Company: Radwin Ltd

Test of: AP0158770 RF Wireless Module

To: FCC CFR 47 Part 15 Subpart E 15.407 &
Industry Canada RSS-247 Issue 1

Report No.: RDWN39-U9b Radiated Rev A

RADIATED TEST REPORT

MiCOM Labs

opening wireless markets

RADIATED TEST REPORT

FROM

Test of: Radwin Ltd AP0158770 RF Wireless Module
to

To: FCC CFR 47 Part 15 Subpart E 15.407 &
Industry Canada RSS-247 Issue 1

Test Report Serial No.: RDWN39-U9b Radiated Rev A

This report supersedes: NONE

Applicant:	Radwin Ltd 27 Habarzel Street Tel Aviv 69710 Israel
Product Function:	5 GHz Wireless Module
Issue Date:	4th December 2015

This Test Report is Issued Under the Authority of:

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ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2005. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

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

Presented this 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to December 31, 2015
Revised November 18, 2015

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

1.2. RECOGNITION

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

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2 4143A-3
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	RCB 210
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

EU MRA – European Union Mutual Recognition Agreement.
NB – Notified Body
APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement. Recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.

Phase I - recognition for product testing
Phase II – recognition for both product testing and certification

1.3. PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-02.pdf

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

Pleasanton, CA

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

Presented this 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to December 31, 2015
Revised November 18, 2015

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

United States of America – Telecommunication Certification Body (TCB)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier - 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	2nd December 2015	Added additional antenna AM0156430
Rev A	4th December 2015	Second Release
.		
.		
This report was originally issued under RDWN34-PCA_3.2 U3b		
Rev A	5th August 2015	Initial Release

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

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:	AP0158770	**Telephone:**	+1 925 462 0304
Type Of Equipment:	5 GHz Wireless Module	**Fax:**	+1 925 462 0306
S/N's:	Prototype		
Test Date(s):	13th – 17rd July + 11th Nov 2015	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart E 15.407 **Industry Canada RSS-247 Issue 1**	**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.

ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

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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 Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
XV	RSS-Gen, Issue 4	Nov 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 Ltd AP0158770 to FCC CFR 47 Part 15 Subpart E 15.407 & Industry Canada RSS-247 Issue 1 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:	RDWN39-U9b Radiated
Date EUT received:	July 6th 2015
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407 & RSS-247
Dates of test (from - to):	13th – 17th July 2015 + 11th July 2015
No of Units Tested:	1
Type of Equipment:	5 GHz Wireless Module 2x2 Spatial Multiplexing MIMO configuration
Product Family Name:	5.x DPLUS RF Module
Model(s):	AP0158770
Location for use:	Outdoor
Declared Frequency Range(s):	DFS Bands: 5250 – 5350, 5470 - 5725 MHz
Primary function of equipment:	RF module for transmitting and receiving data
Secondary function of equipment:	None Provided
Type of Modulation:	Per 802.11n/ac BPSK, QPSK, 16QAM, 64QAM, 256 QAM, OFDM
EUT Modes of Operation:	Bandwidths 5, 10, 20, 40, 80 MHz
Declared Nominal Output Power (Ave):	5250 – 5350 and 5470 – 5725 MHz +20 dBm
Transmit/Receive Operation:	Time Division Duplex
Rated Input Voltage and Current:	POE: 55Vdc 1A
Operating Temperature Range:	Declared Range -35°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 AP0158770 5 GHz Wireless Module

The scope of the test program was to test the Radwin AP0158770 wireless module in the frequency ranges 5250 - 5350 & 5470 - 5725 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 Issue 1
Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Radwin AP0158770 5 GHz Wireless Module

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

Equipment Type	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	5 GHz Wireless Module	RADWIN Ltd	AP0158770	Prototype
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)
Integrated	RADWIN Ltd	MT0128930	Sector	11.0	-	120	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9061-5004	Sector	11.0	-	120	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	AM0135060	Sector	12.0	-	95	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9061-5001	Sector	14.0	-	90	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9061-5002	Sector	15.5	-	60	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	MT0125250	Sector	13.0	-	90	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	AM0119960	Panel	16.0	-	35	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	AM0111760	Panel (Pt-Pt)	16.5	-	35	Yes	5250 – 5350 5470 - 5725
Integrated Smart Flat Panel	RADWIN Ltd	AM0156430	Panel	20.5	-	9.4	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9612-5001	Panel	23.0	-	8	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	MT0070760	Panel (Pt-Pt)	23.5	-	8	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9622-5001	Panel (Pt-Pt)	29.0	-	5	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9721-5158	Parabolic	28.0	-	5.5	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9732-4958	Parabolic (Pt-Pt)	32.0	-	4	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9401-5002	OMNI	12.5	-	50	Yes	5250 – 5350 5470 - 5725

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	100	1	Y	RJ-45	Packet

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
5250 - 5350 MHz				
5 MHz	16.25	--	5,300.00	--
10 MHz	32.50	--	5,300.00	5,341.00
20 MHz	65.00	5,264.00	5,300.00	5,336.00
40 MHz	180.00	--	5,300.00	5,326.00
80 MHz	390.00	--	5,300.00	5,310.00

5.7. Equipment Modifications

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

5.8. Deviations from the Test Standard

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

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6. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
(b)(2) Radiated	Complies	-
i).. Restricted Band Emissions	Complies	View Data
ii).. Restricted Band-Edge Emissions	Complies	View Data
iv).. Digital Emissions	Complies	View Data

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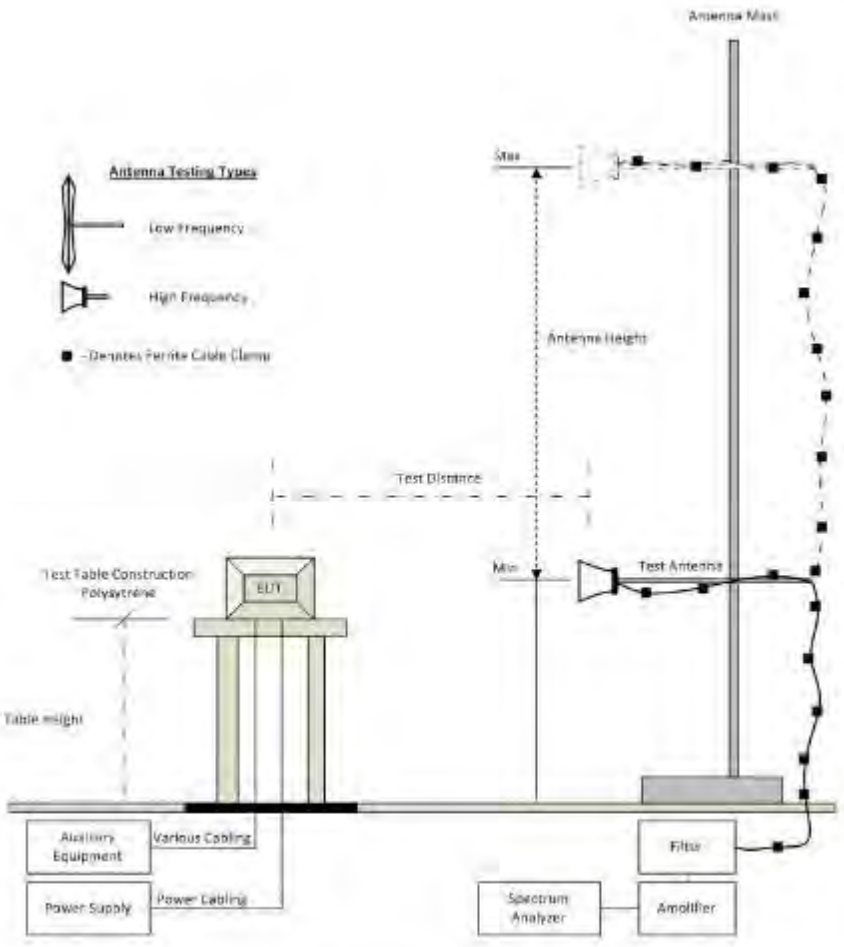
7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Radiated Emissions - 3m Chamber

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

1. Section 10.1 Spurious Emissions
2. Section 10.2 Restricted Band-Edge Emissions
3. Section 10.3. Digital Emissions



Radiated Emission Test Setup

.

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

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
158	Barometer/Thermometer	Control Company	4196	E2846	01 Dec 2016
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CY101	04R08507	Not Required
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	15 Aug 2016
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	18 Aug 2016
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	04 Aug 2016
393	DC - 1050 MHz Low Pass Filter	Microcircuits	VLFX-1050	N/A	08 Oct 2016
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	24 Feb 2016
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	10 Dec 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
447	Rad Emissions Test Software	MiCOM	Version 1.0.73	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	25 Feb 2016
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	25 Feb 2016
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	25 Feb 2016
480	Cable - Bulkhead to Amp	SRC Haverhill	157-157-3050360	480	11 Aug 2016
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-151-3050787	481	11 Aug 2016
482	Cable - Amp to Antenna	SRC Haverhill	157-157-3051574	482	11 Aug 2016
502	Test Software for Radiated Emissions	EMISoft	Vasona	Version 5 Build 59	Not Required

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8. MEASUREMENT AND PRESENTATION OF TEST DATA

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

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

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

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

9. TEST RESULTS

9.1. Radiated

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FS = R + AF + CORR - FO

where:
FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss or Waveguide Loss

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

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

where P is the EIRP in Watts

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

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

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

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

FCC Restricted Bands

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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9.1.1. Restricted Band Emissions

9.1.1.1. Antenna RW-9061-5002

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5264.00	**Data Rate:**	QAM 64
Power Setting:	1	**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	1279.91	38.70	2.90	-15.03	26.57	Max Avg	Horizontal	107	47	54.0	-27.4	Pass
#2	1279.91	49.63	2.90	-15.03	37.50	Max Peak	Horizontal	107	47	74.0	-36.5	Pass
#3	7018.72	39.79	7.20	-7.41	39.58	Max Avg	Horizontal	101	35	54.0	-14.4	Pass
#4	7018.72	46.03	7.20	-7.41	45.82	Max Peak	Horizontal	101	35	74.0	-28.2	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5300.00	**Data Rate:**	QAM 64
Power Setting:	1	**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	1250.25	29.83	2.86	-15.45	17.24	Max Avg	Vertical	196	203	54.0	-36.8	Pass
#2	1250.25	43.50	2.86	-15.45	30.91	Max Peak	Vertical	196	203	74.0	-43.1	Pass
#3	13321.85	28.56	10.53	-6.18	32.91	Max Avg	Vertical	125	19	54.0	-21.1	Pass
#4	13321.85	40.62	10.53	-6.18	44.97	Max Peak	Vertical	125	19	74.0	-29.0	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	1	**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	1280.05	43.08	2.90	-15.03	30.95	Max Avg	Horizontal	109	35	54.0	-23.1	Pass
#2	1280.05	51.51	2.90	-15.03	39.38	Max Peak	Horizontal	109	35	74.0	-34.6	Pass
#3	3749.67	32.57	5.09	-10.84	26.82	Max Avg	Vertical	100	192	54.0	-27.2	Pass
#4	3749.67	45.84	5.09	-10.84	40.09	Max Peak	Vertical	100	192	74.0	-33.9	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	3	**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	1256.53	29.77	2.87	-15.35	17.29	Max Avg	Vertical	106	207	54.0	-36.7	Pass
#2	1256.53	45.79	2.87	-15.35	33.31	Max Peak	Vertical	106	207	74.0	-40.7	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5590.00	**Data Rate:**	QAM 64
Power Setting:	2.5	**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	1275.93	30.00	2.90	-15.08	17.82	Max Avg	Vertical	111	216	54.0	-36.2	Pass
#2	1275.93	46.92	2.90	-15.08	34.74	Max Peak	Vertical	111	216	74.0	-39.3	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5706.00	**Data Rate:**	QAM 64
Power Setting:	2.5	**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	1280.15	30.98	2.90	-15.03	18.85	Max Avg	Vertical	100	203	54.0	-35.2	Pass
#2	1280.15	47.16	2.90	-15.03	35.03	Max Peak	Vertical	100	203	74.0	-39.0	Pass

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9.1.1.2. Antenna RW-9401-5002

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5264.00	**Data Rate:**	QAM 64
Power Setting:	9	**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	7018.50	28.29	7.20	-7.41	28.08	Max Avg	Horizontal	144	65	54.0	-25.9	Pass
#2	7018.50	39.50	7.20	-7.41	39.29	Max Peak	Horizontal	144	65	74.0	-34.7	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5300.00	**Data Rate:**	QAM 64
Power Setting:	8	**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	7066.47	27.73	7.22	-7.34	27.61	Max Avg	Vertical	106	99	54.0	-26.4	Pass
#2	7066.47	38.88	7.22	-7.34	38.76	Max Peak	Vertical	106	99	74.0	-35.2	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	3	**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	3751.14	29.49	5.09	-10.84	23.74	Max Avg	Horizontal	119	12	54.0	-30.3	Pass
#2	3751.14	42.53	5.09	-10.84	36.78	Max Peak	Horizontal	119	12	74.0	-37.2	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	Antenna RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	7	**Tested By:**	SB

Test Measurement Results
Click here to view measurement data...

Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	Antenna RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5590.00	**Data Rate:**	QAM 64
Power Setting:	6.5	**Tested By:**	SB

Test Measurement Results
Click here to view measurement data...

Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	Antenna RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5706.00	**Data Rate:**	QAM 64
Power Setting:	5	**Tested By:**	SB

Test Measurement Results
Click here to view measurement data...

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9.1.1.3. Antenna RW-9622-5001

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5264.00	**Data Rate:**	QAM 64
Power Setting:	-7.5	**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	1256.64	29.46	2.87	-15.35	16.98	Max Avg	Vertical	100	186	54.0	-37.0	Pass
#2	1256.64	45.64	2.87	-15.35	33.16	Max Peak	Vertical	100	186	74.0	-40.8	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5300.00	**Data Rate:**	QAM 64
Power Setting:	-8.5	**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	1280.09	38.10	2.90	-15.03	25.97	Max Avg	Horizontal	105	124	54.0	-28.0	Pass
#2	1280.09	49.78	2.90	-15.03	37.65	Max Peak	Horizontal	105	124	74.0	-36.4	Pass
#3	7061.92	26.54	7.22	-7.34	26.42	Max Avg	Vertical	144	338	54.0	-27.6	Pass
#4	7061.92	38.79	7.22	-7.34	38.67	Max Peak	Vertical	144	338	74.0	-35.3	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	-7.5	**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	1282.02	28.86	2.91	-15.00	16.77	Max Avg	Vertical	138	188	54.0	-37.2	Pass
#2	1282.02	43.07	2.91	-15.00	30.98	Max Peak	Vertical	138	188	74.0	-43.0	Pass
#3	6080.93	30.84	6.64	-9.58	27.90	Max Avg	Vertical	108	23	54.0	-26.1	Pass
#4	6080.93	43.21	6.64	-9.58	40.27	Max Peak	Vertical	108	23	74.0	-33.7	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	Antenna RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	-9.5	**Tested By:**	SB

Test Measurement Results
Click here to view measurement data...

Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	Antenna RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5590.00	**Data Rate:**	QAM 64
Power Setting:	-10	**Tested By:**	SB

Test Measurement Results
Click here to view measurement data...

Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	Antenna RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5706.00	**Data Rate:**	QAM 64
Power Setting:	-11.5	**Tested By:**	SB

Test Measurement Results
Click here to view measurement data...

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9.1.1.4. Antenna RW-9732-4958

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5264.00	**Data Rate:**	QAM 64
Power Setting:	-10.5	**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	1249.99	50.22	2.86	-15.45	37.63	Max Avg	Vertical	110	164	54.0	-16.4	Pass
#2	1249.99	54.44	2.86	-15.45	41.85	Max Peak	Vertical	110	164	74.0	-32.2	Pass
#3	3756.91	28.05	5.09	-10.84	22.30	Max Avg	Vertical	100	185	54.0	-31.7	Pass
#4	3756.91	40.80	5.09	-10.84	35.05	Max Peak	Vertical	100	185	74.0	-39.0	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5300.00	**Data Rate:**	QAM 64
Power Setting:	-10.5	**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	1279.83	30.77	2.90	-15.03	18.64	Max Avg	Vertical	115	154	54.0	-35.4	Pass
#2	1279.83	49.34	2.90	-15.03	37.21	Max Peak	Vertical	115	154	74.0	-36.8	Pass
#3	7066.71	44.84	7.22	-7.34	44.72	Max Avg	Vertical	100	353	54.0	-9.3	Pass
#4	7066.71	51.26	7.22	-7.34	51.14	Max Peak	Vertical	100	353	74.0	-22.9	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	-10.5	**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	1238.95	28.55	2.85	-15.58	15.82	Max Avg	Horizontal	105	115	54.0	-38.2	Pass
#2	1238.95	42.46	2.85	-15.58	29.73	Max Peak	Horizontal	105	115	74.0	-44.3	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	-10.5	**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	1280.15	30.72	2.90	-15.03	18.59	Max Avg	Vertical	100	108	54.0	-35.4	Pass
#2	1280.15	47.11	2.90	-15.03	34.98	Max Peak	Vertical	100	108	74.0	-39.0	Pass

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Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5590.00	**Data Rate:**	QAM 64
Power Setting:	-10.5	**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	1280.25	30.01	2.90	-15.03	17.88	Max Avg	Vertical	127	155	54.0	-36.1	Pass
#2	1280.25	48.20	2.90	-15.03	36.07	Max Peak	Vertical	127	155	74.0	-37.9	Pass
#3	3774.41	27.52	5.10	-10.85	21.77	Max Avg	Vertical	153	164	54.0	-32.2	Pass
#4	3774.41	40.35	5.10	-10.85	34.60	Max Peak	Vertical	153	164	74.0	-39.4	Pass

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5706.00	**Data Rate:**	QAM 64
Power Setting:	-10.5	**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	1317.25	28.43	2.93	-14.90	16.46	Max Avg	Horizontal	123	46	54.0	-37.5	Pass
#2	1317.25	41.12	2.93	-14.90	29.15	Max Peak	Horizontal	123	46	74.0	-44.9	Pass
#3	6181.64	33.13	6.79	-9.03	30.89	Max Avg	Vertical	100	353	54.0	-23.1	Pass
#4	6181.64	45.68	6.79	-9.03	43.44	Max Peak	Vertical	100	353	74.0	-30.6	Pass
#5	10661.83	25.03	9.14	-3.92	30.25	Max Avg	Vertical	122	262	54.0	-23.8	Pass
#6	10661.83	36.74	9.14	-3.92	41.96	Max Peak	Vertical	122	262	74.0	-32.0	Pass

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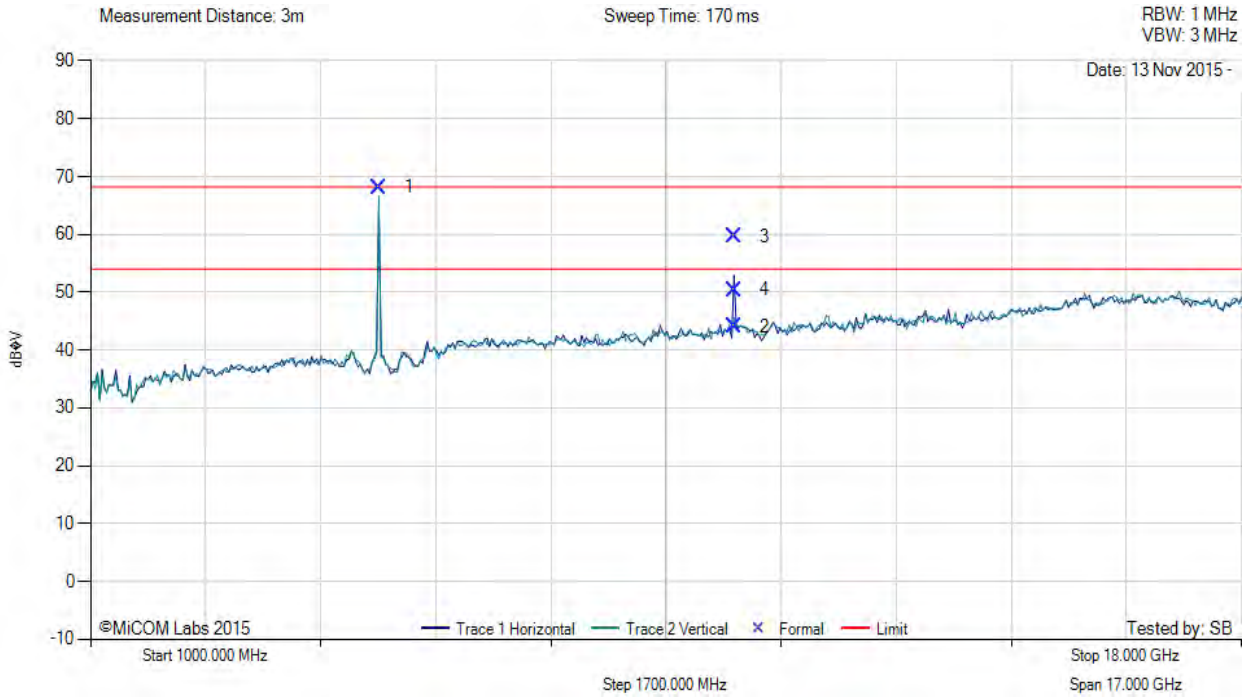
9.1.1.5. Antenna AM0156430

Equipment Configuration for Radiated Spurious - Restricted Band Emissions			
Antenna:	AM0156430	**Variant:**	5MHz
Antenna Gain (dBi):	20.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5253.5	**Data Rate:**	6mbit/s
Power Setting:	max	**Tested By:**	SB

Test Measurement Results

Variant: 5MHz, Test Freq: 5253.5 MHz, Antenna: AM0156430, Power Setting: max, 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	5254.15	75.85	3.64	-11.32	68.17	Peak (FUND)	Vertical					
4	10505.85	49.14	5.51	-4.28	50.37	Peak (NRB)	Horizontal	151	1	--	--	Pass

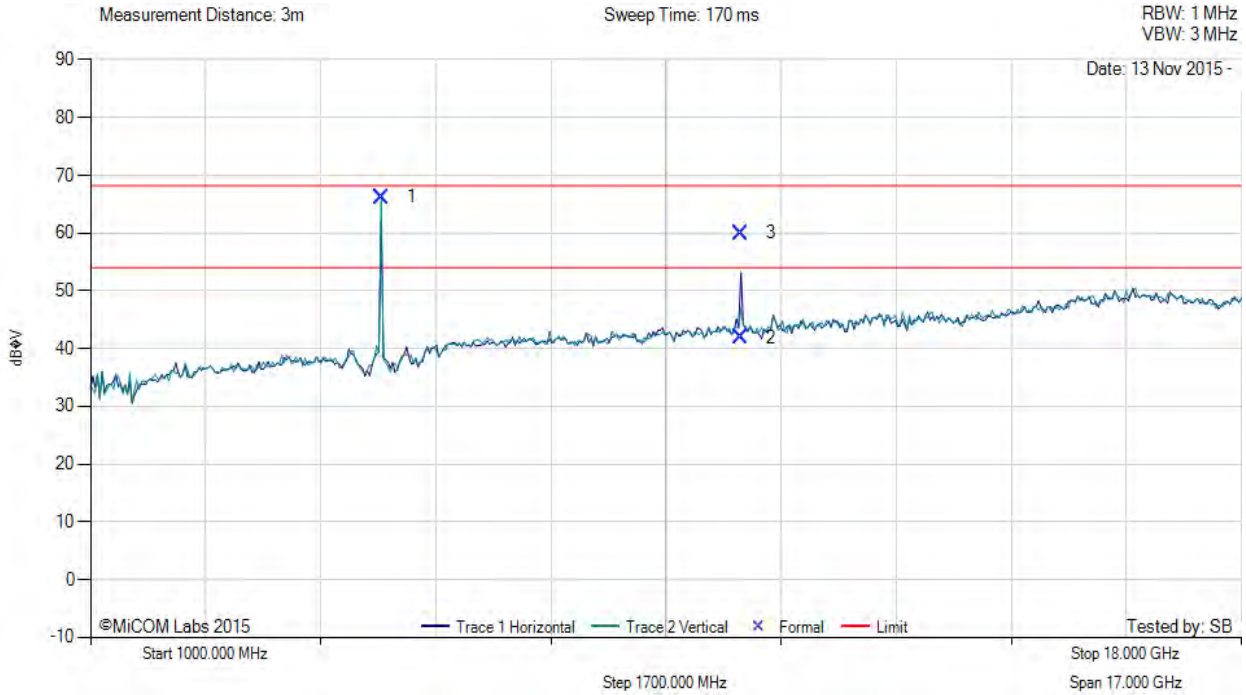
NRB – Non-Restricted Band

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	AM0156430	**Variant:**	5MHz
Antenna Gain (dBi):	20.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5300.00	**Data Rate:**	6mbit/s
Power Setting:	max	**Tested By:**	SB

Test Measurement Results

Variant: 5MHz, Test Freq: 5300.00 MHz, Antenna: AM0156430, Power Setting: max, 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	5298.96	73.50	3.81	-11.09	66.22	Peak (FUND)	Vertical	148	1	--	--	Pass
2	10602.52	40.21	5.57	-3.93	41.85	Max Avg	Horizontal	165	15	54.0	-12.2	Pass
3	10602.52	58.31	5.57	-3.93	59.95	Max Peak	Horizontal	165	15	68.2	-8.3	Pass

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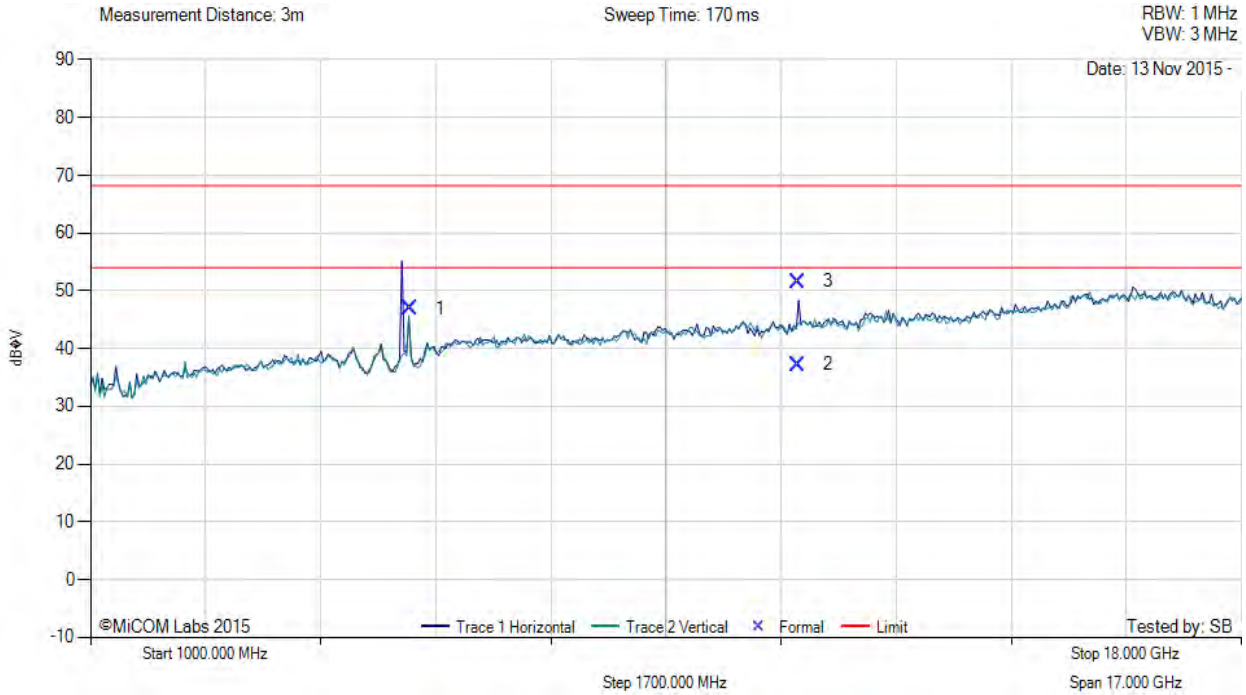
Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	AM0156430	**Variant:**	5MHz
Antenna Gain (dBi):	20.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5465.5	**Data Rate:**	6mbit/s
Power Setting:	max	**Tested By:**	SB

Test Measurement Results

Variant: 5MHz, Test Freq: 5465.5 MHz, Antenna: AM0156430, Power Setting: max, 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	5722.65	53.79	3.80	-10.72	46.87	Peak (FUND)	Horizontal	164	0	--	--	Pass
2	11442.81	36.75	5.38	-4.92	37.21	Max Avg	Horizontal	166	308	54.0	-16.8	Pass
3	11442.81	51.12	5.38	-4.92	51.58	Max Peak	Horizontal	166	308	68.2	-16.7	Pass

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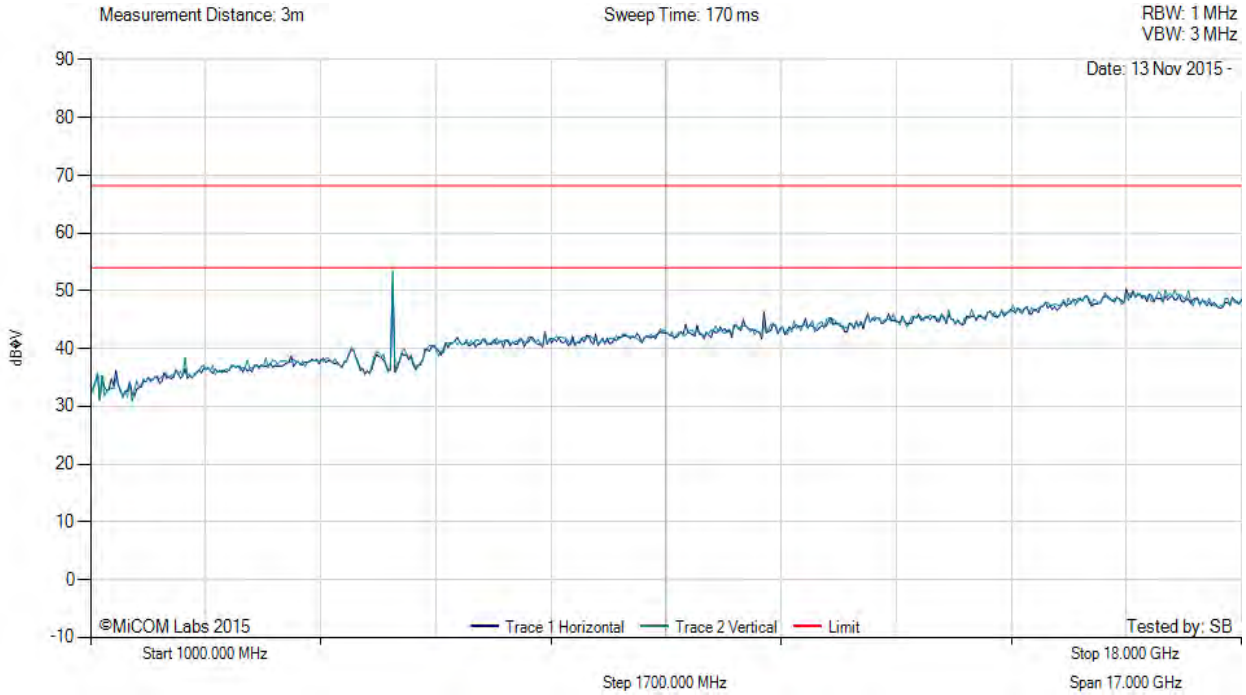
Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	AM0156430	**Variant:**	5MHz
Antenna Gain (dBi):	20.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5478.5	**Data Rate:**	6mbit/s
Power Setting:	max	**Tested By:**	SB

Test Measurement Results

Variant: 5MHz, Test Freq: 5478.5 MHz, Antenna: AM0156430, Power Setting: max, Duty Cycle (%): 99



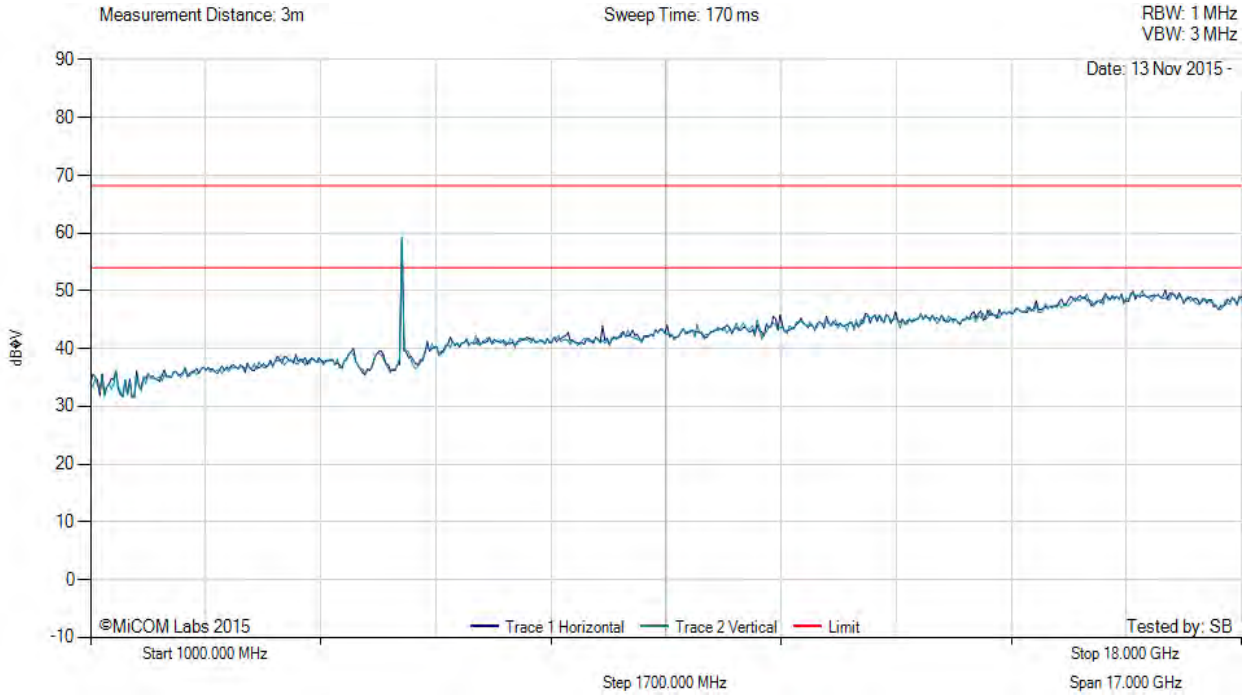
There are no emissions found within 6dB of the limit line.

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	AM0156430	**Variant:**	5MHz
Antenna Gain (dBi):	20.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5595.0	**Data Rate:**	6mbit/s
Power Setting:	max	**Tested By:**	SB

Test Measurement Results

Variant: 5MHz, Test Freq: 5595.0 MHz, Antenna: AM0156430, Power Setting: max, Duty Cycle (%): 99



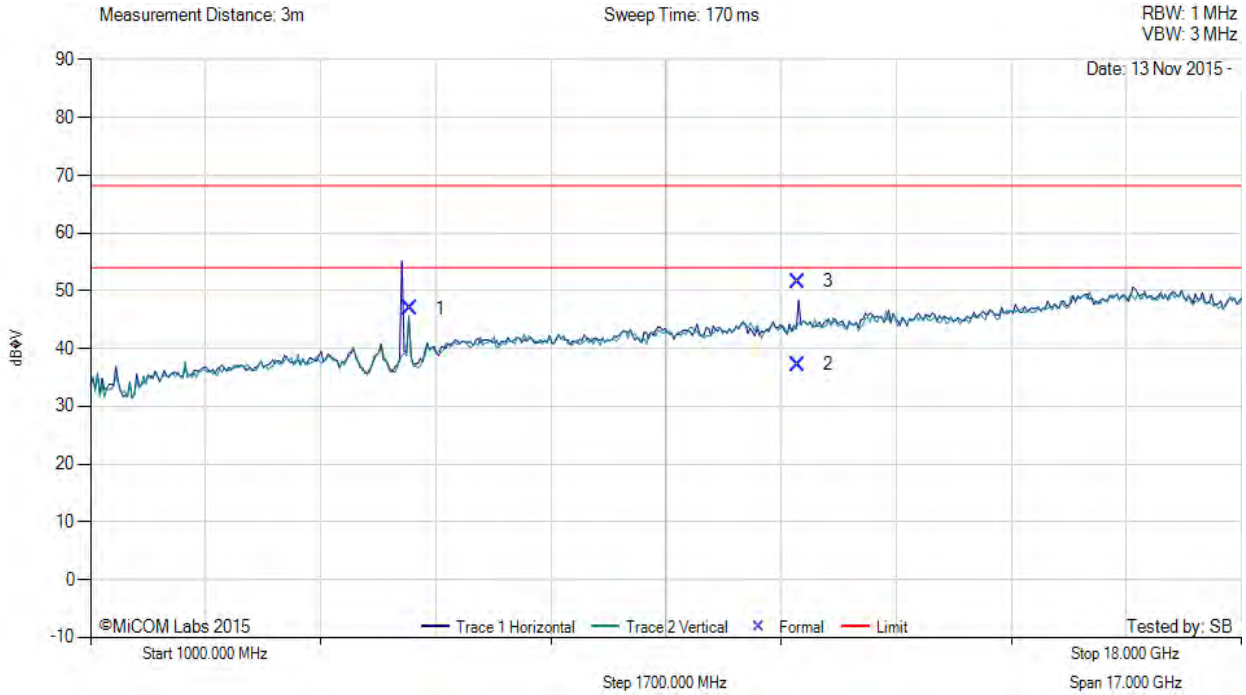
There are no emissions found within 6dB of the limit line.

Equipment Configuration for Radiated Spurious - Restricted Band Emissions

Antenna:	AM0156430	**Variant:**	5MHz
Antenna Gain (dBi):	20.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5721.5	**Data Rate:**	6mbit/s
Power Setting:	max	**Tested By:**	SB

Test Measurement Results

Variant: 5MHz, Test Freq: 5721.5 MHz, Antenna: AM0156430, Power Setting: max, 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	5722.65	53.79	3.80	-10.72	46.87	Peak (FUND)	Horizontal	164	0	--	--	Pass
2	11442.81	36.75	5.38	-4.92	37.21	Max Avg	Horizontal	166	308	54.0	-16.8	Pass
3	11442.81	51.12	5.38	-4.92	51.58	Max Peak	Horizontal	166	308	68.2	-16.7	Pass

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9.1.2. Restricted Band-Edge Emissions

9.1.2.6. Antenna RW-9061-5002

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

RW-9061-5002		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5341.00	5350.00	70.67	53.76	-1.00
20 MHz	5336.00	5350.00	70.51	52.82	-1.00
40 MHz	5326.00	5350.00	71.16	53.11	2.00
5 MHz	5346.50	5350.00	72.37	50.32	-5.00
80 MHz	5310.00	5350.00	72.71	52.81	-2.50

Antenna RW-9061-5002		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5484.00	5470.00	55.34	41.61	1.50
20 MHz	5489.00	5470.00	54.73	41.56	3.00
40 MHz	5499.00	5470.00	57.00	41.31	4.50
5 MHz	5478.50	5470.00	51.70	39.19	0.00
80 MHz	5520.00	5470.00	64.07	46.49	4.00

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9061-5002	**Variant:**	10 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5341.00	**Data Rate:**	QAM 64
Power Setting:	-1	**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	5350.00	58.62	6.16	-11.02	53.76	Max Avg	Vertical	96	5	54.0	-0.2	Pass
#2	5351.32	75.54	6.16	-11.03	70.67	Max Peak	Vertical	96	5	74.0	-3.3	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	-1	**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	5350.00	75.37	6.16	-11.02	70.51	Max Peak	Vertical	96	5	74.0	-3.5	Pass
#2	5350.22	57.68	6.16	-11.02	52.82	Max Avg	Vertical	96	5	54.0	-1.2	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9061-5002	**Variant:**	40 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5326.00	**Data Rate:**	QAM 256
Power Setting:	2	**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	5350.00	57.97	6.16	-11.02	53.11	Max Avg	Vertical	96	5	54.0	-0.9	Pass
#2	5351.10	76.03	6.16	-11.03	71.16	Max Peak	Vertical	96	5	74.0	-2.8	Pass

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9061-5002	**Variant:**	5 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5346.50	**Data Rate:**	QAM 64
Power Setting:	-5	**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	5350.00	55.18	6.16	-11.02	50.32	Max Avg	Vertical	96	5	54.0	-3.7	Pass
#2	5350.00	77.23	6.16	-11.02	72.37	Max Peak	Vertical	96	5	74.0	-1.6	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9061-5002	**Variant:**	80 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5310.00	**Data Rate:**	QAM 256
Power Setting:	-2.5	**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	5350.00	57.67	6.16	-11.02	52.81	Max Avg	Vertical	96	5	54.0	-1.2	Pass
#2	5350.00	77.57	6.16	-11.02	72.71	Max Peak	Vertical	96	5	74.0	-1.3	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	10 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5484.00	**Data Rate:**	QAM 64
Power Setting:	1.5	**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	5437.29	46.60	6.22	-11.21	41.61	Max Avg	Horizontal	96	4	54.0	-12.4	Pass
#2	5439.06	60.33	6.23	-11.22	55.34	Max Peak	Horizontal	96	4	74.0	-18.7	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	3	**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	5438.40	59.71	6.23	-11.21	54.73	Max Peak	Horizontal	96	4	74.0	-19.3	Pass
#2	5452.51	46.54	6.25	-11.23	41.56	Max Avg	Horizontal	96	4	54.0	-12.4	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	40 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5499.00	**Data Rate:**	QAM 256
Power Setting:	4.5	**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	5452.06	46.29	6.25	-11.23	41.31	Max Avg	Horizontal	96	4	54.0	-12.7	Pass
#2	5460.00	61.96	6.26	-11.22	57.00	Max Peak	Horizontal	96	4	74.0	-17.0	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	5 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5478.50	**Data Rate:**	QAM 64
Power Setting:	0	**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	5435.09	56.69	6.22	-11.21	51.70	Max Peak	Horizontal	96	4	74.0	-22.3	Pass
#2	5435.97	44.18	6.22	-11.21	39.19	Max Avg	Horizontal	96	4	54.0	-14.8	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9061-5002	**Variant:**	80 MHz
Antenna Gain (dBi):	15.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5520.00	**Data Rate:**	QAM 256
Power Setting:	4	**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	5458.02	69.04	6.26	-11.23	64.07	Max Peak	Horizontal	96	4	74.0	-9.9	Pass
#2	5459.56	51.45	6.26	-11.22	46.49	Max Avg	Horizontal	96	4	54.0	-7.5	Pass

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9.1.2.7. Antenna RW-9401-5002

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

RW-9401-5002		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5341.00	5350.00	73.09	50.99	0.00
20 MHz	5336.00	5350.00	71.48	52.21	3.00
40 MHz	5326.00	5350.00	72.39	53.63	3.50
5 MHz	5346.50	5350.00	73.50	48.48	-8.00
80 MHz	5310.00	5350.00	73.93	52.44	-3.00

Antenna RW-9401-5002		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5484.00	5470.00	53.67	40.11	5.50
20 MHz	5489.00	5470.00	55.09	41.29	7.00
40 MHz	5499.00	5470.00	64.23	45.51	8.50
5 MHz	5478.50	5470.00	50.64	38.71	4.00
80 MHz	5520.00	5470.00	66.02	50.16	8.00

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9401-5002	**Variant:**	10 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5341.00	**Data Rate:**	QAM 64
Power Setting:	0	**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	5350.00	55.85	6.16	-11.02	50.99	Max Avg	Vertical	99	32	54.0	-3.0	Pass
#2	5350.44	77.95	6.16	-11.02	73.09	Max Peak	Vertical	99	32	74.0	-0.9	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	3	**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	5350.00	57.07	6.16	-11.02	52.21	Max Avg	Vertical	99	32	54.0	-1.8	Pass
#2	5350.00	76.34	6.16	-11.02	71.48	Max Peak	Vertical	99	32	74.0	-2.5	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9401-5002	**Variant:**	40 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5326.00	**Data Rate:**	QAM 256
Power Setting:	3.5	**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	5350.22	58.49	6.16	-11.02	53.63	Max Avg	Vertical	99	32	54.0	-0.4	Pass
#2	5350.88	77.26	6.16	-11.03	72.39	Max Peak	Vertical	99	32	74.0	-1.6	Pass

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9401-5002	**Variant:**	5 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5346.50	**Data Rate:**	QAM 64
Power Setting:	-8	**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	5350.44	53.34	6.16	-11.02	48.48	Max Avg	Vertical	99	32	54.0	-5.5	Pass
#2	5350.44	78.36	6.16	-11.02	73.50	Max Peak	Vertical	99	32	74.0	-0.5	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9401-5002	**Variant:**	80 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5310.00	**Data Rate:**	QAM 256
Power Setting:	-3	**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	5350.00	57.30	6.16	-11.02	52.44	Max Avg	Vertical	99	32	54.0	-1.6	Pass
#2	5350.00	78.79	6.16	-11.02	73.93	Max Peak	Vertical	99	32	74.0	-0.1	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9401-5002	**Variant:**	10 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5484.00	**Data Rate:**	QAM 64
Power Setting:	5.5	**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	5441.26	58.66	6.23	-11.22	53.67	Max Peak	Vertical	108	32	74.0	-20.3	Pass
#2	5443.47	45.10	6.23	-11.22	40.11	Max Avg	Vertical	108	32	54.0	-13.9	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9401-5002	**Variant:**	20 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	7	**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	5452.73	46.27	6.25	-11.23	41.29	Max Avg	Vertical	108	32	54.0	-12.7	Pass
#2	5452.73	60.07	6.25	-11.23	55.09	Max Peak	Vertical	108	32	74.0	-18.9	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9401-5002	**Variant:**	40 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5499.00	**Data Rate:**	QAM 256
Power Setting:	8.5	**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	5448.32	69.22	6.24	-11.23	64.23	Max Peak	Vertical	108	32	74.0	-9.8	Pass
#2	5448.76	50.50	6.24	-11.23	45.51	Max Avg	Vertical	108	32	54.0	-8.5	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9401-5002	**Variant:**	5 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5478.50	**Data Rate:**	QAM 64
Power Setting:	4	**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	5433.11	55.62	6.22	-11.20	50.64	Max Peak	Vertical	108	32	74.0	-23.4	Pass
#2	5434.21	43.70	6.22	-11.21	38.71	Max Avg	Vertical	108	32	54.0	-15.3	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9401-5002	**Variant:**	80 MHz
Antenna Gain (dBi):	12.5	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5520.00	**Data Rate:**	QAM 256
Power Setting:	8	**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	5458.90	70.98	6.26	-11.22	66.02	Max Peak	Vertical	108	32	74.0	-8.0	Pass
#2	5460.00	55.12	6.26	-11.22	50.16	Max Avg	Vertical	108	32	54.0	-3.8	Pass

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9.1.2.8. Antenna RW-9622-5001

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

RW-9622-5001		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5341.00	5350.00	58.61	45.04	-9.50
20 MHz	5336.00	5350.00	58.21	45.05	-7.50
40 MHz	5326.00	5350.00	58.03	46.56	-9.00
5 MHz	5346.50	5350.00	73.68	52.90	-18.00
80 MHz	5310.00	5350.00	60.32	47.87	-9.00

Antenna RW-9622-5001		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5484.00	5470.00	58.65	45.25	-11.00
20 MHz	5489.00	5470.00	58.79	45.03	-9.50
40 MHz	5499.00	5470.00	58.76	45.03	-8.00
5 MHz	5478.50	5470.00	59.35	45.38	-12.50
80 MHz	5520.00	5470.00	58.73	43.66	-8.50

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9622-5001	**Variant:**	10 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5341.00	**Data Rate:**	QAM 64
Power Setting:	-9.5	**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	5350.00	49.90	6.16	-11.02	45.04	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
#2	5375.57	63.50	6.19	-11.08	58.61	Max Peak	Horizontal	102	24	74.0	-15.4	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	-7.5	**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	5350.00	49.91	6.16	-11.02	45.05	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
#2	5374.25	63.10	6.19	-11.08	58.21	Max Peak	Horizontal	102	24	74.0	-15.8	Pass

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9622-5001	**Variant:**	40 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5326.00	**Data Rate:**	QAM 256
Power Setting:	-9	**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	5350.22	51.42	6.16	-11.02	46.56	Max Avg	Horizontal	102	24	54.0	-7.4	Pass
#2	5376.45	62.92	6.19	-11.08	58.03	Max Peak	Horizontal	102	24	74.0	-16.0	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9622-5001	**Variant:**	5 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5346.50	**Data Rate:**	QAM 64
Power Setting:	-18	**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	5350.00	57.76	6.16	-11.02	52.90	Max Avg	Horizontal	102	24	54.0	-1.1	Pass
#2	5350.00	78.54	6.16	-11.02	73.68	Max Peak	Horizontal	102	24	74.0	-0.3	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9622-5001	**Variant:**	80 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5310.00	**Data Rate:**	QAM 256
Power Setting:	-9	**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	5350.00	65.18	6.16	-11.02	60.32	Max Peak	Horizontal	102	24	74.0	-13.7	Pass
#2	5350.22	52.73	6.16	-11.02	47.87	Max Avg	Horizontal	102	24	54.0	-6.1	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9622-5001	**Variant:**	10 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5484.00	**Data Rate:**	QAM 64
Power Setting:	-11	**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	5376.89	50.15	6.19	-11.09	45.25	Max Avg	Horizontal	102	24	54.0	-8.8	Pass
#2	5378.44	63.54	6.20	-11.09	58.65	Max Peak	Horizontal	102	24	74.0	-15.4	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	-9.5	**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	5376.23	49.92	6.19	-11.08	45.03	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
#2	5377.33	63.69	6.19	-11.09	58.79	Max Peak	Horizontal	102	24	74.0	-15.2	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9622-5001	**Variant:**	40 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5499.00	**Data Rate:**	QAM 256
Power Setting:	-8	**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	5375.57	49.92	6.19	-11.08	45.03	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
#2	5450.52	63.74	6.25	-11.23	58.76	Max Peak	Horizontal	102	24	74.0	-15.2	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9622-5001	**Variant:**	5 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5478.50	**Data Rate:**	QAM 64
Power Setting:	-12.5	**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	5373.15	64.25	6.18	-11.08	59.35	Max Peak	Horizontal	102	24	74.0	-14.7	Pass
#2	5376.45	50.27	6.19	-11.08	45.38	Max Avg	Horizontal	102	24	54.0	-8.6	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9622-5001	**Variant:**	80 MHz
Antenna Gain (dBi):	29	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5520.00	**Data Rate:**	QAM 256
Power Setting:	-8.5	**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	5365.21	63.62	6.17	-11.06	58.73	Max Peak	Horizontal	102	24	74.0	-15.3	Pass
#2	5376.89	48.56	6.19	-11.09	43.66	Max Avg	Horizontal	102	24	54.0	-10.3	Pass

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9.1.2.9. Antenna RW-9732-4958

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

RW-9732-4958		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5341.00	5350.00	53.43	39.07	-14.00
20 MHz	5336.00	5350.00	53.58	39.99	-14.00
40 MHz	5326.00	5350.00	53.93	40.63	-14.00
5 MHz	5346.50	5350.00	73.60	52.75	-14.00
80 MHz	5320.00	5350.00	58.46	45.42	-11.50

Antenna RW-9732-4958		Band-Edge Freq	Peak (Limit 74.0dBµV/m)	Average (Limit 54.0dBµV/m)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10 MHz	5484.00	5470.00	58.75	45.44	-14.00
20 MHz	5489.00	5470.00	58.84	45.30	-12.50
40 MHz	5499.00	5470.00	59.21	44.89	-11.00
5 MHz	5478.50	5470.00	57.68	44.78	-15.50
80 MHz	5520.00	5470.00	58.46	45.42	-11.50

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9732-4958	**Variant:**	10 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5341.00	**Data Rate:**	QAM 64
Power Setting:	-14	**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	5350.00	58.29	6.16	-11.02	53.43	Max Peak	Horizontal	110	343	74.0	-20.6	Pass
#2	5350.22	43.93	6.16	-11.02	39.07	Max Avg	Horizontal	110	343	54.0	-14.9	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5336.00	**Data Rate:**	QAM 64
Power Setting:	-14	**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	5350.00	44.85	6.16	-11.02	39.99	Max Avg	Horizontal	110	343	54.0	-14.0	Pass
#2	5350.00	58.44	6.16	-11.02	53.58	Max Peak	Horizontal	110	343	74.0	-20.4	Pass

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Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9732-4958	**Variant:**	40 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5326.00	**Data Rate:**	QAM 256
Power Setting:	-14	**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	5350.00	58.79	6.16	-11.02	53.93	Max Peak	Horizontal	110	343	74.0	-20.1	Pass
#2	5350.22	45.49	6.16	-11.02	40.63	Max Avg	Horizontal	110	343	54.0	-13.4	Pass

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	RW-9732-4958	**Variant:**	5 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5346.50	**Data Rate:**	QAM 64
Power Setting:	-14	**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	5350.00	78.46	6.16	-11.02	73.60	Max Peak	Horizontal	110	343	74.0	-0.4	Pass
#2	5350.22	57.61	6.16	-11.02	52.75	Max Avg	Horizontal	110	343	54.0	-1.3	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	10 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5484.00	**Data Rate:**	QAM 64
Power Setting:	-14	**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	5350.00	50.30	6.16	-11.02	45.44	Max Avg	Horizontal	110	351	54.0	-8.6	Pass
#2	5394.53	63.66	6.23	-11.14	58.75	Max Peak	Horizontal	110	351	74.0	-15.3	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	20 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5489.00	**Data Rate:**	QAM 64
Power Setting:	-12.5	**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	5350.00	50.16	6.16	-11.02	45.30	Max Avg	Horizontal	110	351	54.0	-8.7	Pass
#2	5356.83	63.72	6.17	-11.05	58.84	Max Peak	Horizontal	110	351	74.0	-15.2	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	40 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5499.00	**Data Rate:**	QAM 256
Power Setting:	-11	**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	5350.00	49.75	6.16	-11.02	44.89	Max Avg	Horizontal	110	351	54.0	-9.1	Pass
#2	5356.39	64.09	6.16	-11.04	59.21	Max Peak	Horizontal	110	351	74.0	-14.8	Pass

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	5 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5478.50	**Data Rate:**	QAM 64
Power Setting:	-15.5	**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	5350.00	49.64	6.16	-11.02	44.78	Max Avg	Horizontal	110	351	54.0	-9.2	Pass
#2	5419.22	62.62	6.24	-11.18	57.68	Max Peak	Horizontal	110	351	74.0	-16.3	Pass

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Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	Antenna RW-9732-4958	**Variant:**	80 MHz
Antenna Gain (dBi):	32	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5520.00	**Data Rate:**	QAM 256
Power Setting:	-11.5	**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	5350.22	50.28	6.16	-11.02	45.42	Max Avg	Horizontal	110	351	54.0	-8.6	Pass
#2	5413.93	63.39	6.25	-11.18	58.46	Max Peak	Horizontal	110	351	74.0	-15.5	Pass

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9.1.2.10. Antenna AM0156430

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

AM0156430		Band-Edge Freq	Peak (Limit 74 dBuV)	Peak (Limit 54 dBuV)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBm	dBm	
5 MHz	5346.50	5350.00	71.07	53.00	-15.0
10 MHz	5341.00	5350.00	73.38	45.60	-14.0
20 MHz	5336.00	5350.00	73.16	47.94	-12.0
40 MHz	5326.00	5350.00	72.79	50.06	-12.0
80 MHz	5310.00	5350.00	73.77	50.38	-8.0

AM0156430		Band-Edge Freq	Peak (Limit 74 dBuV)	Average (Limit 54 dBuV)	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBm	dBm	
5 MHz	5478.50	5460.00	59.10	46.0	5.0
10 MHz	5484.00	5460.00	61.73	47.88	7.0
20 MHz	5489.00	5460.00	65.38	50.25	9.0
40 MHz	5499.00	5460.00	67.93	51.96	9.0
80 MHz	5520.00	5460.00	69.55	52.90	8.5

Click on the links to view the data.

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9.1.3. Digital Emissions

FCC, Part 15 Subpart C §15.205/ §15.209

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

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

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

FS = R + AF + CORR

where:

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

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

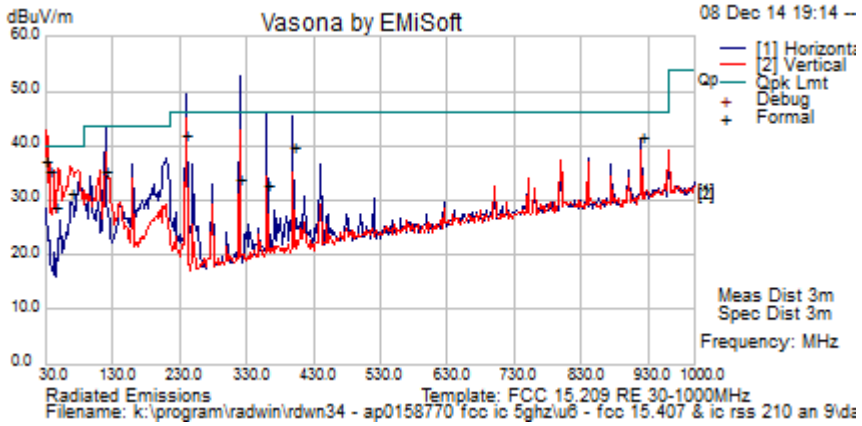
FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3dBμV/m

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

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

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

Test Freq.	NA	**Engineer**	JMH
Variant	Digital Emissions	**Temp (ºC)**	20
Freq. Range	30-1000 MHz	**Rel. Hum.(%)**	56
Power Setting	NA	**Press. (mBars)**	848
Antenna	32 dBi		
Test Notes 1			
Test Notes 2			



Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
319.999	45.4	5.2	-16.7	33.9	Quasi Max	H	99	179	46.0	-12.1	Pass	
240.015	56.0	4.8	-19.0	41.9	Quasi Max	H	100	157	46	-4.2	Pass	
30.251	43.5	3.5	-9.9	37.1	Quasi Max	V	224	18	40	-2.9	Pass	
34.975	45.3	3.6	-13.6	35.3	Quasi Max	V	142	12	40	-4.7	Pass	
120.005	48.6	4.2	-17.5	35.3	Quasi Max	H	209	204	43.5	-8.2	Pass	
360.008	42.9	5.3	-15.4	32.8	Quasi Max	H	217	152	46	-13.2	Pass	
399.995	49.0	5.5	-14.8	39.7	Quasi Max	H	160	202	46	-6.3	Pass	
66.934	50.9	3.8	-23.3	31.4	Quasi Max	V	108	313	40	-8.6	Pass	
44.815	45.7	3.6	-20.7	28.7	Quasi Max	V	130	349	40	-11.4	Pass	
919.995	42.0	7.2	-7.7	41.4	Quasi Max	H	109	181	46	-4.6	Pass	

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental Frequency
	ETSI Vid Avg Type = 100 kHz RBW, 100 kHz VBW, Peak Detector, Video Average, 100 Sweeps

Specification

Limits

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

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

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

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

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

Laboratory Measurement Uncertainty for Radiated Emissions

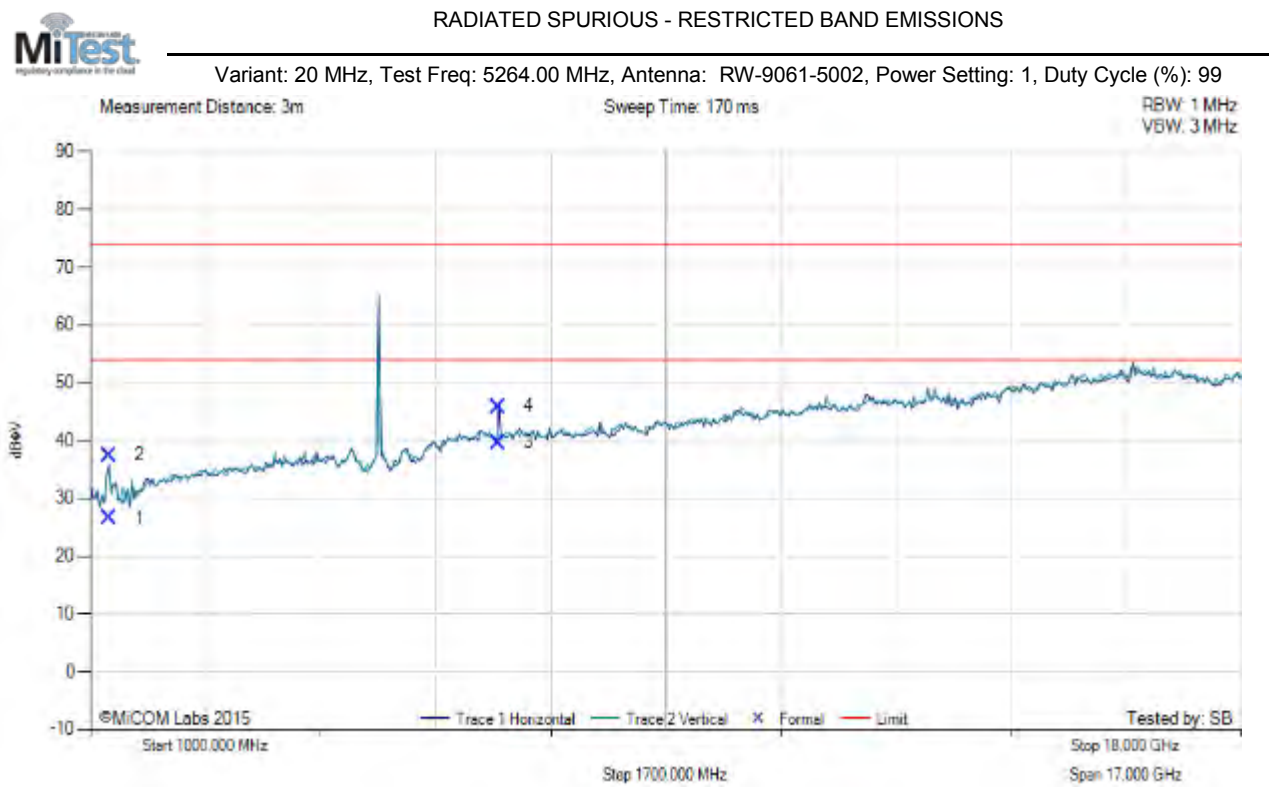
Measurement uncertainty	+5.6/ -4.5 dB

A. APPENDIX - GRAPHICAL IMAGES

A.1. Radiated

A.1.1. Restricted Band Emissions

A.1.1.1. Antenna RW-9061-5002

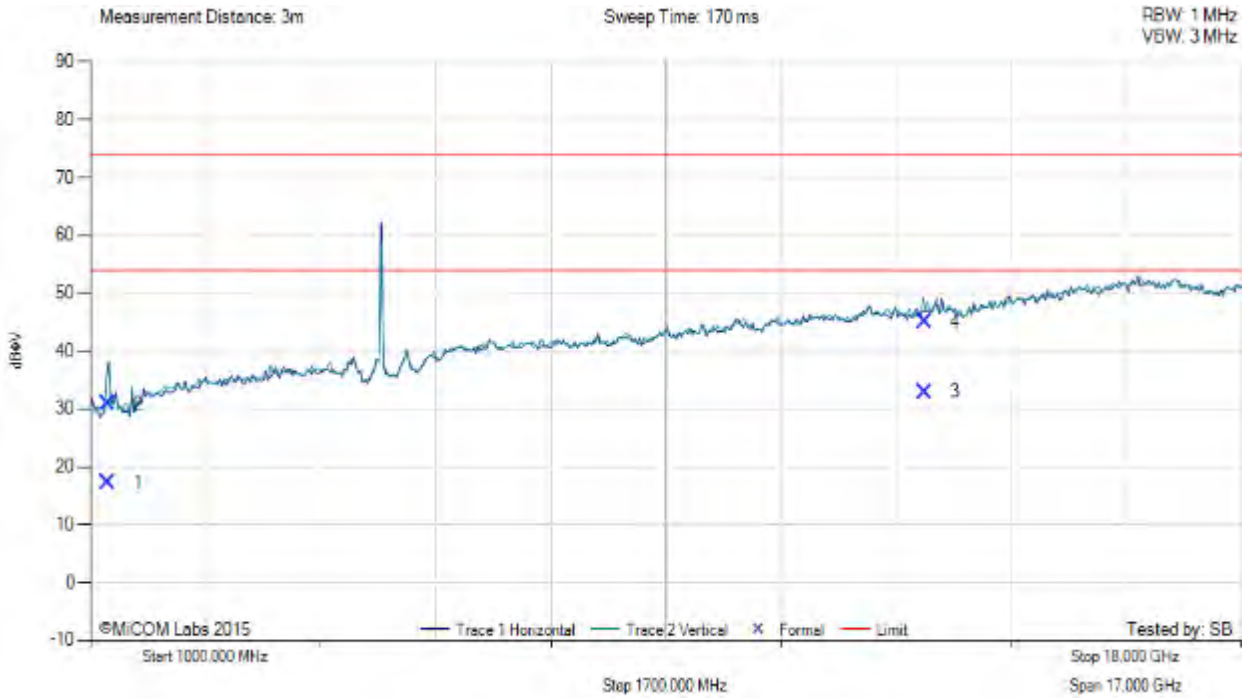


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1279.91	38.70	2.90	-15.03	26.57	Max Avg	Horizontal	107	47	54.0	-27.4	Pass
2	1279.91	49.63	2.90	-15.03	37.50	Max Peak	Horizontal	107	47	74.0	-36.5	Pass
3	7018.72	39.79	7.20	-7.41	39.58	Max Avg	Horizontal	101	35	54.0	-14.4	Pass
4	7018.72	46.03	7.20	-7.41	45.82	Max Peak	Horizontal	101	35	74.0	-28.2	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5300.00 MHz, Antenna: RW-9061-5002, Power Setting: 1, 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	1250.25	29.83	2.86	-15.45	17.24	Max Avg	Vertical	196	203	54.0	-36.8	Pass
2	1250.25	43.50	2.86	-15.45	30.91	Max Peak	Vertical	196	203	74.0	-43.1	Pass
3	13321.85	28.56	10.53	-6.18	32.91	Max Avg	Vertical	125	19	54.0	-21.1	Pass
4	13321.85	40.62	10.53	-6.18	44.97	Max Peak	Vertical	125	19	74.0	-29.0	Pass

back to matrix

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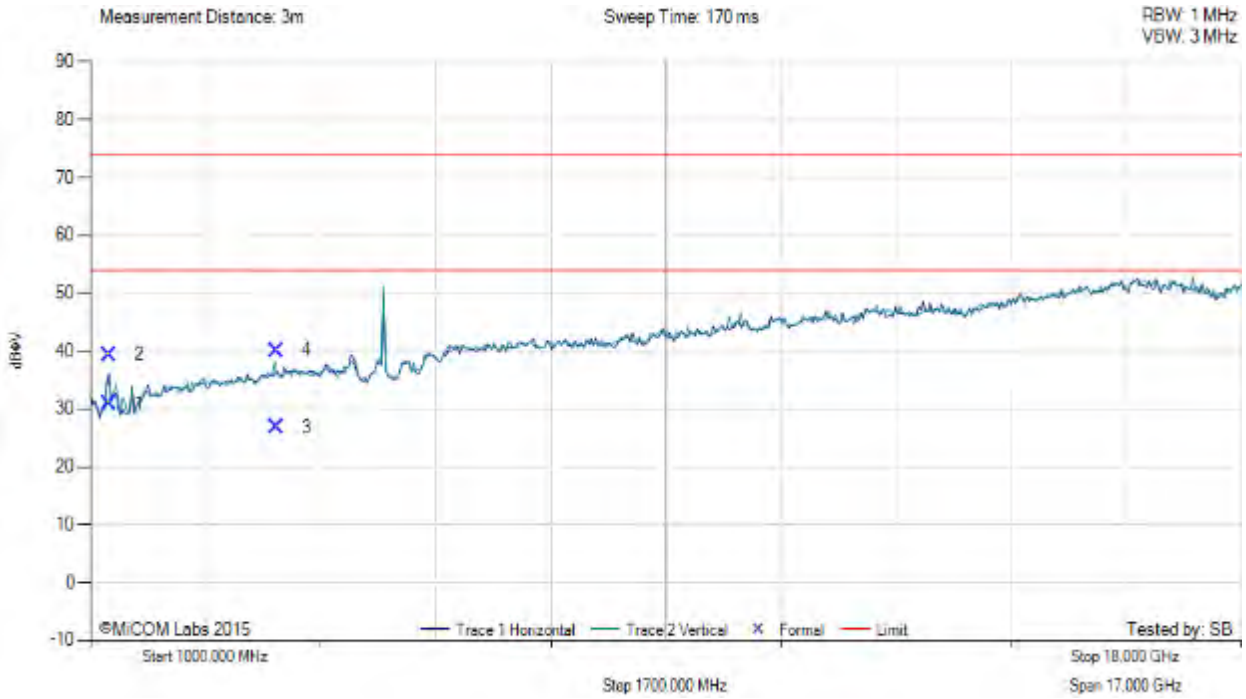
RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

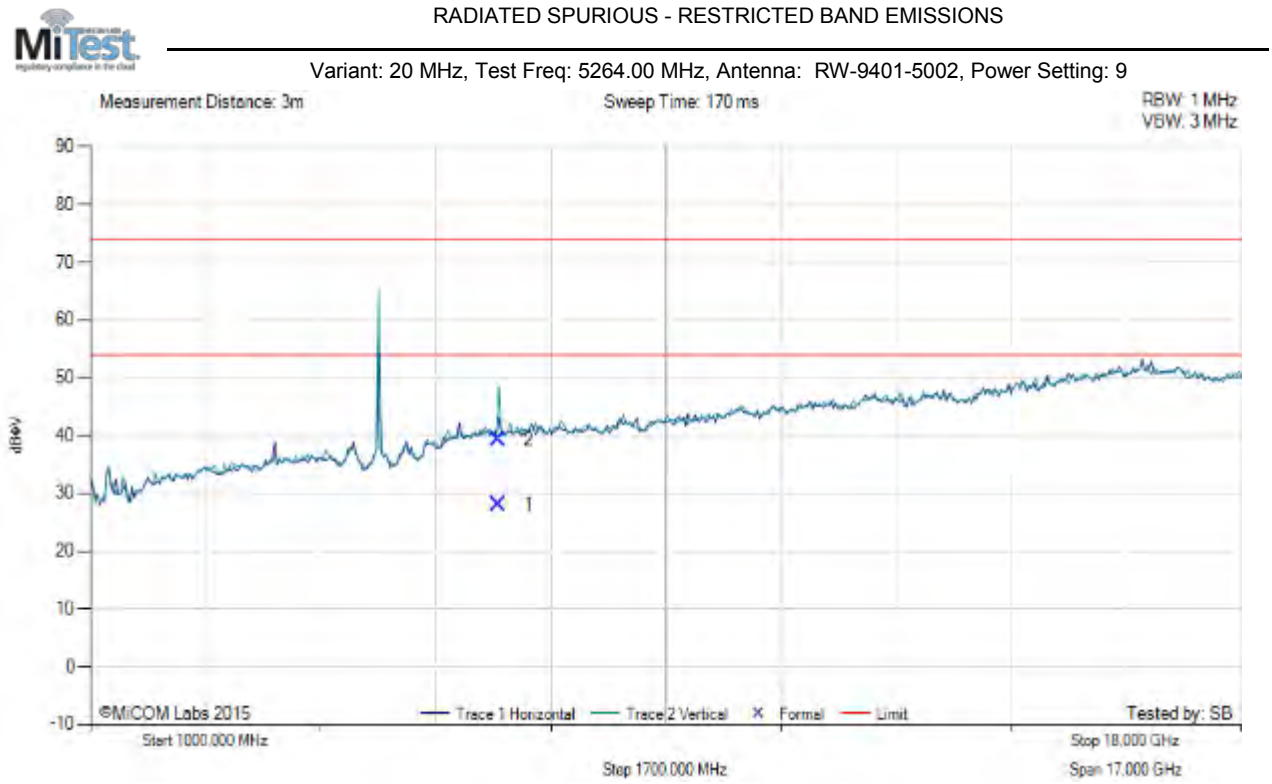
Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9061-5002, Power Setting: 1, Duty Cycle (%): 99



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	1280.05	43.08	2.90	-15.03	30.95	Max Avg	Horizontal	109	35	54.0	-23.1	Pass
2	1280.05	51.51	2.90	-15.03	39.38	Max Peak	Horizontal	109	35	74.0	-34.6	Pass
3	3749.67	32.57	5.09	-10.84	26.82	Max Avg	Vertical	100	192	54.0	-27.2	Pass
4	3749.67	45.84	5.09	-10.84	40.09	Max Peak	Vertical	100	192	74.0	-33.9	Pass

back to matrix

A.1.1.2. Antenna RW-9401-5002

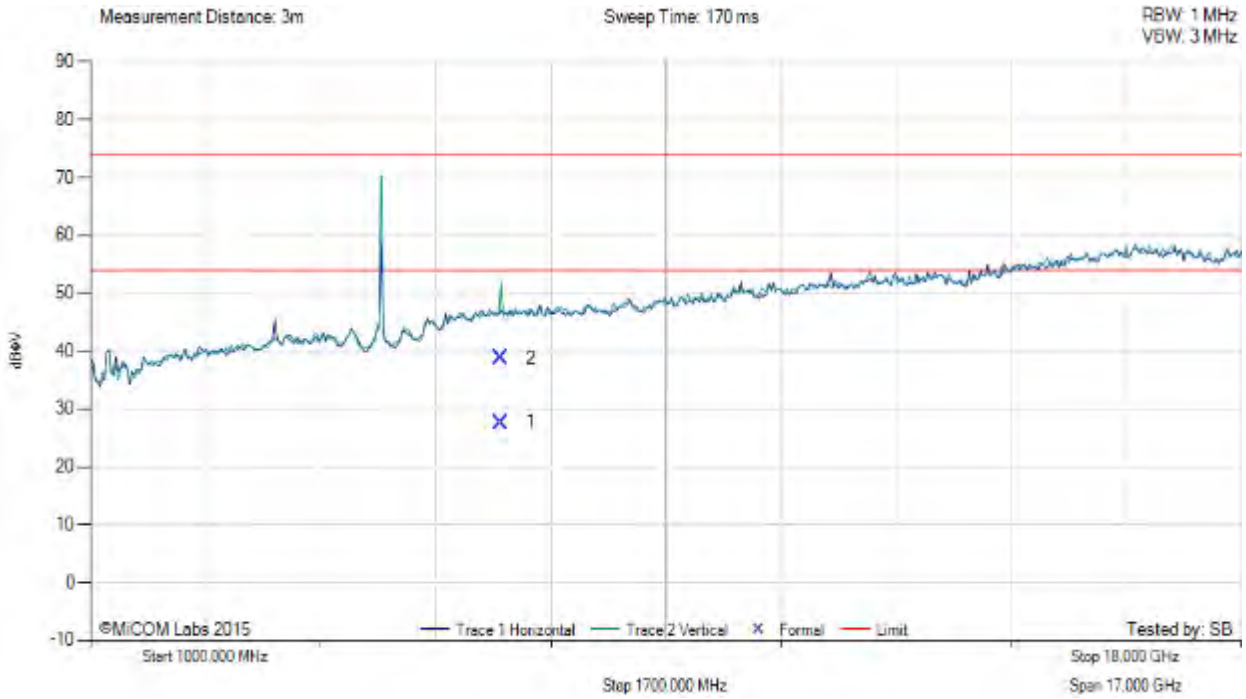


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	7018.50	28.29	7.20	-7.41	28.08	Max Avg	Horizontal	144	65	54.0	-25.9	Pass
2	7018.50	39.50	7.20	-7.41	39.29	Max Peak	Horizontal	144	65	74.0	-34.7	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5300.00 MHz, Antenna: RW-9401-5002, Power Setting: 8

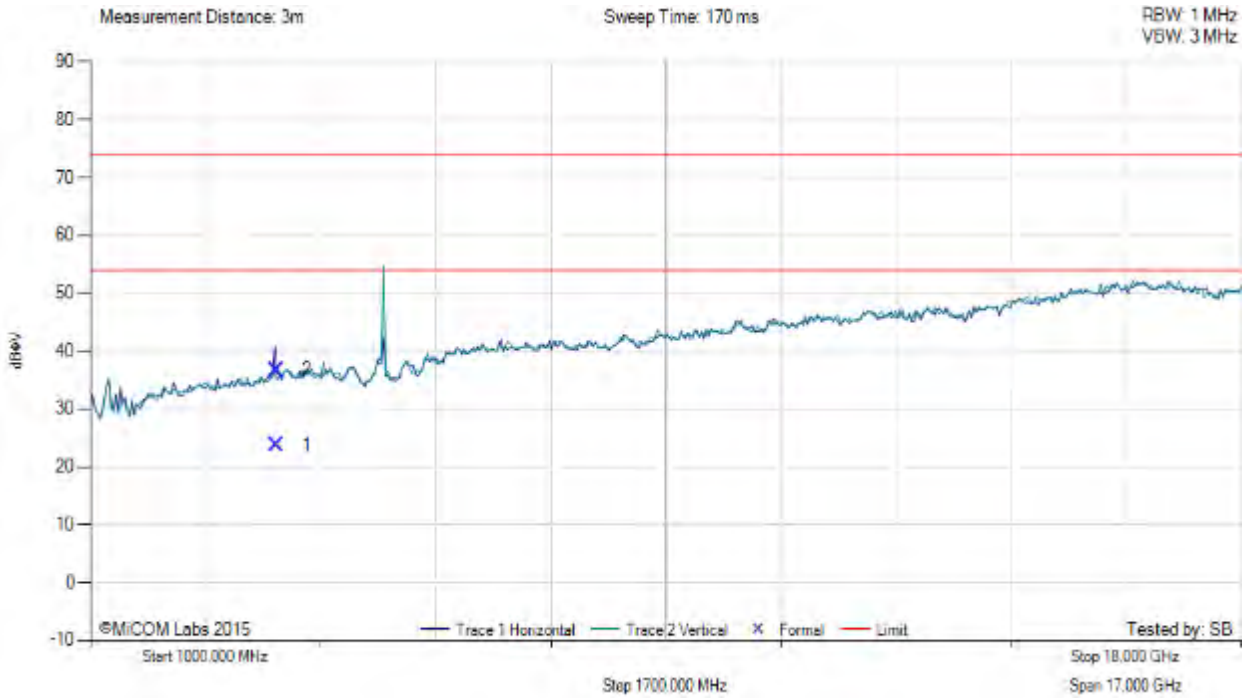


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	7066.47	27.73	7.22	-7.34	27.61	Max Avg	Vertical	106	99	54.0	-26.4	Pass
2	7066.47	38.88	7.22	-7.34	38.76	Max Peak	Vertical	106	99	74.0	-35.2	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

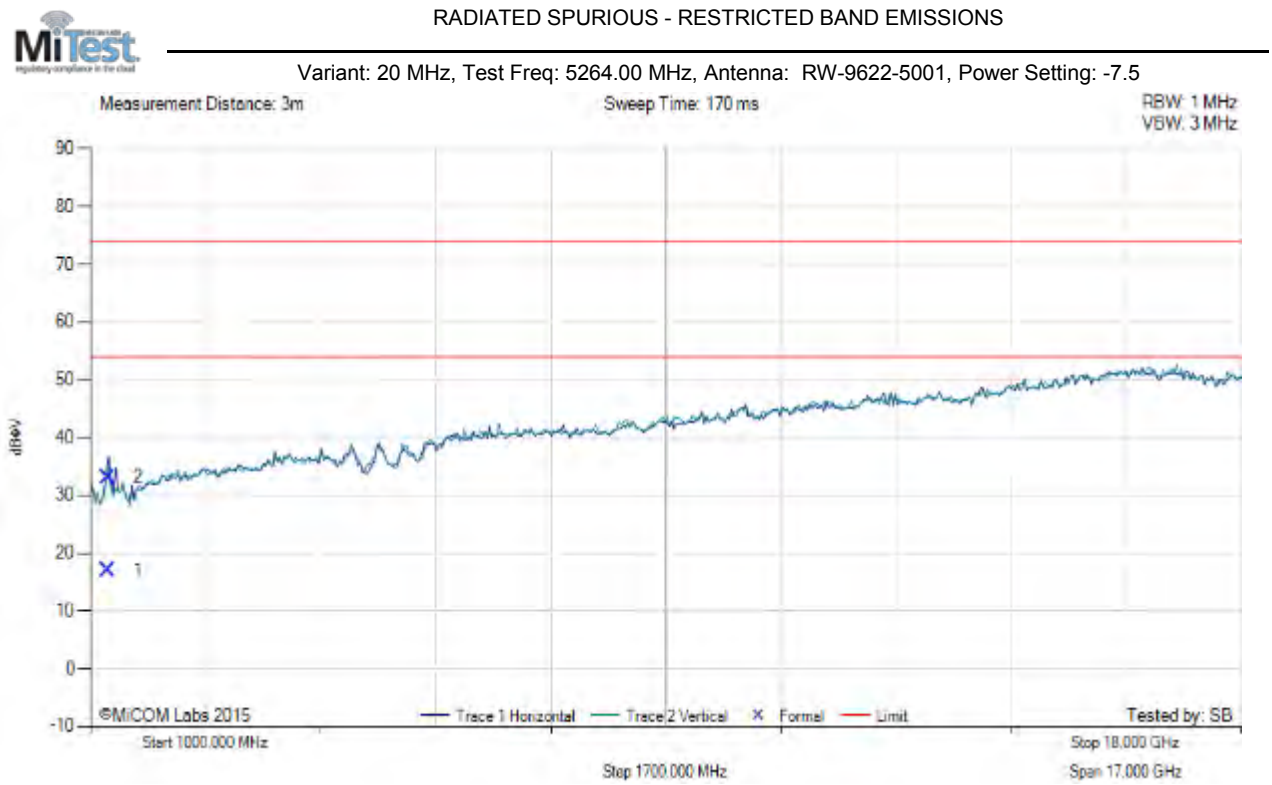
Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9401-5002, Power Setting: 3



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	3751.14	29.49	5.09	-10.84	23.74	Max Avg	Horizontal	119	12	54.0	-30.3	Pass
2	3751.14	42.53	5.09	-10.84	36.78	Max Peak	Horizontal	119	12	74.0	-37.2	Pass

back to matrix

A.1.1.3. Antenna RW-9622-5001

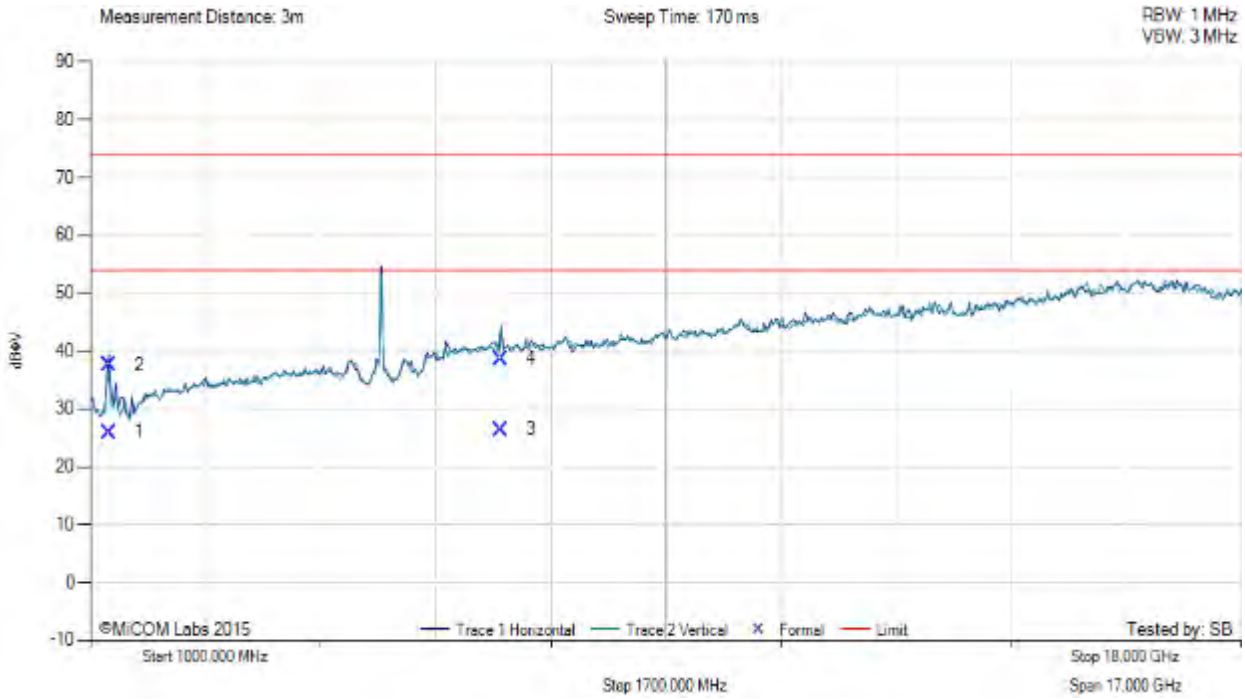


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1256.64	29.46	2.87	-15.35	16.98	Max Avg	Vertical	100	186	54.0	-37.0	Pass
2	1256.64	45.64	2.87	-15.35	33.16	Max Peak	Vertical	100	186	74.0	-40.8	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5300.00 MHz, Antenna: RW-9622-5001, Power Setting: -8.5

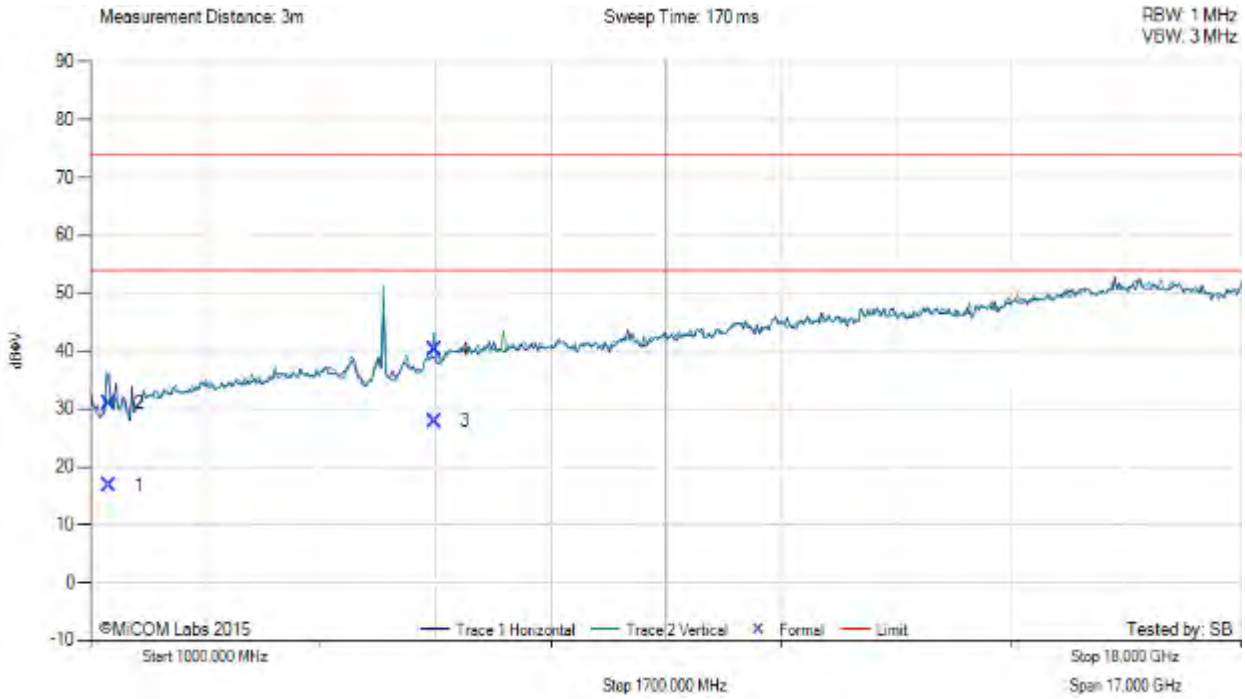


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1280.09	38.10	2.90	-15.03	25.97	Max Avg	Horizontal	105	124	54.0	-28.0	Pass
2	1280.09	49.78	2.90	-15.03	37.65	Max Peak	Horizontal	105	124	74.0	-36.4	Pass
3	7061.92	26.54	7.22	-7.34	26.42	Max Avg	Vertical	144	338	54.0	-27.6	Pass
4	7061.92	38.79	7.22	-7.34	38.67	Max Peak	Vertical	144	338	74.0	-35.3	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

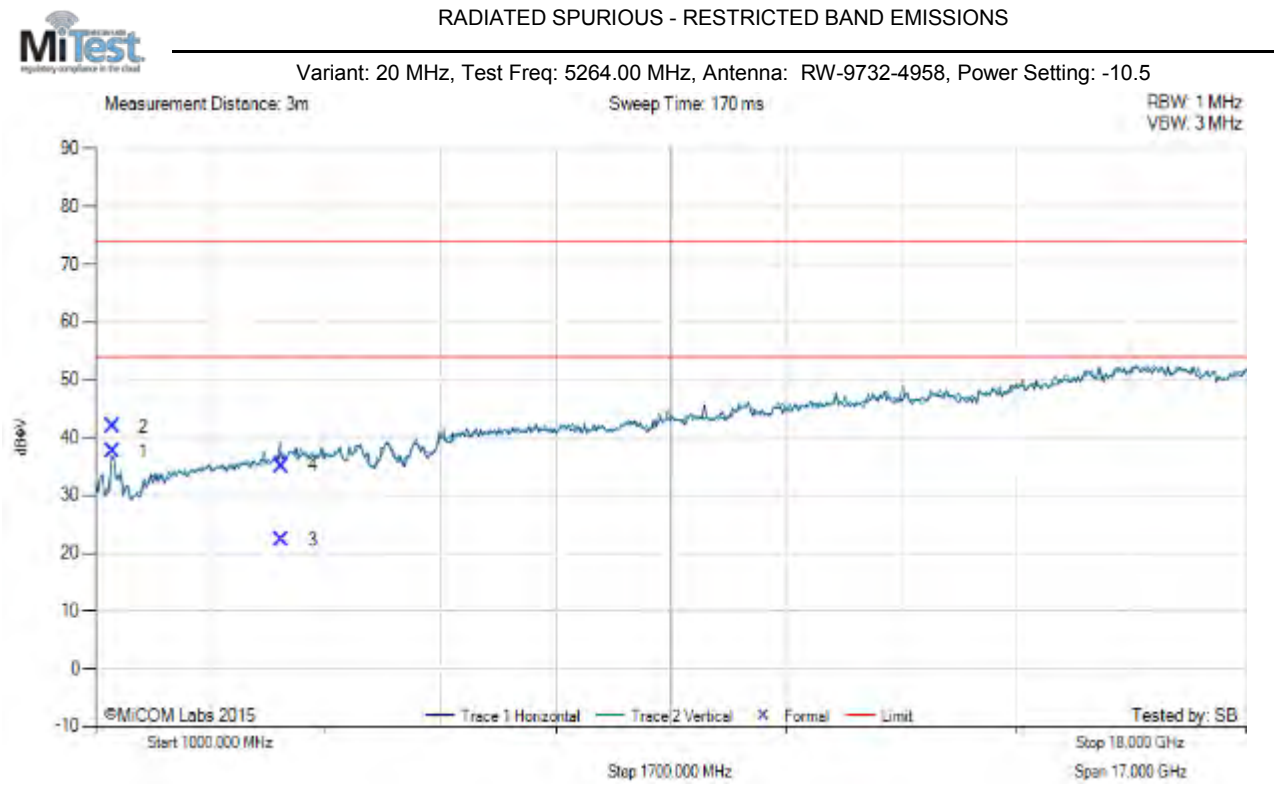
Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9622-5001, Power Setting: -7.5



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	1282.02	28.86	2.91	-15.00	16.77	Max Avg	Vertical	138	188	54.0	-37.2	Pass
2	1282.02	43.07	2.91	-15.00	30.98	Max Peak	Vertical	138	188	74.0	-43.0	Pass
3	6080.93	30.84	6.64	-9.58	27.90	Max Avg	Vertical	108	23	54.0	-26.1	Pass
4	6080.93	43.21	6.64	-9.58	40.27	Max Peak	Vertical	108	23	74.0	-33.7	Pass

back to matrix

A.1.1.4. Antenna RW-9732-4958

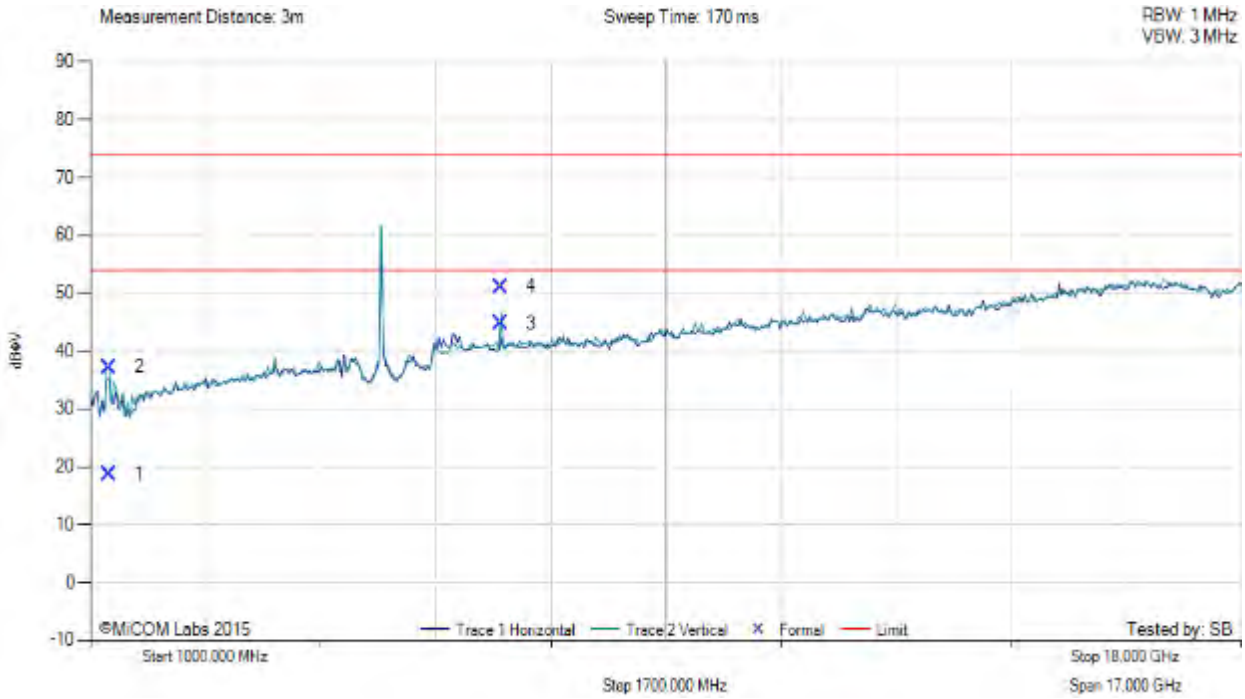


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1249.99	50.22	2.86	-15.45	37.63	Max Avg	Vertical	110	164	54.0	-16.4	Pass
2	1249.99	54.44	2.86	-15.45	41.85	Max Peak	Vertical	110	164	74.0	-32.2	Pass
3	3756.91	28.05	5.09	-10.84	22.30	Max Avg	Vertical	100	185	54.0	-31.7	Pass
4	3756.91	40.80	5.09	-10.84	35.05	Max Peak	Vertical	100	185	74.0	-39.0	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5300.00 MHz, Antenna: RW-9732-4958, Power Setting: -10.5

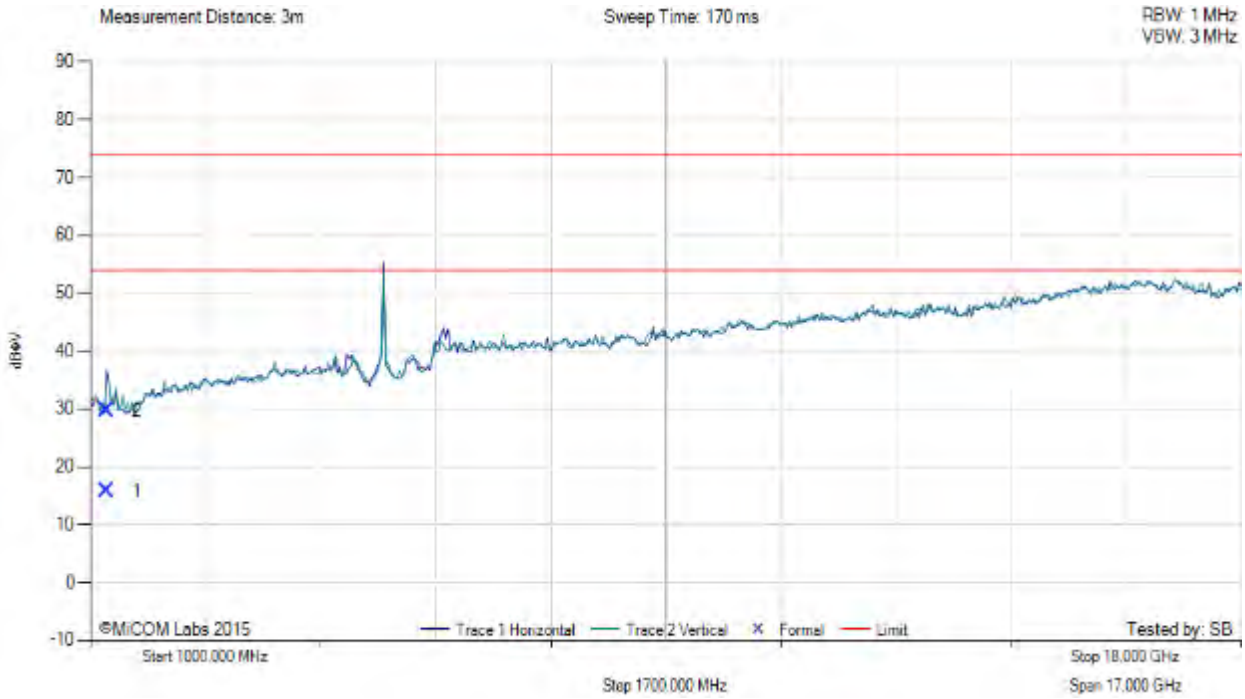


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1279.83	30.77	2.90	-15.03	18.64	Max Avg	Vertical	115	154	54.0	-35.4	Pass
2	1279.83	49.34	2.90	-15.03	37.21	Max Peak	Vertical	115	154	74.0	-36.8	Pass
3	7066.71	44.84	7.22	-7.34	44.72	Max Avg	Vertical	100	353	54.0	-9.3	Pass
4	7066.71	51.26	7.22	-7.34	51.14	Max Peak	Vertical	100	353	74.0	-22.9	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9732-4958, Power Setting: -10.5



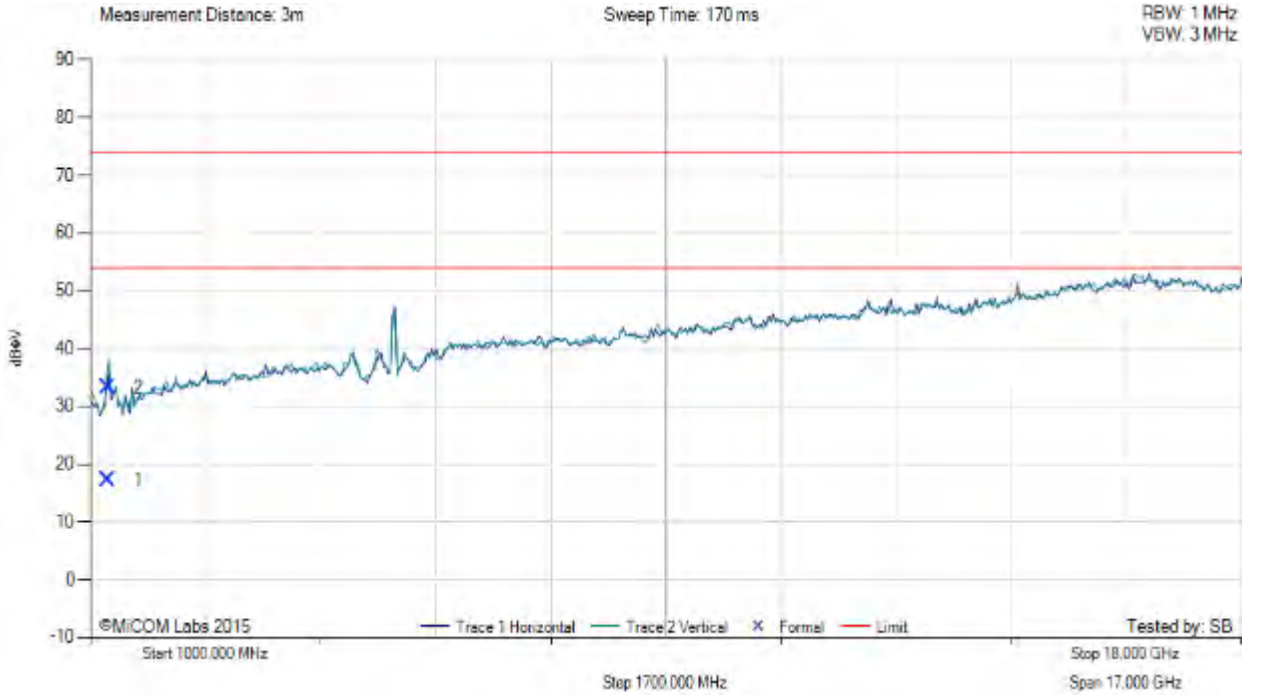
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1238.95	28.55	2.85	-15.58	15.82	Max Avg	Horizontal	105	115	54.0	-38.2	Pass
2	1238.95	42.46	2.85	-15.58	29.73	Max Peak	Horizontal	105	115	74.0	-44.3	Pass

back to matrix

B. Antenna RW-9061-5002

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 3, Duty Cycle (%): 99

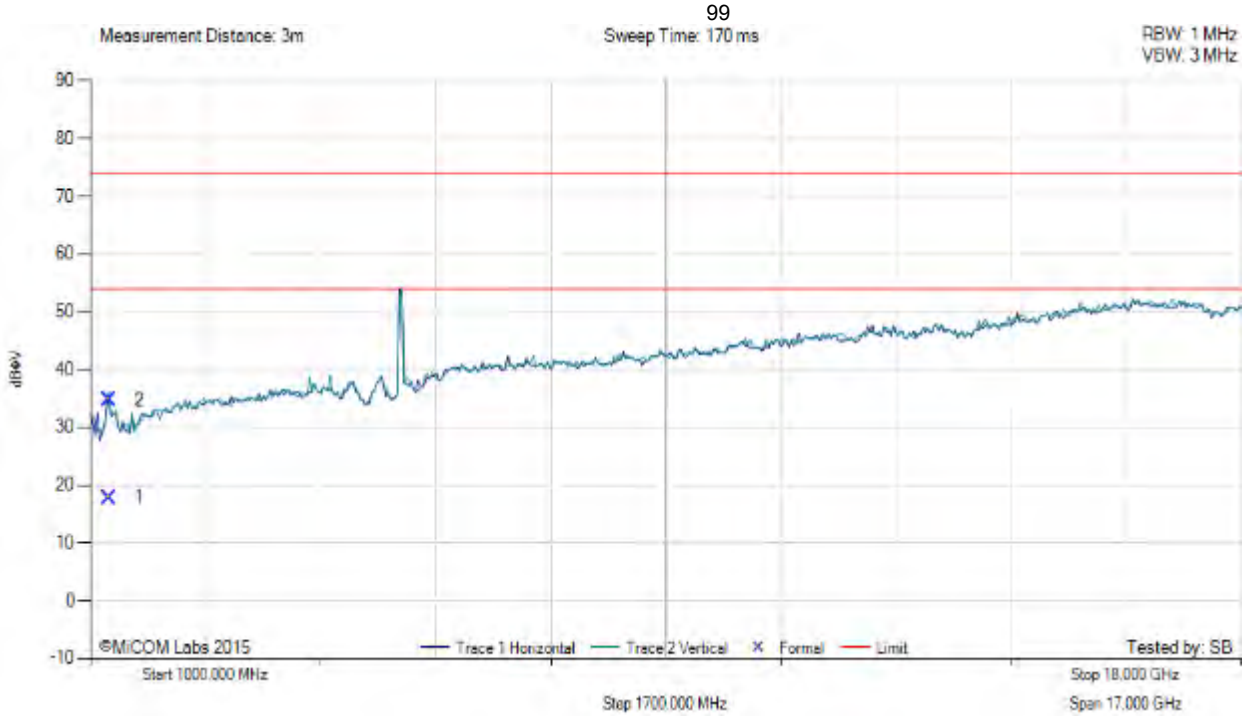


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1256.53	29.77	2.87	-15.35	17.29	Max Avg	Vertical	106	207	54.0	-36.7	Pass
2	1256.53	45.79	2.87	-15.35	33.31	Max Peak	Vertical	106	207	74.0	-40.7	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 2.5, Duty Cycle (%): 99

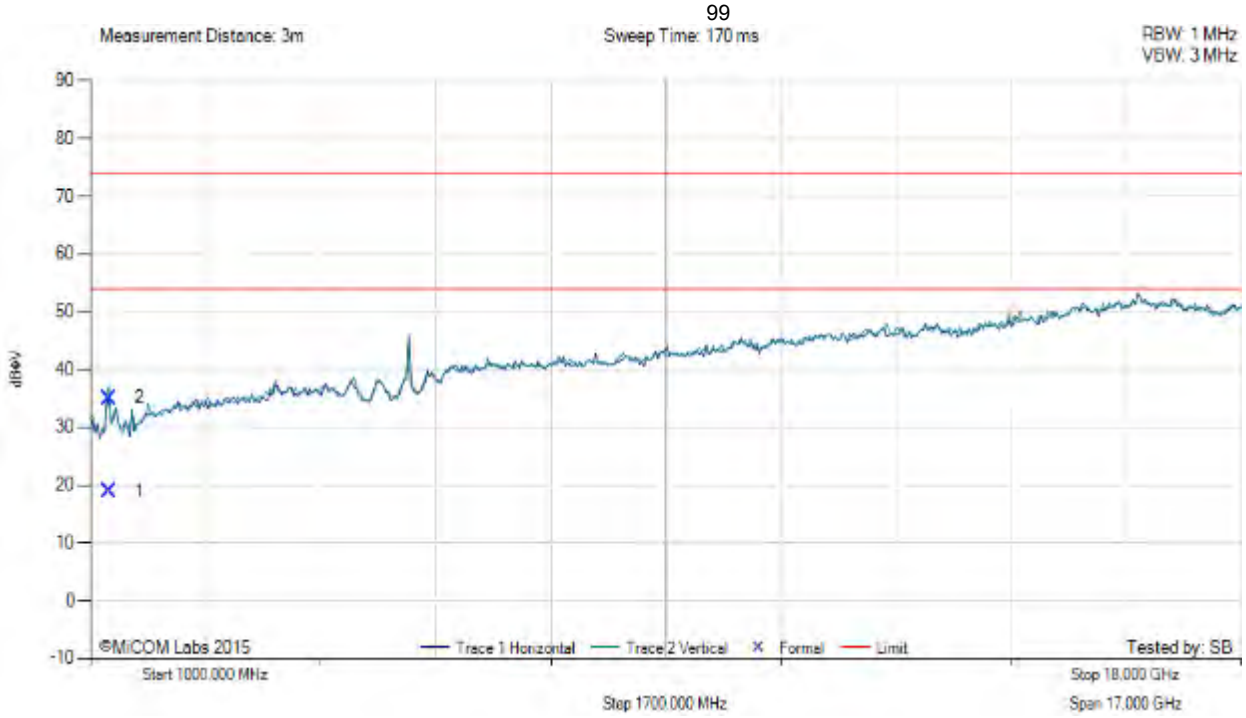


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1275.93	30.00	2.90	-15.08	17.82	Max Avg	Vertical	111	216	54.0	-36.2	Pass
2	1275.93	46.92	2.90	-15.08	34.74	Max Peak	Vertical	111	216	74.0	-39.3	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5706.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 2.5, Duty Cycle (%): 99



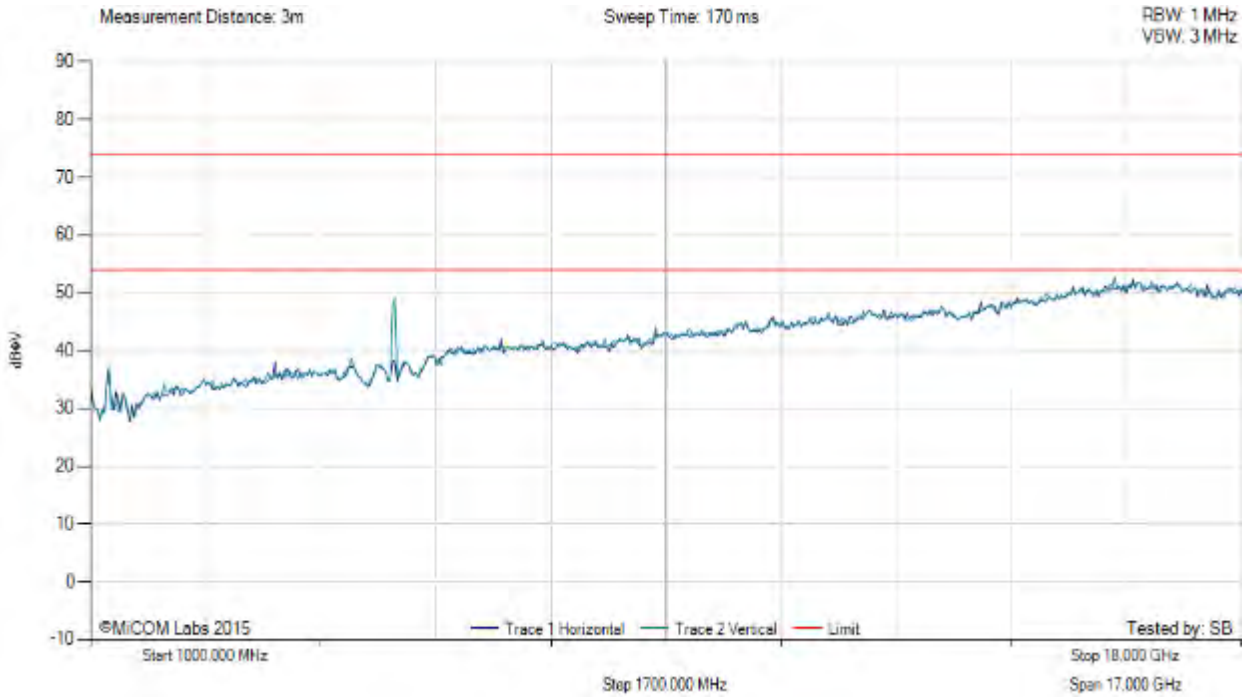
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1280.15	30.98	2.90	-15.03	18.85	Max Avg	Vertical	100	203	54.0	-35.2	Pass
2	1280.15	47.16	2.90	-15.03	35.03	Max Peak	Vertical	100	203	74.0	-39.0	Pass

back to matrix

Antenna RW-9401-5002

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 7

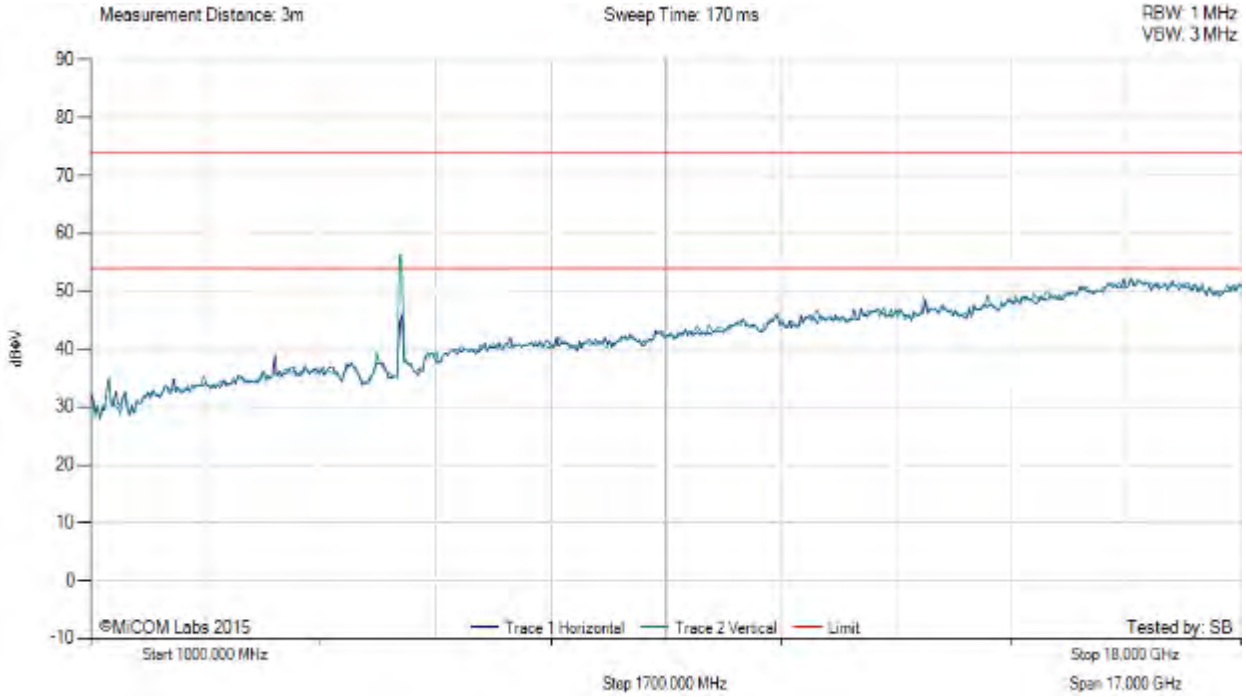


There are no emissions found within 6dB of the limit line.

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 6.5

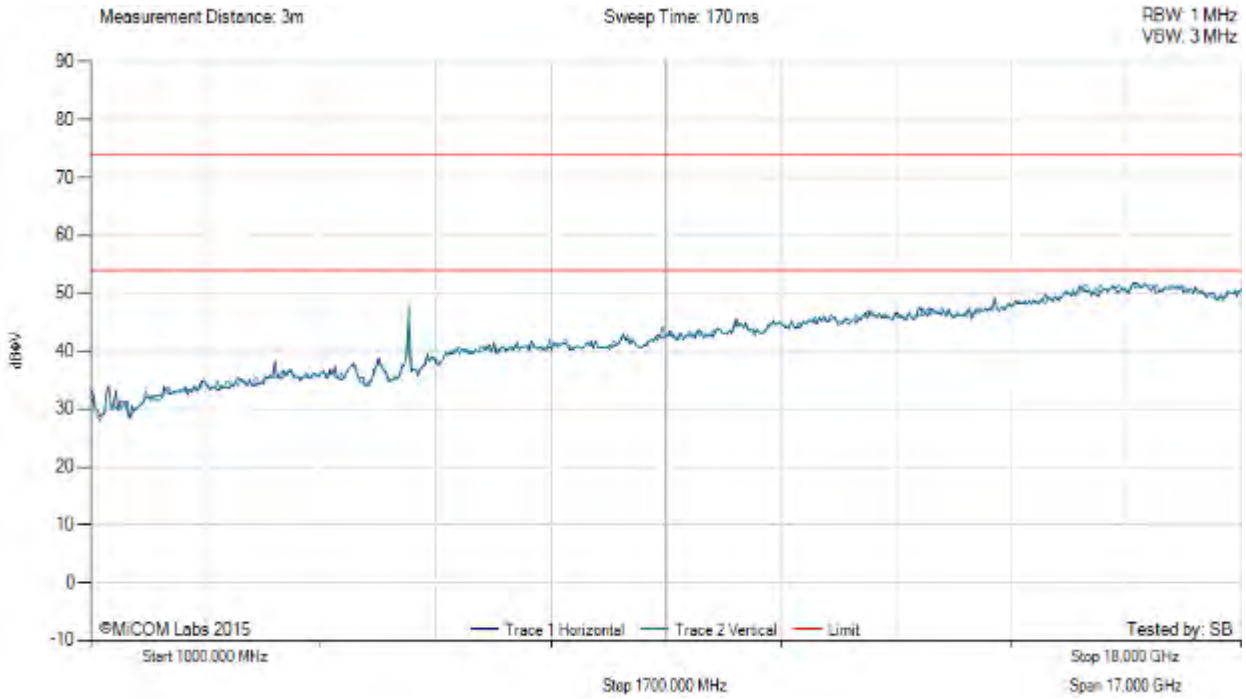


There are no emissions found within 6dB of the limit line.

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5706.00 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 5



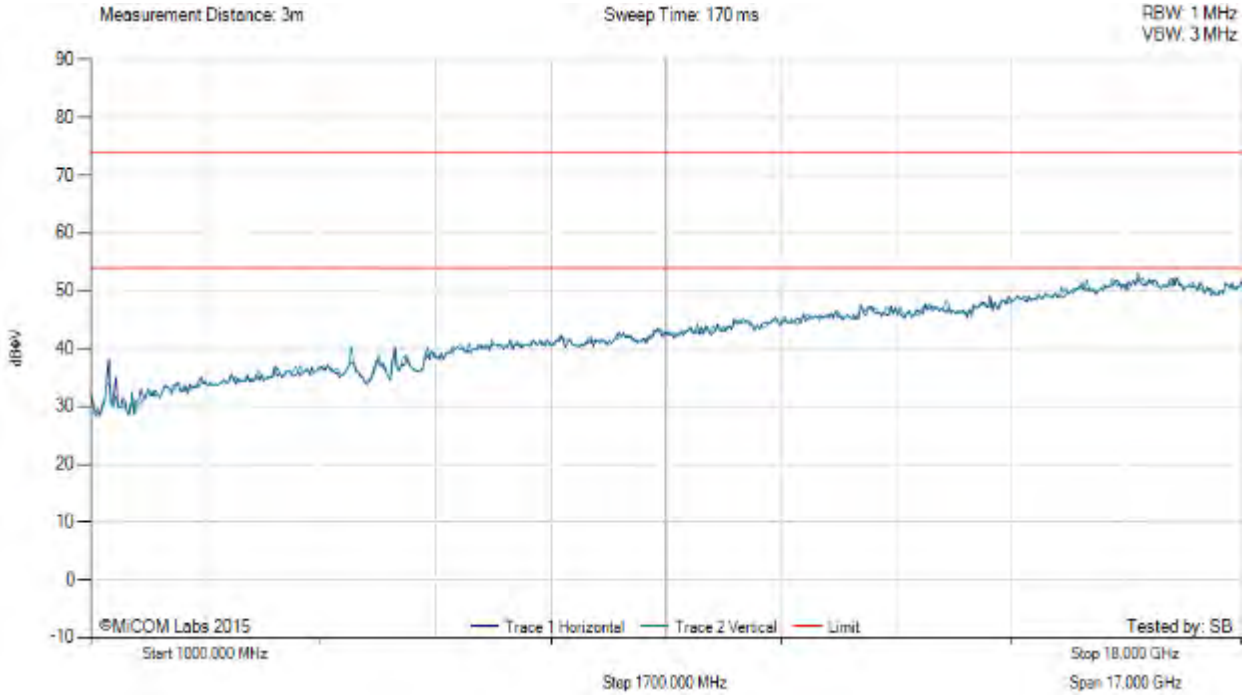
There are no emissions found within 6dB of the limit line.

back to matrix

Antenna RW-9622-5001

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -9.5

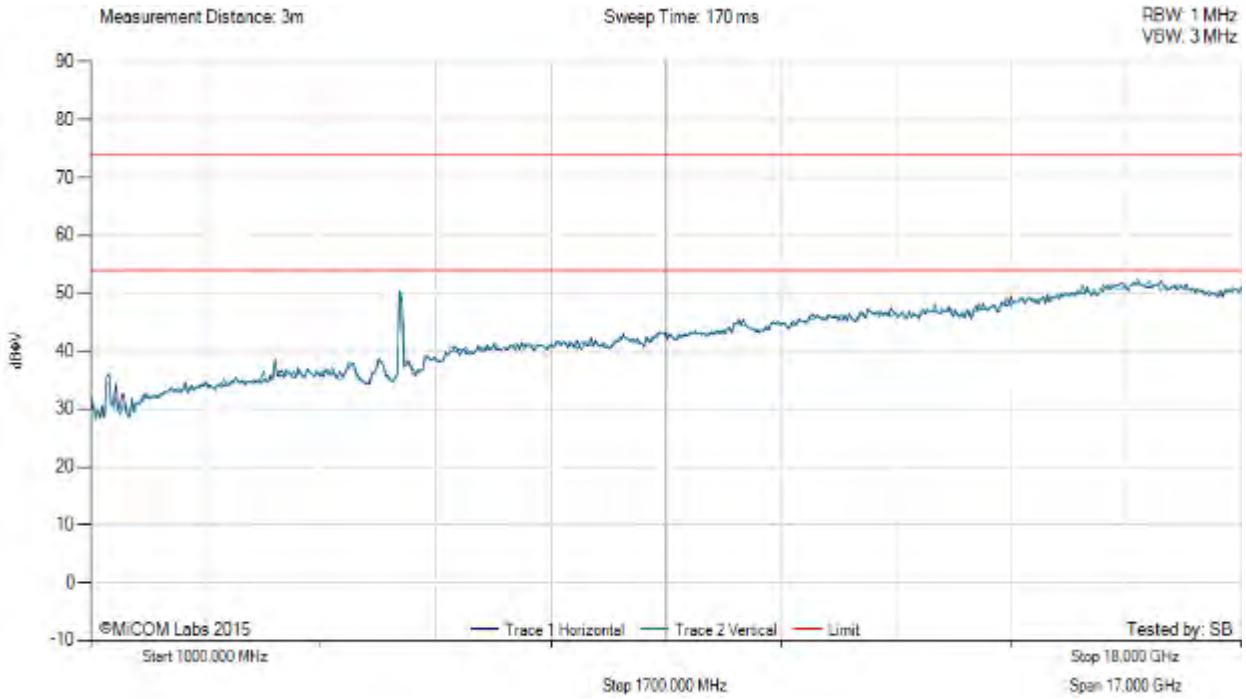


There are no emissions found within 6dB of the limit line.

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -10

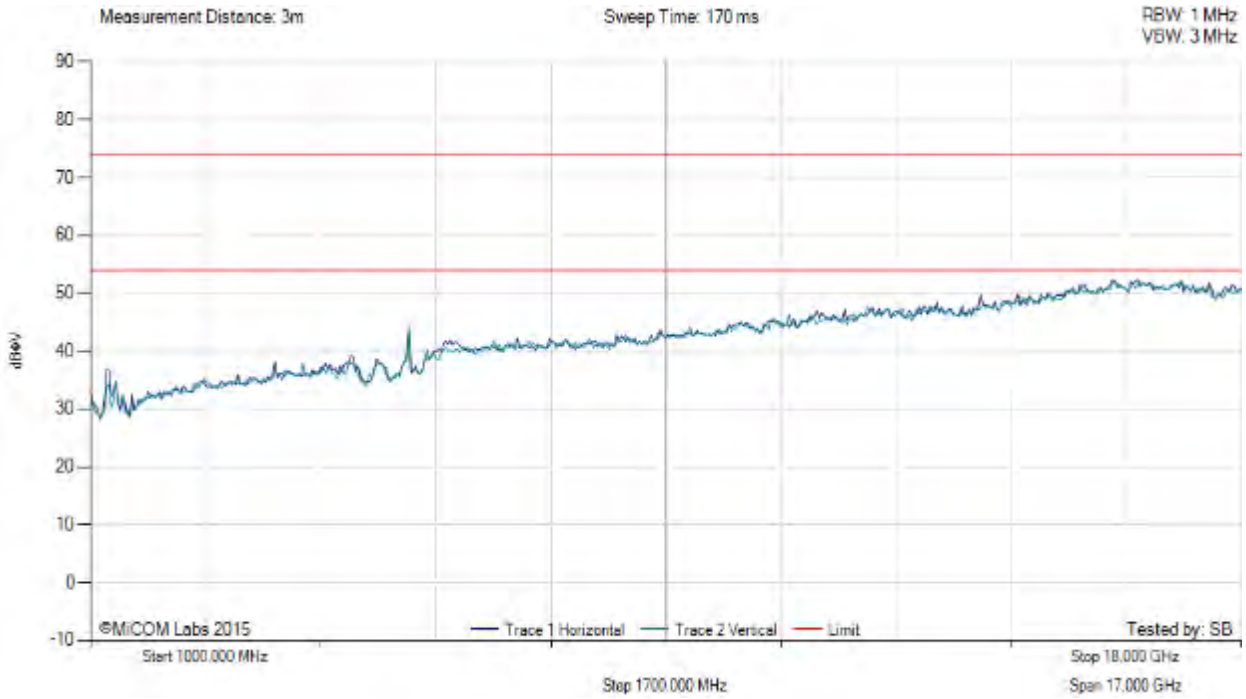


There are no emissions found within 6dB of the limit line.

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5706.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -11.5



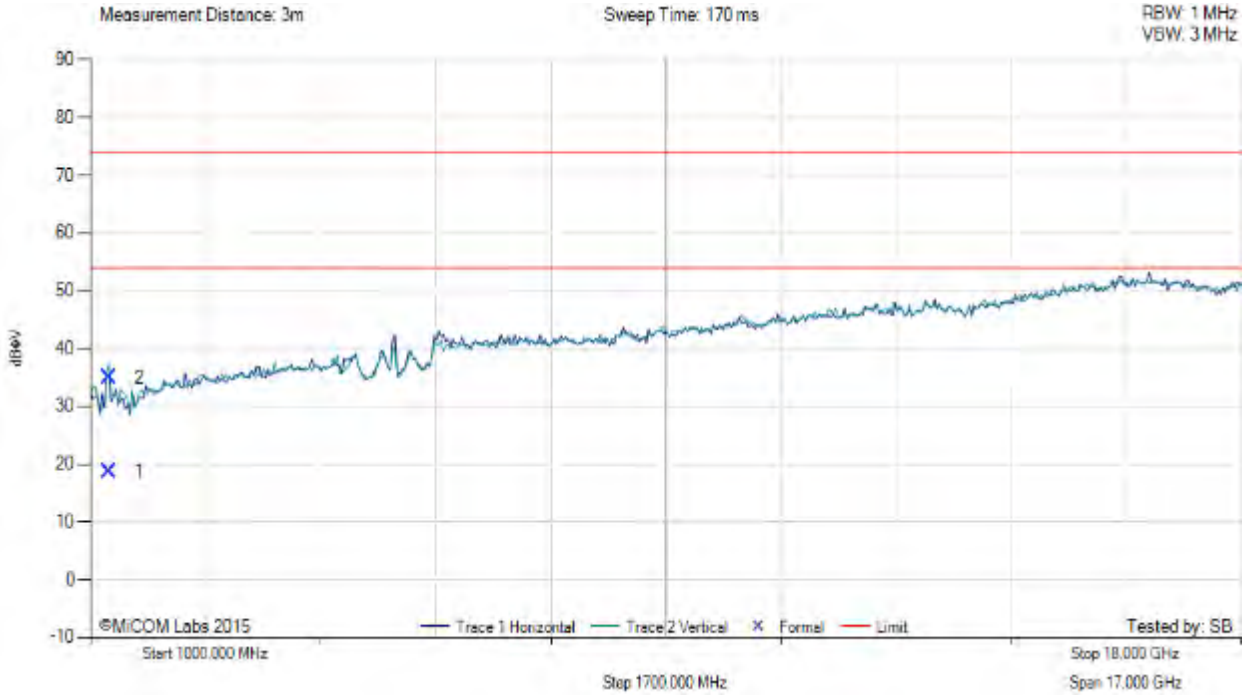
There are no emissions found within 6dB of the limit line.

back to matrix

Antenna RW-9732-4958

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -10.5

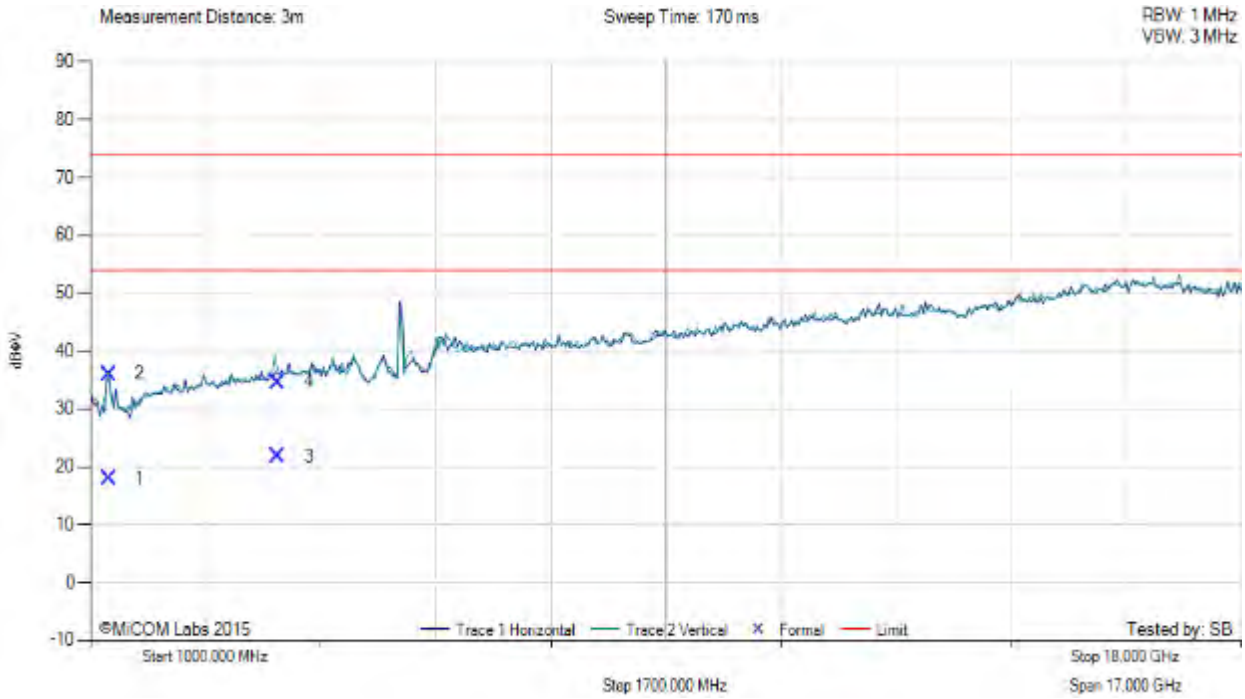


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1280.15	30.72	2.90	-15.03	18.59	Max Avg	Vertical	100	108	54.0	-35.4	Pass
2	1280.15	47.11	2.90	-15.03	34.98	Max Peak	Vertical	100	108	74.0	-39.0	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -10.5

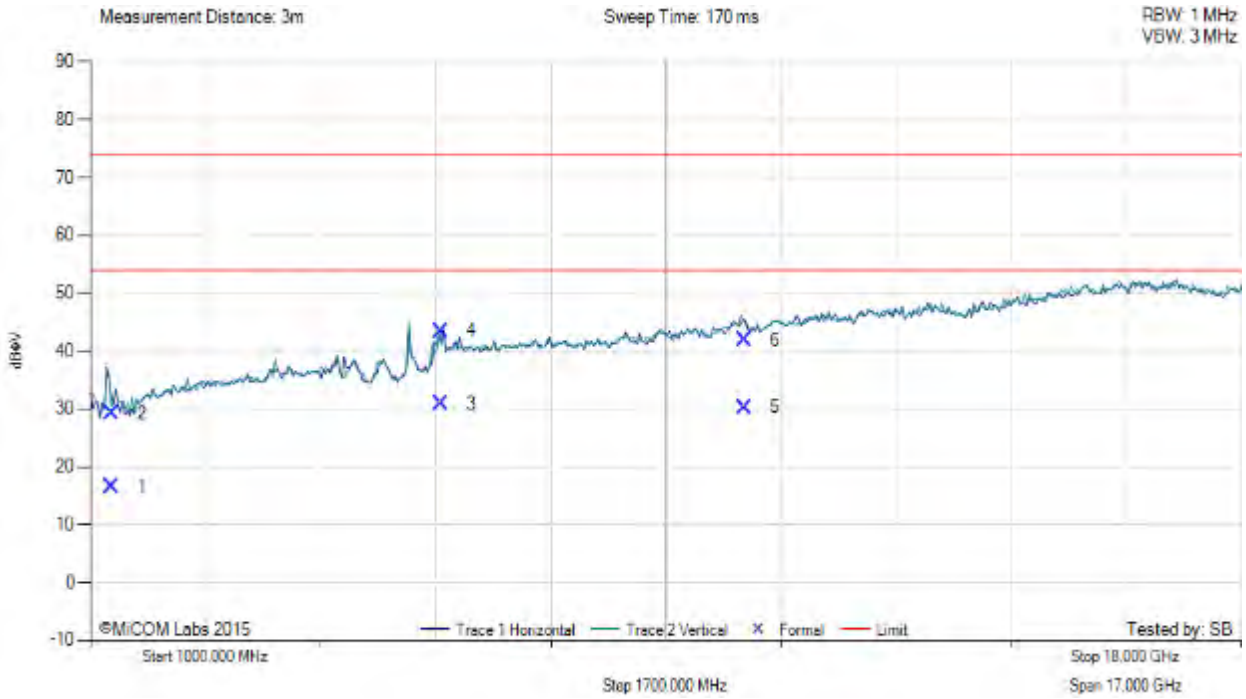


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1280.25	30.01	2.90	-15.03	17.88	Max Avg	Vertical	127	155	54.0	-36.1	Pass
2	1280.25	48.20	2.90	-15.03	36.07	Max Peak	Vertical	127	155	74.0	-37.9	Pass
3	3774.41	27.52	5.10	-10.85	21.77	Max Avg	Vertical	153	164	54.0	-32.2	Pass
4	3774.41	40.35	5.10	-10.85	34.60	Max Peak	Vertical	153	164	74.0	-39.4	Pass

back to matrix

RADIATED SPURIOUS - RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5706.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -10.5

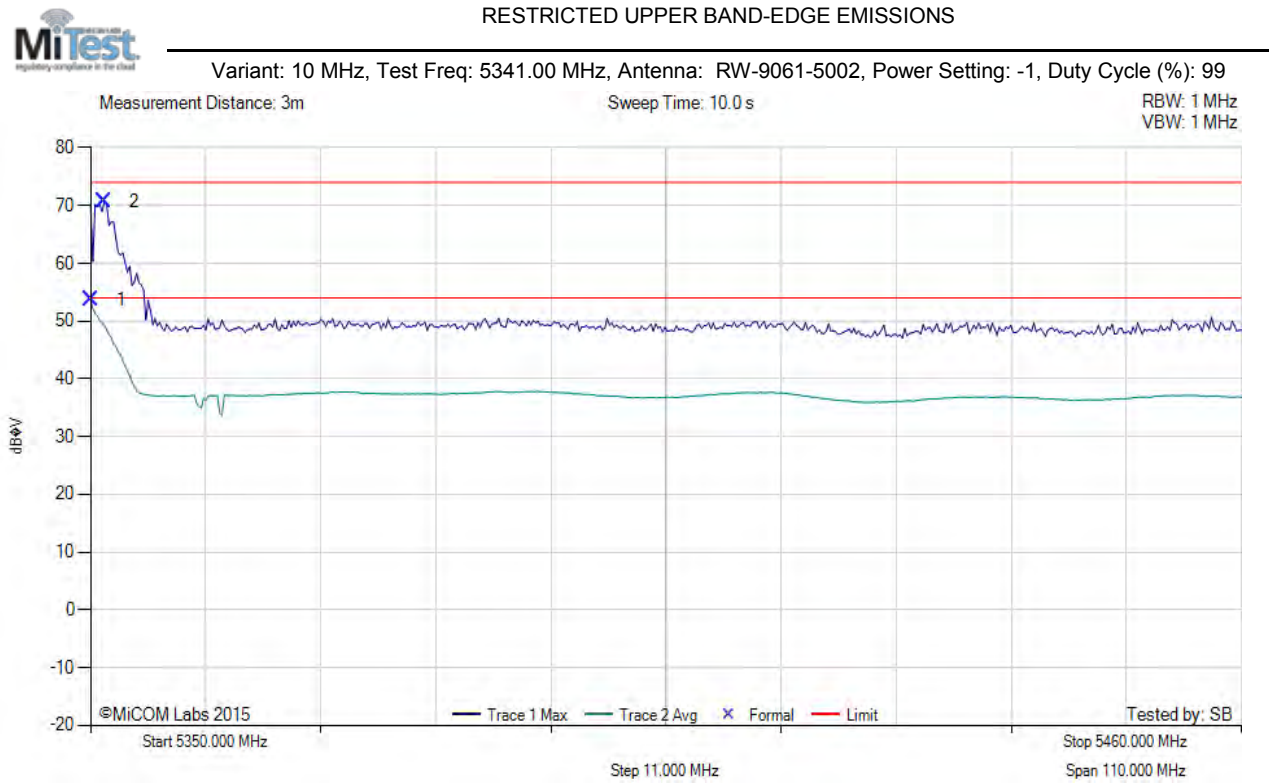


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	1317.25	28.43	2.93	-14.90	16.46	Max Avg	Horizontal	123	46	54.0	-37.5	Pass
2	1317.25	41.12	2.93	-14.90	29.15	Max Peak	Horizontal	123	46	74.0	-44.9	Pass
3	6181.64	33.13	6.79	-9.03	30.89	Max Avg	Vertical	100	353	54.0	-23.1	Pass
4	6181.64	45.68	6.79	-9.03	43.44	Max Peak	Vertical	100	353	74.0	-30.6	Pass
5	10661.83	25.03	9.14	-3.92	30.25	Max Avg	Vertical	122	262	54.0	-23.8	Pass
6	10661.83	36.74	9.14	-3.92	41.96	Max Peak	Vertical	122	262	74.0	-32.0	Pass

back to matrix

B.1.1. Restricted Band-Edge Emissions

B.1.1.5. Antenna RW-9061-5002

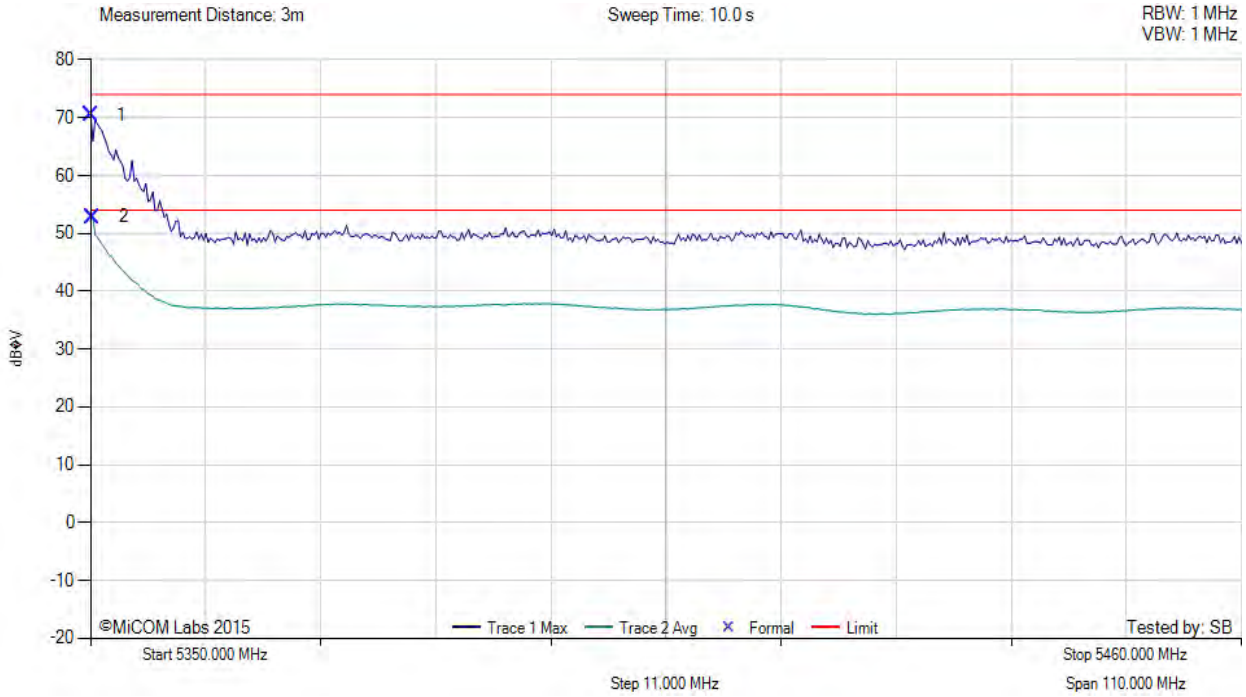


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	58.62	6.16	-11.02	53.76	Max Avg	Vertical	96	5	54.0	-0.2	Pass
2	5351.32	75.54	6.16	-11.03	70.67	Max Peak	Vertical	96	5	74.0	-3.3	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9061-5002, Power Setting: -1, Duty Cycle (%): 99

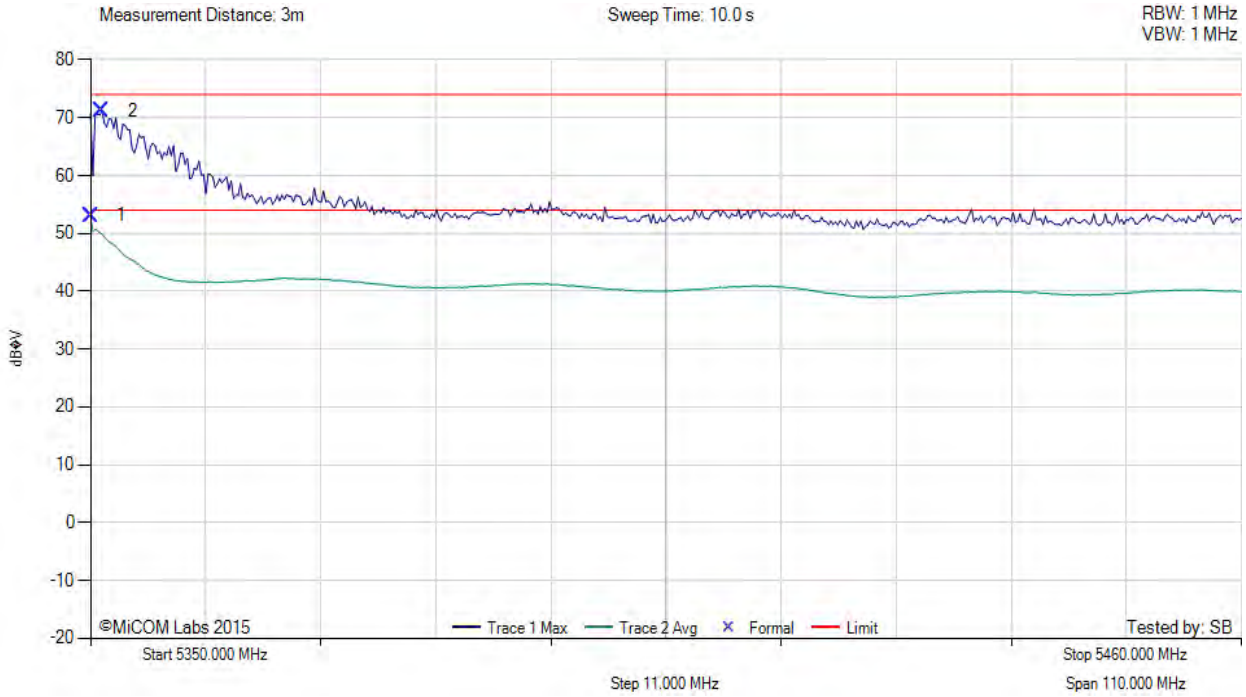


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	75.37	6.16	-11.02	70.51	Max Peak	Vertical	96	5	74.0	-3.5	Pass
2	5350.22	57.68	6.16	-11.02	52.82	Max Avg	Vertical	96	5	54.0	-1.2	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5326.00 MHz, Antenna: RW-9061-5002, Power Setting: 2, Duty Cycle (%): 99

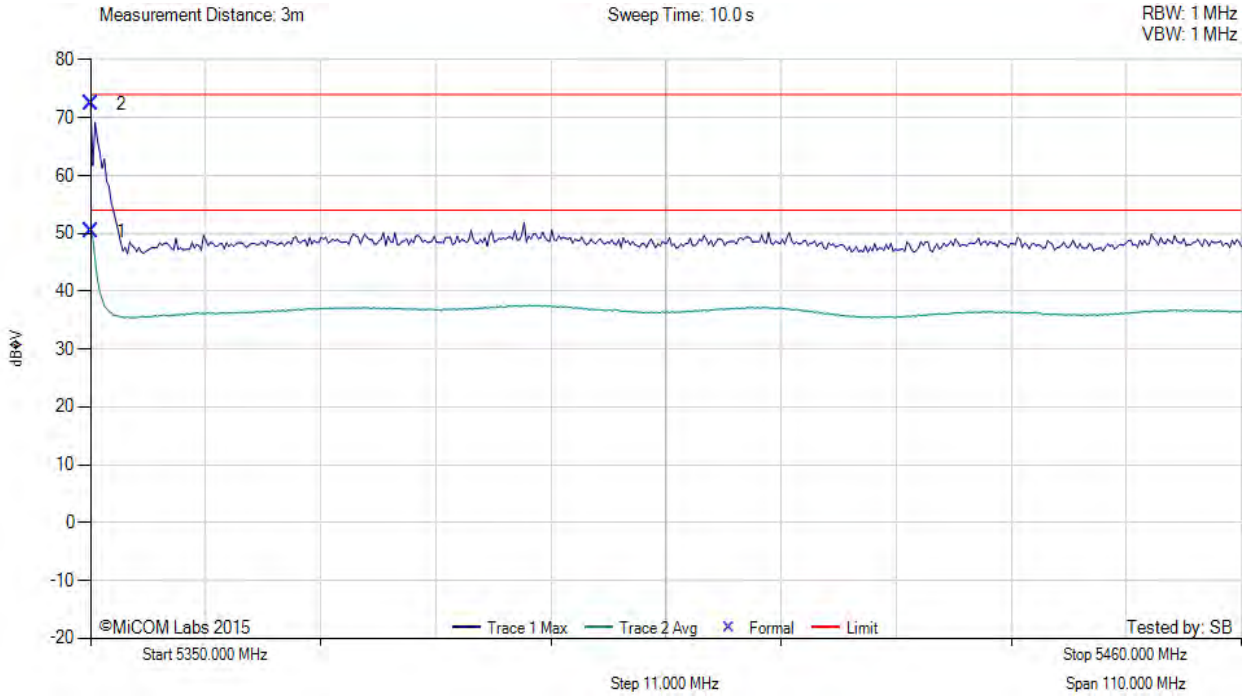


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	57.97	6.16	-11.02	53.11	Max Avg	Vertical	96	5	54.0	-0.9	Pass
2	5351.10	76.03	6.16	-11.03	71.16	Max Peak	Vertical	96	5	74.0	-2.8	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5346.50 MHz, Antenna: RW-9061-5002, Power Setting: -5, Duty Cycle (%): 99

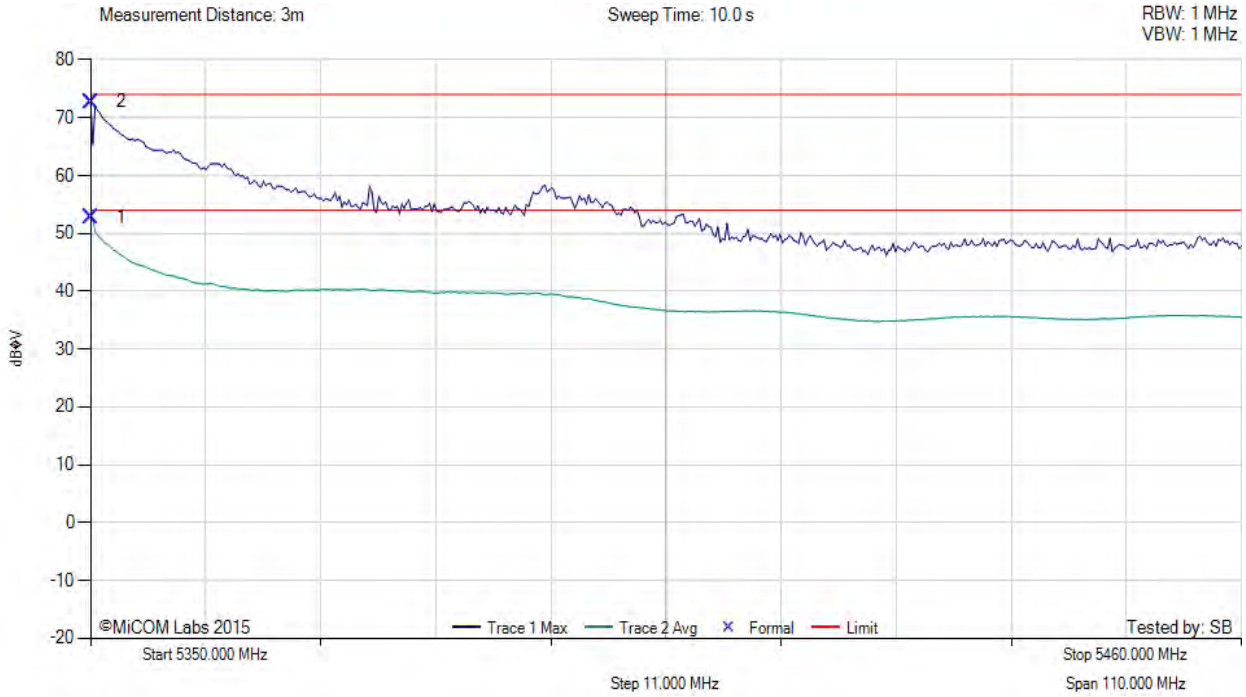


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	55.18	6.16	-11.02	50.32	Max Avg	Vertical	96	5	54.0	-3.7	Pass
2	5350.00	77.23	6.16	-11.02	72.37	Max Peak	Vertical	96	5	74.0	-1.6	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

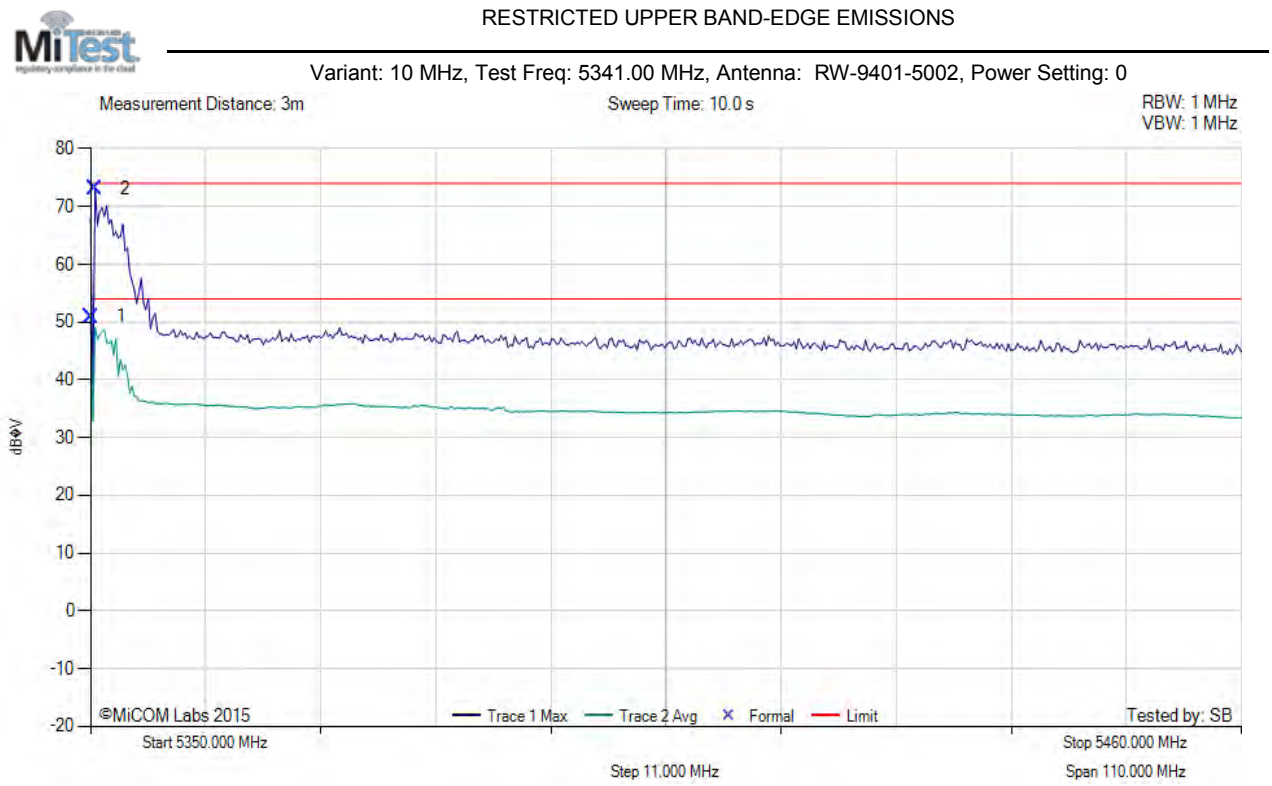
Variant: 80 MHz, Test Freq: 5310.00 MHz, Antenna: RW-9061-5002, Power Setting: -2.5, Duty Cycle (%): 99



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	5350.00	57.67	6.16	-11.02	52.81	Max Avg	Vertical	96	5	54.0	-1.2	Pass
2	5350.00	77.57	6.16	-11.02	72.71	Max Peak	Vertical	96	5	74.0	-1.3	Pass

back to matrix

B.1.1.6. Antenna RW-9401-5002

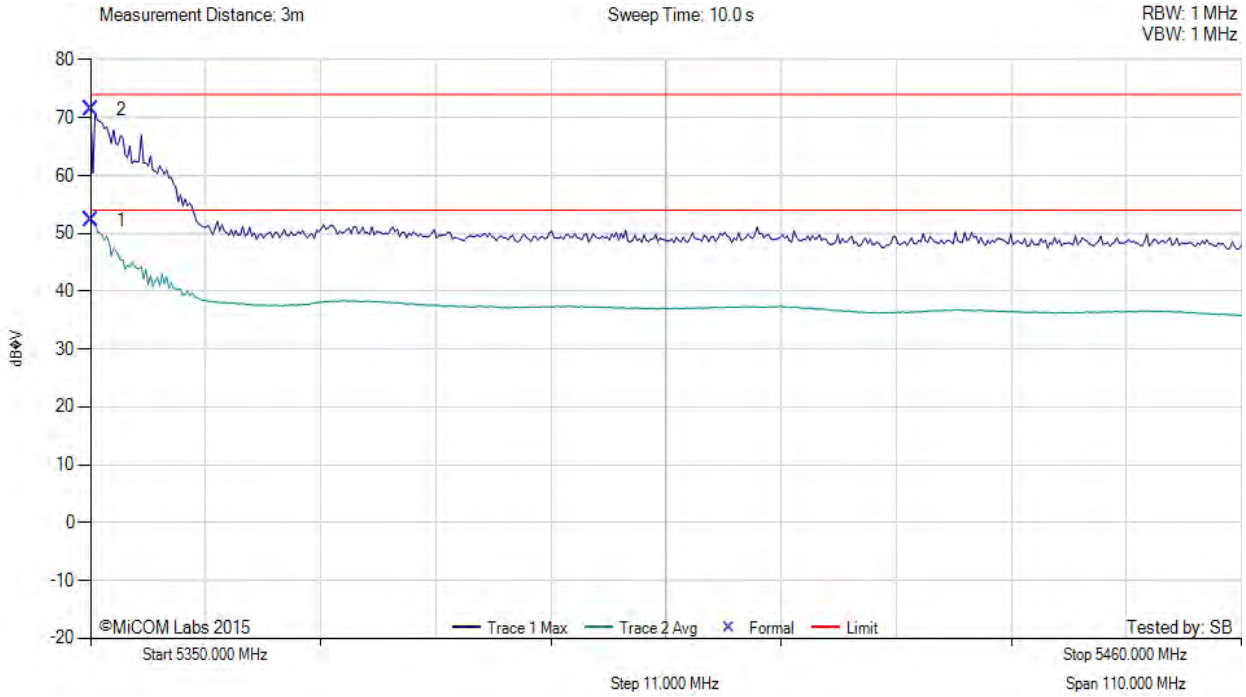


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	55.85	6.16	-11.02	50.99	Max Avg	Vertical	99	32	54.0	-3.0	Pass
2	5350.44	77.95	6.16	-11.02	73.09	Max Peak	Vertical	99	32	74.0	-0.9	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9401-5002, Power Setting: 3

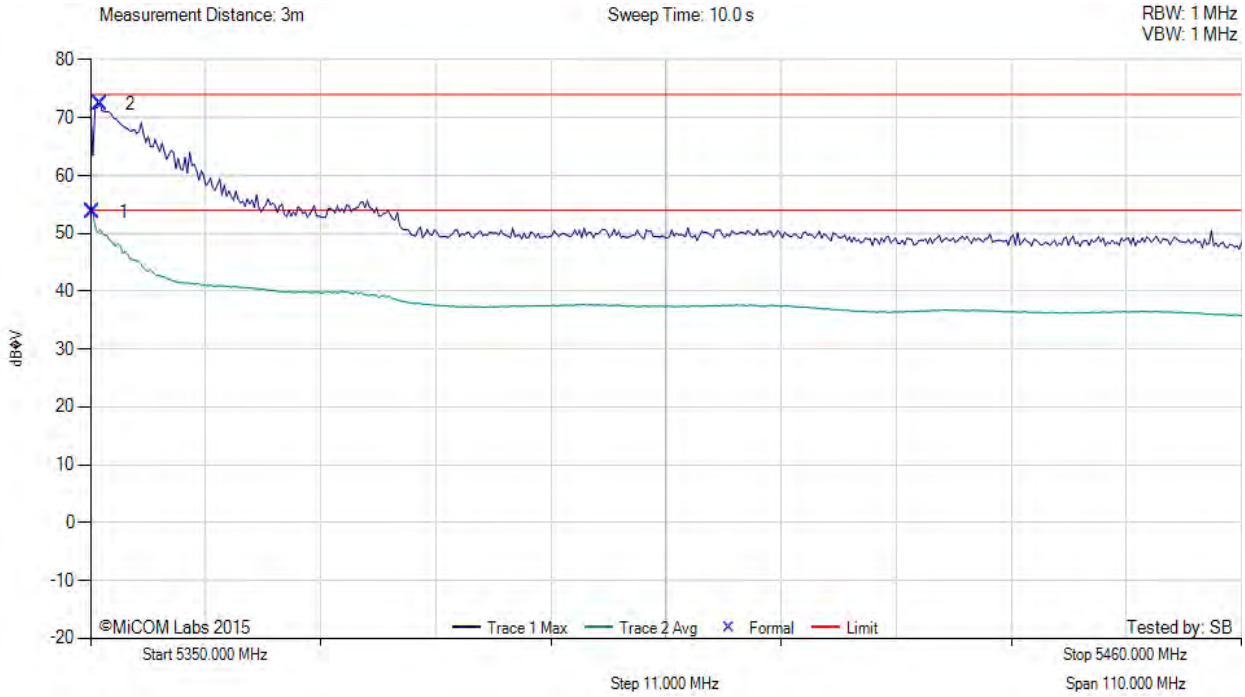


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	57.07	6.16	-11.02	52.21	Max Avg	Vertical	99	32	54.0	-1.8	Pass
2	5350.00	76.34	6.16	-11.02	71.48	Max Peak	Vertical	99	32	74.0	-2.5	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5326.00 MHz, Antenna: RW-9401-5002, Power Setting: 3.5



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	5350.22	58.49	6.16	-11.02	53.63	Max Avg	Vertical	99	32	54.0	-0.4	Pass
2	5350.88	77.26	6.16	-11.03	72.39	Max Peak	Vertical	99	32	74.0	-1.6	Pass

back to matrix

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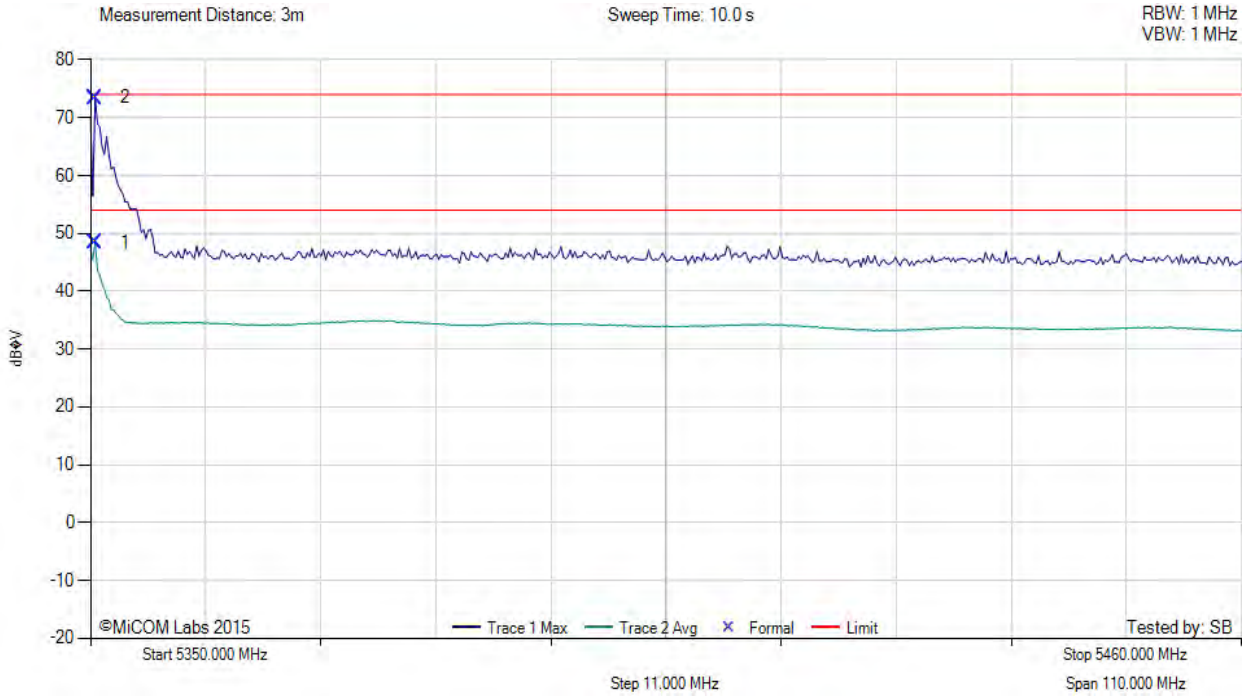
RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5346.50 MHz, Antenna: RW-9401-5002, Power Setting: -8

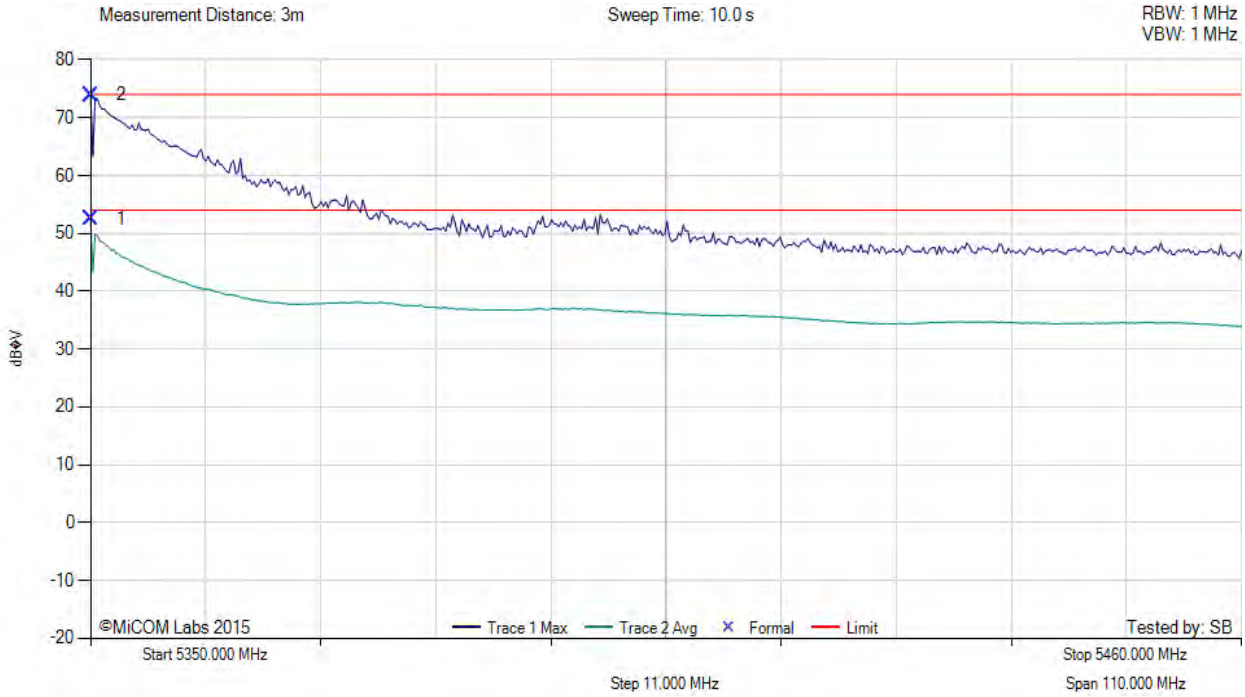


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.44	53.34	6.16	-11.02	48.48	Max Avg	Vertical	99	32	54.0	-5.5	Pass
2	5350.44	78.36	6.16	-11.02	73.50	Max Peak	Vertical	99	32	74.0	-0.5	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

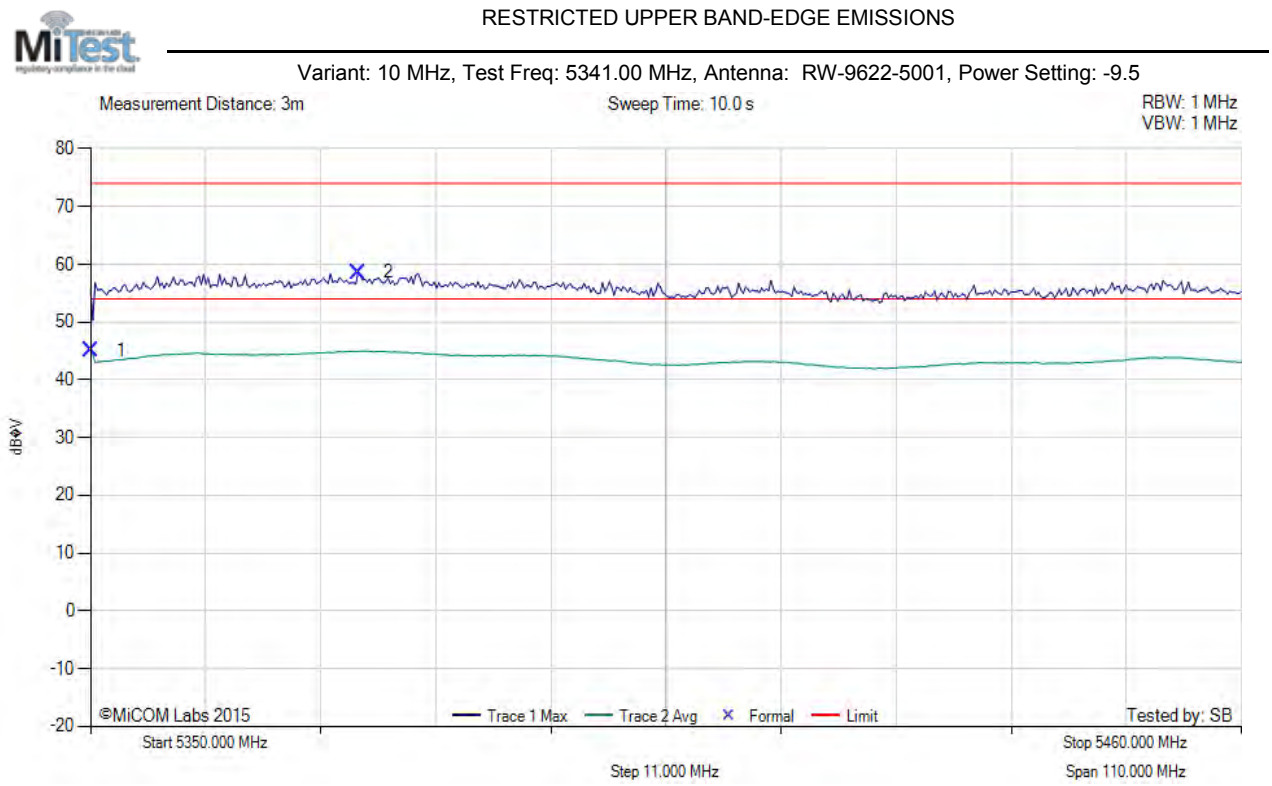
Variant: 80 MHz, Test Freq: 5310.00 MHz, Antenna: RW-9401-5002, Power Setting: -3



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	5350.00	57.30	6.16	-11.02	52.44	Max Avg	Vertical	99	32	54.0	-1.6	Pass
2	5350.00	78.79	6.16	-11.02	73.93	Max Peak	Vertical	99	32	74.0	-0.1	Pass

back to matrix

B.1.1.7. Antenna RW-9622-5001

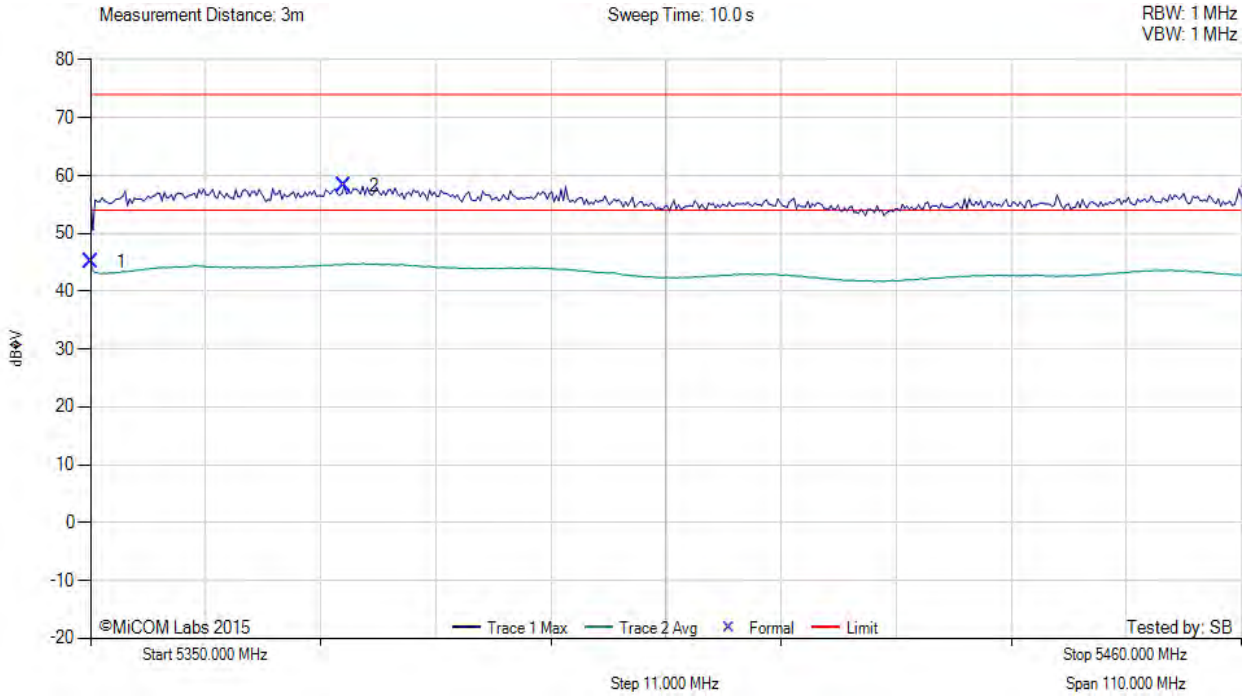


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	49.90	6.16	-11.02	45.04	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
2	5375.57	63.50	6.19	-11.08	58.61	Max Peak	Horizontal	102	24	74.0	-15.4	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9622-5001, Power Setting: -7.5



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	5350.00	49.91	6.16	-11.02	45.05	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
2	5374.25	63.10	6.19	-11.08	58.21	Max Peak	Horizontal	102	24	74.0	-15.8	Pass

back to matrix

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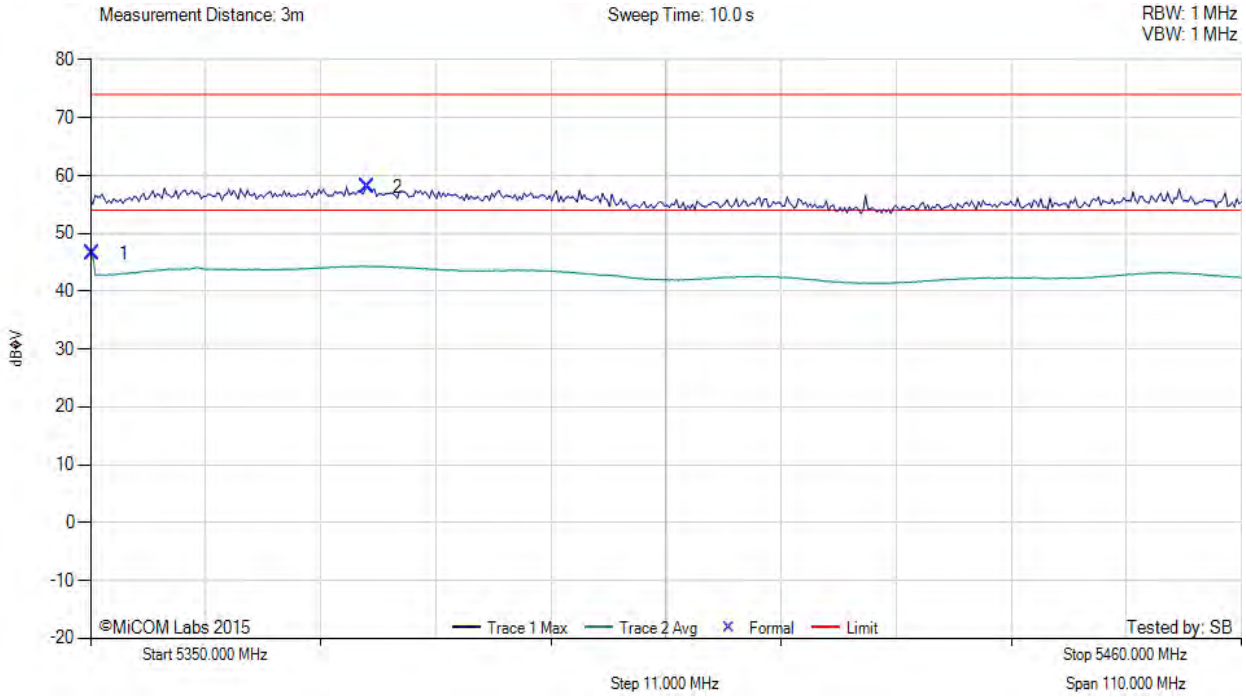
RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5326.00 MHz, Antenna: RW-9622-5001, Power Setting: -9

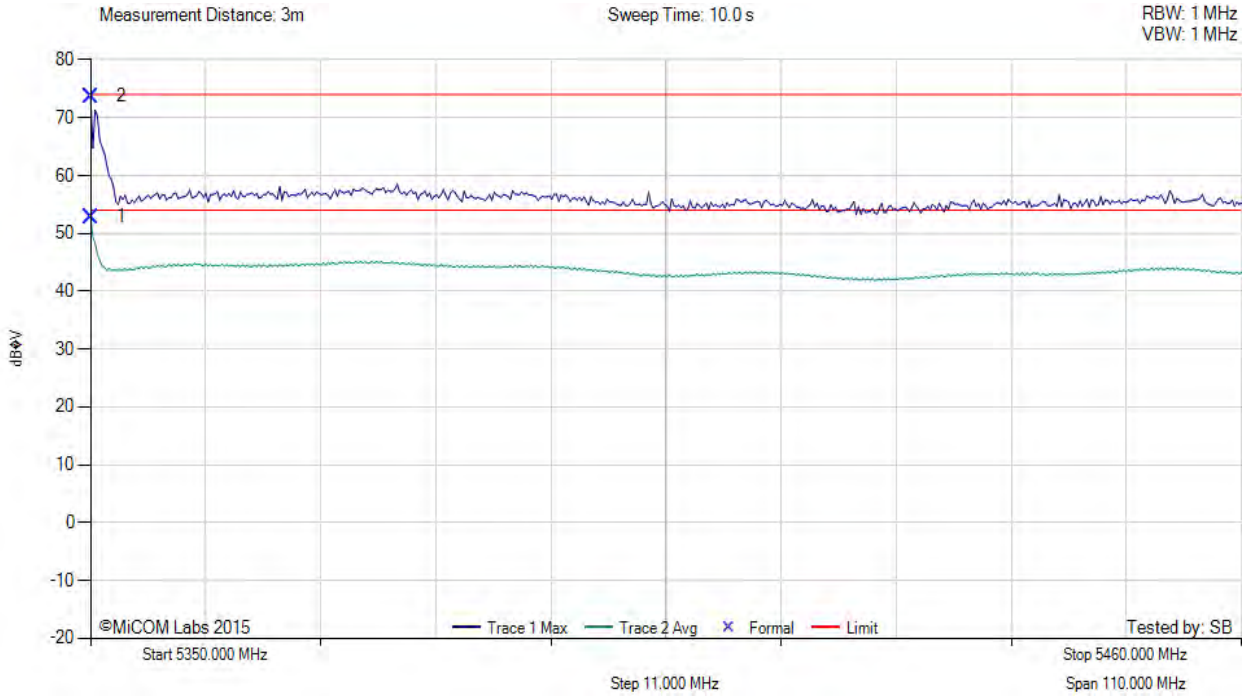


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.22	51.42	6.16	-11.02	46.56	Max Avg	Horizontal	102	24	54.0	-7.4	Pass
2	5376.45	62.92	6.19	-11.08	58.03	Max Peak	Horizontal	102	24	74.0	-16.0	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5346.50 MHz, Antenna: RW-9622-5001, Power Setting: -18

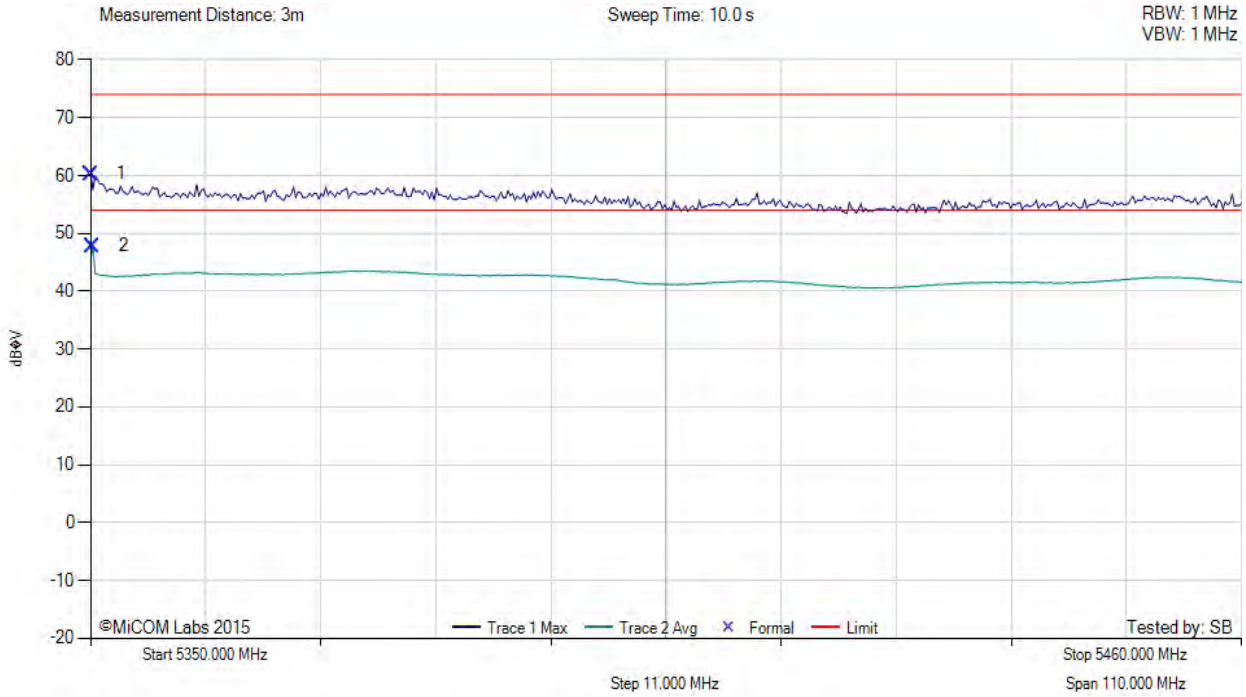


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	57.76	6.16	-11.02	52.90	Max Avg	Horizontal	102	24	54.0	-1.1	Pass
2	5350.00	78.54	6.16	-11.02	73.68	Max Peak	Horizontal	102	24	74.0	-0.3	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

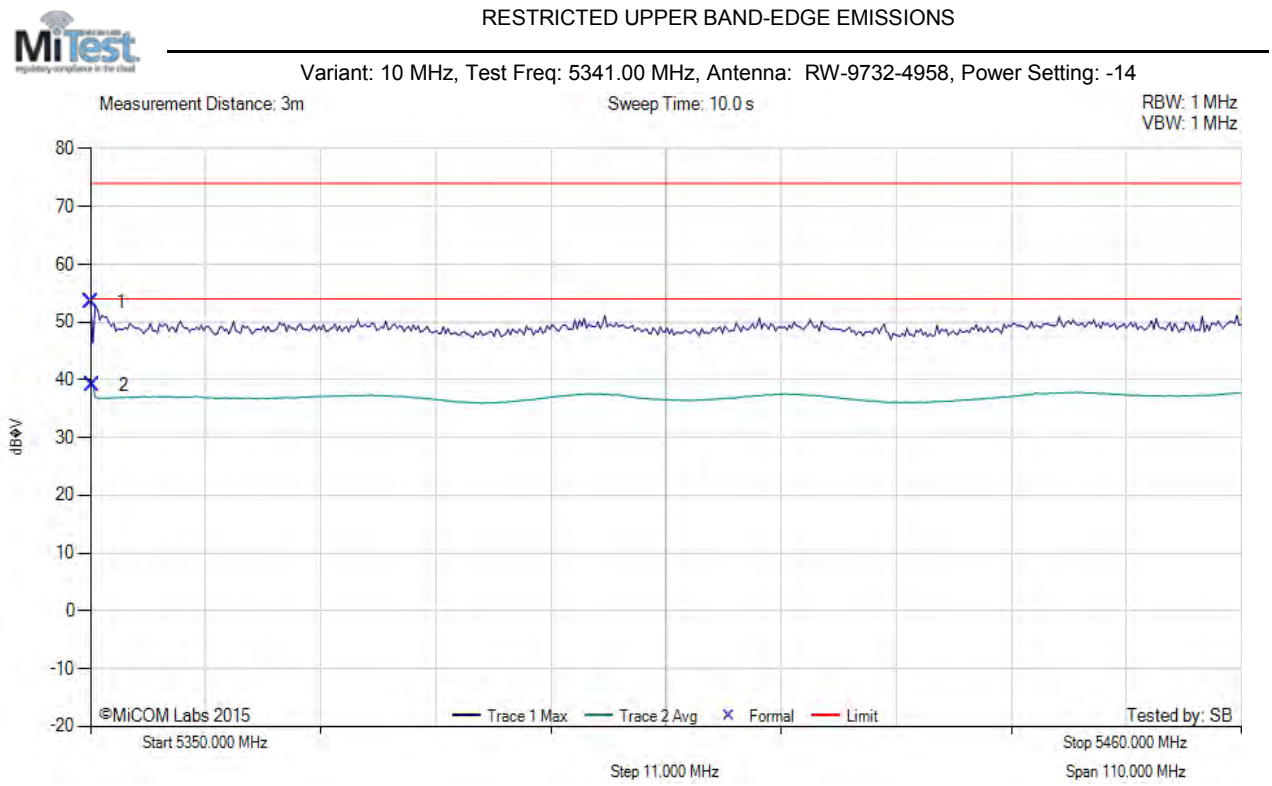
Variant: 80 MHz, Test Freq: 5310.00 MHz, Antenna: RW-9622-5001, Power Setting: -9



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	5350.00	65.18	6.16	-11.02	60.32	Max Peak	Horizontal	102	24	74.0	-13.7	Pass
2	5350.22	52.73	6.16	-11.02	47.87	Max Avg	Horizontal	102	24	54.0	-6.1	Pass

back to matrix

B.1.1.8. Antenna RW-9732-4958

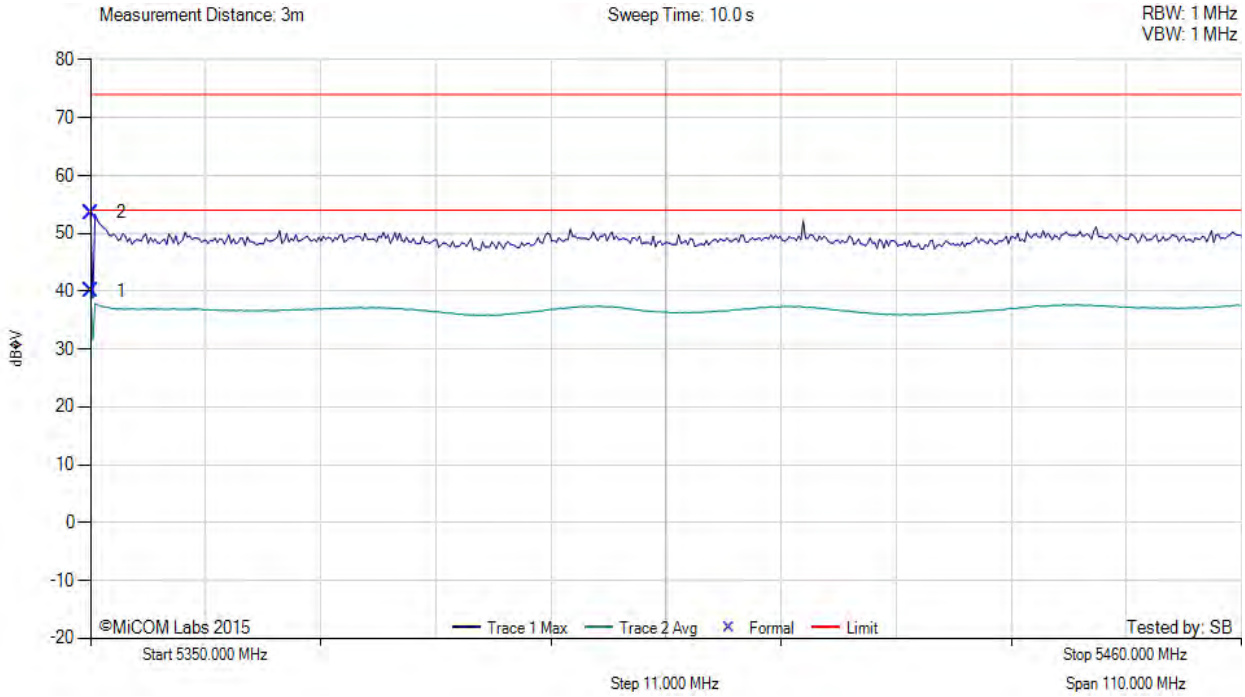


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	58.29	6.16	-11.02	53.43	Max Peak	Horizontal	110	343	74.0	-20.6	Pass
2	5350.22	43.93	6.16	-11.02	39.07	Max Avg	Horizontal	110	343	54.0	-14.9	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5336.00 MHz, Antenna: RW-9732-4958, Power Setting: -14

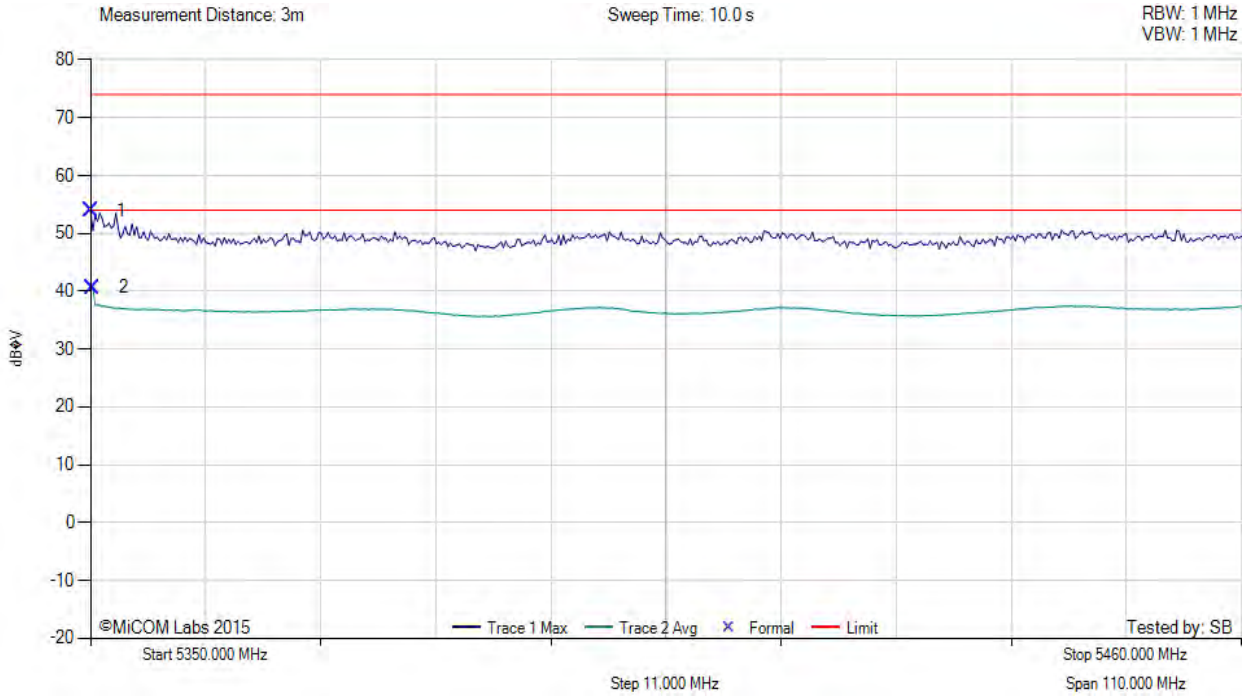


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	44.85	6.16	-11.02	39.99	Max Avg	Horizontal	110	343	54.0	-14.0	Pass
2	5350.00	58.44	6.16	-11.02	53.58	Max Peak	Horizontal	110	343	74.0	-20.4	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5326.00 MHz, Antenna: RW-9732-4958, Power Setting: -14

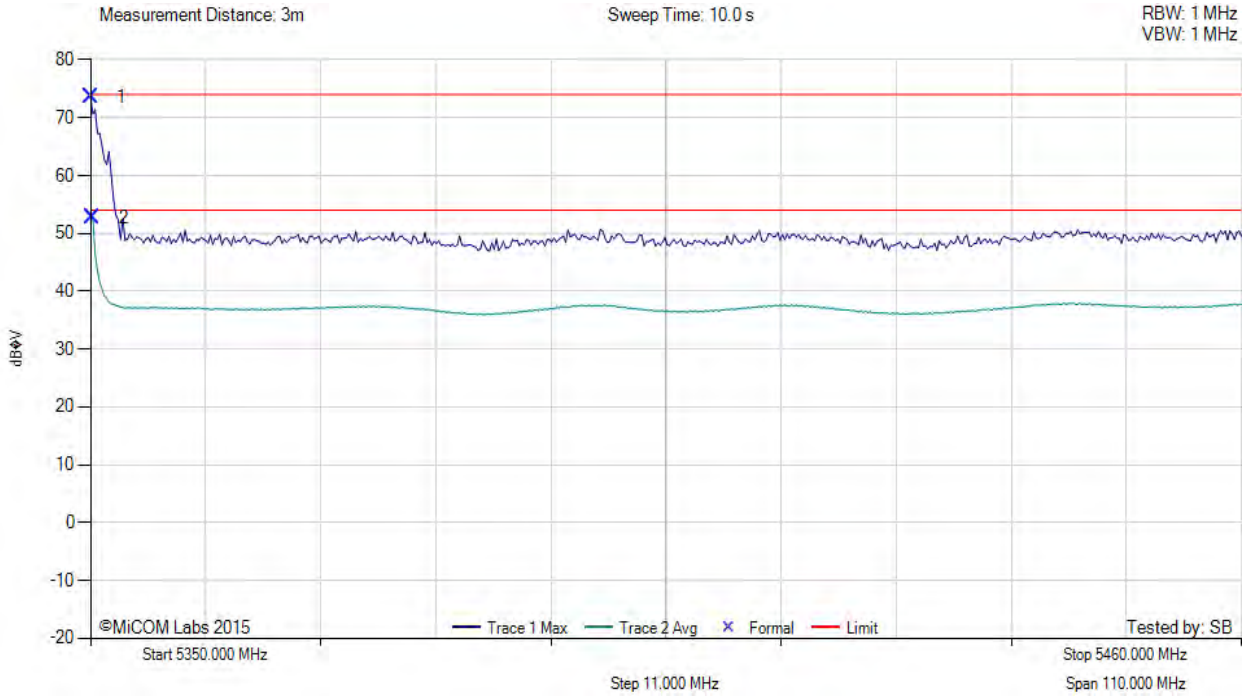


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	58.79	6.16	-11.02	53.93	Max Peak	Horizontal	110	343	74.0	-20.1	Pass
2	5350.22	45.49	6.16	-11.02	40.63	Max Avg	Horizontal	110	343	54.0	-13.4	Pass

back to matrix

RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5346.50 MHz, Antenna: RW-9732-4958, Power Setting: -14



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	5350.00	78.46	6.16	-11.02	73.60	Max Peak	Horizontal	110	343	74.0	-0.4	Pass
2	5350.22	57.61	6.16	-11.02	52.75	Max Avg	Horizontal	110	343	54.0	-1.3	Pass

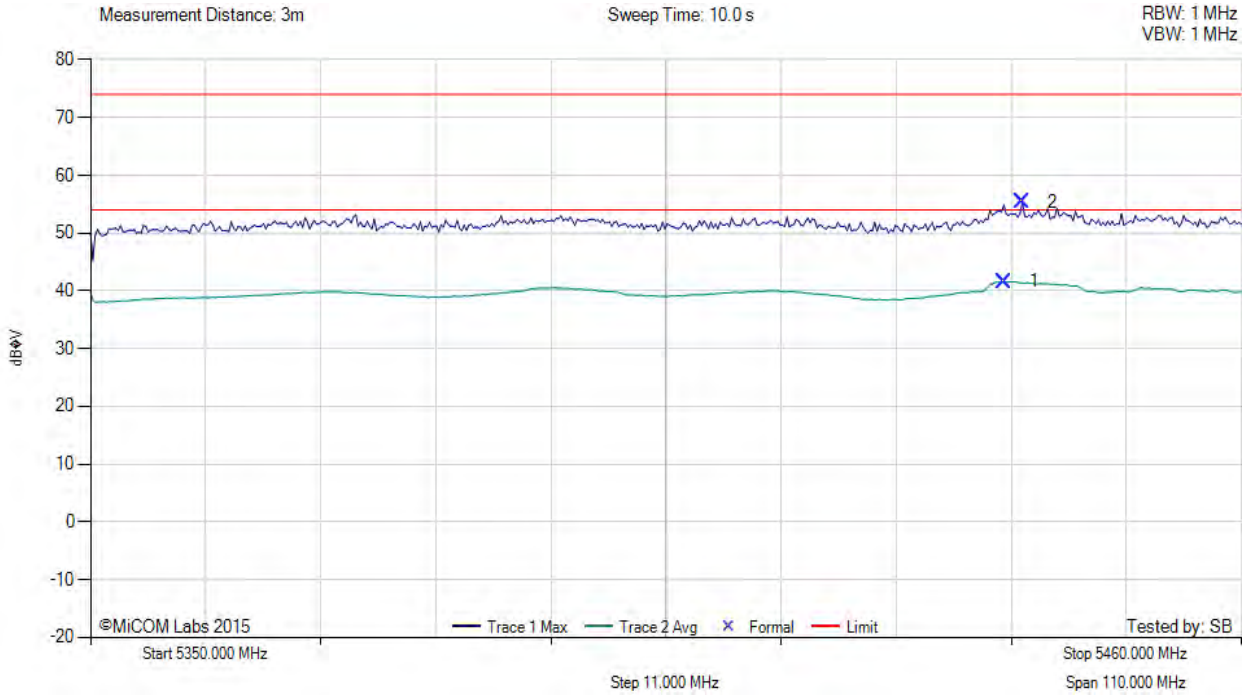
back to matrix

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

Antenna RW-9061-5002

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 10 MHz, Test Freq: 5484.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 1.5, Duty Cycle (%): 99

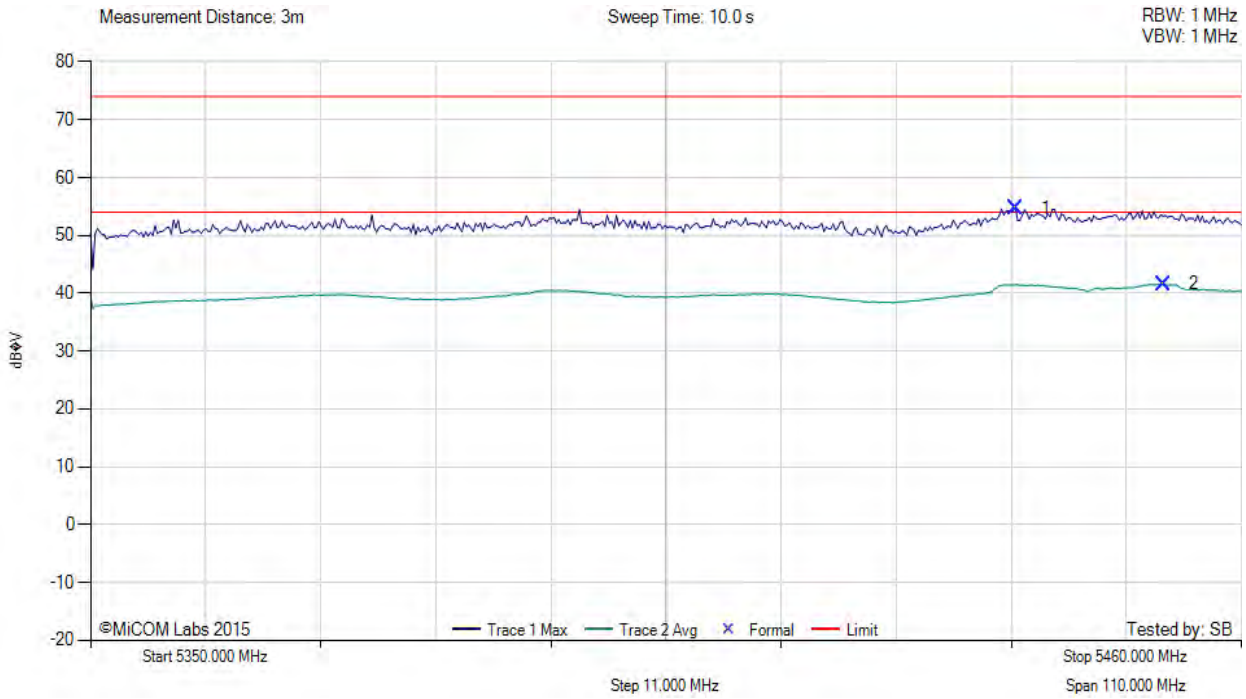


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5437.29	46.60	6.22	-11.21	41.61	Max Avg	Horizontal	96	4	54.0	-12.4	Pass
2	5439.06	60.33	6.23	-11.22	55.34	Max Peak	Horizontal	96	4	74.0	-18.7	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 3, Duty Cycle (%): 99

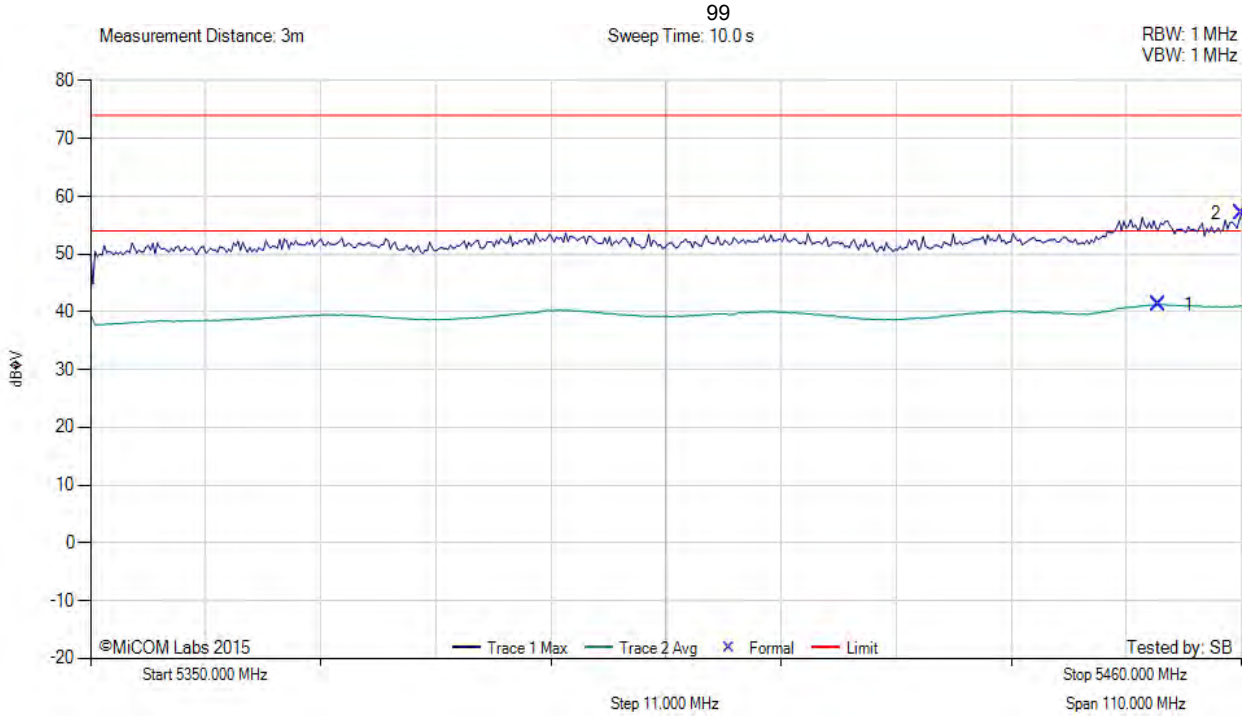


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5438.40	59.71	6.23	-11.21	54.73	Max Peak	Horizontal	96	4	74.0	-19.3	Pass
2	5452.51	46.54	6.25	-11.23	41.56	Max Avg	Horizontal	96	4	54.0	-12.4	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5499.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 4.5, Duty Cycle (%): 99

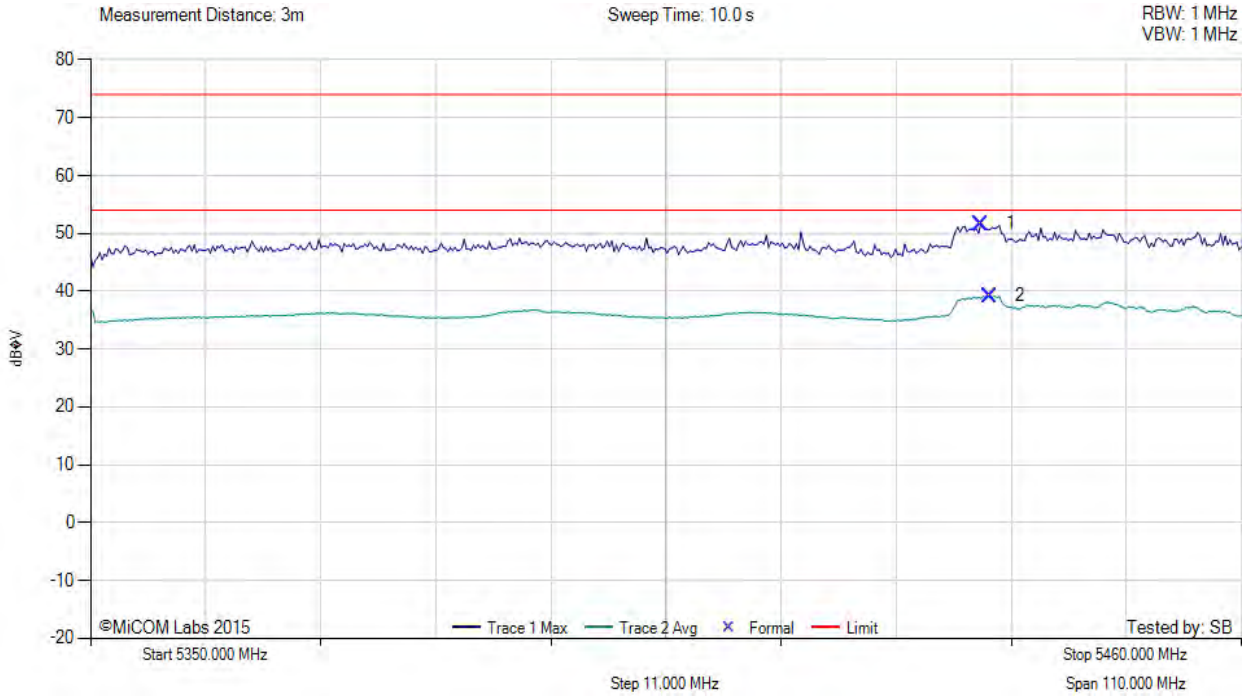


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5452.06	46.29	6.25	-11.23	41.31	Max Avg	Horizontal	96	4	54.0	-12.7	Pass
2	5460.00	61.96	6.26	-11.22	57.00	Max Peak	Horizontal	96	4	74.0	-17.0	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5478.50 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 0, Duty Cycle (%): 99

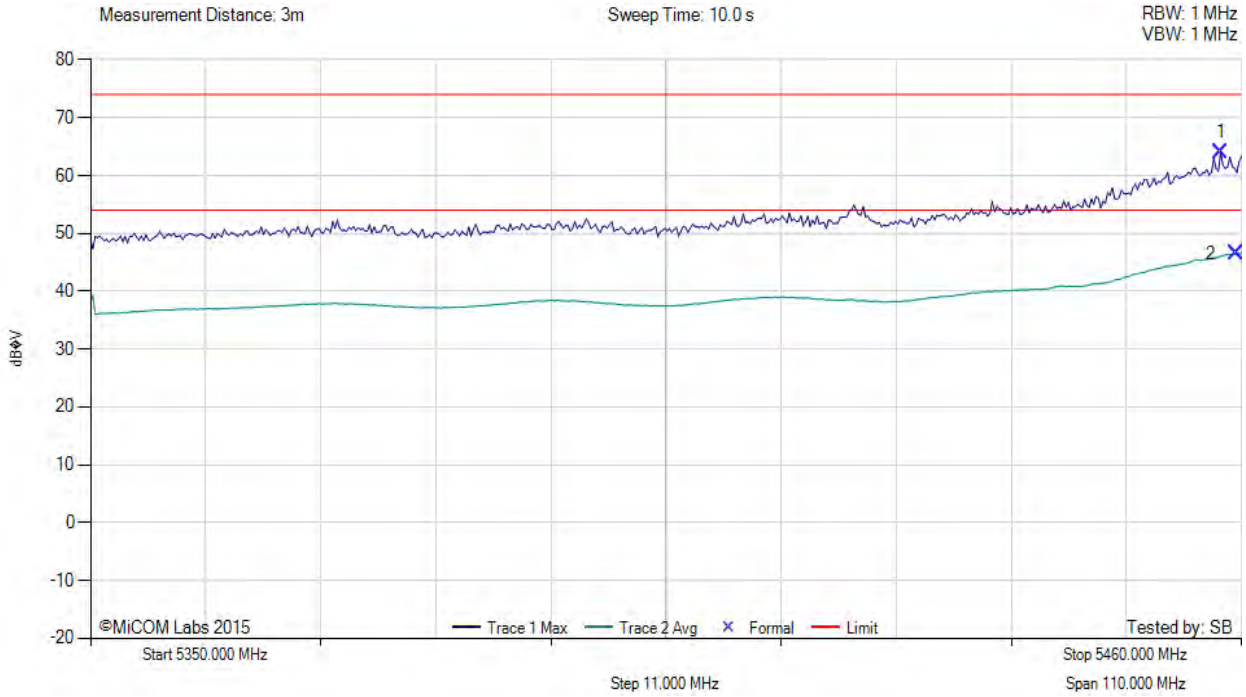


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5435.09	56.69	6.22	-11.21	51.70	Max Peak	Horizontal	96	4	74.0	-22.3	Pass
2	5435.97	44.18	6.22	-11.21	39.19	Max Avg	Horizontal	96	4	54.0	-14.8	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

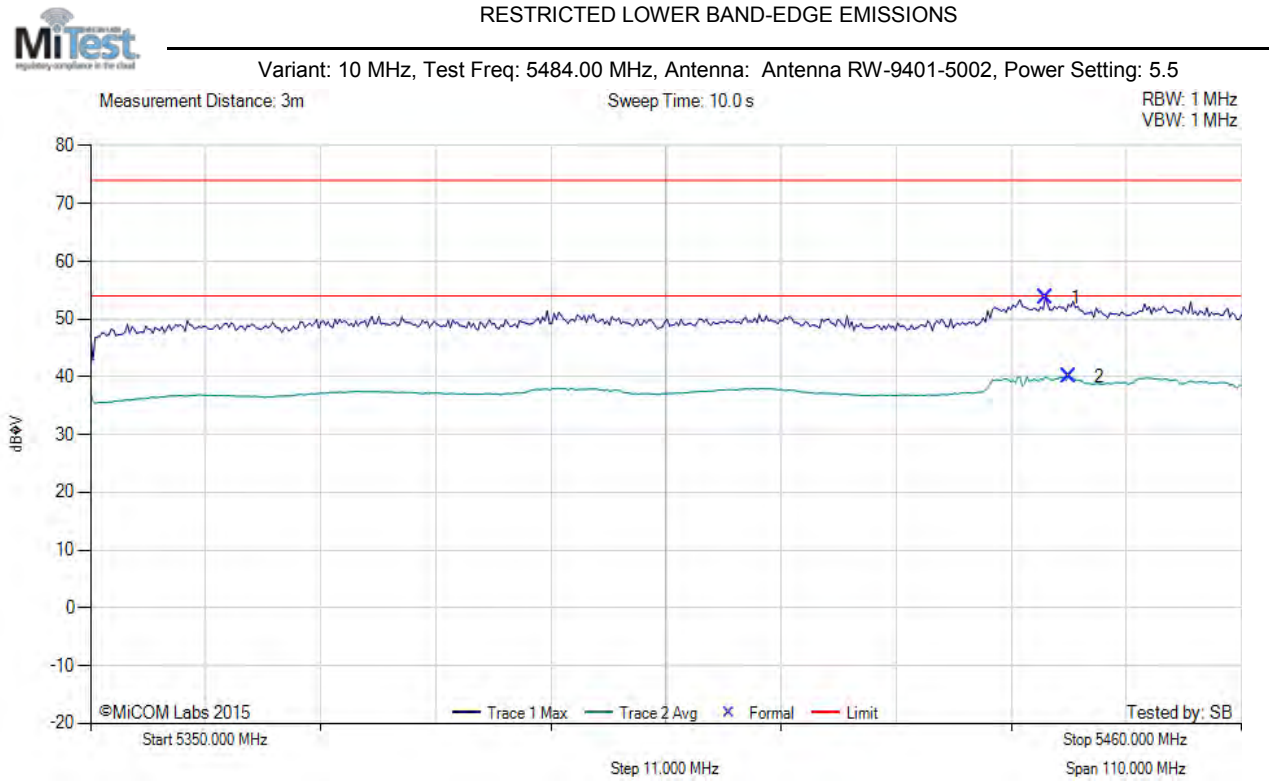
Variant: 80 MHz, Test Freq: 5520.00 MHz, Antenna: Antenna RW-9061-5002, Power Setting: 4, Duty Cycle (%): 99



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	5458.02	69.04	6.26	-11.23	64.07	Max Peak	Horizontal	96	4	74.0	-9.9	Pass
2	5459.56	51.45	6.26	-11.22	46.49	Max Avg	Horizontal	96	4	54.0	-7.5	Pass

back to matrix

Antenna RW-9401-5002

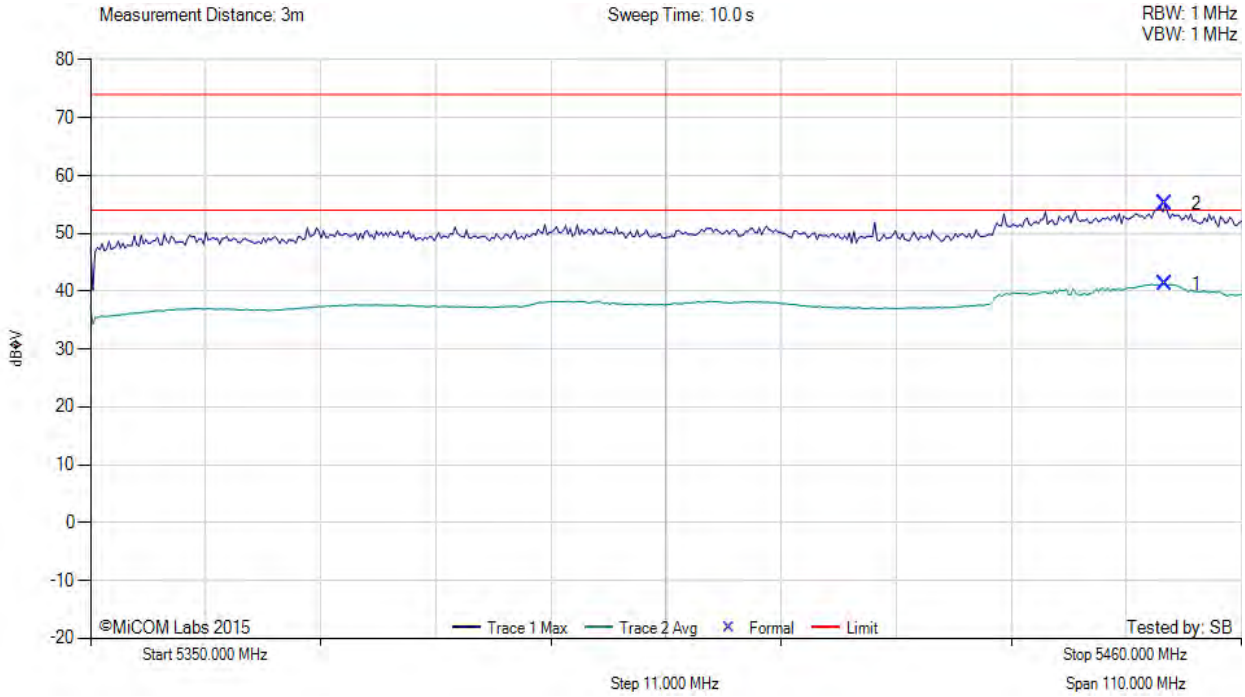


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5441.26	58.66	6.23	-11.22	53.67	Max Peak	Vertical	108	32	74.0	-20.3	Pass
2	5443.47	45.10	6.23	-11.22	40.11	Max Avg	Vertical	108	32	54.0	-13.9	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 7

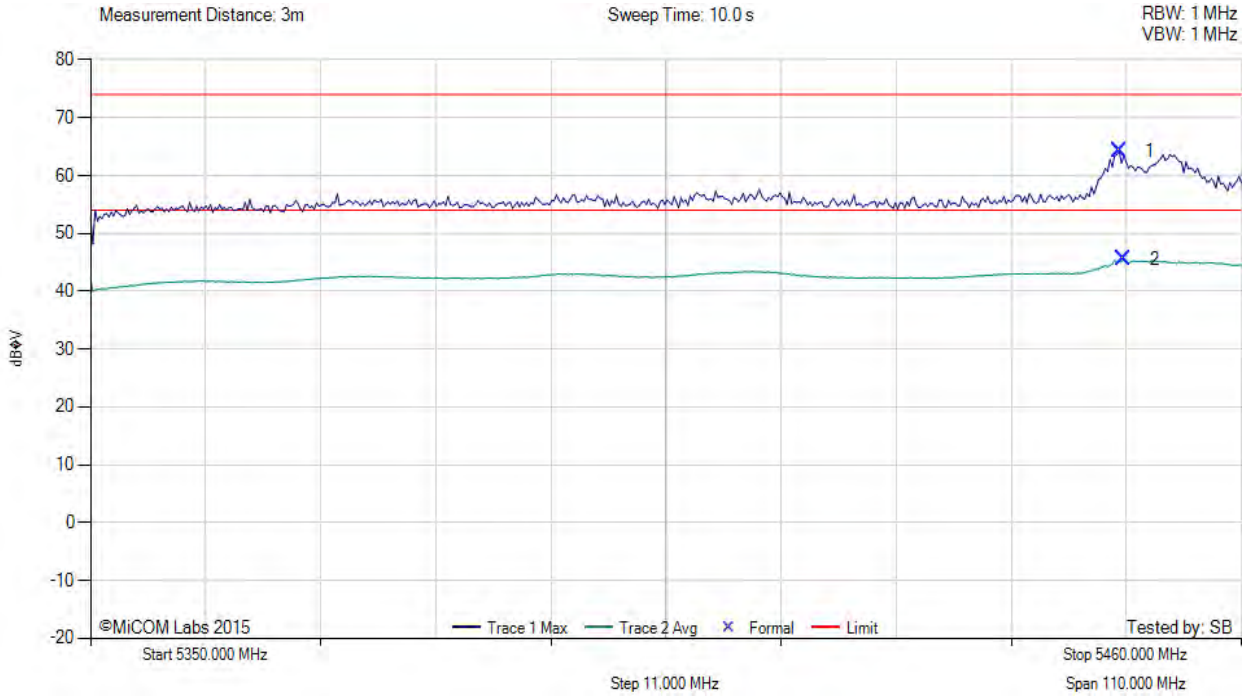


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5452.73	46.27	6.25	-11.23	41.29	Max Avg	Vertical	108	32	54.0	-12.7	Pass
2	5452.73	60.07	6.25	-11.23	55.09	Max Peak	Vertical	108	32	74.0	-18.9	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5499.00 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 8.5

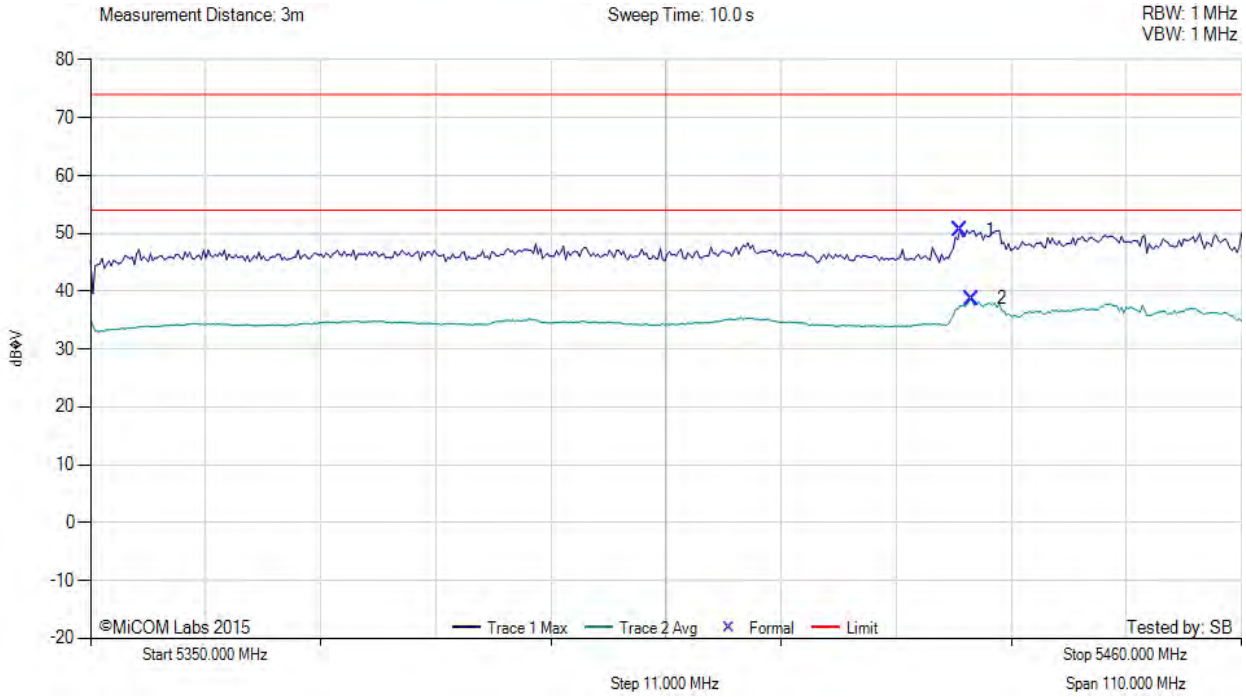


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5448.32	69.22	6.24	-11.23	64.23	Max Peak	Vertical	108	32	74.0	-9.8	Pass
2	5448.76	50.50	6.24	-11.23	45.51	Max Avg	Vertical	108	32	54.0	-8.5	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5478.50 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 4

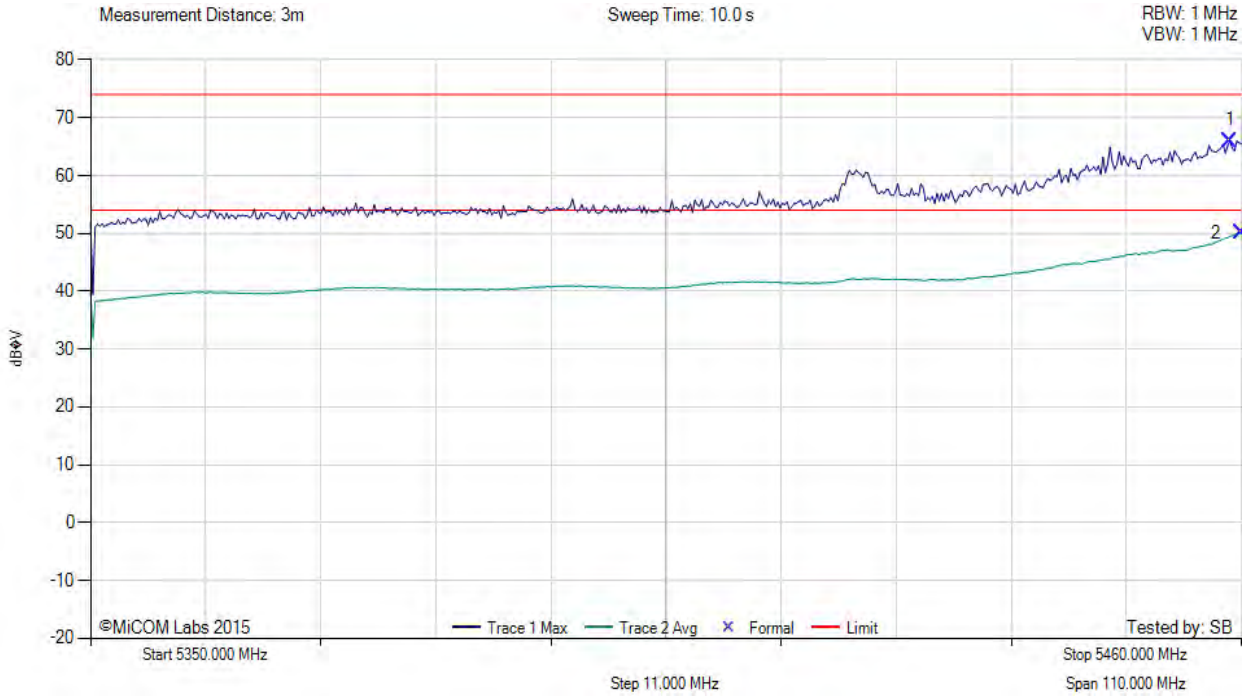


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5433.11	55.62	6.22	-11.20	50.64	Max Peak	Vertical	108	32	74.0	-23.4	Pass
2	5434.21	43.70	6.22	-11.21	38.71	Max Avg	Vertical	108	32	54.0	-15.3	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5520.00 MHz, Antenna: Antenna RW-9401-5002, Power Setting: 8



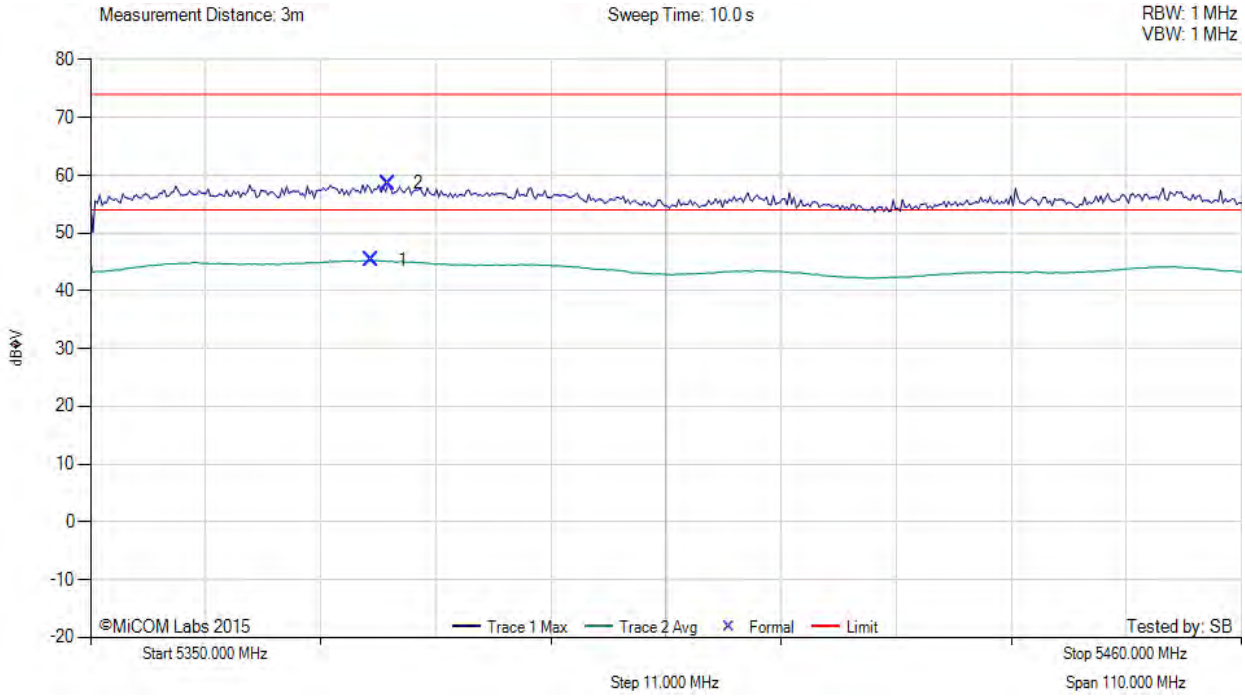
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5458.90	70.98	6.26	-11.22	66.02	Max Peak	Vertical	108	32	74.0	-8.0	Pass
2	5460.00	55.12	6.26	-11.22	50.16	Max Avg	Vertical	108	32	54.0	-3.8	Pass

back to matrix

Antenna RW-9622-5001

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 10 MHz, Test Freq: 5484.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -11

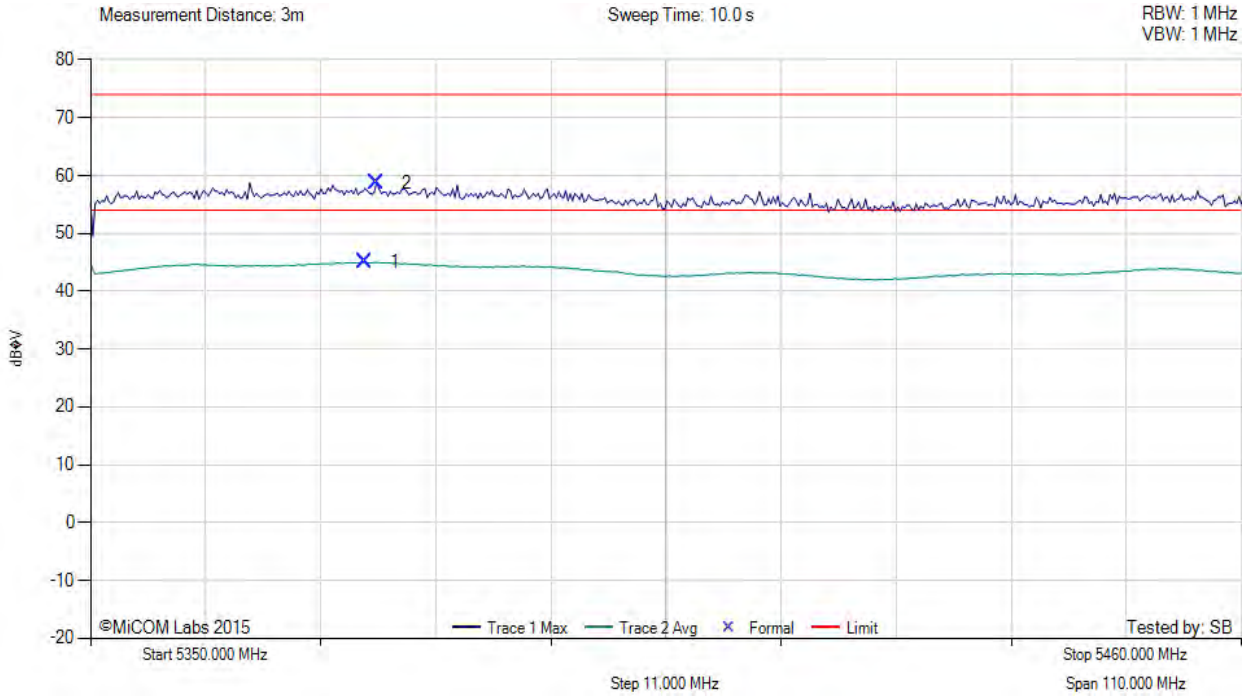


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5376.89	50.15	6.19	-11.09	45.25	Max Avg	Horizontal	102	24	54.0	-8.8	Pass
2	5378.44	63.54	6.20	-11.09	58.65	Max Peak	Horizontal	102	24	74.0	-15.4	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -9.5

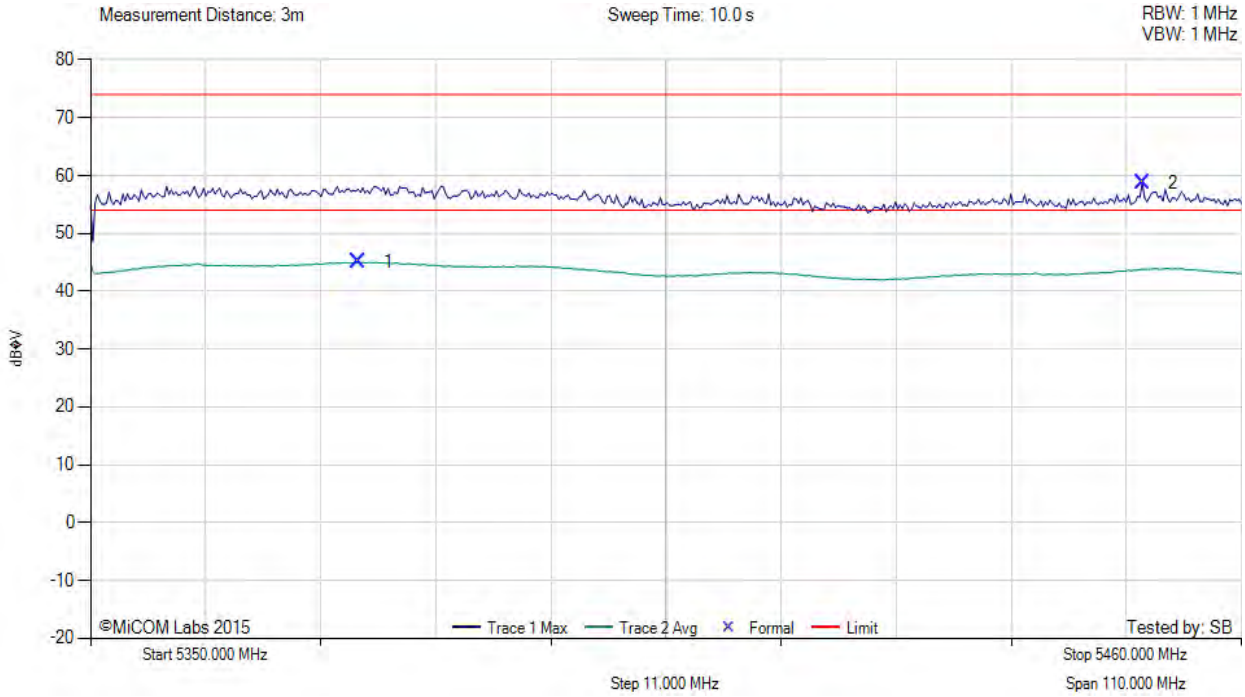


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5376.23	49.92	6.19	-11.08	45.03	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
2	5377.33	63.69	6.19	-11.09	58.79	Max Peak	Horizontal	102	24	74.0	-15.2	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5499.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -8

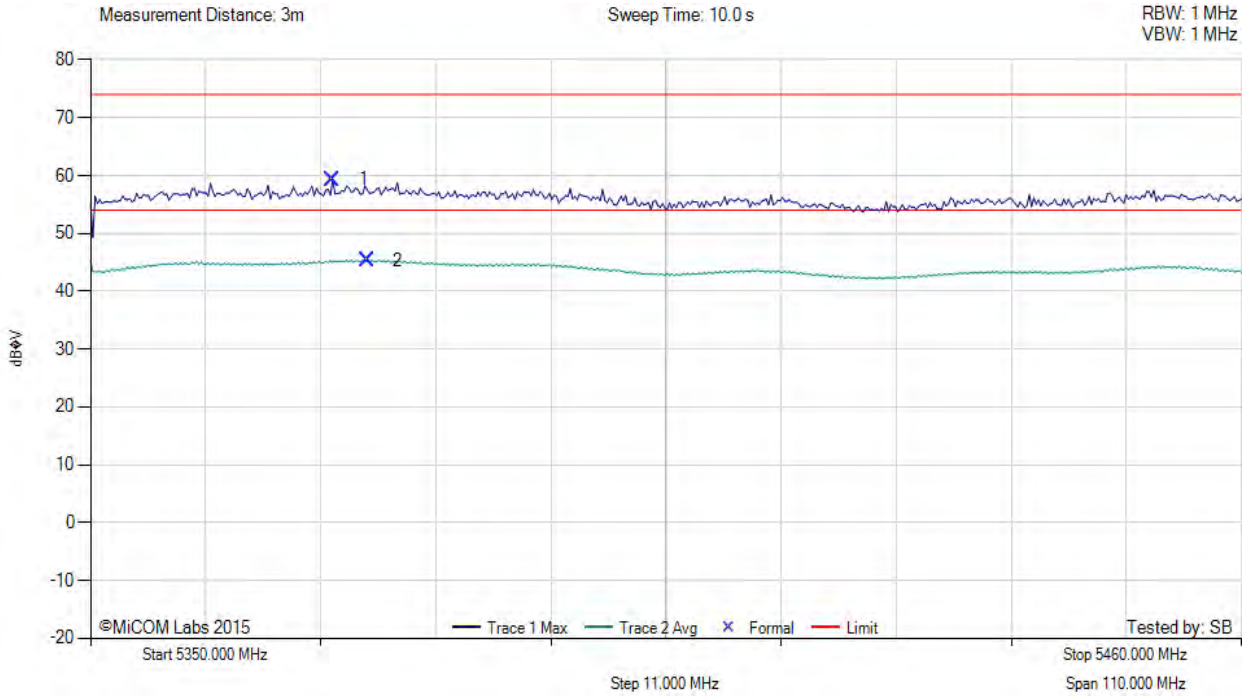


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5375.57	49.92	6.19	-11.08	45.03	Max Avg	Horizontal	102	24	54.0	-9.0	Pass
2	5450.52	63.74	6.25	-11.23	58.76	Max Peak	Horizontal	102	24	74.0	-15.2	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5478.50 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -12.5

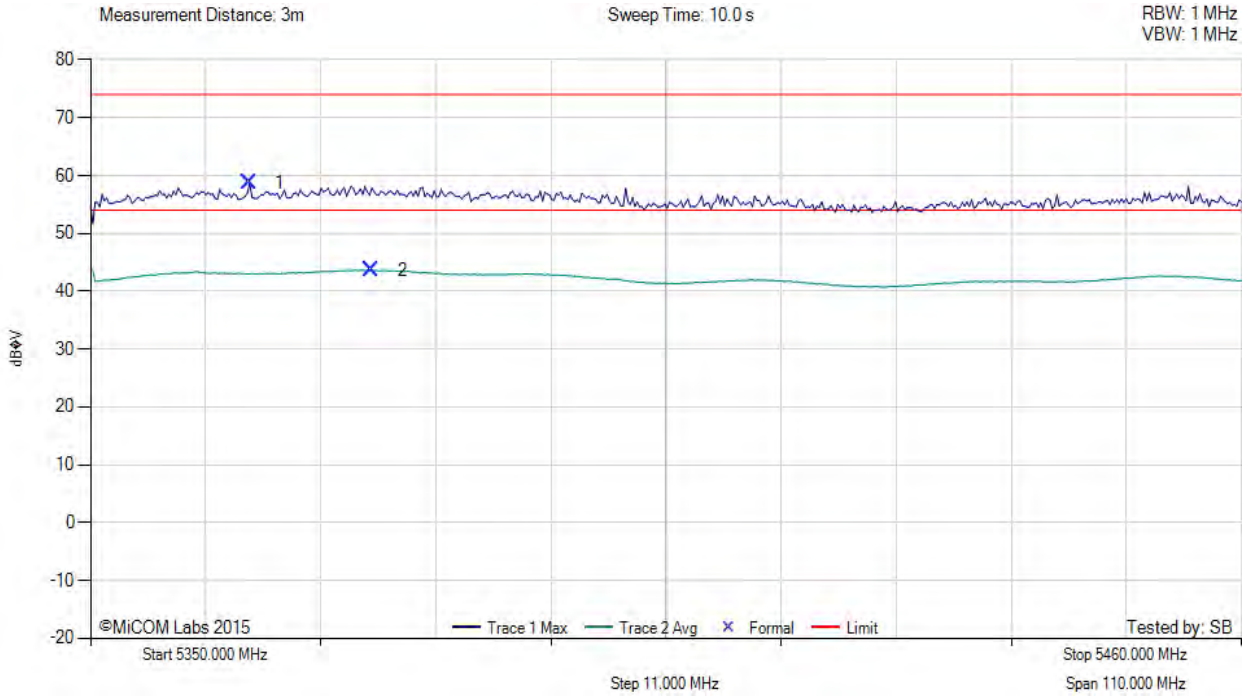


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5373.15	64.25	6.18	-11.08	59.35	Max Peak	Horizontal	102	24	74.0	-14.7	Pass
2	5376.45	50.27	6.19	-11.08	45.38	Max Avg	Horizontal	102	24	54.0	-8.6	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5520.00 MHz, Antenna: Antenna RW-9622-5001, Power Setting: -8.5



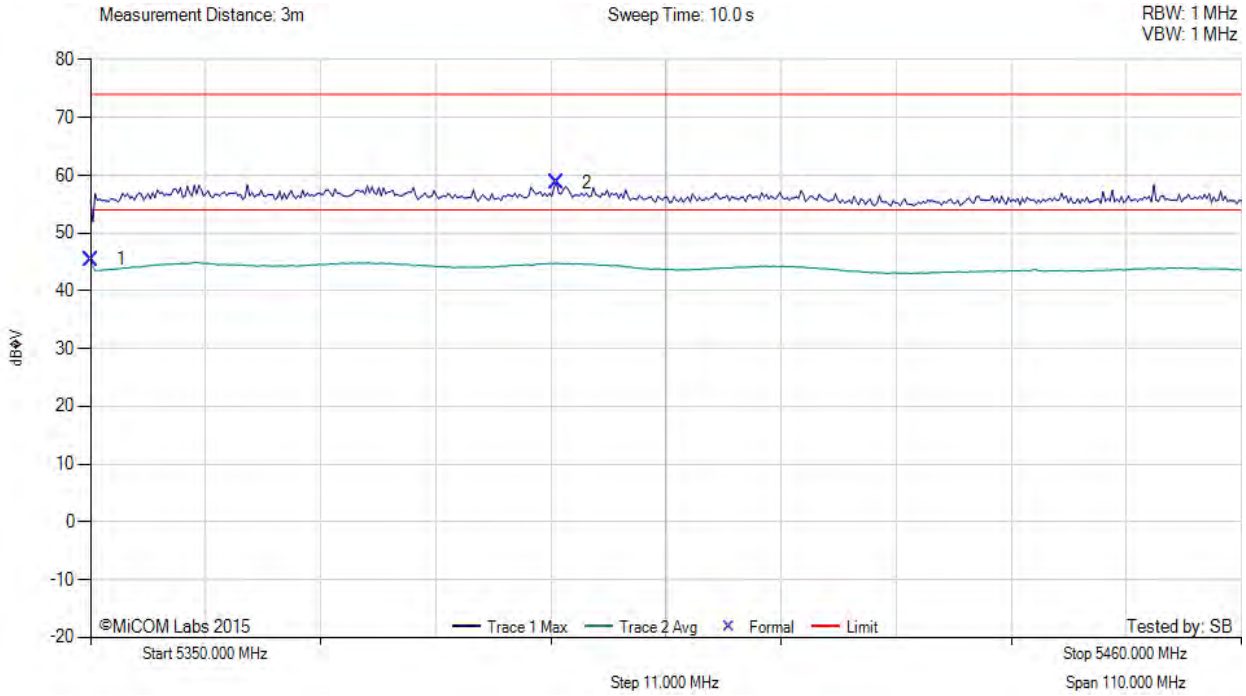
Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5365.21	63.62	6.17	-11.06	58.73	Max Peak	Horizontal	102	24	74.0	-15.3	Pass
2	5376.89	48.56	6.19	-11.09	43.66	Max Avg	Horizontal	102	24	54.0	-10.3	Pass

back to matrix

Antenna RW-9732-4958

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 10 MHz, Test Freq: 5484.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -14

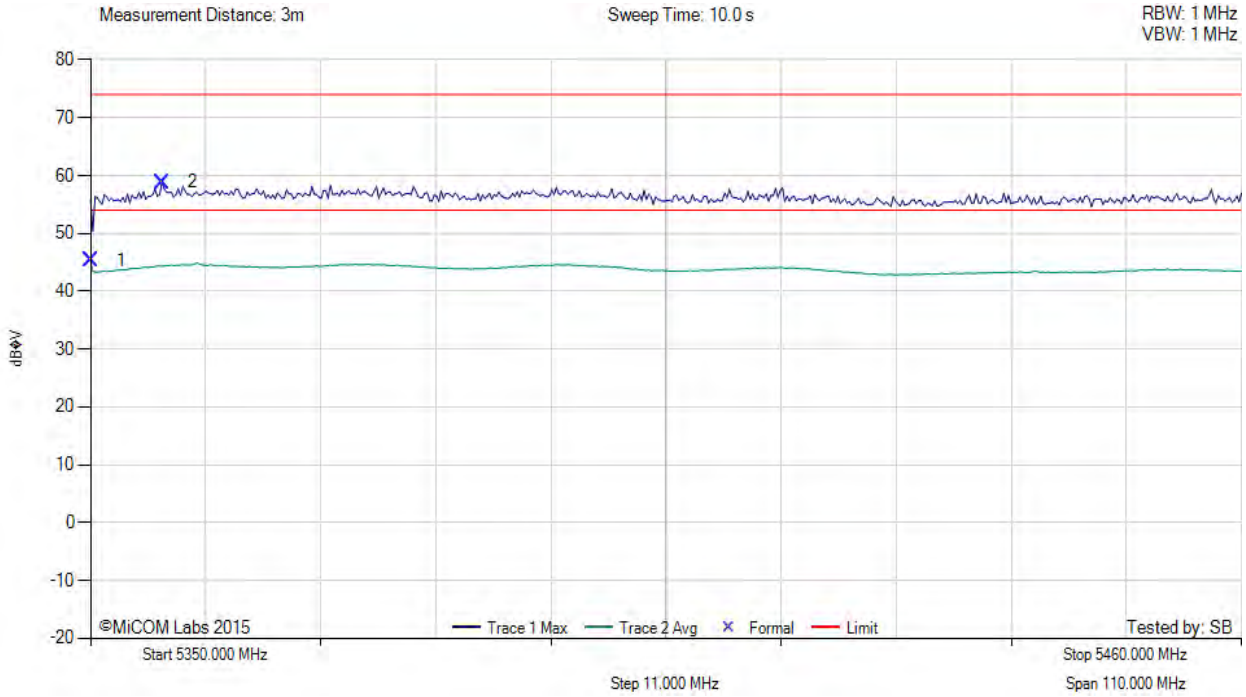


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	50.30	6.16	-11.02	45.44	Max Avg	Horizontal	110	351	54.0	-8.6	Pass
2	5394.53	63.66	6.23	-11.14	58.75	Max Peak	Horizontal	110	351	74.0	-15.3	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5489.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -12.5

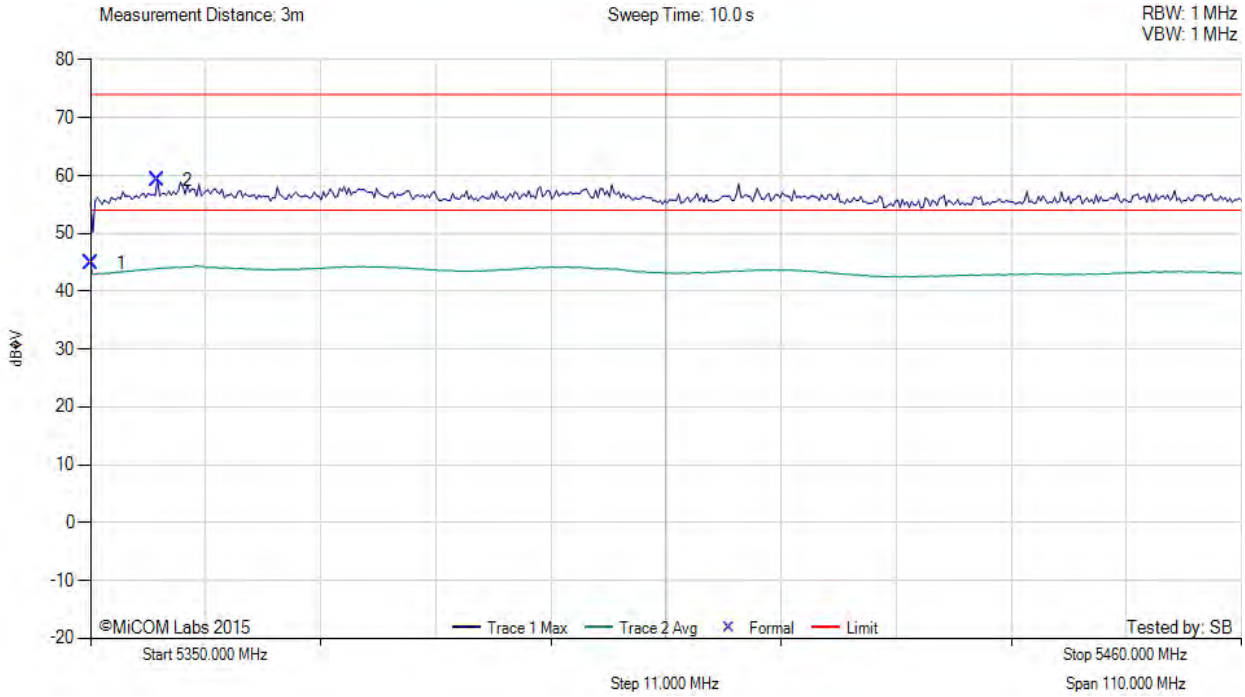


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	50.16	6.16	-11.02	45.30	Max Avg	Horizontal	110	351	54.0	-8.7	Pass
2	5356.83	63.72	6.17	-11.05	58.84	Max Peak	Horizontal	110	351	74.0	-15.2	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5499.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -11

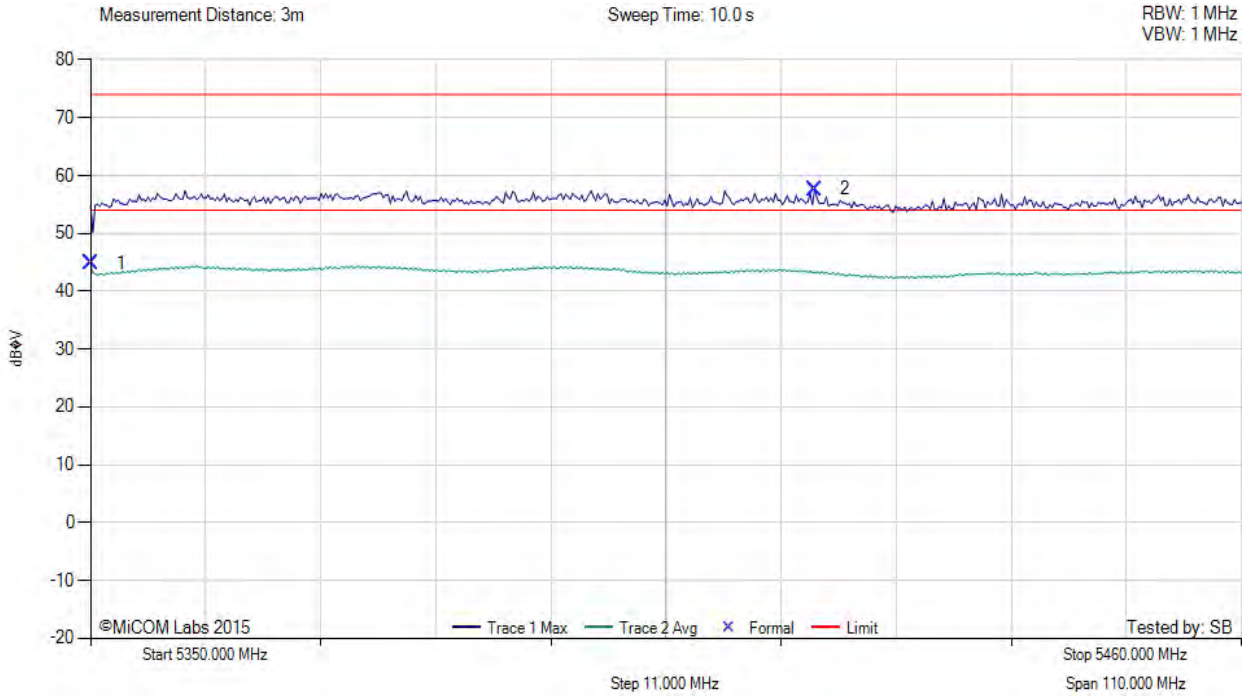


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	49.75	6.16	-11.02	44.89	Max Avg	Horizontal	110	351	54.0	-9.1	Pass
2	5356.39	64.09	6.16	-11.04	59.21	Max Peak	Horizontal	110	351	74.0	-14.8	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 5 MHz, Test Freq: 5478.50 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -15.5

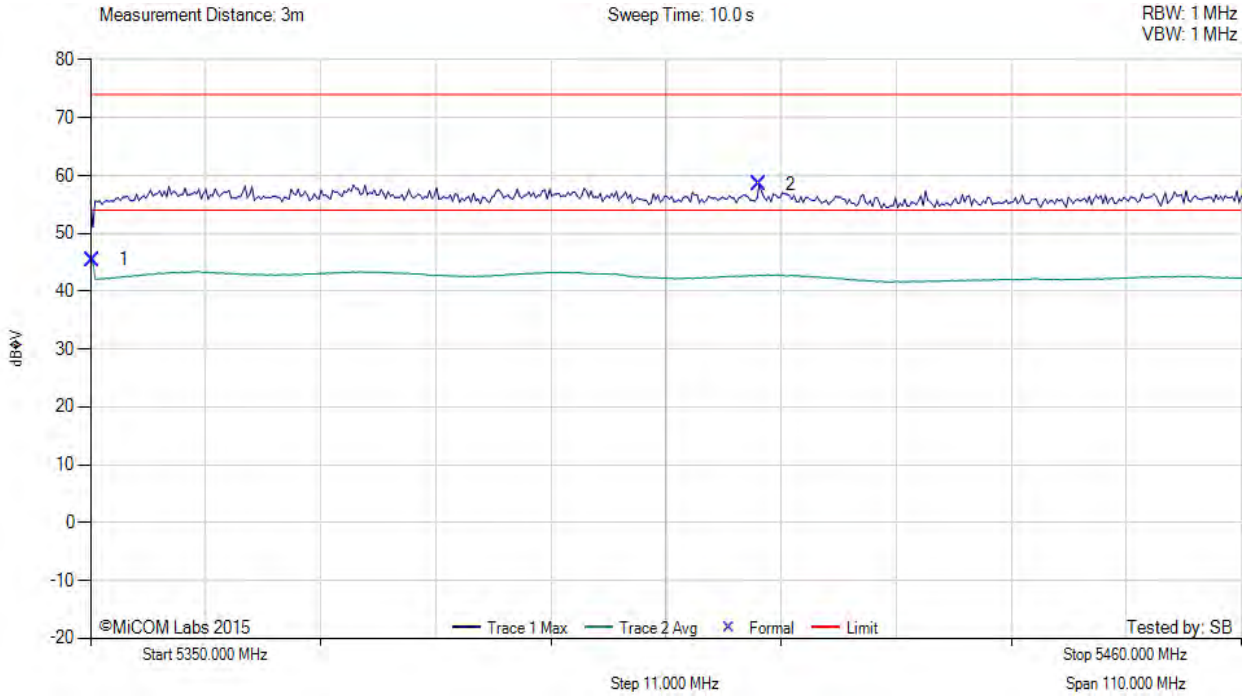


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.00	49.64	6.16	-11.02	44.78	Max Avg	Horizontal	110	351	54.0	-9.2	Pass
2	5419.22	62.62	6.24	-11.18	57.68	Max Peak	Horizontal	110	351	74.0	-16.3	Pass

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5520.00 MHz, Antenna: Antenna RW-9732-4958, Power Setting: -11.5

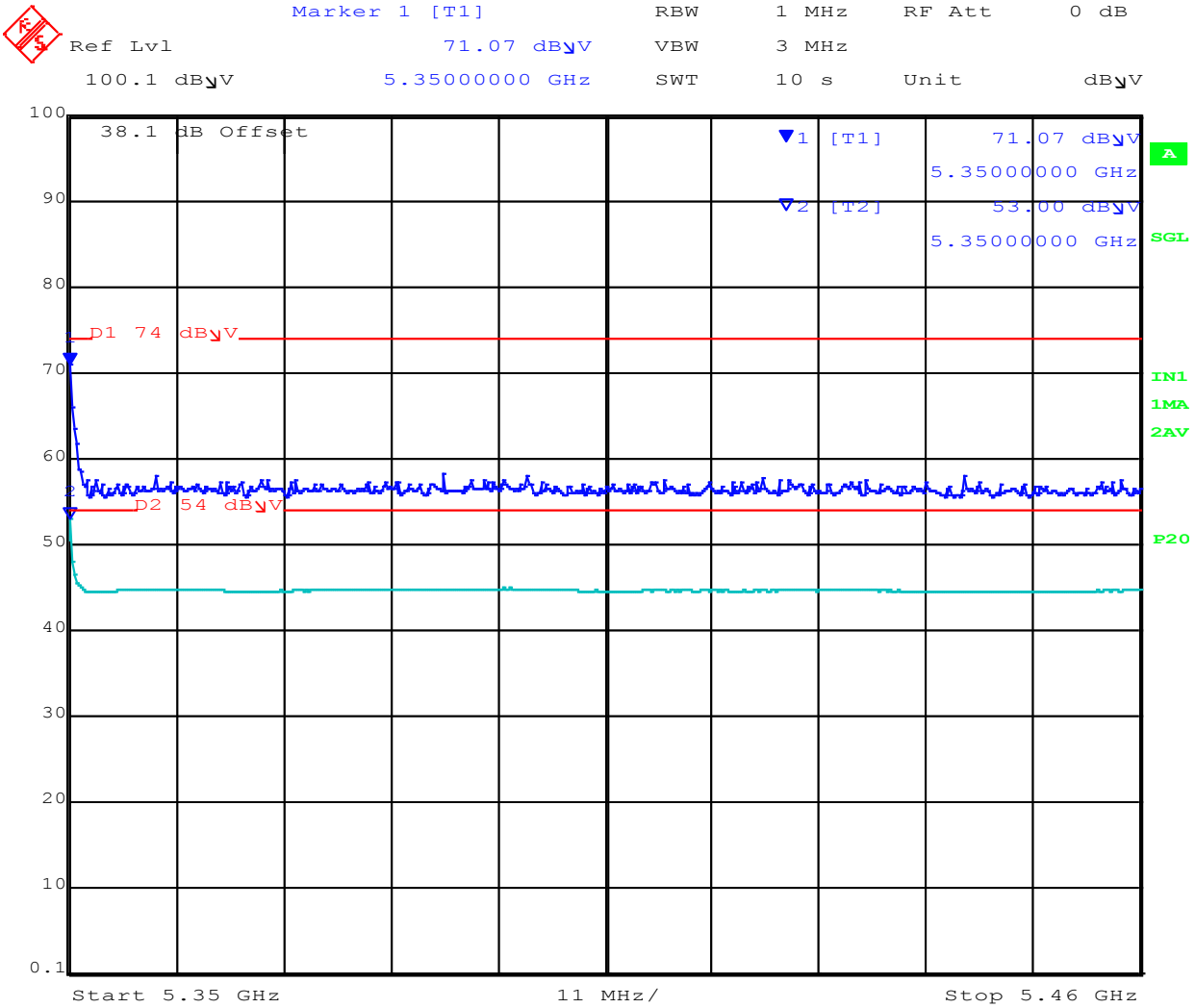


Num	Frequency MHz	Raw dBµV	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5350.22	50.28	6.16	-11.02	45.42	Max Avg	Horizontal	110	351	54.0	-8.6	Pass
2	5413.93	63.39	6.25	-11.18	58.46	Max Peak	Horizontal	110	351	74.0	-15.5	Pass

back to matrix

B.1.1.9. Antenna AM0156430

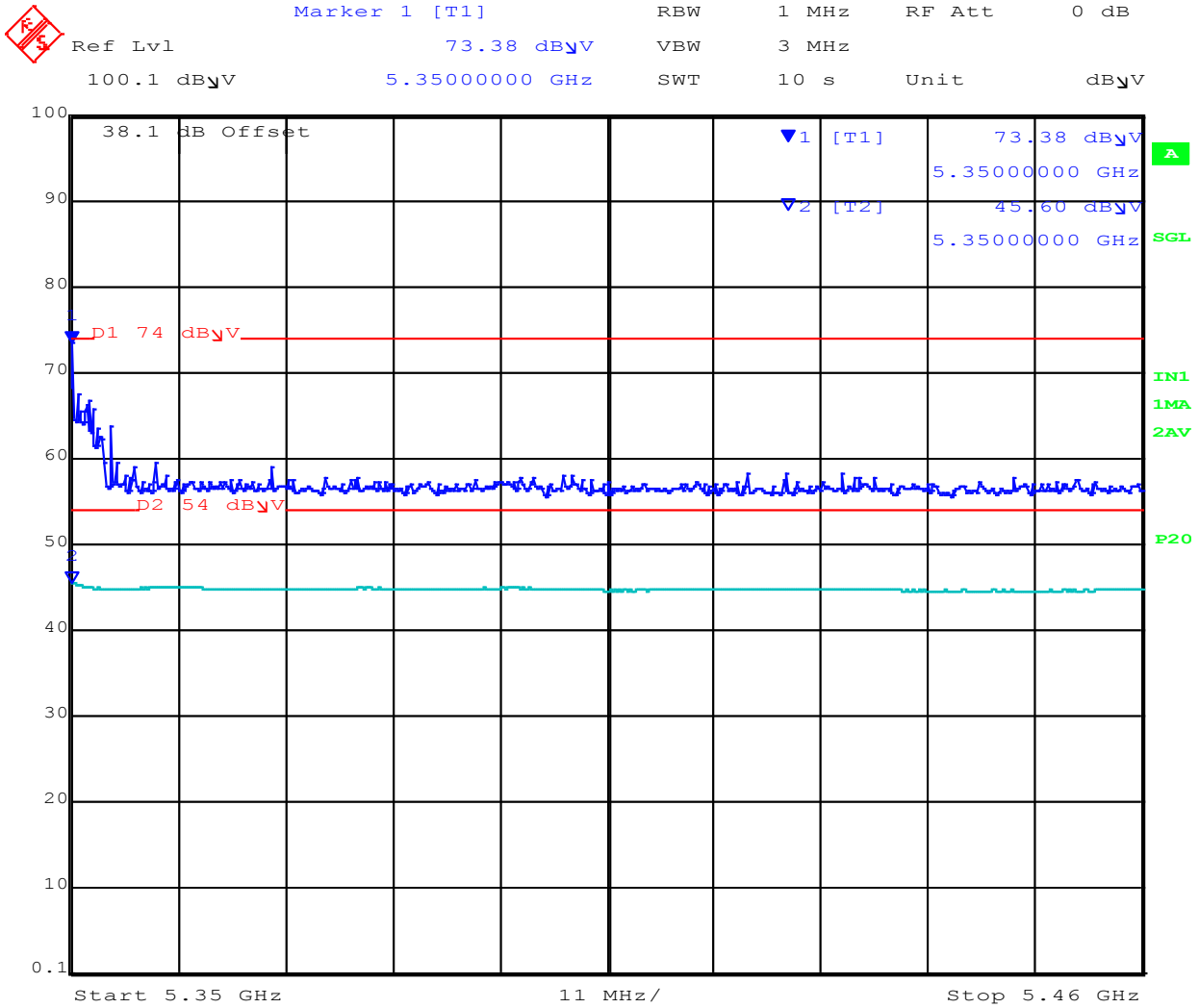
AM0156430 5 MHz 5350



Date: 13.NOV.2015 12:09:30

Back to Matrix

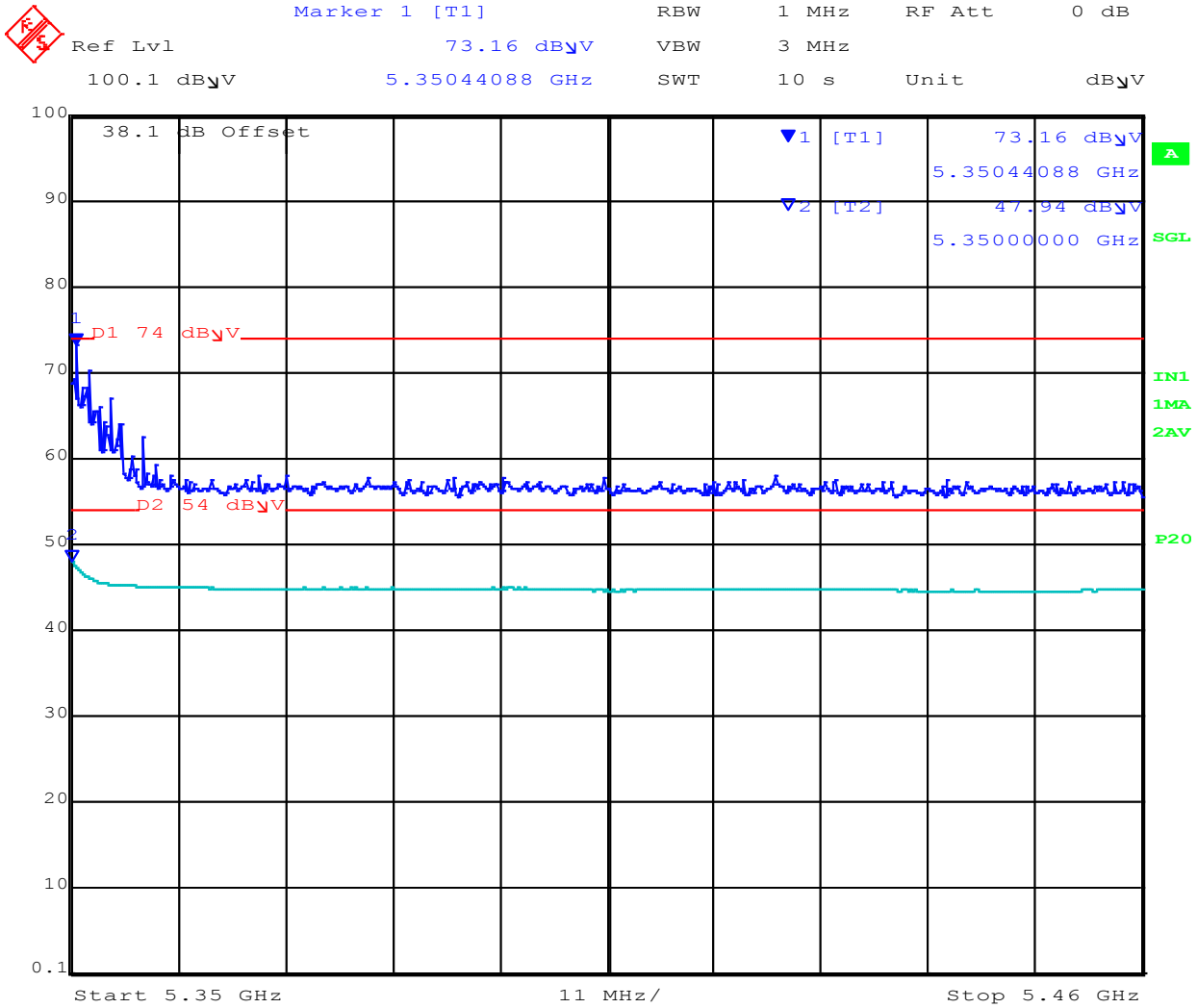
AM0156430 10 MHz 5350



Date: 13.NOV.2015 12:11:12

Back to Matrix

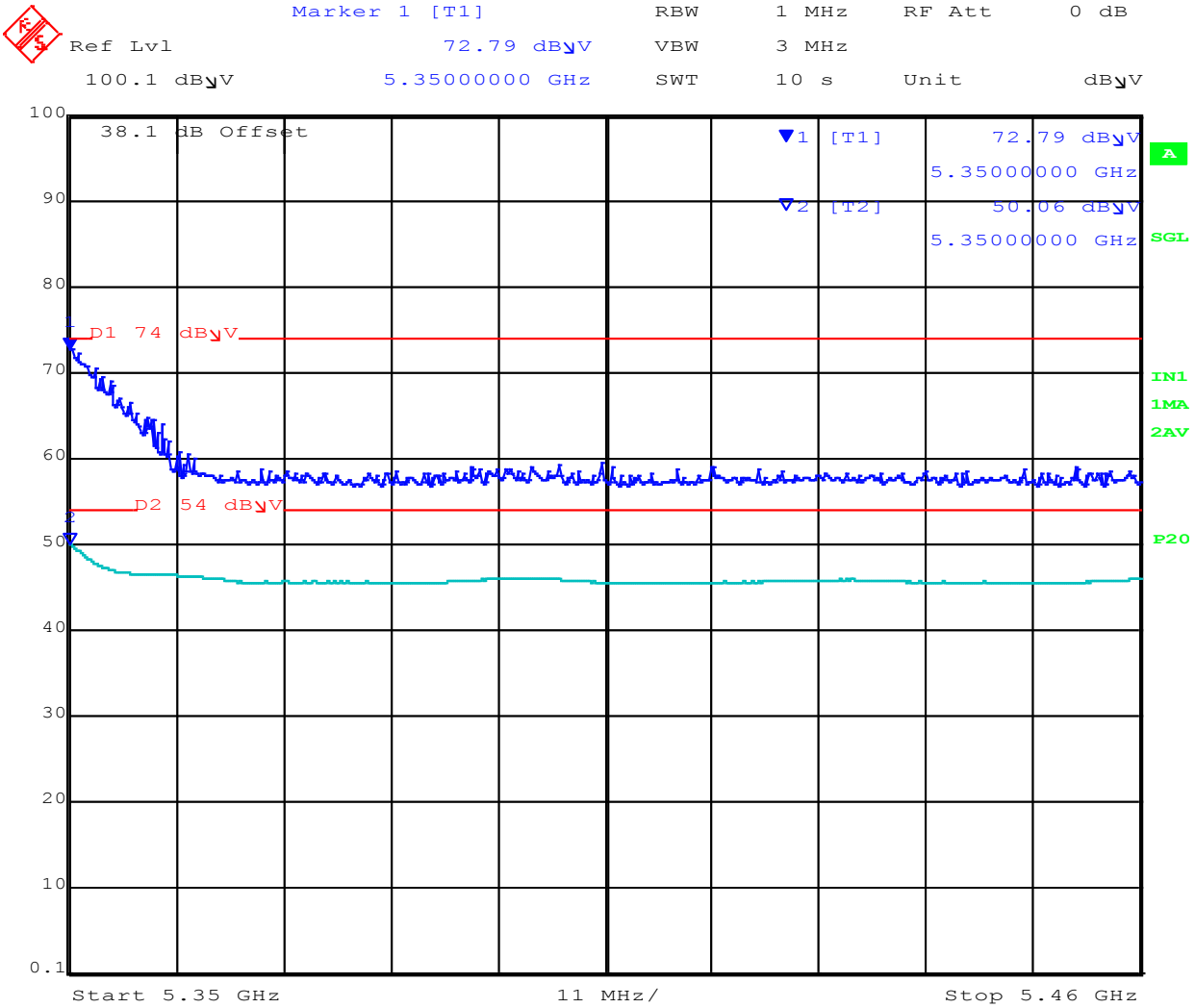
AM0156430 20 MHz 5350



Date: 13.NOV.2015 12:13:03

Back to Matrix

AM0156430 40 MHz 5350



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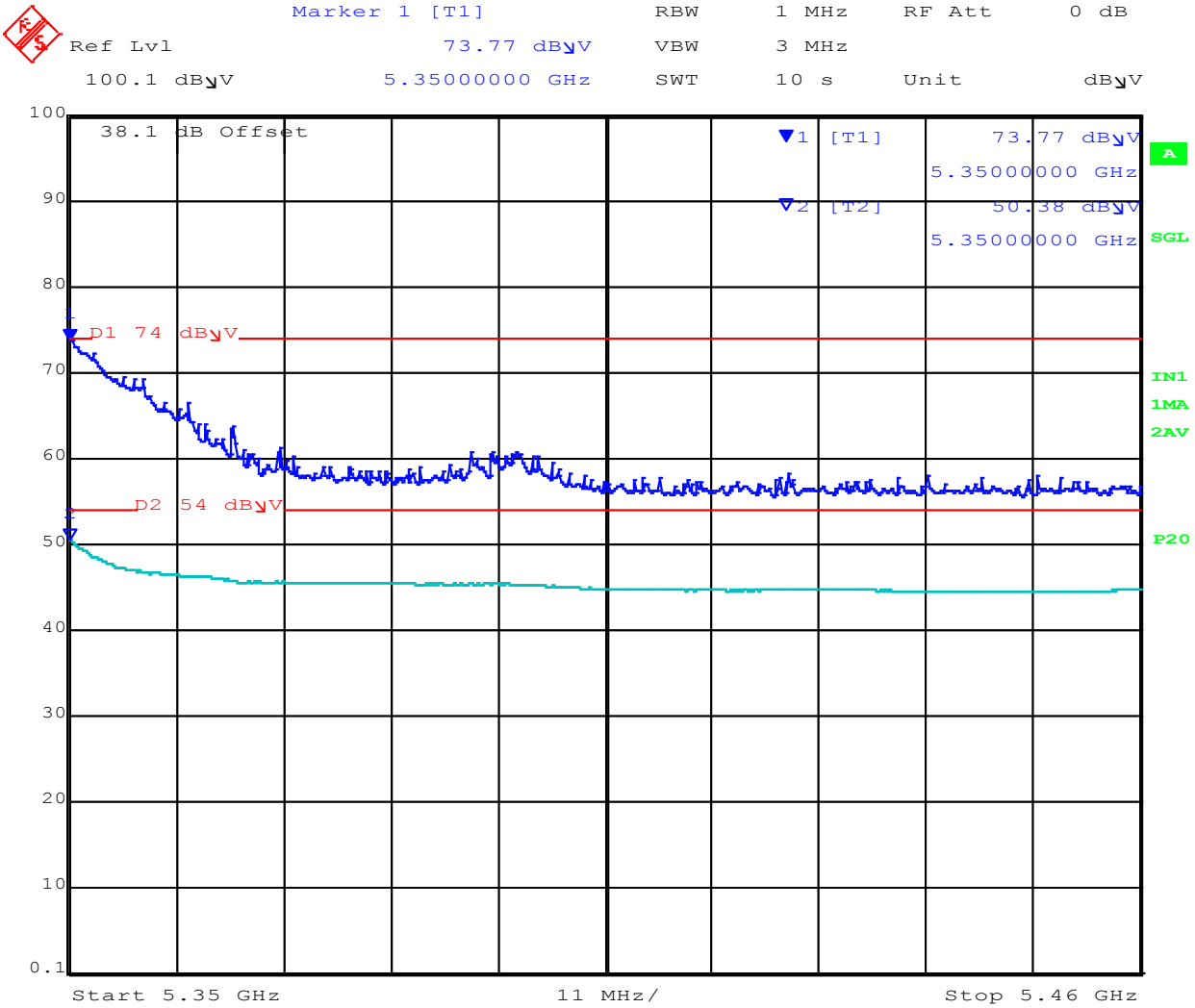

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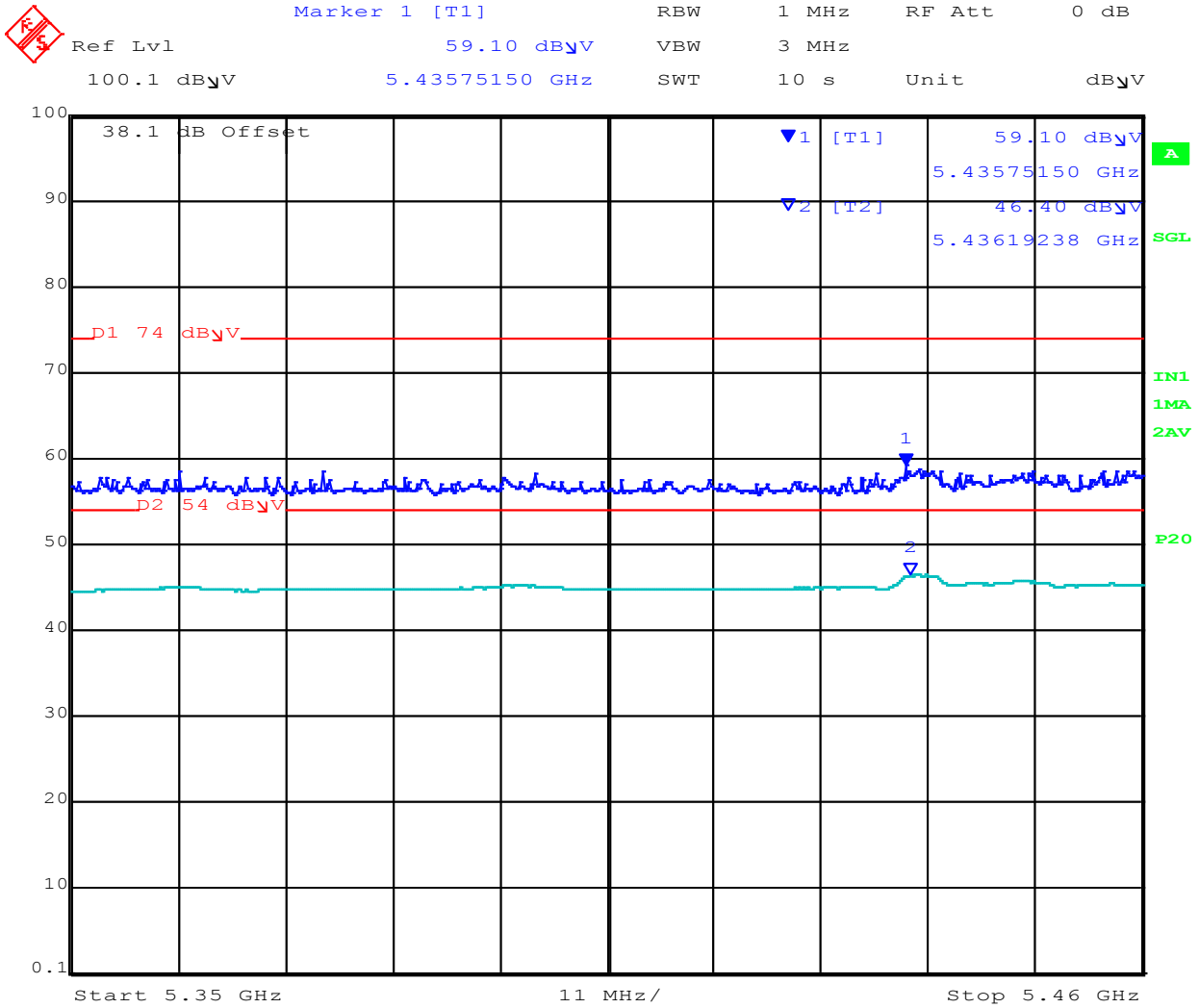

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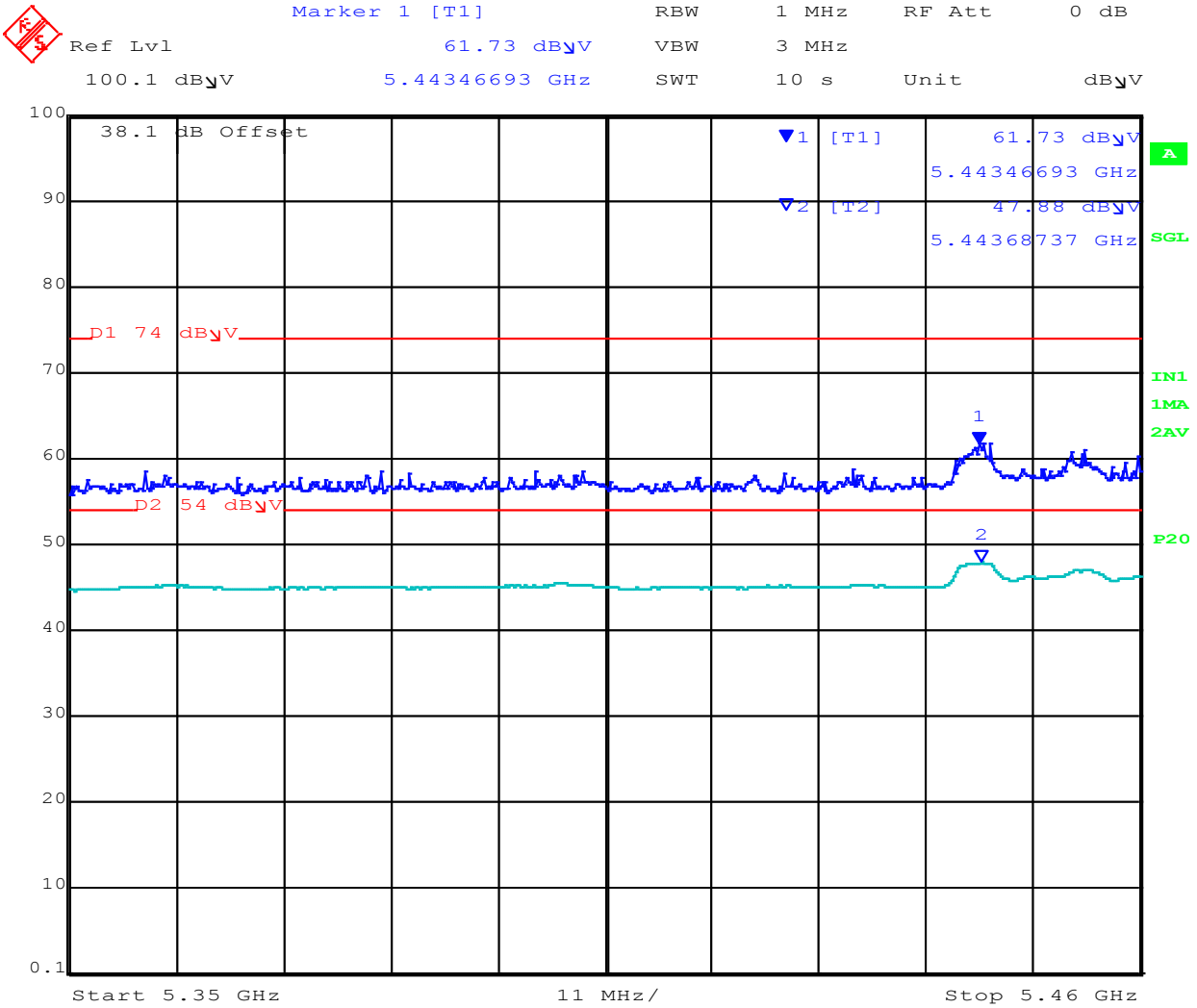
AM0156430 10 MHz 5460



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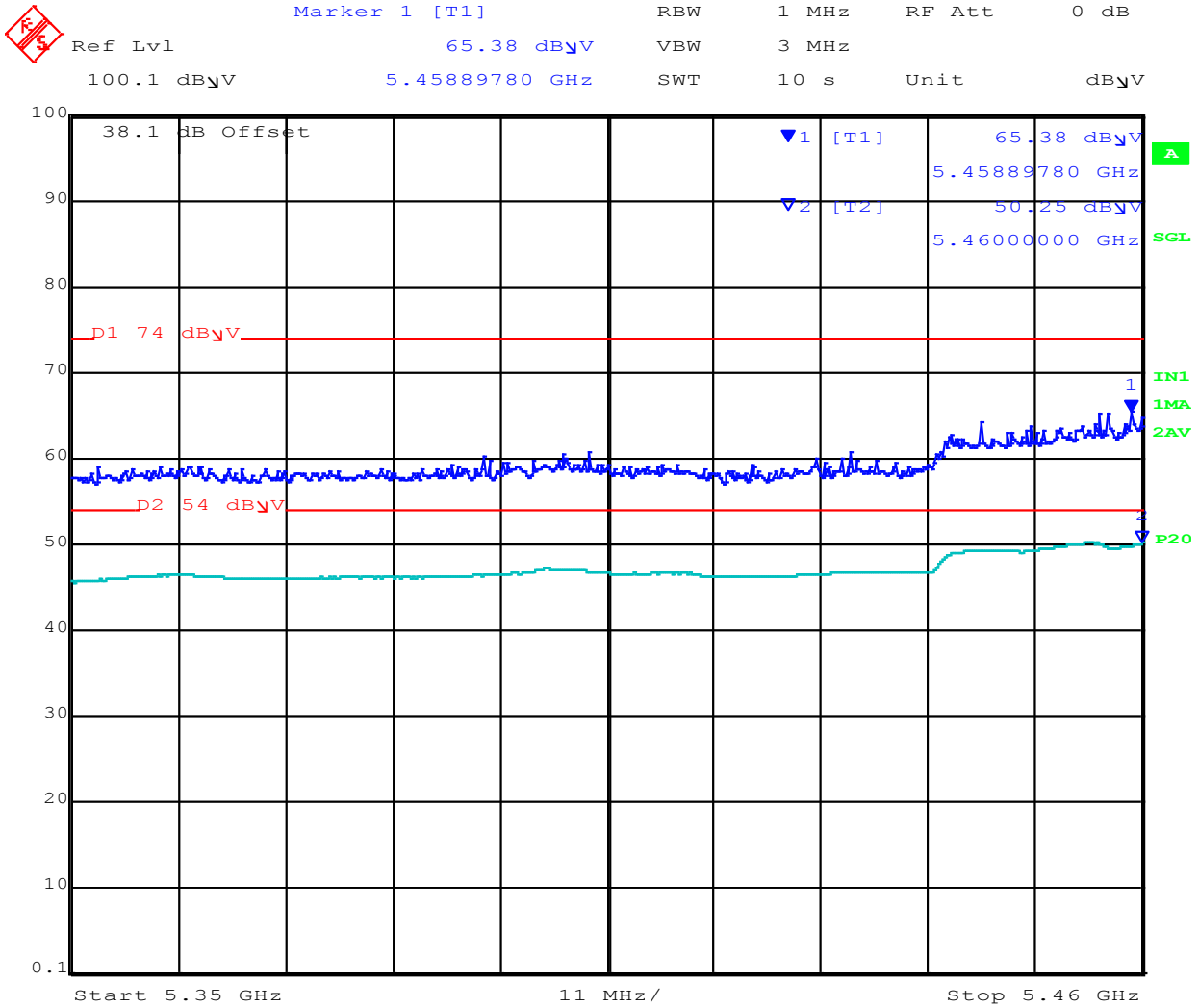

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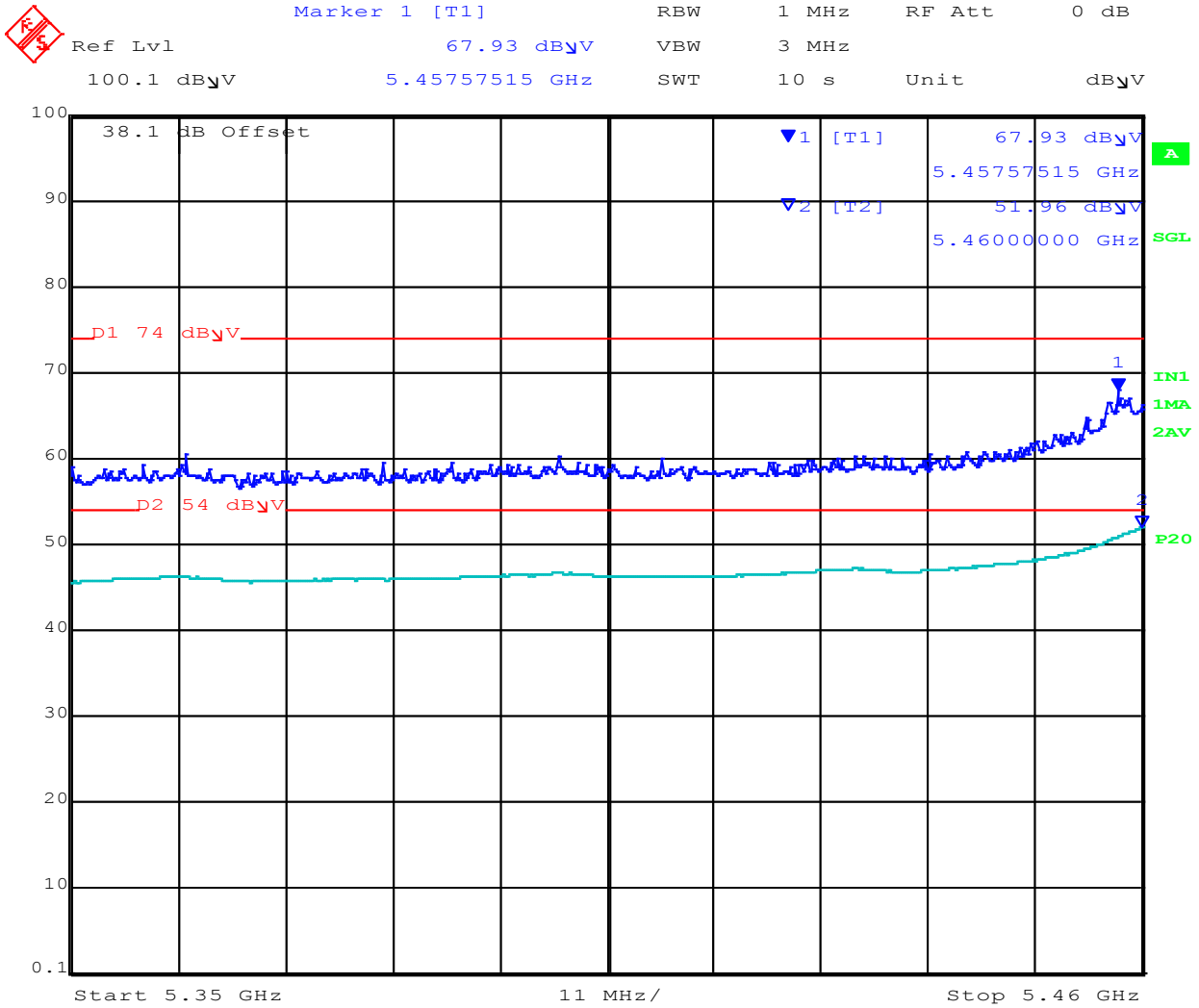

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Back to Matrix

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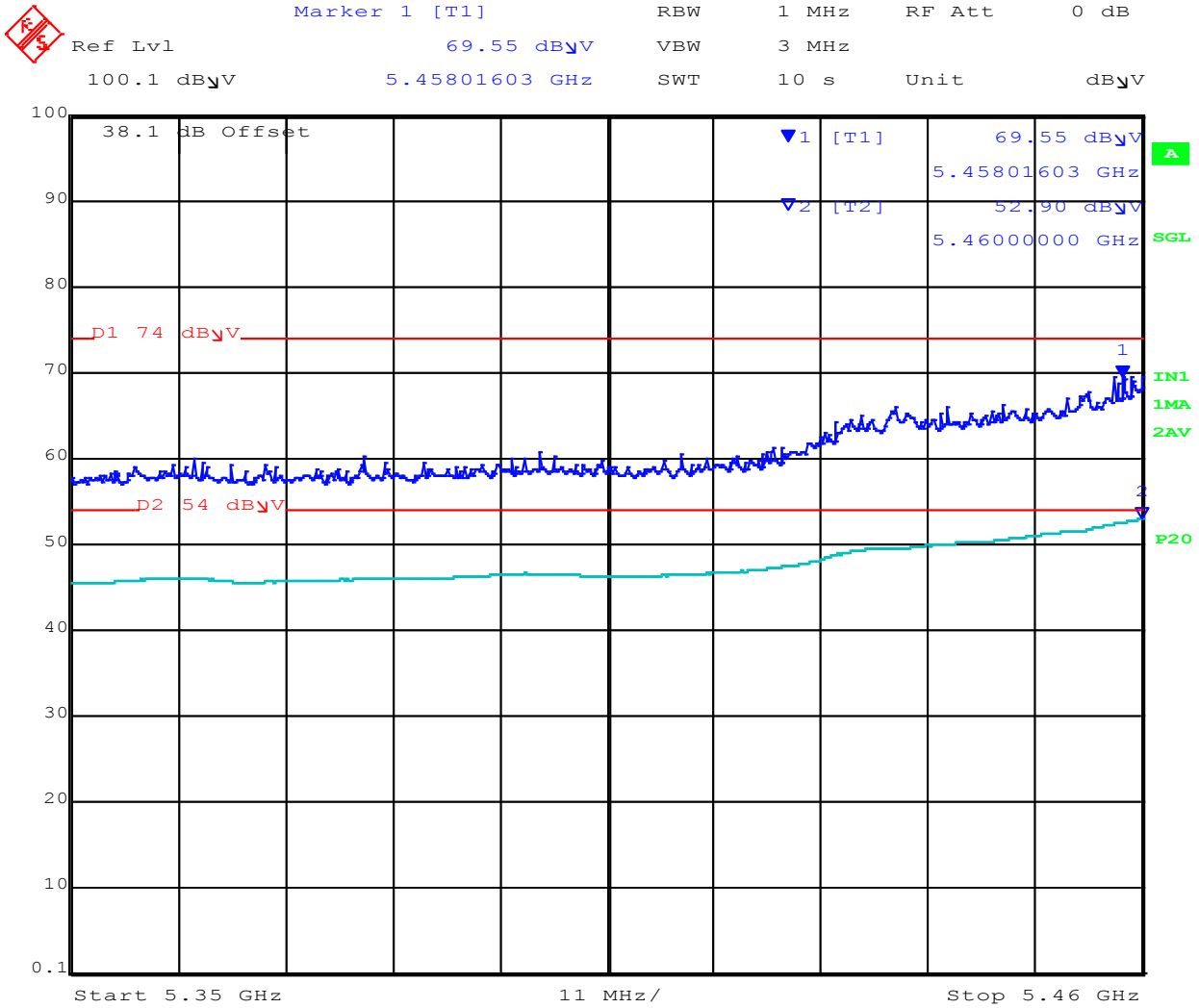

Date: 13.NOV.2015 11:55:29

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