Company: Digi International

Test of: i.MX28 with Atheros AR6233
To: FCC CFR 47 Part 15 Subpart E 15.407

Report No.: DIGI60-U7 Rev A

CONDUCTED, RADIATED TEST REPORT

CONDUCTED, RADIATED TEST REPORT

FROM

MiCOM Labs
opening wireless markets

Test of: Digi International i.MX28 with Atheros AR6233
to

To: FCC CFR 47 Part 15 Subpart E 15.407

Test Report Serial No.: DIGI60-U7 Rev A

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
Issue Date:	27th May 2016

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
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USA
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A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. Testing Accreditation

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2005. 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

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Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 4th day of February 2016.

Senior Director of Quality & Communications
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2017

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

1.2. Recognition

MiCOM Labs, Inc has widely recognized wireless testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA countries. MiCOM Labs test reports are accepted globally.

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 4143A-3
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	

EU MRA – European Union Mutual Recognition Agreement.
NB – Notified Body
APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement. 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

1.3. Product Certification

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. 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

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

Pleasanton, CA

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 management system.

Presented this 4th day of February 2016.

Senior Director of Quality & Communications
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2017

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)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier - 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	26th May 2016	Testing was completed on this device to comply with the FCC update requirements to relocate the 5725-5850 MHz band from DTS (15.247) to UNII (15.407)
Rev A	27th May 2016	Initial release

In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer:	Digi International 355 South 520 West Suite 180 Lindon Utah 84042 USA	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	i.MX28 with Atheros AR6233	**Telephone:** **Fax:**	+1 925 462 0304 +1 925 462 0306
Type Of Equipment:	Wireless Module		
S/N's:	5001838-24-revC		
Test Date(s):	25th – 26th May 2016	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart E 15.407	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.

A2LA ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911 D01 & D02	Oct 31 2013	Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band
II	KDB 905462 D07 v01r01	8th April 2016	Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements.
III	KDB 926956 D01 v01r06	8th April 2016	U-NII Device Transition Plan
IV	KDB 789033 D02 v01r02	8th April 2016	General UNII Test Procedures New Rules
V	A2LA	February 2016	R105 - Requirement's When Making Reference to A2LA Accreditation Status
VI	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
VII	ANSI C63.4	2014	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
VIII	CISPR 22	2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
IX	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
X	FCC 06-96	Jun 30 2006	Memorandum Opinion and Order
XI	FCC 47 CFR Part 15.407	2014	Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
XII	ICES-003	Issue 6 Jan 2016	Spectrum Management and Telecommunications; Interference-Causing Equipment Standard. Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement.
XIII	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
XIV	RSS-247 Issue 1	May 2015	Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
XV	RSS-Gen Issue 4	November 2014	General Requirements and Information for the Certification of Radiocommunication Equipment
XVI	KDB 644545 D03 v01	August 14th 2014	Guidance for IEEE 802.11ac New Rules
XVII	FCC 47 CFR Part 2.1033	2016	FCC requirements and rules regarding photographs and test setup diagrams.

4.2. Test and Uncertainty Procedure

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.

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Digi International i.MX28 with Atheros AR6233 to FCC CFR 47 Part 15 Subpart E 15.407. Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
Applicant:	Digi International 355 South 520 West Suite 180 Lindon Utah 84042 USA
Manufacturer:	Digital International
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	DIGI60 - CCIMX28 FCC Update
Date EUT received:	23rd of May 2016
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407
Dates of test (from - to):	25 - 26 May 2016
No of Units Tested:	3
Type of Equipment:	Wireless Module
Product Family Name:	I MX28
Model(s):	AR6233
Location for use:	Indoor
Declared Frequency Range(s):	5150 - 5250 MHz; 5250 - 5350 MHz; 5470 - 5725 MHz; 5725 - 5850 MHz;
Primary function of equipment:	802.11 a/b/g/n wireless module
Type of Modulation:	OFDM
EUT Modes of Operation:	5725 - 5850 MHz: 802.11a; 802.11n HT-20; 802.11n HT-40;
Declared Nominal Output Power (Ave):	5725 - 5850 MHz: 802.11a: -; 802.11n HT-20: -; 802.11n HT-40:
Transmit/Receive Operation:	Time Division Duplex
Rated Input Voltage and Current:	5 VDC 625 mA
Operating Temperature Range:	Declared Range -40°C to +75°C
ITU Emission Designator:	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
Hardware Rev:	revD
Software Rev:	BusyBox 1.19.4

5.2. Scope of Test Program

Digi International i.MX28 with Atheros AR6233

The scope of the test program was to test the Digi International i.MX28 with Atheros AR6233 configurations in the frequency ranges 5725 - 5850 MHz; for compliance against the following specification:

FCC CFR 47 Part 15 Subpart E 15.407
Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices

Compliance was to the FCC new rules for;
a).. introduction of the 5725 – 5850 MHz band into UNII band regulations, and

Test Suite
To prove compliance with the FCC's new rules the following tests were completed;

i) Full Conducted testing

ii) Full Radiated testing on all antenna's (Radiated Spurious Emissions and Radiated Band-Edge)

Model Identification
Wireless Module: i.MX28 with Atheros AR6233

Operational Modes

i) 802.11a
ii) 802.11n HT20
iii) 802.11n HT40

Frequency Bands 5150-5250, 5250-5350, 5470-5725, and Digital Emissions have already been tested and results are available under **DIGI28-U3A REV C**.

Digi International i.MX28 with Atheros AR6233

5.3. 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 – Single Port Module	Digi International	AR6233	50001838-24-revC
Support	Laptop PC	IBM	Thinkpad	None

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
Integral	Taoglas	PC.11	Patch	4.5	-	360	-	5150 – 5250 5250 – 5350 5470 – 5725 5725 - 5850
Integral	Taoglas	FXP.830	Patch	4.0	-	360	-	5150 – 5250 5250 – 5350 5470 – 5725 5725 - 5850
Integral	Antenna Factor	ANT-DB1-xxx	Omni-Dual Band	4.3	-	360	-	5150 – 5250 5250 – 5350 5470 – 5725 5725 - 5850

BF Gain - Beamforming Gain
Dir BW - Directional BeamWidth
X-Pol - Cross Polarization

5.5. Cabling and I/O Ports

Port Type	Max Cable Length	# Of Ports	Screened	Conn Type	Data Type
Ethernet	100m	1	N	RJ-45	Packet Data
RS232	100m	1	N	RJ-45	Digital

5.6. Test Configurations

Results for the following configurations are provided in this report:

Operational Mode(s) (802.11a/b/g/n/ac)	Data Rate with Highest Power MBit/s	Channel Frequency (MHz)		
		Low	Mid	High
5725 - 5850 MHz				
802.11a	6	5,745.00	5,785.00	5,825.00
802.11n HT-20	6.5	5,745.00	5,785.00	5,825.00
802.11n HT-40	13.5	5,755.00	--	5,795.00

5.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:
1. NONE

5.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:
1. NONE

6. TEST SUMMARY

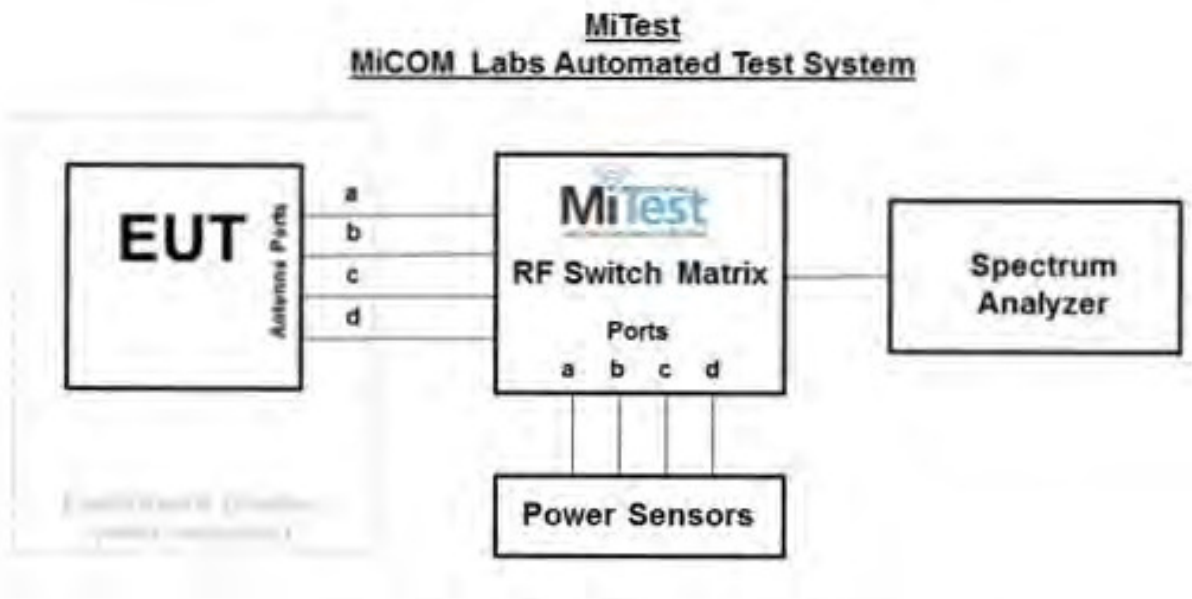
List of Measurements

Test Header	Result	Data Link
(a) Peak Transmit Power	Complies	View Data
(a) 26 dB & 99% Bandwidth	Complies	View Data
(a)(5) Power Spectral Density	Complies	View Data
(b)(2) Radiated		
i).. Restricted Band Emissions		
Antenna Factor ANT-DB1-xxx	Complies	View Data
Taoglas FXP.830	Complies	View Data
Taoglas PC.11	Complies	View Data
ii).. Restricted Band-Edge Emissions		
Antenna Factor ANT-DB1-xxx	Complies	View Data
Taoglas FXP.830	Complies	View Data
Taoglas PC.11	Complies	View Data

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Conducted

Conducted RF Emission Test Set-up(s)
The following tests were performed using the conducted test set-up shown in the diagram below.
1. Peak Transmit Power
2. 26 dB & 99% Bandwidth
3. Power Spectral Density



Conducted Test Measurement Setup

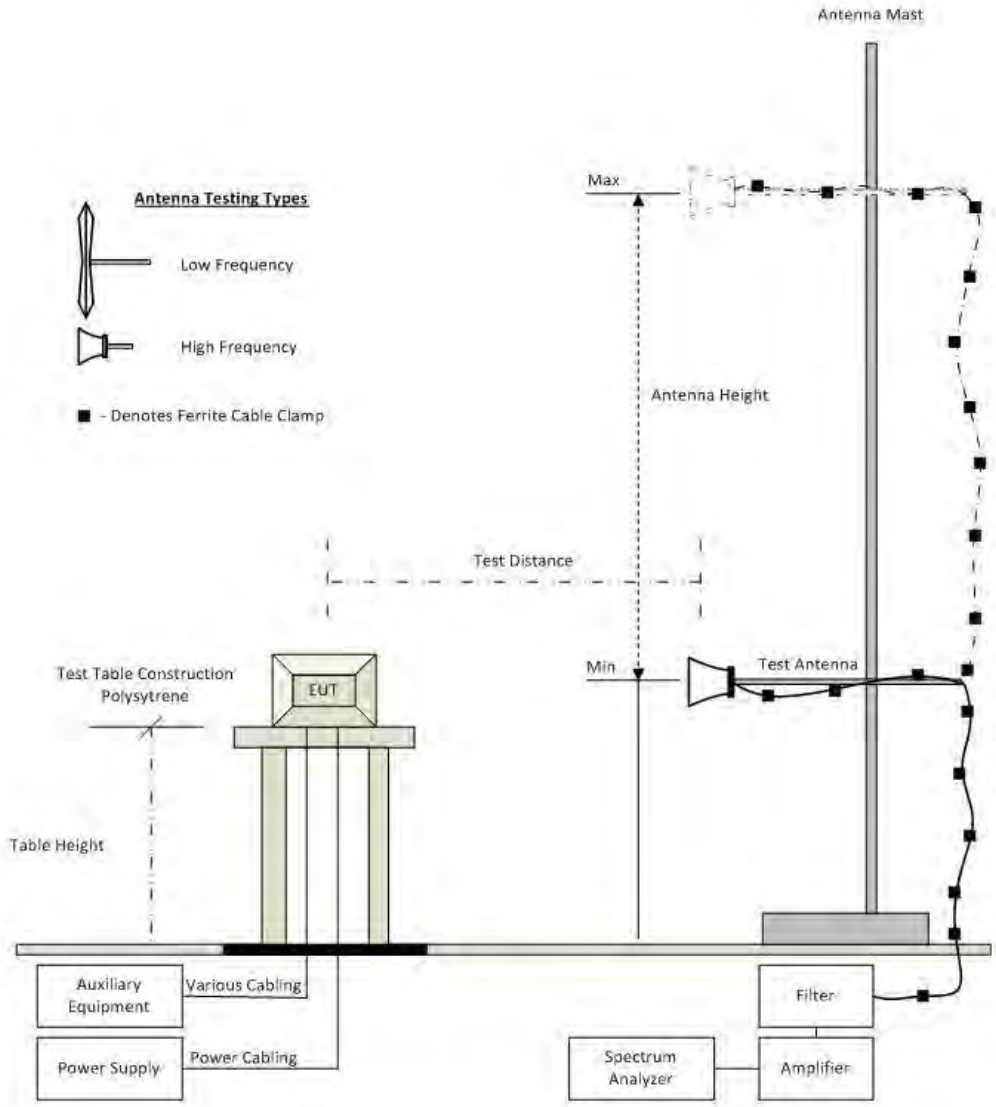
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
158	Barometer/Thermometer	Control Company	4196	E2846	01 Dec 2016
249	Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	23 Oct 2016
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	27 Aug 2016
361	Desktop for RF#1, Labview Software installed	Dell	Vostro 220	WS RF#1	Not Required
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	04 Aug 2016
380	4x4 RF Switch Box	MiCOM Labs	MiTest RF Switch Box	MIC001	18 Jun 2016
390	USB Power Head 50MHz - 24GHz -60 to +20dBm	Agilent	U2002A	MY50000103	17 Oct 2016
398	Test Software	MiCOM	MiTest ATS	Version 3.0.0.16	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used
408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required
436	USB Wideband Power Sensor	Boonton	55006	8731	31 Jul 2016
437	USB Wideband Power Sensor	Boonton	55006	8759	31 Jul 2016
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	13 Aug 2016
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	24 Nov 2016
RF#1 GPIB#1	GPIB cable to Power Supply	HP	GPIB	None	Not Required
RF#1 SMA SA #452	Precision SMA Male RG-402 Spectrun Analyzer	Fairview Microwave	Precision SMA Male RG 402 coax	None	18 Jun 2016
RF#1 SMA#1	EUT to Mitest box port 1	Flexco	SMA Cable port1	None	18 Jun 2016
RF#1 SMA#2	EUT to Mitest box port 2	Flexco	SMA Cable port2	None	18 Jun 2016
RF#1 SMA#3	EUT to Mitest box port 3	Flexco	SMA Cable port3	None	18 Jun 2016
RF#1 SMA#4	EUT to Mitest box port 4	Flexco	SMA Cable port4	None	18 Jun 2016
RF#1 USB#1	USB Cable to Mitest Box	Dynex	USB Cable	None	Not Required

7.2. Radiated Emissions - 3m Chamber

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

Radiated emissions below 1GHz
Radiated Emissions above 1GHz



Radiated Emission Test Setup

A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
158	Barometer/Thermometer	Control Company	4196	E2846	01 Dec 2016
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CY101	04R08507	Not Required
303	5725 to 5875 MHz Notch filter	Microtronics	BRC50705	003	18 Aug 2016
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	15 Aug 2016
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	04 Aug 2016
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	24 Jun 2016
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	10 Oct 2016
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	28 May 2016
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
447	Rad Emissions Test Software	MiCOM	Version 1.0.73	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	25 Jun 2016
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	25 Jun 2016
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	25 Jun 2016
480	Cable - Bulkhead to Amp	SRC Haverhill	157-157-3050360	480	11 Aug 2016
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-151-3050787	481	11 Aug 2016
482	Cable - Amp to Antenna	SRC Haverhill	157-157-3051574	482	11 Aug 2016

8. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data'.

Test and report automation was performed by MiTest. MiTest is an automated test system developed by MiCOM Labs. MiTest is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.

The MiCOM Labs "MiTest" Automated Test System" (Patent Pending)

9. TEST RESULTS

9.1. Peak Transmit 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):	See Normative References		

Test Procedure for Maximum Conducted Output Power Measurement
Method PM (Measurement using an RF average power meter). 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 operational modes and frequency bands were measured independently and the resultant calculated. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported separately. A summation (Σ) of each antenna port output power is provided which includes any offset due to Duty Cycle Correction Factor (DCCF). Testing was performed under ambient conditions at nominal voltage.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.
Supporting Information
Calculated Power = A + G + Y+ 10 log (1/x) dBm

A = Total Power [10*Log10 ($10^{a/10}$ + $10^{b/10}$ + $10^{c/10}$ + $10^{d/10}$)]
G = Antenna Gain
Y = Beamforming Gain
x = Duty Cycle (average power measurements only)

Limits Maximum Conducted Output Power

Operating Frequency Band 5150-5250 MHz

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band

of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Operating Frequency Band 5250-5350 and 5470 – 5725 MHz

15. 407 (a)(2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands 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 maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Operating Frequency Band 5725 – 5850 MHz

15. 407 (a)(3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Equipment Configuration for Peak Transmit Power

Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power + DCCF (+0.04 dB) (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	dB	
5745.0	9.87	--	--	--	9.87	--	30.00	-20.13	13.00
5785.0	10.61	--	--	--	10.61	--	30.00	-19.39	13.00
5825.0	12.23	--	--	--	12.23	--	30.00	-17.77	20.00

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

Note: Power restricted by Spurious Emission and Band-Edge (please see section 9.4.1 and 9.4.2)

Equipment Configuration for Peak Transmit Power

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power + DCCF (+0.04 dB) (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	dB	
5745.0	10.59	--	--	--	10.59	--	30.00	-19.41	13.00
5785.0	10.71	--	--	--	10.71	--	30.00	-19.29	13.00
5825.0	12.24	--	--	--	12.24	--	30.00	-17.76	20.00

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

Note: Power restricted by Spurious Emission and Band-Edge (please see section 9.4.1 and 9.4.2)

Equipment Configuration for Peak Transmit Power

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power + DCCF (+0.04 dB) (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	dB	
5755.0	11.29	--	--	--	11.29	--	30.00	-18.71	13.00
5795.0	12.45	--	--	--	12.45	--	30.00	-17.55	20.00

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

Note: Power restricted by Spurious Emission and Band-Edge (please see section 9.4.1 and 9.4.2)

9.2. 26 dB & 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):	See Normative References		

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. The Resolution Bandwidth was set to approximately 1% of the emission bandwidth.
Testing was performed under ambient conditions at nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
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**		
5745.0	32.250	--	--	--	32.250	32.250		
5785.0	34.500	--	--	--	34.500	34.500		
5825.0	34.080	--	--	--	34.080	34.080		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5745.0	17.497	--	--	--	17.497	17.497		
5785.0	19.075	--	--	--	19.075	19.075		
5825.0	18.805	--	--	--	18.805	18.805		

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

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
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**		
5745.0	34.000	--	--	--	34.000	34.000		
5785.0	36.750	--	--	--	36.750	36.750		
5825.0	35.250	--	--	--	35.250	35.250		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5745.0	18.850	--	--	--	18.850	18.850		
5785.0	20.328	--	--	--	20.328	20.328		
5825.0	20.445	--	--	--	20.445	20.445		

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

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
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**		
5755.0	83.830	--	--	--	83.830	83.830		
5795.0	78.170	--	--	--	78.170	78.170		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5755.0	46.215	--	--	--	46.215	46.215		
5795.0	43.710	--	--	--	43.710	43.710		

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

Note: click the links in the above matrix to view the graphical image (plot).

9.3. 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):	15.407 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Power Spectral Density
The in-band power spectral density was measured using the test technique specified in KDB 789033. A 1 MHz measurement bandwidth was implemented for the analyzer sweep. Once the sweep is complete the analyzer trace data is downloaded and used for post processing purposes.
Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured separately. The Peak Power Spectral Density is the highest level found across the emission bandwidth. With multiple antenna port measurements the numerical analyzer data from each port is summed (å) and a link to this additional graphic is provided.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

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 multiple 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 post processed and the resulting numerical and graphical data presented.

NOTE: It may be observed that spectrum in some plots break the limit line however this in itself does NOT constitute a failure. In all cases a spectrum summation plot is provided in order to prove compliance. A failure occurs only after the summation of all spectrum plots have been summed and are found to be greater than the limit line.

Supporting Information
Calculated Power = A + 10 log (1/x) dBm
A = Total Power Spectral Density [10*Log10 ($10^{a/10}$ + $10^{b/10}$ + $10^{c/10}$ + $10^{d/10}$)]
x = Duty Cycle

Limits Power Spectral Density

Operating Frequency Band 5150-5250 MHz

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the

frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Operating Frequency Band 5250-5350 and 5470 – 5725 MHz

15. 407 (a)(2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands 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 maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Operating Frequency Band 5725 – 5850 MHz

15. 407 (a)(3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Equipment Configuration for Power Spectral Density			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/500 KHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/500 KHz	dBm/500 KHz	dB
5745.0	-3.703	--	--	--	-3.659	30.0	-33.7
5785.0	-2.753	--	--	--	-2.709	30.0	-32.7
5825.0	-1.003	--	--	--	-0.959	30.0	-31.0

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

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/500 KHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/500 KHz	dBm/500 KHz	dB
5745.0	-2.865	--	--	--	-2.821	30.0	-32.8
5785.0	-2.979	--	--	--	-2.935	30.0	-32.9
5825.0	-1.149	--	--	--	-1.105	30.0	-31.1

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

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	4.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/500 KHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/500 KHz**	**dBm/500 KHz**	**dB**
5755.0	-4.968	--	--	--	-4.924	30.0	-34.9
5795.0	-3.879	--	--	--	-3.835	30.0	-33.8

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

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

9.4. Radiated

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	20.0 - 24.5
Test Heading:	Radiated Spurious and Band-Edge Emissions	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (b), 15.205, 15.209	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Spurious and Band-Edge Emissions
Radiated emissions for restricted bands above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned. Measurements on any restricted band frequency or frequencies above 1 GHz are based on the use of measurement instrumentation employing peak and average detectors. All measurements were performed using a resolution bandwidth of 1 MHz.

Test configuration and setup for Undesirable Measurement were per the Radiated Test Set-up specified in this document.

15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Limits for Restricted Bands (15.205, 15.209)
Peak emission: 74 dBuV/m
Average emission: 54 dBuV/m

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

where:

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

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

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

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dBuV/m

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are as follows:
Level (dBmV/m) = 20 * Log (level (mV/m))

40 dBmV/m = 100 mV/m
48 dBmV/m = 250 mV/m

Restricted Bands of Operation (15.205)
(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

Frequency Band			
MHz	**MHz**	**MHz**	**GHz**
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

(b) Except as provided 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 §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e) of this section, regardless of the field strength limits specified elsewhere in this subpart, the provisions of this section apply to emissions from any intentional radiator.

(d) The following devices are exempt from the requirements of this section:

(1) Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the bands listed in paragraph (a) of this section, the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a) of this section, and the fundamental emission is outside of the bands listed in paragraph (a) of this section more than 99% of the time the device is actively transmitting, without compensation for duty cycle.

(2) Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.

(3) Cable locating equipment operated pursuant to §15.213.

(4) Any equipment operated under the provisions of §15.253, 15.255, and 15.256 in the frequency band 75-85 GHz, or §15.257 of this part.

(5) Biomedical telemetry devices operating under the provisions of §15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance within the other restricted bands.

(6) Transmitters operating under the provisions of subparts D or F of this part.

(7) Devices operated pursuant to §15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.

(8) Devices operated in the 24.075-24.175 GHz band under §15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in §15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

(e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under the provisions of §15.245 shall not exceed the limits specified in §15.245(b).

9.4.1. Restricted Band Emissions

9.4.1.1. Antenna Factor ANT-DB1-xxx

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11a
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	12.5	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3830.00	59.00	3.21	-10.83	51.38	Max Peak	Vertical	194	212	74.0	-22.6	Pass
#2	3830.00	55.17	3.21	-10.83	47.55	Max Avg	Vertical	194	212	54.0	-6.5	Pass
#3	5737.84	50.57	3.82	-10.67	43.72	Fundamental	Vertical	200	322	--	--	
#4	11491.11	66.24	5.45	-4.84	66.85	Max Peak	Vertical	188	118	74.0	-7.2	Pass
#5	11491.11	53.14	5.45	-4.84	53.75	Max Avg	Vertical	188	118	54.0	-0.3	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to meet limit at 11.49 GHz

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11a
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5785.00	**Data Rate:**	6.00 MBit/s
Power Setting:	12.5	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3856.69	59.25	3.23	-10.81	51.67	Max Peak	Vertical	157	353	74.0	-22.3	Pass
#2	3856.69	55.96	3.23	-10.81	48.38	Max Avg	Vertical	157	353	54.0	-5.6	Pass
#3	5792.23	54.34	3.78	-10.40	47.72	Fundamental	Vertical	151	179	--	--	
#4	11569.53	64.33	5.52	-4.65	65.20	Max Peak	Vertical	189	117	74.0	-8.8	Pass
#5	11569.53	50.86	5.52	-4.65	53.73	Max Avg	Vertical	189	117	54.0	-0.3	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to meet limit at 11.57 GHz

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11a
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3883.39	60.31	3.25	-10.76	52.80	Max Peak	Vertical	189	207	74.0	-21.2	Pass
#2	3883.39	56.56	3.25	-10.76	49.05	Max Avg	Vertical	189	207	54.0	-5.0	Pass
#3	5828.30	59.91	3.84	-10.24	53.51	Fundamental	Vertical	200	1	--	--	
#4	11650.62	64.27	5.46	-4.47	65.26	Max Peak	Vertical	189	116	74.0	-8.7	Pass
#5	11650.62	50.82	5.46	-4.47	51.81	Max Avg	Vertical	189	116	54.0	-2.2	Pass

Test Notes: Eut on 150cm table powered by host.

9.4.1.2. Taoglas FXP.830

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11a
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	13	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5749.58	62.86	3.85	-10.63	56.08	Fundamental	Vertical	101	21	--	--	
#2	11490.71	67.63	5.45	-4.84	68.24	Max Peak	Vertical	198	112	74.0	-3.8	Pass
#3	11490.71	53.20	5.45	-4.84	53.81	Max Avg	Vertical	198	112	54.0	-0.2	Pass
Test Notes: Eut on 150cm table powered by host. Power reduced to 13 to meet limit at 11.49 GHz												

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11a
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5785.00	**Data Rate:**	6.00 MBit/s
Power Setting:	13	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5782.00	60.94	3.80	-10.46	54.28	Fundamental	Vertical	101	1	--	--	
#2	11566.45	66.31	5.54	-4.65	67.20	Max Peak	Vertical	197	113	74.0	-6.8	Pass
#3	11566.45	52.35	5.54	-4.65	53.24	Max Avg	Vertical	197	113	54.0	-0.8	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 13 to meet limit at 11.56 GHz

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11a
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3883.38	56.35	3.25	-10.76	48.84	Max Peak	Vertical	189	233	74.0	-25.2	Pass
#2	3883.38	50.59	3.25	-10.76	43.08	Max Avg	Vertical	189	233	54.0	-10.9	Pass
#3	5818.80	59.27	3.82	-10.28	52.81	Fundamental	Horizontal	101	1	--	--	
#4	11650.66	65.43	5.46	-4.47	66.42	Max Peak	Vertical	198	116	74.0	-7.6	Pass
#5	11650.66	51.91	5.46	-4.47	52.90	Max Avg	Vertical	198	116	54.0	-1.1	Pass

Test Notes: Eut on 150cm table powered by host.

9.4.1.3. Taoglas PC.11

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11a
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	12.5	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3829.99	59.39	3.21	-10.83	51.77	Max Peak	Vertical	195	72	74.0	-22.2	Pass
#2	3829.99	56.25	3.21	-10.83	48.63	Max Avg	Vertical	195	72	54.0	-5.4	Pass
#3	5738.08	52.34	3.82	-10.67	45.49	Fundamental	Vertical	200	286	--	--	
#4	11489.82	65.68	5.45	-4.84	66.29	Max Peak	Vertical	192	121	74.0	-7.7	Pass
#5	11489.82	53.08	5.45	-4.84	53.69	Max Avg	Vertical	192	121	54.0	-0.3	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 14 to meet limit at 11.49 GHz

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11a
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5785.00	**Data Rate:**	6.00 MBit/s
Power Setting:	14.5	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3856.72	60.02	3.23	-10.81	52.44	Max Peak	Vertical	178	70	74.0	-21.6	Pass
#2	3856.72	56.72	3.23	-10.81	49.14	Max Avg	Vertical	178	70	54.0	-4.9	Pass
#3	5778.08	56.58	3.80	-10.48	49.90	Fundamental	Vertical	101	78	--	--	
#4	11570.82	66.51	5.44	-4.64	67.31	Max Peak	Vertical	185	117	74.0	-5.7	Pass
#5	11570.82	53.00	5.44	-4.64	53.80	Max Avg	Vertical	185	117	54.0	-0.2	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 14.5 to meet limit at 11.57 GHz

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11a
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	3883.47	62.89	3.25	-10.76	55.38	Max Peak	Vertical	182	90	74.0	-18.6	Pass
#2	3883.47	59.87	3.25	-10.76	52.36	Max Avg	Vertical	182	90	54.0	-1.6	Pass
#3	5832.75	52.93	3.84	-10.21	46.56	Fundamental	Vertical	101	0	--	--	
#4	11654.87	64.72	5.53	-4.46	65.79	Max Peak	Vertical	193	119	74.0	-8.2	Pass
#5	11654.87	51.28	5.53	-4.46	52.35	Max Avg	Vertical	193	119	54.0	-1.7	Pass

Test Notes: Eut on 150cm table powered by host.

9.4.2. Restricted Band-Edge Emissions

9.4.2.4. Antenna Factor ANT-DB1-xxx

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5725 - 5850 MHz

Antenna Factor ANT-DB1-xxx		Band-Edge Freq	Limit 68.2dBµV/m	Limit 78.2dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5745.00	5725.00	57.63	67.43	20
802.11n HT-20	5745.00	5725.00	58.20	68.57	20
802.11n HT-40	5755.00	5725.00	67.74	72.00	20

5725 - 5850 MHz

Antenna Factor ANT-DB1-xxx		Band-Edge Freq	Limit 78.2dBµV/m	Limit 68.2dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5825.00	5850.00	62.17	56.38	20
802.11n HT-20	5825.00	5850.00	62.98	56.38	20
802.11n HT-40	5795.00	5850.00	57.52	55.04	20

Click on the links to view the data.

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11a
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	19.38	3.81	34.34	57.53	Max Avg	Vertical	197	-2	68.2	-10.7	Pass
#2	5725.00	29.29	3.79	34.35	67.43	Max Avg	Vertical	197	-2	78.2	-10.8	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

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Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	20.05	3.81	34.34	58.20	Max Avg	Vertical	197	-2	68.2	-10.0	Pass
#2	5725.00	30.43	3.79	34.35	68.57	Max Avg	Vertical	197	-2	78.2	-9.7	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

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Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5755.00	**Data Rate:**	13.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	29.59	3.81	34.34	67.74	Max Avg	Vertical	197	-2	68.2	-0.5	Pass
#2	5724.27	33.86	3.79	34.35	72.00	Max Avg	Vertical	197	-2	78.2	-6.2	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11a
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	23.73	3.81	34.63	62.17	Max Avg	Vertical	197	-2	78.2	-16.1	Pass
#3	5860.00	17.87	3.86	34.65	56.38	Max Avg	Vertical	197	-2	68.2	-11.9	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	24.54	3.81	34.63	62.98	Max Avg	Vertical	197	-2	78.2	-15.3	Pass
#3	5860.00	17.87	3.86	34.65	56.38	Max Avg	Vertical	197	-2	68.2	-11.9	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Antenna Factor ANT-DB1-xxx	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	4.30	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5795.00	**Data Rate:**	13.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#2	5850.21	19.08	3.81	34.63	57.52	Max Avg	Vertical	197	-2	78.2	-20.7	Pass
#3	5860.00	16.53	3.86	34.65	55.04	Max Avg	Vertical	197	-2	68.2	-13.2	Pass
#1	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

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9.4.2.5. Taoglas FXP.830

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5725 - 5850 MHz

Taoglas FXP.830		Band-Edge Freq	Limit 68.2dBµV/m	Limit 78.2dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5745.00	5725.00	55.14	63.03	20
802.11n HT-20	5745.00	5725.00	56.01	64.55	20
802.11n HT-40	5755.00	5725.00	64.05	68.27	20

5725 - 5850 MHz

Taoglas FXP.830		Band-Edge Freq	Limit 78.2dBµV/m	Limit 68.2dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5825.00	5850.00	59.74	55.51	20
802.11n HT-20	5825.00	5850.00	61.28	56.38	20
802.11n HT-40	5795.00	5850.00	55.93	54.55	20

Click on the links to view the data.

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11a
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	16.99	3.81	34.34	55.14	Max Avg	Horizontal	200	183	68.2	-13.1	Pass
#2	5725.00	24.89	3.79	34.35	63.03	Max Avg	Horizontal	200	183	78.2	-15.2	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	17.86	3.81	34.34	56.01	Max Avg	Horizontal	200	183	68.2	-12.2	Pass
#2	5725.00	26.41	3.79	34.35	64.55	Max Avg	Horizontal	200	183	78.2	-13.7	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5755.00	**Data Rate:**	13.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	25.90	3.81	34.34	64.05	Max Avg	Horizontal	200	183	68.2	-4.2	Pass
#2	5724.03	30.13	3.79	34.35	68.27	Max Avg	Horizontal	200	183	78.2	-10.0	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11a
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	21.30	3.81	34.63	59.74	Max Avg	Horizontal	200	183	78.2	-18.5	Pass
#3	5860.00	17.00	3.86	34.65	55.51	Max Avg	Horizontal	200	183	68.2	-12.7	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	22.84	3.81	34.63	61.28	Max Avg	Horizontal	200	183	78.2	-17.0	Pass
#3	5860.00	17.87	3.86	34.65	56.38	Max Avg	Horizontal	200	183	68.2	-11.9	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas FXP.830	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	4.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5795.00	**Data Rate:**	13.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	17.49	3.81	34.63	55.93	Max Avg	Horizontal	200	183	78.2	-22.3	Pass
#3	5860.00	16.04	3.86	34.65	54.55	Max Avg	Horizontal	200	183	68.2	-13.7	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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9.4.2.6. Taoglas PC.11

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5725 - 5850 MHz

Taoglas PC.11		Band-Edge Freq	Limit 68.2dBµV/m	Limit 78.2dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5745.00	5725.00	56.01	65.84	20
802.11n HT-20	5745.00	5725.00	56.42	66.97	20
802.11n HT-40	5755.00	5725.00	65.28	70.57	20

5725 - 5850 MHz

Taoglas PC.11		Band-Edge Freq	Limit 78.2dBµV/m	Limit 68.2dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5825.00	5850.00	59.16	55.04	20
802.11n HT-20	5825.00	5850.00	60.28	55.04	20
802.11n HT-40	5795.00	5850.00	55.49	54.02	20

Click on the links to view the data.

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11a
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	17.86	3.81	34.34	56.01	Max Avg	Vertical	201	155	68.2	-12.2	Pass
#2	5725.00	27.70	3.79	34.35	65.84	Max Avg	Vertical	201	155	78.2	-12.4	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	18.27	3.81	34.34	56.42	Max Avg	Vertical	201	155	68.2	-11.8	Pass
#2	5725.00	28.83	3.79	34.35	66.97	Max Avg	Vertical	201	155	78.2	-11.3	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5755.00	**Data Rate:**	13.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5715.00	27.13	3.81	34.34	65.28	Max Avg	Vertical	201	155	68.2	-3.0	Pass
#2	5724.03	32.43	3.79	34.35	70.57	Max Avg	Vertical	201	155	78.2	-7.7	Pass
#3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11a
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	20.72	3.81	34.63	59.16	Max Avg	Vertical	201	155	78.2	-19.1	Pass
#3	5860.00	16.53	3.86	34.65	55.04	Max Avg	Vertical	201	155	68.2	-13.2	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	21.84	3.81	34.63	60.28	Max Avg	Vertical	201	155	78.2	-18.0	Pass
#3	5860.00	16.53	3.86	34.65	55.04	Max Avg	Vertical	201	155	68.2	-13.2	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	Taoglas PC.11	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	4.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5795.00	**Data Rate:**	13.50 MBit/s
Power Setting:	20	**Tested By:**	JMH

Test Measurement Results

Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5850.00	17.05	3.81	34.63	55.49	Max Avg	Vertical	201	155	78.2	-22.7	Pass
#3	5860.00	15.51	3.86	34.65	54.02	Max Avg	Vertical	201	155	68.2	-14.2	Pass
#2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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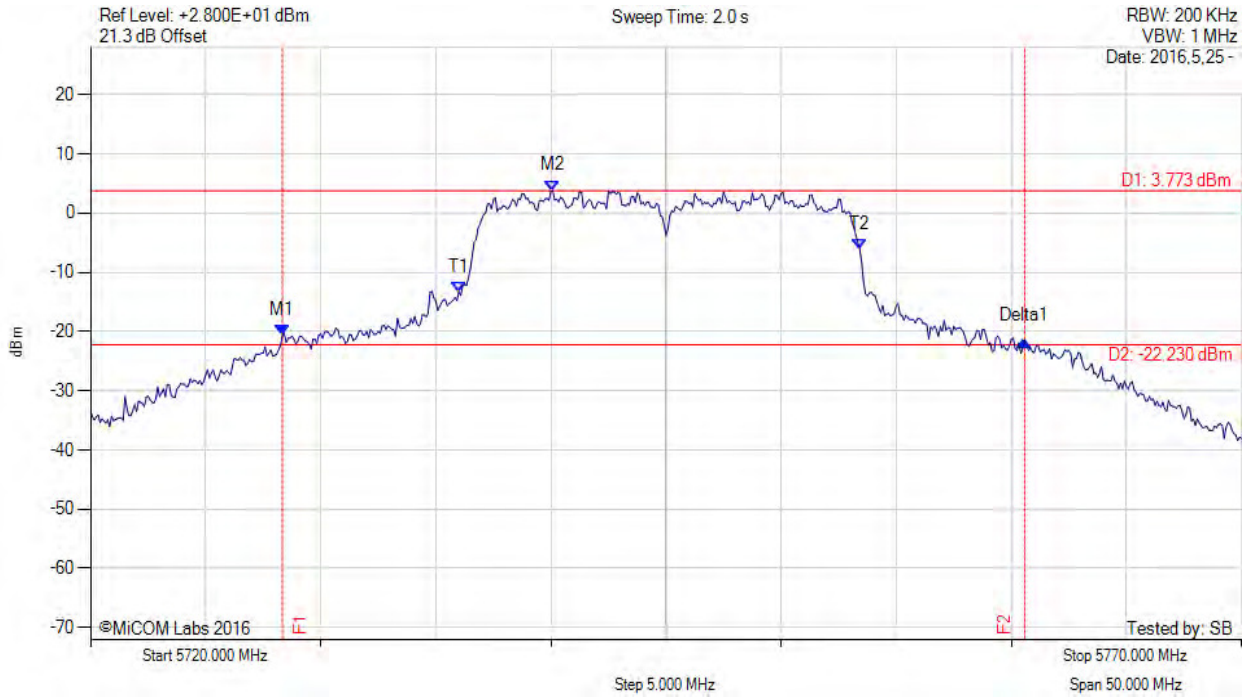
A. APPENDIX - GRAPHICAL IMAGES

A.1. 26 dB & 99% Bandwidth

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5728.330 MHz : -20.702 dBm M2 : 5740.080 MHz : 3.773 dBm Delta1 : 32.250 MHz : -0.793 dB T1 : 5736.000 MHz : -13.299 dBm T2 : 5753.417 MHz : -6.070 dBm OBW : 17.497 MHz	Measured 26 dB Bandwidth: 32.250 MHz Measured 99% Bandwidth: 17.497 MHz

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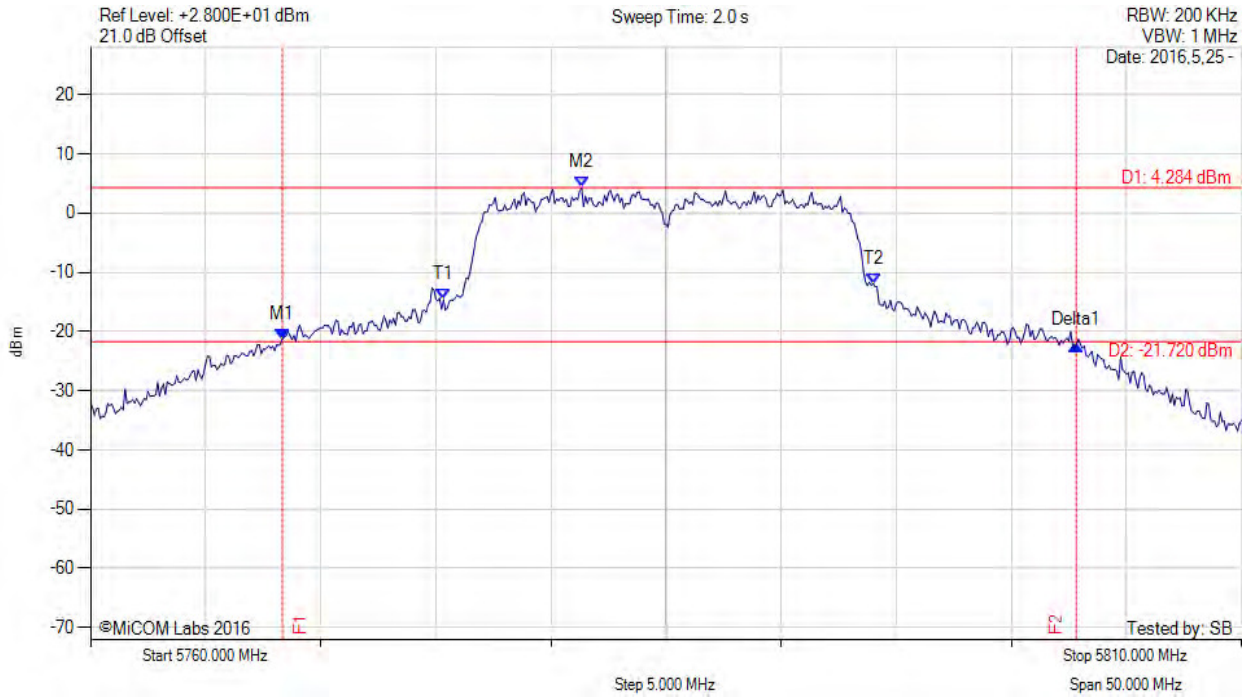
26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: Vdc

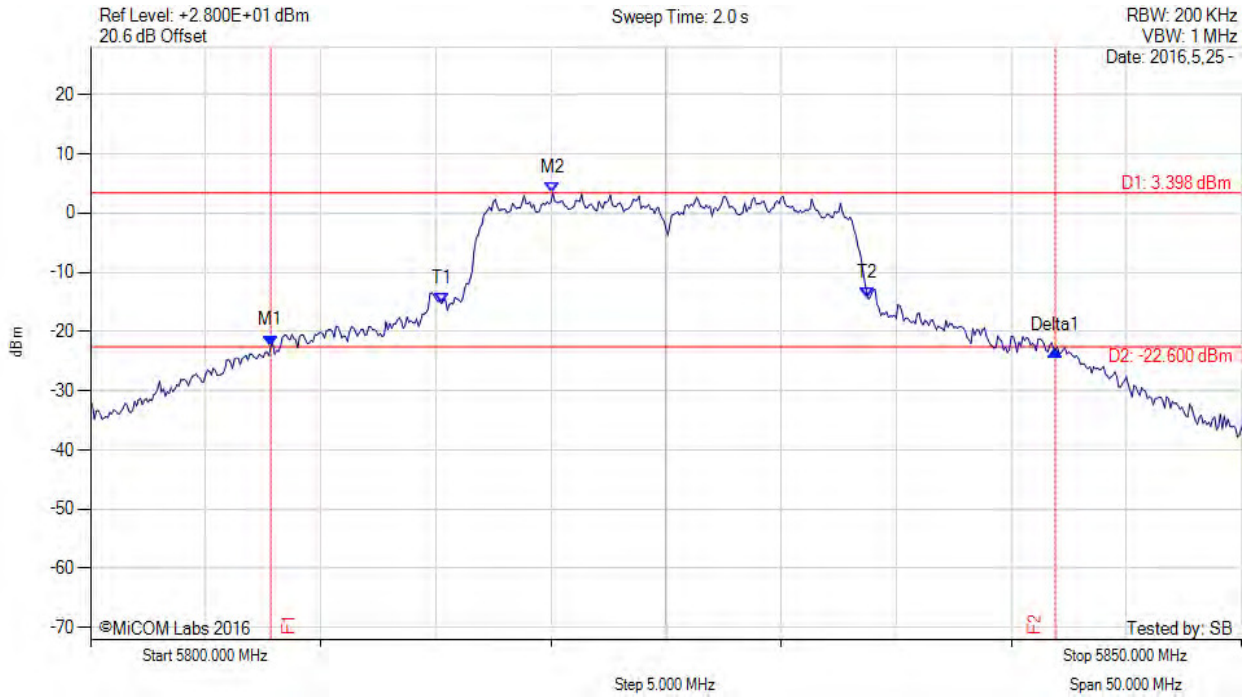


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5768.330 MHz : -21.251 dBm M2 : 5781.330 MHz : 4.284 dBm Delta1 : 34.500 MHz : -1.082 dB T1 : 5775.333 MHz : -14.614 dBm T2 : 5794.000 MHz : -11.911 dBm OBW : 19.075 MHz	Measured 26 dB Bandwidth: 34.500 MHz Measured 99% Bandwidth: 19.075 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5807.830 MHz : -22.383 dBm M2 : 5820.080 MHz : 3.398 dBm Delta1 : 34.080 MHz : -0.755 dB T1 : 5815.250 MHz : -15.279 dBm T2 : 5833.750 MHz : -14.354 dBm OBW : 18.805 MHz	Measured 26 dB Bandwidth: 34.080 MHz Measured 99% Bandwidth: 18.805 MHz

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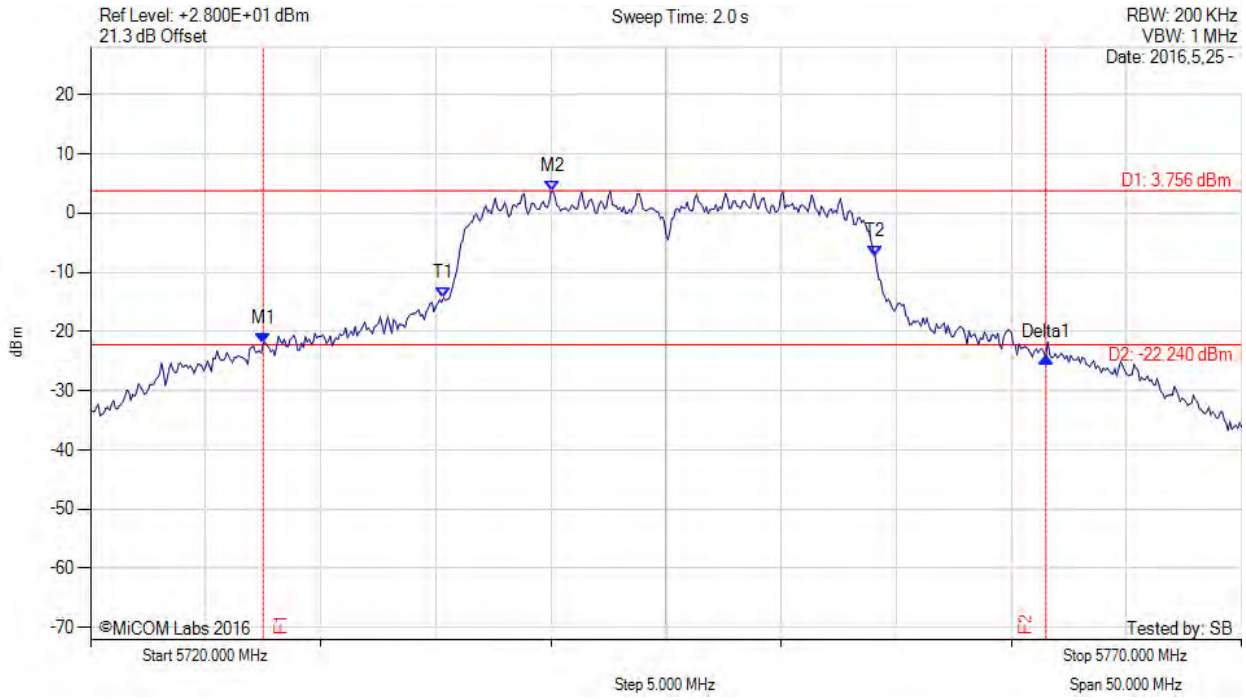
26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: Vdc

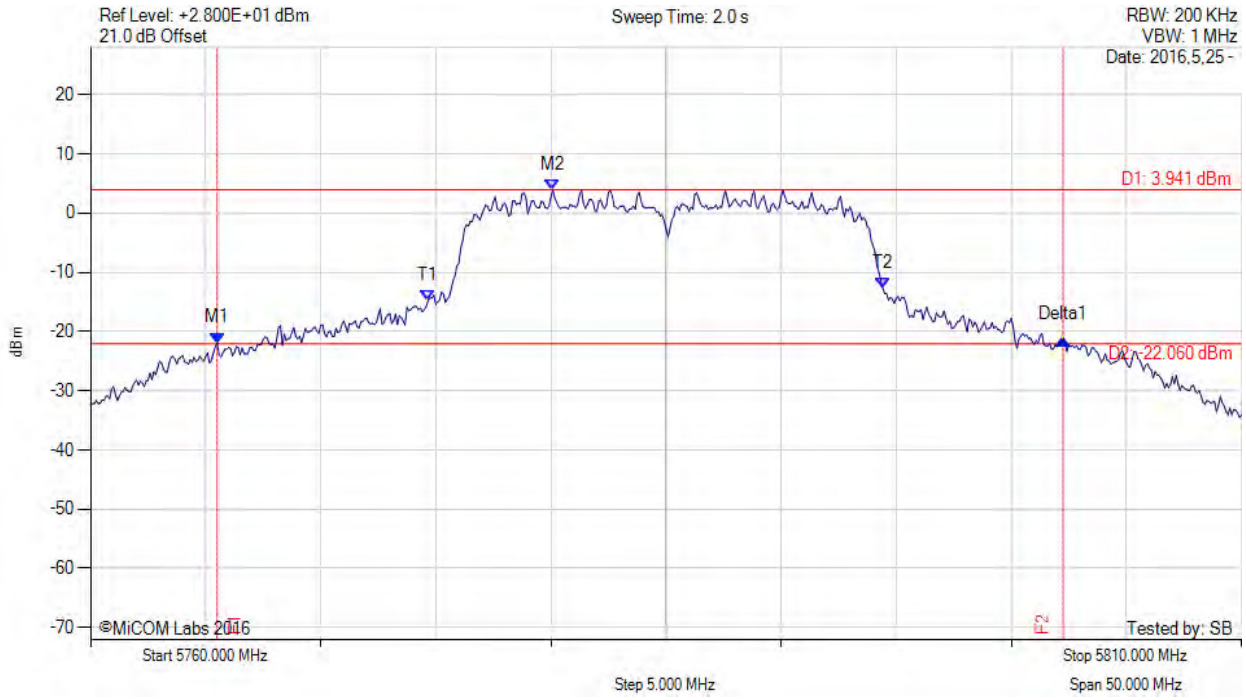


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5727.500 MHz : -22.027 dBm M2 : 5740.080 MHz : 3.756 dBm Delta1 : 34.000 MHz : -2.423 dB T1 : 5735.333 MHz : -14.299 dBm T2 : 5754.083 MHz : -7.276 dBm OBW : 18.850 MHz	Measured 26 dB Bandwidth: 34.000 MHz Measured 99% Bandwidth: 18.850 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: Vdc

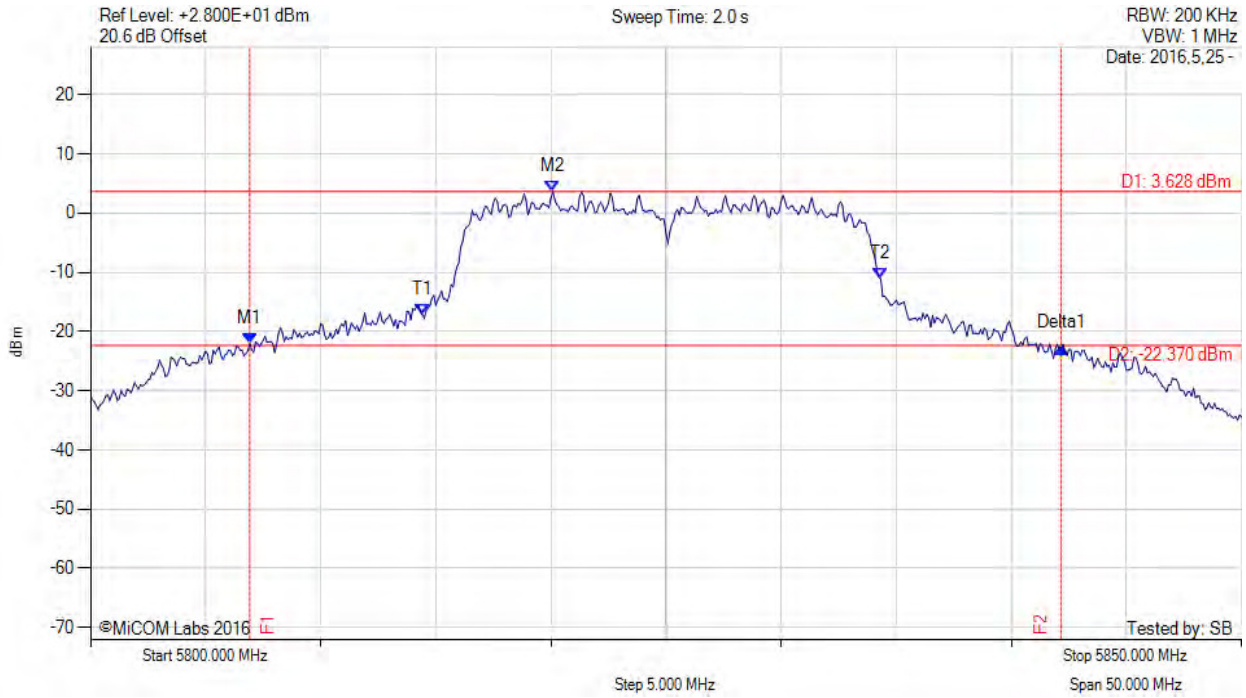


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5765.500 MHz : -21.912 dBm M2 : 5780.080 MHz : 3.941 dBm Delta1 : 36.750 MHz : 0.667 dB T1 : 5774.667 MHz : -14.788 dBm T2 : 5794.417 MHz : -12.677 dBm OBW : 20.328 MHz	Measured 26 dB Bandwidth: 36.750 MHz Measured 99% Bandwidth: 20.328 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: Vdc

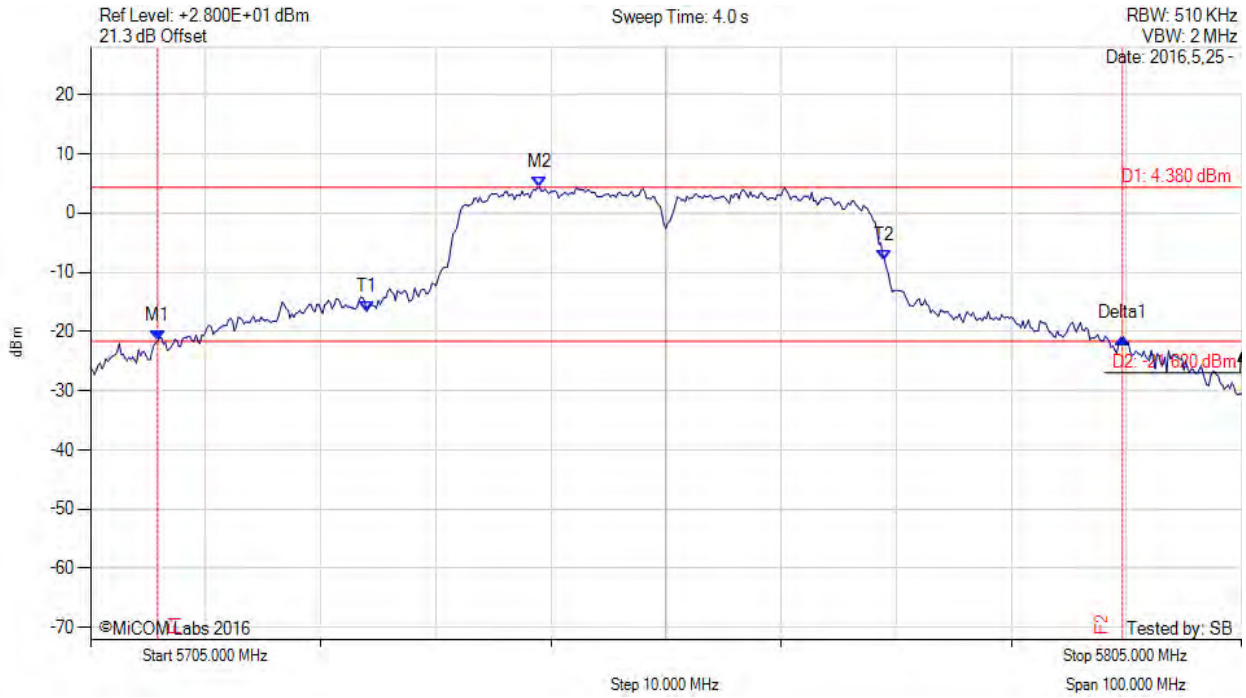


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5806.920 MHz : -22.059 dBm M2 : 5820.080 MHz : 3.628 dBm Delta1 : 35.250 MHz : -0.602 dB T1 : 5814.417 MHz : -17.166 dBm T2 : 5834.333 MHz : -11.104 dBm OBW : 20.445 MHz	Measured 26 dB Bandwidth: 35.250 MHz Measured 99% Bandwidth: 20.445 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: 20, Voltage: Vdc

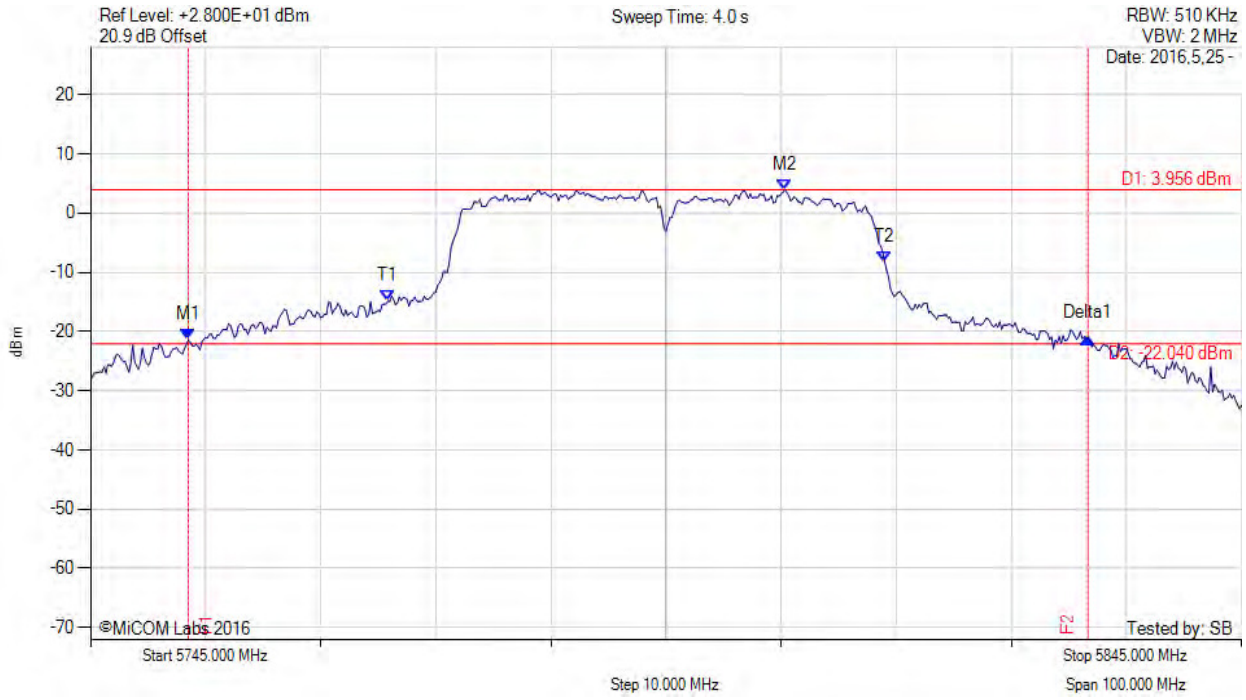


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5710.830 MHz : -21.545 dBm M2 : 5744.000 MHz : 4.380 dBm Delta1 : 83.830 MHz : 0.451 dB T1 : 5729.000 MHz : -16.598 dBm T2 : 5774.000 MHz : -8.028 dBm OBW : 46.215 MHz	Measured 26 dB Bandwidth: 83.830 MHz Measured 99% Bandwidth: 46.215 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: 20, Voltage: Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5753.500 MHz : -21.438 dBm M2 : 5805.330 MHz : 3.956 dBm Delta1 : 78.170 MHz : 0.394 dB T1 : 5770.833 MHz : -14.836 dBm T2 : 5814.000 MHz : -8.189 dBm OBW : 43.710 MHz	Measured 26 dB Bandwidth: 78.170 MHz Measured 99% Bandwidth: 43.710 MHz

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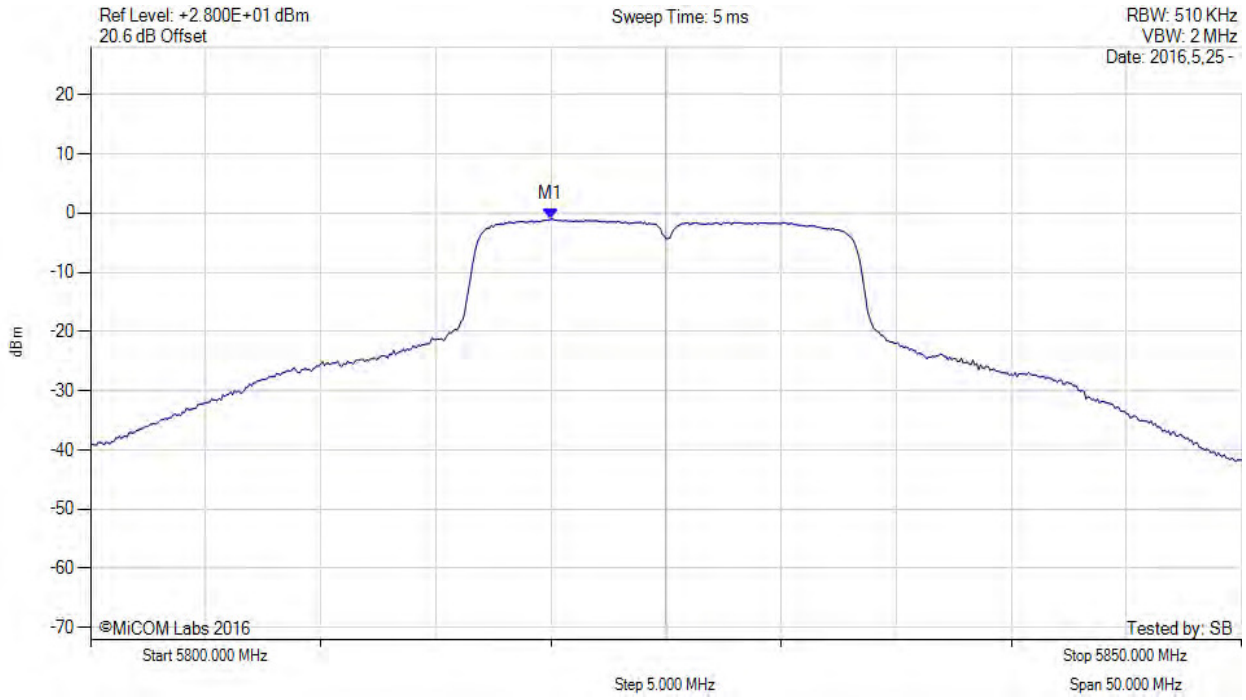
A.2. Power Spectral Density

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: Vdc

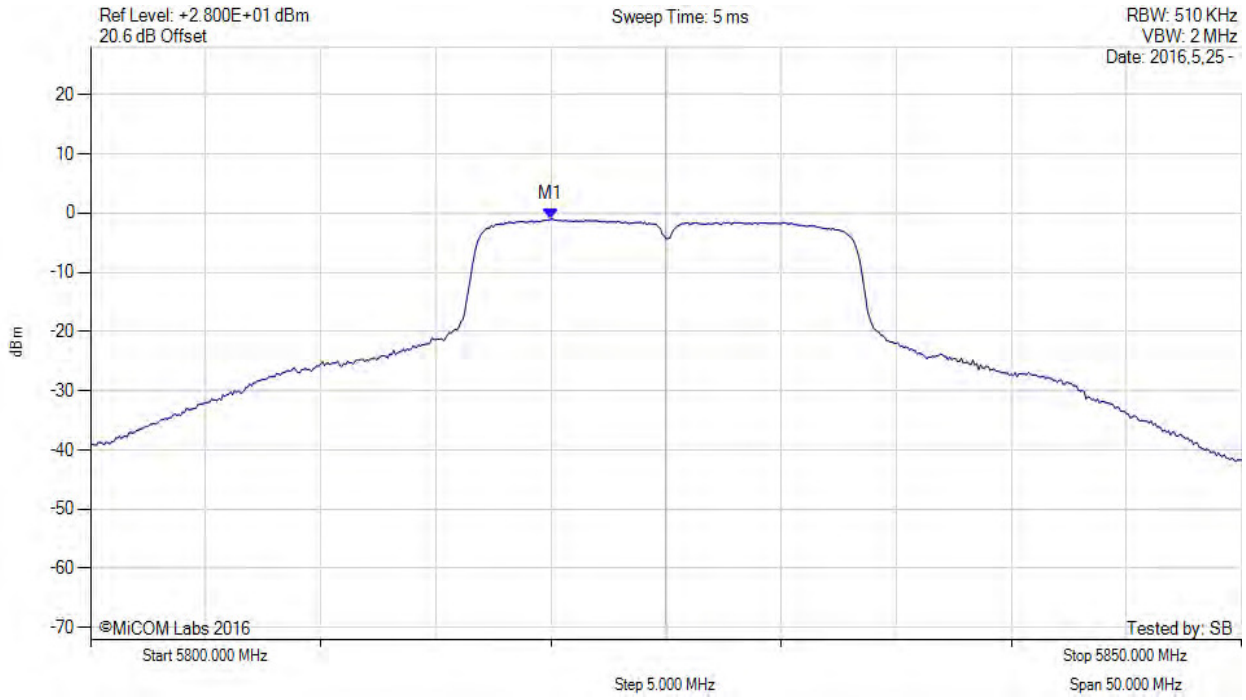


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5820.000 MHz : -1.003 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, SUM, Temp: 20, Voltage: Vdc

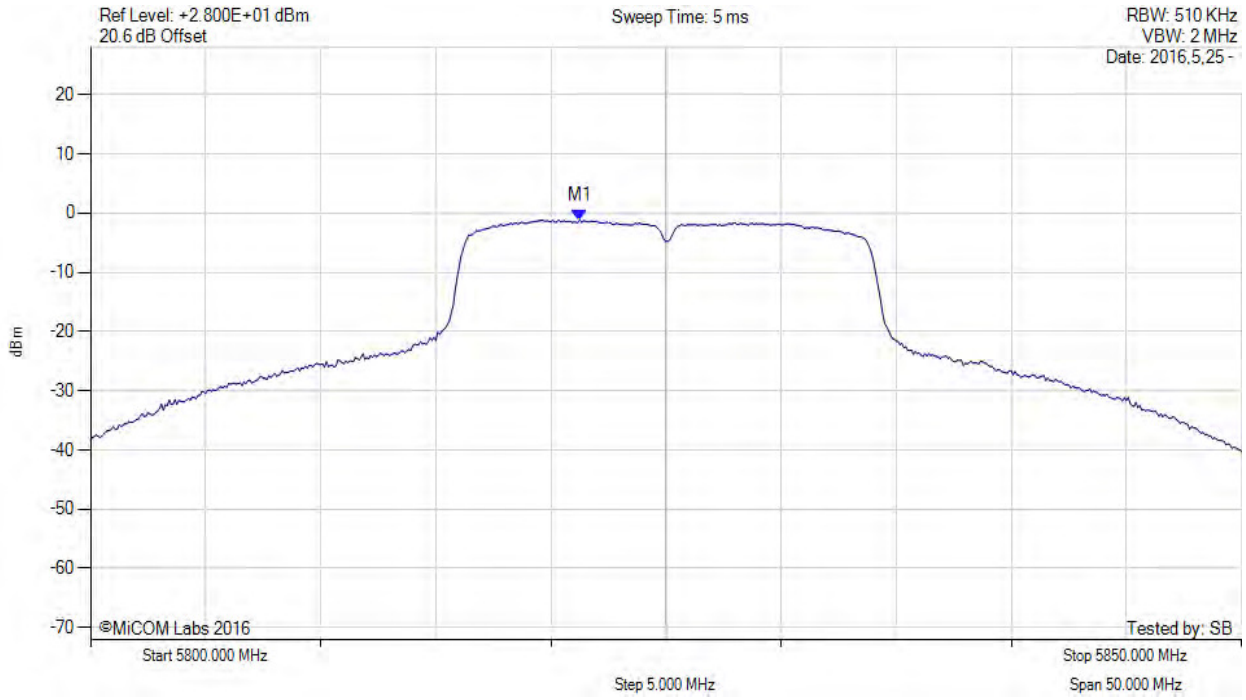


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5820.000 MHz : -1.003 dBm M1 + DCCF : 5820.000 MHz : -0.959 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -31.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: Vdc

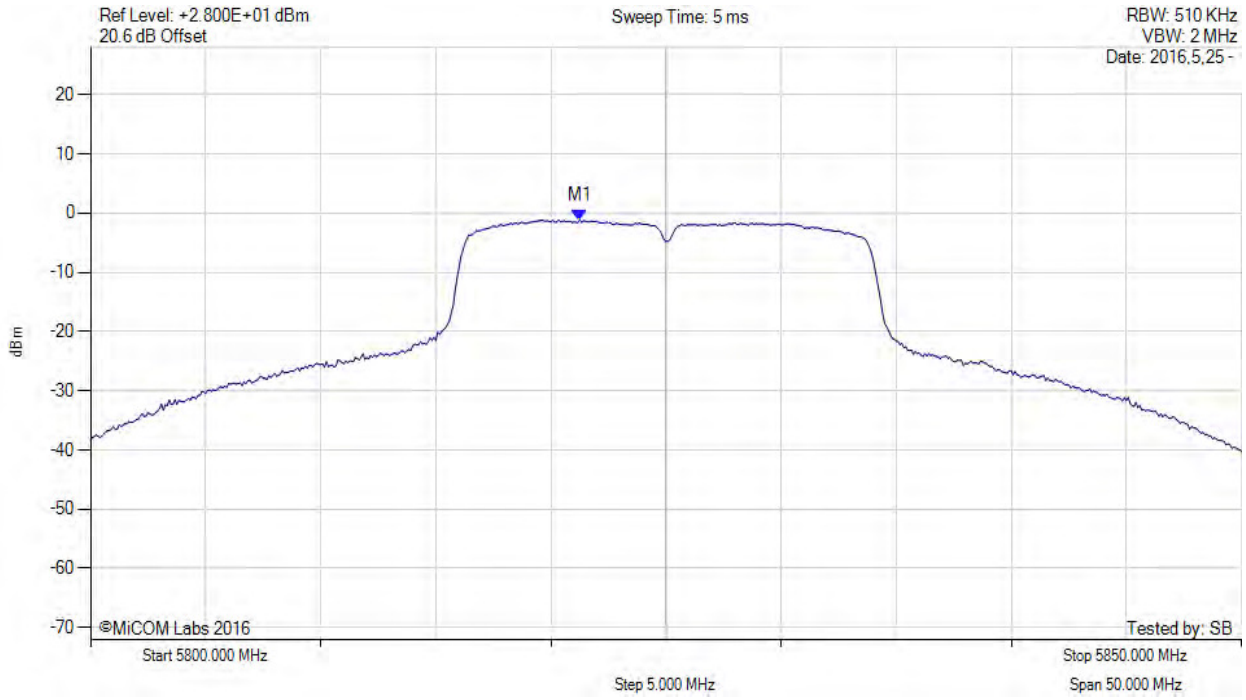


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5821.250 MHz : -1.149 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, SUM, Temp: 20, Voltage: Vdc

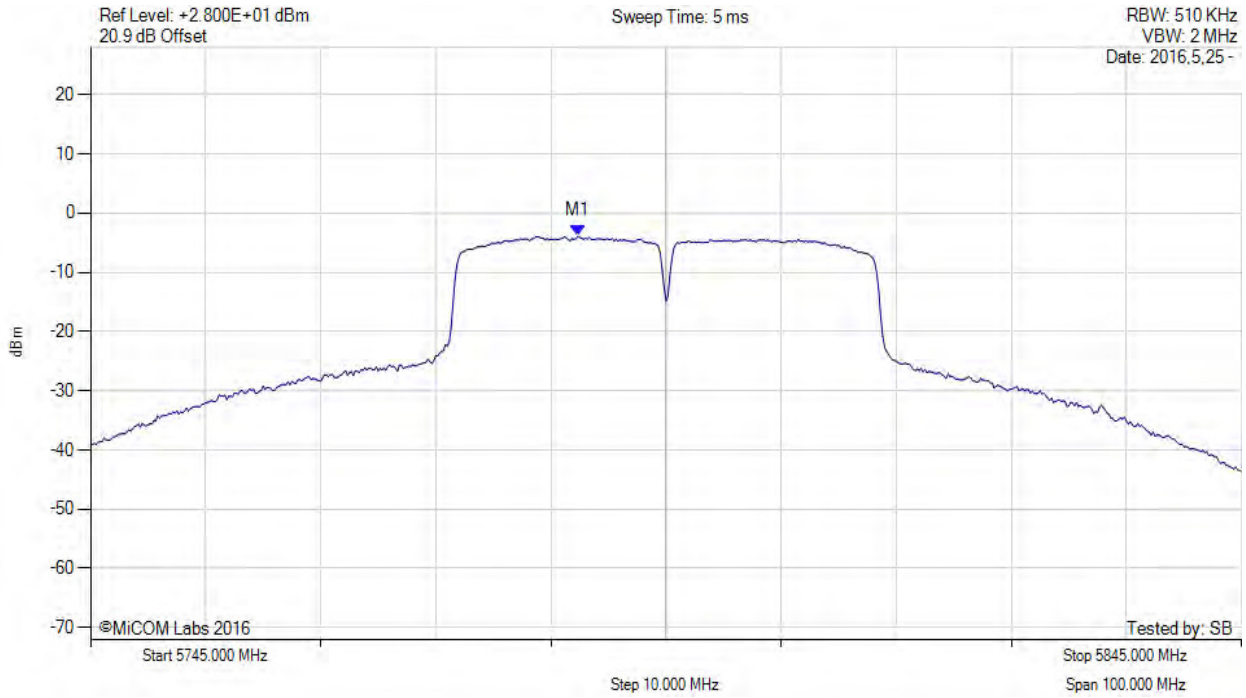


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5821.300 MHz : -1.149 dBm M1 + DCCF : 5821.300 MHz : -1.105 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -31.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: 20, Voltage: Vdc

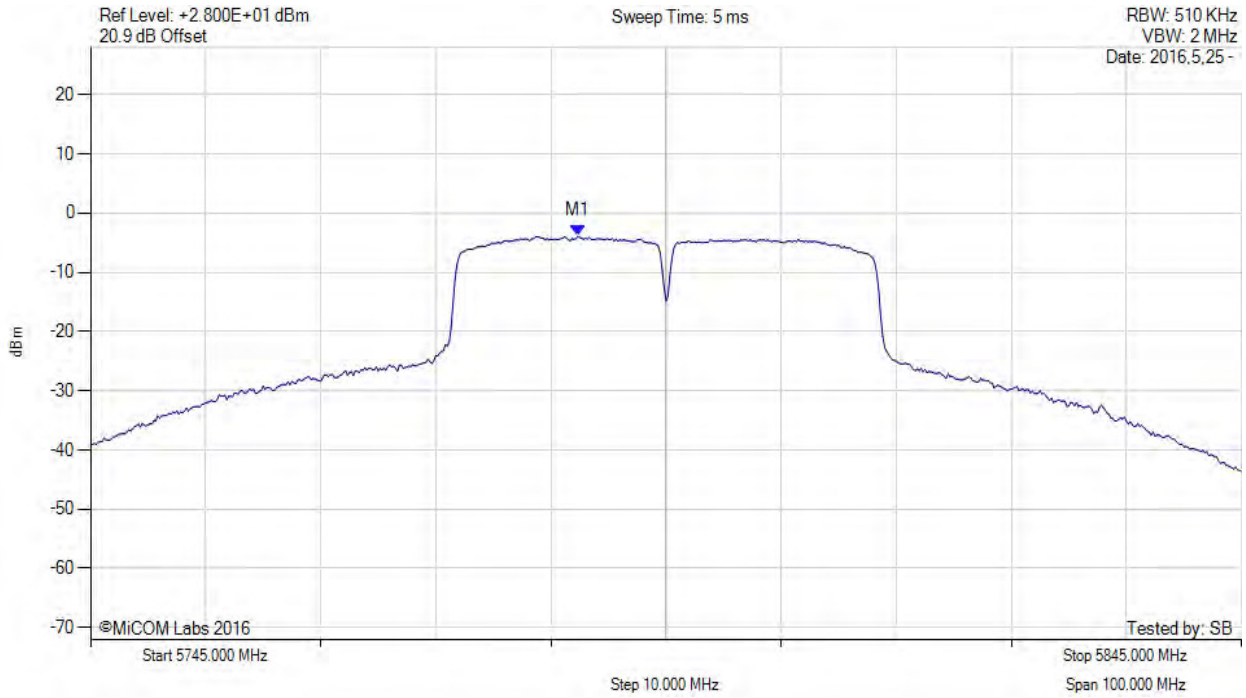


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5787.330 MHz : -3.879 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, SUM, Temp: 20, Voltage: Vdc

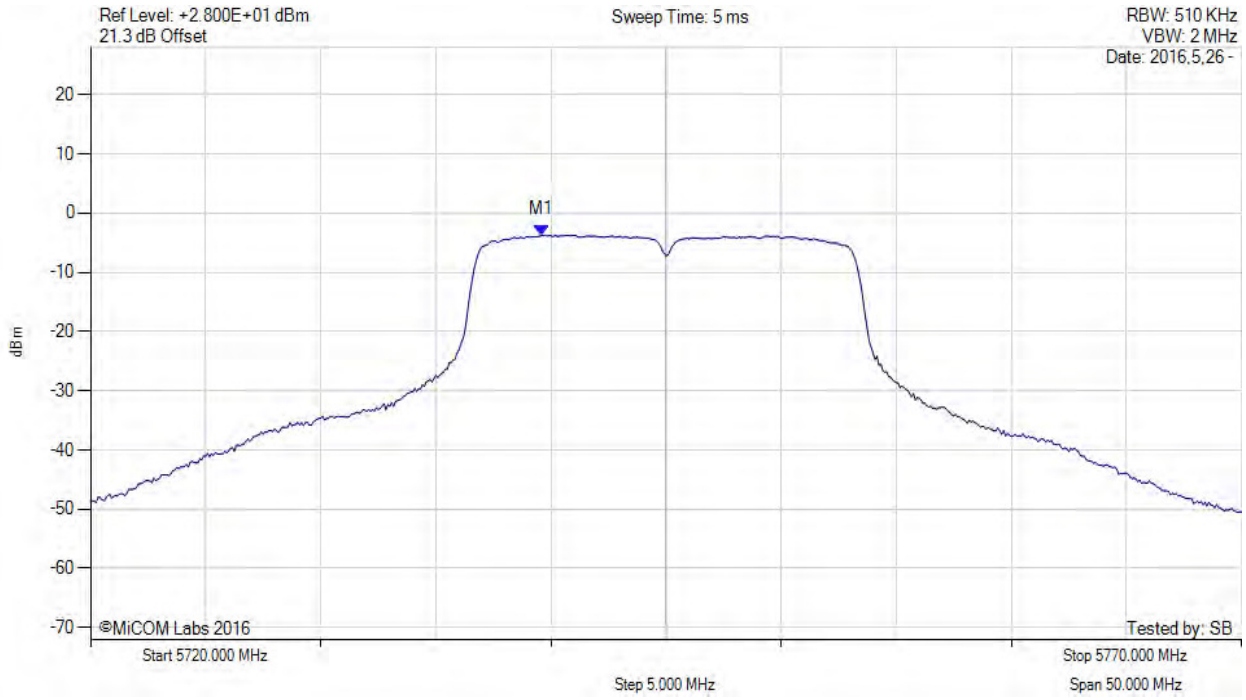


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5787.300 MHz : -3.879 dBm M1 + DCCF : 5787.300 MHz : -3.835 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -33.8 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5739.580 MHz : -3.703 dBm	Limit: ≤ 30.000 dBm

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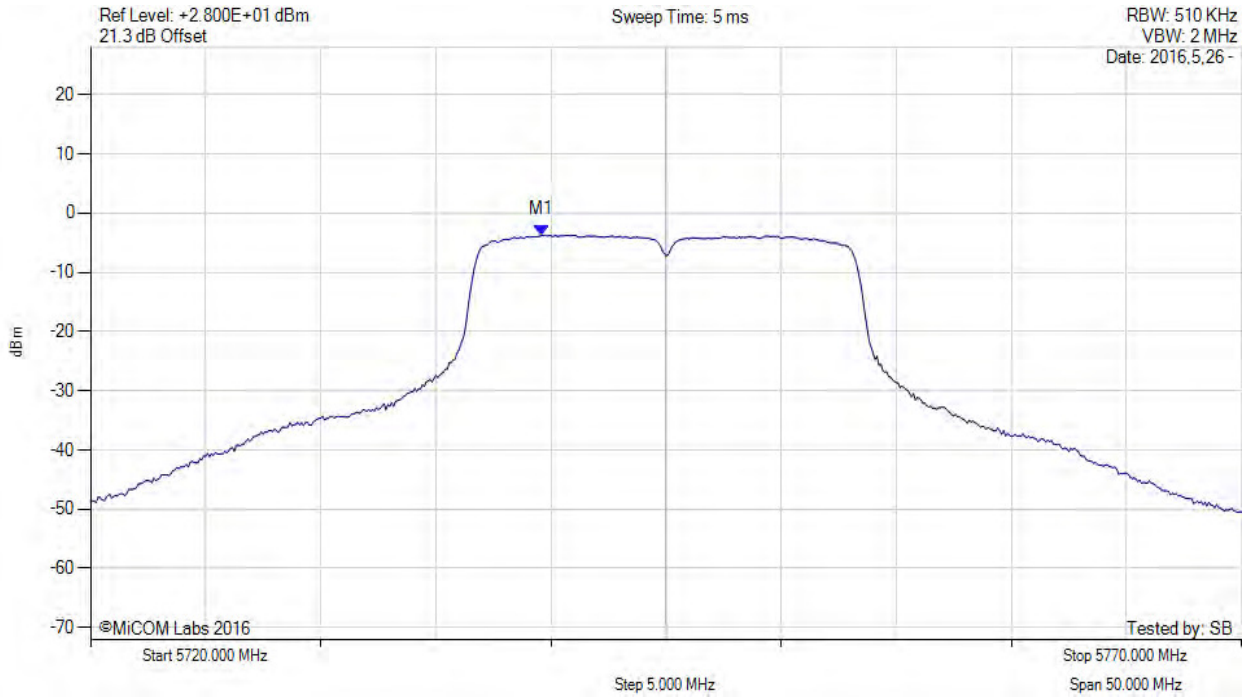
POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, SUM, Temp: 20, Voltage: Vdc

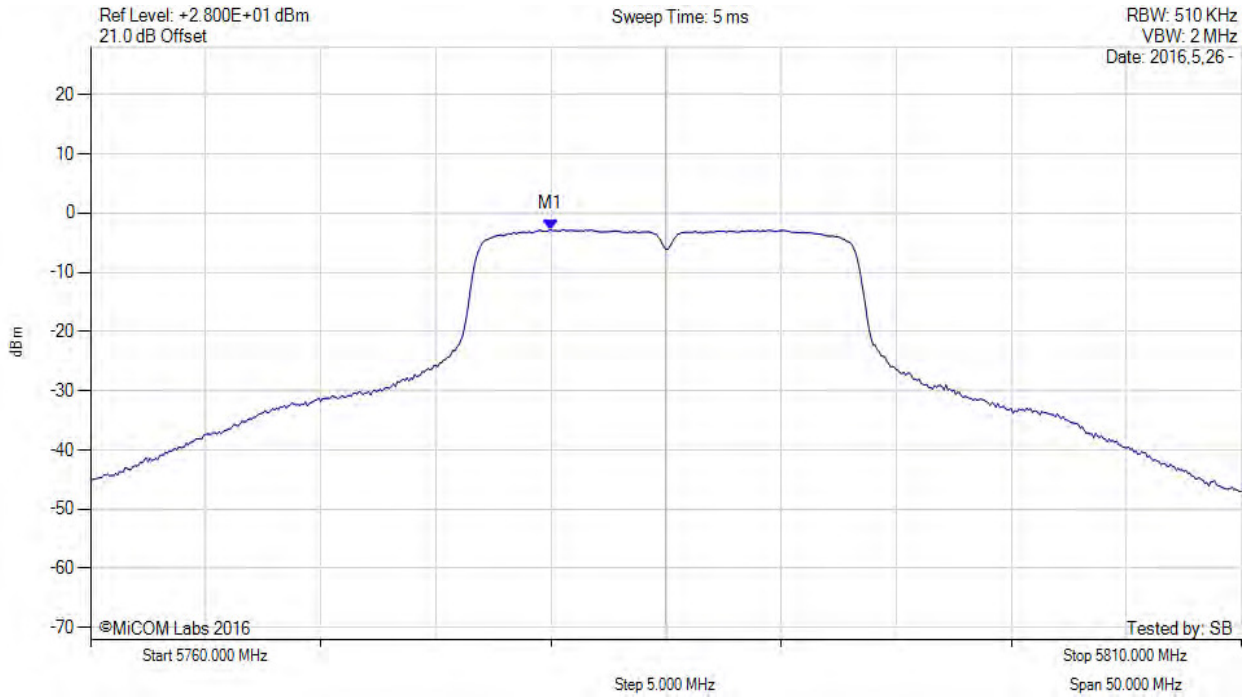


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5739.600 MHz : -3.703 dBm M1 + DCCF : 5739.600 MHz : -3.659 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -33.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: Vdc

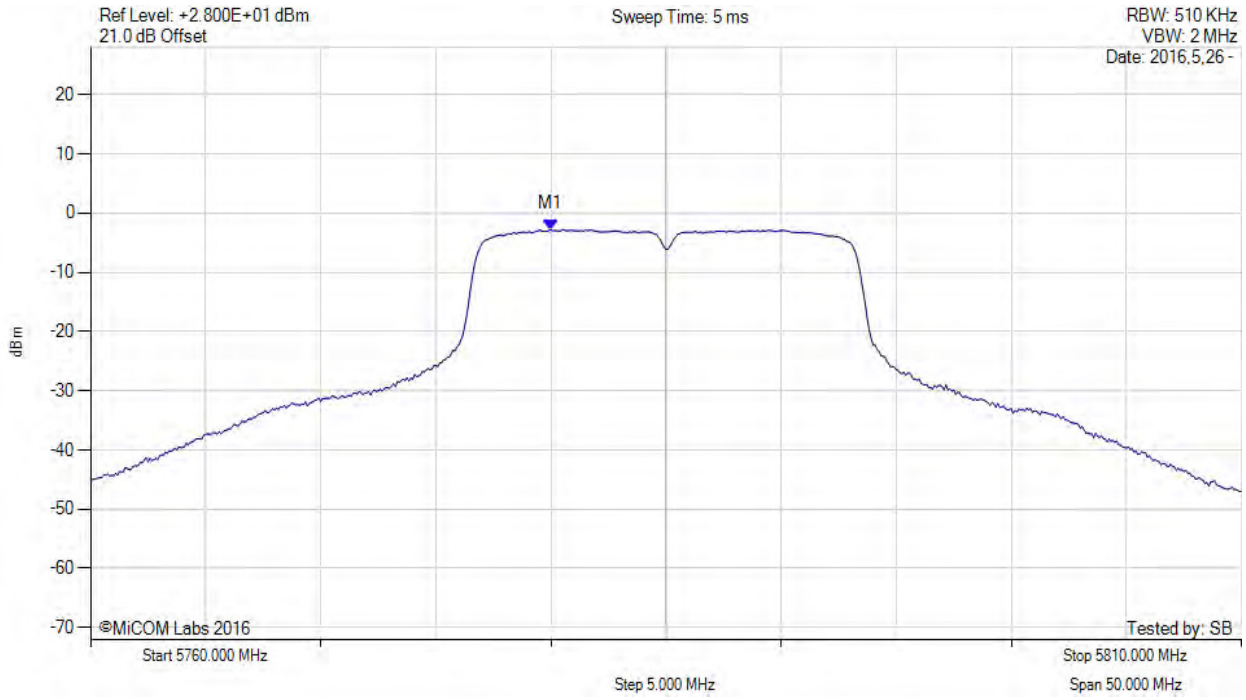


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5780.000 MHz : -2.753 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, SUM, Temp: 20, Voltage: Vdc

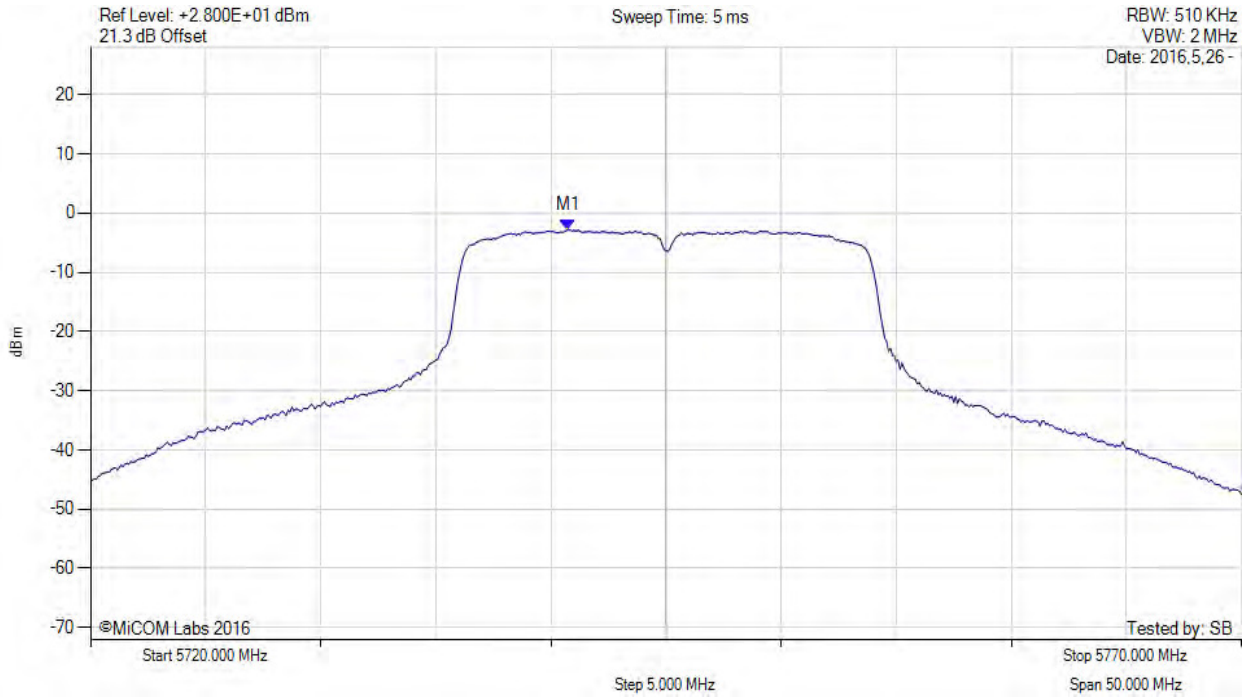


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5780.000 MHz : -2.753 dBm M1 + DCCF : 5780.000 MHz : -2.709 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -32.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: Vdc

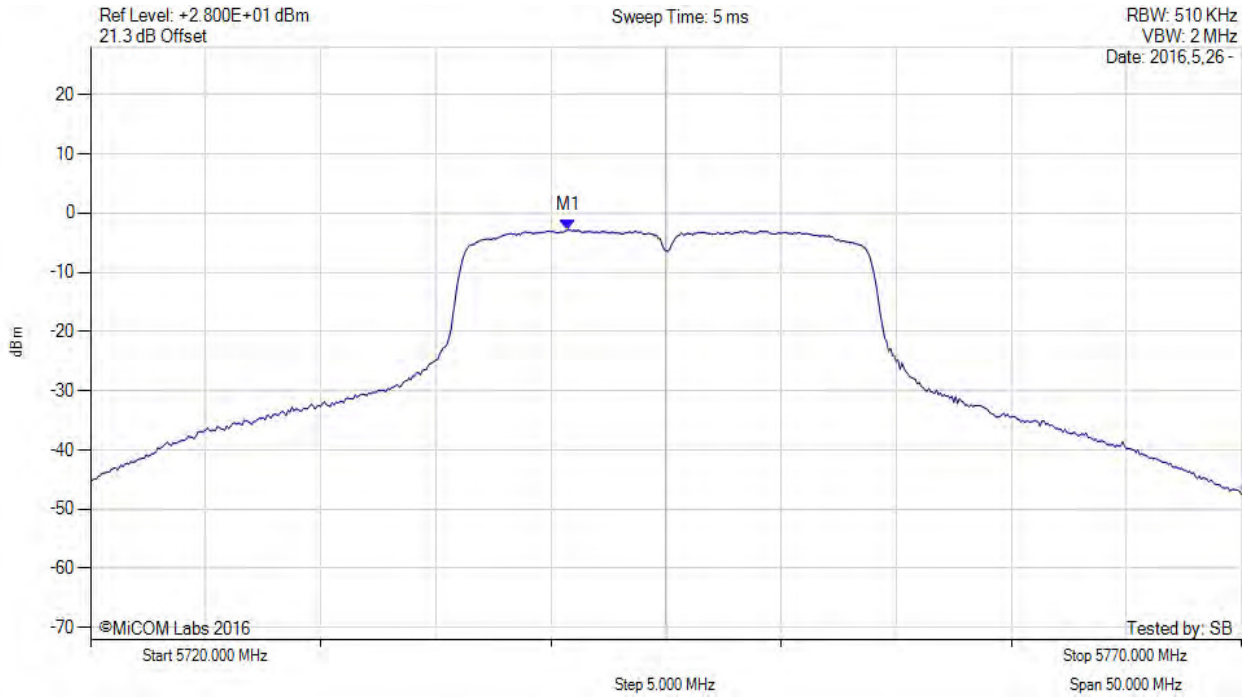


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5740.750 MHz : -2.865 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, SUM, Temp: 20, Voltage: Vdc

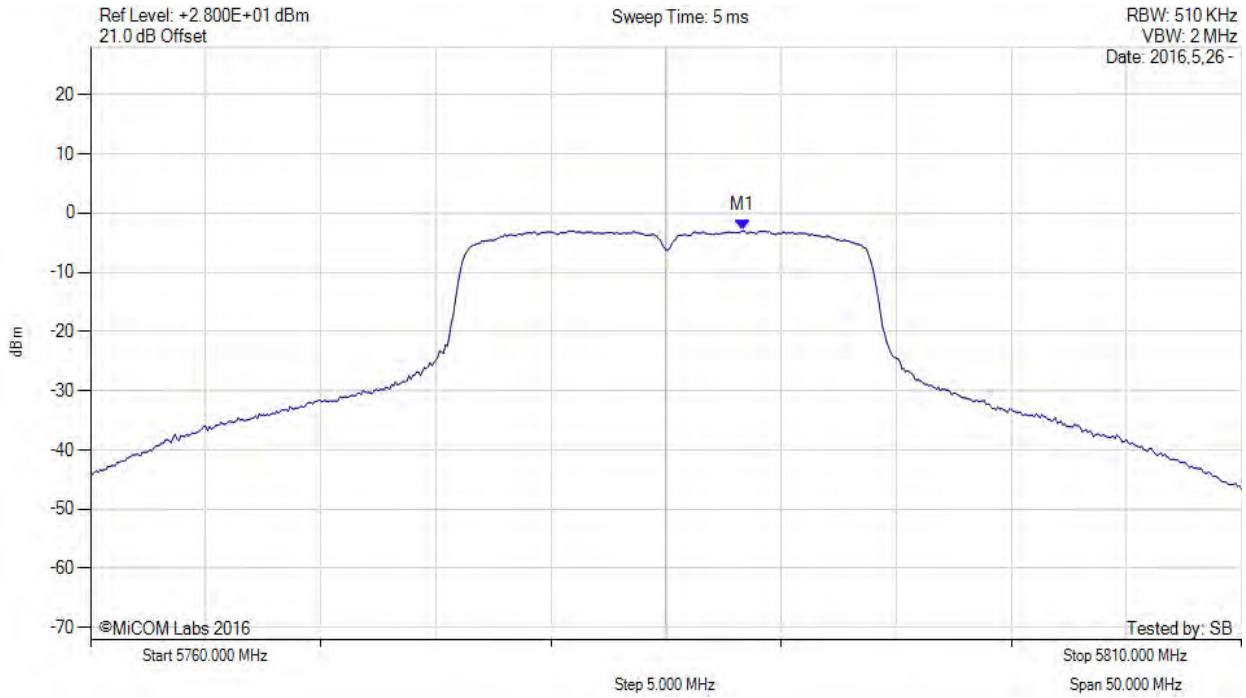


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5740.800 MHz : -2.865 dBm M1 + DCCF : 5740.800 MHz : -2.821 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -32.8 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: Vdc

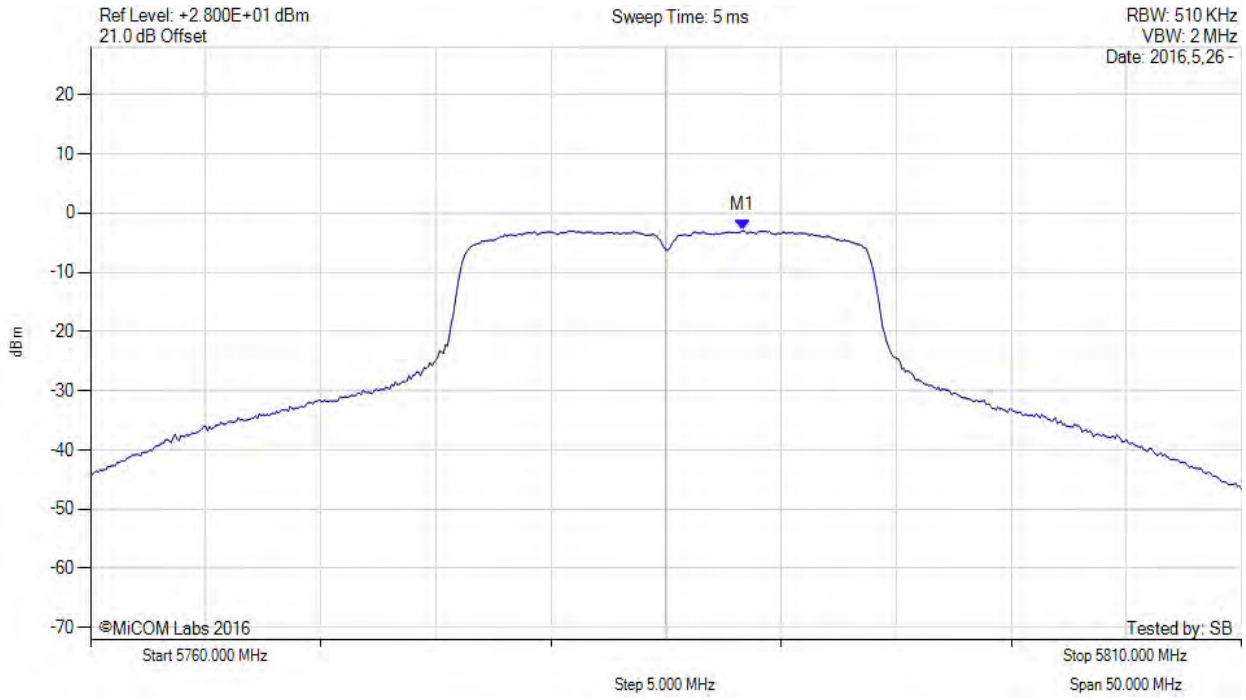


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5788.330 MHz : -2.979 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, SUM, Temp: 20, Voltage: Vdc

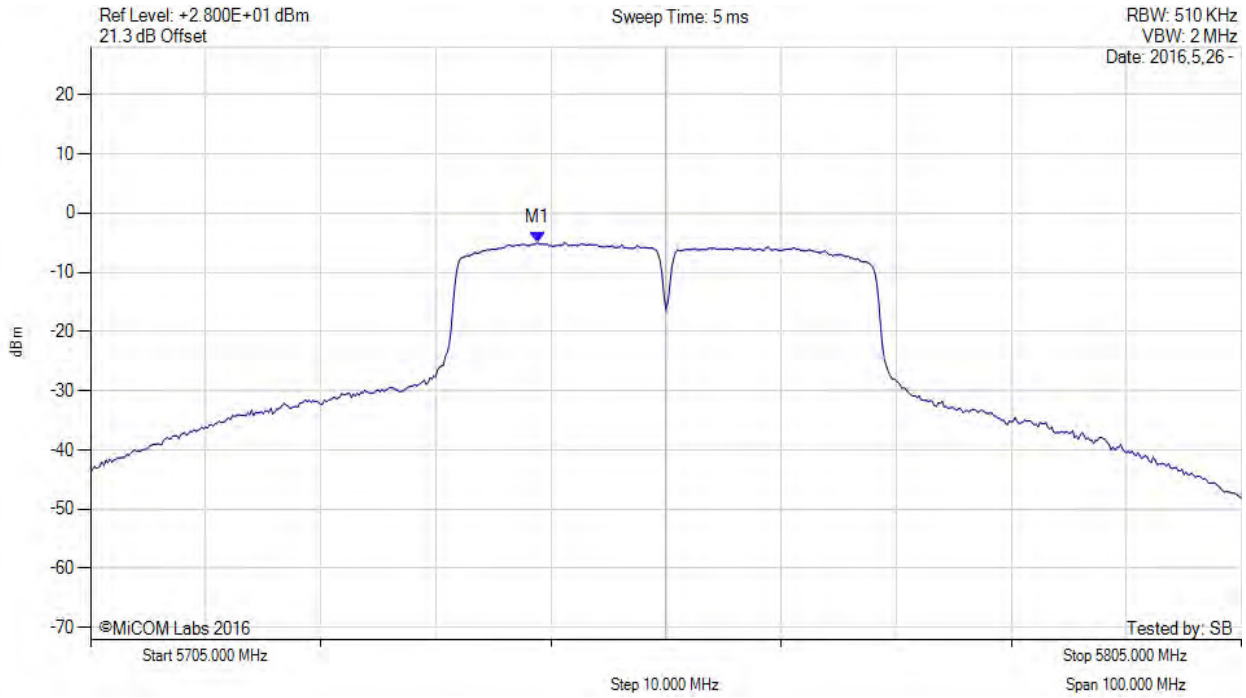


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5788.300 MHz : -2.979 dBm M1 + DCCF : 5788.300 MHz : -2.935 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -32.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: 20, Voltage: Vdc

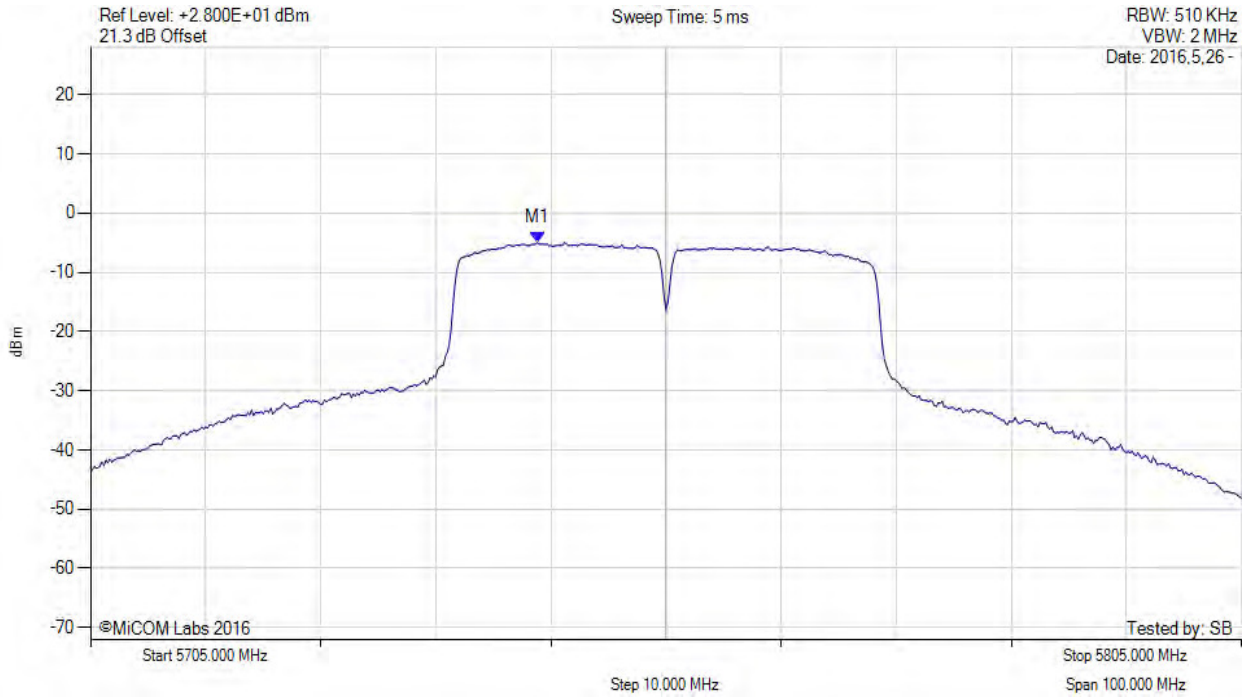


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5743.830 MHz : -4.968 dBm	Limit: ≤ 30.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, SUM, Temp: 20, Voltage: Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5743.800 MHz : -4.968 dBm M1 + DCCF : 5743.800 MHz : -4.924 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 30.0 dBm Margin: -34.9 dB

back to matrix

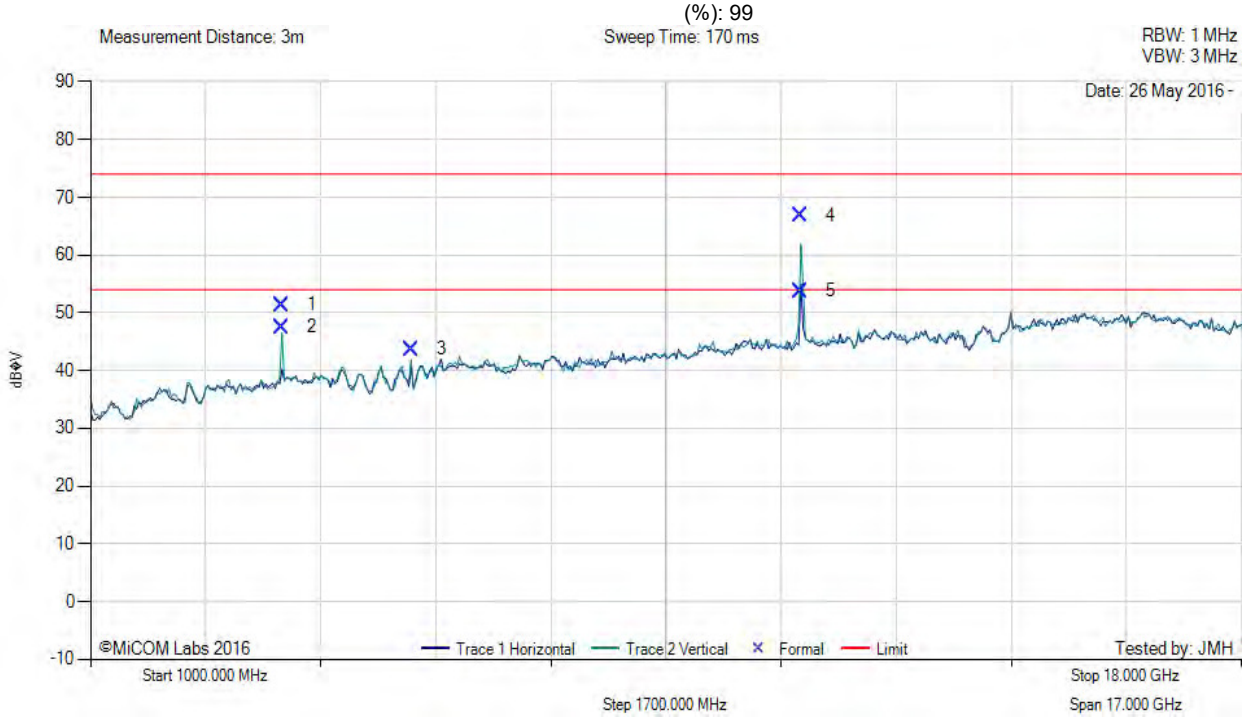
A.3. Radiated

A.3.1. Restricted Band Emissions

A.3.1.1. Antenna Factor ANT-DB1-xxx

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 12.5, Duty Cycle (%): 99



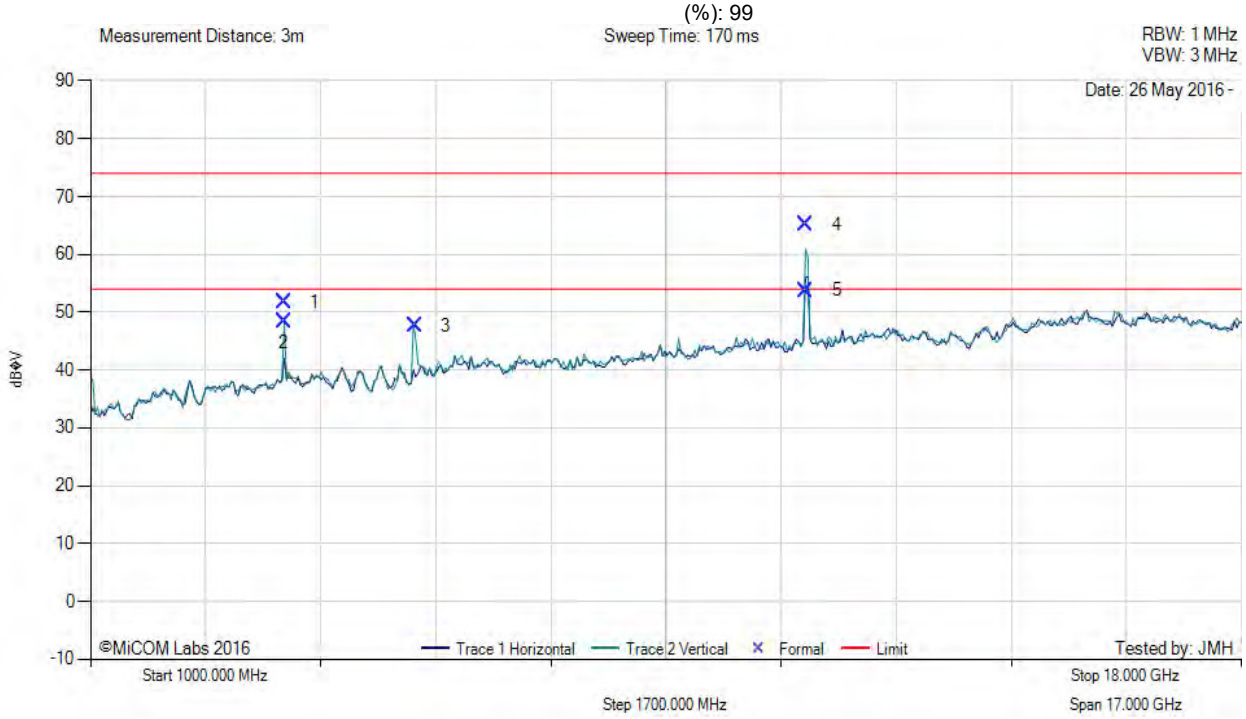
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3830.00	59.00	3.21	-10.83	51.38	Max Peak	Vertical	194	212	74.0	-22.6	Pass
2	3830.00	55.17	3.21	-10.83	47.55	AVG	Vertical	194	212	54.0	-6.5	Pass
3	5737.84	50.57	3.82	-10.67	43.72	Fundamental	Vertical	200	322	--	--	
4	11491.11	66.24	5.45	-4.84	66.85	Max Peak	Vertical	188	118	74.0	-7.2	Pass
5	11491.11	53.14	5.45	-4.84	53.75	AVG	Vertical	188	118	54.0	-0.3	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to meet limit at 11.49 GHz

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5785.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 12.5, Duty Cycle (%): 99



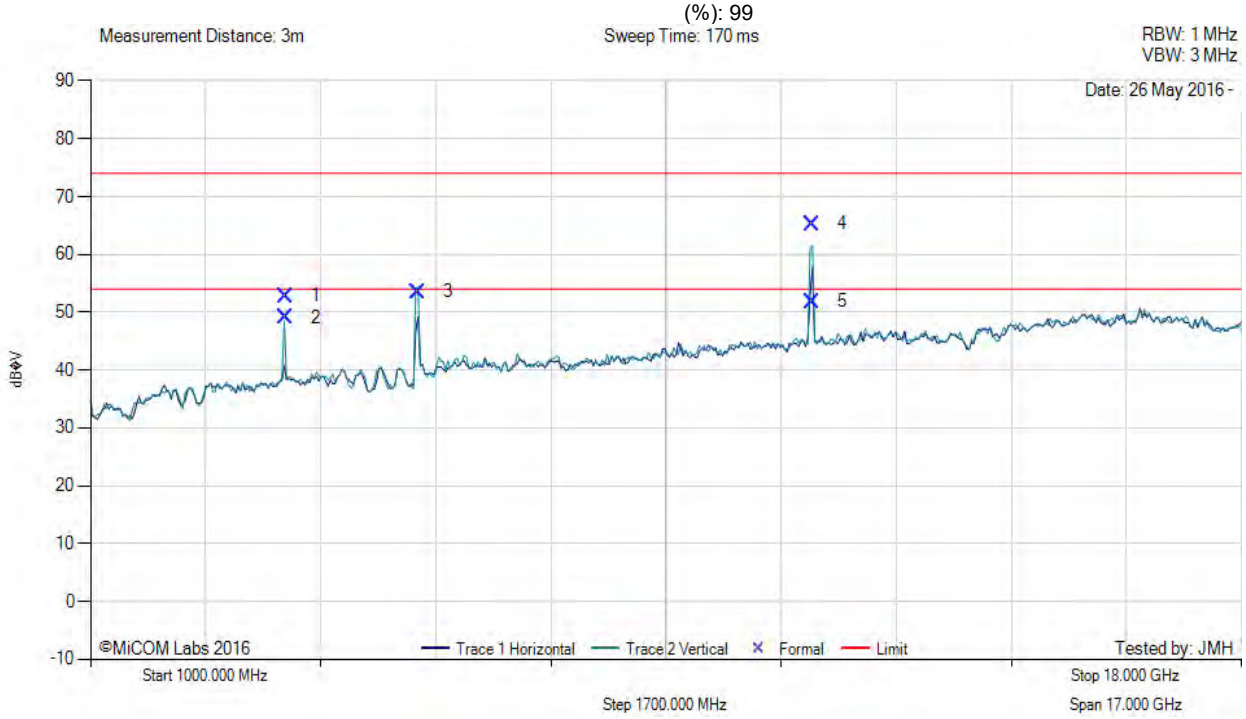
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3856.69	59.25	3.23	-10.81	51.67	Max Peak	Vertical	157	353	74.0	-22.3	Pass
2	3856.69	55.96	3.23	-10.81	48.38	AVG	Vertical	157	353	54.0	-5.6	Pass
3	5792.23	54.34	3.78	-10.40	47.72	Fundamental	Vertical	151	179	--	--	
4	11569.53	64.33	5.52	-4.65	65.20	Max Peak	Vertical	189	117	74.0	-8.8	Pass
5	11569.53	50.86	5.52	-4.65	53.73	AVG	Vertical	189	117	54.0	-0.3	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to meet limit at 11.57 GHz

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99

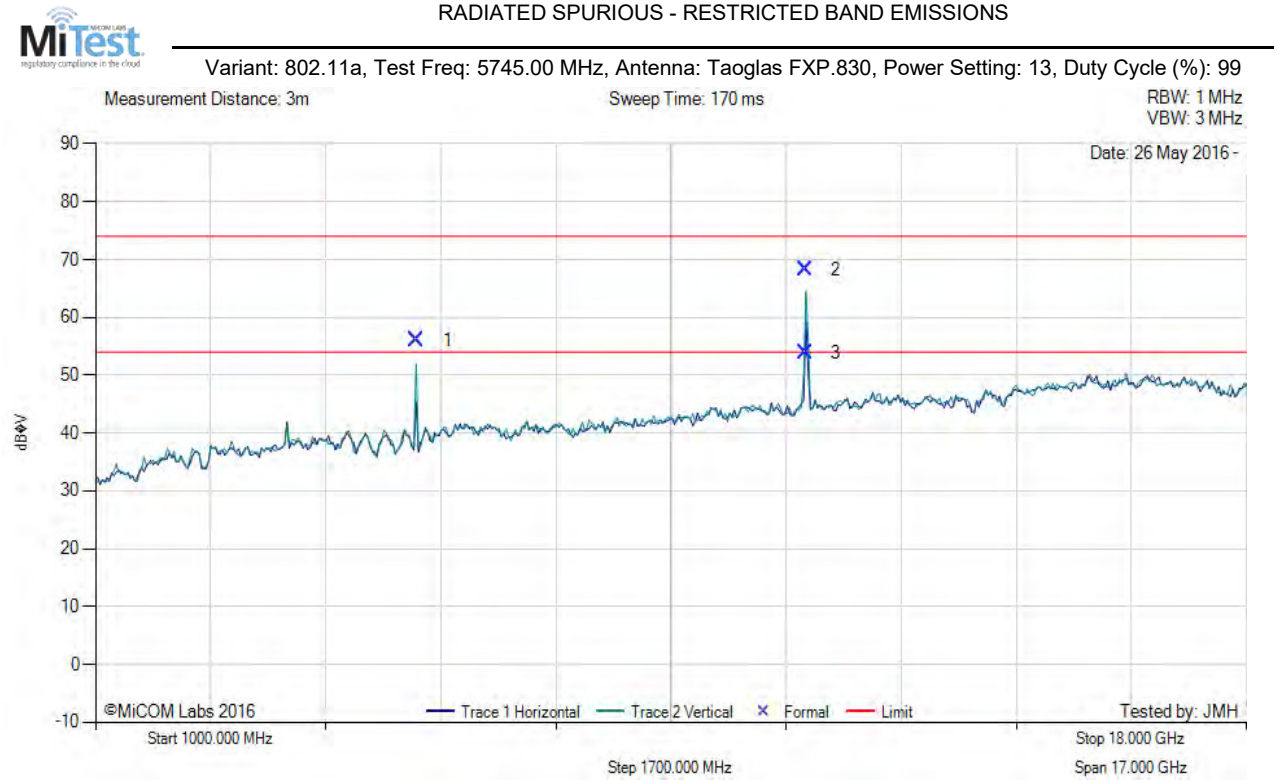


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3883.39	60.31	3.25	-10.76	52.80	Max Peak	Vertical	189	207	74.0	-21.2	Pass
2	3883.39	56.56	3.25	-10.76	49.05	AVG	Vertical	189	207	54.0	-5.0	Pass
3	5828.30	59.91	3.84	-10.24	53.51	Fundamental	Vertical	200	1	--	--	
4	11650.62	64.27	5.46	-4.47	65.26	Max Peak	Vertical	189	116	74.0	-8.7	Pass
5	11650.62	50.82	5.46	-4.47	51.81	AVG	Vertical	189	116	54.0	-2.2	Pass

Test Notes: Eut on 150cm table powered by host.

back to matrix

A.3.1.2. Taoglas FXP.830



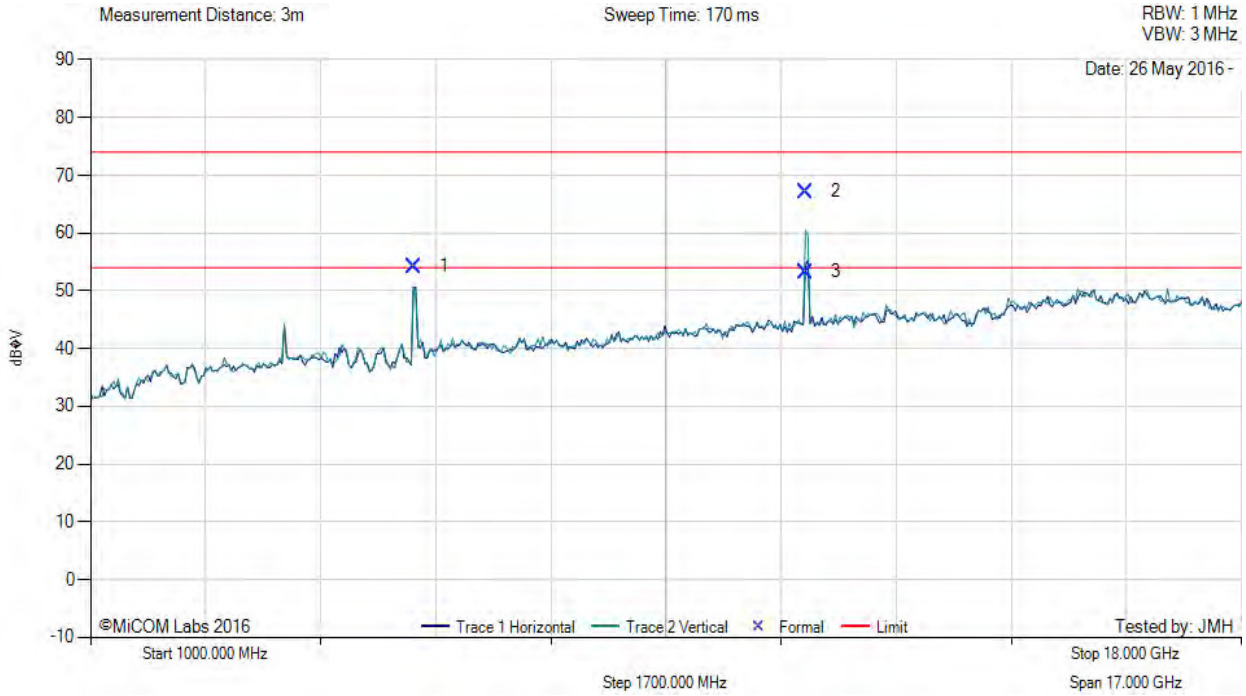
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5749.58	62.86	3.85	-10.63	56.08	Fundamental	Vertical	101	21	--	--	
2	11490.71	67.63	5.45	-4.84	68.24	Max Peak	Vertical	198	112	74.0	-3.8	Pass
3	11490.71	53.20	5.45	-4.84	53.81	AVG	Vertical	198	112	54.0	-0.2	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 13 to meet limit at 11.49 GHz

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5785.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 13, Duty Cycle (%): 99



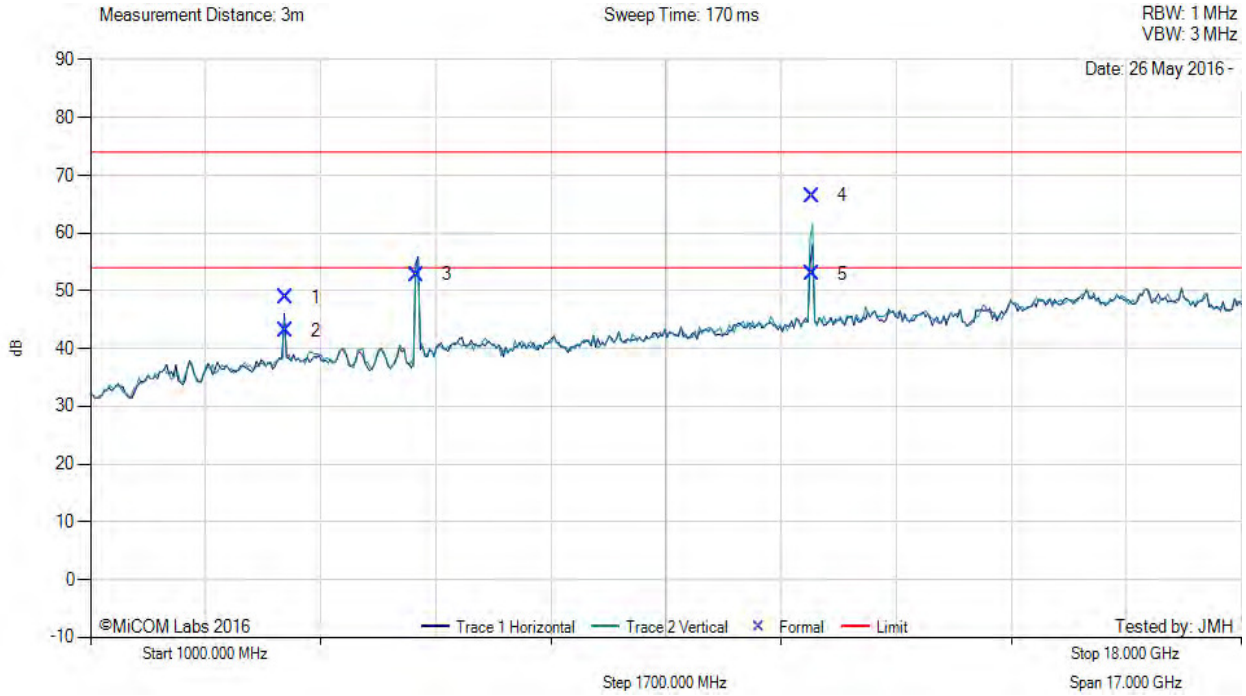
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5782.00	60.94	3.80	-10.46	54.28	Fundamental	Vertical	101	1	--	--	
2	11566.45	66.31	5.54	-4.65	67.20	Max Peak	Vertical	197	113	74.0	-6.8	Pass
3	11566.45	52.35	5.54	-4.65	53.24	Max Avg	Vertical	197	113	54.0	-0.8	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 13 to meet limit at 11.56 GHz

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 20, Duty Cycle (%): 99

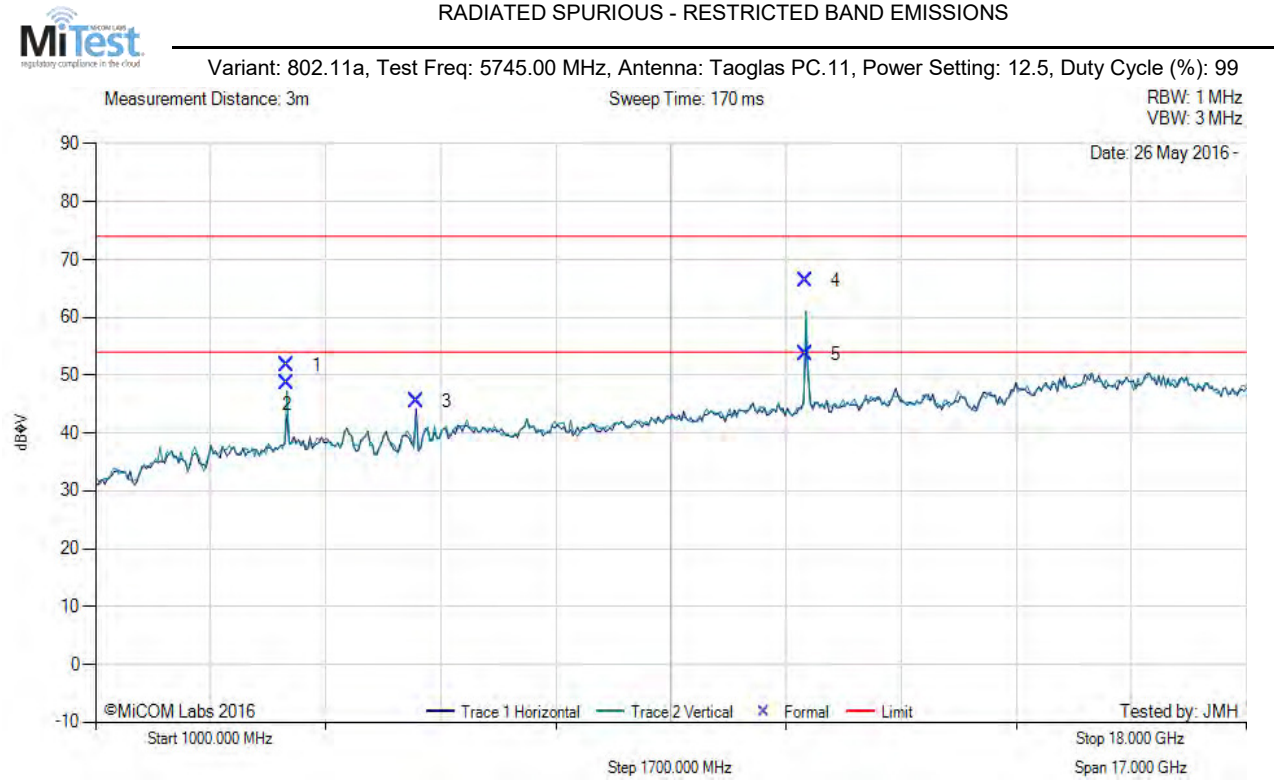


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3883.38	56.35	3.25	-10.76	48.84	Max Peak	Vertical	189	233	74.0	-25.2	Pass
2	3883.38	50.59	3.25	-10.76	43.08	AVG	Vertical	189	233	54.0	-10.9	Pass
3	5818.80	59.27	3.82	-10.28	52.81	Fundamental	Horizontal	101	1	--	--	
4	11650.66	65.43	5.46	-4.47	66.42	Max Peak	Vertical	198	116	74.0	-7.6	Pass
5	11650.66	51.91	5.46	-4.47	52.90	AVG	Vertical	198	116	54.0	-1.1	Pass

Test Notes: Eut on 150cm table powered by host.

back to matrix

A.3.1.3. Taoglas PC.11



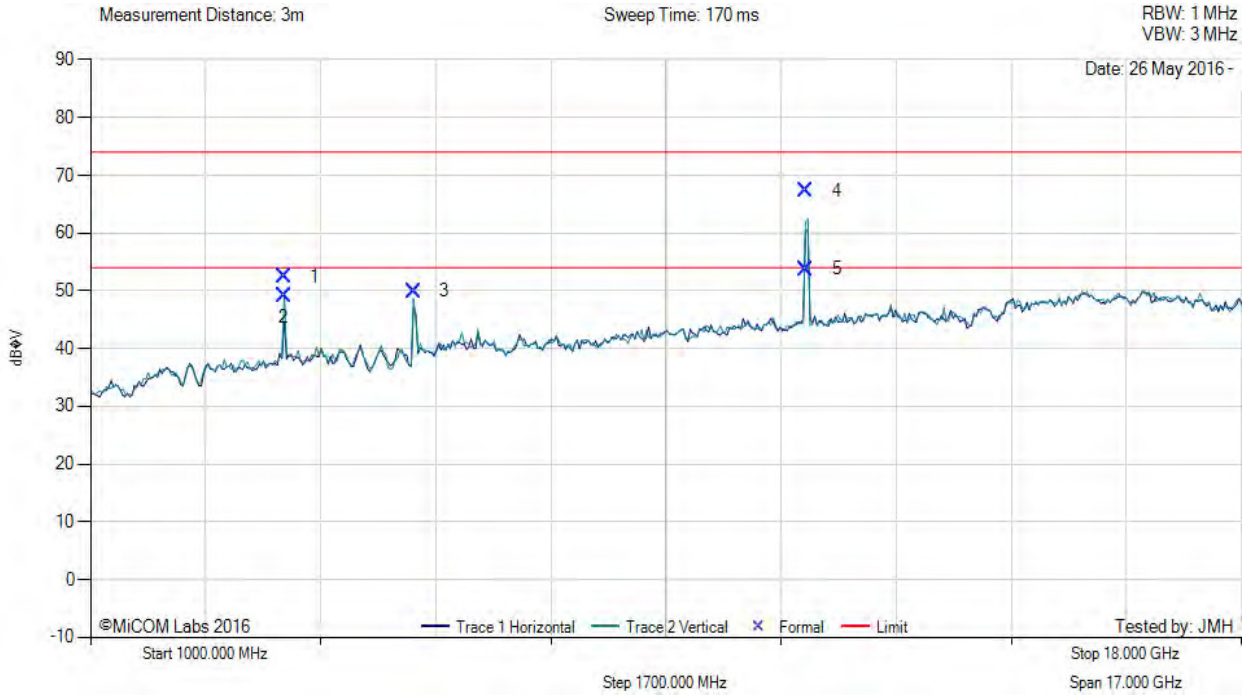
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3829.99	59.39	3.21	-10.83	51.77	Max Peak	Vertical	195	72	74.0	-22.2	Pass
2	3829.99	56.25	3.21	-10.83	48.63	AVG	Vertical	195	72	54.0	-5.4	Pass
3	5738.08	52.34	3.82	-10.67	45.49	Fundamental	Vertical	200	286	--	--	
4	11489.82	65.68	5.45	-4.84	66.29	Max Peak	Vertical	192	121	74.0	-7.7	Pass
5	11489.82	53.08	5.45	-4.84	53.69	AVG	Vertical	192	121	54.0	-0.3	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 14 to meet limit at 11.49 GHz

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5785.00 MHz, Antenna: Taoglas PC.11, Power Setting: 14.5, Duty Cycle (%): 99



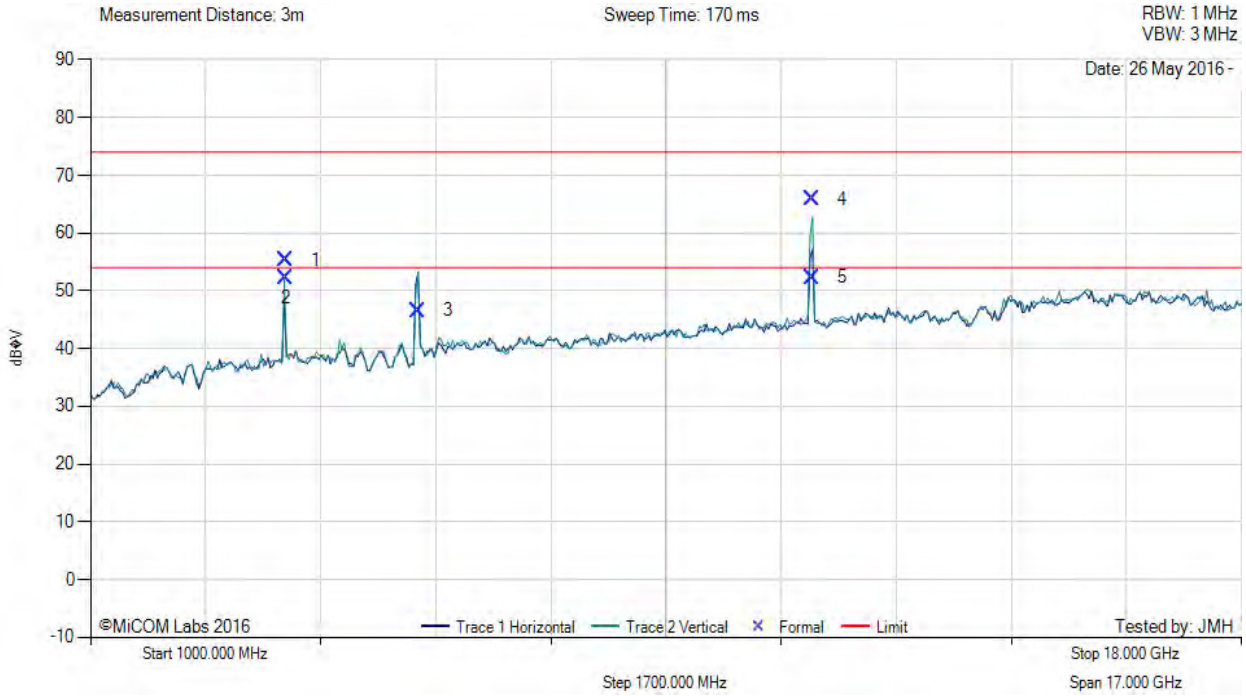
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3856.72	60.02	3.23	-10.81	52.44	Max Peak	Vertical	178	70	74.0	-21.6	Pass
2	3856.72	56.72	3.23	-10.81	49.14	AVG	Vertical	178	70	54.0	-4.9	Pass
3	5778.08	56.58	3.80	-10.48	49.90	Fundamental	Vertical	101	78	--	--	
4	11570.82	66.51	5.44	-4.64	67.31	Max Peak	Vertical	185	117	74.0	-5.7	Pass
5	11570.82	53.00	5.44	-4.64	53.80	AVG	Vertical	185	117	54.0	-0.2	Pass

Test Notes: Eut on 150cm table powered by host. Power reduced to 14.5 to meet limit at 11.57 GHz

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: Taoglas PC.11, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3883.47	62.89	3.25	-10.76	55.38	Max Peak	Vertical	182	90	74.0	-18.6	Pass
2	3883.47	59.87	3.25	-10.76	52.36	AVG	Vertical	182	90	54.0	-1.6	Pass
3	5832.75	52.93	3.84	-10.21	46.56	Fundamental	Vertical	101	0	--	--	
4	11654.87	64.72	5.53	-4.46	65.79	Max Peak	Vertical	193	119	74.0	-8.2	Pass
5	11654.87	51.28	5.53	-4.46	52.35	AVG	Vertical	193	119	54.0	-1.7	Pass

Test Notes: Eut on 150cm table powered by host.

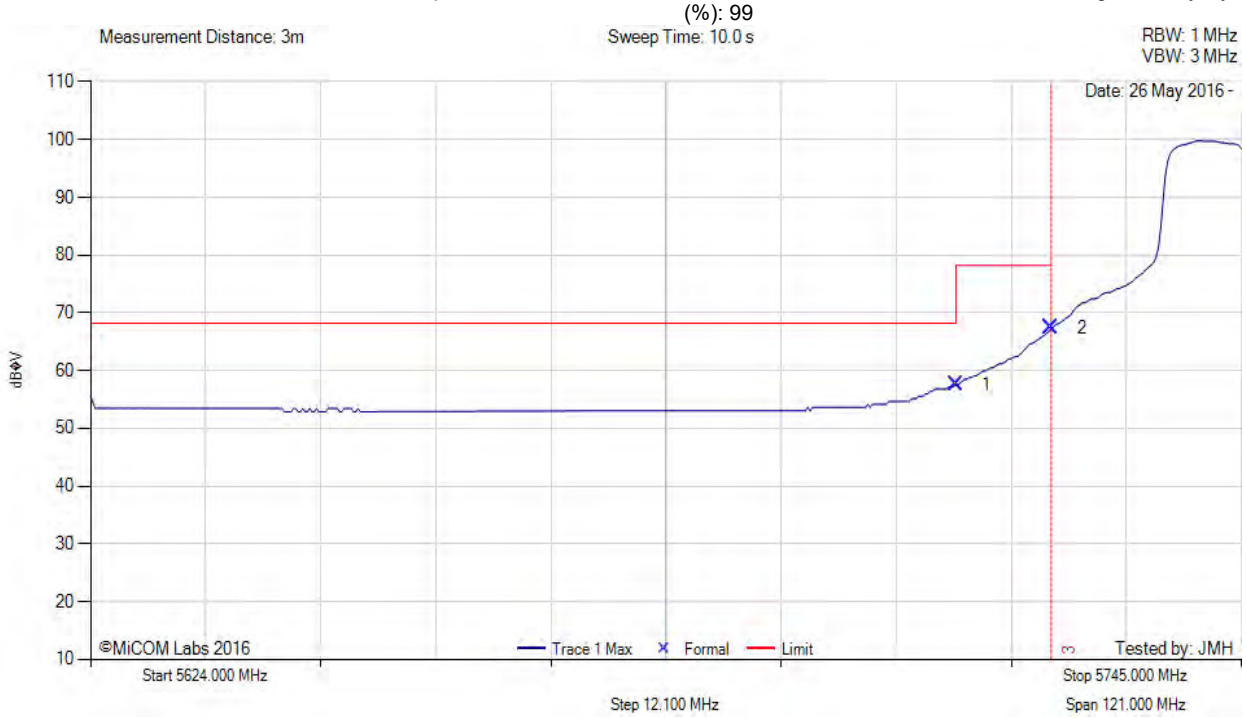
back to matrix

A.3.2. Restricted Band-Edge Emissions

A.3.2.4. Antenna Factor ANT-DB1-xxx

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99



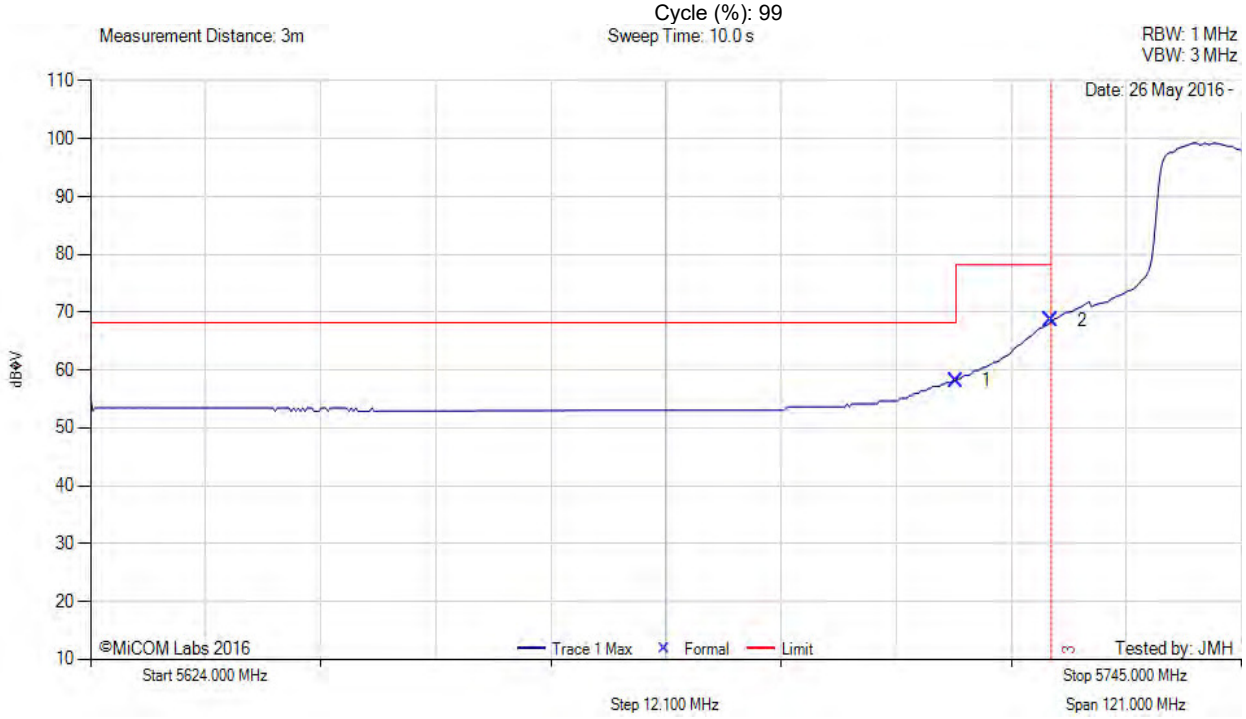
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	19.38	3.81	34.34	57.53	Max Avg	Vertical	197	-2	68.2	-10.7	Pass
2	5725.00	29.29	3.79	34.35	67.43	Max Avg	Vertical	197	-2	78.2	-10.8	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5745.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99



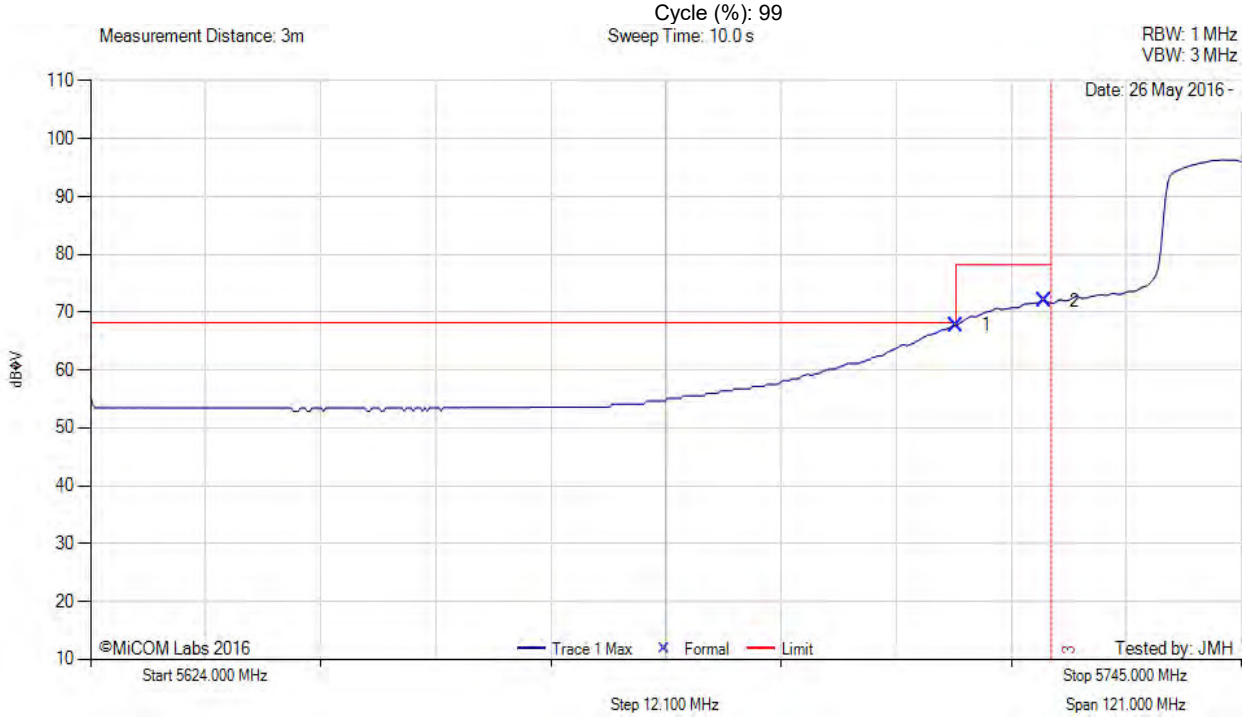
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	20.05	3.81	34.34	58.20	Max Avg	Vertical	197	-2	68.2	-10.0	Pass
2	5725.00	30.43	3.79	34.35	68.57	Max Avg	Vertical	197	-2	78.2	-9.7	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5755.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99



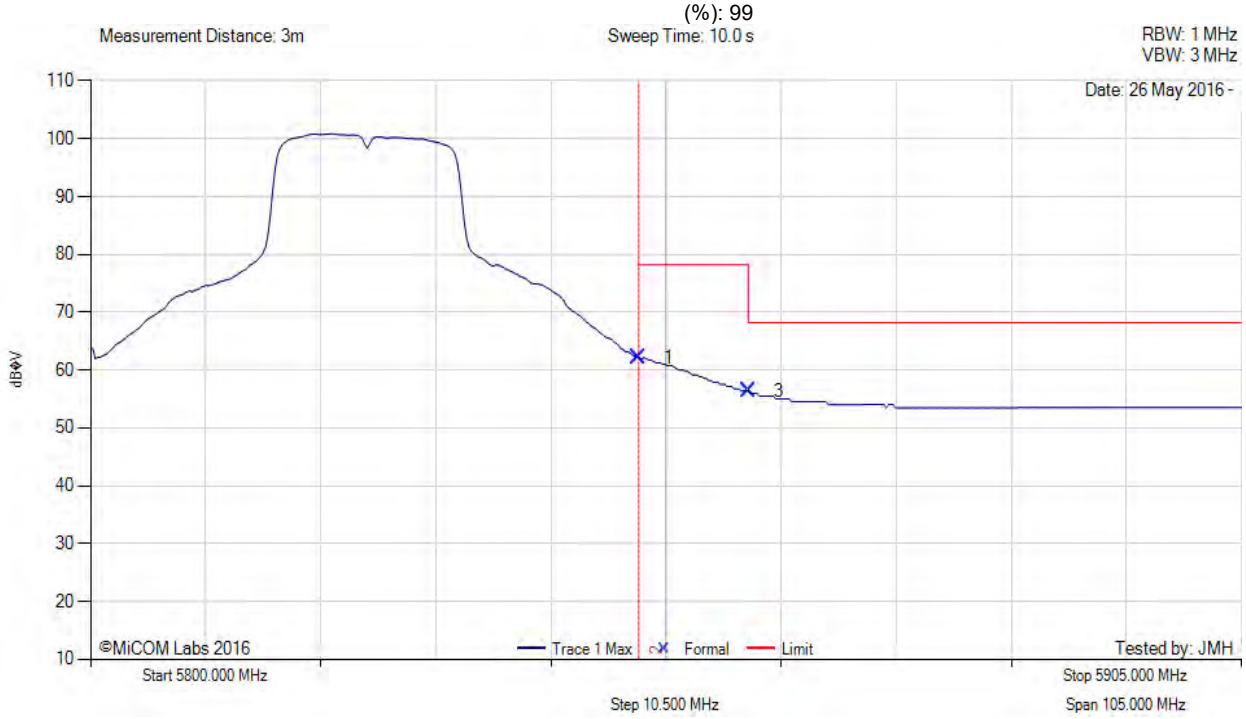
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	29.59	3.81	34.34	67.74	Max Avg	Vertical	197	-2	68.2	-0.5	Pass
2	5724.27	33.86	3.79	34.35	72.00	Max Avg	Vertical	197	-2	78.2	-6.2	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99



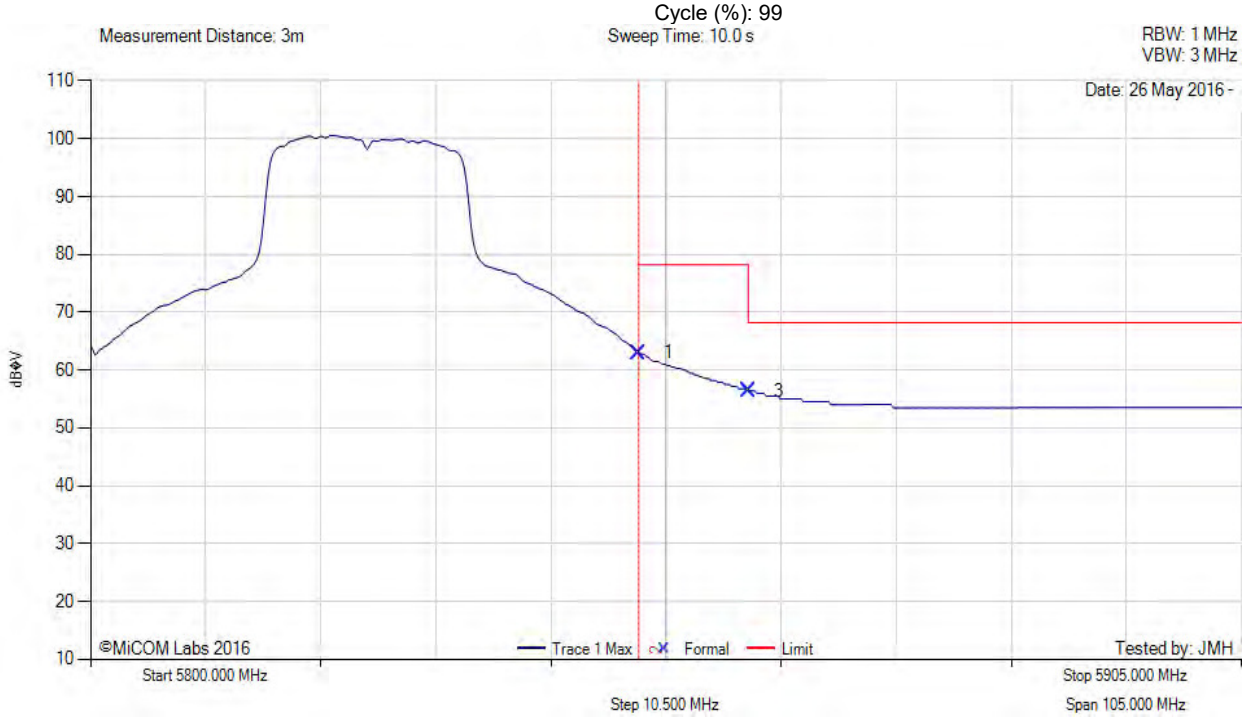
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	23.73	3.81	34.63	62.17	Max Avg	Vertical	197	-2	78.2	-16.1	Pass
3	5860.00	17.87	3.86	34.65	56.38	Max Avg	Vertical	197	-2	68.2	-11.9	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5825.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99



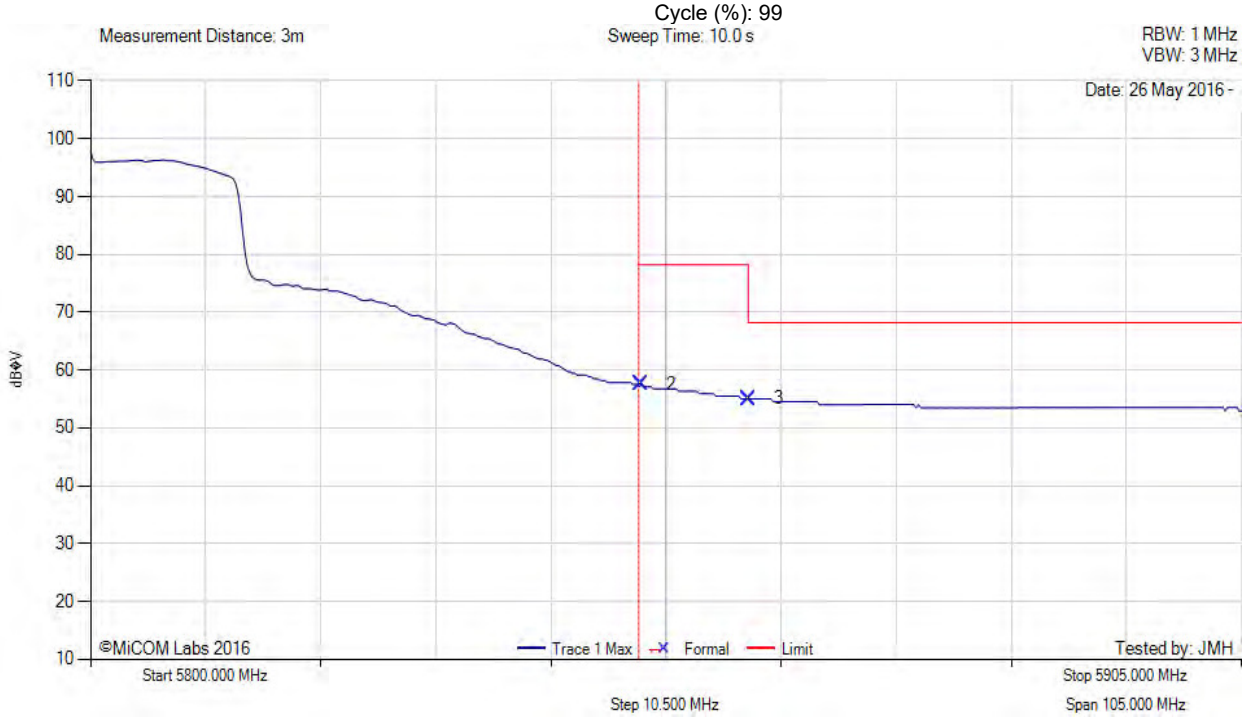
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	24.54	3.81	34.63	62.98	Max Avg	Vertical	197	-2	78.2	-15.3	Pass
3	5860.00	17.87	3.86	34.65	56.38	Max Avg	Vertical	197	-2	68.2	-11.9	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5795.00 MHz, Antenna: Antenna Factor ANT-DB1-xxx, Power Setting: 20, Duty Cycle (%): 99

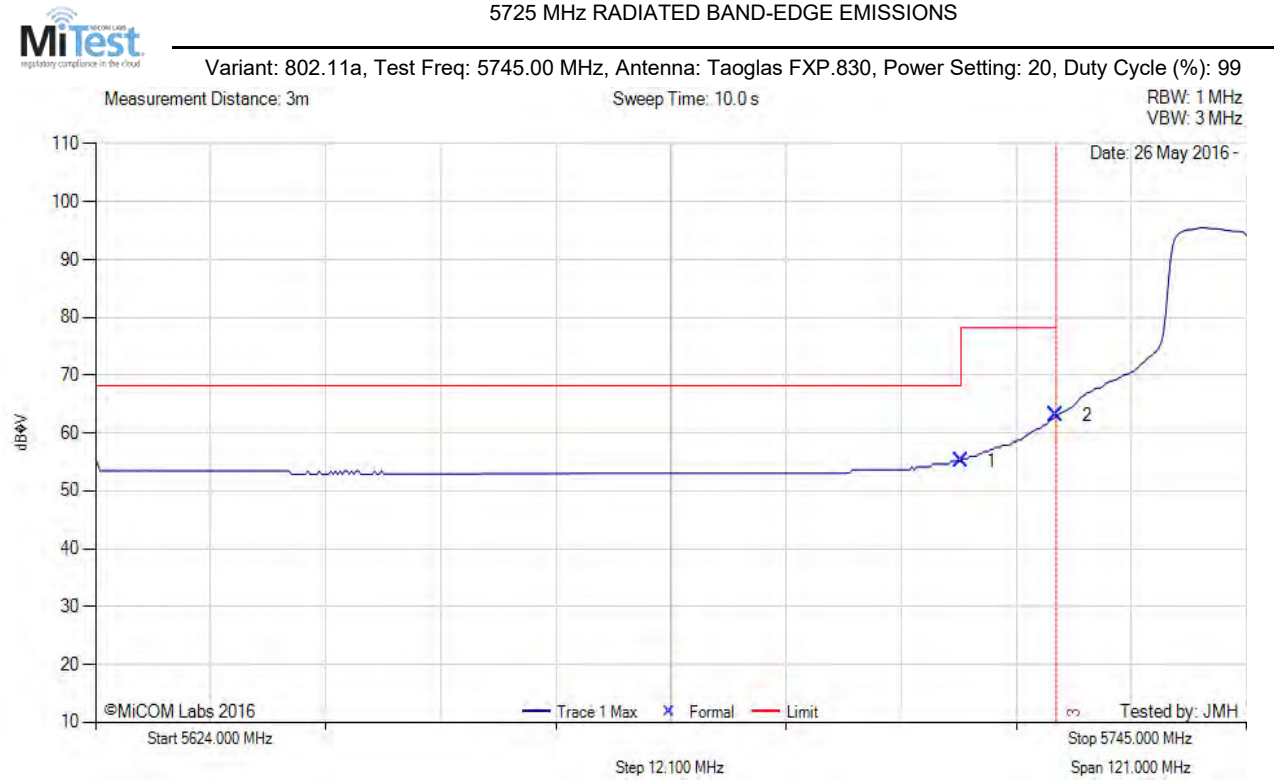


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
2	5850.21	19.08	3.81	34.63	57.52	Max Avg	Vertical	197	-2	78.2	-20.7	Pass
3	5860.00	16.53	3.86	34.65	55.04	Max Avg	Vertical	197	-2	68.2	-13.2	Pass
1	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: EUT on 150cm table powered by host.

back to matrix

A.3.2.5. Taoglas FXP.830



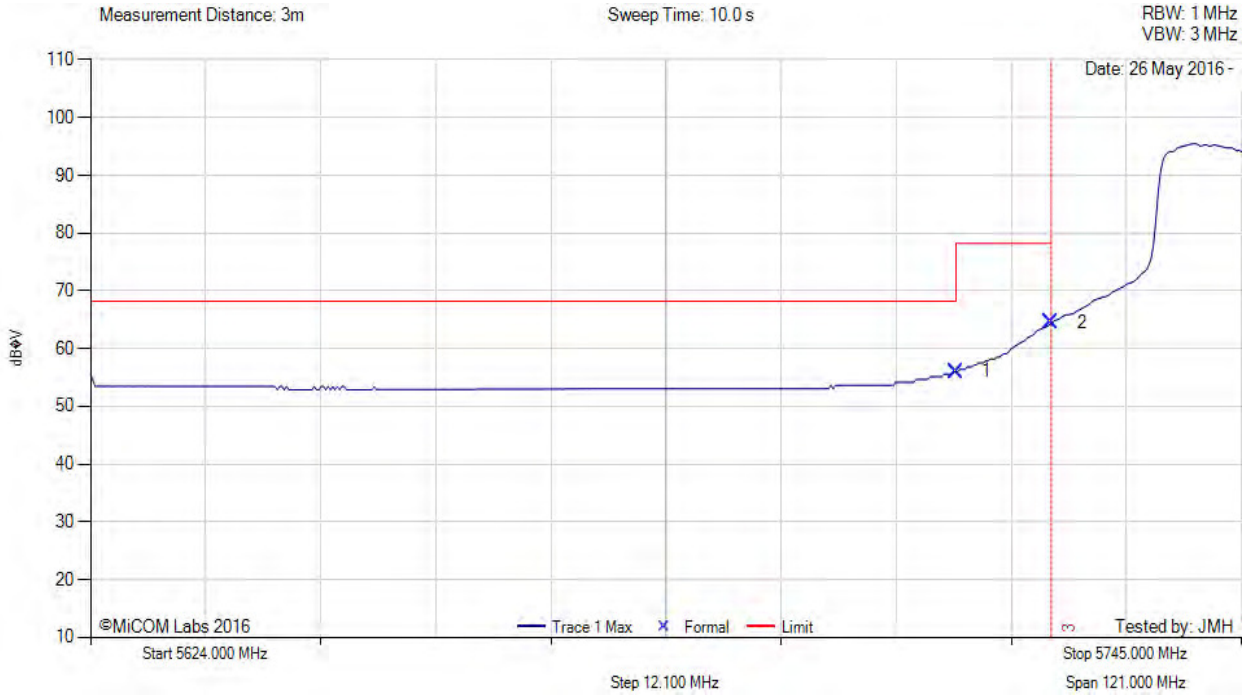
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	16.99	3.81	34.34	55.14	Max Avg	Horizontal	200	183	68.2	-13.1	Pass
2	5725.00	24.89	3.79	34.35	63.03	Max Avg	Horizontal	200	183	78.2	-15.2	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5745.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 20, Duty Cycle (%): 99



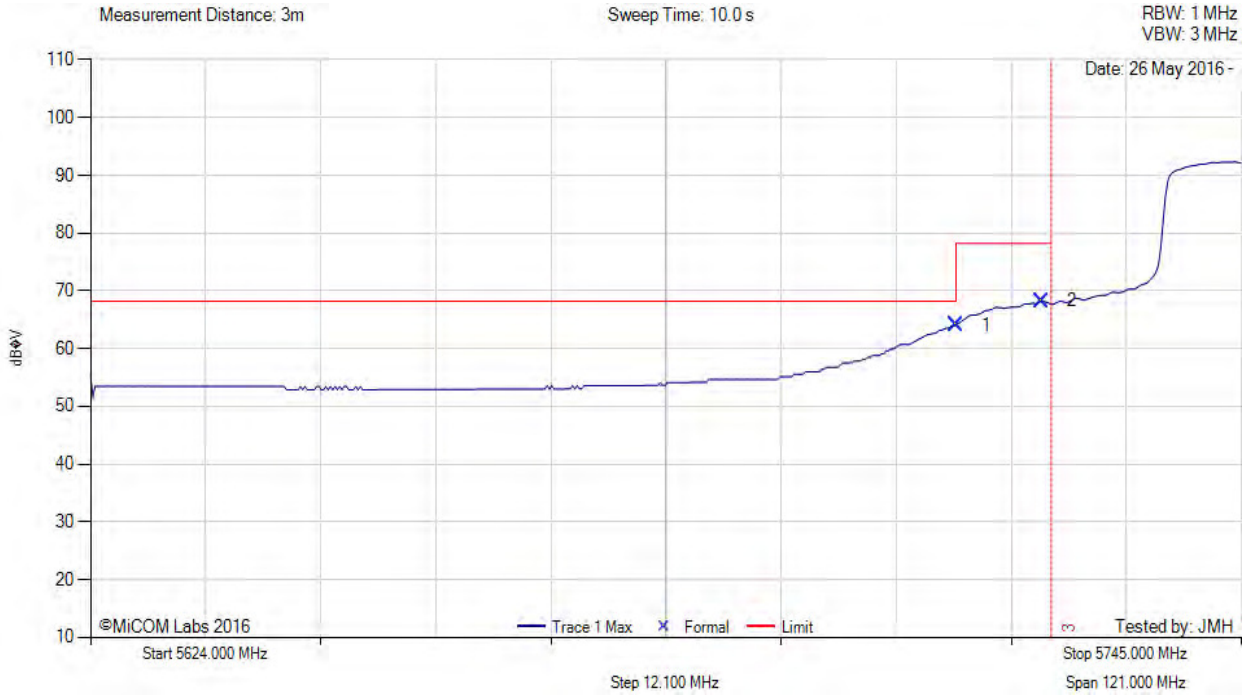
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	17.86	3.81	34.34	56.01	Max Avg	Horizontal	200	183	68.2	-12.2	Pass
2	5725.00	26.41	3.79	34.35	64.55	Max Avg	Horizontal	200	183	78.2	-13.7	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5755.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	25.90	3.81	34.34	64.05	Max Avg	Horizontal	200	183	68.2	-4.2	Pass
2	5724.03	30.13	3.79	34.35	68.27	Max Avg	Horizontal	200	183	78.2	-10.0	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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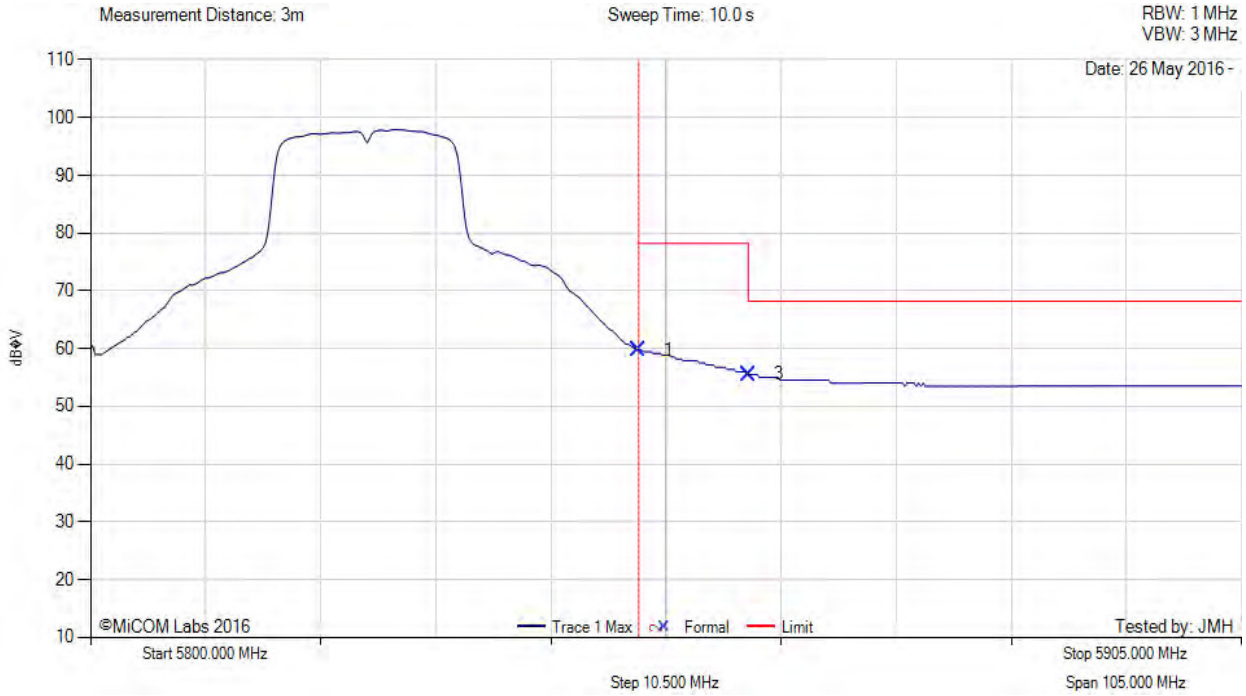
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	21.30	3.81	34.63	59.74	Max Avg	Horizontal	200	183	78.2	-18.5	Pass
3	5860.00	17.00	3.86	34.65	55.51	Max Avg	Horizontal	200	183	68.2	-12.7	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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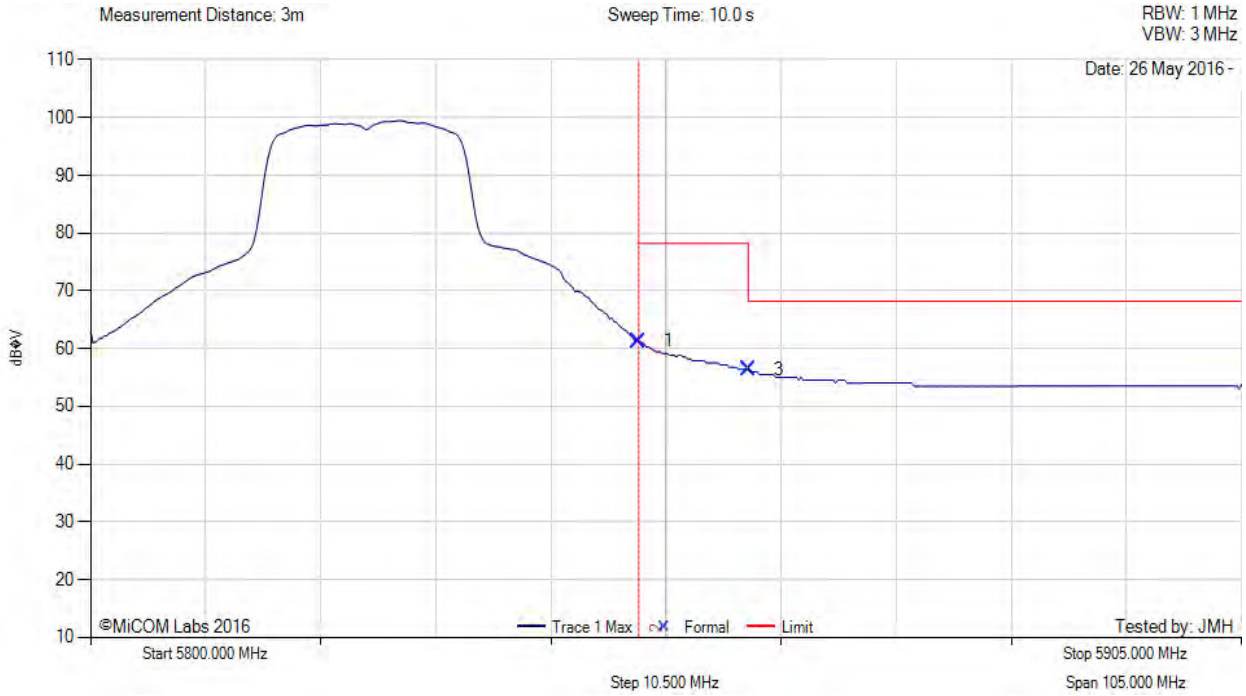
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5825.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	22.84	3.81	34.63	61.28	Max Avg	Horizontal	200	183	78.2	-17.0	Pass
3	5860.00	17.87	3.86	34.65	56.38	Max Avg	Horizontal	200	183	68.2	-11.9	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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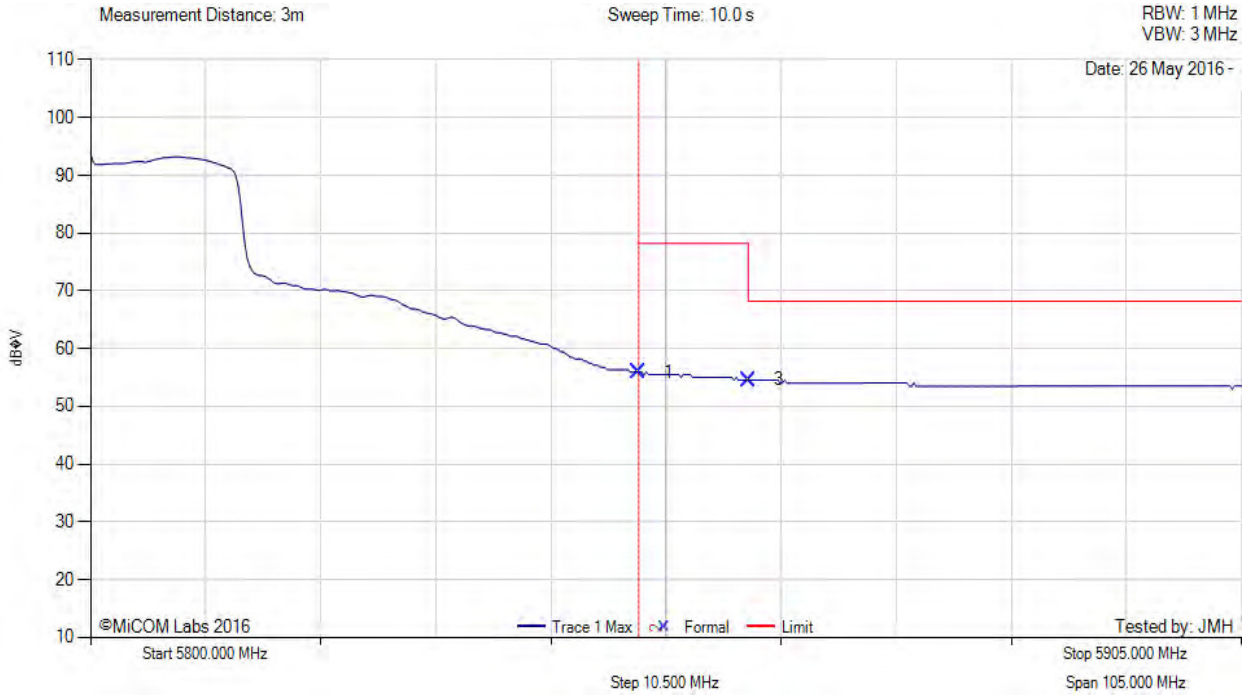
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5795.00 MHz, Antenna: Taoglas FXP.830, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	17.49	3.81	34.63	55.93	Max Avg	Horizontal	200	183	78.2	-22.3	Pass
3	5860.00	16.04	3.86	34.65	54.55	Max Avg	Horizontal	200	183	68.2	-13.7	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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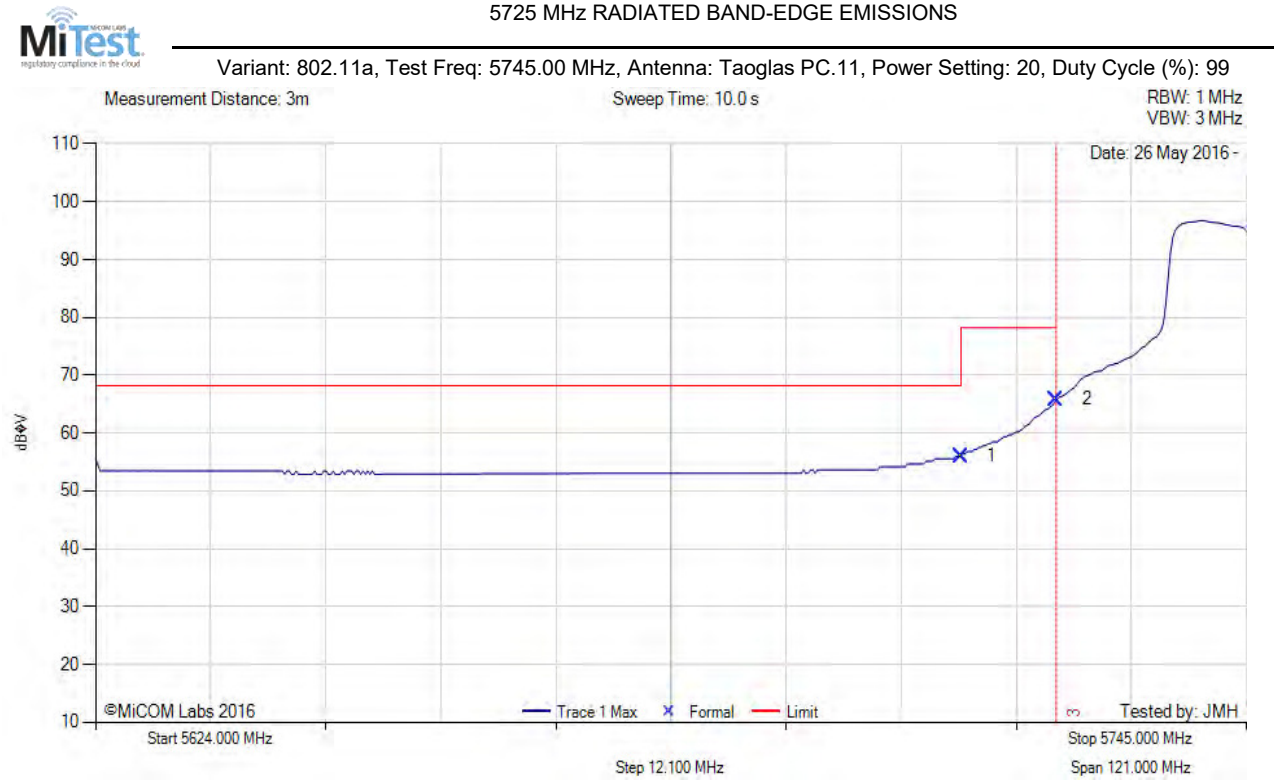
A.3.2.6. Taoglas PC.11



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	17.86	3.81	34.34	56.01	Max Avg	Vertical	201	155	68.2	-12.2	Pass
2	5725.00	27.70	3.79	34.35	65.84	Max Avg	Vertical	201	155	78.2	-12.4	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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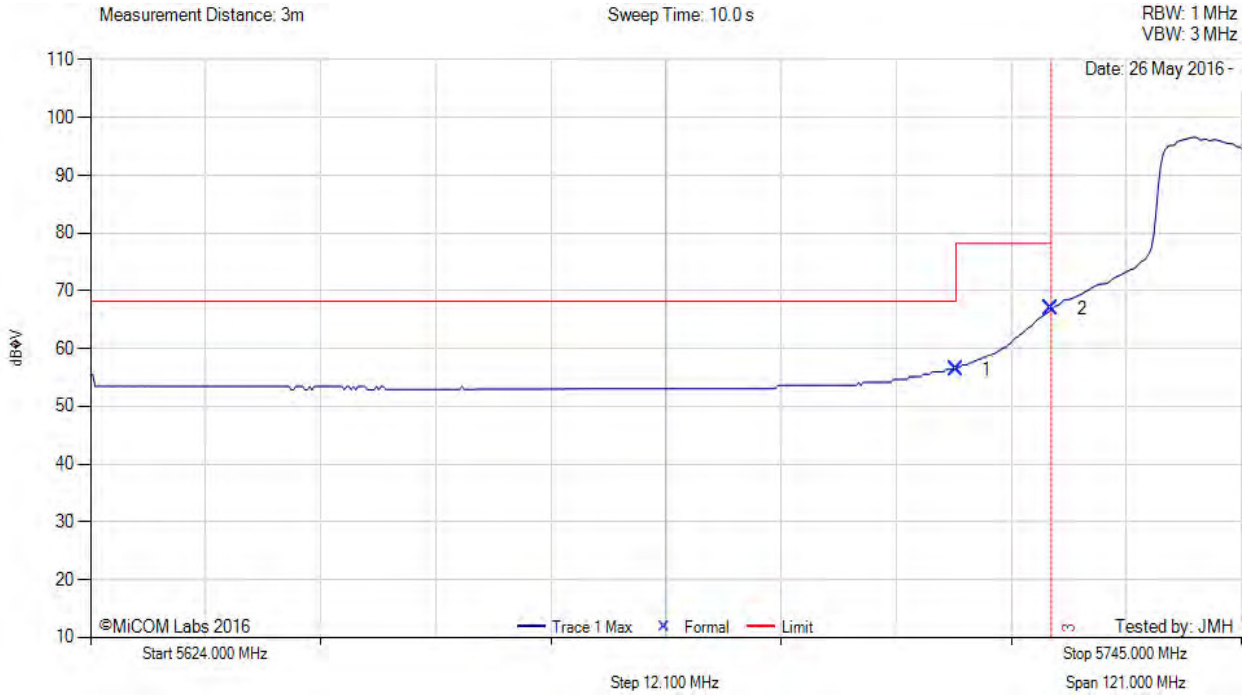
5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5745.00 MHz, Antenna: Taoglas PC.11, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	18.27	3.81	34.34	56.42	Max Avg	Vertical	201	155	68.2	-11.8	Pass
2	5725.00	28.83	3.79	34.35	66.97	Max Avg	Vertical	201	155	78.2	-11.3	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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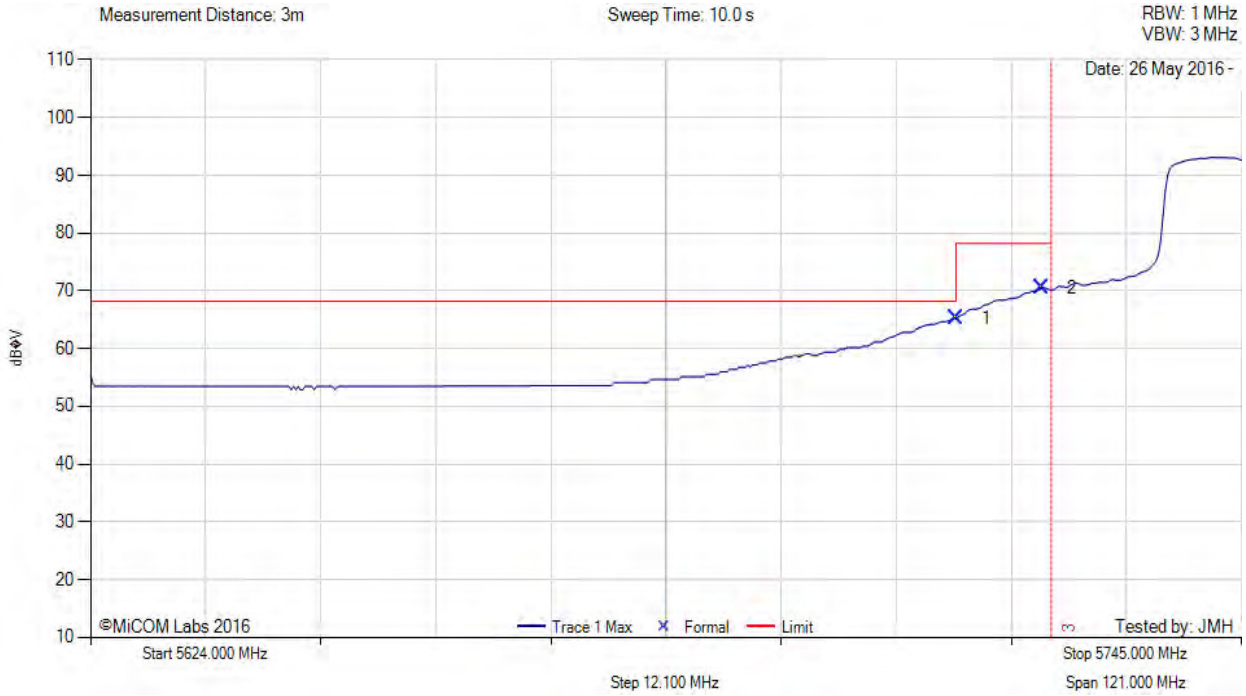
5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5755.00 MHz, Antenna: Taoglas PC.11, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5715.00	27.13	3.81	34.34	65.28	Max Avg	Vertical	201	155	68.2	-3.0	Pass
2	5724.03	32.43	3.79	34.35	70.57	Max Avg	Vertical	201	155	78.2	-7.7	Pass
3	5725.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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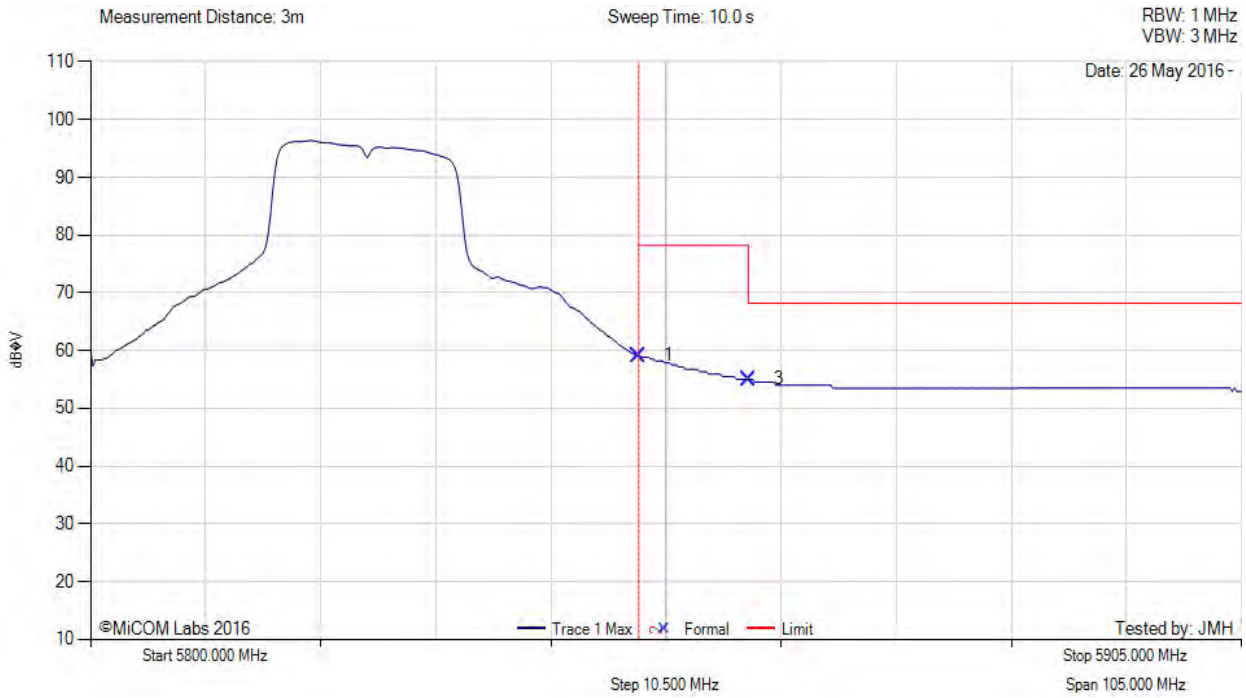
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: Taoglas PC.11, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	20.72	3.81	34.63	59.16	Max Avg	Vertical	201	155	78.2	-19.1	Pass
3	5860.00	16.53	3.86	34.65	55.04	Max Avg	Vertical	201	155	68.2	-13.2	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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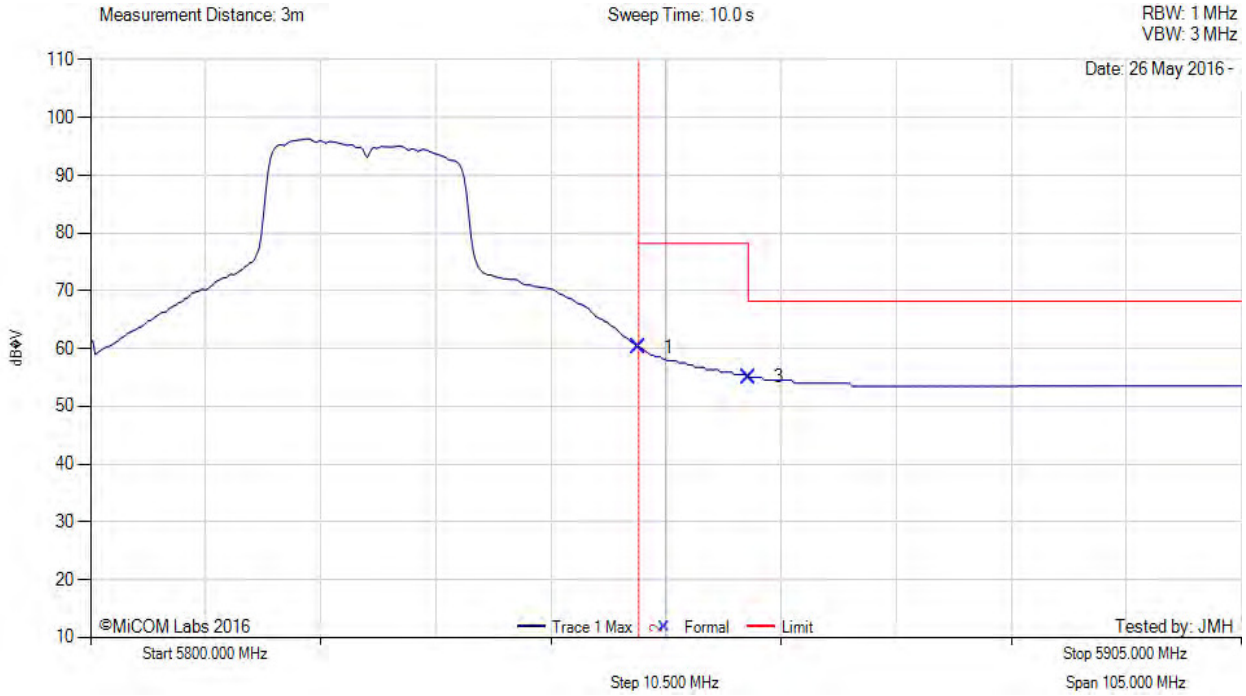
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5825.00 MHz, Antenna: Taoglas PC.11, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	21.84	3.81	34.63	60.28	Max Avg	Vertical	201	155	78.2	-18.0	Pass
3	5860.00	16.53	3.86	34.65	55.04	Max Avg	Vertical	201	155	68.2	-13.2	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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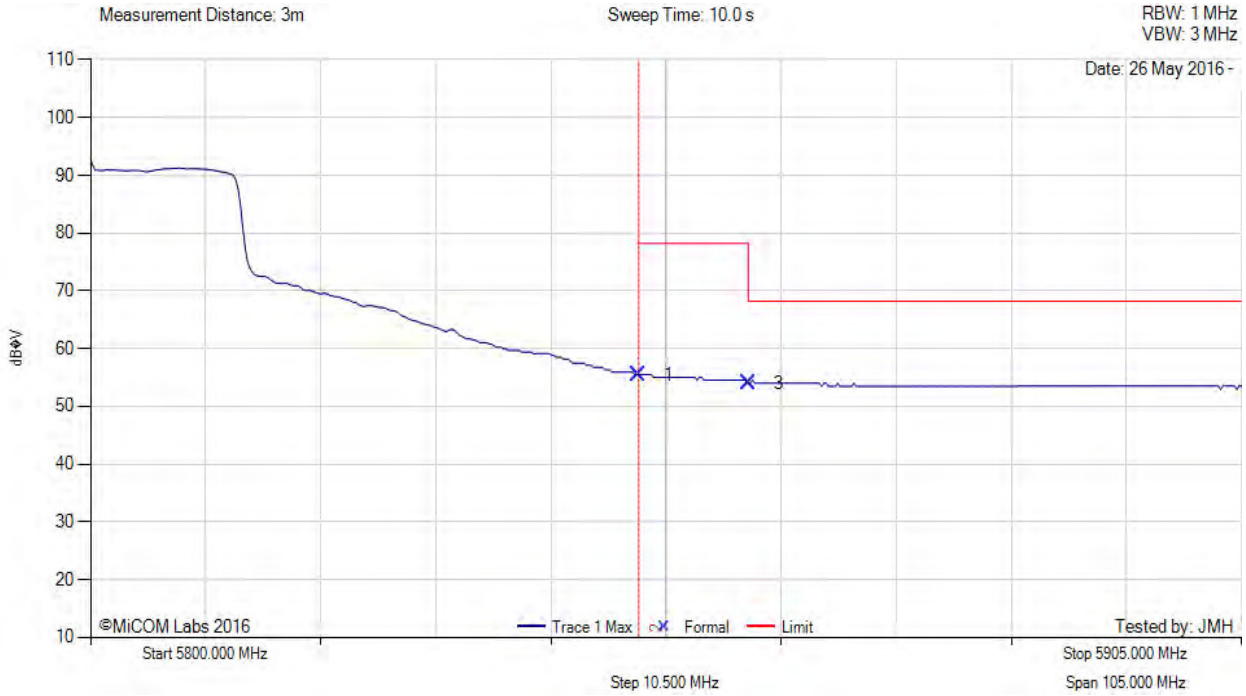
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5795.00 MHz, Antenna: Taoglas PC.11, Power Setting: 20, Duty Cycle (%): 99



Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5850.00	17.05	3.81	34.63	55.49	Max Avg	Vertical	201	155	78.2	-22.7	Pass
3	5860.00	15.51	3.86	34.65	54.02	Max Avg	Vertical	201	155	68.2	-14.2	Pass
2	5850.00	--	--	--	--	Band Edge	--	--	--	--	--	--

Test Notes: Eut on 150cm table powered by host.

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