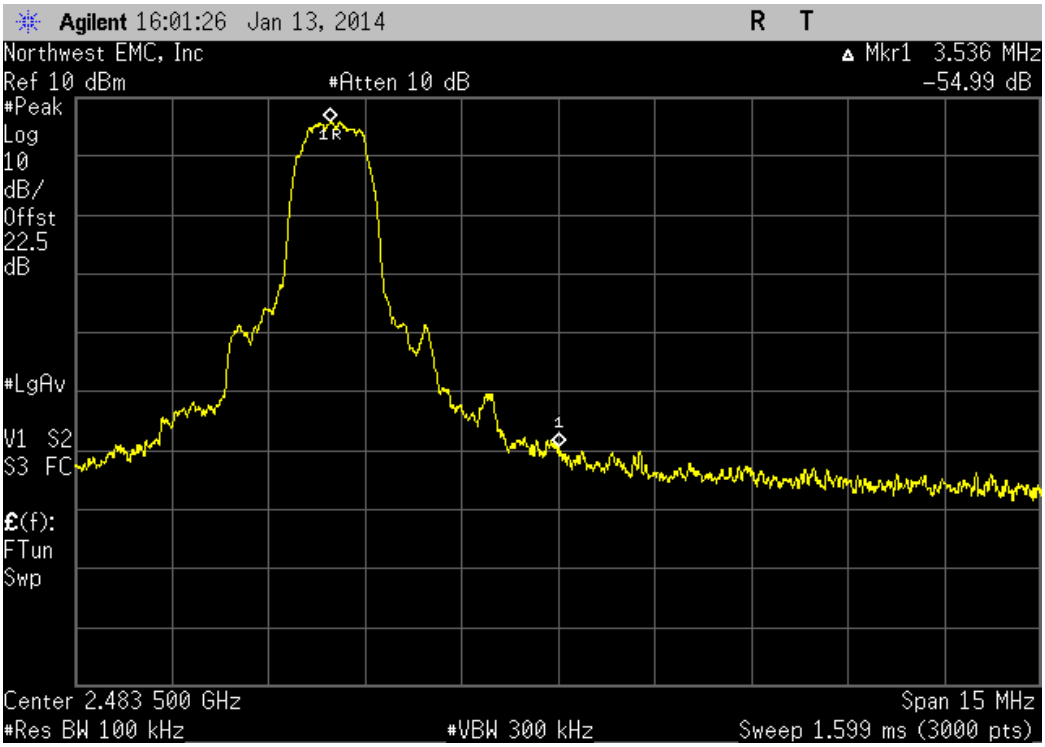
3DH5, 8-DPSK, Low Channel, 2402 MHz

				Value	Limit	Result
				-47.23 dBc	≤ -20 dBc	Pass



3DH5, 8-DPSK, High Channel, 2480 MHz

				Value	Limit	Result
				-54.99 dBc	≤ -20 dBc	Pass



CHANNEL SEPARATION

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
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The channel carrier frequencies in the 2400-2483.5MHz band must be separated by 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Or, if the output power is less than 125 mW, the channel separation can be 25 kHz or 2/3 of the 20dB bandwidth. The EUT was operated in pseudorandom hopping mode. The spectrum was scanned across two adjacent peaks. The separation between the peaks of these channels was measured.

CHANNEL SEPARATION

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/23/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating in hopping mode

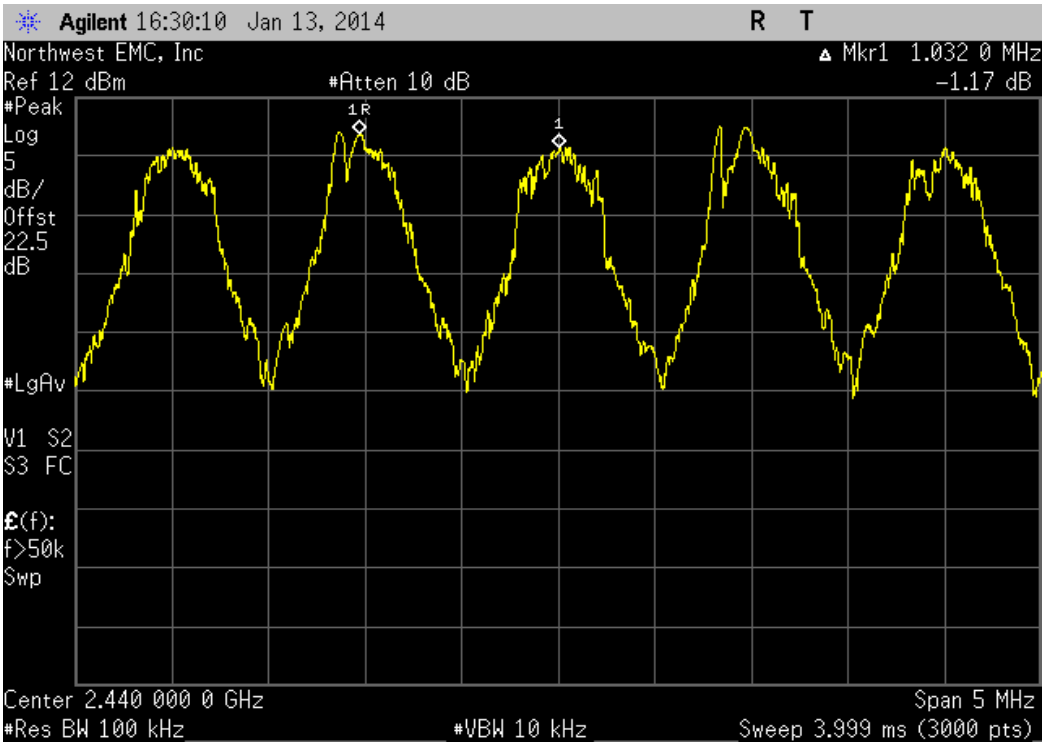
DEVIATIONS FROM TEST STANDARD

Configuration #	2	Signature

	Value	Limit	Result
DH5, GFSK			
Mid Channel	1.0 MHz	≥ 1 MHz	Pass

CHANNEL SEPARATION

DH5, GFSK, Mid Channel						
				Value	Limit	Result
				1.0 MHz	≥ 1 MHz	Pass



NUMBER OF HOPPING CHANNELS

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
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The number of hopping frequencies was measured across the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

NUMBER OF HOPPING CHANNELS

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/23/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating in hopping mode

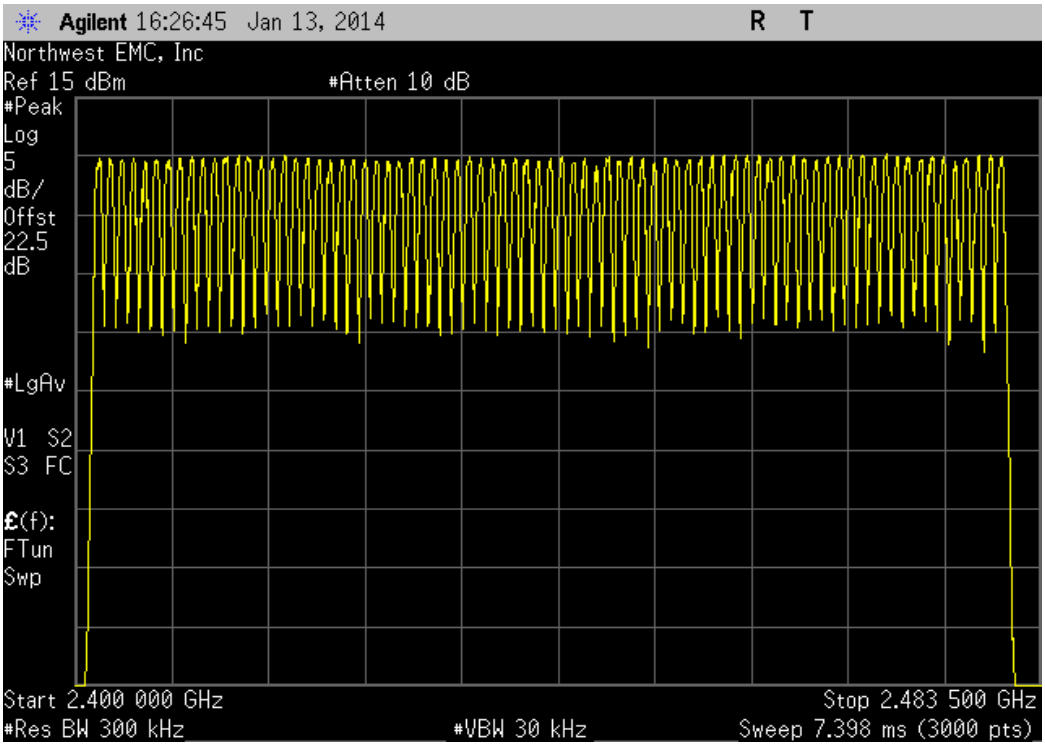
DEVIATIONS FROM TEST STANDARD

Configuration #	2	Signature

	Number of Channels	Limit	Result
DH5, GFSK			
Mid Channel	79	≥ 15	Pass

NUMBER OF HOPPING CHANNELS

DH5, GFSK, Mid Channel						
				Number of Channels	Limit	Result
				79	≥ 15	Pass



DWELL TIME

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
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
RF Vector Signal Generator	Agilent	V2920A	TIH	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24

TEST DESCRIPTION

The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

The dwell time limit is based on the Number of Hopping Channels * 400 mS. For Bluetooth this would be 79 Channels * 400mS = 31.6 Sec.

On Time During 31.6 Sec = Pulse Width * Average Number of Pulses * Scale Factor

- Average Number of Pulses is based on 4 samples.

- Scale Factor = 31.6 Sec / Screen Capture Sweep Time = 31.6 Sec / 6.32 Sec = 5

DWELL TIME

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	03/24/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Jared Ison, Rod Peloquin	**Power:**	Internal Battery, 3VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was in hopping mode.

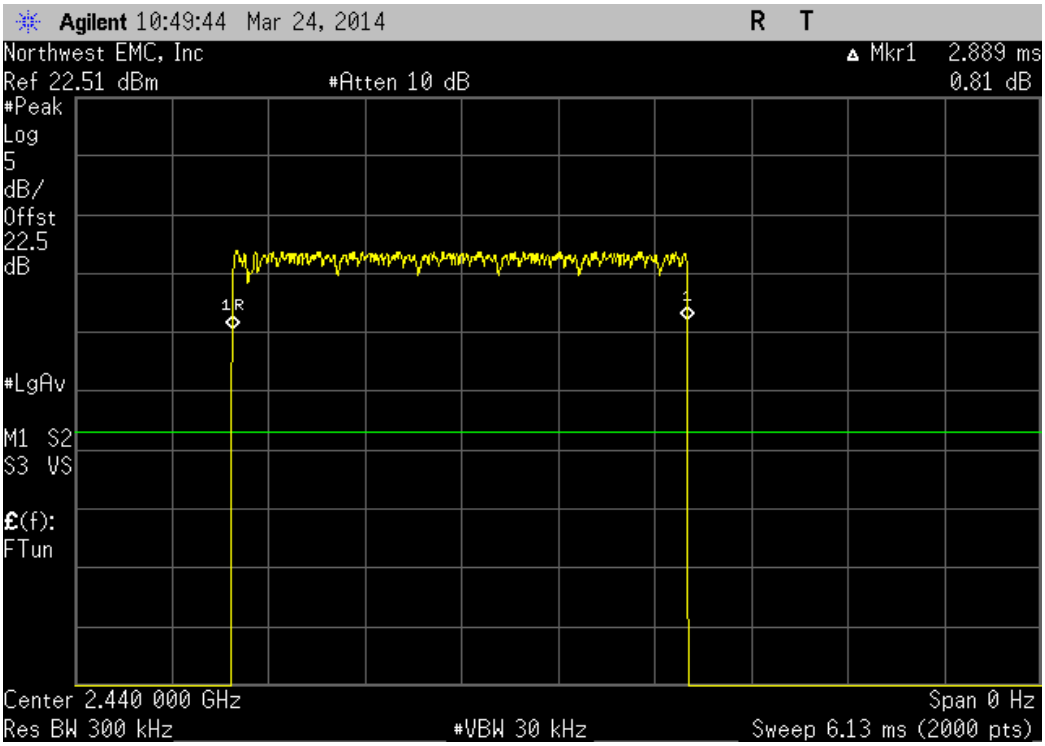
DEVIATIONS FROM TEST STANDARD

Configuration #	2	Signature

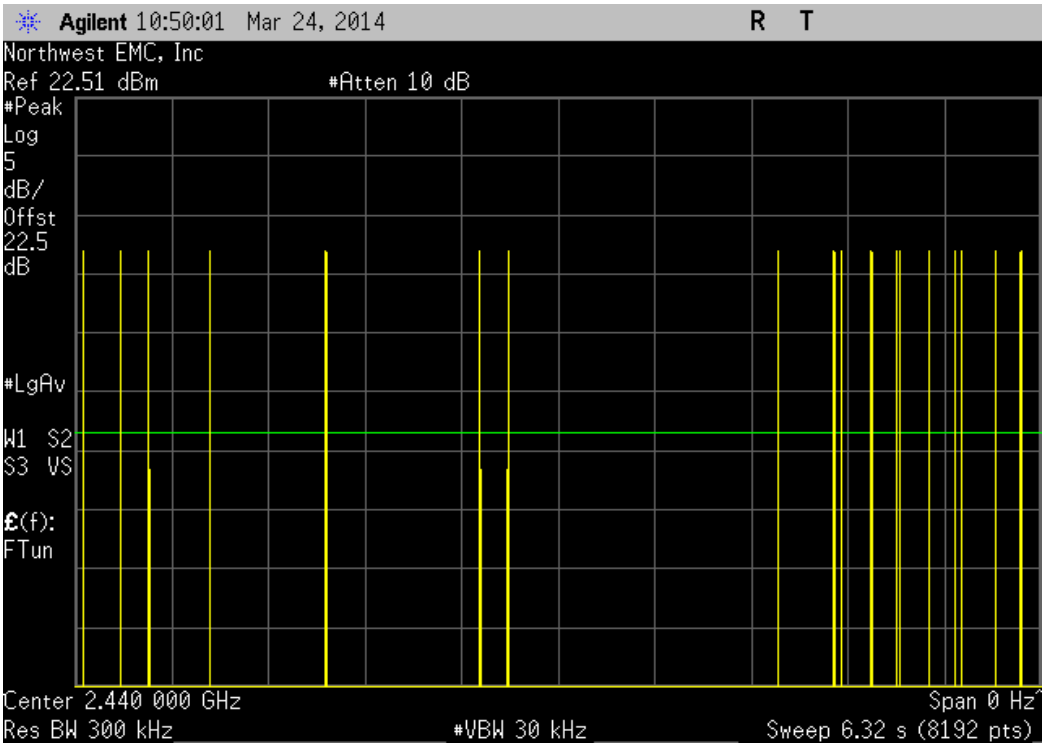
		Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
DH5, GFSK								
	Mid Channel	2.889	N/A	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	18	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	27	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	20	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	25	N/A	N/A	N/A	N/A	N/A
	Mid Channel	2.889	N/A	22.5	5	325.01	400	Pass
2DH5, pi/4-DQPSK								
	Mid Channel	2.708	N/A	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	19	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	18	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	28	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	15	N/A	N/A	N/A	N/A	N/A
	Mid Channel	2.708	N/A	20	5	270.8	400	Pass
3DH5, 8-DPSK								
	Mid Channel	2.892	N/A	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	25	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	22	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	25	N/A	N/A	N/A	N/A	N/A
	Mid Channel	N/A	28	N/A	N/A	N/A	N/A	N/A
	Mid Channel	2.892	N/A	25	5	361.5	400	Pass

DWELL TIME

DH5, GFSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
2.889	N/A	N/A	N/A	N/A	N/A	N/A

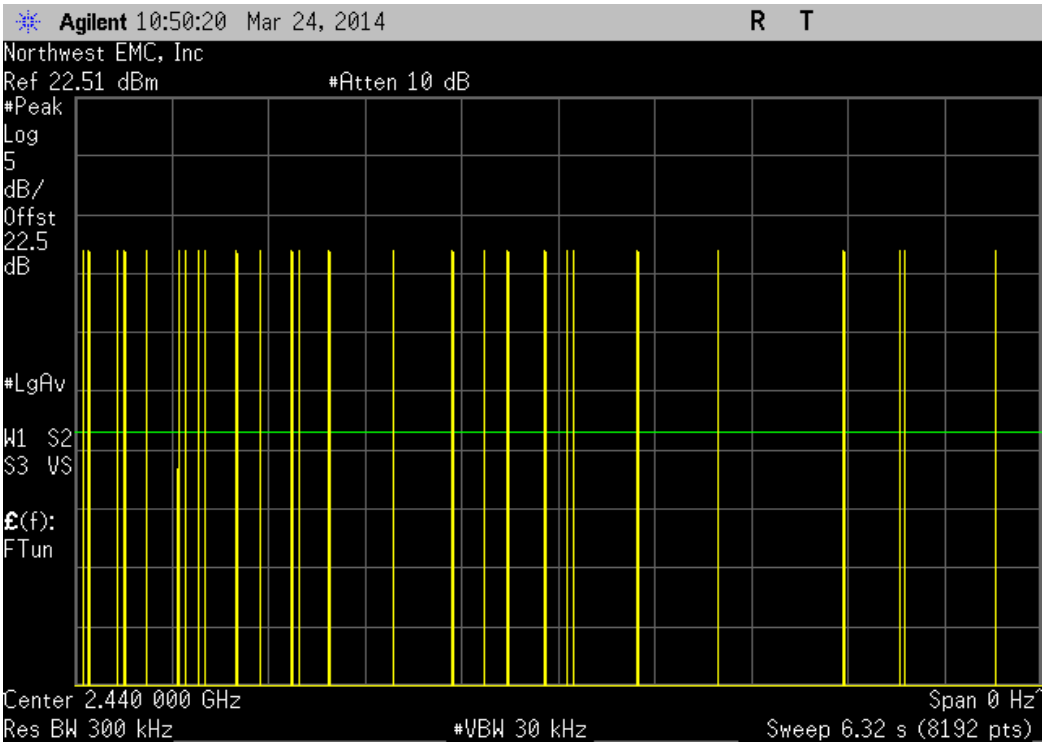


DH5, GFSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	18	N/A	N/A	N/A	N/A	N/A

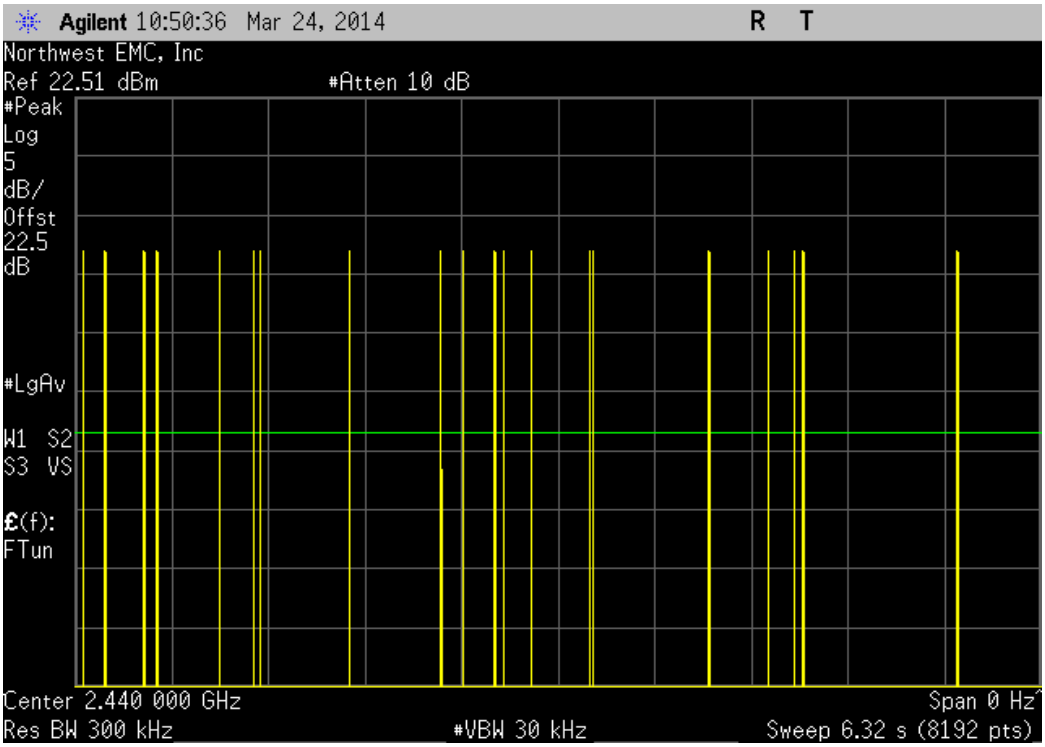


DWELL TIME

DH5, GFSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	27	N/A	N/A	N/A	N/A	N/A

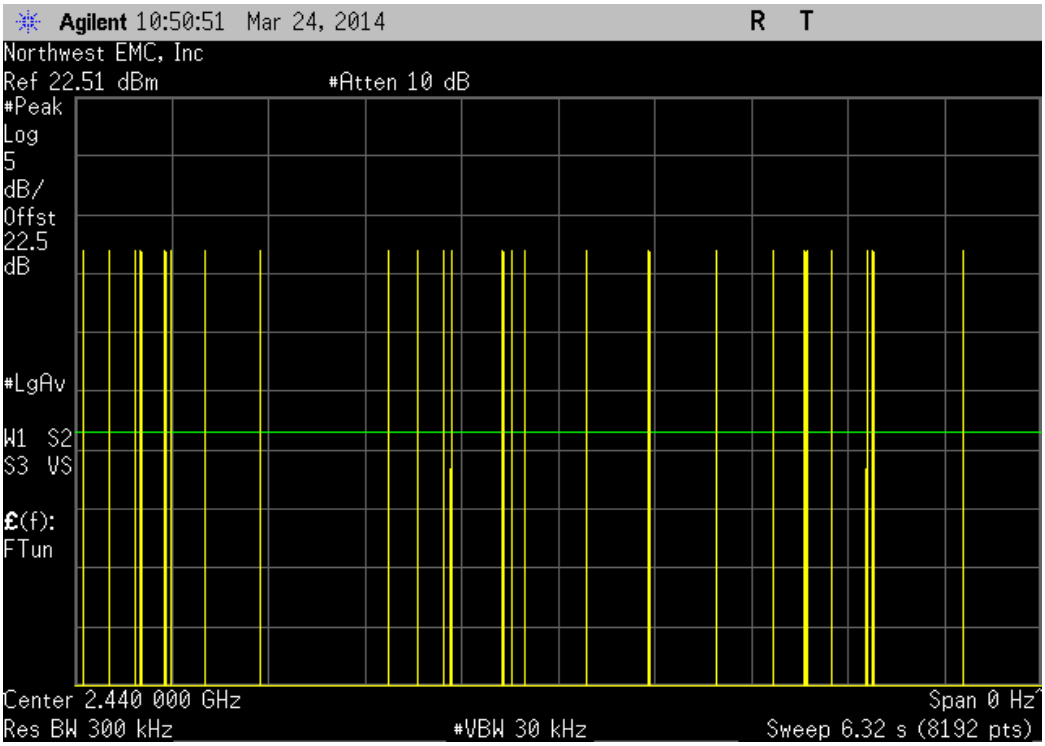


DH5, GFSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	20	N/A	N/A	N/A	N/A	N/A



DWELL TIME

DH5, GFSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	25	N/A	N/A	N/A	N/A	N/A



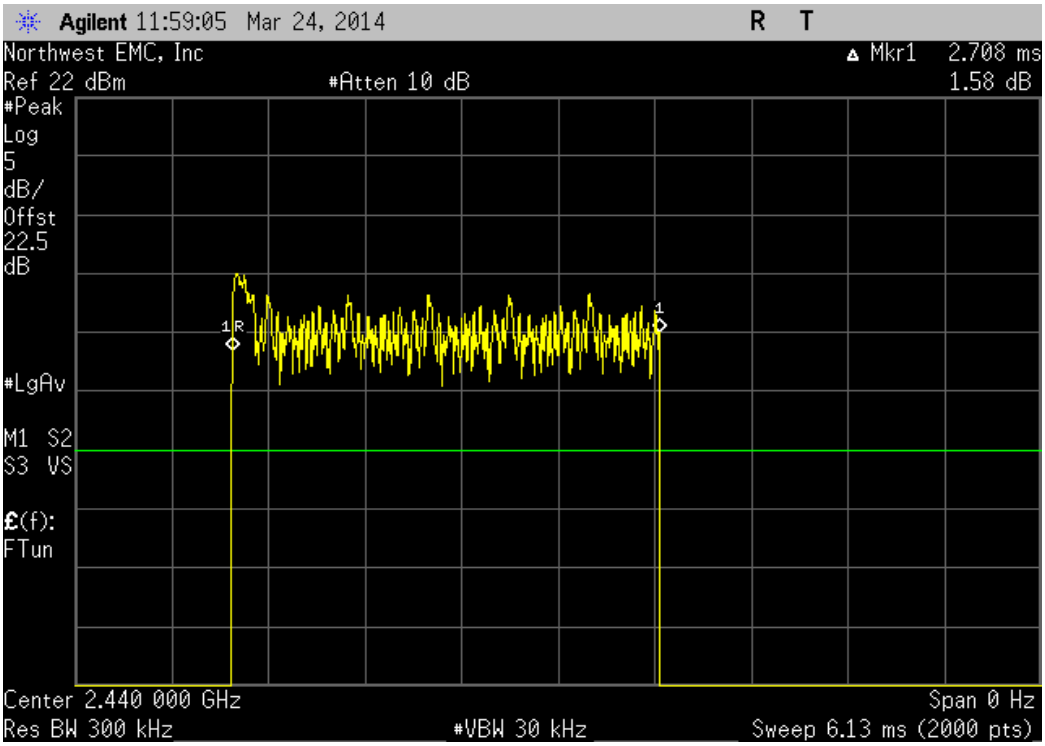
DH5, GFSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
2.889	N/A	22.5	5	325.01	400	Pass

Calculation Only

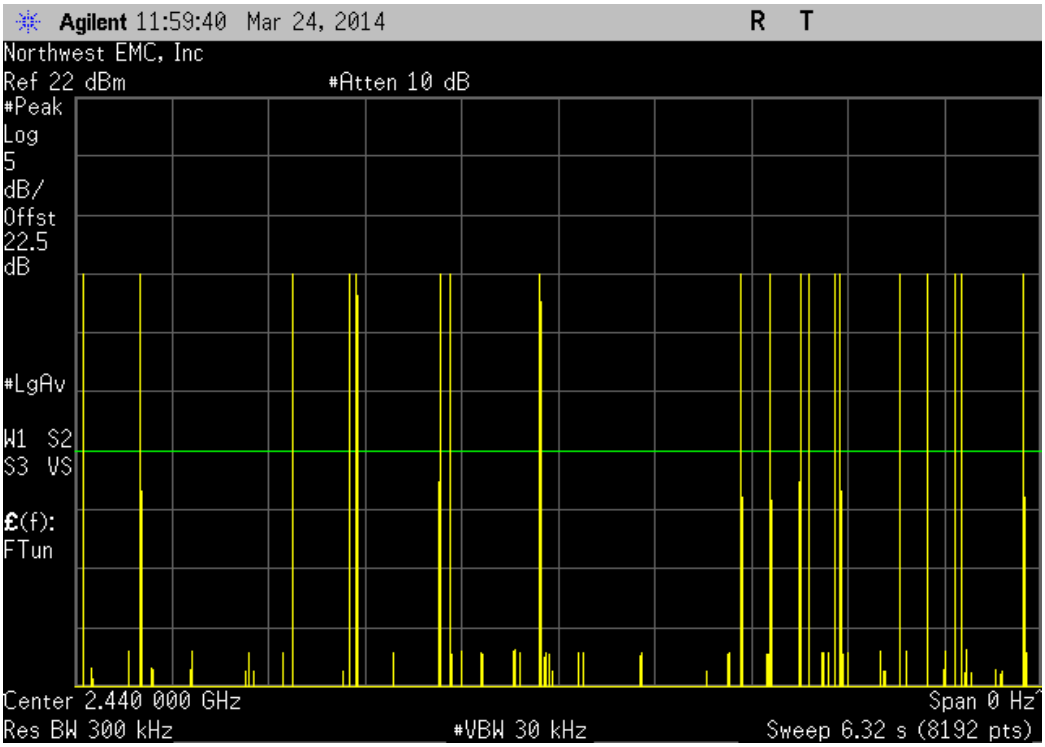
No Screen Capture Required

DWELL TIME

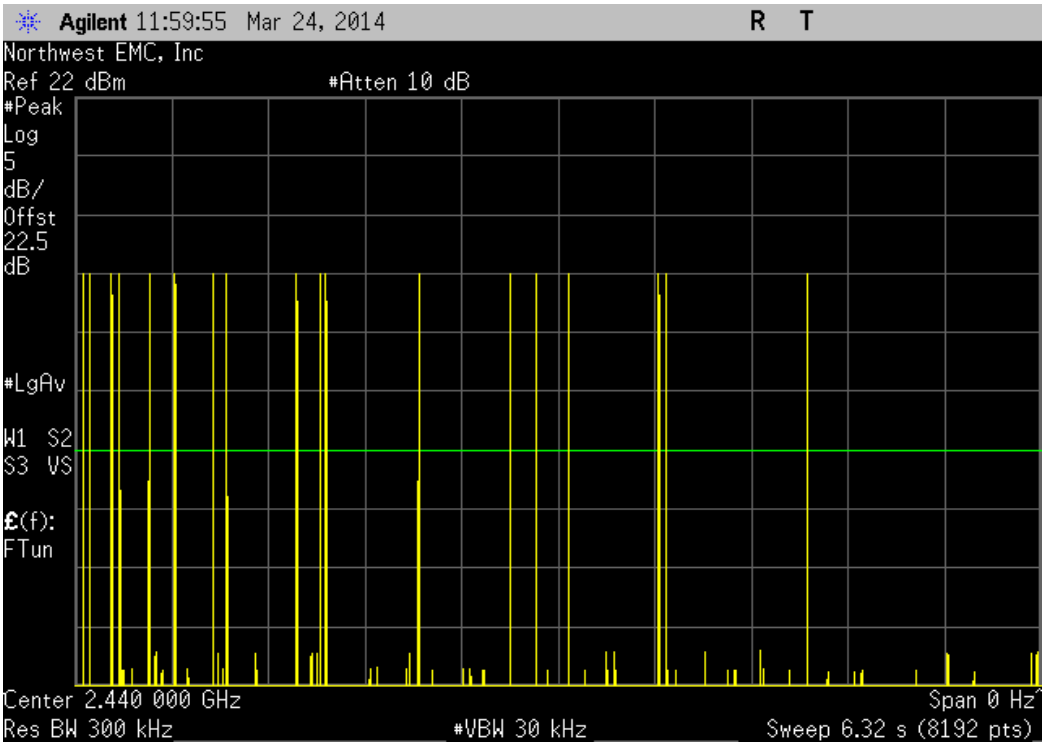
2DH5, pi/4-DQPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
2.708	N/A	N/A	N/A	N/A	N/A	N/A



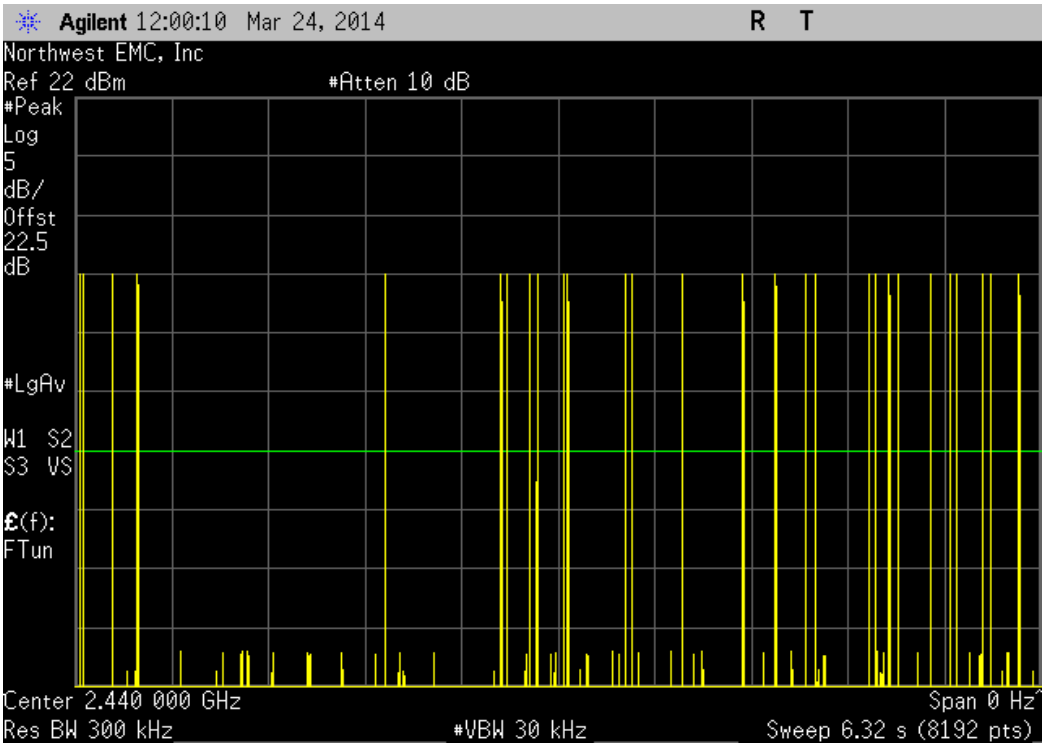
2DH5, pi/4-DQPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	19	N/A	N/A	N/A	N/A	N/A



2DH5, pi/4-DQPSK, Mid Channel						
Pulse Width (mS)	**Number of Pulses**	**Average No. of Pulses**	**Scale Factor**	**On Time (mS) During 31.6 S**	**Limit (mS)**	**Result**
N/A	18	N/A	N/A	N/A	N/A	N/A

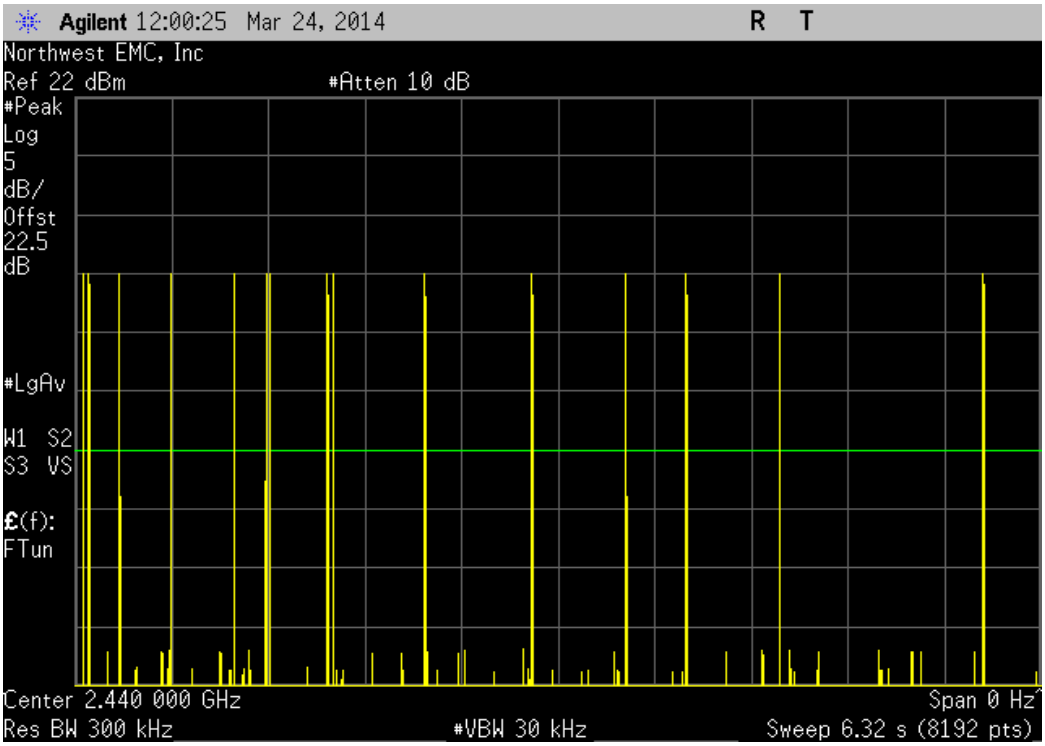


2DH5, pi/4-DQPSK, Mid Channel						
Pulse Width (mS)	**Number of Pulses**	**Average No. of Pulses**	**Scale Factor**	**On Time (mS) During 31.6 S**	**Limit (mS)**	**Result**
N/A	28	N/A	N/A	N/A	N/A	N/A



DWELL TIME

2DH5, pi/4-DQPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	15	N/A	N/A	N/A	N/A	N/A



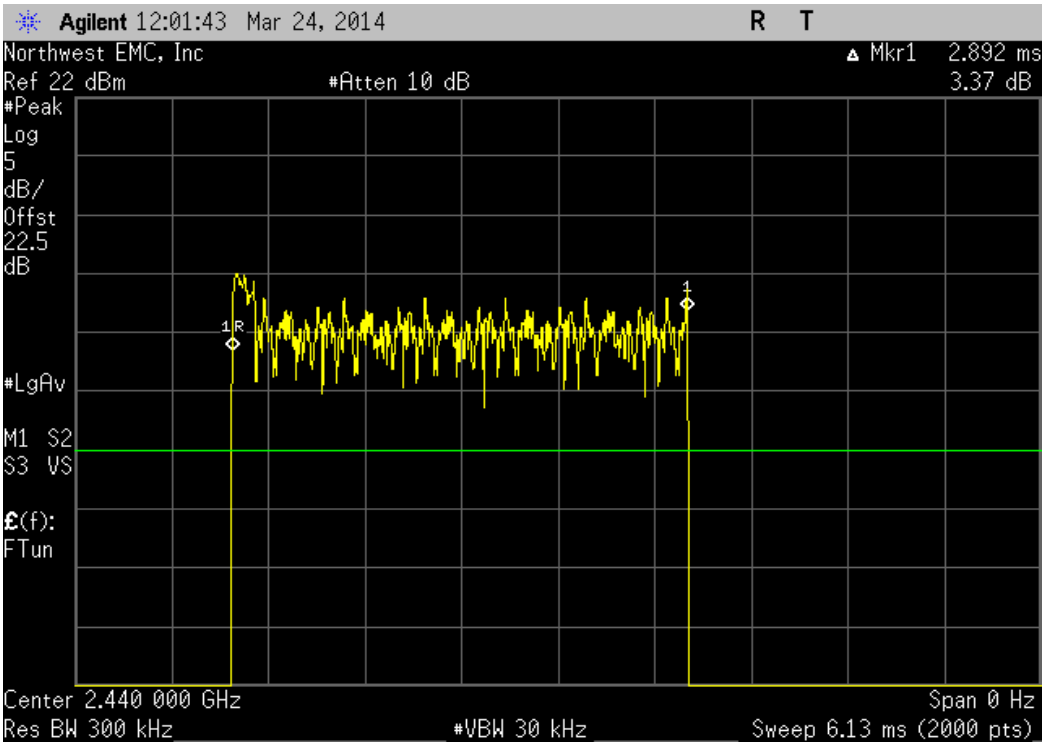
2DH5, pi/4-DQPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
2.708	N/A	20	5	270.8	400	Pass

Calculation Only

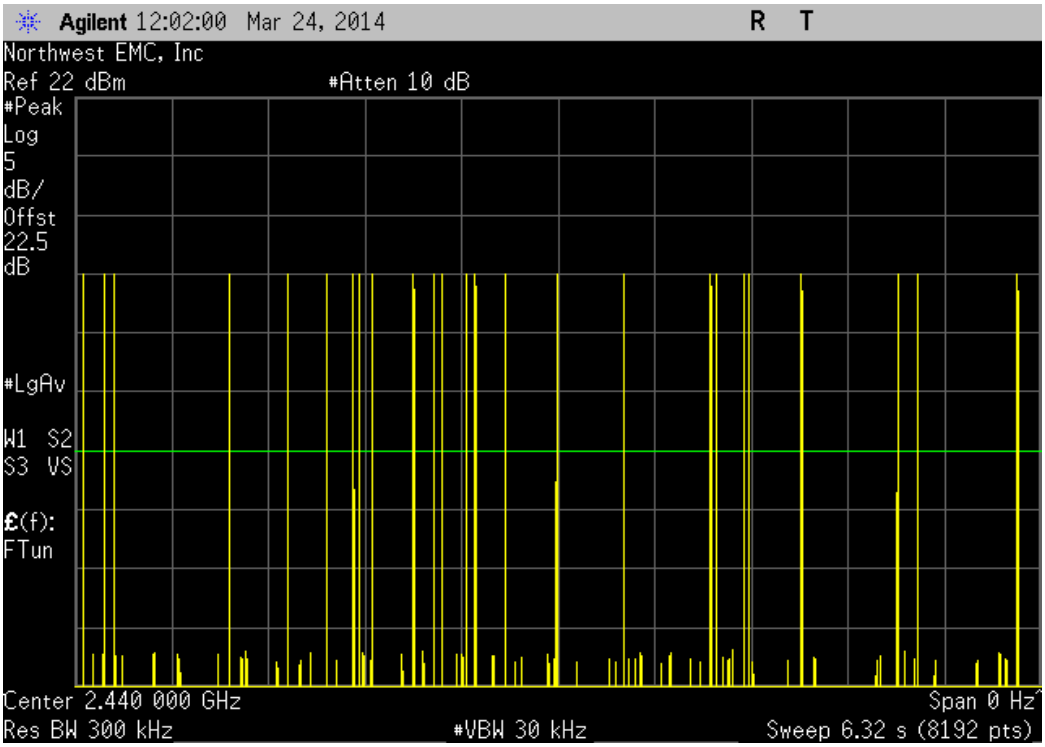
No Screen Capture Required

DWELL TIME

3DH5, 8-DPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
2.892	N/A	N/A	N/A	N/A	N/A	N/A

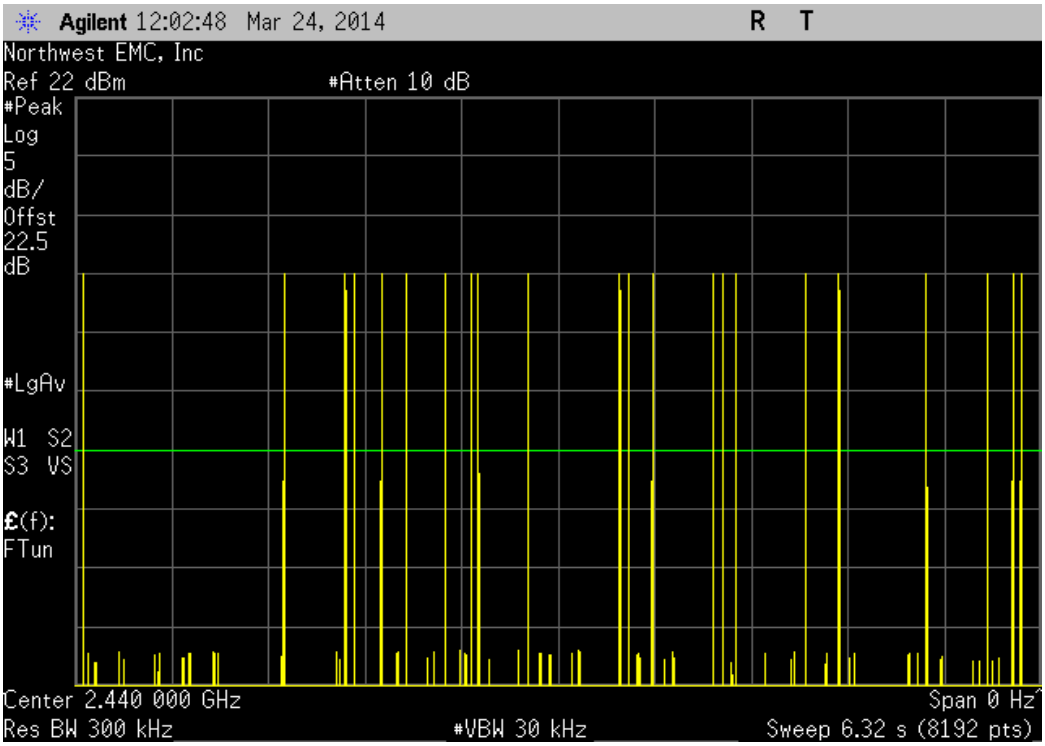


3DH5, 8-DPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	25	N/A	N/A	N/A	N/A	N/A

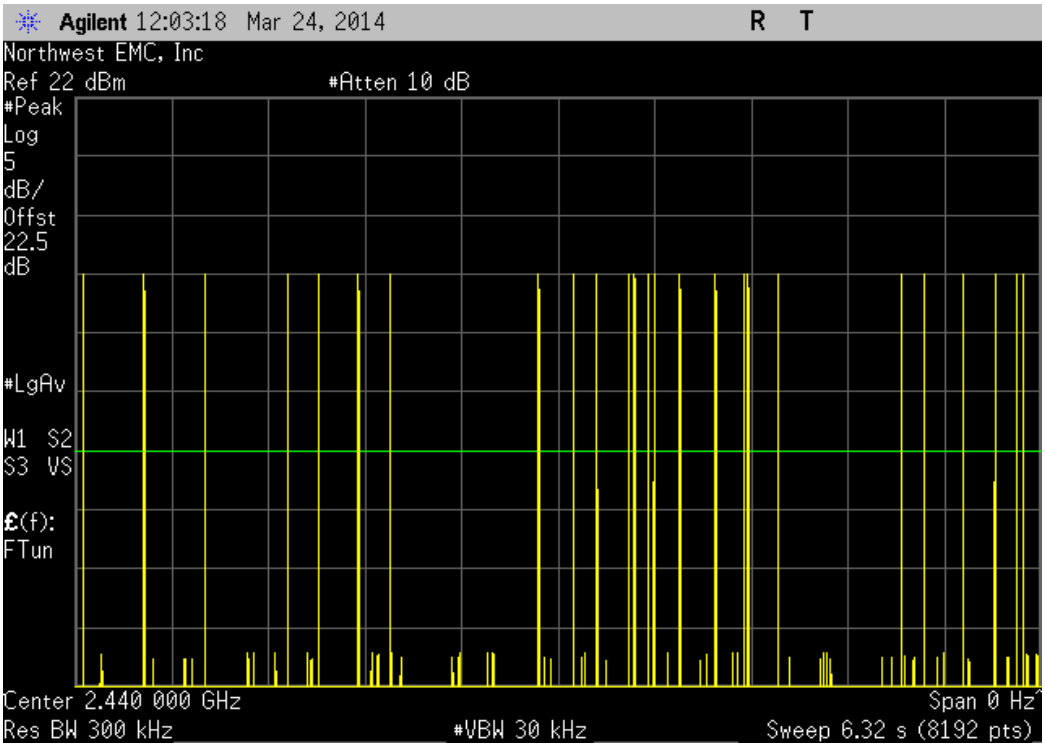


DWELL TIME

3DH5, 8-DPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	22	N/A	N/A	N/A	N/A	N/A

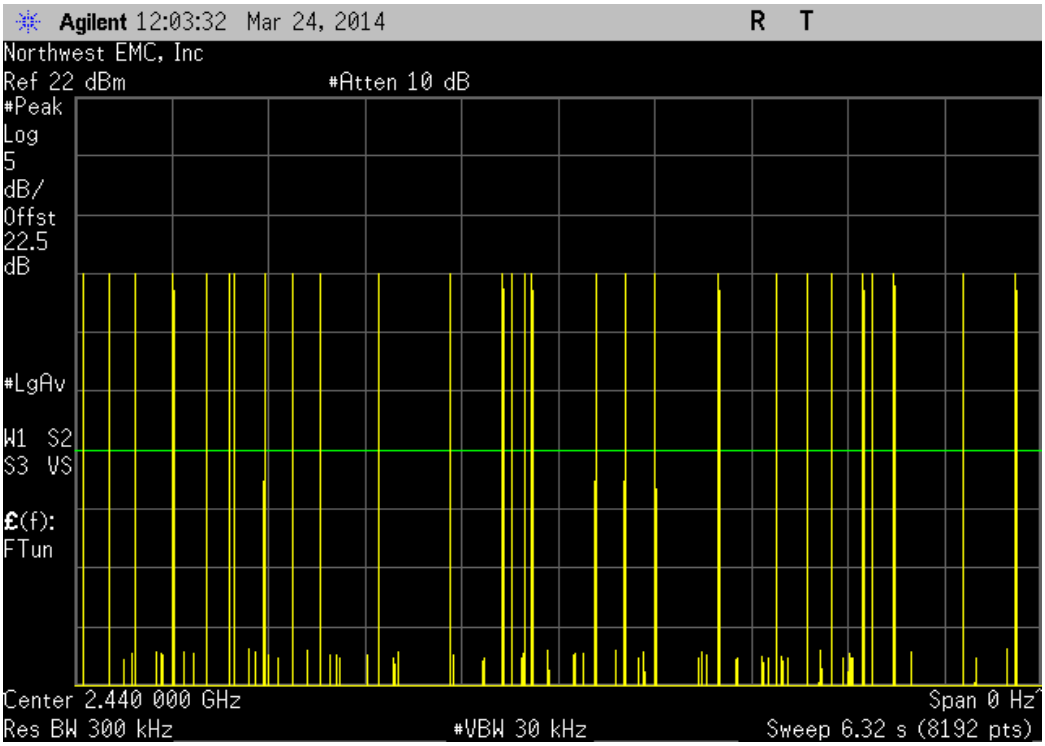


3DH5, 8-DPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	25	N/A	N/A	N/A	N/A	N/A



DWELL TIME

3DH5, 8-DPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	28	N/A	N/A	N/A	N/A	N/A



3DH5, 8-DPSK, Mid Channel						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
2.892	N/A	25	5	361.5	400	Pass

Calculation Only

No Screen Capture Required

BAND EDGE COMPLIANCE - HOPPING MODE

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
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to its normal pseudo·random hopping sequence. 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 - HOPPING MODE

EUT:	WTI SMART			**Work Order:**	SUPR0115
Serial Number:	0003			**Date:**	01/23/14
Customer:	Supra, A Division of UTCFS			**Temperature:**	22.2°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1018
Tested by:	Brandon Hobbs	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

The EUT was operating in hopping mode

DEVIATIONS FROM TEST STANDARD

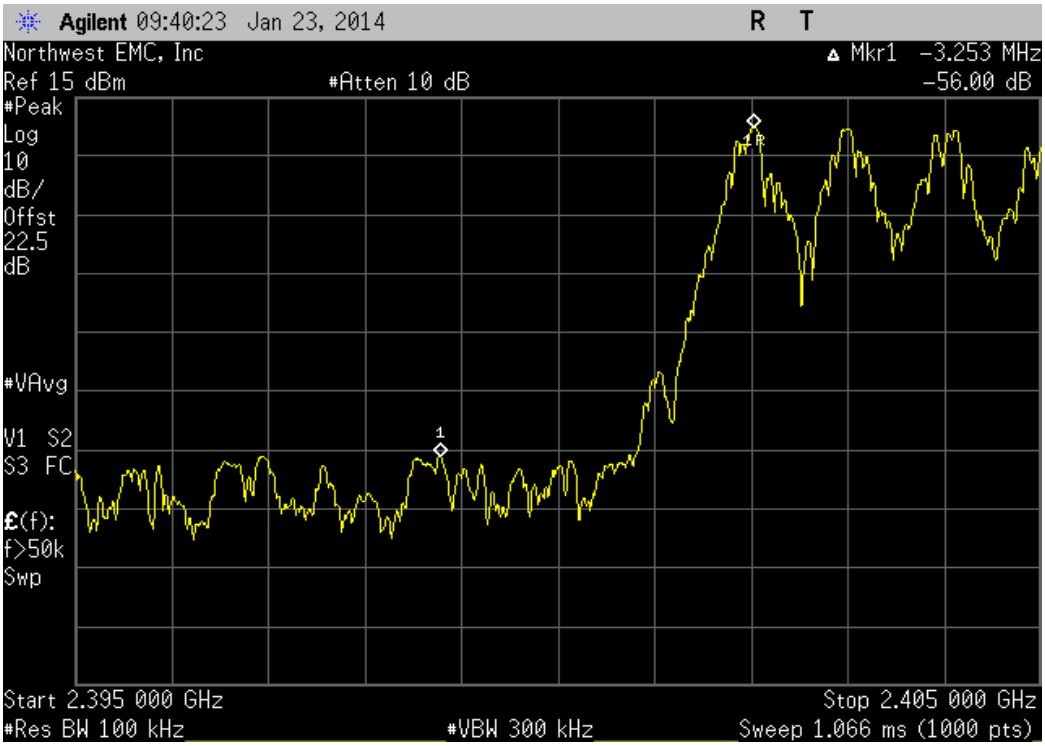
Configuration #	2	Signature

		Value	Limit	Result
DH5, GFSK				
	Low Channel, 2402 MHz	-56 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	-54.85 dBc	≤ -20 dBc	Pass
2DH5, pi/4-DQPSK				
	Low Channel, 2402 MHz	-52.64 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	-54.75 dBc	≤ -20 dBc	Pass
3DH5, 8-DPSK				
	Low Channel, 2402 MHz	-52 dBc	≤ -20 dBc	Pass
	High Channel, 2480 MHz	-54.44 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE - HOPPING MODE

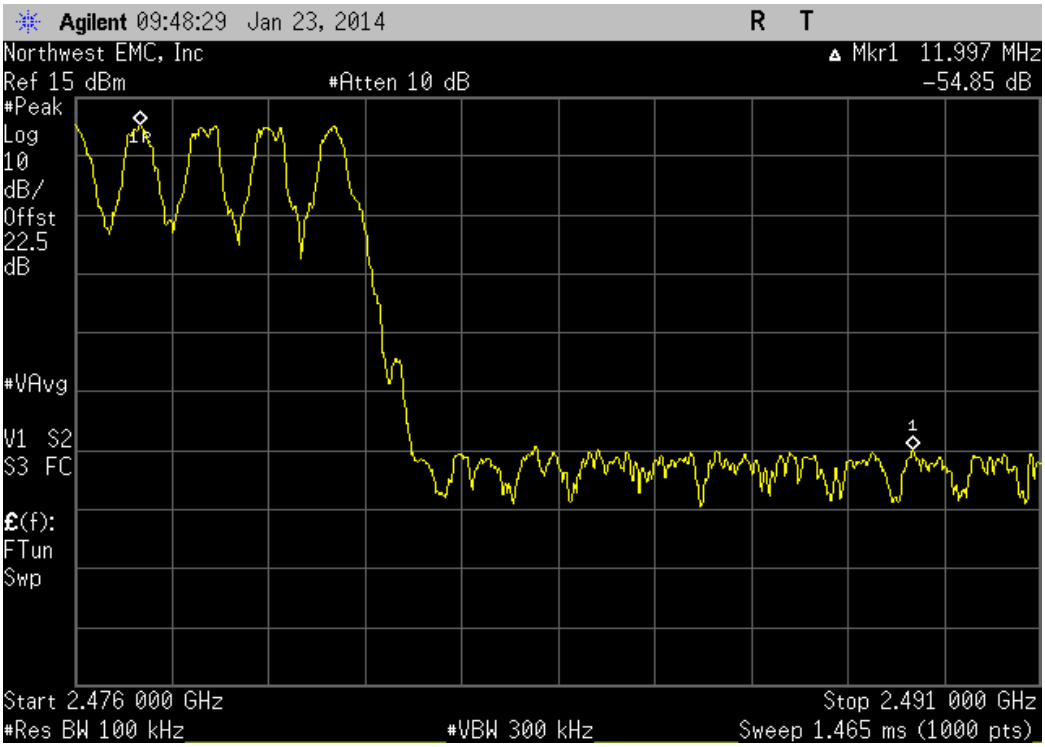
DH5, GFSK, Low Channel, 2402 MHz

				Value	Limit	Result
				-56 dBc	≤ -20 dBc	Pass



DH5, GFSK, High Channel, 2480 MHz

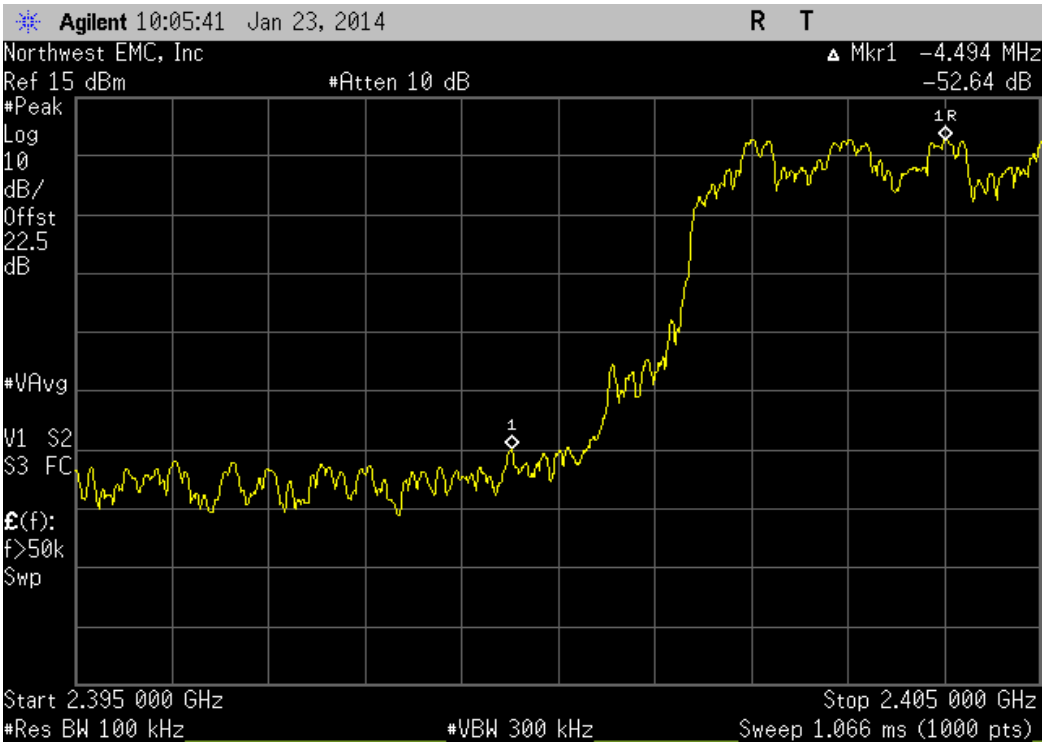
				Value	Limit	Result
				-54.85 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE - HOPPING MODE

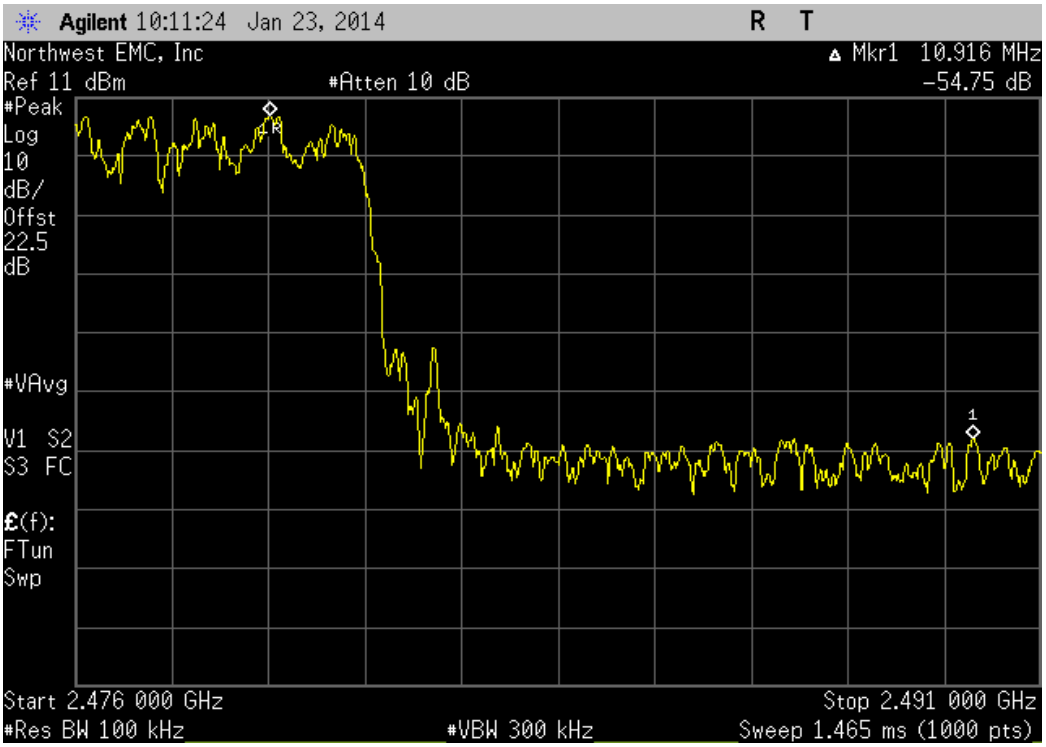
2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

				Value	Limit	Result
				-52.64 dBc	≤ -20 dBc	Pass



2DH5, pi/4-DQPSK, High Channel, 2480 MHz

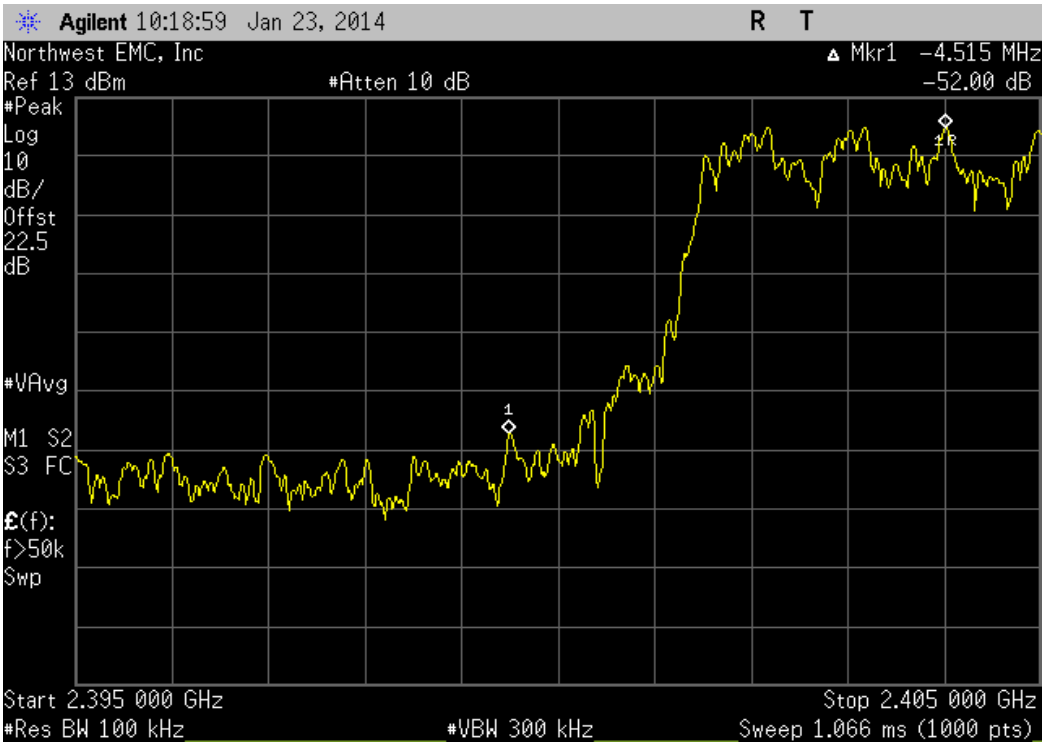
				Value	Limit	Result
				-54.75 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE - HOPPING MODE

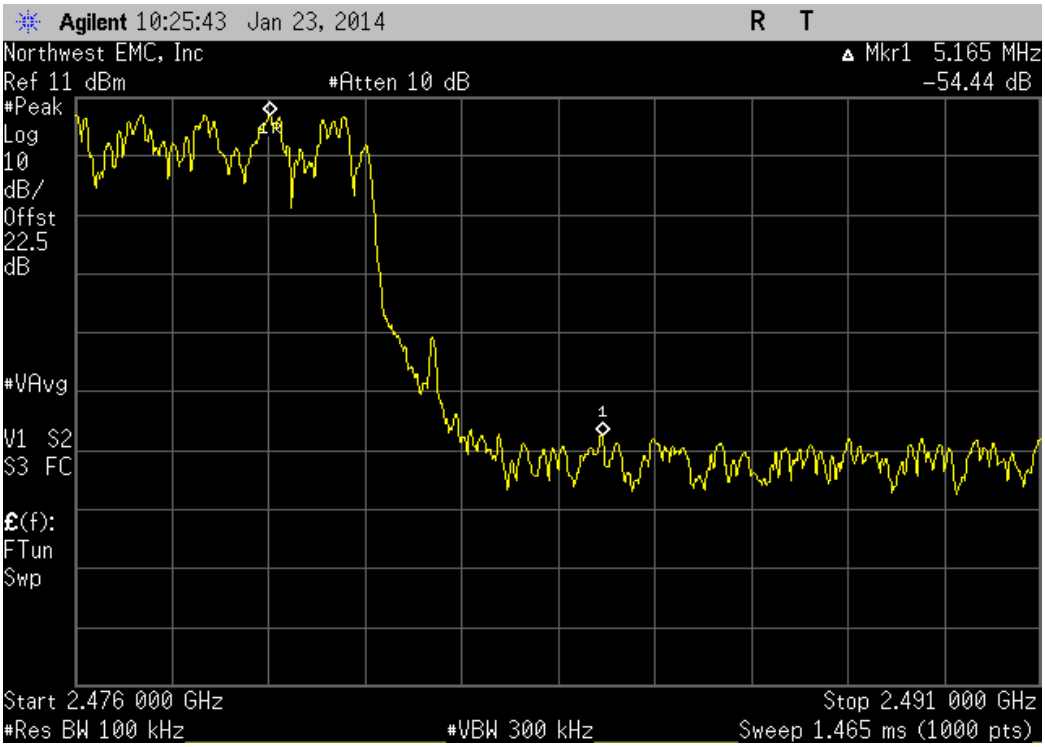
3DH5, 8-DPSK, Low Channel, 2402 MHz

				Value	Limit	Result
				-52 dBc	≤ -20 dBc	Pass



3DH5, 8-DPSK, High Channel, 2480 MHz

				Value	Limit	Result
				-54.44 dBc	≤ -20 dBc	Pass



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.

OPERATING MODULATIONS

BT BDR 1DH5
BT EDR 2DH5
BT EDR 3DH5

OPERATING CHANNELS

Tx Low Ch. 2402 MHz
Tx Mid Ch. 2440 MHz
Tx High Ch. 2480 MHz

POWER SETTINGS INVESTIGATED

Internal Battery

CONFIGURATIONS INVESTIGATED

SUPR0115 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26.5 GHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
HP Filter	Micro-Tronics	HPM50111	HFO	7/6/2013	24 mo
LP Filter	Micro-Tronics	LPM50004	LFD	7/6/2012	24 mo
Attenuator - 20dB, HF (1000MHz - 18000MHz)	Coaxicom	3910-20	AXZ	6/20/2013	12 mo
Cable	ESM Cable Corp.	KMKM-72	EVY	9/10/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/10/2013	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	10/21/2013	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	10/21/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	10/21/2013	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	9/2/2013	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/20/2013	12 mo
Antenna, Horn	EMCO	3115	AHC	6/20/2012	24 mo
EV01 Cables	N/A	Bilog Cables	EVA	6/20/2013	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/20/2013	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	36 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	24 mo

MEASUREMENT BANDWIDTHS

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

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.

A duty cycle correction factor was applied to the average measurements taken per FCC 15.35 using the method of ANSI C63.10:2009. The correction factor was calcualted based on the single channel high time in a 100ms period.

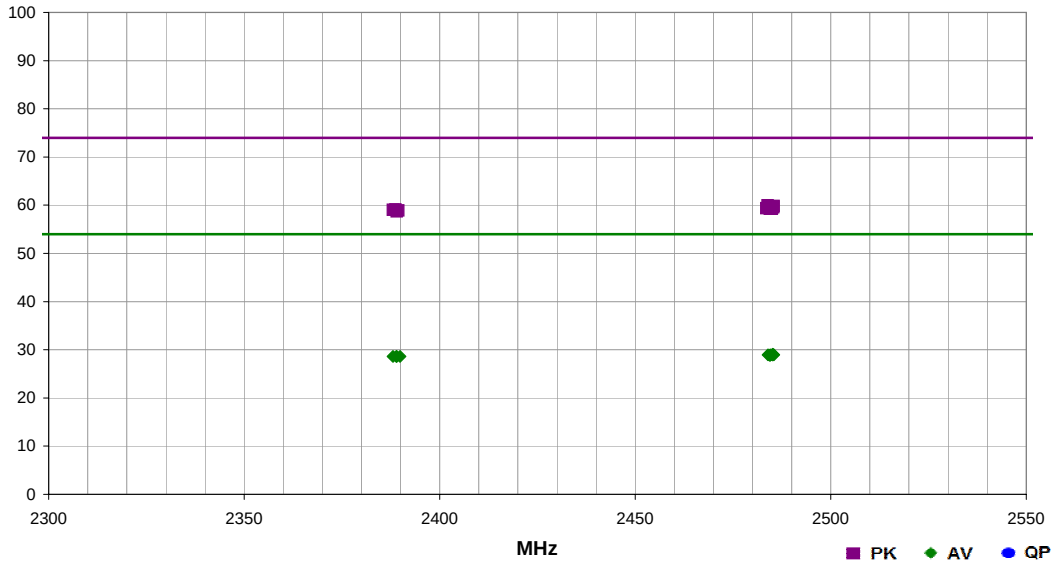
20*LOG(T/100) = -19.4 dB

SPURIOUS RADIATED EMISSIONS

Work Order:	SUPR0115	**Date:**	01/14/14		
Project:	None	**Temperature:**	22.5 °C		
Job Site:	EV01	**Humidity:**	38% RH		
Serial Number:	0074	**Barometric Pres.:**	1037 mbar	**Tested by:**	Carl Engholm, Brandon Hobbs
EUT:	WTI SMART				
Configuration:	1				
Customer:	Supra, A Division of UTCFS				
Attendees:	None				
EUT Power:	Internal Battery				
Operating Mode:	Transmitting Bluetooth BDR, EDR				
Deviations:	None				
Comments:	See comments below for channel, frequency, modulation type, and EUT orientation.				

Test Specifications	**Test Method**
FCC 15.247:2014	ANSI C63.10:2009

Run #	12	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



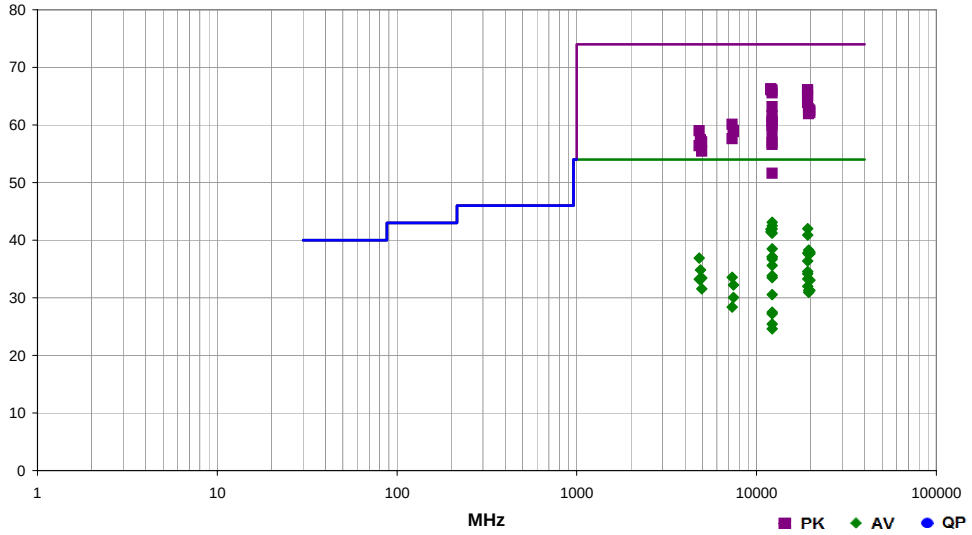
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.877	38.1	1.8	1.0	285.0	0.0	20.0	Horz	PK	0.0	59.9	74.0	-14.1	High Ch, 2480 MHz, DH5, EUT Horz
2485.443	38.0	1.9	1.0	10.0	0.0	20.0	Vert	PK	0.0	59.9	74.0	-14.1	High Ch, 2480 MHz, DH5, EUT Vert
2484.233	37.9	1.8	1.0	133.0	0.0	20.0	Vert	PK	0.0	59.7	74.0	-14.3	High Ch, 2480 MHz, DH5, EUT Horz
2485.370	37.7	1.9	1.0	1.0	0.0	20.0	Vert	PK	0.0	59.6	74.0	-14.4	High Ch, 2480 MHz, 2DH5, EUT on Side
2484.990	37.5	1.9	1.0	1.0	0.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	High Ch, 2480 MHz, 3DH5, EUT on Side
2483.553	37.5	1.8	1.0	170.0	0.0	20.0	Horz	PK	0.0	59.3	74.0	-14.7	High Ch, 2480 MHz, DH5, EUT Vert
2484.947	37.4	1.9	1.0	18.0	0.0	20.0	Horz	PK	0.0	59.3	74.0	-14.7	High Ch, 2480 MHz, DH5, EUT on Side
2484.480	37.4	1.9	1.0	1.0	0.0	20.0	Vert	PK	0.0	59.3	74.0	-14.7	High Ch, 2480 MHz, DH5, EUT on Side
2388.680	37.6	1.5	1.0	311.0	0.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	Low Ch, 2402 MHz, 3DH5, EUT on Side
2388.017	37.5	1.5	1.0	311.0	0.0	20.0	Vert	PK	0.0	59.0	74.0	-15.0	Low Ch, 2402 MHz, DH5, EUT on Side
2389.410	37.4	1.5	1.0	311.0	0.0	20.0	Vert	PK	0.0	58.9	74.0	-15.1	Low Ch, 2402 MHz, 2DH5, EUT on Side
2389.007	37.2	1.5	1.0	235.0	0.0	20.0	Horz	PK	0.0	58.7	74.0	-15.3	Low Ch, 2402 MHz, DH5, EUT on Side
2485.163	26.6	1.9	1.0	1.0	-19.4	20.0	Vert	AV	0.0	29.1	54.0	-24.9	High Ch, 2480 MHz, DH5, EUT on Side
2485.410	26.5	1.9	1.0	133.0	-19.4	20.0	Vert	AV	0.0	29.0	54.0	-25.0	High Ch, 2480 MHz, DH5, EUT Horz
2485.223	26.5	1.9	1.0	18.0	-19.4	20.0	Horz	AV	0.0	29.0	54.0	-25.0	High Ch, 2480 MHz, DH5, EUT on Side
2485.073	26.5	1.9	1.0	1.0	-19.4	20.0	Vert	AV	0.0	29.0	54.0	-25.0	High Ch, 2480 MHz, 3DH5, EUT on Side
2485.043	26.5	1.9	1.0	285.0	-19.4	20.0	Horz	AV	0.0	29.0	54.0	-25.0	High Ch, 2480 MHz, DH5, EUT Horz
2484.507	26.5	1.9	1.0	170.0	-19.4	20.0	Horz	AV	0.0	29.0	54.0	-25.0	High Ch, 2480 MHz, DH5, EUT Vert
2483.933	26.5	1.8	1.0	10.0	-19.4	20.0	Vert	AV	0.0	28.9	54.0	-25.1	High Ch, 2480 MHz, DH5, EUT Vert
2484.440	26.4	1.9	1.0	1.0	-19.4	20.0	Vert	AV	0.0	28.9	54.0	-25.1	High Ch, 2480 MHz, 2DH5, EUT on Side
2388.080	26.5	1.5	1.0	311.0	-19.4	20.0	Vert	AV	0.0	28.6	54.0	-25.4	Low Ch, 2402 MHz, DH5, EUT on Side
2388.950	26.5	1.5	1.0	235.0	-19.4	20.0	Horz	AV	0.0	28.6	54.0	-25.4	Low Ch, 2402 MHz, DH5, EUT on Side
2388.953	26.5	1.5	1.0	311.0	-19.4	20.0	Vert	AV	0.0	28.6	54.0	-25.4	Low Ch, 2402 MHz, 2DH5, EUT on Side
2389.830	26.5	1.5	1.0	311.0	-19.4	20.0	Vert	AV	0.0	28.6	54.0	-25.4	Low Ch, 2402 MHz, 3DH5, EUT on Side

SPURIOUS RADIATED EMISSIONS

Work Order:	SUPR0115	**Date:**	01/16/14		
Project:	None	**Temperature:**	21.6 °C		
Job Site:	EV01	**Humidity:**	33% RH		
Serial Number:	74	**Barometric Pres.:**	1028 mbar	**Tested by:**	Carl Engholm, Brandon Hobbs
EUT:	WTI SMART				
Configuration:	1				
Customer:	Supra, A Division of UTCFS				
Attendees:	None				
EUT Power:	Internal Battery				
Operating Mode:	Transmitting Bluetooth BDR/EDR				
Deviations:	None				
Comments:	See comments below for channel, frequency, modulation type, and EUT orientation.				

Test Specifications	**Test Method**
FCC 15.247:2014	ANSI C63.10:2009

Run #	16	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass

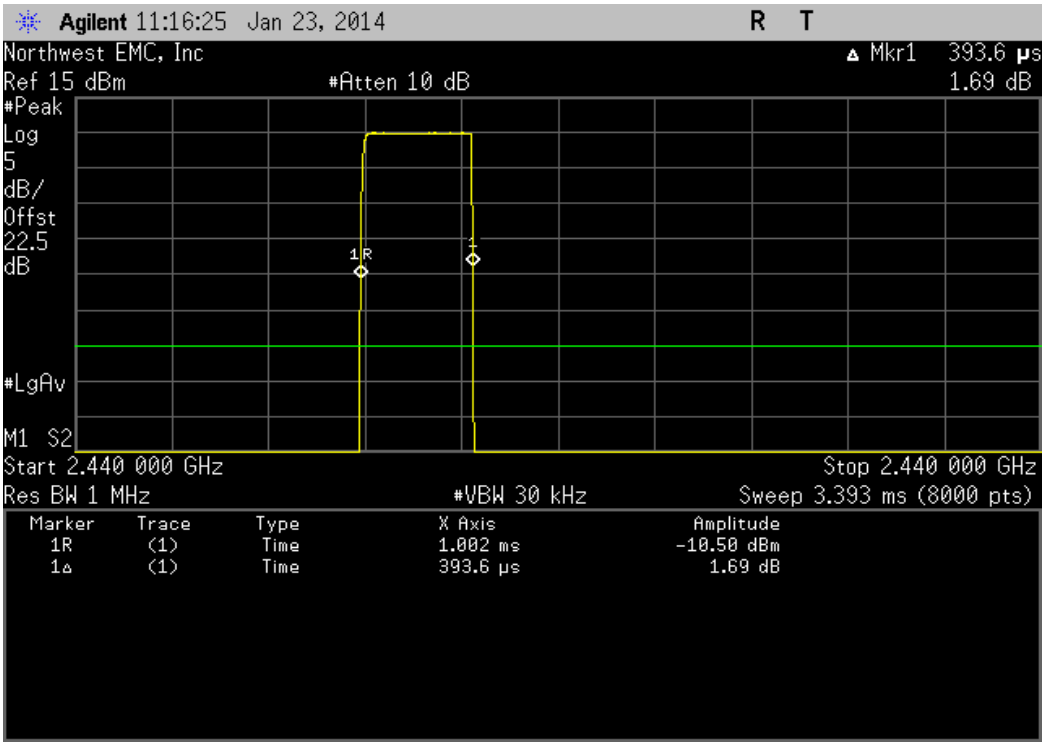


Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
12009.280	73.1	-6.8	1.0	266.0	0.0	0.0	Vert	PK	0.0	66.3	74.0	-7.7	Low Ch, 2402 MHz, DH5, EUT Vert
12010.760	72.9	-6.8	1.0	141.0	0.0	0.0	Horz	PK	0.0	66.1	74.0	-7.9	Low Ch, 2402 MHz, DH5, EUT on Side
19214.890	67.7	-1.6	1.0	222.0	0.0	0.0	Vert	PK	0.0	66.1	74.0	-7.9	Low Ch., 2402 MHz, DH5, EUT Vert
12199.390	70.8	-4.8	1.2	117.0	0.0	0.0	Horz	PK	0.0	66.0	74.0	-8.0	Mid Ch, 2440 MHz, DH5, EUT on Side
19216.060	67.4	-1.6	1.0	202.0	0.0	0.0	Vert	PK	0.0	65.8	74.0	-8.2	Low Ch., 2402 MHz, 3DH5, EUT Vert
12199.360	70.3	-4.8	1.1	58.0	0.0	0.0	Vert	PK	0.0	65.5	74.0	-8.5	Mid Ch, 2440 MHz, DH5, EUT Vert
19217.380	66.6	-1.6	1.0	232.0	0.0	0.0	Horz	PK	0.0	65.0	74.0	-9.0	Low Ch., 2402 MHz, DH5, EUT On Side
19215.090	65.5	-1.6	1.0	202.0	0.0	0.0	Vert	PK	0.0	63.9	74.0	-10.1	Low Ch., 2402 MHz, 2DH5, EUT Vert
12200.780	67.9	-4.8	1.0	140.0	0.0	0.0	Horz	PK	0.0	63.1	74.0	-10.9	Mid Ch, 2440 MHz, 2DH5, EUT on Side
12199.530	67.3	-4.8	1.2	117.0	-19.4	0.0	Horz	AV	0.0	43.1	54.0	-10.9	Mid Ch, 2440 MHz, DH5, EUT on Side
19518.920	63.9	-1.1	1.0	222.0	0.0	0.0	Vert	PK	0.0	62.8	74.0	-11.2	Mid Ch., 2440 MHz, DH5, EUT Vert
19841.260	63.5	-0.9	1.0	202.0	0.0	0.0	Horz	PK	0.0	62.6	74.0	-11.4	High Ch., 2480 MHz, DH5, EUT On Side
12199.570	66.7	-4.8	1.1	58.0	-19.4	0.0	Vert	AV	0.0	42.5	54.0	-11.5	Mid Ch, 2440 MHz, DH5, EUT Vert
19838.780	63.1	-0.9	1.0	222.0	0.0	0.0	Vert	PK	0.0	62.2	74.0	-11.8	High Ch., 2480 MHz, DH5, EUT Vert
19215.100	63.0	-1.6	1.0	222.0	-19.4	0.0	Vert	AV	0.0	42.0	54.0	-12.0	Low Ch., 2402 MHz, DH5, EUT Vert
19521.260	63.1	-1.1	1.0	202.0	0.0	0.0	Horz	PK	0.0	62.0	74.0	-12.0	Mid Ch., 2440 MHz, DH5, EUT On Side
12200.090	66.1	-4.8	1.2	117.0	-19.4	0.0	Horz	AV	0.0	41.9	54.0	-12.1	10 Hz Avg, Mid Ch, 2440 MHz, DH5, EUT on Side
12010.080	68.1	-6.8	1.0	141.0	-19.4	0.0	Horz	AV	0.0	41.9	54.0	-12.1	Low Ch, 2402 MHz, DH5, EUT on Side
12199.370	66.4	-4.8	1.2	111.0	0.0	0.0	Horz	PK	0.0	61.6	74.0	-12.4	Mid Ch, 2440 MHz, DH5, EUT Vert
12010.090	67.7	-6.8	1.0	266.0	-19.4	0.0	Vert	AV	0.0	41.5	54.0	-12.5	Low Ch, 2402 MHz, DH5, EUT Vert
12200.090	65.4	-4.8	1.1	58.0	-19.4	0.0	Vert	AV	0.0	41.2	54.0	-12.8	10 Hz Avg, Mid Ch, 2440 MHz, DH5, EUT Vert
19217.200	61.9	-1.6	1.0	232.0	-19.4	0.0	Horz	AV	0.0	40.9	54.0	-13.1	Low Ch., 2402 MHz, DH5, EUT On Side
12200.040	65.4	-4.8	1.0	68.0	0.0	0.0	Horz	PK	0.0	60.6	74.0	-13.4	Mid Ch, 2440 MHz, 3DH5, EUT on Side
12199.320	65.2	-4.8	1.2	58.0	0.0	0.0	Horz	PK	0.0	60.4	74.0	-13.6	Mid Ch, 2440 MHz, DH5, EUT on Side, Add'l Meas
7319.850	42.0	18.1	1.5	181.0	0.0	0.0	Horz	PK	0.0	60.1	74.0	-13.9	Mid Ch, 2440 MHz, DH5, EUT On Side
12199.230	64.7	-4.8	1.3	50.0	0.0	0.0	Vert	PK	0.0	59.9	74.0	-14.1	Mid Ch, 2440 MHz, DH5, EUT on Side
7440.208	40.6	18.5	1.3	352.0	0.0	0.0	Horz	PK	0.0	59.1	74.0	-14.9	High Ch, 2480 MHz, DH5, EUT On Side
4803.645	48.3	10.7	1.3	306.0	0.0	0.0	Horz	PK	0.0	59.0	74.0	-15.0	Low Ch, 2402 MHz, DH5, EUT On Side
7440.435	40.4	18.5	2.1	191.0	0.0	0.0	Vert	PK	0.0	58.9	74.0	-15.1	High Ch, 2480 MHz, DH5, EUT Vert
12199.930	63.3	-4.8	1.0	256.0	0.0	0.0	Vert	PK	0.0	58.5	74.0	-15.5	Mid Ch, 2440 MHz, 3DH5, EUT Vert
12199.550	62.7	-4.8	1.2	111.0	-19.4	0.0	Horz	AV	0.0	38.5	54.0	-15.5	Mid Ch, 2440 MHz, DH5, EUT Vert
19521.230	58.8	-1.1	1.0	222.0	-19.4	0.0	Vert	AV	0.0	38.3	54.0	-15.7	Mid Ch., 2440 MHz, DH5, EUT Vert
19841.200	58.3	-0.9	1.0	202.0	-19.4	0.0	Horz	AV	0.0	38.0	54.0	-16.0	High Ch., 2480 MHz, DH5, EUT On Side
19216.110	58.8	-1.6	1.0	202.0	-19.4	0.0	Vert	AV	0.0	37.8	54.0	-16.2	Low Ch., 2402 MHz, 3DH5, EUT Vert
19839.040	58.0	-0.9	1.0	222.0	-19.4	0.0	Vert	AV	0.0	37.7	54.0	-16.3	High Ch., 2480 MHz, DH5, EUT Vert
7319.865	39.5	18.1	1.0	345.0	0.0	0.0	Vert	PK	0.0	57.6	74.0	-16.4	Mid Ch, 2440 MHz, DH5, EUT Vert
19521.200	58.1	-1.1	1.0	202.0	-19.4	0.0	Horz	AV	0.0	37.6	54.0	-16.4	Mid Ch., 2440 MHz, DH5, EUT On Side
4879.850	46.5	10.9	1.1	164.0	0.0	0.0	Horz	PK	0.0	57.4	74.0	-16.6	Mid Ch, 2440 MHz, DH5, EUT On Side
12200.090	61.3	-4.8	1.2	111.0	-19.4	0.0	Horz	AV	0.0	37.1	54.0	-16.9	10 Hz Avg, Mid Ch, 2440 MHz, DH5, EUT Vert
12199.510	61.3	-4.8	1.2	58.0	-19.4	0.0	Horz	AV	0.0	37.1	54.0	-16.9	Mid Ch, 2440 MHz, DH5, EUT on Side, Add'l Meas

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4960.200	45.8	11.2	1.0	313.0	0.0	0.0	Horz	PK	0.0	57.0	74.0	-17.0	High Ch, 2480 MHz, DH5, EUT On Side
12199.350	61.7	-4.8	1.2	218.0	0.0	0.0	Vert	PK	0.0	56.9	74.0	-17.1	Mid Ch, 2440 MHz, DH5, EUT Horz
4804.060	45.6	10.7	1.3	306.0	-19.4	0.0	Horz	AV	0.0	36.9	54.0	-17.1	Low Ch, 2402 MHz, DH5, EUT On Side
12199.560	60.9	-4.8	1.3	50.0	-19.4	0.0	Vert	AV	0.0	36.7	54.0	-17.3	Mid Ch, 2440 MHz, DH5, EUT on Side
12199.450	61.4	-4.8	1.0	71.0	0.0	0.0	Vert	PK	0.0	56.6	74.0	-17.4	Mid Ch, 2440 MHz, 2DH5, EUT Vert
4879.735	45.5	10.9	1.0	333.0	0.0	0.0	Vert	PK	0.0	56.4	74.0	-17.6	Mid Ch, 2440 MHz, DH5, EUT Vert
4804.250	45.7	10.7	1.0	336.0	0.0	0.0	Vert	PK	0.0	56.4	74.0	-17.6	Low Ch, 2402 MHz, DH5, EUT Vert
19214.960	57.4	-1.6	1.0	202.0	-19.4	0.0	Vert	AV	0.0	36.4	54.0	-17.6	Low Ch., 2402 MHz, 2DH5, EUT Vert
12200.090	59.8	-4.8	1.2	58.0	-19.4	0.0	Horz	AV	0.0	35.6	54.0	-18.4	10 Hz Avg, Mid Ch, 2440 MHz, DH5, EUT on Side, Add'l Meas
4960.310	44.2	11.2	1.0	157.0	0.0	0.0	Vert	PK	0.0	55.4	74.0	-18.6	High Ch, 2480 MHz, DH5, EUT Vert
4880.060	43.3	10.9	1.1	164.0	-19.4	0.0	Horz	AV	0.0	34.8	54.0	-19.2	Mid Ch, 2440 MHz, DH5, EUT On Side
19216.200	55.6	-1.6	1.0	202.0	-19.4	0.0	Vert	AV	0.0	34.6	54.0	-19.4	10 Hz Avg, Low Ch., 2402 MHz, 3DH5, EUT Vert
19216.880	55.2	-1.6	1.0	222.0	-19.4	0.0	Vert	AV	0.0	34.2	54.0	-19.8	10 Hz Avg, Low Ch., 2402 MHz, DH5, EUT Vert
12200.090	58.0	-4.8	1.3	50.0	-19.4	0.0	Vert	AV	0.0	33.8	54.0	-20.2	10 Hz Avg, Mid Ch, 2440 MHz, DH5, EUT on Side
7320.040	34.9	18.1	1.5	181.0	-19.4	0.0	Horz	AV	0.0	33.6	54.0	-20.4	Mid Ch, 2440 MHz, DH5, EUT On Side
12199.510	57.7	-4.8	1.2	218.0	-19.4	0.0	Vert	AV	0.0	33.5	54.0	-20.5	Mid Ch, 2440 MHz, DH5, EUT Horz
4960.033	41.6	11.2	1.0	313.0	-19.4	0.0	Horz	AV	0.0	33.4	54.0	-20.6	High Ch, 2480 MHz, DH5, EUT On Side
19216.870	54.3	-1.6	1.0	232.0	-19.4	0.0	Horz	AV	0.0	33.3	54.0	-20.7	10 Hz Avg, Low Ch., 2402 MHz, DH5, EUT On Side
4880.050	41.7	10.9	1.0	333.0	-19.4	0.0	Vert	AV	0.0	33.2	54.0	-20.8	Mid Ch, 2440 MHz, DH5, EUT Vert
4804.055	41.9	10.7	1.0	336.0	-19.4	0.0	Vert	AV	0.0	33.2	54.0	-20.8	Low Ch, 2402 MHz, DH5, EUT Vert
19840.880	53.4	-0.9	1.0	222.0	-19.4	0.0	Vert	AV	0.0	33.1	54.0	-20.9	10 Hz Avg, High Ch., 2480 MHz, DH5, EUT Vert
7440.058	33.2	18.5	1.3	352.0	-19.4	0.0	Horz	AV	0.0	32.2	54.0	-21.8	High Ch, 2480 MHz, DH5, EUT On Side
19216.180	53.0	-1.6	1.0	202.0	-19.4	0.0	Vert	AV	0.0	32.0	54.0	-22.0	10 Hz Avg, Low Ch., 2402 MHz, 2DH5, EUT Vert
12199.270	56.4	-4.8	1.2	269.0	0.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Mid Ch, 2440 MHz, DH5, EUT Horz
4960.050	39.7	11.2	1.0	157.0	-19.4	0.0	Vert	AV	0.0	31.5	54.0	-22.5	High Ch, 2480 MHz, DH5, EUT Vert
19840.880	51.6	-0.9	1.0	202.0	-19.4	0.0	Horz	AV	0.0	31.3	54.0	-22.7	10 Hz Avg, High Ch., 2480 MHz, DH5, EUT On Side
19519.390	51.8	-1.1	1.0	222.0	-19.4	0.0	Vert	AV	0.0	31.3	54.0	-22.7	10 Hz Avg, Mid Ch., 2440 MHz, DH5, EUT Vert
19520.790	51.5	-1.1	1.0	202.0	-19.4	0.0	Horz	AV	0.0	31.0	54.0	-23.0	10 Hz Avg, Mid Ch., 2440 MHz, DH5, EUT On Side
12200.050	54.7	-4.8	1.0	140.0	-19.4	0.0	Horz	AV	0.0	30.5	54.0	-23.5	Mid Ch, 2440 MHz, 2DH5, EUT on Side
7440.050	31.0	18.5	2.1	191.0	-19.4	0.0	Vert	AV	0.0	30.0	54.0	-24.0	High Ch, 2480 MHz, DH5, EUT Vert
7320.085	29.7	18.1	1.0	345.0	-19.4	0.0	Vert	AV	0.0	28.4	54.0	-25.6	Mid Ch, 2440 MHz, DH5, EUT Vert
12199.480	51.7	-4.8	1.2	269.0	-19.4	0.0	Horz	AV	0.0	27.5	54.0	-26.5	Mid Ch, 2440 MHz, DH5, EUT Horz
12200.070	51.4	-4.8	1.0	68.0	-19.4	0.0	Horz	AV	0.0	27.2	54.0	-26.8	Mid Ch, 2440 MHz, 3DH5, EUT on Side
12200.070	49.6	-4.8	1.0	256.0	-19.4	0.0	Vert	AV	0.0	25.4	54.0	-28.6	Mid Ch, 2440 MHz, 3DH5, EUT Vert
12200.060	48.8	-4.8	1.0	71.0	-19.4	0.0	Vert	AV	0.0	24.6	54.0	-29.4	Mid Ch, 2440 MHz, 2DH5, EUT Vert

DH5, GFSK, Mid Channel

Sweep Time (ms)	Pulse Width (ms)	Number of Pulses	Value (%)	Limit	Result
3.393	0.3936	1	N/A	N/A	N/A



DH5, GFSK, Mid Channel

Sweep Time (ms)	Pulse Width (ms)	Number of Pulses	Value (%)	Limit	Result
100	0.3936	27	10.63%	N/A	N/A