

Company: Radwin Ltd.

Test of: 5 GHz 802.11ac 3x3 RF Module 5XACMD3C

To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247

Report No.: RDWN38-U3 Rev A





Test of: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C

to

To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247

Test Report Serial No.: RDWN38-U3 Rev A

This report supersedes: NONE

Applicant: Radwin Ltd.
27 Habarzel Street
Tel Aviv 69710
Israel

Product Function: 5 GHz 802.11n/ac 3x3 MIMO RF
Module

Issue Date: 20th August 2015

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
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Phone: +1 (925) 462-0304
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www.micomlabs.com



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory



Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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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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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

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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>



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



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2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	17 th August 2015	
Draft #2	19 th August 2015	
Rev A	20 th August 2015	Initial Release
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In the above table the latest report revision will replace all earlier versions.

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3. TEST RESULT CERTIFICATE

Manufacturer: Radwin Ltd.
27 Habarzel Street
Tel Aviv 69710
Israel

Tested By: MiCOM Labs, Inc.
575 Boulder Court
Pleasanton
California 94566 USA

Model: 5XACMD3C

Telephone: +1 925 462 0304

Fax: +1 925 462 0306

Type Of Equipment: 5 GHz 802.11ac 3x3 RF Module

S/N's: Prototype

Test Date(s): 27th – 30th July 2015

Website: www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247	EQUIPMENT COMPLIES

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

Notes:

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

Approved & Released for MiCOM Labs, Inc. by:



Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

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4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911	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 v01	10th June 2015	Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements.
III	KDB 926956 DO1 v01r02	17th October 2014	U-NII Device Transition Plan
IV	KDB 789033 D02 v01	6th June 2014	General UNII Test Procedures New Rules V01
V	A2LA	June 2015	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 3 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 5 2012	Spectrum Management and Telecommunications; Interference-Causing Equipment Standard. Information Technology Equipment (ITE) – 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-LAN) 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	2014	FCC requirements and rules regarding photographs and test setup diagrams.



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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.

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5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Radwin 5XACMD3C to FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247 Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
Applicant:	Radwin Ltd 27 Habarzel Street Tel Aviv 69710 Israel
Manufacturer:	As Applicant
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	RDWN38 - SDR LMA 5.8GHz FCC IC
Date EUT received:	27 th July 2015
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407, IC RSS-247 Issue 1
Dates of test (from - to):	27 th – 30 th July 2015
No of Units Tested:	2
Type of Equipment:	5 GHz 802.11ac 3x3 RF Module
Product Family Name:	5 GHz 802.11ac 3x3 RF Module
Model(s):	5XACMD3C
Location for use:	Indoor and Outdoor
Declared Frequency Range(s):	5725 - 5850 MHz;
Primary function of equipment:	5 GHz 802.11n/ac 3x3 MIMO RF Module
Secondary function of equipment:	None Provided
Type of Modulation:	OFDM – BPSK, QPSK, 16QAM, 64QAM, 256QAM'
EUT Modes of Operation:	5725 - 5850 MHz: 5 MHz; 10 MHz; 20 MHz; 40 MHz; 80 MHz;
Declared Nominal Output Power (Ave):	5725 - 5850 MHz: +30 dBm
Transmit/Receive Operation:	Time Division Duplex
Rated Input Voltage and Current:	POE (POE adaptor sold with unit) 55Vdc
Operating Temperature Range:	Declared Range -40°C to 60°C
ITU Emission Designator:	5 MHz 5M00W7W 10 MHz 10M0W7W 20 MHz 20M0W7W 40 MHz 40M0W7W 80 MHz 80M0W7W
Equipment Dimensions:	1.9" x 2.0" x 0.3'
Weight:	0.042 lb (19g)
Hardware Rev:	Prototype
Software Rev:	Prototype

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5.2. Scope Of Test Program

Radwin 5XACMD3C

The scope of the test program was to test the Radwin Ltd. 5XACMD3C, 5 GHz High Power 802.11n/ac Module configurations in the frequency ranges 5725 - 5850 MHz; for compliance against the following specification(s):

FCC CFR 47 Part 15 Subpart E 15.407

Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices

Industry Canada RSS-247

Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices

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

Equipment Type	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	5 GHz 3x3 RF Module	RADWIN Ltd	5XACMD3C	Prototype
Support	POE 55 Vdc	RADWIN Ltd	CPU55A-270-1	--
Support	Laptop PC	DELL	LATITUDE D530	None

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
external	RADWIN Ltd	RW-9521-4958	Panel	17.0	-	60.0	-	5725 - 5850
external	RADWIN Ltd	AT0058760	Panel	18.0	-	18.0	-	5725 - 5850
external	RADWIN Ltd	RW-9401-5002	Shark Fin	12.5	-	50.0	-	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	Y	RJ-45	Packet Data

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				
5 MHz	19.5	5,730.00	5,787.00	5,845.00
10 MHz	39.0	5,731.00	5,787.00	5,844.00
20 MHz	78.0	5,735.00	5,787.00	5,844.00
40 MHz	180.0	5,745.00	5,787.00	5,830.00
80 MHz	390.0	5,765.00	5,787.00	5,810.00

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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

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6. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
Conducted Test Data		
(a) Peak Transmit Power	Complies	View Data
(a) 26 dB & 99% Bandwidth	Complies	View Data
(a)(5) Power Spectral Density	Complies	View Data
Radiated Test Data		
(b)(2) Radiated	-	-
i).. Restricted Band Emissions	Complies	View Data
ii).. Restricted Band-Edge Emissions	Complies	View Data
iv).. Digital Emissions	Complies	View Data
ac Wireline Test Data		
ac Wireline Emissions	Complies	View Data

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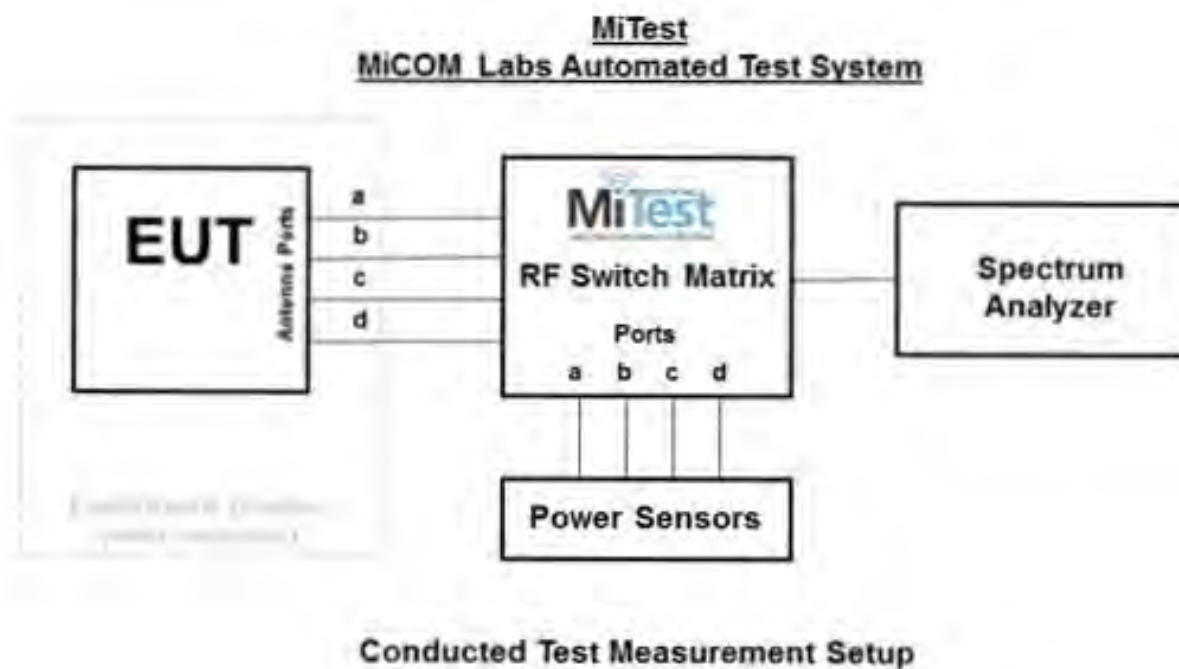
7. TEST EQUIPMENT CONFIGURATION(S)

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 and 99% Bandwidth
3. Power Spectral Density



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.



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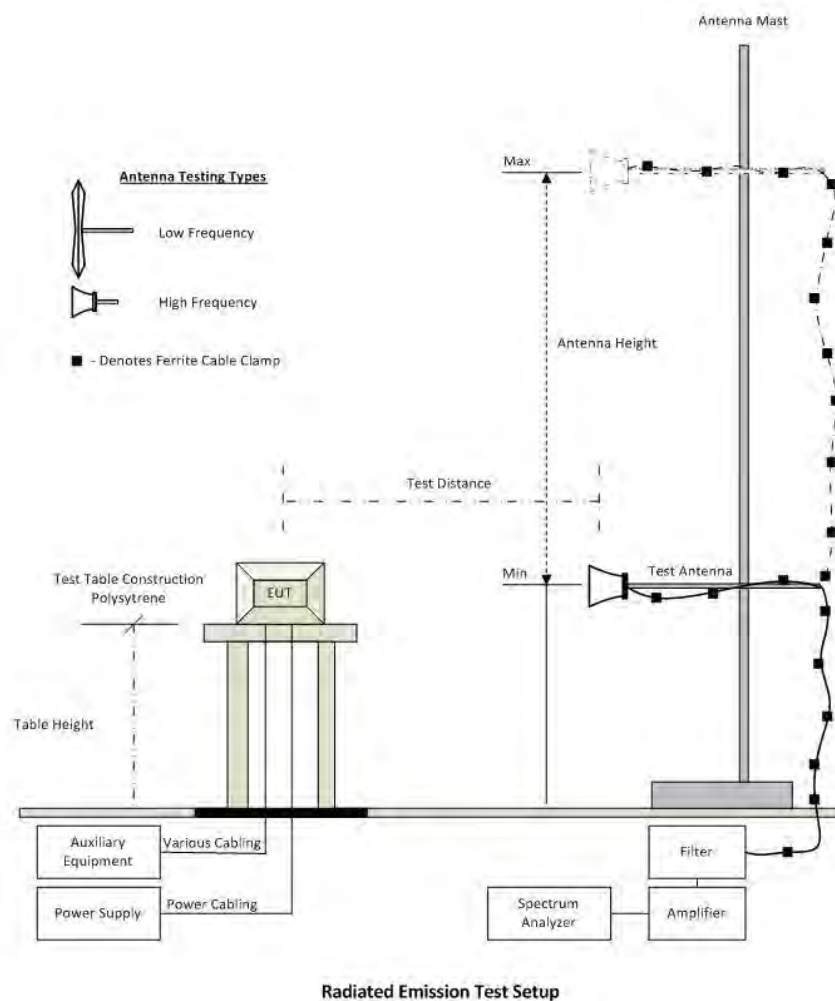
Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
158	Barometer/Thermometer	Control Company	4196	E2846	04 Dec 2015
248	Resistance Thermometer	Thermotronics	GR2105-02	9340 #1	30 Oct 2015
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	31 Aug 2015
376	USB 10MHz - 18GHz Average Power Sensor	Agilent	U2000A	MY51440005	28 Oct 2015
381	4x4 RF Switch Box	MiCOM Labs	MiTest RF Switch Box	MIC002	20 Dec 2015
419	Laptop with Labview Software	Lenova	W520	TS02	Not Required
420	USB to GPIB Interface	National Instruments	GPIB-USB HS	1346738	Not Required
435	USB Wideband Power Sensor	Boonton	55006	8730	31 Aug 2015
440	USB Wideband Power Sensor	Boonton	55006	9178	25 Sep 2015
441	USB Wideband Power Sensor	Boonton	55006	9179	25 Sep 2015
442	USB Wideband Power Sensor	Boonton	55006	9181	25 Sep 2015
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
460	Dell Computer with installation of MiTest executable.	Dell	Optiplex330	BC944G1	Not Required
74	Environmental Chamber Chamber 3	Tenney	TTC	12808-1	30 Sep 2015
RF#2 GPIB#1	GPIB cable to Power Supply	HP	GPIB	None	Not Required
RF#2 SMA#1	EUT to Mitest box port 1	Flexco	SMA Cable port1	None	20 Dec 2015
RF#2 SMA#2	EUT to Mitest box port 2	Flexco	SMA Cable port2	None	20 Dec 2015
RF#2 SMA#3	EUT to Mitest box port 3	Flexco	SMA Cable port3	None	20 Dec 2015
RF#2 SMA#4	EUT to Mitest box port 3	Flexco	SMA Cable port4	None	20 Dec 2015
RF#2 SMA#SA	Mitest box to SA	Flexco	SMA Cable SA	None	20 Dec 2015
RF#2 USB#1	USB Cable to Mitest Box	Dynex	USB Cable	None	Not Required

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7.2. Radiated Emissions - 3m Chamber

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

1. Section 9.4.1 Spurious Emissions
2. Section 9.4.2 Restricted Band-Edge Emissions
3. Section 9.5 Radiated Digital Emissions



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.



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Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
158	Barometer/Thermometer	Control Company	4196	E2846	04 Dec 2015
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CY101	04R08507	Not Required
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	31 Jul 2016
310	SMA Cable	Micro-Coax	UFA210A-0-0787-3G03G0	209089-001	30 Oct 2015
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	14 Aug 2015
393	DC - 1050 MHz Low Pass Filter	Microcircuits	VLFX-1050	N/A	08 Oct 2015
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	23 Oct 2015
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	10 Oct 2015
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
416	Gigabit ethernet filter	ETS-Lingren	Gigafoil 260366	None	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	25 Aug 2015
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	25 Aug 2015
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	25 Aug 2015
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	25 Aug 2015
468	Low pass filter	Mini Circuits	SLP-550	None	30 Sep 2015
469	Low pass filter	Mini Circuit	SLP-1000	None	30 Sep 2015
470	High Pass filter	Mini Circuits	SHP-700	None	30 Sep 2015
CC05	Confidence Check	MiCOM	CC05	None	1 Aug 2015

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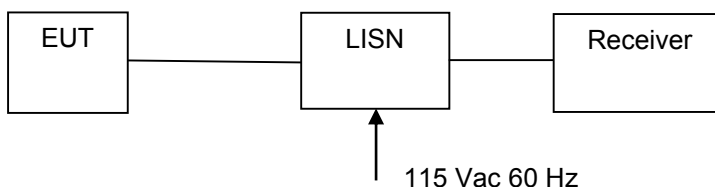


7.3. ac Wireline Emission Test Set-up

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

1. Section 9.6 ac Wireline Conducted Emissions

Test Measurement Set up



Measurement set up for AC Wireline Conducted Emissions Test

Traceability of Test Equipment Utilized for ac Wireline Emission Testing

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
158	Barometer/Thermometer	Control Company	4196	E2846	04 Dec 2015
184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52	Cal when used
190	LISN (two-line V-network)	Rhode & Schwarz	ESH3Z5	836679/006	12 Sep 2015
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	31 Jul 2016
316	Dell desktop computer workstation with Vasona	Dell	Desktop	WS04	Not Required

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)

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9. TEST RESULTS

9.1. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:15.407 IC RSS-247	Ambient Temp. (°C):	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 [$10 \cdot \log_{10}(10^{a/10} + 10^{b/10} + 10^{c/10} + 10^{d/10})$]

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.

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(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.

Maximum Transmit (Conducted) Power Limits

Limit 5725 – 5850 MHz: +30 dBm (1W)

EUT: Outdoor Fixed Point-Point U-NII Device

Antenna gain: 12.5 dBi

Beamforming Gain: Not Applicable

Modified Conducted Power Levels

During radiated emission testing (spurious and restricted band-edge) the power setting may have been reduced. Any reduction in output power (together with power settings) that was required to bring the EUT into compliance is reflected in the following tables.



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Equipment Configuration for Peak Transmit Power

Variant:	10 MHz	Duty Cycle (%):	87.8
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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 (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5731.0	15.41	17.76	16.15	--	21.89	--	30.00	-8.11	18.00
5787.0	22.84	25.42	23.77	--	29.48	--	30.00	-0.52	27.00
5844.0	17.02	17.37	18.14	--	22.87	--	30.00	-7.13	18.00

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Peak Transmit Power

Variant:	20 MHz	Duty Cycle (%):	85.7
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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 (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5735.0	17.17	18.59	16.66	--	22.99	--	30.00	-7.01	
5787.0	23.31	25.45	23.61	--	29.67	--	30.00	-0.33	
5840.0	17.54	18.41	18.96	--	23.78	--	30.00	-6.22	

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Peak Transmit Power

Variant:	40 MHz	Duty Cycle (%):	81.3
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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 (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5745.0	17.35	19.78	18.78	--	24.42	--	30.00	-5.58	
5787.0	23.12	25.12	23.74	--	29.75	--	30.00	-0.25	
5830.0	17.25	18.39	18.54	--	23.77	--	30.00	-6.23	

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Peak Transmit Power

Variant:	5 MHz	Duty Cycle (%):	88.0
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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 (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5730.0	19.19	21.84	20.10	--	25.85	--	30.00	-4.15	
5787.0	23.64	25.31	23.69	--	29.61	--	30.00	-0.39	
5845.0	18.89	19.43	19.56	--	24.63	--	30.00	-5.37	

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Peak Transmit Power

Variant:	80 MHz	Duty Cycle (%):	74.0
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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 (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dBm	
5765.0	16.24	17.71	17.73	--	23.36	--	30.00	-6.64	
5787.0	22.90	24.87	23.55	--	29.93	--	30.00	-0.07	
5810.0	15.29	16.21	17.10	--	22.34	--	30.00	-7.66	

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	±1.33 dB

DCCF - Duty Cycle Correction Factor

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9.2. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.407 IC RSS-247	Ambient Temp. (°C):	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.			

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Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	10 MHz	Duty Cycle (%):	87.8
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5731.0	20.240	20.541	20.391	--	20.541	20.240		
5787.0	19.539	19.489	18.236	--	19.539	18.236		
5844.0	22.695	21.393	23.547	--	23.547	21.393		
Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5731.0	11.573	12.224	11.924	--	12.224	11.573		
5787.0	11.022	11.072	9.669	--	11.072	9.669		
5844.0	13.828	12.776	16.333	--	16.333	12.776		

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).

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Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	20 MHz	Duty Cycle (%):	85.7
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Results from Test Results

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5735.0	40.080	35.571	43.788	--	43.788	35.571		
5787.0	33.166	35.371	32.465	--	35.371	32.465		
5840.0	41.383	41.182	44.188	--	44.188	41.182		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5735.0	24.449	22.846	30.962	--	30.962	22.846		
5787.0	18.938	20.140	17.735	--	20.140	17.735		
5840.0	26.653	22.445	30.261	--	30.261	22.445		

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).

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Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	40 MHz	Duty Cycle (%):	81.3
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Results - 26 dB Bandwidth

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5745.0	76.353	86.573	71.142	--	86.573	71.142		
5787.0	77.154	76.353	75.150	--	77.154	75.150		
5830.0	86.172	79.158	89.579	--	89.579	79.158		

Test Results - 99% Bandwidth

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5745.0	43.086	46.693	40.681	--	46.693	40.681		
5787.0	45.090	43.888	41.082	--	45.090	41.082		
5830.0	59.118	48.497	65.331	--	65.331	48.497		

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).

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Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	5 MHz	Duty Cycle (%):	88.0
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5730.0	10.721	10.947	10.596	--	10.947	10.596		
5787.5	10.621	9.920	10.922	--	10.922	9.920		
5845.0	11.122	11.273	11.222	--	11.273	11.122		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5730.0	6.087	6.488	6.062	--	6.488	6.062		
5787.5	6.413	5.962	6.212	--	6.413	5.962		
5845.0	6.939	6.438	6.588	--	6.939	6.438		

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).

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Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	80 MHz	Duty Cycle (%):	74.0
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Results from Test Set

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5765.0	165.932	153.908	151.904	--	165.932	151.904		
5787.0	169.138	170.341	179.559	--	179.559	169.138		
5810.0	180.762	125.050	158.717	--	180.762	125.050		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5765.0	98.597	81.764	80.962	--	98.597	80.962		
5787.0	92.585	89.379	107.415	--	107.415	89.379		
5810.0	97.796	72.545	83.367	--	97.796	72.545		

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).

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9.3. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.407 IC RSS-247	Ambient Temp. (°C):	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 (â) 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 [$10 \cdot \log_{10} (10^{a/10} + 10^{b/10} + 10^{c/10} + 10^{d/10})$]

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.

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(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.



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Equipment Configuration for Power Spectral Density

Variant:	10 MHz	Duty Cycle (%):	87.8
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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				Amplitude Summation + DCCF (+0.56 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5731.0	0.364	1.922	3.815	---	6.863	30.0	-23.13
5787.0	0.434	1.918	3.603	---	6.664	30.0	-23.33
5844.0	2.873	5.569	5.927	---	8.892	30.0	-21.10

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).

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Equipment Configuration for Power Spectral Density

Variant:	20 MHz	Duty Cycle (%):	85.7
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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				Amplitude Summation + DCCF (+0.66 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5735.0	0.291	-1.353	1.475	--	4.143	30.0	-25.857
5787.0	-2.997	-0.872	0.466	--	2.879	30.0	-27.121
5840.0	-1.209	0.078	3.550	--	5.256	30.0	-24.744

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).

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Equipment Configuration for Power Spectral Density

Variant:	40 MHz	Duty Cycle (%):	81.3
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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				Amplitude Summation + DCCF (+0.92 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5745.0	-5.833	-4.677	-3.282	---	0.601	30.0	-29.399
5787.0	-7.698	-5.218	-4.612	---	-1.006	30.0	-31.006
5830.0	-6.090	-4.276	-0.749	---	1.205	30.0	-28.795

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).

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Equipment Configuration for Power Spectral Density

Variant:	5 MHz	Duty Cycle (%):	88.0
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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				Amplitude Summation + DCCF (+0.56 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5730.0	4.858	8.284	8.111	--	11.552	30.0	-18.448
5787.5	3.279	4.556	5.822	--	9.254	30.0	-20.746
5845.0	6.770	6.181	8.791	--	11.592	30.0	-18.408

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Power Spectral Density

Variant:	80 MHz	Duty Cycle (%):	74.0
Data Rate:	QAM 256	Antenna Gain (dBi):	12.50
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				Amplitude Summation + DCCF (+1.31 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5765.0	-11.584	-10.497	-7.527	--	-4.183	30.0	-34.183
5787.0	-11.173	-11.361	-8.545	--	-5.334	30.0	-35.334
5810.0	-12.075	-9.563	-9.621	--	-5.973	30.0	-35.973

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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9.4. Radiated

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.407 IC RSS-247	Ambient Temp. (°C):	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.

$$FS = R + AF + CORR - FO$$

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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 (eirr) to field strength (dBμV/m);

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

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

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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).

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9.4.1. Restricted Band Emissions

9.4.1.1. RADWIN Ltd AT0058760

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

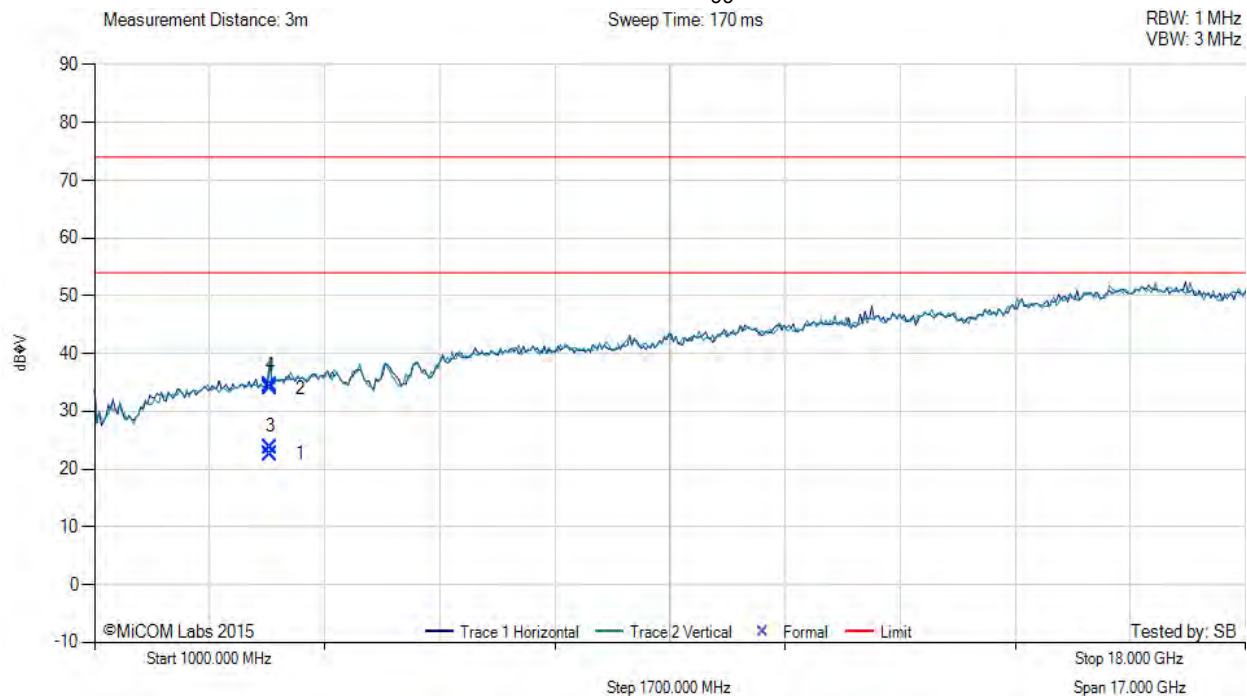
Antenna:	RADWIN Ltd AT0058760	Variant:	5 MHz
Antenna Gain (dBi):	18.0	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5730.00	Data Rate:	QAM 256
Power Setting:	12.5	Tested By:	SB

Test Measurement Results

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS



Variant: 5 MHz, Test Freq: 5730.00 MHz, Antenna: RADWIN Ltd AT0058760, 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	3599.81	28.80	4.98	-11.17	22.61	Max Avg	Vertical	101	281	54.0	-31.4	Pass
2	3599.81	40.11	4.98	-11.17	33.92	Max Peak	Vertical	101	281	74.0	-40.1	Pass
3	3599.81	30.03	4.98	-11.17	23.84	Max Avg	Horizontal	100	331	54.0	-30.2	Pass
4	3599.81	40.69	4.98	-11.17	34.50	Max Peak	Horizontal	100	331	74.0	-39.5	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

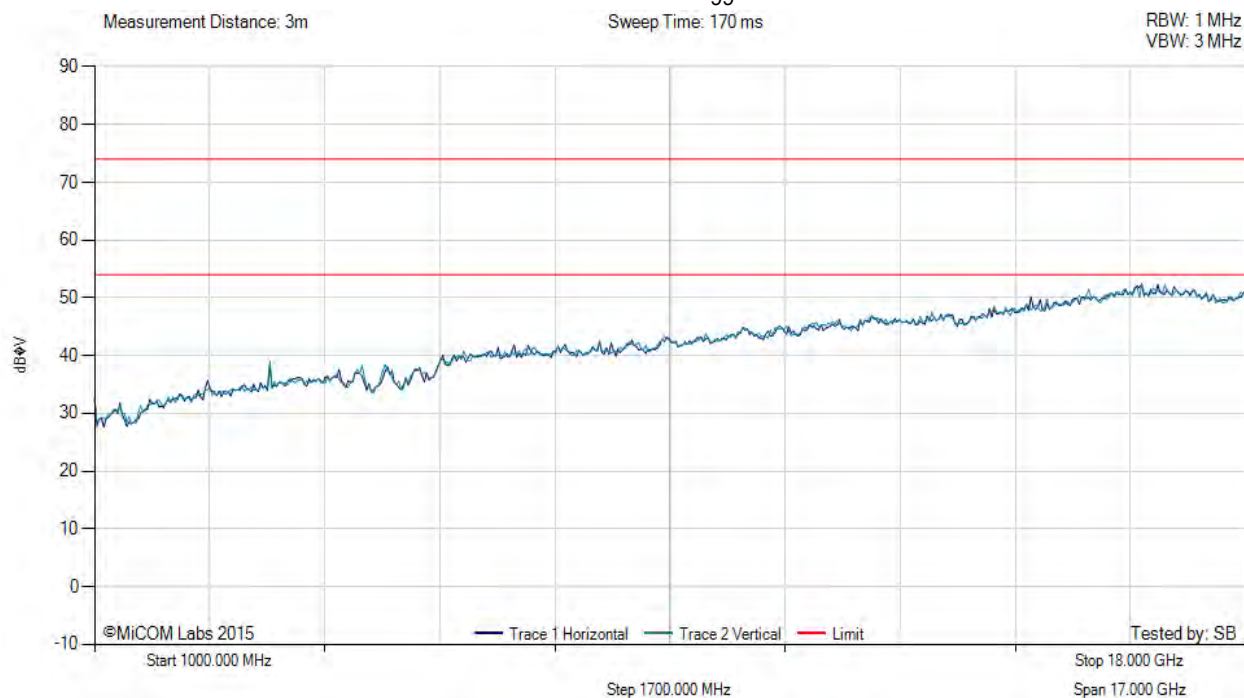
Antenna:	RADWIN Ltd AT0058760	Variant:	5 MHz
Antenna Gain (dBi):	18.0	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5787.00	Data Rate:	QAM 256
Power Setting:	12.5	Tested By:	SB

Test Measurement Results

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS



Variant: 5 MHz, Test Freq: 5787.00 MHz, Antenna: RADWIN Ltd AT0058760, Power Setting: 12.5, Duty Cycle (%): 99



There are no emissions found within 6dB of the limit line.

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

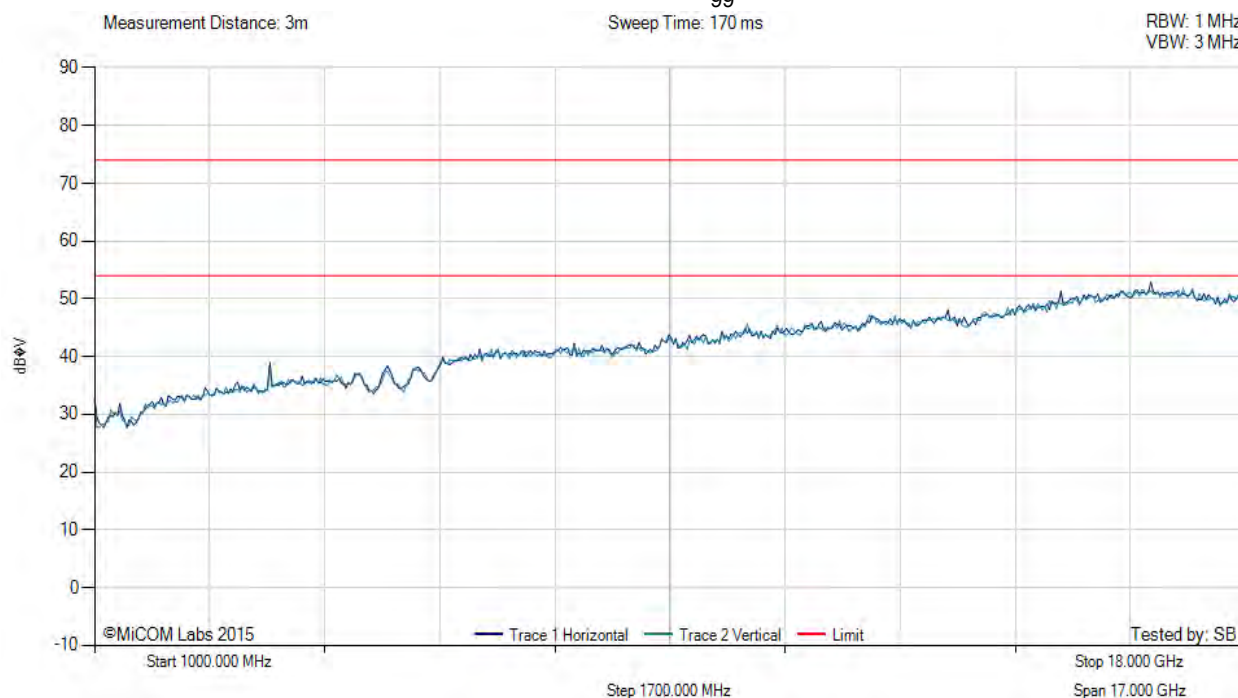
Antenna:	RADWIN Ltd AT0058760	Variant:	5 MHz
Antenna Gain (dBi):	18.0	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5845.00	Data Rate:	QAM 256
Power Setting:	12.5	Tested By:	SB

Test Measurement Results

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS



Variant: 5 MHz, Test Freq: 5845.00 MHz, Antenna: RADWIN Ltd AT0058760, Power Setting: 12.5, Duty Cycle (%): 99



There are no emissions found within 6dB of the limit line.

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9.4.1.2. RADWIN Ltd RW-9401-5002

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

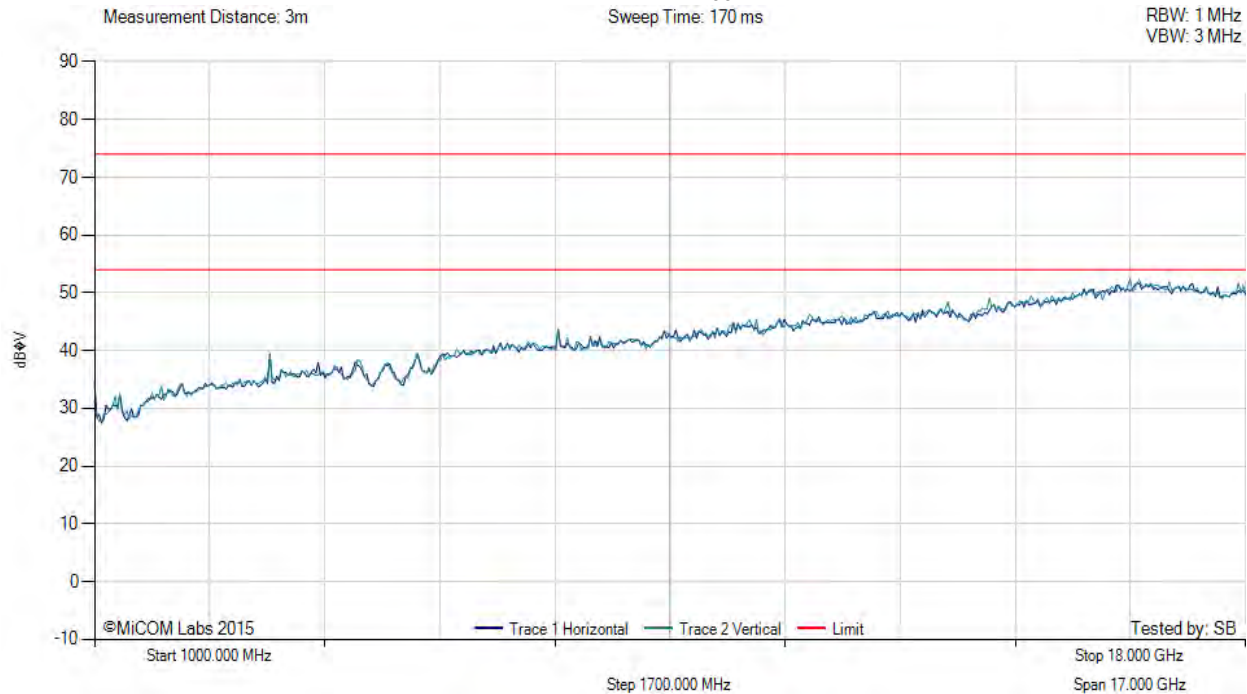
Antenna:	RADWIN Ltd RW-9401-5002	Variant:	5 MHz
Antenna Gain (dBi):	12.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5730.00	Data Rate:	QAM256
Power Setting:	23	Tested By:	SB

Test Measurement Results

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS



Variant: 5 MHz, Test Freq: 5730.00 MHz, Antenna: RADWIN Ltd RW-9401-5002, Power Setting: 23, Duty Cycle (%): 99



There are no emissions found within 6dB of the limit line.

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

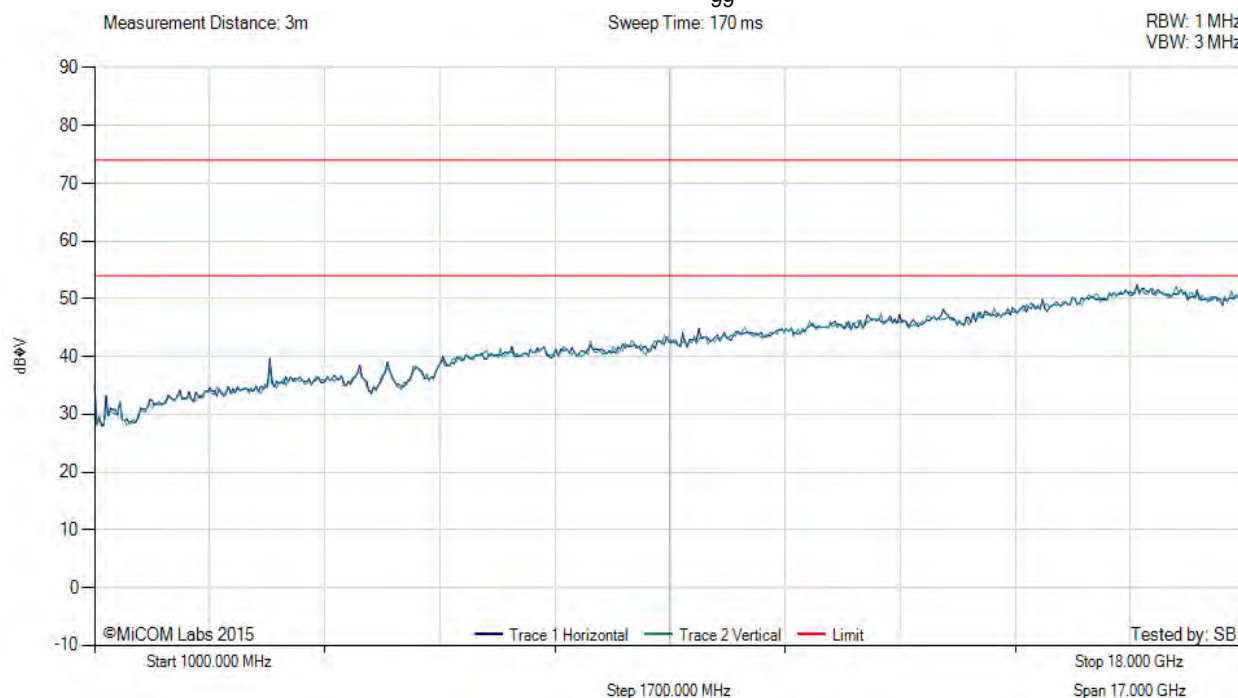
Antenna:	RADWIN Ltd RW-9401-5002	Variant:	5 MHz
Antenna Gain (dBi):	12.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5787.00	Data Rate:	QAM 256
Power Setting:	23	Tested By:	SB

Test Measurement Results

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS



Variant: 5 MHz, Test Freq: 5787.00 MHz, Antenna: RADWIN Ltd RW-9401-5002, Power Setting: 23, Duty Cycle (%): 99



There are no emissions found within 6dB of the limit line.

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

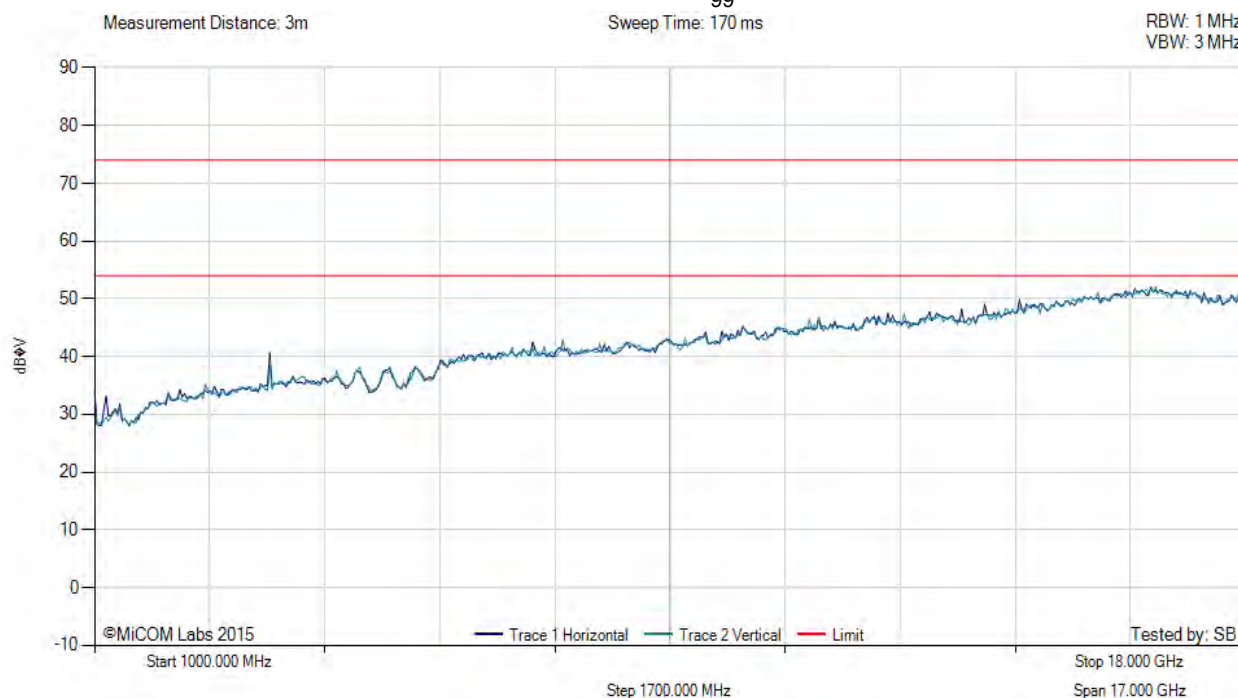
Antenna:	RADWIN Ltd RW-9401-5002	Variant:	5 MHz
Antenna Gain (dBi):	12.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5845.00	Data Rate:	QAM 256
Power Setting:	23	Tested By:	SB

Test Measurement Results

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS



Variant: 5 MHz, Test Freq: 5845.00 MHz, Antenna: RADWIN Ltd RW-9401-5002, Power Setting: 23, Duty Cycle (%): 99



There are no emissions found within 6dB of the limit line.

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9.4.2. Restricted Band-Edge Emissions

9.4.2.3. RADWIN Ltd AT0058760

Peak Limit -27/-17 dBm, Average Limit -41 dBm

Galtronics Custom PCB		BandEdge Freq	Peak	Average	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBm	dBm	
5 MHz	5730	5725	-19.30	-45.42	23
10 MHz	5731	5725	-19.49	-45.14	18
20 MHz	5735	5725	-19.49	-43.14	19
40 MHz	5745	5725	-17.89	-43.84	21
80 MHz	5765	5725	-19.19	-42.50	18.5

Galtronics Custom PCB		BandEdge Freq	Peak	Average	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBm	dBm	
5 MHz	5845	5850	-17.43	-42.10	21.5
10 MHz	5844	5850	-17.24	-44.08	18.0
20 MHz	5840	5850	-18.47	-43.37	17.5
40 MHz	5830	5850	-17.26	-44.60	19
80 MHz	5810	5850	-19.70	-41.71	17

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9.4.2.4. RADWIN Ltd RW-9401-5002

Peak Limit -27/-17 dBm, Average Limit -41 dBm

Galtronics Custom PCB		BandEdge Freq	Peak	Average	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBm	dBm	
5 MHz	5730	5725	-20.78	-43.84	23
10 MHz	5731	5725	-17.66	-43.84	18
20 MHz	5735	5725	-19.05	-43.84	19
40 MHz	5745	5725	-18.33	-42.50	21
80 MHz	5765	5725	-24.81	-41.90	18.5

Galtronics Custom PCB		BandEdge Freq	Peak	Average	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBm	dBm	
5 MHz	5845	5850	-21.98	-41.70	21.5
10 MHz	5844	5850	-17.25	-41.50	18.0
20 MHz	5840	5850	-18.65	-41.12	17.5
40 MHz	5830	5850	-21.10	-41.12	19
80 MHz	5810	5850	-28.08	-43.68	17

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9.4.3. Digital Emissions

Radiated Test Conditions for Radiated Digital Emissions (0.03 – 1 GHz)			
Standard:	FCC CFR 47:15.247 IC RSS-247	Ambient Temp. (°C):	20.0 - 24.5
Test Heading:	Digital Emissions	Rel. Humidity (%):	32 - 45
Standard Section(s):	15.209	Pressure (mBars):	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Digital Emissions (0.03 – 1 GHz)

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

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

Field Strength Calculation

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

$FS = R + AF + CORR$

where:

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

For example:

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

$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3\text{dBmV/m}$

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are done as:

Level (dBmV/m) = 20 * Log (level (mV/m))

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

Limits for Radiated Digital Emissions (0.03 – 1 GHz) (15.209)

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

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Frequency (MHz)	Field Strength		Measurement Distance (m)
	$\mu\text{V/m}$ (microvolts/meter)	$\text{dB}\mu\text{V/m}$ (dB microvolts/meter)	
0.009-0.490	2400/F(kHz)	--	300
0.490-1.705	24000/F(kHz)	--	30
1.705-30.0	30	29.5	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46.0	3
Above 960	500	54.0	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

(b) In the emission table above, the tighter limit applies at the band edges. (c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions of other sections within this part and which are required to reduce their unwanted emissions to the limits specified in this table, the limits in this table are based on the frequency of the unwanted emission and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. (d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. (e) The provisions in §§15.31, 15.33, and 15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part. (f) In accordance with §15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in §15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in §15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in §15.109 that are applicable to the incorporated digital device. (g) Perimeter protection systems may operate in the 54-72 MHz and 76-88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

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Equipment Configuration for Digital Emissions

Antenna:	RADWIN Ltd RW-9401-5002	Variant:	5 MHz
Antenna Gain (dBi):	12.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5730.00	Data Rate:	QAM 256
Power Setting:	23	Tested By:	SB

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	35.16	52.87	3.46	-41.90	42.75	Peak (Scan)	Vertical	100	1	--	--	
#2	35.16	49.50	3.46	-13.58	39.38	MaxQP	Vertical	100	274	40.0	-0.6	Pass
#3	35.16	33.19	3.46	-13.58	23.07	MaxQP	Horizontal	120	30	40.0	-16.9	Pass
#4	62.40	59.26	3.66	-23.92	39.00	MaxQP	Vertical	100	292	40.0	-1.0	Pass
#5	62.40	52.01	3.66	-23.92	31.75	MaxQP	Horizontal	296	202	40.0	-8.3	Pass
#6	62.40	66.64	3.66	-51.98	46.38	Peak (Scan)	Vertical					
#7	109.54	58.77	3.93	-46.51	43.88	Peak (Scan)	Vertical					
#8	109.54	50.95	3.93	-18.82	36.06	MaxQP	Vertical	103	37	43.0	-6.9	Pass
#9	109.54	42.61	3.93	-18.82	27.72	MaxQP	Horizontal	153	107	43.0	-15.3	Pass
#10	159.98	53.47	4.18	-46.12	38.85	Peak (Scan)	Horizontal					
#11	159.98	56.28	4.18	-18.80	41.68	MaxQP	Horizontal	162	282	43.0	-1.34	Pass
#12	159.98	53.82	4.18	-18.80	39.20	MaxQP	Vertical	247	245	43.0	-3.8	Pass
#13	239.95	60.02	4.50	-18.95	45.57	MaxQP	Horizontal	118	282	46.0	-0.4	Pass
#14	239.95	48.44	4.50	-18.95	33.99	MaxQP	Vertical	100	133	46.0	-12.0	Pass
#15	239.95	58.74	4.50	-45.70	44.29	Peak (Scan)	Horizontal					
#16	279.97	49.47	4.64	-44.00	36.69	Peak (Scan)	Horizontal					
#17	279.97	50.47	4.64	-17.42	37.69	MaxQP	Horizontal	125	16	46.0	-8.3	Pass
#18	279.97	41.24	4.64	-17.42	28.46	MaxQP	Vertical	100	120	46.0	-17.5	Pass
#19	299.97	47.92	4.70	-17.20	35.42	MaxQP	Horizontal	104	22	46.0	-10.6	Pass
#20	299.97	38.32	4.70	-17.20	25.82	MaxQP	Vertical	101	195	46.0	-20.2	Pass
#21	299.97	47.22	4.70	-43.70	34.72	Peak (Scan)	Horizontal					
#22	319.98	47.98	4.77	-43.05	36.09	Peak (Scan)	Horizontal					
#23	319.98	52.45	4.77	-16.66	40.56	MaxQP	Horizontal	100	278	46.0	-5.4	Pass
#24	319.98	44.03	4.77	-16.66	32.14	MaxQP	Vertical	319	185	46.0	-13.9	Pass
#25	399.92	43.28	5.02	-14.78	33.52	MaxQP	Horizontal	100	353	46.0	-12.5	Pass
#26	399.92	36.75	5.02	-14.78	26.99	MaxQP	Vertical	121	52	46.0	-19.0	Pass
#27	399.92	47.27	5.02	-40.74	37.51	Peak (Scan)	Horizontal					
#28	439.96	47.01	5.15	-40.07	38.00	Peak (Scan)	Horizontal					
#29	439.96	46.47	5.15	-14.16	37.46	MaxQP	Horizontal	100	352	46.0	-8.5	Pass
#30	439.96	41.41	5.15	-14.16	32.40	MaxQP	Vertical	121	138	46.0	-13.6	Pass
#31	3599.81	42.95	4.98	-50.45	36.76	Peak (Scan)	Vertical					

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9.5. ac Wireline Emissions

**FCC, Part 15 Subpart C §15.207
RSS-247**

Test Procedure

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

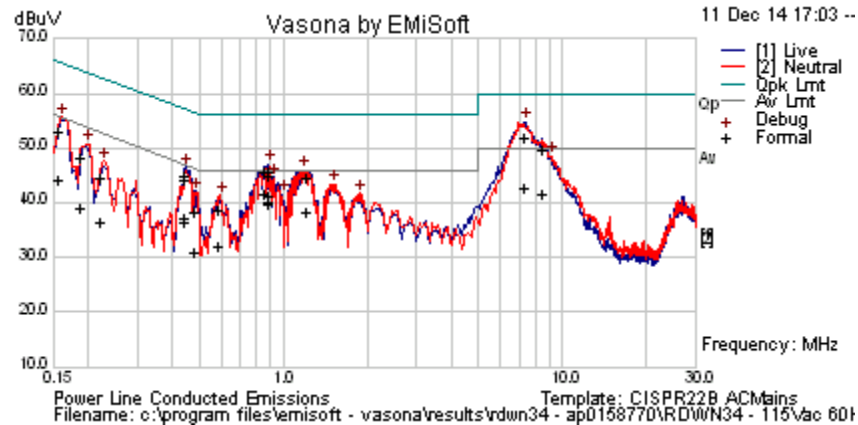
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Measurement Results for ac Wireline Conducted Emissions (150 kHz – 30 MHz)

Test Freq.	N/A	Engineer	GMH
Variant	DC Line Emissions	Temp (°C)	20
Freq. Range	0.150 MHz - 30 MHz	Rel. Hum.(%)	75
Power Setting	NA	Press. (mBars)	999
Antenna	N/A		
Test Notes 1	POE: Sinpro 115Vac 60 Hz: 55 Vdc		
Test Notes 2	POE Model #: CPU55A-270-1		



Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	Factors dB	Level dBuV	Measurement Type	Line	Limit dBuV	Margin dB	Pass /Fail	Comments
0.155	34.1	9.9	0.1	44.1	Average	Neutral	55.75	-11.7	Pass	
0.155	43.1	9.9	0.1	53.1	Quasi Peak	Neutral	65.75	-12.6	Pass	
0.187	38.1	9.9	0.1	48.1	Quasi Peak	Neutral	64.19	-16.1	Pass	
0.187	29.2	9.9	0.1	39.1	Average	Neutral	54.19	-15.1	Pass	
0.217	34.7	9.9	0.1	44.7	Quasi Peak	Neutral	62.92	-18.2	Pass	
0.217	26.4	9.9	0.1	36.3	Average	Neutral	52.92	-16.6	Pass	
0.440	34.8	9.9	0.1	44.8	Quasi Peak	Live	57.06	-12.3	Pass	
0.440	27.2	9.9	0.1	37.2	Average	Live	47.06	-9.8	Pass	
0.440	26.4	9.9	0.1	36.4	Average	Live	47.06	-10.7	Pass	
0.440	34.3	9.9	0.1	44.3	Quasi Peak	Live	57.06	-12.8	Pass	
0.472	28.4	9.9	0.1	38.4	Quasi Peak	Live	56.47	-18.1	Pass	
0.472	21.0	9.9	0.1	31.0	Average	Live	46.47	-15.5	Pass	
0.578	28.8	9.9	0.1	38.9	Quasi Peak	Neutral	56	-17.2	Pass	
0.578	21.9	9.9	0.1	31.9	Average	Neutral	46	-14.1	Pass	
0.843	31.6	9.9	0.1	41.6	Average	Live	46	-4.4	Pass	

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0.843	35.8	9.9	0.1	45.9	Quasi Peak	Live	56	-10.2	Pass	
0.873	29.9	9.9	0.1	39.9	Average	Neutral	46	-6.1	Pass	
0.873	35.0	9.9	0.1	45.1	Quasi Peak	Neutral	56	-10.9	Pass	
0.876	30.1	9.9	0.1	40.2	Average	Live	46	-5.9	Pass	
0.876	35.5	9.9	0.1	45.5	Quasi Peak	Live	56	-10.5	Pass	
0.877	35.8	9.9	0.1	45.8	Quasi Peak	Live	56	-10.2	Pass	
0.877	31.2	9.9	0.1	41.2	Average	Live	46	-4.8	Pass	
1.189	28.2	9.9	0.1	38.2	Average	Neutral	46	-7.8	Pass	
1.189	34.6	9.9	0.1	44.6	Quasi Peak	Neutral	56	-11.4	Pass	
7.294	41.2	10.3	0.3	51.8	Quasi Peak	Live	60	-8.2	Pass	
7.294	32.0	10.3	0.3	42.6	Average	Live	50	-7.4	Pass	
8.379	39.2	10.3	0.3	49.9	Quasi Peak	Neutral	60	-10.1	Pass	
8.379	30.9	10.3	0.3	41.5	Average	Neutral	50	-8.5	Pass	
Legend:	DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency									
	NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band									

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Specification

Limits

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

§15.207 (a) Limit Matrix

The lower limit applies at the boundary between frequency ranges

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

* Decreases with the logarithm of the frequency

Traceability

Test Methodology	Laboratory Measurement Uncertainty
Measurements were made per work instruction WI-EMC-01 'Measurement of Conducted Emissions'	± 2.64 dB

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A. APPENDIX - GRAPHICAL IMAGES

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A.1. 26 dB & 99% Bandwidth



26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5731.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5720.454 MHz : -15.724 dBm M2 : 5729.322 MHz : 11.250 dBm Delta1 : 20.240 MHz : 0.982 dB T1 : 5724.612 MHz : -4.869 dBm T2 : 5736.185 MHz : -7.125 dBm OBW : 11.573 MHz	Measured 26 dB Bandwidth: 20.240 MHz Measured 99% Bandwidth: 11.573 MHz

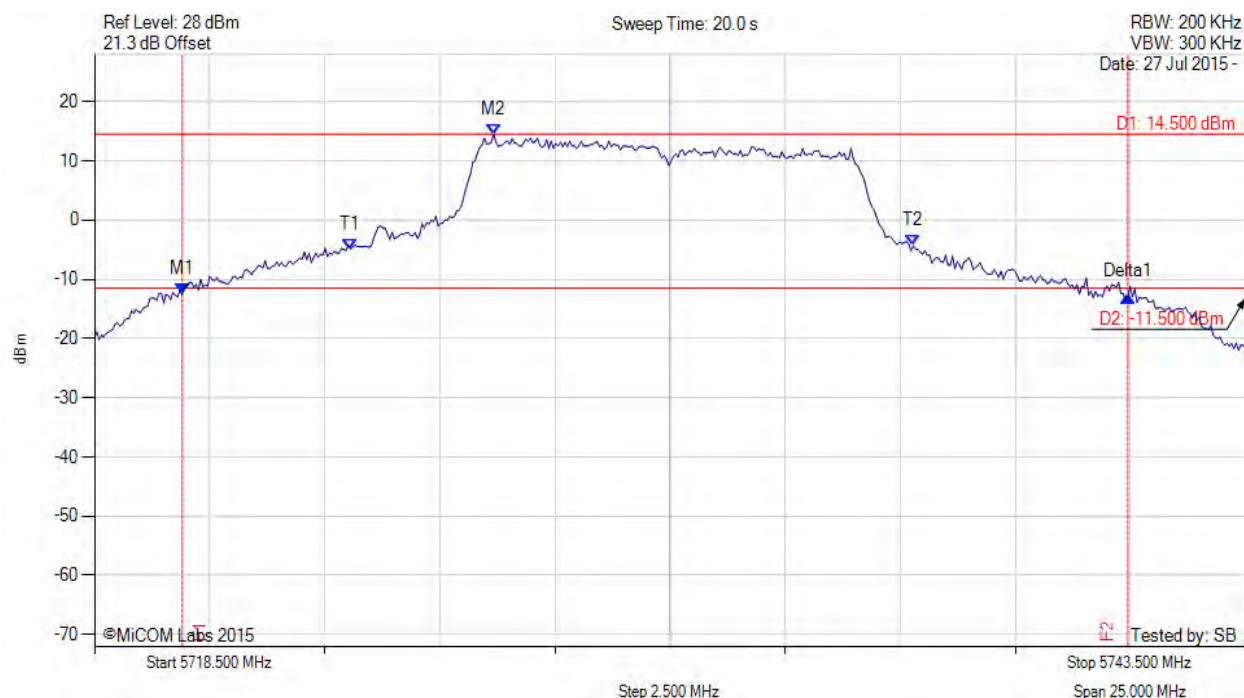
[back to matrix](#)

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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5731.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5720.404 MHz : -12.551 dBm M2 : 5727.167 MHz : 14.500 dBm Delta1 : 20.541 MHz : -0.315 dB T1 : 5724.061 MHz : -4.882 dBm T2 : 5736.286 MHz : -4.359 dBm OBW : 12.224 MHz	Measured 26 dB Bandwidth: 20.541 MHz Measured 99% Bandwidth: 12.224 MHz

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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5731.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5720.354 MHz : -10.718 dBm M2 : 5727.217 MHz : 15.897 dBm Delta1 : 20.391 MHz : -0.220 dB T1 : 5724.111 MHz : -4.267 dBm T2 : 5736.035 MHz : -3.613 dBm OBW : 11.924 MHz	Measured 26 dB Bandwidth: 20.391 MHz Measured 99% Bandwidth: 11.924 MHz

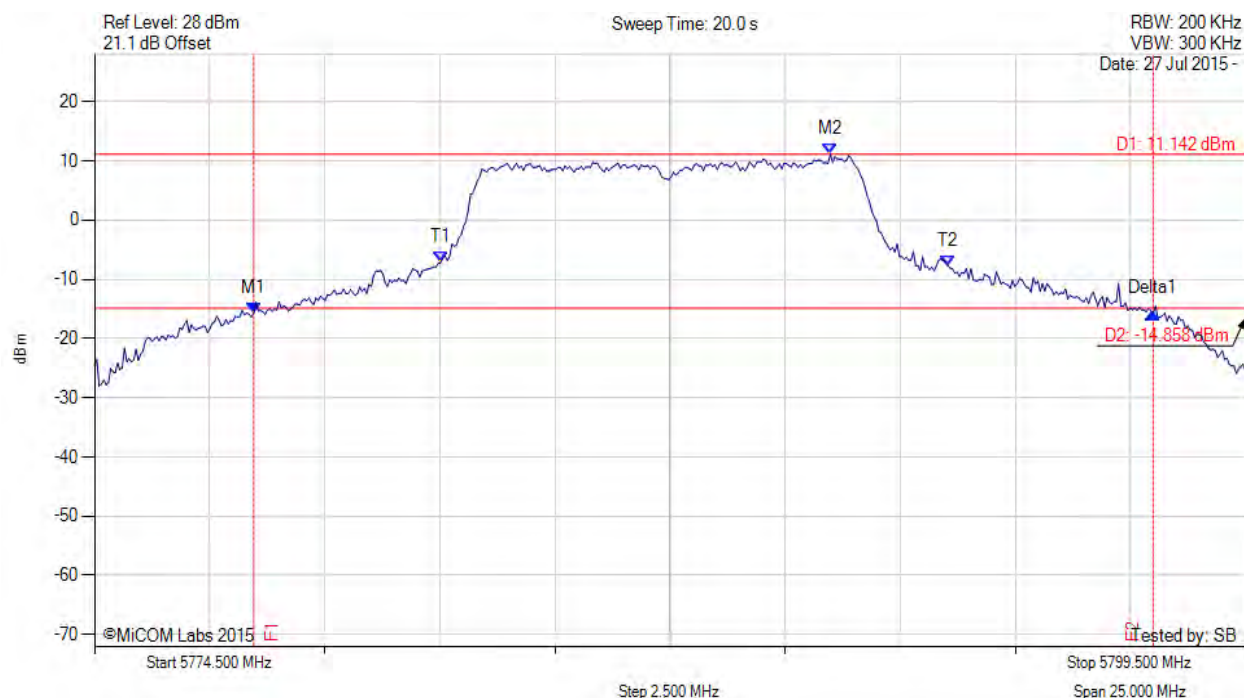
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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5777.957 MHz : -15.685 dBm M2 : 5790.482 MHz : 11.142 dBm Delta1 : 19.539 MHz : -0.092 dB T1 : 5782.015 MHz : -7.159 dBm T2 : 5793.037 MHz : -7.713 dBm OBW : 11.022 MHz	Measured 26 dB Bandwidth: 19.539 MHz Measured 99% Bandwidth: 11.022 MHz

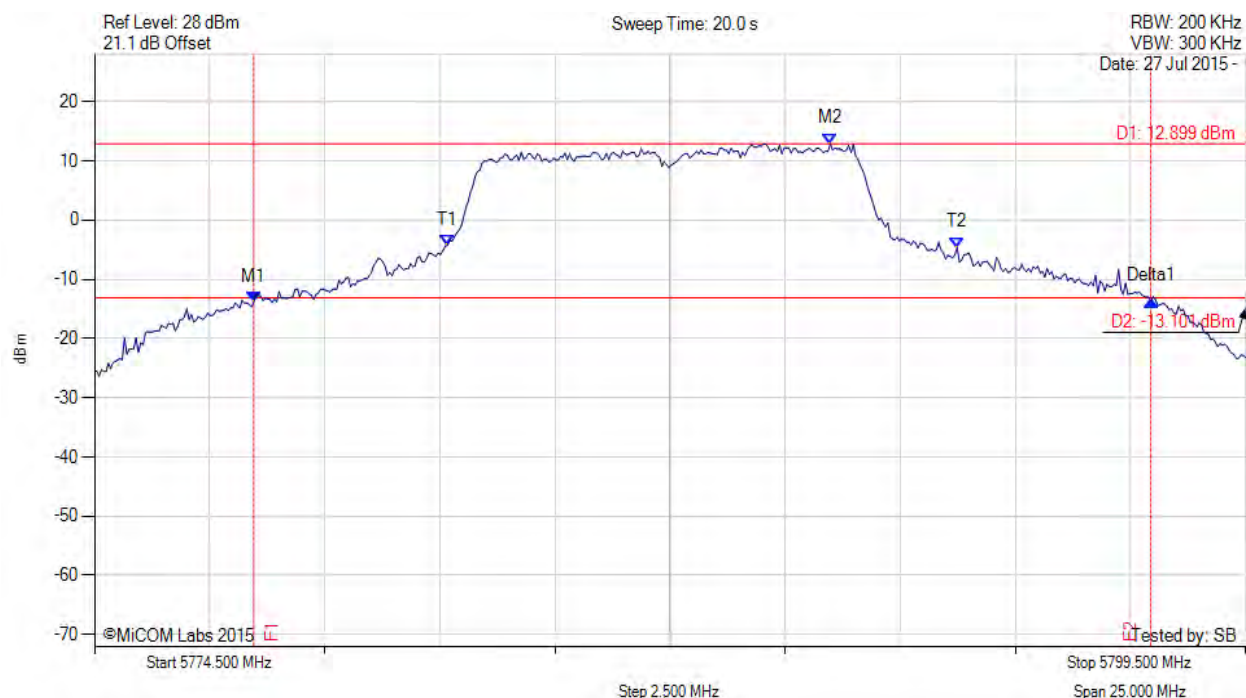
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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5777.957 MHz : -13.879 dBm M2 : 5790.482 MHz : 12.899 dBm Delta1 : 19.489 MHz : 0.222 dB T1 : 5782.165 MHz : -4.276 dBm T2 : 5793.237 MHz : -4.644 dBm OBW : 11.072 MHz	Measured 26 dB Bandwidth: 19.489 MHz Measured 99% Bandwidth: 11.072 MHz

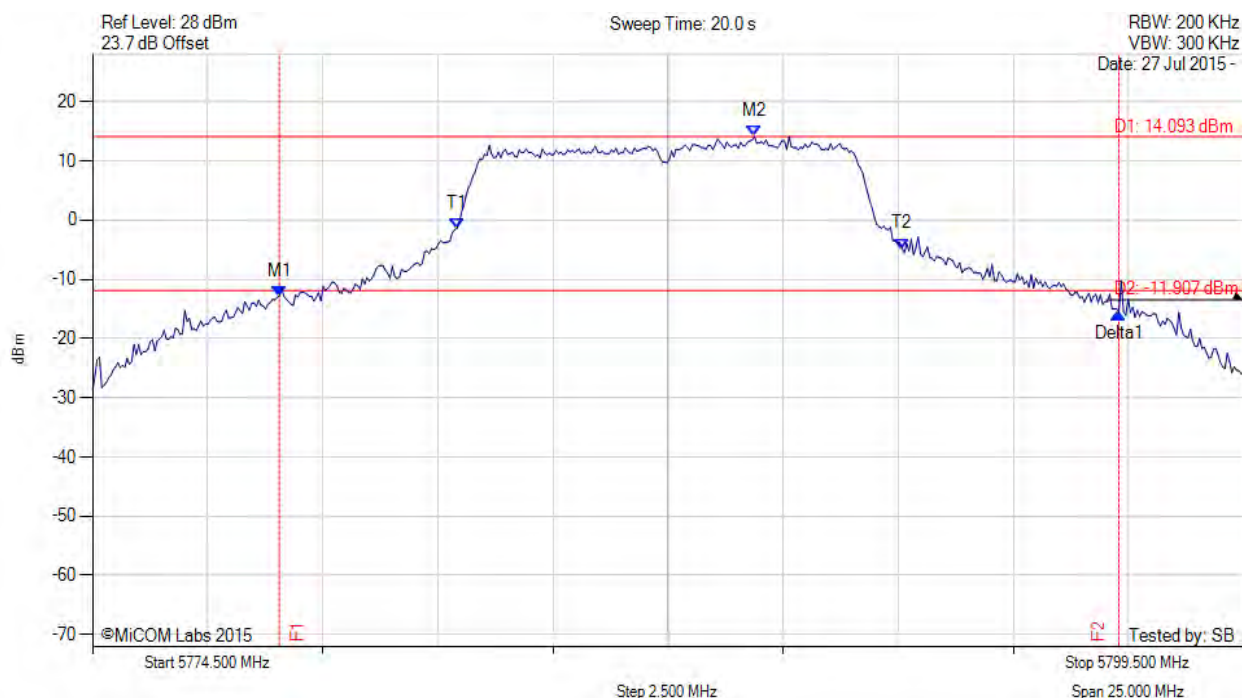
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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5778.558 MHz : -12.846 dBm M2 : 5788.879 MHz : 14.093 dBm Delta1 : 18.236 MHz : -2.796 dB T1 : 5782.416 MHz : -1.394 dBm T2 : 5792.085 MHz : -4.869 dBm OBW : 9.669 MHz	Measured 26 dB Bandwidth: 18.236 MHz Measured 99% Bandwidth: 9.669 MHz

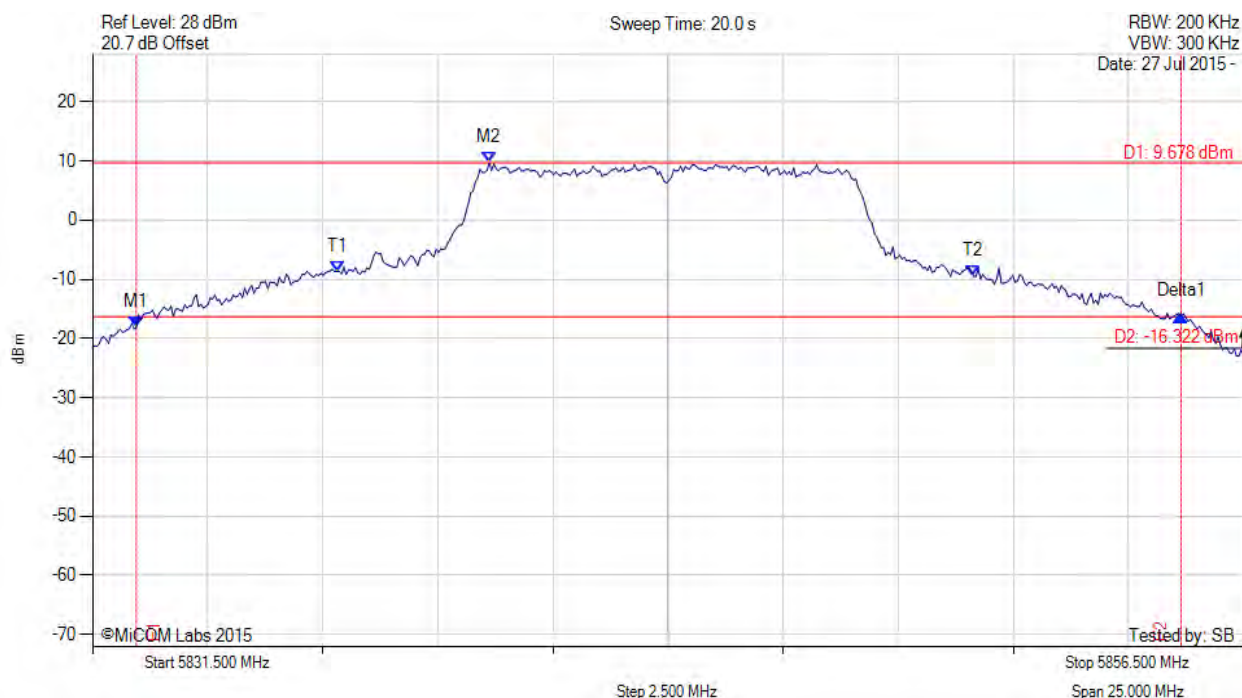
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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5844.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5832.452 MHz : -18.140 dBm M2 : 5840.117 MHz : 9.678 dBm Delta1 : 22.695 MHz : 1.979 dB T1 : 5836.811 MHz : -8.687 dBm T2 : 5850.638 MHz : -9.451 dBm OBW : 13.828 MHz	Measured 26 dB Bandwidth: 22.695 MHz Measured 99% Bandwidth: 13.828 MHz

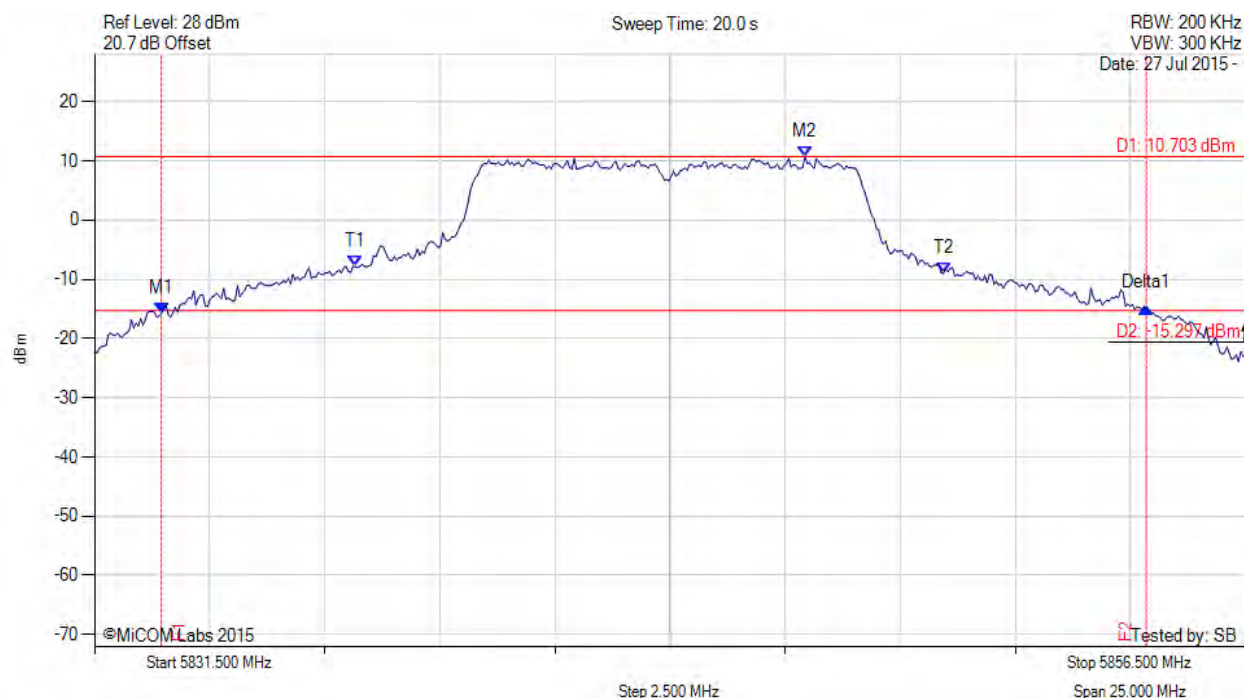
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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5844.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5832.953 MHz : -15.726 dBm M2 : 5846.931 MHz : 10.703 dBm Delta1 : 21.393 MHz : 0.838 dB T1 : 5837.161 MHz : -7.851 dBm T2 : 5849.937 MHz : -9.022 dBm OBW : 12.776 MHz	Measured 26 dB Bandwidth: 21.393 MHz Measured 99% Bandwidth: 12.776 MHz

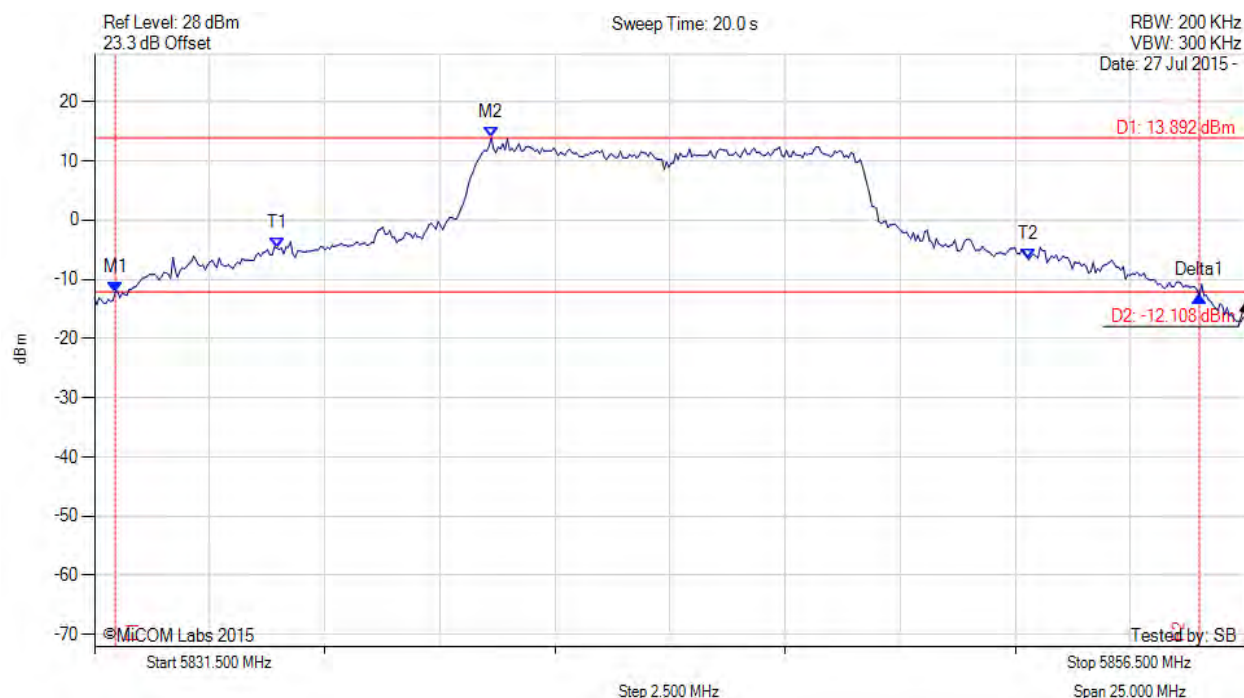
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26 dB & 99% BANDWIDTH

Variant: 10 MHz, Channel: 5844.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5831.951 MHz : -12.132 dBm M2 : 5840.117 MHz : 13.892 dBm Delta1 : 23.547 MHz : -0.671 dB T1 : 5835.458 MHz : -4.717 dBm T2 : 5851.791 MHz : -6.684 dBm OBW : 16.333 MHz	Measured 26 dB Bandwidth: 23.547 MHz Measured 99% Bandwidth: 16.333 MHz

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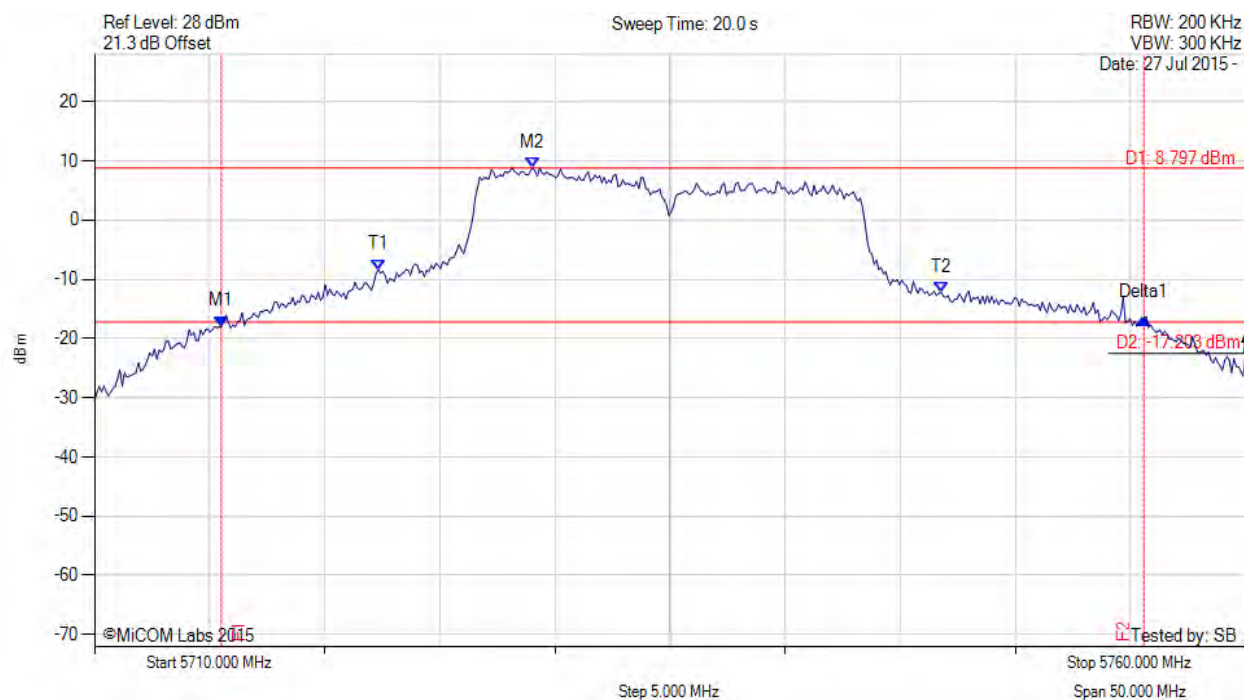


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5735.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5715.511 MHz : -17.948 dBm M2 : 5729.038 MHz : 8.797 dBm Delta1 : 40.080 MHz : 1.389 dB T1 : 5722.325 MHz : -8.372 dBm T2 : 5746.774 MHz : -12.189 dBm OBW : 24.449 MHz	Measured 26 dB Bandwidth: 40.080 MHz Measured 99% Bandwidth: 24.449 MHz

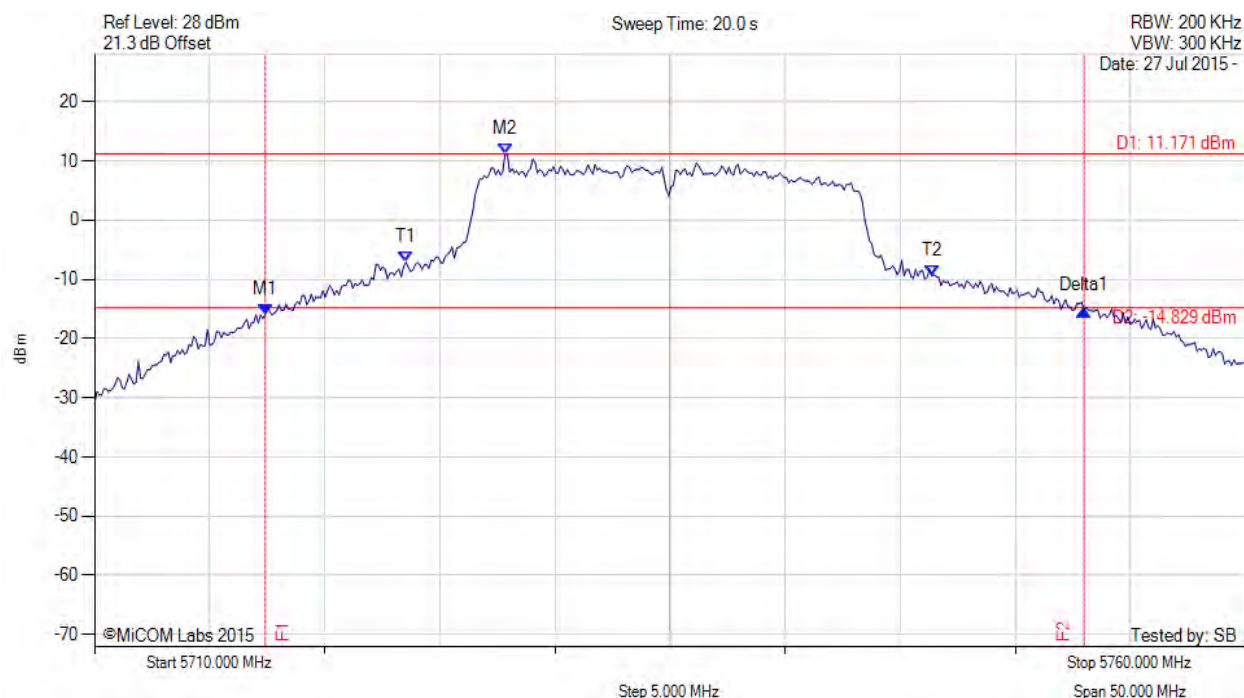
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5735.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5717.415 MHz : -15.909 dBm M2 : 5727.836 MHz : 11.171 dBm Delta1 : 35.571 MHz : 0.565 dB T1 : 5723.527 MHz : -7.141 dBm T2 : 5746.373 MHz : -9.429 dBm OBW : 22.846 MHz	Measured 26 dB Bandwidth: 35.571 MHz Measured 99% Bandwidth: 22.846 MHz

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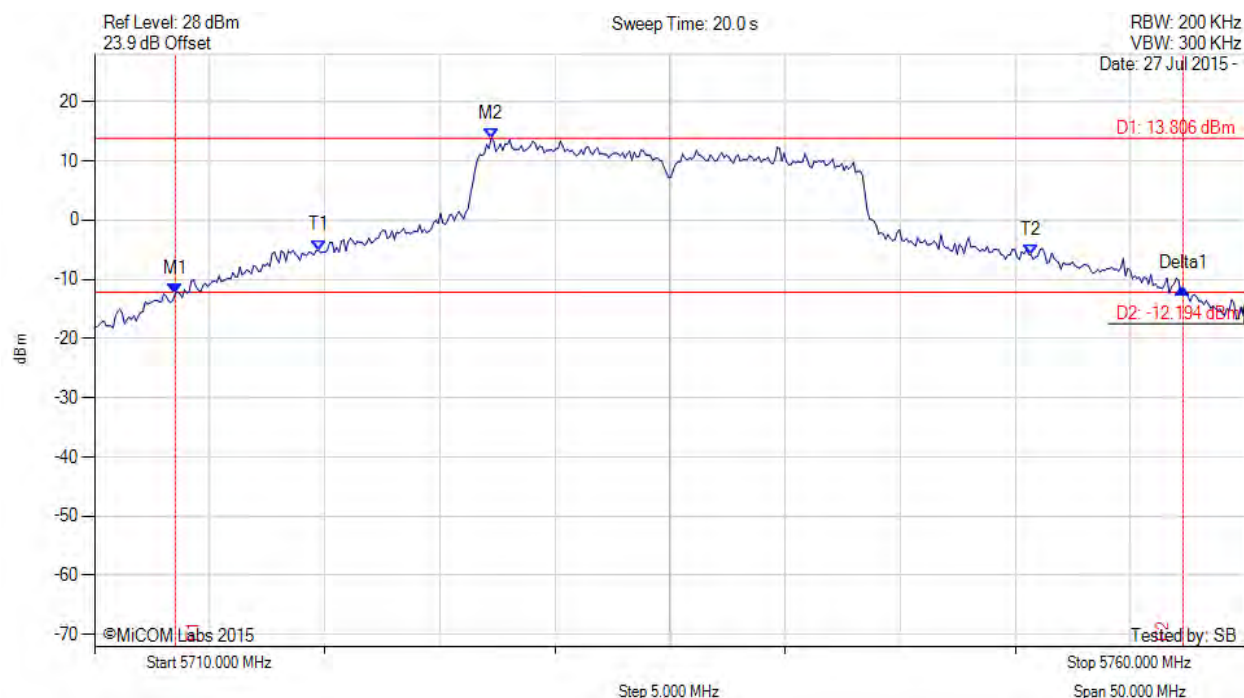


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5735.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5713.507 MHz : -12.374 dBm M2 : 5727.234 MHz : 13.806 dBm Delta1 : 43.788 MHz : 0.746 dB T1 : 5719.719 MHz : -5.103 dBm T2 : 5750.681 MHz : -5.886 dBm OBW : 30.962 MHz	Measured 26 dB Bandwidth: 43.788 MHz Measured 99% Bandwidth: 30.962 MHz

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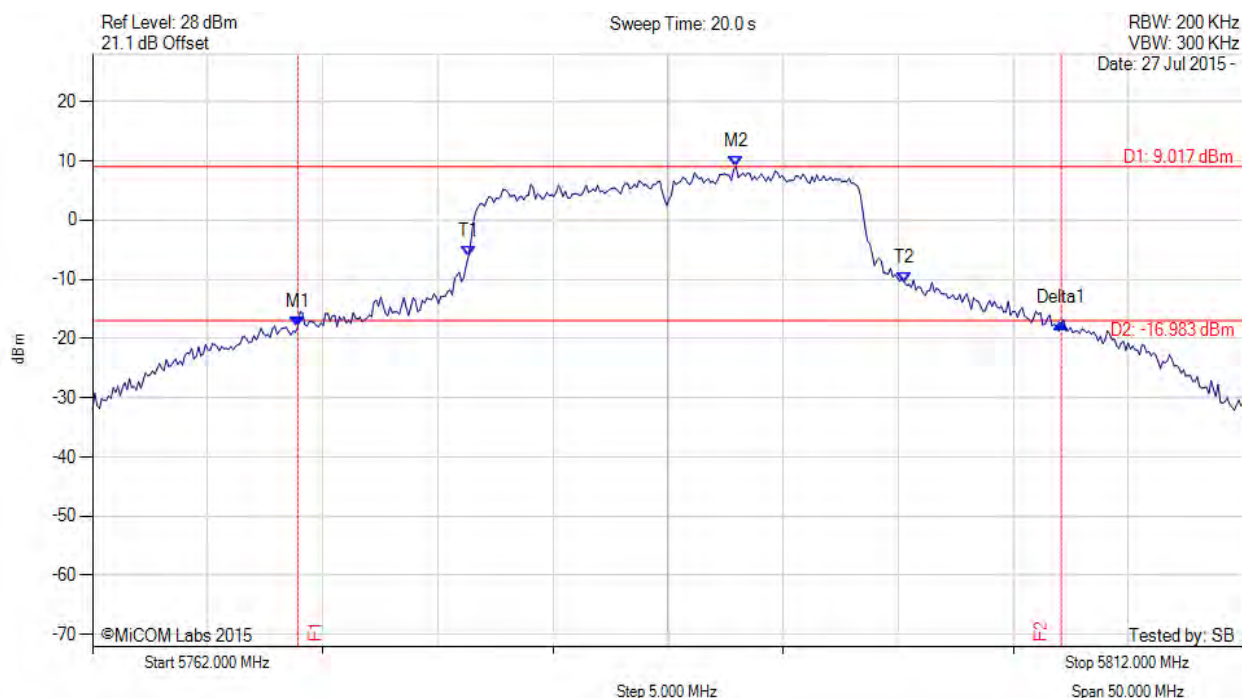


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5770.918 MHz : -18.011 dBm M2 : 5789.956 MHz : 9.017 dBm Delta1 : 33.166 MHz : 0.618 dB T1 : 5778.333 MHz : -6.073 dBm T2 : 5797.271 MHz : -10.527 dBm OBW : 18.938 MHz	Measured 26 dB Bandwidth: 33.166 MHz Measured 99% Bandwidth: 18.938 MHz

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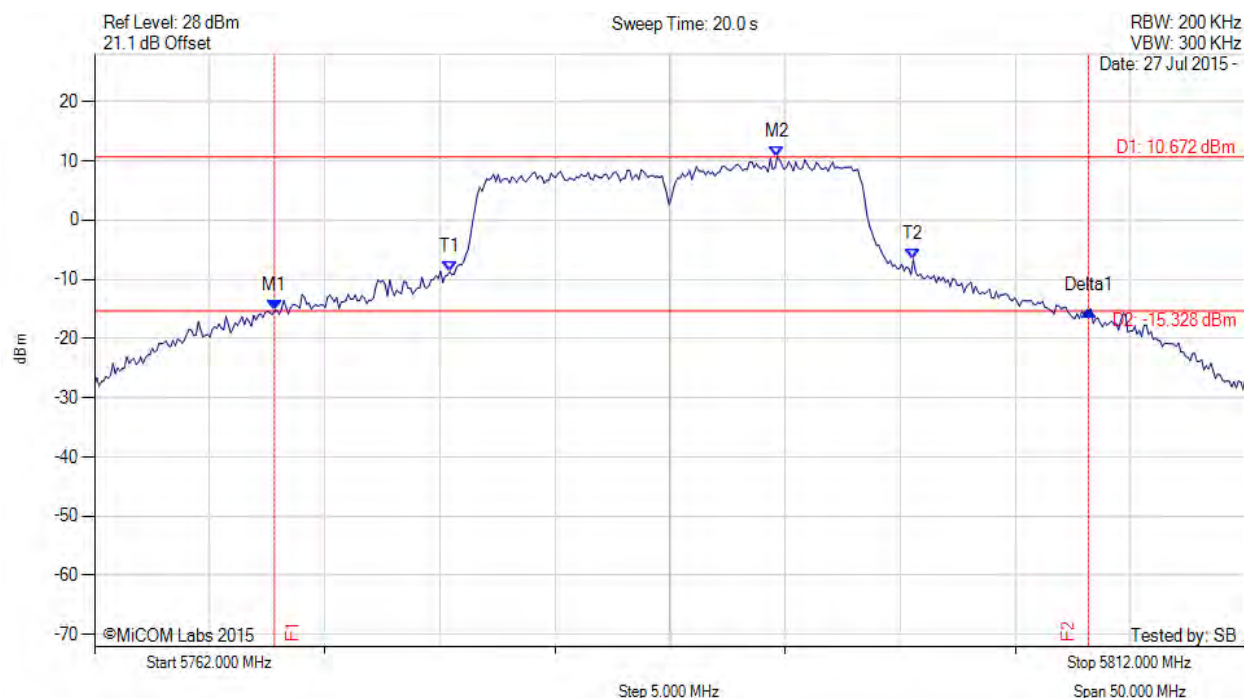


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5769.816 MHz : -15.335 dBm M2 : 5791.659 MHz : 10.672 dBm Delta1 : 35.371 MHz : 0.085 dB T1 : 5777.431 MHz : -8.727 dBm T2 : 5797.571 MHz : -6.635 dBm OBW : 20.140 MHz	Measured 26 dB Bandwidth: 35.371 MHz Measured 99% Bandwidth: 20.140 MHz

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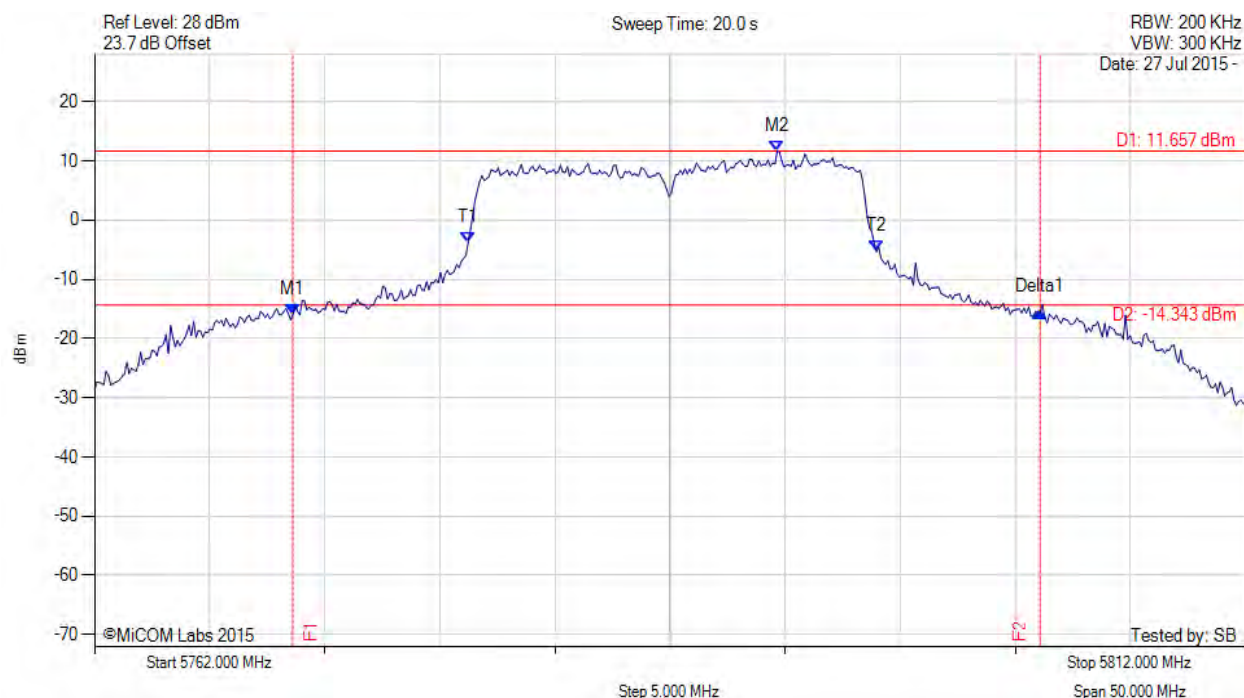


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5770.617 MHz : -15.970 dBm M2 : 5791.659 MHz : 11.657 dBm Delta1 : 32.465 MHz : 0.370 dB T1 : 5778.232 MHz : -3.812 dBm T2 : 5795.968 MHz : -5.309 dBm OBW : 17.735 MHz	Measured 26 dB Bandwidth: 32.465 MHz Measured 99% Bandwidth: 17.735 MHz

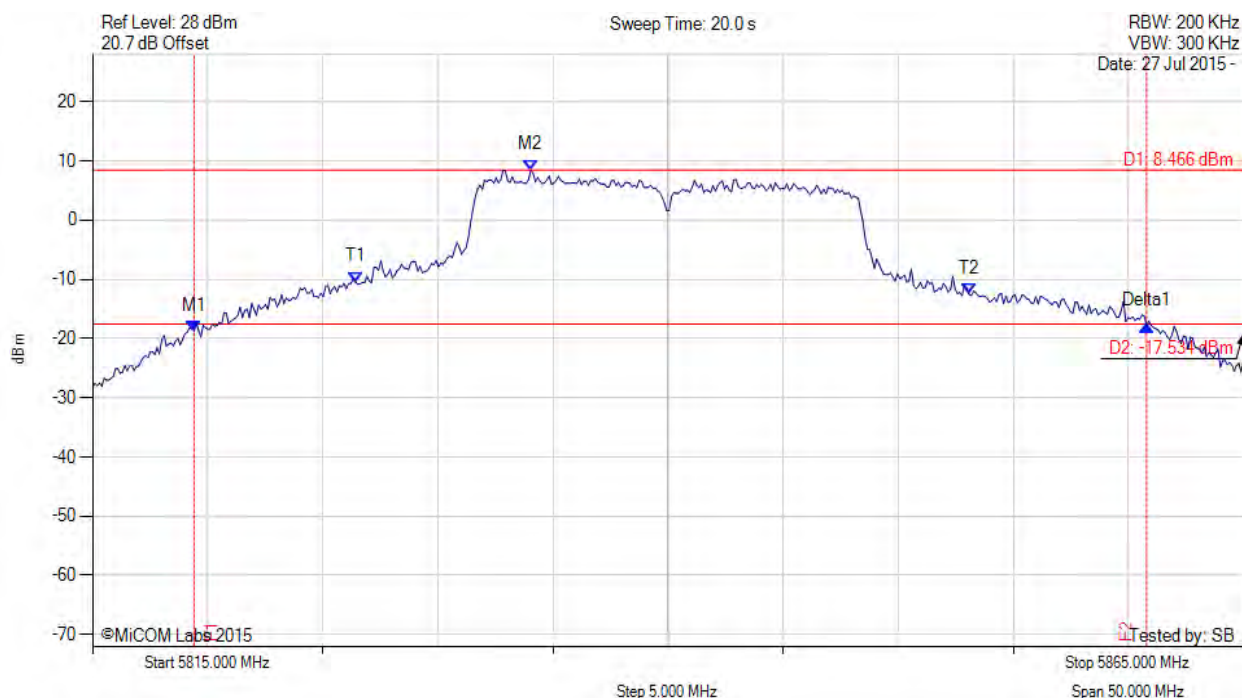
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5819.409 MHz : -18.721 dBm M2 : 5834.038 MHz : 8.466 dBm Delta1 : 41.383 MHz : 0.838 dB T1 : 5826.423 MHz : -10.481 dBm T2 : 5853.076 MHz : -12.476 dBm OBW : 26.653 MHz	Measured 26 dB Bandwidth: 41.383 MHz Measured 99% Bandwidth: 26.653 MHz

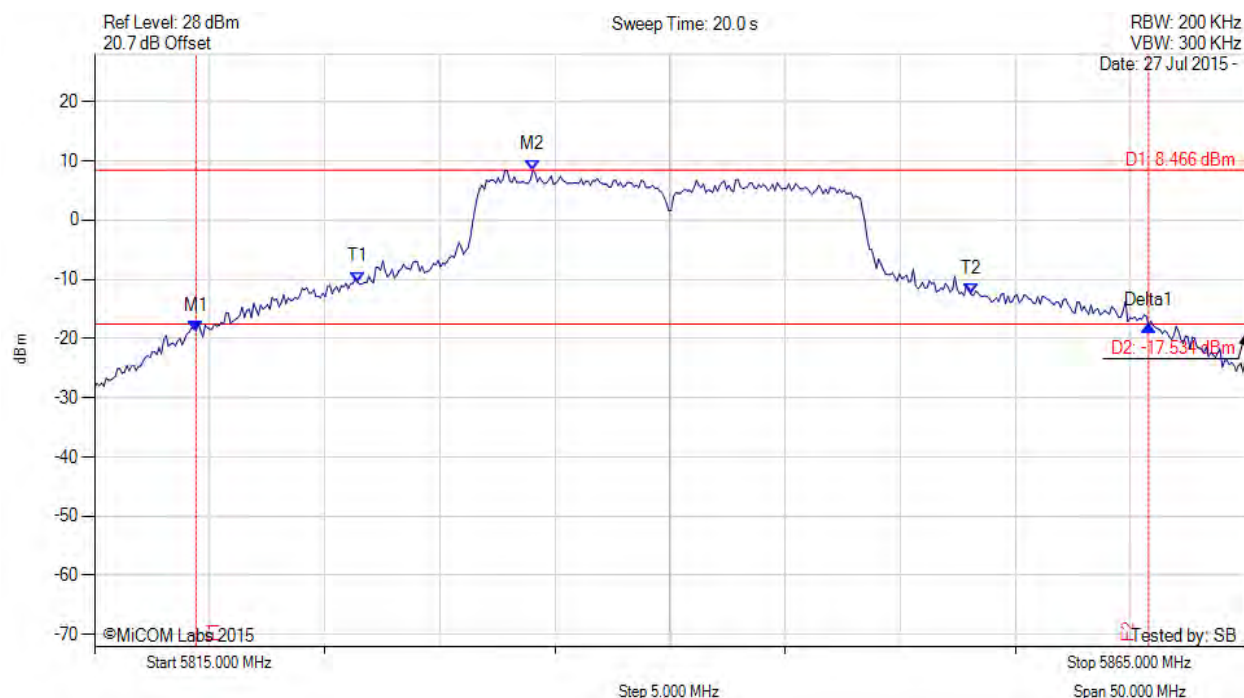
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5819.409 MHz : -18.721 dBm M2 : 5834.038 MHz : 8.466 dBm Delta1 : 41.383 MHz : 0.838 dB T1 : 5826.423 MHz : -10.481 dBm T2 : 5853.076 MHz : -12.476 dBm OBW : 26.653 MHz	Channel Frequency: 5840.00 MHz

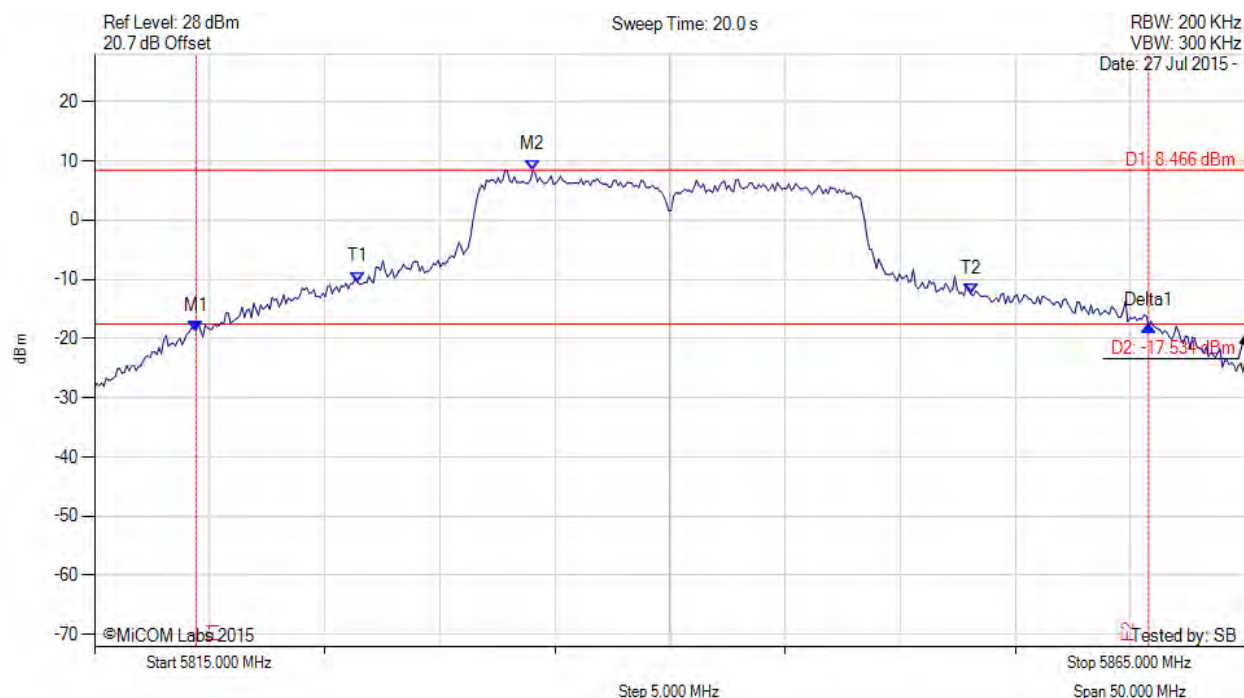
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5819.409 MHz : -18.721 dBm M2 : 5834.038 MHz : 8.466 dBm Delta1 : 41.383 MHz : 0.838 dB T1 : 5826.423 MHz : -10.481 dBm T2 : 5853.076 MHz : -12.476 dBm OBW : 26.653 MHz	Measured 26 dB Bandwidth: 41.383 MHz Measured 99% Bandwidth: 26.653 MHz

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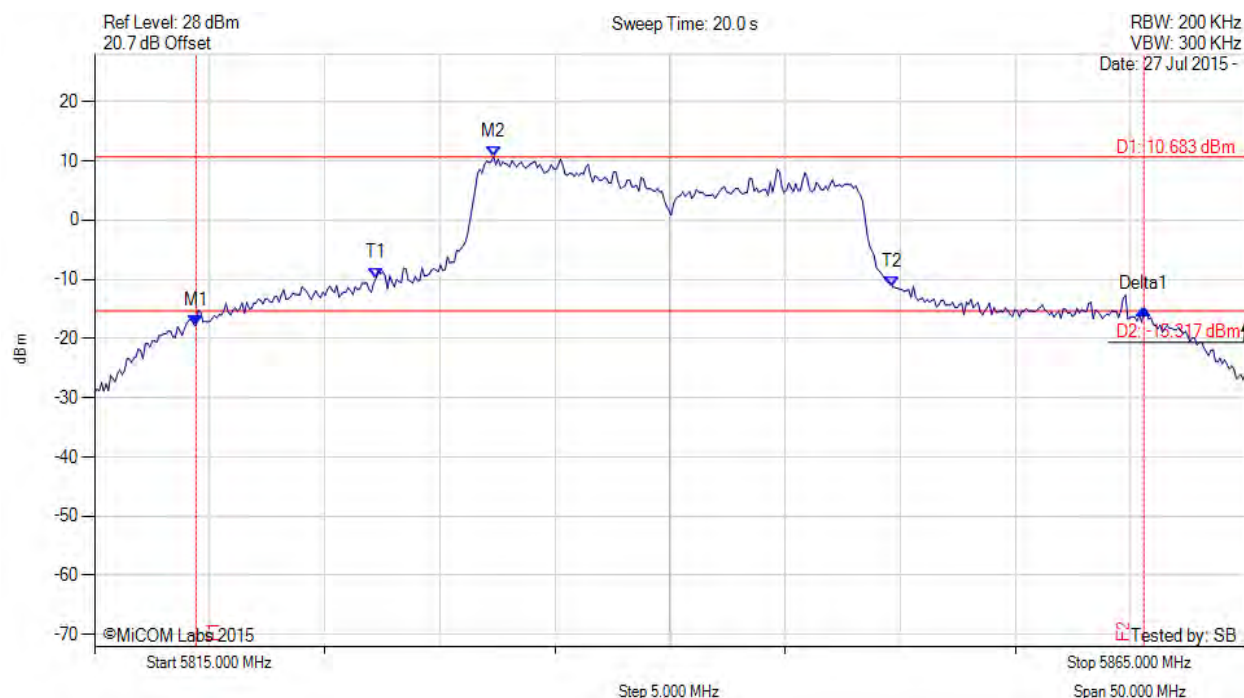


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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5819.409 MHz : -17.826 dBm M2 : 5832.335 MHz : 10.683 dBm Delta1 : 41.182 MHz : 2.744 dB T1 : 5827.224 MHz : -9.781 dBm T2 : 5849.669 MHz : -11.231 dBm OBW : 22.445 MHz	Channel Frequency: 5840.00 MHz

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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5819.409 MHz : -17.826 dBm M2 : 5832.335 MHz : 10.683 dBm Delta1 : 41.182 MHz : 2.744 dB T1 : 5827.224 MHz : -9.781 dBm T2 : 5849.669 MHz : -11.231 dBm OBW : 22.445 MHz	Measured 26 dB Bandwidth: 41.182 MHz Measured 99% Bandwidth: 22.445 MHz

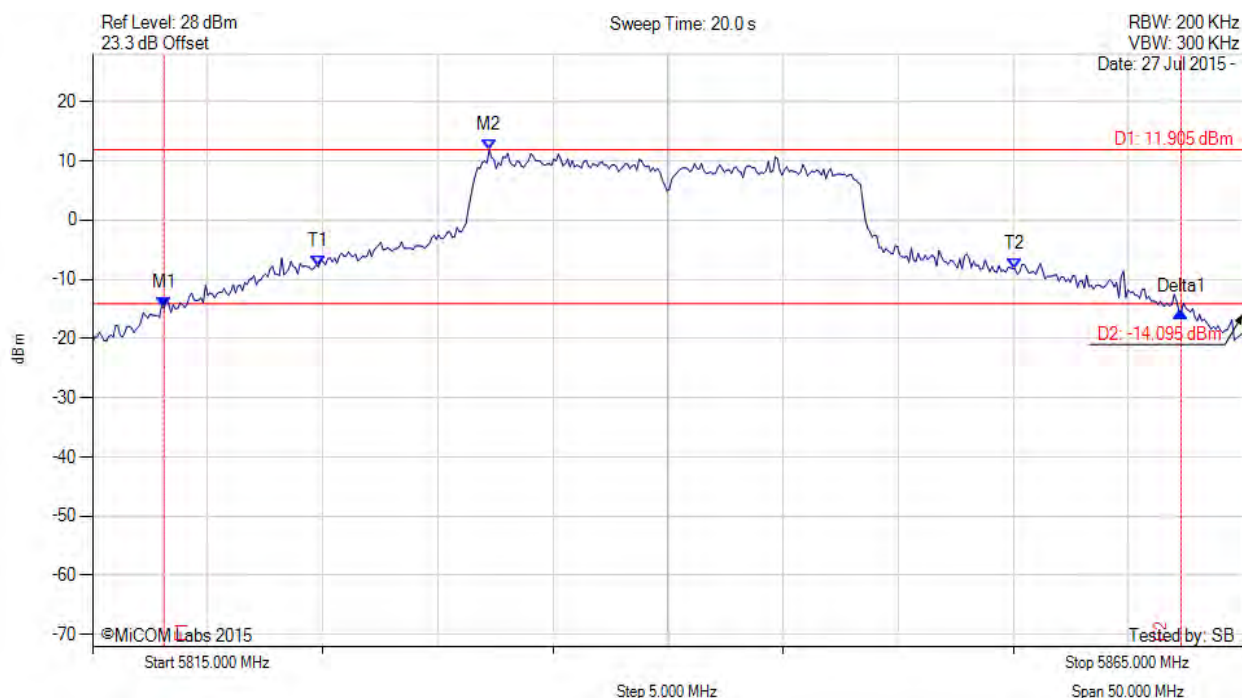
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5818.106 MHz : -14.894 dBm M2 : 5832.234 MHz : 11.905 dBm Delta1 : 44.188 MHz : -0.594 dB T1 : 5824.820 MHz : -7.877 dBm T2 : 5855.080 MHz : -8.266 dBm OBW : 30.261 MHz	Measured 26 dB Bandwidth: 44.188 MHz Measured 99% Bandwidth: 30.261 MHz

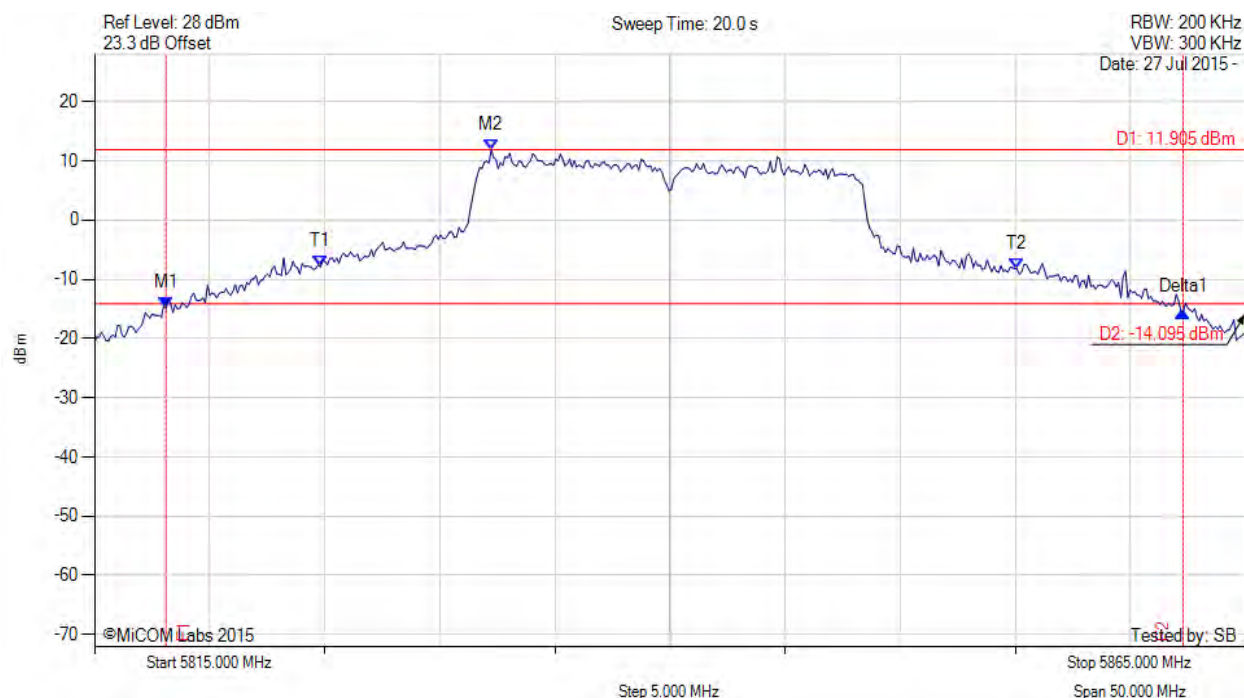
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26 dB & 99% BANDWIDTH

Variant: 20 MHz, Channel: 5840.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5818.106 MHz : -14.894 dBm M2 : 5832.234 MHz : 11.905 dBm Delta1 : 44.188 MHz : -0.594 dB T1 : 5824.820 MHz : -7.877 dBm T2 : 5855.080 MHz : -8.266 dBm OBW : 30.261 MHz	Channel Frequency: 5840.00 MHz

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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5745.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5709.228 MHz : -21.522 dBm M2 : 5728.467 MHz : 5.047 dBm Delta1 : 76.353 MHz : -0.724 dB T1 : 5723.457 MHz : -11.365 dBm T2 : 5766.543 MHz : -13.877 dBm OBW : 43.086 MHz	Measured 26 dB Bandwidth: 76.353 MHz Measured 99% Bandwidth: 43.086 MHz

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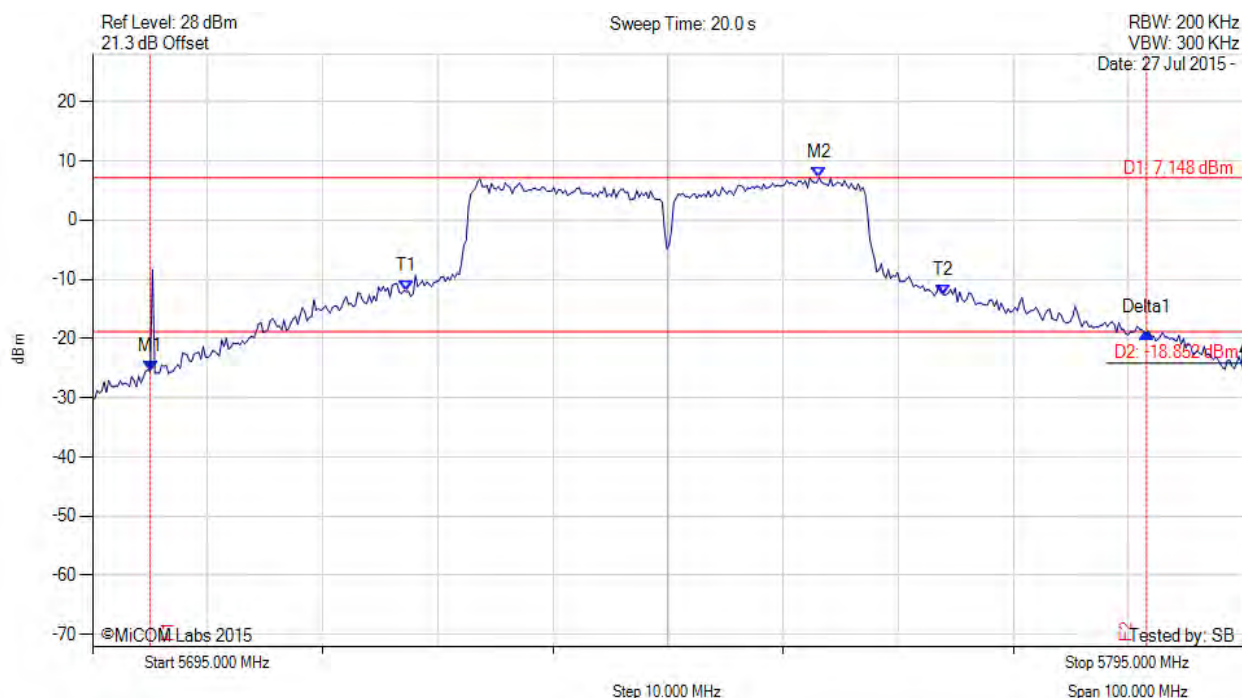


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5745.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5700.010 MHz : -25.502 dBm M2 : 5758.126 MHz : 7.148 dBm Delta1 : 86.573 MHz : 6.402 dB T1 : 5722.255 MHz : -12.051 dBm T2 : 5768.948 MHz : -12.651 dBm OBW : 46.693 MHz	Measured 26 dB Bandwidth: 86.573 MHz Measured 99% Bandwidth: 46.693 MHz

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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5745.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5709.228 MHz : -18.652 dBm M2 : 5759.128 MHz : 8.696 dBm Delta1 : 71.142 MHz : 3.429 dB T1 : 5723.858 MHz : -10.875 dBm T2 : 5764.539 MHz : -9.980 dBm OBW : 40.681 MHz	Measured 26 dB Bandwidth: 71.142 MHz Measured 99% Bandwidth: 40.681 MHz

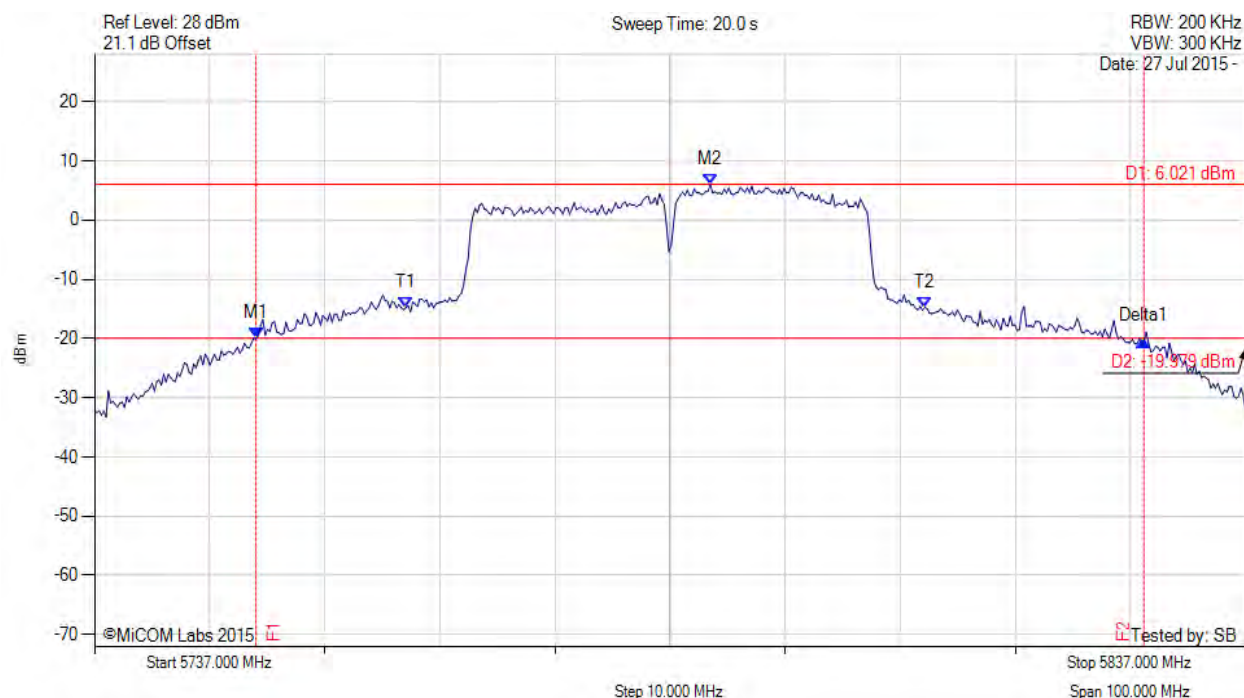
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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5751.028 MHz : -20.039 dBm M2 : 5790.507 MHz : 6.021 dBm Delta1 : 77.154 MHz : -0.360 dB T1 : 5764.054 MHz : -14.792 dBm T2 : 5809.144 MHz : -14.723 dBm OBW : 45.090 MHz	Measured 26 dB Bandwidth: 77.154 MHz Measured 99% Bandwidth: 45.090 MHz

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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5751.228 MHz : -18.662 dBm M2 : 5793.112 MHz : 7.486 dBm Delta1 : 76.353 MHz : 0.128 dB T1 : 5765.657 MHz : -12.907 dBm T2 : 5809.545 MHz : -13.456 dBm OBW : 43.888 MHz	Measured 26 dB Bandwidth: 76.353 MHz Measured 99% Bandwidth: 43.888 MHz

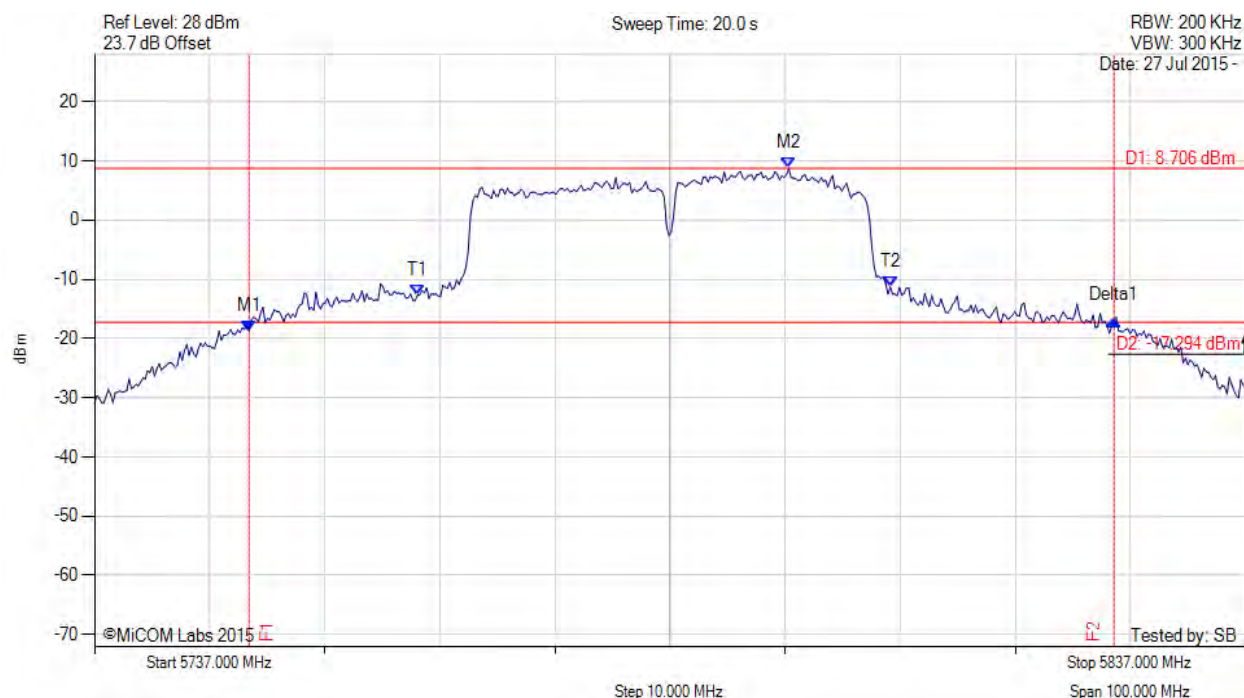
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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5750.427 MHz : -18.723 dBm M2 : 5797.321 MHz : 8.706 dBm Delta1 : 75.150 MHz : 1.847 dB T1 : 5765.056 MHz : -12.707 dBm T2 : 5806.138 MHz : -11.298 dBm OBW : 41.082 MHz	Measured 26 dB Bandwidth: 75.150 MHz Measured 99% Bandwidth: 41.082 MHz

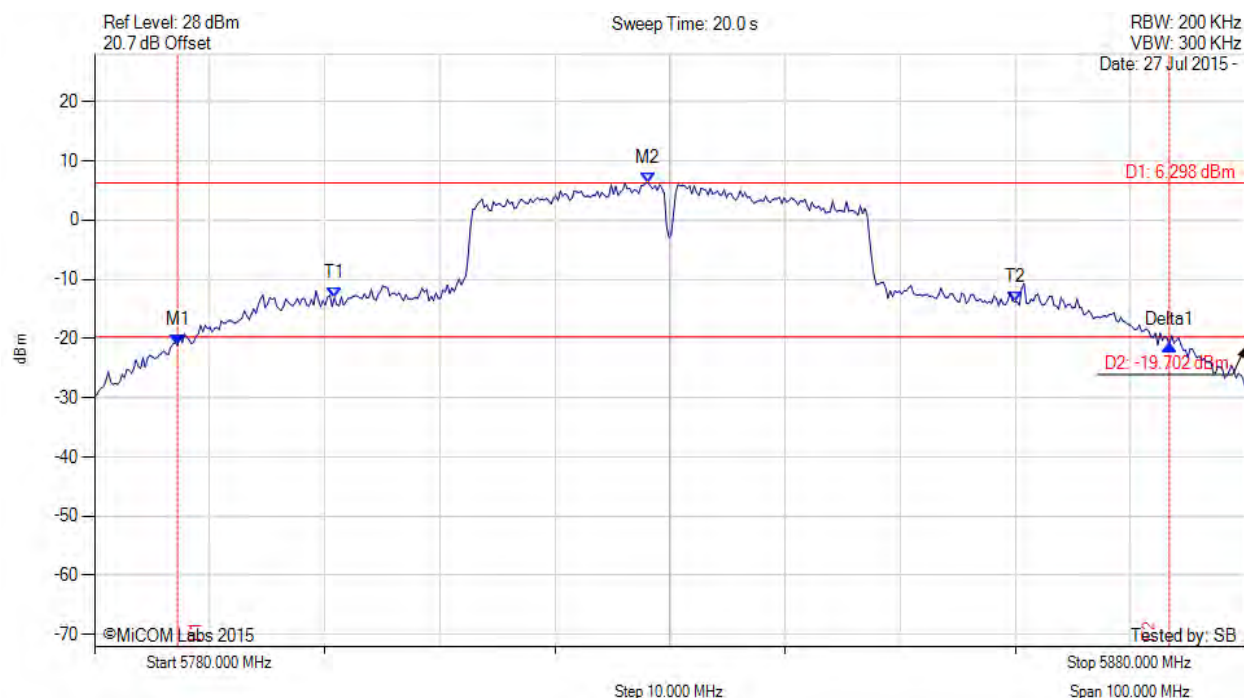
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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5830.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5787.214 MHz : -21.129 dBm M2 : 5828.096 MHz : 6.298 dBm Delta1 : 86.172 MHz : 0.096 dB T1 : 5800.842 MHz : -13.145 dBm T2 : 5859.960 MHz : -13.796 dBm OBW : 59.118 MHz	Measured 26 dB Bandwidth: 86.172 MHz Measured 99% Bandwidth: 59.118 MHz

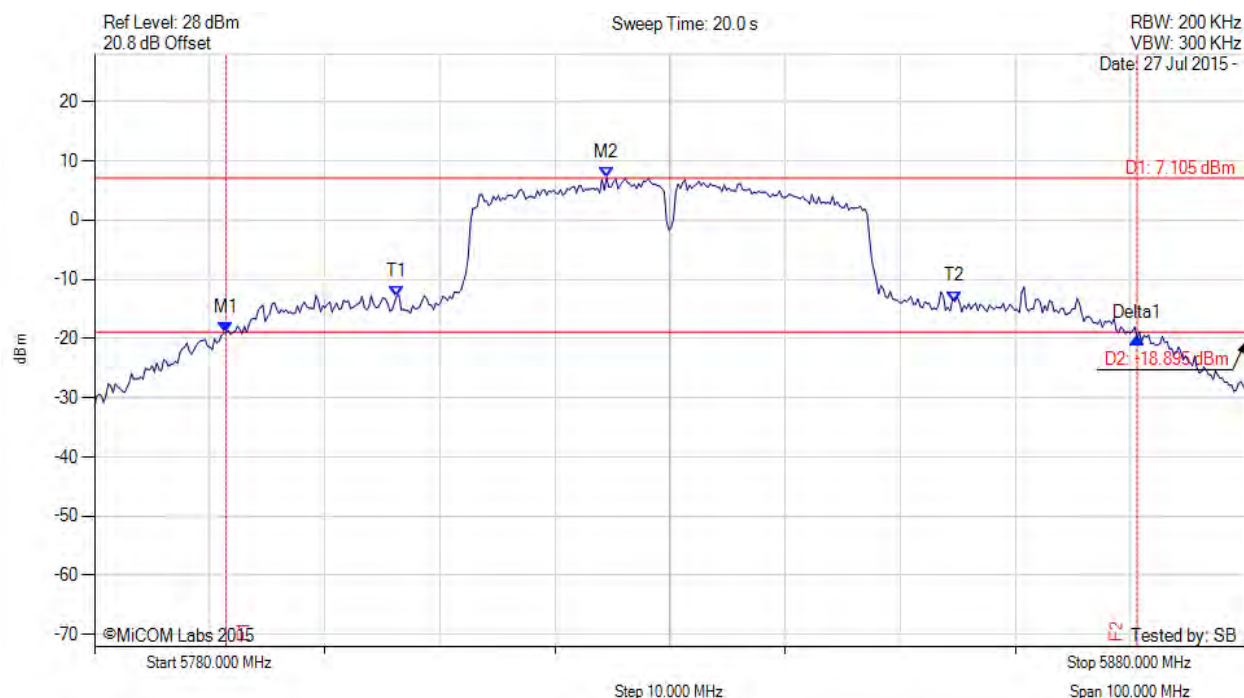
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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5830.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5791.423 MHz : -18.957 dBm M2 : 5824.489 MHz : 7.105 dBm Delta1 : 79.158 MHz : -0.970 dB T1 : 5806.253 MHz : -12.854 dBm T2 : 5854.749 MHz : -13.743 dBm OBW : 48.497 MHz	Measured 26 dB Bandwidth: 79.158 MHz Measured 99% Bandwidth: 48.497 MHz

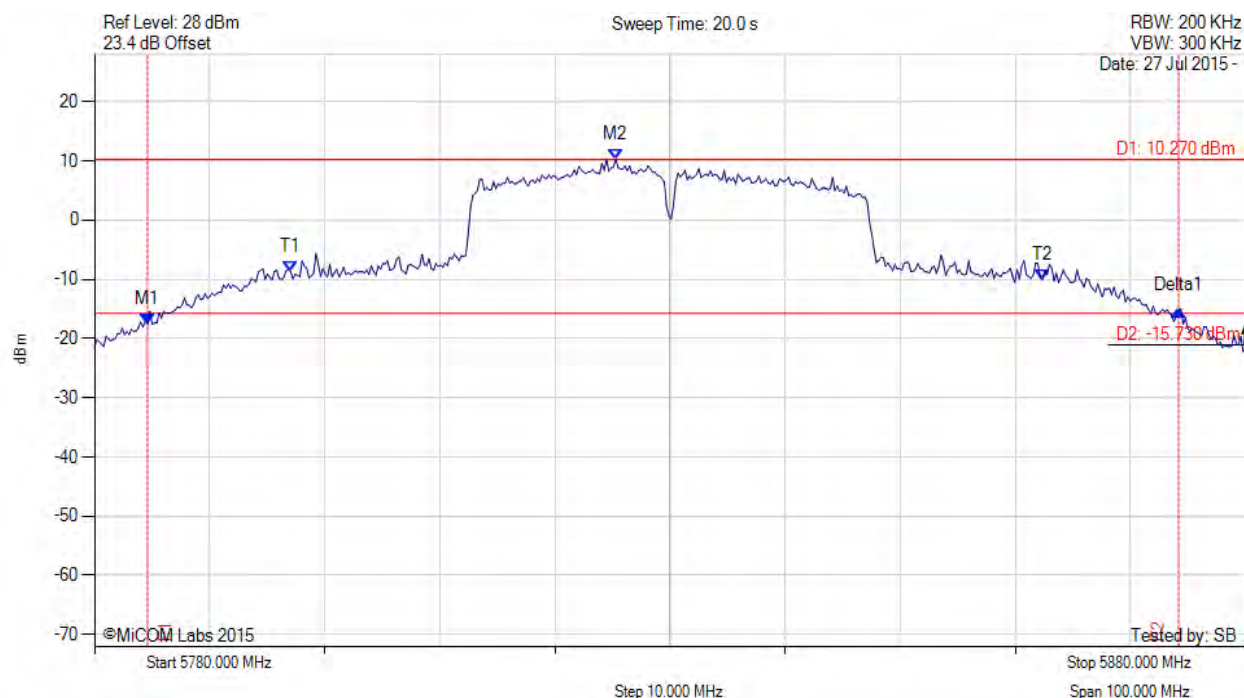
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26 dB & 99% BANDWIDTH

Variant: 40 MHz, Channel: 5830.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5784.609 MHz : -17.521 dBm M2 : 5825.291 MHz : 10.270 dBm Delta1 : 89.579 MHz : 2.286 dB T1 : 5797.034 MHz : -8.719 dBm T2 : 5862.365 MHz : -10.055 dBm OBW : 65.331 MHz	Measured 26 dB Bandwidth: 89.579 MHz Measured 99% Bandwidth: 65.331 MHz

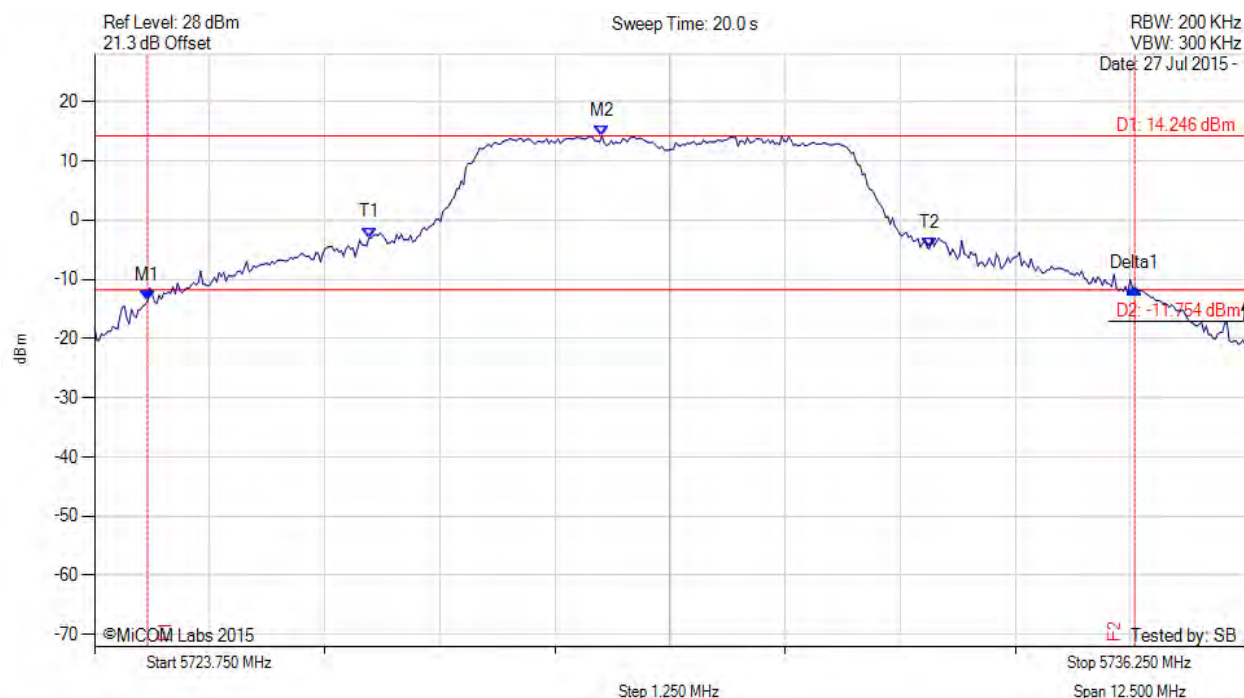
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5730.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5724.326 MHz : -13.578 dBm M2 : 5729.261 MHz : 14.246 dBm Delta1 : 10.721 MHz : 2.024 dB T1 : 5726.731 MHz : -2.996 dBm T2 : 5732.818 MHz : -4.841 dBm OBW : 6.087 MHz	Measured 26 dB Bandwidth: 10.721 MHz Measured 99% Bandwidth: 6.087 MHz

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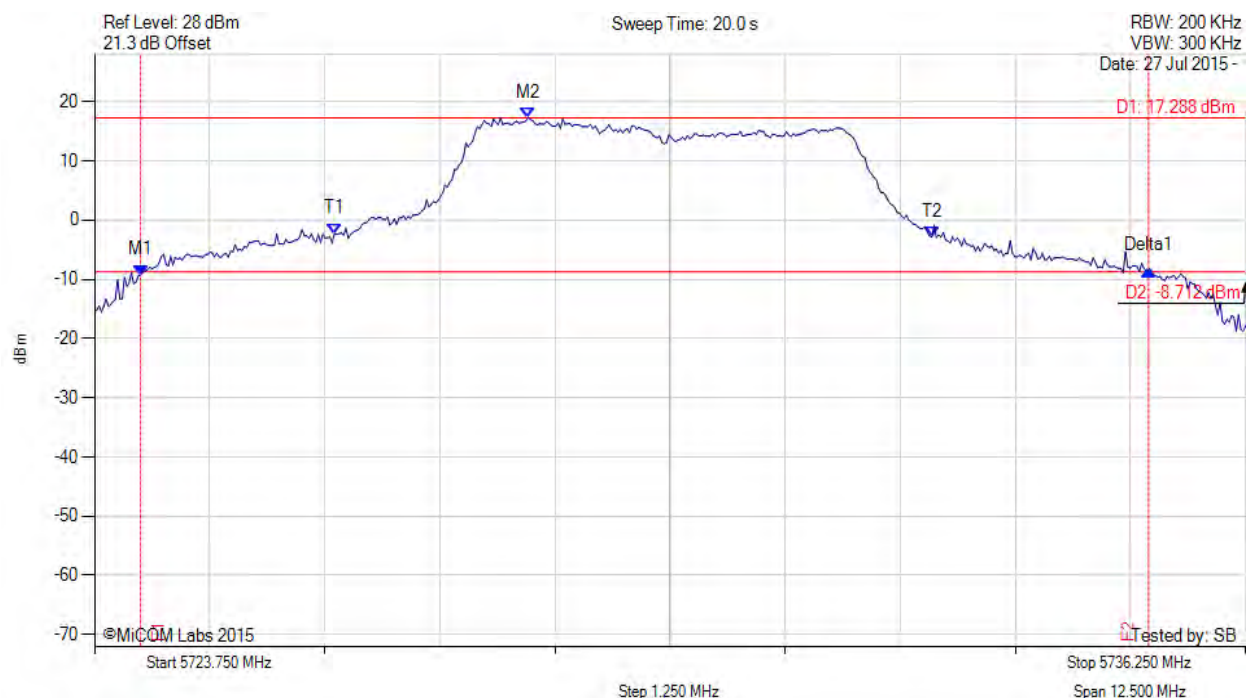


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5730.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5724.251 MHz : -9.303 dBm M2 : 5728.459 MHz : 17.288 dBm Delta1 : 10.947 MHz : 0.907 dB T1 : 5726.355 MHz : -2.291 dBm T2 : 5732.843 MHz : -2.832 dBm OBW : 6.488 MHz	Measured 26 dB Bandwidth: 10.947 MHz Measured 99% Bandwidth: 6.488 MHz

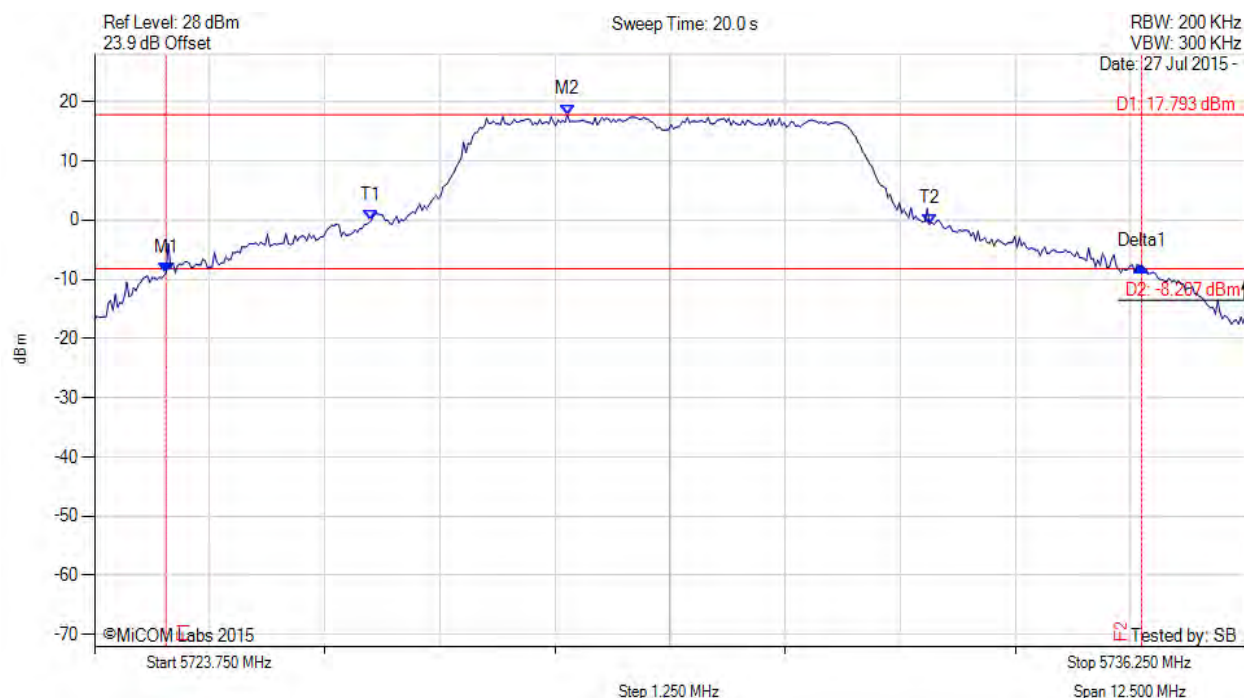
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5730.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5724.527 MHz : -8.872 dBm M2 : 5728.885 MHz : 17.793 dBm Delta1 : 10.596 MHz : 1.133 dB T1 : 5726.756 MHz : -0.110 dBm T2 : 5732.818 MHz : -0.664 dBm OBW : 6.062 MHz	Measured 26 dB Bandwidth: 10.596 MHz Measured 99% Bandwidth: 6.062 MHz

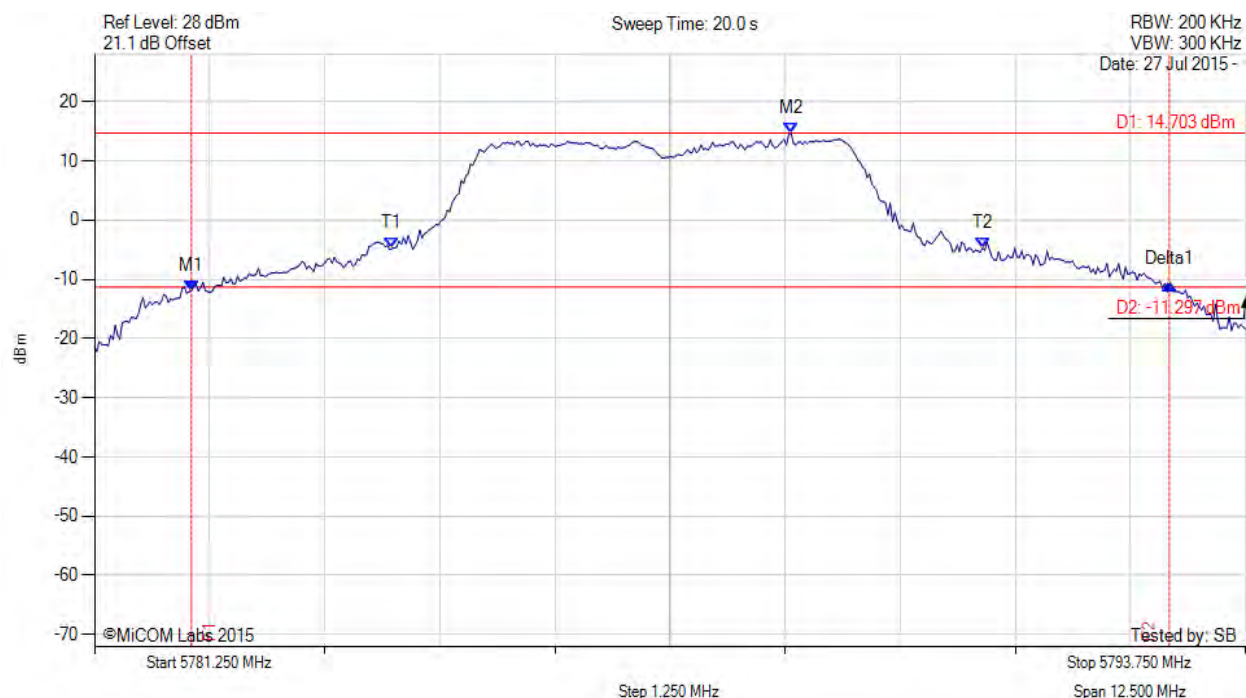
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5787.50 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5782.302 MHz : -11.957 dBm M2 : 5788.815 MHz : 14.703 dBm Delta1 : 10.621 MHz : 1.117 dB T1 : 5784.481 MHz : -4.792 dBm T2 : 5790.894 MHz : -4.717 dBm OBW : 6.413 MHz	Measured 26 dB Bandwidth: 10.621 MHz Measured 99% Bandwidth: 6.413 MHz

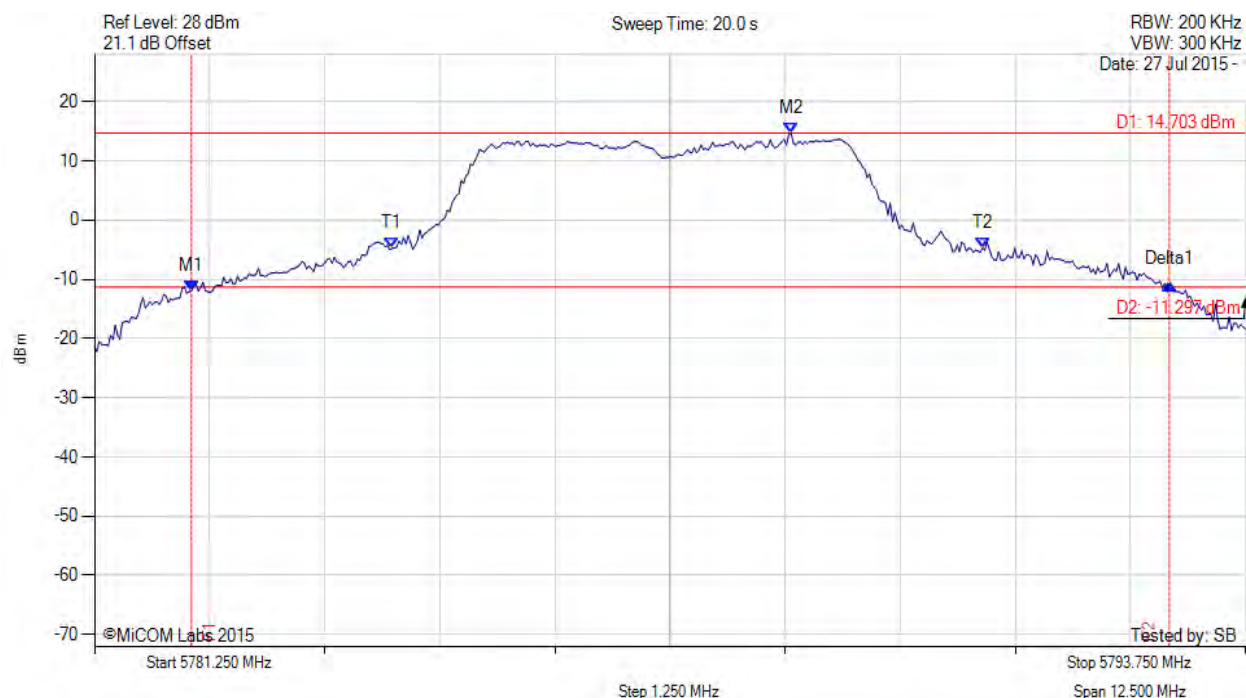
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5787.50 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5782.302 MHz : -11.957 dBm M2 : 5788.815 MHz : 14.703 dBm Delta1 : 10.621 MHz : 1.117 dB T1 : 5784.481 MHz : -4.792 dBm T2 : 5790.894 MHz : -4.717 dBm OBW : 6.413 MHz	Measured 26 dB Bandwidth: 10.621 MHz Measured 99% Bandwidth: 6.413 MHz

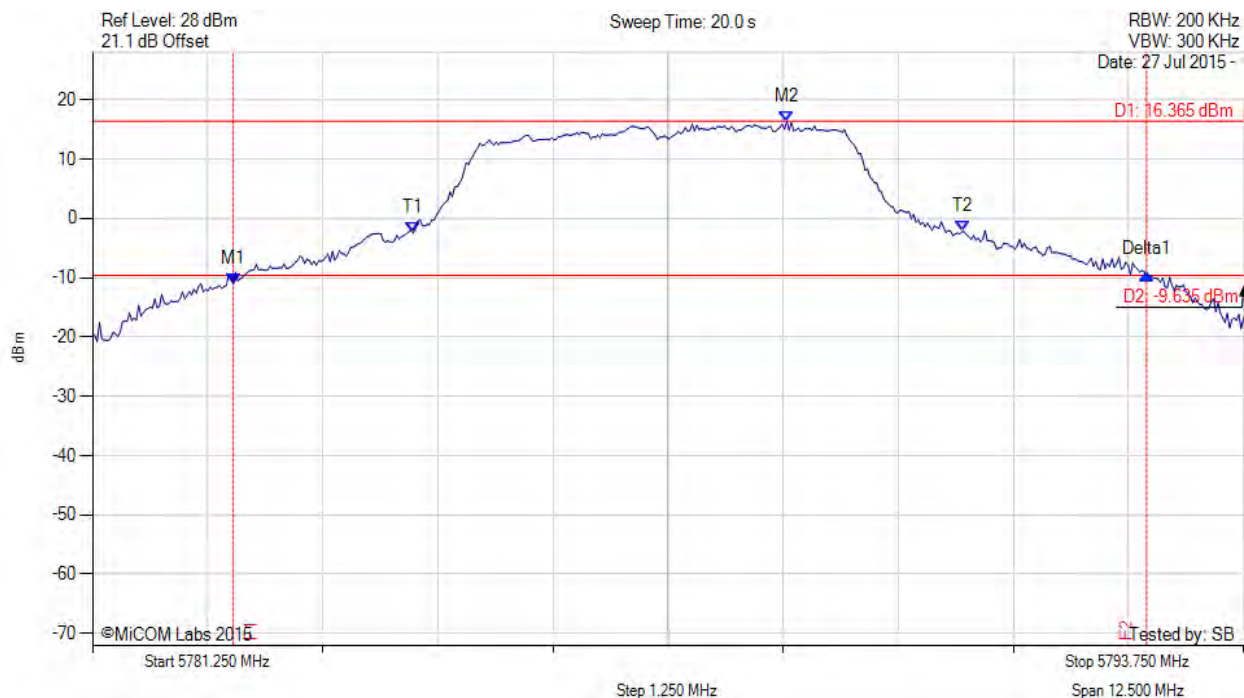
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5787.50 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5782.778 MHz : -11.050 dBm M2 : 5788.790 MHz : 16.365 dBm Delta1 : 9.920 MHz : 1.690 dB T1 : 5784.732 MHz : -2.449 dBm T2 : 5790.694 MHz : -2.211 dBm OBW : 5.962 MHz	Measured 26 dB Bandwidth: 9.920 MHz Measured 99% Bandwidth: 5.962 MHz

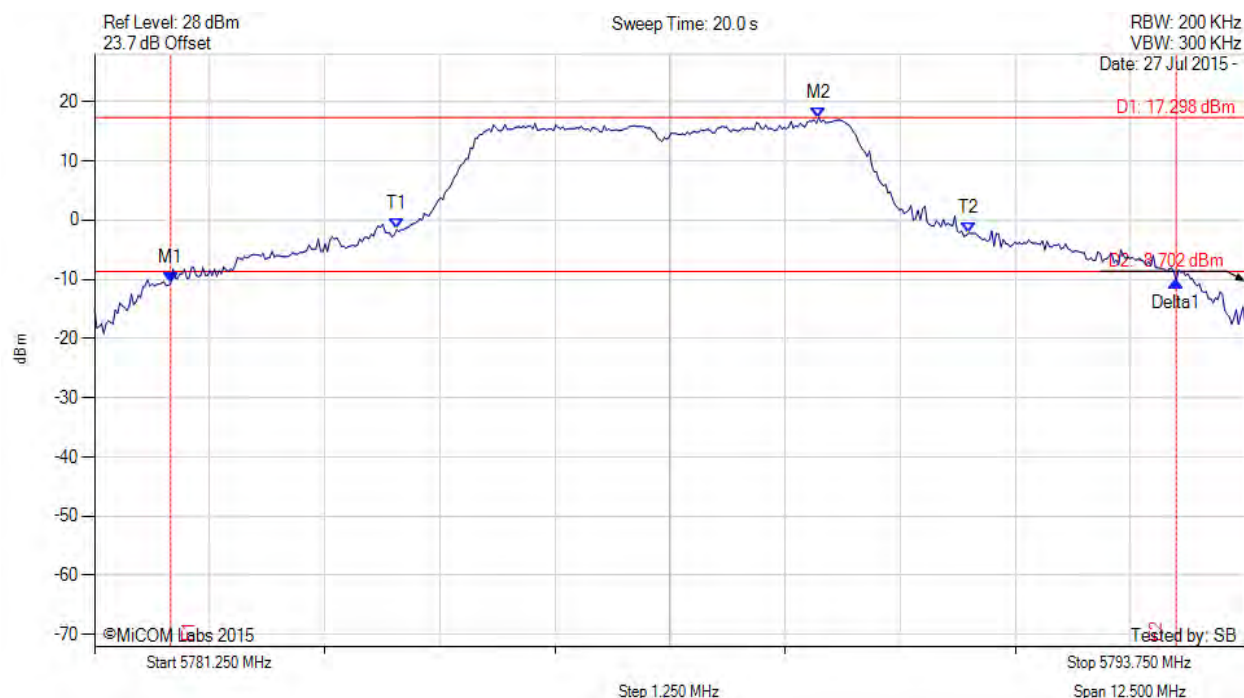
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5787.50 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5782.077 MHz : -10.674 dBm M2 : 5789.116 MHz : 17.298 dBm Delta1 : 10.922 MHz : 0.329 dB T1 : 5784.532 MHz : -1.579 dBm T2 : 5790.744 MHz : -2.199 dBm OBW : 6.212 MHz	Measured 26 dB Bandwidth: 10.922 MHz Measured 99% Bandwidth: 6.212 MHz

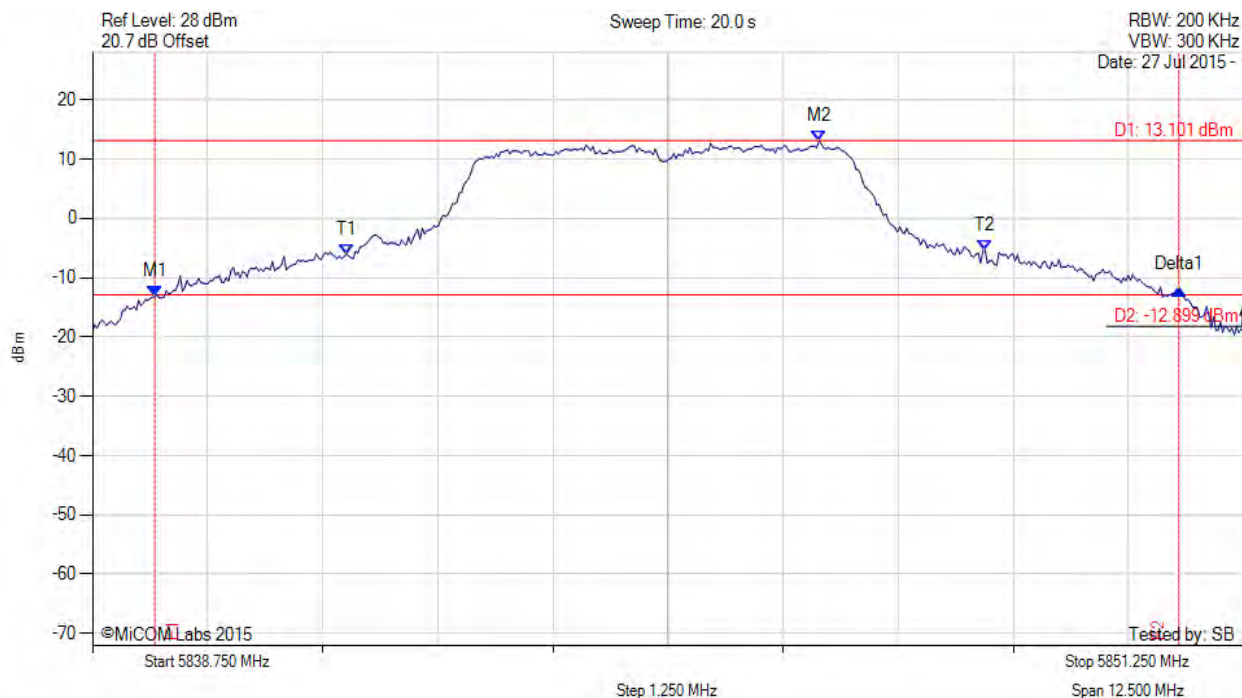
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5845.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5839.426 MHz : -13.240 dBm M2 : 5846.641 MHz : 13.101 dBm Delta1 : 11.122 MHz : 1.234 dB T1 : 5841.506 MHz : -6.053 dBm T2 : 5848.444 MHz : -5.427 dBm OBW : 6.939 MHz	Measured 26 dB Bandwidth: 11.122 MHz Measured 99% Bandwidth: 6.939 MHz

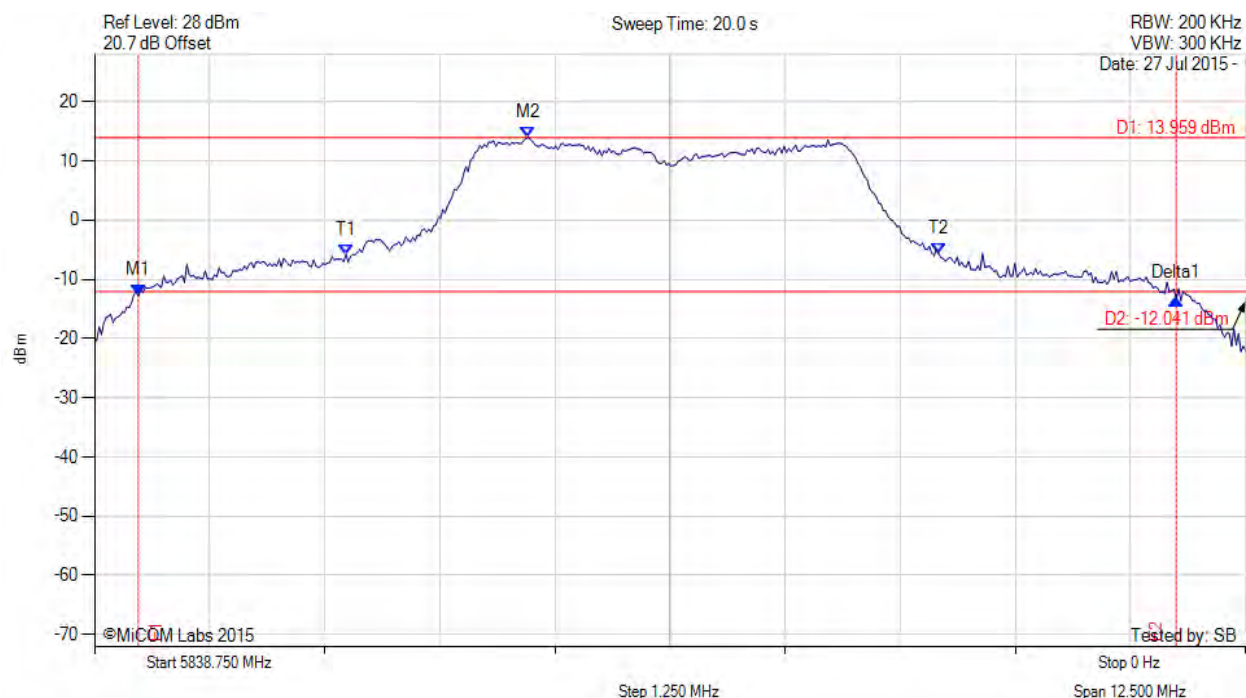
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5845.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5839.226 MHz : -12.760 dBm M2 : 5843.459 MHz : 13.959 dBm Delta1 : 11.273 MHz : -0.504 dB T1 : 5841.480 MHz : -5.846 dBm T2 : 5847.918 MHz : -5.665 dBm OBW : 6.438 MHz	Measured 26 dB Bandwidth: 11.273 MHz Measured 99% Bandwidth: 6.438 MHz

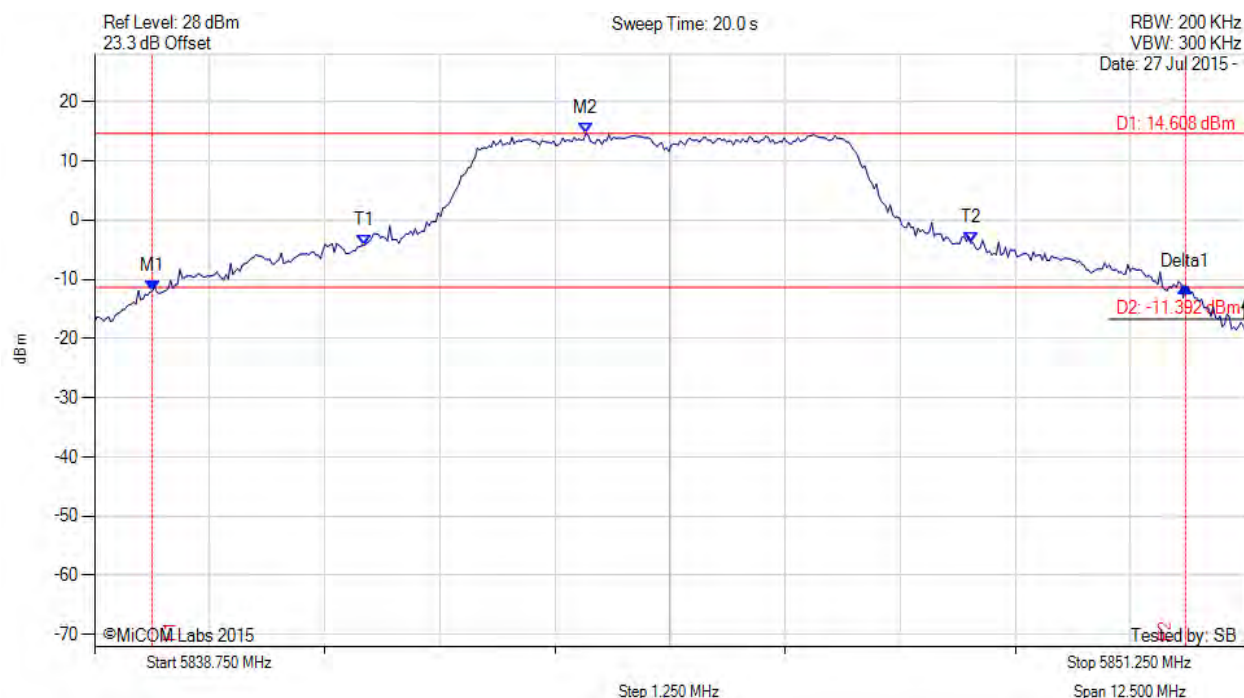
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26 dB & 99% BANDWIDTH

Variant: 5 MHz, Channel: 5845.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5839.376 MHz : -11.994 dBm M2 : 5844.086 MHz : 14.608 dBm Delta1 : 11.222 MHz : 0.669 dB T1 : 5841.681 MHz : -4.229 dBm T2 : 5848.269 MHz : -3.912 dBm OBW : 6.588 MHz	Measured 26 dB Bandwidth: 11.222 MHz Measured 99% Bandwidth: 6.588 MHz

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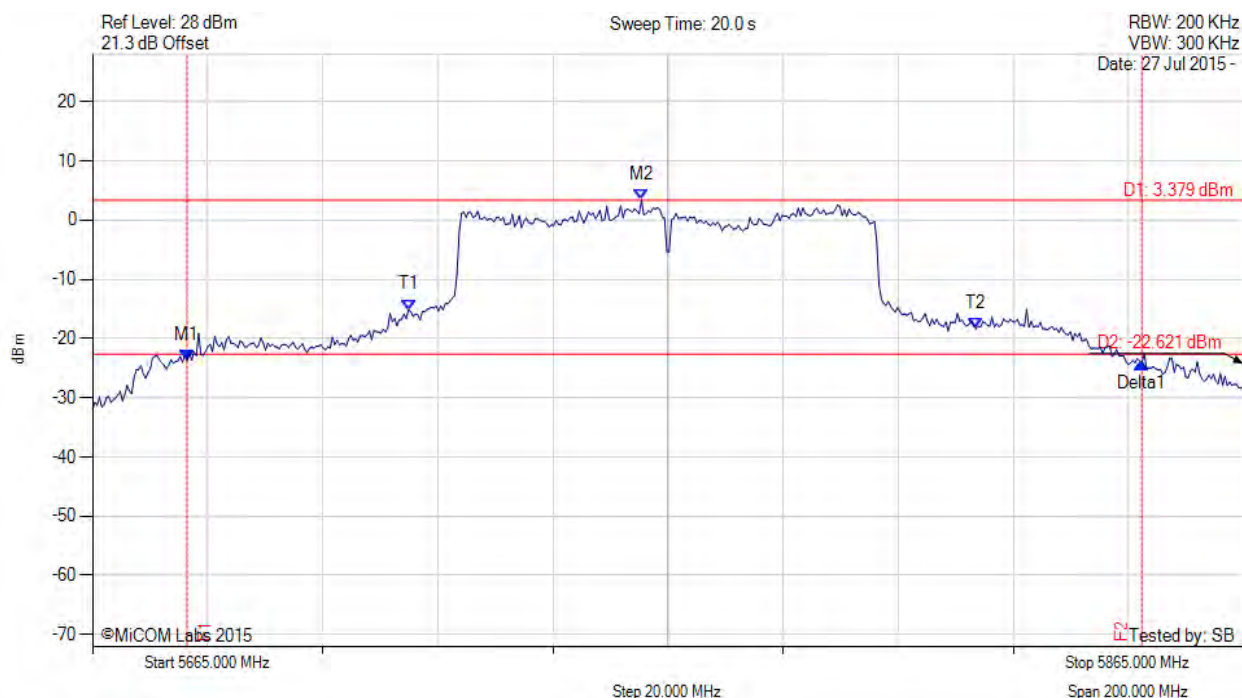


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
Issue Date: 20th August 2015
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5765.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5681.433 MHz : -23.700 dBm M2 : 5760.391 MHz : 3.379 dBm Delta1 : 5865.000 MHz : -22.621 dBm T1 : 5719.910 MHz : -15.140 dBm T2 : 5818.507 MHz : -18.373 dBm OBW : 98.597 MHz	Measured 26 dB Bandwidth: 165.932 MHz Measured 99% Bandwidth: 98.597 MHz

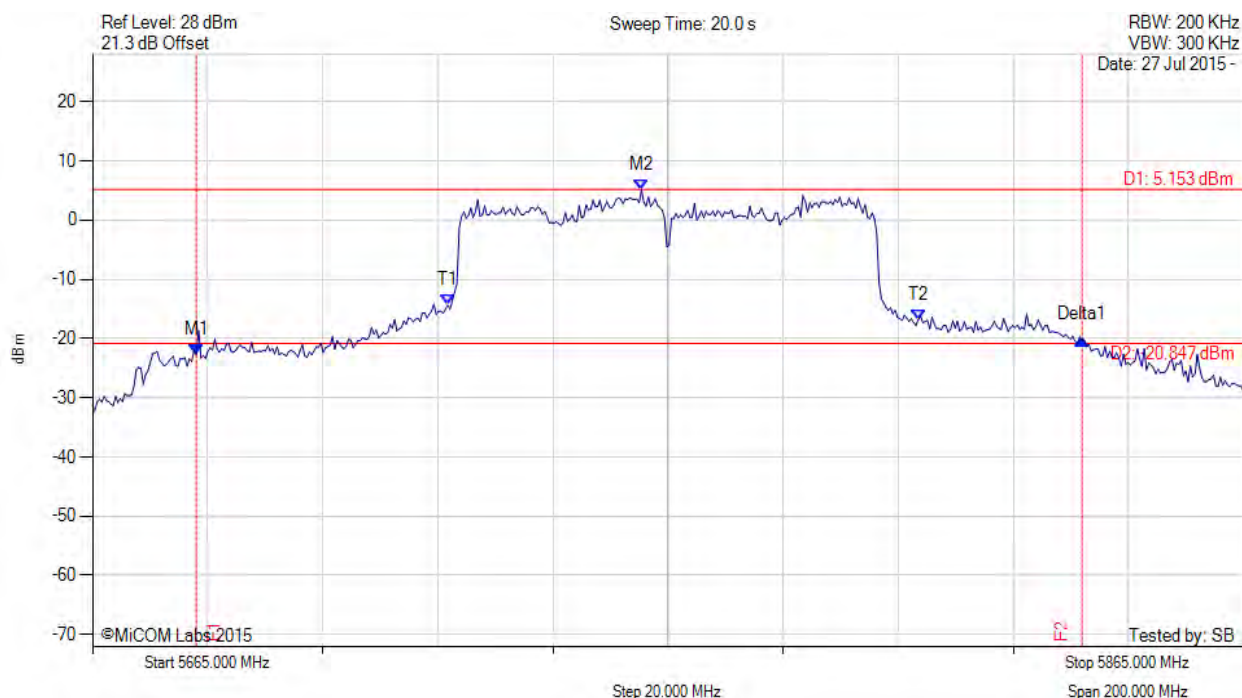
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5765.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5683.036 MHz : -22.726 dBm M2 : 5760.391 MHz : 5.153 dBm Delta1 : 153.908 MHz : 2.530 dB T1 : 5726.723 MHz : -14.387 dBm T2 : 5808.487 MHz : -16.836 dBm OBW : 81.764 MHz	Measured 26 dB Bandwidth: 153.908 MHz Measured 99% Bandwidth: 81.764 MHz

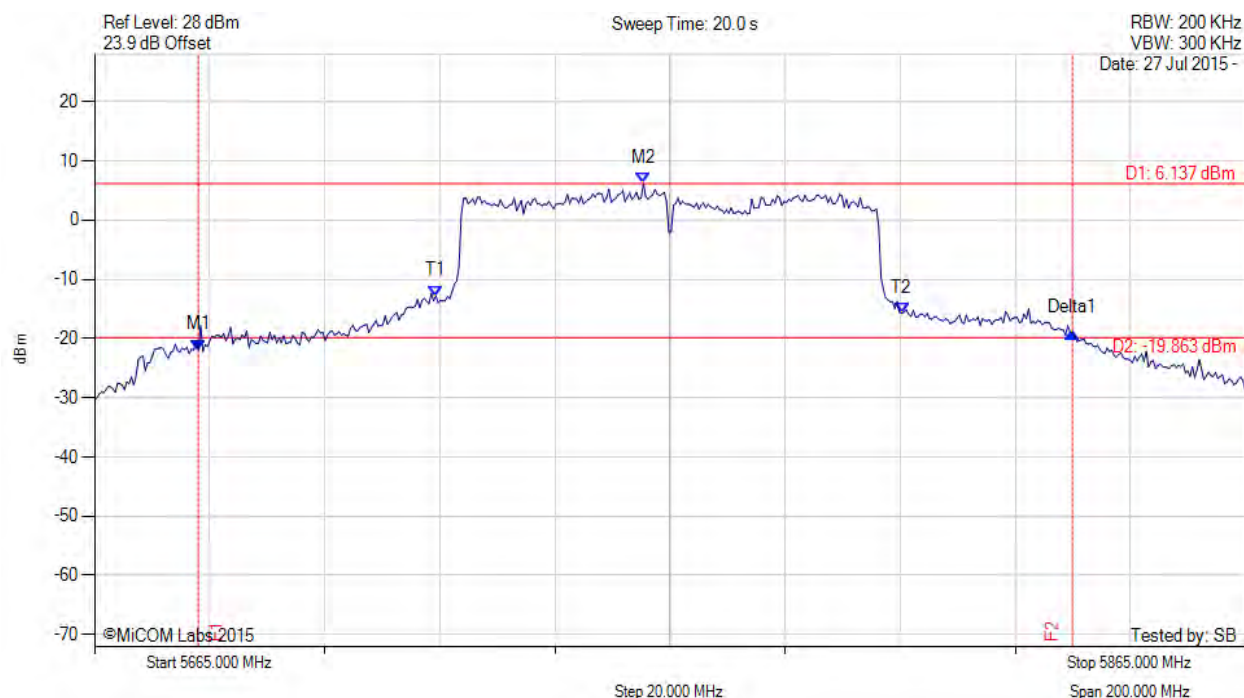
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5765.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5683.036 MHz : -21.933 dBm M2 : 5760.391 MHz : 6.137 dBm Delta1 : 151.904 MHz : 2.977 dB T1 : 5724.319 MHz : -12.797 dBm T2 : 5805.281 MHz : -15.738 dBm OBW : 80.962 MHz	Measured 26 dB Bandwidth: 151.904 MHz Measured 99% Bandwidth: 80.962 MHz

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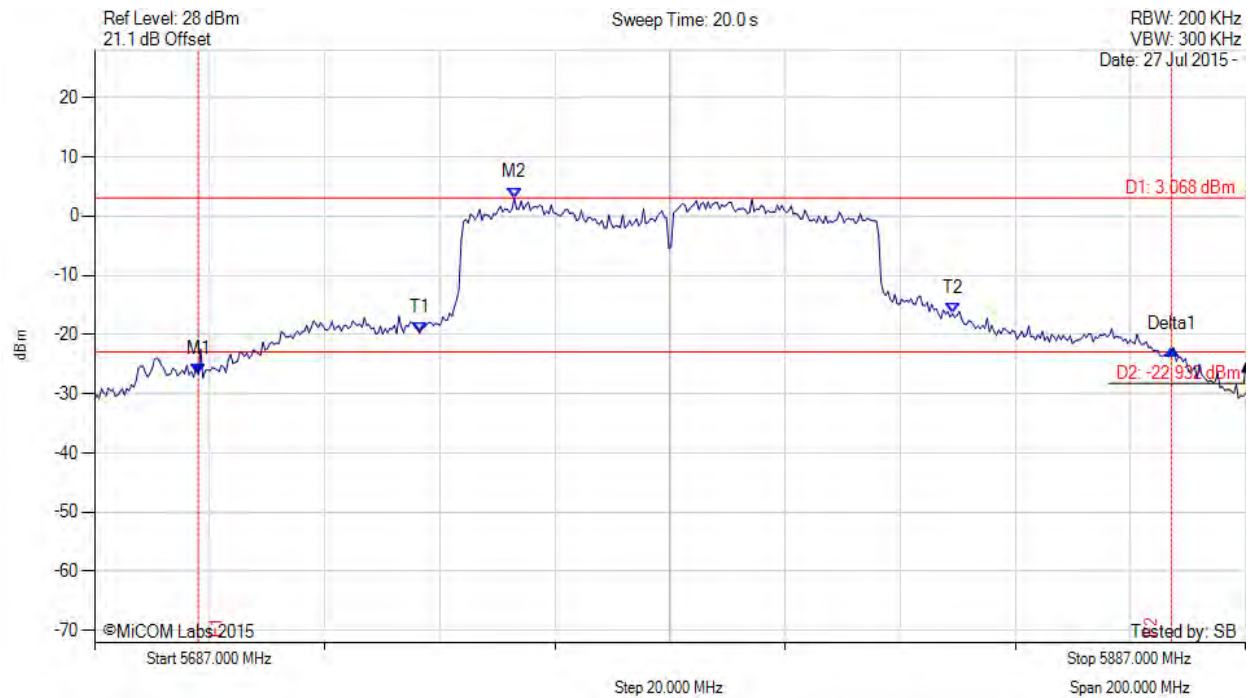


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
Issue Date: 20th August 2015
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5705.036 MHz : -26.685 dBm M2 : 5759.946 MHz : 3.068 dBm Delta1 : 169.138 MHz : 4.157 dB T1 : 5743.513 MHz : -19.754 dBm T2 : 5836.098 MHz : -16.486 dBm OBW : 92.585 MHz	Measured 26 dB Bandwidth: 169.138 MHz Measured 99% Bandwidth: 92.585 MHz

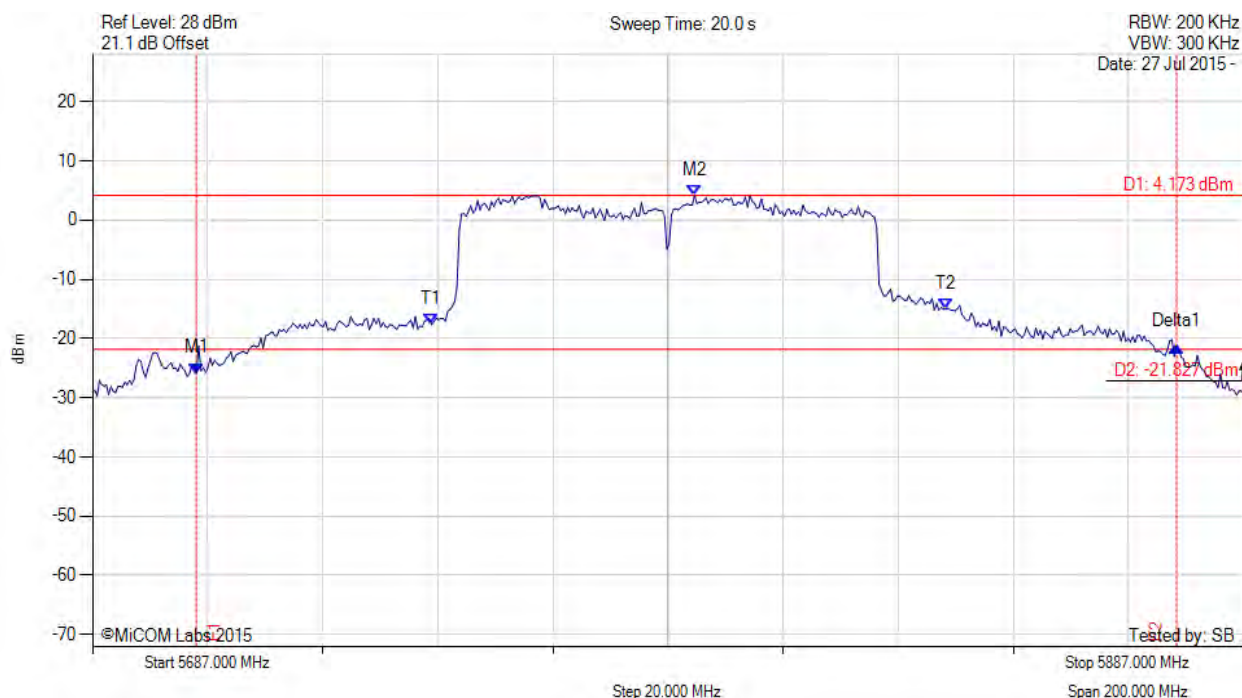
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5705.036 MHz : -25.886 dBm M2 : 5791.609 MHz : 4.173 dBm Delta1 : 170.341 MHz : 4.521 dB T1 : 5745.918 MHz : -17.662 dBm T2 : 5835.297 MHz : -15.018 dBm OBW : 89.379 MHz	Measured 26 dB Bandwidth: 170.341 MHz Measured 99% Bandwidth: 89.379 MHz

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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5694.615 MHz : -18.957 dBm M2 : 5764.355 MHz : 7.122 dBm Delta1 : 179.559 MHz : -0.545 dB T1 : 5729.485 MHz : -12.909 dBm T2 : 5836.900 MHz : -12.394 dBm OBW : 107.415 MHz	Measured 26 dB Bandwidth: 179.559 MHz Measured 99% Bandwidth: 107.415 MHz

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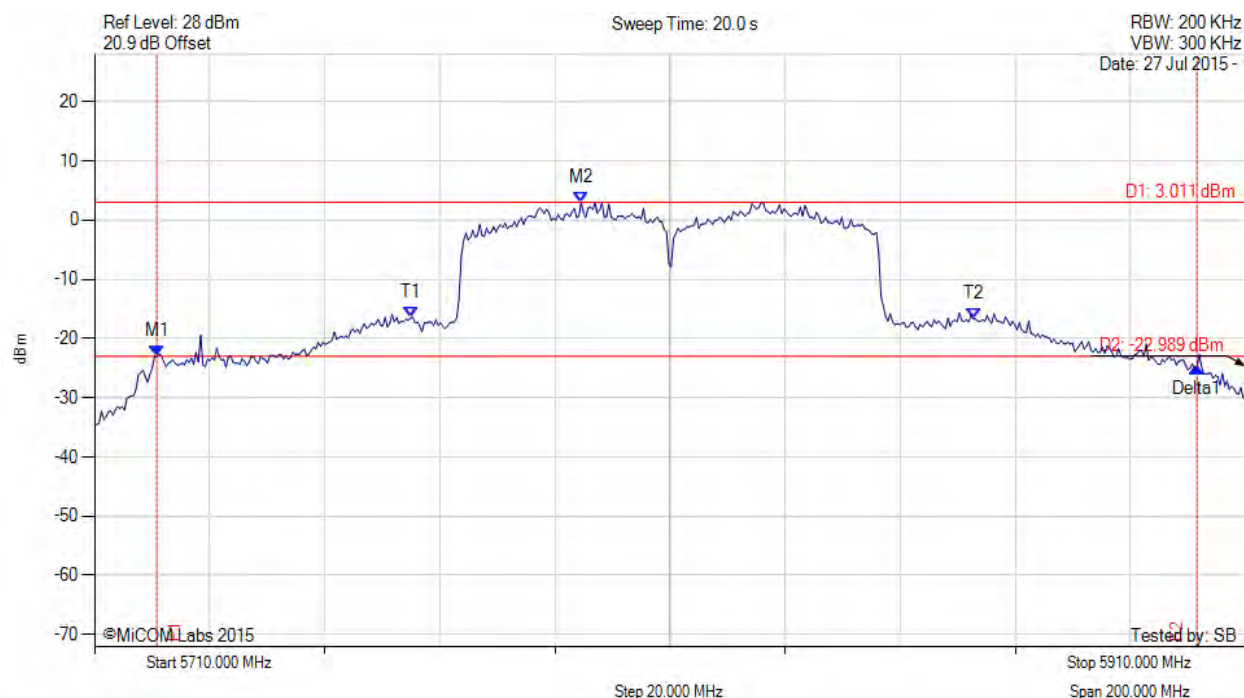


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5810.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5720.822 MHz : -23.000 dBm M2 : 5794.569 MHz : 3.011 dBm Delta1 : 180.762 MHz : -1.843 dB T1 : 5764.910 MHz : -16.531 dBm T2 : 5862.705 MHz : -16.594 dBm OBW : 97.796 MHz	Measured 26 dB Bandwidth: 180.762 MHz Measured 99% Bandwidth: 97.796 MHz

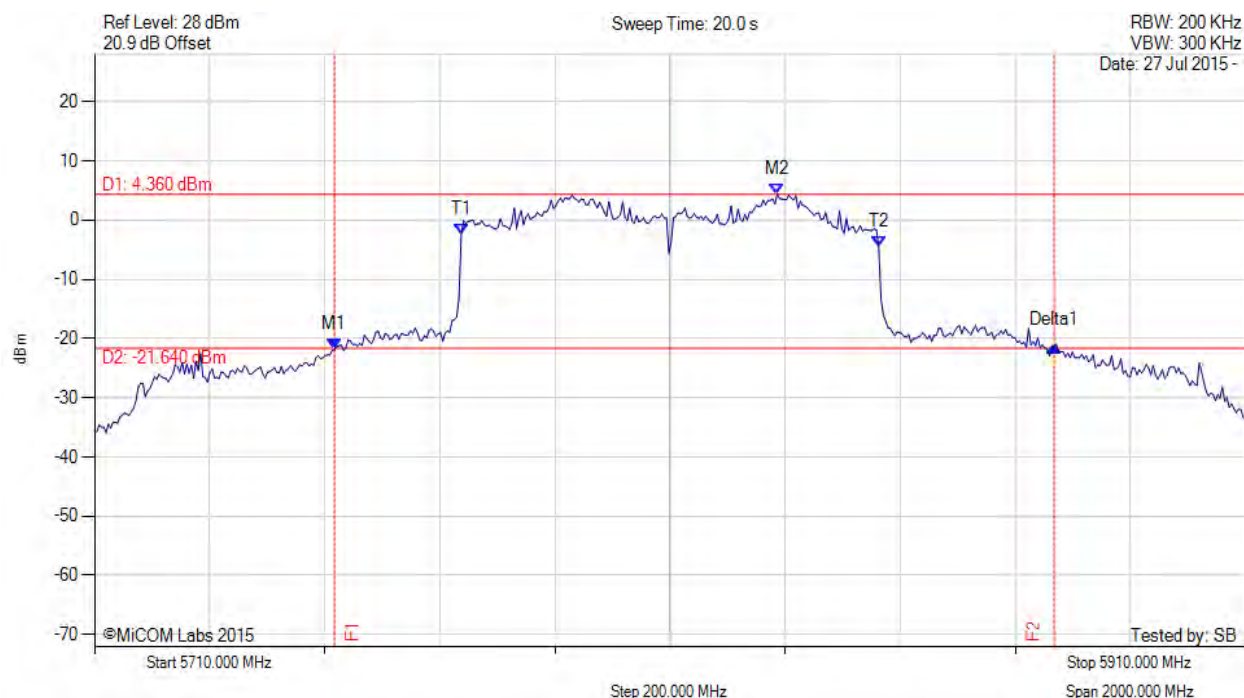
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5810.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5751.683 MHz : -21.890 dBm M2 : 5828.637 MHz : 4.360 dBm Delta1 : 125.050 MHz : 0.671 dB T1 : 5773.727 MHz : -2.386 dBm T2 : 5846.273 MHz : -4.572 dBm OBW : 72.545 MHz	Measured 26 dB Bandwidth: 125.050 MHz Measured 99% Bandwidth: 72.545 MHz

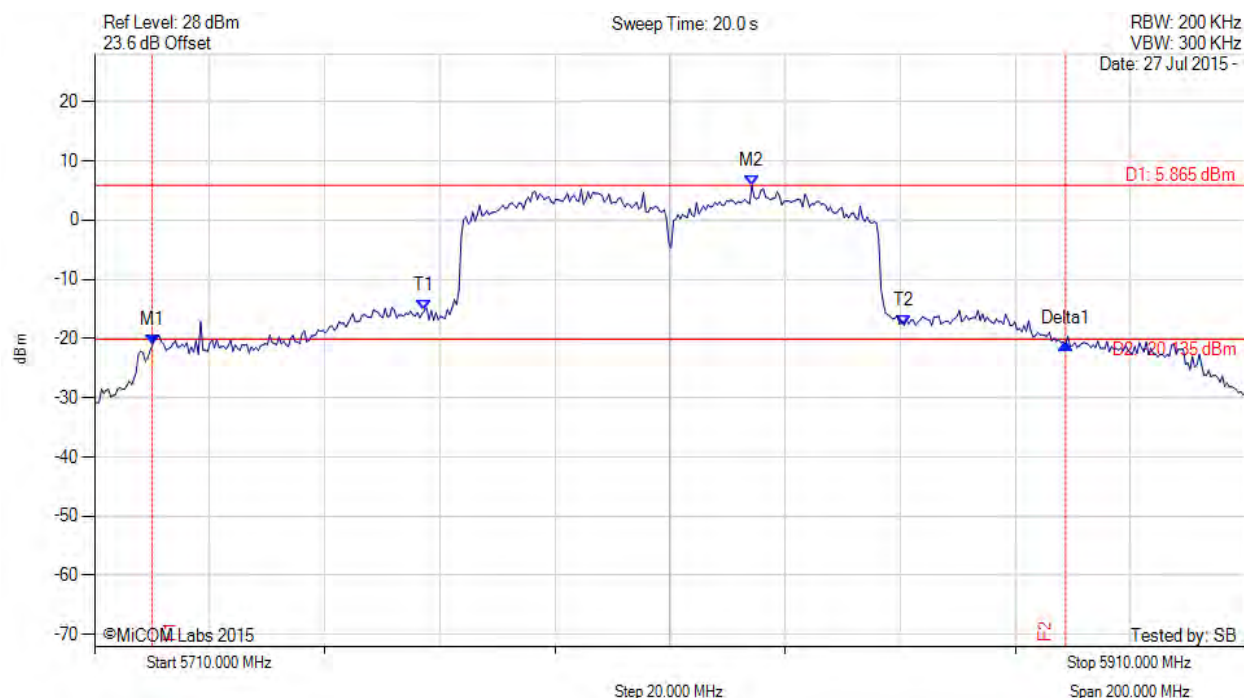
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26 dB & 99% BANDWIDTH

Variant: 80 MHz, Channel: 5810.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5720.020 MHz : -21.186 dBm M2 : 5824.228 MHz : 5.865 dBm Delta1 : 158.717 MHz : 0.291 dB T1 : 5767.315 MHz : -15.327 dBm T2 : 5850.681 MHz : -17.753 dBm OBW : 83.367 MHz	Measured 26 dB Bandwidth: 158.717 MHz Measured 99% Bandwidth: 83.367 MHz

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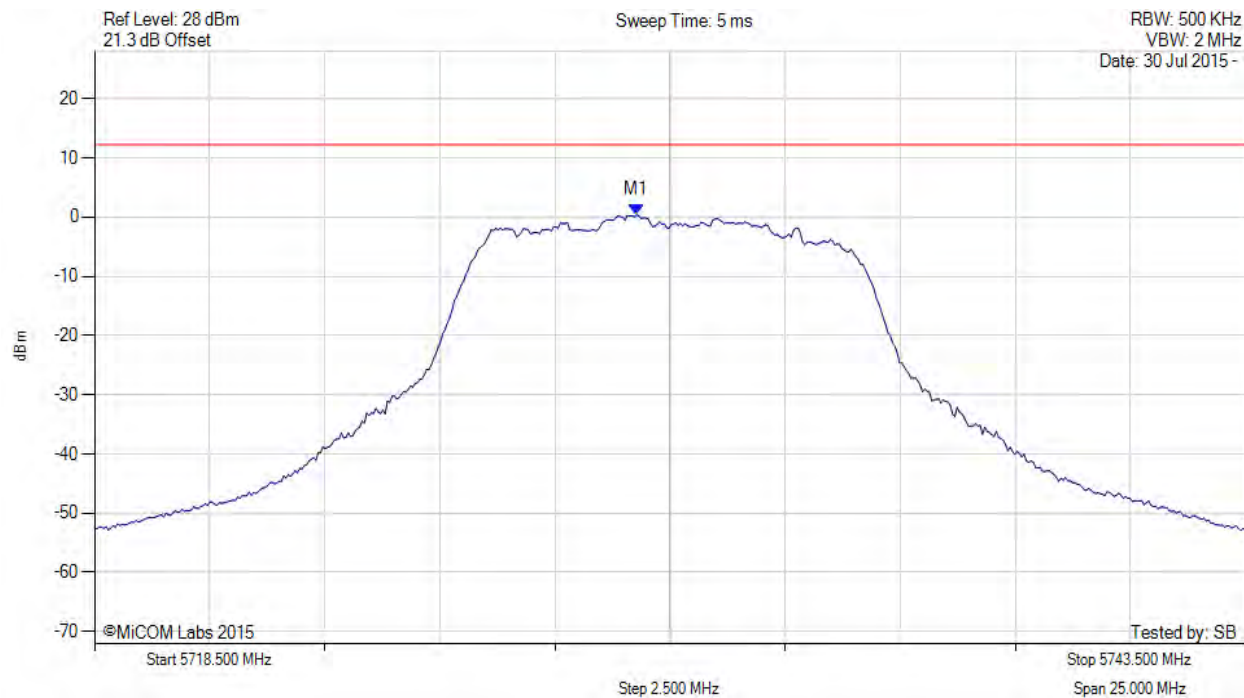
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A.2. Power Spectral Density



POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5731.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5730.274 MHz : 0.364 dBm	Limit: ≤ 12.230 dBm

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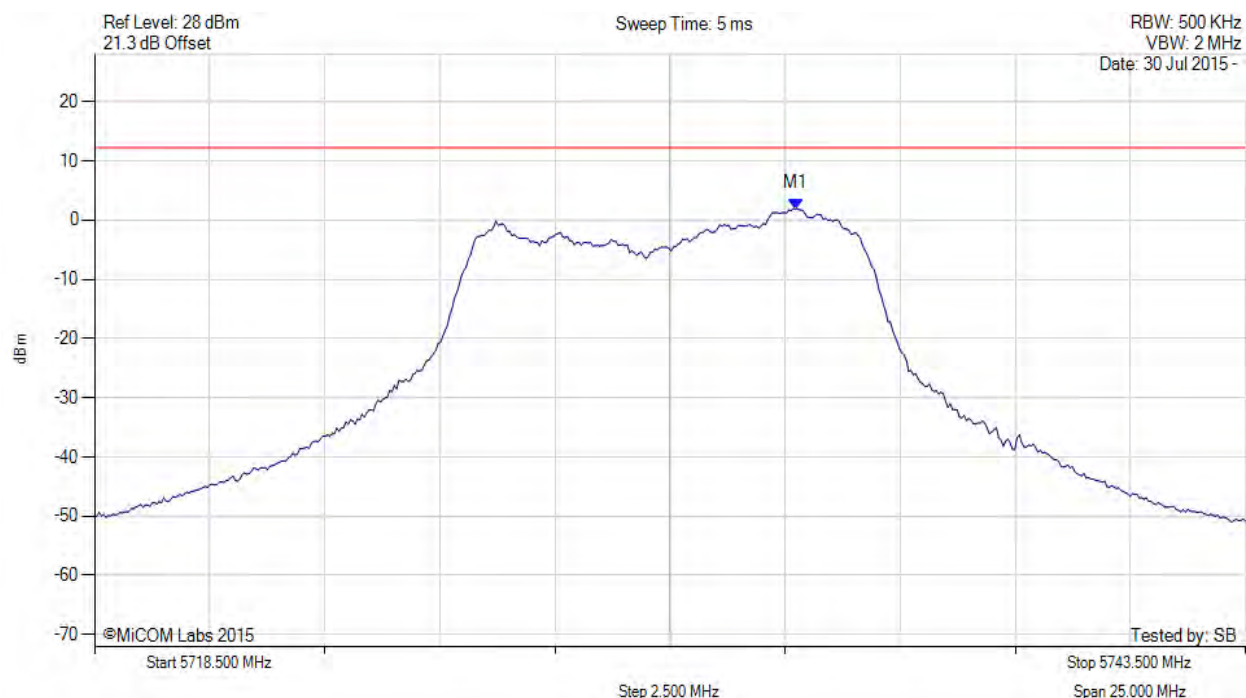


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5731.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5733.730 MHz : 1.922 dBm	Limit: ≤ 12.230 dBm

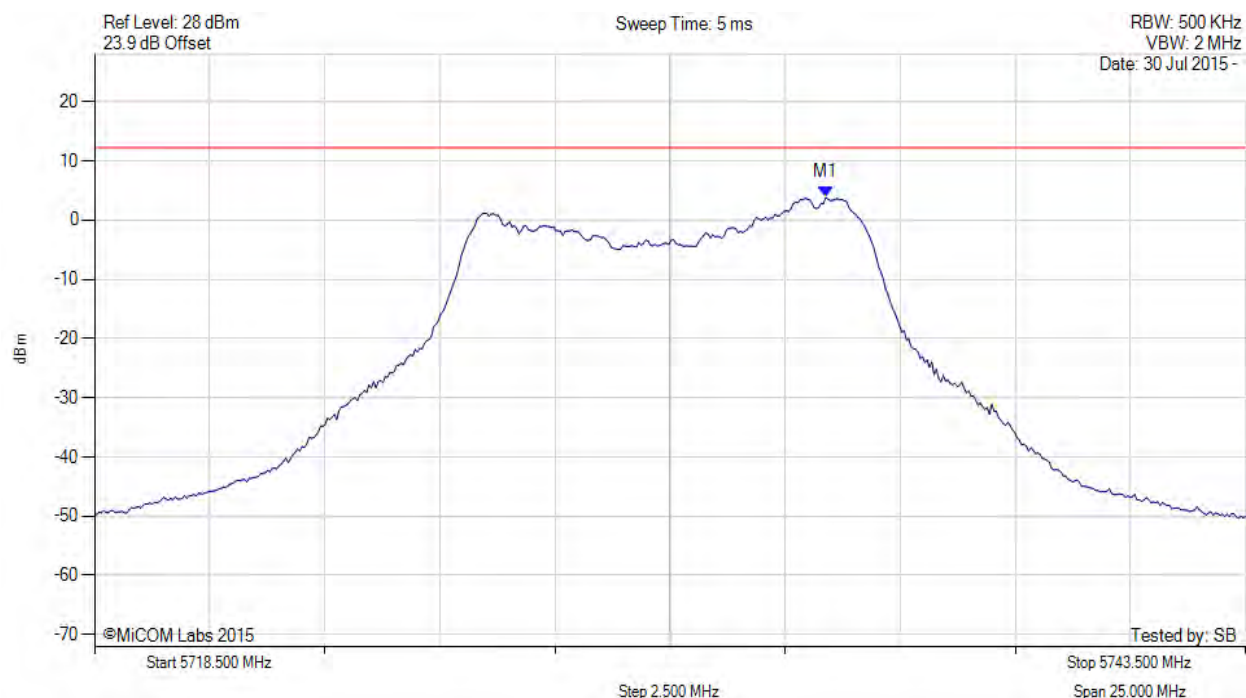
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5731.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



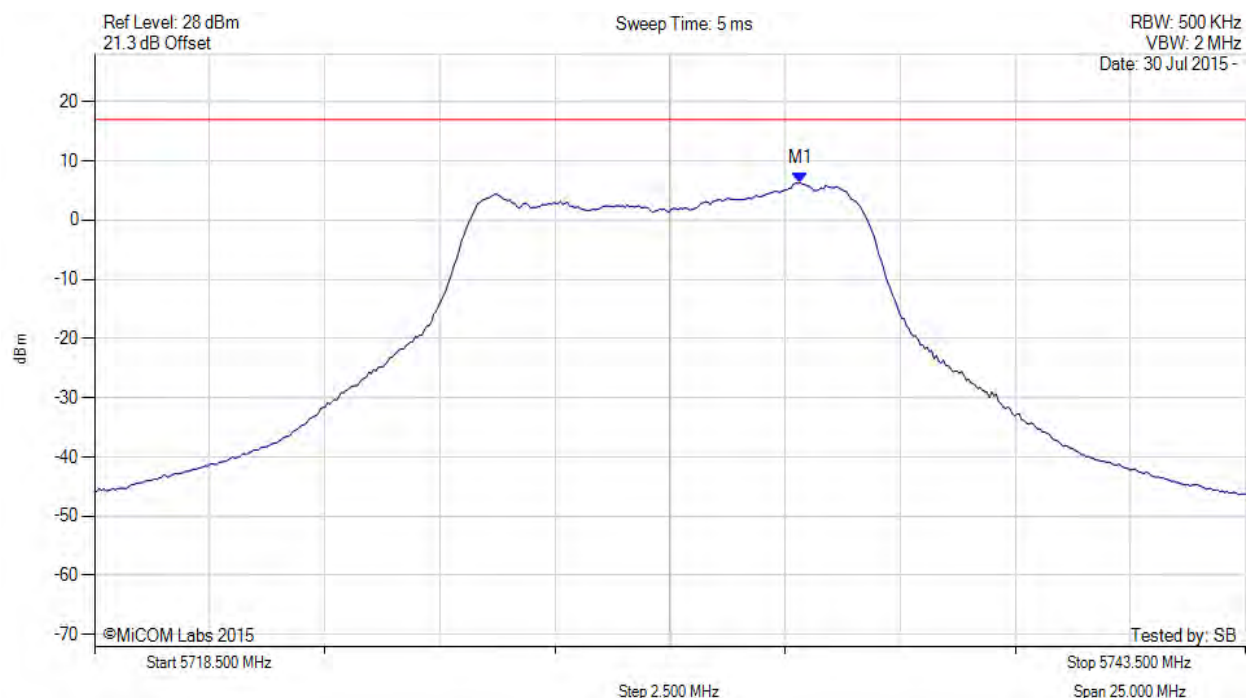
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5734.382 MHz : 3.815 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5731.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



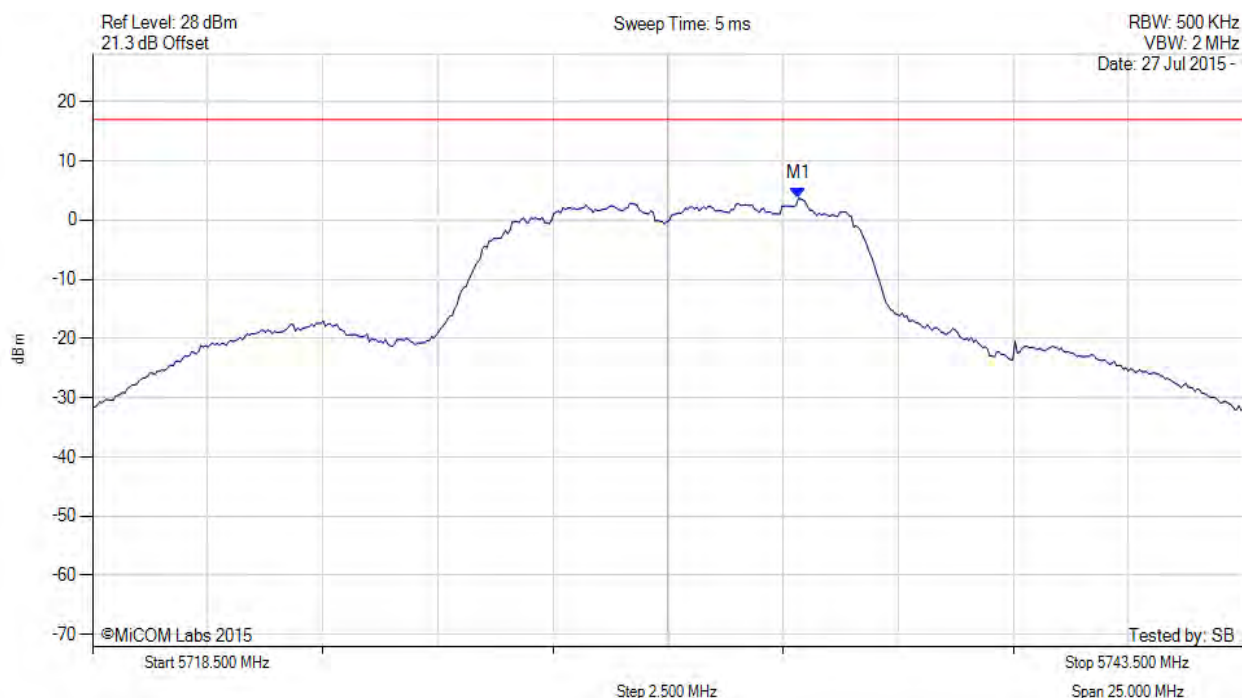
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5733.800 MHz : 6.298 dBm M1 + DCCF : 5733.800 MHz : 6.863 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -10.1 dB

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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5731.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5733.800 MHz : 3.608 dBm M1 + DCCF : 5733.800 MHz : 4.173 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -12.8 dB

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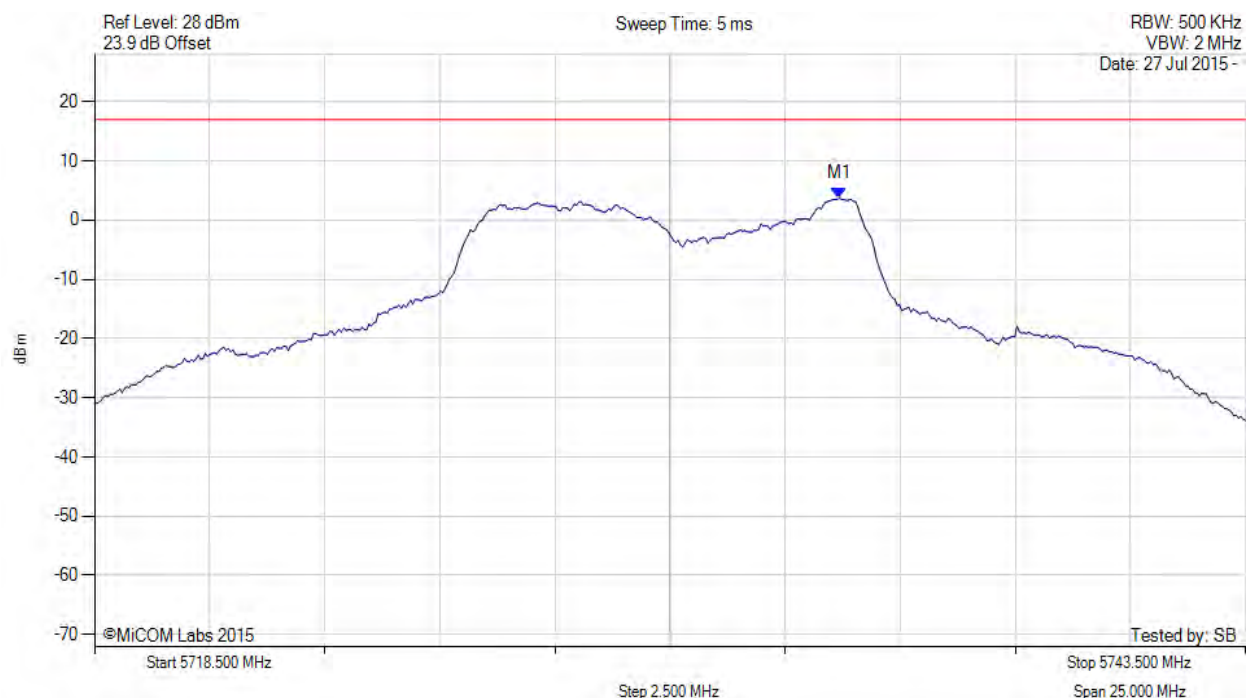


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
Issue Date: 20th August 2015
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5731.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5734.700 MHz : 3.676 dBm M1 + DCCF : 5734.700 MHz : 4.241 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -12.7 dB

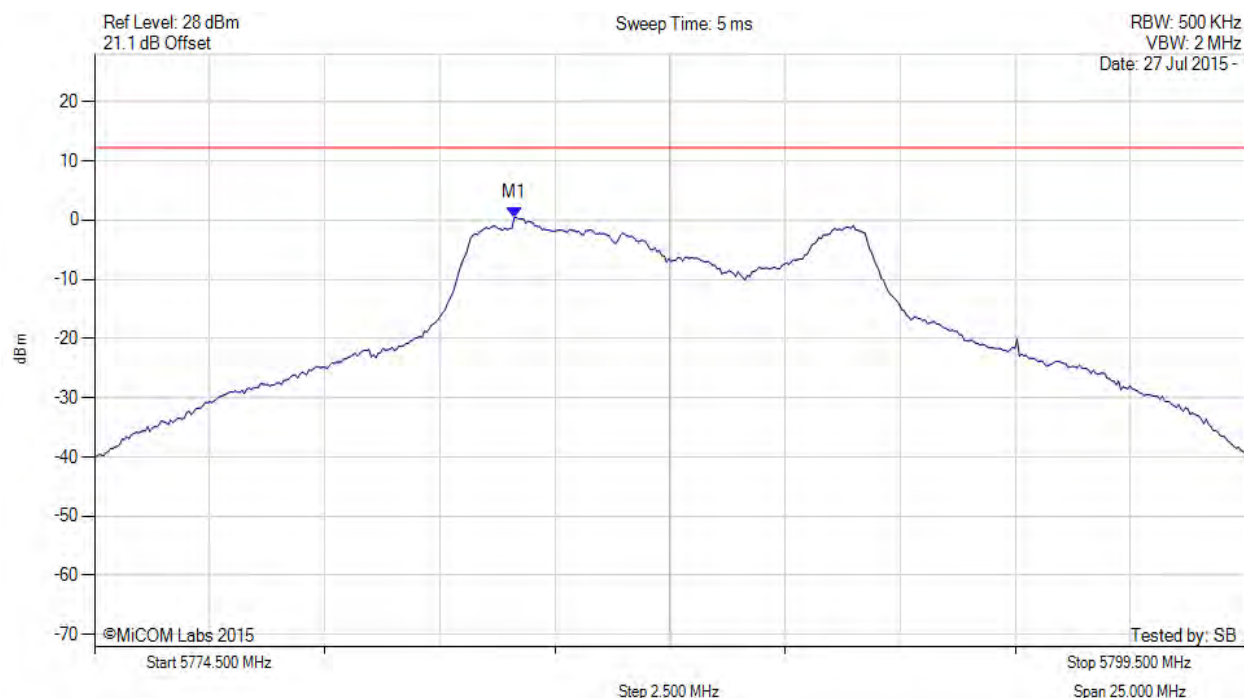
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5783.618 MHz : 0.434 dBm	Limit: ≤ 12.230 dBm

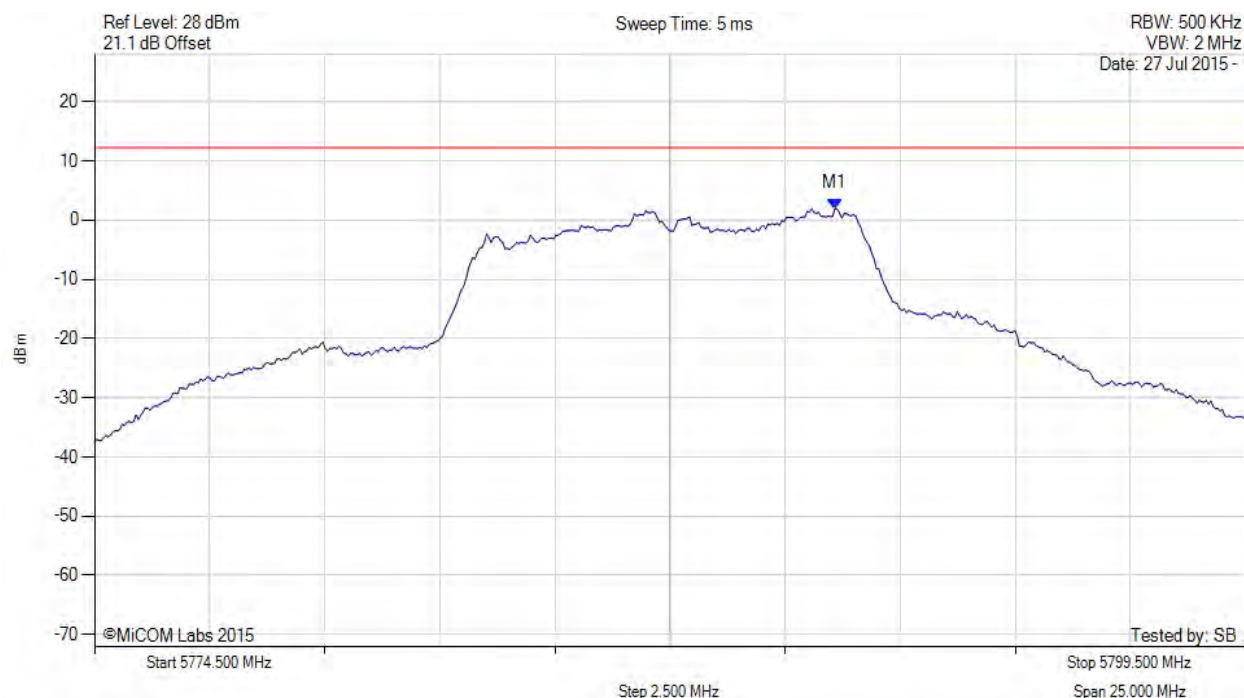
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5790.582 MHz : 1.918 dBm	Channel Frequency: 5787.00 MHz

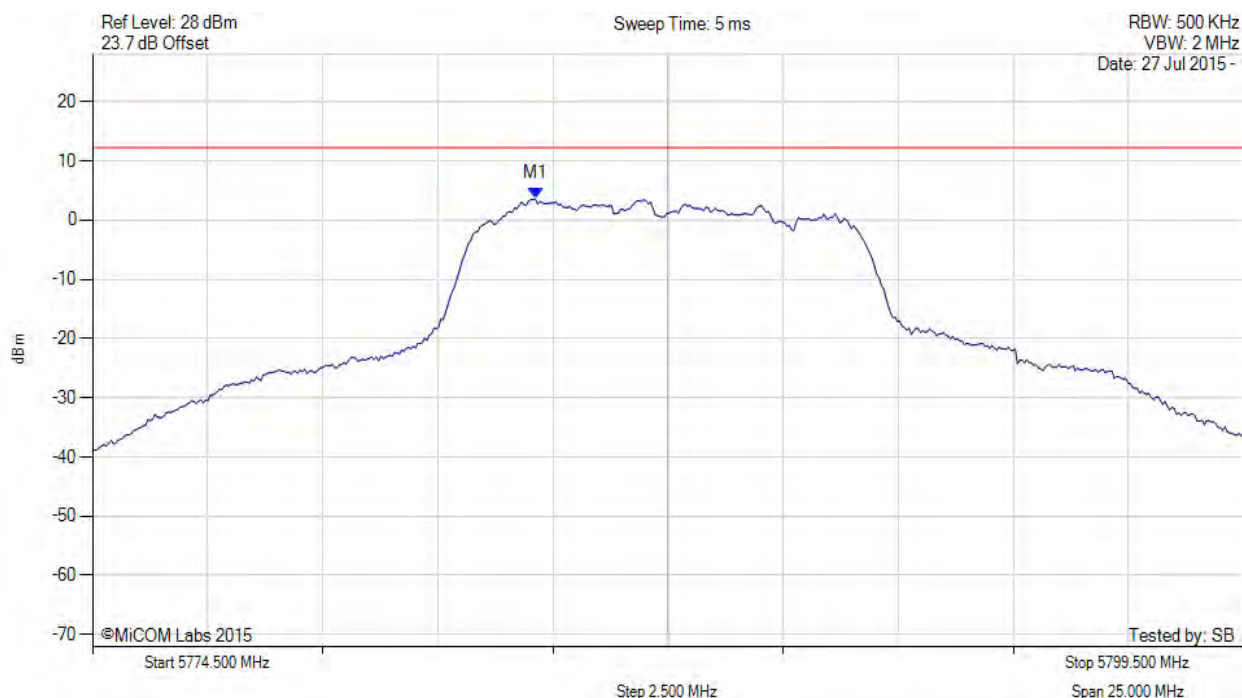
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5784.119 MHz : 3.603 dBm	Limit: ≤ 12.230 dBm

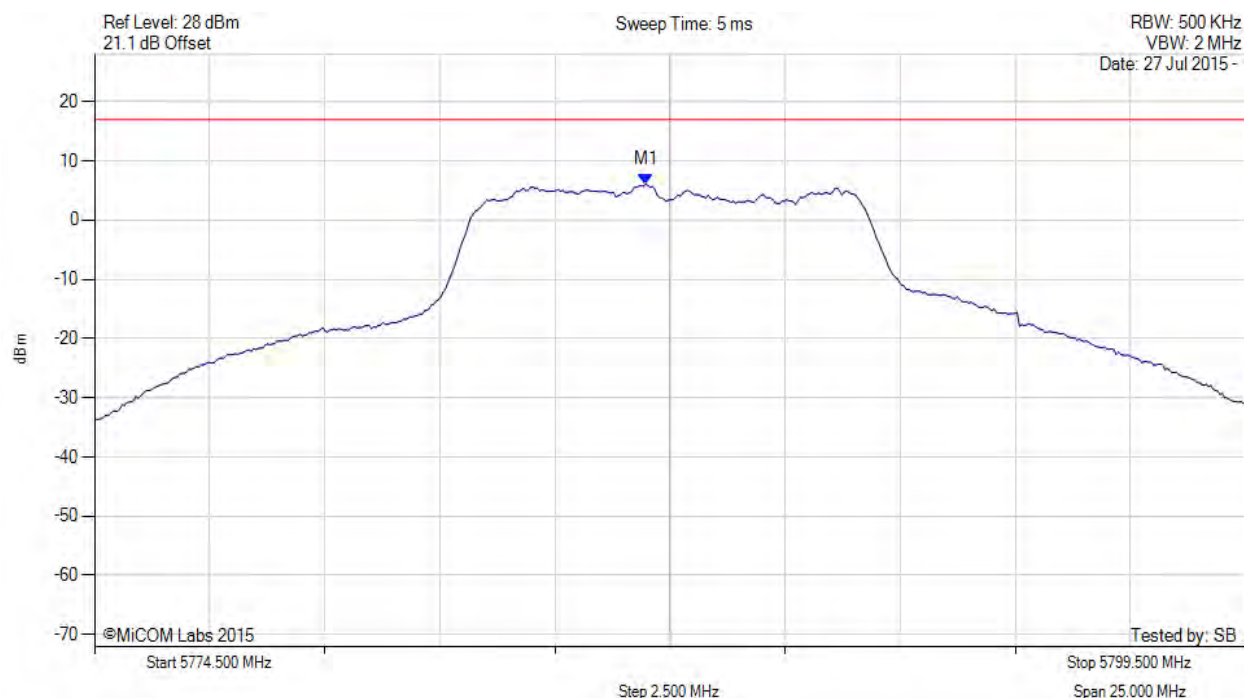
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5786.500 MHz : 6.099 dBm M1 + DCCF : 5786.500 MHz : 6.664 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -10.3 dB

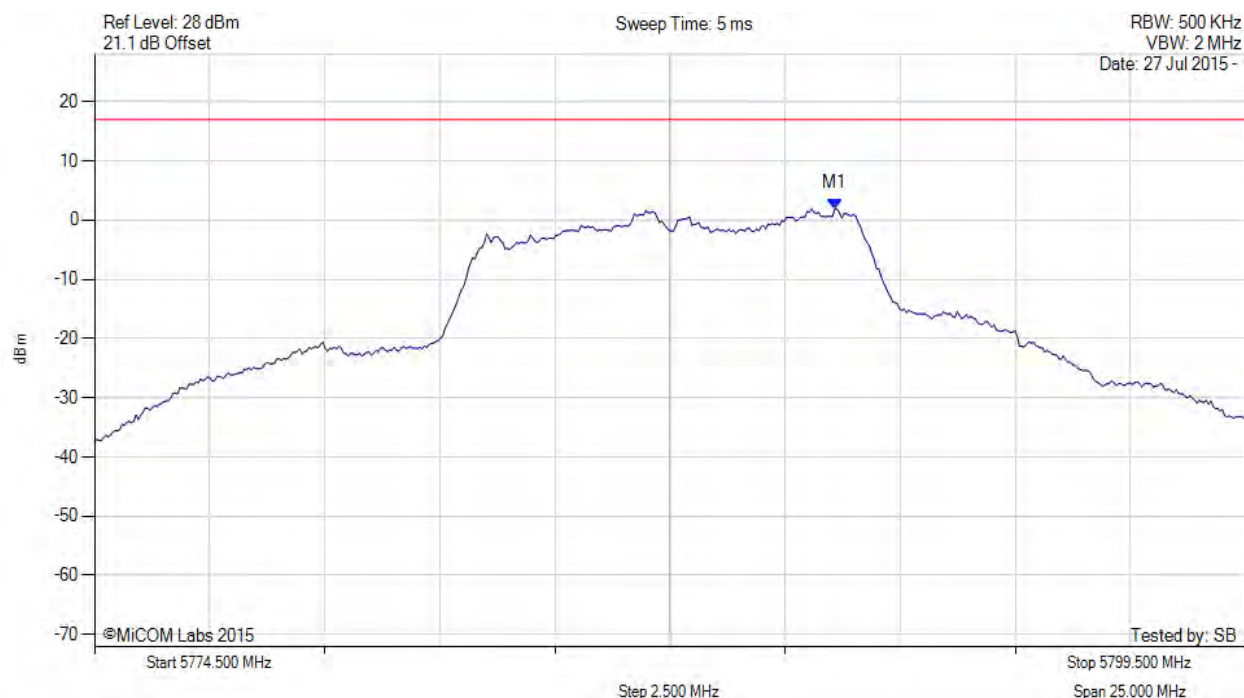
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5790.600 MHz : 1.918 dBm M1 + DCCF : 5790.600 MHz : 2.483 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -14.5 dB

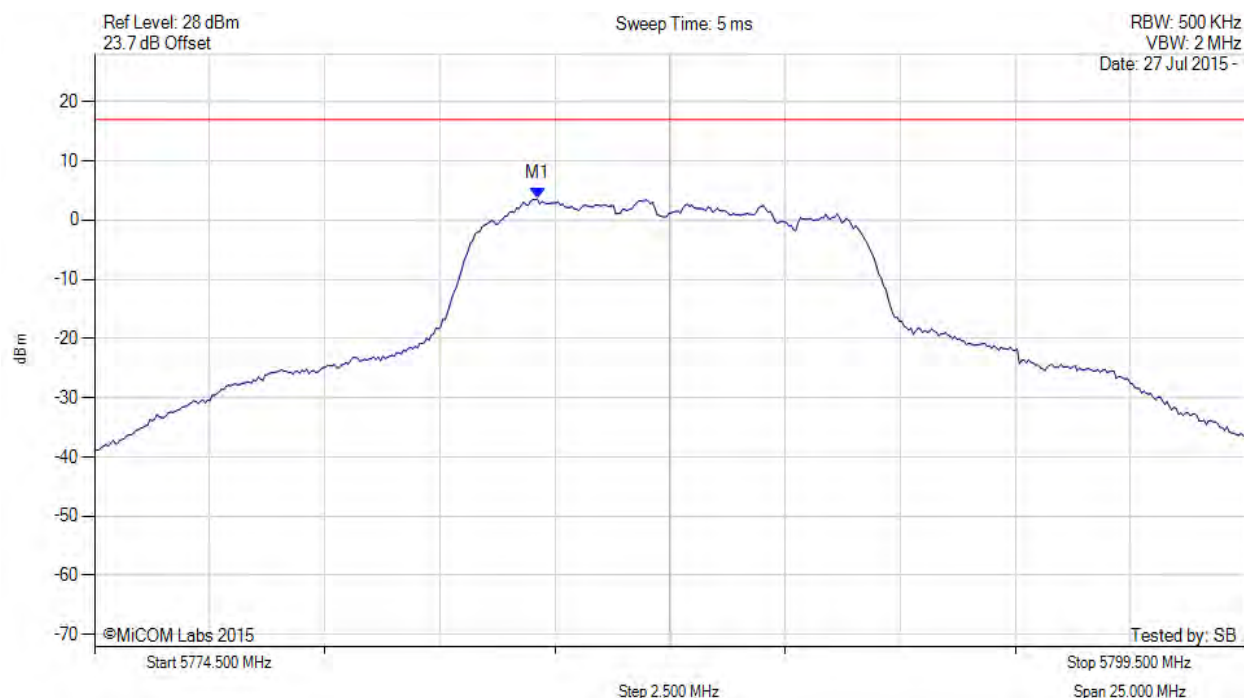
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5784.100 MHz : 3.603 dBm M1 + DCCF : 5784.100 MHz : 4.168 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -12.8 dB

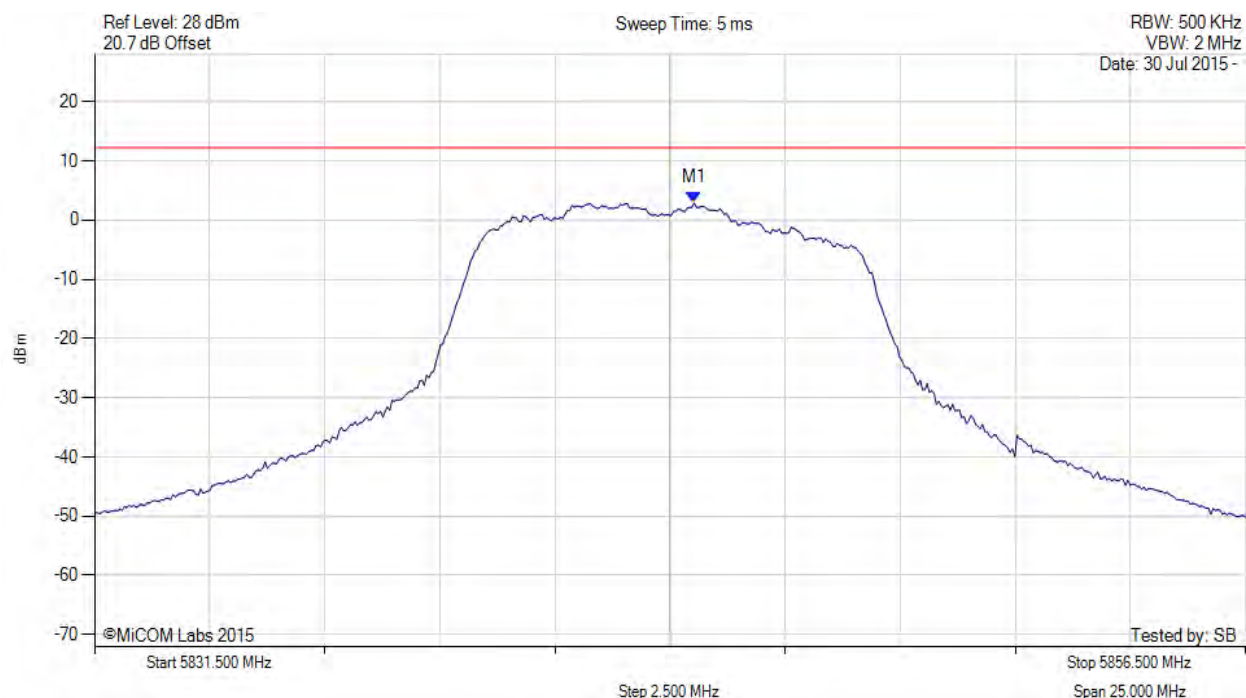
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5844.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5844.526 MHz : 2.873 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5844.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5845.879 MHz : 5.569 dBm	Limit: ≤ 12.230 dBm

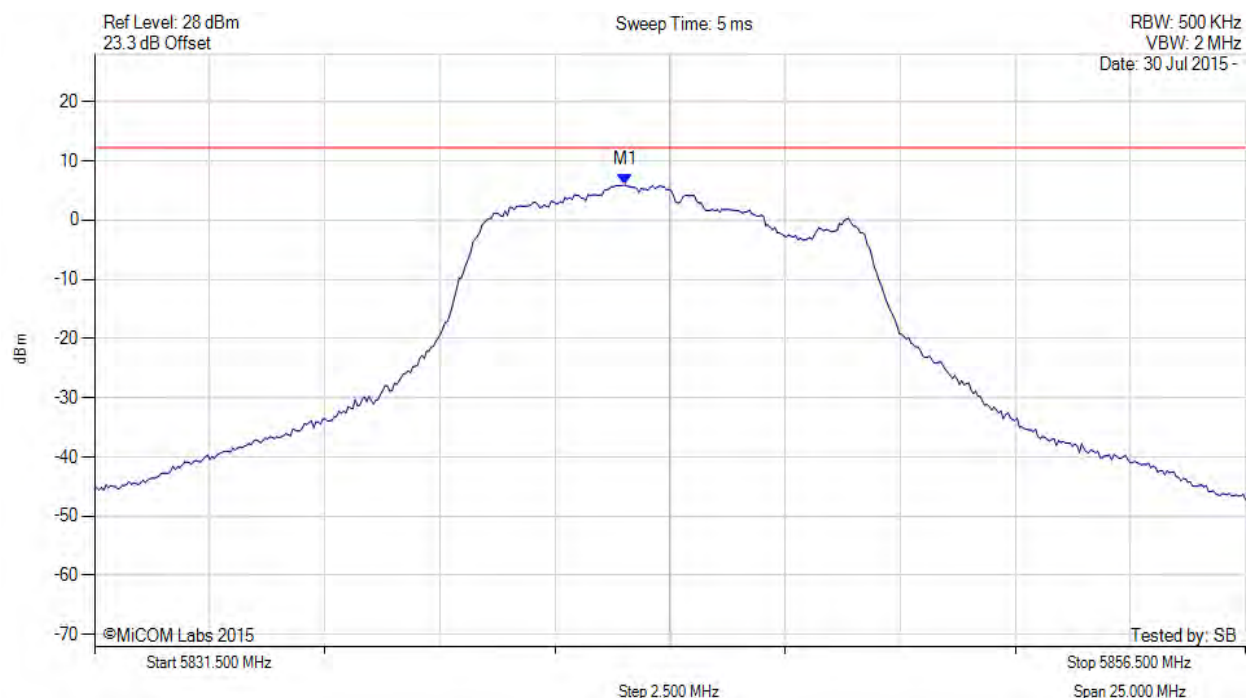
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5844.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.023 MHz : 5.927 dBm	Limit: ≤ 12.230 dBm

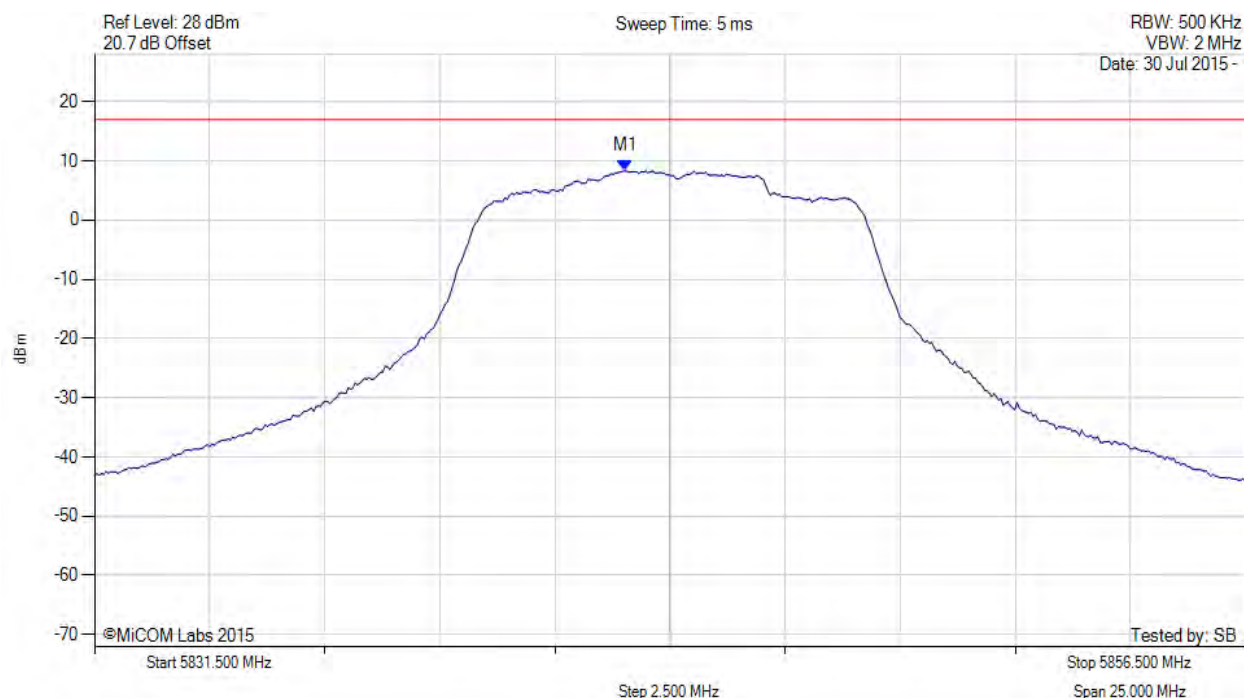
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5844.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.000 MHz : 8.327 dBm M1 + DCCF : 5843.000 MHz : 8.892 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -8.1 dB

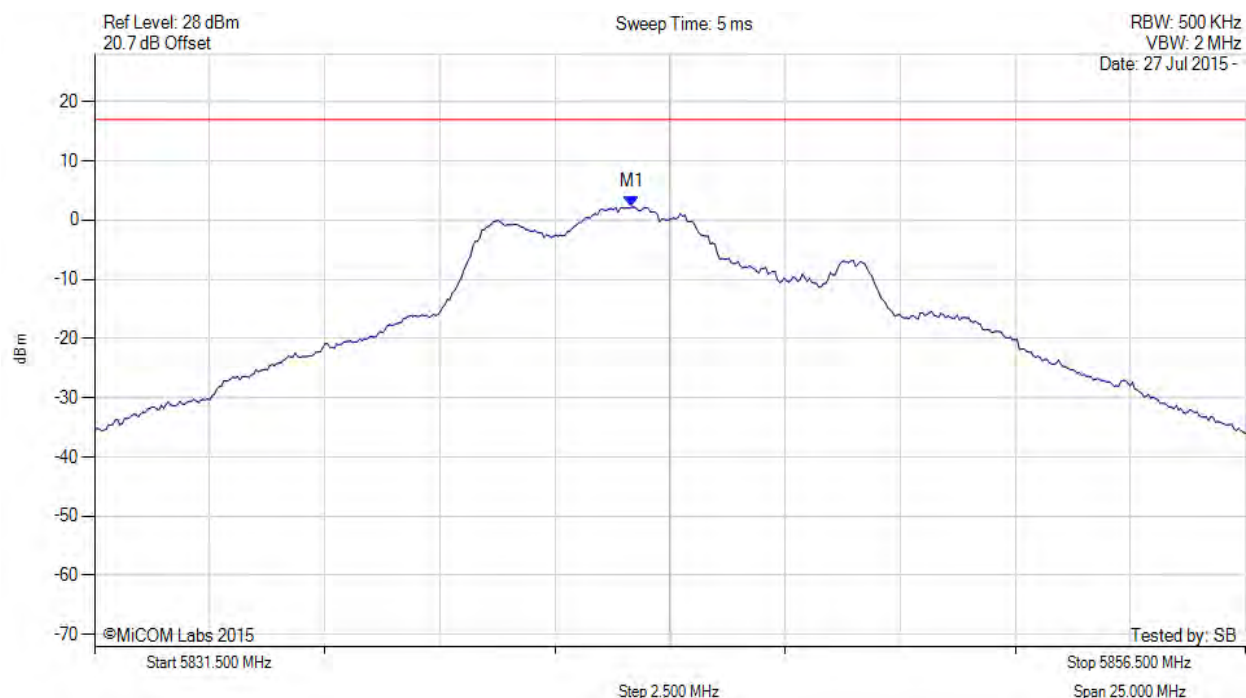
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5844.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.200 MHz : 2.227 dBm M1 + DCCF : 5843.200 MHz : 2.792 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -14.2 dB

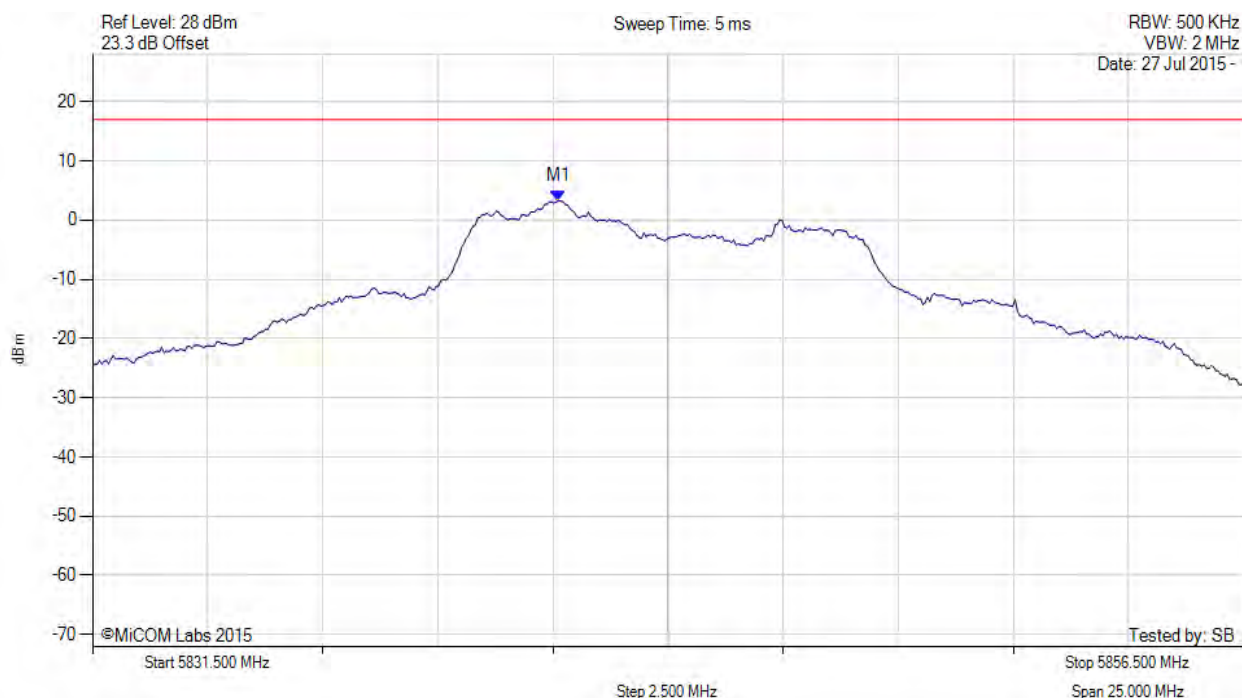
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POWER SPECTRAL DENSITY

Variant: 10 MHz, Channel: 5844.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5841.600 MHz : 3.287 dBm M1 + DCCF : 5841.600 MHz : 3.852 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -13.1 dB

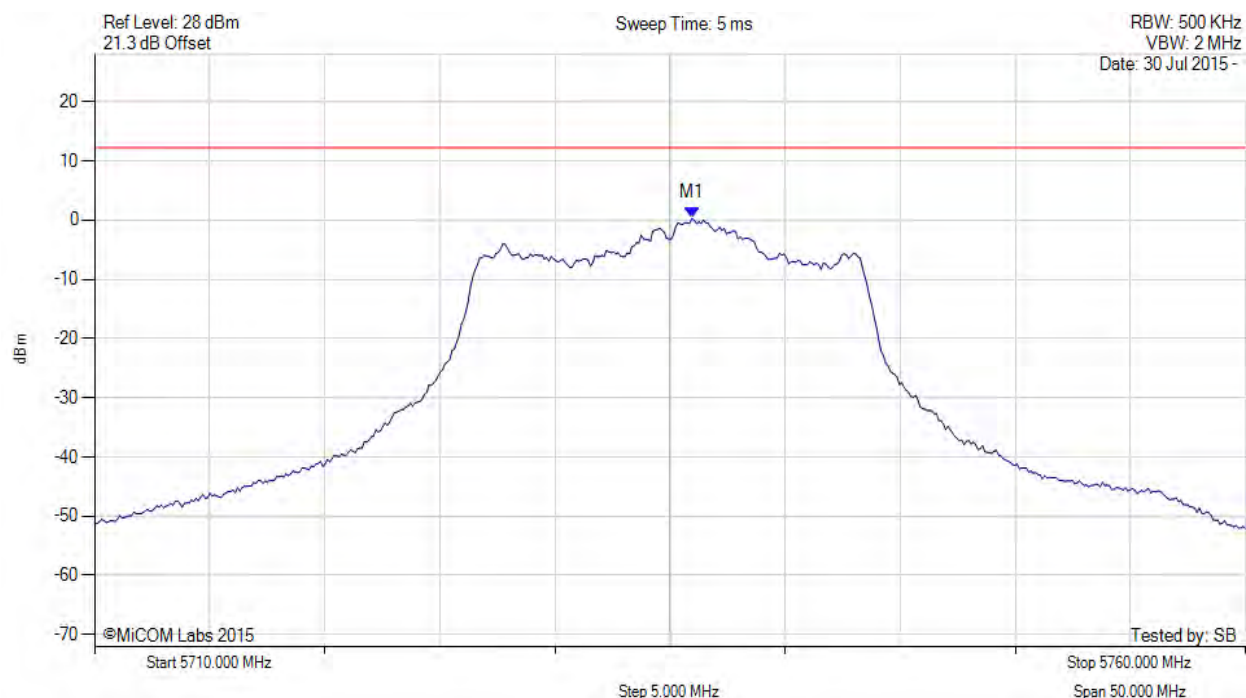
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5735.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5735.952 MHz : 0.291 dBm	Limit: ≤ 12.230 dBm

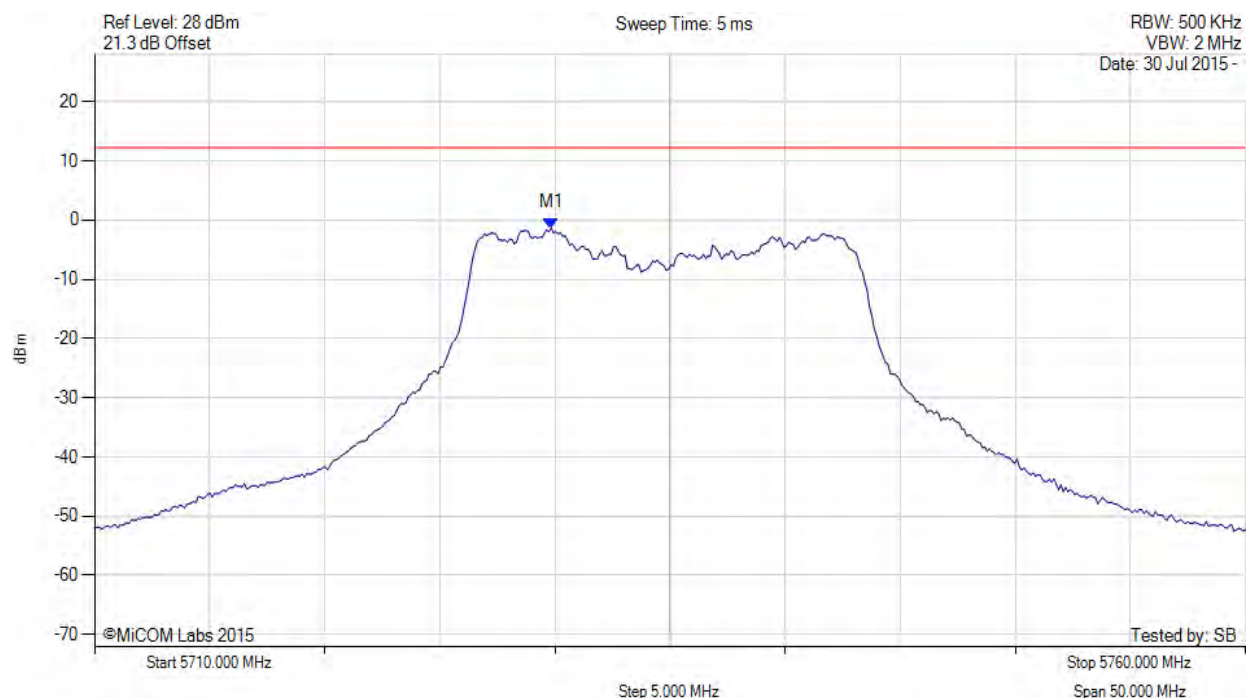
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5735.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5729.840 MHz : -1.353 dBm	Limit: ≤ 12.230 dBm

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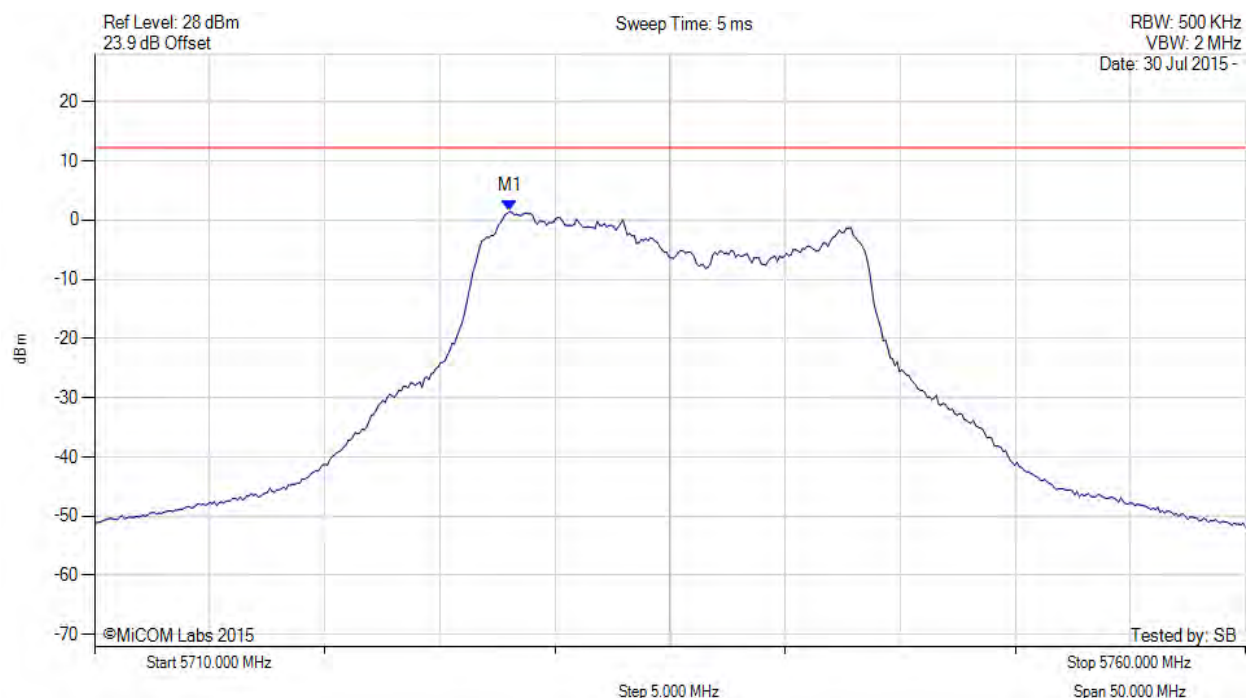


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
Issue Date: 20th August 2015
Page: 131 of 235



POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5735.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



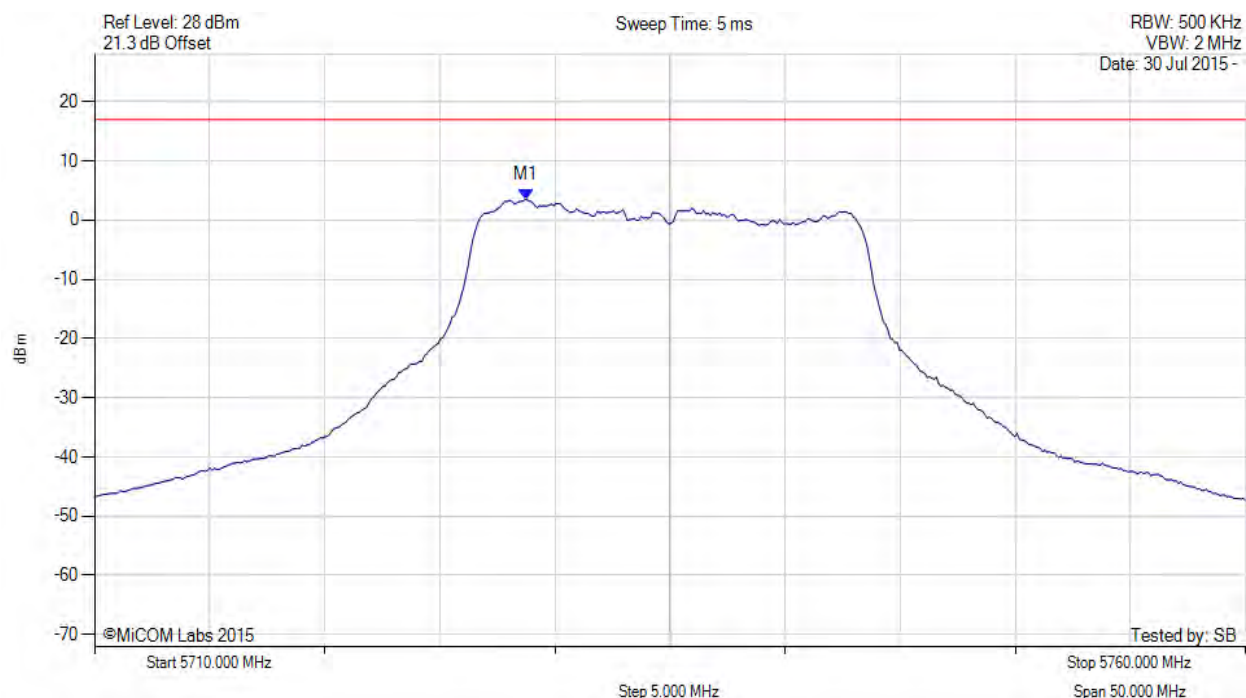
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5728.036 MHz : 1.475 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5735.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



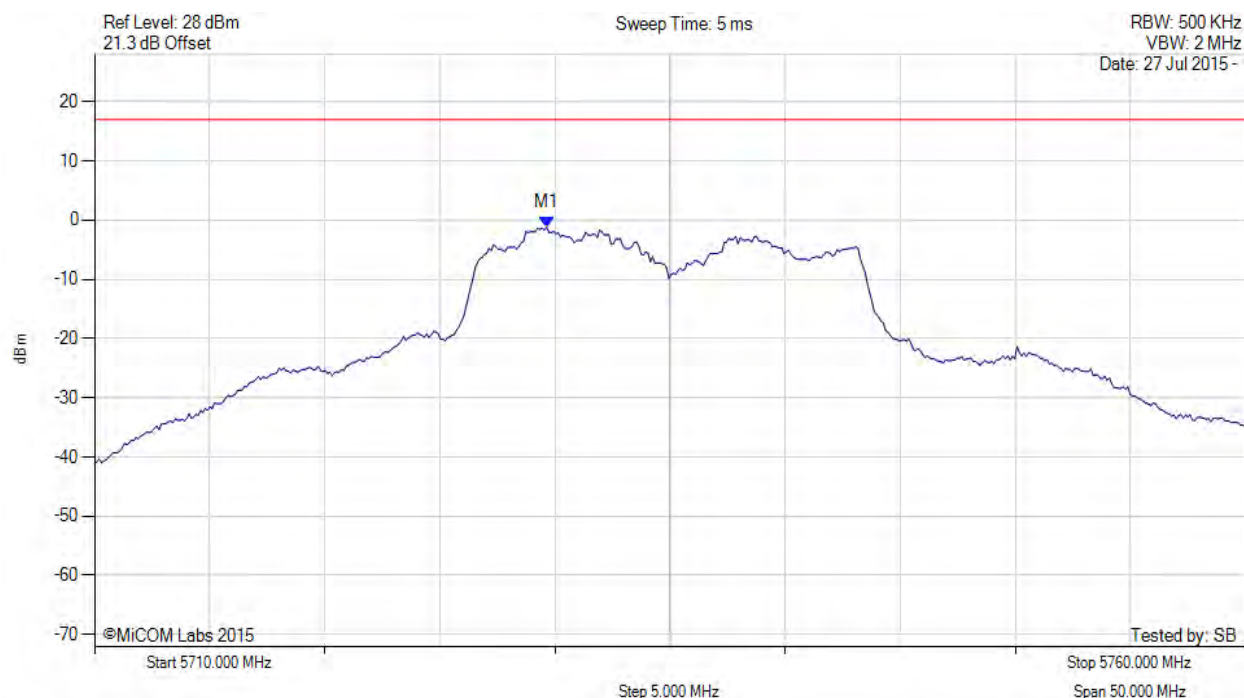
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5728.700 MHz : 3.473 dBm M1 + DCCF : 5728.700 MHz : 4.143 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -12.8 dB

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5735.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5729.600 MHz : -1.170 dBm M1 + DCCF : 5729.600 MHz : -0.500 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -17.5 dB

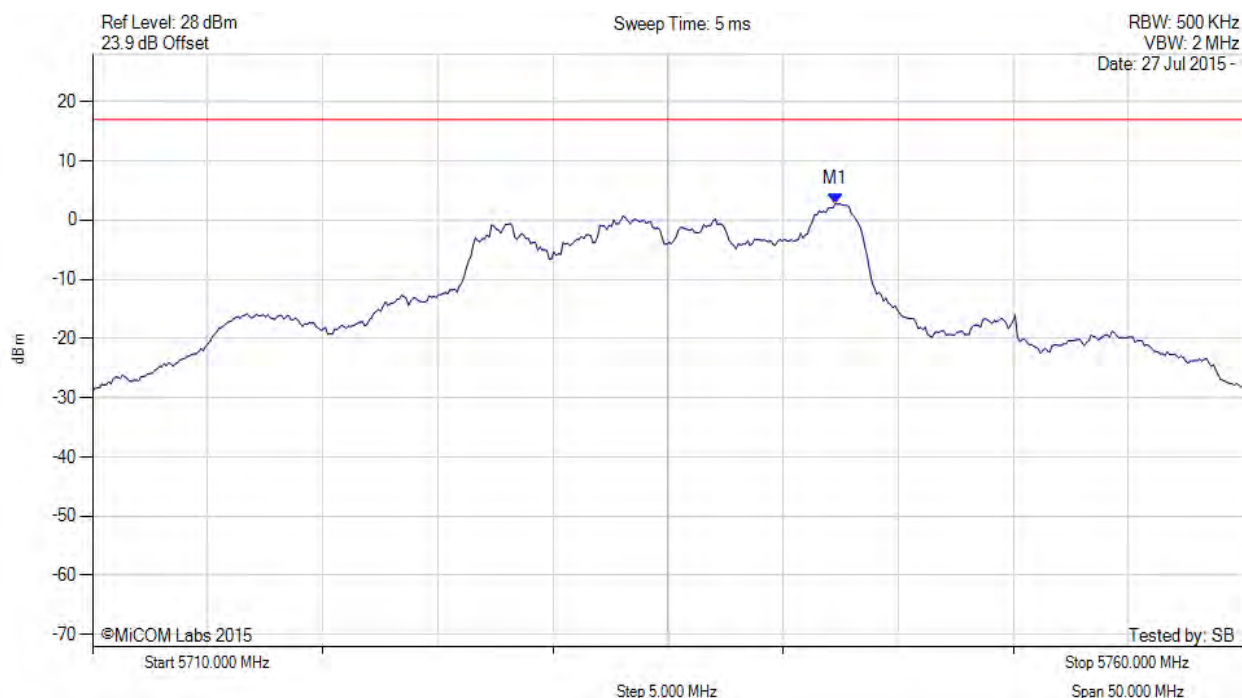
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5735.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5742.300 MHz : 2.768 dBm M1 + DCCF : 5742.300 MHz : 3.438 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -13.5 dB

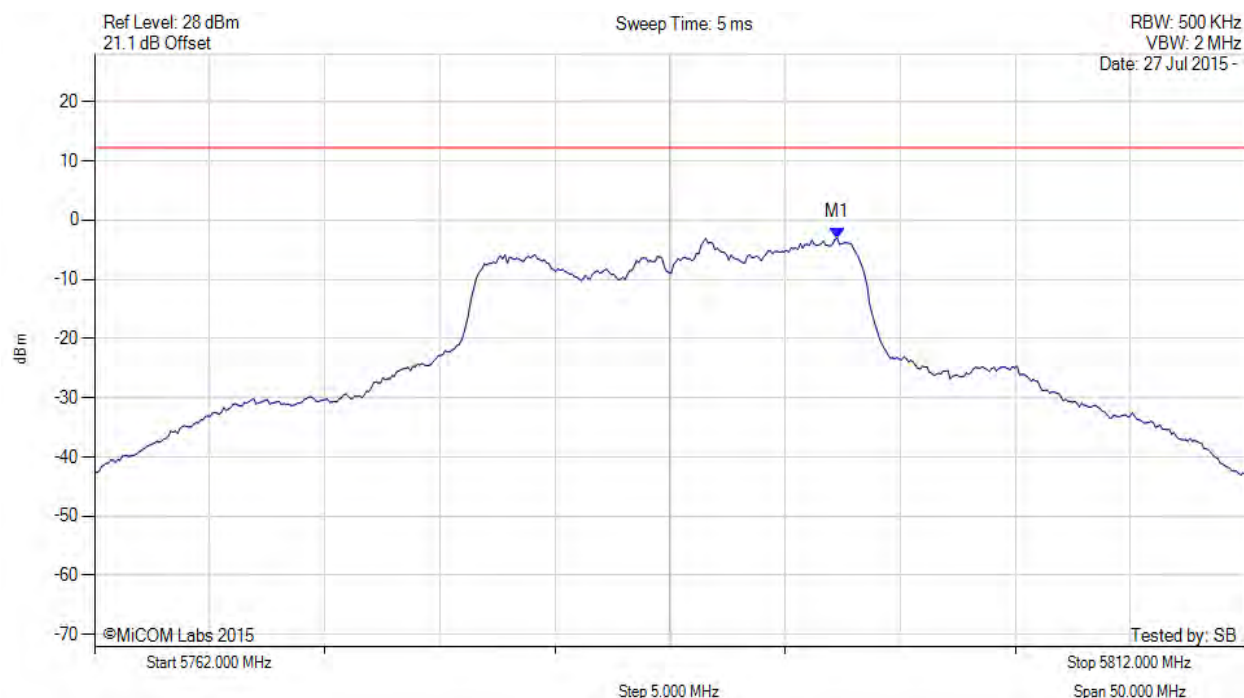
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5794.265 MHz : -2.997 dBm	Limit: ≤ 12.230 dBm

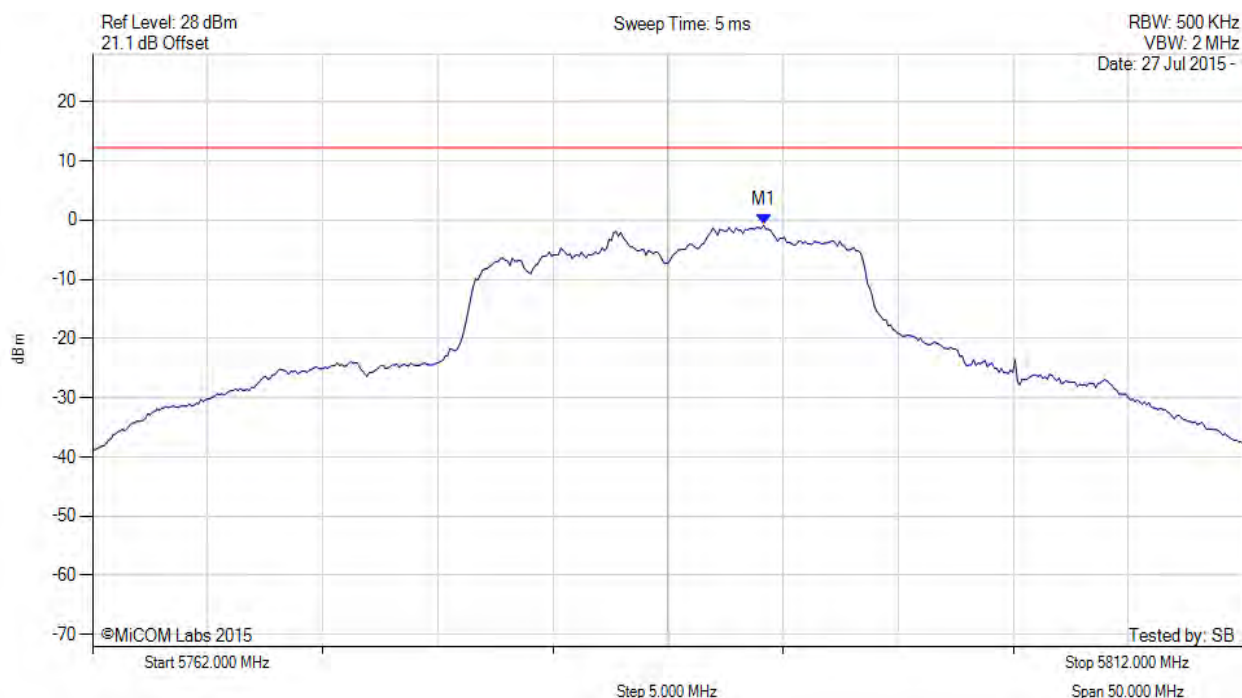
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5791.158 MHz : -0.872 dBm	Channel Frequency: 5787.00 MHz

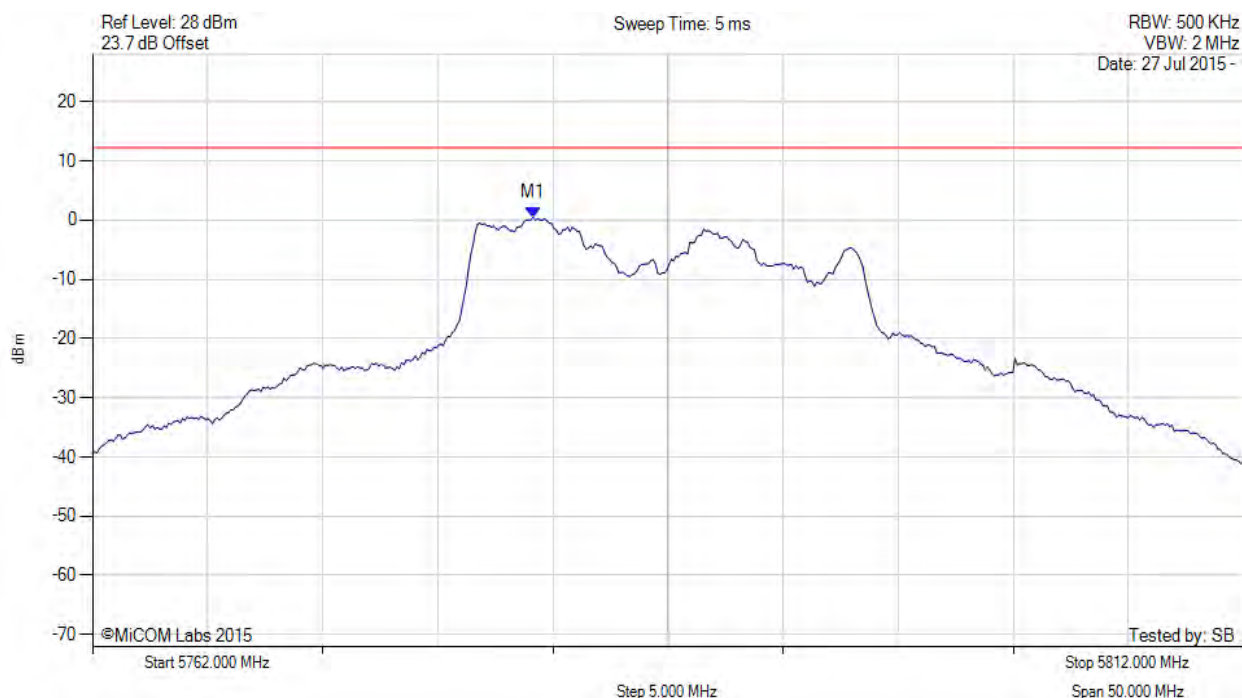
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



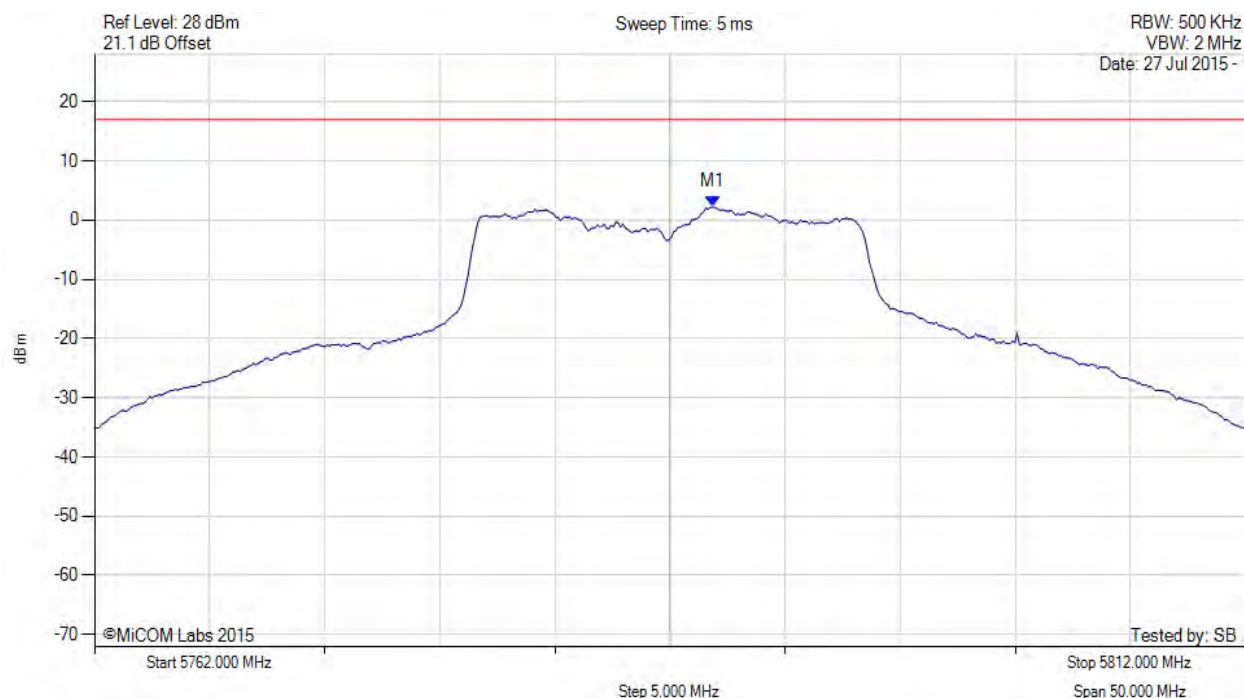
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5781.138 MHz : 0.466 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



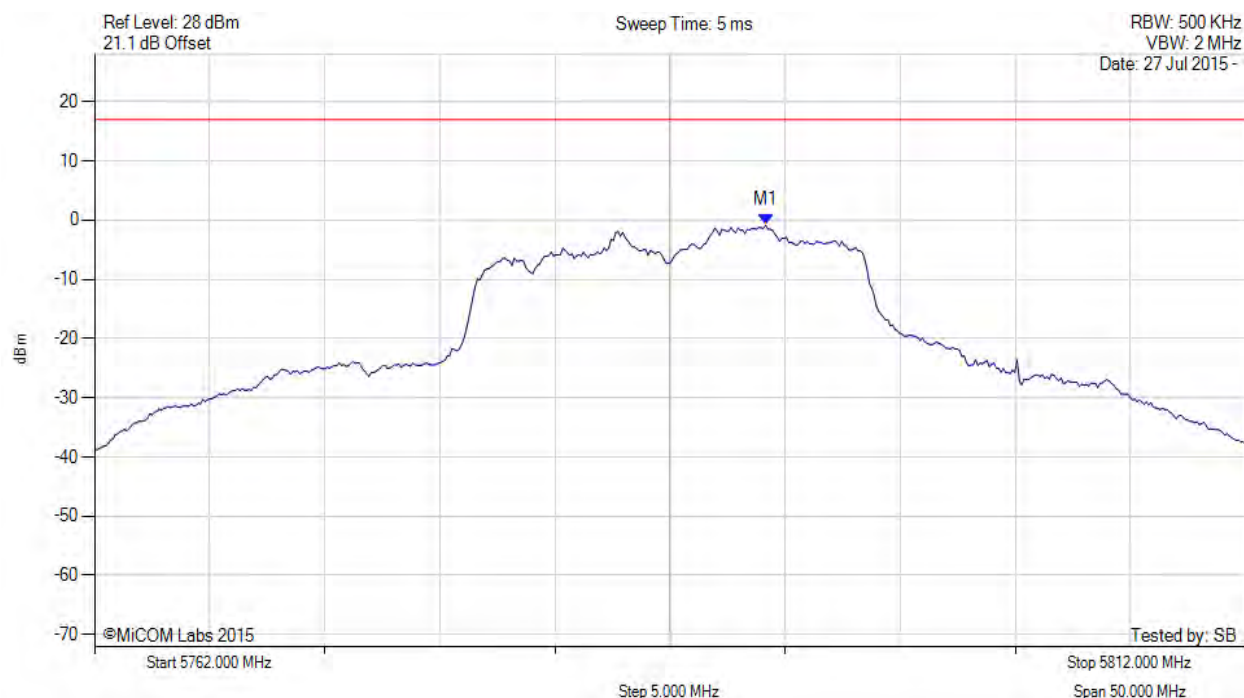
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5788.900 MHz : 2.209 dBm M1 + DCCF : 5788.900 MHz : 2.879 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -14.1 dB

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5791.200 MHz : -0.872 dBm M1 + DCCF : 5791.200 MHz : -0.202 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -17.2 dB

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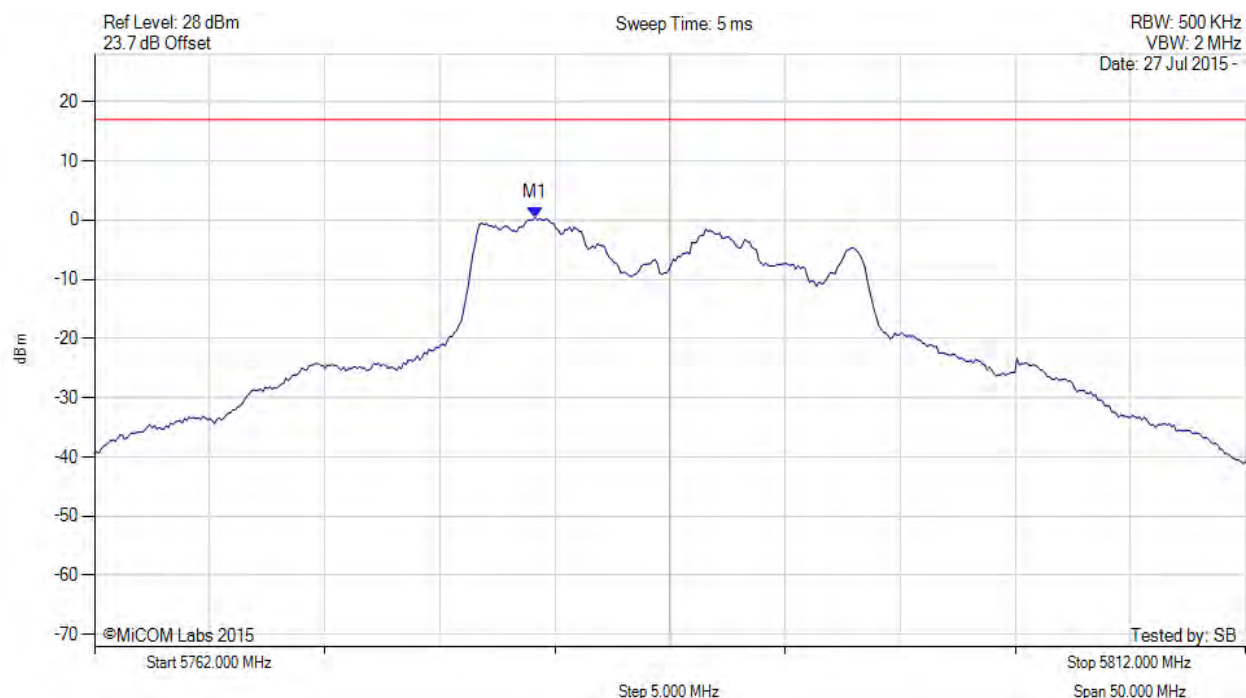


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
Issue Date: 20th August 2015
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5781.100 MHz : 0.466 dBm M1 + DCCF : 5781.100 MHz : 1.136 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -15.8 dB

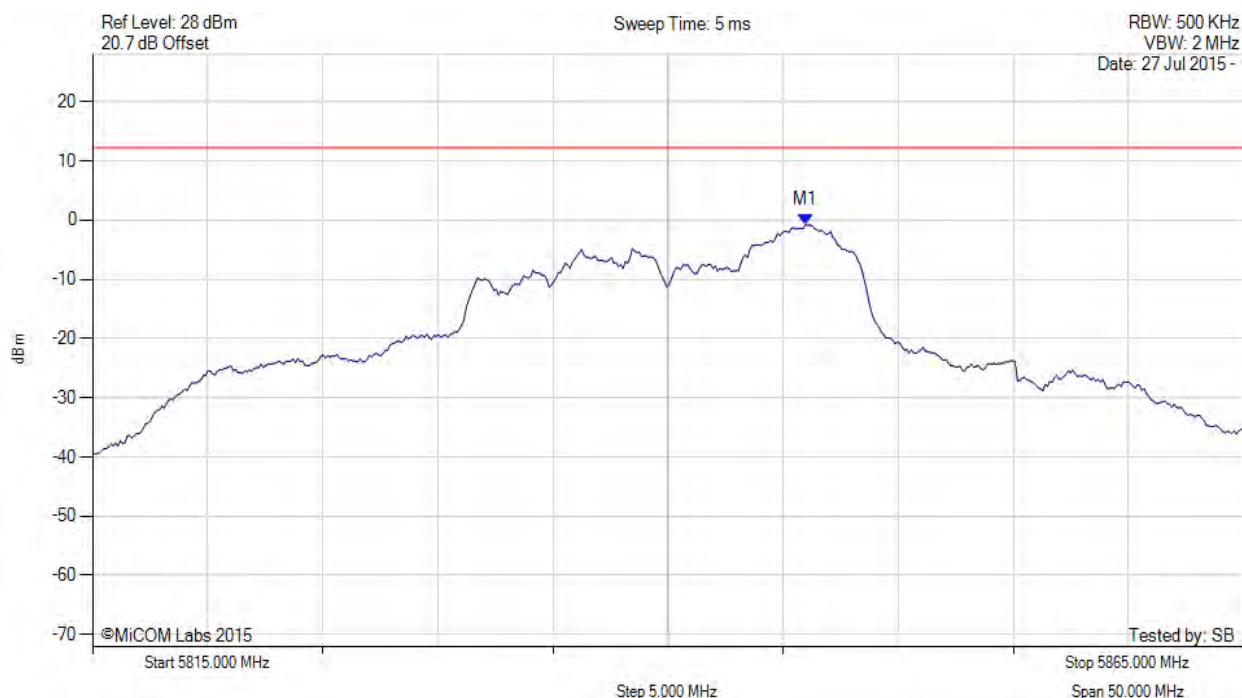
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5845.962 MHz : -0.800 dBm	Limit: ≤ 12.230 dBm

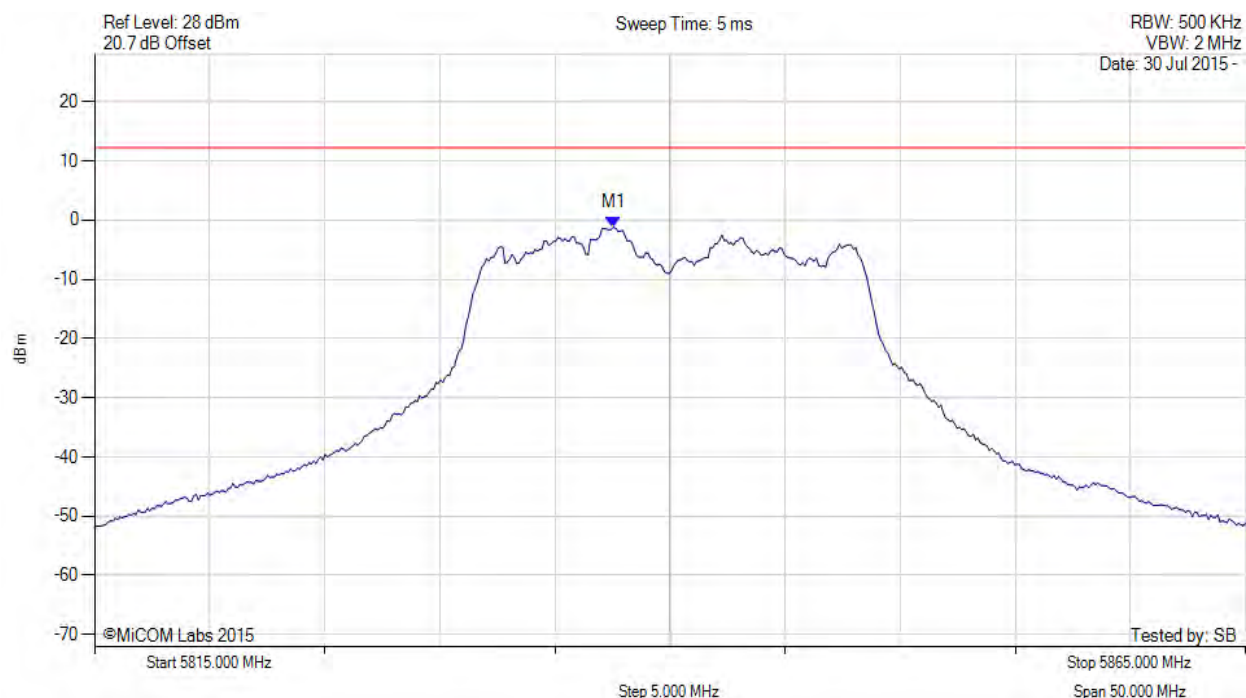
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5837.545 MHz : -1.209 dBm	Limit: ≤ 12.230 dBm

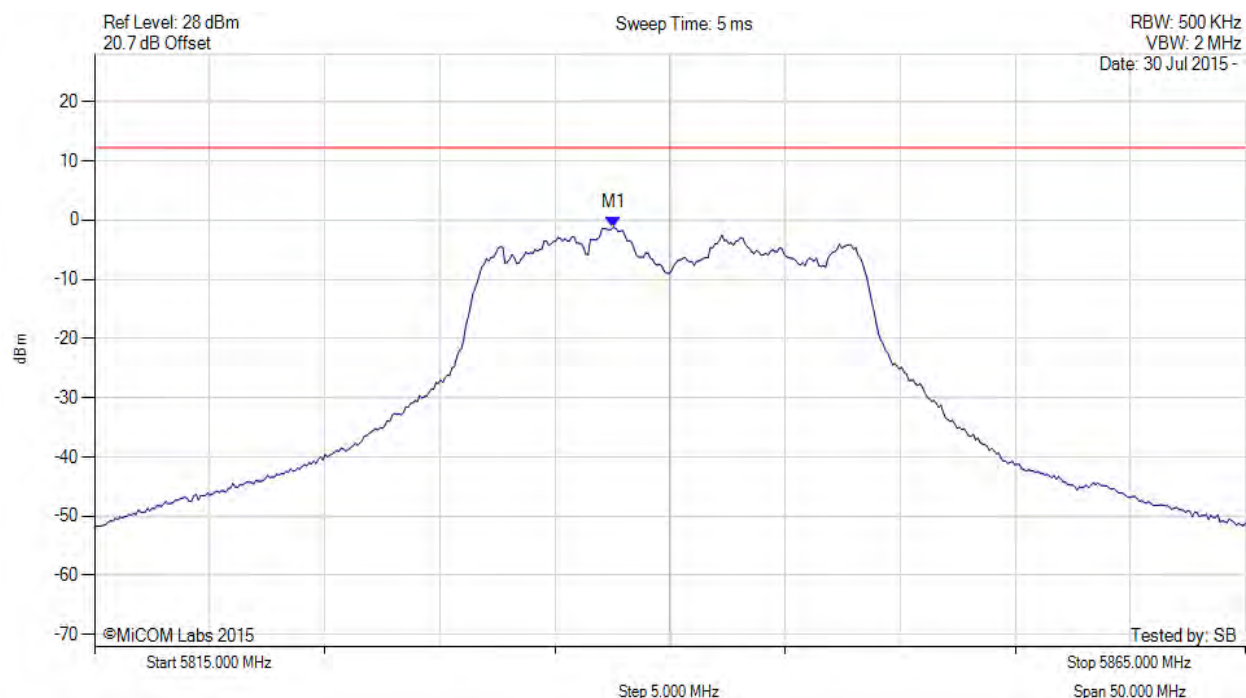
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5837.545 MHz : -1.209 dBm	Channel Frequency: 5840.00 MHz

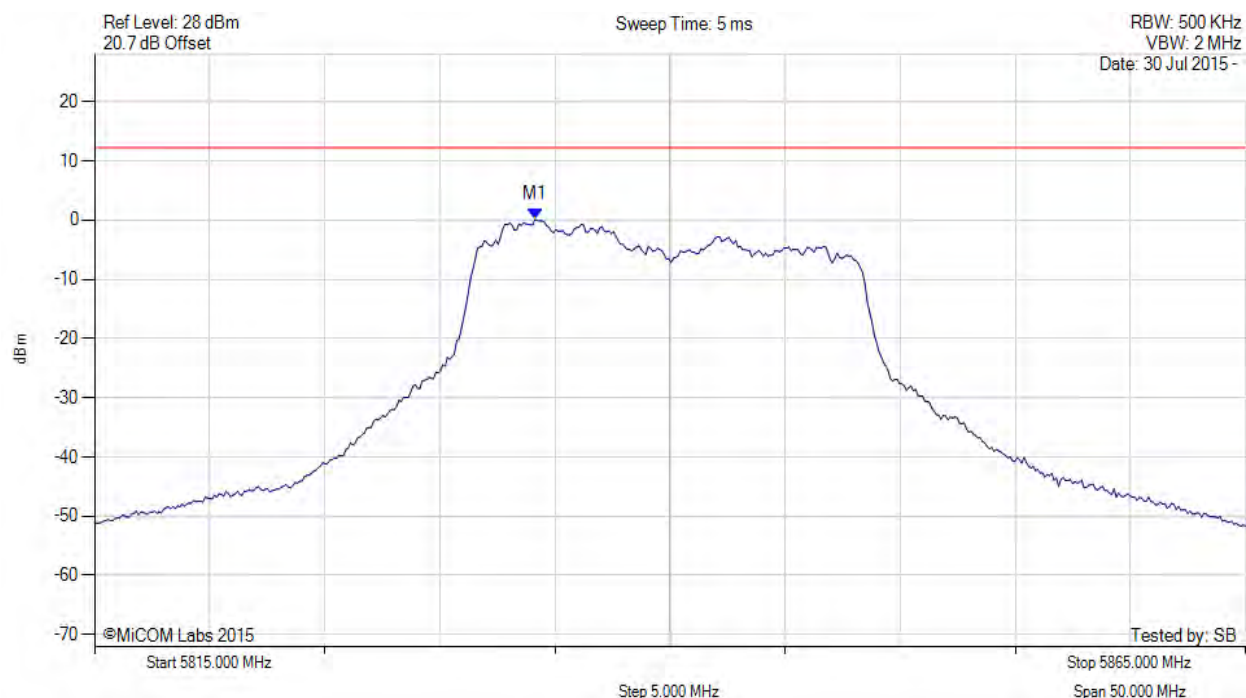
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5834.138 MHz : 0.078 dBm	Channel Frequency: 5840.00 MHz

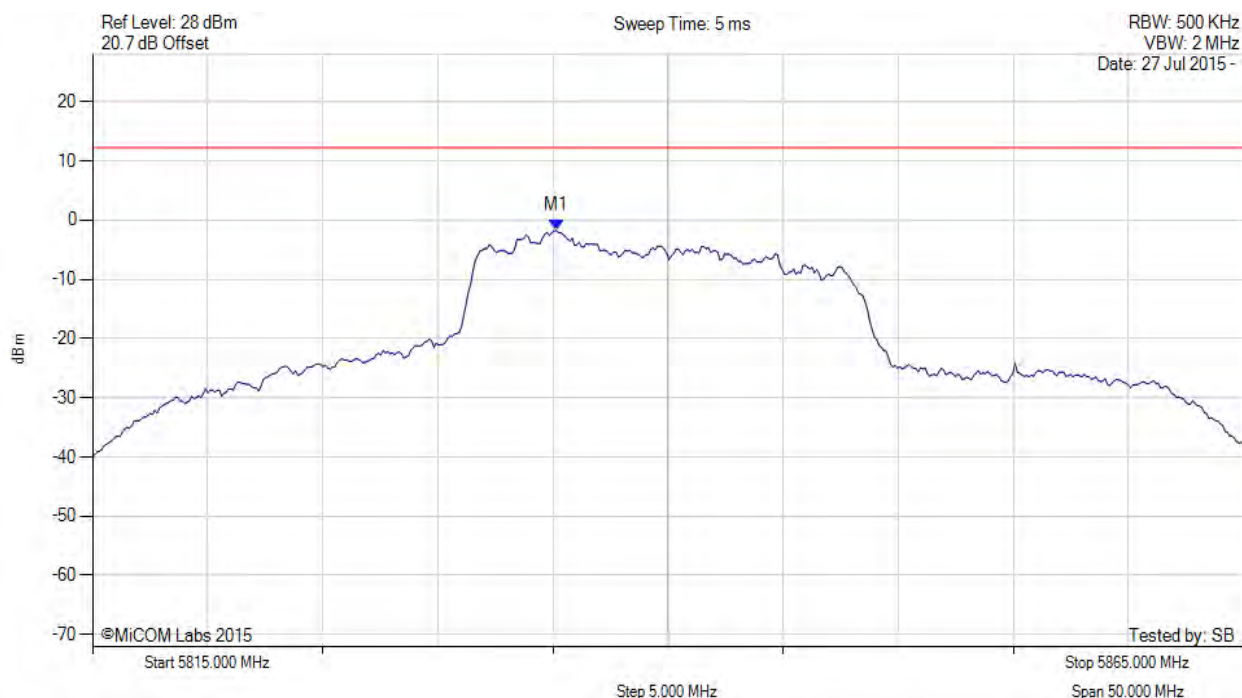
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



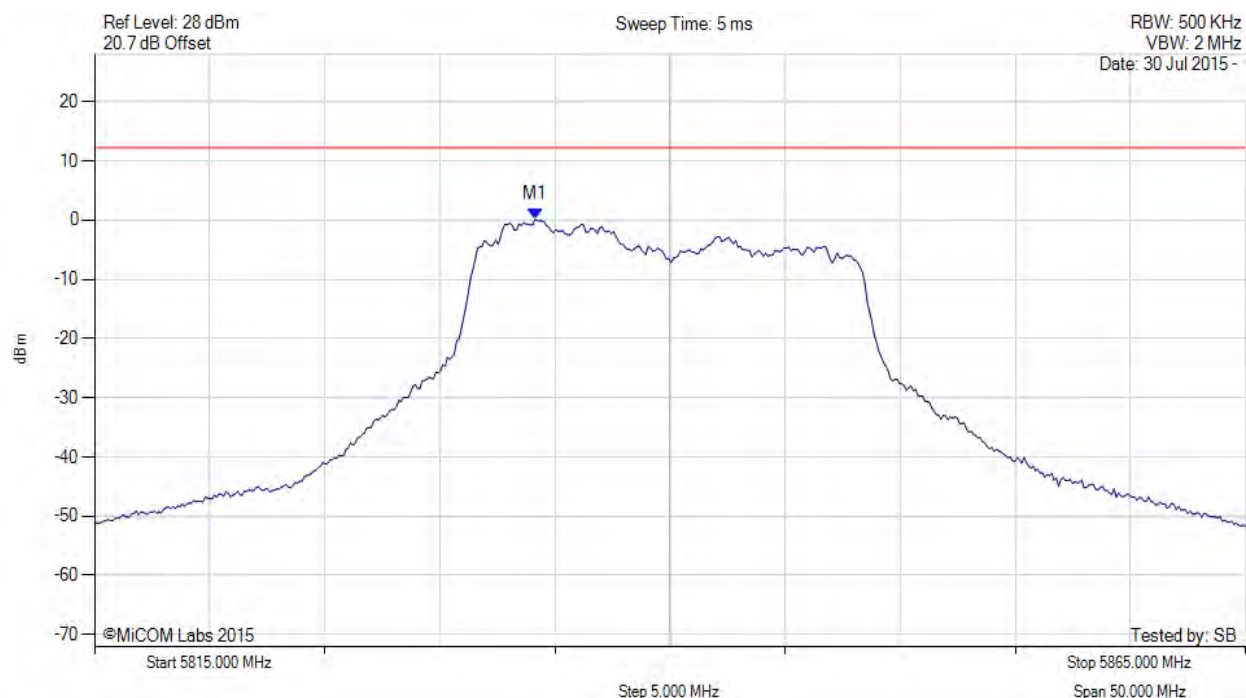
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5835.140 MHz : -1.731 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



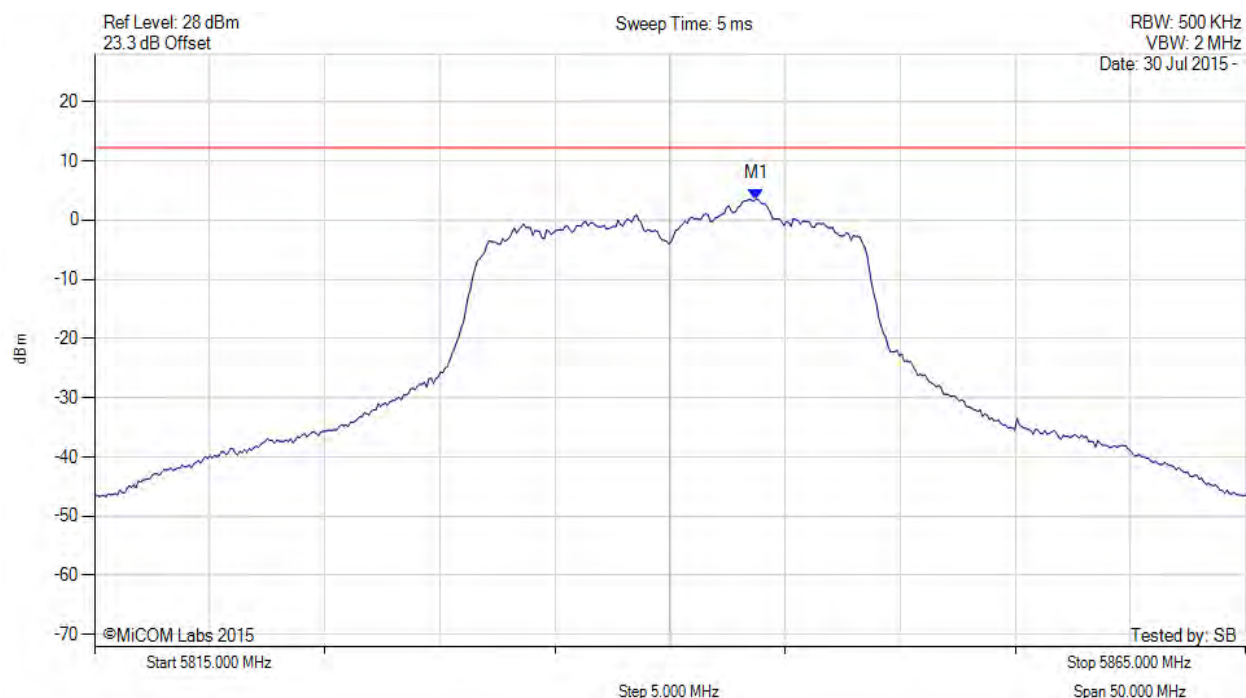
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5834.138 MHz : 0.078 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.758 MHz : 3.550 dBm	Limit: ≤ 12.230 dBm

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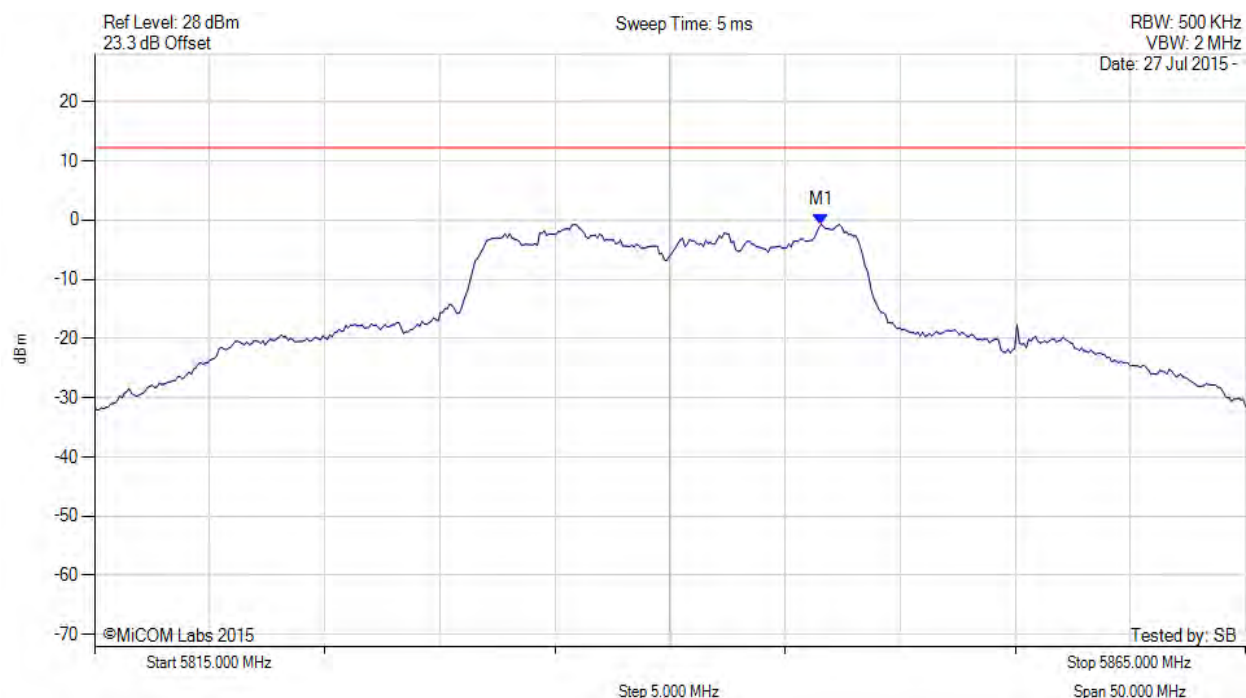


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5846.563 MHz : -0.696 dBm	Limit: ≤ 12.230 dBm

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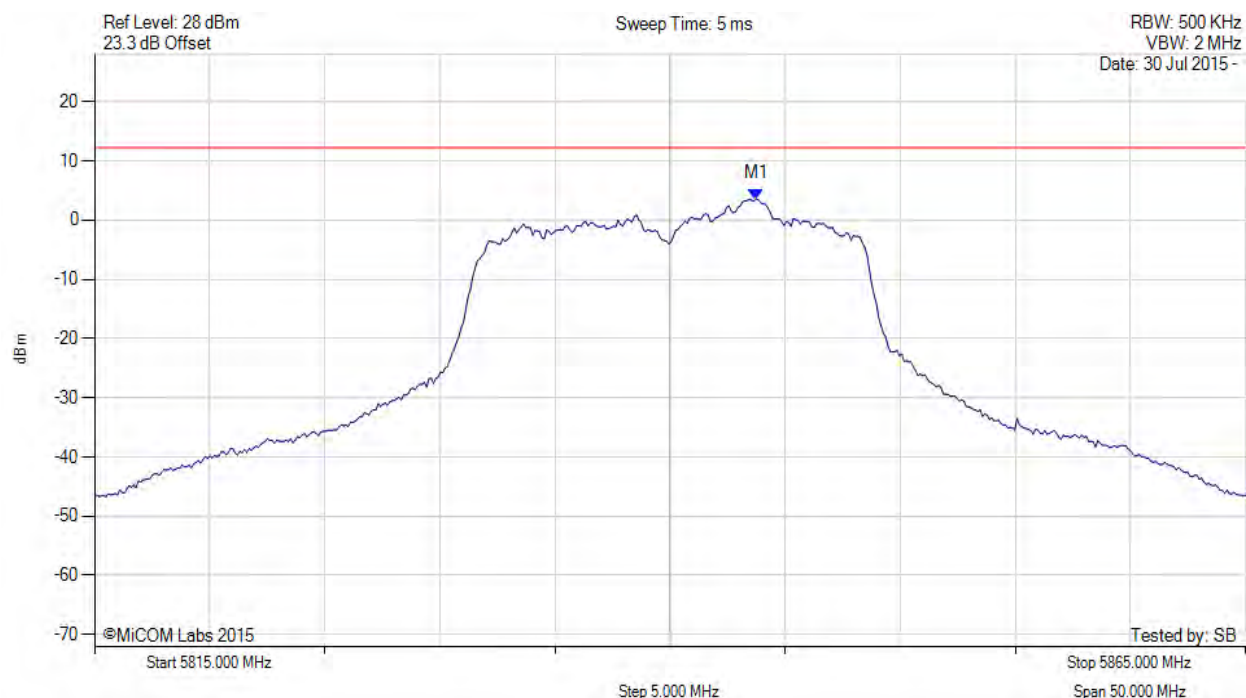


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



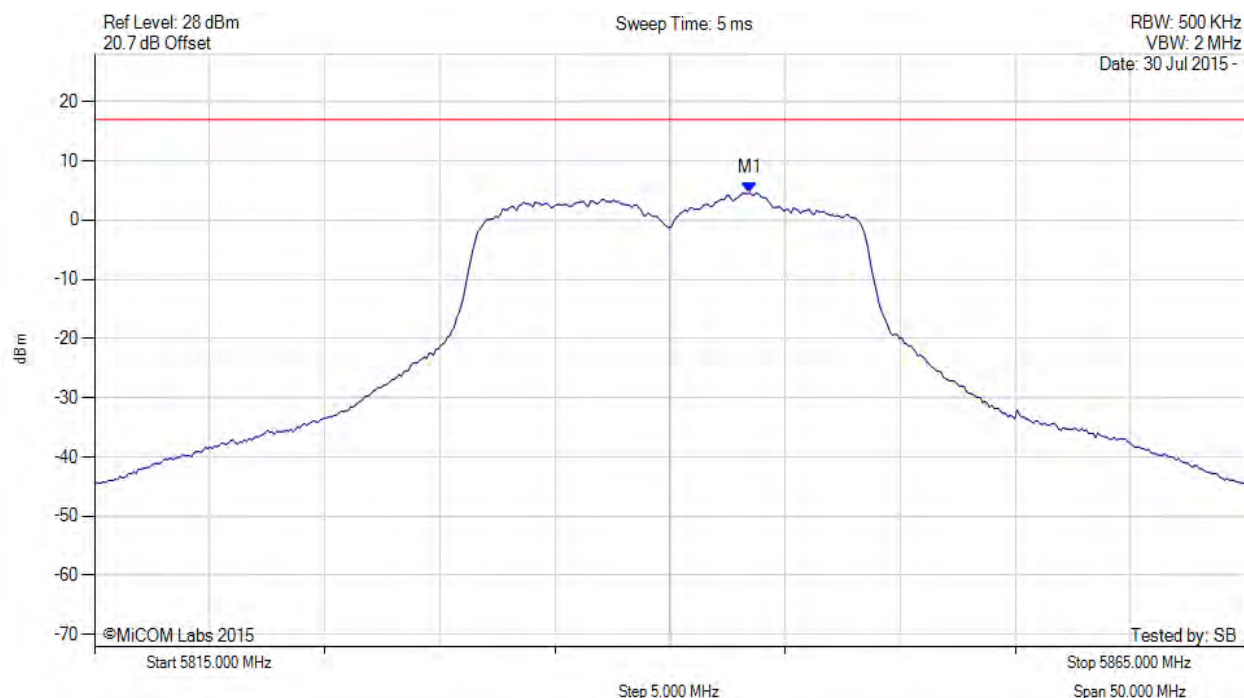
Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.758 MHz : 3.550 dBm	Channel Frequency: 5840.00 MHz

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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.457 MHz : 4.586 dBm	Channel Frequency: 5840.00 MHz

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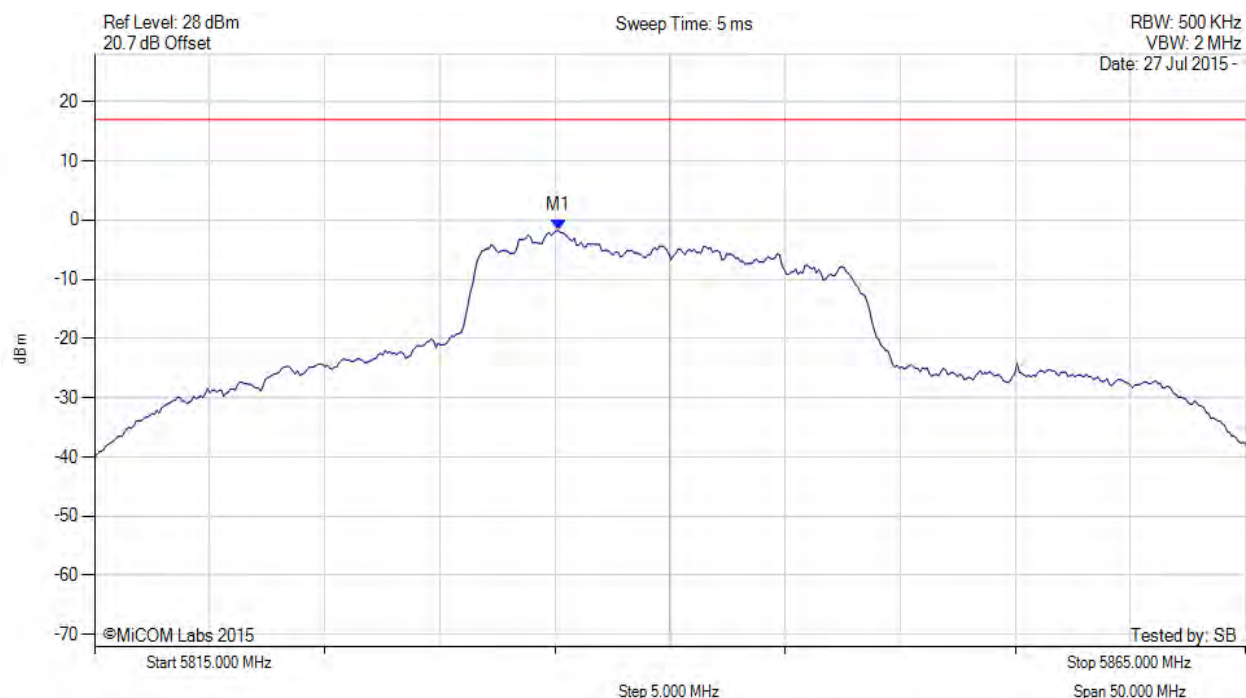


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5835.100 MHz : -1.731 dBm M1 + DCCF : 5835.100 MHz : -1.061 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -18.0 dB

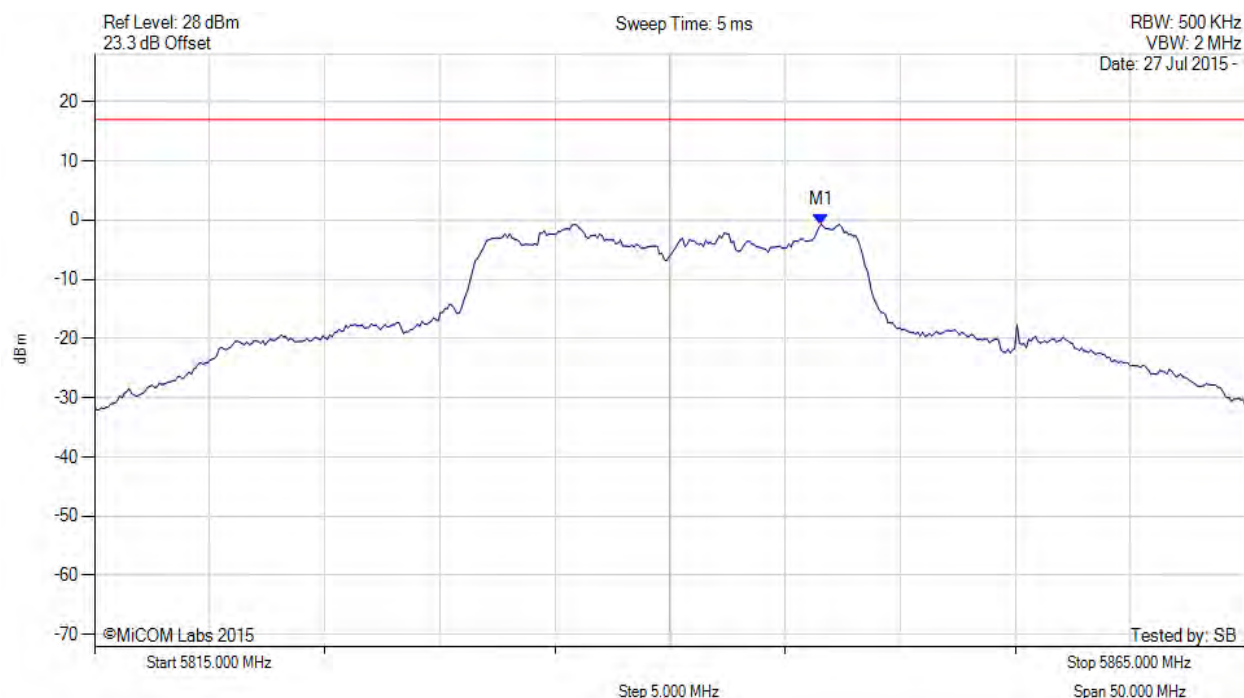
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5846.600 MHz : -0.696 dBm M1 + DCCF : 5846.600 MHz : -0.026 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -17.0 dB

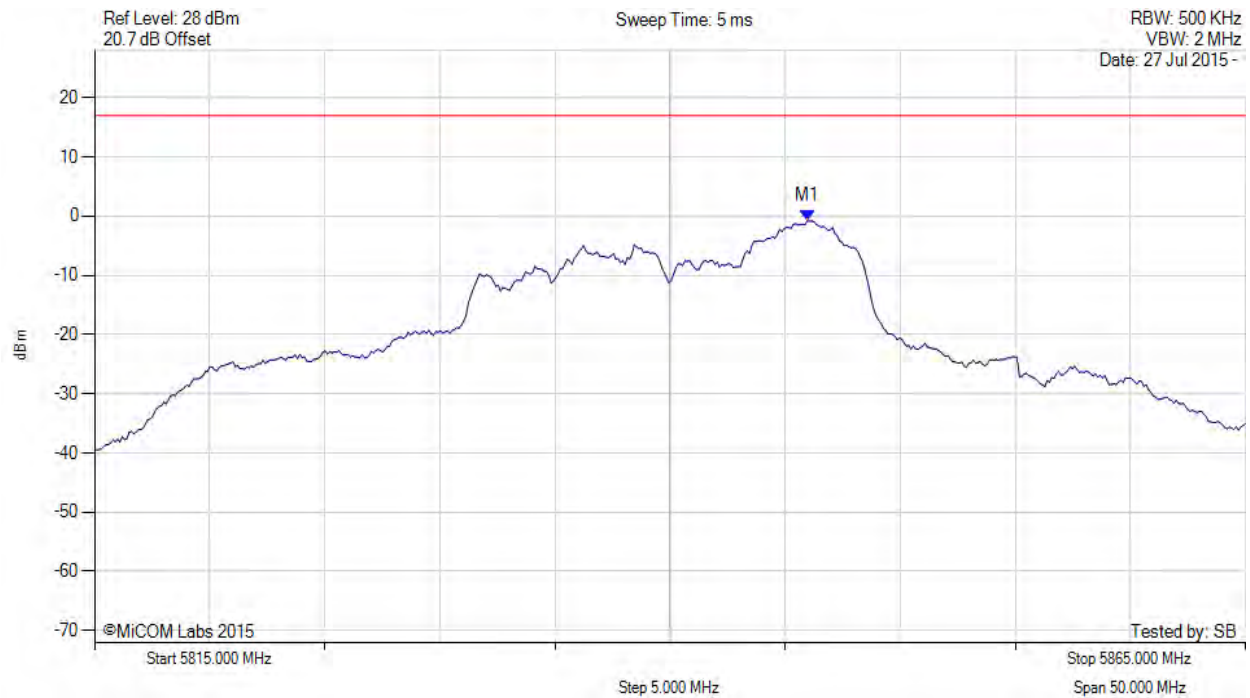
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5846.000 MHz : -0.800 dBm M1 + DCCF : 5846.000 MHz : -0.130 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -17.1 dB

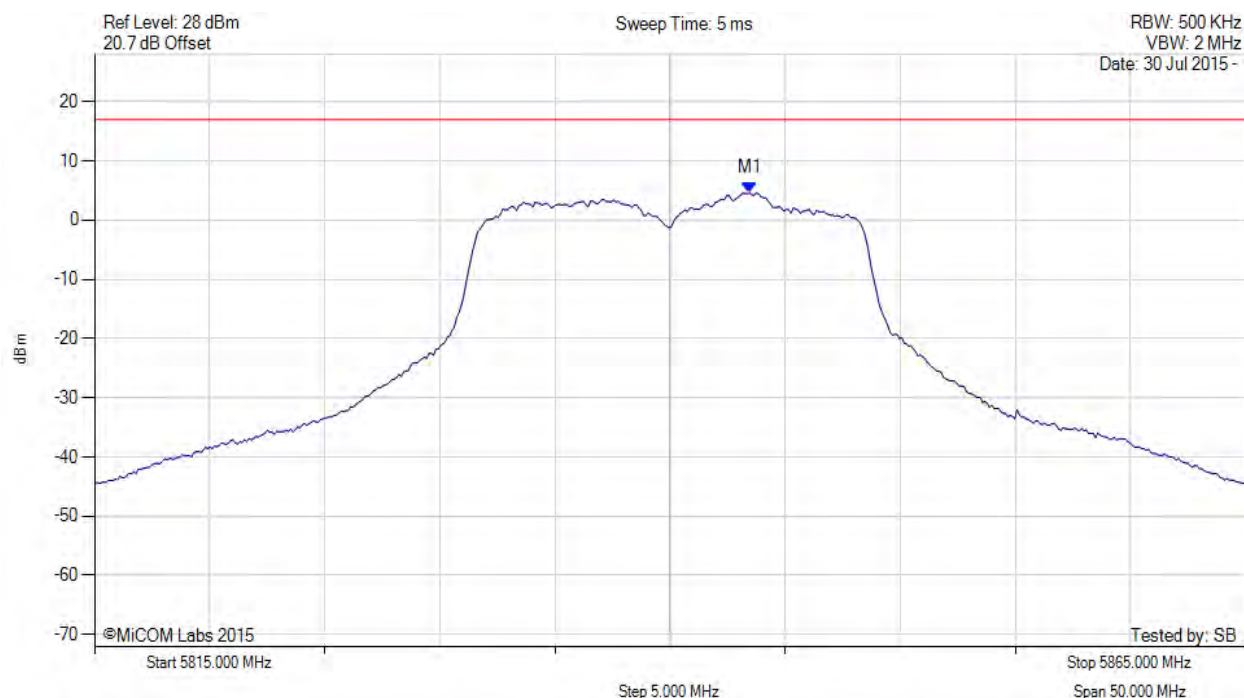
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POWER SPECTRAL DENSITY

Variant: 20 MHz, Channel: 5840.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.500 MHz : 4.586 dBm M1 + DCCF : 5843.500 MHz : 5.256 dBm Duty Cycle Correction Factor : +0.66 dB	Limit: ≤ 17.0 dBm Margin: -11.7 dB

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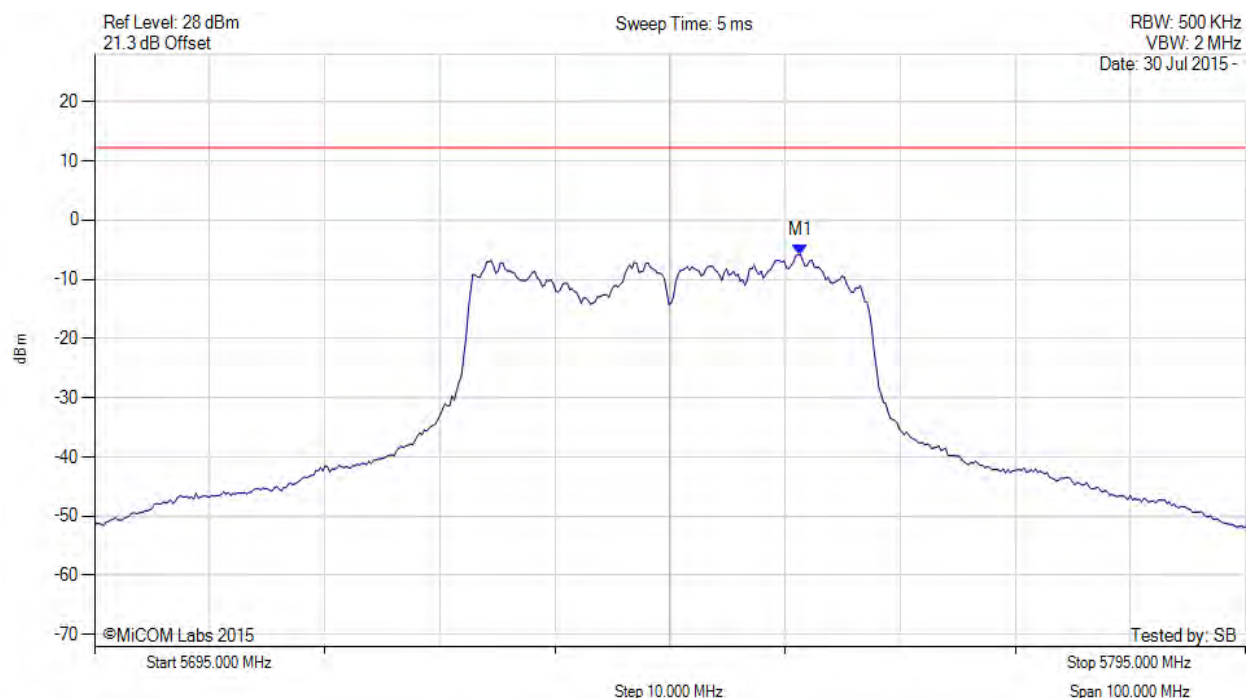


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5745.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5756.323 MHz : -5.833 dBm	Limit: ≤ 12.230 dBm

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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5745.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5751.713 MHz : -4.677 dBm	Limit: ≤ 12.230 dBm

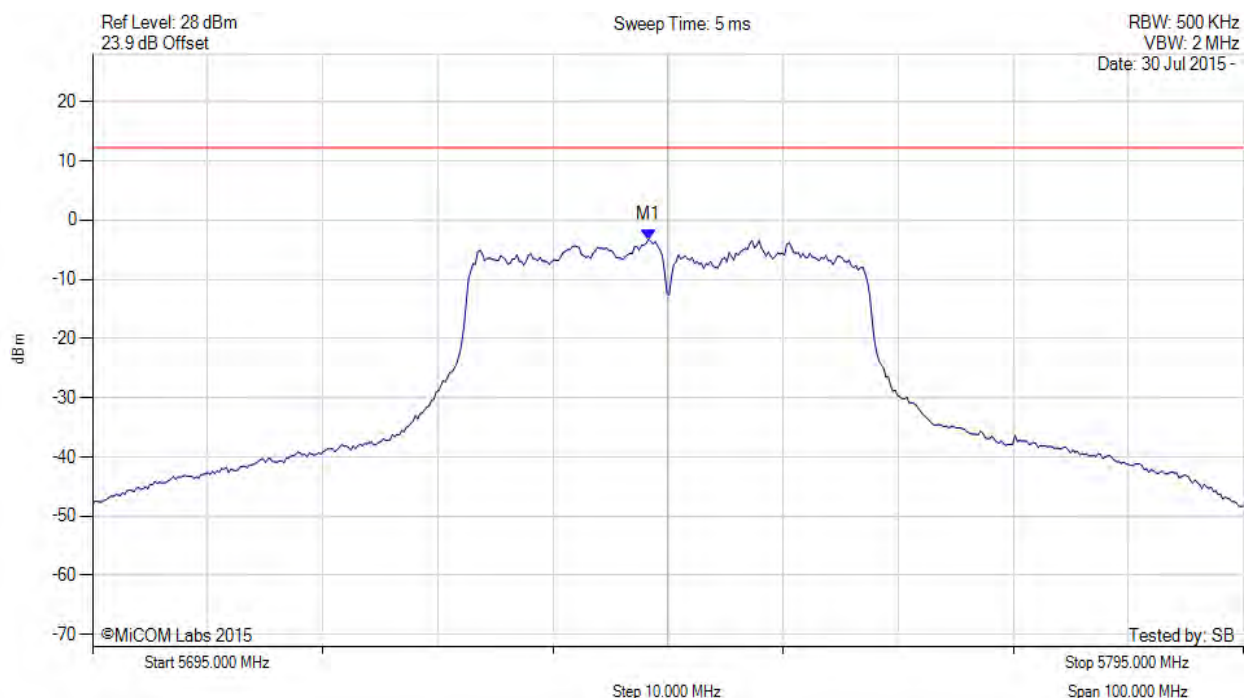
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5745.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5743.297 MHz : -3.282 dBm	Limit: ≤ 12.230 dBm

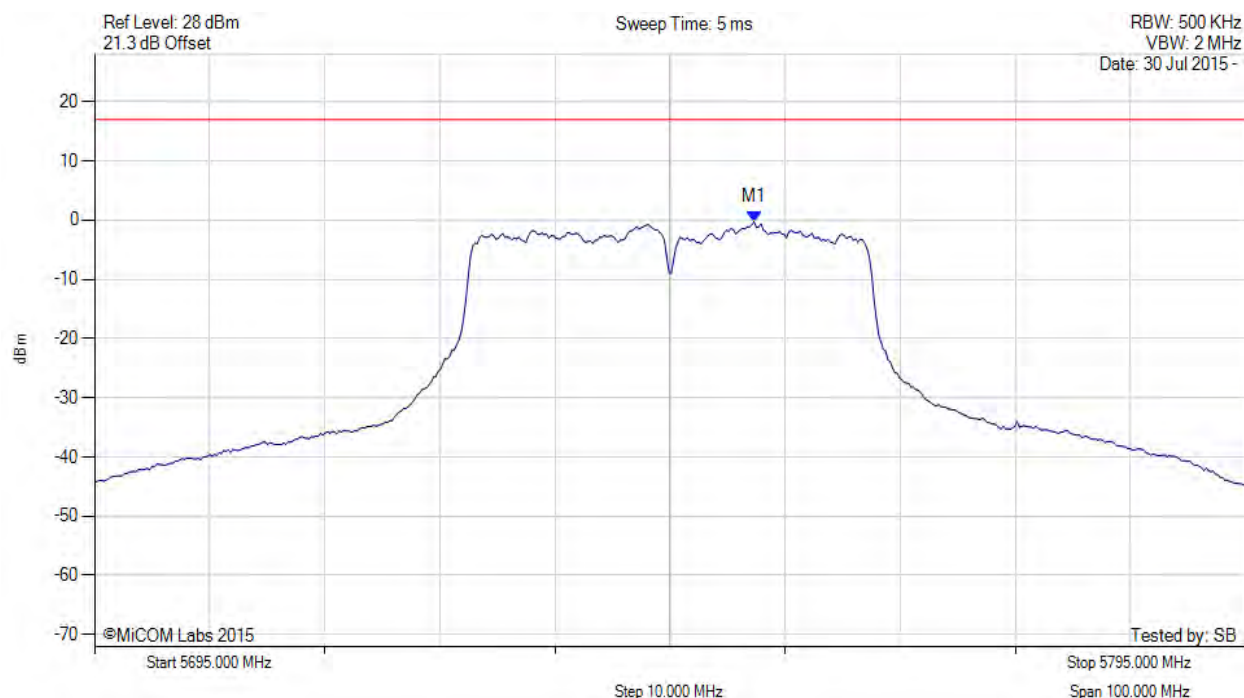
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5745.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5752.300 MHz : -0.298 dBm M1 + DCCF : 5752.300 MHz : 0.601 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -16.4 dB

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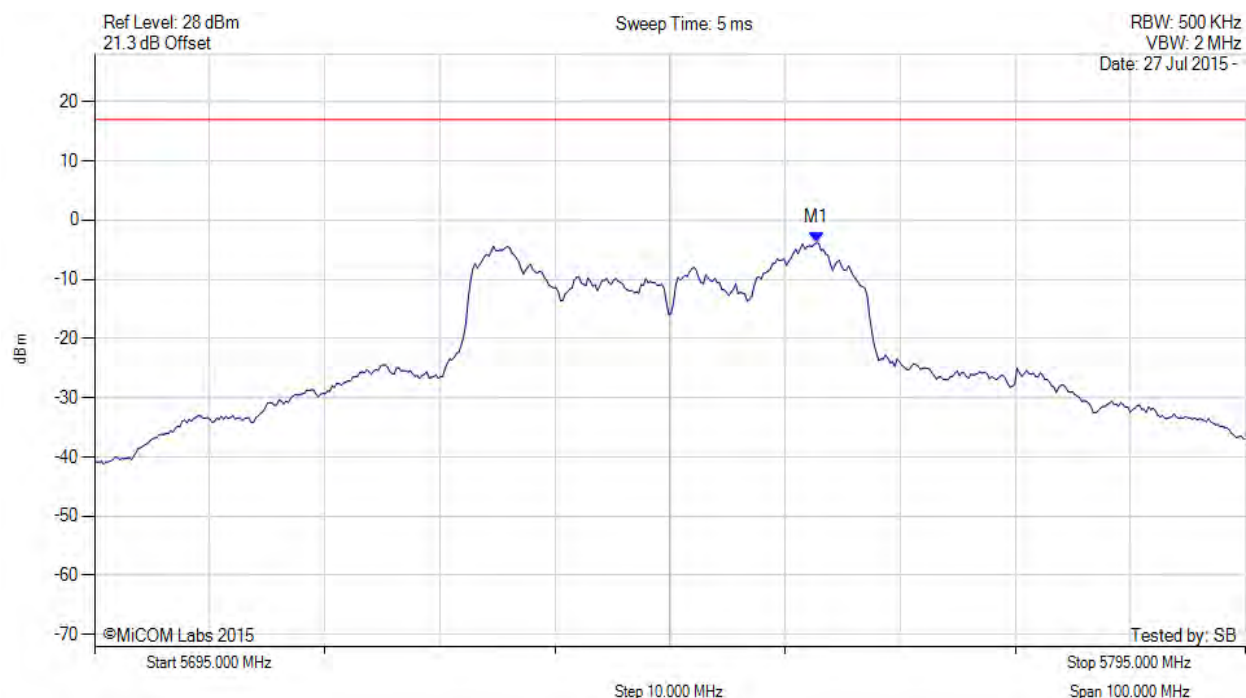


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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5745.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5757.700 MHz : -3.845 dBm M1 + DCCF : 5757.700 MHz : -2.946 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -19.9 dB

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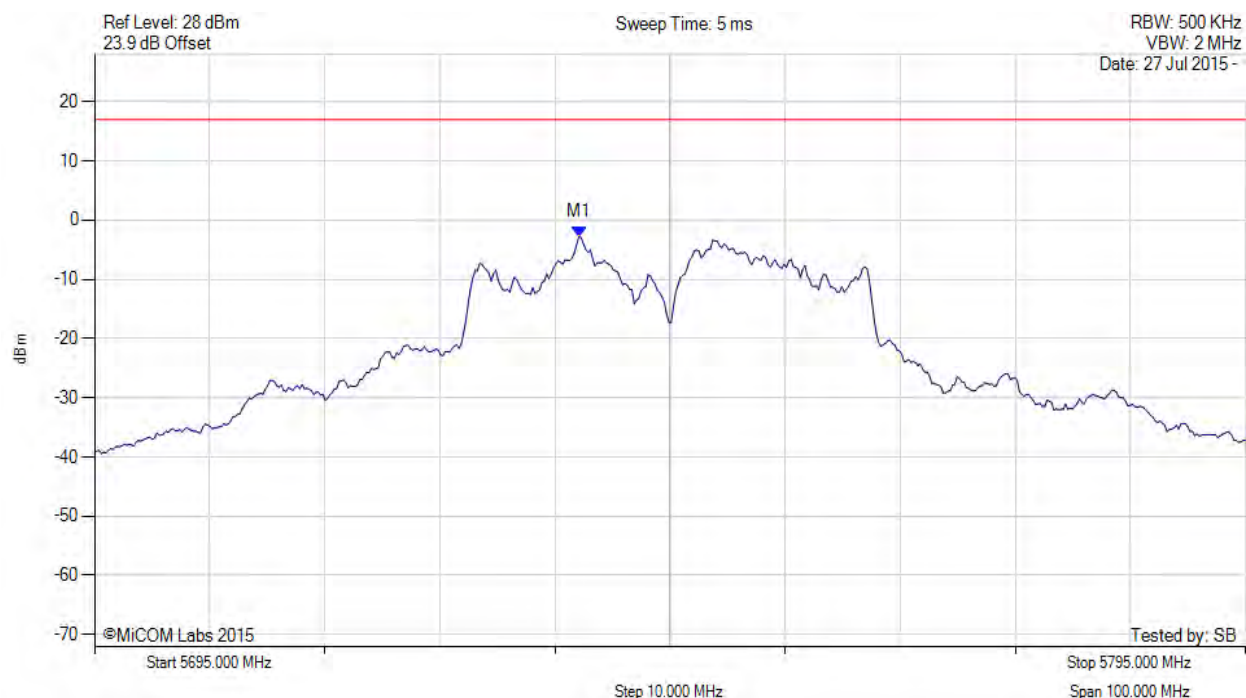


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5745.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5737.100 MHz : -2.820 dBm M1 + DCCF : 5737.100 MHz : -1.921 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -18.9 dB

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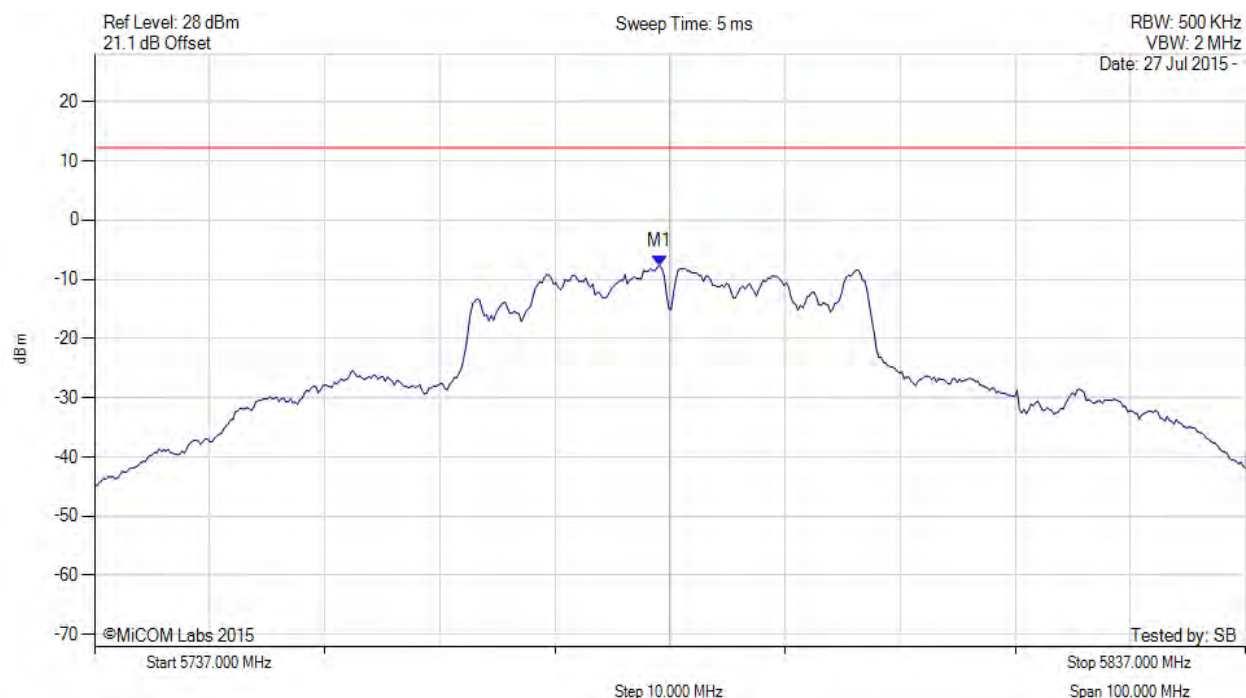


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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5786.098 MHz : -7.698 dBm	Limit: ≤ 12.230 dBm

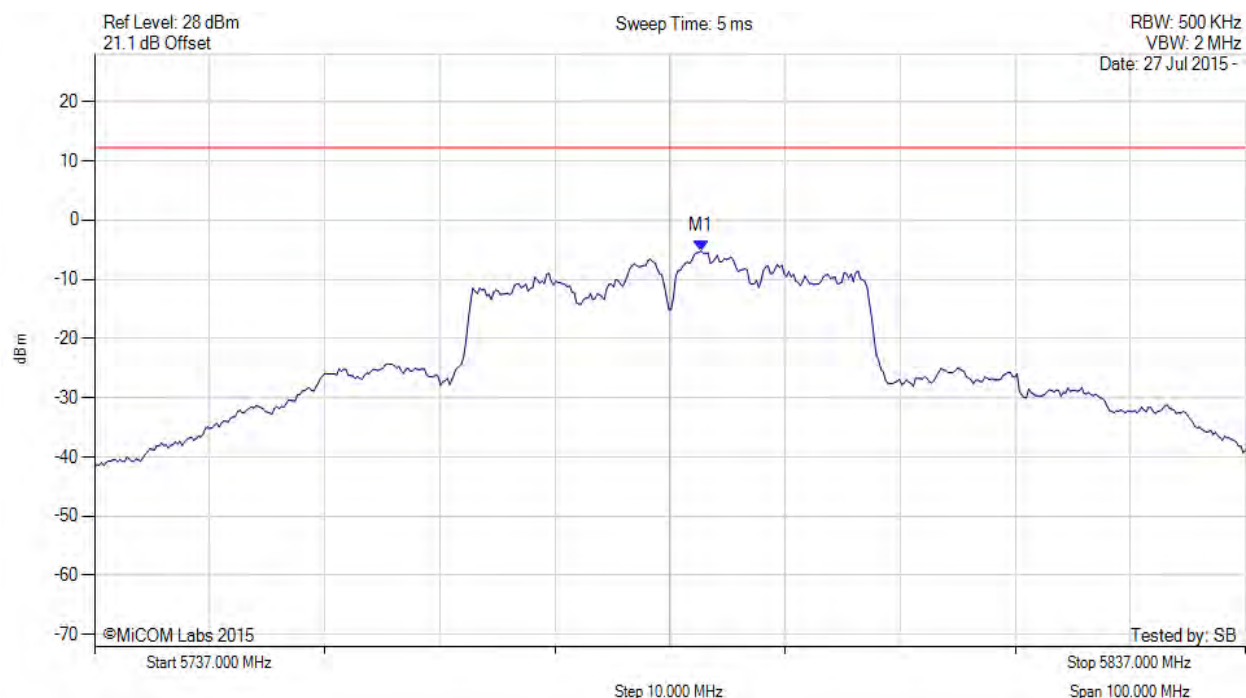
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.705 MHz : -5.218 dBm	Channel Frequency: 5787.00 MHz

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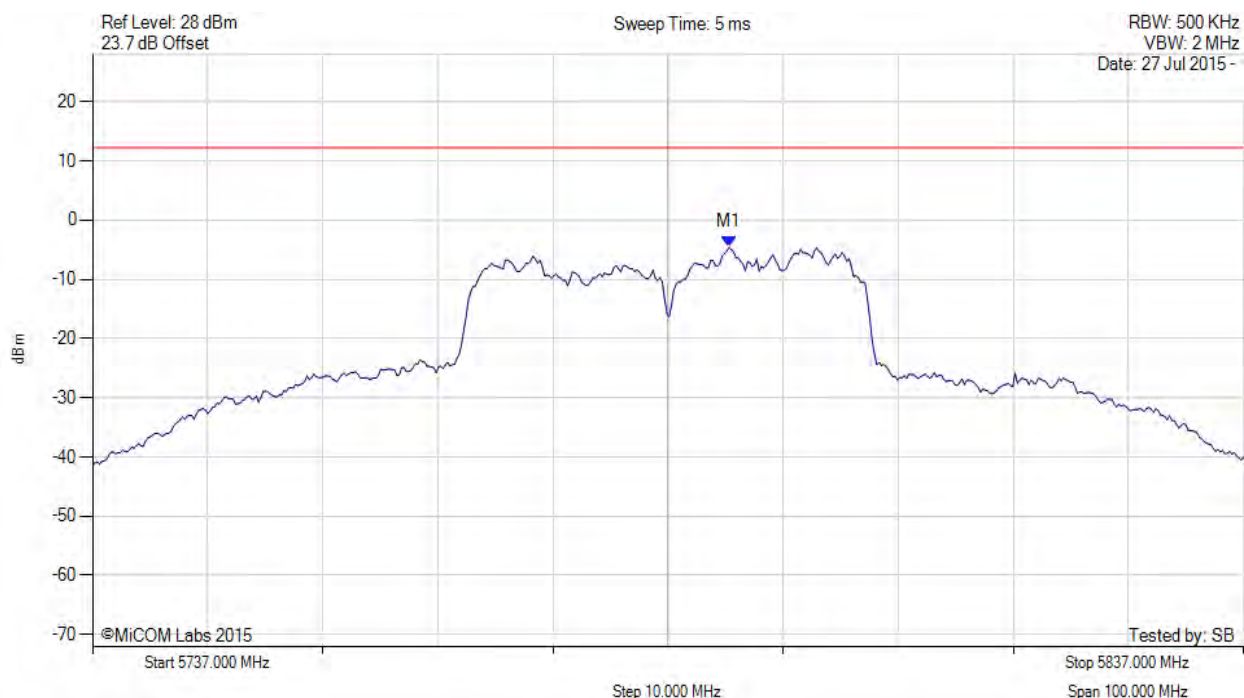


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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5792.311 MHz : -4.612 dBm	Limit: ≤ 12.230 dBm

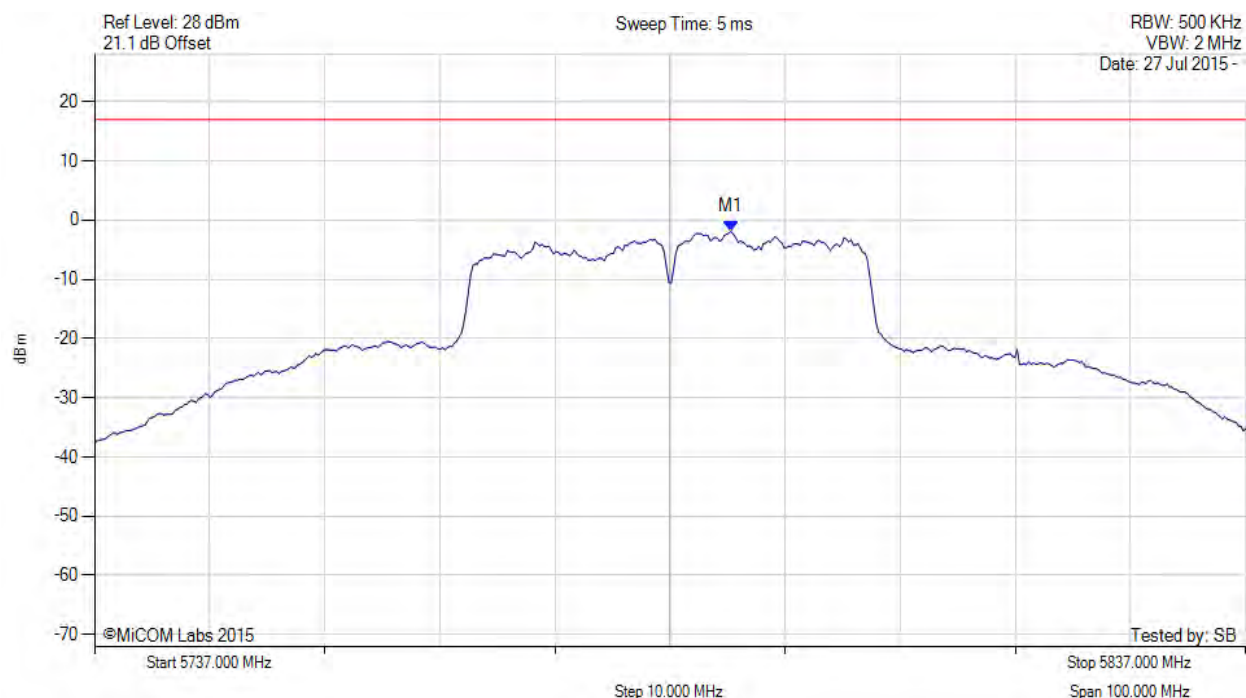
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5792.300 MHz : -1.905 dBm M1 + DCCF : 5792.300 MHz : -1.006 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -18.0 dB

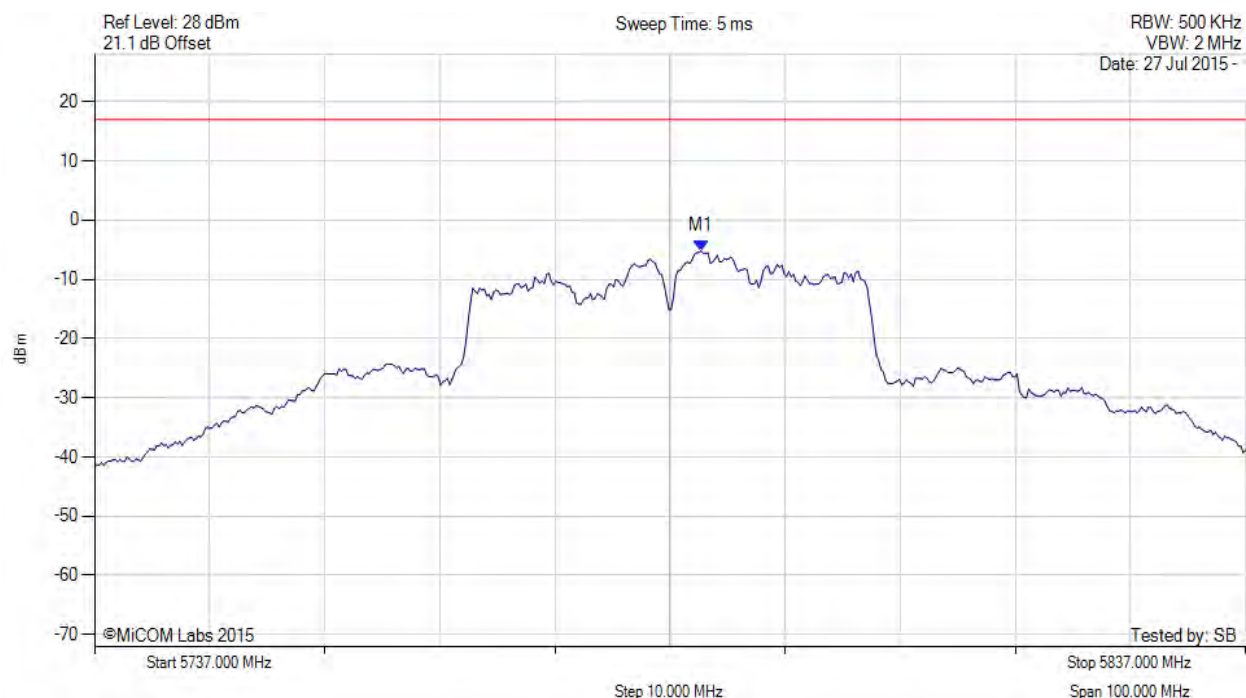
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.700 MHz : -5.218 dBm M1 + DCCF : 5789.700 MHz : -4.319 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -21.3 dB

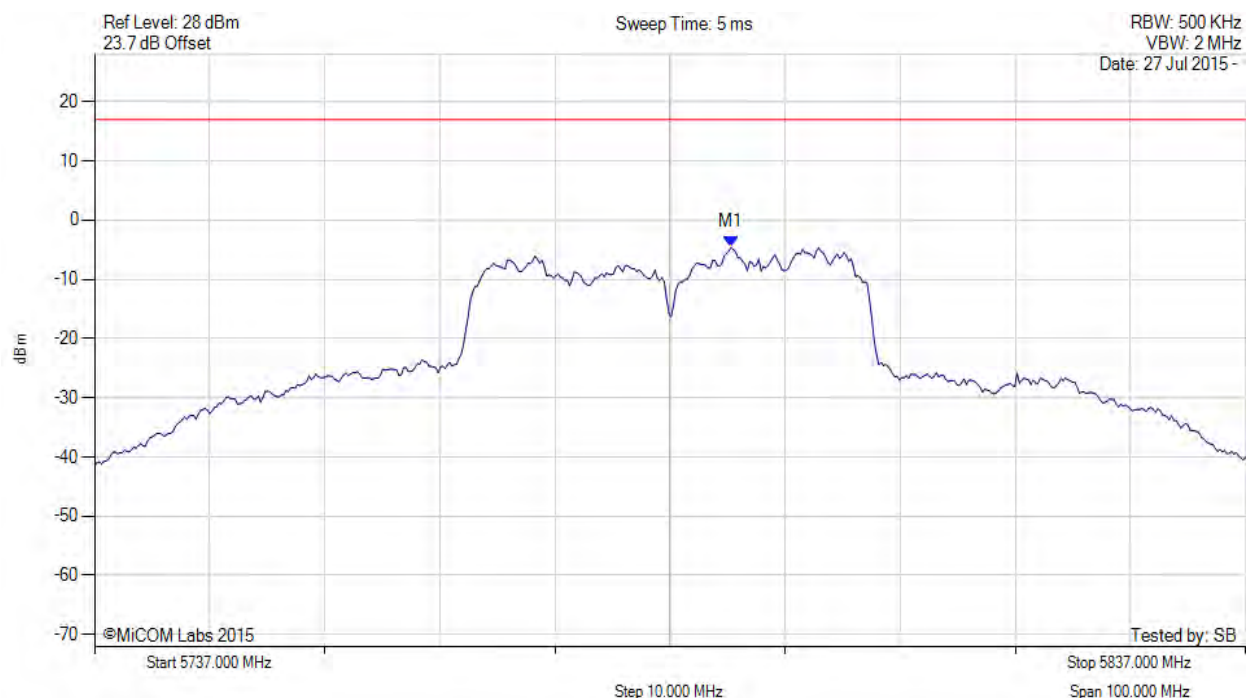
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5792.300 MHz : -4.612 dBm M1 + DCCF : 5792.300 MHz : -3.713 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -20.7 dB

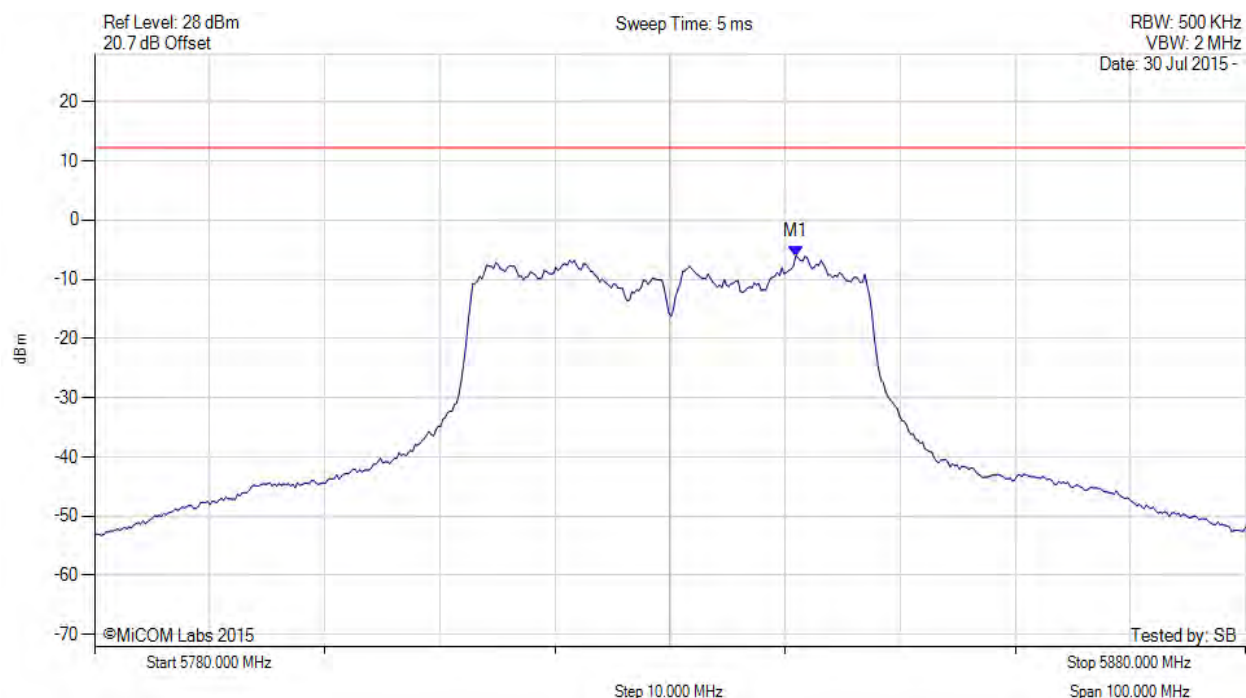
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5830.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5840.922 MHz : -6.090 dBm	Limit: ≤ 12.230 dBm

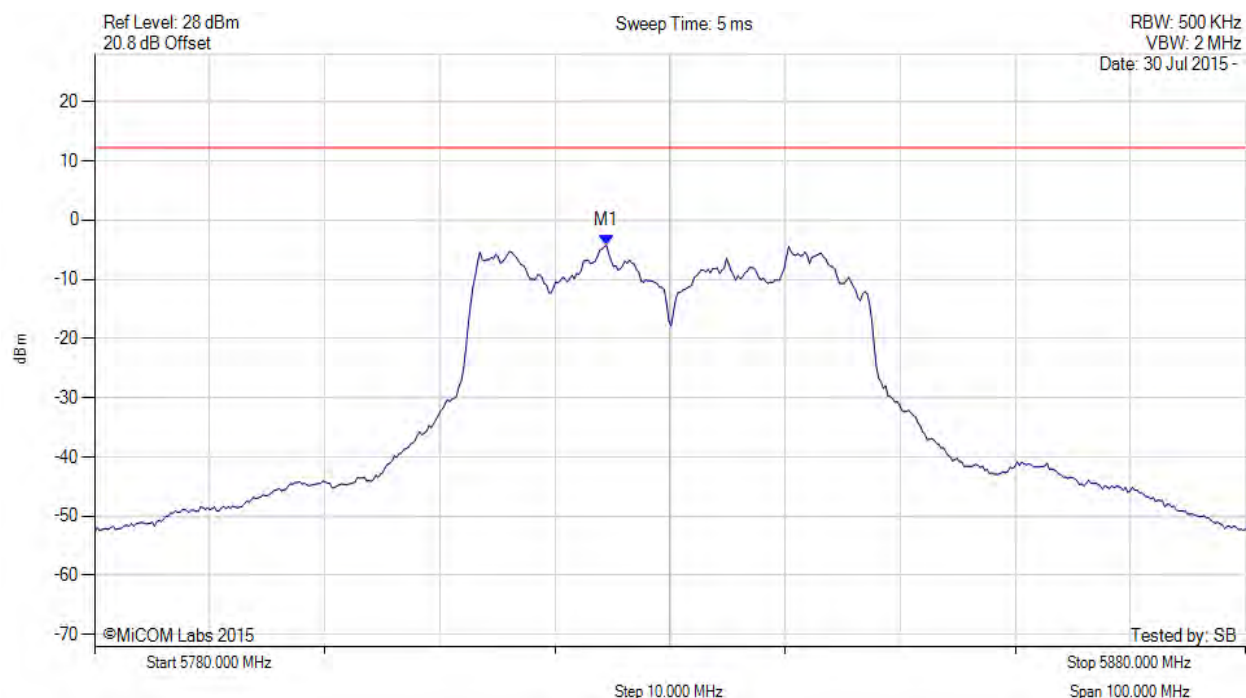
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5830.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5824.489 MHz : -4.276 dBm	Limit: ≤ 12.230 dBm

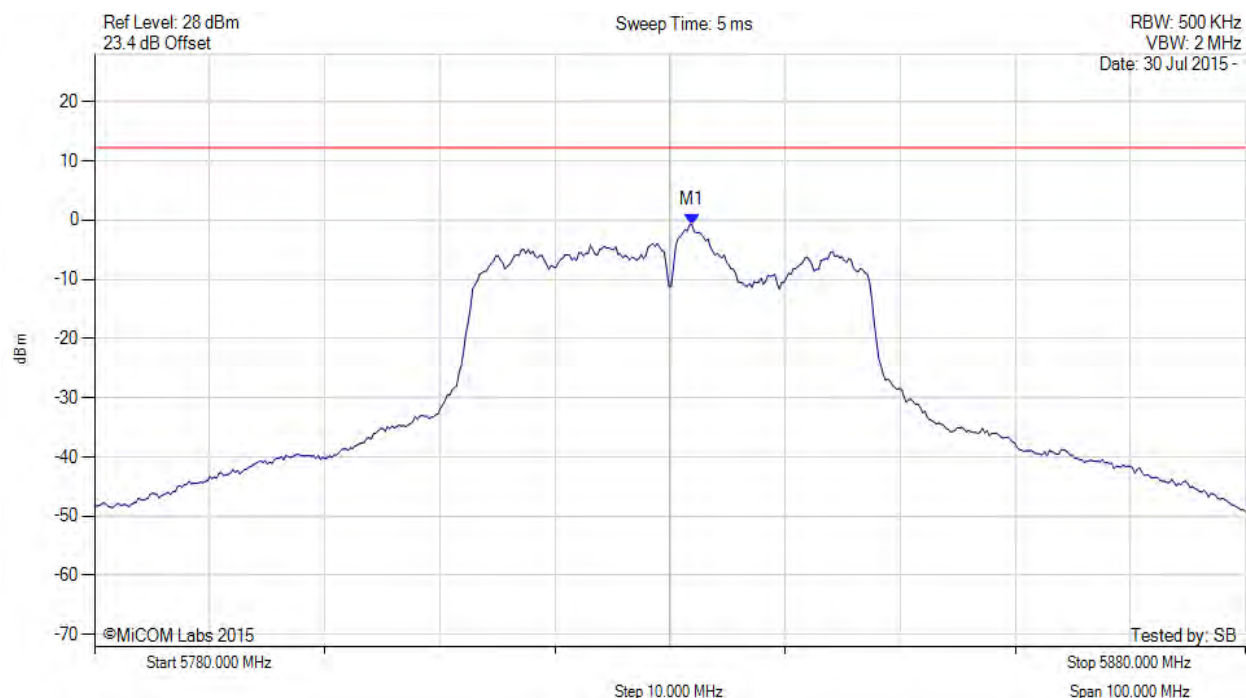
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5830.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5831.904 MHz : -0.749 dBm	Limit: ≤ 12.230 dBm

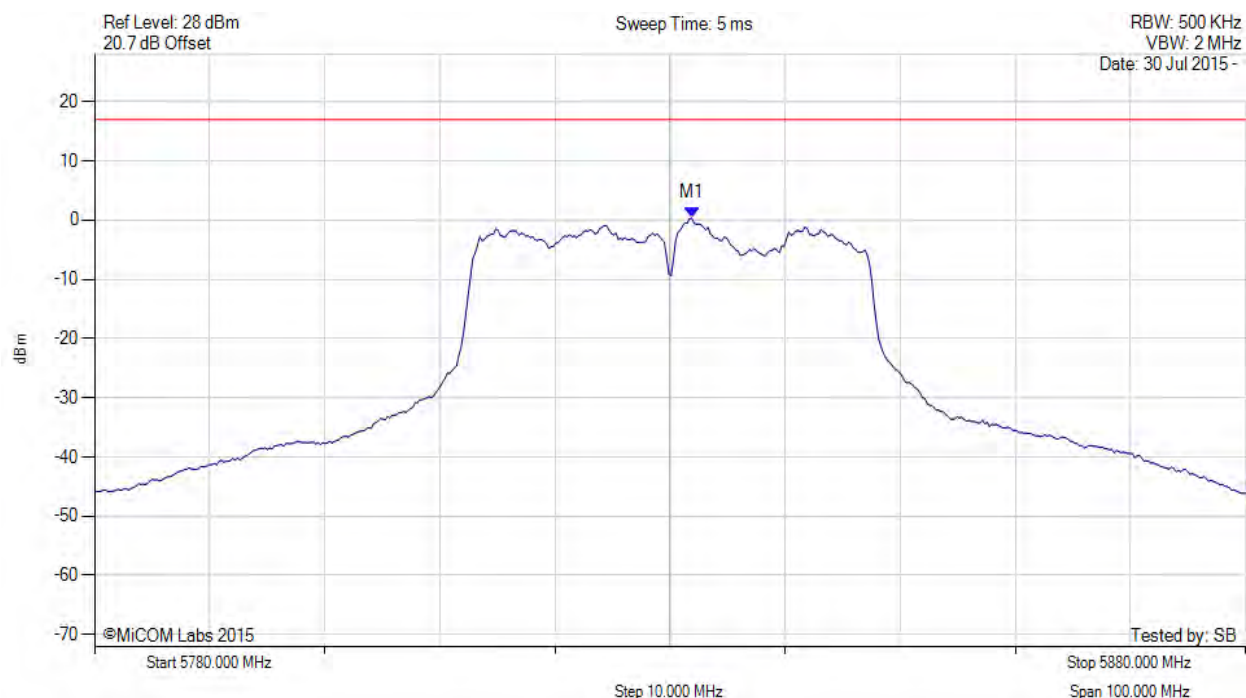
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5830.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5831.900 MHz : 0.306 dBm M1 + DCCF : 5831.900 MHz : 1.205 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -15.8 dB

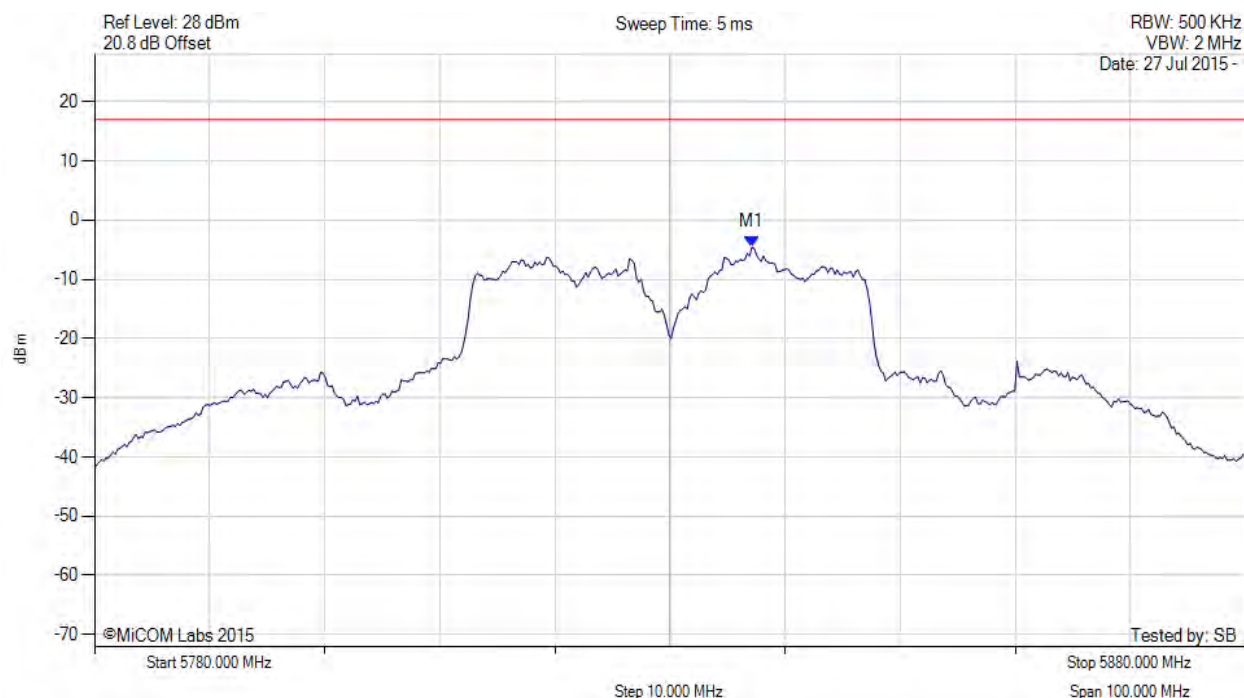
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5830.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5837.100 MHz : -4.606 dBm M1 + DCCF : 5837.100 MHz : -3.707 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -20.7 dB

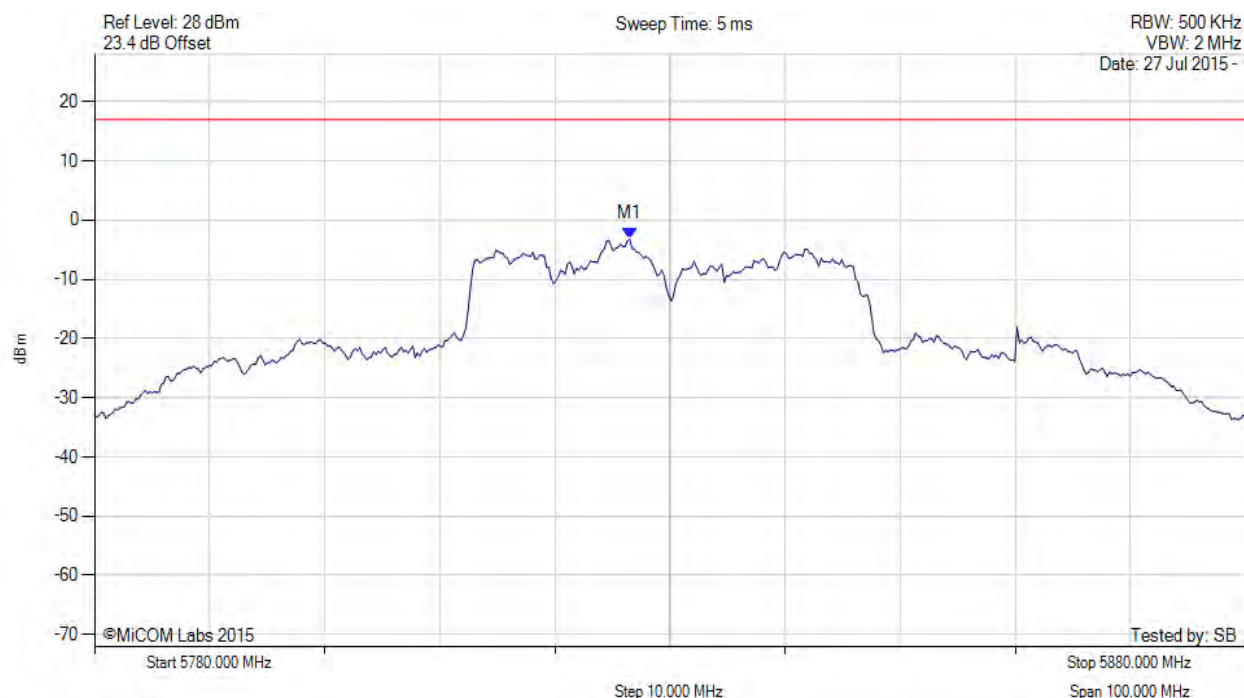
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POWER SPECTRAL DENSITY

Variant: 40 MHz, Channel: 5830.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5826.500 MHz : -3.205 dBm M1 + DCCF : 5826.500 MHz : -2.306 dBm Duty Cycle Correction Factor : +0.92 dB	Limit: ≤ 17.0 dBm Margin: -19.3 dB

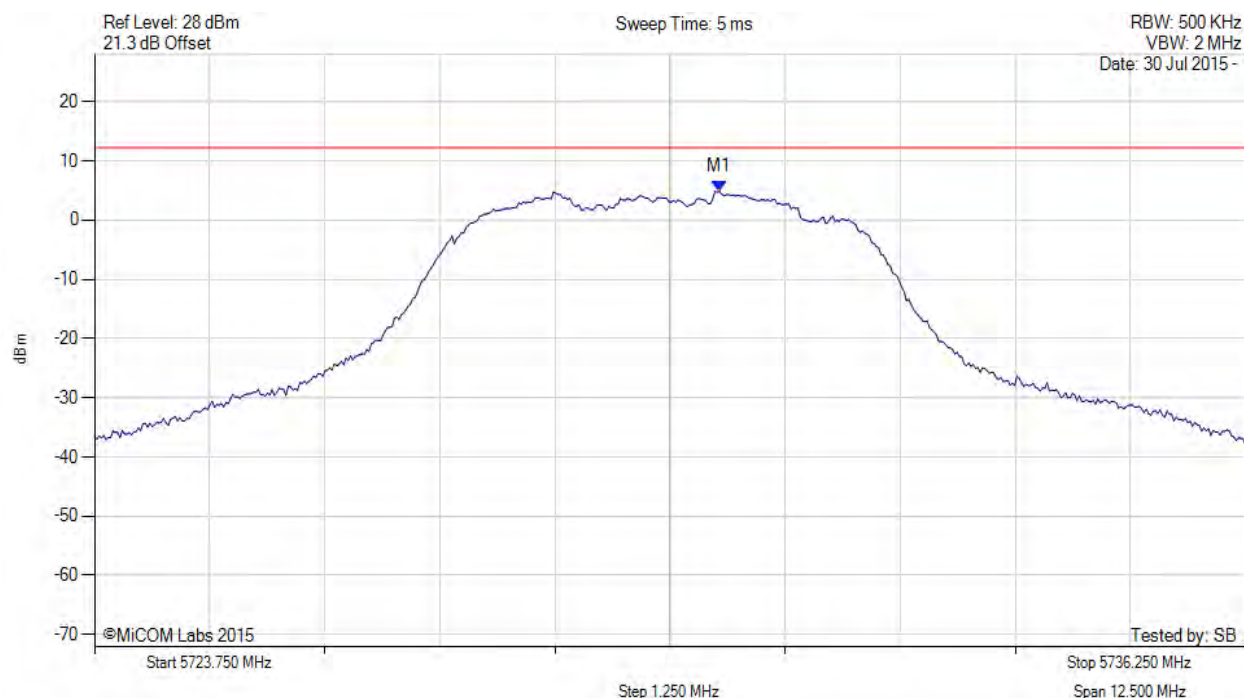
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5730.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5730.539 MHz : 4.858 dBm	Limit: ≤ 12.230 dBm

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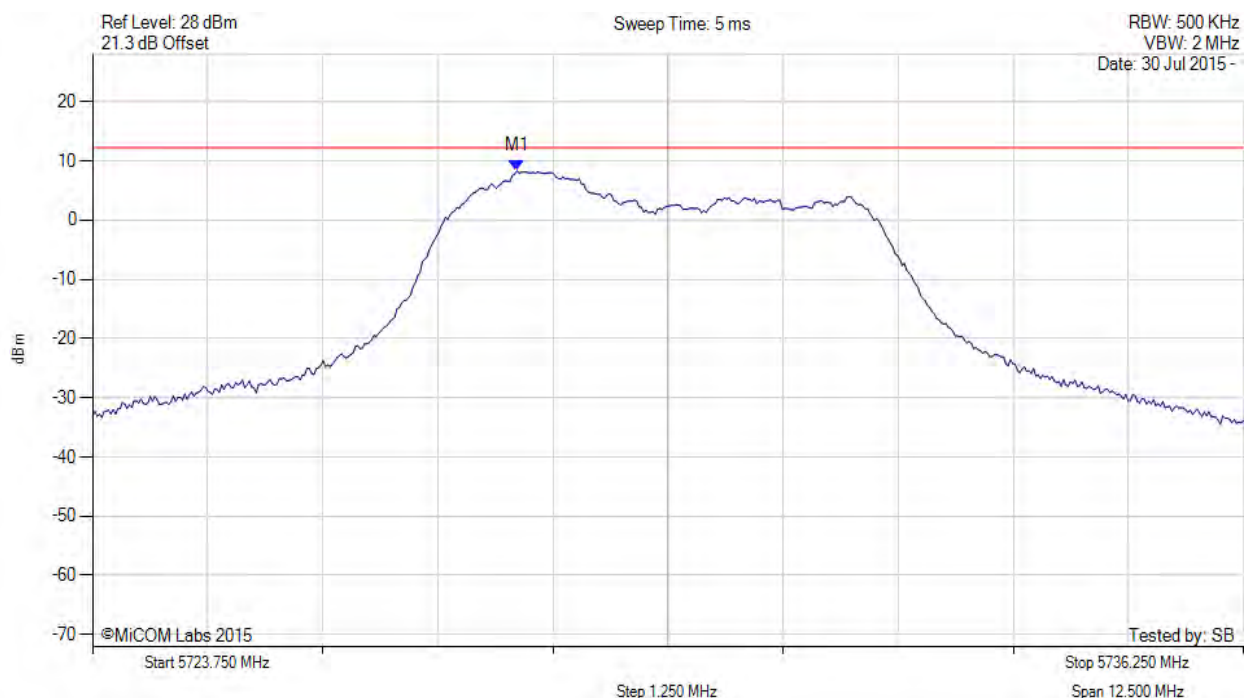


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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5730.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5728.359 MHz : 8.284 dBm	Limit: ≤ 12.230 dBm

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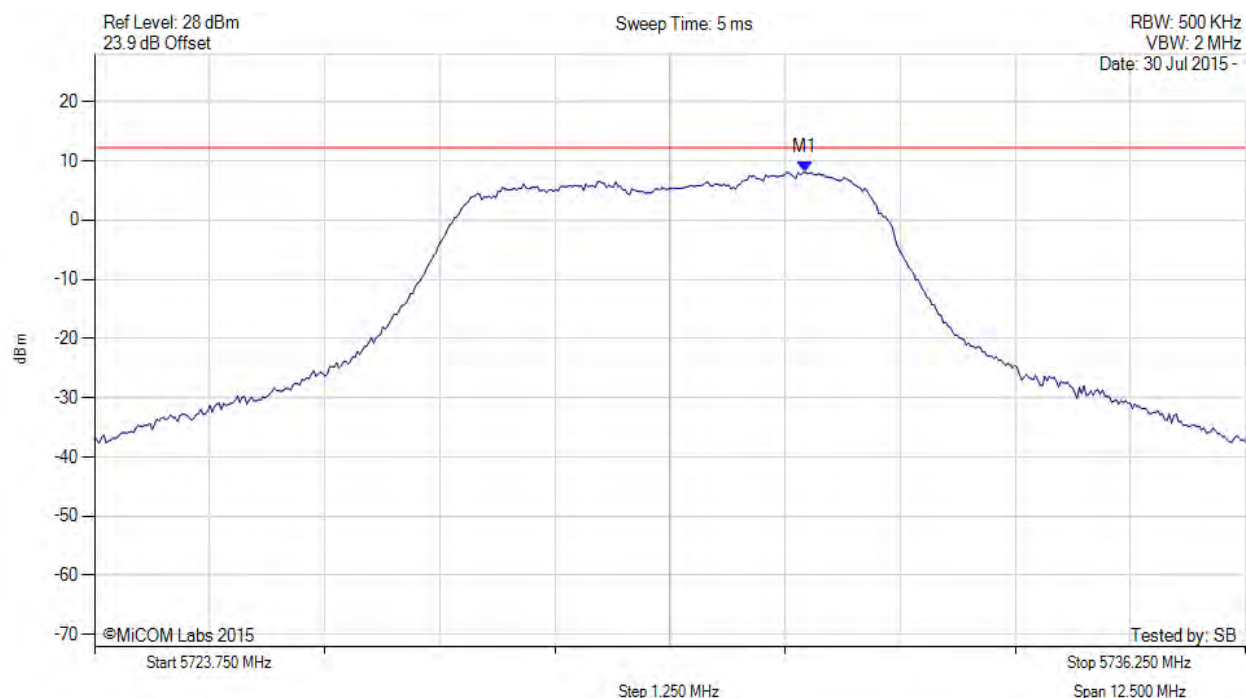


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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5730.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5731.465 MHz : 8.111 dBm	Limit: ≤ 12.230 dBm

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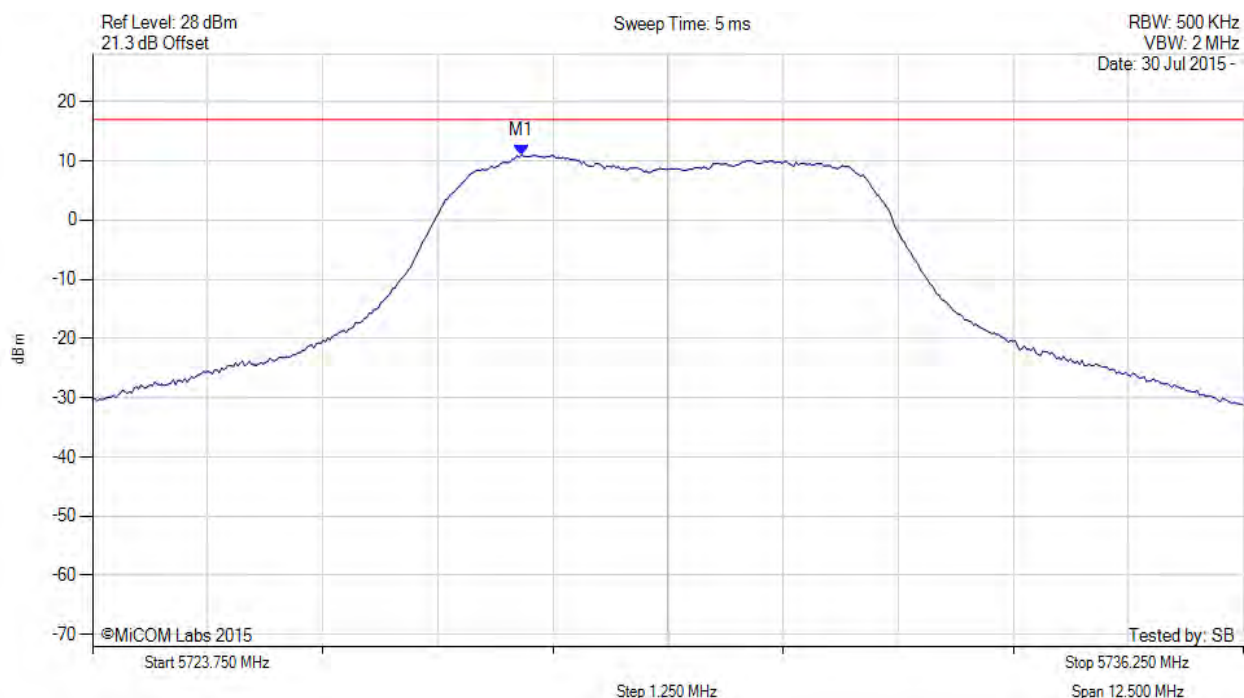


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
Serial #: RDWN38-U3 Rev A
Issue Date: 20th August 2015
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5730.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5728.400 MHz : 10.997 dBm M1 + DCCF : 5728.400 MHz : 11.552 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -5.4 dB

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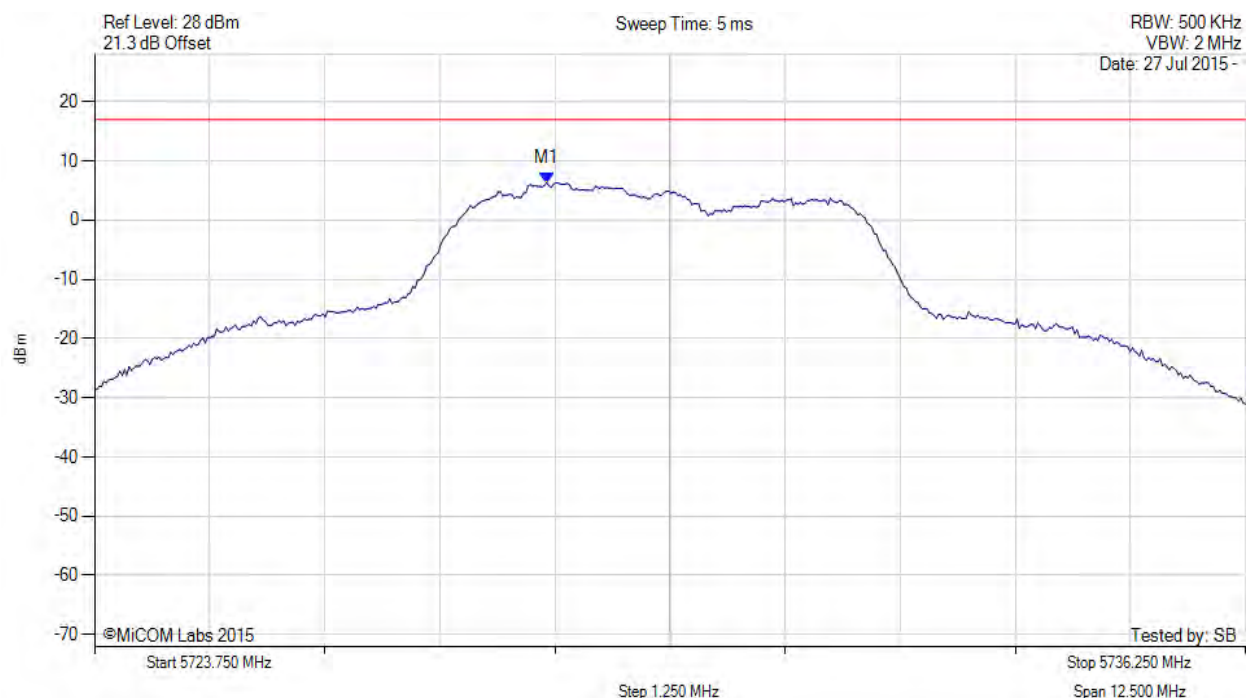


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5730.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5728.700 MHz : 6.319 dBm M1 + DCCF : 5728.700 MHz : 6.874 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -10.1 dB

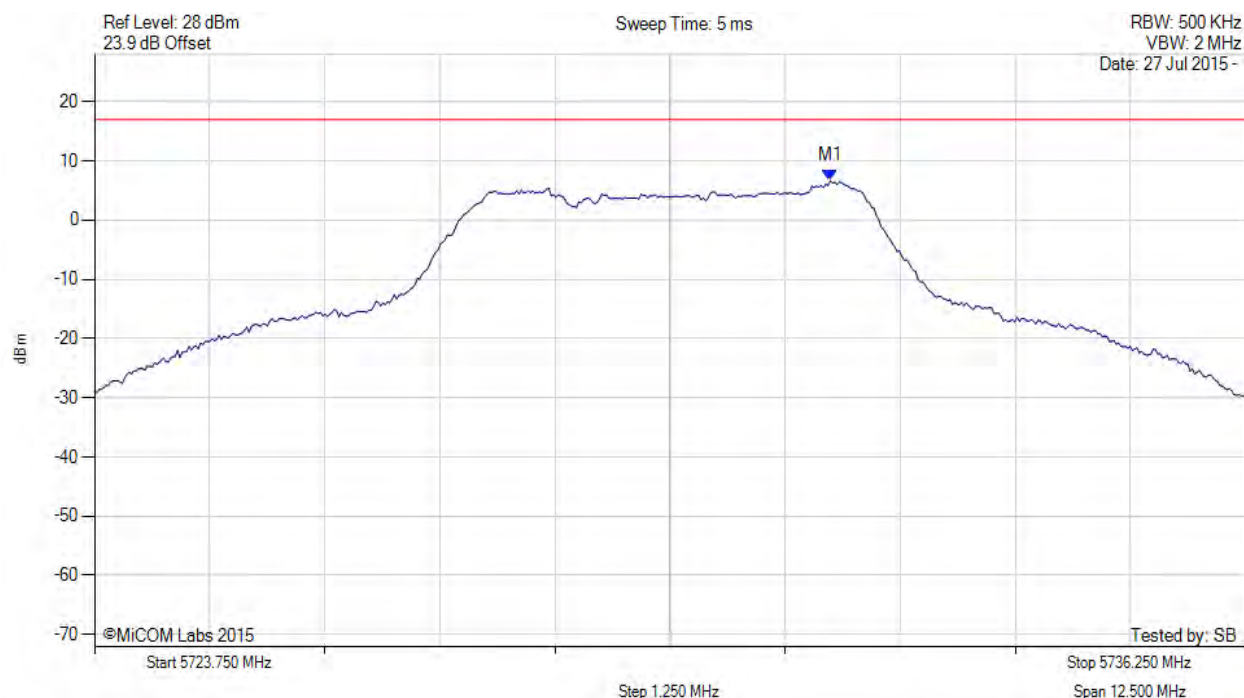
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5730.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5731.700 MHz : 6.626 dBm M1 + DCCF : 5731.700 MHz : 7.181 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -9.8 dB

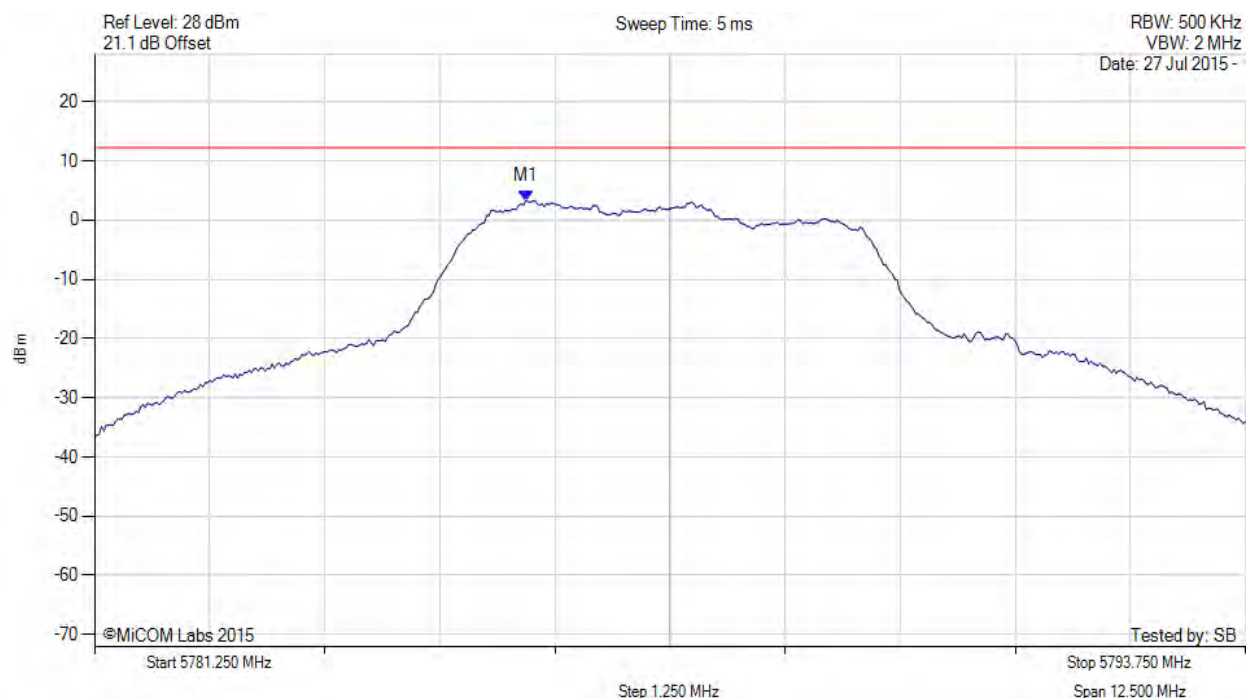
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5785.934 MHz : 3.279 dBm	Limit: ≤ 12.230 dBm

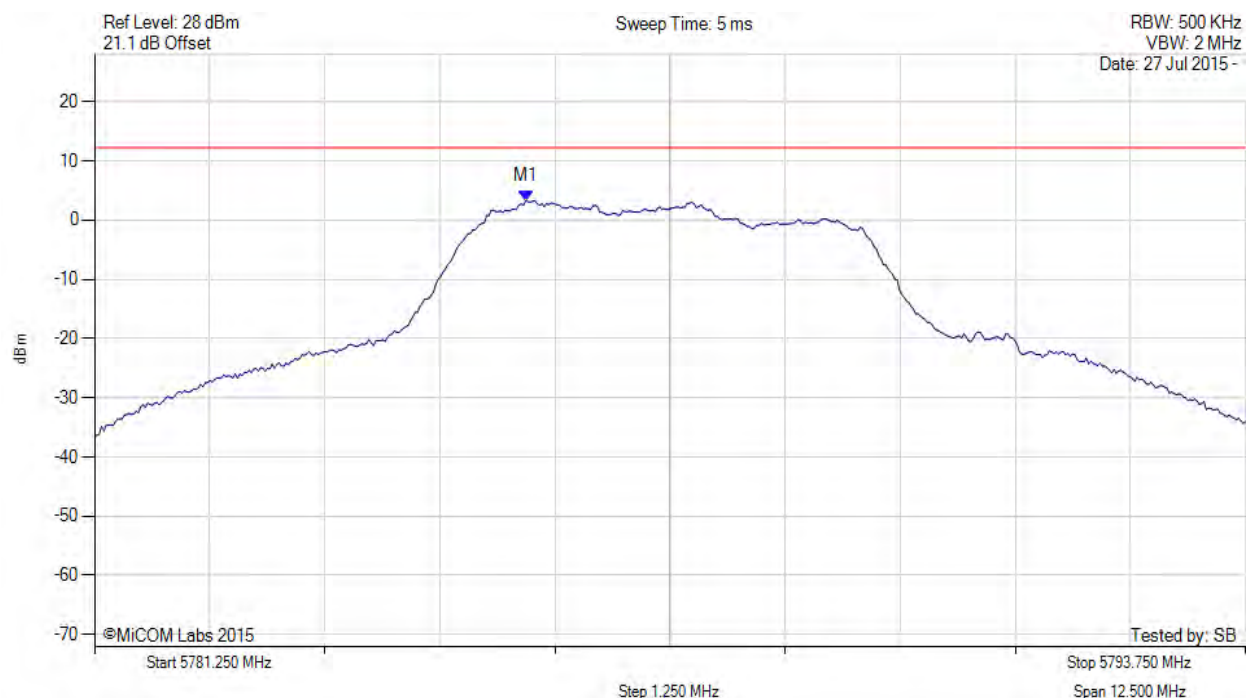
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5785.934 MHz : 3.279 dBm	Limit: ≤ 12.230 dBm

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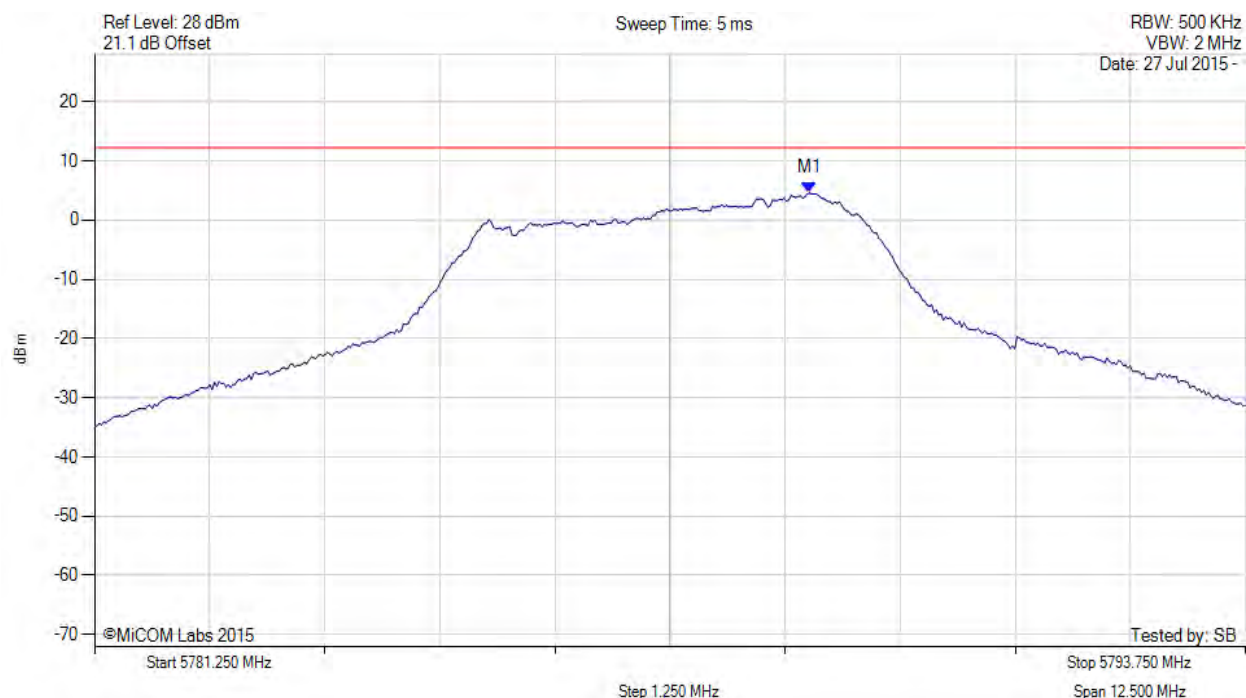


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.016 MHz : 4.556 dBm	Channel Frequency: 5787.50 MHz

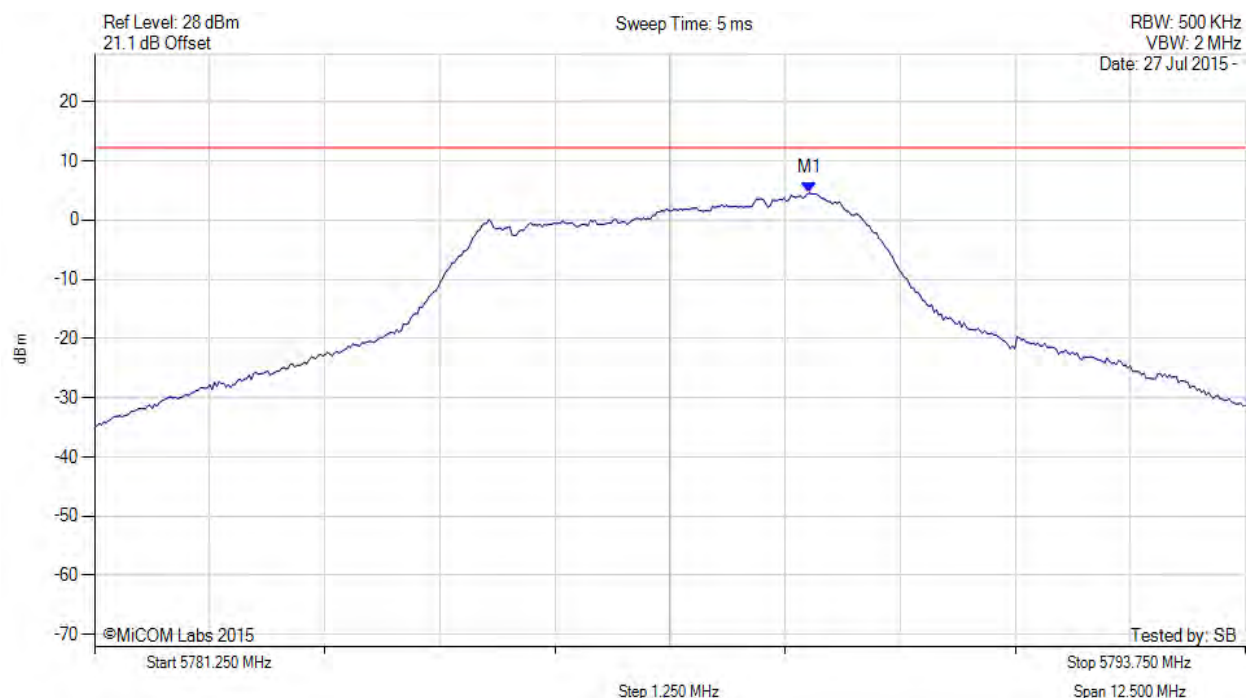
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.016 MHz : 4.556 dBm	Limit: ≤ 12.230 dBm

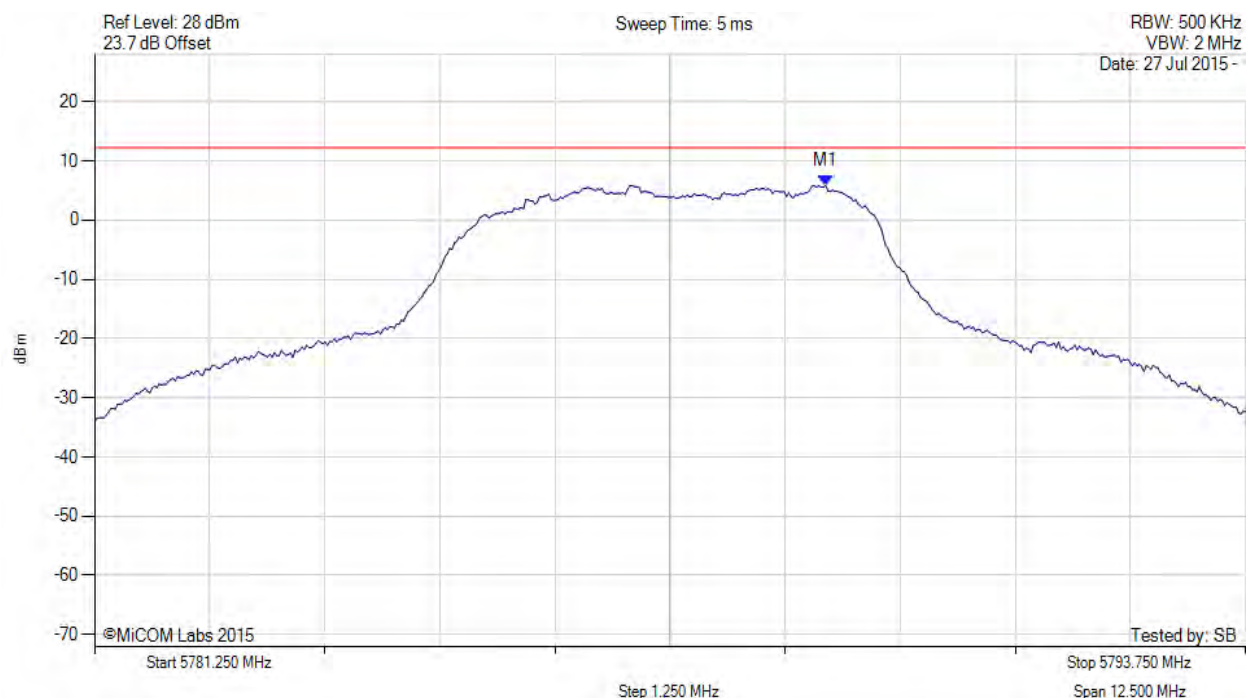
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.191 MHz : 5.822 dBm	Limit: ≤ 12.230 dBm

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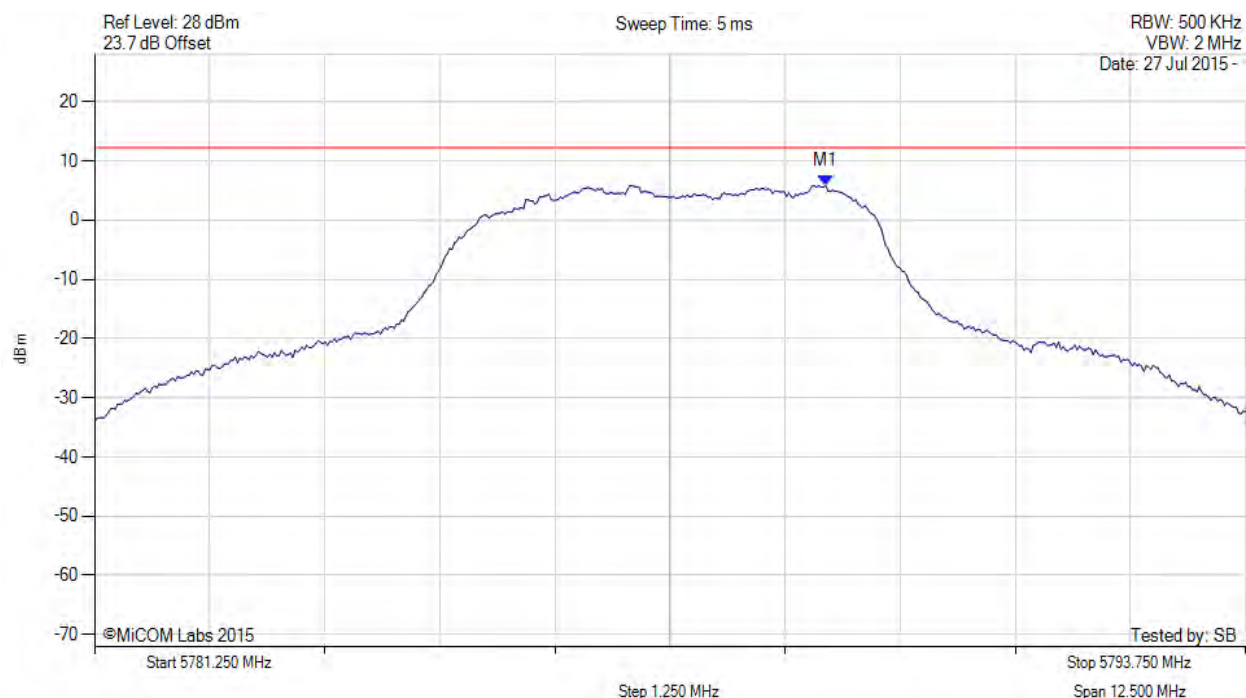


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.191 MHz : 5.822 dBm	Limit: ≤ 12.230 dBm

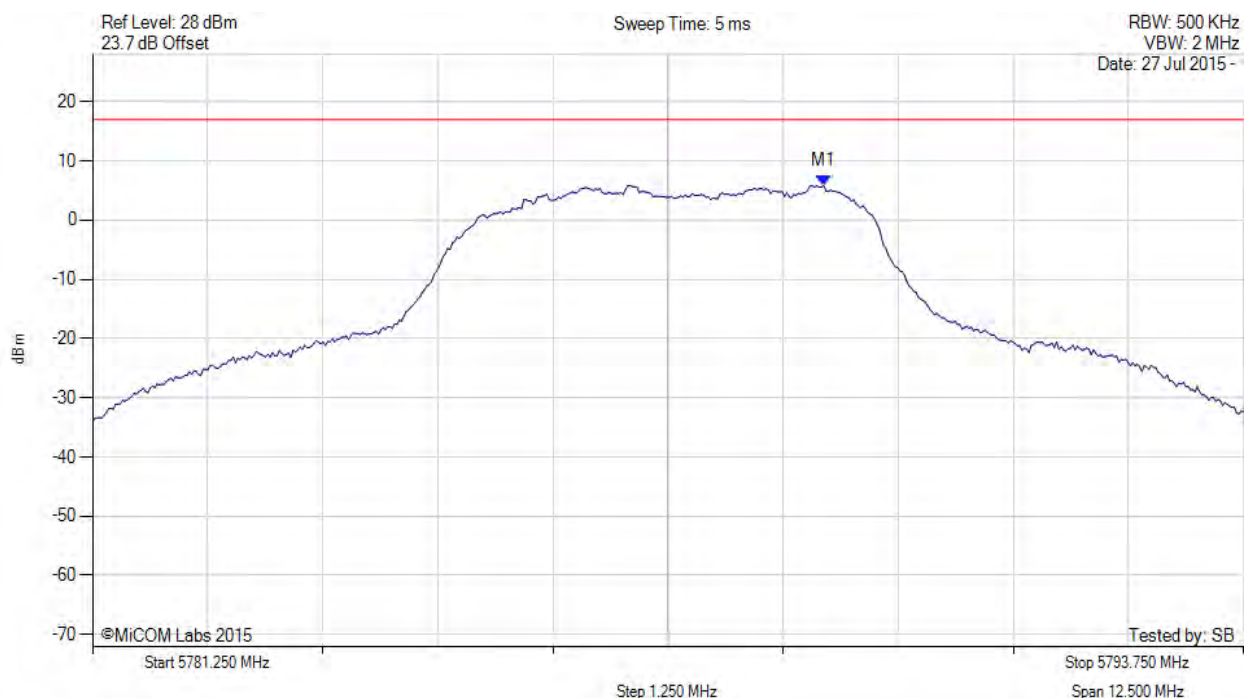
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.200 MHz : 5.822 dBm M1 + DCCF : 5789.200 MHz : 6.377 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -10.6 dB

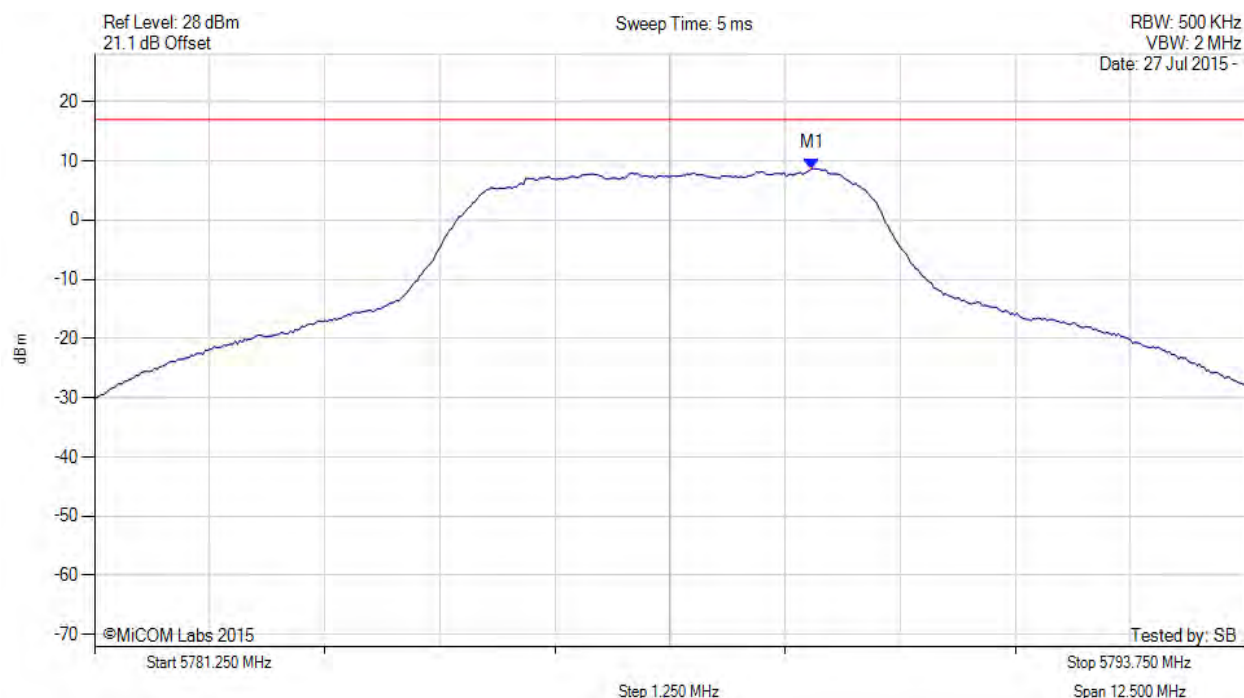
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.000 MHz : 8.699 dBm M1 + DCCF : 5789.000 MHz : 9.254 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -7.7 dB

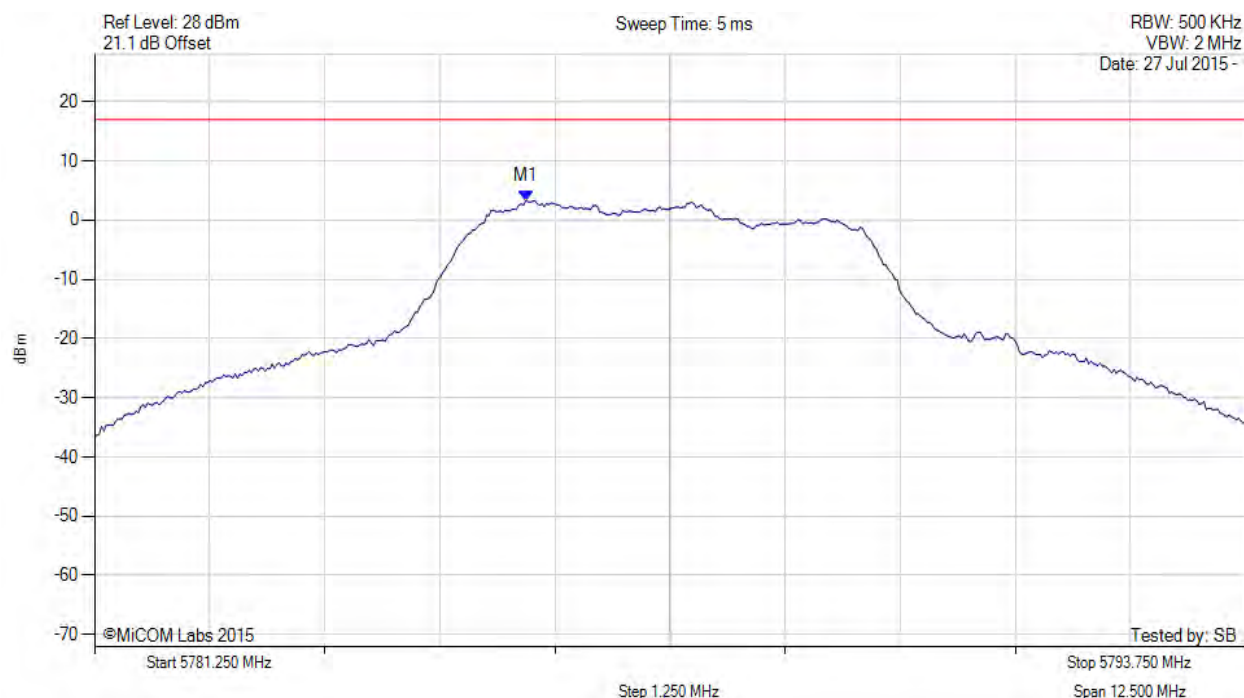
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5785.900 MHz : 3.279 dBm M1 + DCCF : 5785.900 MHz : 3.834 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -13.1 dB

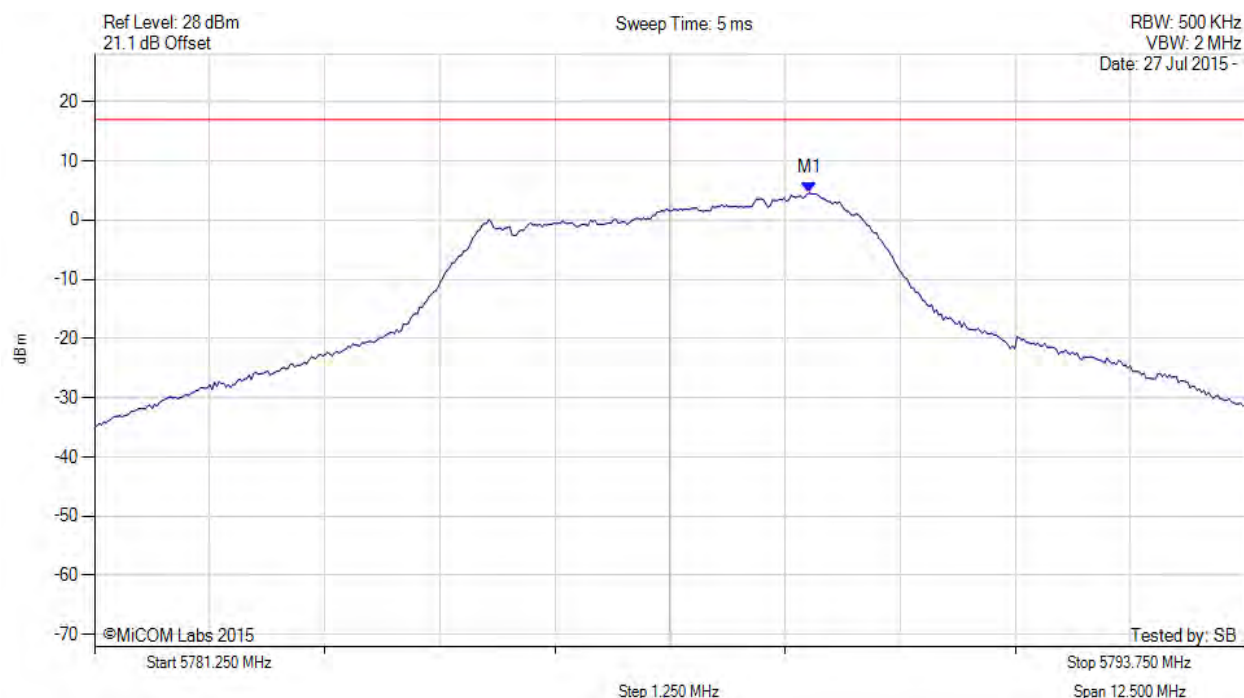
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5787.50 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.000 MHz : 4.556 dBm M1 + DCCF : 5789.000 MHz : 5.111 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -11.9 dB

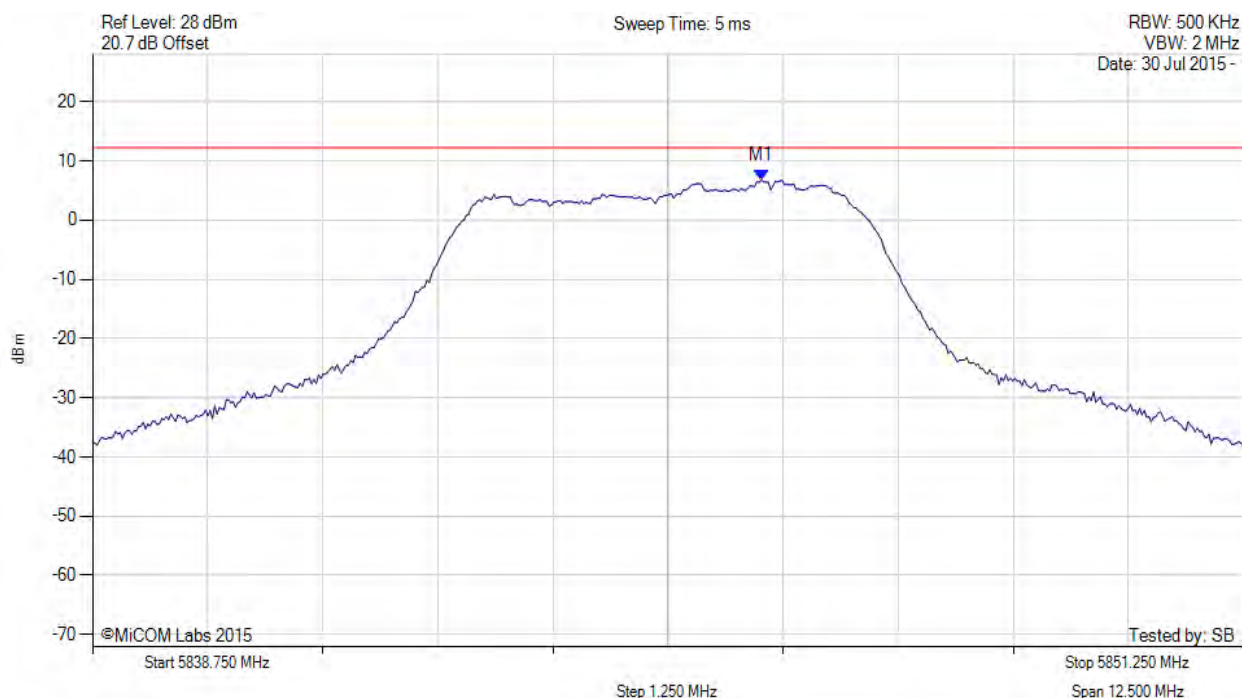
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5845.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5846.015 MHz : 6.770 dBm	Limit: ≤ 12.230 dBm

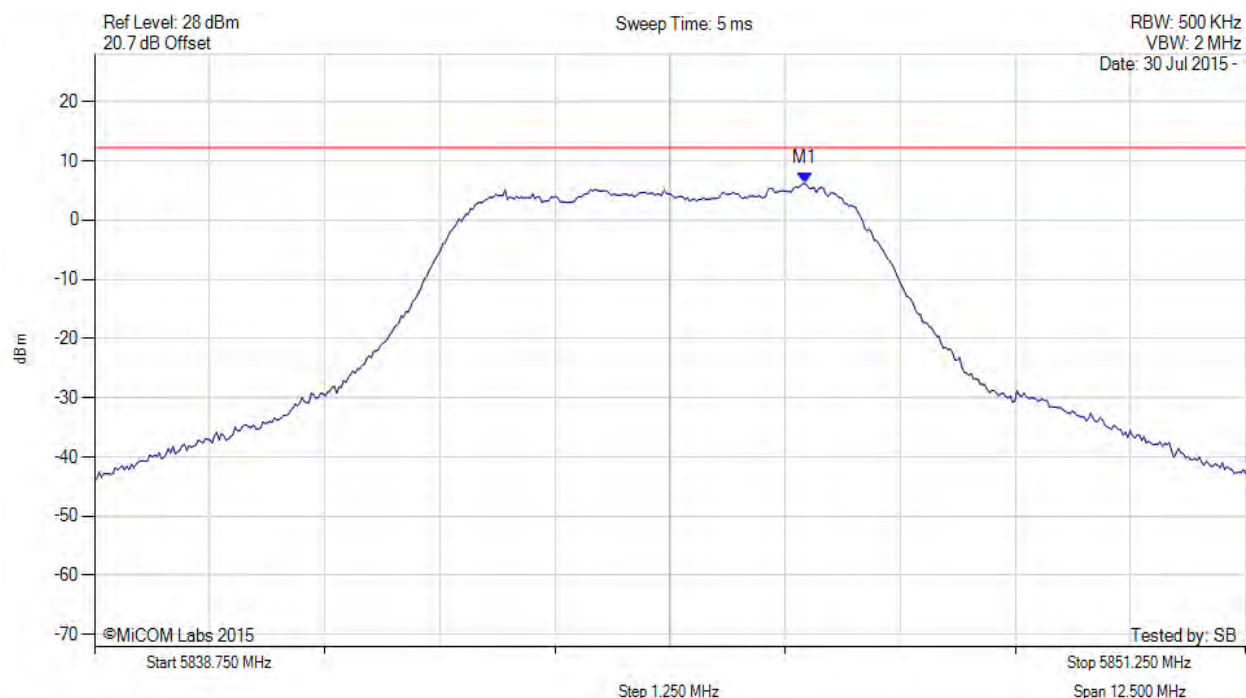
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5845.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5846.465 MHz : 6.181 dBm	Limit: ≤ 12.230 dBm

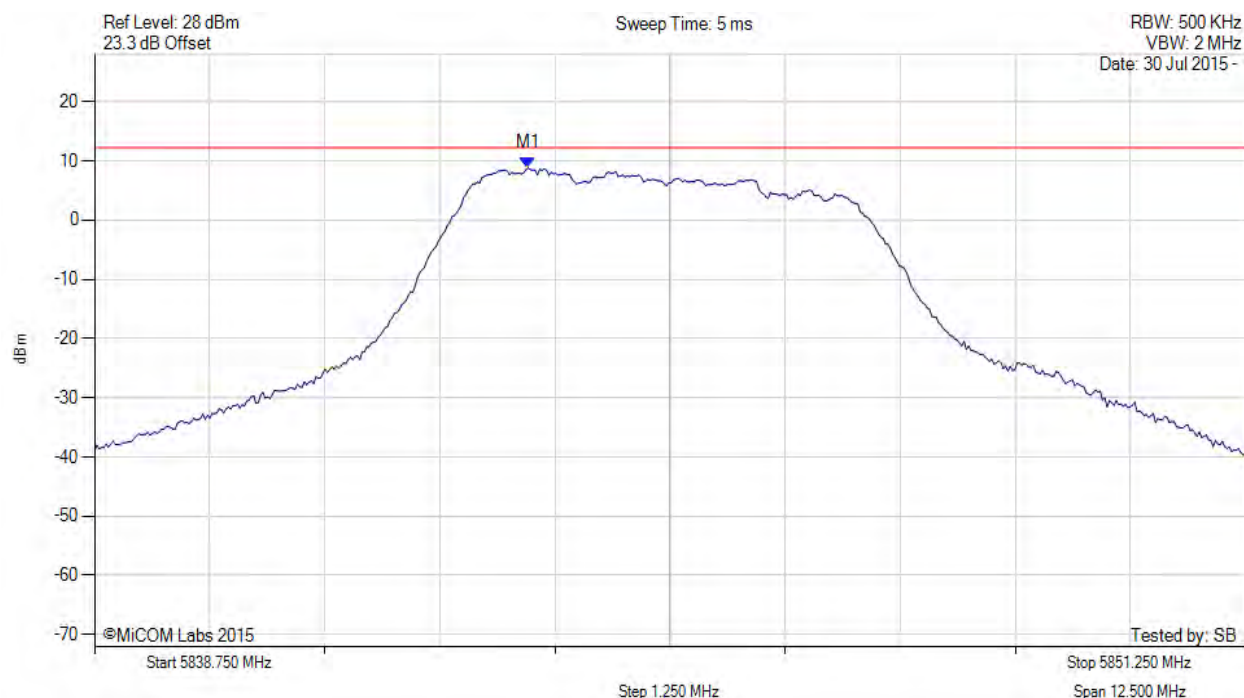
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5845.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.459 MHz : 8.791 dBm	Limit: ≤ 12.230 dBm

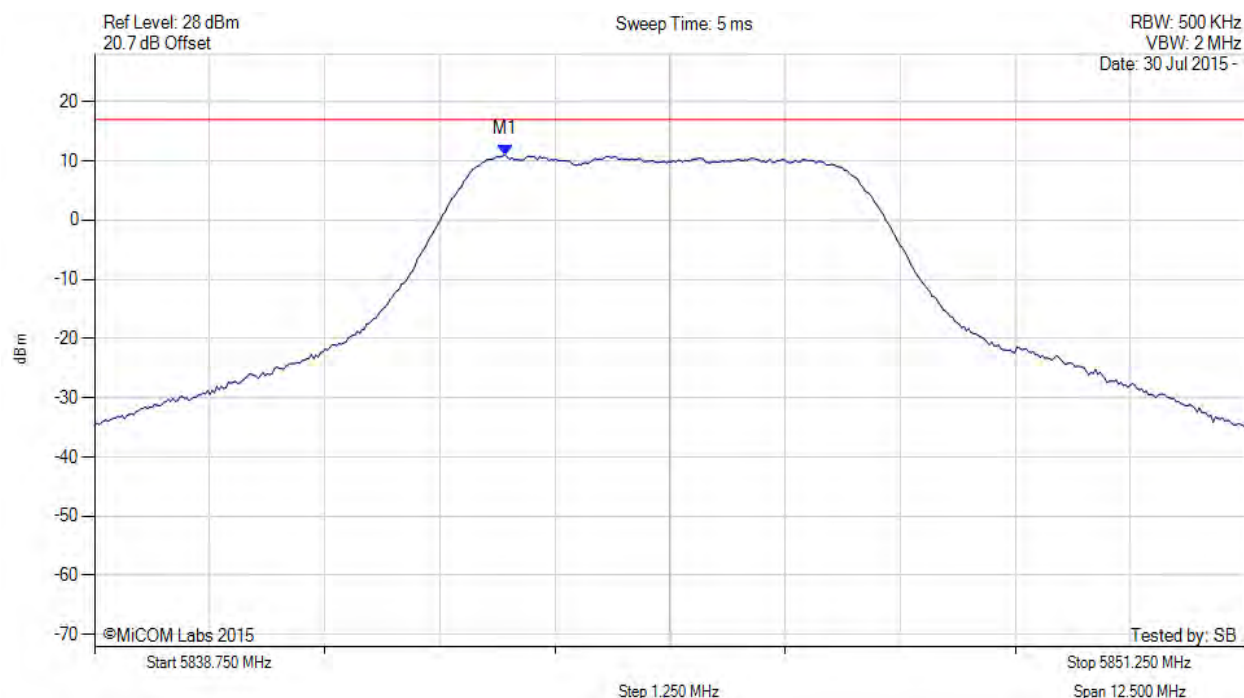
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5845.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.200 MHz : 11.037 dBm M1 + DCCF : 5843.200 MHz : 11.592 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -5.4 dB

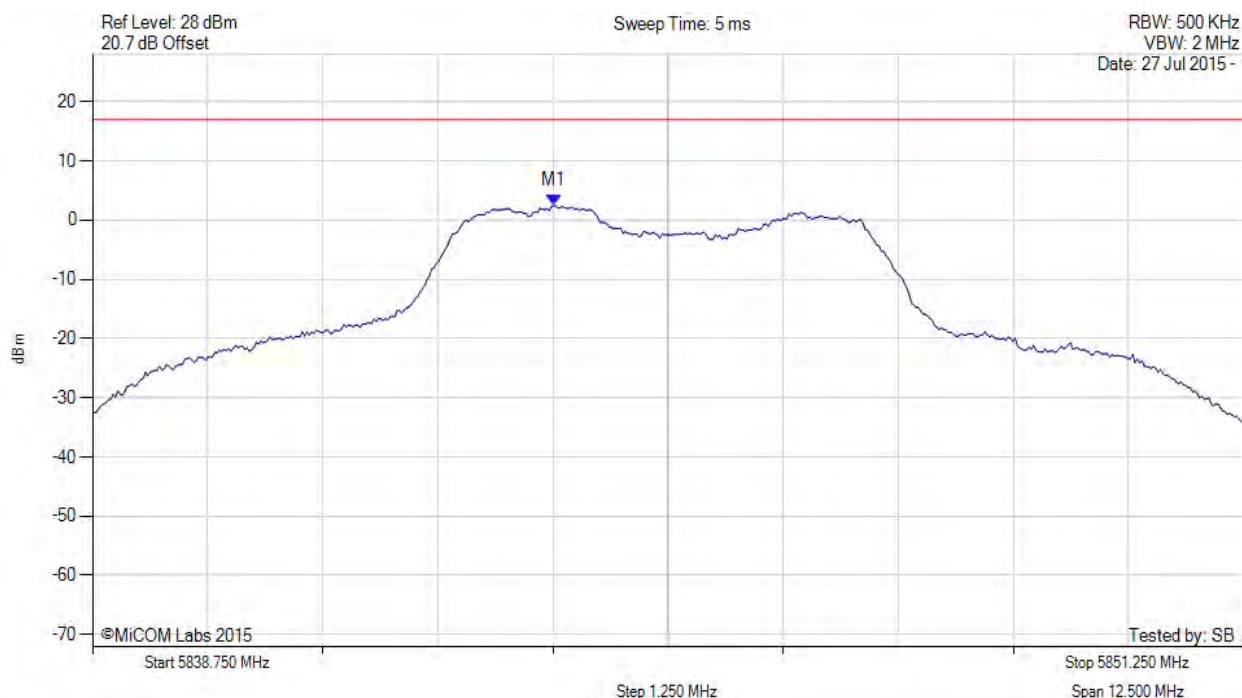
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5845.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5843.800 MHz : 2.468 dBm M1 + DCCF : 5843.800 MHz : 3.023 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -13.9 dB

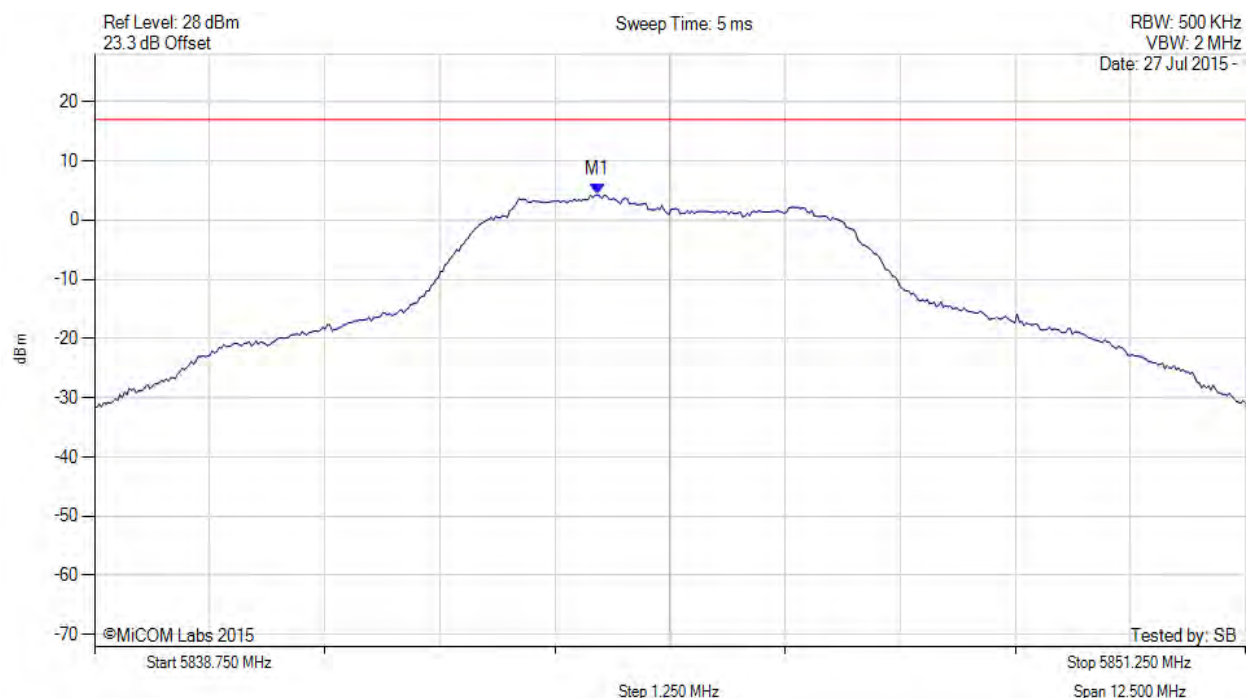
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POWER SPECTRAL DENSITY

Variant: 5 MHz, Channel: 5845.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5844.200 MHz : 4.280 dBm M1 + DCCF : 5844.200 MHz : 4.835 dBm Duty Cycle Correction Factor : +0.56 dB	Limit: ≤ 17.0 dBm Margin: -12.1 dB

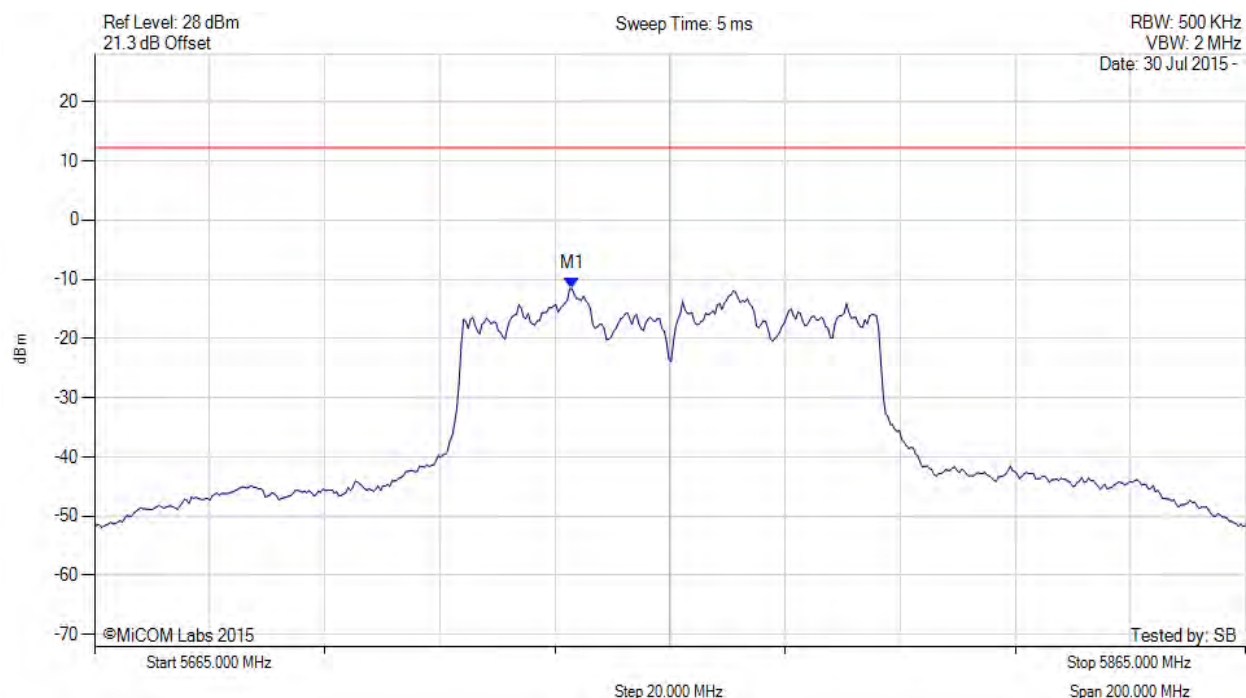
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5765.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5747.966 MHz : -11.584 dBm	Limit: ≤ 12.230 dBm

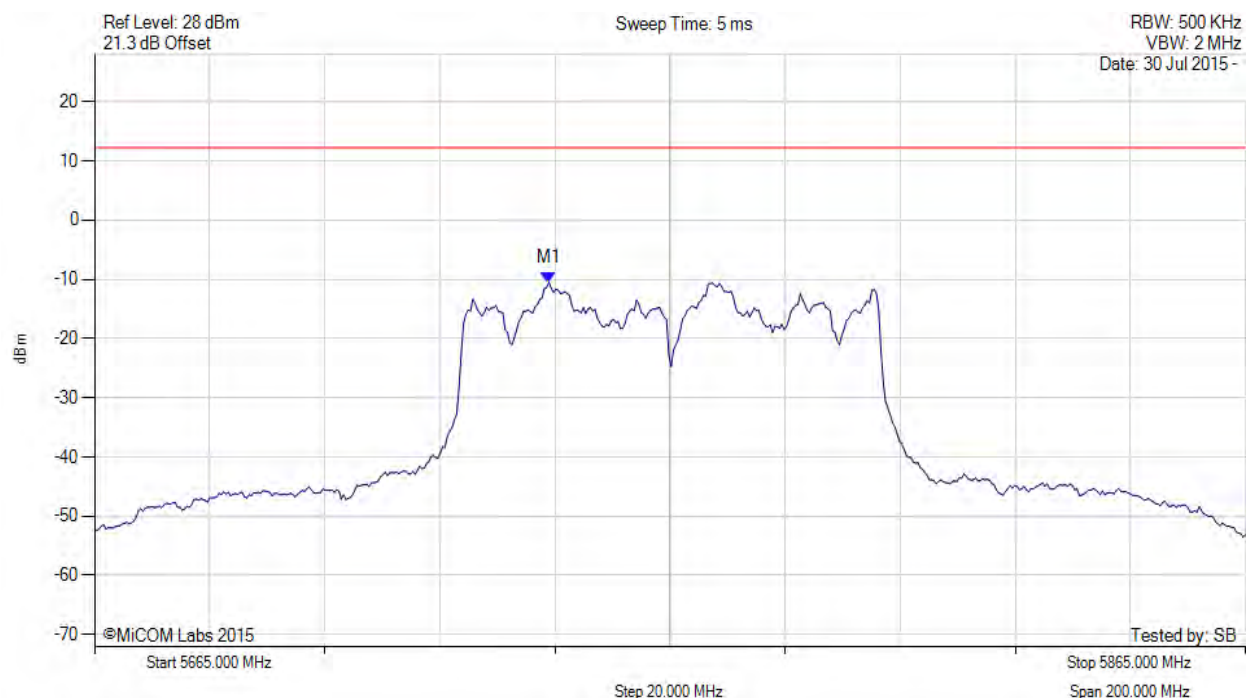
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5765.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5743.958 MHz : -10.497 dBm	Limit: ≤ 12.230 dBm

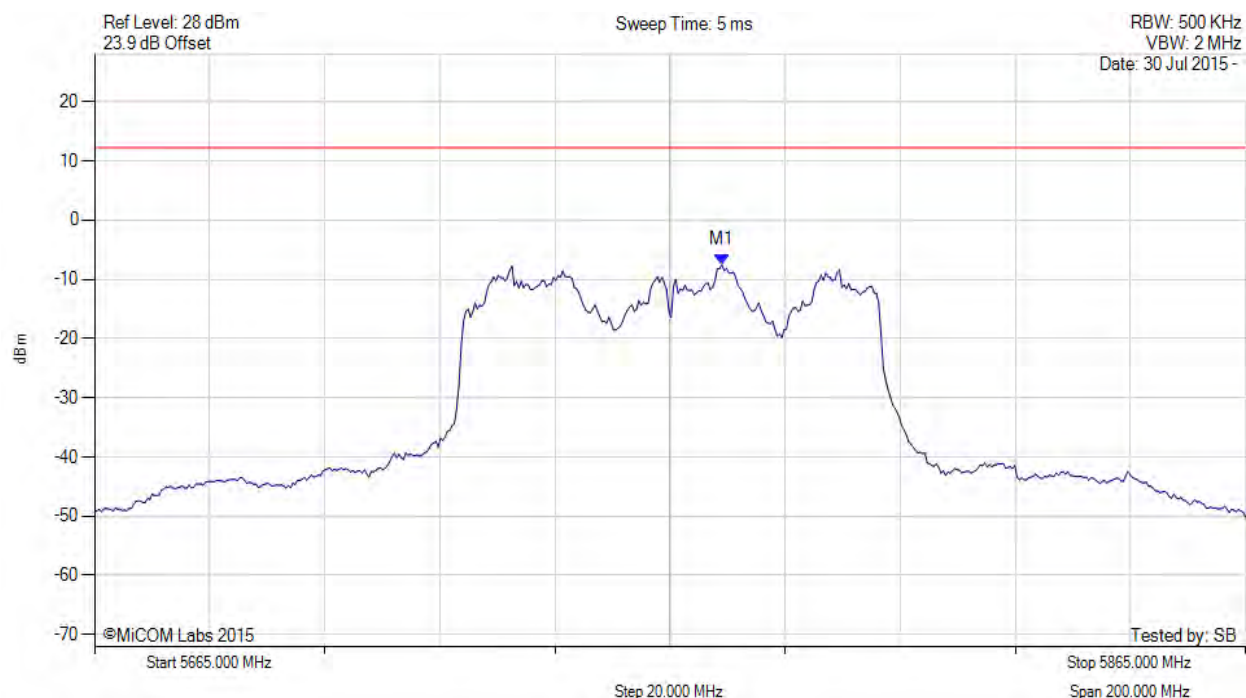
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5765.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5774.018 MHz : -7.527 dBm	Limit: ≤ 12.230 dBm

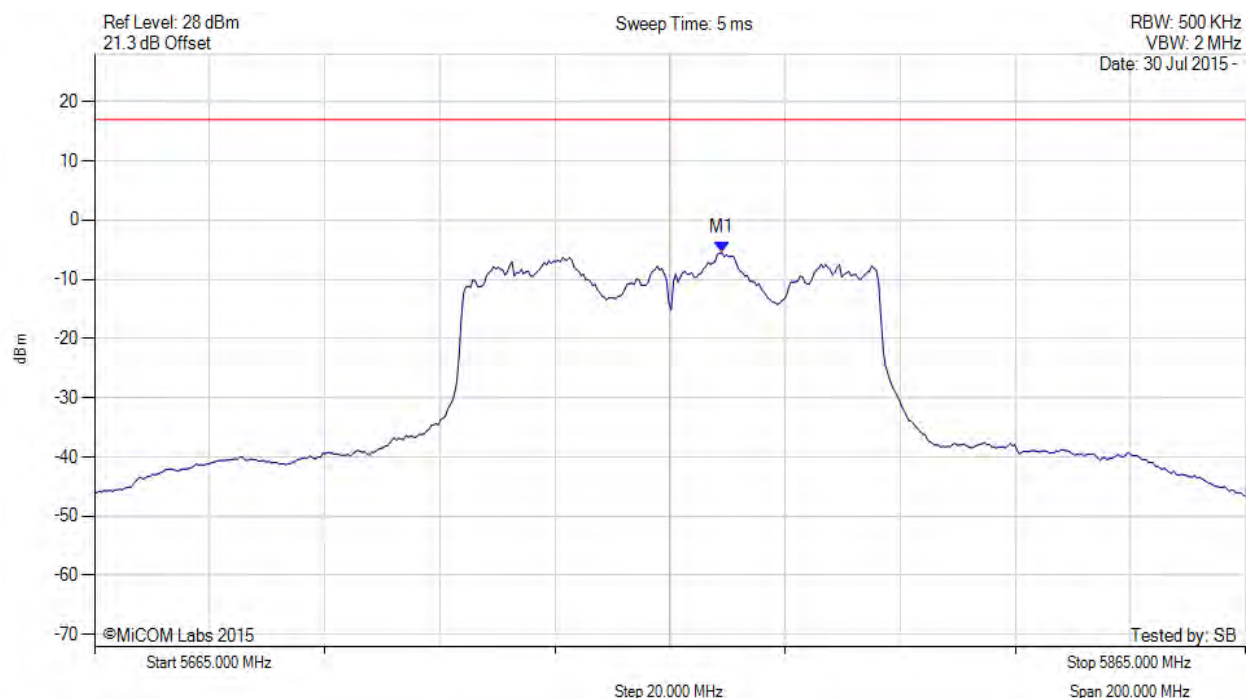
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5765.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5774.000 MHz : -5.491 dBm M1 + DCCF : 5774.000 MHz : -4.183 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -21.2 dB

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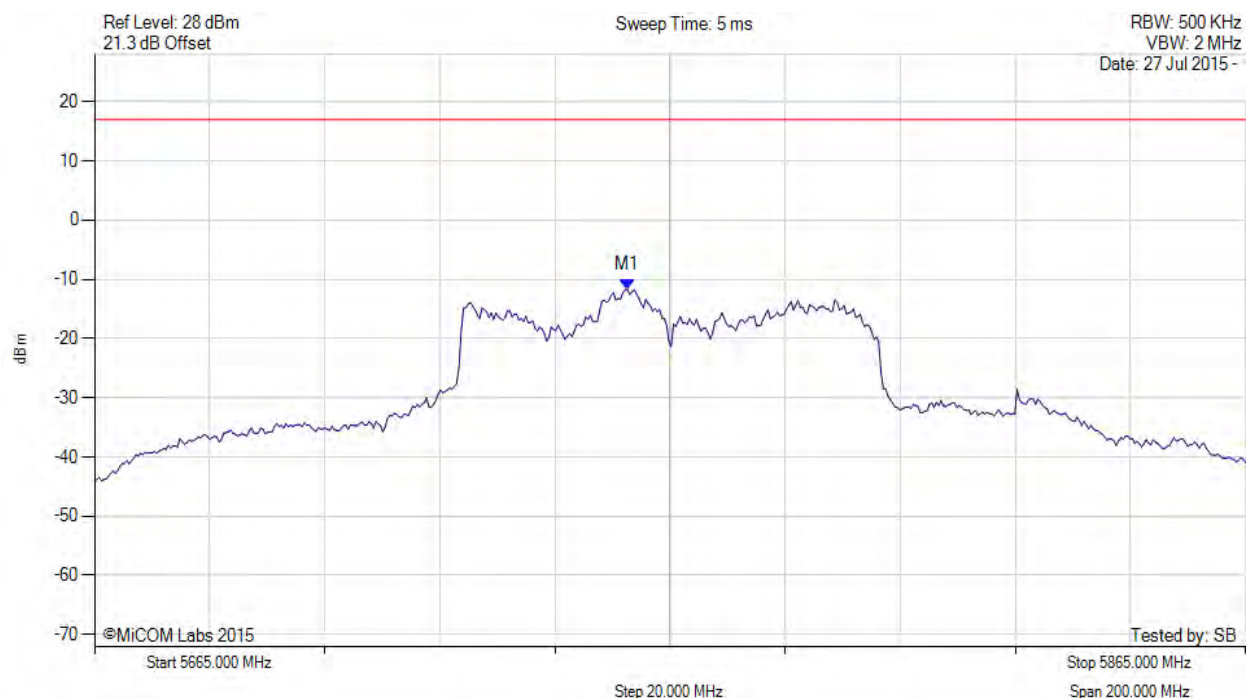


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5765.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5757.600 MHz : -11.671 dBm M1 + DCCF : 5757.600 MHz : -10.363 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -27.3 dB

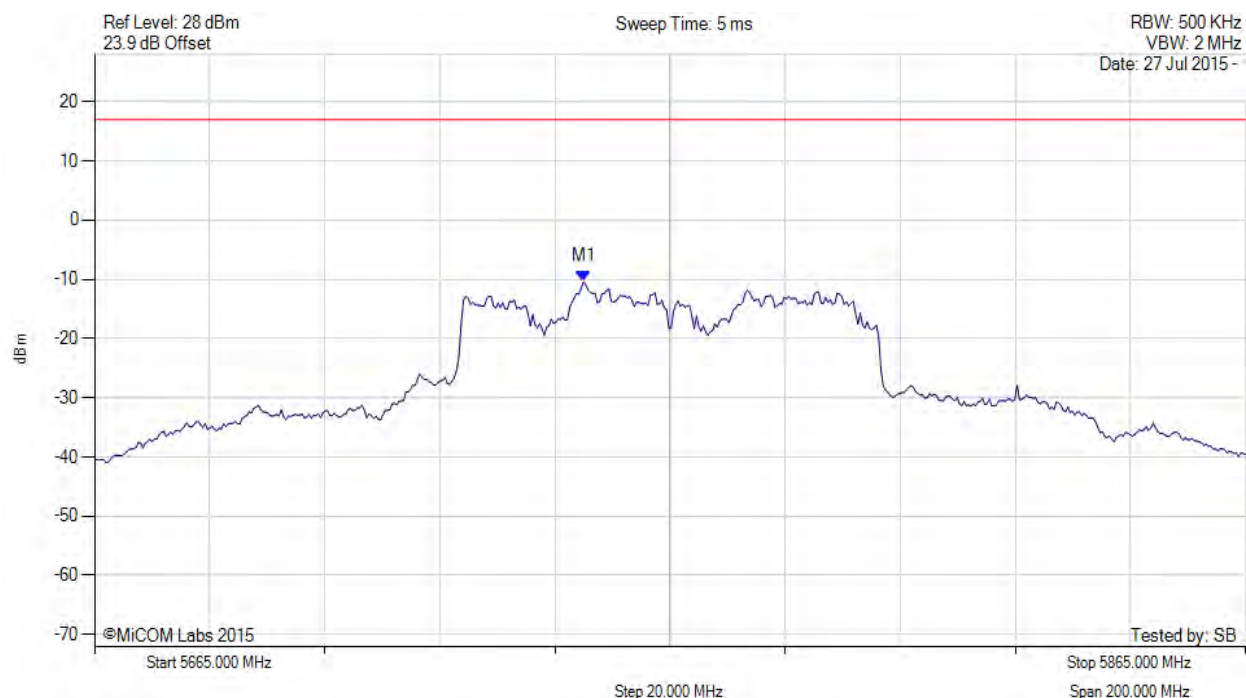
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5765.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5750.000 MHz : -10.450 dBm M1 + DCCF : 5750.000 MHz : -9.142 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -26.1 dB

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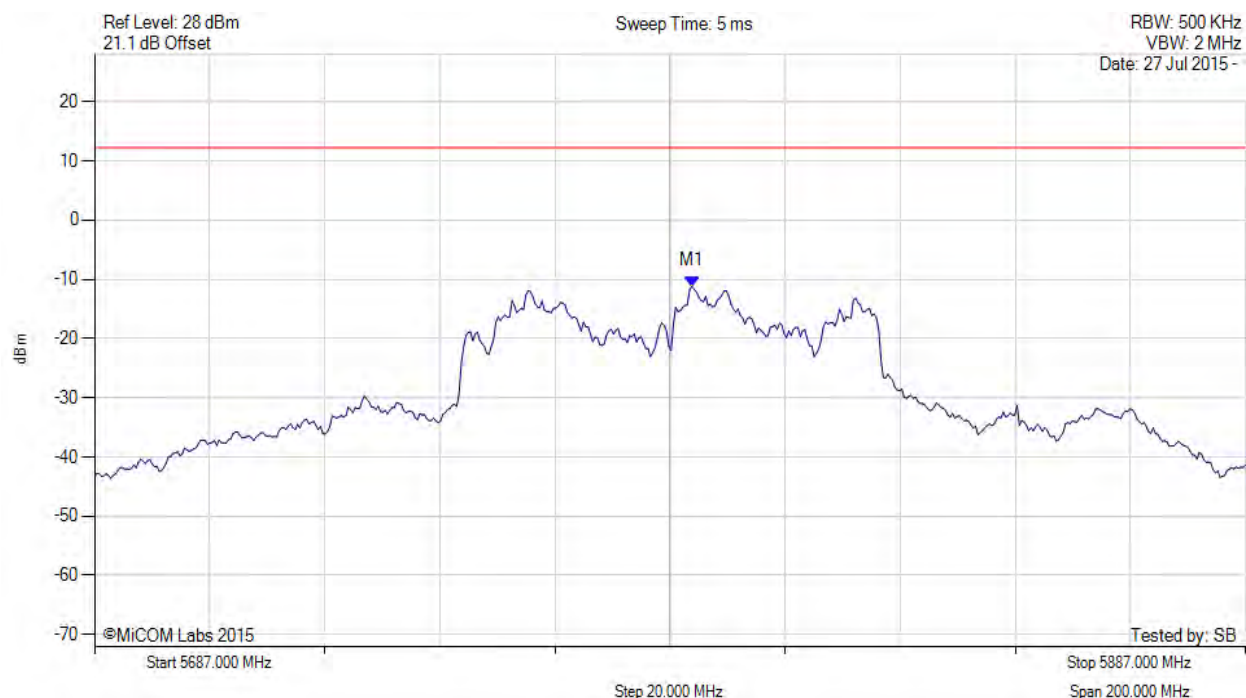


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5787.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5790.808 MHz : -11.173 dBm	Limit: ≤ 12.230 dBm

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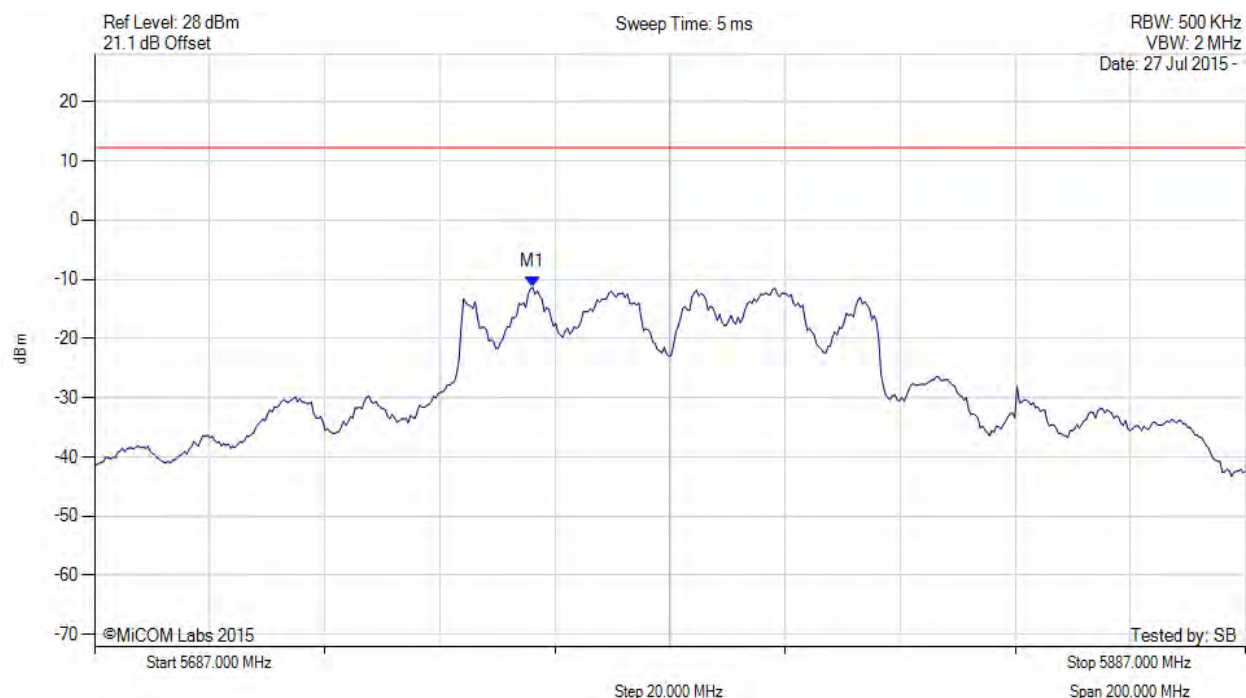


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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5787.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5763.152 MHz : -11.361 dBm	Channel Frequency: 5787.00 MHz

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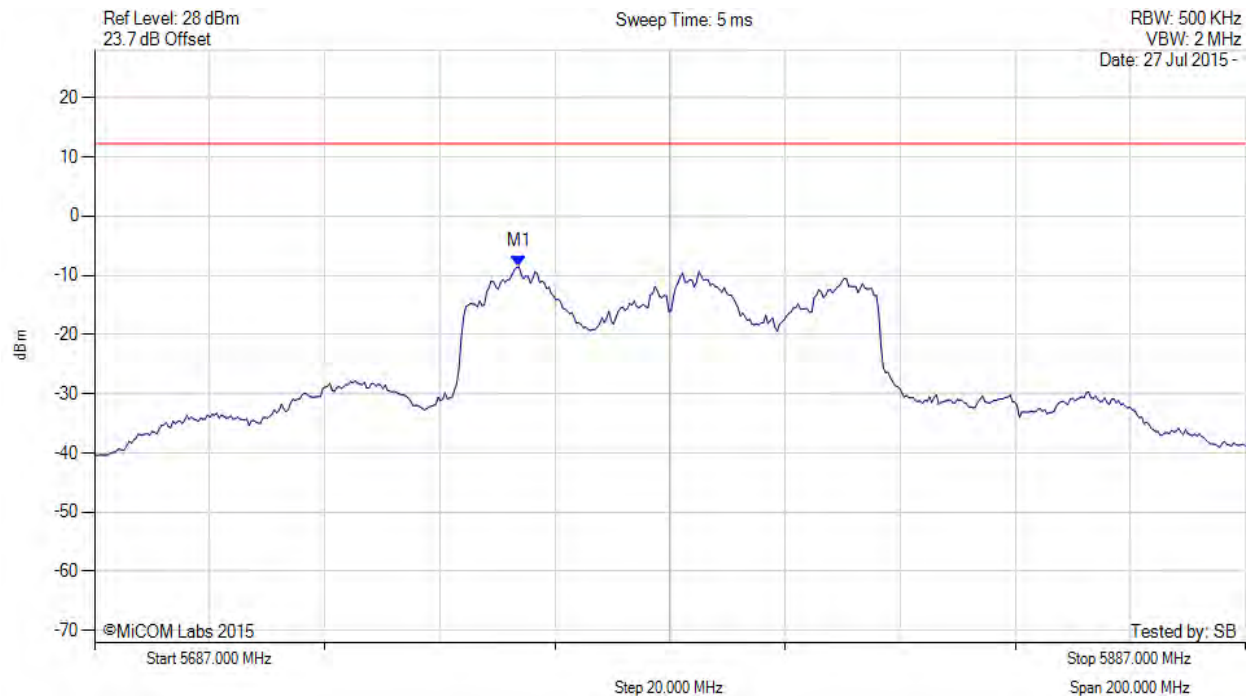


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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5787.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5760.747 MHz : -8.545 dBm	Limit: ≤ 12.230 dBm

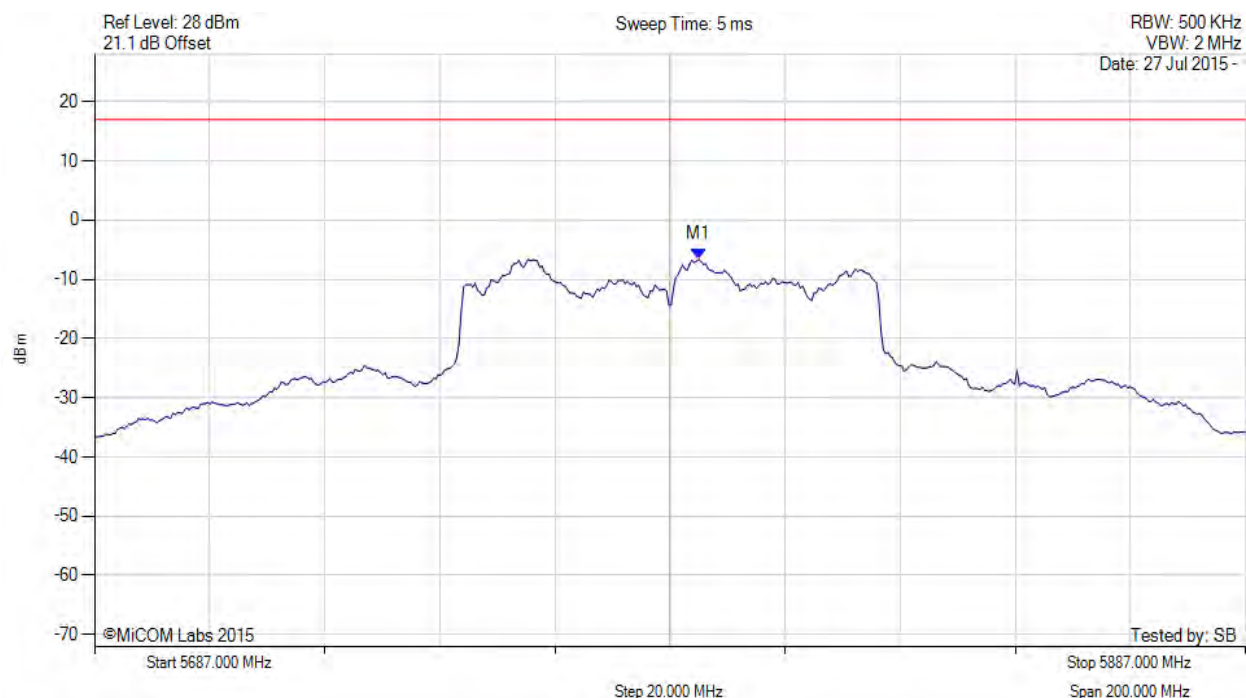
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5792.000 MHz : -6.642 dBm M1 + DCCF : 5792.000 MHz : -5.334 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -22.3 dB

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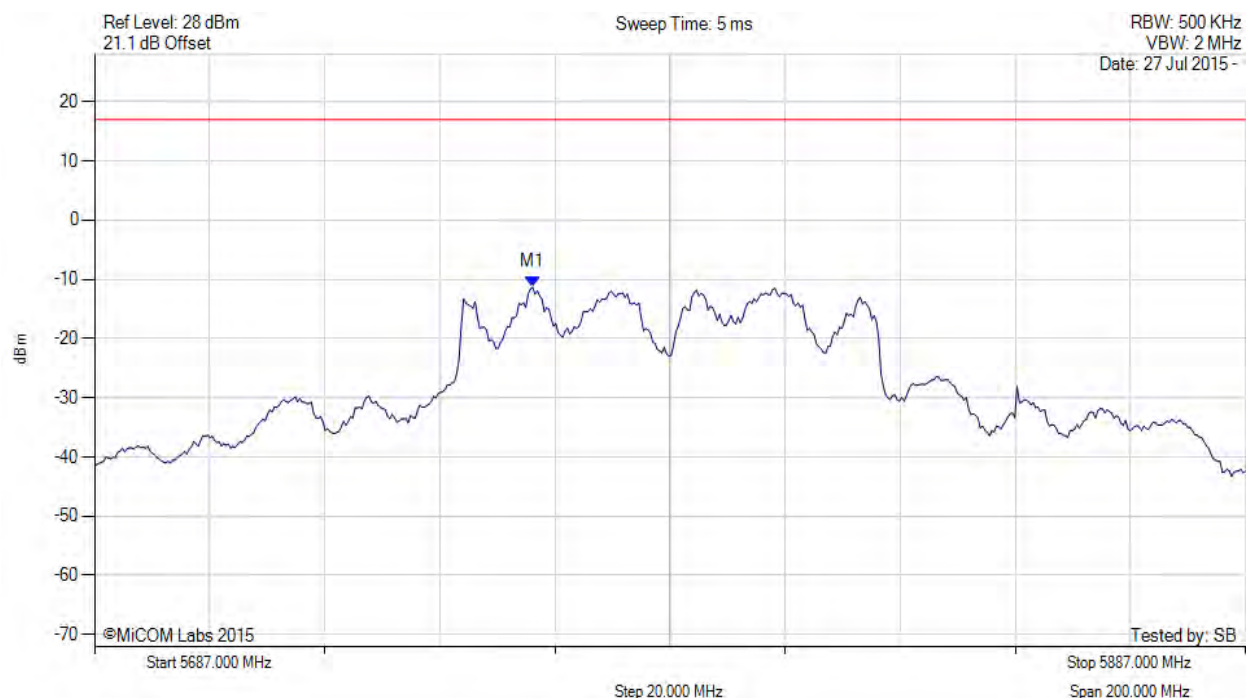


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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5763.200 MHz : -11.361 dBm M1 + DCCF : 5763.200 MHz : -10.053 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -27.0 dB

[back to matrix](#)

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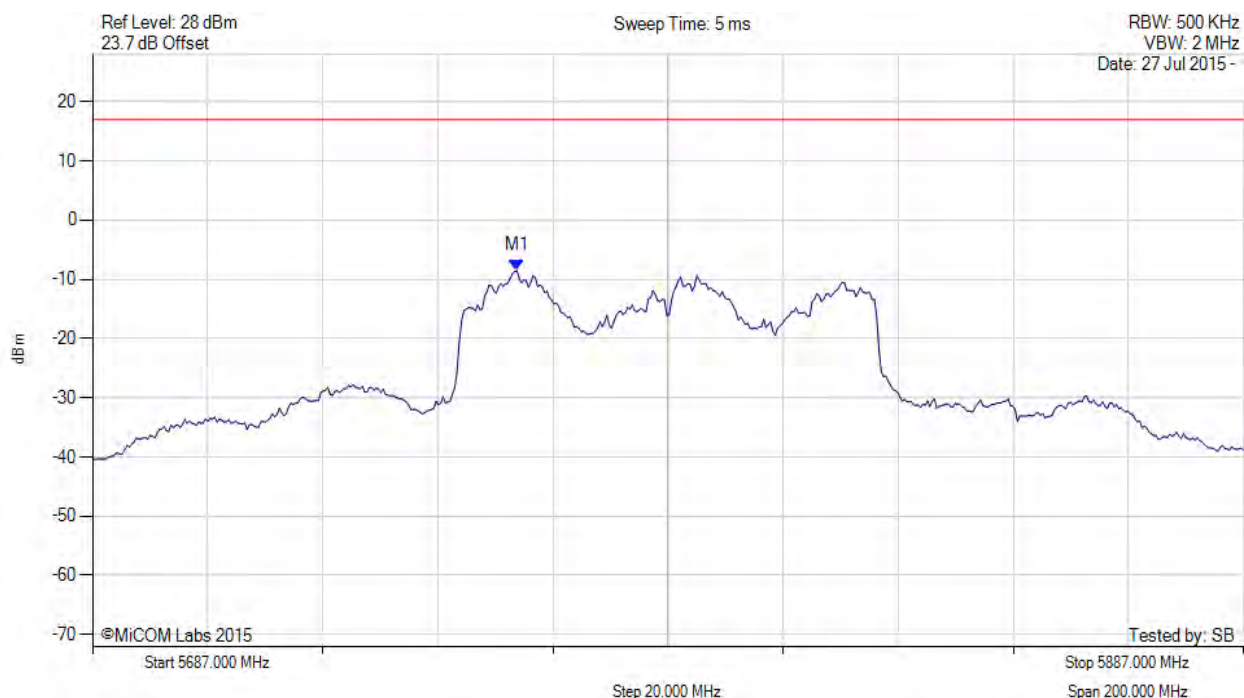


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5787.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5760.700 MHz : -8.545 dBm M1 + DCCF : 5760.700 MHz : -7.237 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -24.2 dB

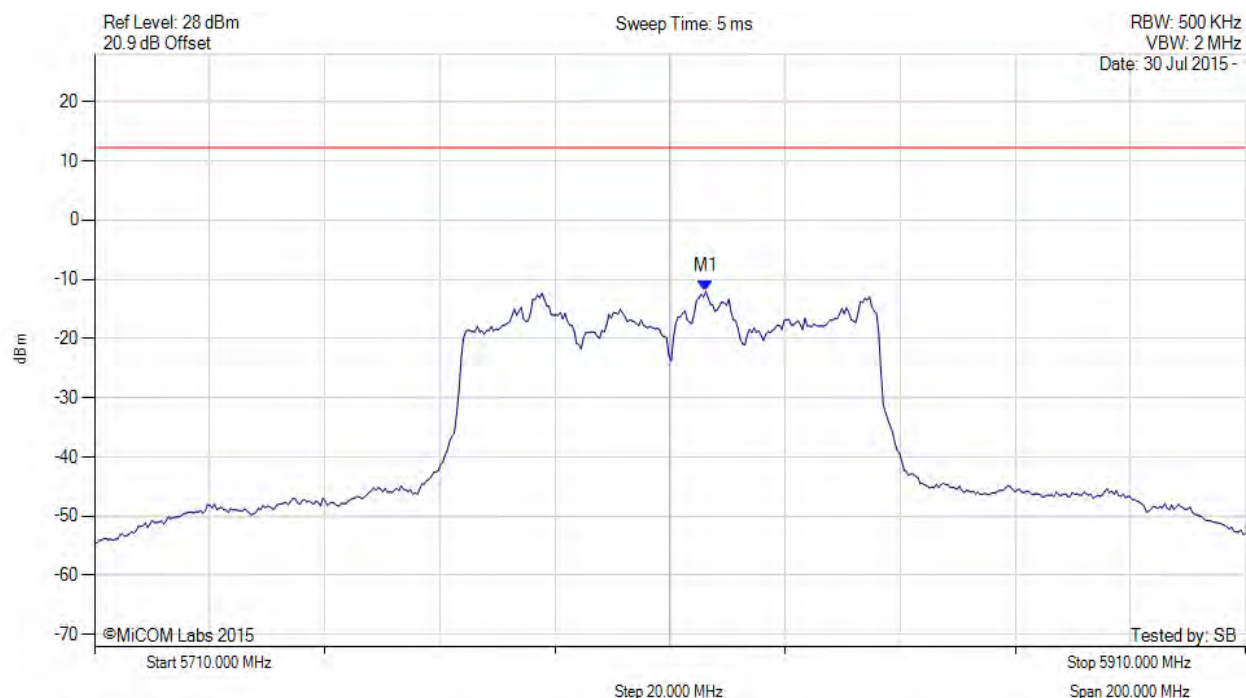
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5810.00 MHz, Chain a, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5816.212 MHz : -12.075 dBm	Limit: ≤ 12.230 dBm

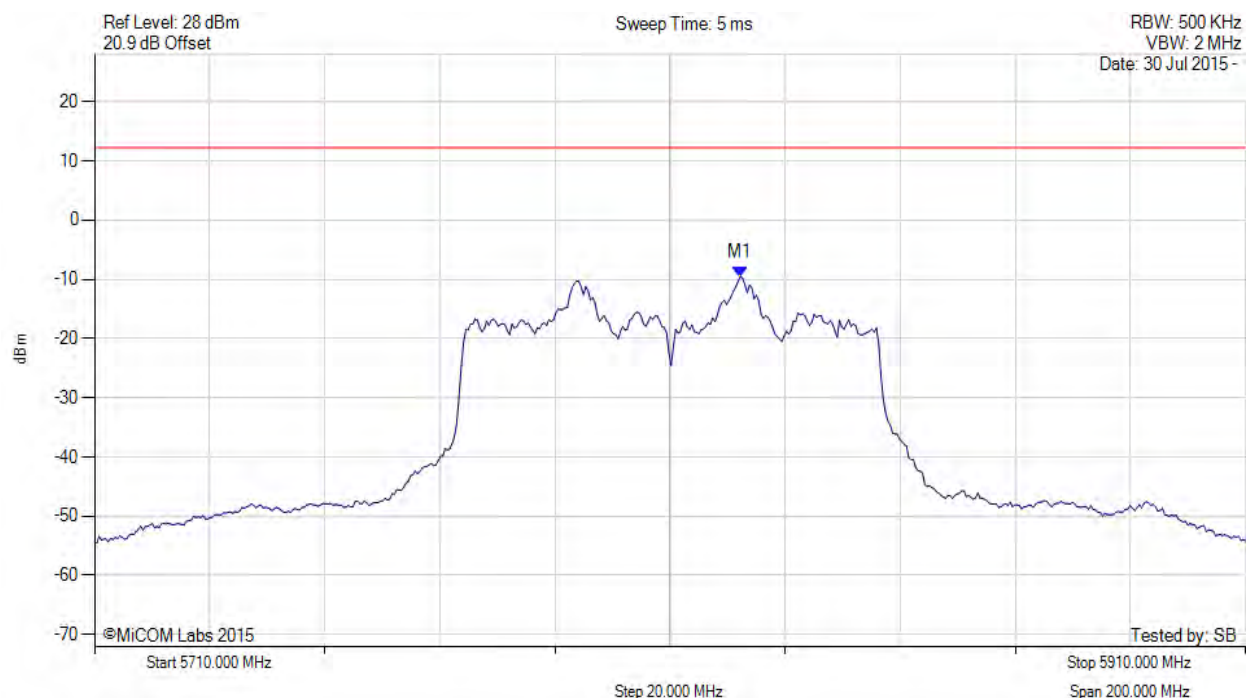
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5810.00 MHz, Chain b, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5822.224 MHz : -9.563 dBm	Limit: ≤ 12.230 dBm

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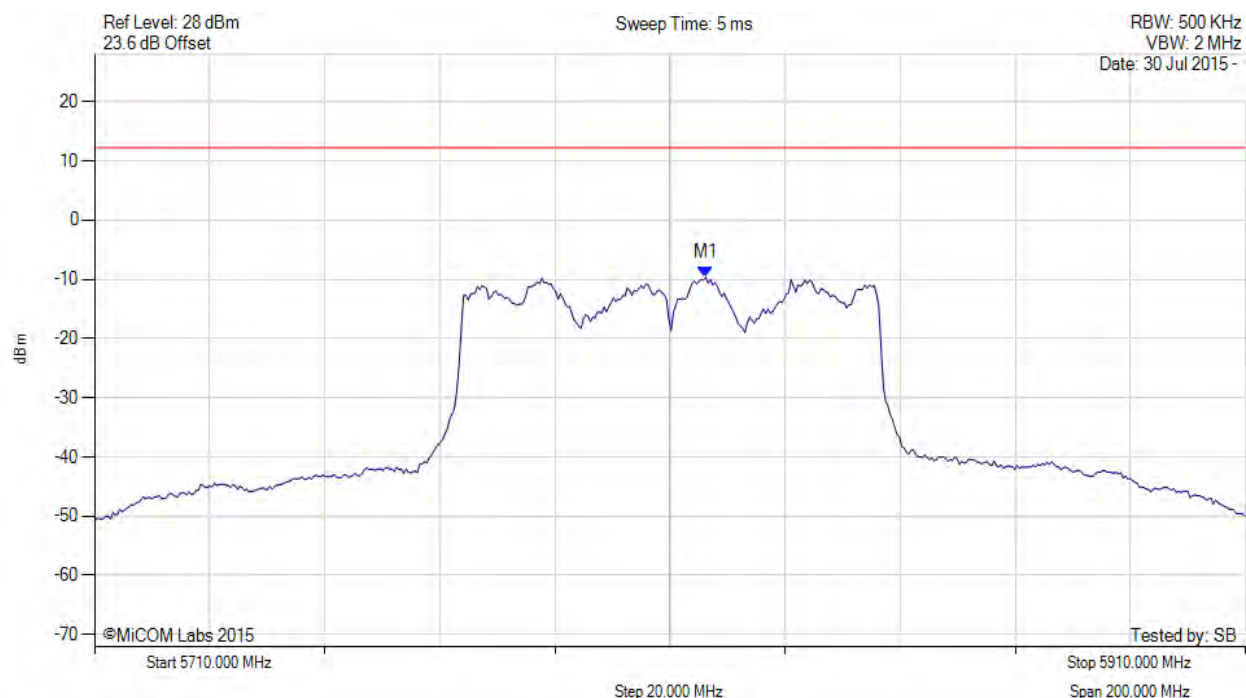


Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5810.00 MHz, Chain c, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5816.212 MHz : -9.621 dBm	Limit: ≤ 12.230 dBm

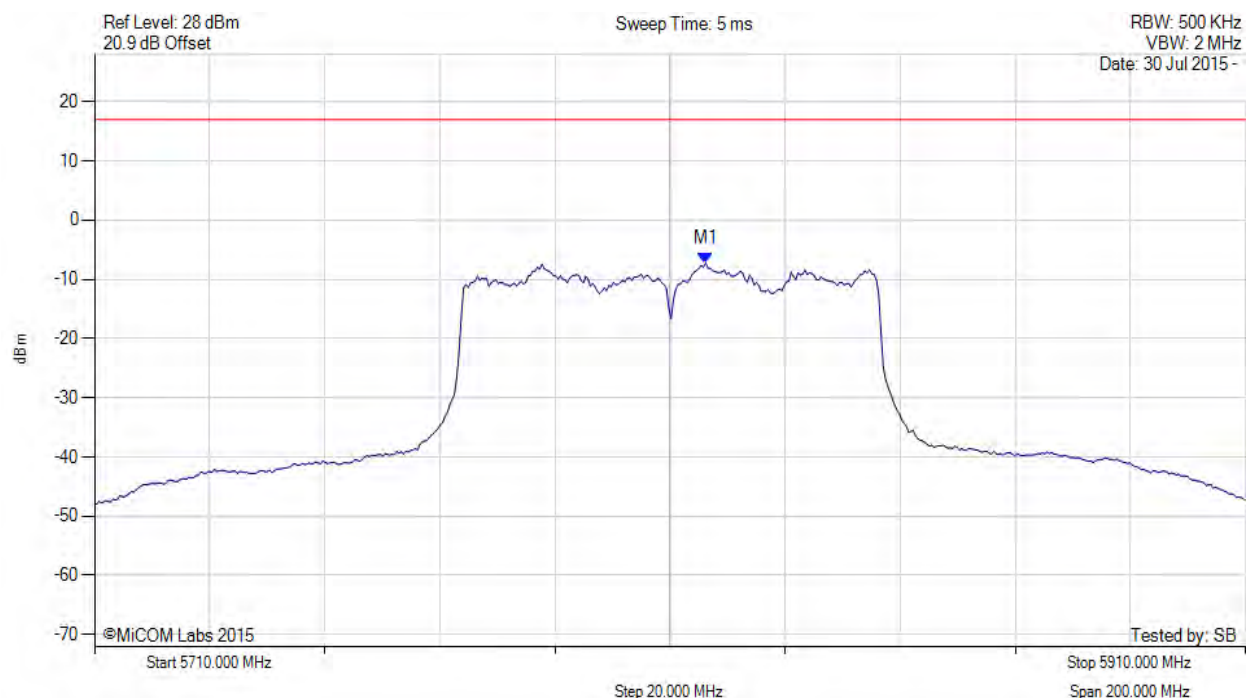
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5810.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5816.200 MHz : -7.281 dBm M1 + DCCF : 5816.200 MHz : -5.973 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -22.9 dB

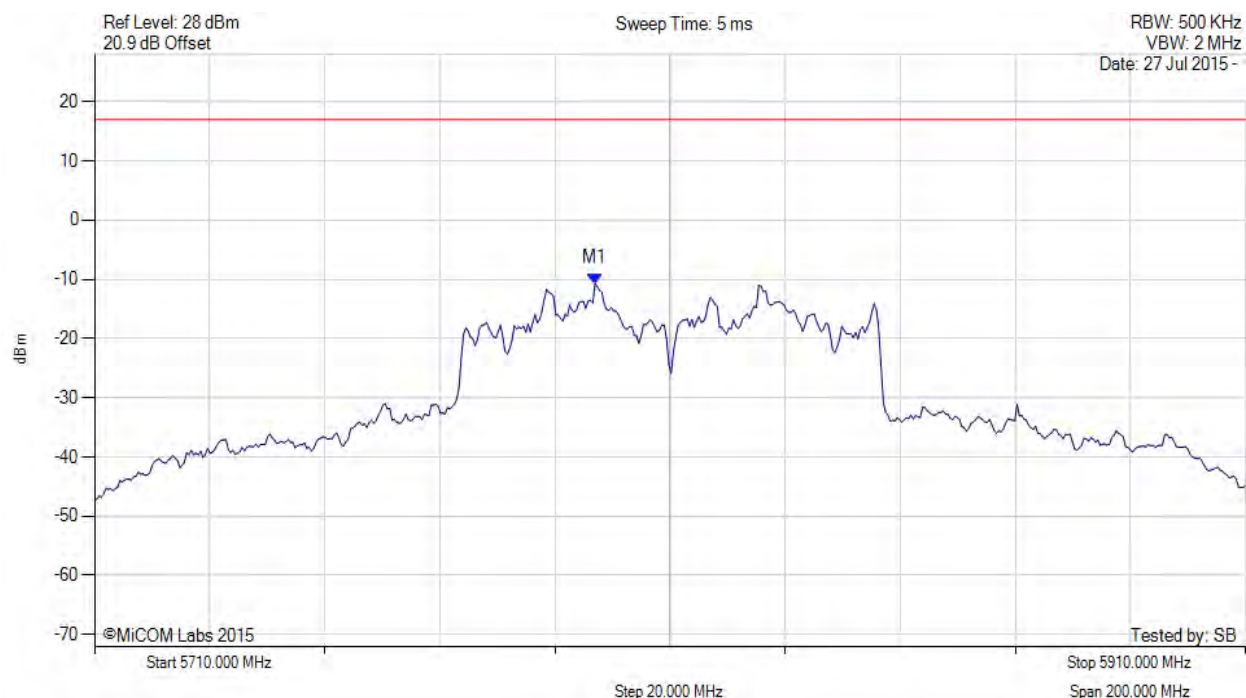
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POWER SPECTRAL DENSITY

Variant: 80 MHz, Channel: 5810.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5797.000 MHz : -10.695 dBm M1 + DCCF : 5797.000 MHz : -9.387 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -26.4 dB

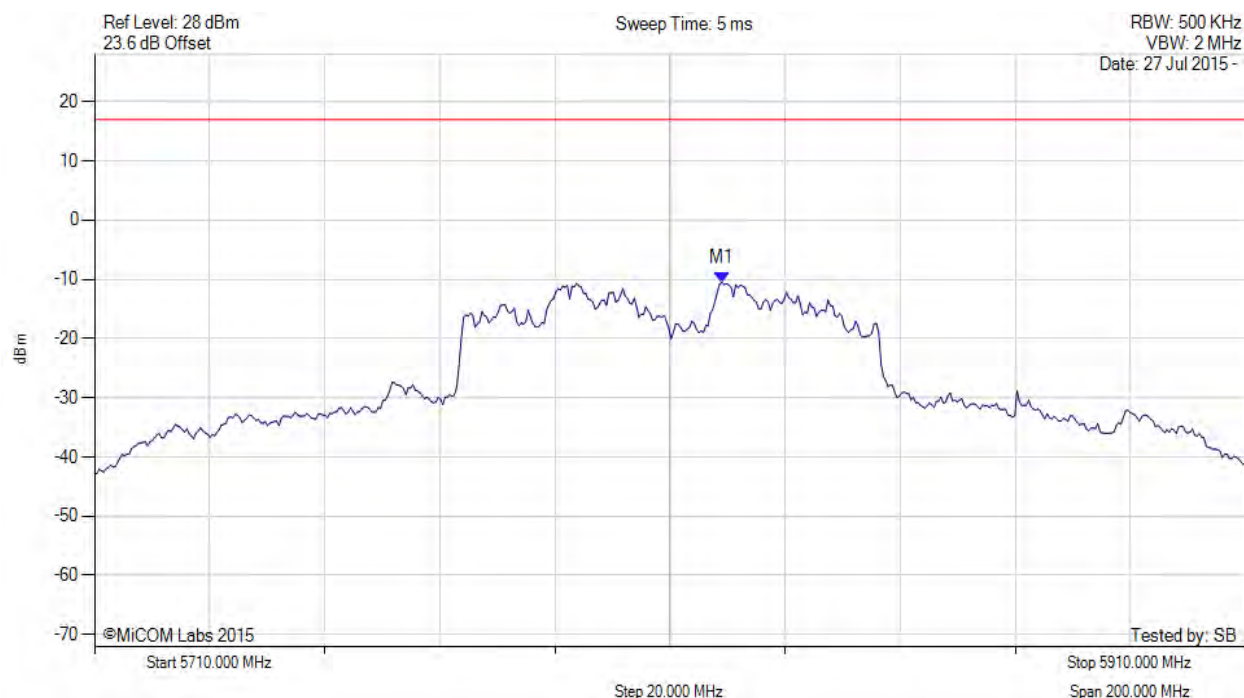
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POWER SPECTRAL DENSITY

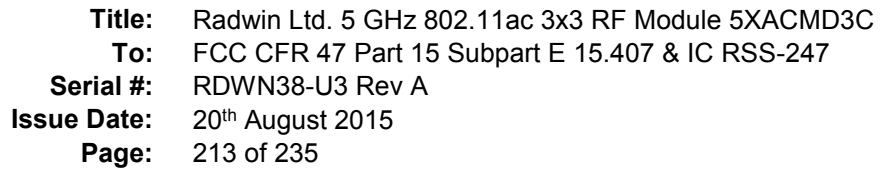
Variant: 80 MHz, Channel: 5810.00 MHz, SUM, Temp: Ambient, Voltage: 55 Vdc



Analyser Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5819.000 MHz : -10.529 dBm M1 + DCCF : 5819.000 MHz : -9.221 dBm Duty Cycle Correction Factor : +1.31 dB	Limit: ≤ 17.0 dBm Margin: -26.2 dB

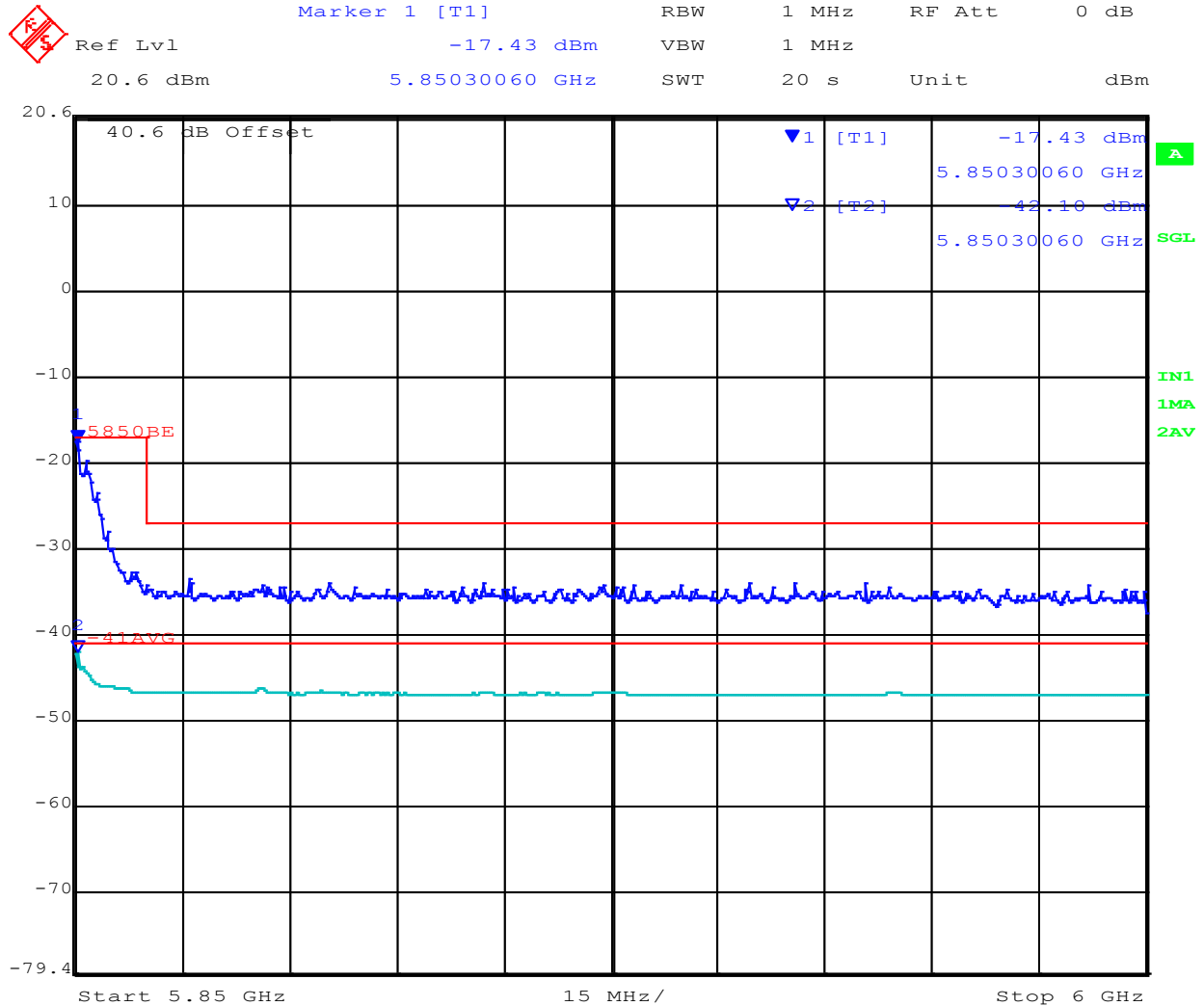
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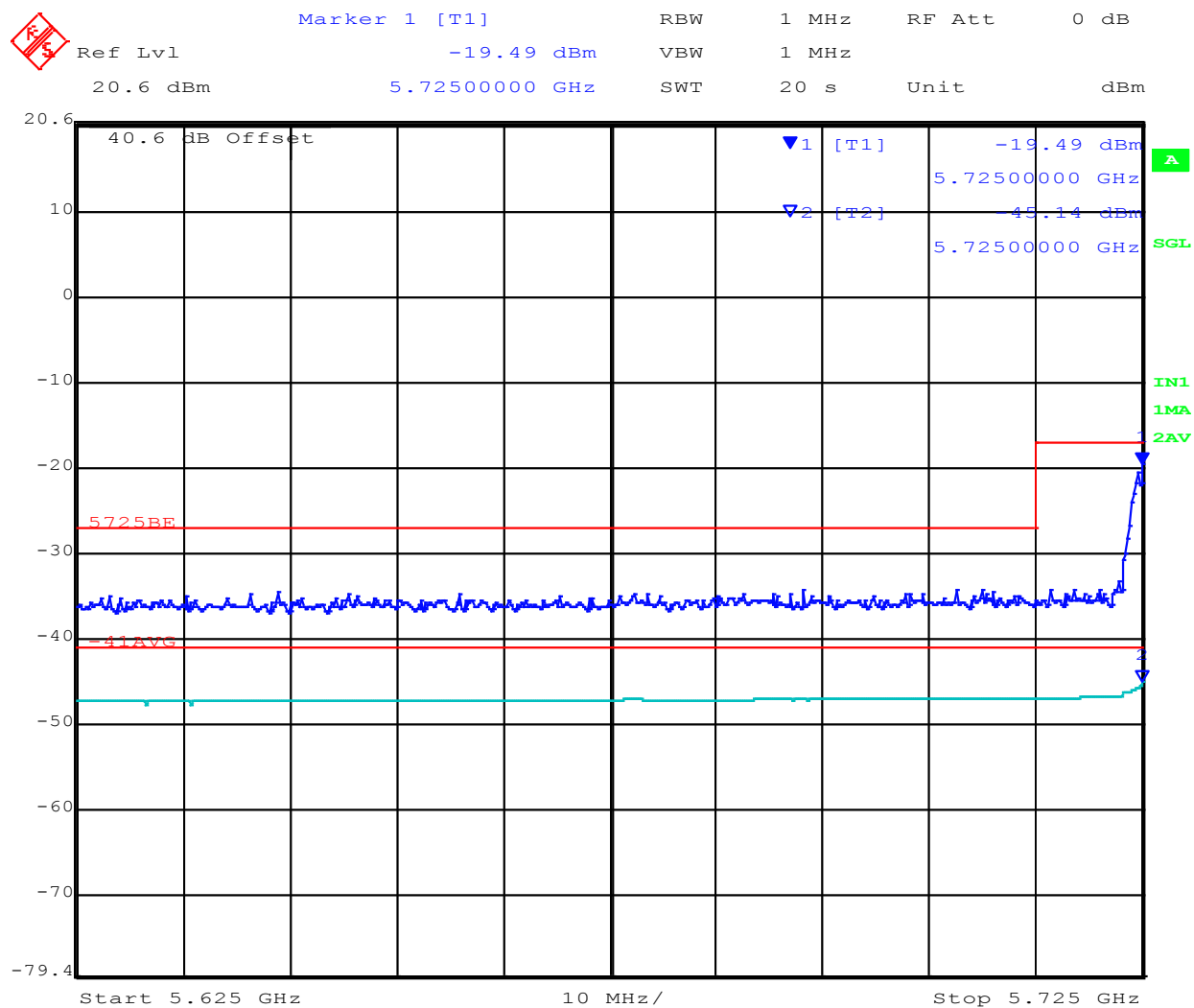
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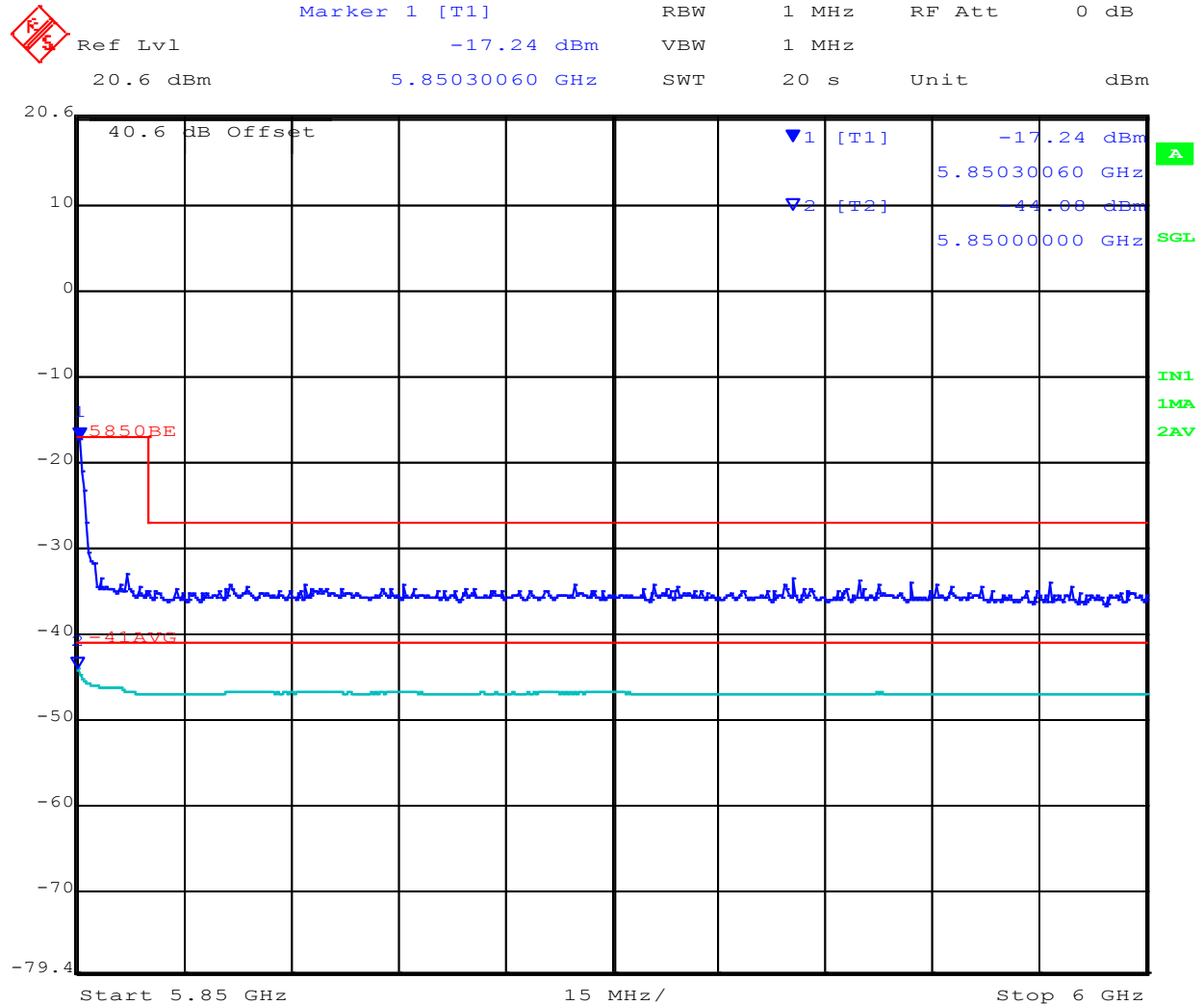
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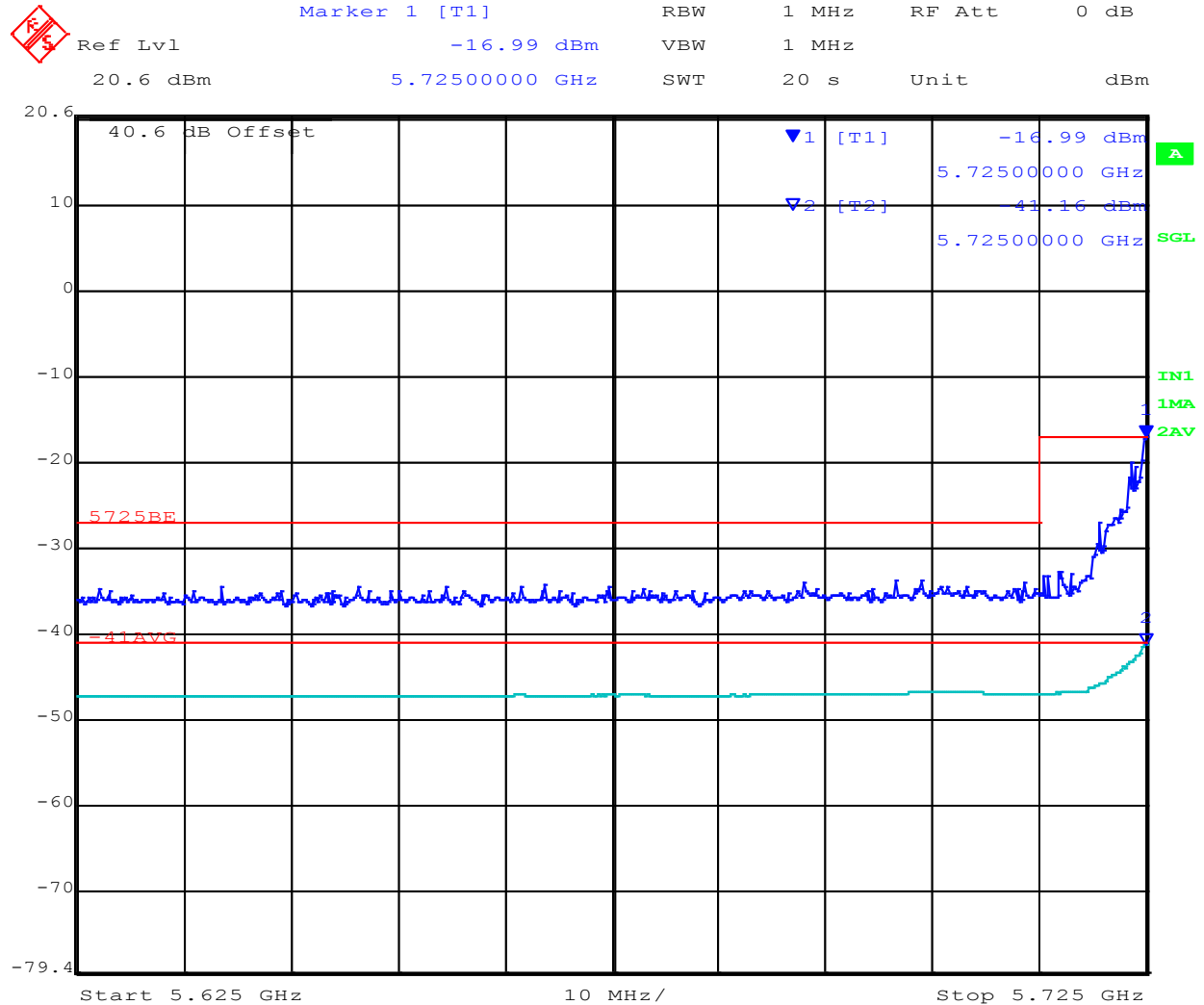
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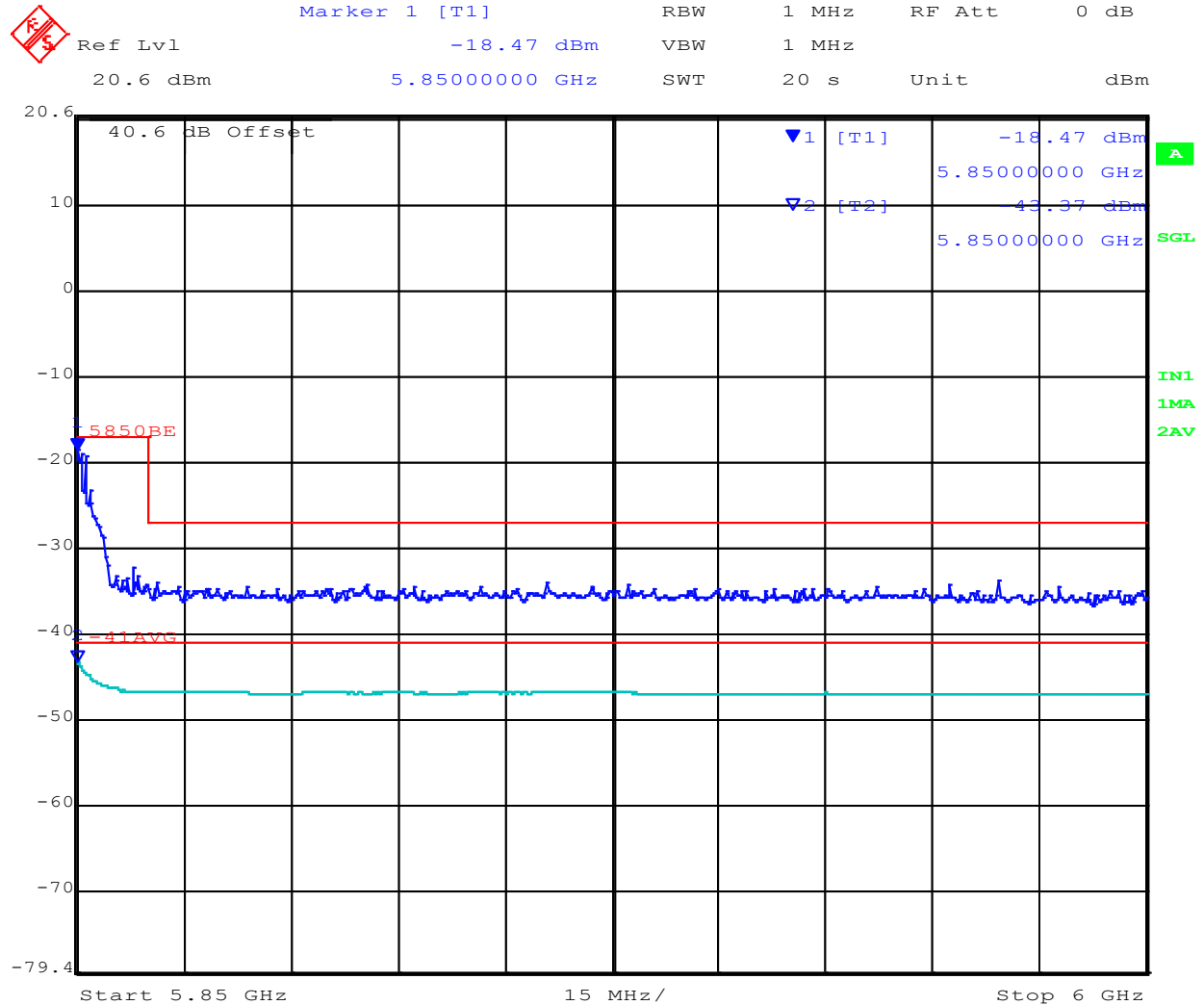
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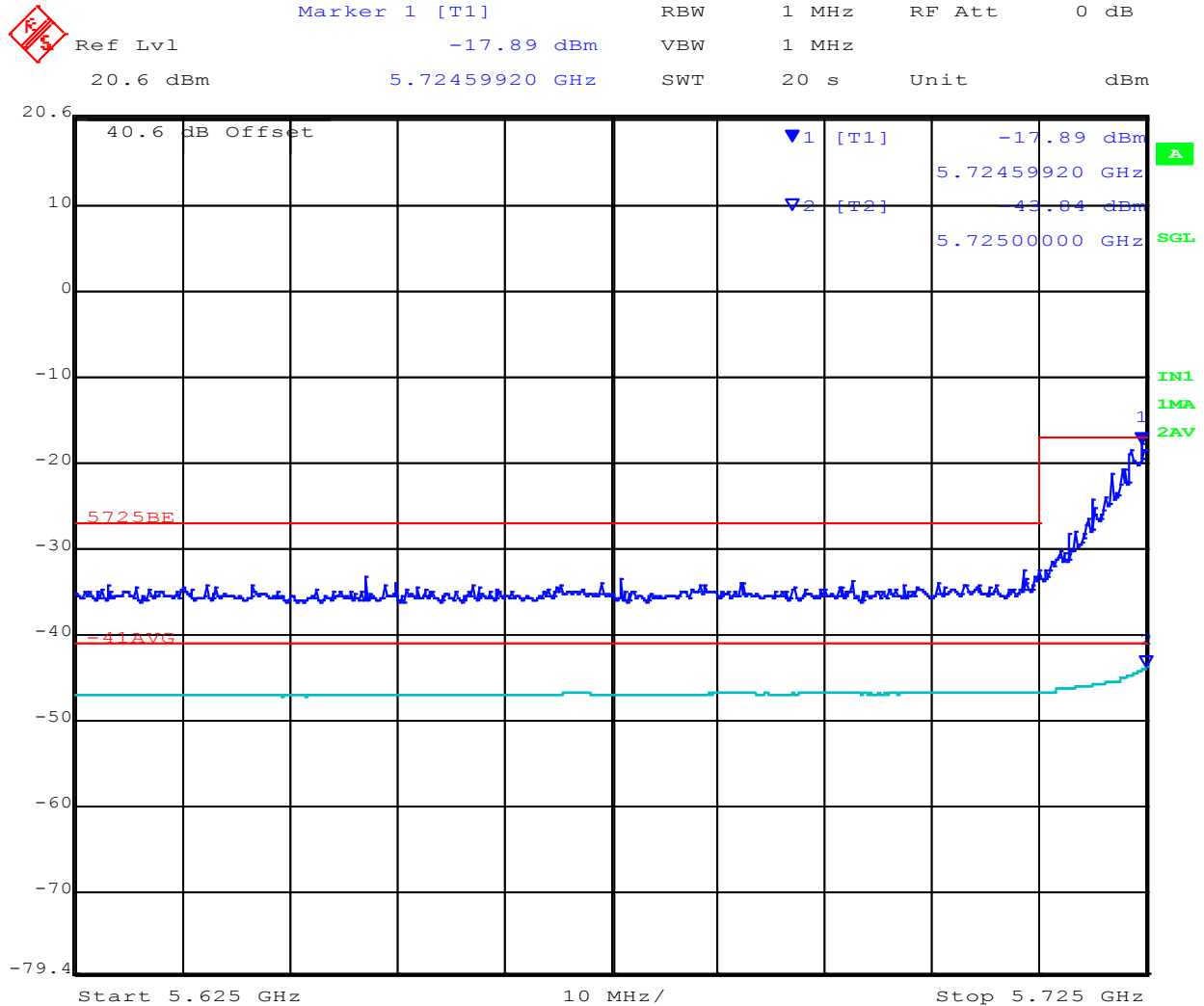
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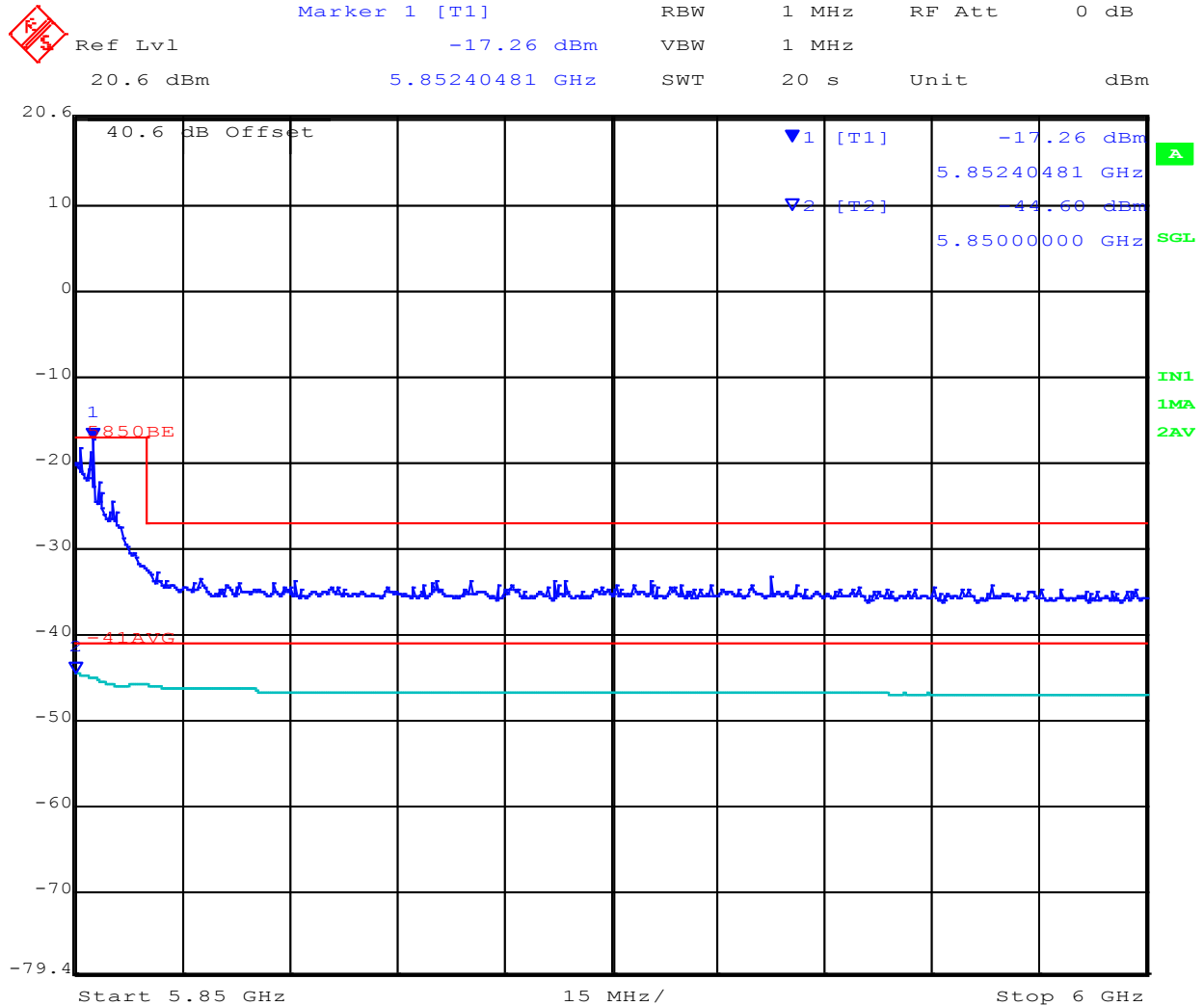
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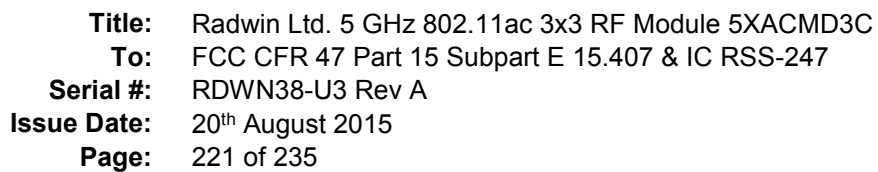
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To: FCC CFR 47 Part 15 Subpart E 15.407 & IC RSS-247
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Date: 29.JUL.2015 09:49:36

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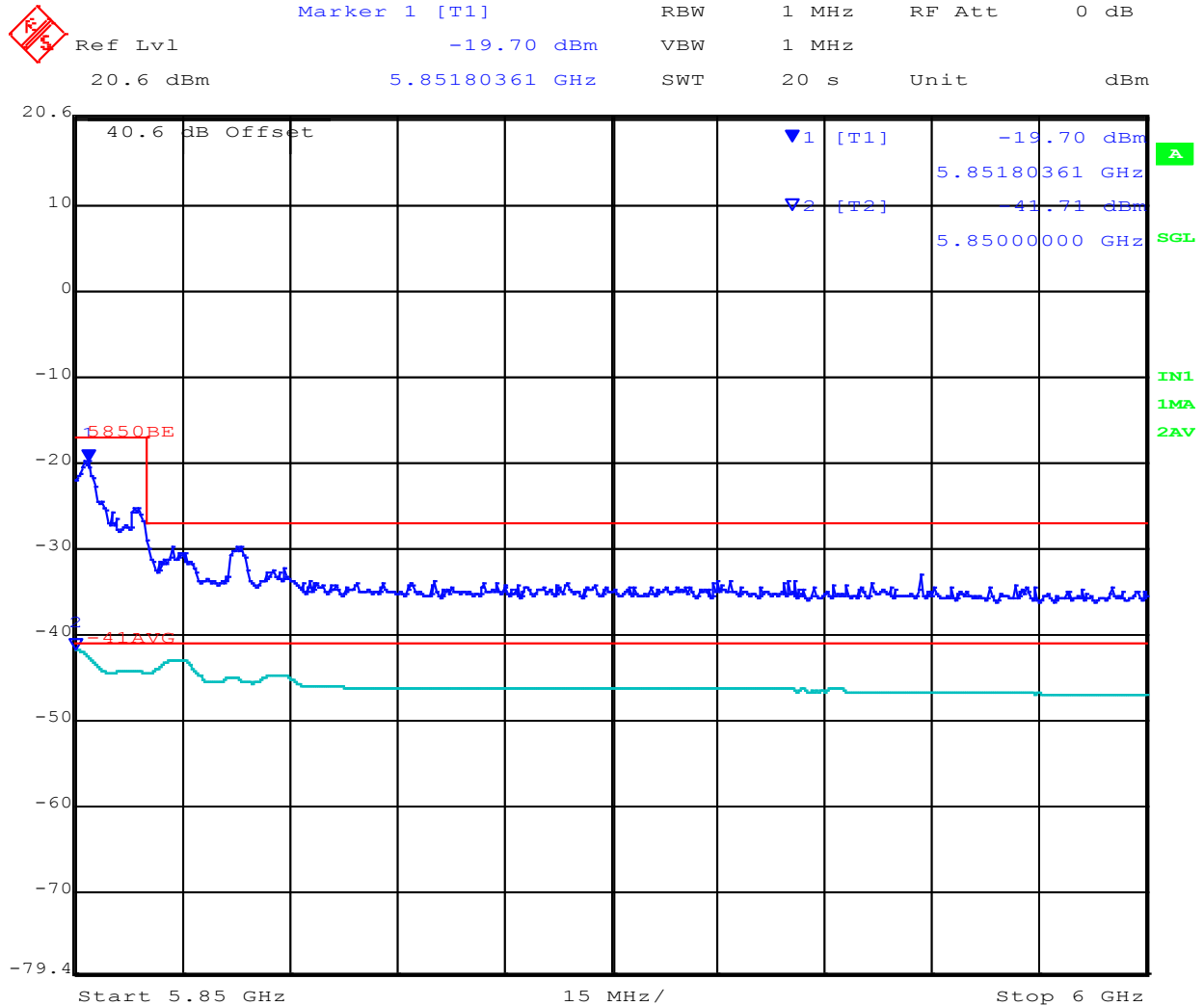
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Date: 29.JUL.2015 09:50:48

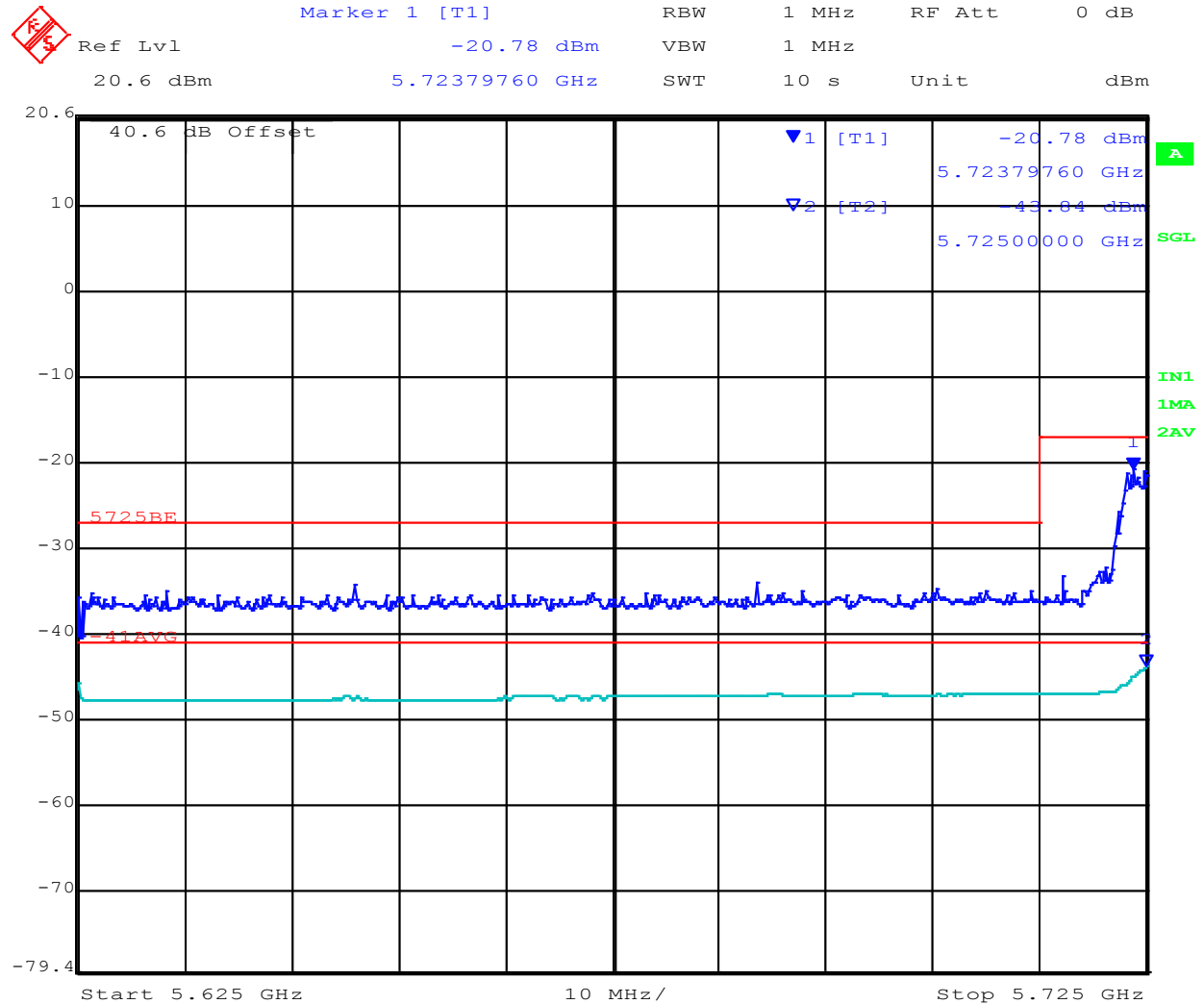
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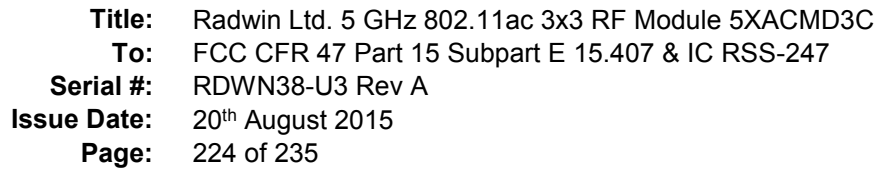
A.3.1.2. RADWIN Ltd RW-9401-5002



Date: 29.JUL.2015 11:05:03

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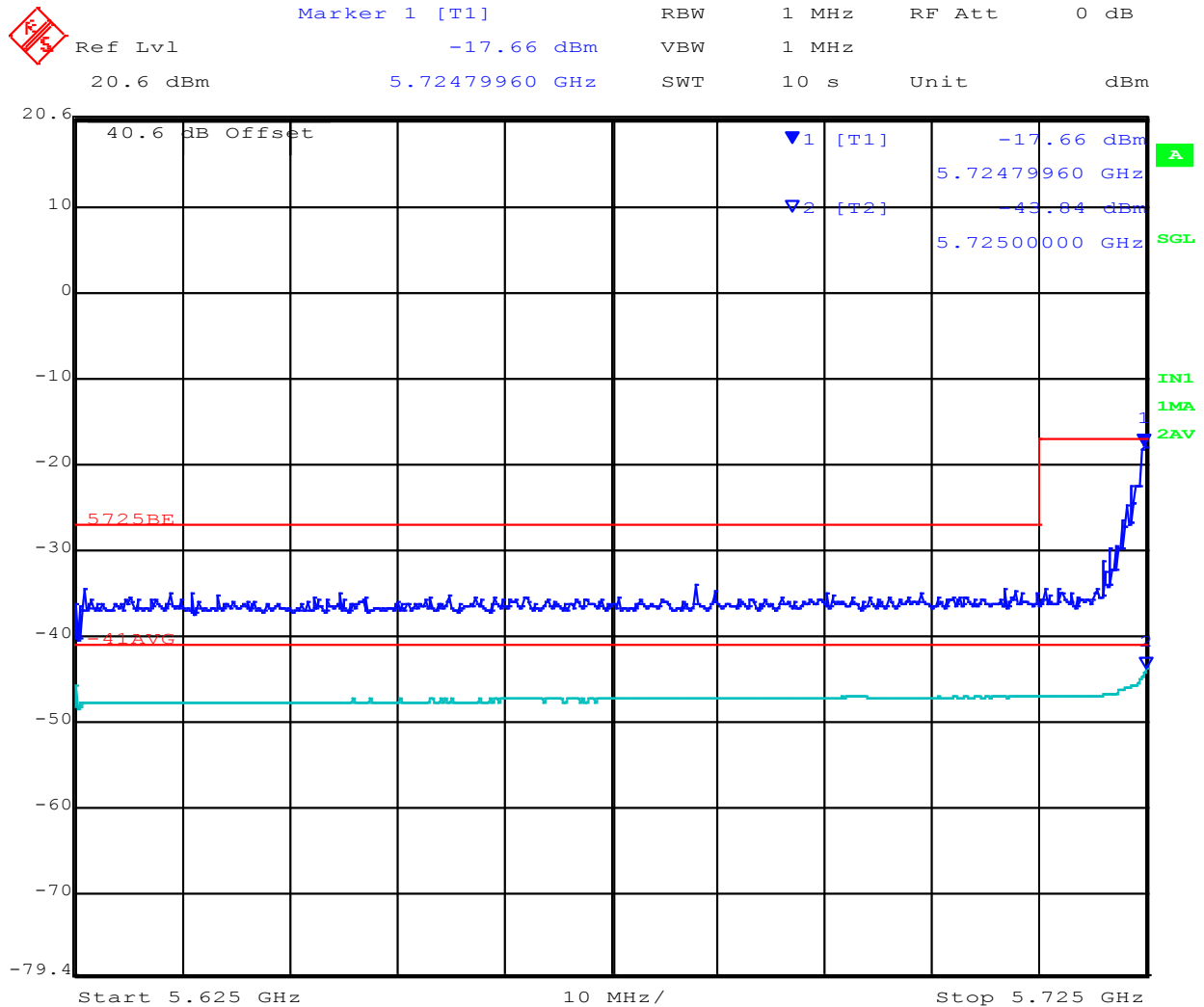
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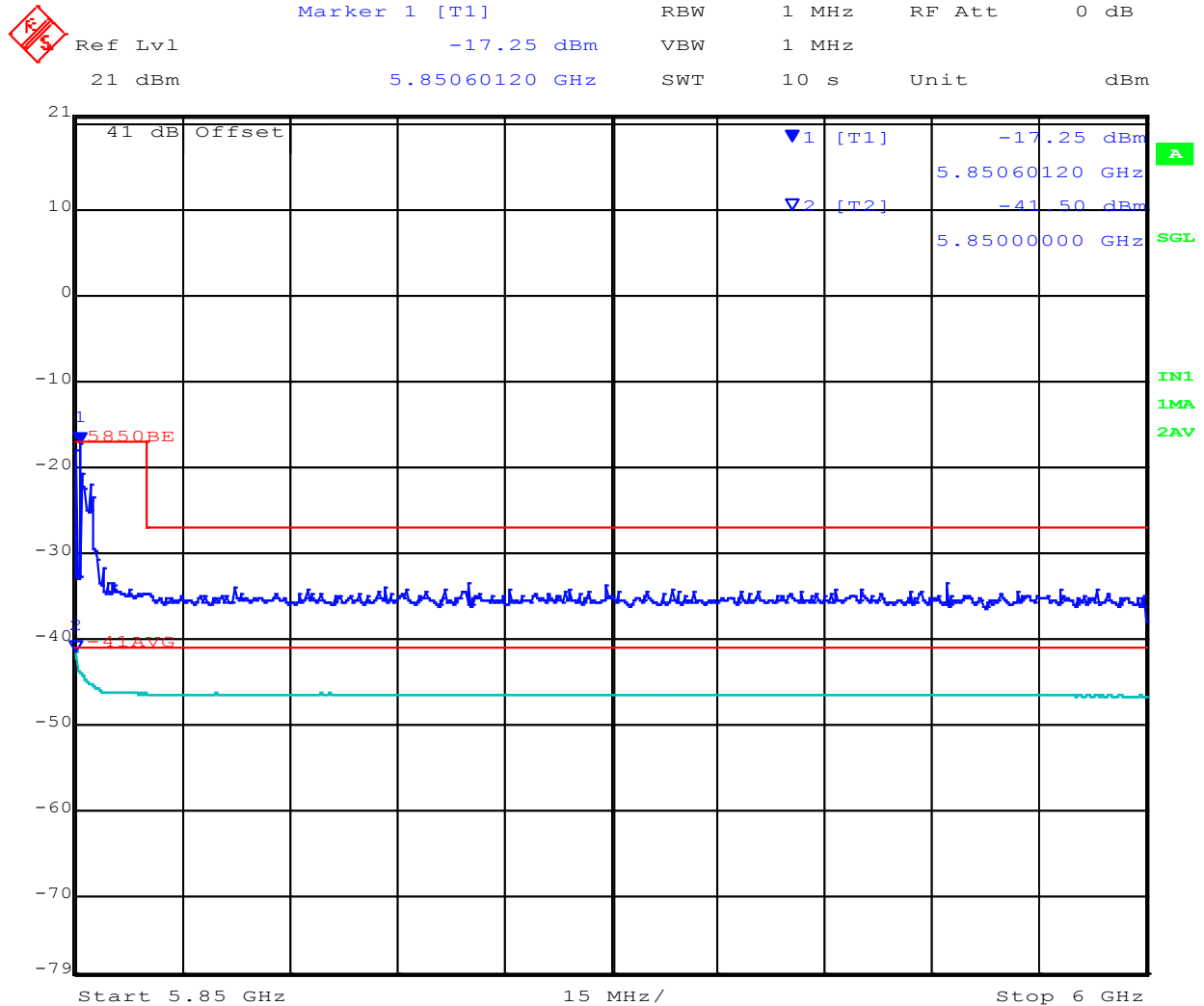
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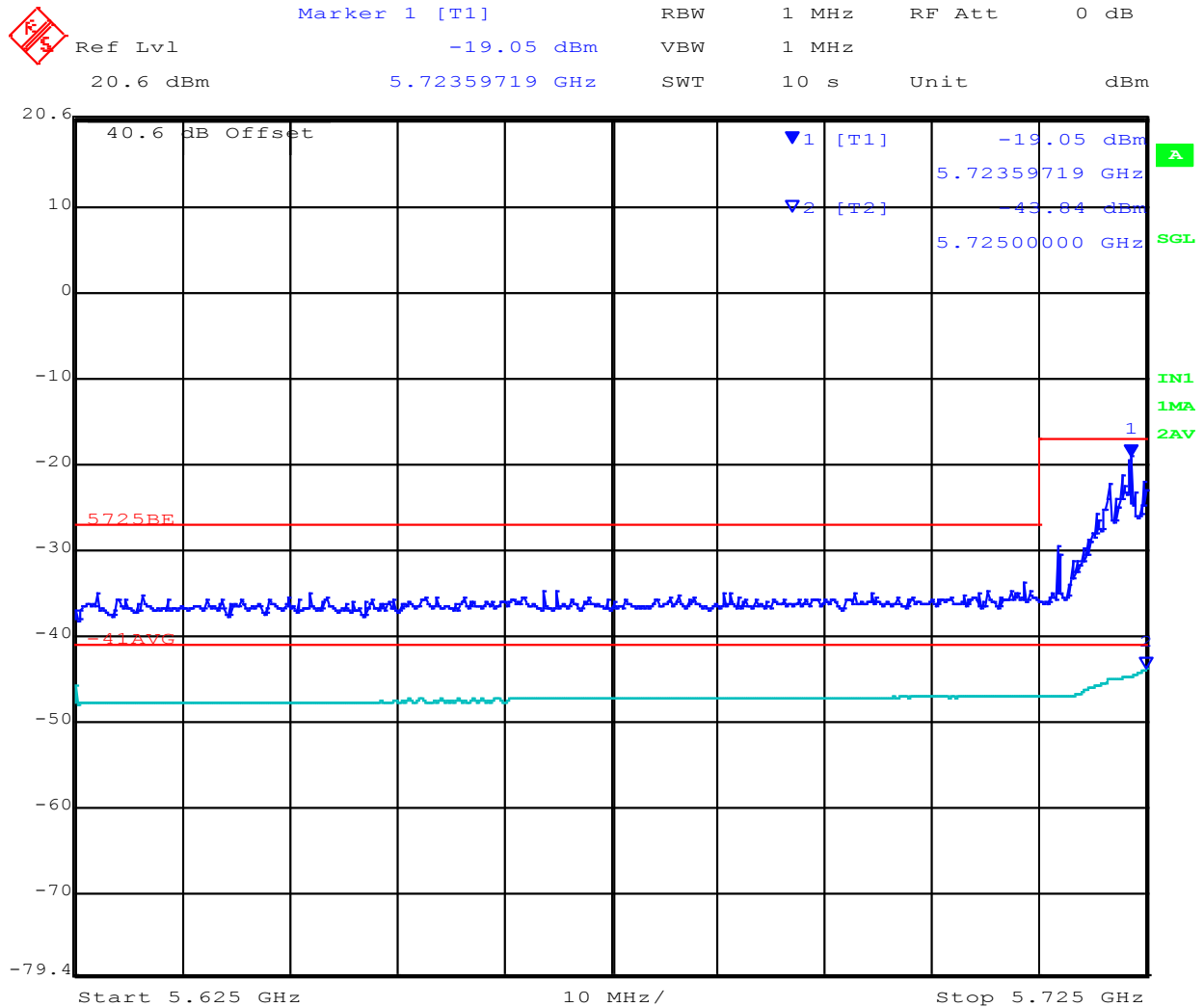
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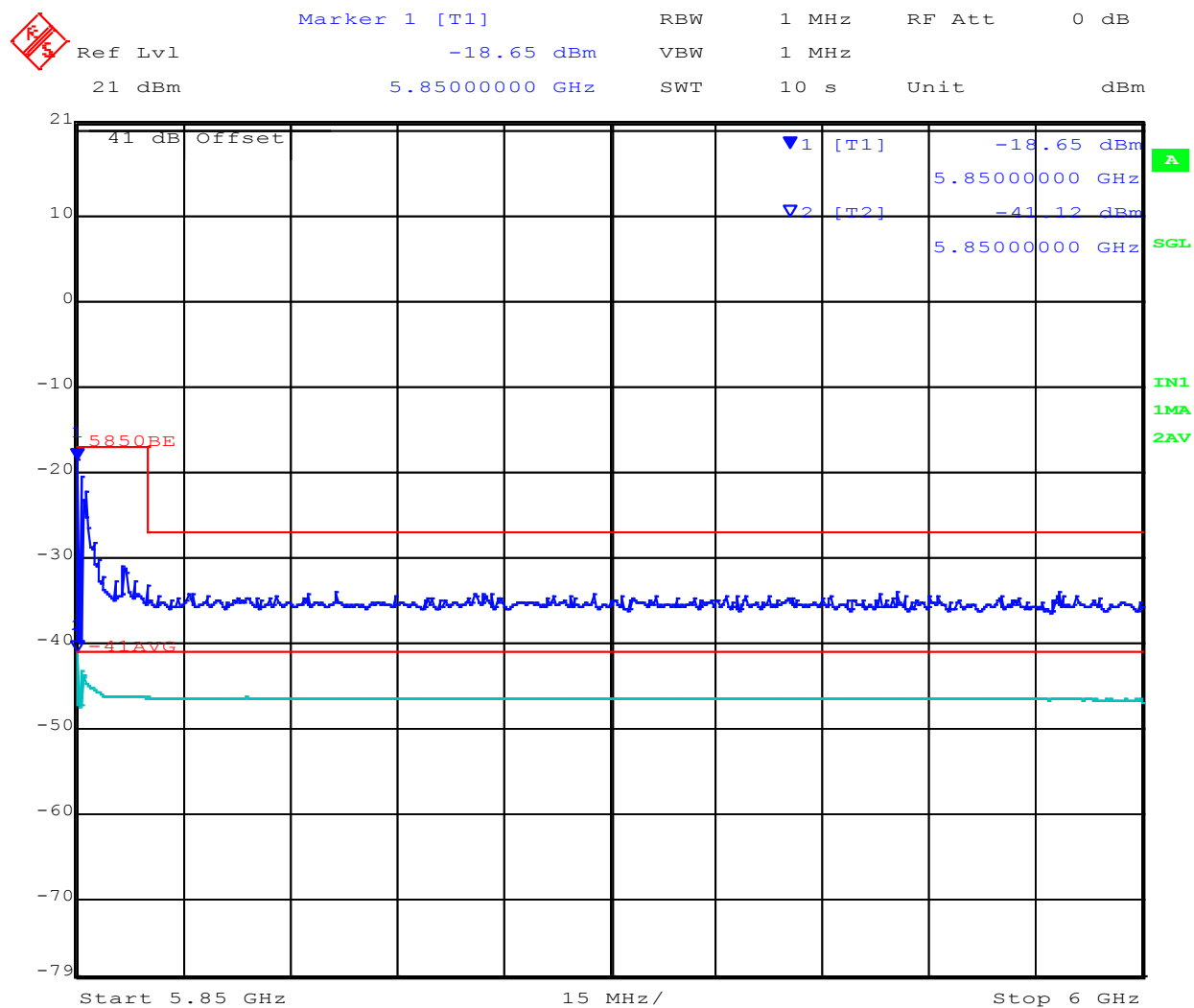
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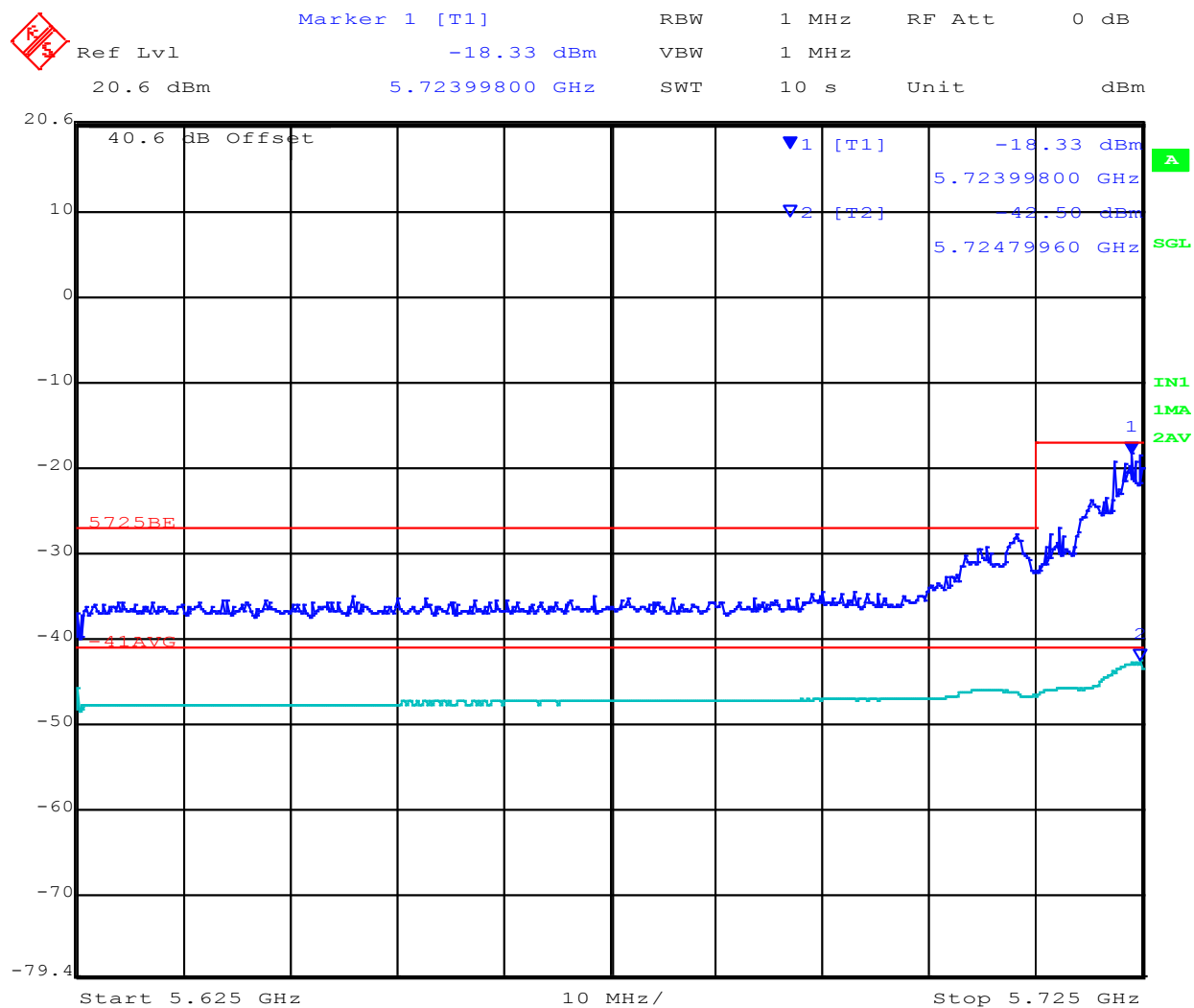
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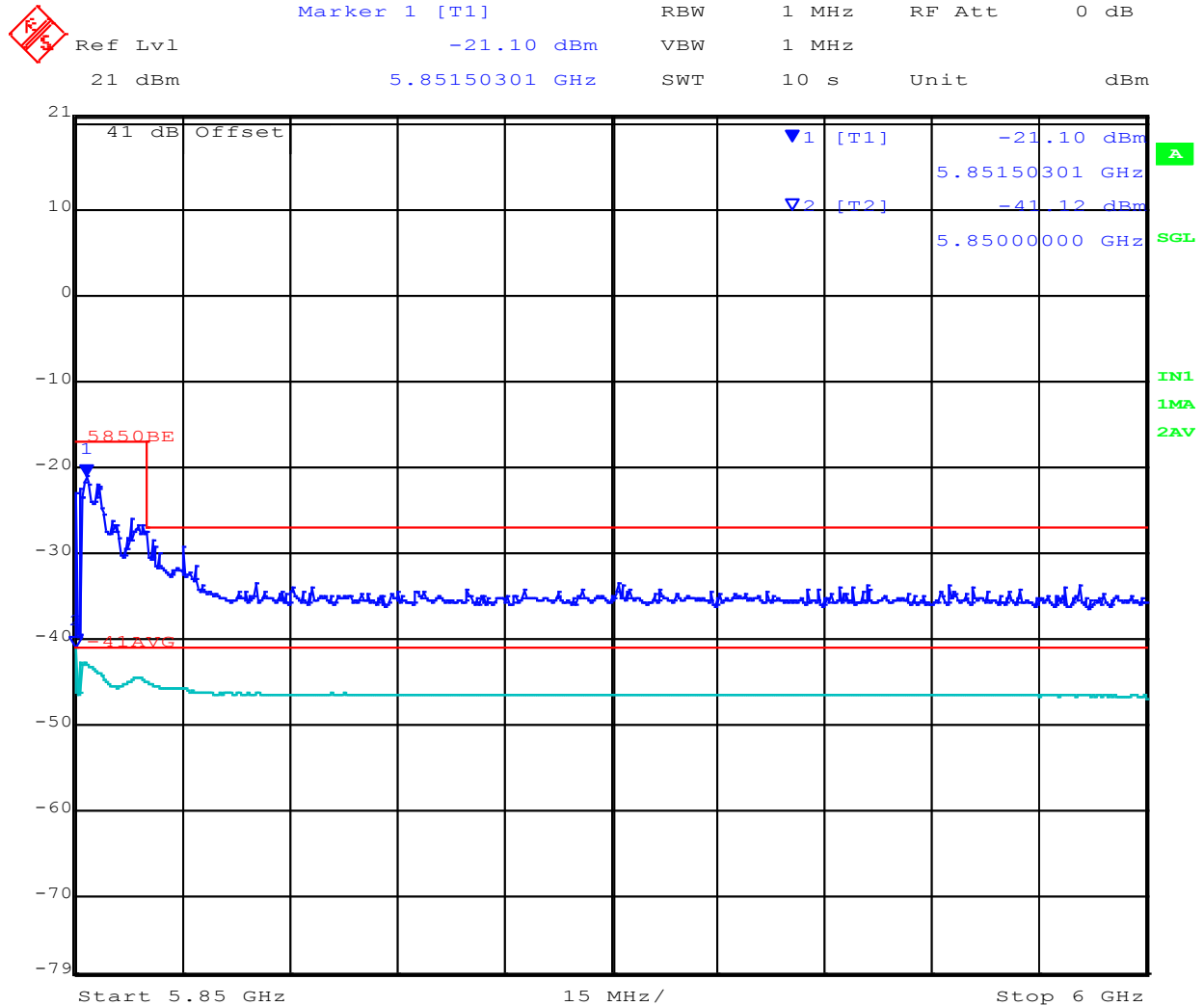
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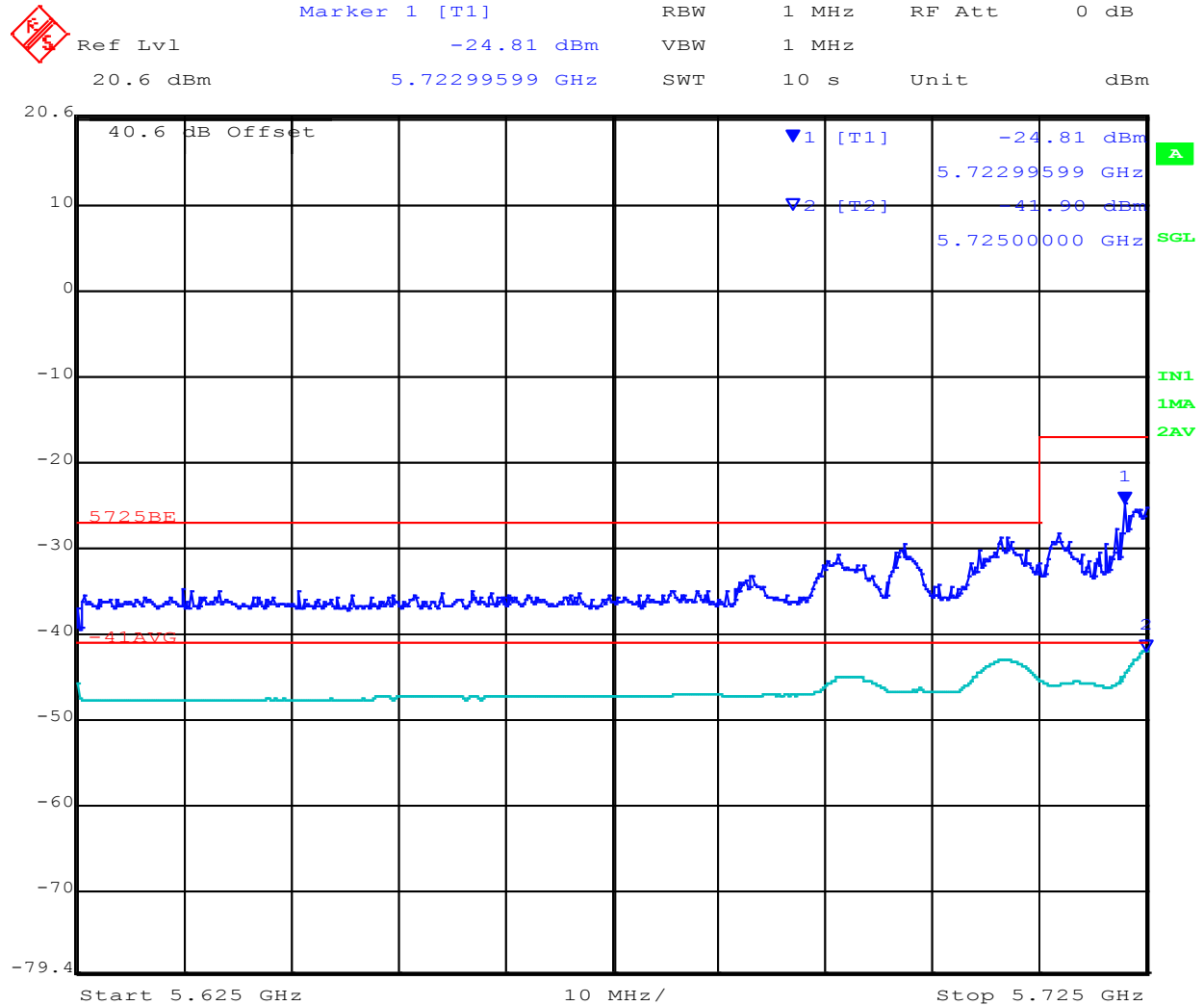
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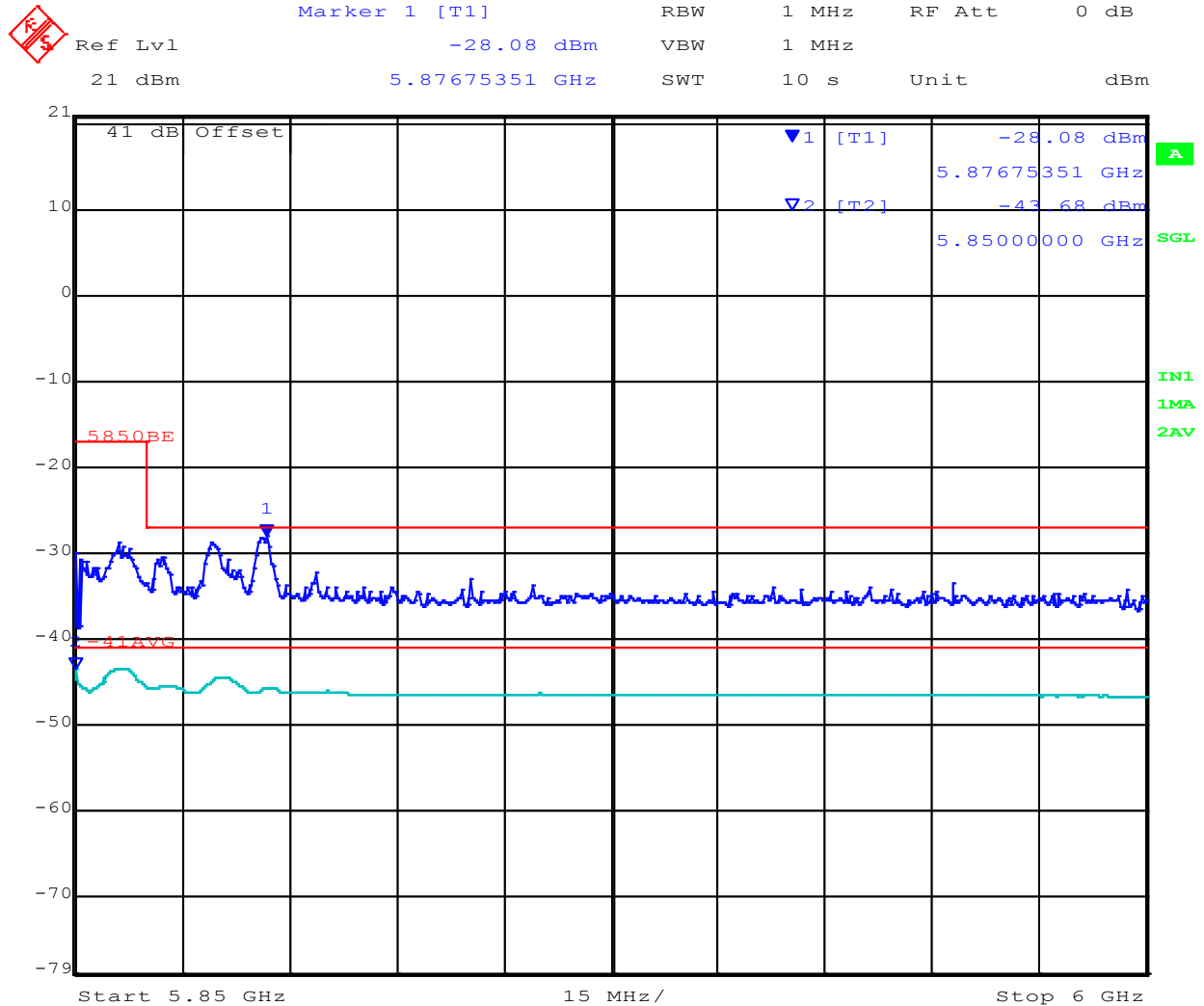
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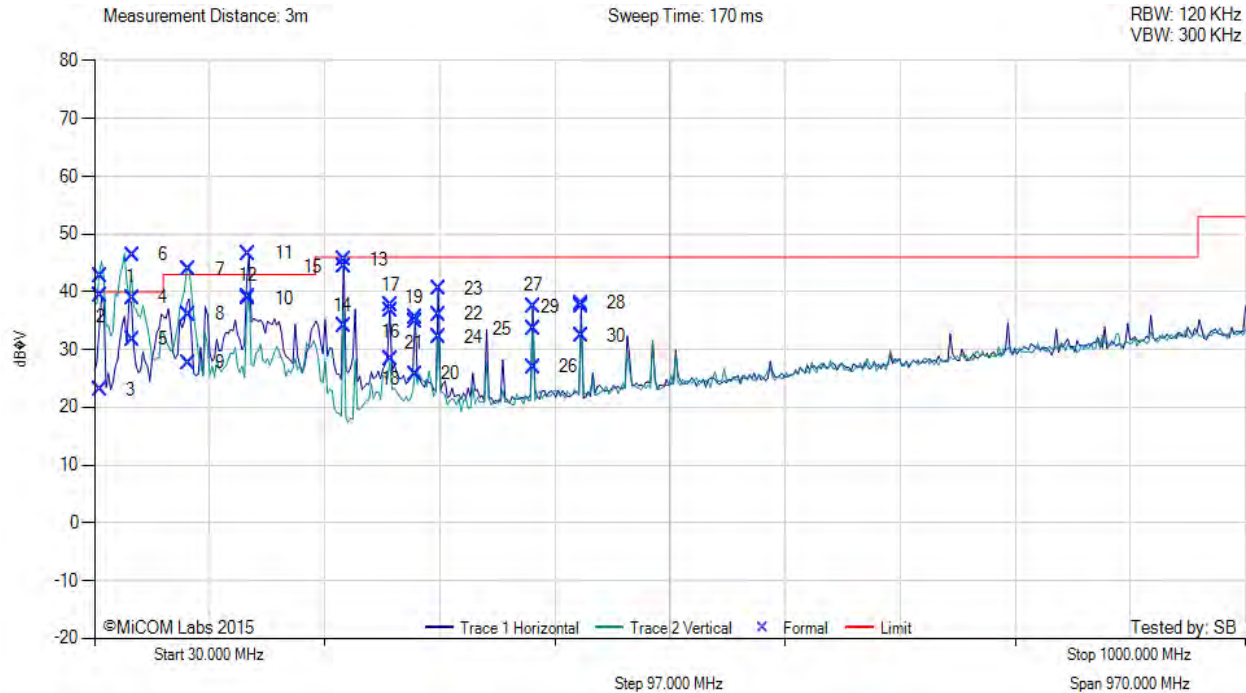
Title: Radwin Ltd. 5 GHz 802.11ac 3x3 RF Module 5XACMD3C
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A.3.2. Digital Emissions



DIGITAL EMISSIONS

Variant: 5 MHz, Test Freq: 5730.00 MHz, Antenna: RADWIN Ltd RW-9401-5002, Power Setting: 23, 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	35.16	52.87	3.46	-41.90	42.75	Peak (Scan)	Vertical					
2	35.16	49.50	3.46	-13.58	39.38	MaxQP	Vertical	100	274	40.0	-0.6	Pass
3	35.16	33.19	3.46	-13.58	23.07	MaxQP	Horizontal	120	30	40.0	-16.9	Pass
4	62.40	59.26	3.66	-23.92	39.00	MaxQP	Vertical	100	292	40.0	-1.0	Pass
5	62.40	52.01	3.66	-23.92	31.75	MaxQP	Horizontal	296	202	40.0	-8.3	Pass
6	62.40	66.64	3.66	-51.98	46.38	Peak (Scan)	Vertical					
7	109.54	58.77	3.93	-46.51	43.88	Peak (Scan)	Vertical					
8	109.54	50.95	3.93	-18.82	36.06	MaxQP	Vertical	103	37	43.0	-6.9	Pass
9	109.54	42.61	3.93	-18.82	27.72	MaxQP	Horizontal	153	107	43.0	-15.3	Pass
10	159.98	53.47	4.18	-46.12	38.85	Peak (Scan)	Horizontal					
11	159.98	56.28	4.18	-18.80	41.68	MaxQP	Horizontal	162	282	43.0	-1.34	Pass
12	159.98	53.82	4.18	-18.80	39.20	MaxQP	Vertical	247	245	43.0	-3.8	Pass
13	239.95	60.02	4.50	-18.95	45.57	MaxQP	Horizontal	118	282	46.0	-0.4	Pass
14	239.95	48.44	4.50	-18.95	33.99	MaxQP	Vertical	100	133	46.0	-12.0	Pass
15	239.95	58.74	4.50	-45.70	44.29	Peak (Scan)	Horizontal					
16	279.97	49.47	4.64	-44.00	36.69	Peak (Scan)	Horizontal					

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17	279.97	50.47	4.64	-17.42	37.69	MaxQP	Horizontal	125	16	46.0	-8.3	Pass
18	279.97	41.24	4.64	-17.42	28.46	MaxQP	Vertical	100	120	46.0	-17.5	Pass
19	299.97	47.92	4.70	-17.20	35.42	MaxQP	Horizontal	104	22	46.0	-10.6	Pass
20	299.97	38.32	4.70	-17.20	25.82	MaxQP	Vertical	101	195	46.0	-20.2	Pass
21	299.97	47.22	4.70	-43.70	34.72	Peak (Scan)	Horizontal					
22	319.98	47.98	4.77	-43.05	36.09	Peak (Scan)	Horizontal					
23	319.98	52.45	4.77	-16.66	40.56	MaxQP	Horizontal	100	278	46.0	-5.4	Pass
24	319.98	44.03	4.77	-16.66	32.14	MaxQP	Vertical	319	185	46.0	-13.9	Pass
25	399.92	43.28	5.02	-14.78	33.52	MaxQP	Horizontal	100	353	46.0	-12.5	Pass
26	399.92	36.75	5.02	-14.78	26.99	MaxQP	Vertical	121	52	46.0	-19.0	Pass
27	399.92	47.27	5.02	-40.74	37.51	Peak (Scan)	Horizontal					
28	439.96	47.01	5.15	-40.07	38.00	Peak (Scan)	Horizontal					
29	439.96	46.47	5.15	-14.16	37.46	MaxQP	Horizontal	100	352	46.0	-8.5	Pass
30	439.96	41.41	5.15	-14.16	32.40	MaxQP	Vertical	121	138	46.0	-13.6	Pass
31	3599.81	42.95	4.98	-50.45	36.76	Peak (Scan)	Vertical					

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