

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

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with a modulated signal; therefore, the lowest signal data rate was tested.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage. Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30° to $+50^{\circ}$ C) and at 10°C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product-specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to operate within the band.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Spectrum Analyzer	Agilent	N9010A	AFL	9/20/2014	9/20/2015
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	7/15/2017
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	2/27/2016
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	2/27/2016
Power Supply - DC	B&K Precision	9110	TQI	NCR	NCR
		ZPH-8-2-			
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	SCT/AC	TBH	NCR	NCR
Thermometer	Omegaette	HH311	DTX	4/3/2015	4/3/2018
Meter - Multimeter	Fluke	77-IV	MLT	9/25/2014	9/25/2017



EUT:	Firebox T50-W (BS5AE7W)	Work Order:	VDEI0009
Serial Number:	70AF00069-3EB6	Date:	08/12/15
Customer:	WatchGuard Technologies, Inc.	Temperature:	24.8°C
Attendees:	None	Relative Humidity:	46%
Customer Project:	None	Bar. Pressure:	1019 mbar
Tested By:	Jonathan Kiefer	Job Site:	TX09
Power:	48 VDC	Configuration:	2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.407:2015	ANSI C63.10:2013

COMMENTS

2x2 MIMO mode, Chain AC (Chains 0 and 2). Tested at Channel 36 (5180 MHz) and Channel 165 (5825 MHz). The EUT was tested with the fundamental modulated while under test.

DEVIATIONS FROM TEST STANDARD

None

RESULTS

	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
Chain A					
802.11(n) HT, MCS8					
5150 MHz - 5250 MHz - Low	Channel, 518	80 MHz			
Voltage: 115%	5180.025	5180	4.8	100	Pass
Voltage: 100%	5180.025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +50	° 5180.025	5180	4.8	100	Pass
Temperature: +40	° 5180.025	5180	4.8	100	Pass
Temperature: +30	° 5180.025	5180	4.8	100	Pass
Temperature: +20	° 5180.025	5180	4.8	100	Pass
Temperature: +10	° 5180.05	5180	9.7	100	Pass
Temperature: 0°	5180.05	5180	9.7	100	Pass
Temperature: -10°	5180.075	5180	14.5	100	Pass
Temperature: -20°	5180.075	5180	14.5	100	Pass
Temperature: -30°	5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - High	n Channel, 582	25 MHz			
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825	5825	0	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +50	° 5825	5825	0	100	Pass
Temperature: +40	° 5825	5825	0	100	Pass
Temperature: +30	° 5825	5825	0	100	Pass
Temperature: +20	° 5825	5825	0	100	Pass
Temperature: +10	° 5825.025	5825	4.3	100	Pass
Temperature: 0°	5825.025	5825	4.3	100	Pass
Temperature: -10°	5825.05	5825	8.6	100	Pass
Temperature: -20°	5825.05	5825	8.6	100	Pass
Temperature: -30°	5825.075	5825	12.9	100	Pass

Chain C



	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
802.11(n) HT, MCS8					
5150 MHz - 5250 MHz - Low	Channel, 518	0 MHz		-	
Voltage: 115%	5180.025	5180	4.8	100	Pass
Voltage: 100%	5180.025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +50	° 5180.025	5180	4.8	100	Pass
Temperature: +40	° 5180.025	5180	4.8	100	Pass
Temperature: +30	° 5180.025	5180	4.8	100	Pass
Temperature: +20	° 5180.025	5180	4.8	100	Pass
Temperature: +10	° 5180.05	5180	9.7	100	Pass
Temperature: 0°	5180.05	5180	9.7	100	Pass
Temperature: -10°	5180.075	5180	14.5	100	Pass
Temperature: -20°	5180.075	5180	14.5	100	Pass
Temperature: -30°	5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - High	Channel, 582	25 MHz			
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825	5825	0	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +50	° 5825.025	5825	4.3	100	Pass
Temperature: +40	° 5825	5825	0	100	Pass
Temperature: +30	° 5825	5825	0	100	Pass
Temperature: +20	° 5825	5825	0	100	Pass
Temperature: +10	° 5825	5825	0	100	Pass
Temperature: 0°	5825.025	5825	4.3	100	Pass
Temperature: -10°	5825.05	5825	8.6	100	Pass
Temperature: -20°	5825.05	5825	8.6	100	Pass
Temperature: -30°	5825.075	5825	12.9	100	Pass

Jonathan Kiefer

Tested By



Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

	PNO: Fast	Trig: Free Run	#Avg Type: Log-Pwr	TRACE 2
Ref Offset 22.98 dB Ref 6.00 dBm	Politicow			Mkr1 5.180 03 G -1.18 df
		1		
	Contradition of the standard			V I
				243
				M
er 5.18000 GHz	#VBM	10,647	Sur	Span 30.00 M

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass



Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

Agient Spectrum Analyzer - Nottweet EMC, Inc. RL III 5012 DC	SUBLEM	ALLON ONE	09:24:33 AM Aug 12, 201
	PNO: Fest Trig: Free F IFGain:Low #Atten: 10 d	#Avg Type: Log-Pwr tun dB	THE NUMBER
Ref Offset 22.98 dB Bidiv Ref -1.00 dBm			Mkr1 5.180 03 GH -7.63 dBn
		1	
x.			
1			
Jet 1			X
nter 5.18000 GHz es BW 1.0 MHz	#VBW 1.0 kHz	Sw	Span 30.00 MH eep 74.00 ms (601 pts
		STATUS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°

RL IE	Sill Q DC		uestant]	A MIGN OF	10:31:15 AM Aug 12, 201
		PNO: Fast G	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4 5 THE NUMBER DET S S S S S
dBidiy Ref -	fset 22.98 dB 1.00 dBm				Mkr1 5.180 05 GH -7.40 dBn
			1		
00		Tothe part into the second			
					263
	X3				Y
<u> </u>					
a more					
a market					
enter 5.18000 (GHz				Span 30.00 MH
Res BW 1.0 MH	lz	#VBV	/ 1.0 kHz	Swe	ep 74.00 ms (601 pt

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Measured Value (MHz)	



Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°



Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°

Agiant Spectrum Analyzer - Notiveest EMC, in RL 46 50 0 00		(MARCANT)	A NIGN OF	12:51:47 PM Aug 12, 2015
	PNO: Fest	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4 1 TIPE M WWWWWW DET 5 5 5 5 5 5
dBidiv Ref 0.00 dBm				Mkr1 5.180 08 GHz -7.14 dBm
0.0				
бл X3				243
00				
50				
0.0				
50				
150				and the
enter 5.18000 GHz Res BW 1.0 MHz	#VBV	V 1.0 kHz	Swe	Span 30.00 MHz
50			STATUS	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°

R L	thum Analyzer - Northwest EMC, Inc.	1	uer and	A NIGN OF	01:42:24 PM Aug 12, 201
		PNO: Fast	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 24
sBidiv	Ref Offset 22.98 dB Ref 0.00 dBm				Mkr1 5.180 08 GH -7.48 dBr
			1		
		~~~~		and a second second	
.0	x				243
0					
<u>.</u>					
0					
enter 5. tes BW	18000 GHz 1.0 MHz	#VBV	V 1.0 kHz	Swe	Span 30.00 MH ep 74.00 ms (601 pt
				STATUS	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass



Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%

Agient Spectrum Analyzer - Northwest EMC, Inc. RL 4E 50 D DC	SUNSELLIN	ALIGN OF	11:57:50 AM Aug 11, 2015
	PNO: Fest Trig: Fre	#Avg Type: Log-P to dB	TRACE 12 4
Ref Offset 23.15 dB			Mkr1 5.825 00 GHz -2.15 dBm
0		1	
X			243
0			
a man and			
0			
enter 5.82500 GHz Res BW 1.0 MHz	#VBW 1.0 kH	z	Span 30.00 MHz Sweep 74.00 ms (601 pts
a		STATUS	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass



Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

RL   46   572 OC	PNO: Fast C	Trig: Free Run	A ALIGN ONE SAvg Type: Log-Pwr	09:27:57 AM Aug 12, 20 TRACE 12 4 Trife Manual DET \$ \$ \$ \$ \$
Ref Offset 23.15 dB Ref -2.00 dBm	1 Gentacow			Mkr1 5.825 00 GH -8.88 dB
X				243
ter 5.82500 GHz s BW 1.0 MHz	#VBW	1.0 kHz	Swe	Span 30.00 M
			TADA	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass



Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°



Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°

Agiant Spectrum Pastyper - Northwest EMC, Inc. R.L. III Str.D. DC	stiet.pril	ALIGN CHE	12:53:39 PM Aud 12, 2015
	PNO: Fest Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4 1
Ref Offset 23.15 dB			Mkr1 5.825 05 GHz -8.54 dBm
.00			
10			243
X3			Y
10			1
80			1
enter 5.82500 GHz Res BW 1.0 MHz	#VBW 1.0 kHz	Swe	Span 30.00 MHz ep 74.00 ms (601 pts)
K)		STATUS	

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°



Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

	30 Q DC		PNO: Fest	Trig: Free	Run	#Avg Type: L	og-Pwr	TRACE	
Ref Offs	et 22.98 dB 0 dBm	3	IFGein:Low	EAtten: 1	dB		N	kr1 5.180 0 -1.3	3 G 3 dE
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		-		and the second second		-4-4			
	×							243	
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All									
er 5.18000 GH	łz		#V	BW 1.0 kHz			Swee	Span 30.	00 N
						and the second	onici	the state of the s	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

Aglant Spectrum Analyze R.L. III	Mothwest BMC, Inc.	1	ustan)	A NIGN OF	09:29:21 AM Aug 12, 201
		PNO: Fast G	Trig: Free Run #Atten: 10 dB	BAVg Type: Log-Pwr	THE MWWWW
dBidiv Ref -1.	et 22.98 dB 00 dBm				Mkr1 5.180 03 GHz -5.51 dBm
			•1		
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D					243
п	X3				X
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					N.
50 J					
anter 5 19000 C					Poor 20 00 MH
Res BW 1.0 MHz	nz	#VBV	V 1.0 kHz	Sw	reep 74.00 ms (601 pts
				STATUS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°



Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low
Channel, 5180 MHz, Temperature: -20°

Agiant Spectrum Analyzer - Northwest EMC.	lik:			
AL   10   312 DC	PNO: Fast Trig IFGainLow #Am	Free Run en: 10 dB	rg Type: Log-Pwr	TRACE 2 4
Ref Offset 22.98 dB Bidly Ref 3.00 dBm			Mkr1	5.180 08 GH -2.49 dBr
		1		
×			Q ^{2/}	13
$\int f^{s}$				
				A.
J.				
nter 5.18000 GHz	#VBW 1.0	kHz	Sweep 7	Span 30.00 Mi
		B1	ATUS:	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°



Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High
Channel, 5825 MHz, Voltage: 85%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

#VBW 1.0 kHz
STATUS



Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

RL 40 50 DC	PNO: Fast	Trig: Free Run	#Avg Type: Log-Pwr	09:30:32 AM Aug 12, 2 TRACE 2 4 Type M WWW DET 5 5 5 5
Ref Offset 23.15 dB Ref 0.00 dBm	PGBHILOW	BRANK, TO GD		Mkr1 5.825 00 GH -5.01 dB
		<b>1</b>		
X			and approved	
				243
Xs				1
and a				
1				
ter 5.82500 GHz	#VB	V 1.0 kHz	Swe	Span 30.00 M
			STATUS	the second second

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°



Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

## 1Hz - High

Agient Spectrum Analyzer - Northwest EMC, In RL III SJ Q DC	c SUNSEE	NTI L	A ALIGN OF	12:56:44 PM Aud 12, 201
	PNO: Fest Trig IFGein:Low #At	g: Free Run ten: 10 dB	#Avg Type: Log-Pwr	TRACE 12 4 5
Ref Offset 23.15 dB Bildiv Ref 2.00 dBm				4kr1 5.825 05 GHz -2.77 dBm
		<b>●</b> ¹		
	and the second second second		- and the second	
$\checkmark$				243
A3				
				- No
-				
nter 5.82500 GHz	#VBW 1.0	kHz	Swe	Span 30.00 MH
			STATUS	the second se

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°



Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass

Chain C,	802.11(n)	HT, MCS8,	5725 MHz -	5850 M
	Channel,	5825 MHz,	Temperatur	e: -20°
et Spectrum Analyzer - Nor	tiwest EMC; Inc		The second s	



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**

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with a modulated signal; therefore, the lowest signal data rate was tested.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage. Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range ( $-30^{\circ}$  to  $+50^{\circ}$  C) and at 10°C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product-specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to operate within the band.

## **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Spectrum Analyzer	Agilent	N9010A	AFL	9/20/2014	9/20/2015
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	7/15/2017
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	2/27/2016
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	2/27/2016
Power Supply - DC	B&K Precision	9110	TQI	NCR	NCR
		ZPH-8-2-			
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	SCT/AC	TBH	NCR	NCR
Thermometer	Omegaette	HH311	DTX	4/3/2015	4/3/2018
Meter - Multimeter	Fluke	77-IV	MLT	9/25/2014	9/25/2017



EUT:	Firebox T50-W (BS5AE7W)	Work Order:	VDEI0009
Serial Number:	70AF00069-3EB6	Date:	08/12/15
Customer:	WatchGuard Technologies, Inc.	Temperature:	24.8°C
Attendees:	None	Relative Humidity:	46%
Customer Project:	None	Bar. Pressure:	1019 mbar
Tested By:	Jonathan Kiefer	Job Site:	TX09
Power:	48 VDC	Configuration:	2

## **TEST SPECIFICATIONS**

Specification:	Method:
FCC 15.407:2015	ANSI C63.10:2013

### COMMENTS

2x2 MIMO mode, Chain BC (Chains 1 and 2). Tested at Channel 36 (5180 MHz) and Channel 165 (5825 MHz). The EUT was tested with the fundamental modulated while under test.

### **DEVIATIONS FROM TEST STANDARD**

None

### RESULTS

	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
Chain B					
802.11(n) HT, MCS8					
5150 MHz - 5250 MHz - Low	Channel, 518	0 MHz			
Voltage: 115%	5180.025	5180	4.8	100	Pass
Voltage: 100%	5180.025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +50°	5180.05	5180	9.7	100	Pass
Temperature: +40°	5180.025	5180	4.8	100	Pass
Temperature: +30°	5180.025	5180	4.8	100	Pass
Temperature: +20°	5180.025	5180	4.8	100	Pass
Temperature: +10°	5180.05	5180	9.7	100	Pass
Temperature: 0°	5180.05	5180	9.7	100	Pass
Temperature: -10°	5180.05	5180	9.7	100	Pass
Temperature: -20°	5180.075	5180	14.5	100	Pass
Temperature: -30°	5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - High	Channel, 582	25 MHz			
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825	5825	0	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +50°	5825.025	5825	4.3	100	Pass
Temperature: +40°	5825.025	5825	4.3	100	Pass
Temperature: +30°	5825	5825	0	100	Pass
Temperature: +20°	5825	5825	0	100	Pass
Temperature: +10°	5825.025	5825	4.3	100	Pass
Temperature: 0°	5825.05	5825	8.6	100	Pass
Temperature: -10°	5825.05	5825	8.6	100	Pass
Temperature: -20°	5825.075	5825	12.9	100	Pass
Temperature: -30°	5825.075	5825	12.9	100	Pass

#### Chain C



	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
802.11(n) HT, MCS8					
5150 MHz - 5250 MHz - Low	Channel, 518	0 MHz		-	
Voltage: 115%	5180.025	5180	4.8	100	Pass
Voltage: 100%	5180.025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +50	° 5180.025	5180	4.8	100	Pass
Temperature: +40	° 5180.025	5180	4.8	100	Pass
Temperature: +30	° 5180.025	5180	4.8	100	Pass
Temperature: +20	° 5180.025	5180	4.8	100	Pass
Temperature: +10	° 5180.05	5180	9.7	100	Pass
Temperature: 0°	5180.05	5180	9.7	100	Pass
Temperature: -10°	5180.075	5180	14.5	100	Pass
Temperature: -20°	5180.075	5180	14.5	100	Pass
Temperature: -30°	5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - High	n Channel, 582	25 MHz			
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825	5825	0	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +50	° 5825.025	5825	4.3	100	Pass
Temperature: +40	° 5825	5825	0	100	Pass
Temperature: +30	° 5825.025	5825	4.3	100	Pass
Temperature: +20	° 5825	5825	0	100	Pass
Temperature: +10	° 5825.025	5825	4.3	100	Pass
Temperature: 0°	5825.025	5825	4.3	100	Pass
Temperature: -10°	5825.05	5825	8.6	100	Pass
Temperature: -20°	5825.05	5825	8.6	100	Pass
Temperature: -30°	5825.05	5825	8.6	100	Pass

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Tested By



Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

L 16 30 0C	suetant)	Auton off #Avg Type: Log-Pwr	12:11:01 PM Aug 11, 20 TRACE D 2 14
	PNO: Fast Trig: Free Ru IFGain:Low #Atten: 10 dt	an 3	DET S S S S
Ref Offset 22.98 dB Ref 5.00 dBm			Mkr1 5.180 03 GI -1.38 dB
1			
			243
Xa			1 X
1			
			The second
ter 5.18000 GHz s BW 1.0 MHz	#VBW 1.0 kHz	Swi	Span 30.00 M
		STATIS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass



Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

Agient Spectrum Realyzer - Northwest EMC, In R.L. RE SIT D. DC	subscarit	L ANDONE	09:31:57 AM Aug 12, 20
	PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB	BAvg Type: Log-Pwr	TYPE MWWWW DET S S S S S
Ref Offset 22.98 dB Bidiv Ref 0.00 dBm			Mkr1 5.180 03 GH -6.91 dBr
X			243
ter 5.18000 GHz	#VBW 10 kHz	Swi	Span 30.00 MH
		STATUS	and the second sec

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass



Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain B,	802.11(n) HT	, MCS8,	5150 MHz - 8	5250 MHz - Low
	Channel, 51	80 MHz.	Temperature	: -20°

Agiant Spectrum 2 R.L. II	Realizer - Northwest EMC, B	nc (	stream	A NIGN OF	12:58:29 PM Aug 12, 20
		PNO: Fast	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	THACE 2 4
Bidiv Re	f Offset 22.98 dB				Mkr1 5.180 08 GH -5.25 dBr
				and and a second	
					203
	X3				9
1					
-					
nter 5.1800 es BW 1.0	00 GHz MHz	#VB	W 1.0 kHz	Swe	Span 30.00 Mi
				STATUS	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°



Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass



Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High
Channel, 5825 MHz, Voltage: 85%

RL IE 332 DC	LINC INC	suetant 🔰 🔺	ALIGN ON	12:14:05 PM Aug 11, 20
	PNO: Fast	Trig: Free Run #Atten: 10 dB	envg type: Logirwr	THE NUMBER
Ref Offset 23.15 c	18		N	Akr1 5.825 00 Gi -1.46 dB
		1		
				243
A A				
م. منظم ا				
1				and the second
No. Contraction of the second s				
ter 5.82500 GHz s BW 1.0 MHz	#VB	W 1.0 kHz	Swe	Span 30.00 M ep 74.00 ms (601 p
			STATUS	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass



Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

RL   46  350 0	c	PNO: Fest	Trig: Free Run	ALIGN ON BAvg Type: Lo	g-Pwr	09:33:24 TRU T	AM Aug 12, 20
Ref Offset 23.15 Ref -1.00 dBn	dB 1	Politicow	and the second		N	lkr1 5.82! -7	5 00 GH
					men		
×	3					243	
1						1	
1							
ter 5.82500 GHz s BW 1.0 MHz		#VBV	V 1.0 kHz		Swee	Span p 74.00 m	30.00 Mi s (601 pi
				STATUS			

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass



Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°



Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°



Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°

glant Spectrum Analyzer - Northwest EMC, Inc. RL 16 50 0 DC	stratant)	ALIGN ON MALEN OW	01:00:17 PM Aug 12, 2 TRACE DISA
	PNO: Fest Trig: Free Run IFGein:Low #Atten: 10 dB		DET S S S S
Ref Offset 23.15 dB Ref 1.00 dBm			Mkr1 5.825 08 Gi -6.35 dB
X			243
1			
ter 5.82500 GHz s BW 1.0 MHz	#VBW 1.0 kHz	Sw	Span 30.00 M eep 74.00 ms (601 p
		STATUS	

Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°



Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

Agient Spectrum Analyzer - Northwest EMC, Inc.			
-XL 10 130 0 0C1	PNO: Fast C Trig: IFGein:Low #Atte	Free Run en: 10 dB	Pwr TRACE 2 4 4 Trife Statement
Ref Offset 22.98 dB			Mkr1 5.180 03 GHz -2.66 dBm
00		1 meren	
10			
x Xa			×243
a			
0			
n			
			1
a state of the sta			
enter 5.18000 GHz Res BW 1.0 MHz	#VBW 1.0	kHz	Span 30.00 MHz Sweep 74.00 ms (601 pts)
a		STATUS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

HE Strice DC	SUOCONT	▲ ALLON ON	04:35:01 AM Aug 1
	PNO: Fast Trig: Fre IFGein:Low #Atten:	#Avg Type: Log-Pw re Run 10 dB	TRACE 12 TYPE MWW DET \$ \$ \$
Ref Offset 22.98 dB Ref 0.00 dBm			Mkr1 5.180 03 0 -7.64 d
		A management and a starting of the first	
Xa			Q243
r 5.18000 GHz BW 1.0 MHz	#VBW 1.0 kH	z	Span 30.00 Sweep 74.00 ms (601

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°



Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°



Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low
Channel, 5180 MHz, Temperature: -20°

L 46 50'0 OC		ustant)	A MIGN OF	01:01:45 PM Aug 12, TRACE D 100
	PNO: Fest	Trig: Free Run #Atten: 10 dB	and the role at	TYPE MWW DET S S S
Ref Offset 22.98 dB Ref 2.00 dBm			N	Akr1 5.180 08 G -5.08 df
			and and a start of the start of	
				203
X3				Y
				1
and the second se				
er 5.18000 GHz BW 1.0 MHz	#VBV	V 1.0 kHz	Swe	Span 30.00 M
			STATUS	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°



Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%

Agient Spectrum Analyzer - Northwest EMC, Inc				12.12.60.00 0.011 10.016
	PNO: Fast G	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE DE LASS
Ref Offset 23.15 dB Bidiv Ref 6.00 dBm				Mkr1 5.825 00 GHz -1.15 dBm
0)				
0				
т X3				Ŷ ^{2∆3}
0				
20				No.
enter 5.82500 GHz Res BW 1.0 MHz	#VBV	/ 1.0 kHz	Swe	Span 30.00 MHz
a			STATUS	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

esults	Pass



Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°



Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

RL   46   50 0C	PNO: Fest CTrig: Free Run	#Avg Type: Log-Pwr	09:37:20 AM Avg 12, 20 TRACE 2 4 TYPE
Ref Offset 23.16 dB	IFGeinsLow #Atten: 10 0B		Mkr1 5.825 00 GH -6.64 dBr
X3			¥243
- 1			
1			- Au
and the second s			
ter 5.82500 GHz	#VBW 1.0 kHz	Swe	Span 30.00 Mi
		STATUS	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°

RL II	50 Q DC	1	(manan)	Auton off	10:40:56 AM Aug 12, 201
		PNO: Fast	Trig: Free Run #Atten: 10 dB	and the role at	DET S S S S S
dBidiy Ref 1	ffset 23.15 dB 1.00 dBm				Mkr1 5.825 03 GHz -5.76 dBm
°4					
(0)			- And		
					1
4 U	Xa				¥243
0.U					
1 D)					
9 D					
10					
and the second					
4.0					
enter 5.82500	GHz	#\/B\	V 1 0 KH2	Sw	Span 30.00 MH
10 10 10 10 10	112	#VB	Thomas 2	STATUS	cep 14.00 ms (00 r pts

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass



Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°



Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°



Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°

Agiant Spectrum Analyzer - Northwest EMC, b	*	NERCENTI	A ALION OF	01:02:49 PM Auto 12, 2015
	PNO: Fast	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE DE LA
Ref Offset 23.15 dB Ref 2.00 dBm				Mkr1 5.825 05 GHz -5.07 dBm
0			North and Charles and Street Street Street Street	
X3				243
u				
α				
10 ml				
50				1
3.0 2000				1
enter 5.82500 GHz Res BW 1.0 MHz	#VBW	1.0 kHz	Swe	Span 30.00 MHz ep 74.00 ms (601 pts)
a			STATUS	

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS8, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°



Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

1.0 MHz	#VBW 1.0 kHz		Sweep 74.0
		STATUS	



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**

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with a modulated signal; therefore, the lowest signal data rate was tested.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage. Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30  $^{\circ}$  to +50 $^{\circ}$  C) and at 10 $^{\circ}$ C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product-specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to operate within the band.

## **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Spectrum Analyzer	Agilent	N9010A	AFL	9/20/2014	9/20/2015
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	7/15/2017
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	2/27/2016
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	2/27/2016
Power Supply - DC	B&K Precision	9110	TQI	NCR	NCR
		ZPH-8-2-			
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	SCT/AC	TBH	NCR	NCR
Thermometer	Omegaette	HH311	DTX	4/3/2015	4/3/2018
Meter - Multimeter	Fluke	77-IV	MLT	9/25/2014	9/25/2017



EUT:	Firebox T50-W (BS5AE7W)	Work Order:	VDEI0009
Serial Number:	70AF00069-3EB6	Date:	08/12/15
Customer:	WatchGuard Technologies, Inc.	Temperature:	24.8°C
Attendees:	None	Relative Humidity:	46%
Customer Project:	None	Bar. Pressure:	1019 mbar
Tested By:	Jonathan Kiefer	Job Site:	TX09
Power:	48 VDC	Configuration:	2

## **TEST SPECIFICATIONS**

Specification:	Method:
FCC 15.407:2015	ANSI C63.10:2013

### COMMENTS

3x3 MIMO mode, Chain ABC (Chains 0, 1 and 2). Tested at Channel 36 (5180 MHz) and Channel 165 (5825 MHz). The EUT was tested with the fundamental modulated while under test.

## **DEVIATIONS FROM TEST STANDARD**

None

### RESULTS

	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
Chain A					
802.11(n) HT, MCS16					
5150 MHz - 5250 MHz - Lo	w Channel, 518	0 MHz			
Voltage: 115%	5180.025	5180	4.8	100	Pass
Voltage: 100%	5180.025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +	50° 5180.05	5180	9.7	100	Pass
Temperature: +4	40° 5180.025	5180	4.8	100	Pass
Temperature: +3	30° 5180.025	5180	4.8	100	Pass
Temperature: +2	20° 5180.025	5180	4.8	100	Pass
Temperature: +	10° 5180.025	5180	4.8	100	Pass
Temperature: 0°	[°] 5180.05	5180	9.7	100	Pass
Temperature: -1	0° 5180.075	5180	14.5	100	Pass
Temperature: -2	0° 5180.075	5180	14.5	100	Pass
Temperature: -3	0° 5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - Hig	gh Channel, 582	25 MHz			
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825	5825	0	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +	50° 5825.025	5825	4.3	100	Pass
Temperature: +4	40° 5825	5825	0	100	Pass
Temperature: +3	30° 5825.025	5825	4.3	100	Pass
Temperature: +2	20° 5825	5825	0	100	Pass
Temperature: +7	10° 5825.025	5825	4.3	100	Pass
Temperature: 0°	5825.05	5825	8.6	100	Pass
Temperature: -1	0° 5825.05	5825	8.6	100	Pass
Temperature: -2	0° 5825.05	5825	8.6	100	Pass
Temperature: -3	0° 5825.075	5825	12.9	100	Pass
Chain B					

### 802.11(n) HT, MCS16

5150 MHz - 5250 MHz - Low Channel, 5180 MHz



	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
Voltage: 115%	5180	5180	0	100	Pass
Voltage: 100%	5180.025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +50	° 5180.05	5180	9.7	100	Pass
Temperature: +40	° 5180.025	5180	4.8	100	Pass
Temperature: +30	° 5180.025	5180	4.8	100	Pass
Temperature: +20	° 5180.025	5180	4.8	100	Pass
Temperature: +10	° 5180.025	5180	4.8	100	Pass
Temperature: 0°	5180.05	5180	9.7	100	Pass
Temperature: -10°	° 5180.05	5180	9.7	100	Pass
Temperature: -20°	° 5180.075	5180	14.5	100	Pass
Temperature: -30°	° 5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - High	Channel, 582	25 MHz			
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825.025	5825	4.3	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +50	° 5825.05	5825	8.6	100	Pass
Temperature: +40	° 5825.025	5825	4.3	100	Pass
I emperature: +30	° 5825	5825	0	100	Pass
I emperature: +20	° 5825.025	5825	4.3	100	Pass
I emperature: +10	° 5825.025	5825	4.3	100	Pass
I emperature: 0°	5825.05	5825	8.6	100	Pass
Temperature: -10°	5825.05	5825	8.6	100	Pass
Temperature: -20°	5825.05	5825	8.6	100	Pass
I emperature: -30°	5825.075	5825	12.9	100	Pass
5150 MHz - 5250 MHz - Low	Channel 518	0 MHz			
Voltage: 115%	5180 025	5180	48	100	Pass
Voltage: 100%	5180 025	5180	4.8	100	Pass
Voltage: 85%	5180.025	5180	4.8	100	Pass
Temperature: +50	° 5180.05	5180	97	100	Pass
Temperature: +40	° 5180 025	5180	4.8	100	Pass
Temperature: +30	° 5180.025	5180	4.8	100	Pass
Temperature: +20	° 5180.025	5180	4.8	100	Pass
Temperature: +10	° 5180.025	5180	4.8	100	Pass
Temperature: 0°	5180.05	5180	9.7	100	Pass
Temperature: -10°	5180.05	5180	9.7	100	Pass
Temperature: -20°	^o 5180.075	5180	14.5	100	Pass
Temperature: -30°	^o 5180.075	5180	14.5	100	Pass
5725 MHz - 5850 MHz - High	Channel, 582	25 MHz	-		
Voltage: 115%	5825	5825	0	100	Pass
Voltage: 100%	5825	5825	0	100	Pass
Voltage: 85%	5825	5825	0	100	Pass
Temperature: +50	° 5825.025	5825	4.3	100	Pass
Temperature: +40	° 5825.025	5825	4.3	100	Pass
Temperature: +30	° 5825	5825	0	100	Pass



	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
Temperature: +20	° 5825	5825	0	100	Pass
Temperature: +10	° 5825	5825	0	100	Pass
Temperature: 0°	5825.025	5825	4.3	100	Pass
Temperature: -10°	5825.05	5825	8.6	100	Pass
Temperature: -20°	5825.05	5825	8.6	100	Pass
Temperature: -30°	5825.075	5825	12.9	100	Pass

Jonathan Niefer Tested By



Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%



Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

RL 18 50 2 DC	SUN	stant I	ALLON DIF	12:26:31 PM Aug 11, 2015
	PNO: Fast 😱	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4 4 1 Type N WWWWWW Det 5 5 5 5 5 5
Ref Offset 22.98 dB				Mkr1 5.180 03 GHz 0.94 dBm
0	an a			
00				
X3				243
ua				
0				
				Le
a manufacture and the				the second
- a				
enter 5.18000 GHz Res BW 1.0 MHz	#VBW	1.0 kHz	Sw	Span 30.00 MHz eep 74.00 ms (601 pts)
a			STATUS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°

![](_page_34_Figure_12.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

![](_page_35_Picture_1.jpeg)

Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°

![](_page_35_Figure_3.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°

![](_page_35_Figure_6.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

SURGEDIT	ALIGN CHE	09:40:02 AM Aug 12, 2015
PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE D 2 4 4 1
		Mkr1 5.180 03 GHz -5.06 dBm
	and and the second s	
		243
		The second
		Span 30.00 MHz
#VBW 1.0 kHz	Swe	eep 74.00 ms (601 pts)
	Find Fair Constraints of the second s	THOL HAR TIG FIRE Run In General Tig Fire Run Hellen 10 del Anten 10 d

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°

![](_page_35_Figure_12.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

![](_page_36_Picture_1.jpeg)

Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°

![](_page_36_Figure_3.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°

![](_page_36_Figure_6.jpeg)

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°

RL III SI Q DC	suecent	ALIGN OF	01:04:34 PM Aug 12, 201
	PNO: Fast Trig: Free Ru IFGain:Low #Atten: 10 dB	#Avg Type: Log-Pwr an	TRACE 2 4
Ref Offset 22.99 dB Bidly Ref 3.00 dBm			Mkr1 5.180 08 GHa -3.74 dBm
0			
X			2∆3
1			
o}			
a			
			how
and the second s			-an
1			
nter 5.18000 GHz	#VBW 1.0 kHz	ŝ	Span 30.00 MH
		STATUS	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°

![](_page_36_Figure_12.jpeg)

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

![](_page_37_Picture_1.jpeg)

Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%

![](_page_37_Figure_3.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%

![](_page_37_Figure_6.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%

Dent Spectrum Analyzer - Nortwent IMC, Inc.	suotant]	A ALLON ON	12:33:08 PM Aug 11, 20
	PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB	#Avg Type: Log-Pwr	THE NUMMER
Ref Offset 23.15 dB Ref 8.00 dBm			Akr1 5.825 00 GH 0.56 dB
	and the second		
			243
Xa			Ĭ.
and a second			
/			
ter 5.82500 GHz			Span 30.00 Mi
S BW 1.0 MHZ	#VBW 1.0 KHZ	Swe	ep 74.00 ms (601 pi

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°

![](_page_37_Figure_12.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

![](_page_38_Picture_1.jpeg)

Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°

![](_page_38_Figure_3.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°

![](_page_38_Figure_6.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

### Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

Agiant Spectrum Analyzer - Northwest EMC, Inc.		1	
AL 1 10 130 0C	PNO: Fast Trig: Free Run IFGein:Low #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4
dBidry Ref 1.00 dBm			Mkr1 5.825 00 GHz -5.92 dBm
00	more la	and the second s	
.0			1 242
×=X			News.
ά			
τ			
(a)			
10 menter			The second
10			
enter 5.82500 GHz Res BW 1.0 MHz	#VBW 1.0 kHz	Sw	Span 30.00 MHz eep 74.00 ms (601 pts)
a		STATUS	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°

![](_page_38_Figure_12.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

![](_page_39_Picture_1.jpeg)

Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°

![](_page_39_Figure_3.jpeg)

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°

![](_page_39_Figure_6.jpeg)

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°

Agiant Spectrum Analyzer - Northwest EMC, Inc.			29 9 20
RL 10 500 0C	PNO: Feat Trig: Free Run IFGeinsLow #Atten: 10 dB	#Avg Type: Log-Pwr	01:05:55 PM Aug 12, 2015 TRACE 2 2 4 5 TYPE DET 5 5 5 5 5 5
Ref Offset 23,16 dB Ref 2.00 dBm		M	kr1 5.825 05 GHz -4.90 dBm
0			
0			242
Xa Xa			P
a			
o			
a			
0 martine and			A ANT
10			
enter 5.82500 GHz Res BW 1.0 MHz	#VBW 1.0 kHz	Swee	Span 30.00 MHz p 74.00 ms (601 pts
		STATUS	

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain A, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°

![](_page_39_Figure_12.jpeg)

Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass

Report No. VDEI0009.3

![](_page_40_Picture_1.jpeg)

Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%

![](_page_40_Figure_3.jpeg)

Measured Value (MHz)	5180
Assigned Value (MHz)	5180
Error (ppm)	0
Limit (ppm)	100
Results	Pass

# Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%

![](_page_40_Figure_6.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

Agiant Spectrum Analyzer - Notiwest EMC, Inc.		antend	Auton	13.37.46 M L 4 14 M L
	PNO: Fast	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4
Ref Offset 22.98 dB				Mkr1 5.180 03 GHz 0.96 dBm
(00)	an a	1	and the second second	
		and the second		
x.				243
30				
(0)				
10				
10 11				1
20 months				1
e 0				7
enter 5.18000 GHz Res BW 1.0 MHz	#VBV	V 1.0 kHz	Sw	Span 30.00 MHz eep 74.00 ms (601 pts)
96			STATUS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°

![](_page_40_Figure_12.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

![](_page_41_Picture_1.jpeg)

Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°

![](_page_41_Figure_3.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°

![](_page_41_Figure_6.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

RL IE SI'D OC	1 1 3	(Instant)	ALLON OF	09:52:10 AM Aug 12, 2015
	PNO: Fast 😱	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4
Bidly Ref 2.00 dBm				Mkr1 5.180 03 GHz -4,23 dBm
		1		
x X				243
.a)				
0.0				
10 0000				The main and the second
κ0				
enter 5.18000 GHz Res BW 1.0 MHz	#VBV	V 1.0 kHz	Sw	Span 30.00 MHz eep 74.00 ms (601 pts)
a			STATUS	

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°

![](_page_41_Figure_12.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

![](_page_42_Picture_1.jpeg)

Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°

![](_page_42_Figure_3.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°

![](_page_42_Figure_6.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°

RL 16 SI 2 DC		UNERTAIN	ALIGN DIE	01:07:15 PM Aug 12, 201
	PNO: Fast 😱	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4 TYPE N WWWW DET S S S S S
Ref Offset 22.98 dB Bildiv Ref 4.00 dBm				Mkr1 5.180 08 GH: -2.78 dBn
0				
0				
× X3				203
0				
i deserver and				1 miles
nter 5.18000 GHz	#VBV	10147	Sw.	Span 30.00 MH
			STATUS	ceparation ins foor pre

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°

![](_page_42_Figure_12.jpeg)

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

![](_page_43_Picture_1.jpeg)

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%

![](_page_43_Figure_3.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%

![](_page_43_Figure_6.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%

Agient Spectrum Analyzer - Northwest EMC, Inc			29.9
RL 10 572 0C	PNO: Fest Trig: Free Ru #Atten: 10 dt	#Avg Type: Log-Pwr 88	12:40:00 PM Aug 11, 2015 TRACE 2 2 4 TYPE 50 WWWWWW DET 5 5 5 5 5 5
Bidiv Ref 7.00 dBm			Mkr1 5.825 00 GHz 0.85 dBm
0)	and the second second second second	1.	
0			
x Xa			<b>∂</b> ^{2∆3}
п			
			"Ter Billion
10			
enter 5.82500 GHz Res BW 1.0 MHz	#VBW 1.0 kHz	Sw	Span 30.00 MHz reep 74.00 ms (601 pts
a		STATUS	

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°

![](_page_43_Figure_12.jpeg)

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

![](_page_44_Picture_1.jpeg)

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°

![](_page_44_Figure_3.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°

![](_page_44_Figure_6.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

### Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

Agilant Spectrum Analyzer - Northwest EMC, Inc.			
#L 16 372 DC	PNO: Fest C Trig: Free Run IFGein.tow #Atten: 10 dB	#Avg Type: Log-Pwr	09:58:04 4M Aug 12, 201 TRACE 2 4 TIPE 01 WWWWW DET 5 5 5 5 5
Ref Offset 23.15 dB Ref 1.00 dBm		M	kr1 5.825 03 GH: -5.63 dBr
0	an a subscription of the subscription of the	and the state of the	
t t			203
Xs			Y
we			
a manufacture and a second sec			and the second
nter 5.82500 GHz es BW 1.0 MHz	#VBW 1.0 kHz	Swe	Span 30.00 MH ep 74.00 ms (601 pts
		STATUS	

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

#### Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°

![](_page_44_Figure_12.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

![](_page_45_Picture_1.jpeg)

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°

![](_page_45_Figure_3.jpeg)

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°

![](_page_45_Figure_6.jpeg)

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°

RL	HE SIT DC	DMC, linc		untant]	ALIGN ON	0	108:34 PH Aug 12,2
		PN	D: Fast 💭	Trig: Free Run #Atten: 10 dB	#Avg Type:	Log-Pwr	TRACE 2 4
lidiv R	tef Offset 23.15 d Ref 4.00 dBm	8				Mkr1 5	.825 05 GI -3.22 dB
				1			
			og-harmon and har	anonen and			
						0203	
	×						
and and							
ter 5.825 s BW 1.0	500 GHz 0 MHz		#VBW	/ 1.0 kHz		Sweep 74.	pan 30.00 M 00 ms (601 p
					STATUS	11515	

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain B, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°

![](_page_45_Figure_12.jpeg)

Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass

![](_page_46_Picture_1.jpeg)

Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%

![](_page_46_Figure_3.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%

![](_page_46_Figure_6.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%

![](_page_46_Figure_9.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°

![](_page_46_Figure_12.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

![](_page_47_Picture_1.jpeg)

Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°

![](_page_47_Figure_3.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°

![](_page_47_Figure_6.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°

Against Spectrum Analytic - restricted the ac	1	at mail	Autonom	04.40.21 MI 44.11 2015
	PNO: Fast	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 2 4
Ref Offset 22.98 dB				Mkr1 5.180 03 GHz -4.60 dBm
0	and the state of the	1	man a subframe with the rest strings of a	
0				
x3				243
a				
o where the second				The second secon
enter 5.18000 GHz				Span 30.00 MHz
Res BW 1.0 MHz	#VBW	1.0 kHz	SW	eep 74.00 ms (601 pts)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°

![](_page_47_Figure_12.jpeg)

Measured Value (MHz)	5180.025
Assigned Value (MHz)	5180
Error (ppm)	4.8
Limit (ppm)	100
Results	Pass

![](_page_48_Picture_1.jpeg)

Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°

![](_page_48_Figure_3.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°

![](_page_48_Figure_6.jpeg)

Measured Value (MHz)	5180.05
Assigned Value (MHz)	5180
Error (ppm)	9.7
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°

Against Spectrum Analyter - Northwest LMC, Inc. RL III SJ D. DC	sustand	A ALIGN DIE	01:09:57 PM Aug 12, 201
	PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB	#Avg Type: Log-Pwr	THE MUNICIPAL
Ref Offset 22.98 dB Bldiv Ref 4.00 dBm			Mkr1 5.180 08 GH: -3.02 dBn
	and the second second second second second second	and and a fight and a second and a second and	
0			
× X3			V ^{2Δ3}
a			
a) /			
nter 5.18000 GHz	#VBW 1.0 kHz	Swi	Span 30.00 MH
		STATUS	

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°

![](_page_48_Figure_12.jpeg)

Measured Value (MHz)	5180.075
Assigned Value (MHz)	5180
Error (ppm)	14.5
Limit (ppm)	100
Results	Pass

![](_page_49_Picture_1.jpeg)

Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%

![](_page_49_Figure_3.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%

![](_page_49_Figure_6.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%

![](_page_49_Figure_9.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°

![](_page_49_Figure_12.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

![](_page_50_Picture_1.jpeg)

Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°

![](_page_50_Figure_3.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°

![](_page_50_Figure_6.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°

![](_page_50_Figure_9.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

#### Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°

![](_page_50_Figure_12.jpeg)

Measured Value (MHz)	5825
Assigned Value (MHz)	5825
Error (ppm)	0
Limit (ppm)	100
Results	Pass

![](_page_51_Picture_1.jpeg)

Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°

![](_page_51_Figure_3.jpeg)

Measured Value (MHz)	5825.025
Assigned Value (MHz)	5825
Error (ppm)	4.3
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°

![](_page_51_Figure_6.jpeg)

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°

Agient Spectrum Analyzer - Northwest EMC, Inc.			
KL 46 35 C OC	PNO: Fast Trig: Free Run IFGein:Low #Atten: 10 dB	#Avg Type: Log-Pwr	01:11:39 PM Aug 12, 2015 TRACE 2 4 4 Type DET 5 5 5 5 5 5
Ref Offset 23.15 dB dBidiy Ref 5.00 dBm			Mkr1 5.825 05 GHz -1.79 dBm
0)	anno anno anno anno anno anno anno anno	and a second and a second and a second and	
0			1203
X3			- P
1) month of the second			- Harrison
a			
enter 5.82500 GHz Res BW 1.0 MHz	#VBW 1.0 kHz	Swi	Span 30.00 MHz
c		STATUS	

Measured Value (MHz)	5825.05
Assigned Value (MHz)	5825
Error (ppm)	8.6
Limit (ppm)	100
Results	Pass

# Chain C, 802.11(n) HT, MCS16, 5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°

![](_page_51_Figure_12.jpeg)

Measured Value (MHz)	5825.075
Assigned Value (MHz)	5825
Error (ppm)	12.9
Limit (ppm)	100
Results	Pass