Test of
Digi Connect Card for i.MX28 with Atheros AR6203

To: FCC 47 CFR Part 15.407 & IC RSS-210

Test Report Serial No.: DIGI36-U4 Rev A

TEST REPORT

FROM

MiCOM Labs

Test of Digi Connect Card for i.MX28 with Atheros AR6203

to

To FCC 47 CFR Part 15.407 & IC RSS-210

Test Report Serial No.: DIGI36-U4 Rev A

Note: this report contains data with regard to the 5,150 to 5,350 MHz and 5470 – 5725 MHz band for the AR6233. 2.4 GHz test data are reported in MiCOM Labs test report DIGI36-U2

This report supersedes NONE

Applicant: Digi International
355 South 520 West, Suite 180
Lindon
Utah, 84042 USA

Product Function: 802.11 a/b/g/n Wireless Module

Copy No: pdf Issue Date: 22nd May 2014

This Test Report is Issued Under the Authority of;

MiCOM Labs, Inc.
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A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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ACCREDITATION, LISTINGS & RECOGNITION

TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard EN ISO/IEC 17025. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

RECOGNITION

MiCOM Labs, Inc has widely recognized Electrical testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA** countries. Our test reports are widely accepted for global type approvals.

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	RCB 210
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

**APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement.
Is a recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.
Phase I - recognition for product testing
Phase II – recognition for both product testing and certification
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**NB – Notified Body

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MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard EN ISO/IEC 17065. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-02.pdf


American Association for Laboratory Accreditation

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence as a

Product Certification Body

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 - *Requirements for bodies certifying products, processes and services*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.

Presented this 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2015

For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation

United States of America – Telecommunication Certification Body (TCB)
TCB Identifier – US0159

Industry Canada – Certification Body
CAB Identifier – US0159

Europe – Notified Body
Notified Body Identifier - 2280

Japan – Recognized Certification Body (RCB)
RCB Identifier - 210

DOCUMENT HISTORY

Document History		
Revision	**Date**	**Comments**
Rev A	22nd May 2014	Additional antenna added - performed radiated emissions above 1 GHz See Section 6.1.2.5 Dual Band – Compact Balanced Dipole
Test Report initially released as DIGI28-U3B		
Draft		
Rev A	2nd April 2013	Initial release.
Rev B	25th April 2013	Plots added for verification of compliance with requirements of 15.215.

1. TEST RESULT CERTIFICATE

Applicant:	Digi International 355 South 520 West, Suite 180 Lindon Utah, 84042 USA	Tested By:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California, 94566, USA
EUT:	802.11 a/b/g/n module	Tel:	+1 925 462 0304
Model:	CCWMX28	Fax:	+1 925 462 0306
S/N:	5501671-01		
Test Date(s):	2nd Oct to 27th Nov '12, 24th - 25th Feb '14	Website:	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC 47 CFR Part 15.407 & IC RSS-210	EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

Approved & Released for MiCOM Labs, Inc. by:

A2LA ACCREDITED
TESTING CERT #2381.01

Graeme Grieve
Quality Manager MiCOM Labs,

Gordon Hurst
President & CEO MiCOM Labs, Inc.

2. REFERENCES AND MEASUREMENT UNCERTAINTY

2.1. Normative References

Ref.	Publication	Year	Title
(i)	FCC 47 CFR Part 15.407	2012	Code of Federal Regulations
(ii)	FCC 06-96	June 2006	Memorandum Opinion and Order
(iii)	FCC OET KDB 662911	4th April 2011	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
(iv)	Industry Canada RSS-210	2010	Low Power License-Exempt Radiocommunication Devices (All Frequency Bands): Category 1 Equipment
(v)	Industry Canada RSS-Gen	2010	General Requirements and Information for the Certification of Radiocommunication Equipment
(vi)	ANSI C63.4	2009	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
(vii)	CISPR 22/ EN 55022	2008 2006+A1:2007	Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment
(viii)	M 3003	Edition 2 Jan. 2007	Expression of Uncertainty and Confidence in Measurements
(ix)	LAB34	Edition 1 Aug 2002	The expression of uncertainty in EMC Testing
(x)	ETSI TR 100 028	2001	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
(xi)	A2LA	July 2012	Reference to A2LA Accreditation Status – A2LA Advertising Policy
(xii)	FCC Public Notice – DA 02-2138	2002	Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices

2.2. Test and Uncertainty Procedures

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

3. PRODUCT DETAILS AND TEST CONFIGURATIONS

3.1. Technical Details

Details	Description
Purpose:	Test of the Digi Connect Card for i.MX28 with Atheros AR6203 in the frequency range 5,150 to 5,350 MHz and 5470 -5725 MHz to FCC Part 15.407 and Industry Canada RSS-210 regulations.
Applicant:	Digi International 355 South 520 West, Suite 180 Lindon Utah, 84042 USA
Manufacturer:	As applicant
Laboratory performing the tests:	MiCOM Labs, Inc. 440 Boulder Court, Suite 200 Pleasanton, California 94566 USA
Test report reference number:	DIGI36-U4 Rev A
Date EUT received:	26th October 2012
Standard(s) applied:	FCC 47 CFR Part 15.407 & IC RSS-210
Dates of test (from - to):	2nd Oct to 27th Nov '12, 24th - 25th Feb '14
No of Units Tested:	One
Type of Equipment:	802.11a/b/g/n Wi-Fi Module
Applicants Trade Name:	Wi-Fi Module
Model(s):	CCWMX28
Location for use:	Indoor
Declared Frequency Range(s):	5,150 – 5,350 Hz and 5470 - 5725 MHz.
Hardware Rev	30013772-04
Software Rev	DEL-5.9 Rev B
Type of Modulation:	Per 802.11 – OFDM
Declared Nominal Output Power: (Average Power)	5150 – 5250 MHz 802.11a: Legacy +12 dBm 802.11n: HT-20 +12 dBm 802.11n: HT-40 +14 dBm 5250 – 5350 MHz 802.11a: Legacy +15 dBm 802.11n: HT-20 +15 dBm 802.11n: HT-40 +15 dBm 5470 – 5725 MHz 802.11a: Legacy +16 dBm 802.11n: HT-20 +16 dBm 802.11n: HT-40 +16 dBm
EUT Modes of Operation:	Legacy 802.11a, 802.11n HT-20, HT-40
Transmit/Receive Operation:	Time Division Duplex
System Beam Forming:	EUT has no capability for beam forming
Rated Input Voltage and Current:	5 Vdc 0.625 A

Operating Temperature Range:	Declared range -40° to +75C at 95% humidity non condensing
ITU Emission Designator:	5150 – 5250 MHz 802.11a 17M0D1D 802.11n HT-20 18M1D1D 802.11n HT-40 36M7D1D 5250 – 5350 MHz 802.11a 16M9D1D 802.11n HT-20 18M0D1D 802.11n HT-40 36M7D1D 5470 – 5725 MHz 802.11a 18M0D1D 802.11n HT-20 19M6D1D 802.11n HT-40 41M0D1D
Equipment Dimensions:	2” (L) x 1.375 (W) x 0.162” (H) inches
Weight:	< 0.5 oz
Primary function of equipment:	802.11 a/b/g/n wireless module

3.2. Scope of Test Program

Digi Connect Card for i.MX28 with Atheros AR6203 RF Testing
The scope of the test program was to test the Digi Connect Card for i.MX28 with Atheros AR6203 in the frequency ranges 5,150 – 5,350 MHz and 5470-5725 MHz for compliance against FCC 47 CFR Part 15.407 and Industry Canada RSS-210 specifications.

Wi-Fi Dual Port Module: 5501671-01

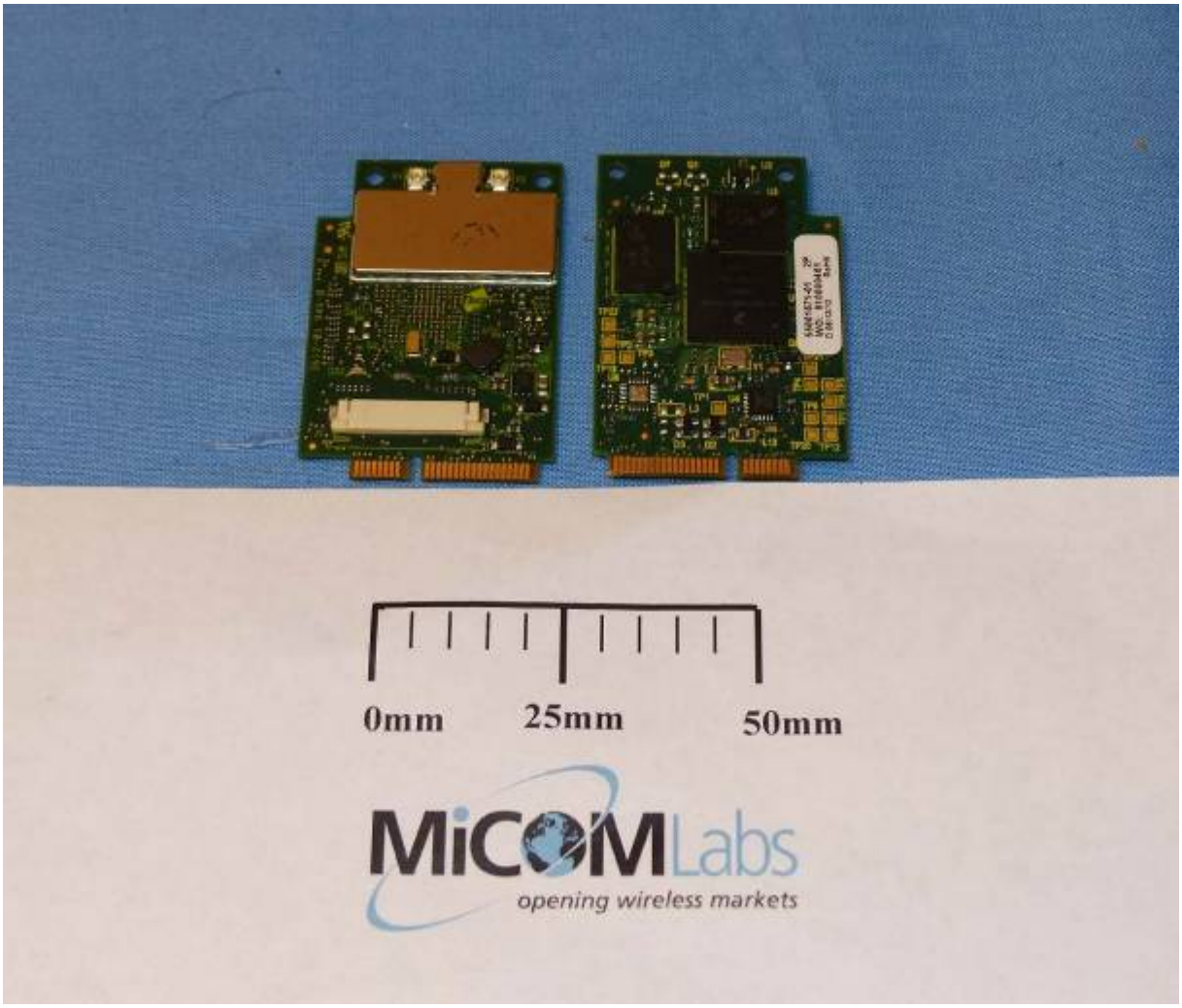
The following operational description of the module was provided by the customer.

The ConnectCard for i.MX28 module set contains a full 802.11 a b g n and Bluetooth radio with a programmable Freescale i.MX28 Processor. The RF section of the part is handled by a Qualcom Atheros Wi-Fi/BT module with a 5GHz RF front end module. Data is entered into the processor through a variety of interfaces including Ethernet, CAN, UART, SPI, I2C, I2S, USB, SDIO, etc. Data is sent to the Wi-Fi/BT module where it is processed and sent to the RF Antenna(s). Likewise data is received in the Wi-Fi/BT module and converted to baseband data where it is sent to the processor for baseband processing and sent out of the module using one of the interface ports.

The module is comprised of a Freescale i.MX28 processor, a Qualcom Atheros Wi-Fi/ Bluetooth Module, an RFMD 5GHz front end module, Diplex filter, and either a BT-2.4GHz Wi-Fi switch or Diversity antenna switch (if no BT). The ConnectCard for i.MX28 functions in both the 2.4 to 2.5GHz, and 4.9 to 6 GHz ISM bands.

The module uses an efficient architecture in which data streams directly from the processor (at baseband) to the Wi-Fi/BT module through data lines. The processor also controls the transceiver's modes within the 802.11 a, b, g, and n modes. The Wi-Fi module includes LNA's for the receive modes and a power amplifier for the transmit mode within the 2.4GHz band. Further a there are transmit-receive switches within the module for the 2.4GHz bands. The antenna(s) are connected to the module through u.FL connectors. With BT capable modules there is a single u.FL connector for a single antenna. For modules without BT, there is a diversity antenna switch and 2 u.FL antenna connectors. The module is available with different amounts of FLASH, and RAM, as well as various processors within the i.MX28 family for customers to store their programs.

Digi Connect Card for i.MX28 with Atheros AR6203



3.3. Equipment Model(s) and Serial Number(s)

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	802.11a/b/g/n Module – Dual Port Module	Digi International	CCWMX28	55001667.01
Support	Laptop PC	IBM	Thinkpad	None

3.4. Antenna Details

Antenna Type	Manufacturer	Model Number	Antenna Gain (dBi	
			2.4 GHz	5 GHz
Patch	Taoglas	PC.11	3.0	4.5
Patch	Taoglas	FXP.830	1.8	4
Dual Band Omni	Antenna Factor	ANT-DB1-xxx	-3.10	4.30
Single Band Omni	Bobbintron Electrical Corp.	SA-006-1	1.8	---
Compacted Balanced Dipole	Digi International	3100016-01	0.0	2.0

3.5. Cabling and I/O Ports

Number and type of I/O ports

1. 1 x DB9 control port on interface card
2. 2 x 2.5 mm DC Power ports on interface card

3.6. Test Configurations

Testing was performed to determine the highest power level versus bit rate. The variant with the highest power was used to exercise the product.

Modes with the highest spectral density will have the highest spurious emissions, only those modes were tested for this test program.

Matrix of test configurations

Operational Mode(s) (802.11)	Variant	Data Rates with Highest Power	Frequencies (MHz)
a,n	Legacy	6 MBit/s	5180/5,200/5,240
	HT-20	6.5 MCS	
	HT-40	13.5 MCS	5,190/5,230
	Legacy	6 MBit/s	5260/5,300/5,320
	HT-20	6.5 MCS	
	HT-40	13.5 MCS	5,270/5,310
	Legacy	6 MBit/s	5500/5,580/5,700
	HT-20	6.5 MCS	
	HT-40	13.5 MCS	5,510/5,590/5,670

Antenna Test Configurations for Radiated Emissions and Band-Edge

The following measurements were performed on all antenna configurations identified in Section 3.4 Antenna Details.

KEY:-

SE – Spurious Emissions
BE – Band-Edge

Spurious Emission and Band-Edge Test Strategy

Spurious emissions were tested in 11a mode which exhibited the highest spectral density. This represents the worst case conditions for radiated emissions. Band edge measurements were made in all modes of operation.

Bands 5,150 – 5250; 5,250 – 5,350, 5470-5725 MHz

15.407			
	11a	**11n HT-20**	**11n HT-40**
5150-5250	SE 5180		
	SE 5200		
	SE 5240		
	BE 5150	BE 5150	BE 5150
5250-5350	SE 5180		
	SE 5200		
	SE 5240		
	BE 5350	BE 5350	BE 5350
5470-5825	SE 5180		
	SE 5200		
	SE 5240		
	BE 5460	BE 5460	BE 5460

3.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

1. Band-Edge and Radiated Spurious Power Reduction

   All conducted spurious emission testing was performed with the device set for maximum power at all times. During radiated spurious and band-edge emission testing the output power was reduced in order to comply with the Restricted Band limit criteria.

Dual Port Module			PC.11		FXP.830		ANT-DB1-xxx
Band	Mode	Channel (MHz)	Maximum Power Level				
5150-5250	a	5180	20		20		18
		5200	20		20		20
		5240	20		20		20
	HT-20	5180	20		20		17
		5200	20		20		20
		5240	20		20		20
	HT-40	5190	15		15		12
		5230	20		20		20
5250-5350	a	5260	20		20		20
		5300	20		20		20
		5320	20		20		20
	HT-20	5260	20		20		20
		5300	20		20		20
		5320	20		20		20
	HT-40	5270	20		20		20
		5310	16		15		14
5470-5825	a	5500	20		20		20
		5580	20		20		20
		5700	20		20		20
	HT-20	5500	20		20		20
		5580	20		20		20
		5700	20		20		20
	HT-40	5510	18		20		16
		5590	20		20		20
		5670	20		20		20

Dual Port Module			Dual Band – Compacted Balanced Dipole
Band	Mode	Channel (MHz)	Maximum Power Level
5150-5250	a	5180	14
		5200	13
		5240	14
	HT-20	5180	13
		5200	13
		5240	13
	HT-40	5190	14
		5230	14
5250-5350	a	5260	14
		5300	16
		5320	16
	HT-20	5260	14
		5300	16
		5320	16
	HT-40	5270	14
		5310	16
5470-5825	a	5500	11
		5580	20
		5700	20
	HT-20	5500	11
		5580	20
		5700	20
	HT-40	5510	14
		5590	20
		5670	20

3.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE

3.9. Subcontracted Testing or Third Party Data

1. NONE

4. TESTING EQUIPMENT CONFIGURATION(S)

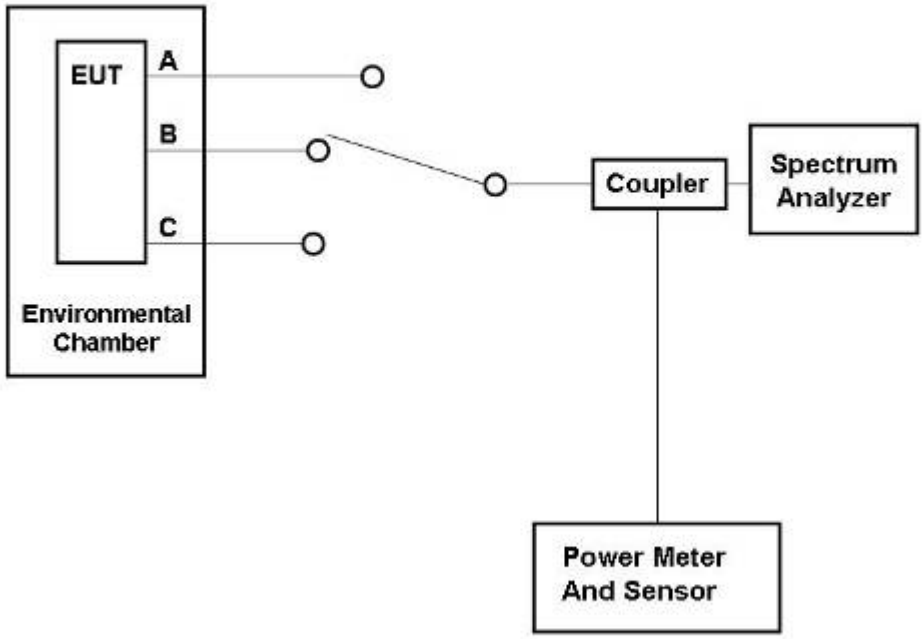
4.1. Conducted RF Emission Test Set-up

The following tests were performed using the conducted test set-up shown in the diagram below.

1. Section 6.1.1.1. 26 dB and 99% Bandwidth
2. Section 6.1.1.2. Maximum Conducted Output Power
3. Section 6.1.1.3. Peak Power Spectral Density
4. Section 6.1.1.4. Peak Excursion Ratio

Conducted Test Set-Up Pictorial Representation

3 - Port Test Configuration

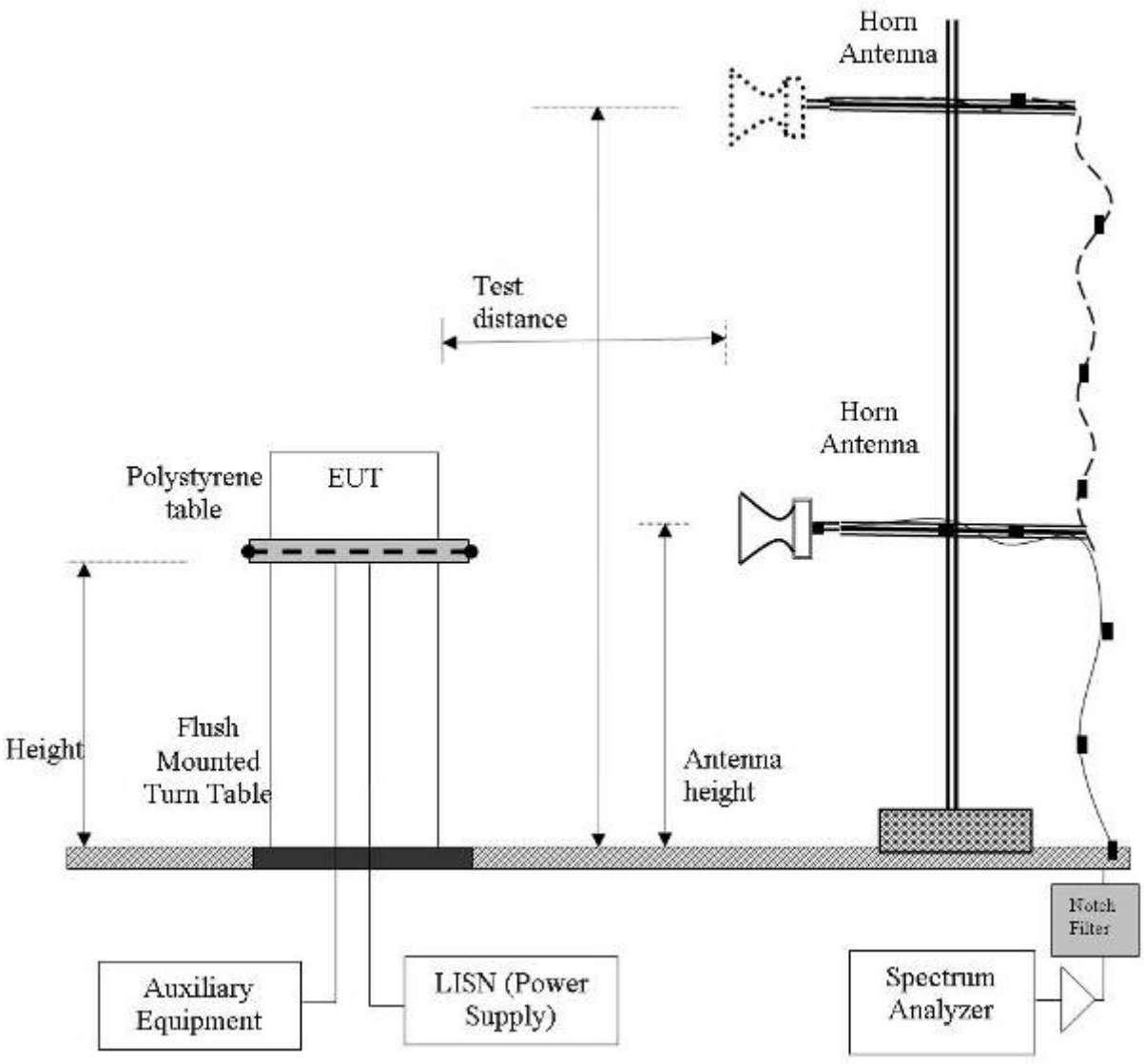


4.2. Radiated Spurious Emission Test Set-up > 1 GHz

The following tests were performed using the conducted test set-up shown in the diagram below.

1. Section 6.1.2.1. Dual Band Patch PC.11 - Dual Port Module Module
2. Section 6.1.2.2. Dual Band Patch PC.11 - Dual Port Module
3. Section 6.1.2.3. Dual Band Patch FXP.830 - Dual Port Module Module
4. Section 6.1.2.4. Dual Band Patch FXP.830 - Dual Port Module
5. Section 6.1.2.5. Dual Band Omni ANT-DB1-xxx - Dual Port Module Module
6. Section 6.1.2.6. Dual Band Omni ANT-DB1-xxx - Dual Port Module

Radiated Emission Measurement Setup – Above 1 GHz

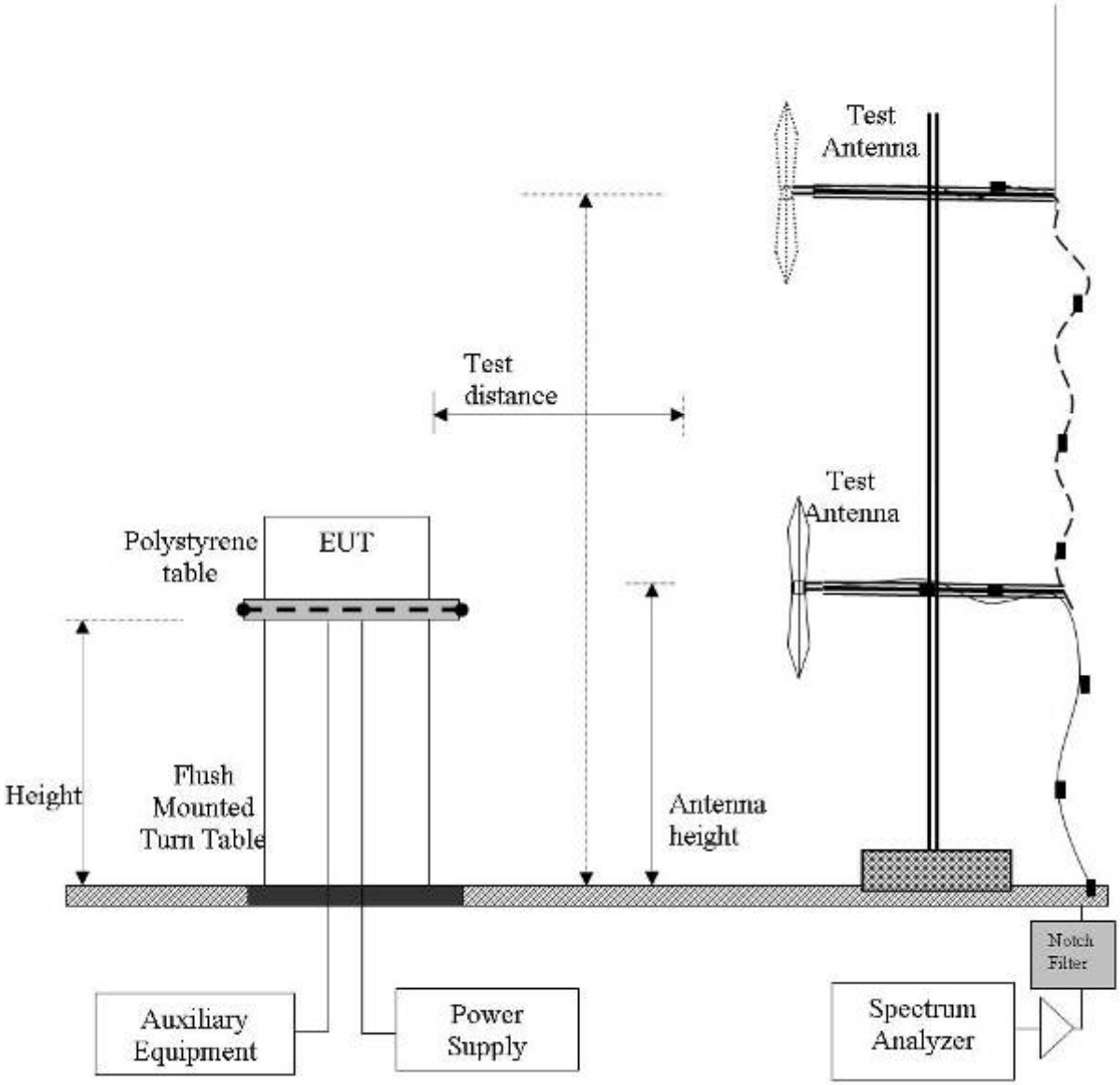


4.3. Digital Emissions Test Set-up (0.03 – 1 GHz)

The following tests were performed using the conducted test set-up shown in the diagram below.

1. Section 6.1.2.7. Digital Emissions

Digital Emission Measurement Setup – Below 1 GHz



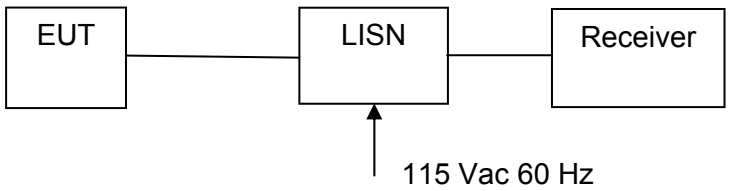
4.4. ac Wireline Emission Test Set-up

The following tests were performed using the conducted test set-up shown in the diagram below.

Refer to MiCOM Labs test report DIGI28-U4.

1. Section 6.1.3 ac Wireline Conducted Emissions

Conducted Test Set-Up Pictorial Representation



Measurement set up for ac Wireline Conducted Emissions Test

5. TEST SUMMARY

List of Measurements

The following table represents the list of measurements required under the **FCC CFR47 Part 15.407** and **Industry Canada RSS-210**.and **Industry Canada RSS-Gen**.

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.407(a) **A9.2(2)** **4.4**	26dB and 99% Emission BW	Emission bandwidth measurement	Conducted	Complies	6.1.1.1 A.1.1
15.407(a) **A9.2(2)** **4.6**	Maximum Conducted Output Power	Power Measurement	Conducted	Complies	6.1.1.2
15.407(a) **A9.2(2)**	Peak Power Spectral Density	PPSD	Conducted	Complies	6.1.1.3 A.1.2
15.407(a)(6)	Peak Excursion Ratio	<13dB in any 1MHz bandwidth	Conducted	Complies	6.1.1.4 A.1.3
15.407(g) **15.31** **2.1** **4.5**	Frequency Stability	Limits: contained within band of operation at all times.	Applicant declaration	Complies	6.1.1.5
15.407(f) **5.5**	Radio Frequency Radiation Exposure	Exposure to radio frequency energy levels, Maximum Permissible Exposure (MPE)	Conducted	See included MPE exhibit	--

List of Measurements (continued)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.407** and **Industry Canada RSS-210** and **Industry Canada RSS-Gen**.

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.407(b)(2) **15.205(a)** **15.209(a)** **2.2** **2.6** **A9.3(2)** **4.7**	Radiated Emissions		Radiated		6.1.2
	Transmitter Radiated Spurious Emissions	Emissions above 1 GHz		Complies	*6.1.2.1-6.1.2.6*
	Radiated Band Edge	Band edge results		Complies	*6.1.2.1-6.1.2.6*
15.407(b)(6) **15.205(a)** **15.209(a)** **2.2**	Radiated Emissions	Emissions <1 GHz (30M-1 GHz)		Complies	*6.1.2.7*
15.407(b)(6) **15.207** **7.2.2**	AC Wireline Conducted Emissions 150 kHz–30 MHz	Conducted Emissions	Conducted	N/A EUT is DC powered	6.1.3

Note 1: Test results reported in this document relate only to the items tested

Note 2: The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria

Note 3: Section 3.7 Equipment Modifications highlights the equipment modifications that were required to bring the product into compliance with the above test matrix

List of Measurements (cont'd)

Dynamic Frequency Selection (DFS)
The following table represents the list of measurements required under the **FCC CFR47 Part 15.407(h)(2)** and **FCC Memorandum Opinion and Order FCC 06-96 (Compliance Measurement procedures for Unlicensed National Information Infrastructure devices operating in the 5250-5350 MHz and 5470-5725 MHz bands incorporating dynamic frequency selection).**

Tests performed on Master Device

Section	Test Items	Description	Condition	Result	Test Report Section
	Dynamic Frequency Selection				6.1.4
7.8.1	Detection Bandwidth	UNII Detection Bandwidth	Conducted	Not Applicable	
7.8.2.1	Performance Requirements Check	Initial Channel Availability Check Time	Conducted	Not Applicable	
7.8.2.2		Radar Burst at the Beginning of the Channel Availability Check Time	Conducted	Not Applicable	
7.8.2.3		Radar Burst at the End of the Channel Availability Check Time	Conducted	Not Applicable	
7.8.3	In-Service Monitoring	In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Conducted	Complies	
7.8.4	Radar Detection	Statistical Performance Check	Conducted	Not Applicable	

Note 1: Test results reported in this document relate only to the items tested

Note 2: The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria

Note 3: Section 3.7 Equipment Modifications highlights the equipment modifications that were required to bring the product into compliance with the above test matrix

6. TEST RESULTS

6.1. Device Characteristics

6.1.1. Conducted Testing

6.1.1.1. 26 dB and 99 % Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	26 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	KDB 789033 - D01 DTS General UNII Test Procedures v01		

Test Procedure for 26 dB and 99% Bandwidth Measurement

The bandwidth at 26 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. KDB 789033 Section 5.1 Emission Bandwidth was used in order to prove compliance. The Resolution Bandwidth was set to approximately 1% of the emission bandwidth.

Measurement Results for 26 dB and 99 % Operational Bandwidth(s)

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11a	**Duty Cycle (%):**	100%
Data Rate:	6 Mbit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5180.0	21.844	--	--	--	21.844	21.844		
5200.0	21.743	--	--	--	21.743	21.743		
5240.0	23.647	--	--	--	23.647	23.647		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5180.0	16.633	--	--	--	16.633	16.633		
5200.0	16.633	--	--	--	16.633	16.633		
5240.0	16.633	--	--	--	16.633	16.633		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5180.0	22.846	--	--	--	22.846	22.846		
5200.0	25.551	--	--	--	25.551	25.551		
5240.0	24.850	--	--	--	24.850	24.850		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5180.0	17.735	--	--	--	17.735	17.735		
5200.0	17.936	--	--	--	17.936	17.936		
5240.0	17.836	--	--	--	17.836	17.836		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5190.0	56.313	--	--	--	56.313	56.313		
5230.0	67.335	--	--	--	67.335	67.335		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5190.0	36.072	--	--	--	36.072	36.072		
5230.0	36.673	--	--	--	36.673	36.673		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11a	**Duty Cycle (%):**	100%
Data Rate:	6.0 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable		
Engineering Test Notes:	Not Applicable		

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5260.0	24.148				33.267	33.267		
5300.0	33.166				33.166	33.166		
5320.0	32.565				32.565	32.565		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5260.0	16.633				17.134	17.134		
5300.0	17.034				17.034	17.034		
5320.0	16.934				16.934	16.934		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100%
Data Rate:	6.5 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable		
Engineering Test Notes:	Not Applicable		

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5260.0	25.551				33.166	33.166		
5300.0	32.966				32.966	32.966		
5320.0	32.565				32.565	32.565		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5260.0	17.836				18.337	18.337		
5300.0	18.136				18.136	18.136		
5320.0	18.136				18.136	18.136		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 Mbit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable		
Engineering Test Notes:	Not Applicable		

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5270.0	60.321				74.950	74.950		
5310.0	79.559				79.559	79.559		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5270.0	36.273				37.876	37.876		
5310.0	37.475				37.475	37.475		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5500.0	41.784	--	--	--	41.784	41.784		
5580.0	41.784	--	--	--	41.784	41.784		
5700.0	44.188	--	--	--	44.188	44.188		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5500.0	27.756	--	--	--	27.756	27.756		
5580.0	29.459	--	--	--	29.459	29.459		
5700.0	30.962	--	--	--	30.962	30.962		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5500.0	43.387	--	--	--	43.387	43.387		
5580.0	45.391	--	--	--	45.391	45.391		
5700.0	45.591	--	--	--	45.591	45.591		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5500.0	28.257	--	--	--	28.257	28.257		
5580.0	31.062	--	--	--	31.062	31.062		
5700.0	31.463	--	--	--	31.463	31.463		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Dual Port Module

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5510.0	86.974	--	--	--	86.974	86.974		
5550.0	89.379	--	--	--	89.379	89.379		
5670.0	87.375	--	--	--	87.375	87.375		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5510.0	55.912	--	--	--	55.912	55.912		
5550.0	61.122	--	--	--	61.122	61.122		
5670.0	61.523	--	--	--	61.523	61.523		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Specification

Limits

FCC, Part 15 §15.407 (a)(1), (a)(2) and Industry Canada RSS-210 § A9.2(2)

(a)(1) For the band 5.15-5.25 GHz the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or +4 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +4 dBm in any 1 megahertz band.

(a)(2) For the 5.25-5.35 GHz band the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or +11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +11 dBm in any 1 megahertz band.

Industry Canada RSS-Gen 4.4

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

Traceability

Test Equipment Used
0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

6.1.1.2. Maximum Conducted Output Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Maximum Conducted Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	KDB 789033 - D01 DTS General UNII Test Procedures v01		

Test Procedure for Maximum Conducted Output Power Measurement

Method PM (Measurement using an RF average power meter). Section C) 4) of KDB 789033 defines a methodology using an average wideband power meter. Measurements were made while the EUT was operating in a continuous transmission mode (100% duty cycle) at the appropriate center frequency. All cable losses and offsets were taken into consideration in the measured result. All operational modes and frequency bands were measured independently and the resultant calculated. For multiple outputs, the measurements were made simultaneously on each output port and summed in a linear fashion. This technique was used in order to prove compliance.

Maximum Transmit (Conducted) Power, FCC Limits and Industry Canada Limits

Bands 5150 – 5250 MHz

FCC Limits

Conducted Power Limit lesser of: 50 mW or 4 dBm + 10 log (B) dBm. B is the 26 dB emission bandwidth in MHz.

Mode	Frequency Range (MHz)	Minimum 26 dB Bandwidth (MHz)	4 + 10 Log (B) (dBm)	Limit (dBm)
a	5150 – 5250	21.743	+17.37	+17.00
HT-20		22.846	+17.59	+17.00
HT-40		56.313	+21.50	+17.00

Industry Canada Limits

EIRP Limit 5150 – 5250 MHz: Lesser of 200 mW (+23 dBm) or 10 + 10 Log (B) dBm. B is the 99% emission bandwidth in MHz.

Mode	Frequency Range (MHz)	Minimum 99 % Bandwidth (MHz)	10 + 10 Log (B) (dBm)	EIRP Limit (dBm)
a	5150 – 5250	16.633	+22.21	+22.21
HT-20		17.735	+22.49	+22.49
HT-40		36.673	+25.64	+23.00

Bands 5250 – 5350 MHz and 5470 – 5725 MHz

FCC Limits Limits

Limit lesser of: 250 mW or 11 dBm + 10 log (B) dBm

Mode	Frequency Range (MHz)	Maximum 26 dB Bandwidth (MHz)	11 + 10 Log (B) (dBm)	Limit (dBm)
a	5250 – 5350 5470 – 5725	37.675	+26.76	+24.00
HT-20		40.822	+27.11	+24.00
HT-40		79.760	+30.02	+24.00

Industry Canada Limits

Limit lesser of: 250 mW or 11 dBm + 10 log (B) dBm

Mode	Frequency Range (MHz)	Maximum 99% Bandwidth (MHz)	11 + 10 Log (B) (dBm)	Limit (dBm)
a	5250 – 5350 5470 – 5725	22.445	+24.51	+24.00
HT-20		24.449	+24.88	+24.00
HT-40		46.693	+27.69	+24.00

Measurement Results for Maximum Conducted Output Power

Equipment Configuration for Peak Transmit Power			
Variant:	802.11a	**Duty Cycle (%):**	100%
Data Rate:	6 Mbit/s	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5180.0	12.12	--	--	--	12.12	21.844	17.00	-4.88	14
5200.0	11.96	--	--	--	11.96	21.743	17.00	-5.04	13
5240.0	12.64	--	--	--	12.64	23.647	17.00	-4.36	14

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5180.0	12.09	--	--	--	12.09	22.846	17.00	-4.91	13
5200.0	13.78	--	--	--	13.78	25.551	17.00	-3.22	13
5240.0	12.84	--	--	--	12.84	24.850	17.00	-4.16	13

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power

Variant:	802.11n HT-40	**Duty Cycle (%):**	100
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5190.0	14.44	--	--	--	14.44	56.313	17.00	-2.56	14
5230.0	14.55	--	--	--	14.55	67.335	17.00	-2.45	14

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power

Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5260.0	13.33	--	--	--	16.32	37.675	24.00	-10.67	14
5300.0	16.12	--	--	--	16.12	38.677	24.00	-7.88	16
5320.0	15.91	--	--	--	15.91	37.776	24.00	-8.09	16

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5260.0	13.53	--	--	--	16.25	41.884	24.00	-10.47	14
5300.0	16.04	--	--	--	16.04	40.882	24.00	-7.96	16
5320.0	15.84	--	--	--	15.84	41.884	24.00	-8.16	16

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5270.0	13.65	--	--	--	16.54	82.966	24.00	-10.35	14
5310.0	16.27	--	--	--	16.27	79.760	24.00	-7.73	16

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power			
Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5500.0	16.74	--	--	--	16.74	41.784	24.00	-7.26	20
5580.0	16.85	--	--	--	16.85	41.784	24.00	-7.15	20
5700.0	17.00	--	--	--	17.00	44.188	24.00	-7.00	20

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5500.0	16.50	--	--	--	16.50	43.387	24.00	-7.50	20
5580.0	16.76	--	--	--	16.76	45.391	24.00	-7.24	20
5700.0	16.67	--	--	--	16.67	45.591	24.00	-7.33	20

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	3
Modulation:	OFDM	**Beam Forming Gain (Y):**	N/A
TPC:	Max Power		
Engineering Test Notes:	--		

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5510.0	16.32	--	--	--	16.32	86.974	24.00	-7.68	20
5550.0	16.42	--	--	--	16.42	89.379	24.00	-7.58	20
5670.0	16.77	--	--	--	16.77	87.375	24.00	-7.23	20

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Specification Limits

FCC, Part 15 §15.407 (a)(1), (a)(2) and Industry Canada RSS-210 § A9.2(2)

(a)(1) For the band 5.15-5.25 GHz the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or +4 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +4 dBm in any 1 megahertz band.

(a)(2) For the 5.25-5.35 and 5470-5725 MHz GHz band the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or +11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +11 dBm in any 1 megahertz band.

Industry Canada RSS-210 §A9.2(2)

For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or 11 + 10 log10 B, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

Industry Canada RSS-Gen 4.4

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

Traceability

Test Equipment Used
0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

6.1.1.3. Peak Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Power Spectral Density	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.247 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	KDB 789033 - D01 DTS General UNII Test Procedures v01		

Test Procedure for Power Spectral Density

The In-Band power spectral density was measured using the measure and sum approach per FCC KDB 662911 (D01 Multiple Transmitter Output v01.)

Measure and sum the spectra across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The individual spectra are then summed mathematically in linear power units. Unlike in-band power measurements, in which the sum involves a single measured value (output power) from each output, measurements for compliance with PSD limits involve summing entire spectra across corresponding frequency bins on the various outputs. Consistency is maintained for any device with N transmitter outputs to be certain the individual outputs are all aligned with the same span and same number of points. In this instance, the linear power spectrum value within the first spectral bin of output 0 is summed with that in the first spectral bin of output 1, and the first spectral bin of output 2, and so on up to the Nth output to obtain the true value for the first frequency bin of the summed spectrum. The summed spectrum value for each frequency bin is computed in this fashion. These summed spectral values were calculated on a computer, and the results read back into the spectrum analyzer as a data file to produce a representative plot of total spectral power density.

Calculated Power = A + 10 log (1/x) dBm

A = Total Power Spectral Density [10 Log10 (10a/10 + 10 b/10 + 10c/10 + 10d/10)]

x = Duty Cycle

Equipment Configuration for power density

Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	**a**	**b**	**c**	**d**	**S Port(s)**	**Conversion to 3 kHz RBW**	**dBm**	**dB**
5180.0	1.494	--	--	--	1.494	N/A	4.0	-2.51
5200.0	1.292	--	--	--	1.292	N/A	4.0	-2.71
5240.0	1.552	--	--	--	1.552	N/A	4.0	-2.45

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 Measuring RF Spectrum Mask
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for power density

Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	**a**	**b**	**c**	**d**	**S Port(s)**	**Conversion to 3 kHz RBW**	**dBm**	**dB**
5180.0	1.409	--	--	--	1.409	N/A	4.0	-2.59
5200.0	2.751	--	--	--	2.751	N/A	4.0	-1.25
5240.0	1.905	--	--	--	1.905	N/A	4.0	-2.09

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Equipment Configuration for Peak Power Spectral Density			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	N/A		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	**a**	**b**	**c**	**d**	**S Port(s)**	**Conversion to 3 kHz RBW**	**dBm**	**dB**
5190.0	0.895	--	--	--	0.895	N/A	4.0	-3.11
5230.0	0.484	--	--	--	0.484	N/A	4.0	-3.52

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for power density			
Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	**a**	**b**	**c**	**d**	**S Port(s)**	**Conversion to 3 kHz RBW**	**dBm**	**dB**
5260.0	5.544	--	--	--	5.544	N/A	11.0	-5.46
5300.0	5.178	--	--	--	5.178	N/A	11.0	-5.82
5320.0	5.169	--	--	--	5.169	N/A	11.0	-5.83

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Equipment Configuration for power density

Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	a	b	c	d	S Port(s)	Conversion to 3 kHz RBW	dBm	dB
5260.0	5.259	--	--	--	5.259	N/A	11.0	-5.74
5300.0	5.032	--	--	--	5.032	N/A	11.0	-5.97
5320.0	4.823	--	--	--	4.823	N/A	11.0	-6.18

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Power Spectral Density

Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	N/A		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	a	b	c	d	S Port(s)	Conversion to 3 kHz RBW	dBm	dB
5270.0	2.113	--	--	--	2.113	N/A	11.0	-8.89
5310.0	2.748	--	--	--	2.748	N/A	11.0	-8.25

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for power density

Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	**a**	**b**	**c**	**d**	**S Port(s)**	**Conversion to 3 kHz RBW**	**dBm**	**dB**
5500.0	5.704	--	--	--	5.704	N/A	11.0	-5.30
5580.0	5.999	--	--	--	5.999	N/A	11.0	-5.00
5700.0	6.134	--	--	--	6.134	N/A	11.0	-4.87

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for power density

Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	**a**	**b**	**c**	**d**	**S Port(s)**	**Conversion to 3 kHz RBW**	**dBm**	**dB**
5500.0	5.459	--	--	--	5.459	N/A	11.0	-5.54
5580.0	5.646	--	--	--	5.646	N/A	11.0	-5.35
5700.0	5.630	--	--	--	5.630	N/A	11.0	-5.37

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Power Spectral Density			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	N/A		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density (dBm) Port(s)				Calculated Total Power Spectral Density (dBm)		Limit	Margin
MHz	a	b	c	d	S Port(s)	Conversion to 3 kHz RBW	dBm	dB
5510.0	2.062	--	--	--	2.062	N/A	11.0	-8.94
5550.0	2.386	--	--	--	2.386	N/A	11.0	-8.61
5670.0	2.982	--	--	--	2.982	N/A	11.0	-8.02

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Specification

FCC, Part 15 §15.407 (a)(1), (a)(2)
5150 – 5250 MHz
(a)(1) The peak power spectral density shall not exceed +4 dBm in any 1 megahertz band.

5250 – 5350 MHz & 5470 – 5725 MHz
(a)(2) The peak power spectral density shall not exceed +11 dBm in any 1 megahertz band.

Industry Canada RSS-210 § **A9.2(1), A9.2(2)**
5150 – 5250 MHz
§ **A9.2(1)** The eirp spectral density shall not exceed +10 dBm in any 1 MHz band

5250 – 5350 MHz & 5470 – 5725 MHz
§ **A9.2(2)** The power spectral density shall not exceed +11 dBm in any 1 MHz band

Traceability

Test Equipment Used
0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

6.1.1.4. Peak Excursion Ratio

Conducted Test Conditions for Peak Excursion Ratio			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Peak Excursion Ratio	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)(6)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	KDB 789033 - D01 DTS General UNII Test Procedures v01		

Test Procedure for Peak Excursion Ratio

Compliance with the peak excursion requirement is demonstrated by confirming the ratio of the maximum of the peak-hold spectrum to the maximum of the average spectrum during continuous transmission. Section F) of KDB 789033 was used in order to prove compliance. This is a conducted measurement using a spectrum analyzer using dual traces. Peak Excursion Ratio is the difference in amplitude (dB) between both traces; The following identifies two spectrum traces on the same plot. Trace 1 is the max hold Peak detector, and Trace 2 is the recalled trace data from Peak Power Spectral Density measurements. Each frequency and operational mode is recalled in order to prove compliance.

Equipment Configuration for peak excursion			
Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5180.0	8.78	--	--	--	8.78	8.78	-13.0	-4.22
5200.0	8.76	--	--	--	8.76	8.76	-13.0	-4.24
5240.0	9.13	--	--	--	9.13	9.13	-13.0	-3.87

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 Measuring Spectrum Mask
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for peak excursion			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5180.0	9.09	--	--	--	9.09	9.09	-13.0	-3.91
5200.0	8.85	--	--	--	8.85	8.85	-13.0	-4.15
5240.0	8.83	--	--	--	8.83	8.83	-13.0	-4.17

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 Measuring Spectrum Mask
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Equipment Configuration for Peak Excursion Ratio			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	N/A		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5190.0	9.08	--	--	--	9.08	9.08	-13.0	-3.92
5230.0	9.43	--	--	--	9.43	9.43	-13.0	-3.57

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for peak excursion			
Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5260.0	8.79	--	--	--	8.79	8.79	-13.0	-4.21
5300.0	8.91	--	--	--	8.91	8.91	-13.0	-4.09
5320.0	9.05	--	--	--	9.05	9.05	-13.0	-3.95

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Equipment Configuration for peak excursion			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**	**dB**	**MHz**
5260.0	8.63	--	--	--	8.63	8.63	-13.0	-4.37
5300.0	8.96	--	--	--	8.96	8.96	-13.0	-4.04
5320.0	9.32	--	--	--	9.32	9.32	-13.0	-3.68

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for Peak Excursion Ratio			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	N/A		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**	**dB**	**MHz**
5270.0	10.09	--	--	--	10.09	10.09	-13.0	-2.91
5310.0	9.95	--	--	--	9.95	9.95	-13.0	-3.05

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Equipment Configuration for peak excursion			
Variant:	802.11a	**Duty Cycle (%):**	100
Data Rate:	6 mbps	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5500.0	9.01	--	--	--	9.01	9.01	-13.0	-3.99
5580.0	9.33	--	--	--	9.33	9.33	-13.0	-3.67
5700.0	8.99	--	--	--	8.99	8.99	-13.0	-4.01

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Equipment Configuration for peak excursion			
Variant:	802.11n HT-20	**Duty Cycle (%):**	100
Data Rate:	6.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Max Power		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5500.0	8.94	--	--	--	8.94	8.94	-13.0	-4.06
5580.0	8.88	--	--	--	8.88	8.88	-13.0	-4.12
5700.0	9.07	--	--	--	9.07	9.07	-13.0	-3.93

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Equipment Configuration for Peak Excursion Ratio			
Variant:	802.11n HT-40	**Duty Cycle (%):**	100%
Data Rate:	13.5 MCS	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	N/A		
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Peak Excursion (dB) Port(s)				Ratio (dB)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	dB	MHz
5510.0	10.04	--	--	--	10.04	10.04	-13.0	-2.96
5550.0	10.05	--	--	--	10.05	10.05	-13.0	-2.95
5670.0	9.77	--	--	--	9.77	9.77	-13.0	-3.23

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Click on the links above to see the plot

Specification

Limits

§15.407 (a)(6) The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified in this paragraph) shall not exceed 13dB across any 1MHz bandwidth or the emission bandwidth whichever is less

Traceability

Test Equipment Used
0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

6.1.1.5. Frequency Stability

FCC, Part 15 Subpart C §15.407(g)
Industry Canada RSS-210 §2.1

Test Procedure

The manufacturer of the equipment is responsible for ensuring that the frequency stability is such that emissions are always maintained within the band of operation under all conditions.

Manufacturer Declaration

The frequency stability of the reference oscillator sets the frequency stability of the RF transceiver signals. Therefore all of the RF signals should have ±20ppm stability.
This stability accounts for room temp tolerance of the crystal oscillator circuit, frequency variation across temperature, and crystal ageing.

±20ppm at 5.250 GHz translates to a maximum frequency shift of ±105 KHz. As the edge of the channels is at least one MHz from either of the band edges, ±105 KHz is more than sufficient to guarantee that the intentional emission will remain in the band over the entire operating range of the EUT.

Specification

Limits

§15.407 (g) 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.

6.1.2. Radiated Emission Testing

FCC, Part 15 Subpart C §15.407(b)(2), §15.205(a)/15.209(a)
Industry Canada RSS-210 §A9.3(2); §2.2; §2.6; RSS-Gen §4.7

Test Procedure
Testing was performed in a 3-meter anechoic chamber. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. Preliminary emissions were recorded with in Spectrum Analyzer mode, using a maximum peak detector while in peak hold mode. Depending on the frequency band spanned a notch filter and/or waveguide filter was used to remove the fundamental frequency.

Emissions nearest the limits were chosen for maximization and formal measurement using a CISPR compliant receiver. Emissions above 1000 MHz are measured utilizing a CISPR compliant average detector with a tuned receiver, using a bandwidth of 1 MHz. Emissions from 30 MHz – 1000 MHz are measured utilizing a CISPR compliant quasi-peak detector with a tuned receiver, using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR – FO

FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss or Waveguide Loss

Field Strength Calculation Example:

Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength (dBμV/m);

$$E = 1000000 \times \sqrt{30P} / 3 \ \mu V/m$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz = 68.23 dBuV/m

Note: The data in this Section identifies that the EUT is in compliance with the -27dBm/MHz EIRP limit (68.23 dBμV/m) for out of band emissions. All out of band emissions are less than 68.23 dB μV/m.

Specification

Radiated Spurious Emissions

15.407 (b)(2). All emissions outside of the 5,150-5,350MHz band shall not exceed an EIRP of -27dBm/MHz.

FCC §15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

FCC §15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

FCC §15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

RSS-210 §A9.3(2) For transmitters operating in the 5250-5350 MHz band, all emissions outside the 5150-5350 MHz band shall not exceed -27 dBm/MHz e.i.r.p. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band shall not exceed out of band emission limit of 27 dBm/MHz e.i.r.p. in the 5150-5250 MHz band in order to operate indoor/outdoor, or alternatively shall comply with the spectral power density for operation within the 5150-5250 MHz band and shall be labeled “for indoor use only”.

RSS-Gen §4.7 The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate of carrier frequency), or from 30 MHz , whichever is the lowest frequency, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

RSS-Gen §6 Receiver Spurious Emission Standard
If a radiated measurement is made, all spurious emissions shall comply with the limits of the following Table. The resolution bandwidth of the spectrum analyzer shall be 100 kHz for spurious emission measurements below 1.0 GHz and 1.0 MHz for measurements above 1.0 GHz

Table 1: FCC 15.209 Spurious Emissions Limits

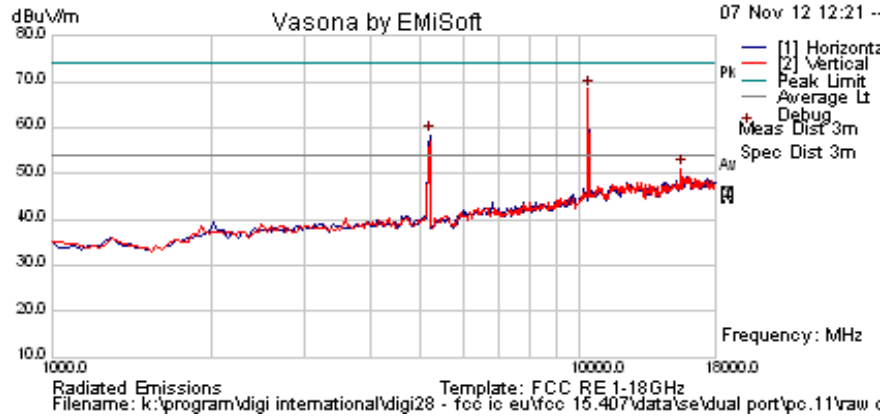
Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Traceability:

Test Equipment Used
0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312

6.1.2.1. Dual Band Patch PC.11

Test Freq.	5180 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1001
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

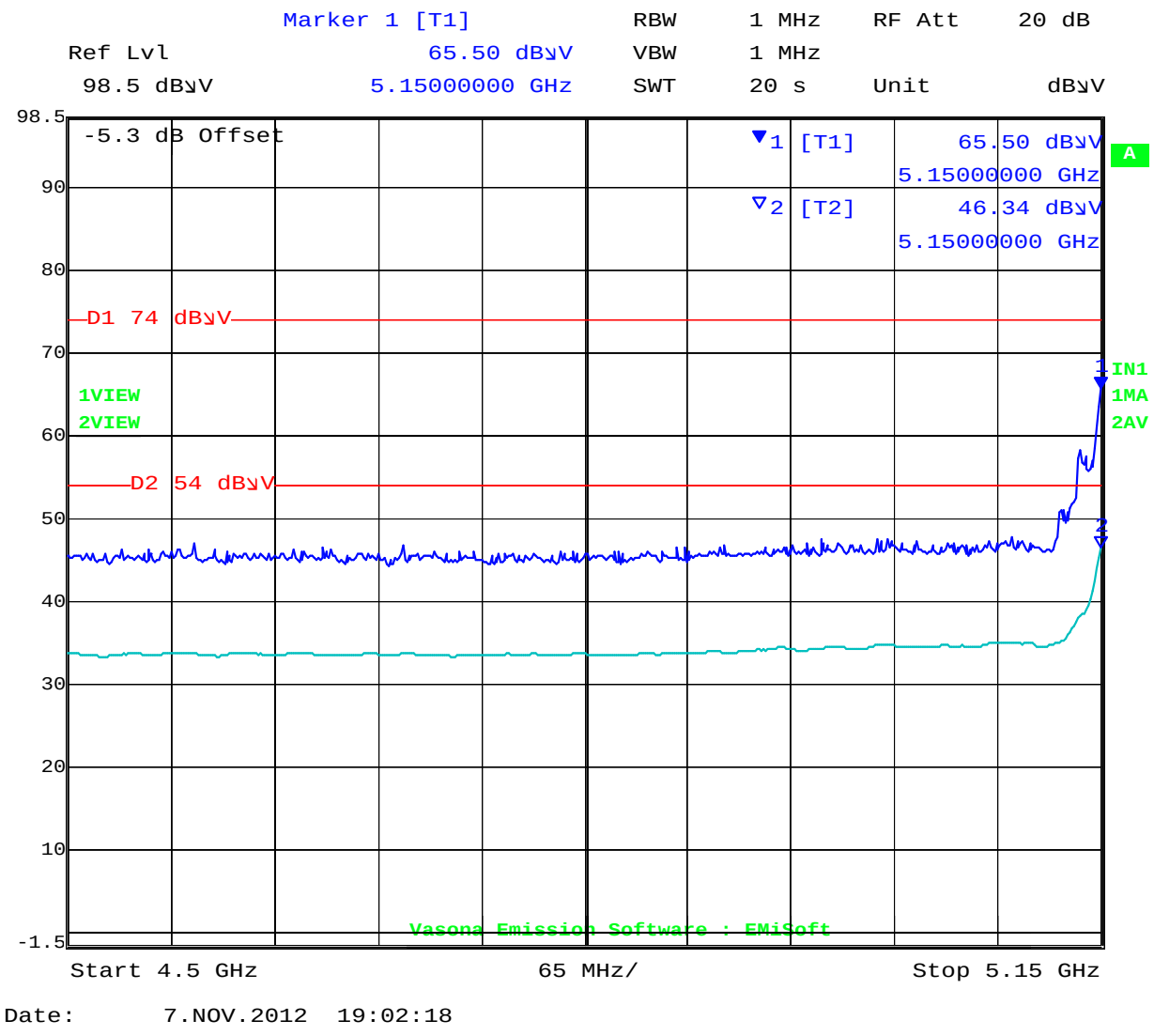


Formally measured emission peaks

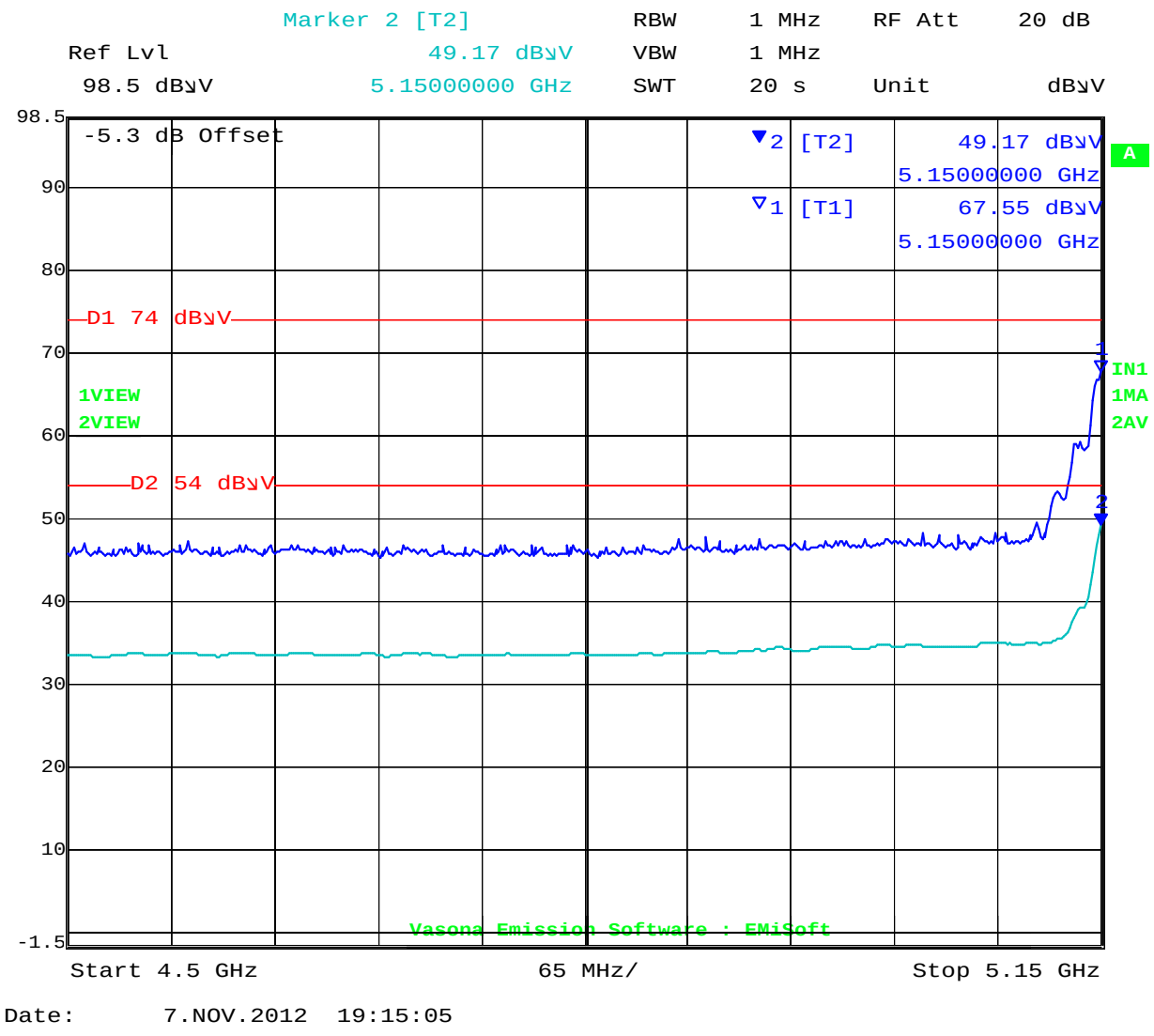
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10368.737	64.4	6.7	-2.5	68.6	Peak [Scan]	V					Pass	NRB
5190.381	63.6	4.6	-9.9	58.4	Peak [Scan]	H	100	0	54.0	4.4		FUND
15547.094	43.5	8.3	-0.6	51.1	Peak [Scan]	V	100	0	54.0	-2.9	Pass	Noise

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

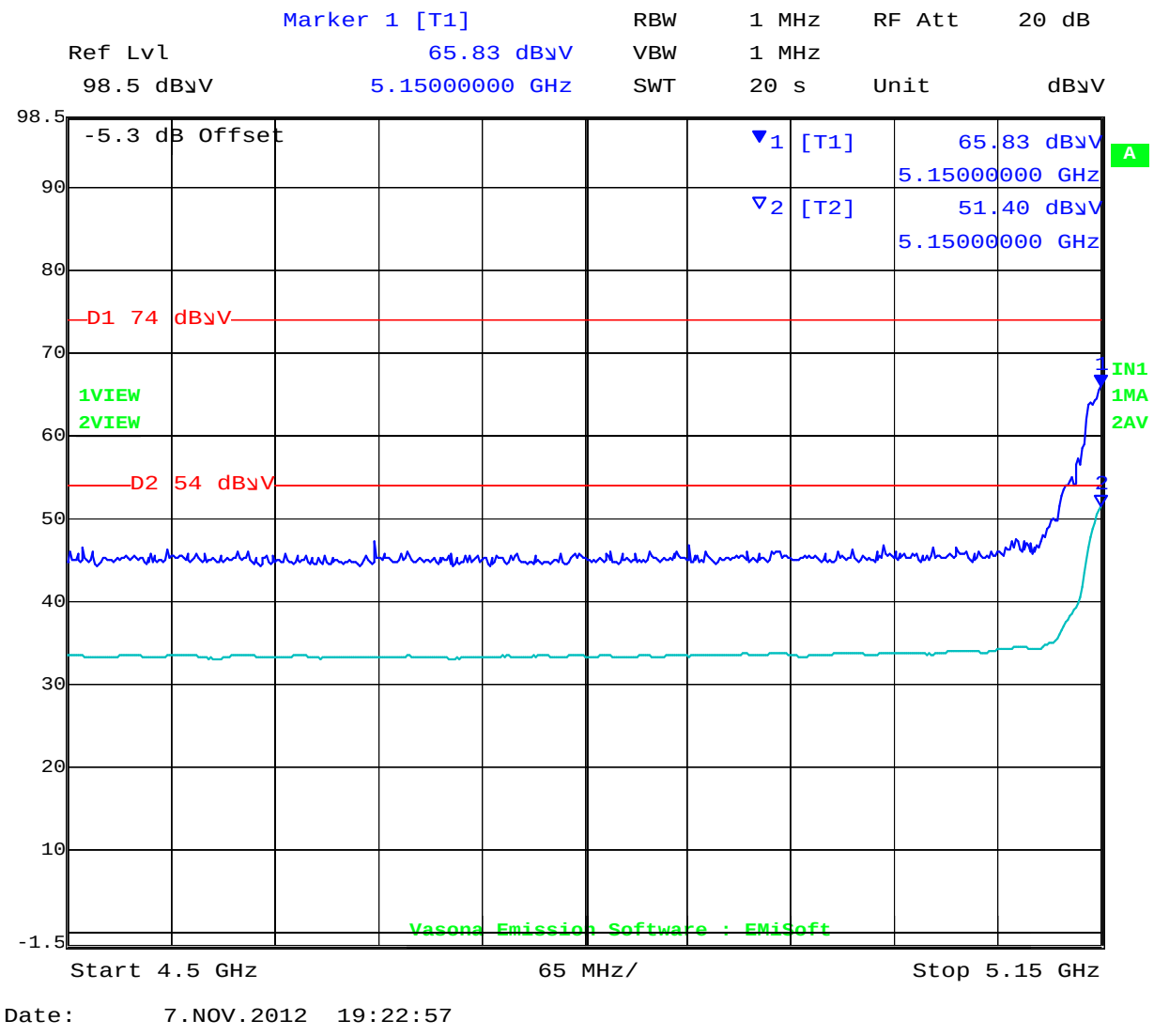
802.11a 5150 Restricted Band-edge



802.11n HT-20 5150 Restricted Band-edge



802.11n HT-40 5150 Restricted Band-edge



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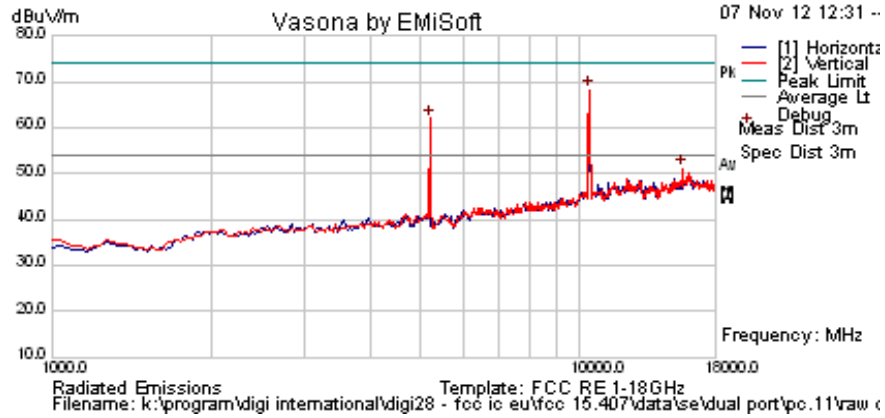
Test Freq.	5200 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1001
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

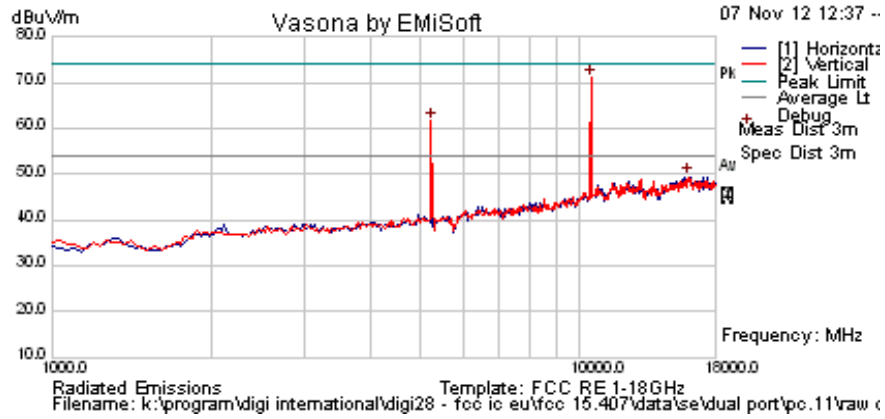


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10402.806	64.1	6.7	-2.5	68.3	Peak [Scan]	V					Pass	NRB
5190.381	67.2	4.6	-9.9	61.9	Peak [Scan]	V						FUND
15615.230	43.3	8.4	-0.6	51.1	Peak [Scan]	V	100	0	54.0	-2.9	Pass	Noise

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5240 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1001
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

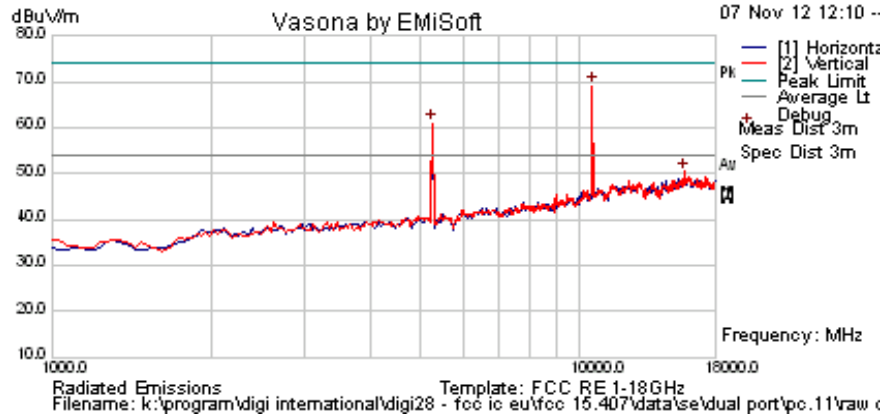


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10470.942	66.7	6.8	-2.5	71.0	Peak [Scan]	V					Pass	NRB
5224.449	66.8	4.6	-9.8	61.6	Peak [Scan]	V						FUND
16058.116	40.2	9.0	0.3	49.4	Peak [Scan]	H	150	0	54.0	-4.6	Pass	Noise

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5260 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1002
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

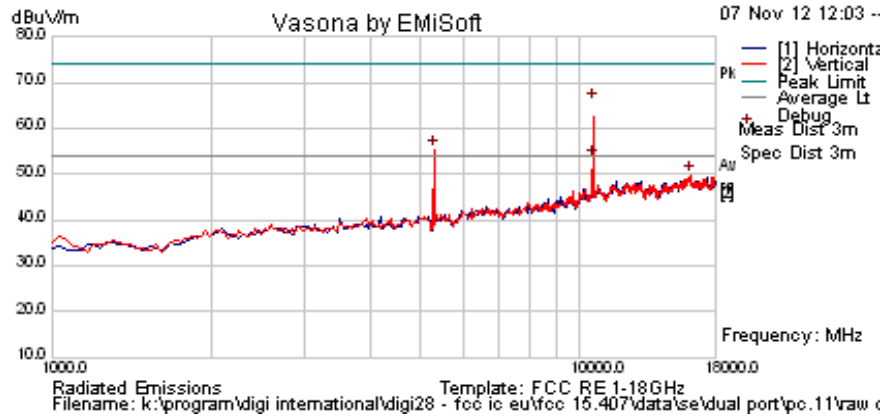


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10539.078	64.8	6.8	-2.5	69.1	Peak [Scan]	V					Pass	NRB
5258.517	66.1	4.6	-9.7	61.0	Peak [Scan]	V						FUND
15785.571	42.1	8.7	-0.3	50.5	Peak [Scan]	V	100	0	54.0	-3.6	Pass	Noise

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5300 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	14	**Press. (mBars)**	1002
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet limit		

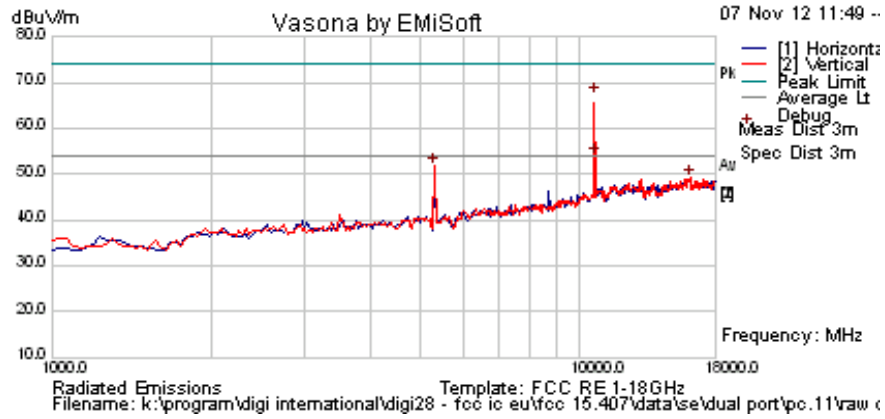


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5292.585	60.3	4.6	-9.6	55.3	Peak [Scan]	V						FUND
16160.321	40.7	9.0	0.2	49.8	Peak [Scan]	V	100	0	54.0	-4.2	Pass	Noise
10601.963	61.4	6.8	-2.4	65.8	Peak Max	V	98	33	74.0	-8.2	Pass	RB
10601.963	49.1	6.8	-2.4	53.5	Average Max	V	98	33	54.0	-0.6	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5320 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	14	**Press. (mBars)**	1002
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Reduced Power Level to meet limit		

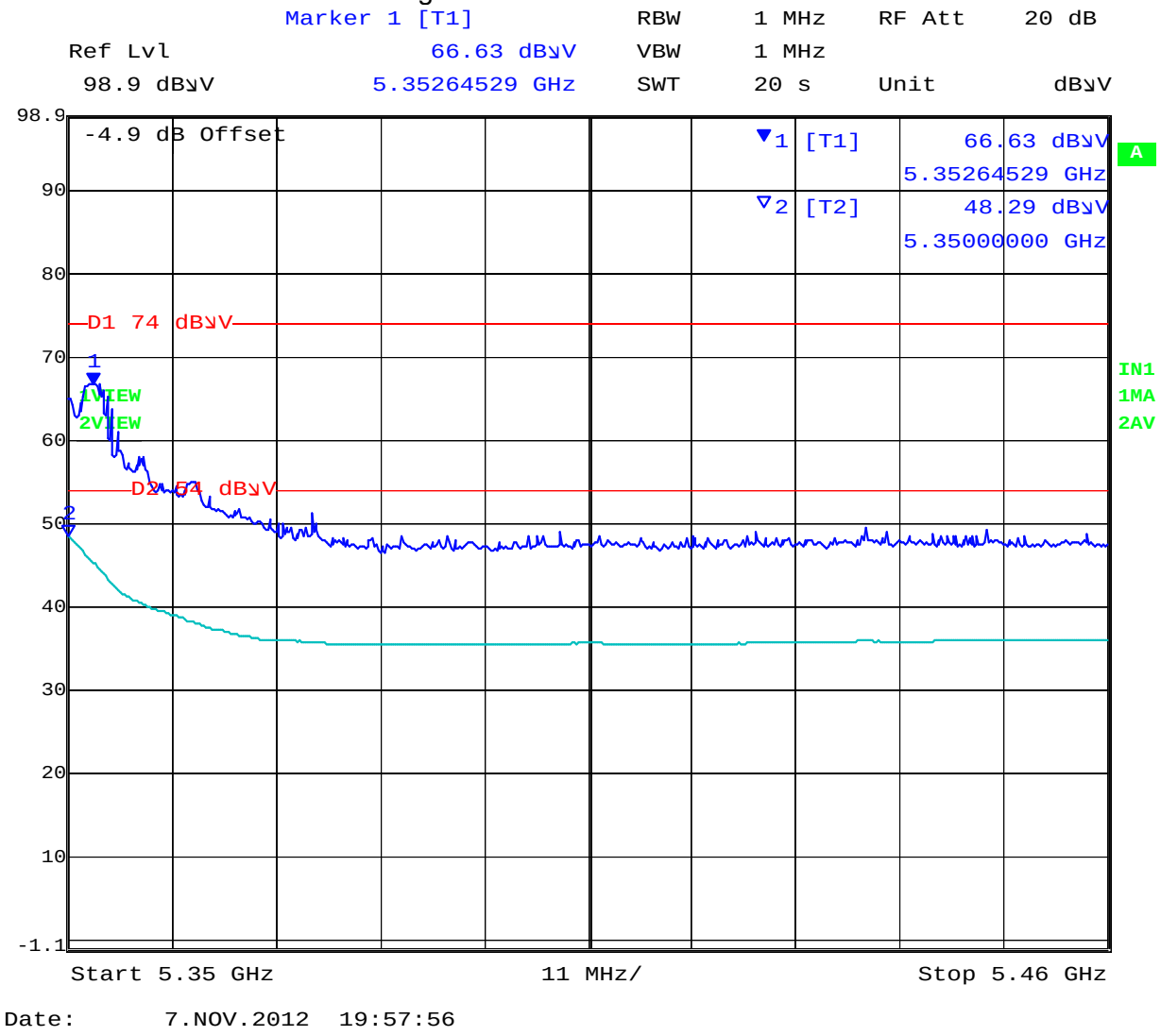


Formally measured emission peaks

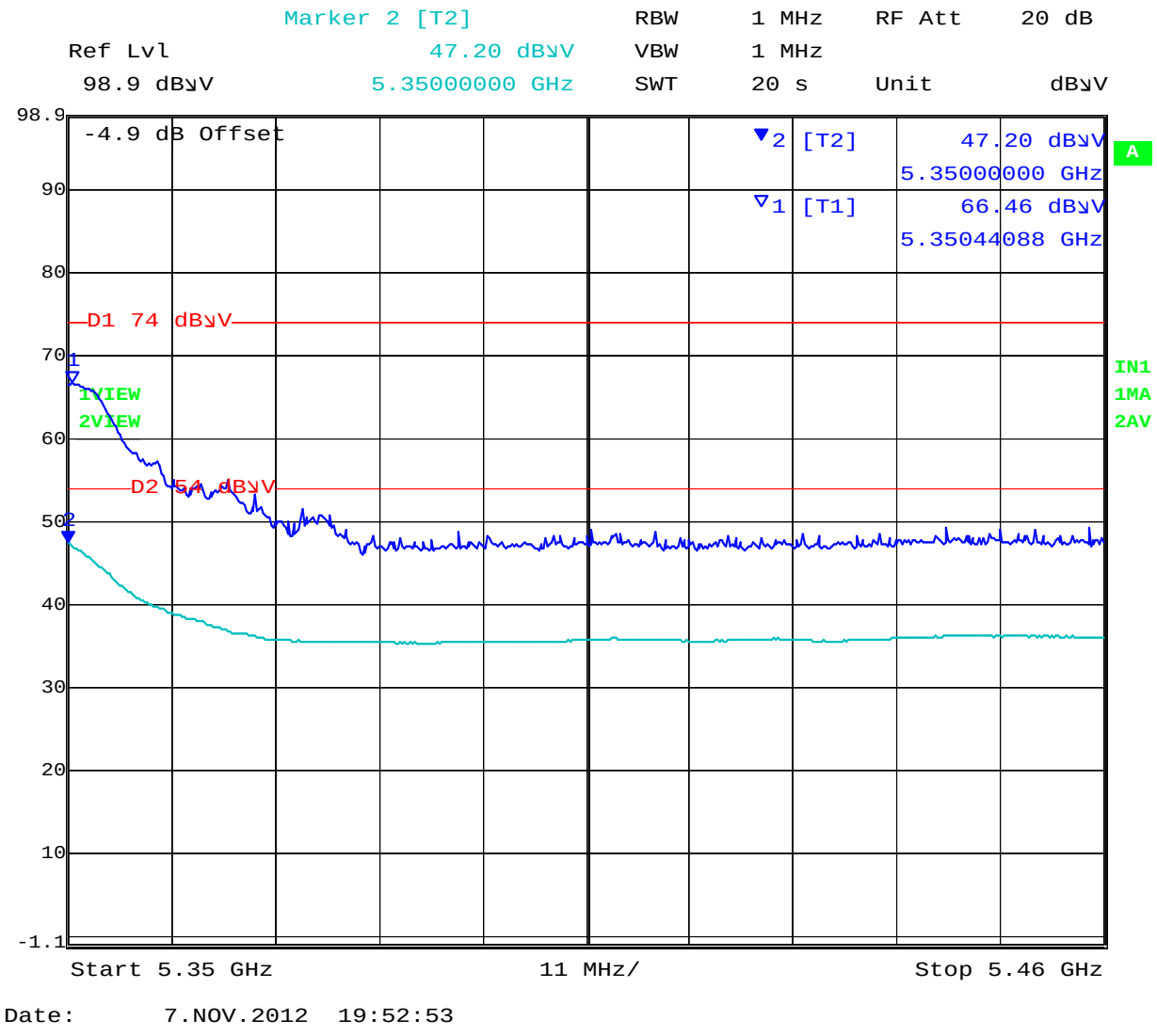
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5292.585	56.8	4.6	-9.6	51.8	Peak [Scan]	V						FUND
16160.321	40.0	9.0	0.2	49.1	Peak [Scan]	V	150	0	54.0	-4.9	Pass	Noise
10641.283	62.8	6.8	-2.4	67.2	Peak Max	V	98	18	74.0	-6.8	Pass	RB
10641.283	49.4	6.8	-2.4	53.8	Average Max	V	98	18	54.0	-0.2	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

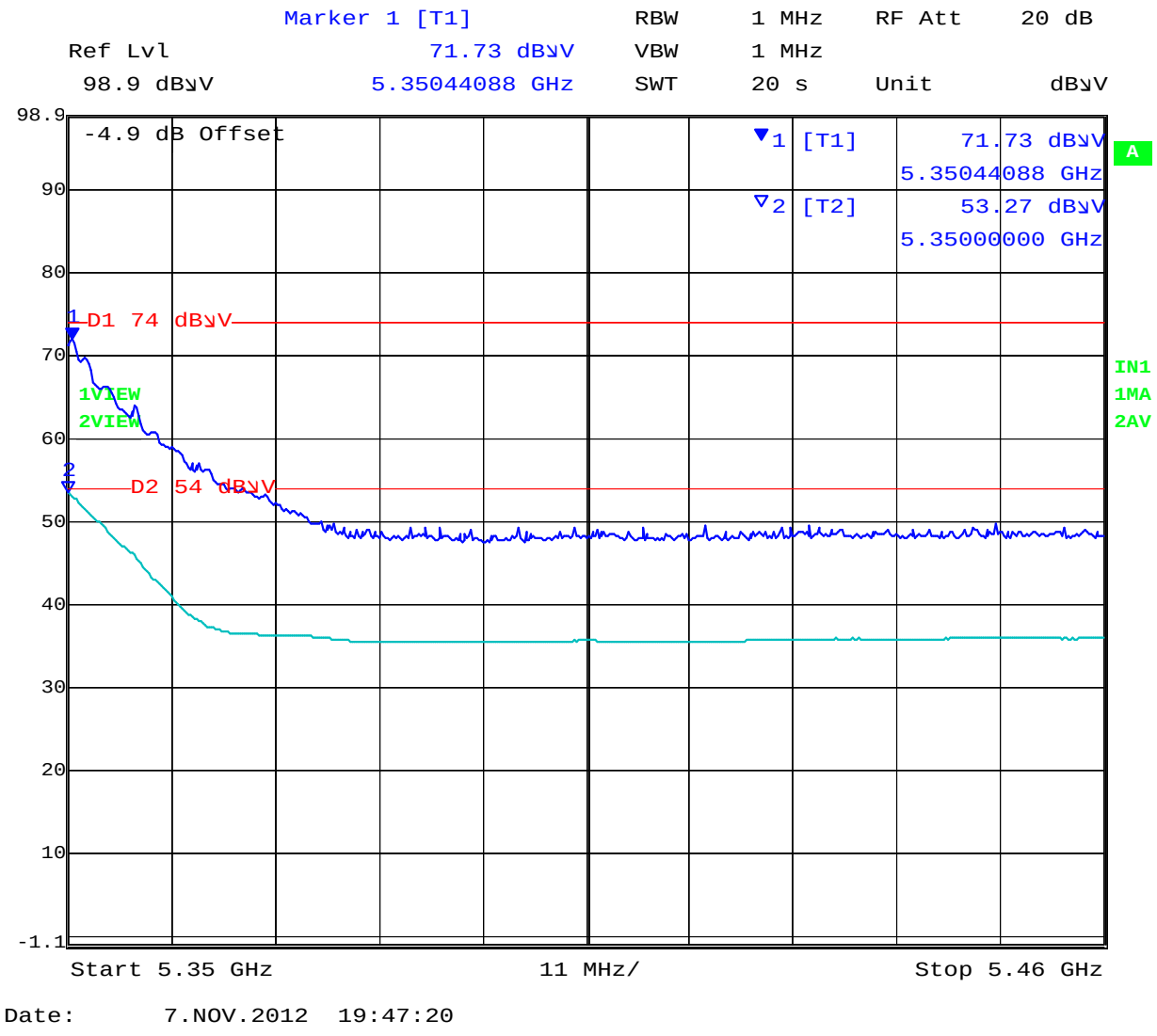
802.11a 5350 Restricted Band-edge



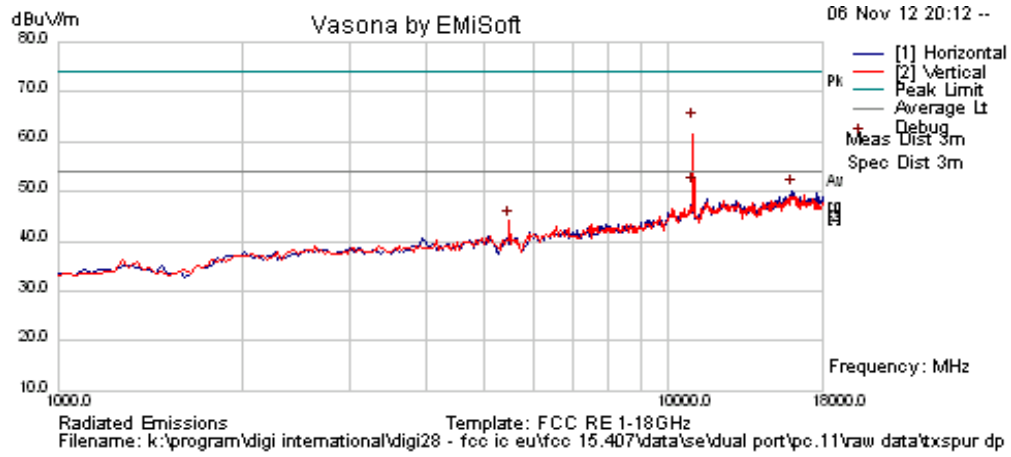
802.11n HT-20 5350 Restricted Band-edge



802.11n HT-40 5350 Restricted Band-edge



Test Freq.	5500 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	26
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	20	**Press. (mBars)**	1002
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

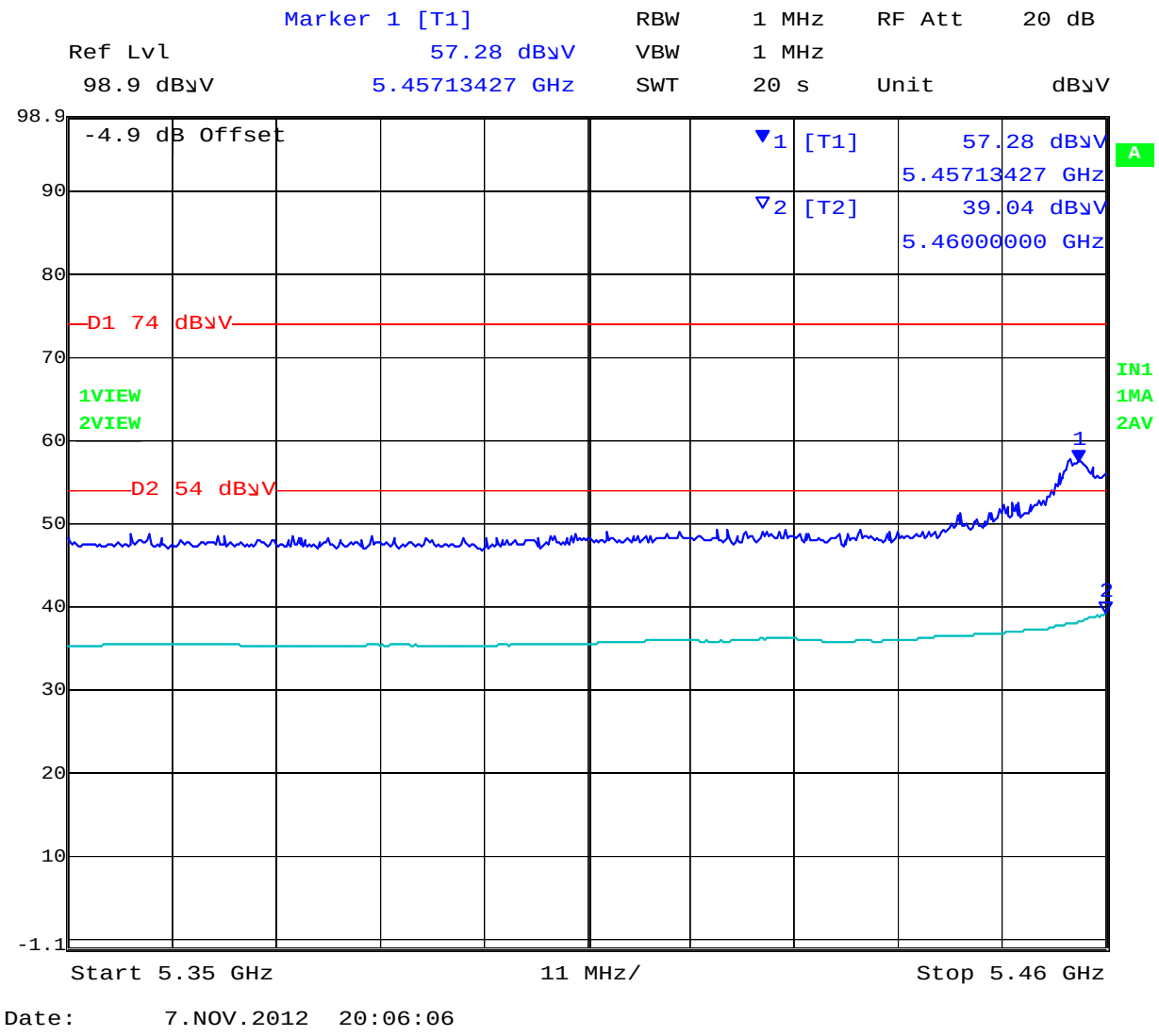


Formally measured emission peaks

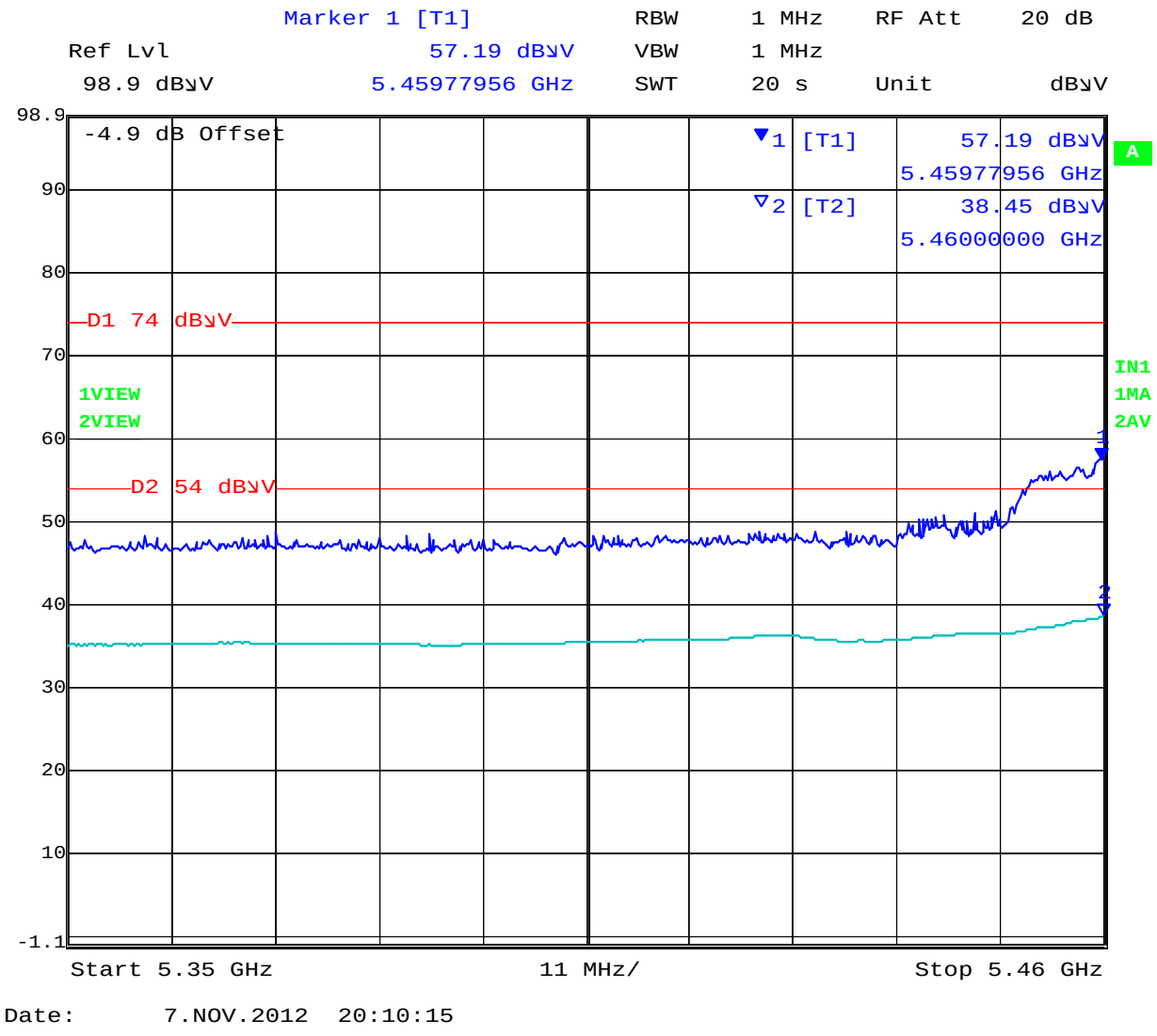
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5497.777	49.1	4.6	-9.6	44.1	Peak [Scan]	V						FUND
15989.98	41.1	9.0	0.1	50.2	Peak [Scan]	H	100	0	54.0	-3.8	Pass	Noise
11001.88	59.8	7.0	-3.1	63.7	Peak Max	V	98	41	74.0	-10.3	Pass	RB
11001.88	46.9	7.0	-3.1	50.8	Average Max	V	98	41	54.0	-3.2	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

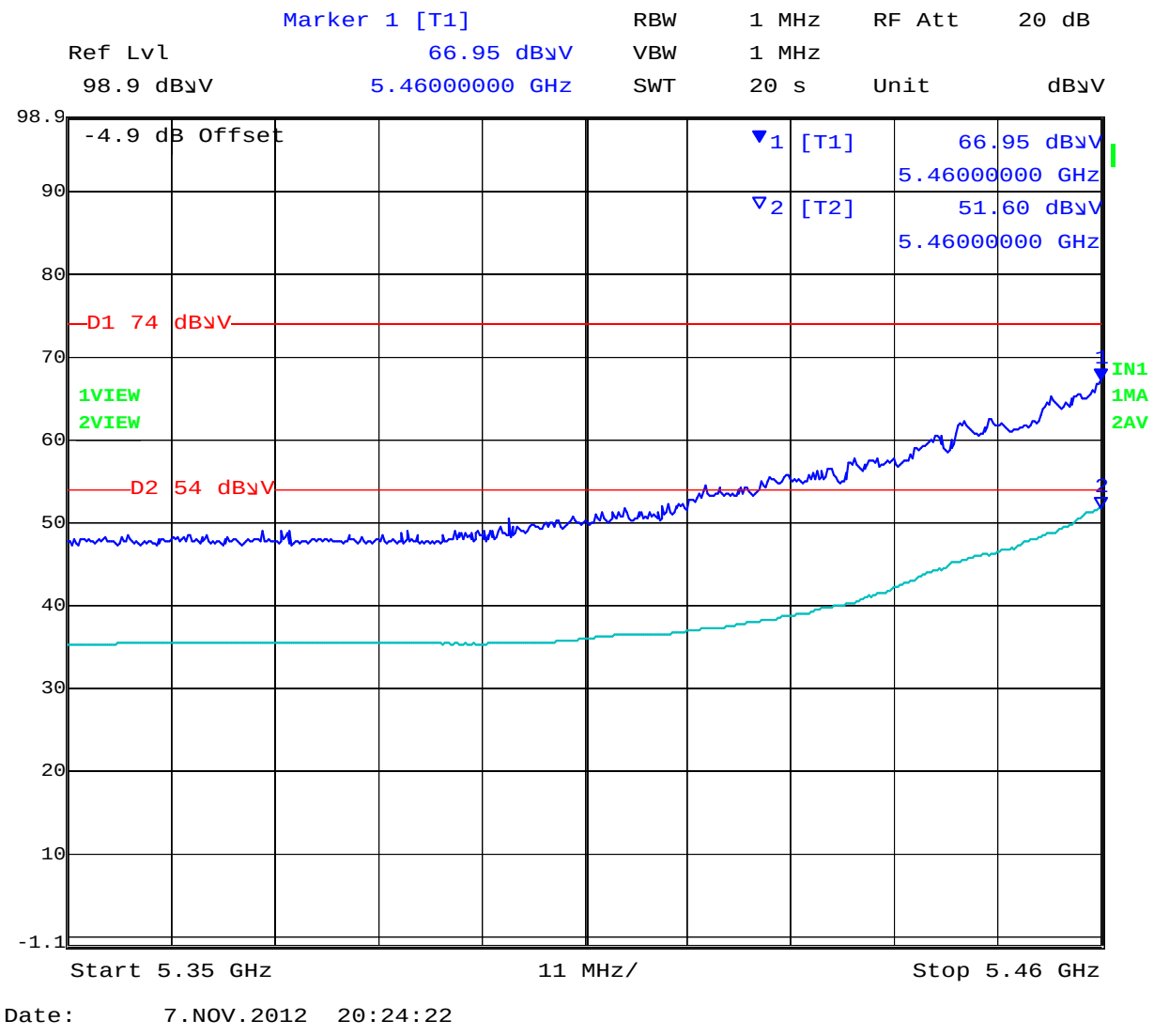
802.11a 5460 Restricted Band edge



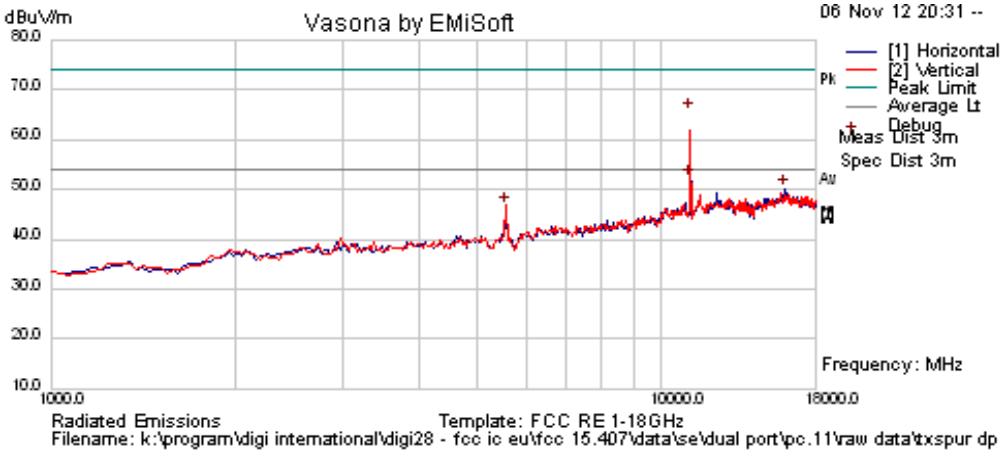
802.11n HT-20 5460 Restricted Band edge



802.11N HT-40 5460 Restricted Band edge



Test Freq.	5580 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	26
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	20	**Press. (mBars)**	1002
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

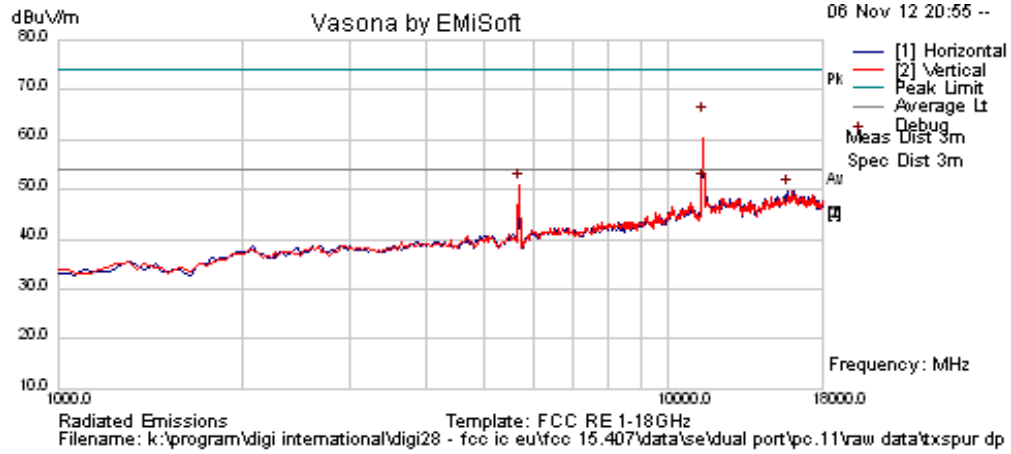


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5561.64	51.3	4.7	-9.7	46.3	Peak [Scan]	V						FUND
16024.048	40.7	9.0	0.2	49.9	Peak [Scan]	H	150	0	54.0	-4.1	Pass	Noise
11162.646	61.2	6.9	-3.0	65.2	Peak Max	V	120	41	74.0	-8.8	Pass	RB
11162.646	47.8	6.9	-3.0	51.7	Average Max	V	120	41	54.0	-2.3	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5700 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	26
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	20	**Press. (mBars)**	1002
Antenna	pc.11 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			



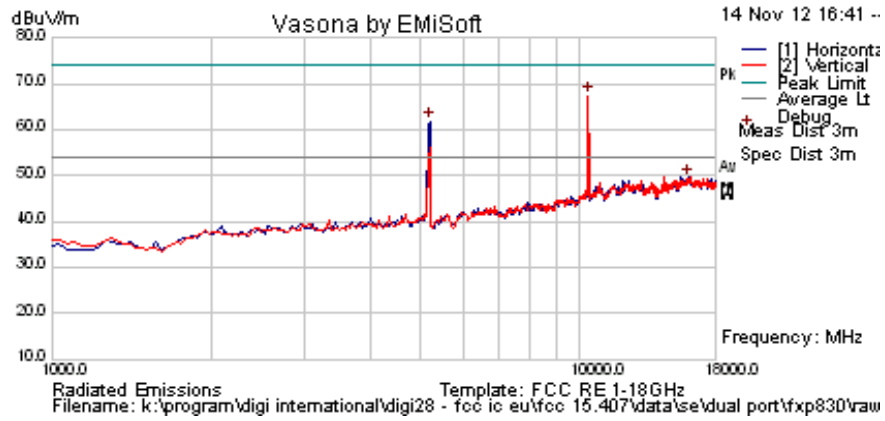
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5701.402806	55.7	4.7	-9.6	50.9	Peak [Scan]	V						FUND
15717.435	41.7	8.6	-0.4	49.9	Peak [Scan]	H	100	0	54.0	-4.2	Pass	Noise
11400.962	59.7	6.8	-2.3	64.3	Peak Max	V	122	35	74.0	-9.7	Pass	RB
11400.962	46.3	6.8	-2.3	50.9	Average Max	V	122	35	54.0	-3.1	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

6.1.2.2. Dual Band Parch FXP.830

Test Freq.	5180 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1001
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

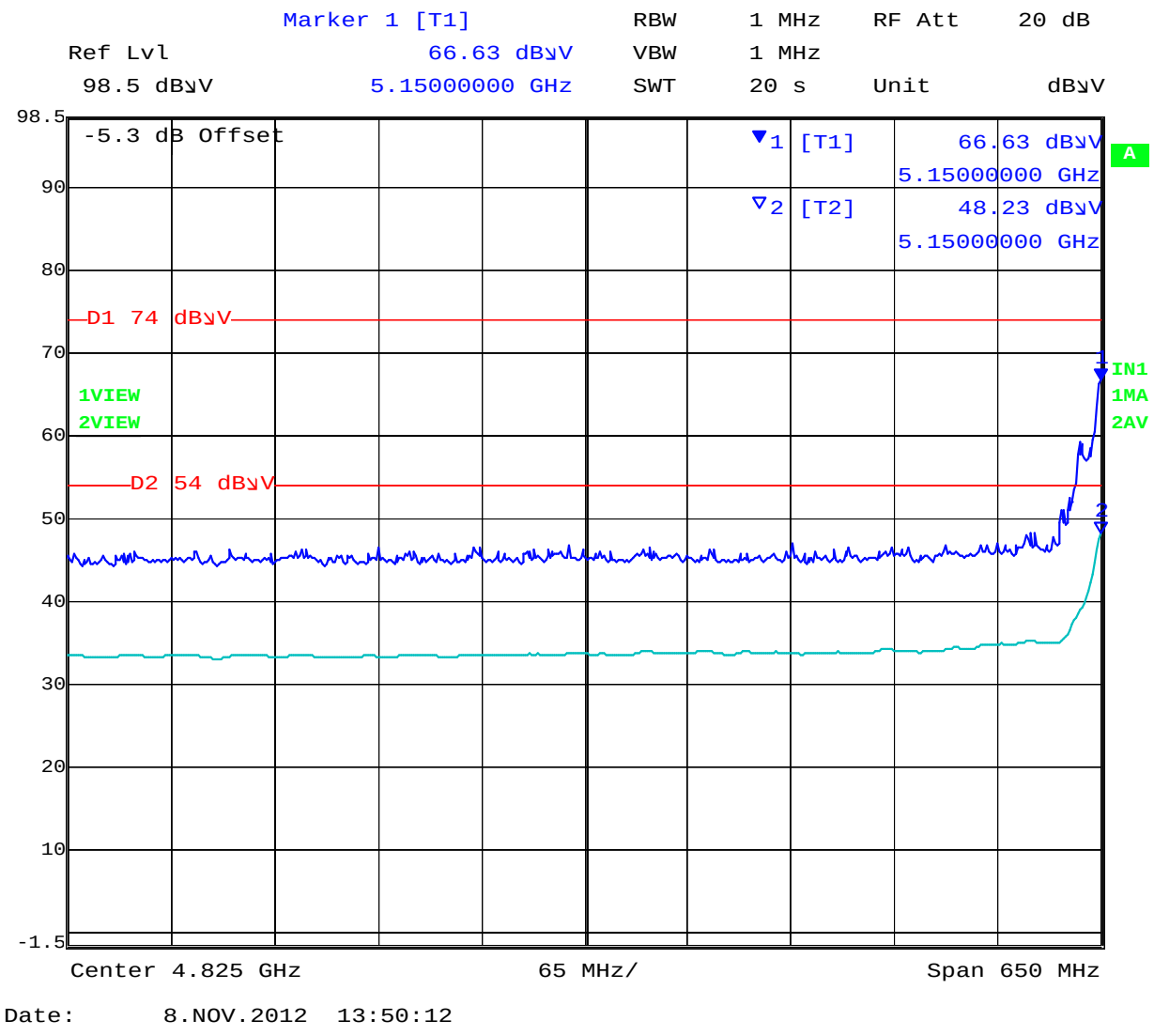


Formally measured emission peaks

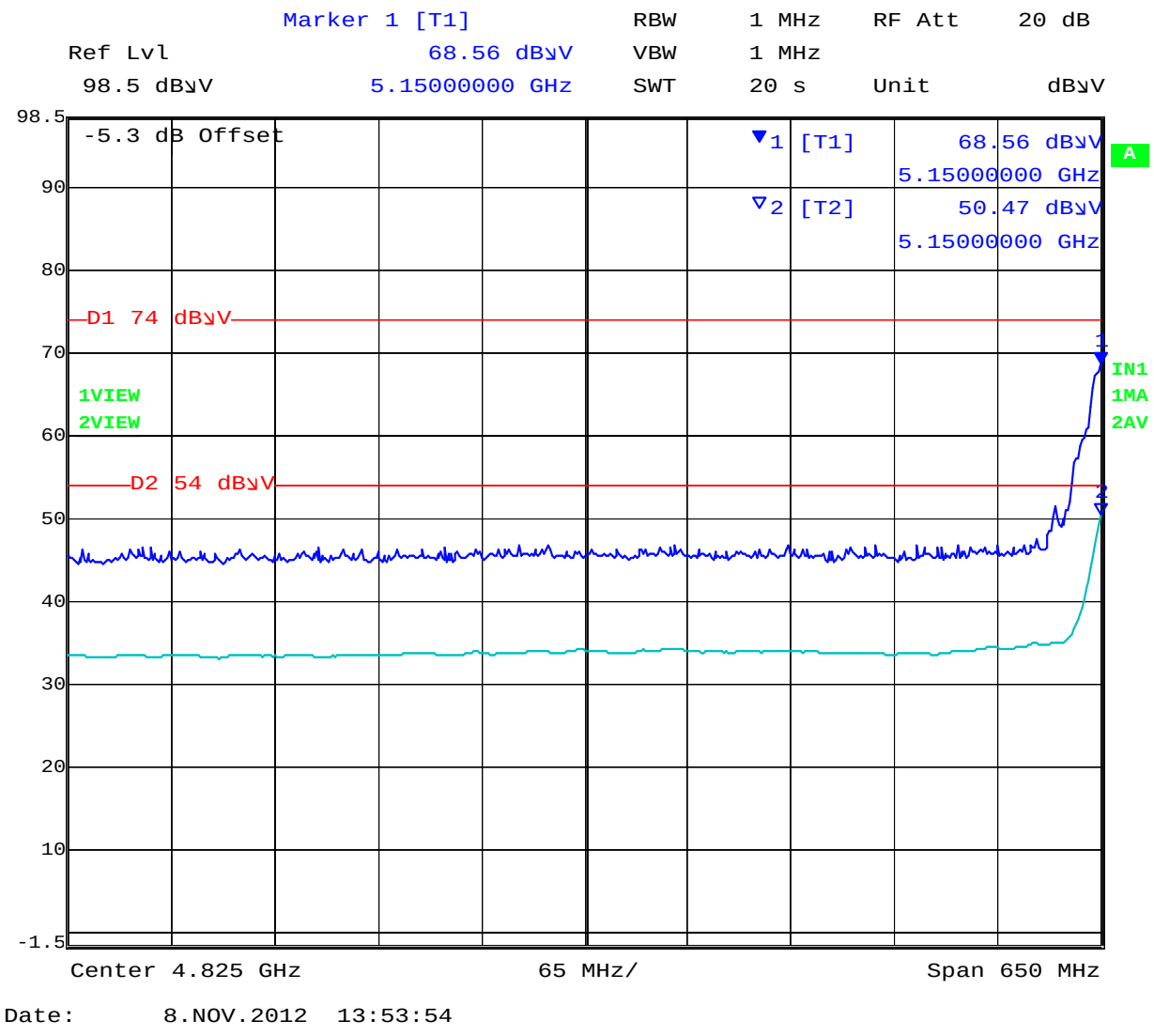
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10368.737	63.2	6.7	-2.5	67.4	Peak [Scan]	V					Pass	NRB
5190.381	67.1	4.6	-9.9	61.8	Peak [Scan]	H						FUND
16024.048	40.4	9.0	0.2	49.7	Peak [Scan]	H	150	0	54.0	-4.4	Pass	Noise

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

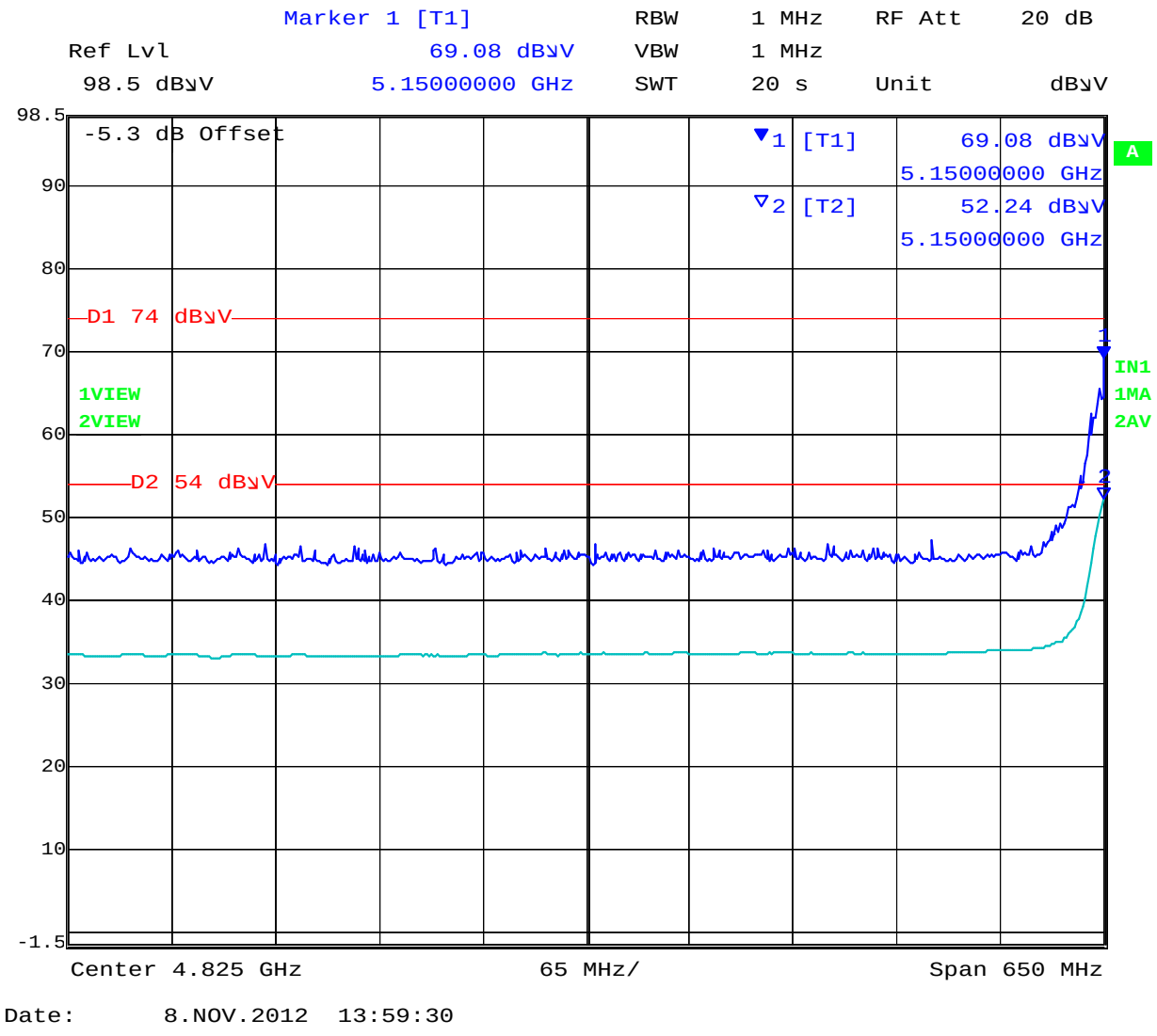
802.11a 5150 Restricted Band-edge



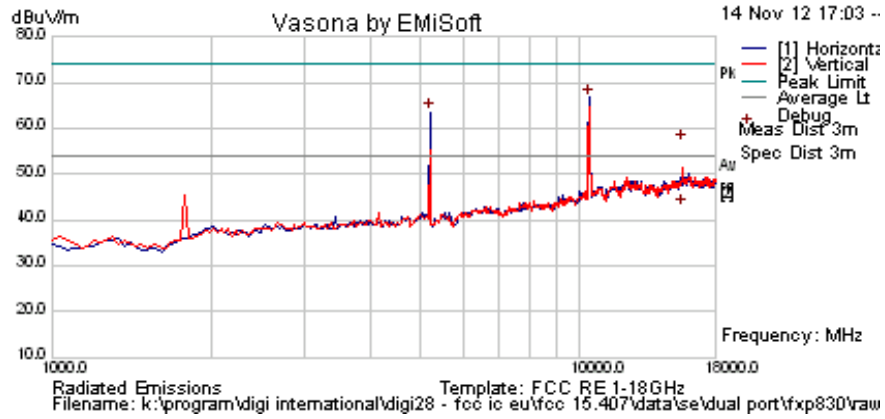
802.11n HT-20 5150 Restricted Band-edge



802.11n HT-20 5150 Restricted Band-edge



Test Freq.	5200 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1001
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

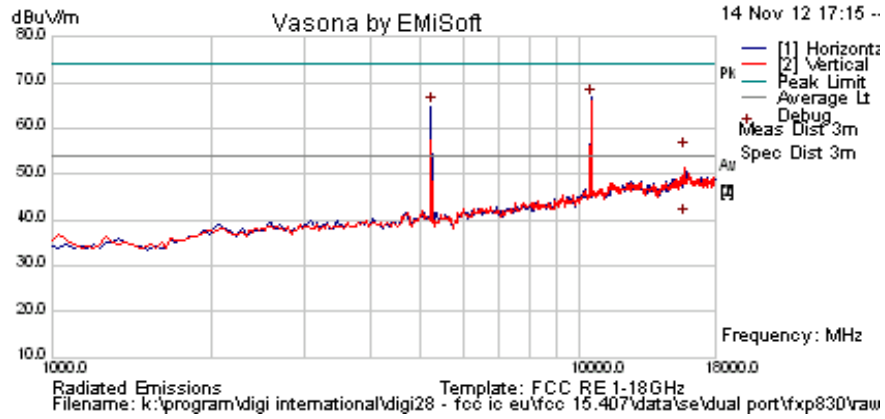


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10402.806	62.5	6.7	-2.5	66.7	Peak [Scan]	H					Pass	NRB
5190.381	68.7	4.6	-9.9	63.5	Peak [Scan]	H						FUND
15602.761	49.1	8.4	-0.6	56.9	Peak Max	V	98	325	74.0	-17.1	Pass	RB
15602.761	34.8	8.4	-0.6	42.6	Average Max	V	98	325	54.0	-11.4	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5240 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1001
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

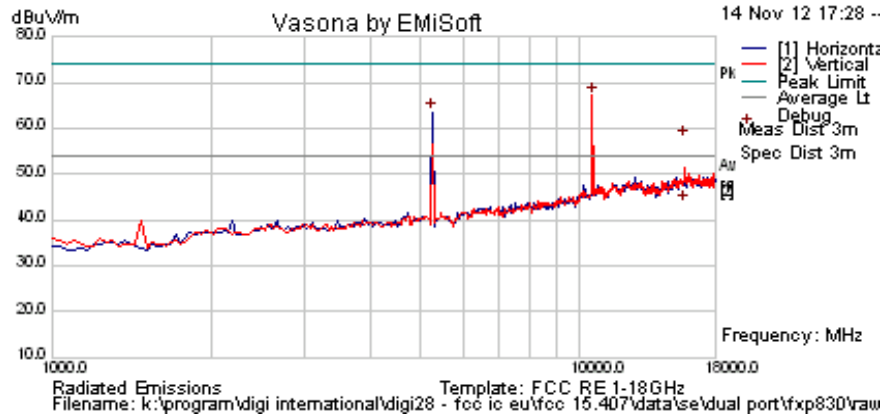


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10470.942	62.4	6.8	-2.5	66.7	Peak [Scan]	H					Pass	NRB
5224.449	70.0	4.6	-9.8	64.8	Peak [Scan]	H						FUND
15718.798	46.8	8.6	-0.4	54.9	Peak Max	V	107	325	74.0	-19.1	Pass	RB
15718.798	32.5	8.6	-0.4	40.6	Average Max	V	107	325	54.0	-13.4	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5260 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1002
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

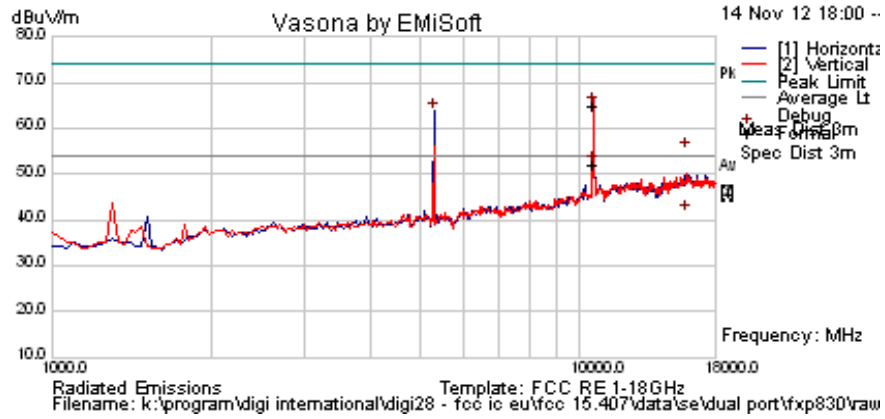


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10539.078	62.9	6.8	-2.5	67.2	Peak [Scan]	V					Pass	NRB
5258.517	68.7	4.6	-9.7	63.6	Peak [Scan]	H						FUND
15782.886	49.5	8.7	-0.3	57.9	Peak Max	V	100	327	74.0	-16.2	Pass	RB
15782.886	35.2	8.7	-0.3	43.5	Average Max	V	100	327	54.0	-10.5	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5300 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	20	**Press. (mBars)**	1002
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

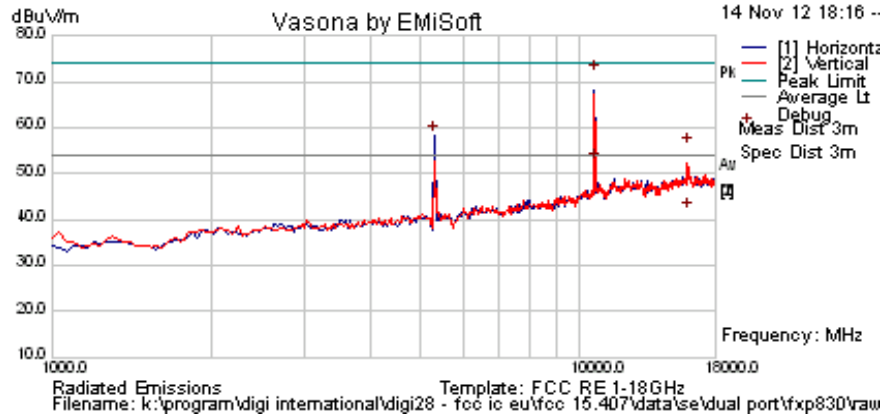


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5292.585	68.7	4.6	-9.6	63.7	Peak [Scan]	H						FUND
10601.007	60.6	6.8	-2.4	65.0	Peak Max	V	98	0	74.0	-9.0	Pass	RB
10601.007	47.8	6.8	-2.4	52.2	Average Max	V	98	0	54.0	-1.8	Pass	RB
15902.846	32.5	8.9	-0.2	41.2	Average Max	V	99	324	54.0	-12.8	Pass	RB
15902.846	46.3	8.9	-0.2	55.0	Peak Max	V	99	324	74.0	-19.0	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5320 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	15	**Press. (mBars)**	1002
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Reduced Power Level to meet limit		

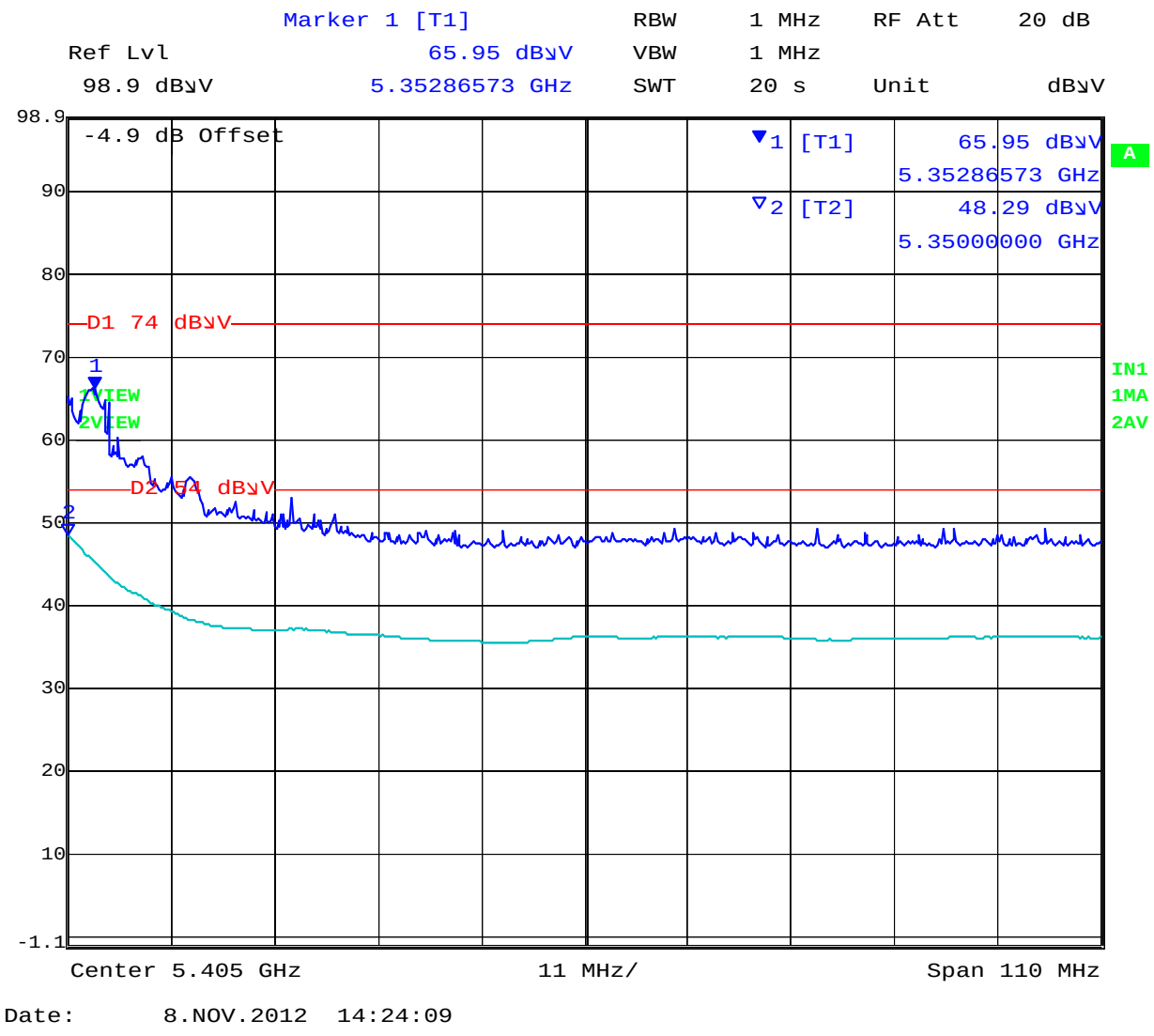


Formally measured emission peaks

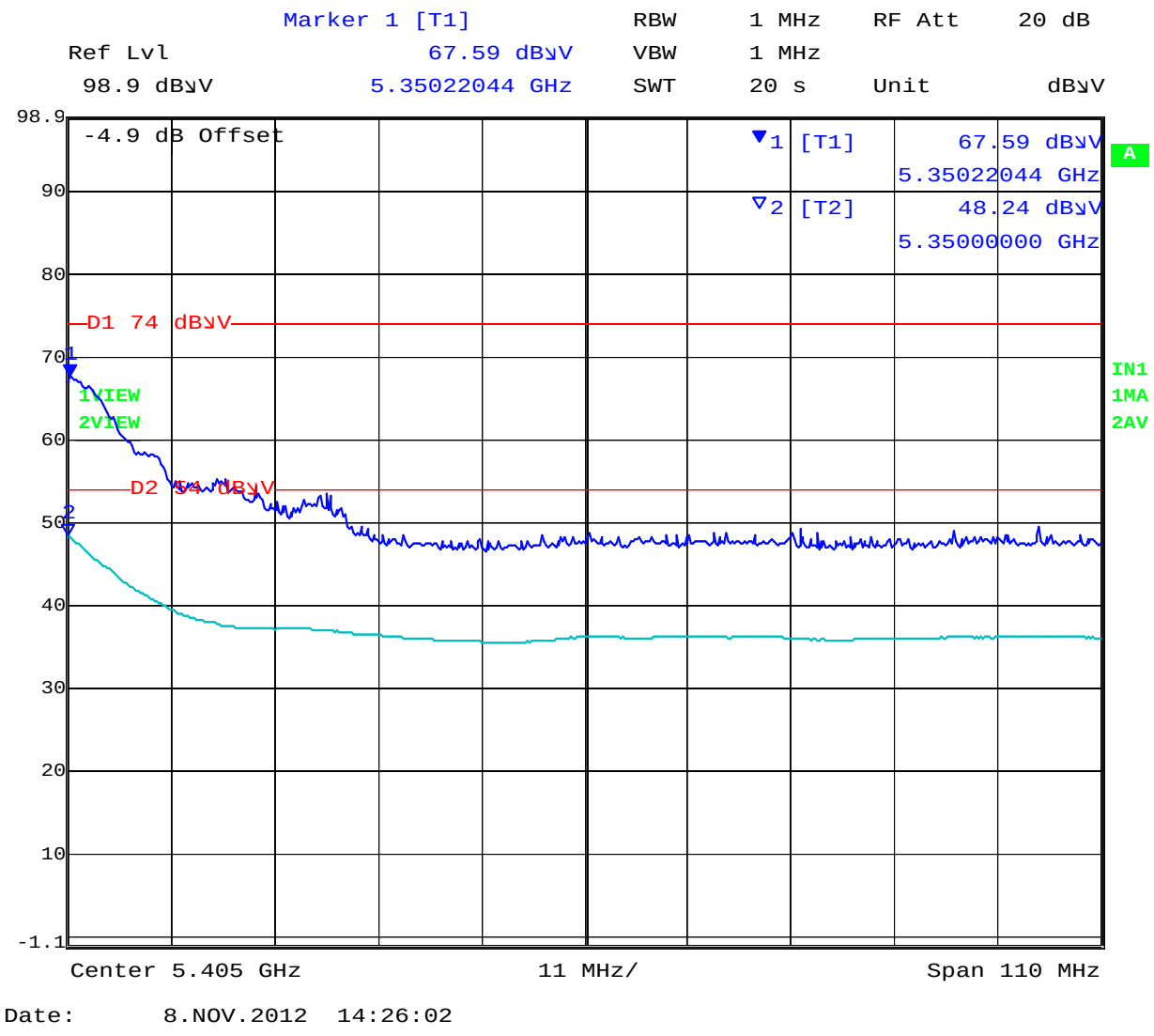
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5292.585	63.4	4.6	-9.6	58.4	Peak [Scan]	H						FUND
10641.777	48.1	6.8	-2.4	52.5	Average	H	152	330	54.0	-1.5	Pass	RB
10641.777	67.2	6.8	-2.4	71.6	Peak.	H	157	331	74.0	-2.4	Pass	RB
15959.639	33.0	9.0	0.0	41.9	Average Max	V	117	330	54.0	-12.1	Pass	RB
15959.639	46.9	9.0	0.0	55.9	Peak Max	V	117	330	74.0	-18.1	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

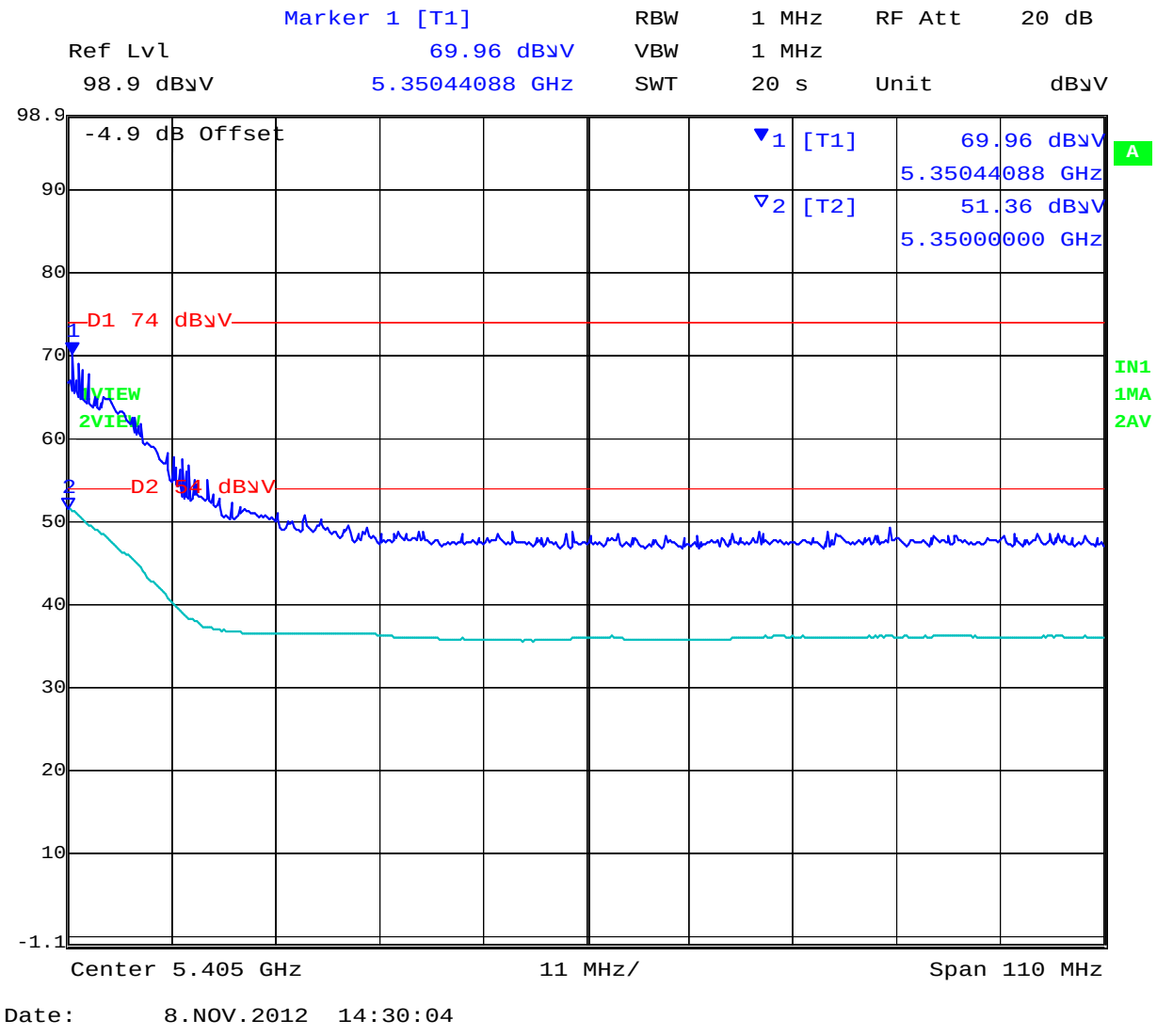
802.11a 5350 Restricted Band-edge



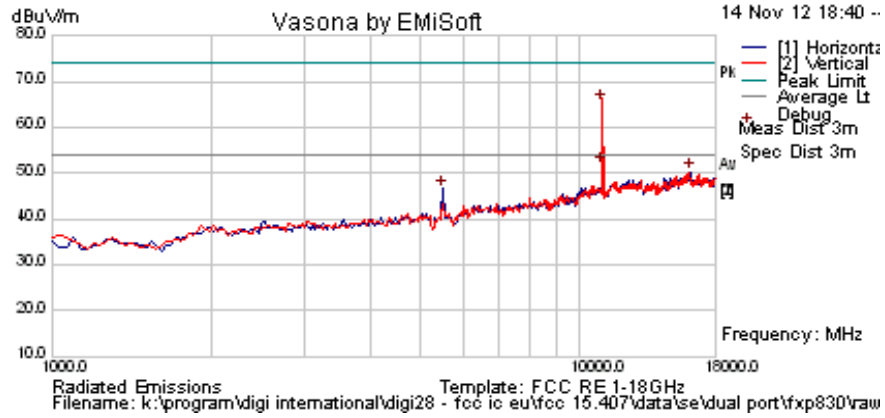
802.11n HT-20 5350 Restricted Band-edge



802.11n HT-40 5350 Restricted Band-edge



Test Freq.	5500 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	26
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	16	**Press. (mBars)**	1002
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet Limit		

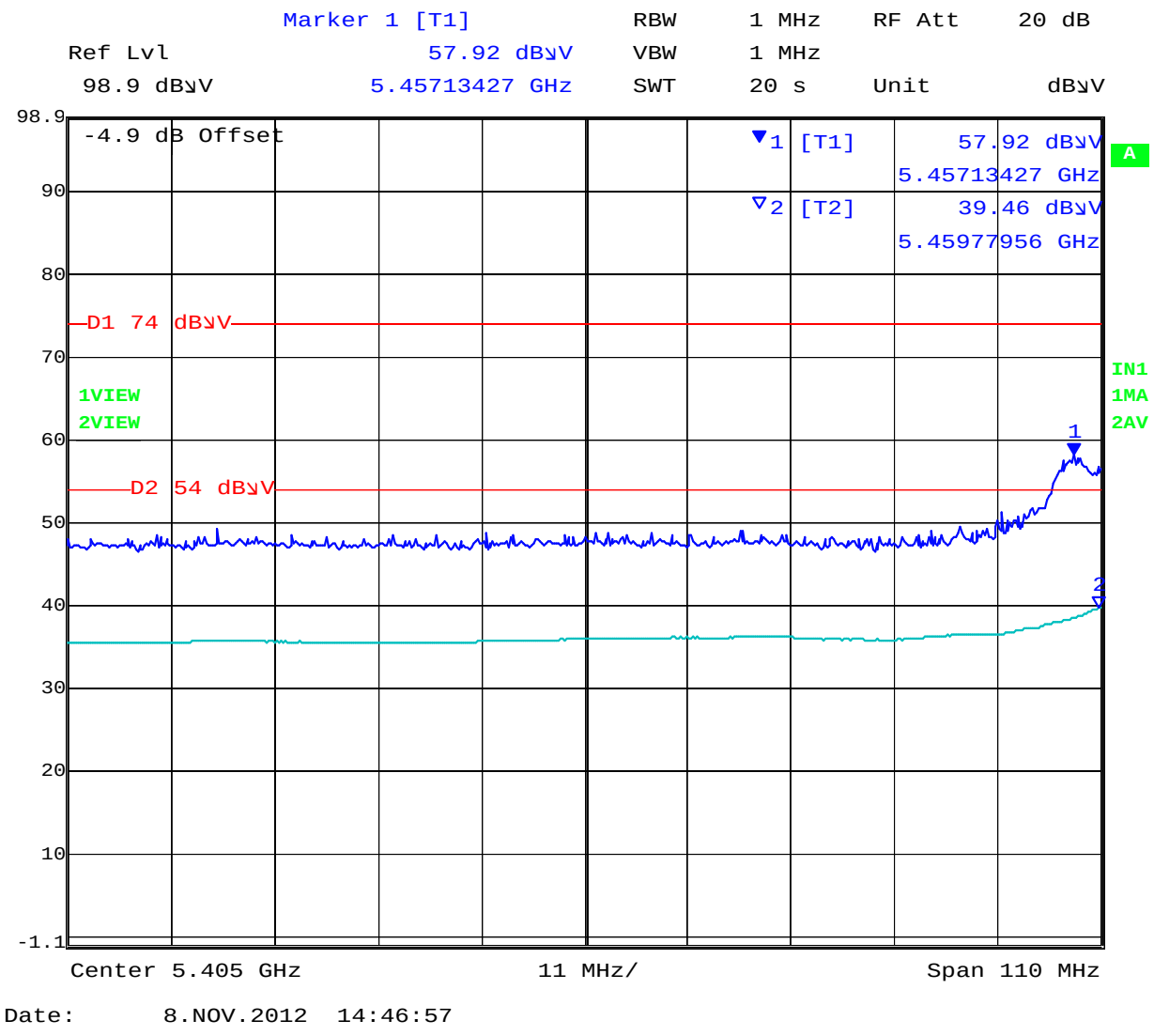


Formally measured emission peaks

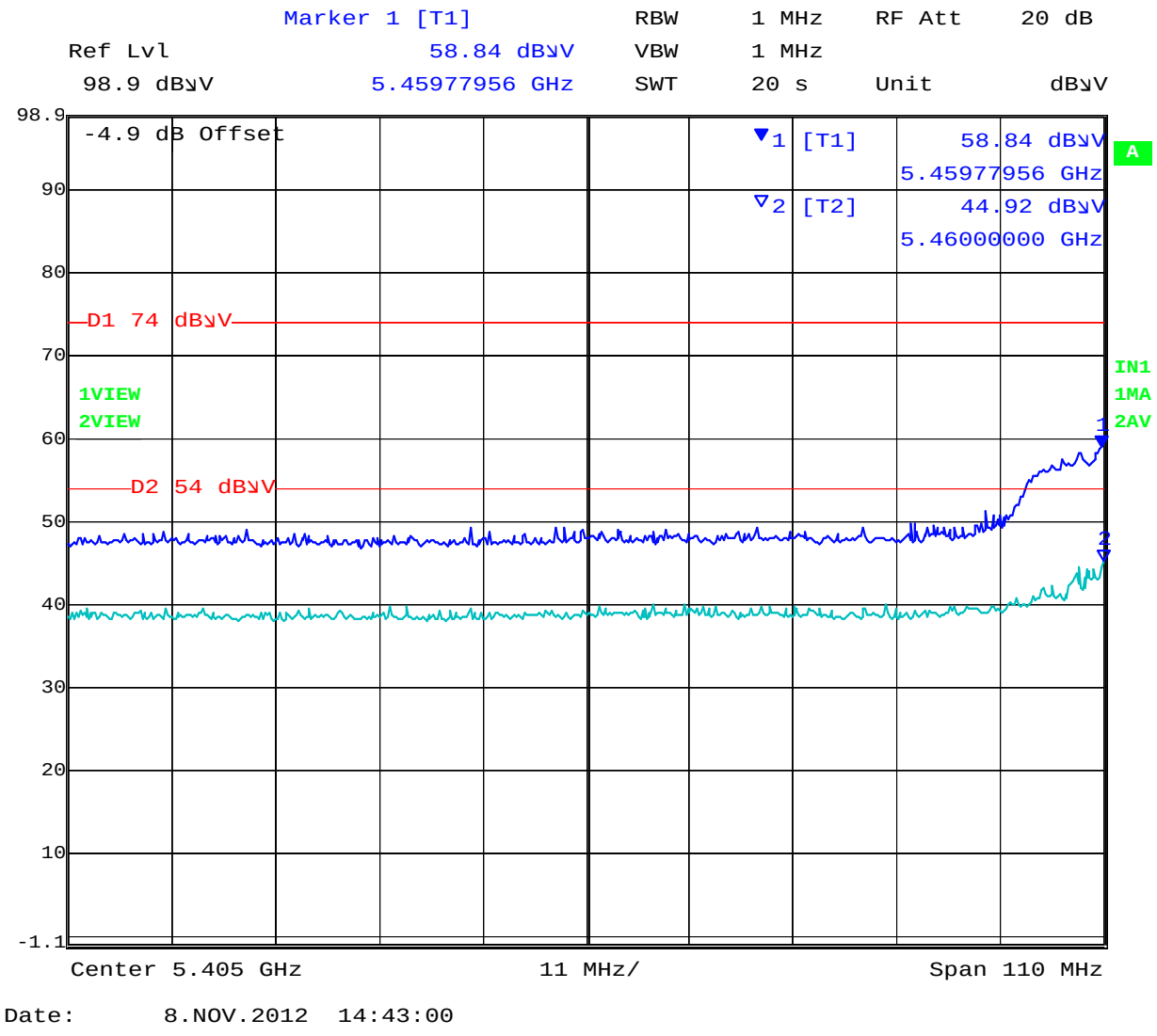
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5495.807	51.6	4.6	-9.6	46.6	Peak [Scan]	H						Fund
16126.253	41.1	9.0	0.2	50.2	Peak [Scan]	H	150	0	54.0	-3.8	Pass	Noise
10996.325	61.5	7.0	-3.1	65.4	Peak.	H	145	325	74.0	-8.6	Pass	RB
10996.325	47.9	7.0	-3.1	51.8	Average	H	146	325	54.0	-2.3	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

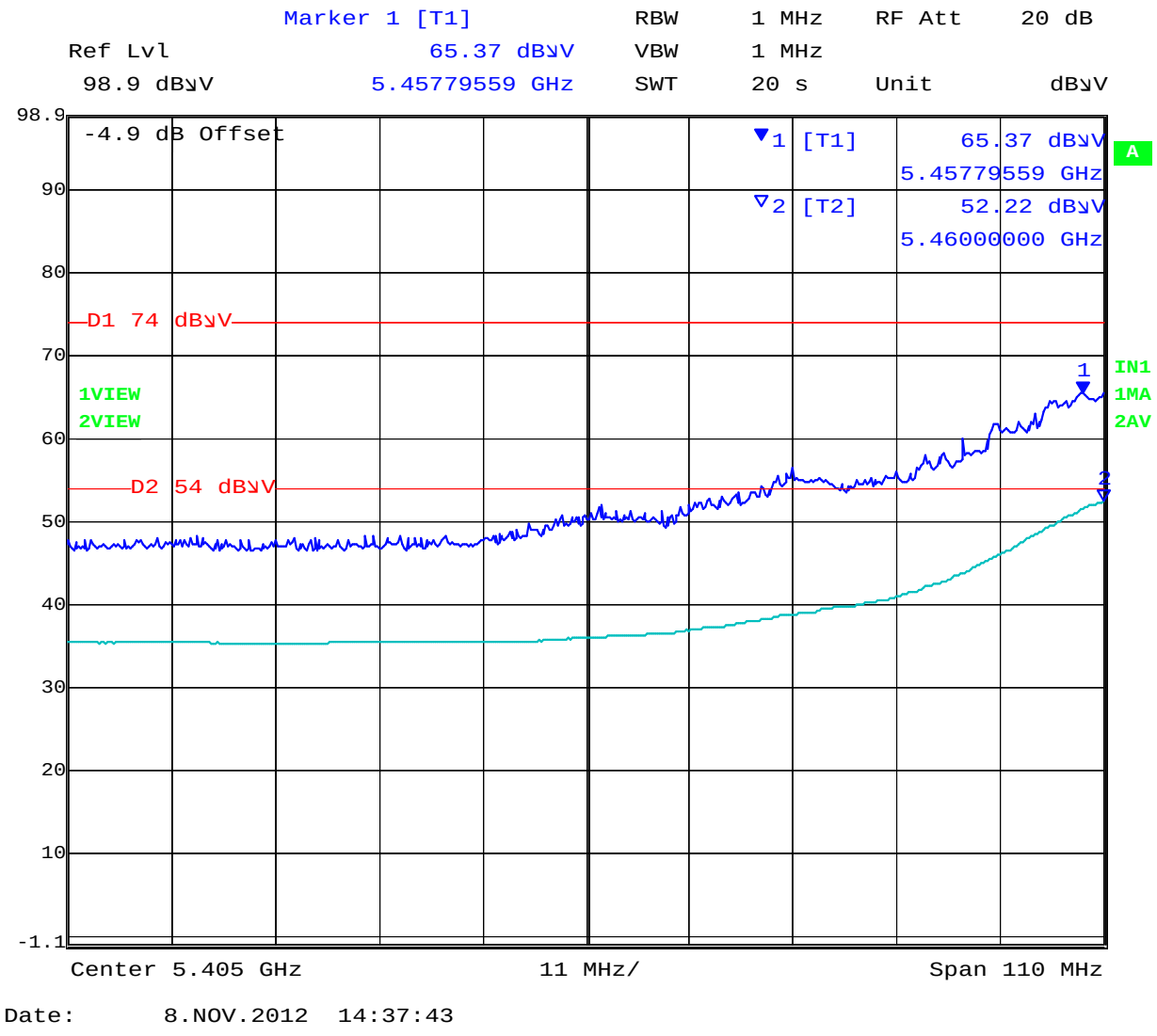
802.11a 5460 Restricted Band-edge



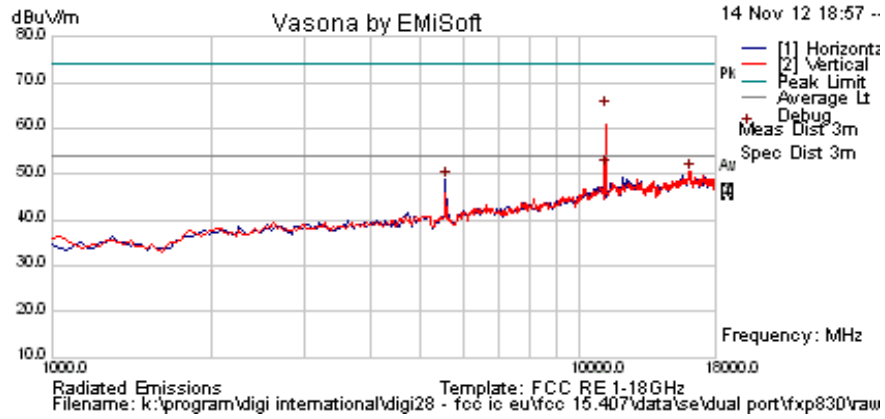
802.11n HT-20 5460 Restricted Band-edge



802.11n HT-40 5460 Restricted Band-edge



Test Freq.	5580 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	26
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	18	**Press. (mBars)**	1002
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet Limit		

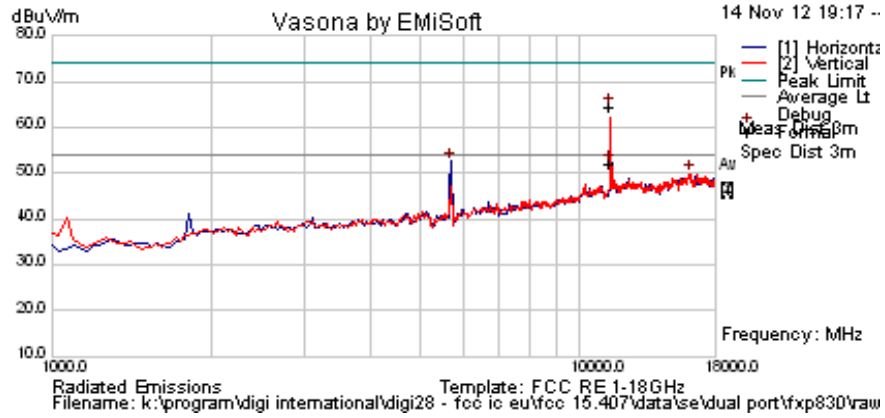


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
16160.321	41.5	9.0	0.2	50.6	Peak [Scan]	V						Fund
5565.130261	53.7	4.7	-9.7	48.7	Peak [Scan]	H	150	0	54.0	-5.3	Pass	Noise
11161.724	60.2	6.9	-3.0	64.1	Peak.	H	98	328	74.0	-9.9	Pass	RB
11161.724	47.5	6.9	-3.0	51.4	Average.	H	98	328	54.0	-2.6	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5700 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	26
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	19	**Press. (mBars)**	1002
Antenna	FXP830 x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet Limit		



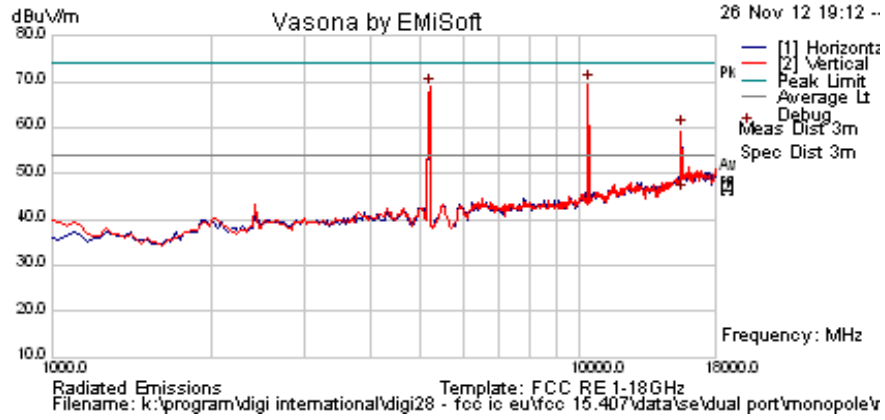
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5701.402806	57.6	4.7	-9.6	52.7	Peak [Scan]	H						Fund
16160.321	40.8	9.0	0.2	49.9	Peak [Scan]	V	100	0	54.0	-4.1	Pass	Noise
11398.878	60.0	6.8	-2.3	64.6	Peak Max	V	100	30	74.0	-9.4	Pass	RB
11398.878	47.4	6.8	-2.3	51.9	Average Max	V	100	30	54.0	-2.1	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

6.1.2.3. Dual Band Omni ANT-DB1 xxx

Test Freq.	5180 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	22
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	35
Power Setting	20	**Press. (mBars)**	2003
Antenna	Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

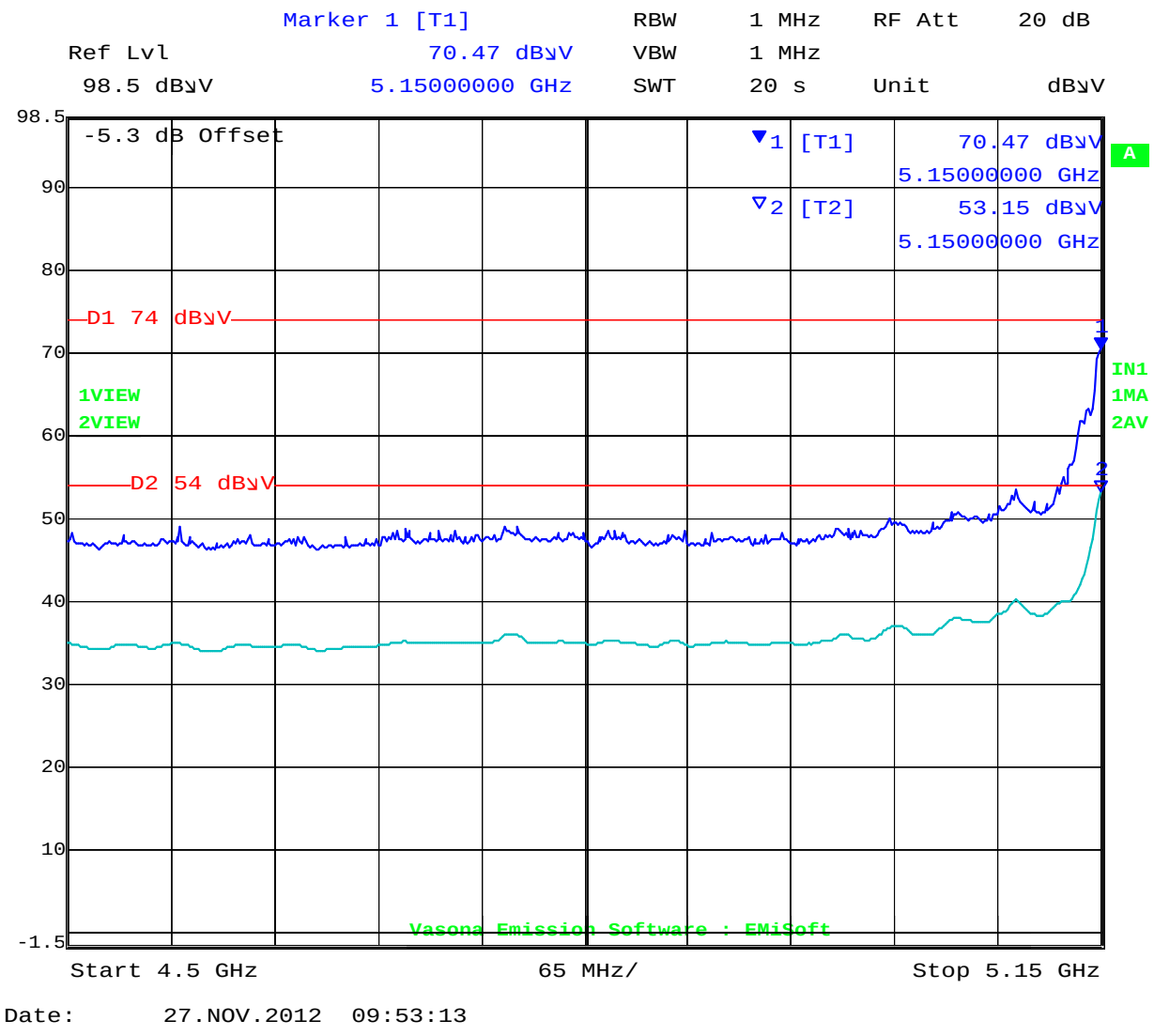


Formally measured emission peaks

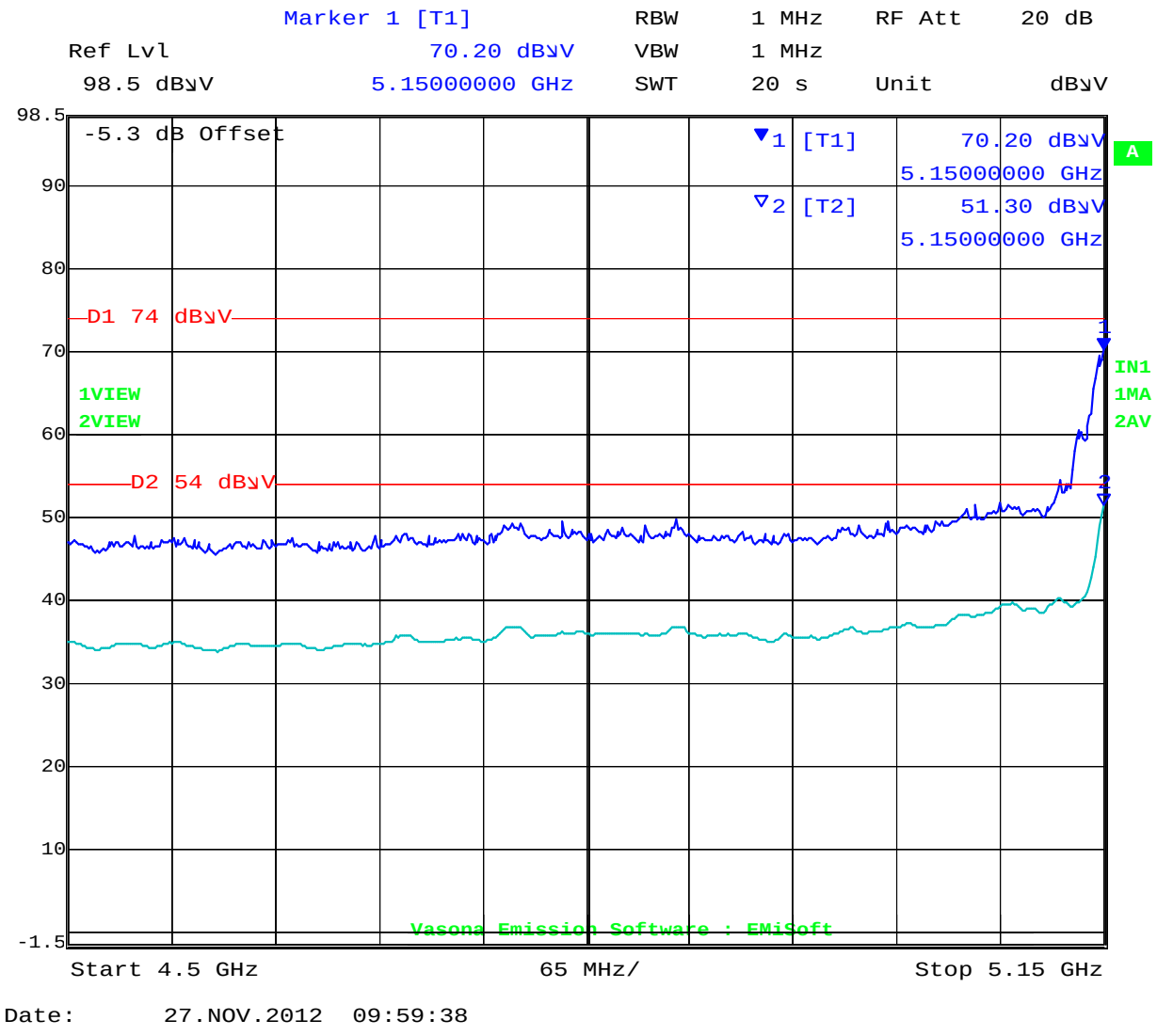
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10368.737	65.3	6.7	-2.5	69.5	Peak [Scan]	V					Pass	NRB
5190.381	74.1	4.6	-9.9	68.9	Peak [Scan]	V						FUND
15539.759	52.1	8.3	-0.6	59.8	Peak Max	V	118	325	74.0	-14.2	Pass	RB
15539.759	38.1	8.3	-0.6	45.8	Average Max	V	118	325	54.0	-8.2	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

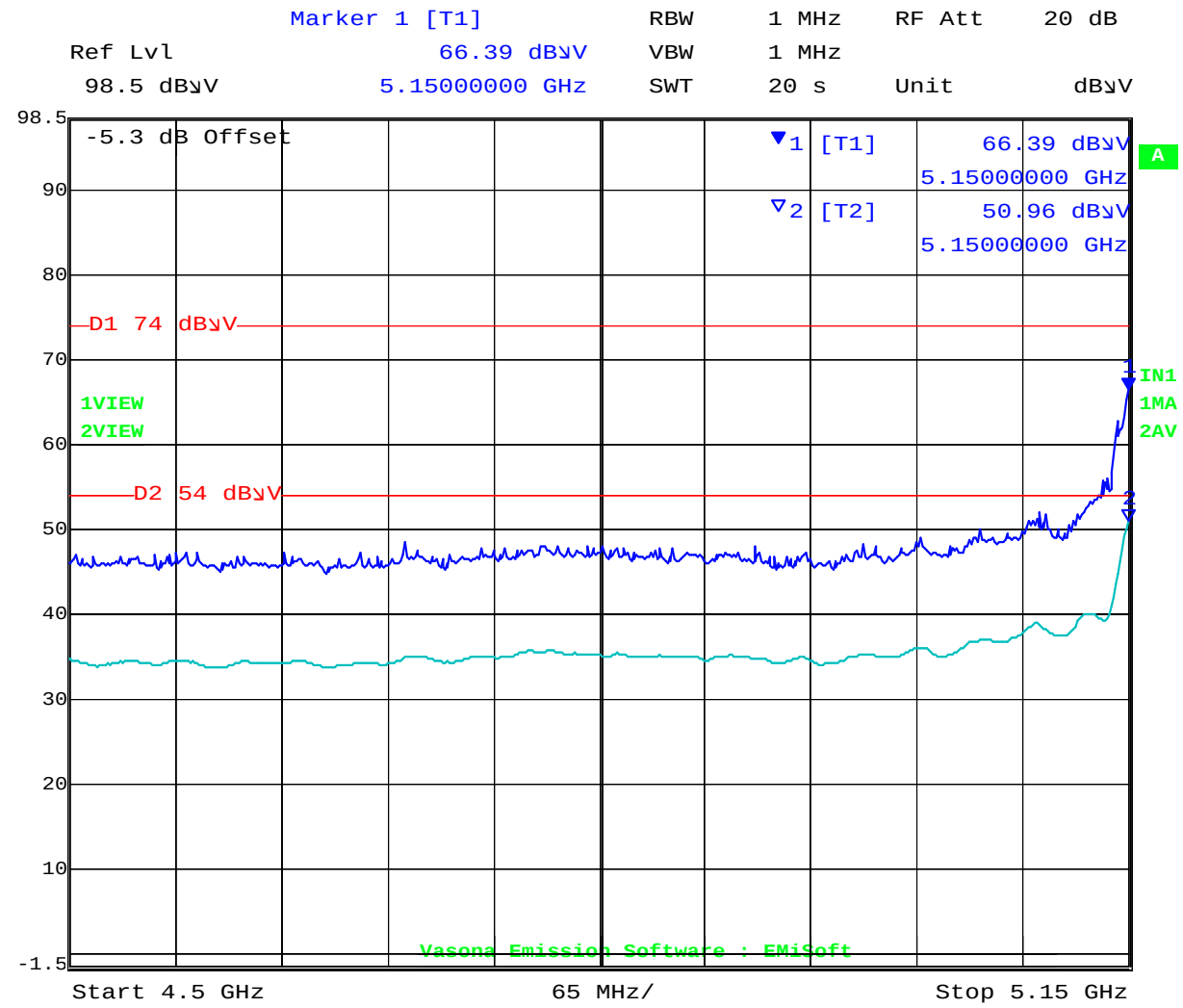
802.11a 5150 Restricted Band-edge



802.11n HT-20 5150 Restricted Band-edge



802.11n HT-40 5150 Restricted Band-edge



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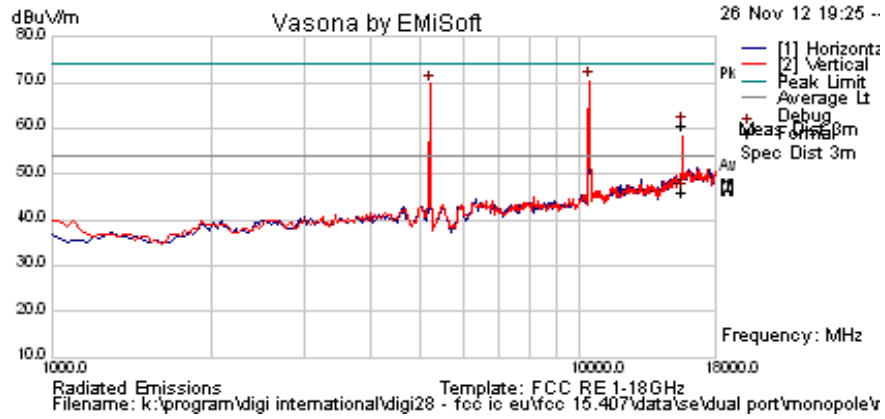
Test Freq.	5200 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	22
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	35
Power Setting	20	**Press. (mBars)**	2003
Antenna	Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

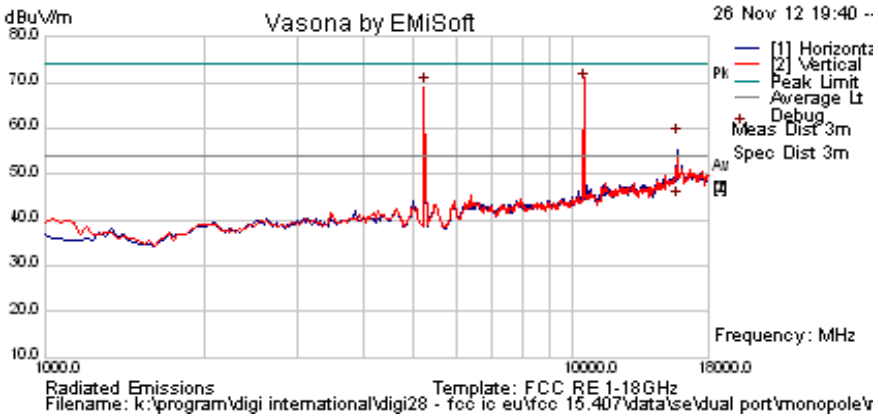


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10402.806	66.2	6.7	-2.5	70.4	Peak [Scan]	V					Pass	NRB
5190.701	74.8	4.6	-9.9	69.5	Peak [Scan]	V						FUND
15600.961	53.0	8.4	-0.6	60.8	Peak Max	V	129	327	74.0	-13.2	Pass	RB
15600.961	38.4	8.4	-0.6	46.2	Average Max	V	129	327	54.0	-7.8	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5240 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	22
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	35
Power Setting	20	**Press. (mBars)**	2003
Antenna	Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

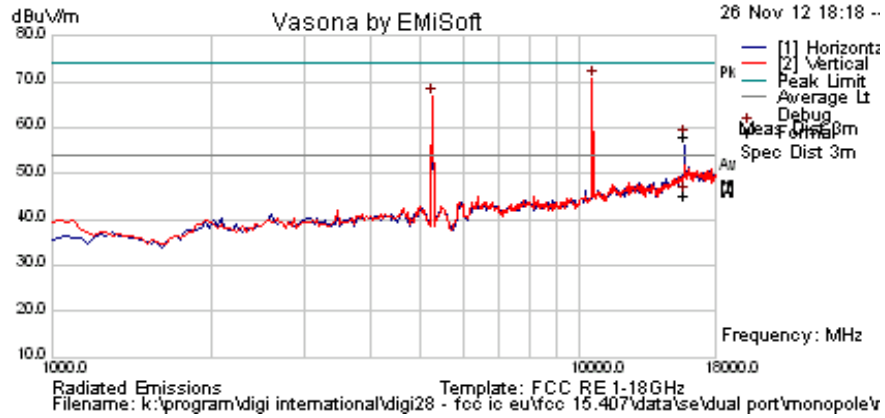


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5224.449	74.4	4.6	-9.8	69.2	Peak [Scan]	V					Pass	NRB
10486.151	65.9	6.8	-2.5	70.2	Peak [Scan]	H						FUND
15720.240	49.9	8.6	-0.4	58.1	Peak Max	H	99	323	74.0	-15.9	Pass	RB
15720.240	36.4	8.6	-0.4	44.5	Average Max	H	99	323	54.0	-9.5	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5260 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	22
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	36
Power Setting	20	**Press. (mBars)**	1002
Antenna	Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

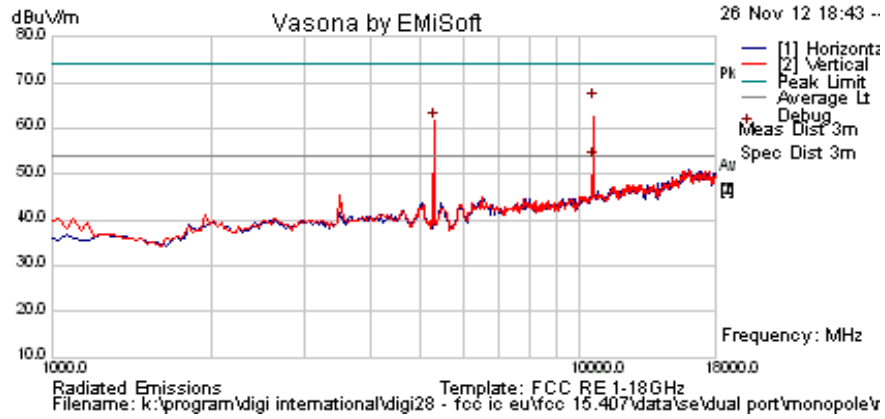


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10539.078	66.2	6.8	-2.5	70.6	Peak [Scan]	V					Pass	NRB
5258.517	71.8	4.6	-9.7	66.7	Peak [Scan]	V						FUND
15782.240	49.5	8.7	-0.3	57.9	Peak.	H	126	309	74.0	-16.2	Pass	RB
15782.240	36.7	8.7	-0.3	45.1	Average	H	113	319	54.0	-8.9	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5300 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	22
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	36
Power Setting	12 PWR Reduced	**Press. (mBars)**	1002
Antenna	Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	PWR reduced to meet limit		

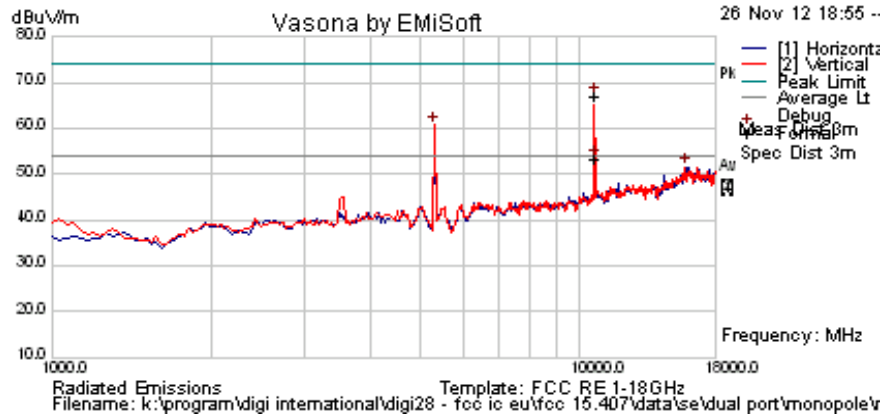


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5292.585	66.5	4.6	-9.6	61.6	Peak [Scan]	V						FUND
10599.792	61.3	6.8	-2.4	65.6	Peak.	V	114	27	74.0	-8.4	Pass	RB
10599.792	48.7	6.8	-2.4	53.1	Average	V	114	27	54.0	-1.0	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5320 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	13	**Press. (mBars)**	1002
Antenna	Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Reduced Power Level to meet limit		

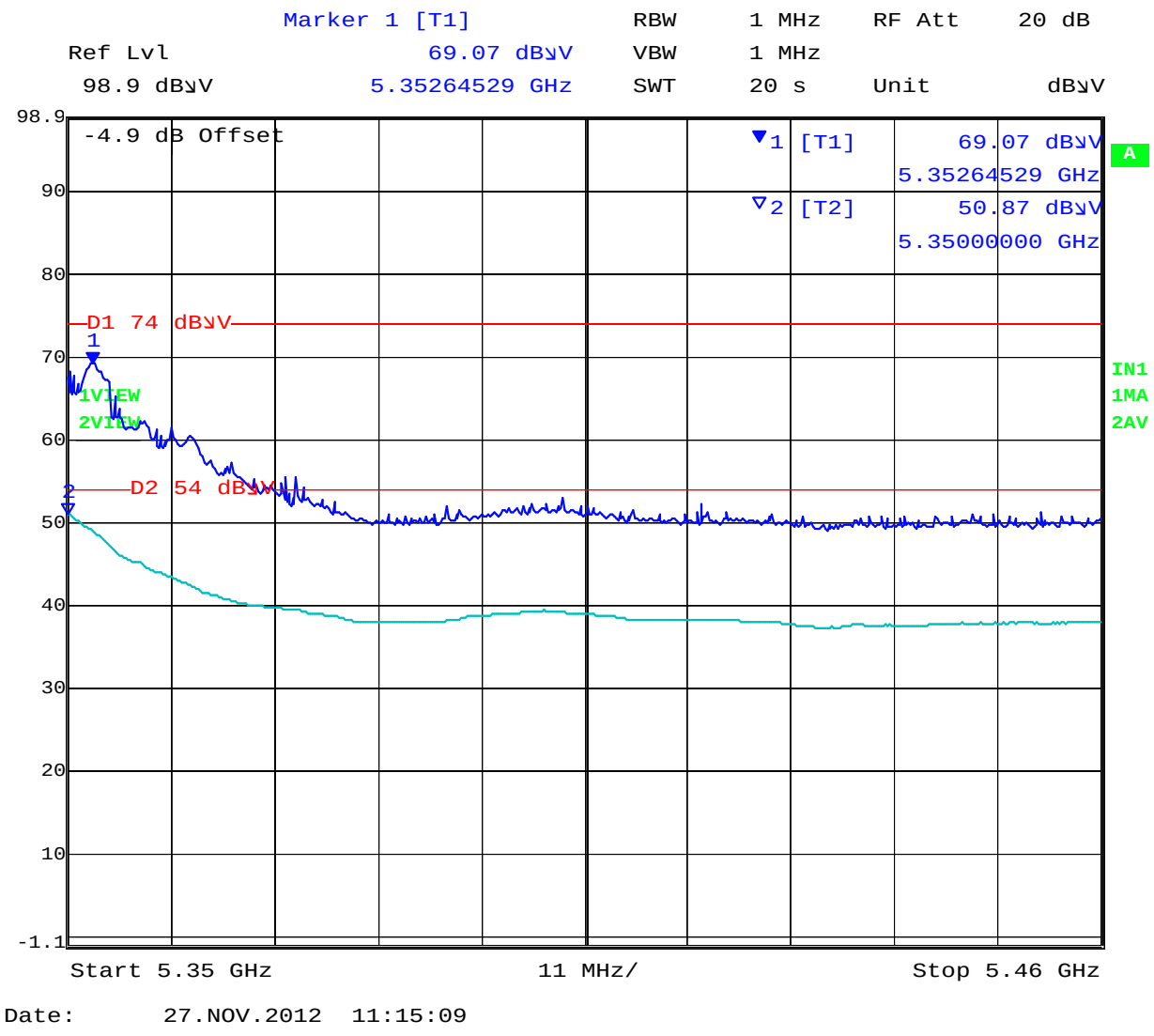


Formally measured emission peaks

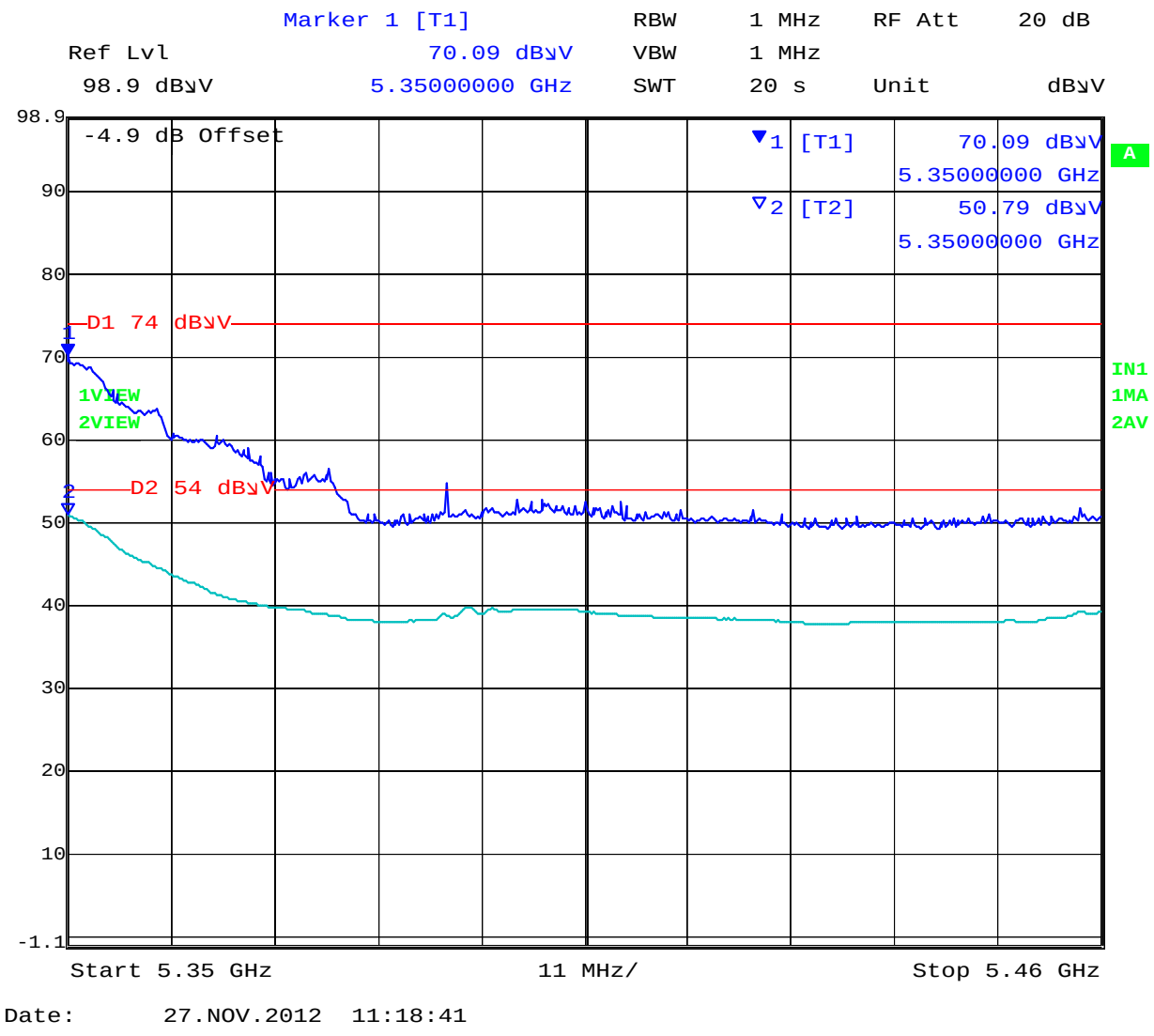
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5292.585	65.8	4.6	-9.6	60.8	Peak [Scan]	V						FUND
15853.707	43.0	8.8	-0.2	51.6	Peak [Scan]	H					Pass	NRB
10642.395	49.0	6.8	-2.4	53.4	Average	V	101	34	54.0	-0.6	Pass	RB
10642.395	62.8	6.8	-2.4	67.2	Peak.	V	101	34	74.0	-6.8	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

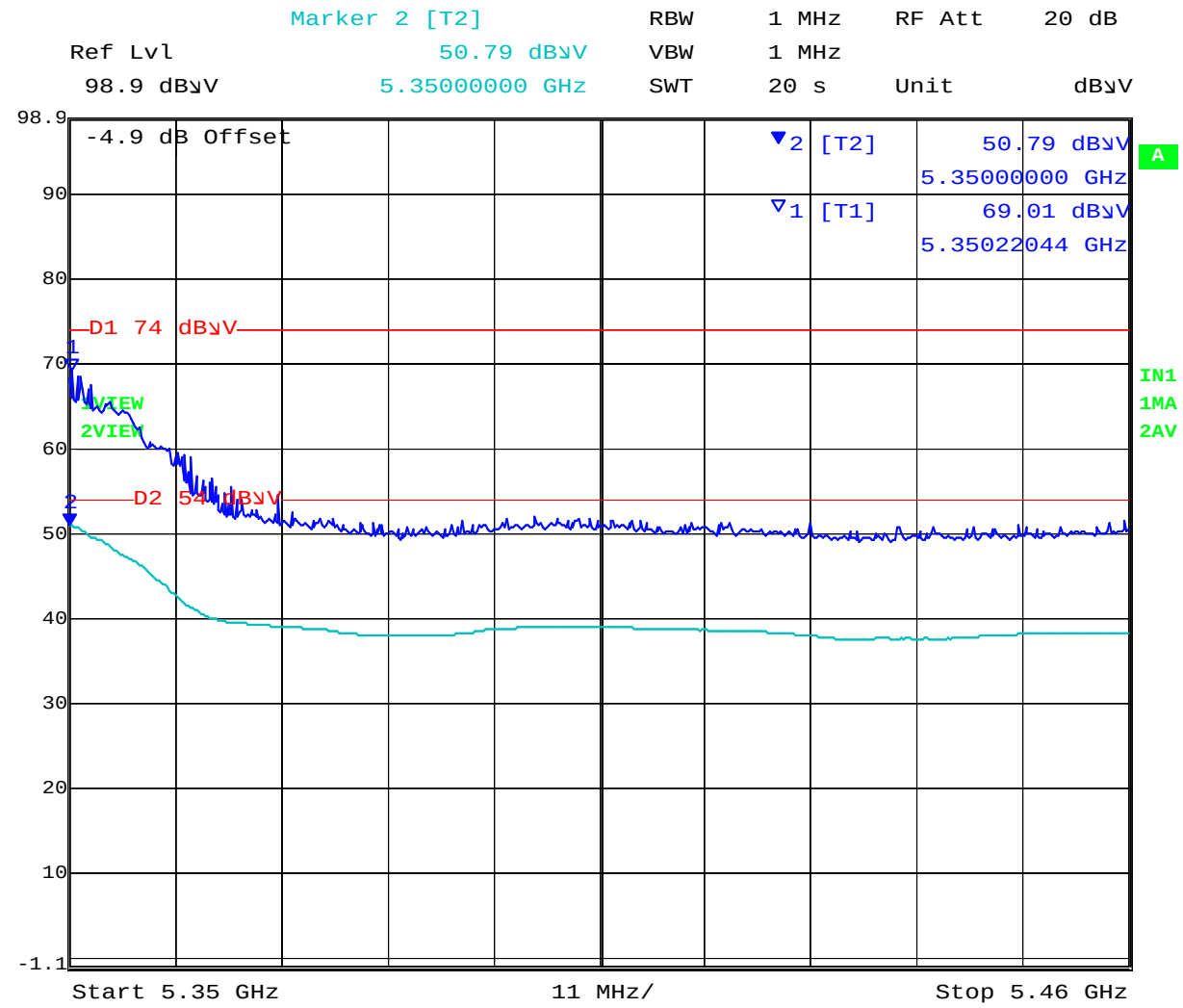
802.11a 5350 Restricted Band-edge



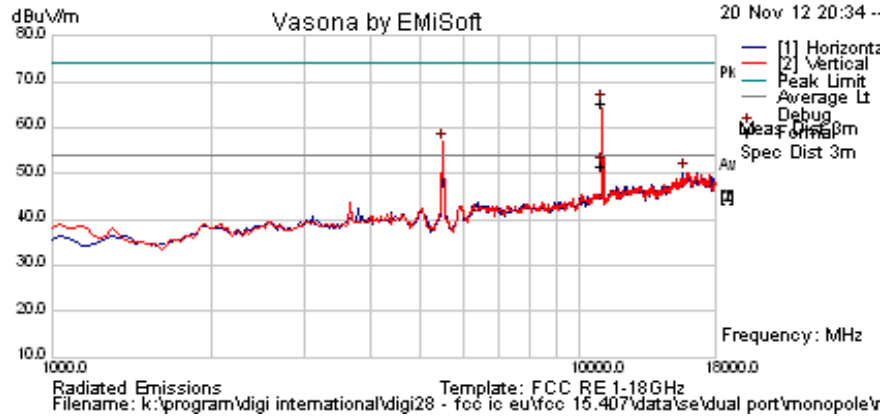
802.11n HT-20 5350 Restricted Band-edge



802.11n HT-40 5350 Restricted Band-edge



Test Freq.	5500 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	24
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	14	**Press. (mBars)**	1004
Antenna	5dBi Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet Limit		

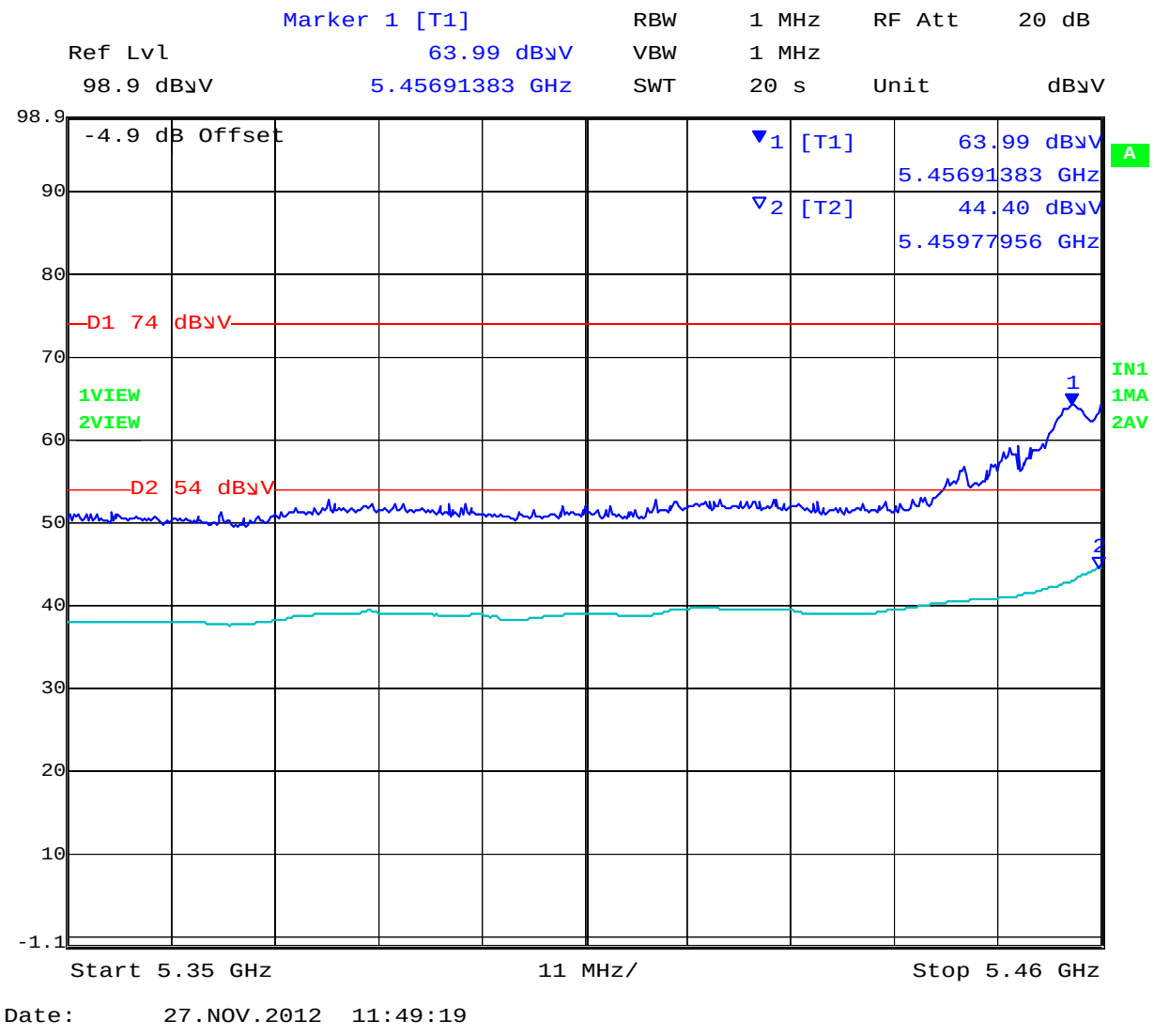


Formally measured emission peaks

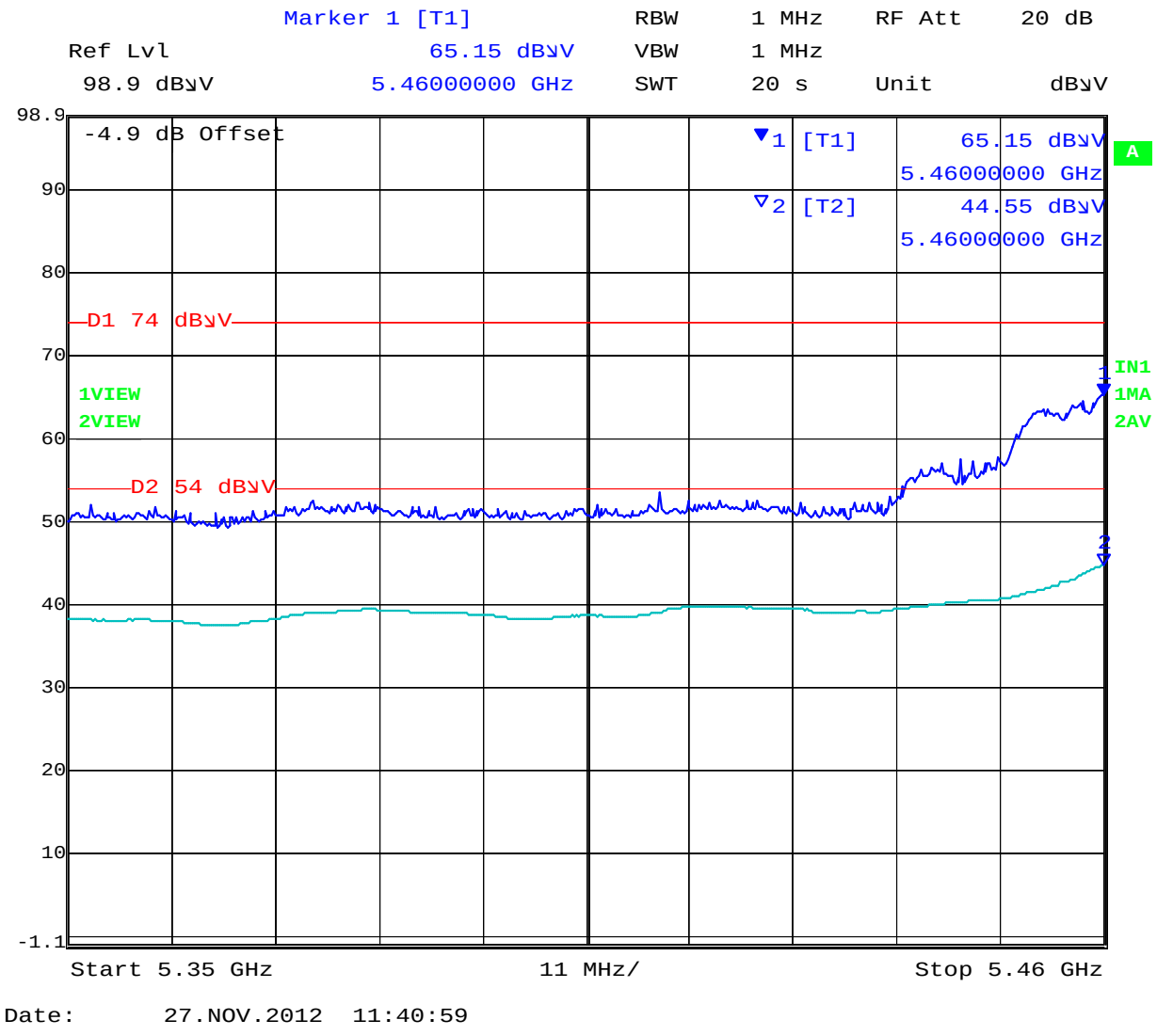
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5496.993988	61.9	4.6	-9.6	56.9	Peak [Scan]	V						FUND
15683.367	42.2	8.5	-0.5	50.2	Peak [Scan]	H	150	0	54.0	-3.8	Pass	Noise
11002.521	61.5	7.0	-3.1	65.4	Peak Max	V	121	360	74.0	-8.6	Pass	RB
11002.521	47.9	7.0	-3.1	51.8	Average Max	V	121	360	54.0	-2.3	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

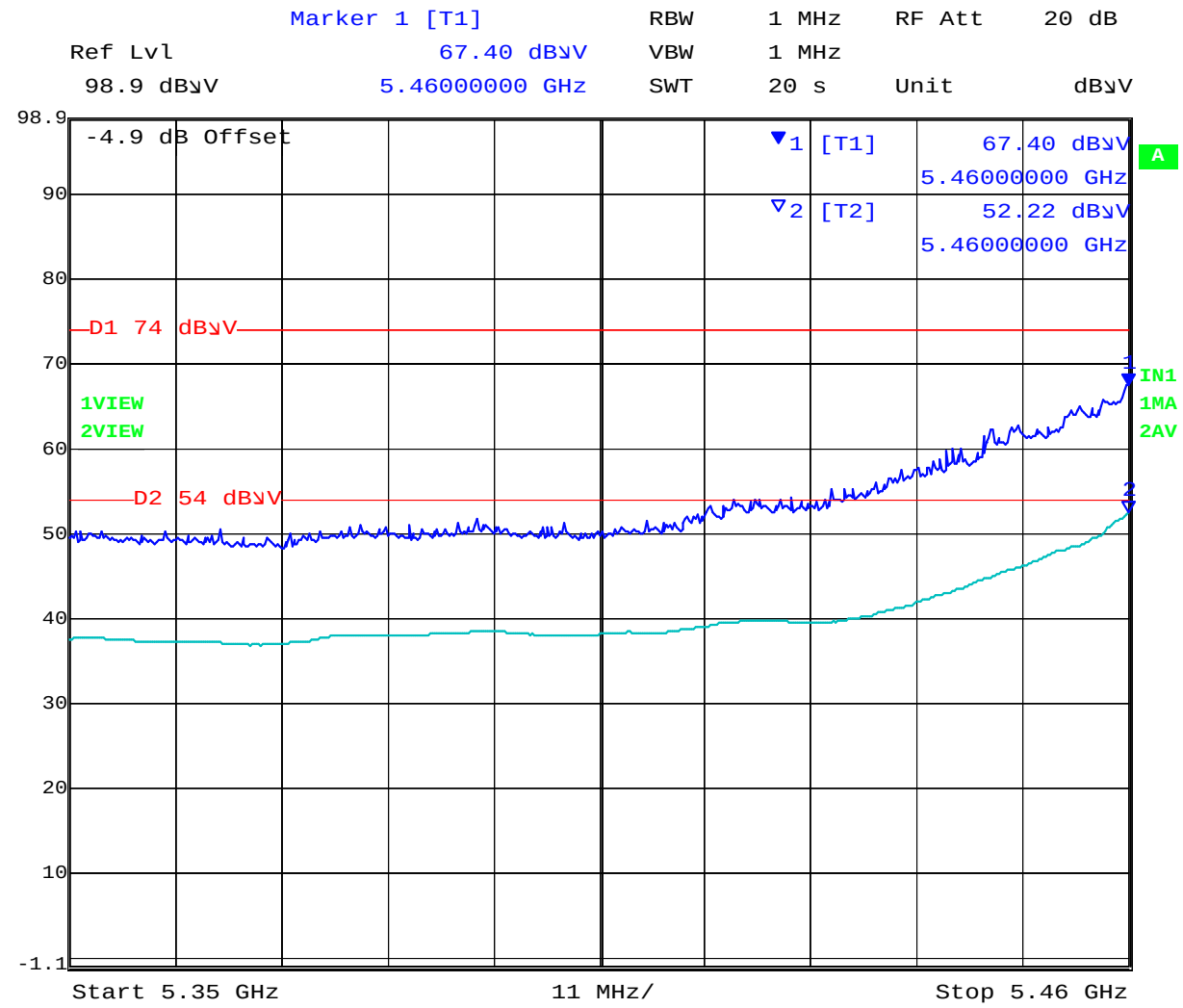
802.11a 5460 Restricted Band-edge



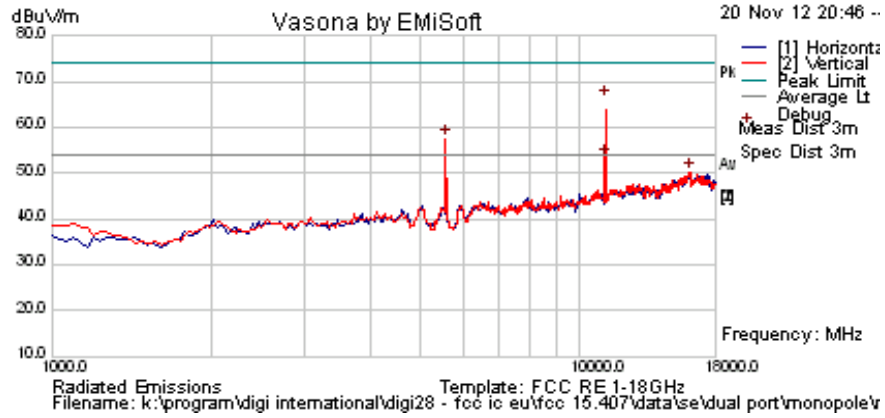
802.11n HT-20 5460 Restricted Band-edge



802.11n HT-40 5460 Restricted Band-edge



Test Freq.	5580 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	24
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	14	**Press. (mBars)**	1004
Antenna	5dBi Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet Limit		

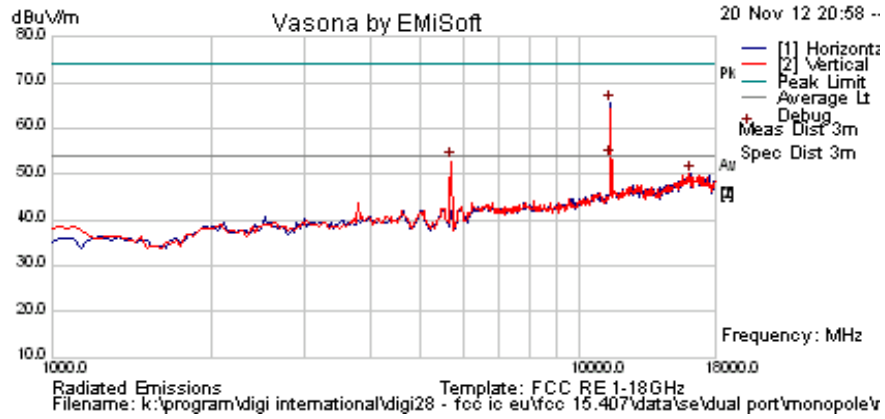


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5565.130261	62.6	4.7	-9.7	57.5	Peak [Scan]	V						FUND
16126.253	41.1	9.0	0.2	50.3	Peak [Scan]	V	150	0	54.0	-3.7	Pass	Noise
11160.557	62.1	6.9	-3.0	66.1	Peak Max	V	98	13	74.0	-7.9	Pass	RB
11160.557	49.4	6.9	-3.0	53.3	Average Max	V	98	13	54.0	-0.7	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5700 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	24
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	38
Power Setting	19	**Press. (mBars)**	1004
Antenna	5dBi Monopole	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet Limit		



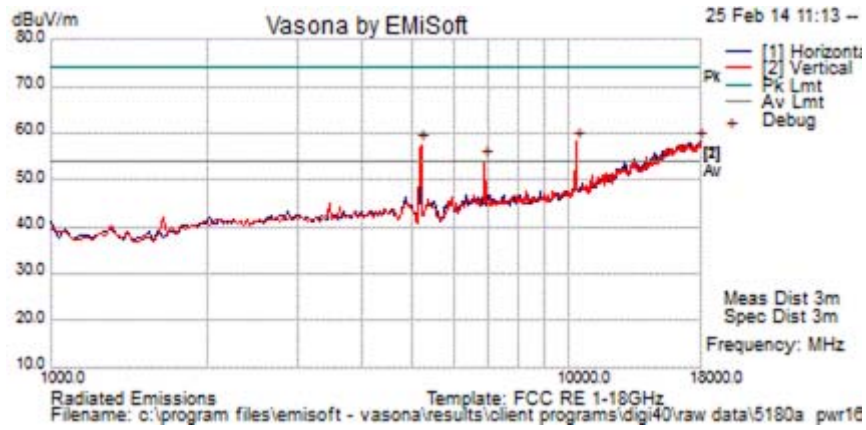
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
5701.402806	57.7	4.7	-9.6	52.9	Peak [Scan]	V						FUND
11398.317	61.0	6.8	-2.3	65.6	Peak Max	H	106	50	74.0	-8.5	Pass	RB
11398.317	48.9	6.8	-2.3	53.5	Average Max	H	106	50	54.0	-0.5	Pass	RB
16126.253	40.9	9.0	0.2	50.0	Peak [Scan]	H	100	0	54.0	-4.0	Pass	Noise

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

6.1.2.4. Compacted Balanced Dipole

Test Freq.	5180 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	18
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	16	**Press. (mBars)**	1001
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

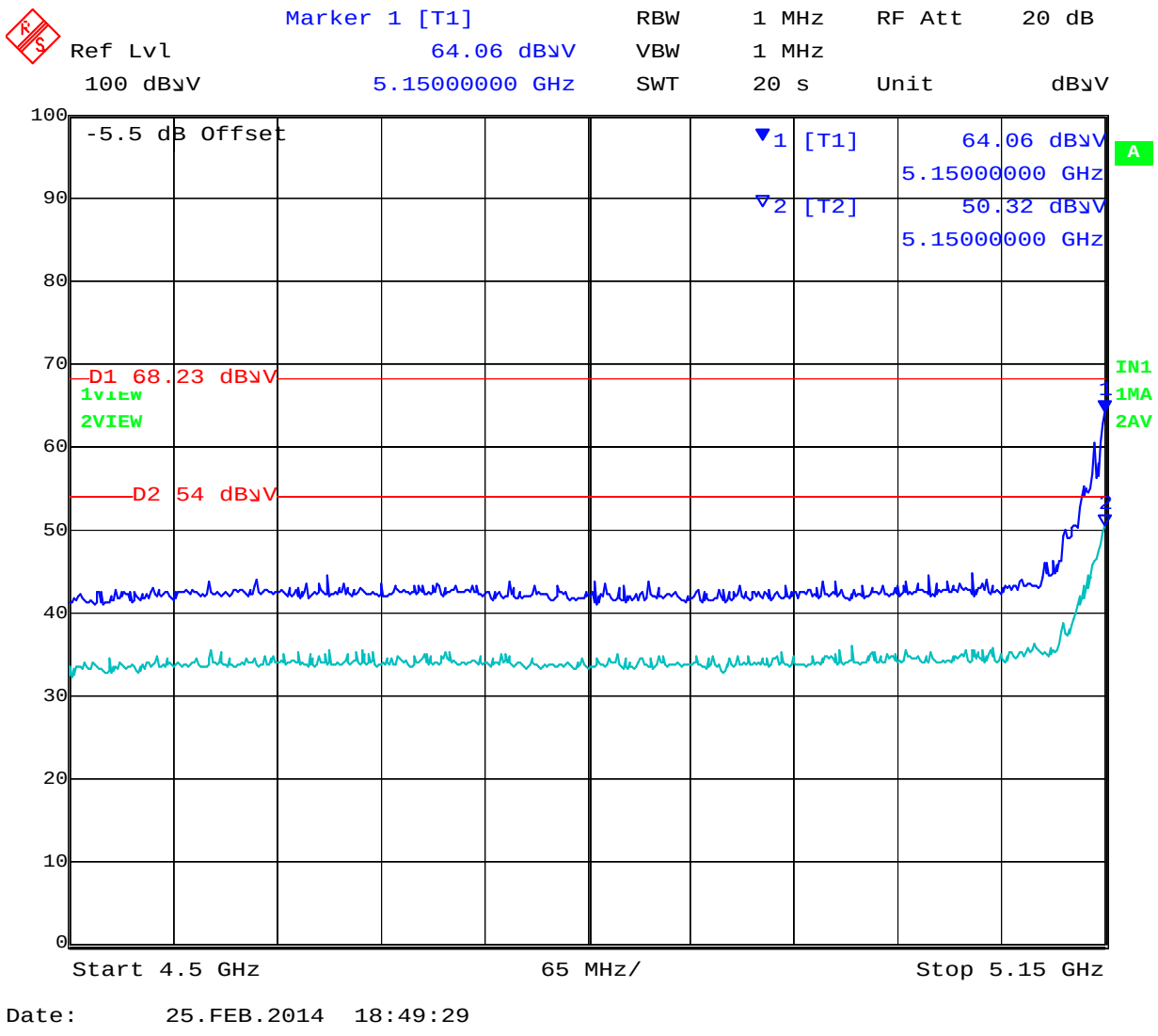


Formally measured emission peaks

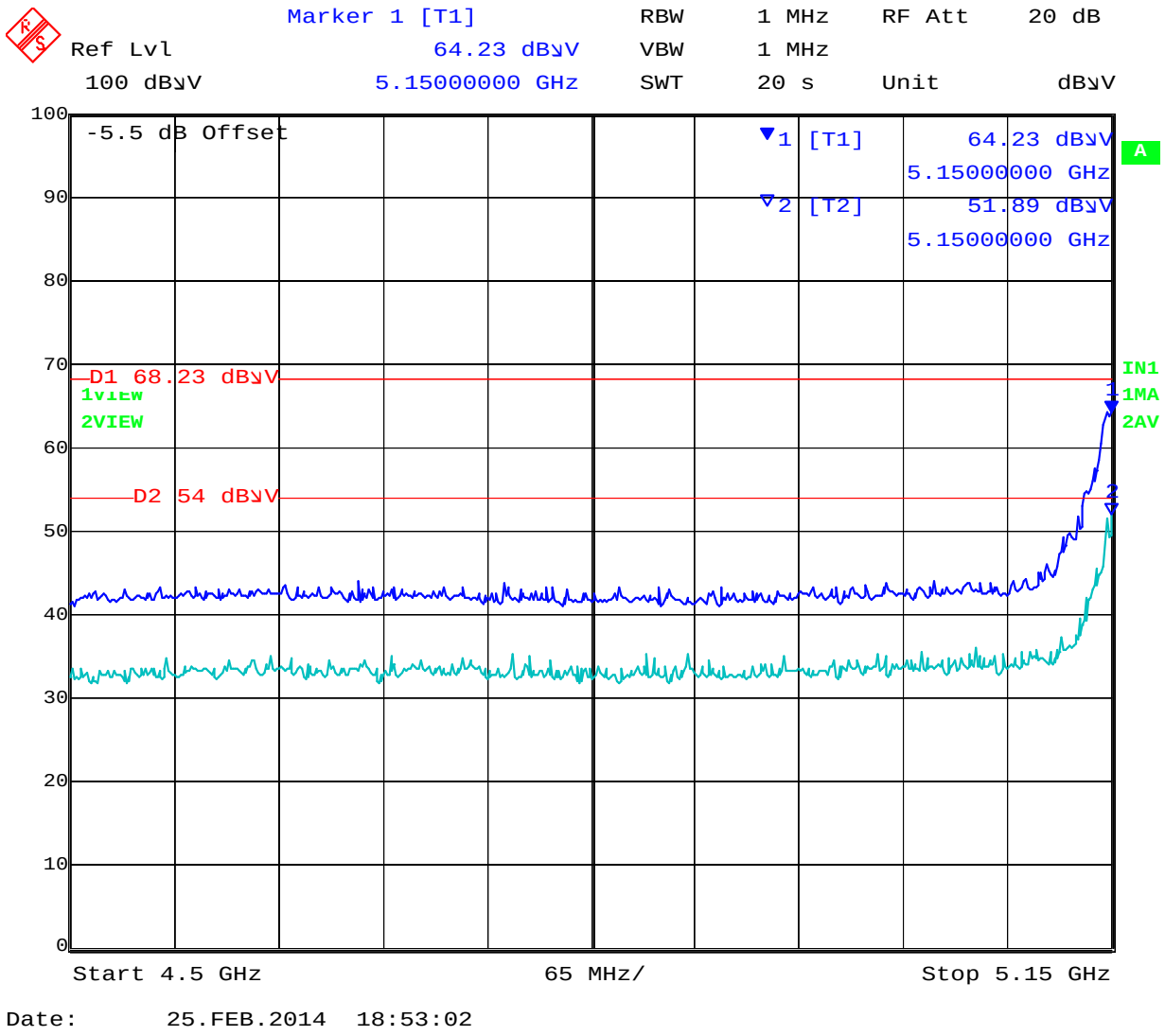
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10368.737	47.4	8.9	2.0	58.3	Peak [Scan]	V					Pass	NRB
17965.054	27.7	13.0	10.5	51.2	Average	H	200	6	54.0	-2.8	Pass	Noise Floor
5190.381	54.4	5.9	-2.8	57.5	Peak [Scan]							FUND
6893.788	48.2	7.0	-1.0	54.1	Peak [Scan]	V					Pass	NRB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

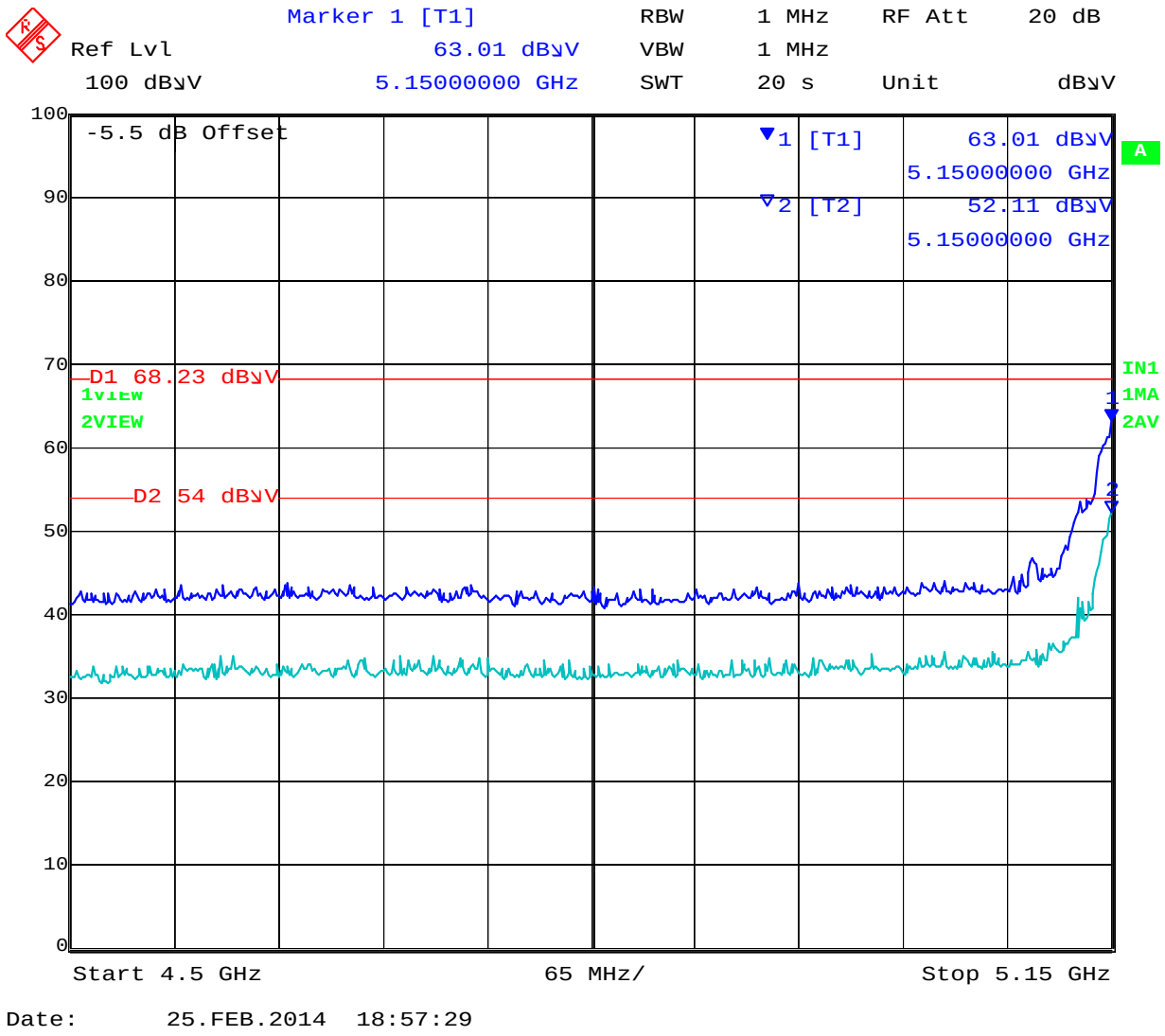
802.11a 5180 Restricted Band-edge



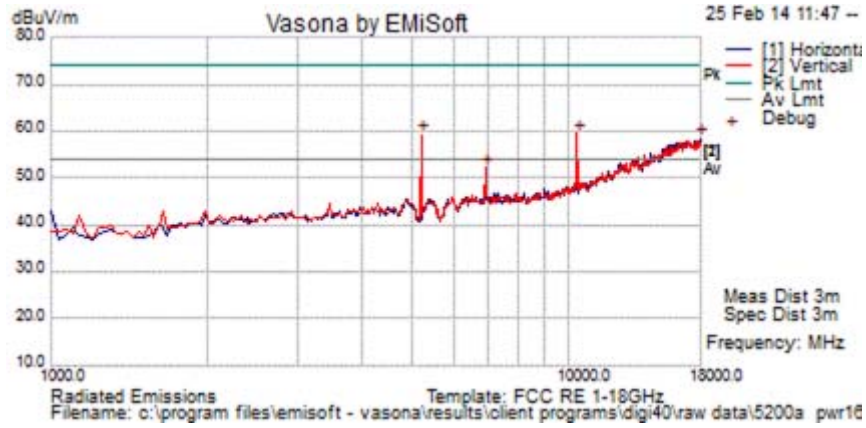
802.11n HT-20 5180 Restricted Band-edge



802.11n HT-40 5190 Restricted Band-edge



Test Freq.	5200 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	18
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	16	**Press. (mBars)**	1001
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

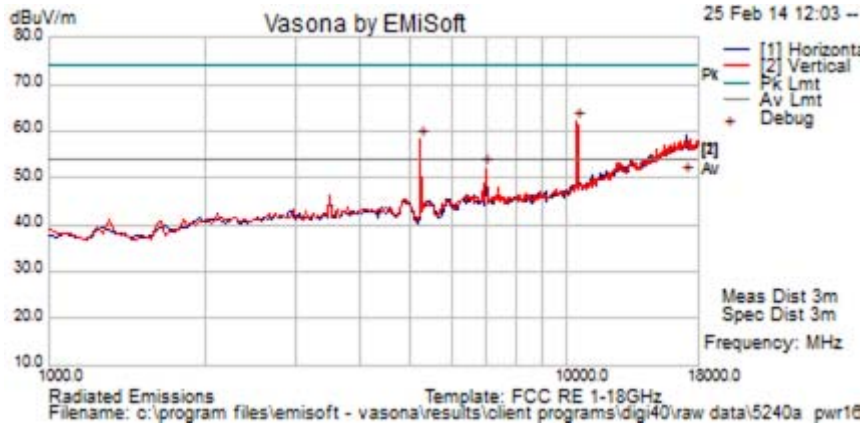


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10402.806	48.3	9.0	2.1	59.4	Peak [Scan]	V					Pass	NRB
5190.381	56.2	5.9	-2.8	59.3	Peak [Scan]							FUND
17933.439	27.5	13.0	10.6	51.0	Average	H	99	5	54.0	-3.0	Pass	Noise Floor
6927.856	46.2	7.0	-1.0	52.2	Peak [Scan]	V						NRB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5240 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	18
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	16	**Press. (mBars)**	1001
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

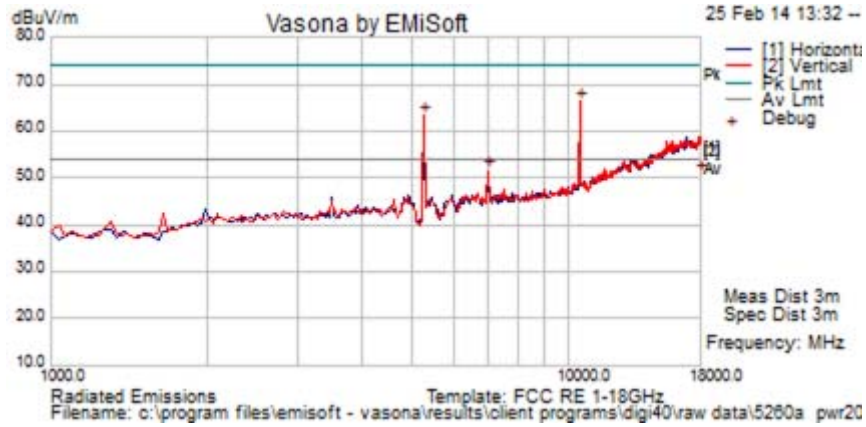


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10470.942	50.7	9.0	2.3	61.9	Peak [Scan]	V	100	0	54.0	7.9	Fail	
17045.655	27.9	12.4	9.9	50.2	Average	H	100	5	54.0	-3.8	Pass	
5224.449	55.0	5.9	-2.7	58.2	Peak [Scan]	V	100	0	54.0	4.2	Fail	
6995.992	46.0	7.0	-1.1	51.9	Peak [Scan]	V	100	0	54.0	-2.1	Pass	

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5260 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	19
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	20	**Press. (mBars)**	1002
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2			

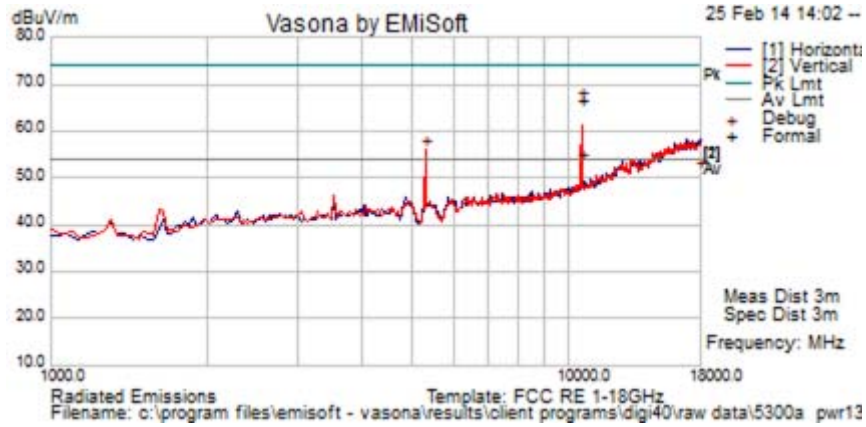


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10505.010	55.0	9.0	2.4	66.4	Peak [Scan]	V						NRB
5258.517	60.0	5.9	-2.7	63.3	Peak [Scan]							FUND
17898.666	27.3	13.0	10.6	50.9	Average	V	151	6	54.0	-3.1	Pass	Noise Floor
6995.992	45.7	7.0	-1.1	51.6	Peak [Scan]	V						NRB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5300 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	19
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	13	**Press. (mBars)**	1002
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduced to meet limit		

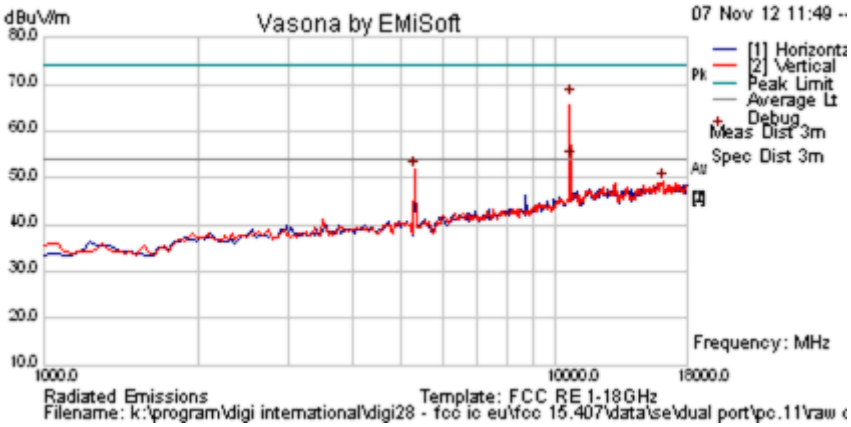


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10601.773	54.7	9.0	2.7	66.4	Peak	V	132	315	74.0	-7.6	Pass	RB
10601.721	41.2	9.0	2.7	52.9	Average	V	132	315	54.0	-1.1	Pass	RB
17965.006	27.7	13.0	10.5	51.2	Average	V	100	354	54.0	-2.8	Pass	Noise Floor
5292.585	52.6	6.0	-2.5	56.0	Peak [Scan]	V						FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5320 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	25
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	33
Power Setting	13	**Press. (mBars)**	1002
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Reduced Power Level to meet limit		

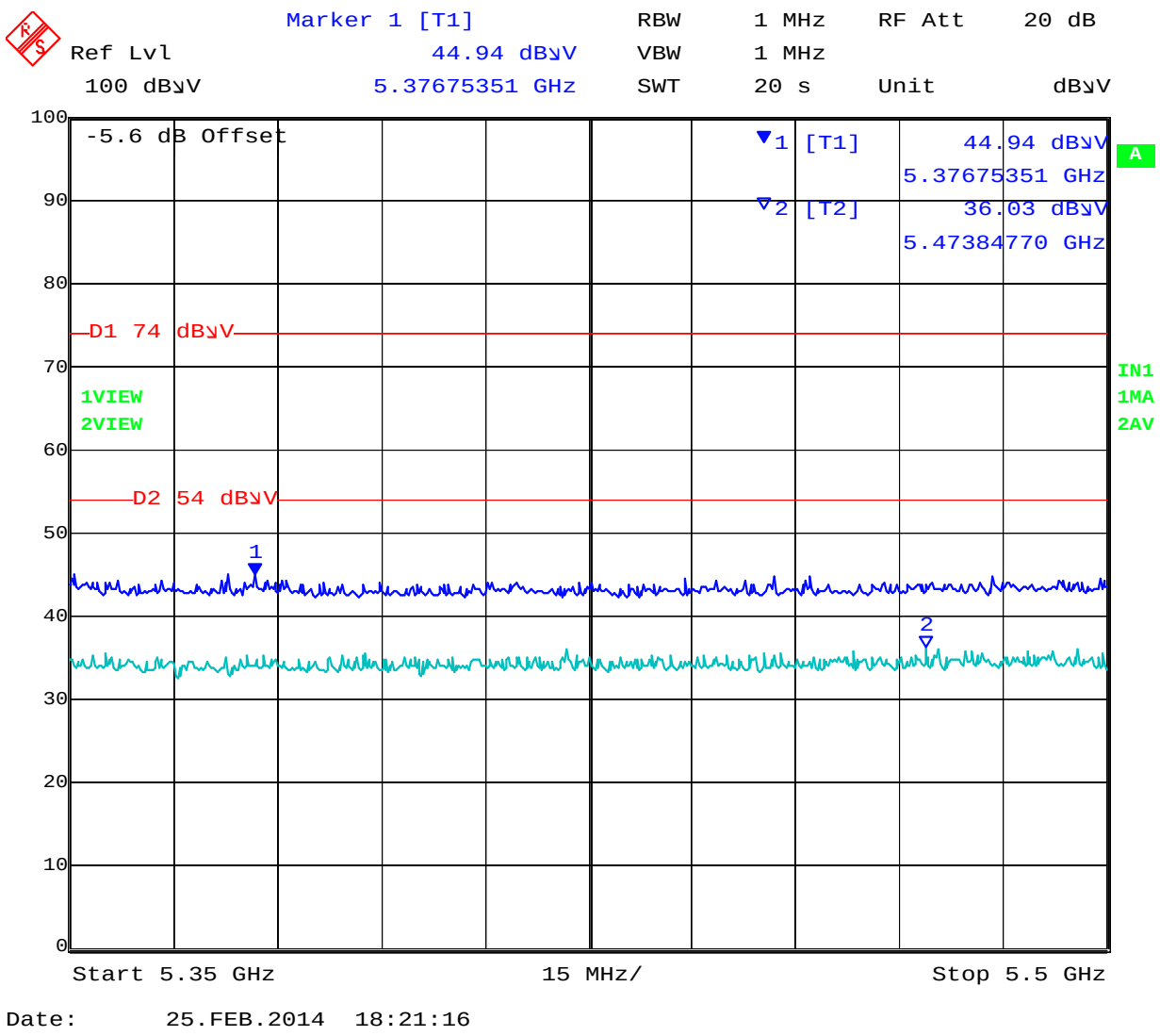


Formally measured emission peaks

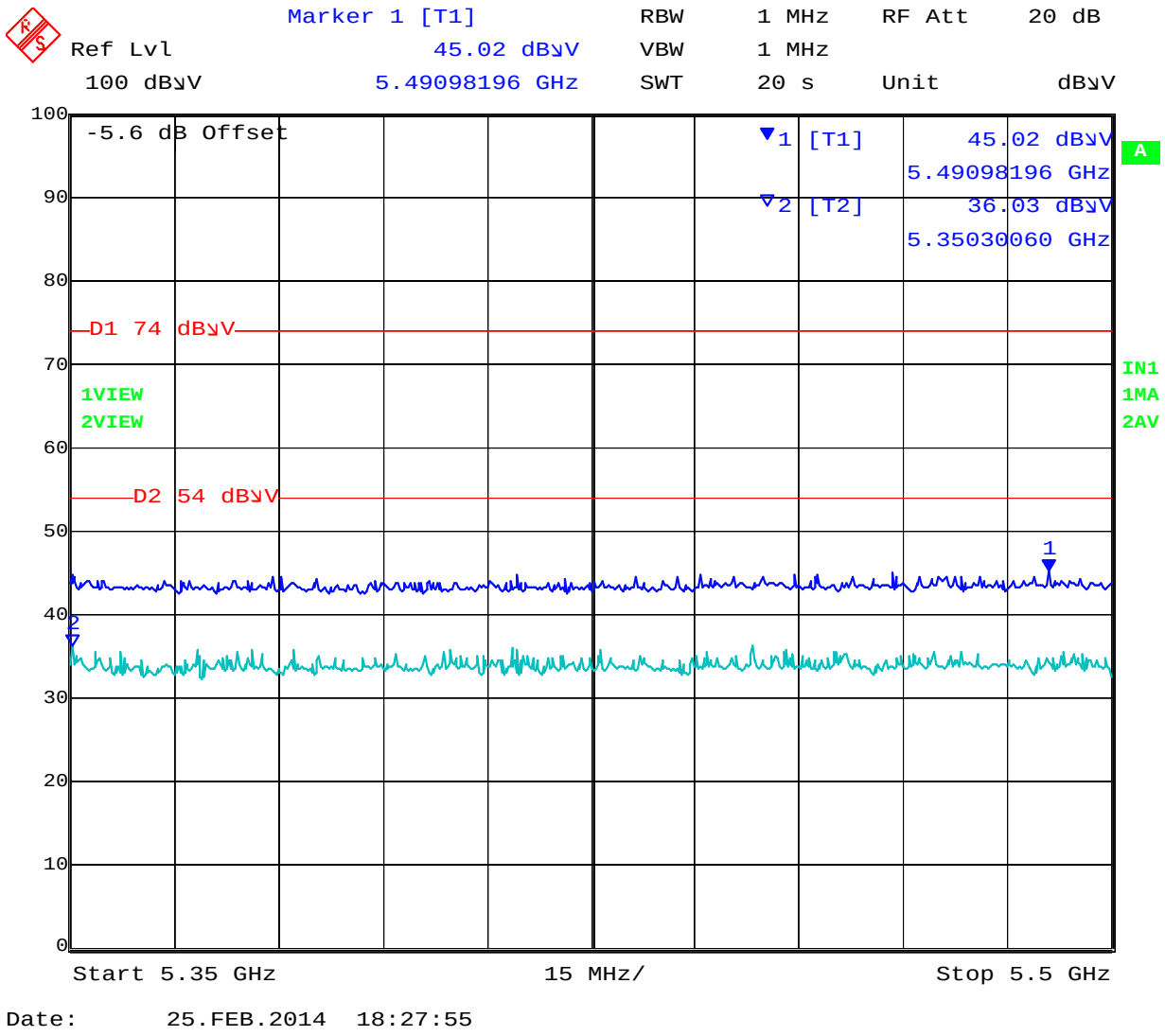
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
10642.249	55.4	9.0	2.8	67.2	Peak.	V	131	317	74.0	-6.8	Pass	NRB
10642.249	40.9	9.0	2.8	52.7	Average	V	131	317	54.0	-1.3	Pass	NRB
17727.515	27.4	12.7	10.3	50.4	Average	V	101	354	54.0	-3.6	Pass	Noise Floor
5326.653	52.1	6.0	-2.4	55.7	Peak [Scan]	V						FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

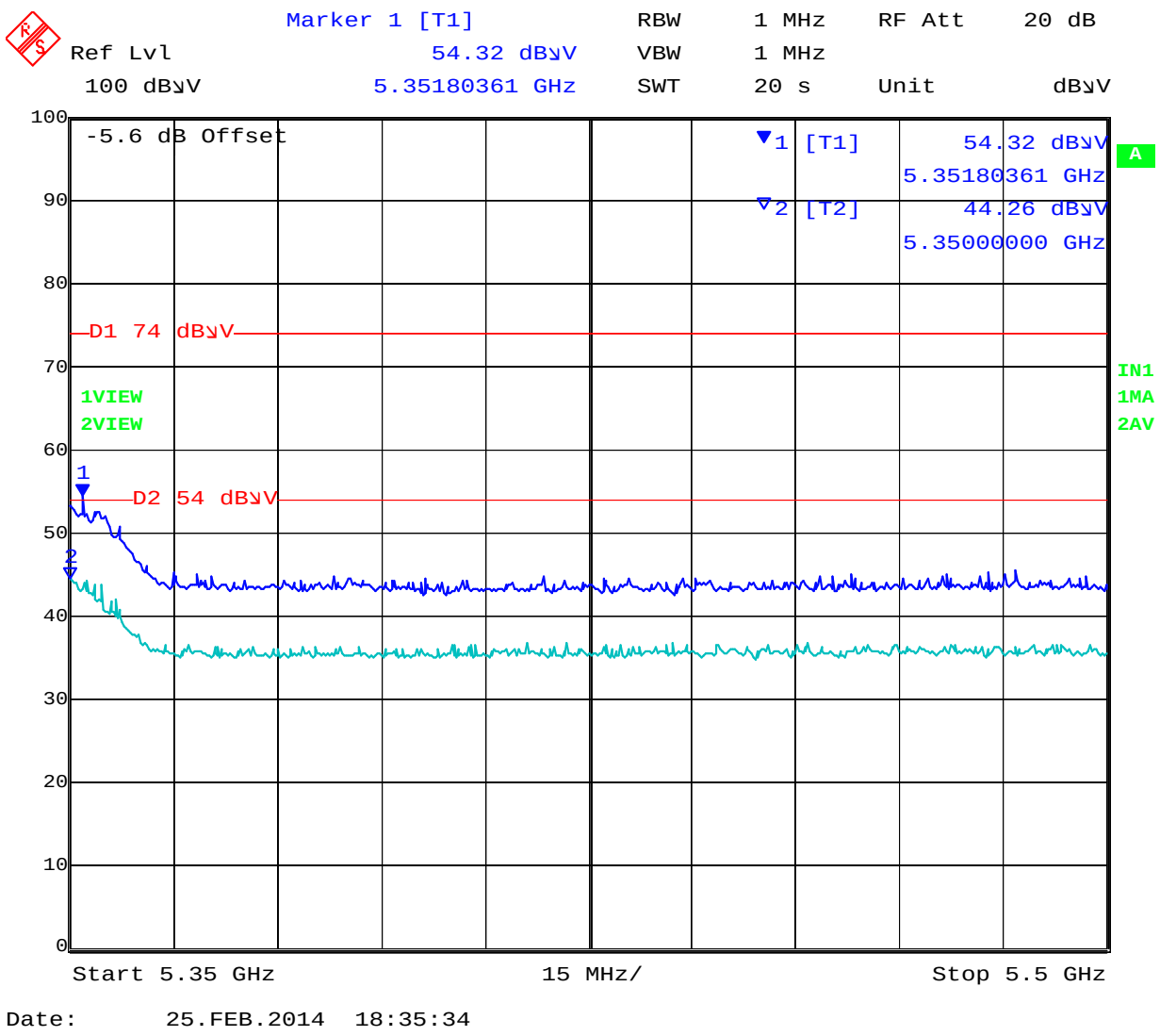
802.11a 5320 Restricted Band-edge



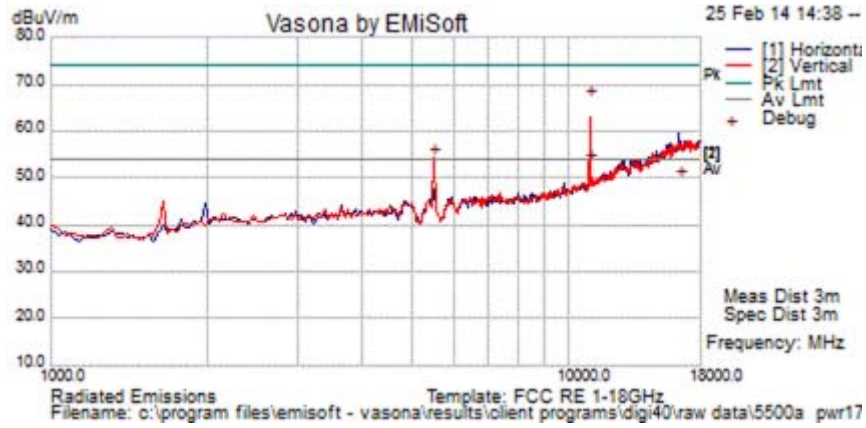
802.11n HT-20 5320 Restricted Band-edge



802.11n HT-40 5310 Restricted Band-edge



Test Freq.	5500 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	19
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	17	**Press. (mBars)**	1002
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduction to meet Limits		

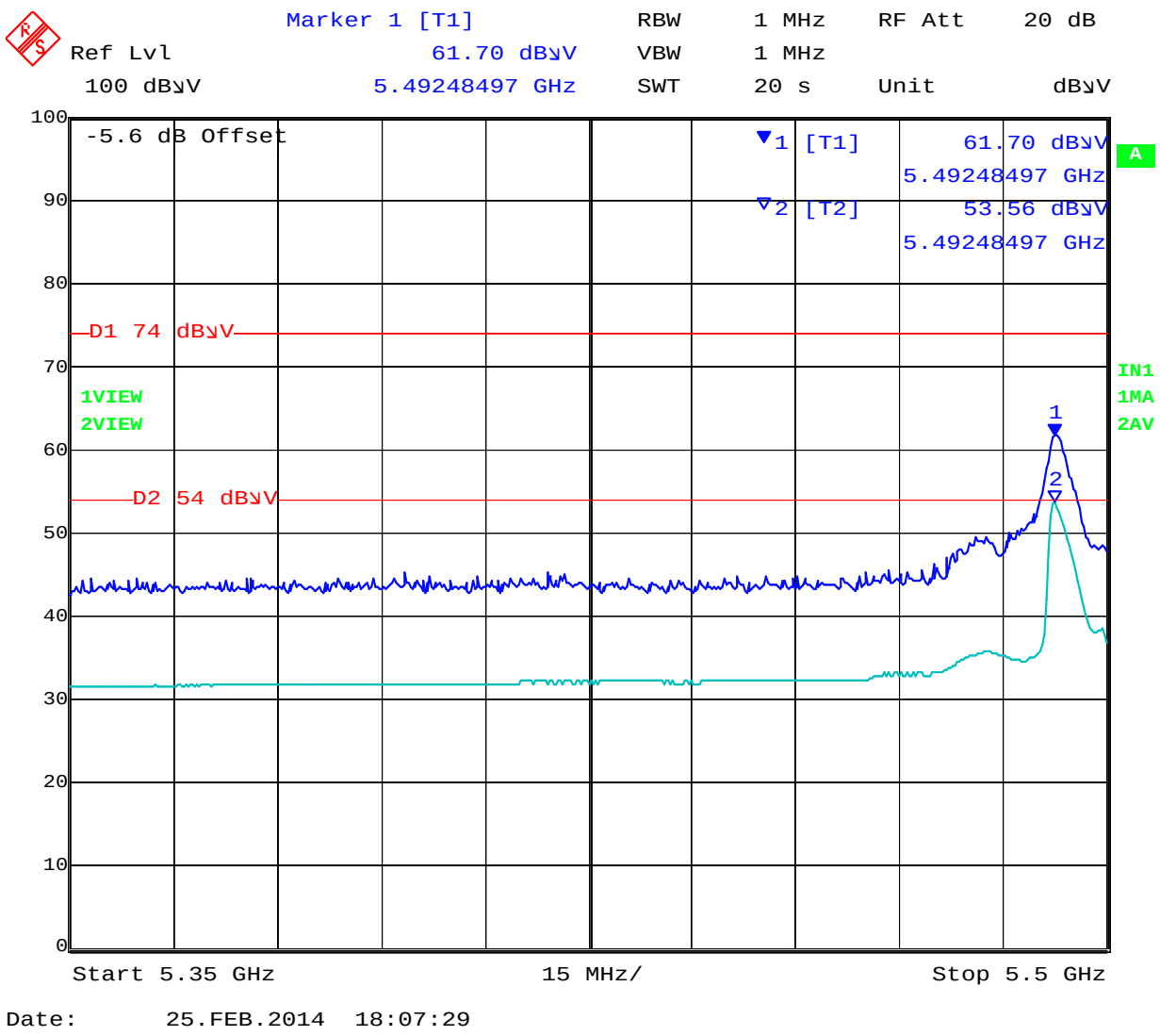


Formally measured emission peaks

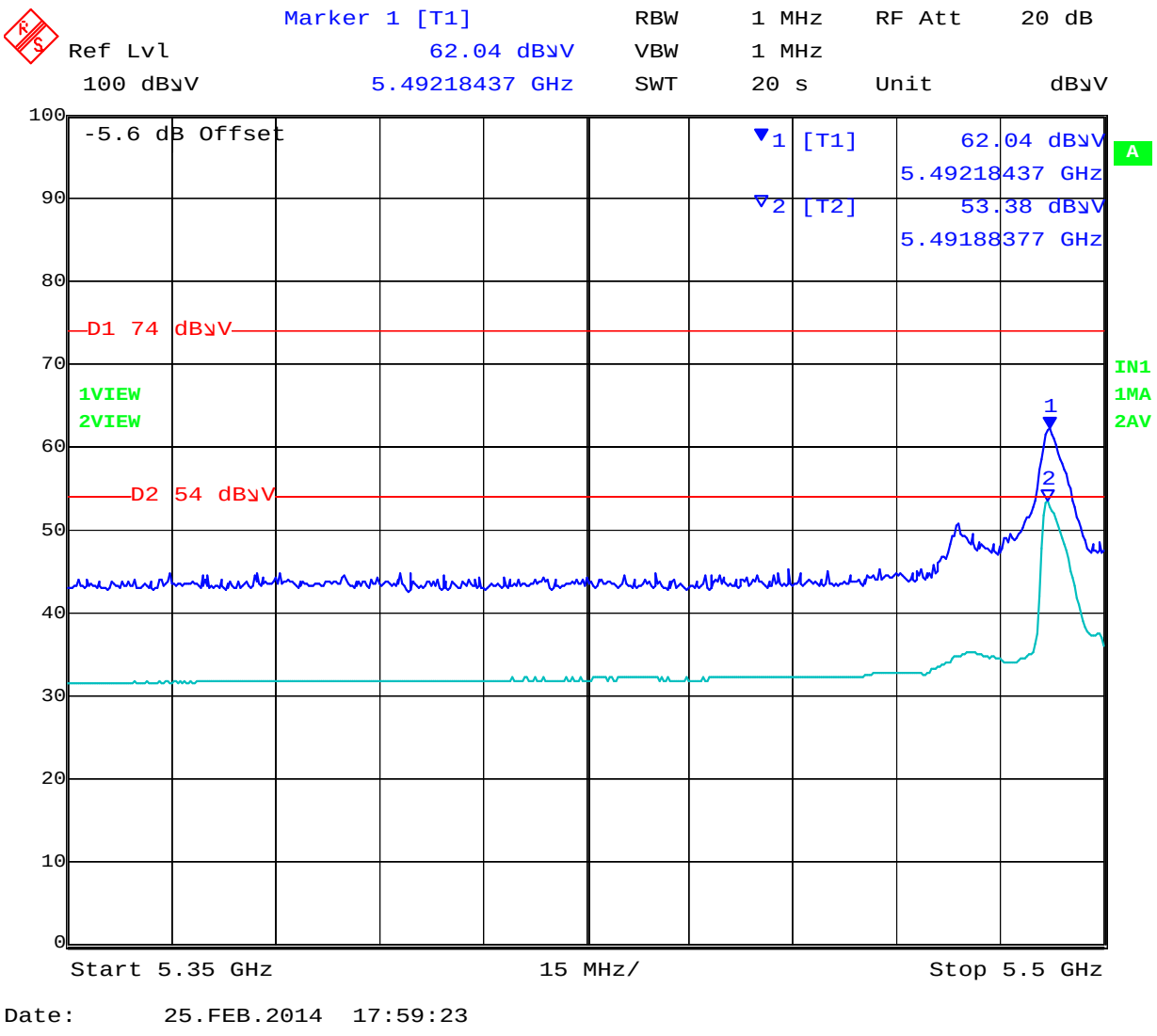
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
11000.471	54.6	9.1	3.1	66.8	Peak	V	131	318	74.0	-7.2	Pass	RB
11000.555	40.9	9.1	3.1	53.1	Average	V	131	318	54.0	-0.9	Pass	RB
16366.481	27.8	12.0	9.7	49.5	Average	H	106	333	54.0	-4.6	Pass	Noise Floor
5496.99399	50.7	6.1	-2.5	54.3	Peak [Scan]	V						FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

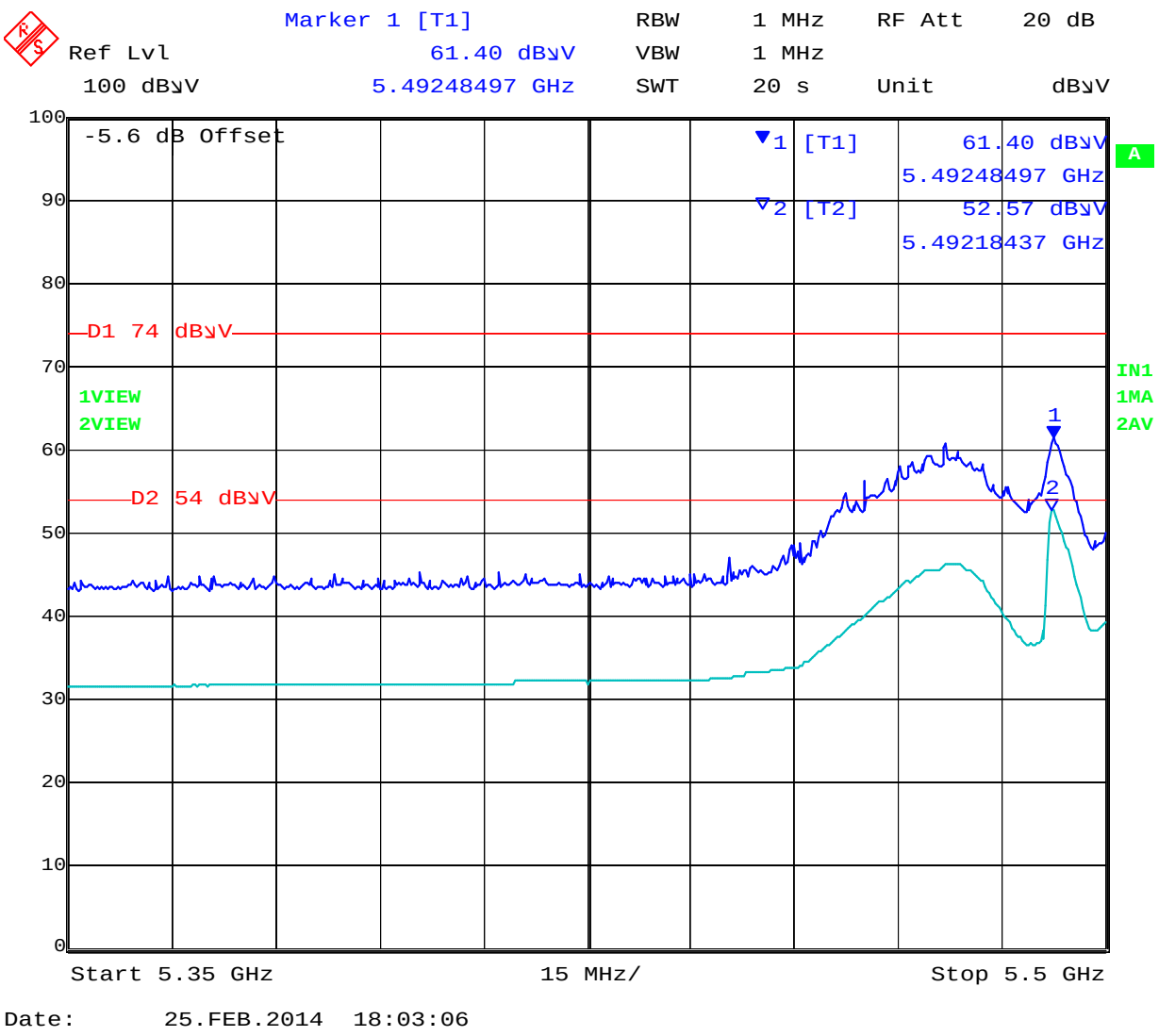
802.11a 5500 Restricted Band-edge



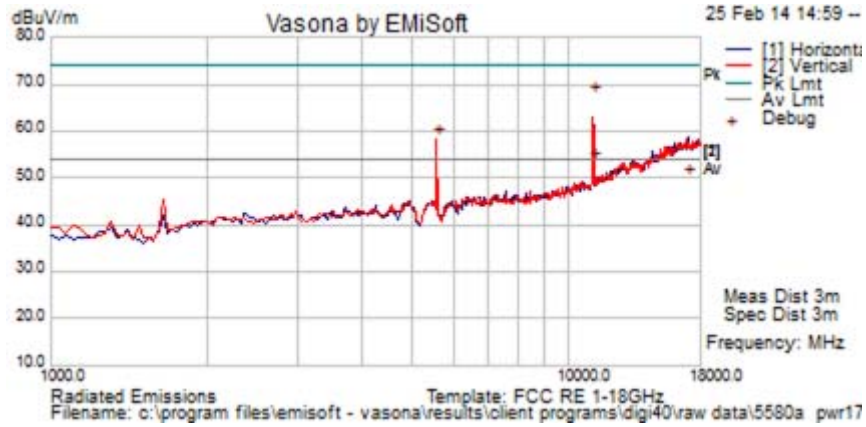
802.11n HT-20 5500 Restricted Band-edge



802.11n HT-40 5510 Restricted Band-edge



Test Freq.	5580 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	19
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	18	**Press. (mBars)**	1002
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduction to meet Limits		

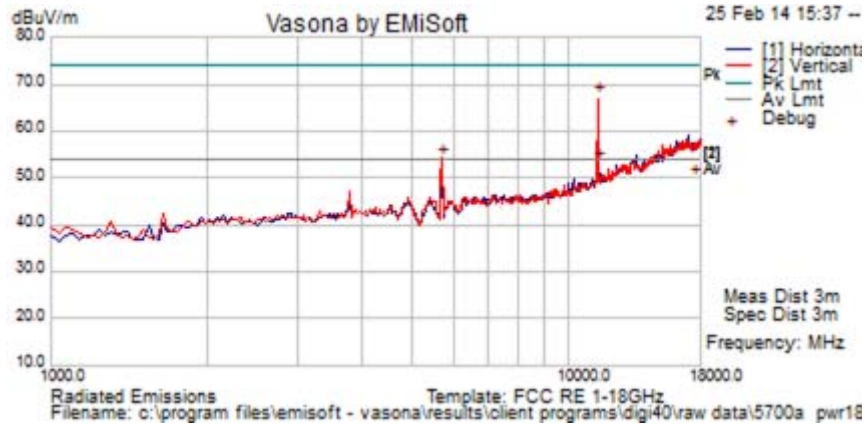


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
11160.54	54.8	9.2	3.4	67.4	Peak	V	138	326	74.0	-6.6	Pass	RB
11160.54	40.9	9.2	3.4	53.5	Average	V	138	326	54.0	-0.5	Pass	RB
17080.781	27.7	12.5	9.9	50.1	Average	H	105	355	54.0	-4.0	Pass	Noise Floor
5565.13	54.8	6.1	-2.6	58.4	Peak [Scan]	V						FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

Test Freq.	5700 MHz	**Engineer**	JMH
Variant	802.11a; 6 Mbs	**Temp (ºC)**	19
Freq. Range	1000 MHz - 18000 MHz	**Rel. Hum.(%)**	32
Power Setting	17	**Press. (mBars)**	1002
Antenna	compacted balanced dipole x2	**Duty Cycle (%)**	100
Test Notes 1	Dual Port Module		
Test Notes 2	Power Reduction to meet Limits		



Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
11400.7	54.4	9.4	3.8	67.6	Peak.	V	138	344	74.0	-6.4	Pass	RB
11400.7	40.2	9.4	3.8	53.4	Average	V	138	344	54.0	-0.7	Pass	RB
17449.666	27.3	12.4	10.2	49.8	Average	V	104	354	54.0	-4.2	Pass	Noise Floor
5701.40281	50.5	6.2	-2.5	54.2	Peak [Scan]							FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

6.1.2.5. Digital Emissions (30M-1 GHz)

FCC, Part 15 Subpart C §15.205/ §15.209
Industry Canada RSS-210 §2.2

Test Procedure

Testing 30M-1 GHz was performed in a 3-meter anechoic chamber using a CISPR compliant receiver. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. To further maximize emissions the receive antenna was varied between 1 and 4 meters. The emissions are recorded with receiver in peak hold mode. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed. The anechoic chamber test set-up is identified in Section 6 Test Set-Up Photographs.

The EUT had two methods of powering on ac/dc converter and Power over Ethernet (POE). Both modes were tested for emissions below 1GHz.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

$$FS = R + AF + CORR$$

where:

FS = Field Strength
R = Measured Receiver Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain

For example:
Given a Receiver input reading of 51.5dBμV; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

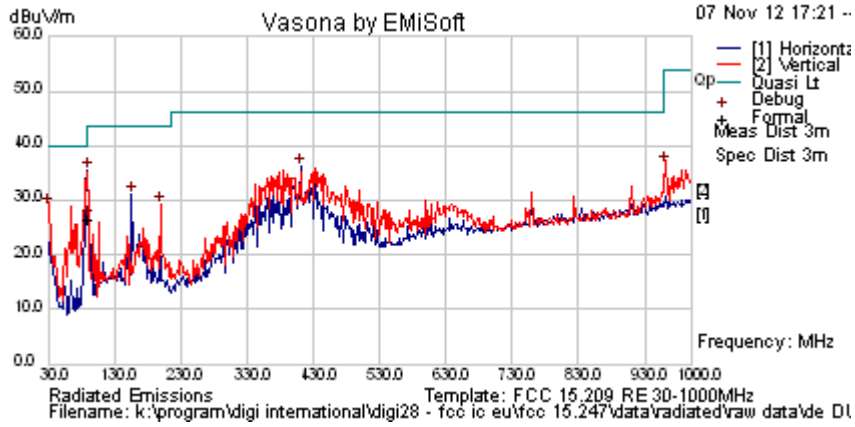
FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100μV/m
48 dBμV/m = 250μV/m

Test Freq.	2437 MHz	**Engineer**	JMH
Variant	Digital Emissions	**Temp (ºC)**	26
Freq. Range	30 MHz - 1000 MHz	**Rel. Hum.(%)**	38
Power Setting	NA	**Press. (mBars)**	1000
Antenna	PC.11		
Test Notes 1	Dual Port Module		
Test Notes 2			



Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
89.431	55.2	4.0	-24.0	35.2	Peak [Scan]	H	216	0	43.5	-8.3	Pass	
411.025	45.0	5.5	-14.4	36.1	Peak [Scan]	H	98	360	46	-9.9	Pass	
30.939	35.6	3.5	-10.6	28.6	Peak [Scan]	V	98	360	40	-11.4	Pass	
156.378	45.3	4.4	-18.9	30.8	Peak [Scan]	H	98	360	43.5	-12.7	Pass	
199.149	42.8	4.6	-18.4	29.0	Peak [Scan]	V	98	360	43.5	-14.5	Pass	
89.431	46.7	4.0	-24.0	26.7	Quasi Max	H	216	0	43.5	-16.9	Pass	
961.430	36.3	7.3	-7.1	36.5	Peak [Scan]	V	98	360	54	-17.5	Pass	

Legend:	DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency
	NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band

Specification

Limits

§15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

§15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

§15.209 (a) and **RSS-Gen §2.2** Limit Matrix

Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Laboratory Measurement Uncertainty for Radiated Emissions

Measurement uncertainty	+5.6/ -4.5 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions'	0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312

6.1.3. AC Wireline Conducted Emissions (150 kHz – 30 MHz)

FCC, Part 15 Subpart C §15.207
Industry Canada RSS-Gen §7.2.2

Test Procedure

The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

Measurement Results for AC Wireline Conducted Emissions (150 kHz – 30 MHz)

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Not required - EUT is power by DC only.

Specification

Limit

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μΩ line impedance stabilization network (LISN), see §15.207 (a) matrix below. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

RSS-Gen §7.2.2
The radio frequency voltage that is conducted back into the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table below. The tighter limit applies at the frequency range boundaries.

§15.207 (a) and **RSS-Gen §7.2.2** Limit Matrix
The lower limit applies at the boundary between frequency ranges

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency

Laboratory Measurement Uncertainty for Conducted Emissions

Measurement uncertainty	±2.64 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-EMC-01 'Measurement of Conducted Emissions'	0158, 0184, 0287, 0190, 0293, 0307

6.1.4. DFS (Dynamic Frequency Selection)

6.1.4.1. Test Procedure and Setup

FCC, Part 15 Subpart C §15.407(h)
FCC 06-96 Memorandum Opinion and Order
Industry Canada RSS-210 A9.4

5.1.9.1.1. Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	**Value (see note)**
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna	

5.1.9.1.2. DFS Response requirement values

Parameter	**Value**
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 80% of the 99% power bandwidth See Note 3.

Note 1: The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the *Burst*.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar *Burst* generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate *Channel* changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

5.1.9.1.3. Radar Test Waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

A minimum of 30 unique waveforms are required for each of the short pulse radar types 2 through 4. For short pulse radar type 1, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for short pulse radar types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per *Burst*	Number of *Bursts*	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse radar test signal. If more than 30 waveforms are used for the Long Pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms.

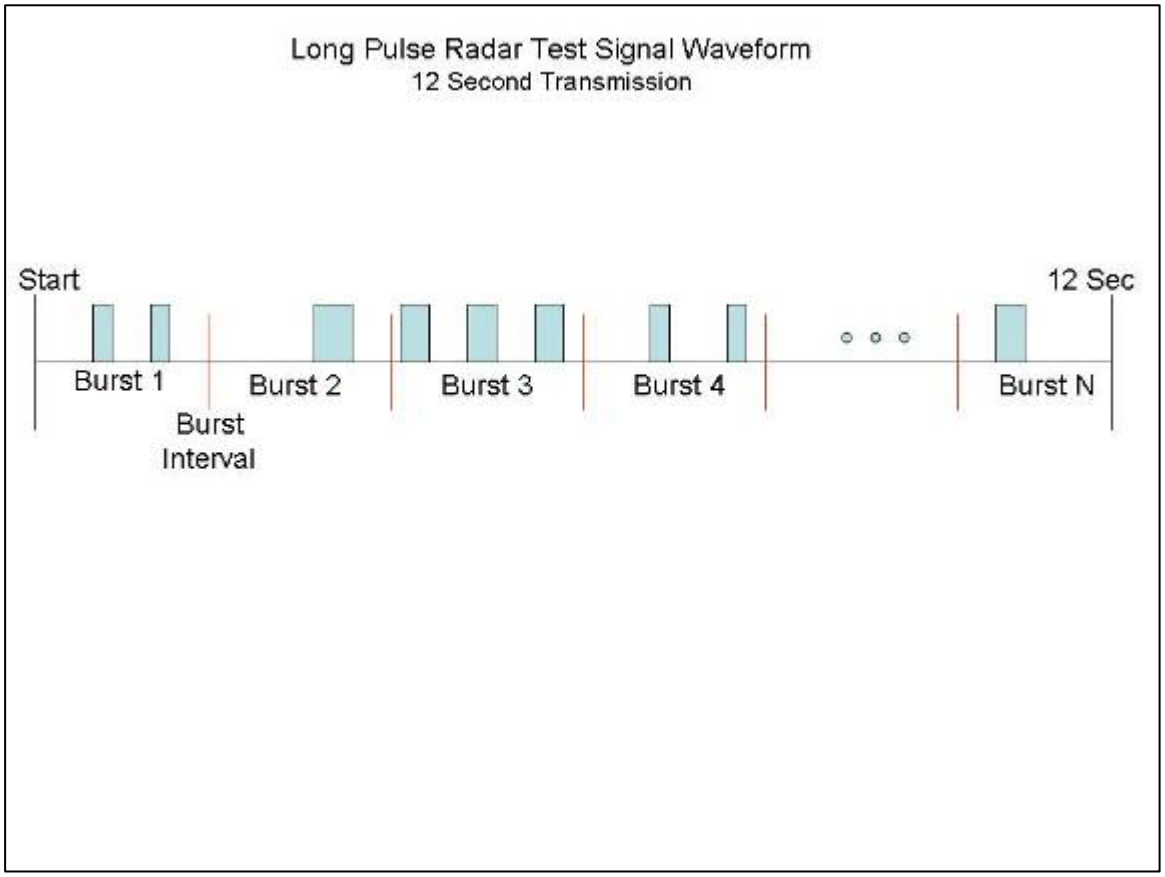
Each waveform is defined as follows:

1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 *Bursts* in the 12 second period, with the number of *Bursts* being randomly chosen. This number is *Burst Count*.
3) Each *Burst* consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each *Burst* within the 12 second sequence may have a different number of pulses.
4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a *Burst* will have the same pulse width. Pulses in different *Bursts* may have different pulse widths.
5) Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a *Burst* will have the same chirp width. Pulses in different *Bursts* may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
6) If more than one pulse is present in a *Burst*, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a *Burst*, the time between the first and second pulses is chosen independently of the time between the second and third pulses.
7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to *Burst_Count*. Each interval is of length (12,000,000 / *Burst_Count*) microseconds. Each interval contains one *Burst*. The start time for the *Burst*, relative to the beginning of the interval, is between 1 and [(12,000,000 / *Burst_Count*) – (Total *Burst* Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each *Burst* is chosen independently.

A representative example of a Long Pulse radar test waveform:

1) The total test signal length is 12 seconds.
2) 8 *Bursts* are randomly generated for the *Burst_Count*.
3) *Burst* 1 has 2 randomly generated pulses.
4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
5) The PRI is randomly selected to be at 1213 microseconds.
6) *Bursts* 2 through 8 are generated using steps 3 – 5.
7) Each *Burst* is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, *Burst* 1 is randomly generated (1 to 1,500,000 minus the total *Burst* 1 length + 1 random PRI interval) at the 325,001 microsecond step. *Bursts* 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. *Burst* 2 falls in the 1,500,001 – 3,000,000 microsecond range).

Graphical representation of the Long Pulse radar Test Waveform.



5.1.9.1.4. Frequency Hopping Radar Test Waveform

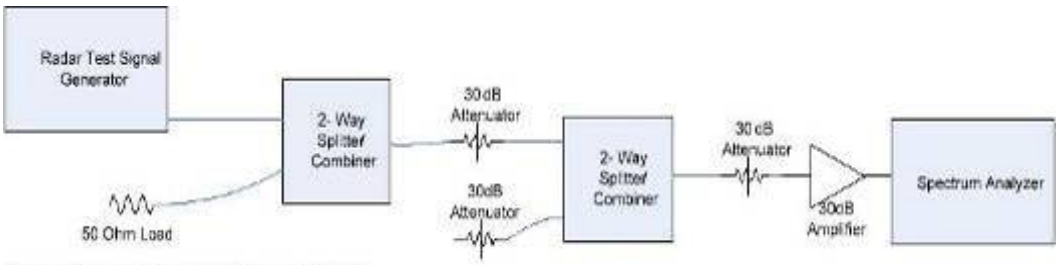
Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	.333	300	70%	30

For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

5.1.9.1.5. Radar Waveform Calibration

The following equipment setup was used to calibrate the conducted Radar Waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero span (Time Domain) mode at the frequency of the Radar Waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz.
The signal generator amplitude was set so that the power level measured at the spectrum analyzer was -61dBm (Ref Section 5.1). The 30dB amplifier gain was entered as an amplitude offset on the spectrum analyzer.

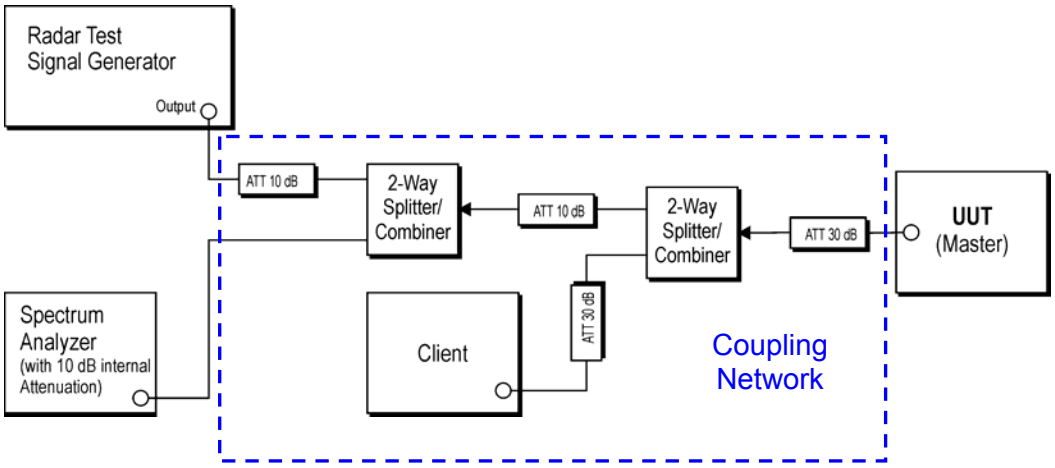


Conducted Calibration Setup

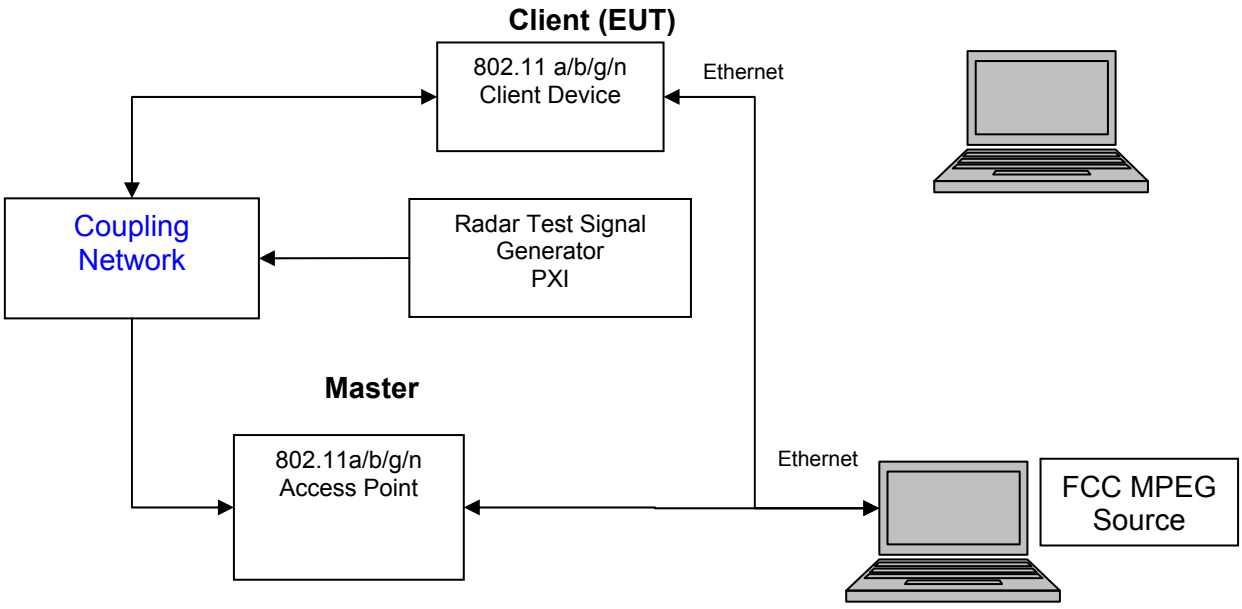
5.1.9.1.6. Block Diagram(s) of Test Setup

Block Diagram(s) of Test Setup

Setup for Conducted Measurements where the EUT is the Master with injection of Radar Test Waveforms at the Master.



Support Equipment Configuration



The EUT is a Client Device without radar detection.

Applicability of DFS Requirements Prior to Use of a Channel

(Ref Table 1 of FCC 06-96)

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Yes	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Applicability of DFS requirements during normal operation

(Ref Table 2 of FCC 06-96)

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

6.2. Dynamic Frequency Selection (DFS) Test Results

6.2.1. In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

FCC §15.407(h)(2)(iii)

The steps below define the procedure to determine the above mentioned parameters when a radar Burst with a level equal to the DFS Detection Threshold is generated on the Operating Channel of the U-NII device.

A U-NII device operating as a Client Device will associate with the EUT (Master). The requisite MPEG video file ("TestFile.mpg" available on the NTIA website at the following link http://ntiacsd.ntia.doc.gov/dfs/) is streamed from the master device (AP) to the client.

Channel Closing Transmission Time - Measurement

A Type 1 waveform was introduced to the EUT, from which a 12 second transmission record was digitally captured, collecting nearly 250M samples of data, which included in excess of 600 ms of pre-trigger data. This Type 1 waveform had an integral marker built into its construction, marking the start of the radar waveform play, which directly triggered the PXI digitizer's data capture via the PXI backplane trigger bus.

The test system was set-up to capture all transmission data for access point events above a threshold level of -50 dBm. The test equipment time stamps all captured events with respect to T0 (zero time indicating the start of the measurements sequence) starting the 612.1 ms pre-trigger period followed by the radar type 1 burst period.

Radar (Type 1) Pre-trigger period 612.1 ms

Type 1 burst period 25.70 ms

(The period of the 18 pulse burst includes [18 pulses *1.428mS PRI] = 25.704 ms. Then add 1 µs pulse width for the final pulse.)

Total 637.8 ms

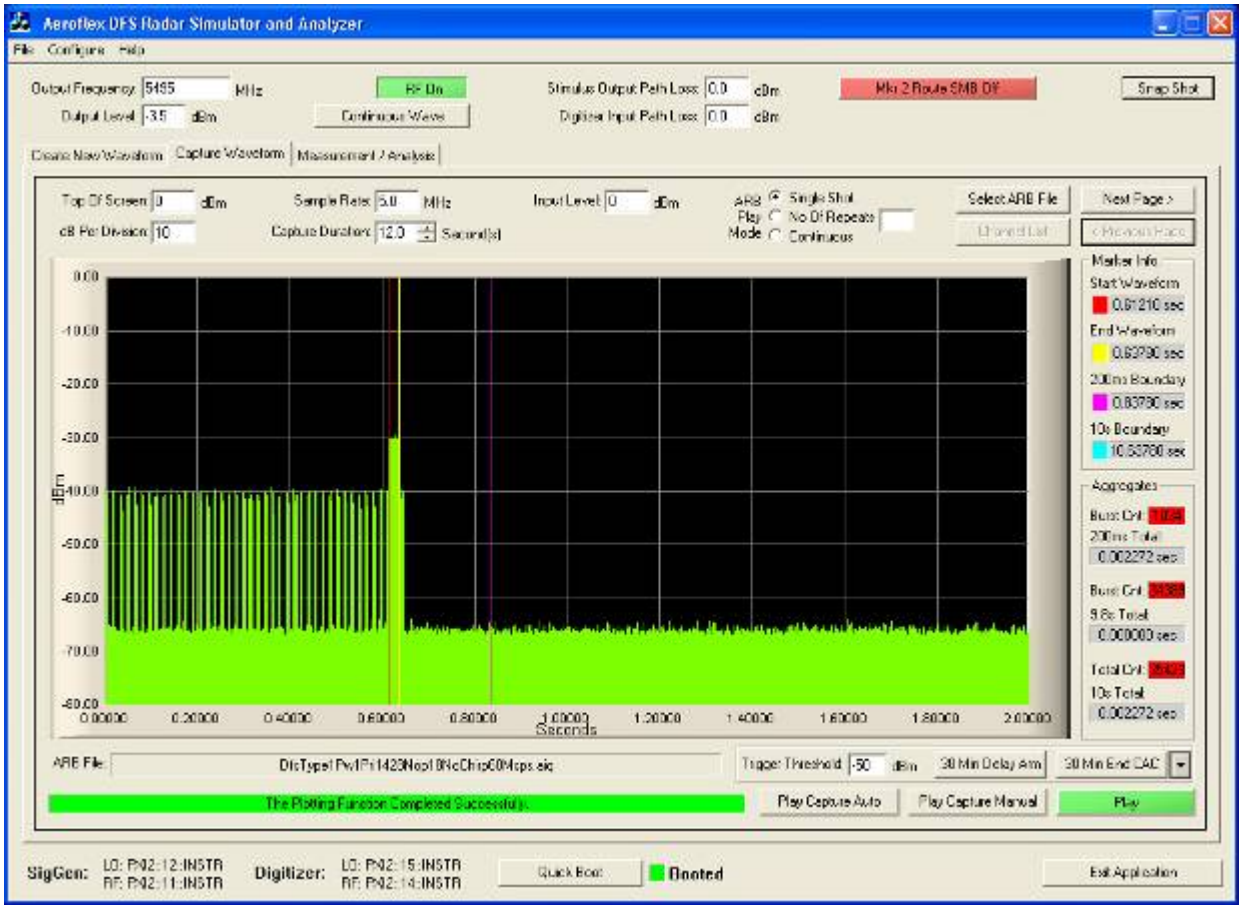
Channel Closing Transmission Time starts immediately after the last radar pulse is transmitted i.e. 637.8 ms after the start of the trace capture period.

Therefore, pulses seen after this 637.8 ms boundary are identified and totaled to provide an aggregate total of transmissions in order to determine whether the EUT is compliant with the Channel Closing Transmission Time requirements as described in MO&O FCC 06-96. In this case, it was found that an aggregate total of 0.00 ms of transmission time accrued. This value is found at the right hand side at the foot of the following plot (10s Total).

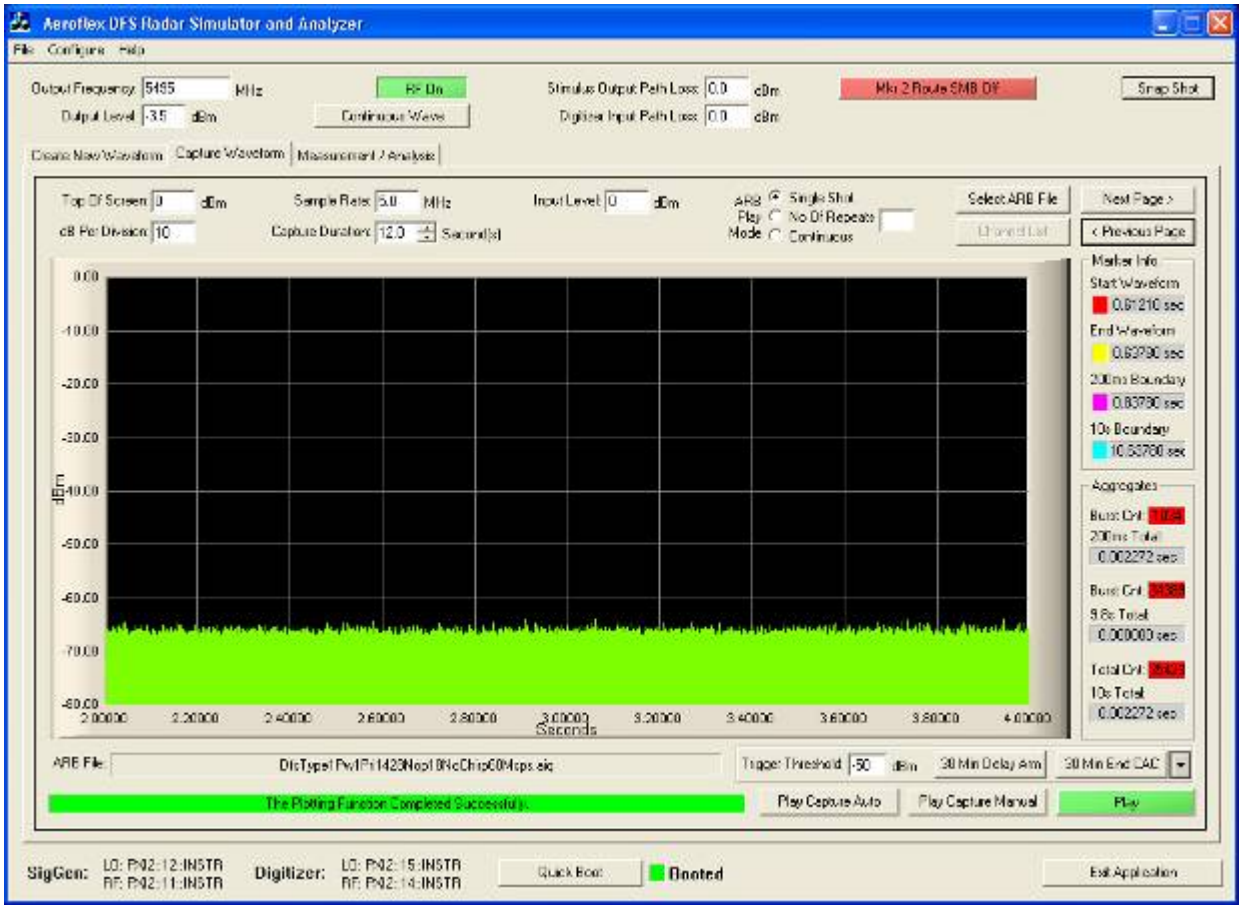
Channel Closing Transmission Time
5,500 MHz (802.11a) = 2.272 mSecs (limit 260 mSecs)

Channel Move Time
5,500MHz (802.11a) = 0.022 Secs (limit 10 Secs)

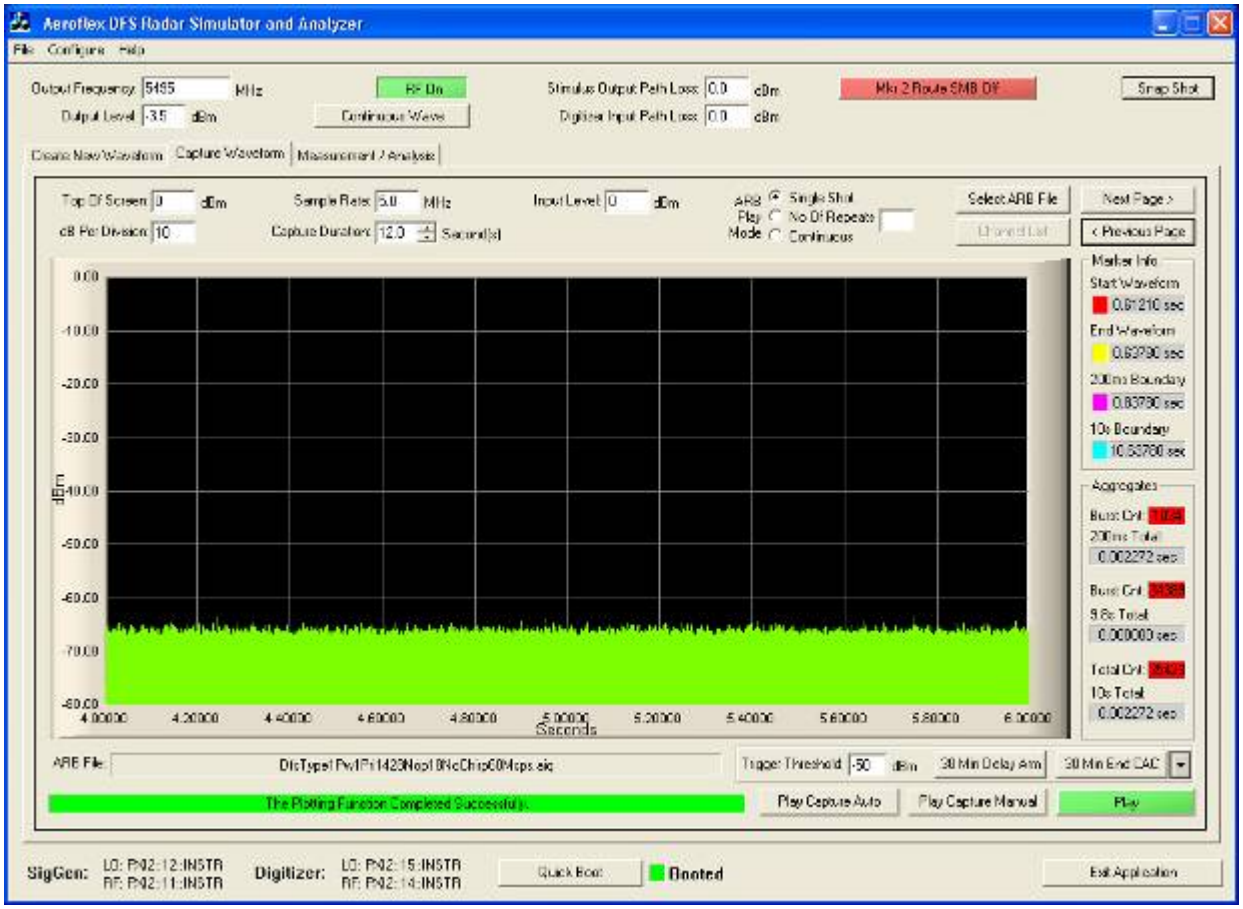
Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 0 to 2 seconds



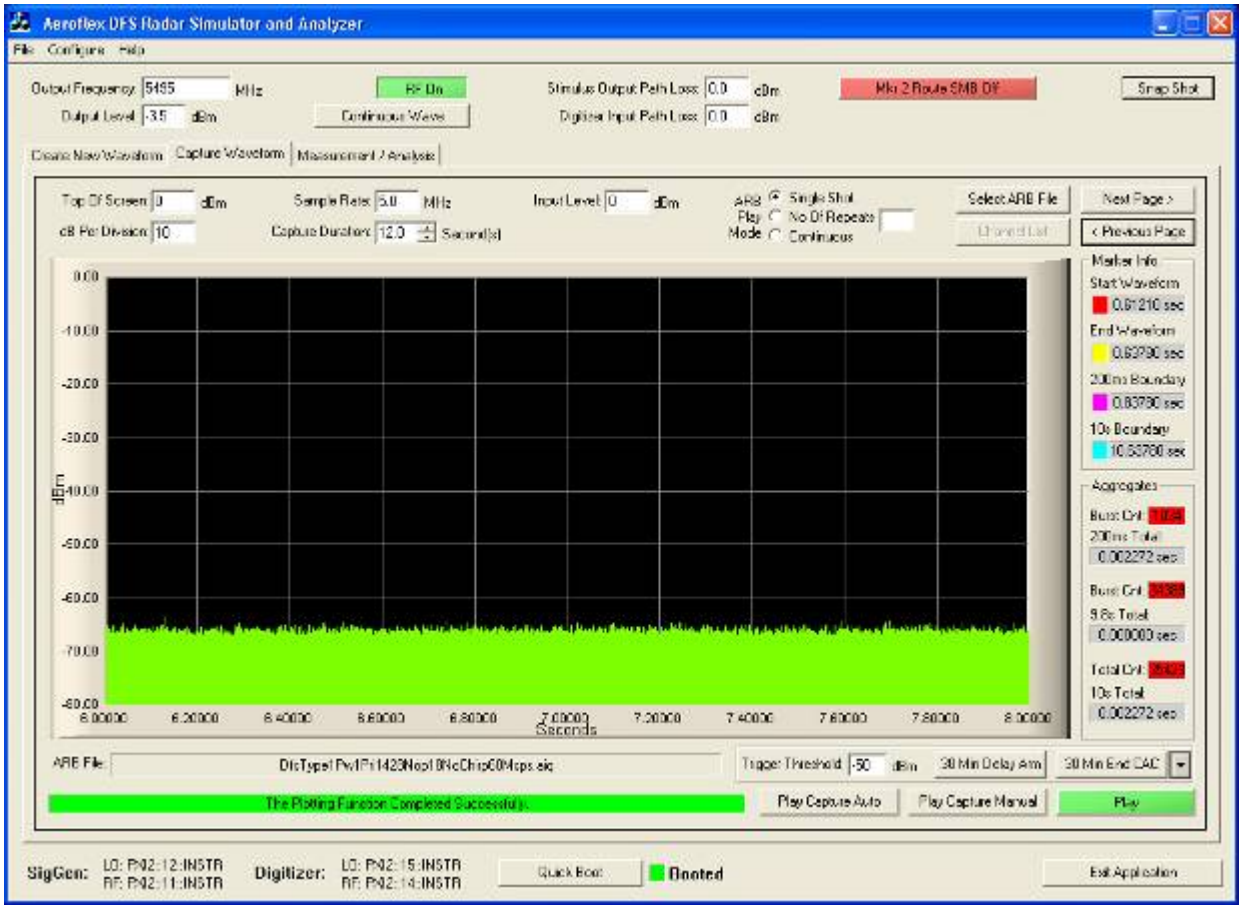
Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 2 to 4 seconds



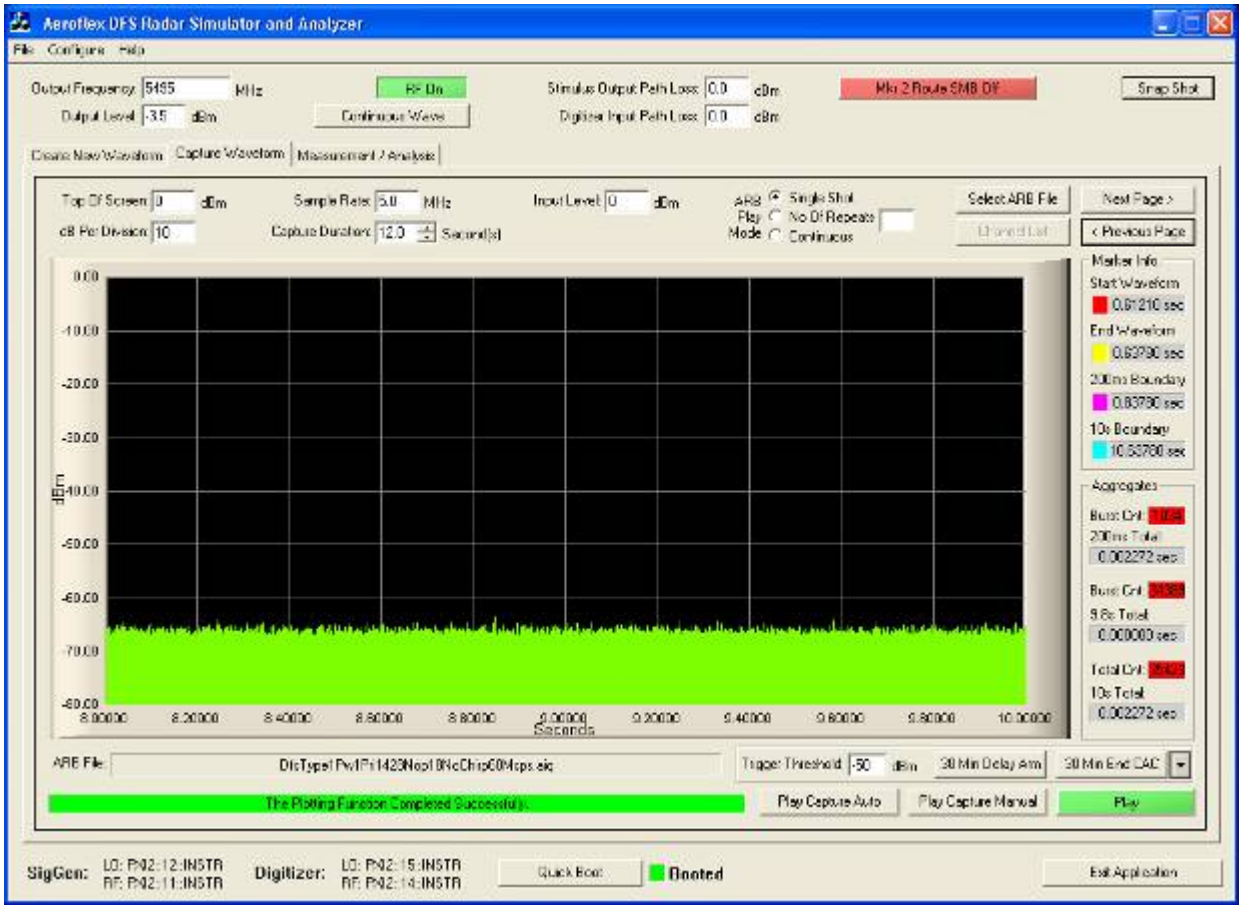
Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 4 to 6 seconds



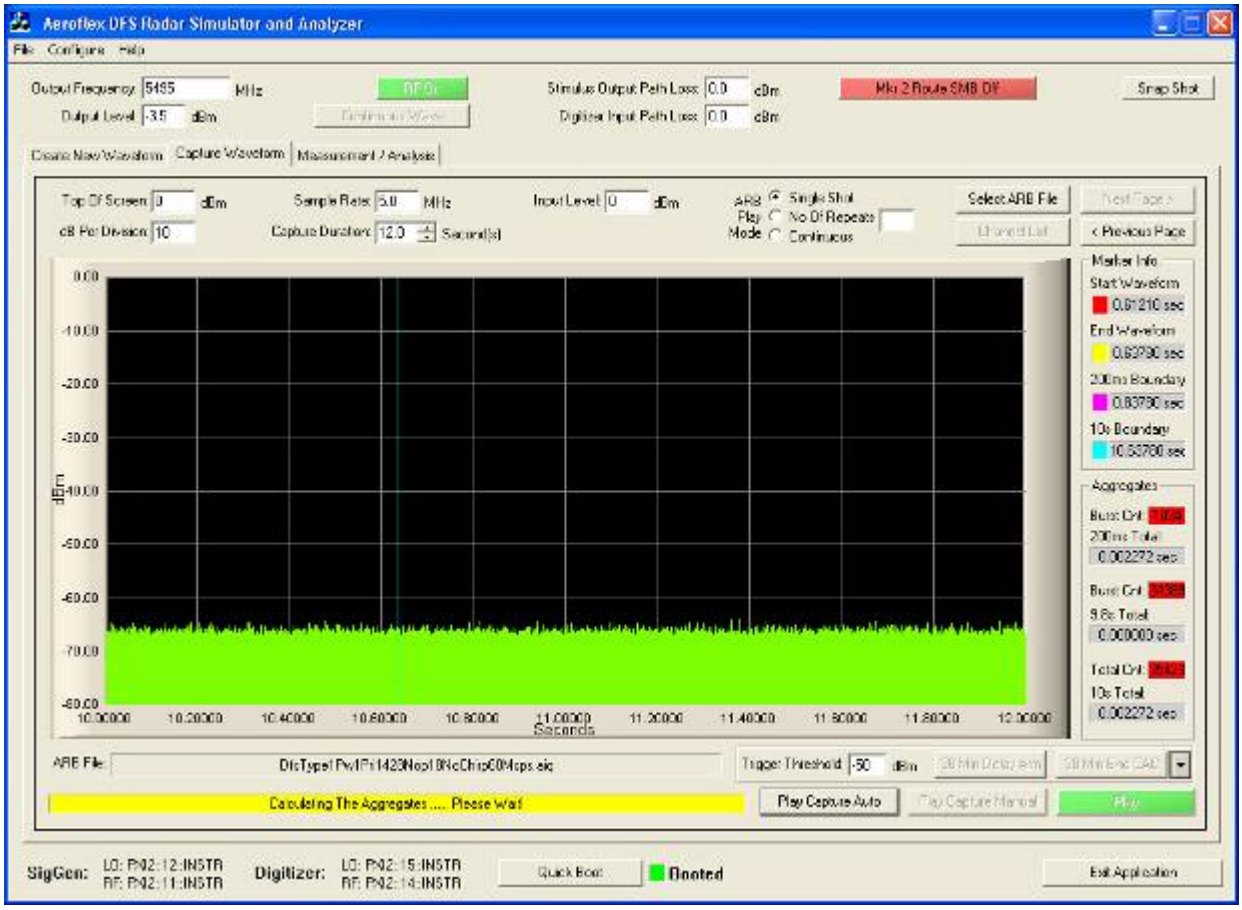
Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 6 to 8 seconds



Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 8 to 10 seconds



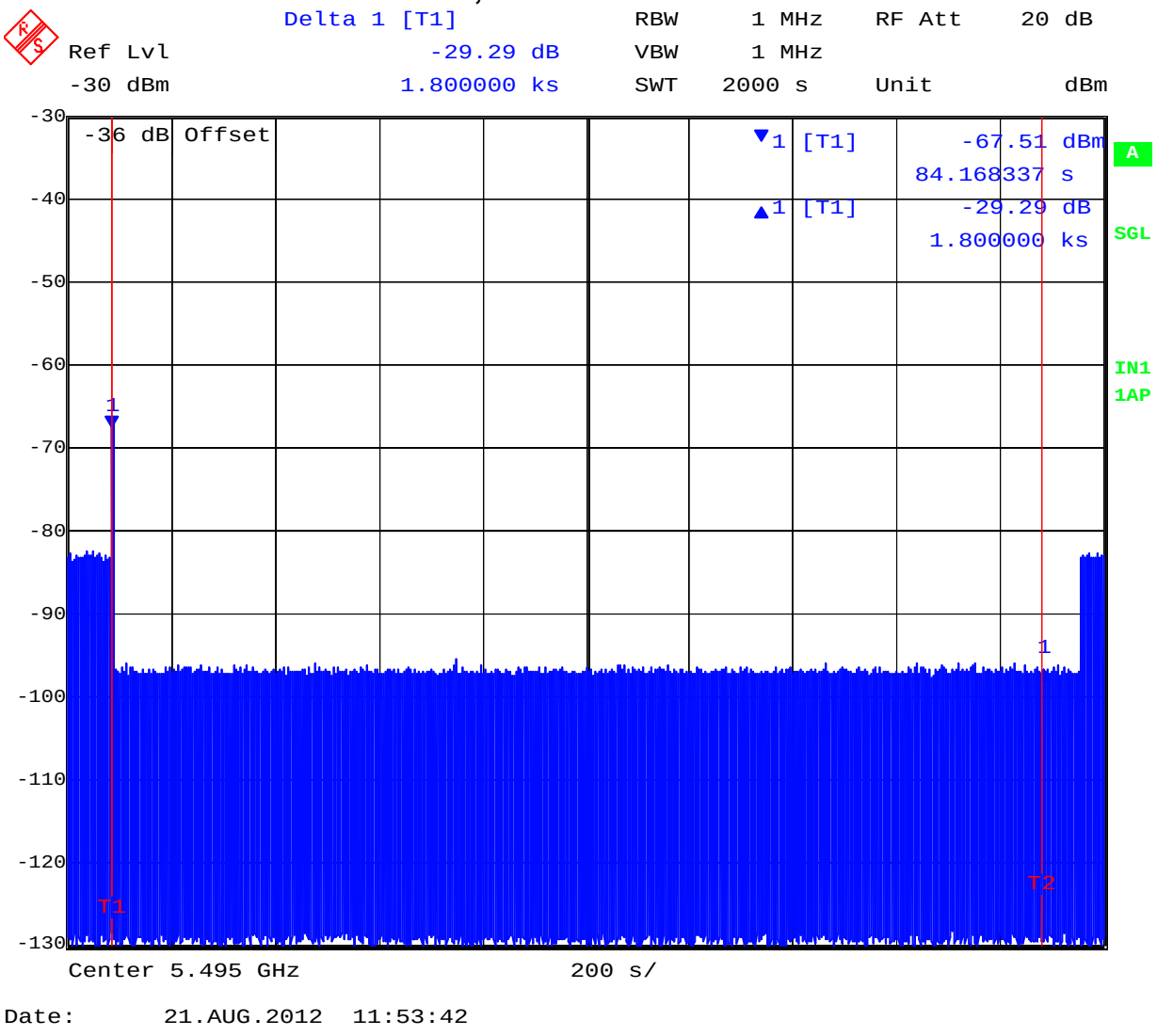
Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 10 to 12 seconds



30 Minute Non-Occupancy Period

The EUT is monitored for more than 30 minutes following the channel close/move time to verify no transmissions resume on this Channel.

30 Minute Non-Occupancy Period Type 1 Radar
5,500MHz 802.11a



Measurement Uncertainty Time/Power

Measurement uncertainty	
- Time	4%
- Power	1.33dB

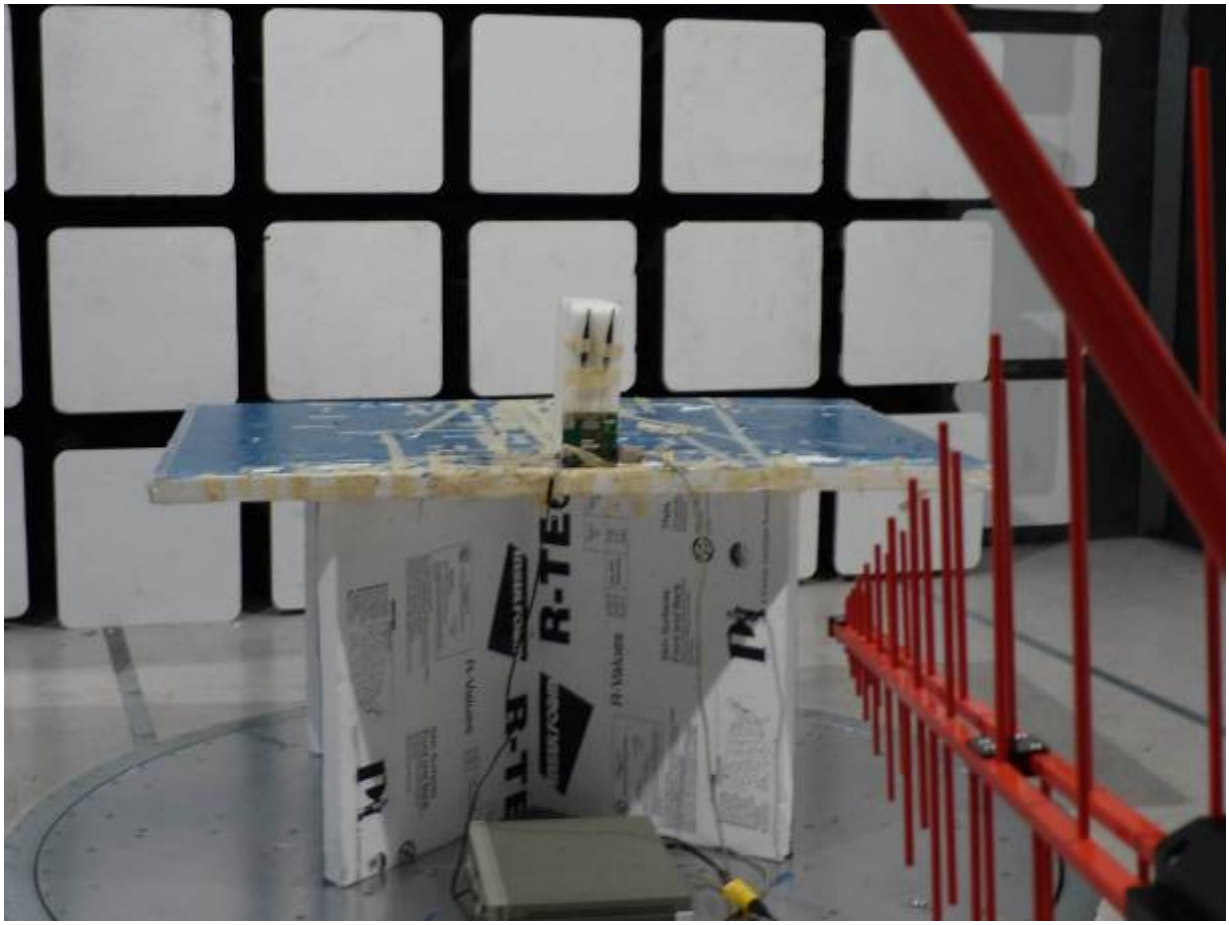
Traceability

Test Equipment Used
0072, 0083, 0098, 0116, 0132, 0158, 0313, 0314, 0193, 0223, 0252, 0253, 0251, 0256, 0328, 0329

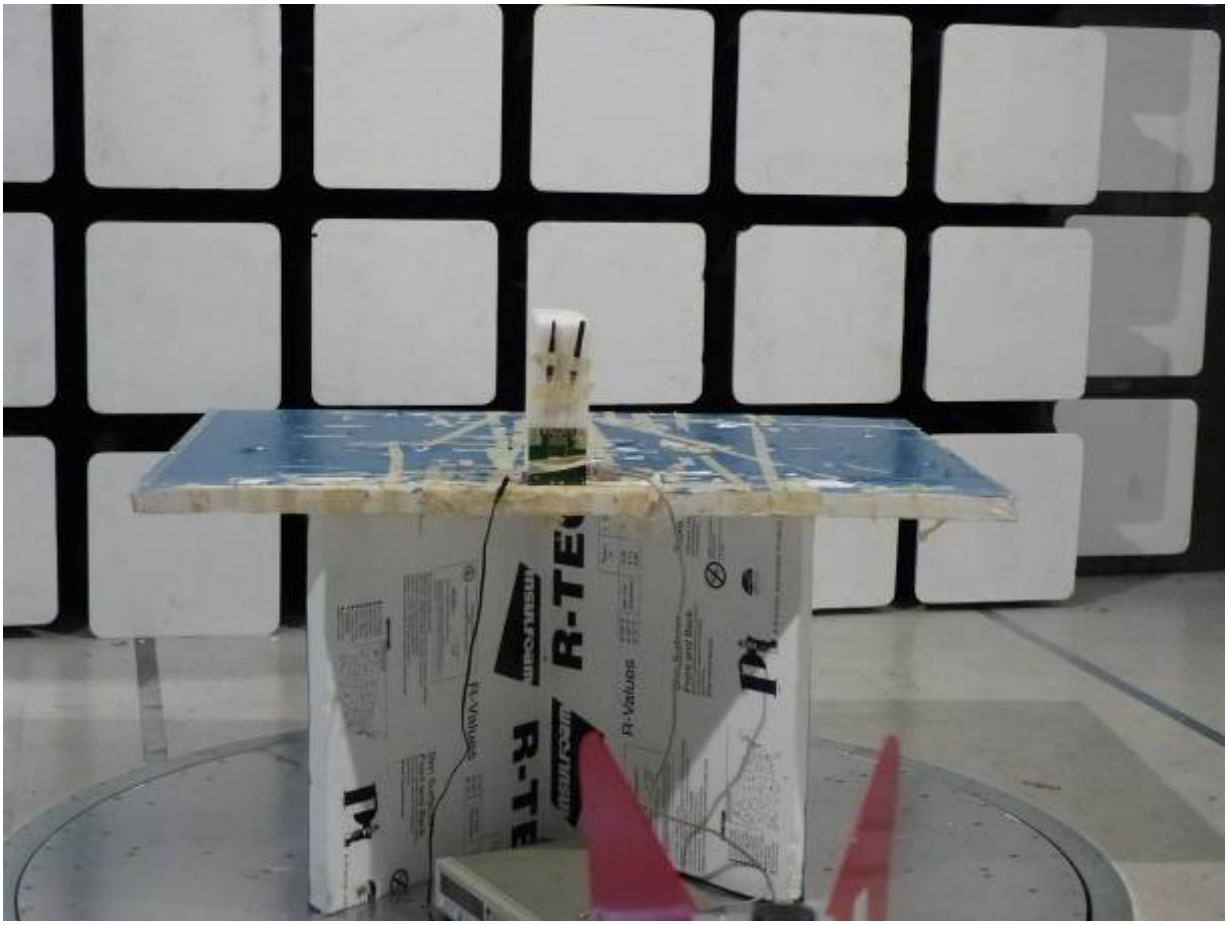
7. PHOTOGRAPHS

7.1. Conducted Test Setup

7.2. Test Setup - Digital Emissions below 1 GHz



7.3. Radiated Emissions Test Setup >1 GHz



7.4. Dual Band – Compact Balanced Dipole (emissions above 1 GHz)

8. TEST EQUIPMENT

9. Asset #	Instrument	Manufacturer	Model #	Serial #
0072	Signal Generator	Hewlett Packard	HP 83640A	2927A00105
0075	Environmental Chamber	Thermatron	SE-300-2-2	27946
0338	Antenna (30M-3GHz)	Sunol Sciences	JB3	A052907
0083	Coupler	Hewlett Packard	HP 87301D	3116A00389
0287	EMI Receiver	Rhode & Schwartz	ESIB 40	100201
0098	Oscilloscope	Hewlett Packard	54810A	US38100105
0335	Horn Antenna	The Electro-Mechanics Company	3117	00066580
0116	Power Sensor	Hewlett Packard	8485A	3318A19694
0117	Power Sensor	Hewlett Packard	8487D	3318A00371
0134	Amplifier	ComPower	PA-122	181910
0158	Barometer /Thermometer	Control Co.	4196	E2844
0193	EMI Receiver	Rhode & Schwartz	ESI 7	838496/007
0223	Power Meter	Hewlett Packard	HP EPM-442A	US37480256
0252	K-Cable	Megaphase	Sucoflex 104	Unknown
0253	K-Cable	Megaphase	Sucoflex 104	Unknown
0256	K-Cable	Megaphase	Sucoflex 104	Unknown
0251	K-Cable	Megaphase	Sucoflex 104	Unknown
0305	20M-2GHz Amplifier	ML	ML001	001
0310	2m SMA Cable	Micro-Coax	UFA210A-0-0787-3G03G0	209089-001
0312	3m SMA Cable	Micro-Coax	UFA210A-1-1181-3G0300	209092-001
0313	Coupler	Hewlett Packard	86205A	3140A01285
0314	30 dB N-Type Attenuator	ARRA	N944-30	1623
Dipole	20MHz-1GHz Dipole Antennas	EMCO	3121C	9009-505

APPENDIX

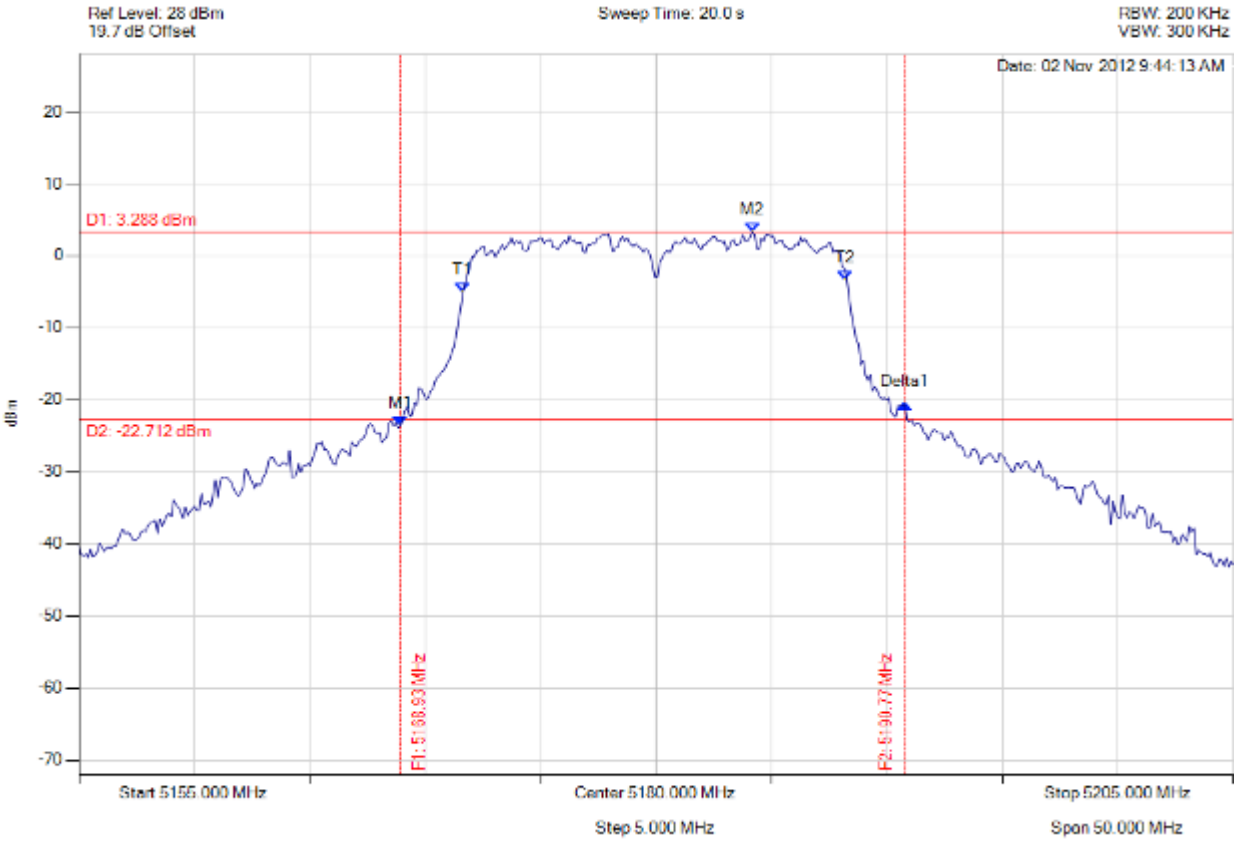
A. SUPPORTING INFORMATION

A.1. CONDUCTED TEST PLOTS

A.1.1. 26 dB & 99% Bandwidth

26 dB 99%

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

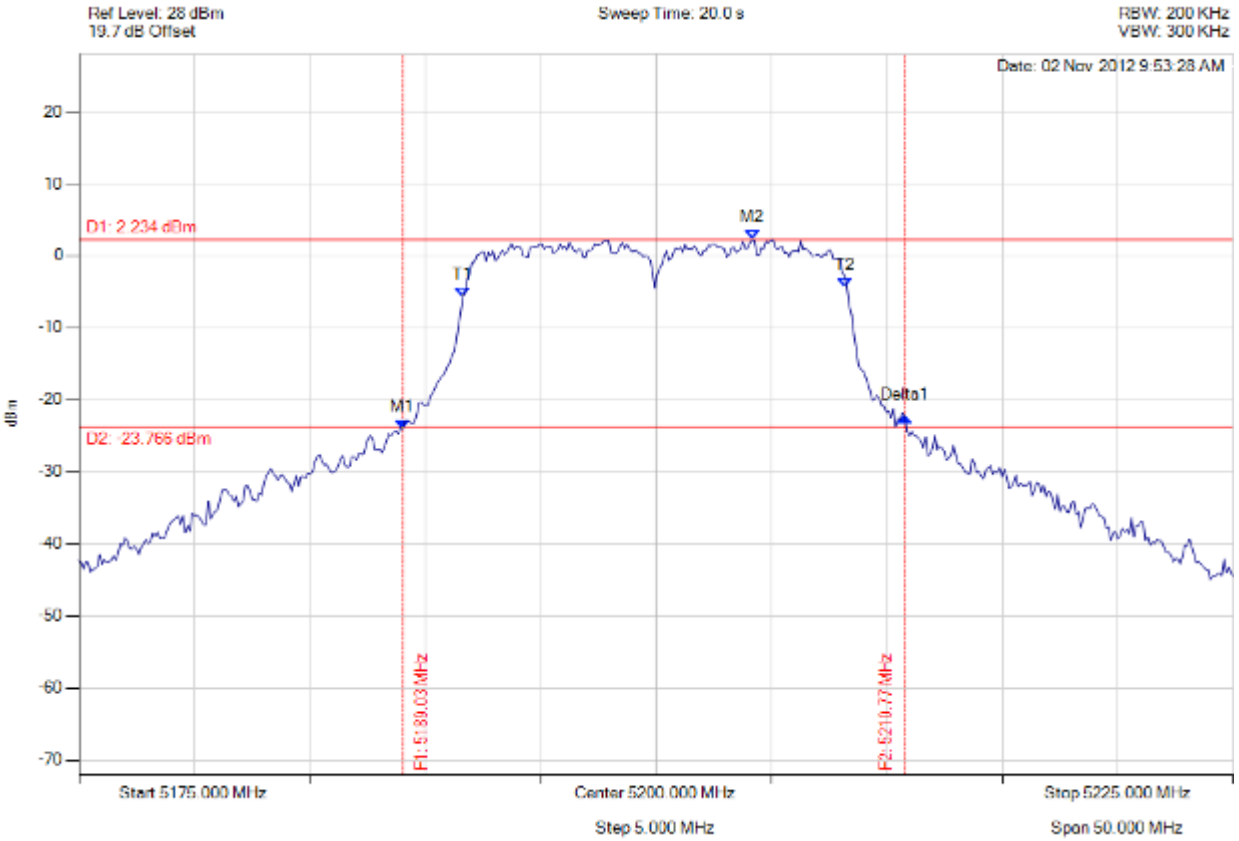


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5168.928 MHz : -23.627 dBm M2 : 5184.158 MHz : 3.288 dBm Delta1 : 21.844 MHz : 3.004 dB T1 : 5171.633 MHz : -5.111 dBm T2 : 5188.166 MHz : -3.423 dBm OBW : 16.633 MHz	Measured 26 dB Bandwidth: 21.844 MHz Measured 99% Bandwidth: 16.633 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

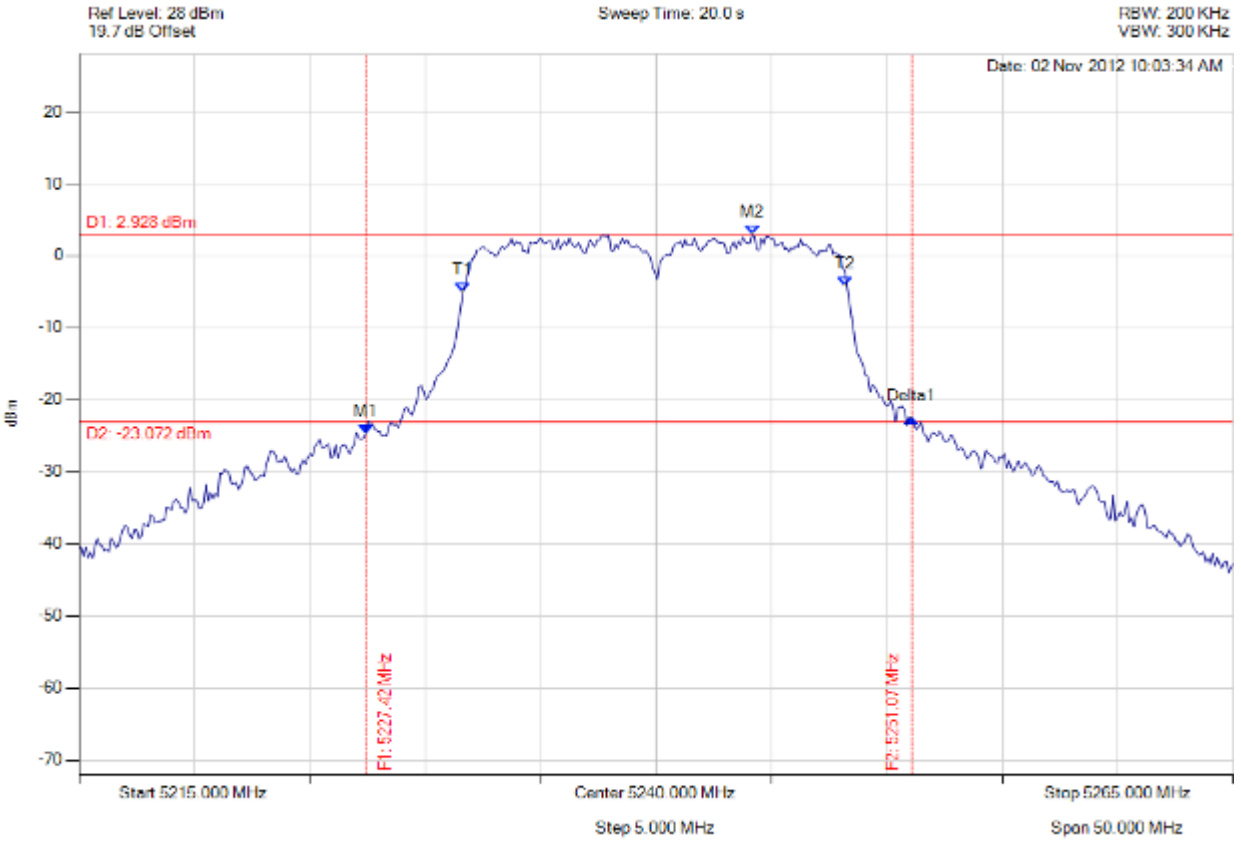


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5189.028 MHz : -24.050 dBm M2 : 5204.158 MHz : 2.234 dBm Delta1 : 21.743 MHz : 1.599 dB T1 : 5191.633 MHz : -5.691 dBm T2 : 5208.166 MHz : -4.400 dBm OBW : 16.633 MHz	Measured 26 dB Bandwidth: 21.743 MHz Measured 99% Bandwidth: 16.633 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

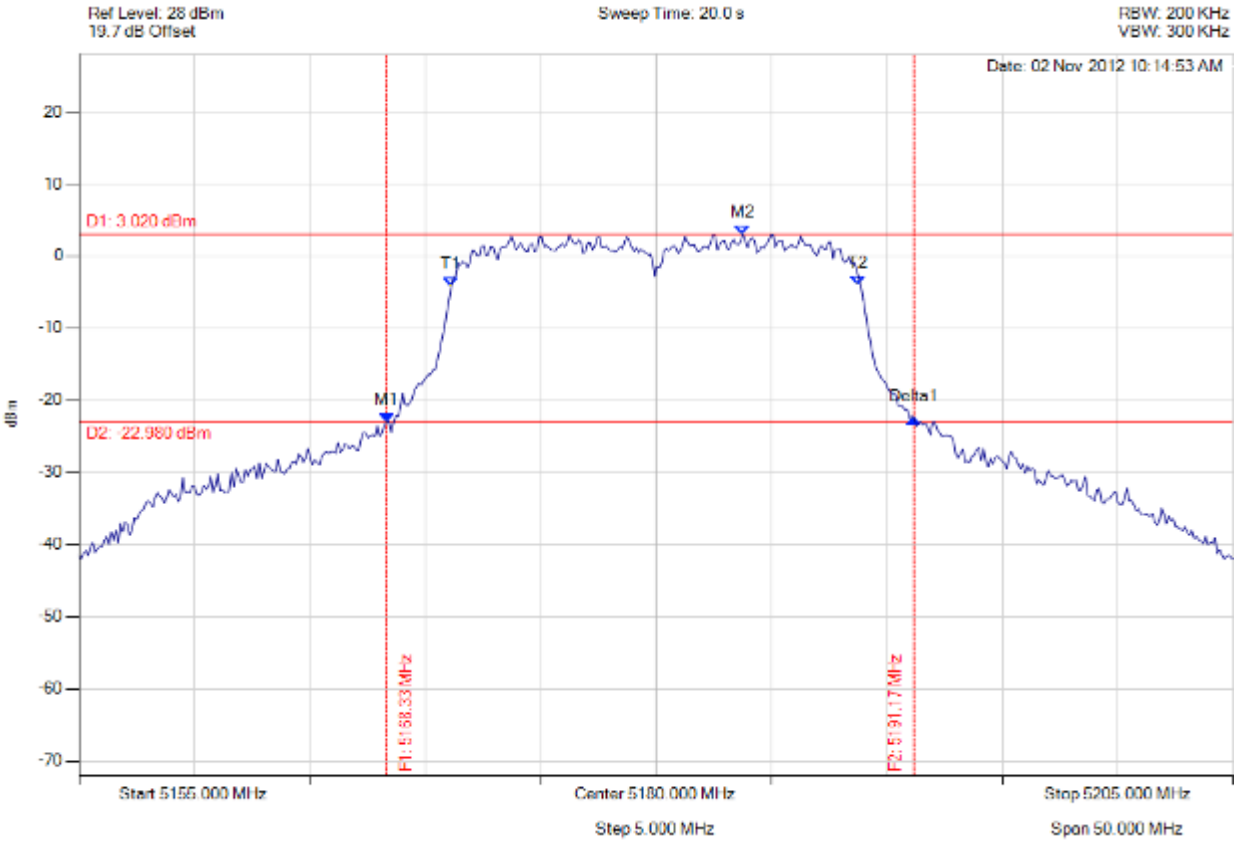


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5227.425 MHz : -24.654 dBm M2 : 5244.158 MHz : 2.928 dBm Delta1 : 23.647 MHz : 2.142 dB T1 : 5231.633 MHz : -4.998 dBm T2 : 5248.166 MHz : -4.151 dBm OBW : 16.633 MHz	Measured 26 dB Bandwidth: 23.647 MHz Measured 99% Bandwidth: 16.633 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

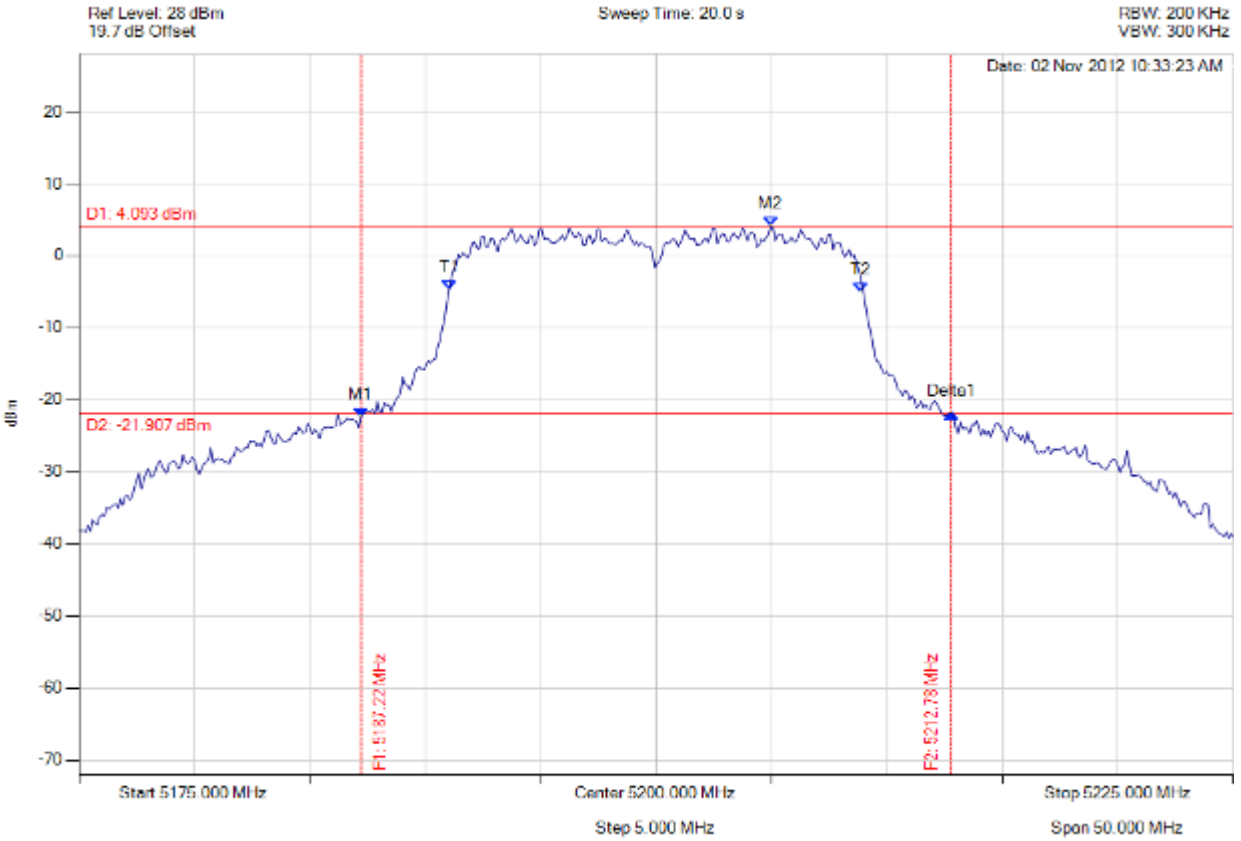


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5168.327 MHz : -23.061 dBm M2 : 5183.758 MHz : 3.020 dBm Delta1 : 22.846 MHz : 0.521 dB T1 : 5171.132 MHz : -4.174 dBm T2 : 5188.768 MHz : -4.088 dBm OBW : 17.735 MHz	Measured 26 dB Bandwidth: 22.846 MHz Measured 99% Bandwidth: 17.735 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

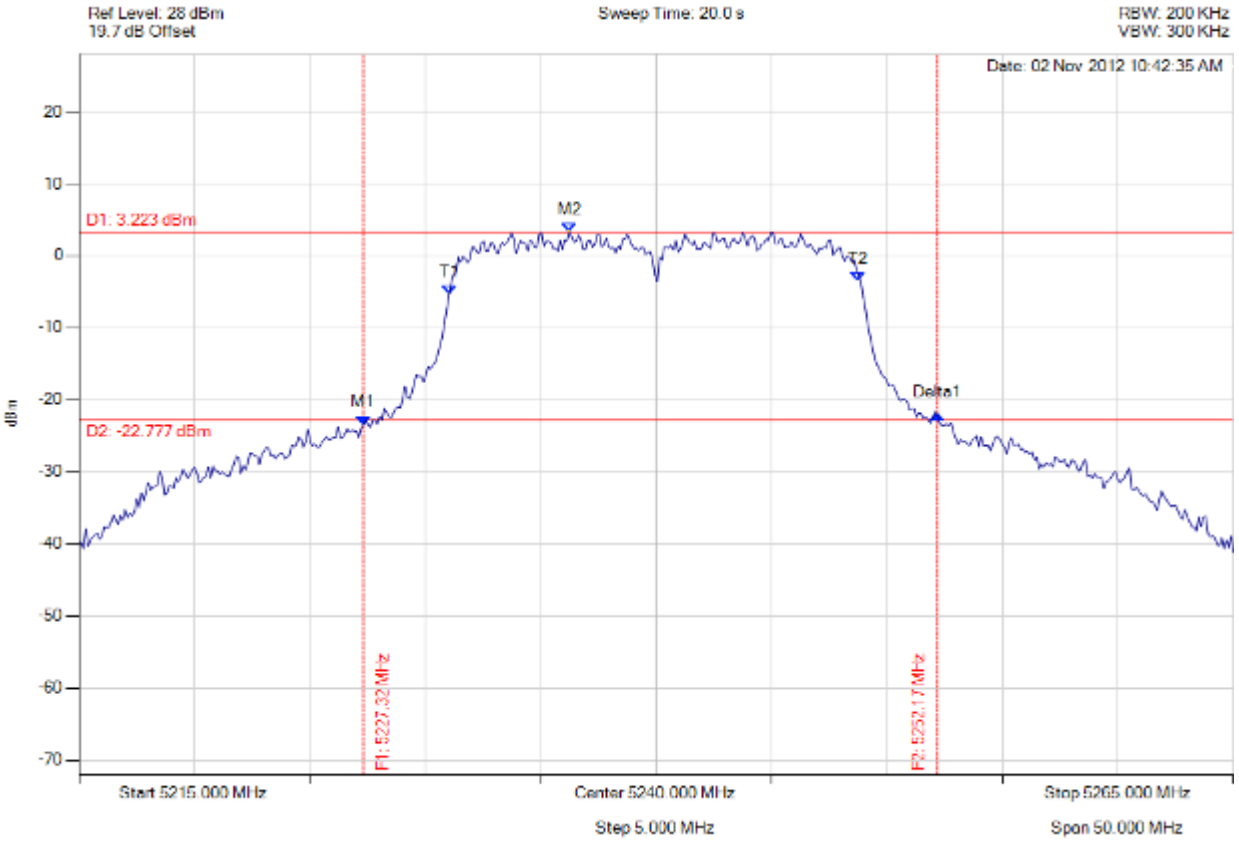


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5187.224 MHz : -22.354 dBm M2 : 5204.960 MHz : 4.093 dBm Delta1 : 25.551 MHz : 0.519 dB T1 : 5191.032 MHz : -4.778 dBm T2 : 5208.868 MHz : -5.014 dBm OBW : 17.936 MHz	Measured 26 dB Bandwidth: 25.551 MHz Measured 99% Bandwidth: 17.936 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

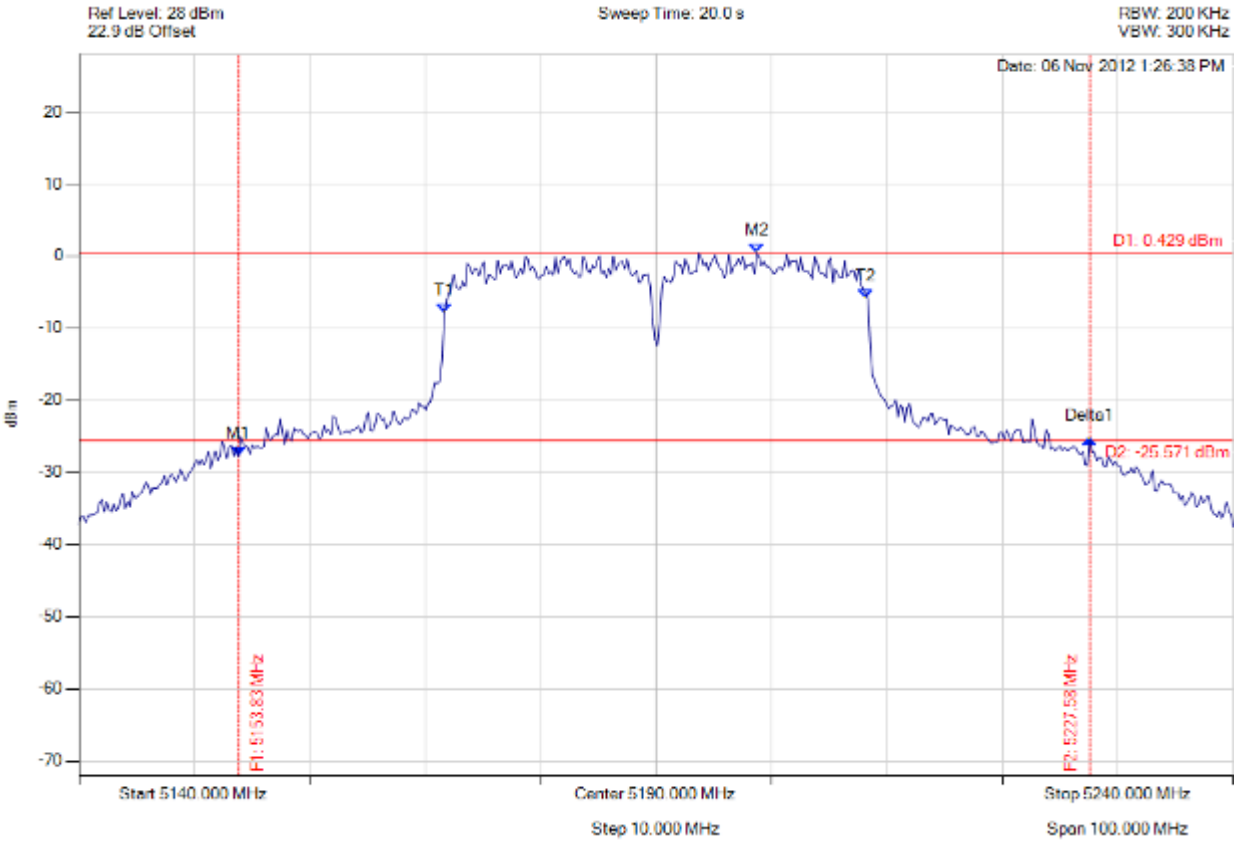


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5227.325 MHz : -23.470 dBm M2 : 5236.242 MHz : 3.223 dBm Delta1 : 24.850 MHz : 1.428 dB T1 : 5231.032 MHz : -5.372 dBm T2 : 5248.768 MHz : -3.586 dBm OBW : 17.836 MHz	Measured 26 dB Bandwidth: 24.850 MHz Measured 99% Bandwidth: 17.836 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

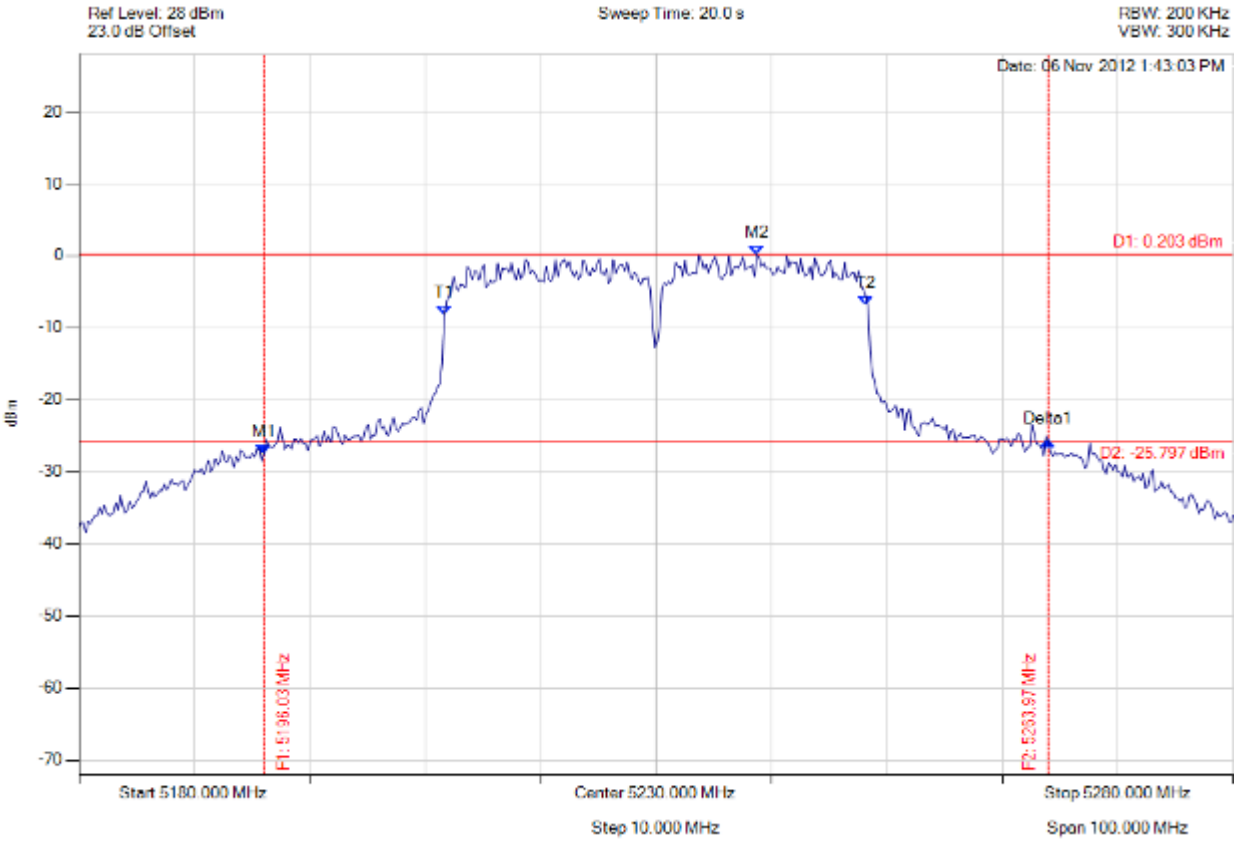


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5153.828 MHz : -27.763 dBm M2 : 5198.717 MHz : 0.429 dBm Delta1 : 73.747 MHz : 2.463 dB T1 : 5171.663 MHz : -7.894 dBm T2 : 5208.136 MHz : -5.919 dBm OBW : 36.673 MHz	Measured 26 dB Bandwidth: 73.747 MHz Measured 99% Bandwidth: 36.673 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

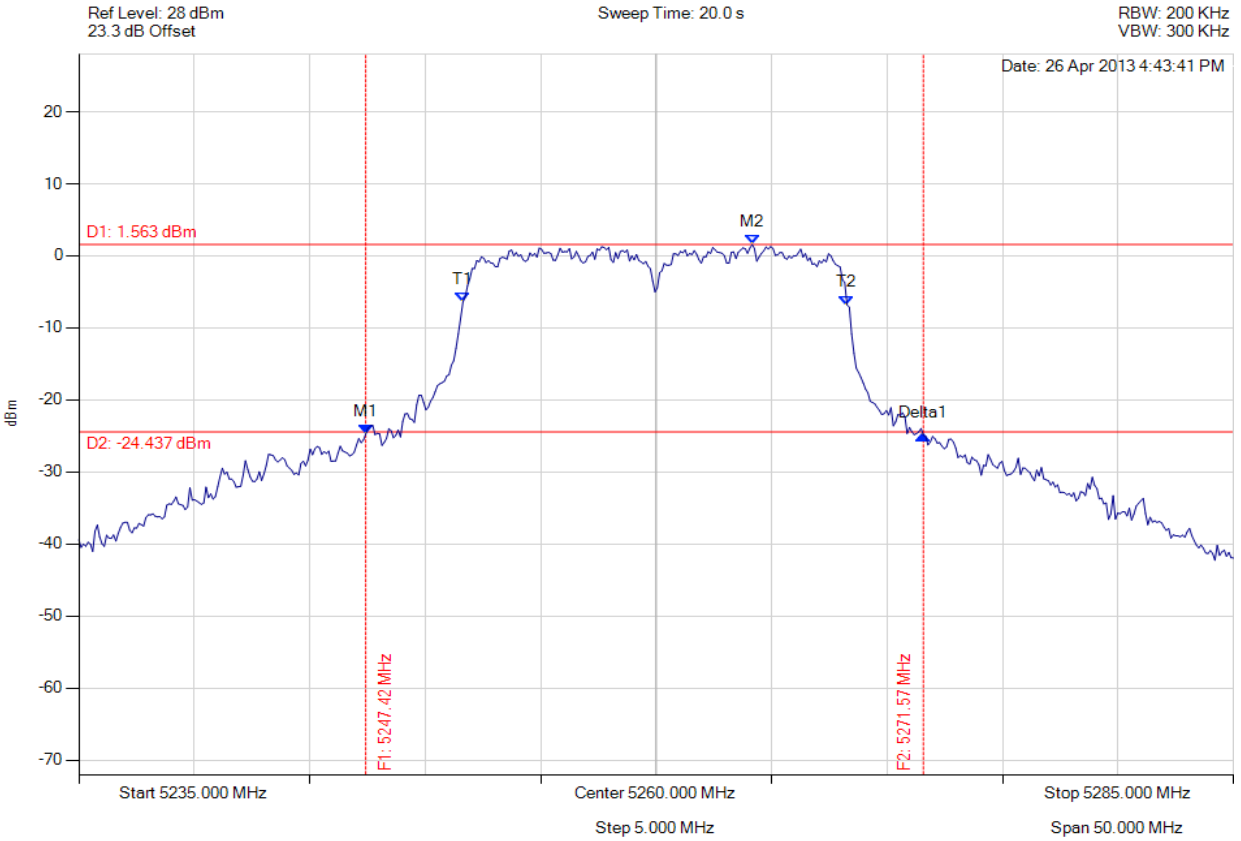


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5196.032 MHz : -27.517 dBm M2 : 5238.717 MHz : 0.203 dBm Delta1 : 67.936 MHz : 1.808 dB T1 : 5211.663 MHz : -8.201 dBm T2 : 5248.136 MHz : -6.901 dBm OBW : 36.673 MHz	Measured 26 dB Bandwidth: 67.936 MHz Measured 99% Bandwidth: 36.673 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

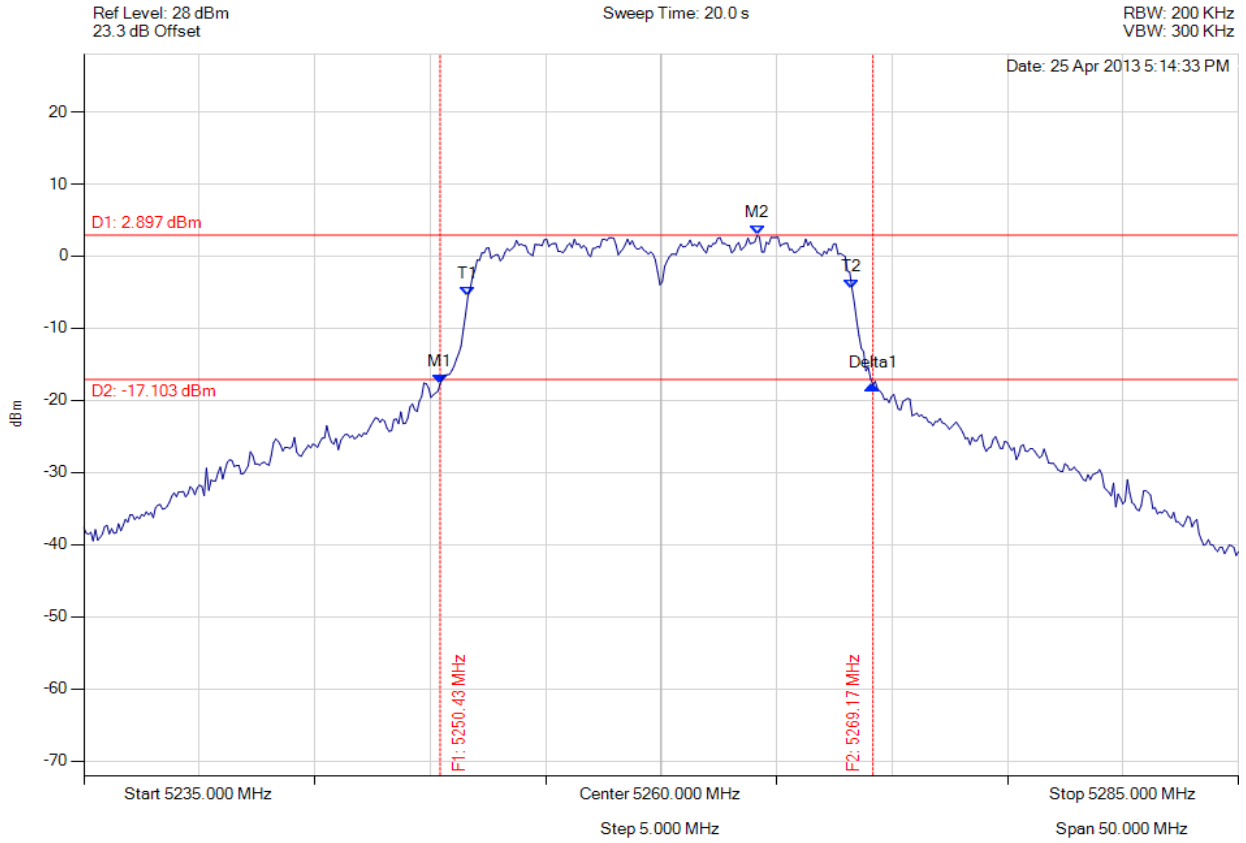


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5247.425 MHz : -24.731 dBm M2 : 5264.158 MHz : 1.563 dBm Delta1 : 24.148 MHz : -0.161 dB T1 : 5251.633 MHz : -6.405 dBm T2 : 5268.267 MHz : -6.787 dBm OBW : 16.633 MHz	Measured 26 dB Bandwidth: 24.148 MHz Measured 99% Bandwidth: 16.633 MHz

Back to the Matrix

20 dB & 99% BANDWIDTH

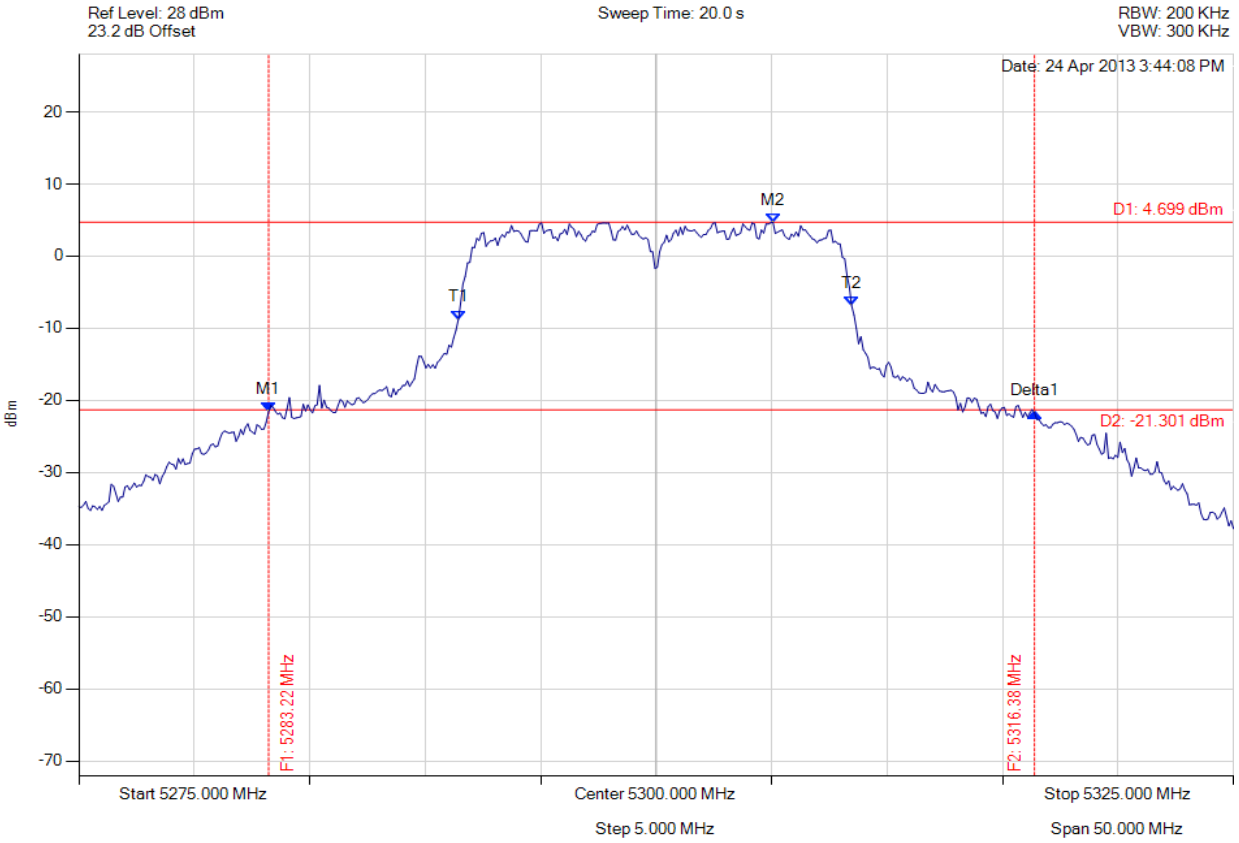
Variant: 802.11a, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc



Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5250.431 MHz : -17.727 dBm M2 : 5264.158 MHz : 2.897 dBm Delta1 : 18.737 MHz : -0.134 dB T1 : 5251.633 MHz : -5.563 dBm T2 : 5268.267 MHz : -4.483 dBm OBW : 16.633 MHz	Measured 26 dB Bandwidth: 18.737 MHz Measured 99% Bandwidth: 16.633 MHz

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

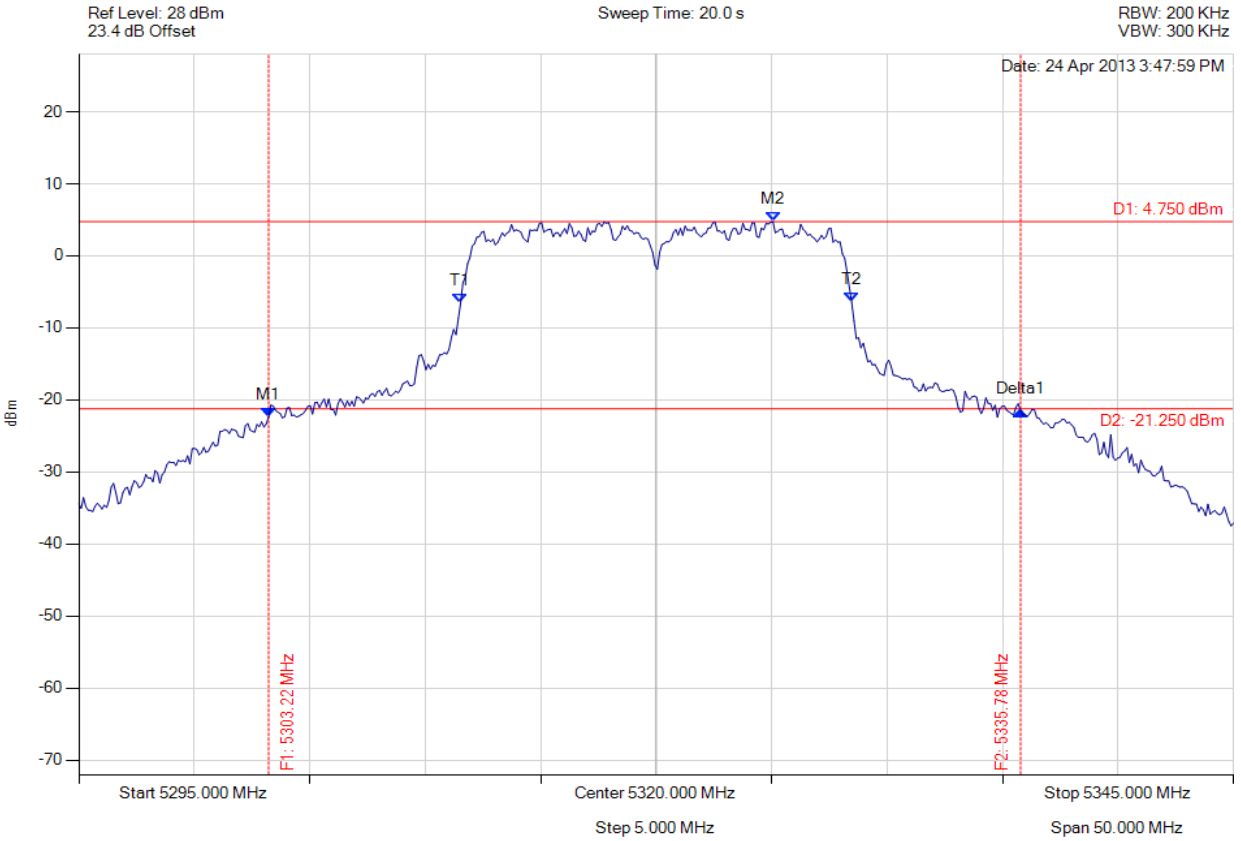


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5283.216 MHz : -21.560 dBm M2 : 5305.060 MHz : 4.699 dBm Delta1 : 33.166 MHz : -0.092 dB T1 : 5291.433 MHz : -8.795 dBm T2 : 5308.467 MHz : -6.895 dBm OBW : 17.034 MHz	Measured 26 dB Bandwidth: 33.166 MHz Measured 99% Bandwidth: 17.034 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

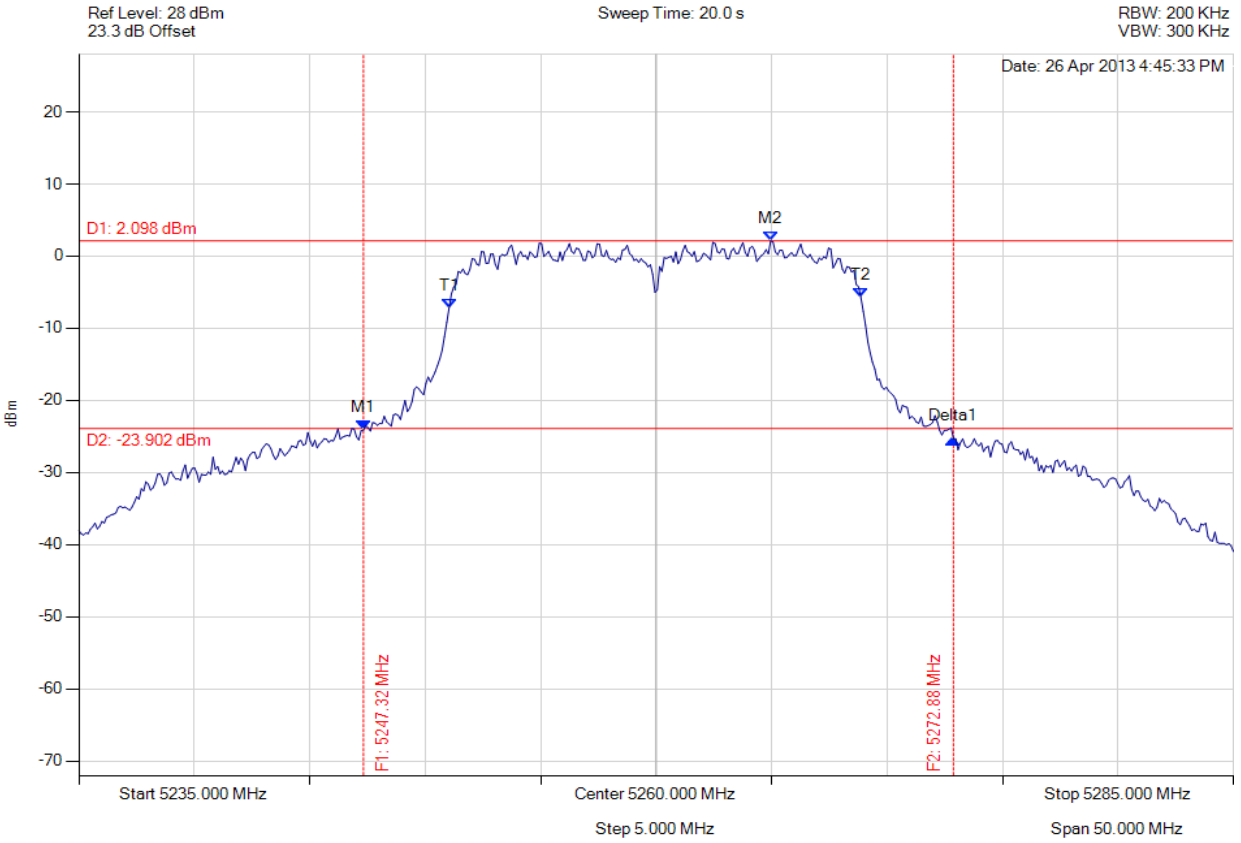


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.216 MHz : -22.349 dBm M2 : 5325.060 MHz : 4.750 dBm Delta1 : 32.565 MHz : 0.824 dB T1 : 5311.533 MHz : -6.580 dBm T2 : 5328.467 MHz : -6.423 dBm OBW : 16.934 MHz	Measured 26 dB Bandwidth: 32.565 MHz Measured 99% Bandwidth: 16.934 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

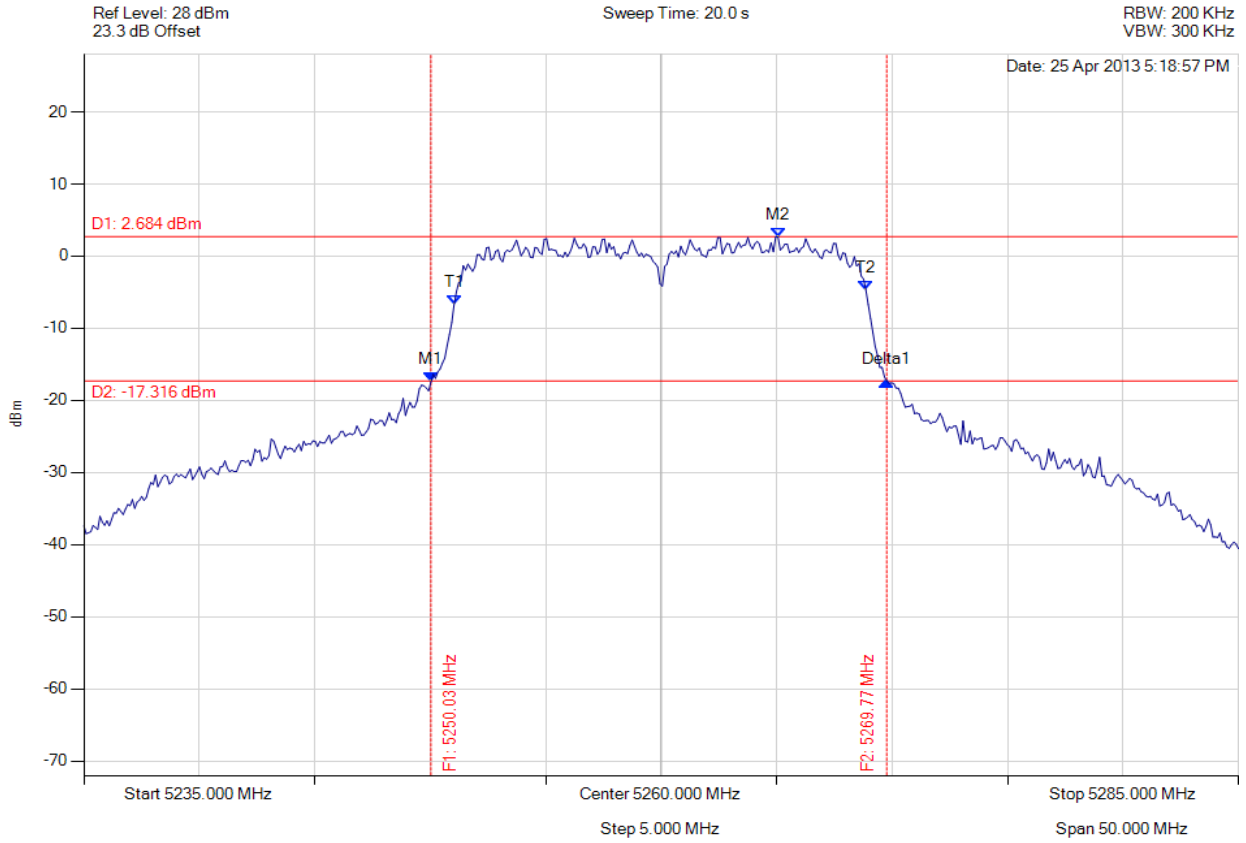


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5247.325 MHz : -24.125 dBm M2 : 5264.960 MHz : 2.098 dBm Delta1 : 25.551 MHz : -1.178 dB T1 : 5251.032 MHz : -7.210 dBm T2 : 5268.868 MHz : -5.758 dBm OBW : 17.836 MHz	Measured 26 dB Bandwidth: 25.551 MHz Measured 99% Bandwidth: 17.836 MHz

Back to the Matrix

20 dB & 99% BANDWIDTH

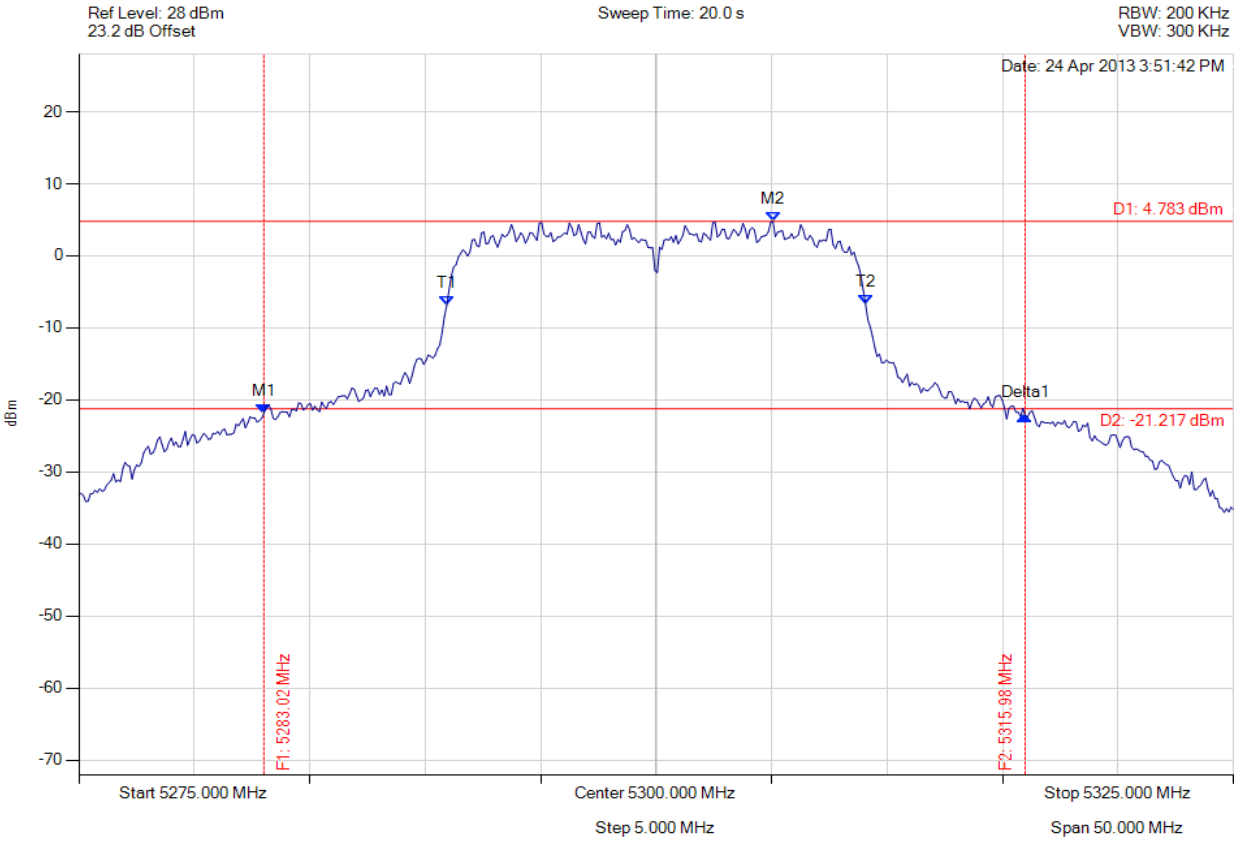
Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc



Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5250.030 MHz : -17.446 dBm M2 : 5265.060 MHz : 2.684 dBm Delta1 : 19.739 MHz : 0.120 dB T1 : 5251.032 MHz : -6.745 dBm T2 : 5268.868 MHz : -4.729 dBm OBW : 17.836 MHz	Measured 26 dB Bandwidth: 19.739 MHz Measured 99% Bandwidth: 17.836 MHz

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc



Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5283.016 MHz : -21.831 dBm M2 : 5305.060 MHz : 4.783 dBm Delta1 : 32.966 MHz : -0.305 dB T1 : 5290.932 MHz : -6.879 dBm T2 : 5309.068 MHz : -6.694 dBm OBW : 18.136 MHz	Measured 26 dB Bandwidth: 32.966 MHz Measured 99% Bandwidth: 18.136 MHz

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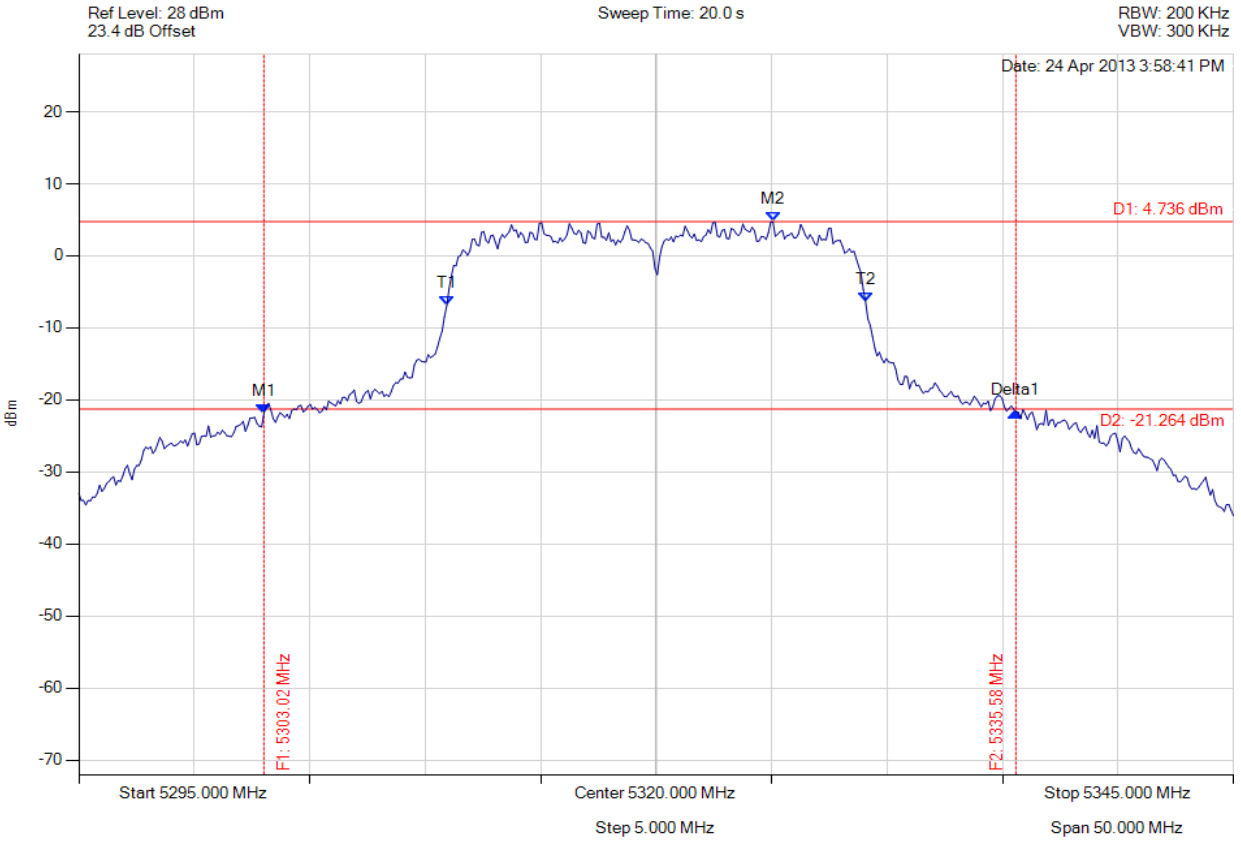
26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

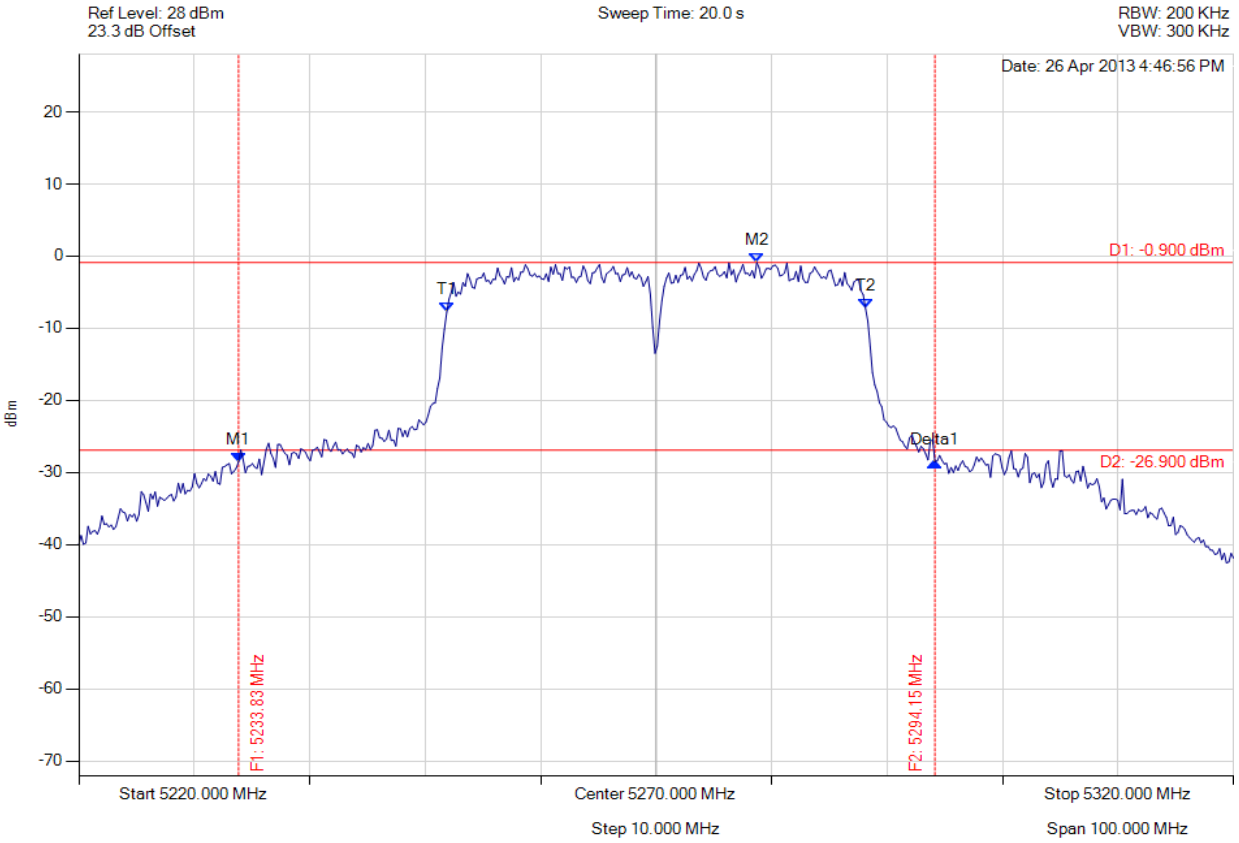


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.016 MHz : -21.821 dBm M2 : 5325.060 MHz : 4.736 dBm Delta1 : 32.565 MHz : 0.122 dB T1 : 5310.932 MHz : -6.913 dBm T2 : 5329.068 MHz : -6.346 dBm OBW : 18.136 MHz	Measured 26 dB Bandwidth: 32.565 MHz Measured 99% Bandwidth: 18.136 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

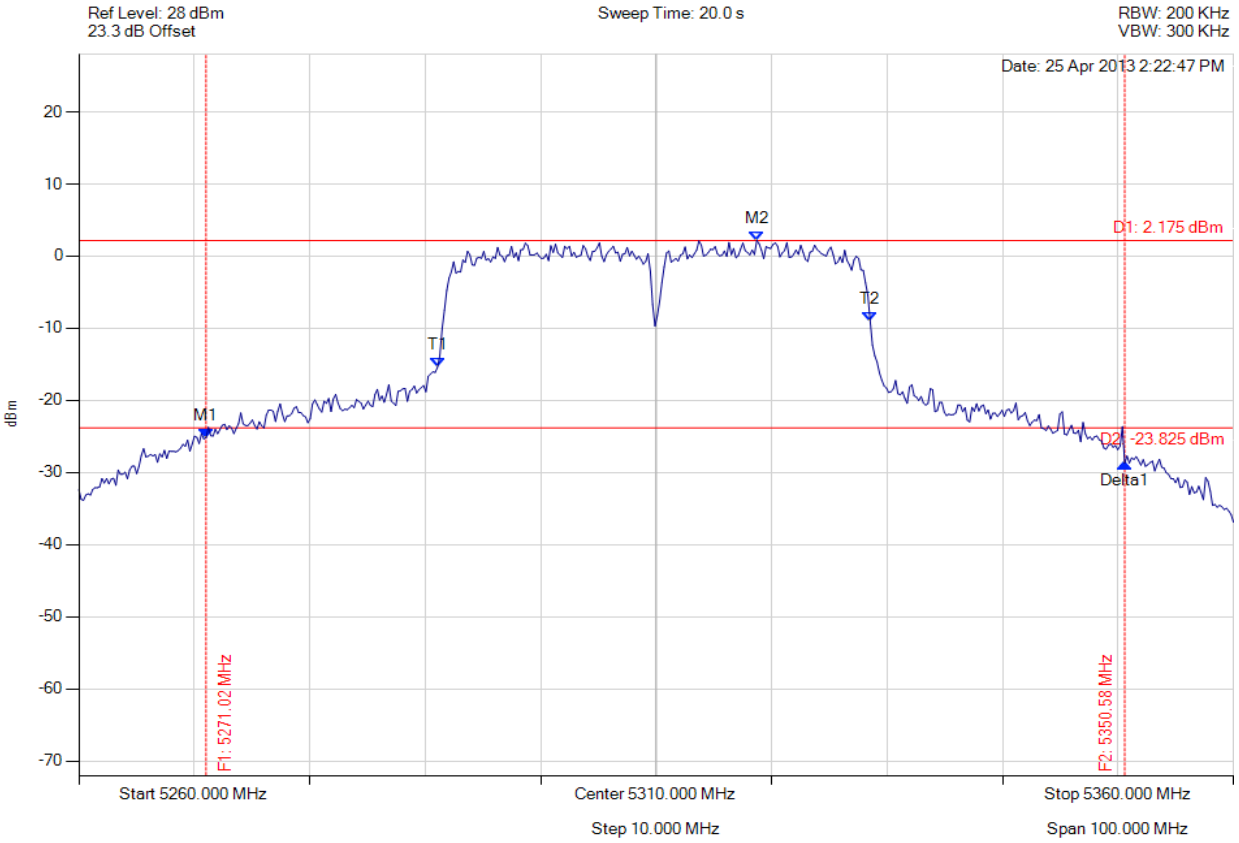


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5233.828 MHz : -28.536 dBm M2 : 5278.717 MHz : -0.900 dBm Delta1 : 60.321 MHz : -0.004 dB T1 : 5251.864 MHz : -7.753 dBm T2 : 5288.136 MHz : -7.261 dBm OBW : 36.273 MHz	Measured 26 dB Bandwidth: 60.321 MHz Measured 99% Bandwidth: 36.273 MHz

Back to the Matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: Ambient, Voltage: 5 Vdc

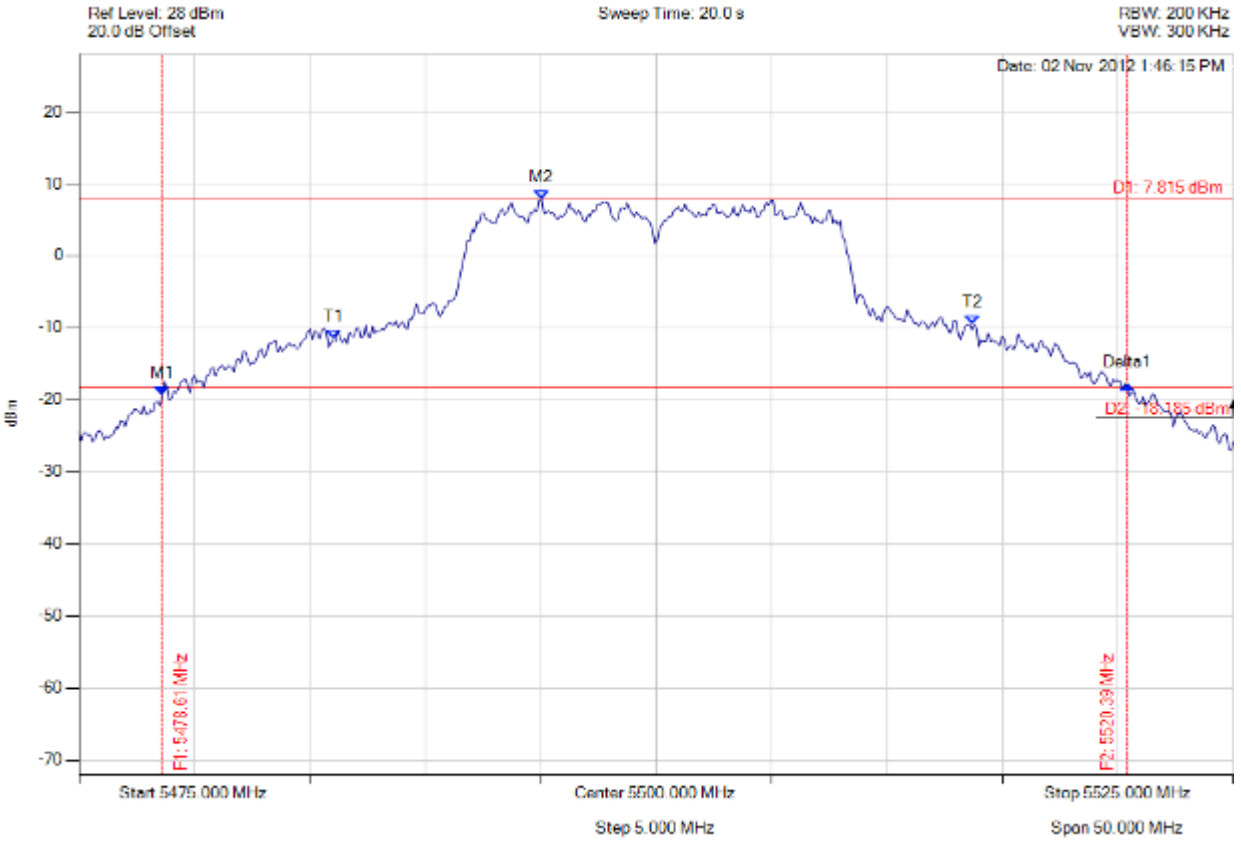


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5271.022 MHz : -25.178 dBm M2 : 5318.717 MHz : 2.175 dBm Delta1 : 79.559 MHz : -3.512 dB T1 : 5291.062 MHz : -15.433 dBm T2 : 5328.537 MHz : -9.020 dBm OBW : 37.475 MHz	Measured 26 dB Bandwidth: 79.559 MHz Measured 99% Bandwidth: 37.475 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

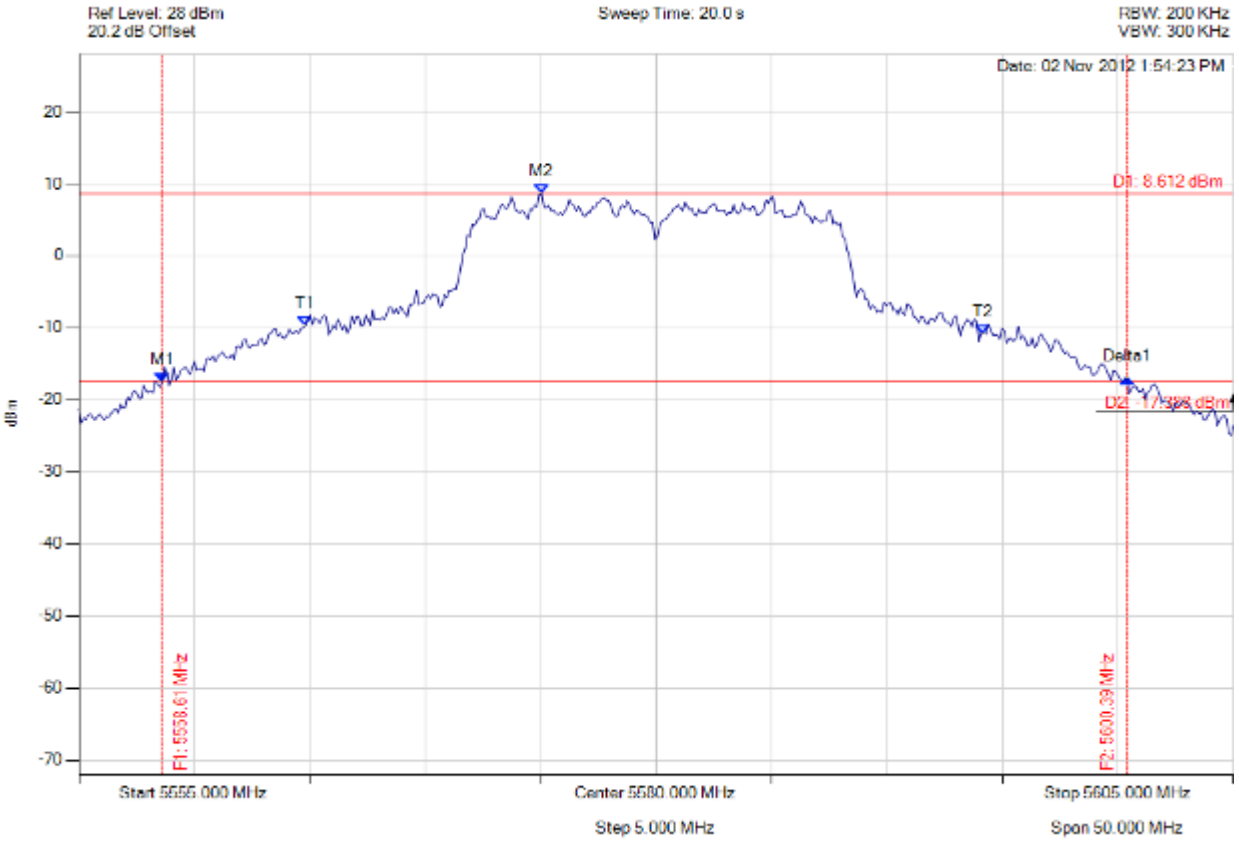


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5478.607 MHz : -19.435 dBm M2 : 5495.040 MHz : 7.815 dBm Delta1 : 41.784 MHz : 1.544 dB T1 : 5486.022 MHz : -11.605 dBm T2 : 5513.677 MHz : -9.551 dBm OBW : 27.756 MHz	Measured 26 dB Bandwidth: 41.784 MHz Measured 99% Bandwidth: 27.756 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

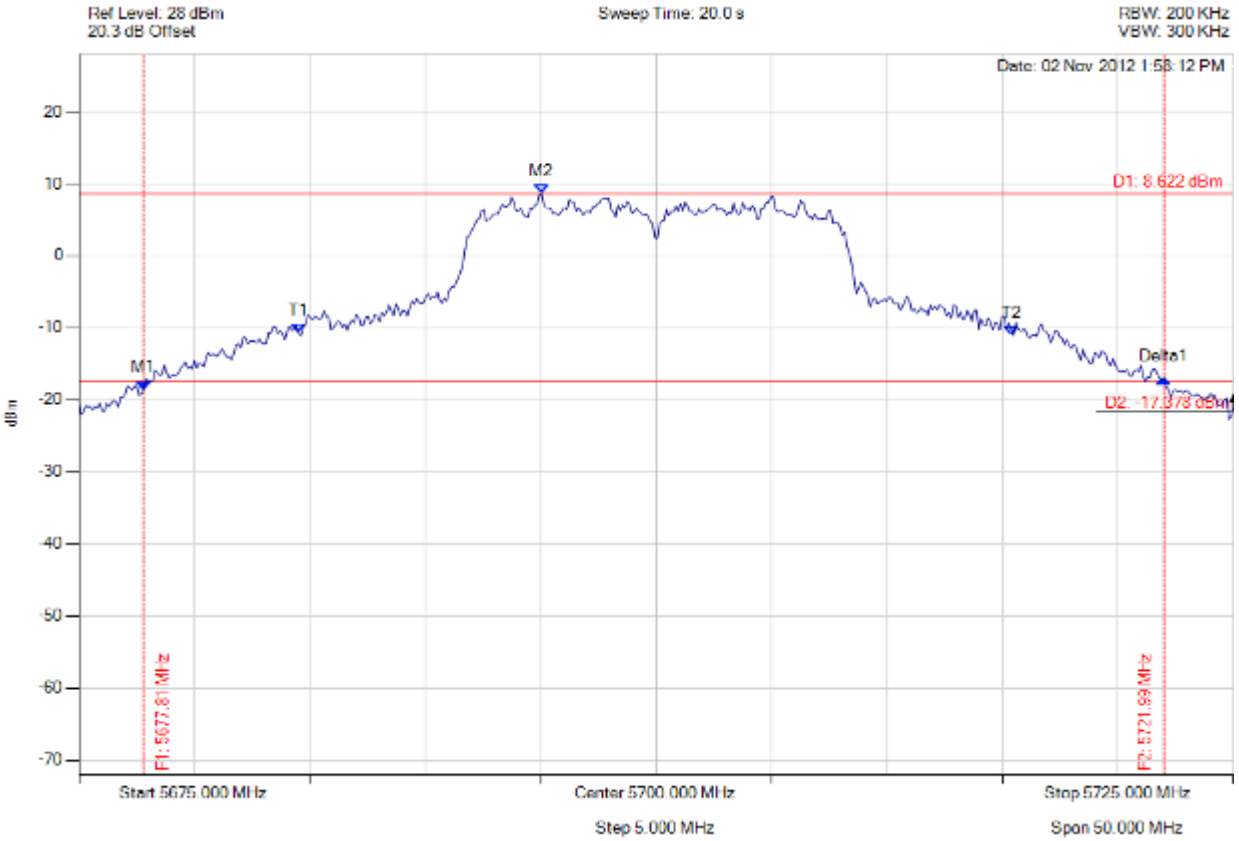


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5558.607 MHz : -17.568 dBm M2 : 5575.040 MHz : 8.612 dBm Delta1 : 41.784 MHz : 0.590 dB T1 : 5564.820 MHz : -9.700 dBm T2 : 5594.178 MHz : -10.895 dBm OBW : 29.459 MHz	Measured 26 dB Bandwidth: 41.784 MHz Measured 99% Bandwidth: 29.459 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11a, Channel: 5700.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

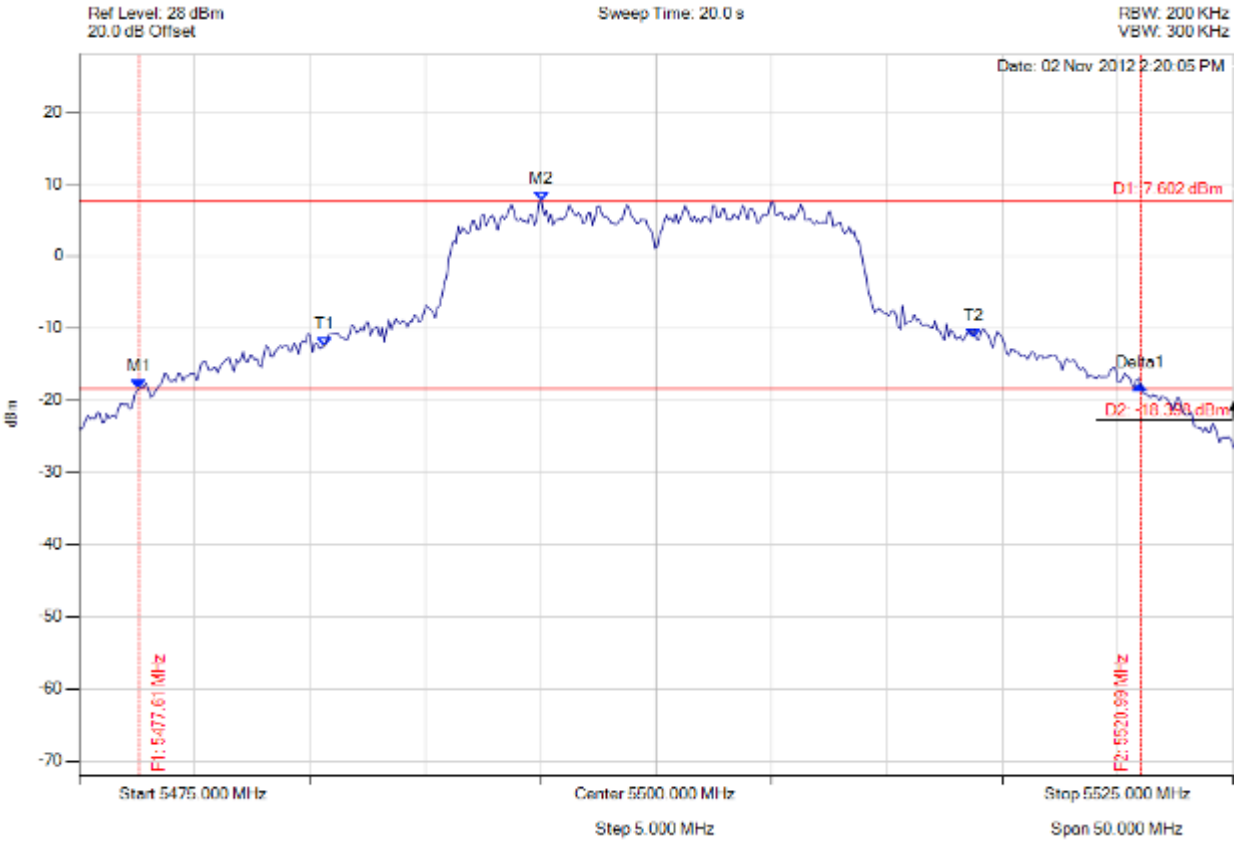


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5677.806 MHz : -18.640 dBm M2 : 5695.040 MHz : 8.622 dBm Delta1 : 44.188 MHz : 1.560 dB T1 : 5684.519 MHz : -10.779 dBm T2 : 5715.381 MHz : -11.032 dBm OBW : 30.962 MHz	Measured 26 dB Bandwidth: 44.188 MHz Measured 99% Bandwidth: 30.962 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

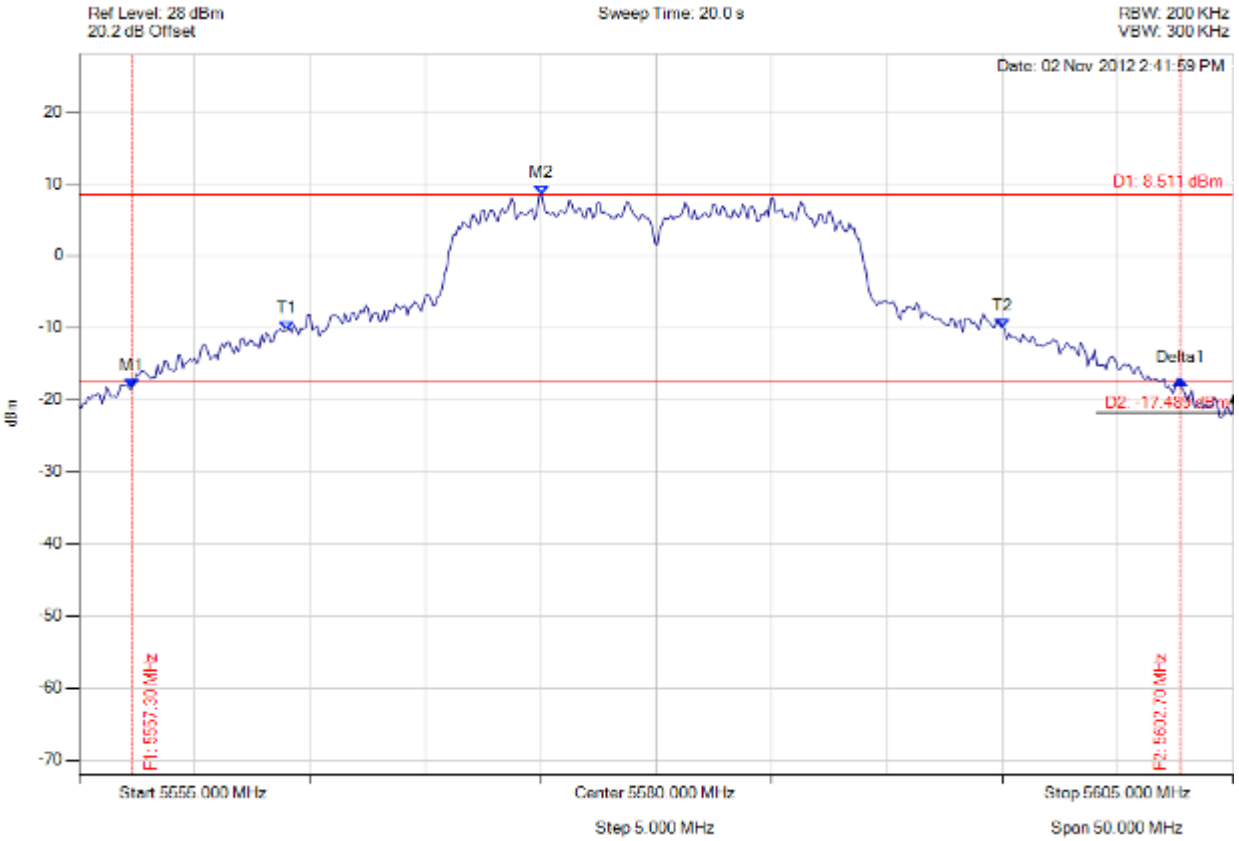


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5477.605 MHz : -18.416 dBm M2 : 5495.040 MHz : 7.602 dBm Delta1 : 43.387 MHz : 0.549 dB T1 : 5485.621 MHz : -12.547 dBm T2 : 5513.778 MHz : -11.451 dBm OBW : 28.257 MHz	Measured 26 dB Bandwidth: 43.387 MHz Measured 99% Bandwidth: 28.257 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

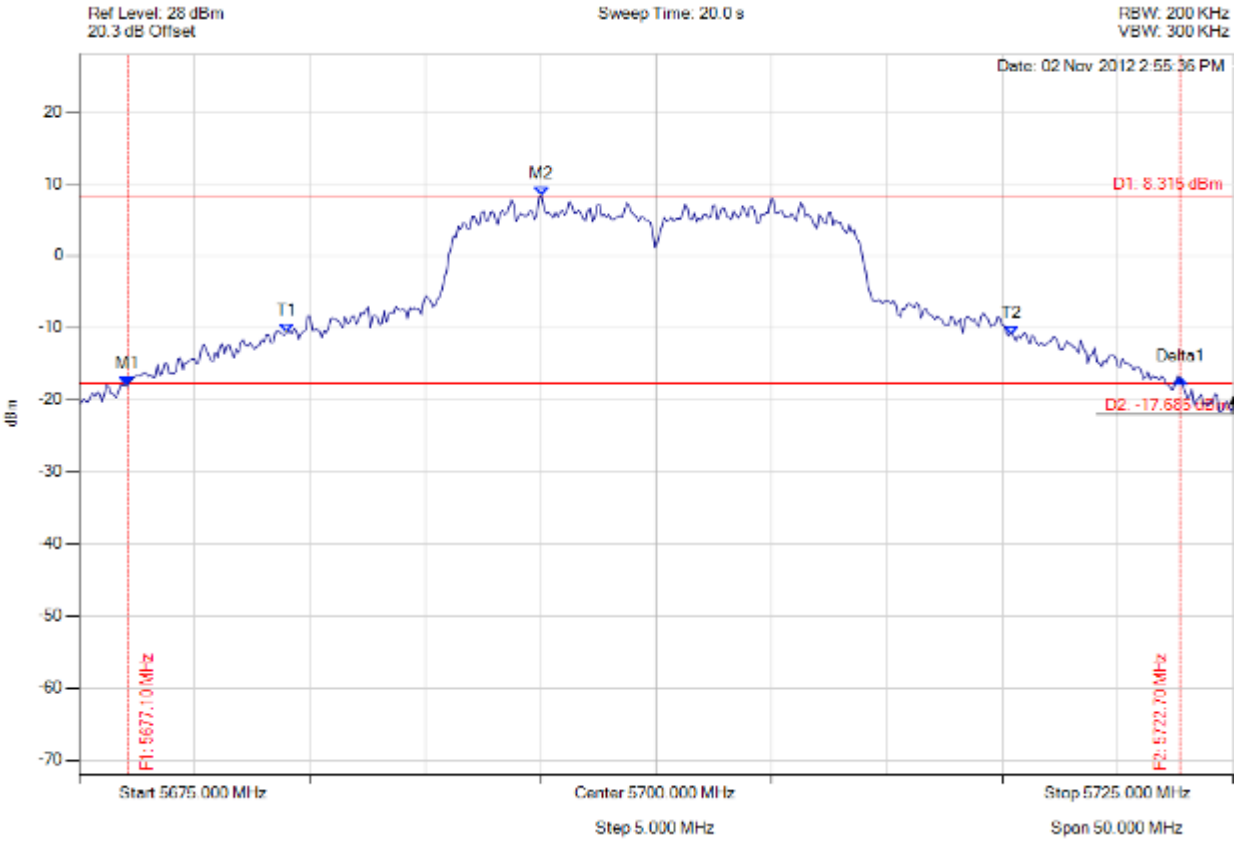


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5557.305 MHz : -18.416 dBm M2 : 5575.040 MHz : 8.511 dBm Delta1 : 45.391 MHz : 1.173 dB T1 : 5564.018 MHz : -10.322 dBm T2 : 5594.980 MHz : -10.023 dBm OBW : 31.062 MHz	Measured 26 dB Bandwidth: 45.391 MHz Measured 99% Bandwidth: 31.062 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-20, Channel: 5700.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

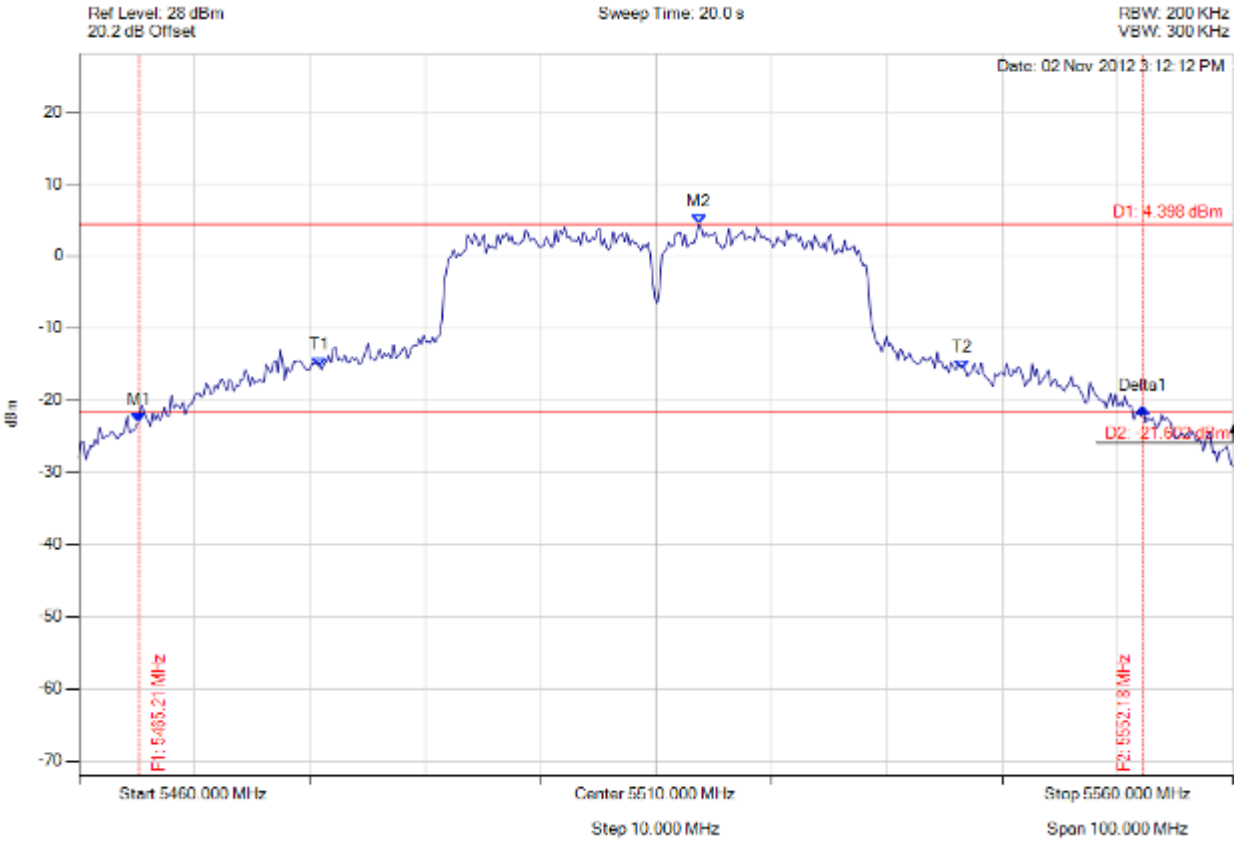


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5677.104 MHz : -18.119 dBm M2 : 5695.040 MHz : 8.315 dBm Delta1 : 45.591 MHz : 1.068 dB T1 : 5684.018 MHz : -10.712 dBm T2 : 5715.381 MHz : -11.099 dBm OBW : 31.463 MHz	Measured 26 dB Bandwidth: 45.591 MHz Measured 99% Bandwidth: 31.463 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

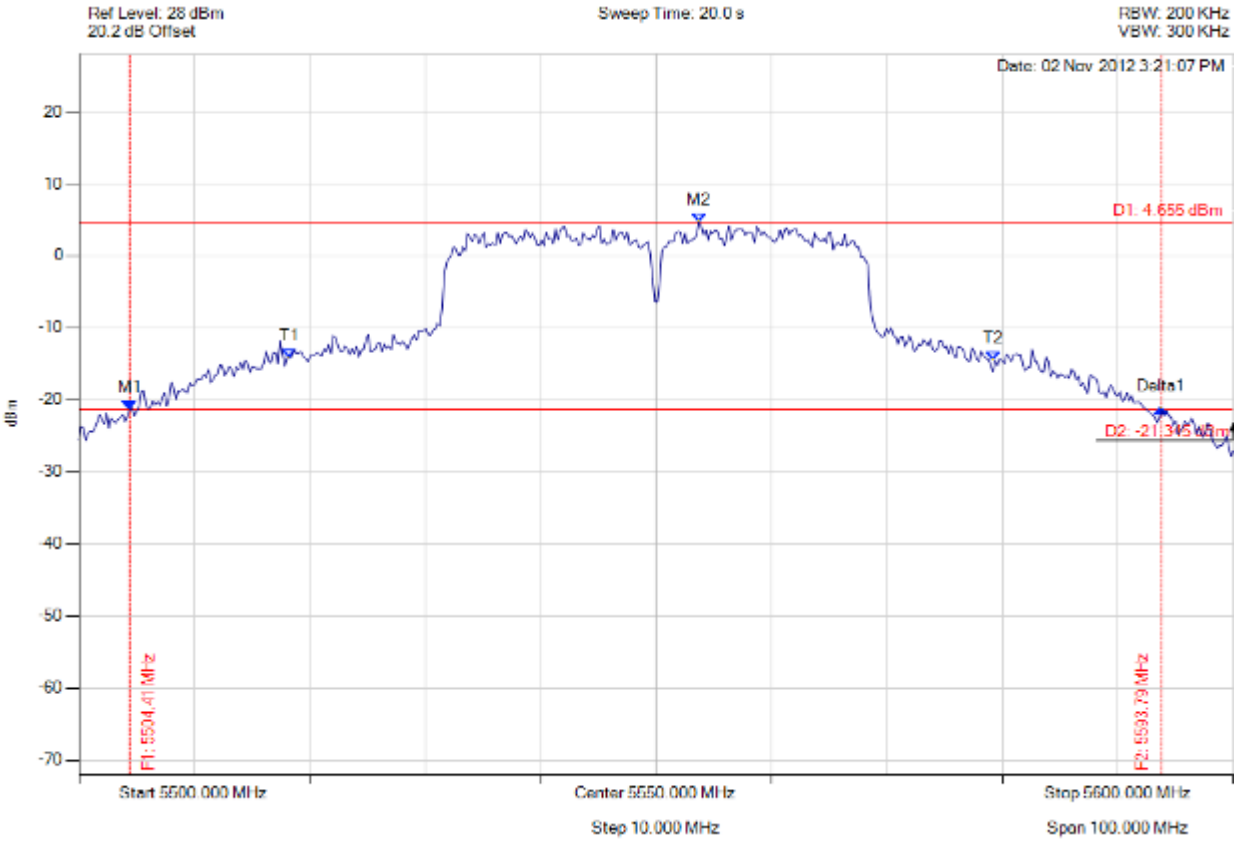


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5465.210 MHz : -23.106 dBm M2 : 5513.707 MHz : 4.398 dBm Delta1 : 86.974 MHz : 2.085 dB T1 : 5480.842 MHz : -15.315 dBm T2 : 5536.553 MHz : -15.648 dBm OBW : 55.912 MHz	Measured 26 dB Bandwidth: 86.974 MHz Measured 99% Bandwidth: 55.912 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

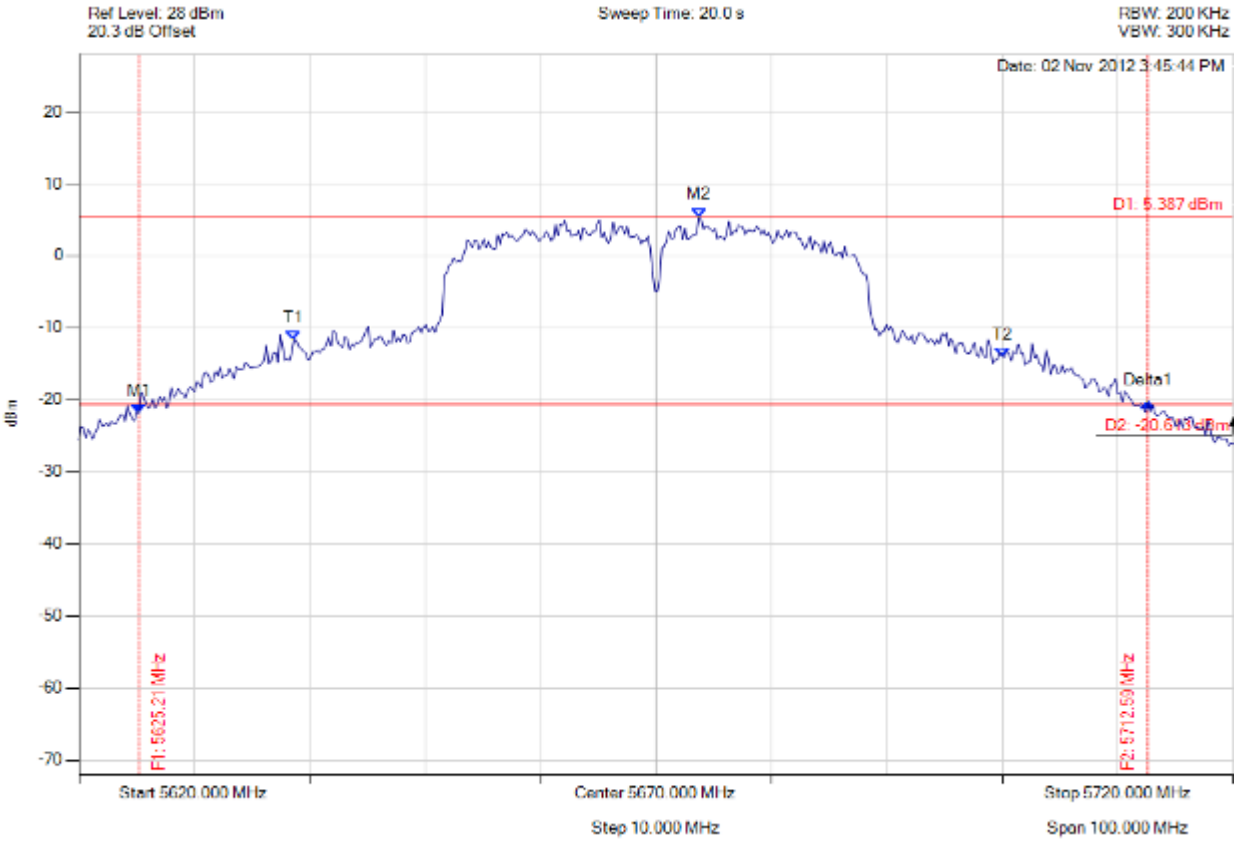


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5504.409 MHz : -21.385 dBm M2 : 5553.707 MHz : 4.655 dBm Delta1 : 89.379 MHz : 0.116 dB T1 : 5518.236 MHz : -14.233 dBm T2 : 5579.158 MHz : -14.544 dBm OBW : 61.122 MHz	Measured 26 dB Bandwidth: 89.379 MHz Measured 99% Bandwidth: 61.122 MHz

Back to the Matrix

26 dB 99%

Variant: 802.11n HT-40, Channel: 5670.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V



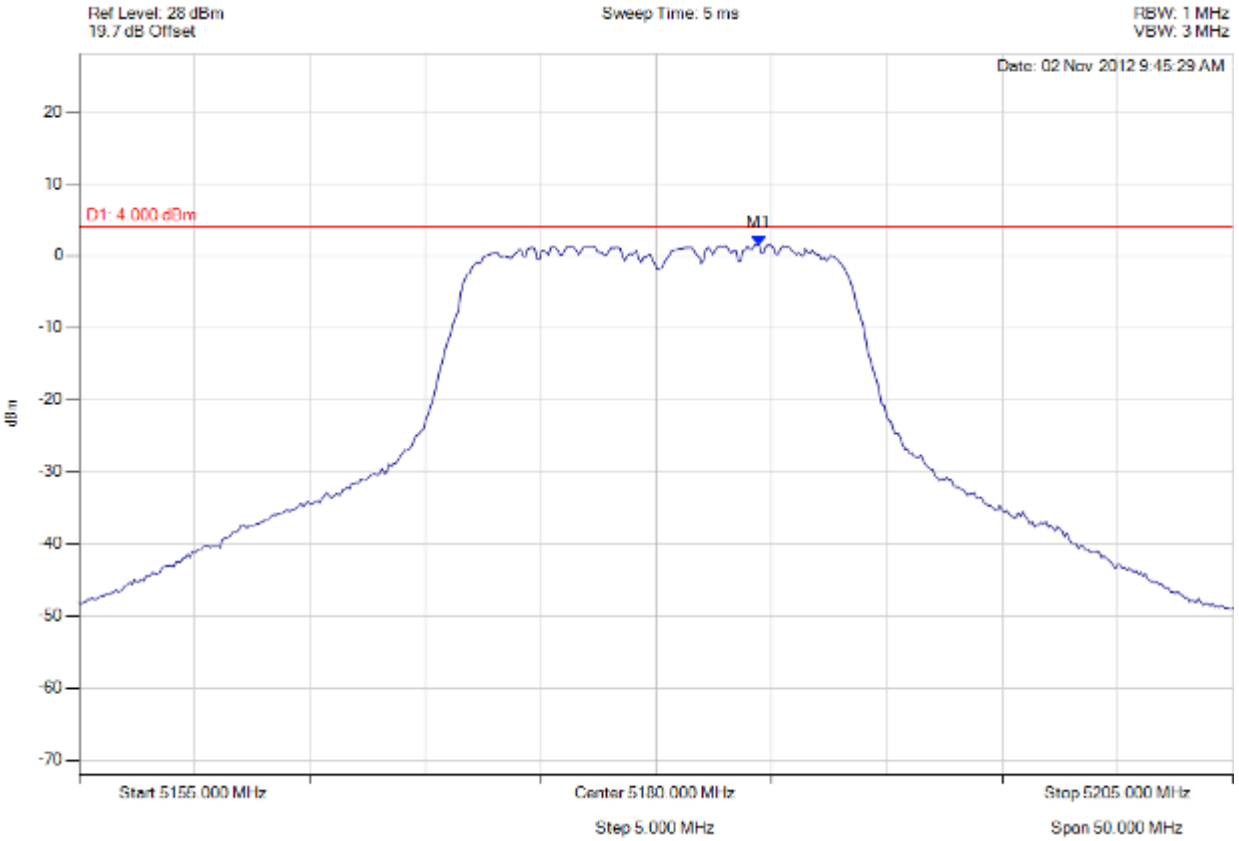
Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5625.210 MHz : -21.841 dBm M2 : 5673.707 MHz : 5.387 dBm Delta1 : 87.375 MHz : 1.470 dB T1 : 5638.637 MHz : -11.640 dBm T2 : 5699.960 MHz : -14.009 dBm OBW : 61.523 MHz	Measured 26 dB Bandwidth: 87.375 MHz Measured 99% Bandwidth: 61.523 MHz

Back to the Matrix

A.1.2. Peak Power Spectral Density

power density

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

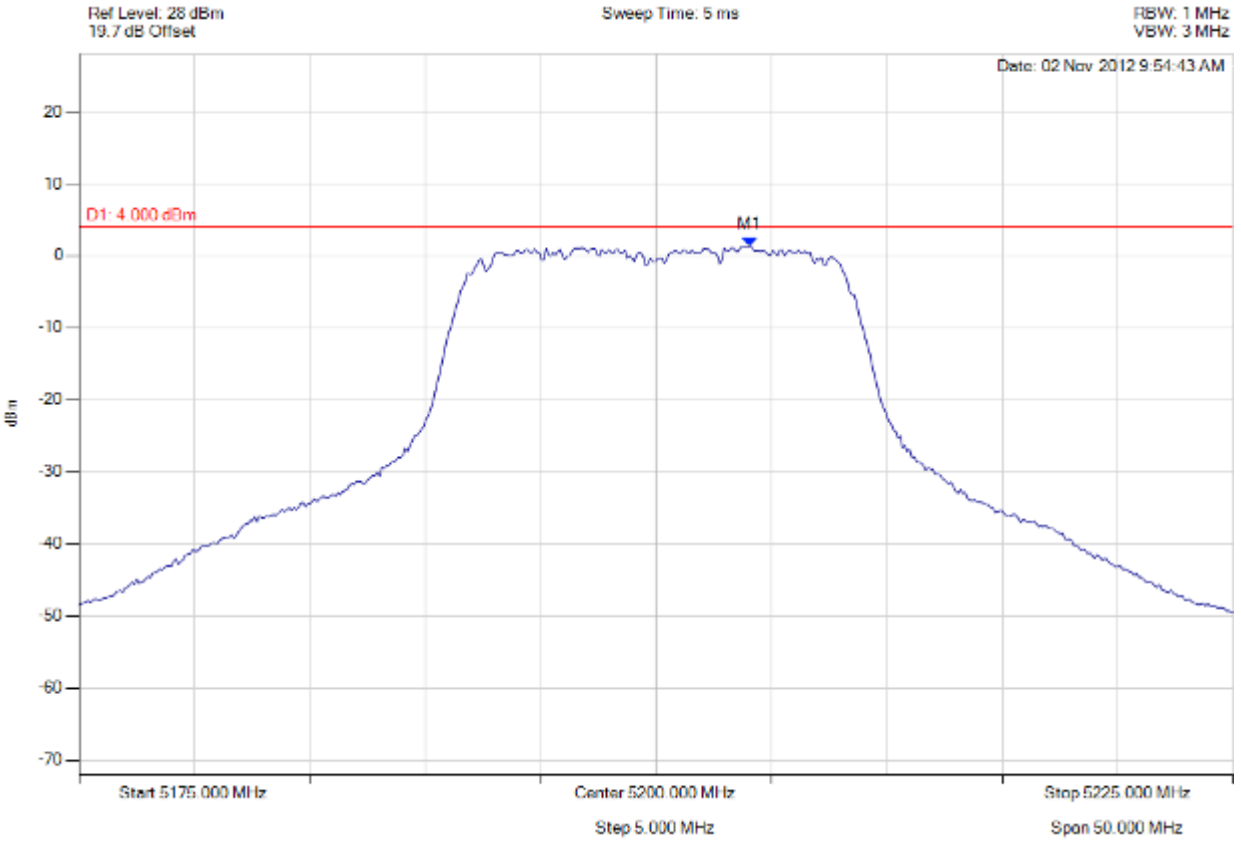


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5184.459 MHz : 1.494 dBm	Limit: 8.000 dBm Margin: -6.51 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

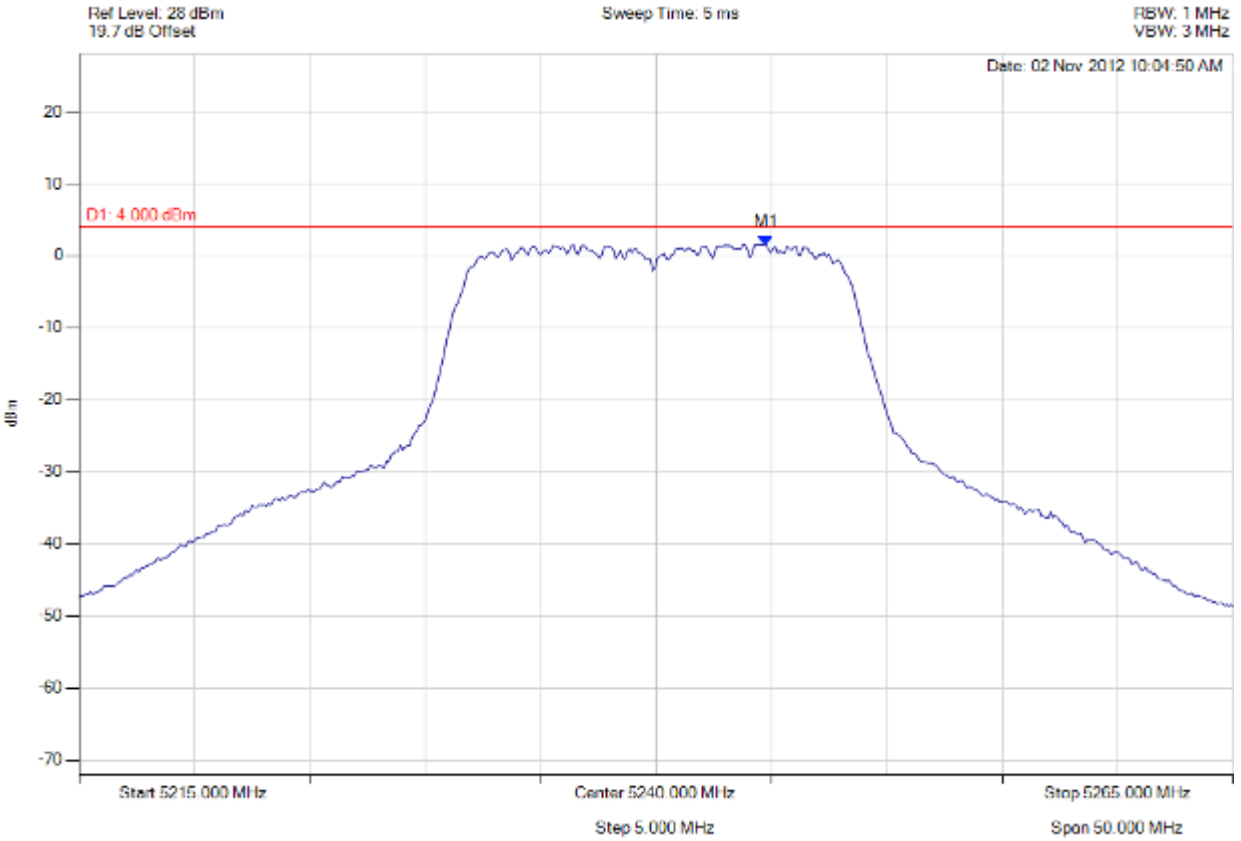


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5204.058 MHz : 1.292 dBm	Limit: 8.000 dBm Margin: -6.71 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

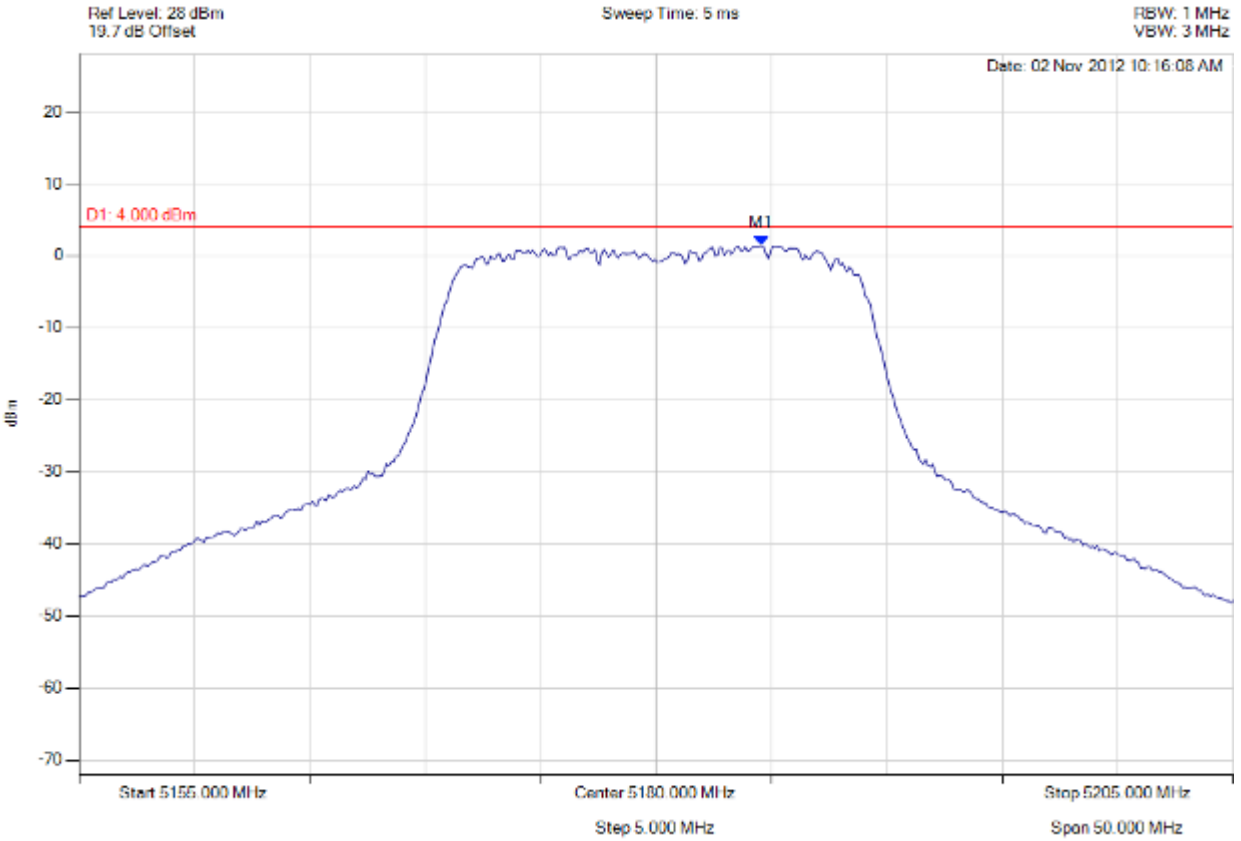


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5244.760 MHz : 1.552 dBm	Limit: 8.000 dBm Margin: -6.45 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

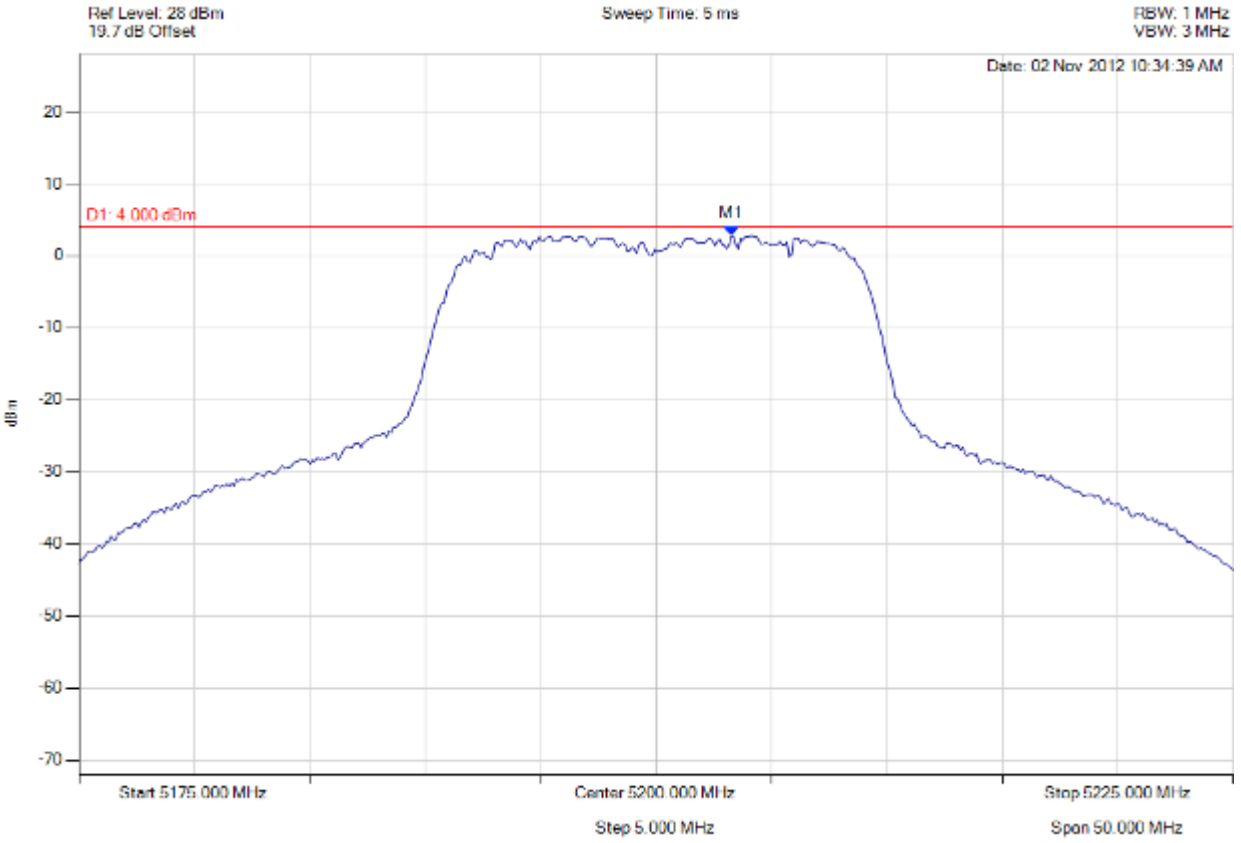


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5184.559 MHz : 1.409 dBm	Limit: 8.000 dBm Margin: -6.59 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

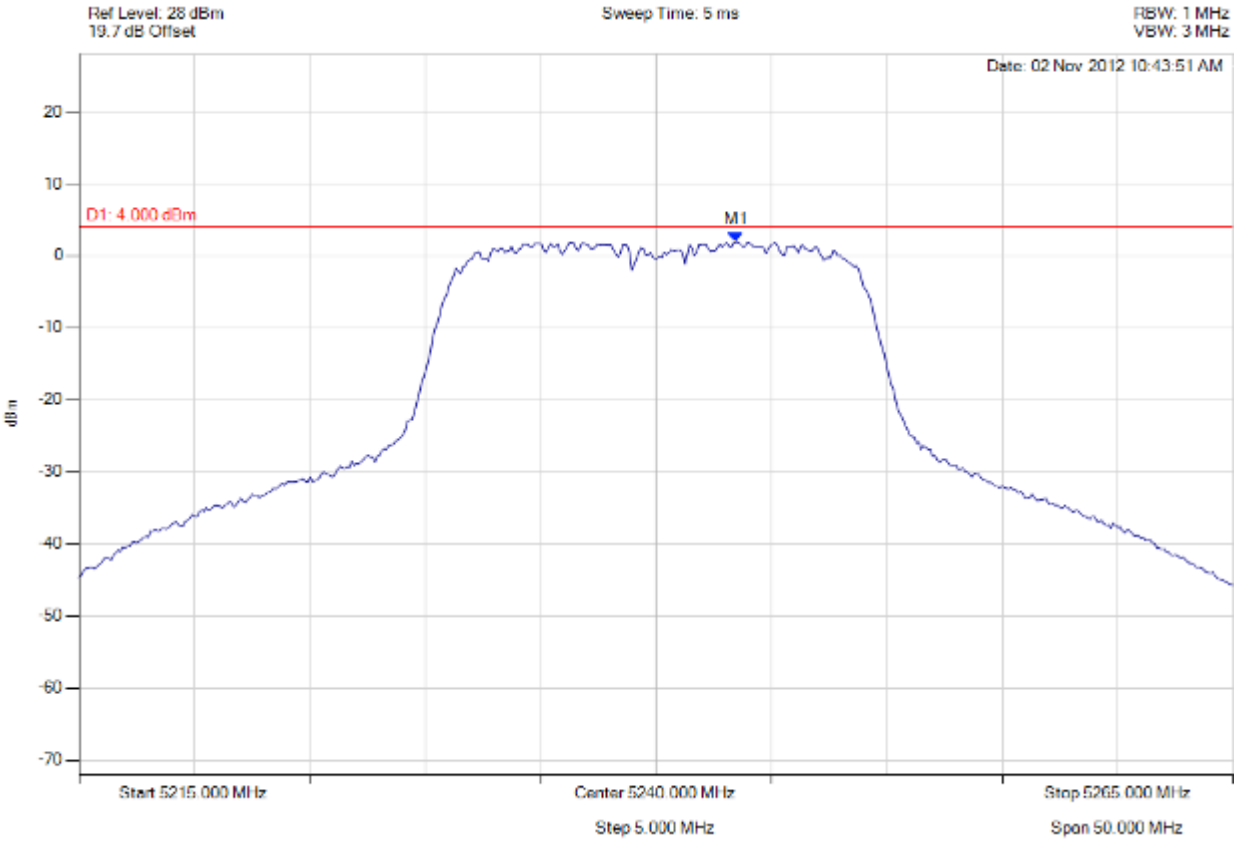


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5203.257 MHz : 2.751 dBm	Limit: 8.000 dBm Margin: -5.25 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

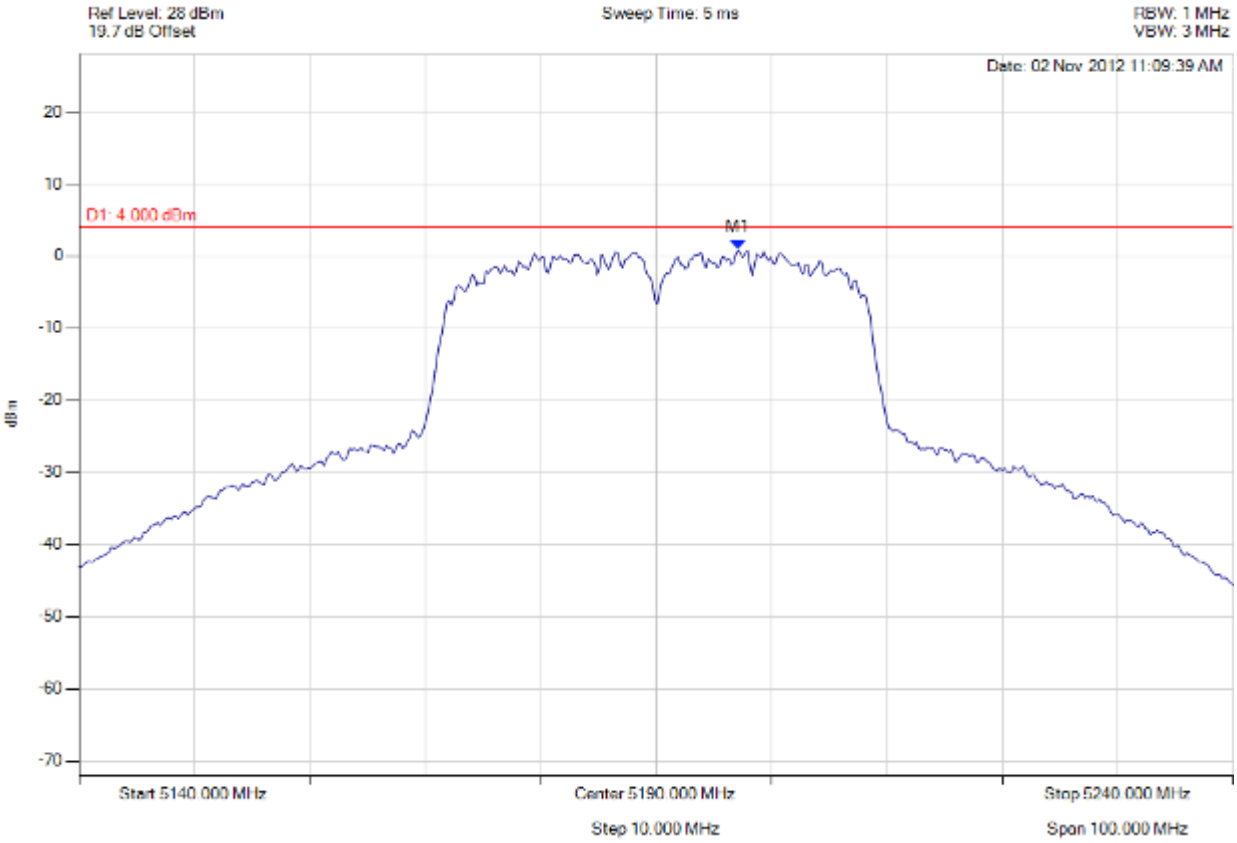


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5243.457 MHz : 1.905 dBm	Limit: 8.000 dBm Margin: -6.09 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

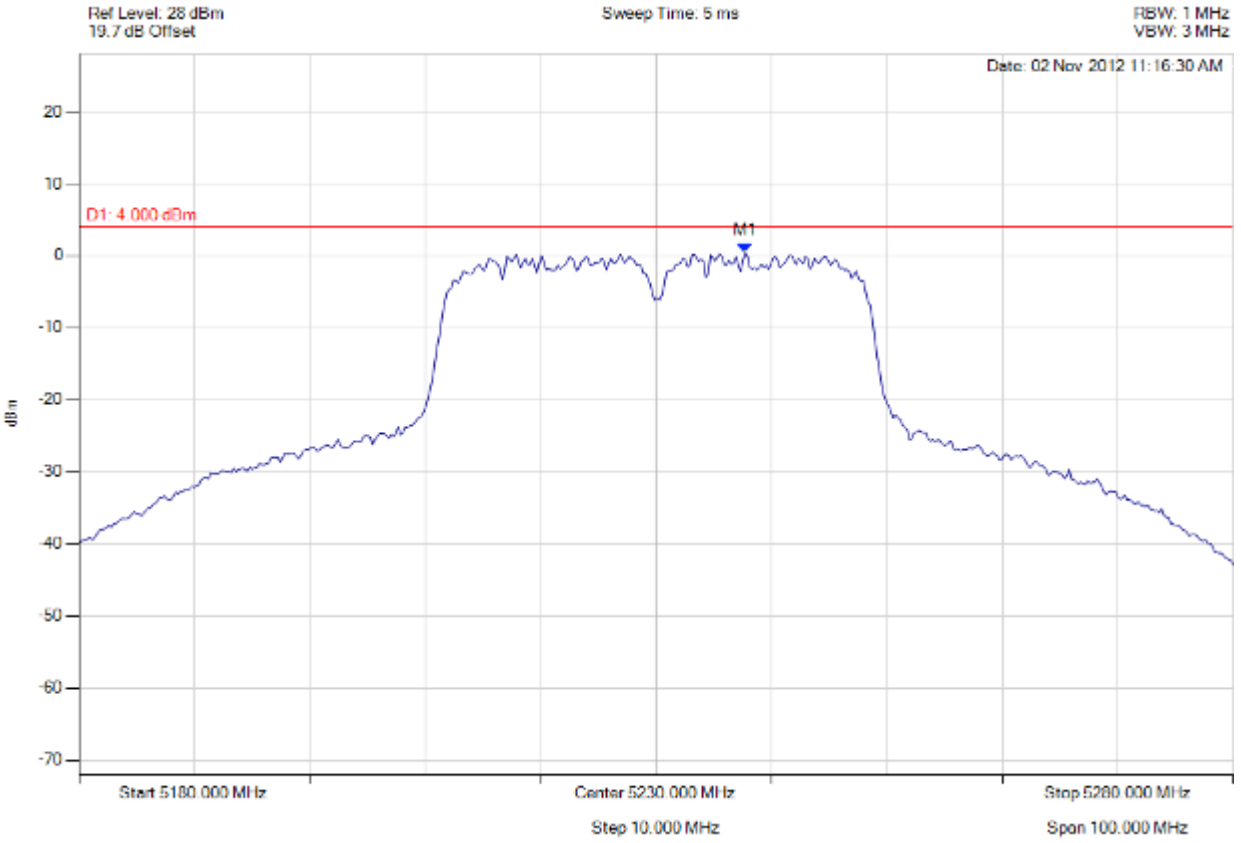


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5197.114 MHz : 0.895 dBm	Limit: 8.000 dBm Margin: -7.11 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

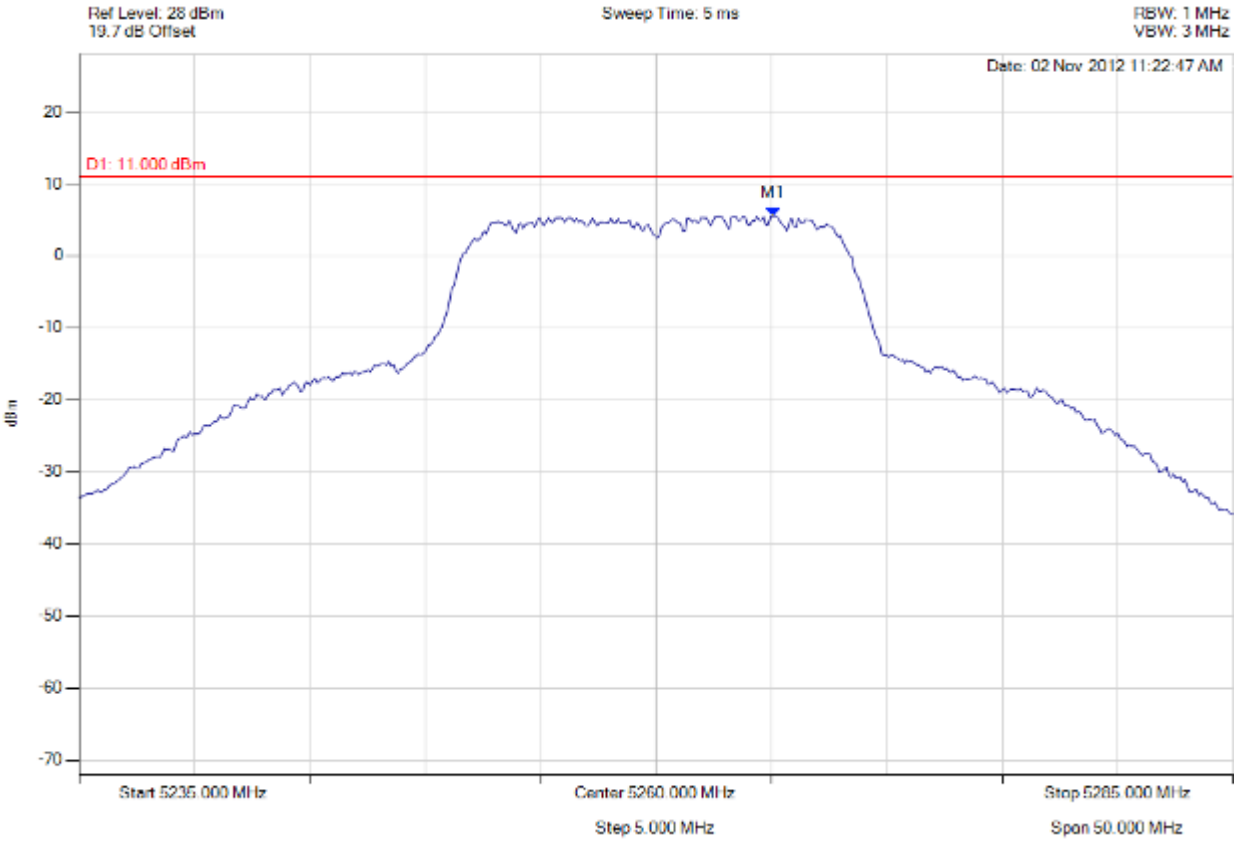


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5237.715 MHz : 0.484 dBm	Limit: 8.000 dBm Margin: -7.52 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

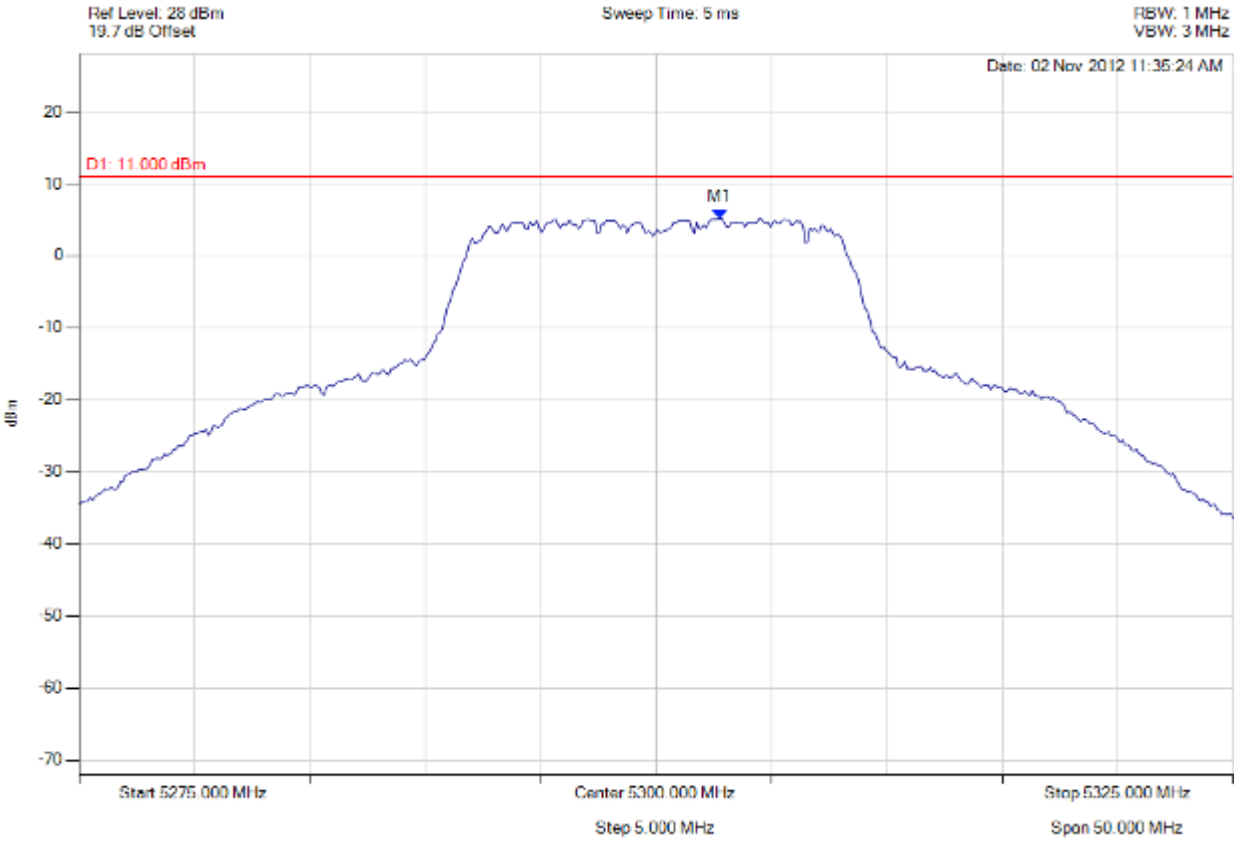


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5265.060 MHz : 5.544 dBm	Limit: 8.000 dBm Margin: -2.46 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

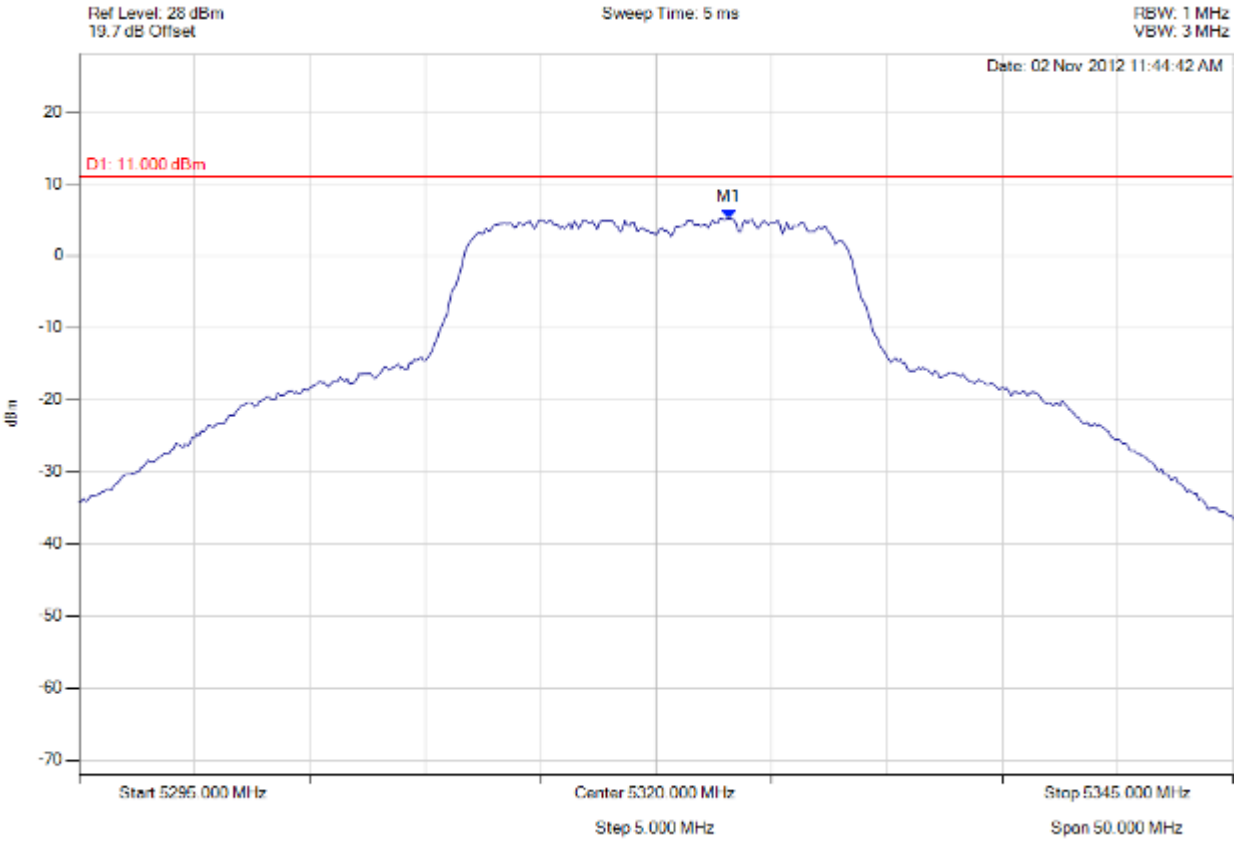


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5302.756 MHz : 5.178 dBm	Limit: 8.000 dBm Margin: -2.82 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

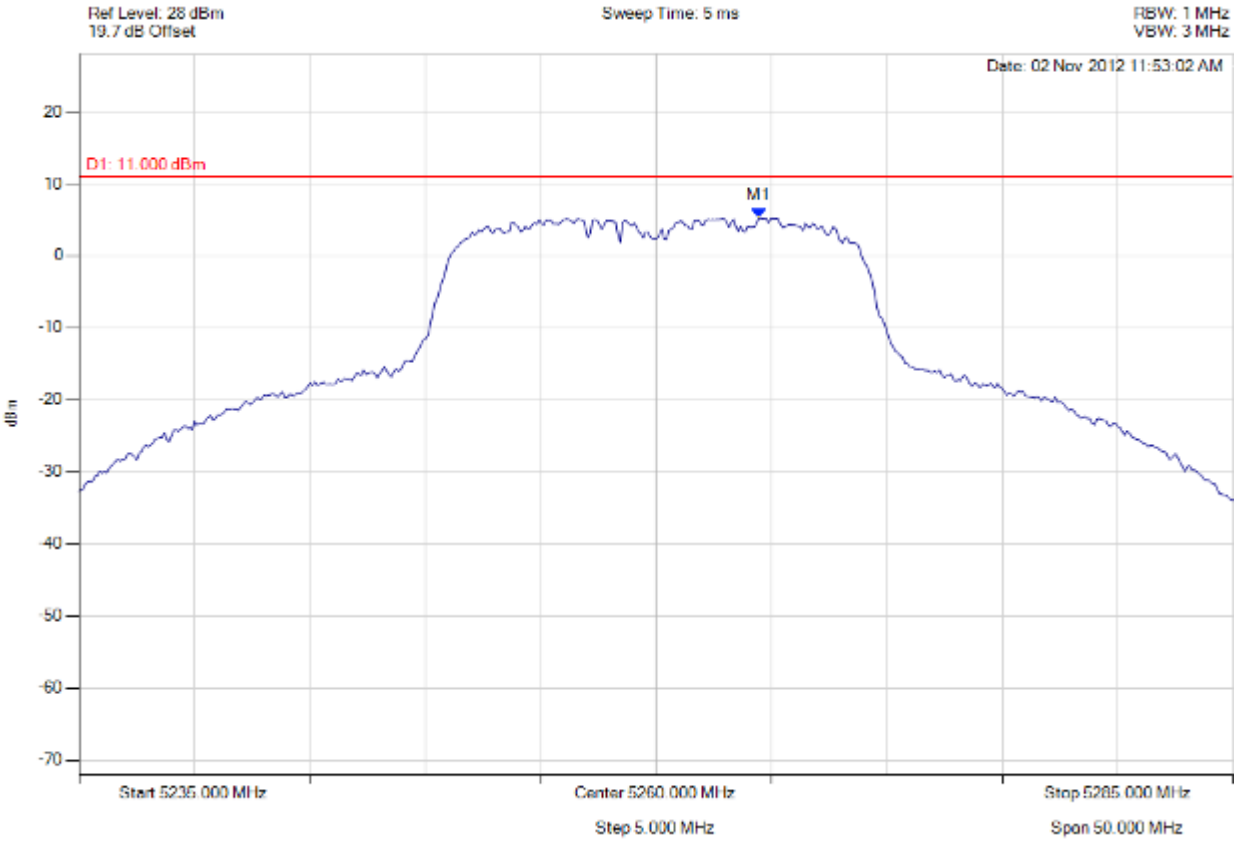


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5323.156 MHz : 5.169 dBm	Limit: 8.000 dBm Margin: -2.83 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

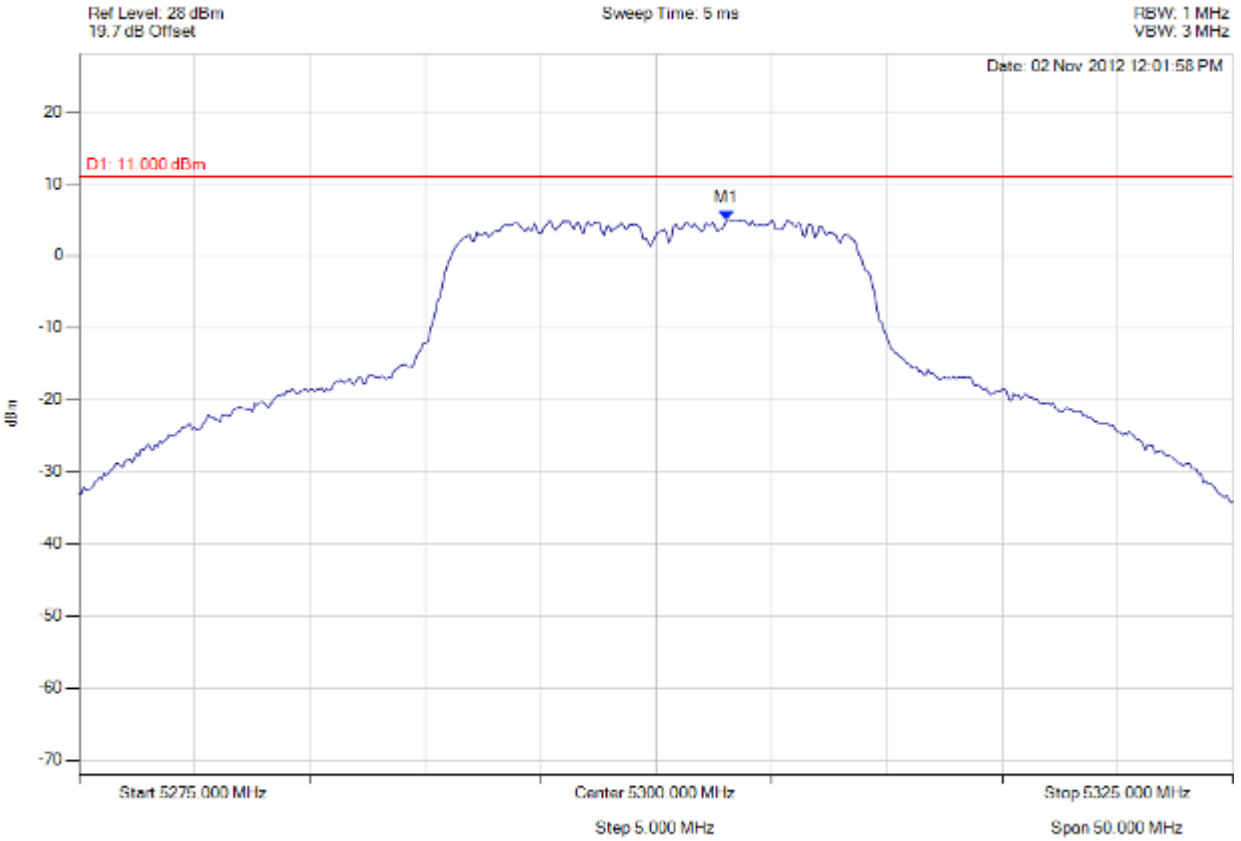


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5264.459 MHz : 5.259 dBm	Limit: 8.000 dBm Margin: -2.74 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

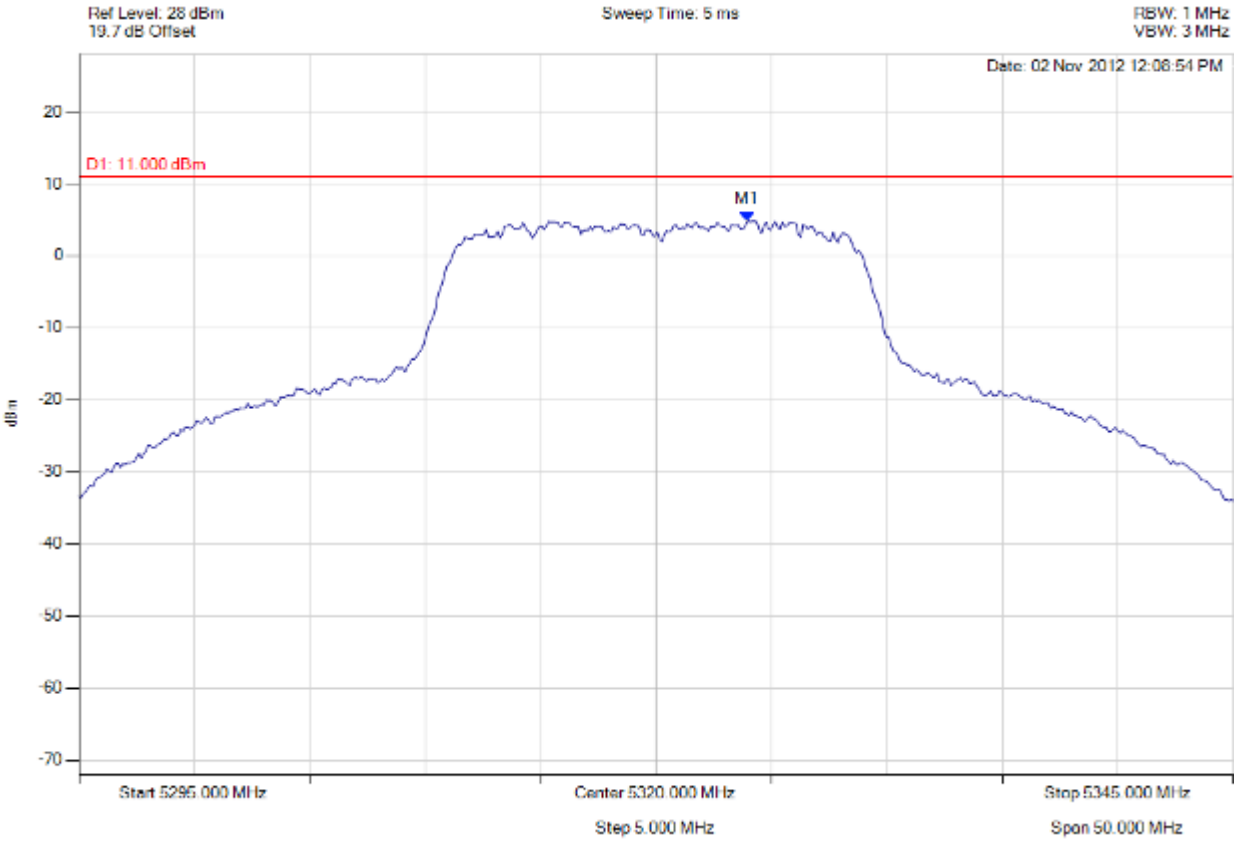


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.056 MHz : 5.032 dBm	Limit: 8.000 dBm Margin: -2.97 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

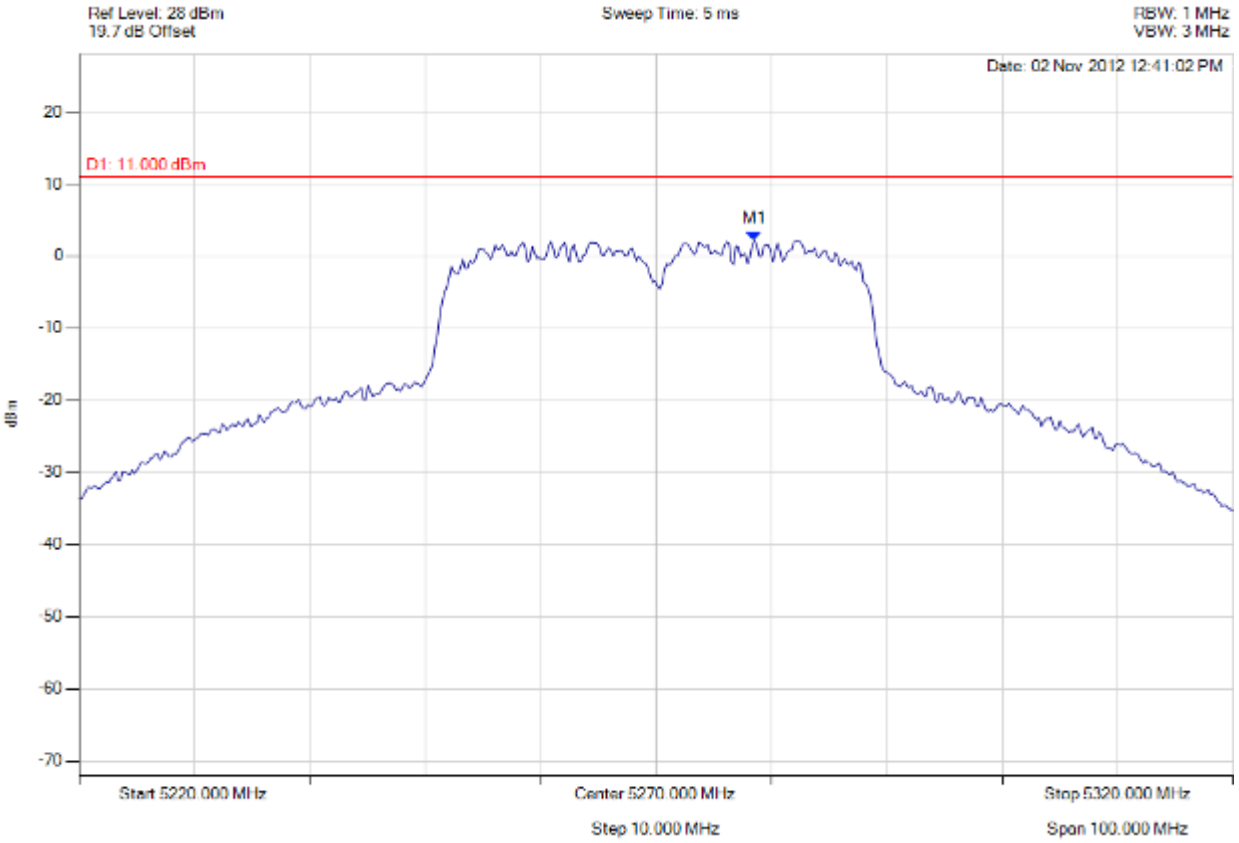


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5323.958 MHz : 4.823 dBm	Limit: 8.000 dBm Margin: -3.18 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

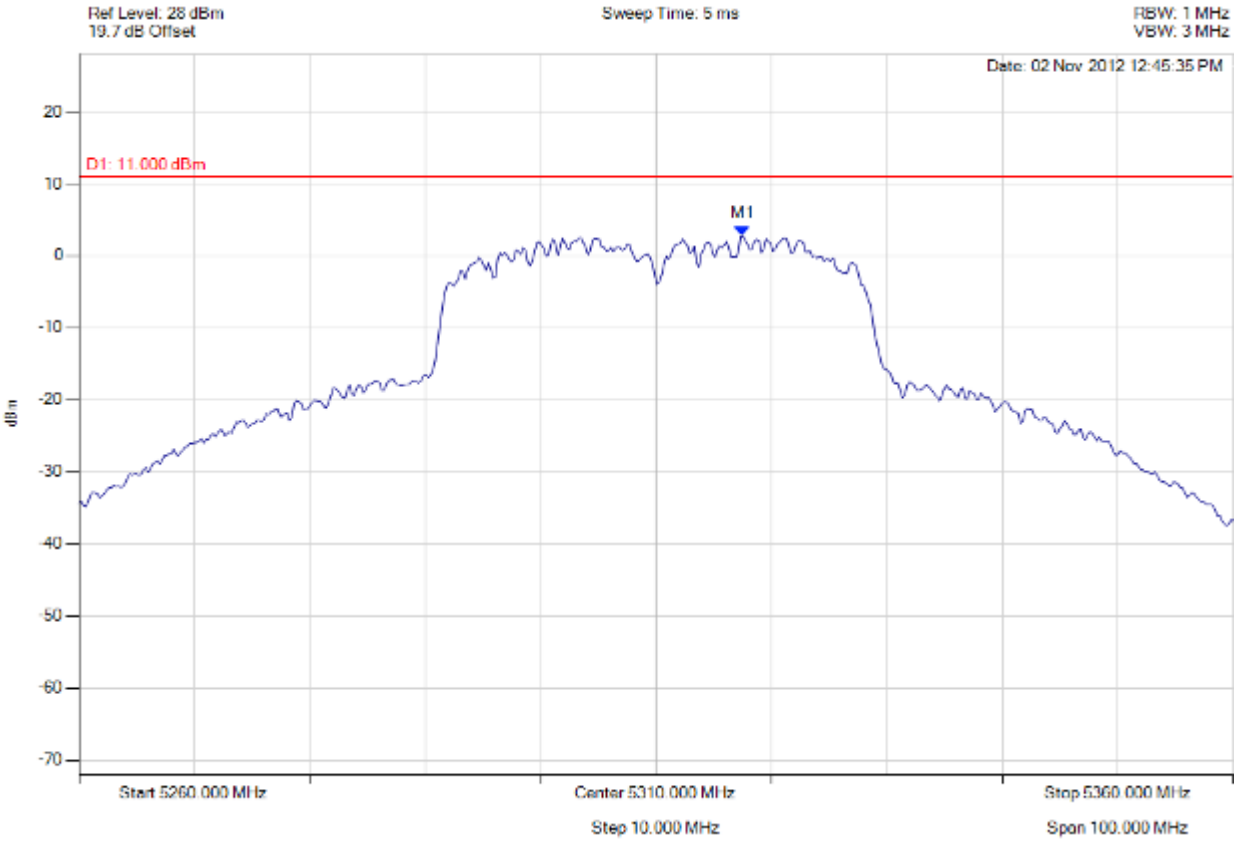


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5278.517 MHz : 2.113 dBm	Limit: 8.000 dBm Margin: -5.89 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

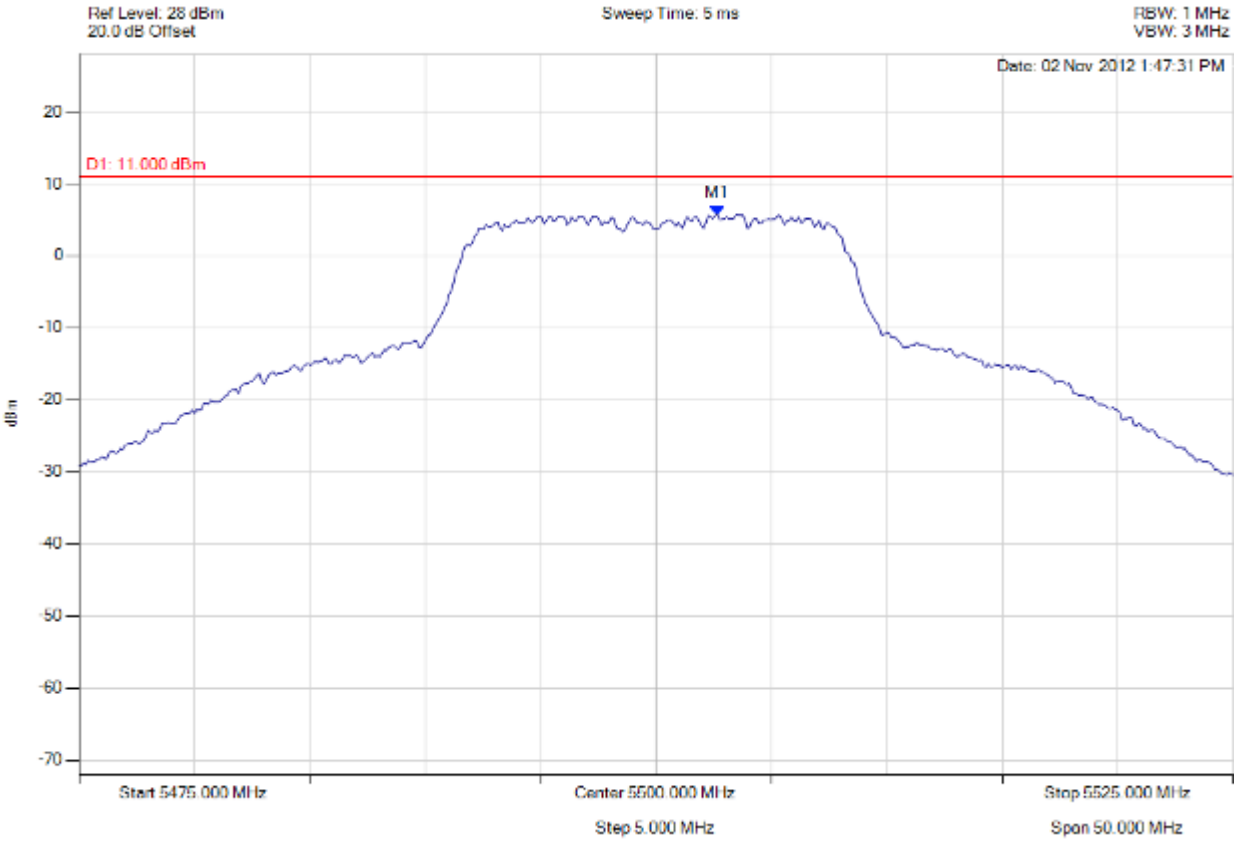


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5317.515 MHz : 2.748 dBm	Limit: 8.000 dBm Margin: -5.25 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

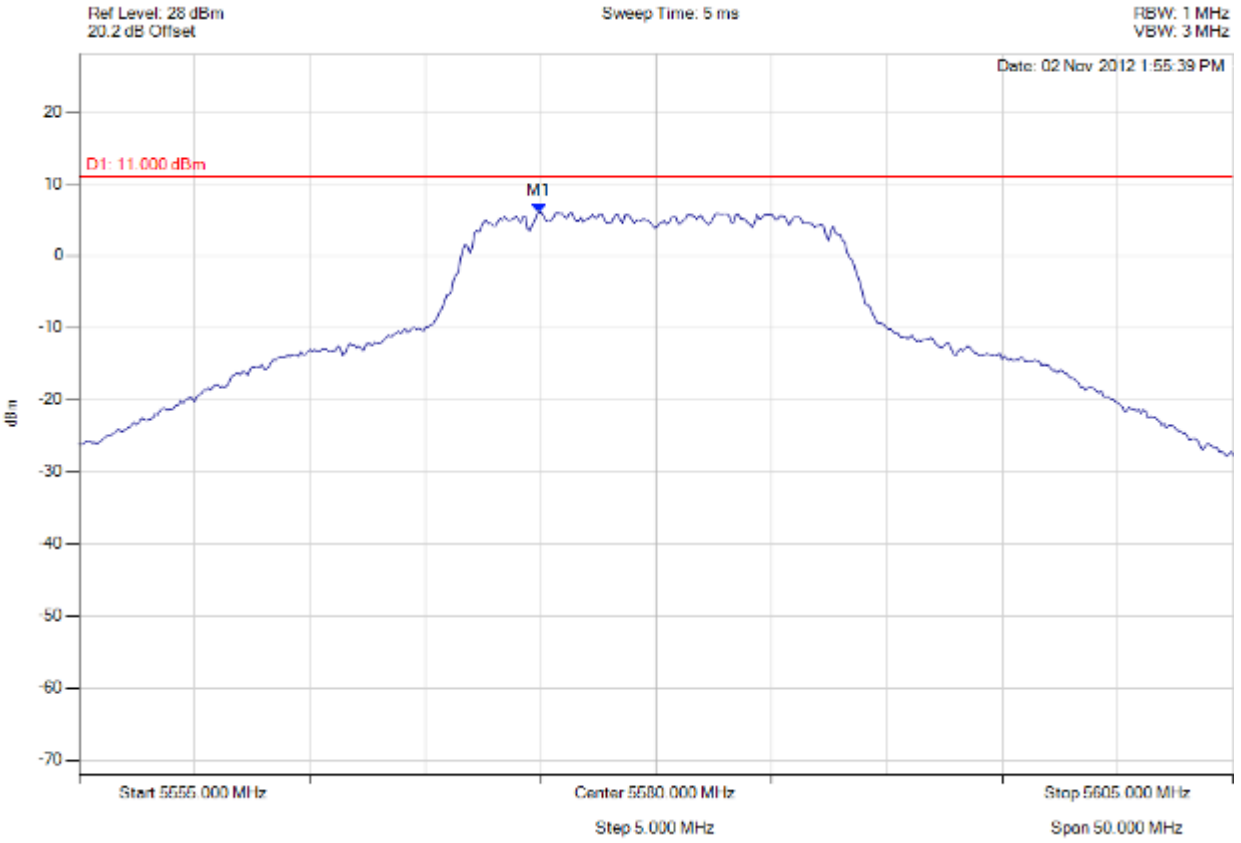


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5502.655 MHz : 5.704 dBm	Limit: 8.000 dBm Margin: -2.30 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

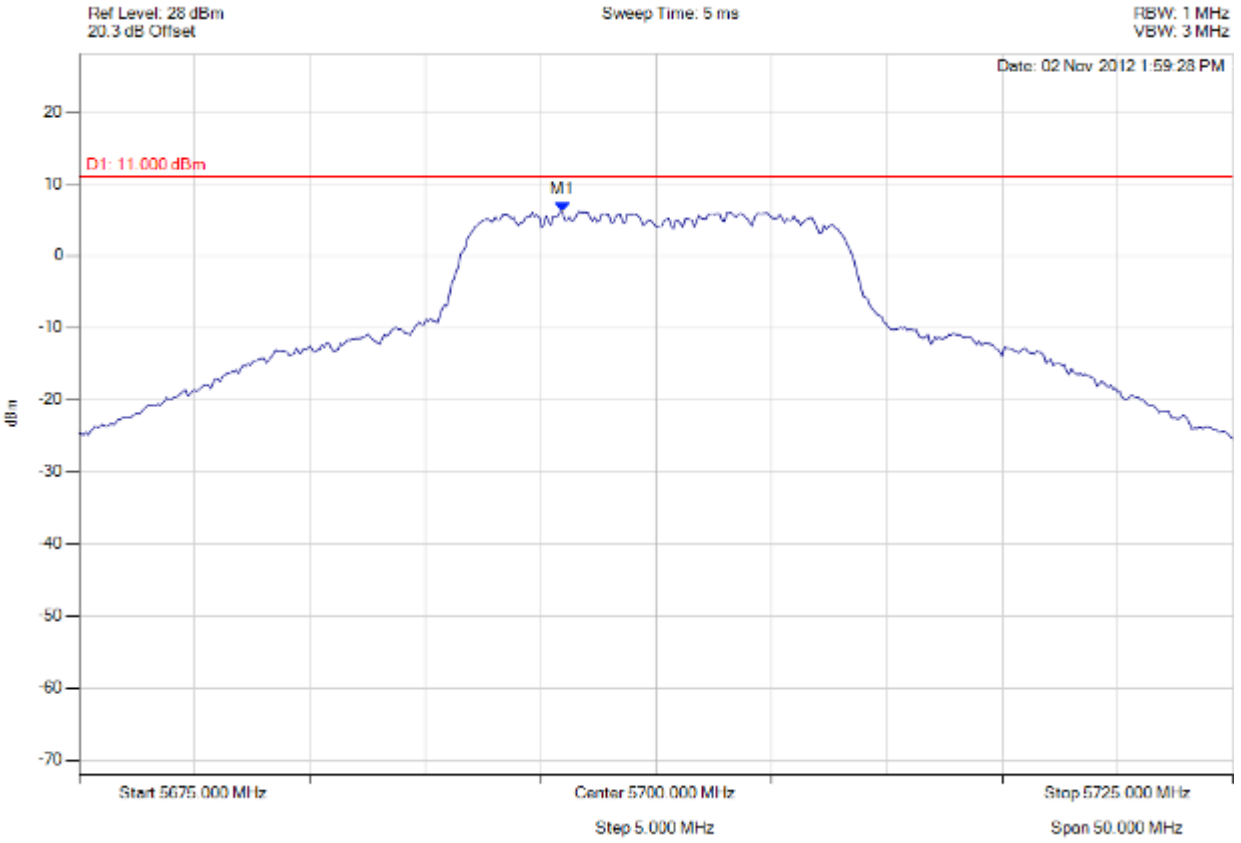


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5574.940 MHz : 5.999 dBm	Limit: 8.000 dBm Margin: -2.00 dB

Back to the Matrix

power density

Variant: 802.11a, Channel: 5700.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

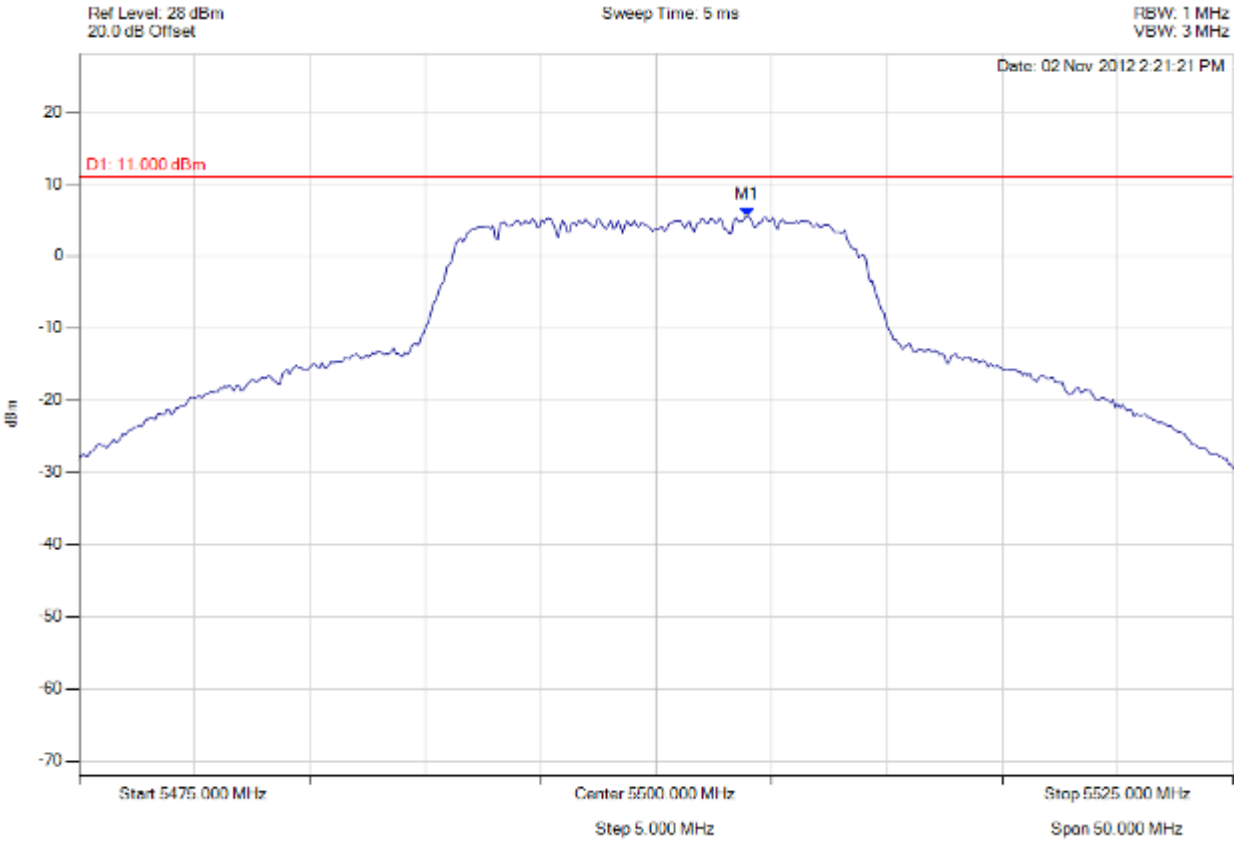


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5695.942 MHz : 6.134 dBm	Limit: 8.000 dBm Margin: -1.87 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

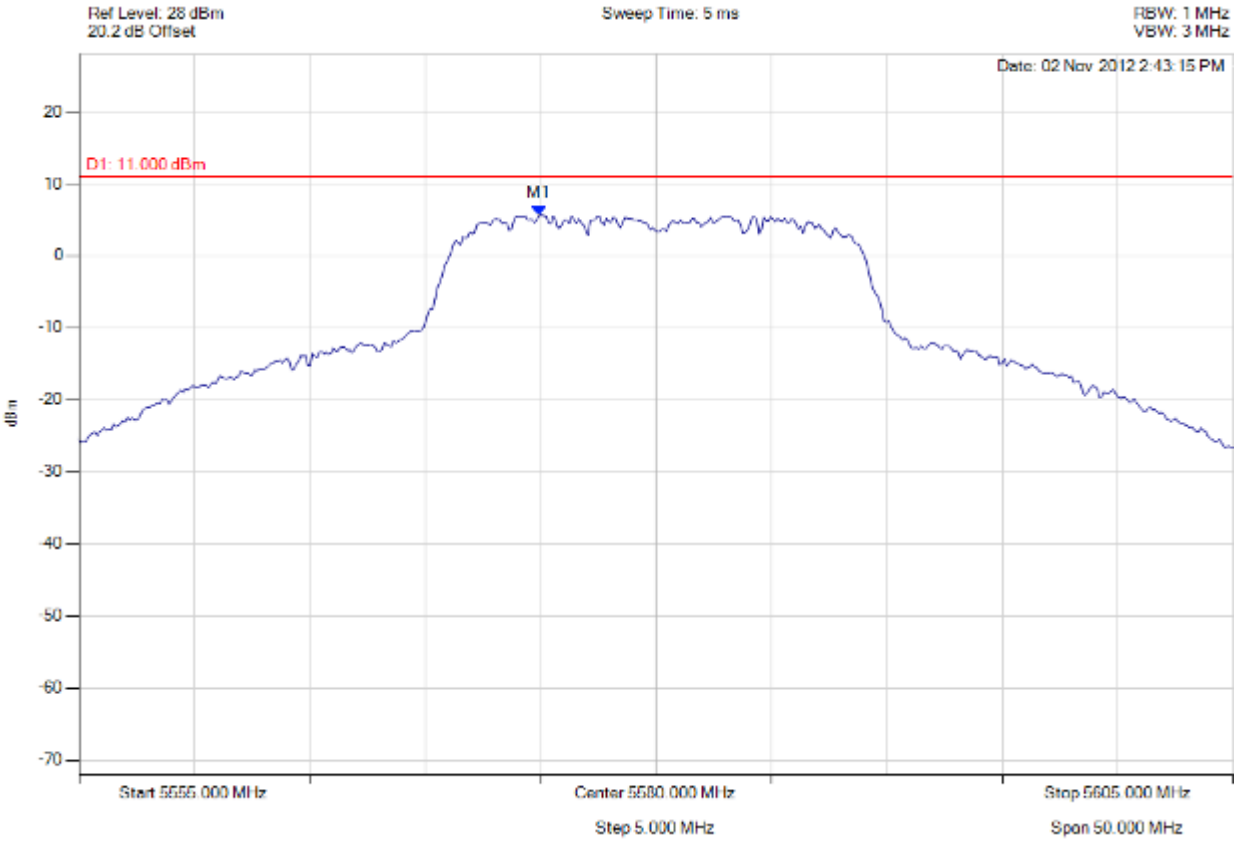


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5503.958 MHz : 5.459 dBm	Limit: 8.000 dBm Margin: -2.54 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

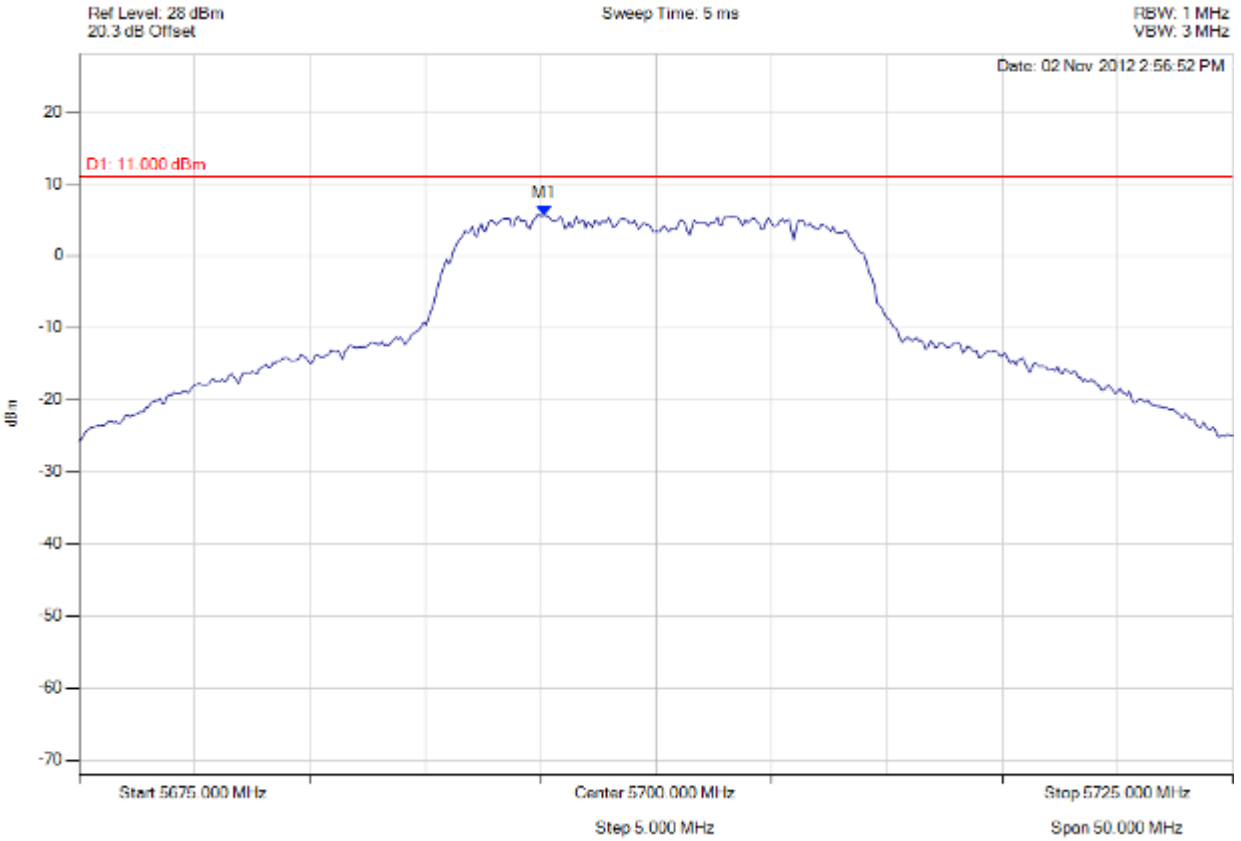


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5574.940 MHz : 5.646 dBm	Limit: 8.000 dBm Margin: -2.35 dB

Back to the Matrix

power density

Variant: 802.11n HT-20, Channel: 5700.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

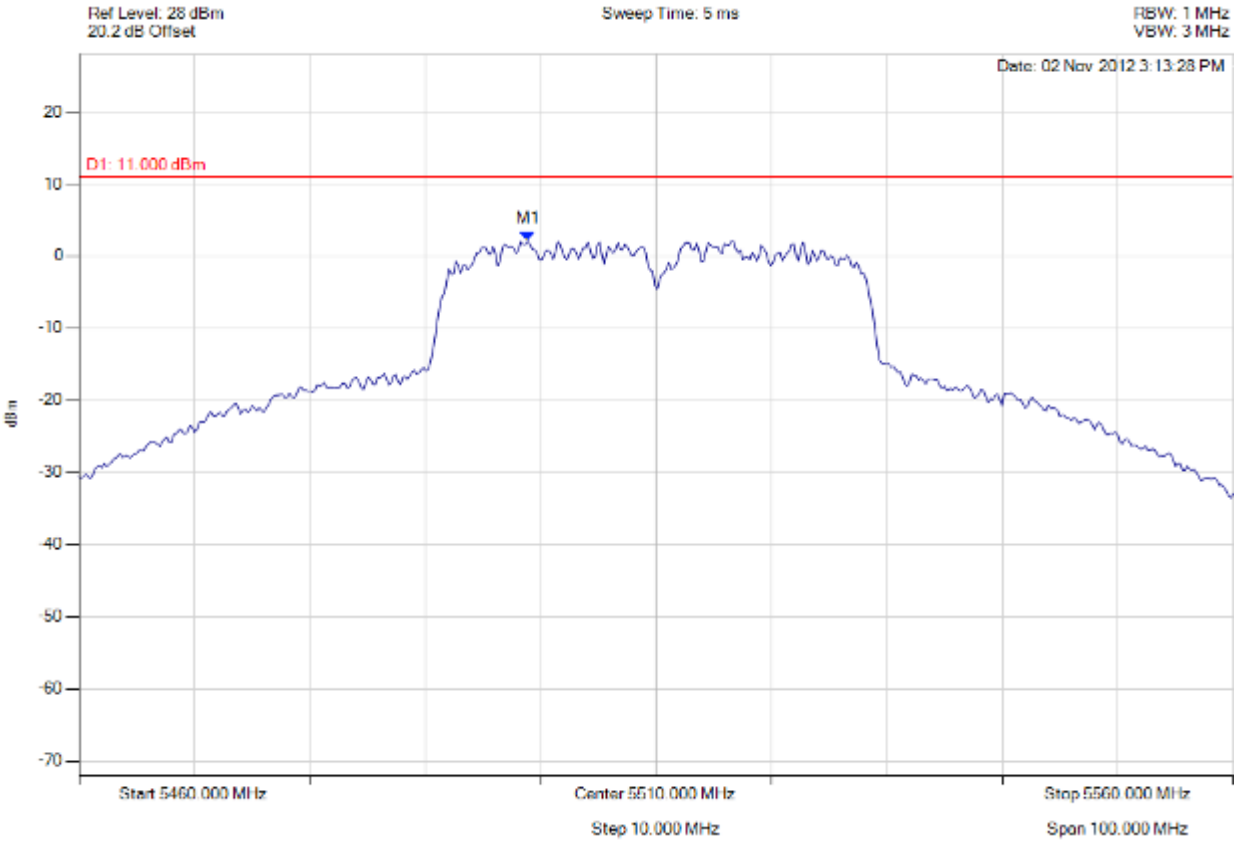


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5695.140 MHz : 5.630 dBm	Limit: 8.000 dBm Margin: -2.37 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

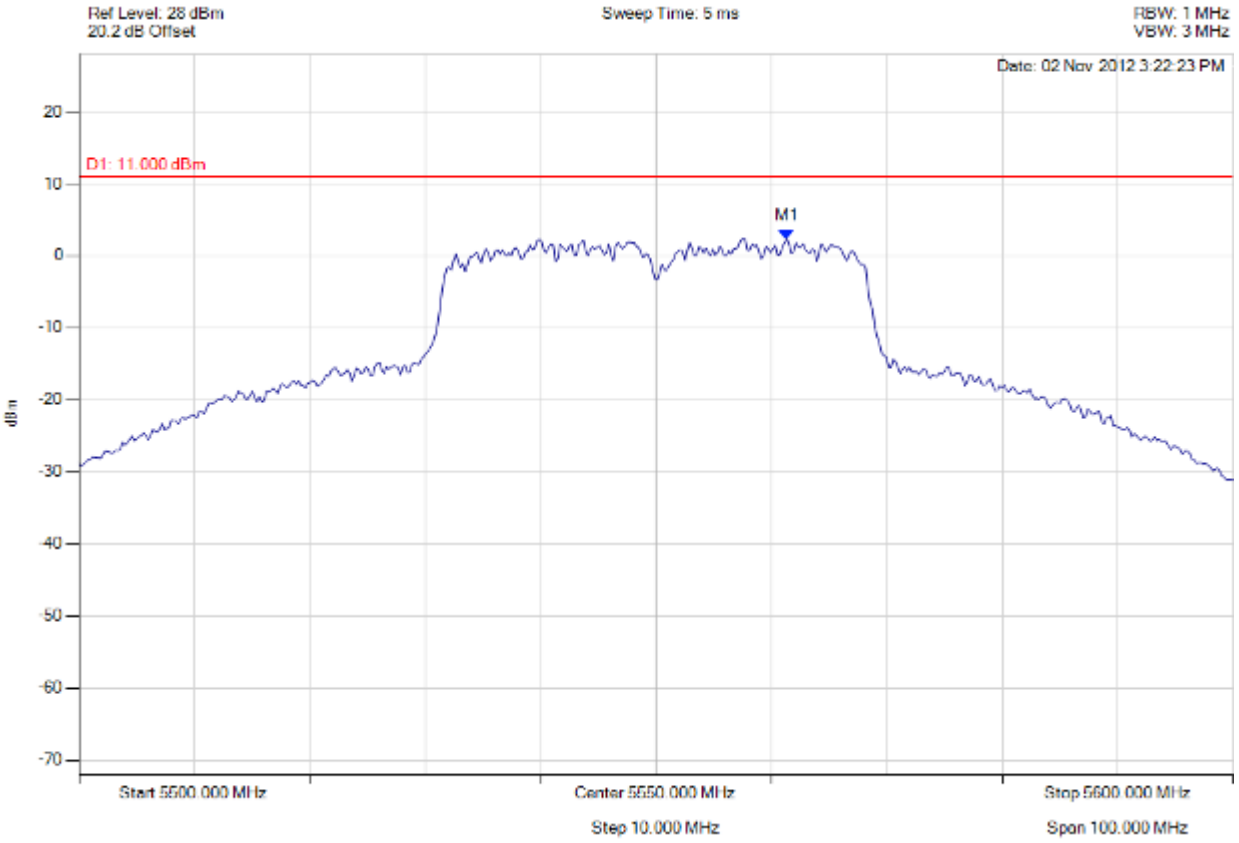


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5498.878 MHz : 2.062 dBm	Limit: 8.000 dBm Margin: -5.94 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

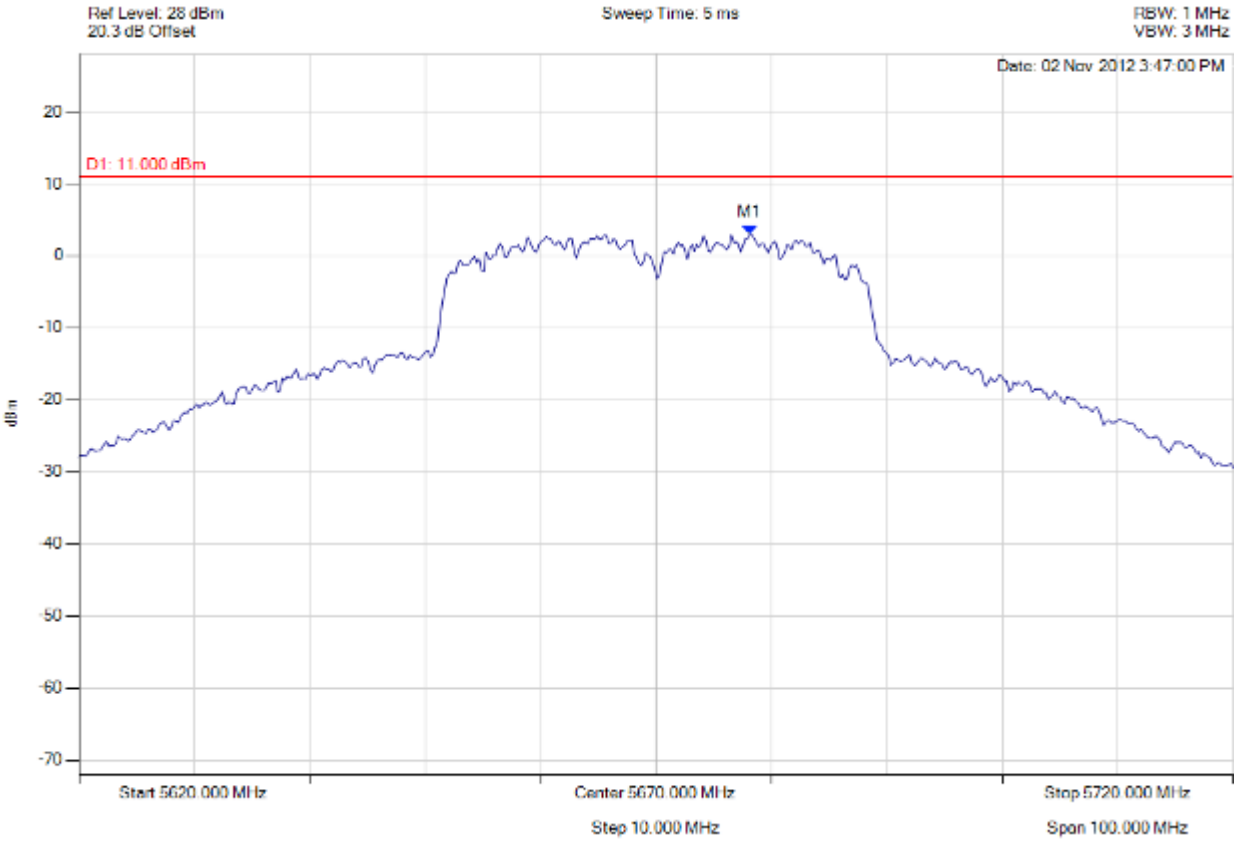


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5561.323 MHz : 2.386 dBm	Limit: 8.000 dBm Margin: -5.61 dB

Back to the Matrix

power density

Variant: 802.11n HT-40, Channel: 5670.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V



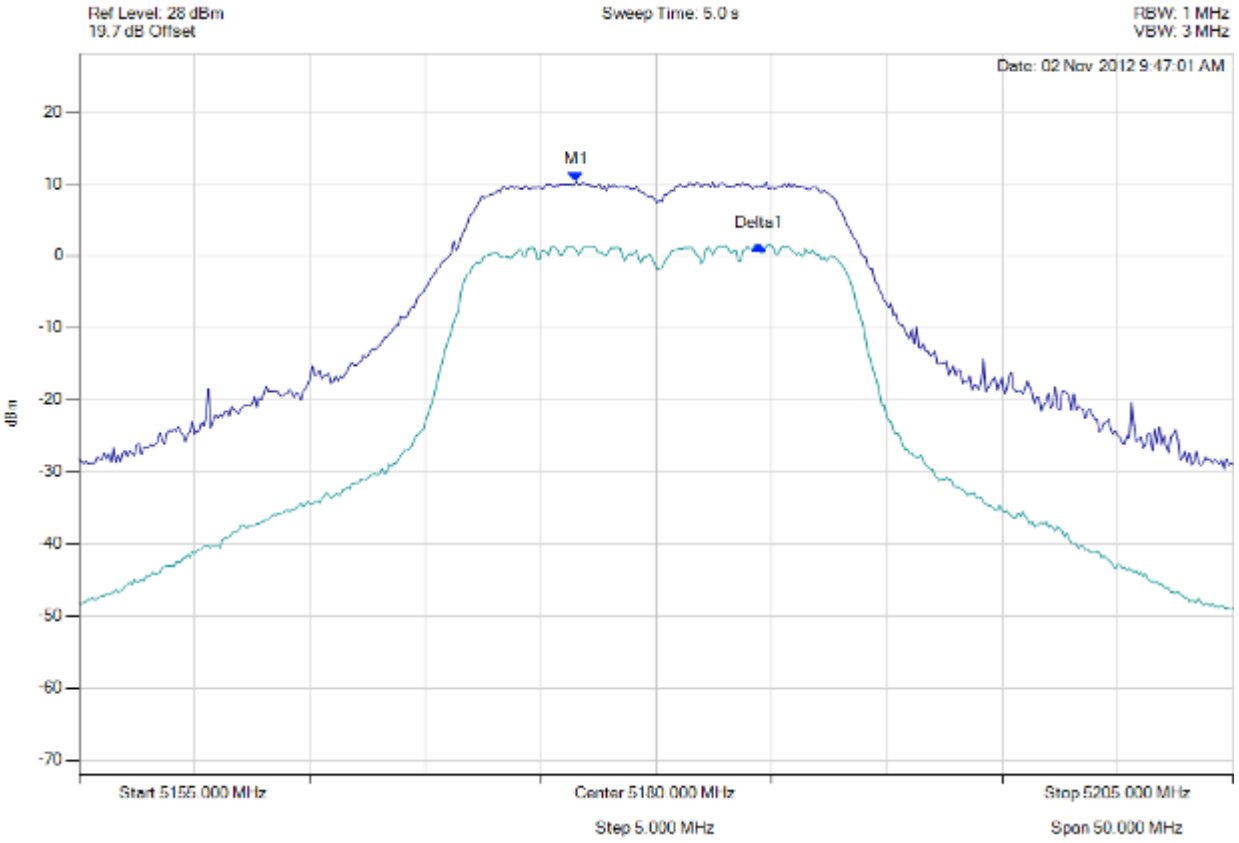
Analyser Setup	Marker : Frequency : Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5678.116 MHz : 2.982 dBm	Limit: 8.000 dBm Margin: -5.02 dB

Back to the Matrix

A.1.3. Peak Excursion Ratio

peak excursion

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

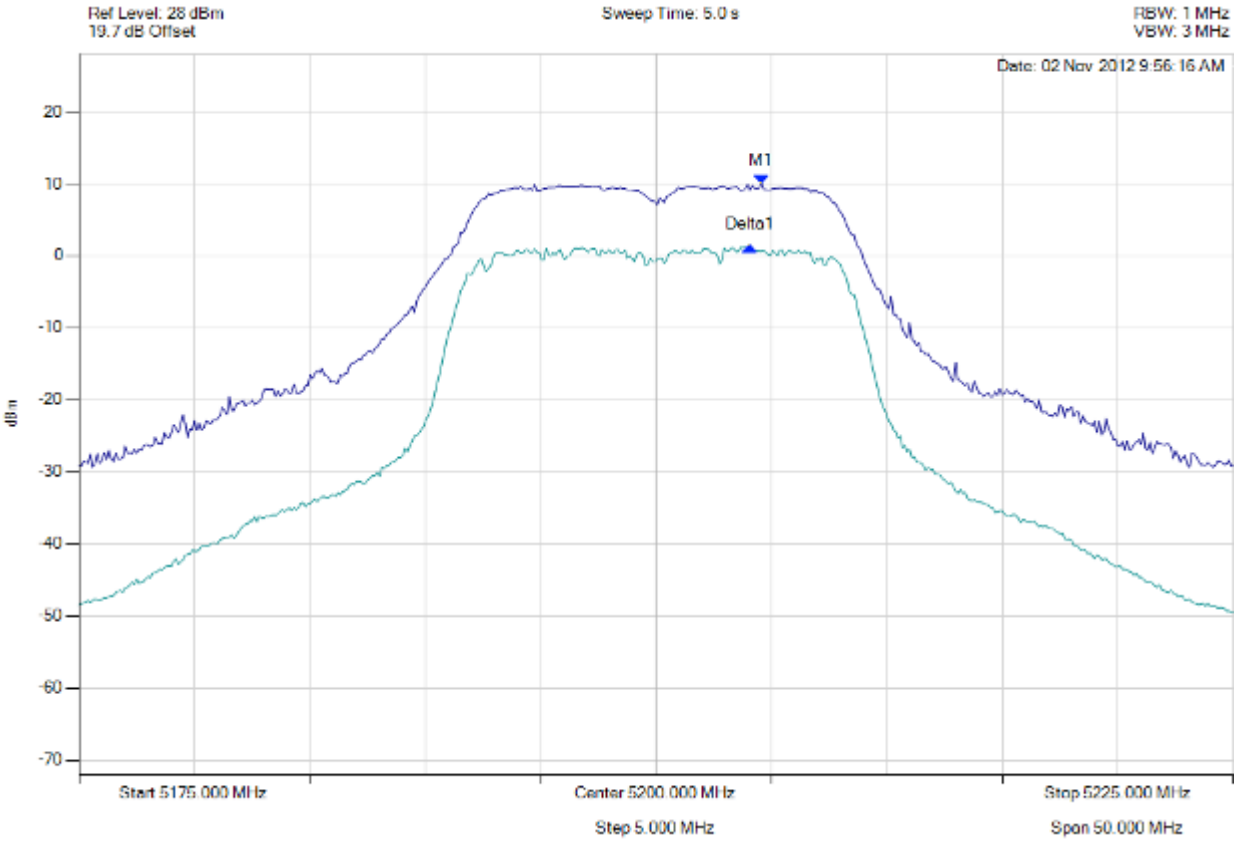


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5176.543 MHz : 10.263 dBm Delta1 : 7.916 MHz : -8.775 dB	Measured Excursion Ratio: 8.78 dB Limit: -13.0 dB Margin: -4.22 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

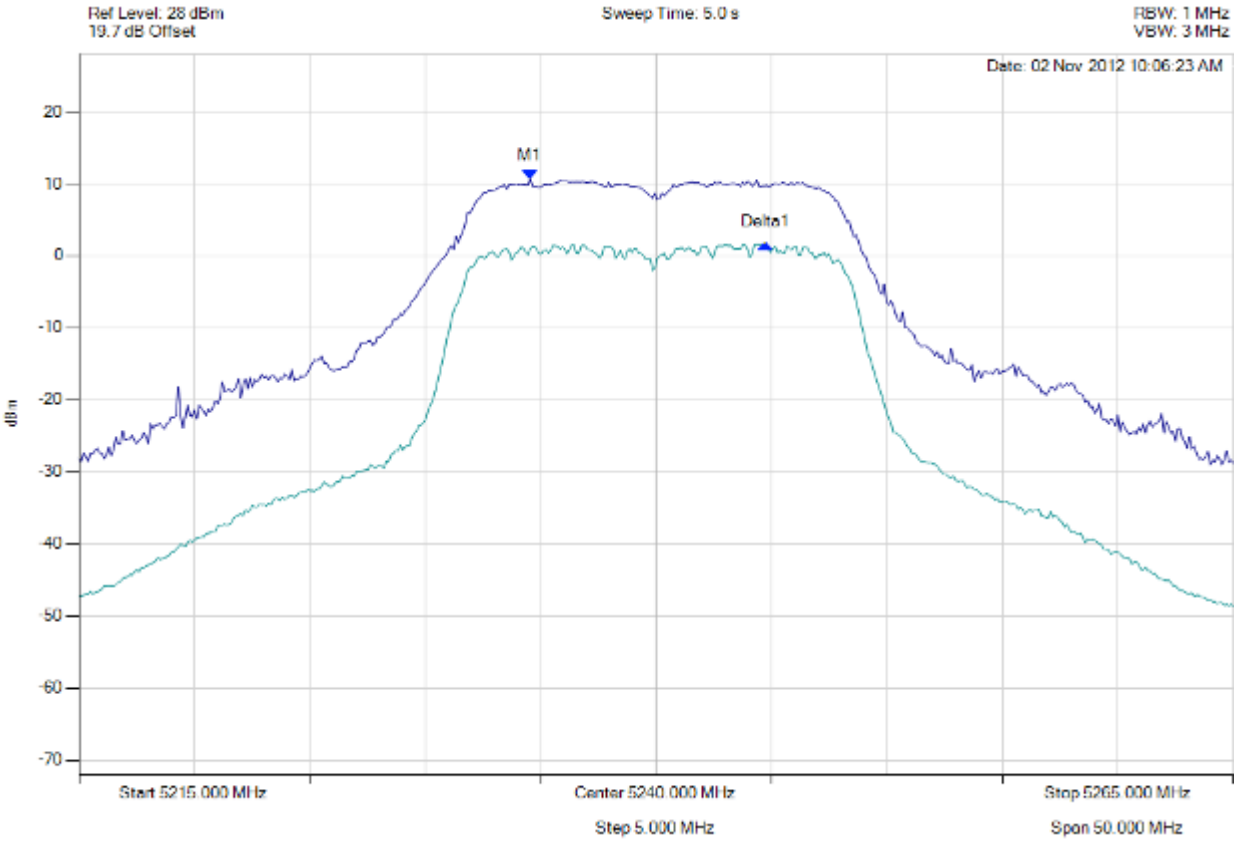


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5204.559 MHz : 10.046 dBm Delta1 : -501002 Hz : -8.759 dB	Measured Excursion Ratio: 8.76 dB Limit: -13.0 dB Margin: -4.24 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

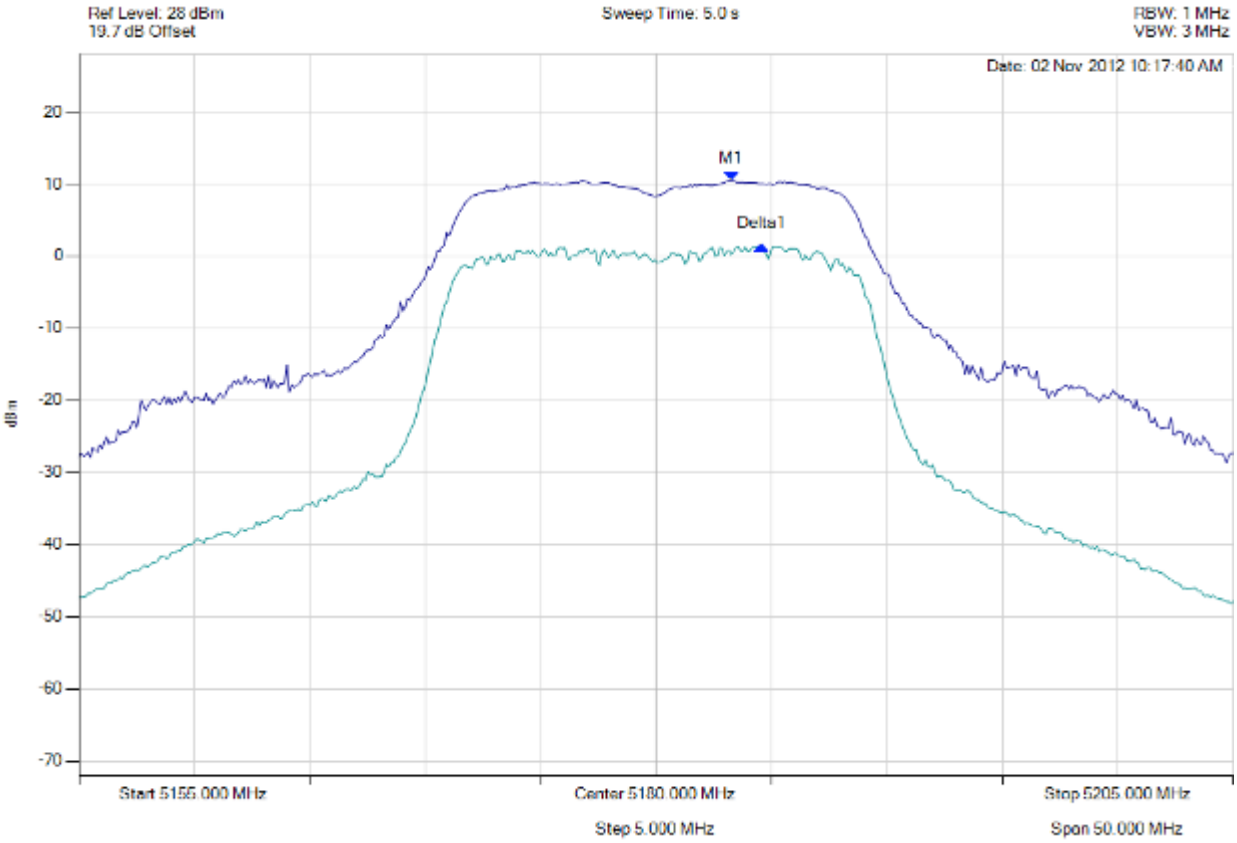


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5234.539 MHz : 10.718 dBm Delta1 : 10.220 MHz : -9.132 dB	Measured Excursion Ratio: 9.13 dB Limit: -13.0 dB Margin: -3.87 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

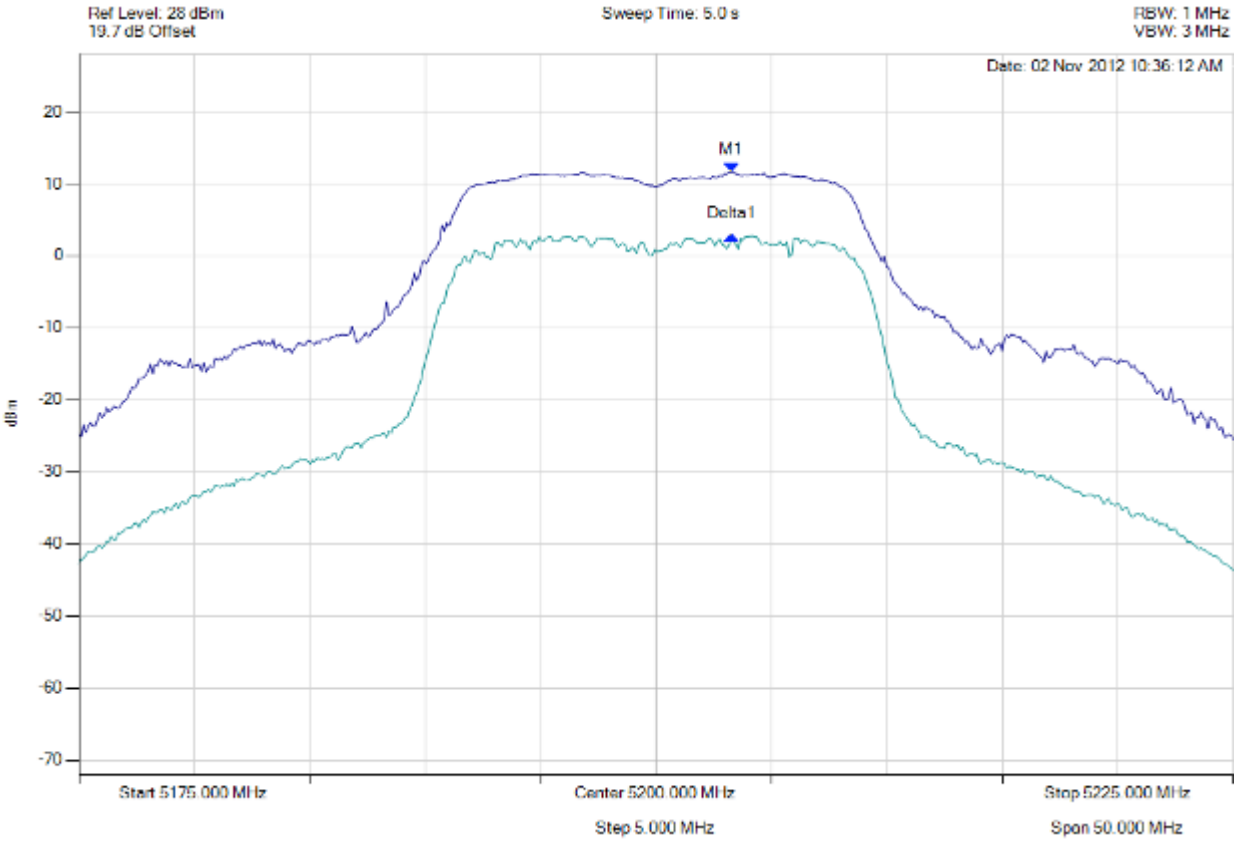


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5183.257 MHz : 10.494 dBm Delta1 : 1.303 MHz : -9.091 dB	Measured Excursion Ratio: 9.09 dB Limit: -13.0 dB Margin: -3.91 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

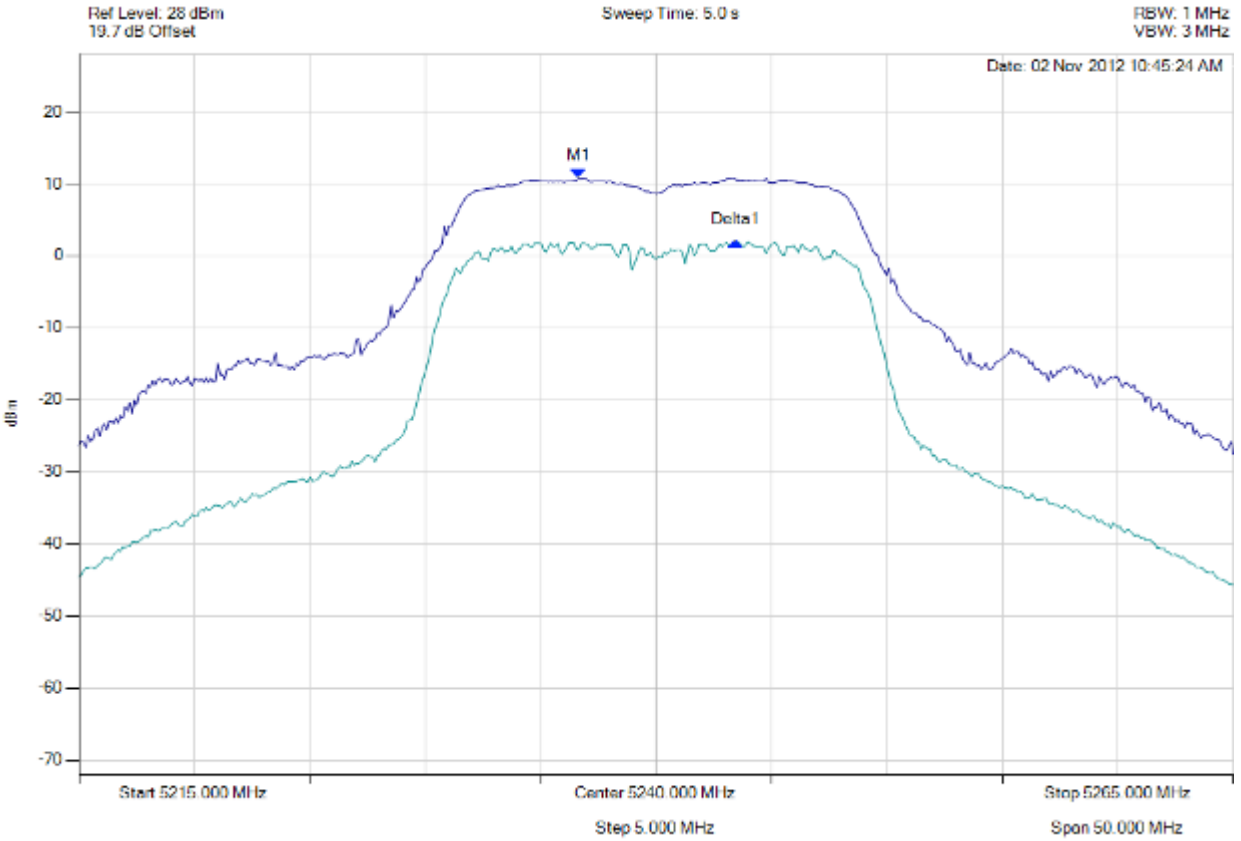


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5203.257 MHz : 11.594 dBm Delta1 : 0 Hz : -8.848 dB	Measured Excursion Ratio: 8.85 dB Limit: -13.0 dB Margin: -4.15 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

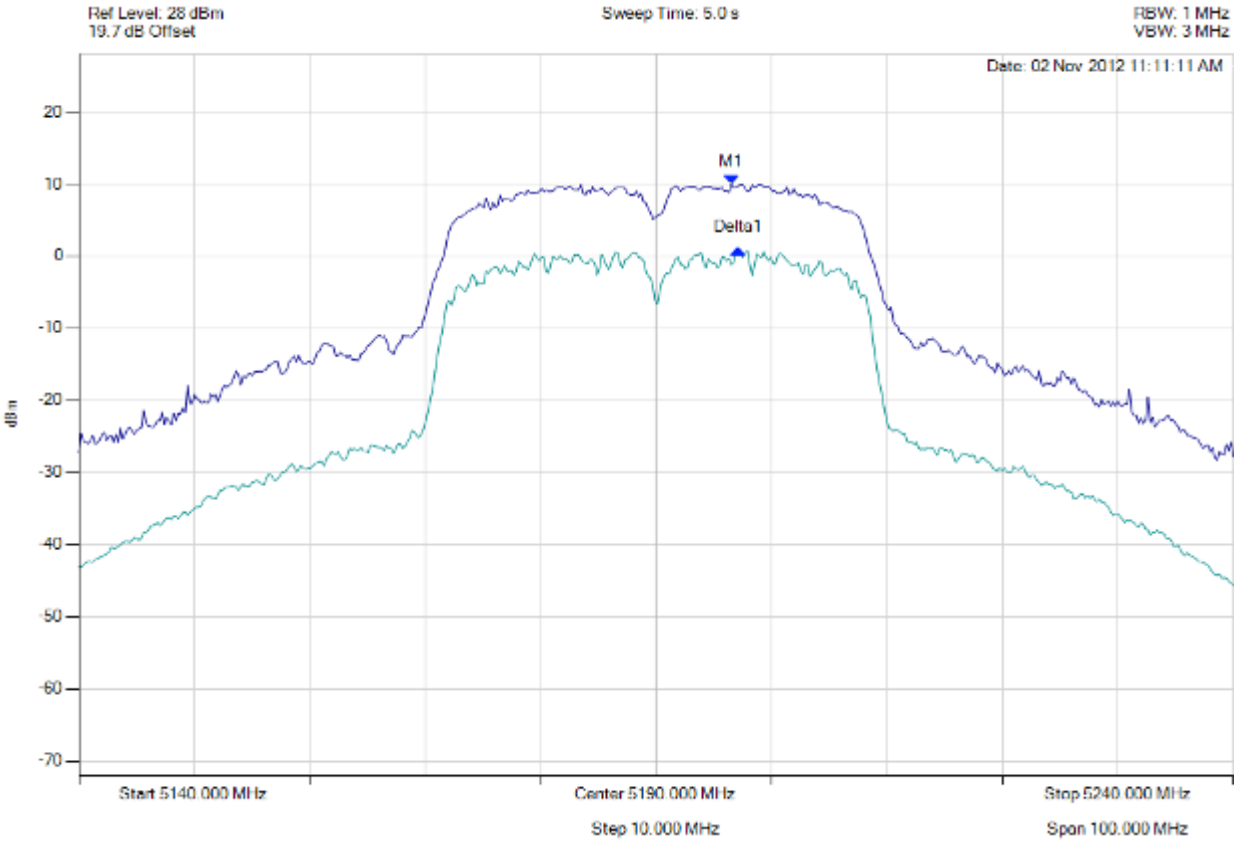


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5236.643 MHz : 10.766 dBm Delta1 : 6.814 MHz : -8.827 dB	Measured Excursion Ratio: 8.83 dB Limit: -13.0 dB Margin: -4.17 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

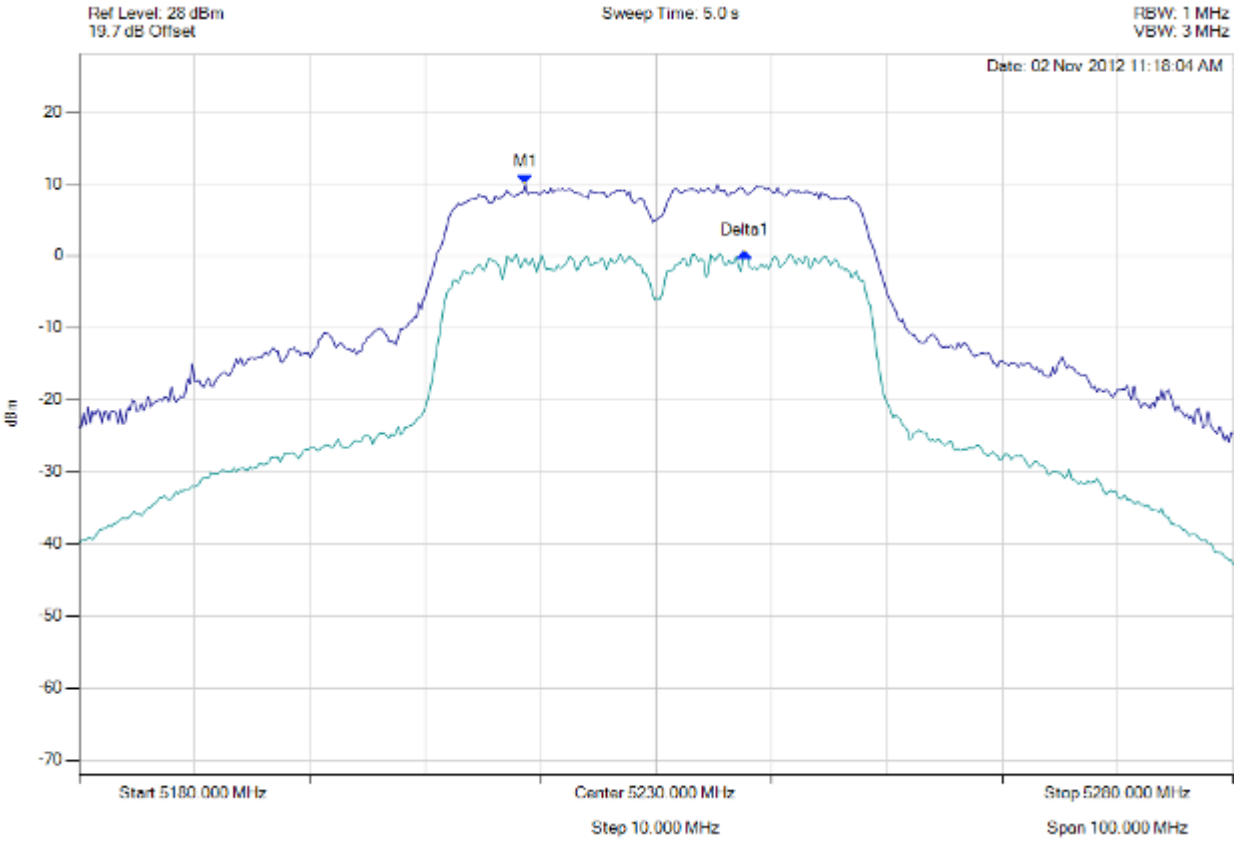


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5196.513 MHz : 9.971 dBm Delta1 : 601 KHz : -9.081 dB	Measured Excursion Ratio: 9.08 dB Limit: -13.0 dB Margin: -3.92 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

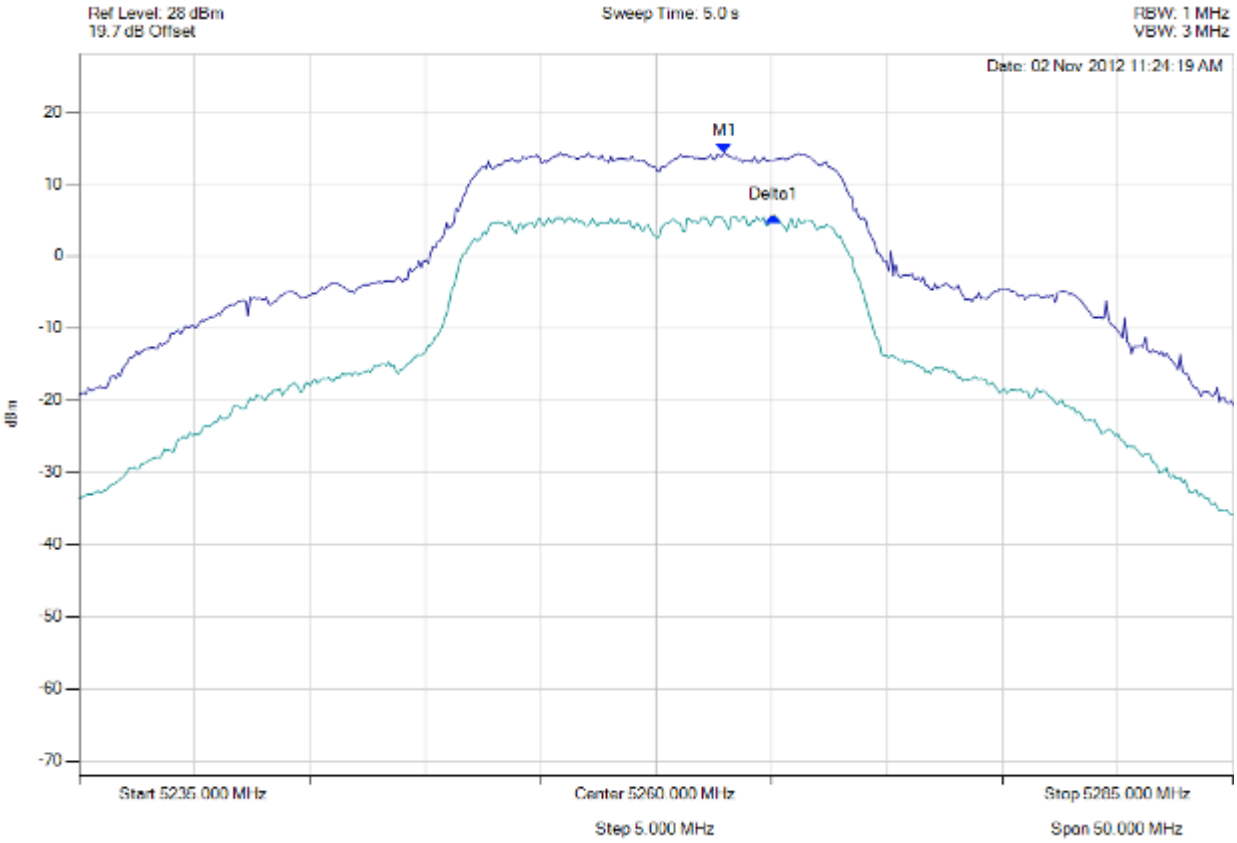


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5218.677 MHz : 9.952 dBm Delta1 : 19.038 MHz : -9.434 dB	Measured Excursion Ratio: 9.43 dB Limit: -13.0 dB Margin: -3.57 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

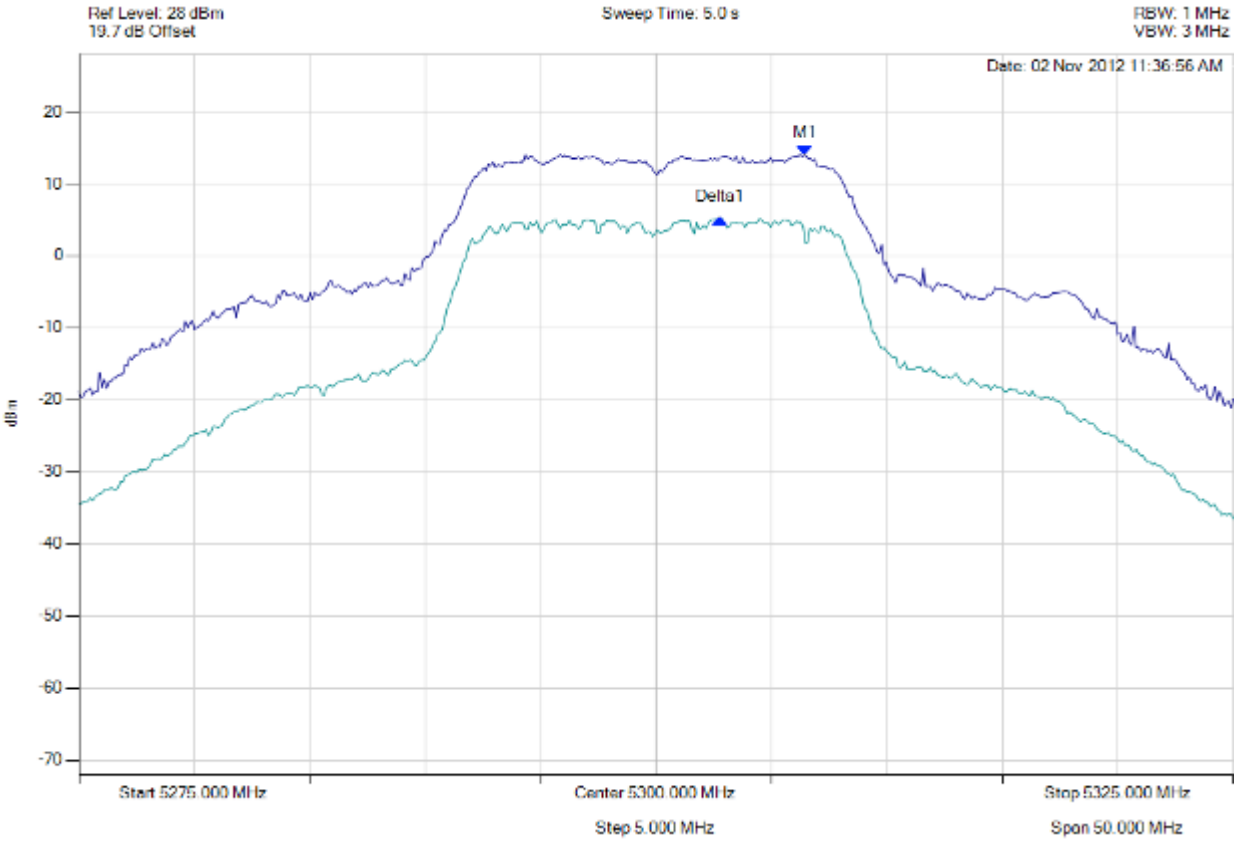


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5262.956 MHz : 14.328 dBm Delta1 : 2.104 MHz : -8.792 dB	Measured Excursion Ratio: 8.79 dB Limit: -13.0 dB Margin: -4.21 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

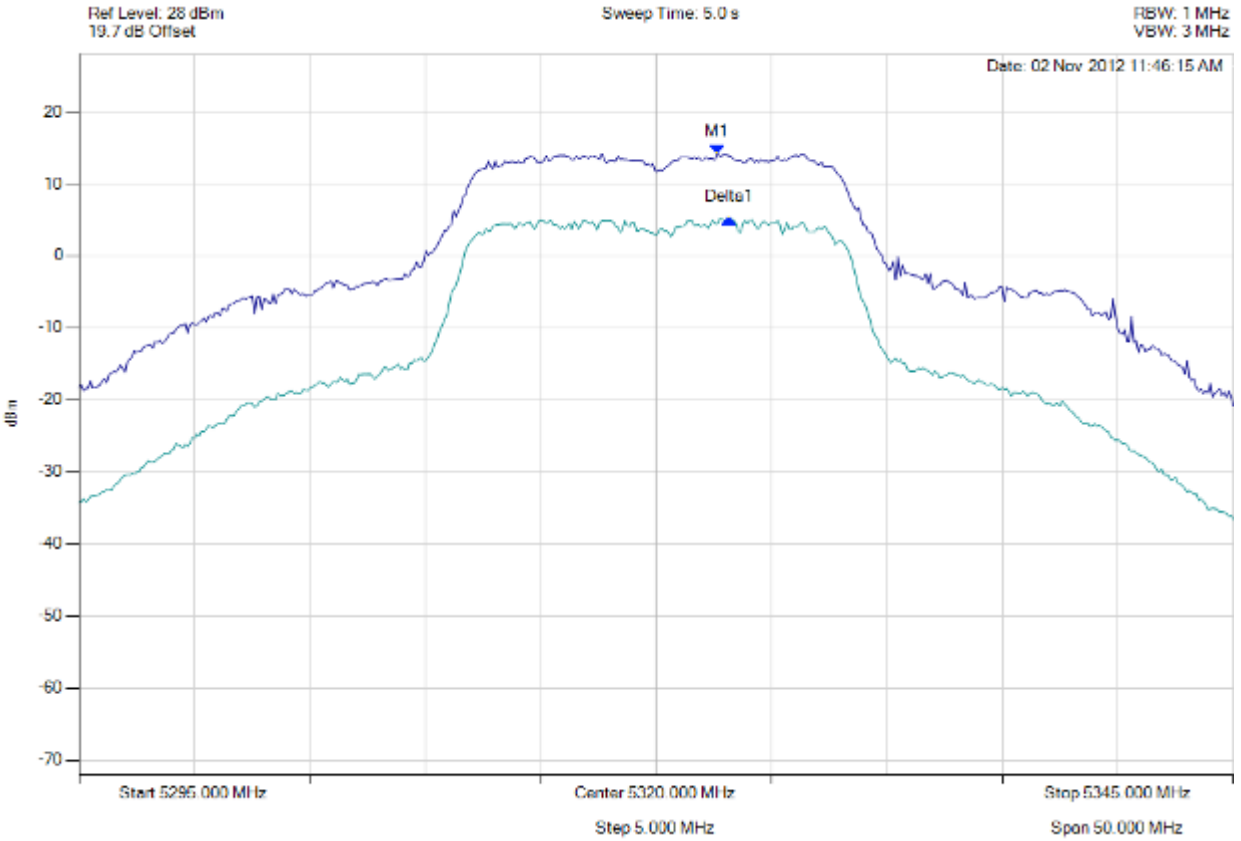


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5306.463 MHz : 14.039 dBm Delta1 : -3707415 Hz : -8.905 dB	Measured Excursion Ratio: 8.91 dB Limit: -13.0 dB Margin: -4.09 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

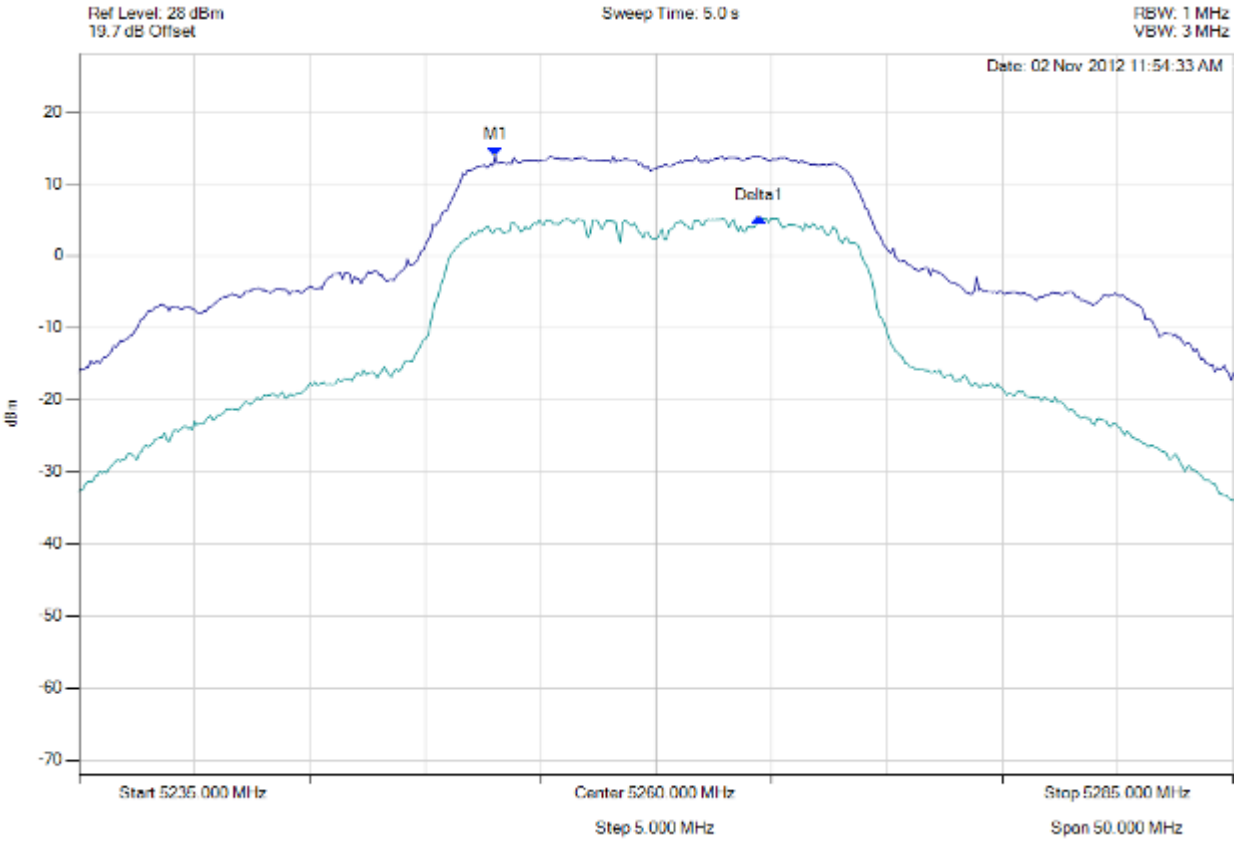


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5322.655 MHz : 14.172 dBm Delta1 : 501 KHz : -9.052 dB	Measured Excursion Ratio: 9.05 dB Limit: -13.0 dB Margin: -3.95 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

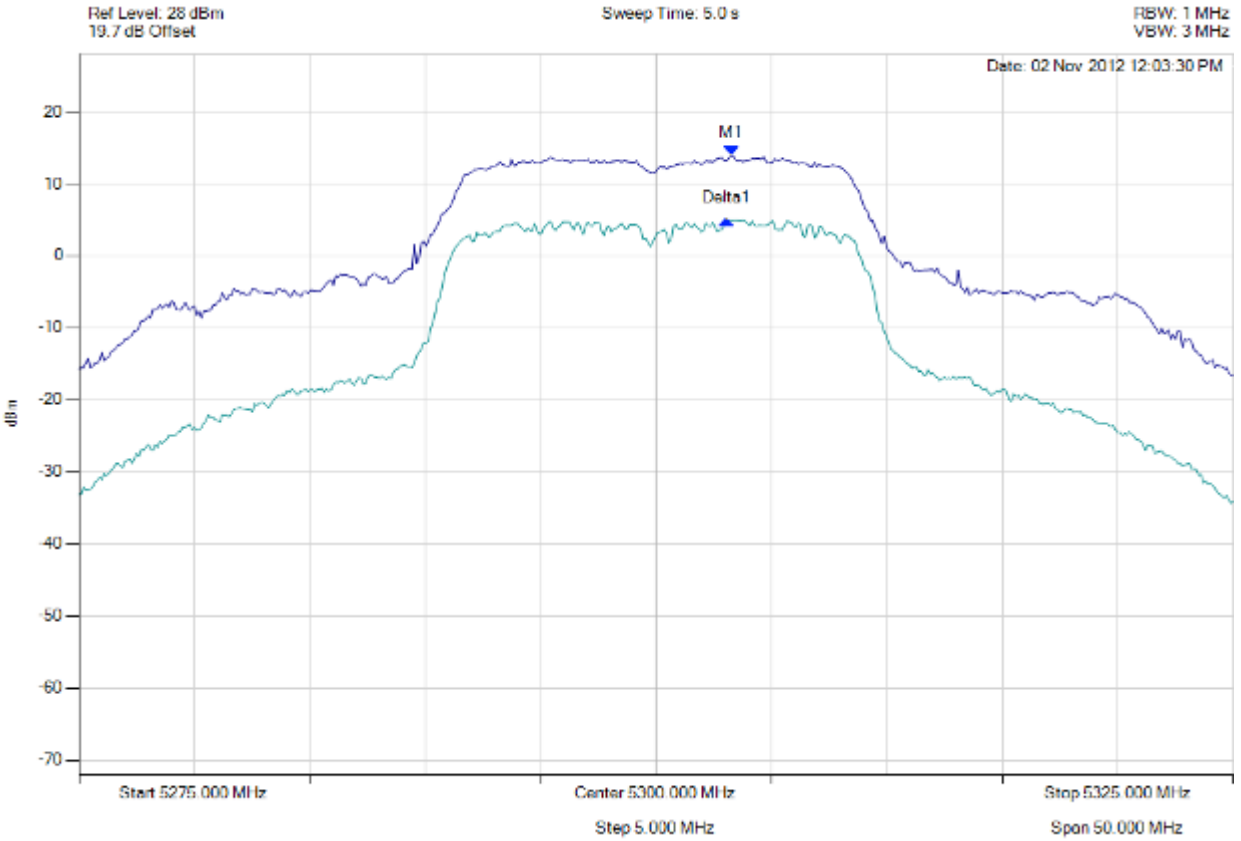


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5253.036 MHz : 13.881 dBm Delta1 : 11.423 MHz : -8.630 dB	Measured Excursion Ratio: 8.63 dB Limit: -13.0 dB Margin: -4.37 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

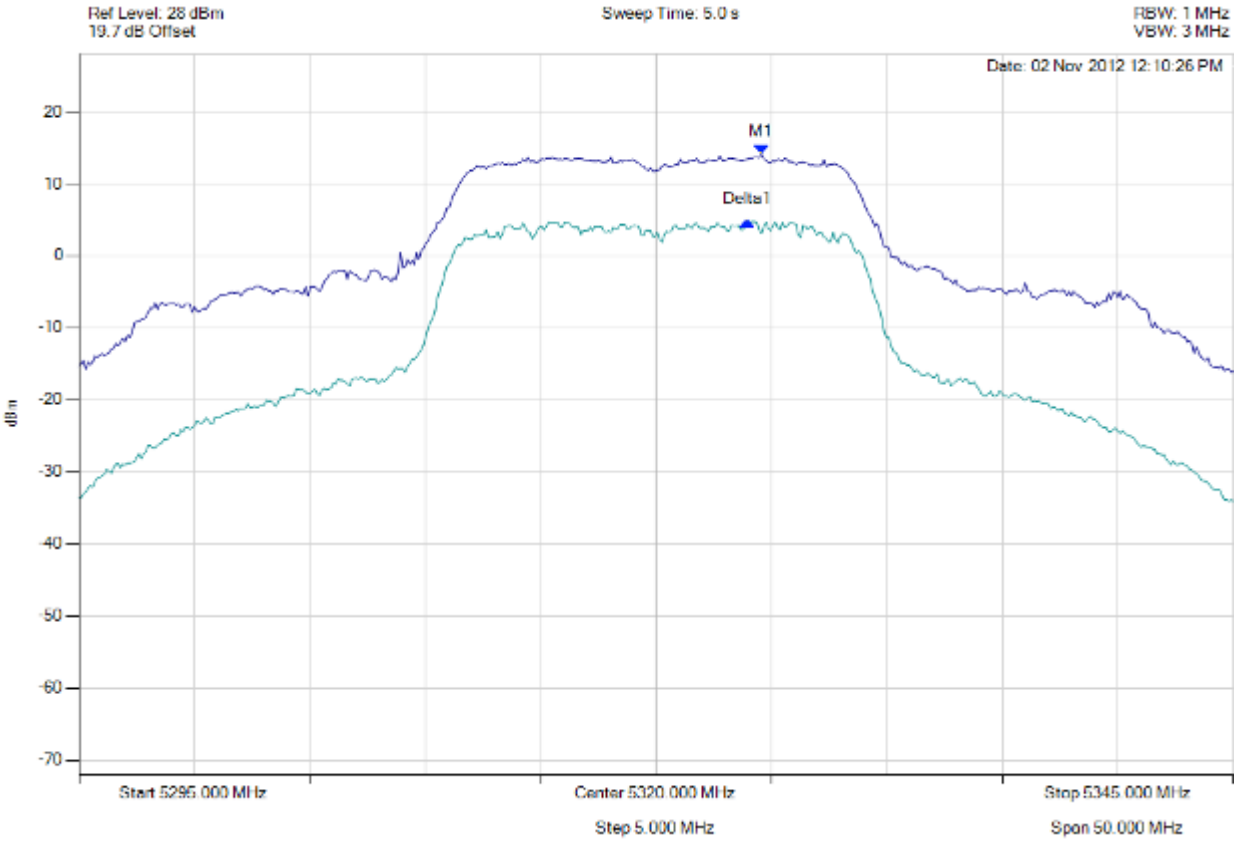


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5303.257 MHz : 13.949 dBm Delta1 : -200401 Hz : -8.960 dB	Measured Excursion Ratio: 8.96 dB Limit: -13.0 dB Margin: -4.04 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

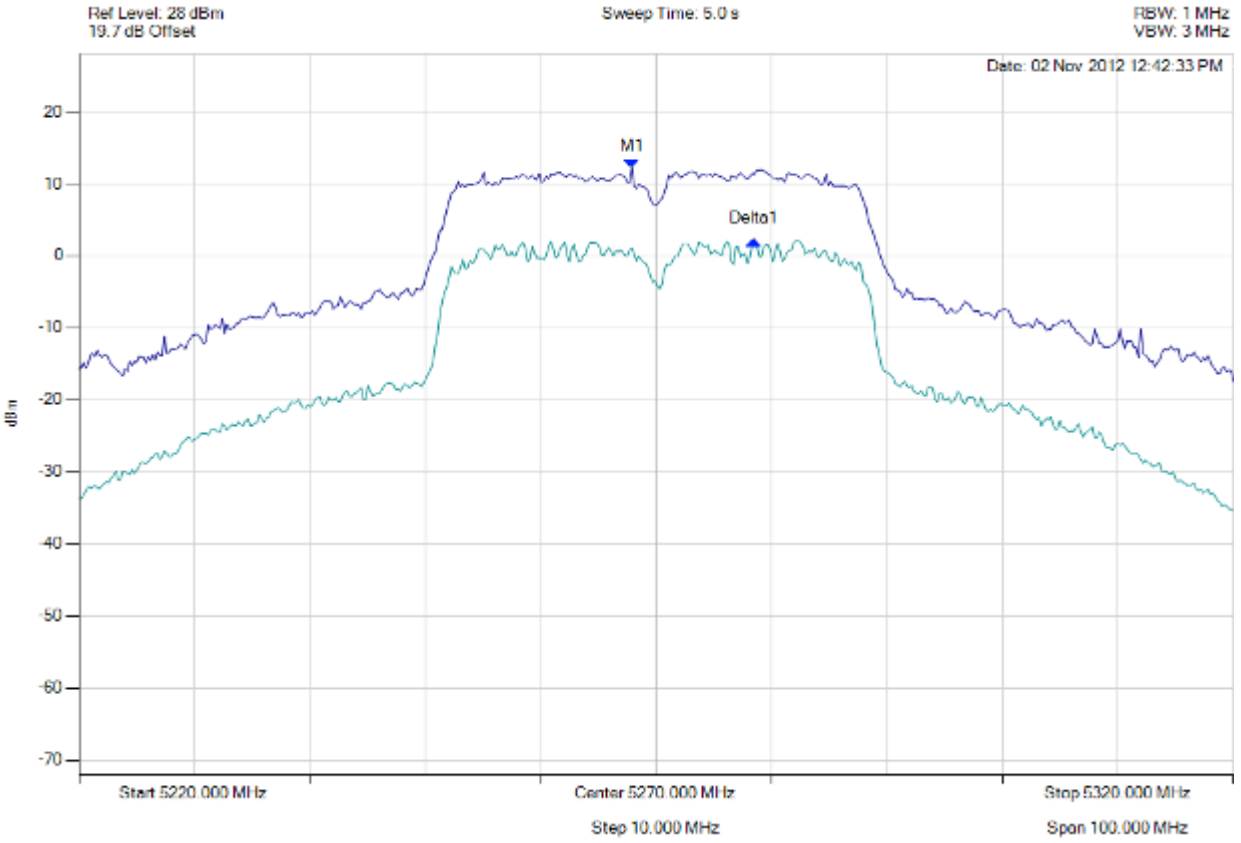


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5324.559 MHz : 14.089 dBm Delta1 : -601202 Hz : -9.315 dB	Measured Excursion Ratio: 9.32 dB Limit: -13.0 dB Margin: -3.68 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

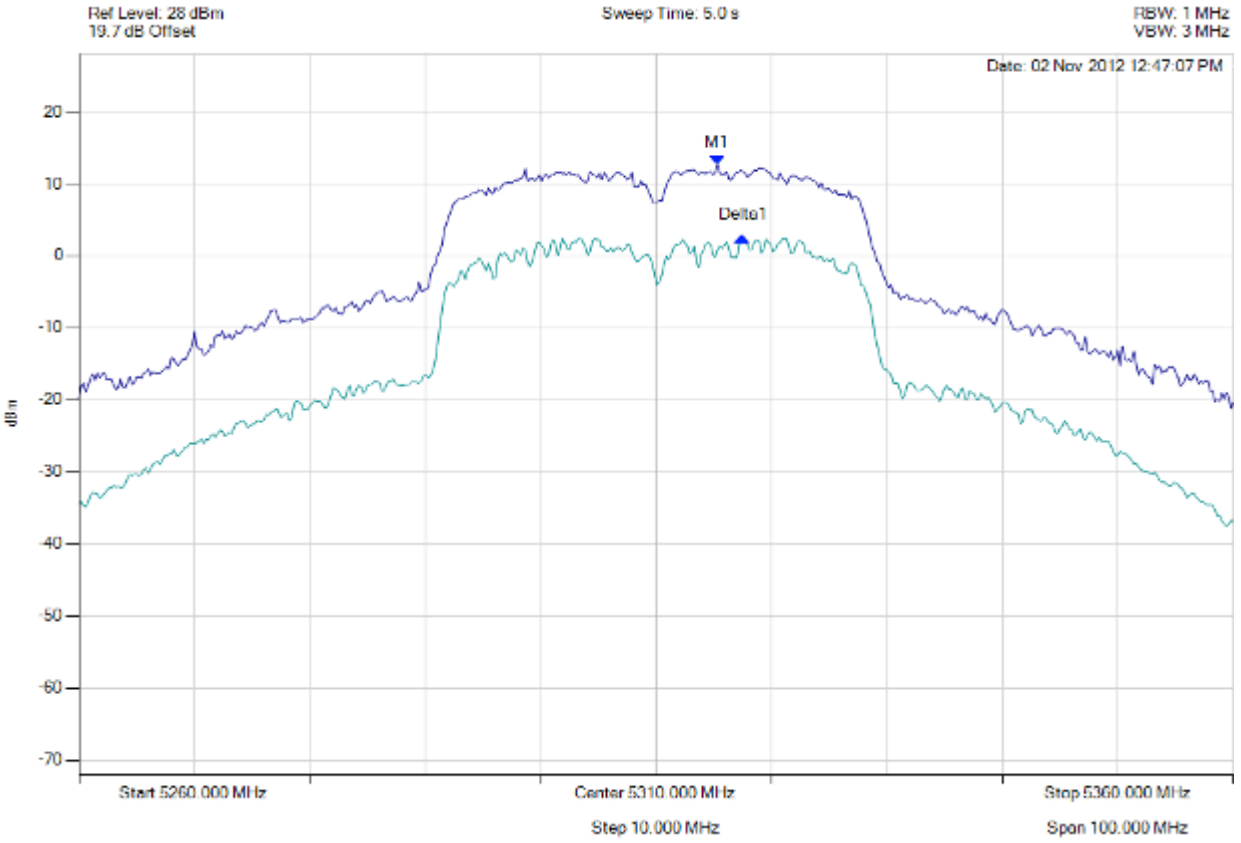


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5267.896 MHz : 12.161 dBm Delta1 : 10.621 MHz : -10.091 dB	Measured Excursion Ratio: 10.09 dB Limit: -13.0 dB Margin: -2.91 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

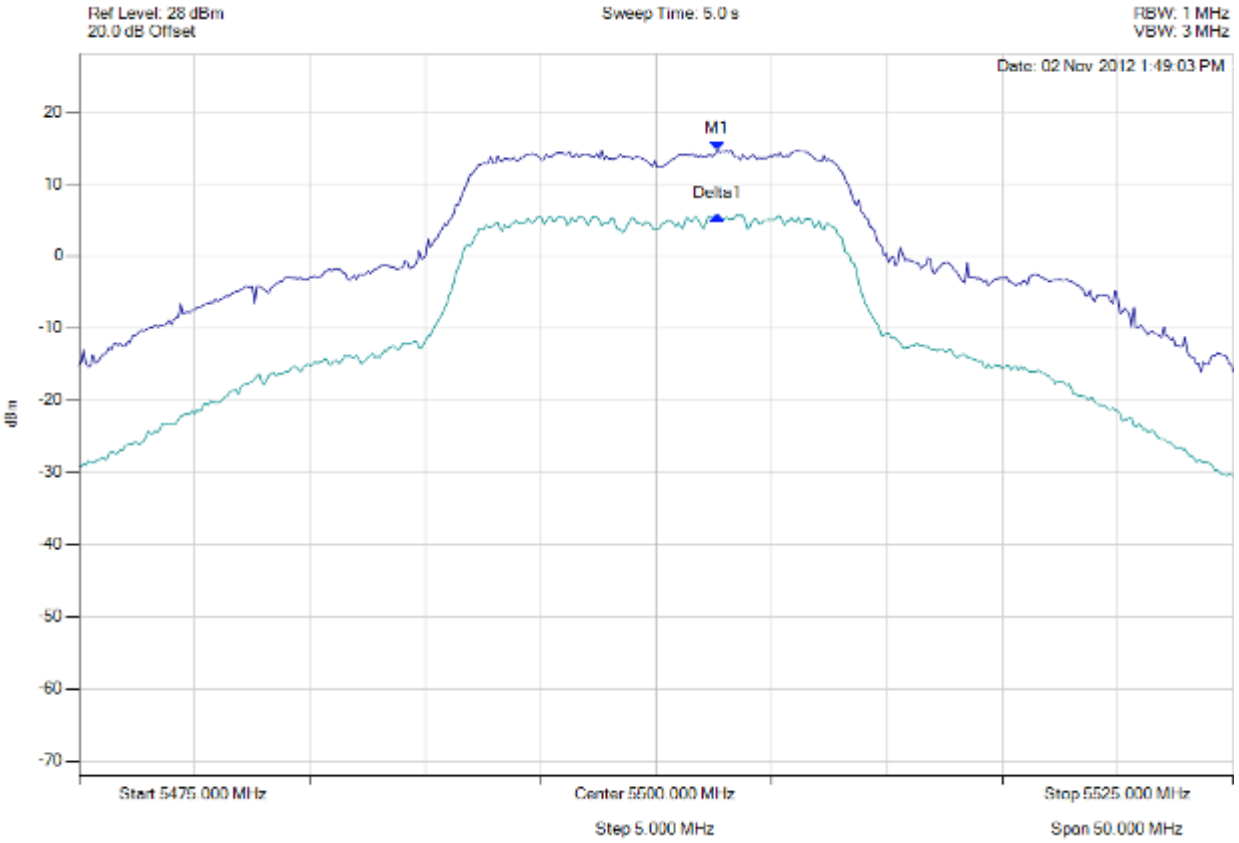


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5315.311 MHz : 12.648 dBm Delta1 : 2.204 MHz : -9.948 dB	Measured Excursion Ratio: 9.95 dB Limit: -13.0 dB Margin: -3.05 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

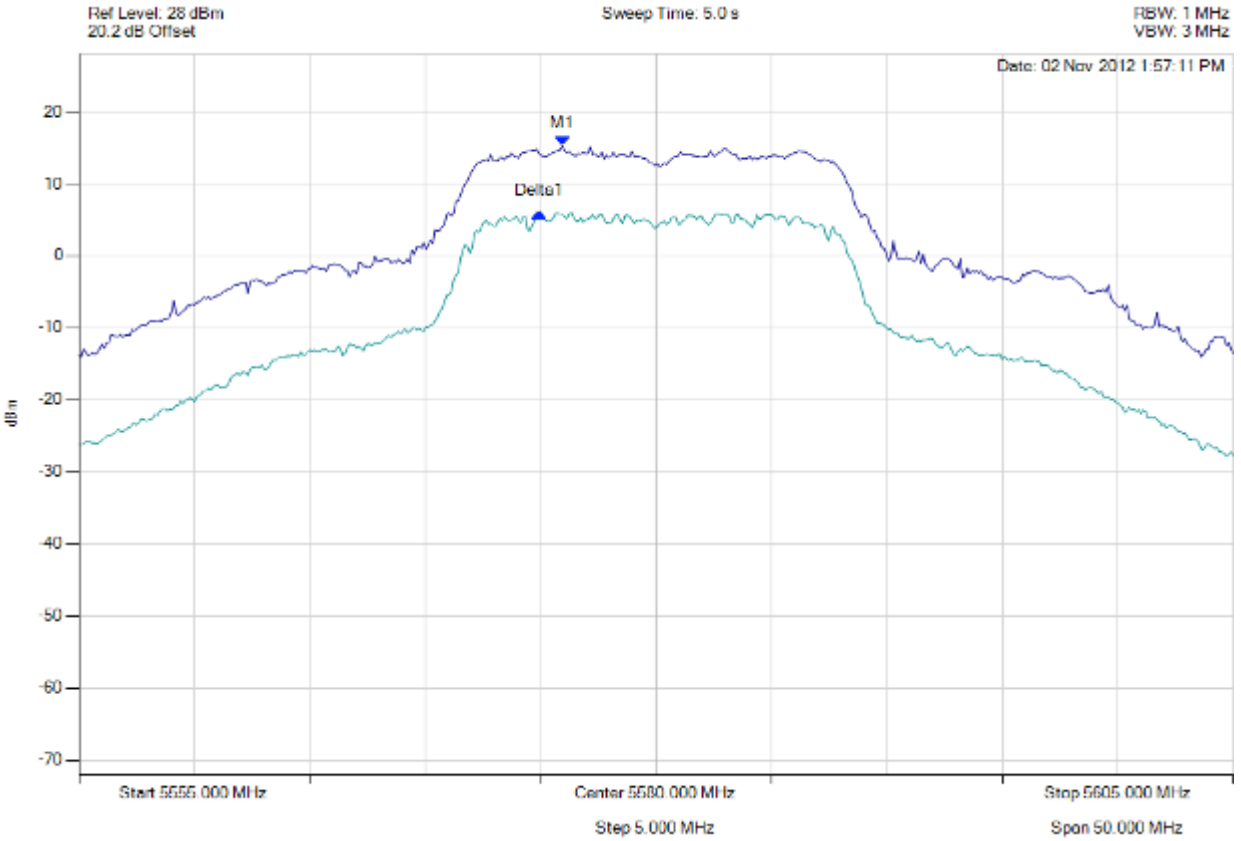


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5502.655 MHz : 14.693 dBm Delta1 : 0 Hz : -9.012 dB	Measured Excursion Ratio: 9.01 dB Limit: -13.0 dB Margin: -3.99 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

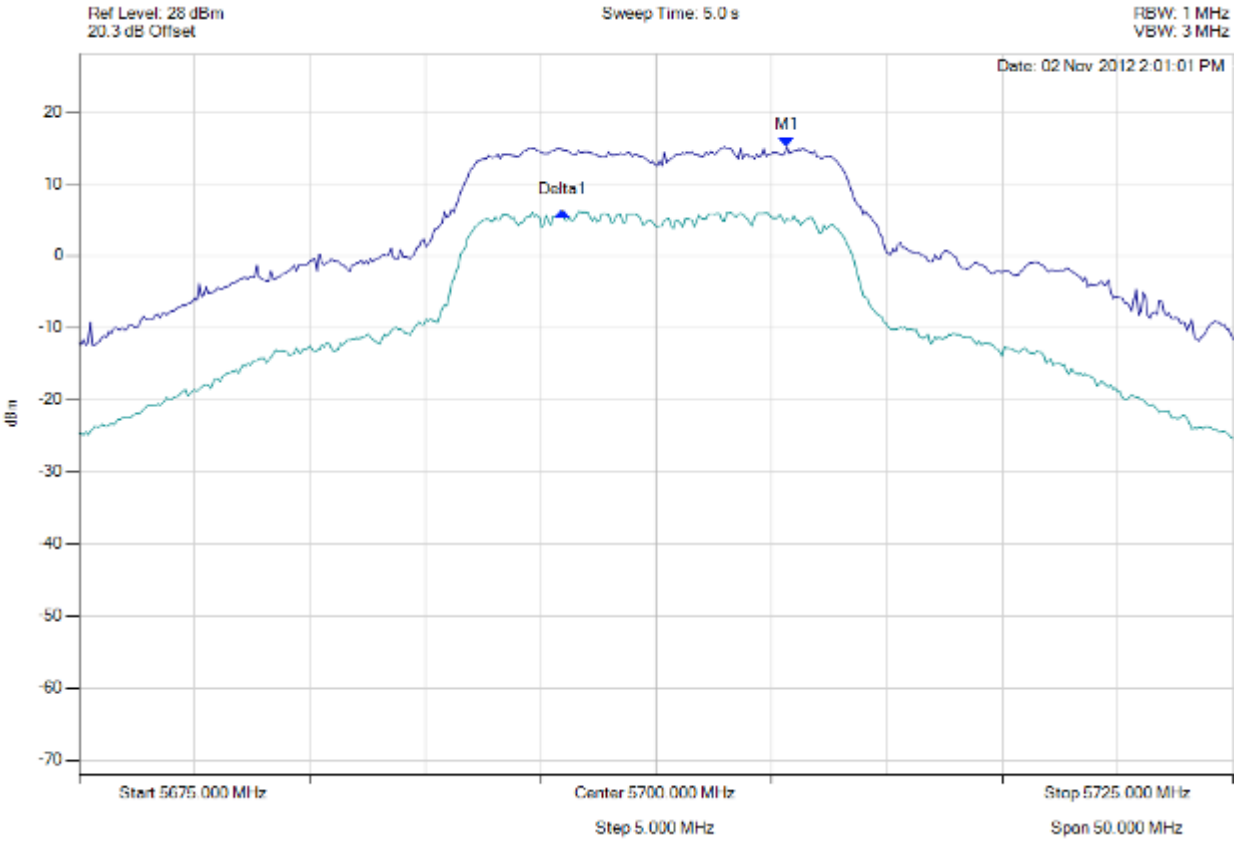


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5575.942 MHz : 15.299 dBm Delta1 : -1002004 Hz : -9.332 dB	Measured Excursion Ratio: 9.33 dB Limit: -13.0 dB Margin: -3.67 dB

Back to the Matrix

peak excursion

Variant: 802.11a, Channel: 5700.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

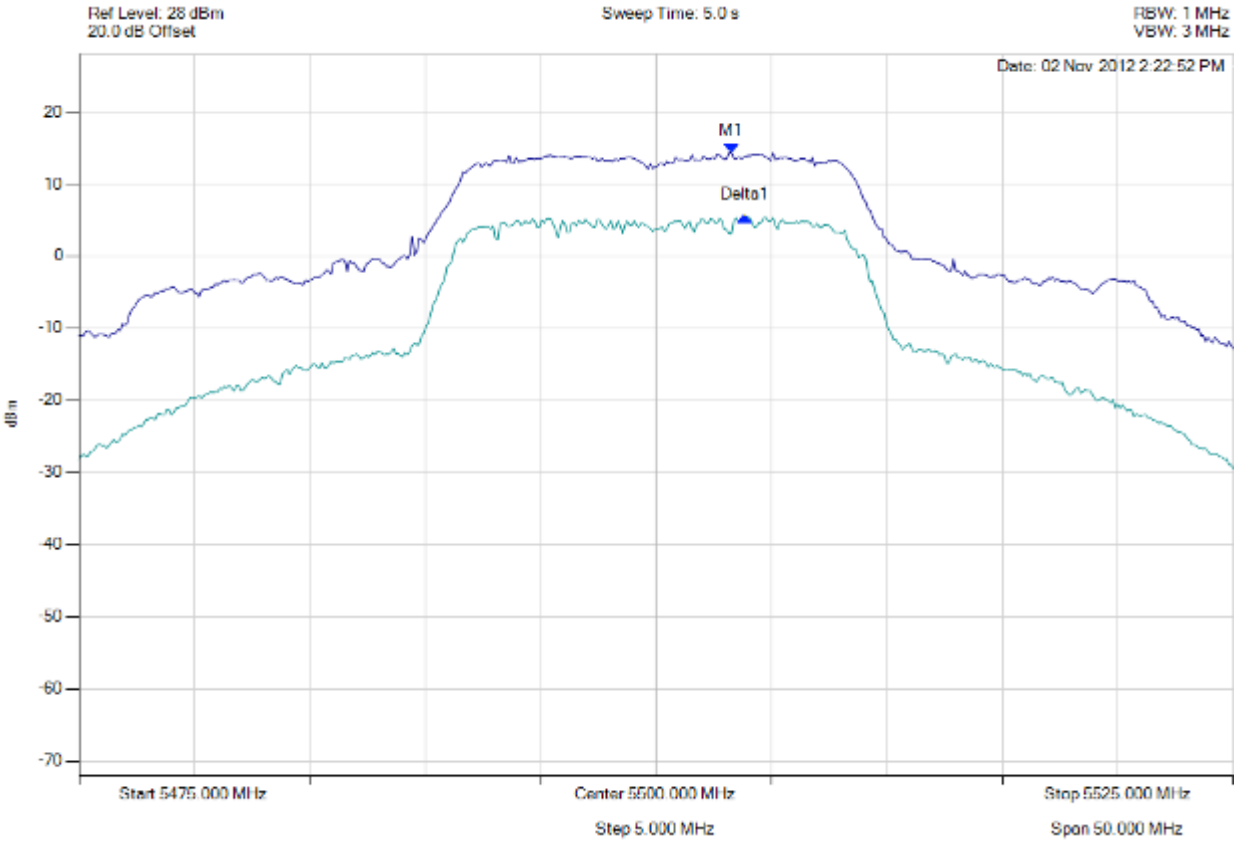


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5705.661 MHz : 15.139 dBm Delta1 : -9719439 Hz : -8.989 dB	Measured Excursion Ratio: 8.99 dB Limit: -13.0 dB Margin: -4.01 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

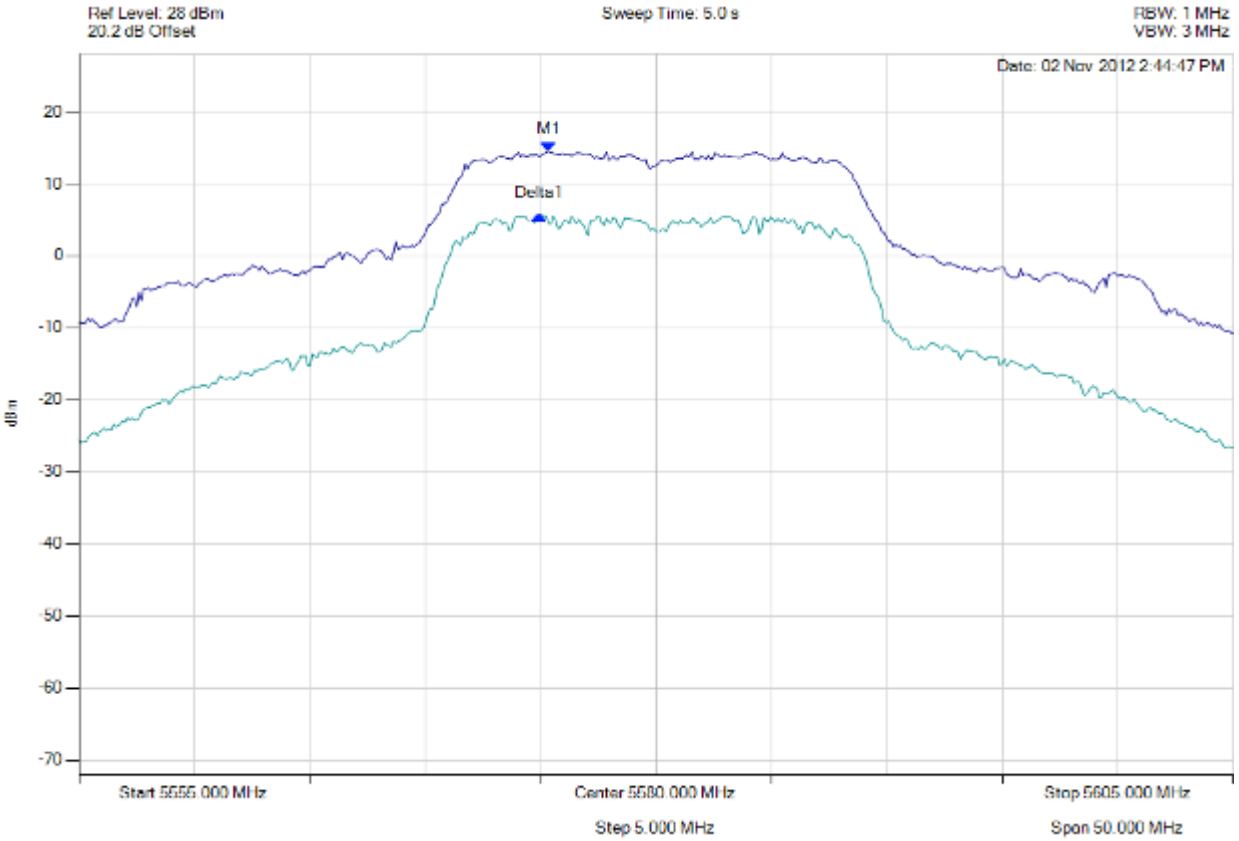


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5503.257 MHz : 14.373 dBm Delta1 : 601 KHz : -8.937 dB	Measured Excursion Ratio: 8.94 dB Limit: -13.0 dB Margin: -4.06 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

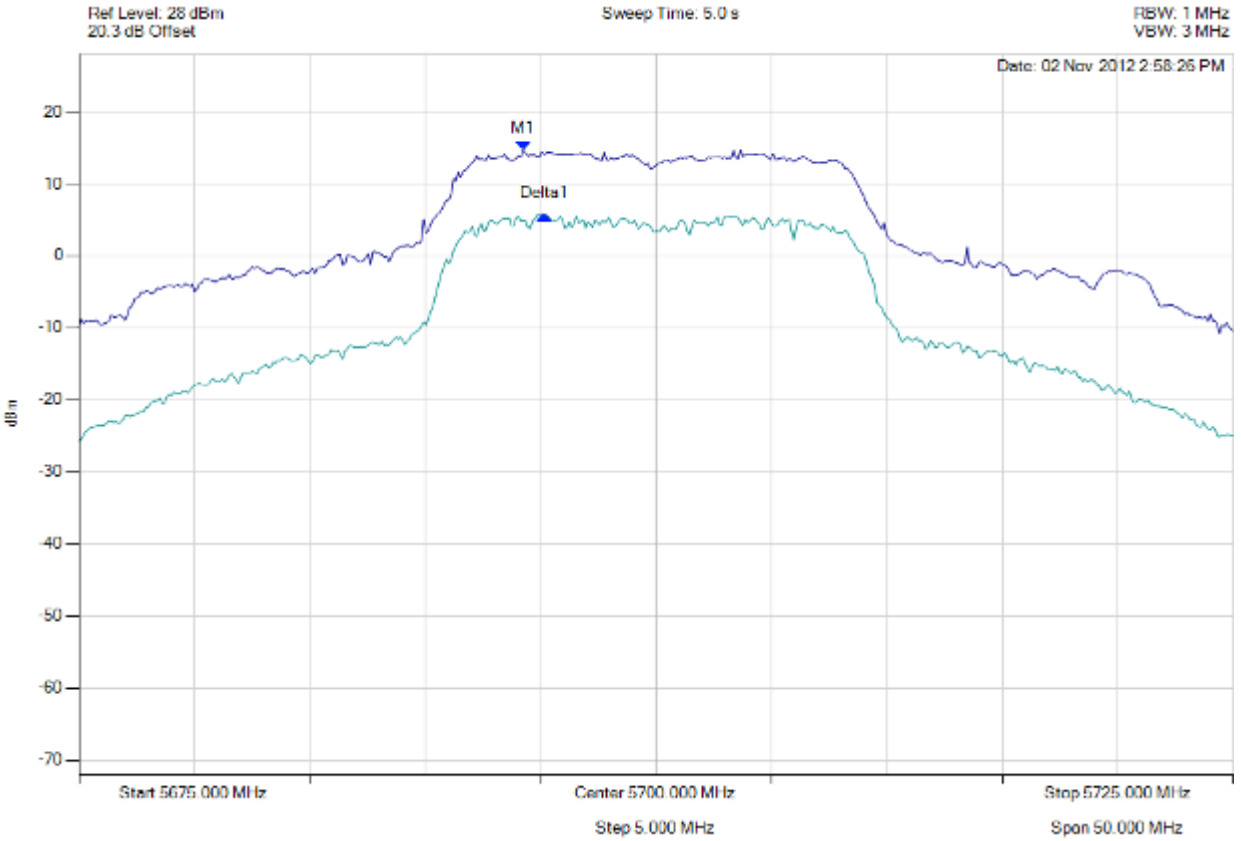


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5575.341 MHz : 14.494 dBm Delta1 : -400802 Hz : -8.881 dB	Measured Excursion Ratio: 8.88 dB Limit: -13.0 dB Margin: -4.12 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-20, Channel: 5700.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

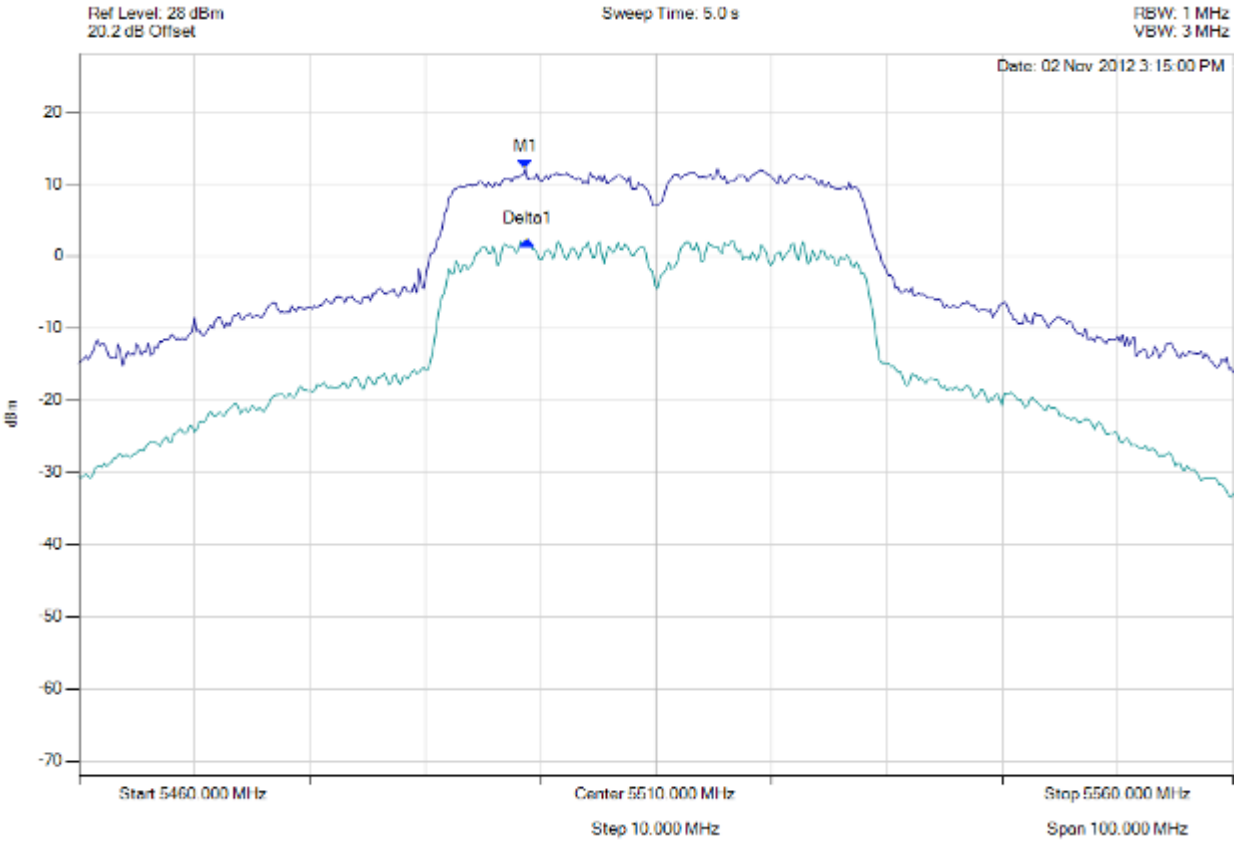


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5694.238 MHz : 14.714 dBm Delta1 : 902 KHz : -9.069 dB	Measured Excursion Ratio: 9.07 dB Limit: -13.0 dB Margin: -3.93 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

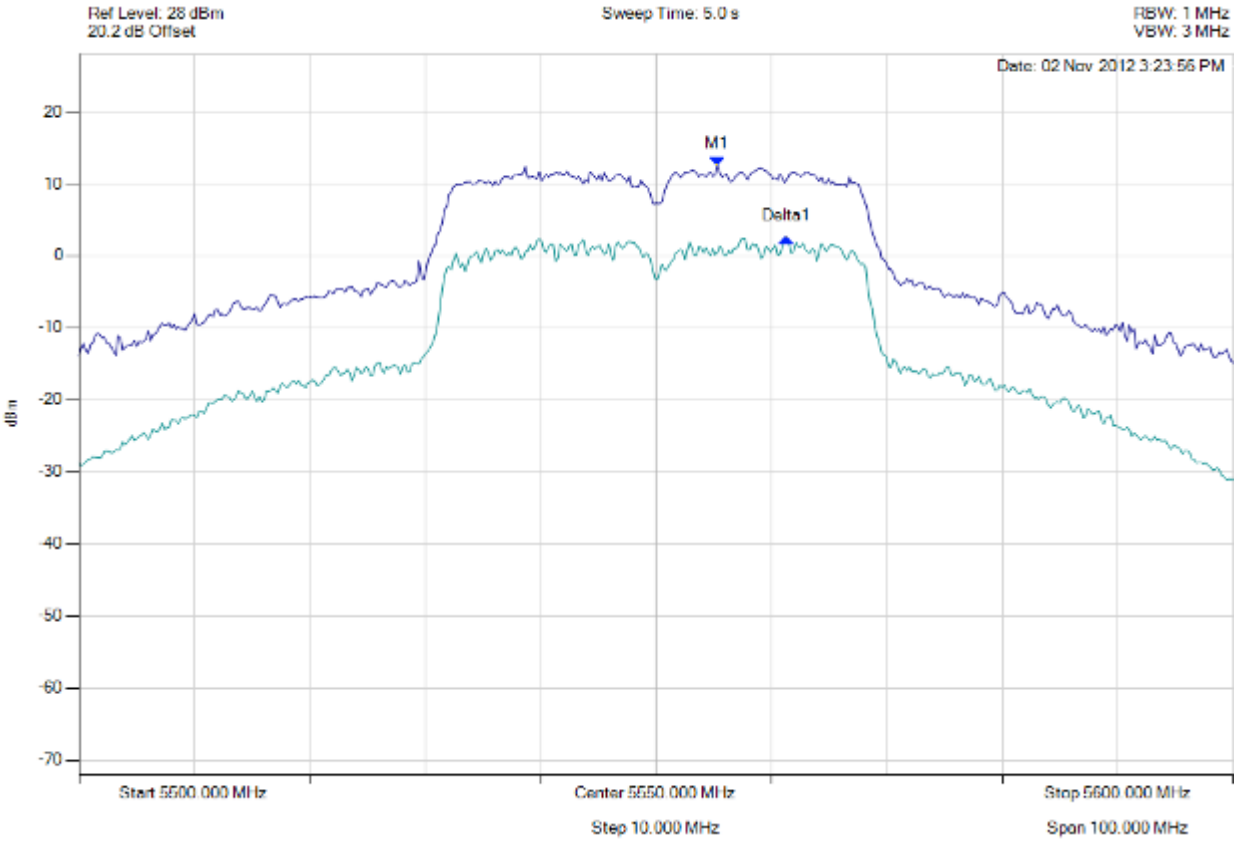


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5498.677 MHz : 12.148 dBm Delta1 : 200 KHz : -10.043 dB	Measured Excursion Ratio: 10.04 dB Limit: -13.0 dB Margin: -2.96 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V

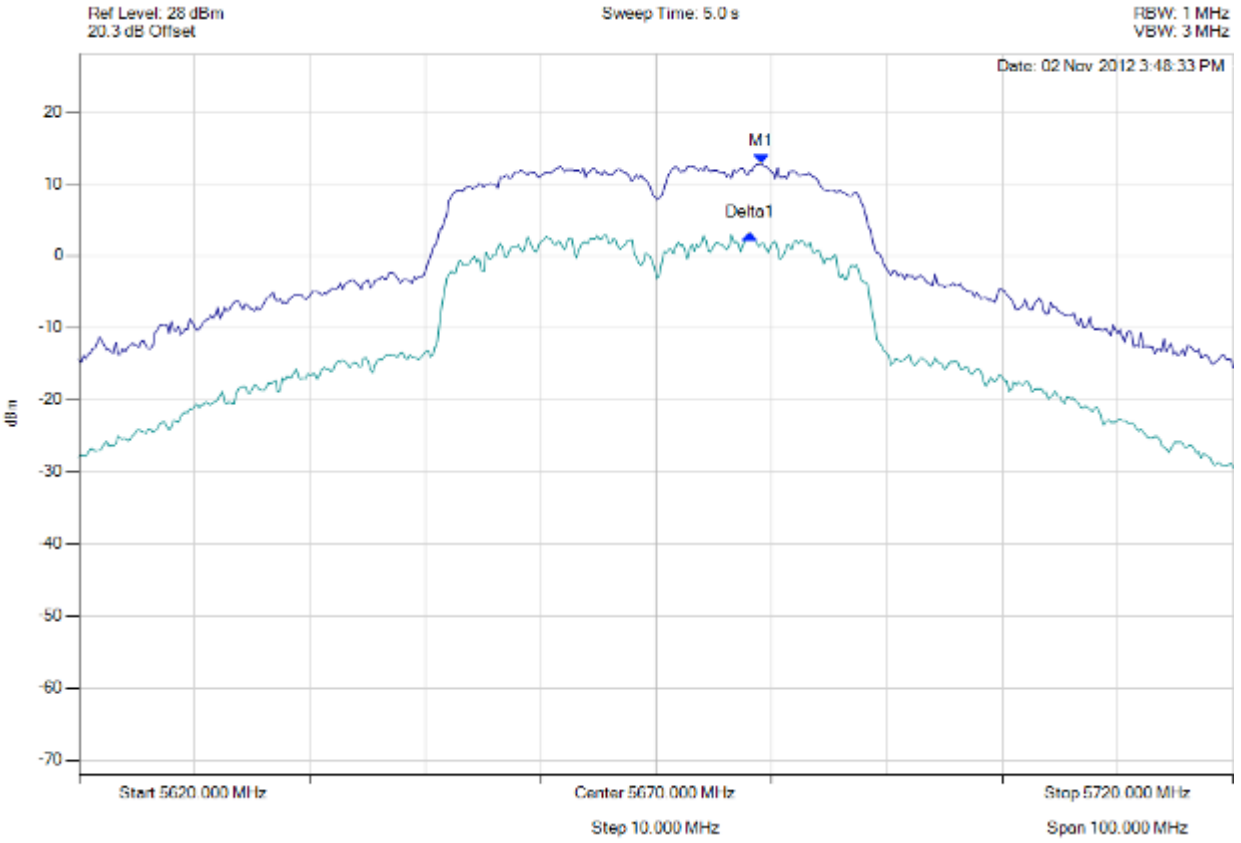


Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5555.311 MHz : 12.477 dBm Delta1 : 6.012 MHz : -10.047 dB	Measured Excursion Ratio: 10.05 dB Limit: -13.0 dB Margin: -2.95 dB

Back to the Matrix

peak excursion

Variant: 802.11n HT-40, Channel: 5670.00 MHz, Chain a, Temp: Ambient, Voltage: 5.00V



Analyser Setup	Marker : Frequency : Amplitude	Test Results
Sweep Count = 0 RF Atten (dB) = 30 TRACE 1 Detector = MAX PEAK Trace Mode = VIEW TRACE 2 Detector = RMS Trace Mode = VIEW	M1 : 5679.118 MHz : 12.769 dBm Delta1 : -1002004 Hz : -9.772 dB	Measured Excursion Ratio: 9.77 dB Limit: -13.0 dB Margin: -3.23 dB

Back to the Matrix

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