TEST REPORT

Application No. :	KSCR2406000993AT
FCC ID:	2AEIM-TAF68E
Applicant:	TESLA INC
Address of Applicant:	3500 Deer Creek Rd, Palo Alto, CA 94304 USA
Manufacturer:	TESLA INC
Address of Manufacturer:	3500 Deer Creek Rd, Palo Alto, CA 94304 USA
Equipment Under Test (EUT):	
EUT Name:	Wi-Fi & Bluetooth Module
Model No.:	TAF68E
Trade Mark:	Tesla
Standards:	FCC 47 CFR Part 15, Subpart E
Date of Receipt:	2024-06-04
Date of Test:	2024-06-05 to 2024-07-31
Date of Issue:	2024-08-02
Test Result :	**Pass***

*In the configuration tested, the EUT complied with the standards specified above.

Revision Record			
Version	**Description**	***Date***	***Remark***
00	Original	2024-08-02	/

Authorized for issue by:				
Tested By		Maker Qi **Maker_Qi/Project Engineer**		
Approved By		Terry Hou **Terry Hou /Reviewer**		

Contents

1 Test Summary

Test Item	FCC Rule No.	Test Requirements	Test Result	Result
Antenna Requirement	15.203/15.407(a)	--	Clause 5.1	PASS
AC Power Line Conducted Emissions	15.407(b)(8)	< FCC 15.207 limits	Clause 5.2	PASS
Duty Cycle	--	No limit.	Clause 5.3	For Report Purpose
Maximum e.i.r.p.	15.407(a)(7)	< 30dBm over the frequency band of Operation, e.i.r.p.(Controlled by Standard AP)	Clause 5.4	PASS
26dB Emission Bandwidth	15.407(a)(10)	The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.	Clause 5.5	PASS
99% Occupied Bandwidth	-	No limit..	Clause 5.6	For Report Purpose
Maximum Power Spectral Density	15.407(a)(7)	< 17dBm/MHz e.i.r.p. (Controlled by Standard AP)	Clause 5.7	PASS
In-Band Emissions	15.407(b)(5)	EUT must meet the limits detailed in 15.407(b)(6)	Clause 5.8	PASS
Contention Based Protocol	15.407(d)(6)	If an emission is detected on a channel, the device shall cease transmissions and shall not resume transmissions on this channel while the detected radiofrequency power is at or above the-62 dBm threshold.	Dual Client Standard Client	Not Required
Dual Client Test	KDB 987594 D02 Section II. K.	-	Dual Client EIRP <24dBm	Not Required
Unwanted Emissions that fall Out of the Restricted Bands (Radiated)	15.407(b)(6) 15.205, 15.209	< -27dBm/MHz e.i.r.p. outside of the 5.925 – 7.125GHz band	Clause 5.9	PASS
Unwanted Emissions in the Restricted Bands (Radiated)	15.407(b)(6) 15.205, 15.209	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Clause 5.10	PASS

Remark: Not required means after assessing, test items are not necessary to carry out.

2 General Information

2.1 Details of Client

Applicant:	TESLA INC
Address of Applicant:	3500 Deer Creek Rd, Palo Alto, CA 94304 USA
Manufacturer:	TESLA INC
Address of Manufacturer:	3500 Deer Creek Rd, Palo Alto, CA 94304 USA

2.2 Test Location

All tests were performed at:
Compliance Certification Services (Kunshan) Inc.
No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.
Tel: +86 512 5735 5888 Fax: +86 512 5737 0818
No tests were sub-contracted.
Note:
1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).
3. Sample source: sent by customer.

2.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:
• **A2LA**
Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.
• **FCC**
Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.
• **ISED**
Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E
• **VCCI**
The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

2.4 General Description of EUT

Power Supply:	DC 3.3-4.8V,Typ：3.85V	
IEEE 802.11 WLAN Mode Supported:	☒ 802.11a (20 MHz channel bandwidth), ☒ 802.11ax (20 MHz channel bandwidth) ☒ 802.11ax (40 MHz channel bandwidth) ☒ 802.11ax (80 MHz channel bandwidth) ☒ 802.11ax (160 MHz channel bandwidth)	
Operation Frequency:	IEEE 802.11 a/ax(HE20/40/80/160): 5925 MHz ~ 6425 MHz IEEE 802.11 a/ax(HE20/40/80/160): 6525 MHz ~ 6875 MHz	
Type of Modulation:	OFDM/OFDMA	
Antenna Type:	☒ External, ☐ Integrated	
Antenna Ports:	☒ Ant 1, ☒ Ant 2	
Smart System:	☒ SISO	802.11a/ax
	☒ MIMO	802.11ax: 2Tx & 2Rx
Antenna Gain:	UNII-5: ANT5(WIFI0): 3.7dBi, ANT6(WIFI1): 2.9dBi(Provided by the manufacturer) UNII-7: ANT5(WIFI0): 2.8dBi, ANT6(WIFI1): 2.8dBi(Provided by the manufacturer) Directional Gain: UNII-5:3.32dBi (The transmitted signal is uncorrelated) UNII-7:2.8dBi (The transmitted signal is uncorrelated)	
RF Cable:	1.8dB	
Remark: 1. As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.		

Remark:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

Frequency range over which device operates	Number of Measurement Frequencies Required	Location of Measurement Frequency in Band of Operation
1 MHz or less	1	centre
1 MHz to 10 MHz	2	1 near high end, 1 near low end
Greater than 10 MHz	3	1 near high end, 1 near centre, 1 near low end

For UNII-5:

Mode	Channel	Frequency(MHz)
IEEE 802.11a/ax 20MHz	The Lowest channel	5955
	The Middle channel	6175
	The Highest channel	6415
IEEE 802.11ax 40MHz	The Lowest channel	5965
	The Middle channel	6165
	The Highest channel	6405
IEEE 802.11ax 80MHz	The Lowest channel	5985
	The Middle channel	6145
	The Highest channel	6385
IEEE 802.11ax160MHz	The Lowest channel	6025
	The Middle channel	6185
	The Highest channel	6345

For UNII-7:		
Mode	Channel	Frequency(MHz)
IEEE 802.11a/ax 20MHz	The Lowest channel	6535
	The Middle channel	6695
	The Highest channel	6855
IEEE 802.11ax 40MHz	The Lowest channel	6565
	The Middle channel	6685
	The Highest channel	6845
IEEE 802.11ax 80MHz	The Lowest channel	6625
	The Middle channel	6705
	The Highest channel	6785
IEEE 802.11ax160MHz	The Middle channel	6665

2.5 Test Environment and Mode

Environment Parameter	101.0 kPa Selected Values During Tests	
Relative Humidity	44-46 % RH Ambient	
Value	**Temperature(℃)**	**Voltage(V)**
NTNV	23-25	3.85
Remark: NV: Normal Voltage NT: Normal Temperature		

2.6 Description of Support Units

Description	Manufacturer	Model No.
Quectel	Mother board	V2X&5G-EVB
Qualcomm	Test Software	QRCT4 tool
Remark: all above the information of table are provided by client.		

2.7 Worst-case configuration and mode

Pre-scan / Final test	Mode Code	Description
Final test	12	TX mode (U-NII-5) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11ax 20/40/80/160, Only the data of worst case is recorded in the report.
Final test	14	TX mode (U-NII-7) _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11ax 20/40/80/160, Only the data of worst case is recorded in the report.

2.8 Power level setting using in test:

11a			11ax(HEW20)			11ax4(HEW40)		
Channel	ant1	ant2	Channel	ant1	ant2	Channel	ant1	ant2
5955	16.5	16.5	5955	16.5	16.5	5965	16	16
6175	16.5	16.5	6175	16.5	16.5	6165	16	16
6415	16.5	16.5	6415	16.5	16.5	6405	16	16
6535	16.5	16.5	6535	16.5	16.5	6565	16	16
6695	16.5	16.5	6695	16.5	16.5	6685	16	16
6855	16.5	16.5	6855	16.5	16.5	6845	16	16

11ax(HEW80)			11ax(HEW160)		
Channel	ant1	ant2	Channel	ant1	ant2
5985	15.5	15.5	6025	15	15
6145	15.5	15.5	6185	15	15
6385	15.5	15.5	6345	15	15
6625	15.5	15.5	6825	15	15
6705	15.5	15.5	6985	15	15
6785	15.5	15.5			

3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4 x 10-8
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%
Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.		

4 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals						
1	EMI Test Receive	R&S	ESCI	KS301101	01/15/2024	01/14/2025
2	LISN	R&S	ENV216	KS301197	01/15/2024	01/14/2025
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/15/2024	01/14/2025
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	01/15/2024	01/14/2025
5	CE test Cable	Thermax	/	CZ301102	01/15/2024	01/14/2025
6	Test Software	Farad	EZ-EMC	/	N.C.R	N.C.R
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/24/2023	08/23/2024
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/24/2023	08/23/2024
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/15/2024	01/14/2025
4	Signal Generator	R&S	SMBV100B	KSEM032	03/19/2024	03/18/2025
5	Signal Generator	R&S	SMW200A	KSEM020-1	08/24/2023	08/23/2024
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/24/2023	08/23/2024
7	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/24/2023	08/23/2024
8	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	03/19/2024	03/18/2025
9	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/24/2023	08/23/2024
10	Switcher	TST	FY562	KUS2001M001-4	01/15/2024	01/14/2025
11	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
12	DC Power Supply	Aglient	E3632A	KS301180	N.C.R	N.C.R
13	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/15/2024	01/14/2025
14	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	08/24/2023	08/23/2024
15	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	03/19/2024	03/18/2025
16	Software	BST	TST-PASS	/	NCR	NCR
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/24/2023	08/23/2024
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	03/19/2024	03/18/2025
3	Signal Generator	Agilent	E8257C	KS301066	08/24/2023	08/23/2024
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	03/18/2023	03/17/2025
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2023	06/28/2025
6	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E006	03/19/2024	03/18/2025
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	08/24/2023	08/23/2024
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	04/07/2023	04/06/2025
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	01/07/2024	01/06/2026
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/15/2024	01/14/2025
11	Amplifier(18~40GHz)	PANSHAN	LNA180400G40	KSEM038	08/24/2023	08/23/2024

		TECHNOLOGY				
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	08/24/2023	08/23/2024
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/19/2024	03/18/2025
14	Software	Faratronic	EZ_EMC-v 3A1	/	NCR	NCR
15	Software	ESE	E3_V 6.111221a	/	NCR	NCR

5 Test results and Measurement Data

5.1 Antenna Requirement

5.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

5.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is Internal antenna and no consideration of replacement. The best case gain of the antenna is:
UNII-5: 3.7dBi (WIFI0); 2.9dBi (WIFI1);
UNII-7: 2.8dBi (WIFI0); 2.8dBi (WIFI1);

Antenna location: Refer to internal photo.

Directional Gain Calculations for MIMO:

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

Basic methodology with NANT transmit antennas, each with the same directional gain GANT dBi, being driven by NANT transmitter outputs of equal power. Directional gain is to be computed as follows:

- If any transmit signals are correlated with each other,
  Directional gain = GANT + 10 log(NANT) dBi
- If all transmit signals are completely uncorrelated with each other,
  Directional gain = GANT

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ···, GN dBi

- If transmit signals are correlated, then
  Directional gain = 10 log[(10G1 /20 + 10G2 /20 + ··· + 10GN /20)2 /NANT] dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]
- If all transmit signals are completely uncorrelated, then
  Directional gain = 10 log[(10G1 /10 + 10G2 /10 + ··· + 10GN /10)/NANT] dBi

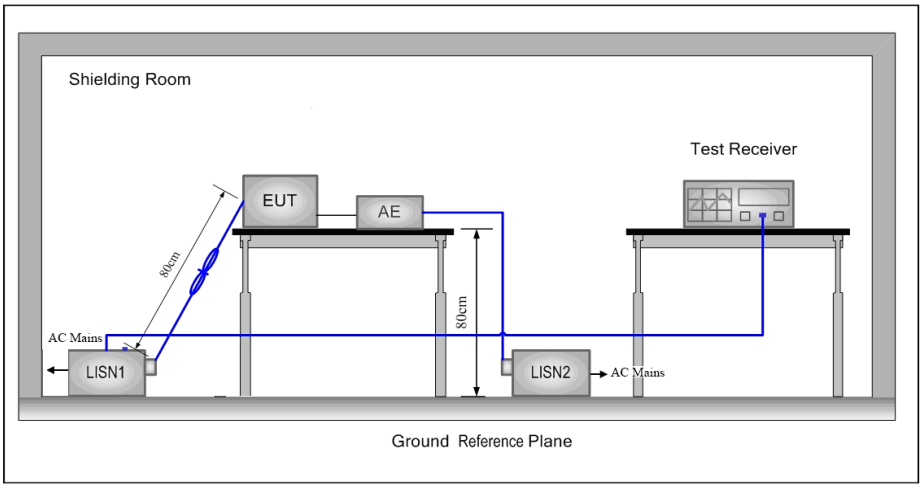
Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain.

All antennas have the same gain:

Operation Frequency	ANT5(WIFI0) (dBi)	ANT6(WIFI1) (dBi)	Directional gain For Power(dBi)	Directional gain For PSD(dBi)
5925 MHz to 6425 MHz	3.7	2.9	3.32	3.32
6525 MHz to 6875 MHz	2.8	2.8	2.80	2.80

5.2 AC Power Line Conducted Emissions

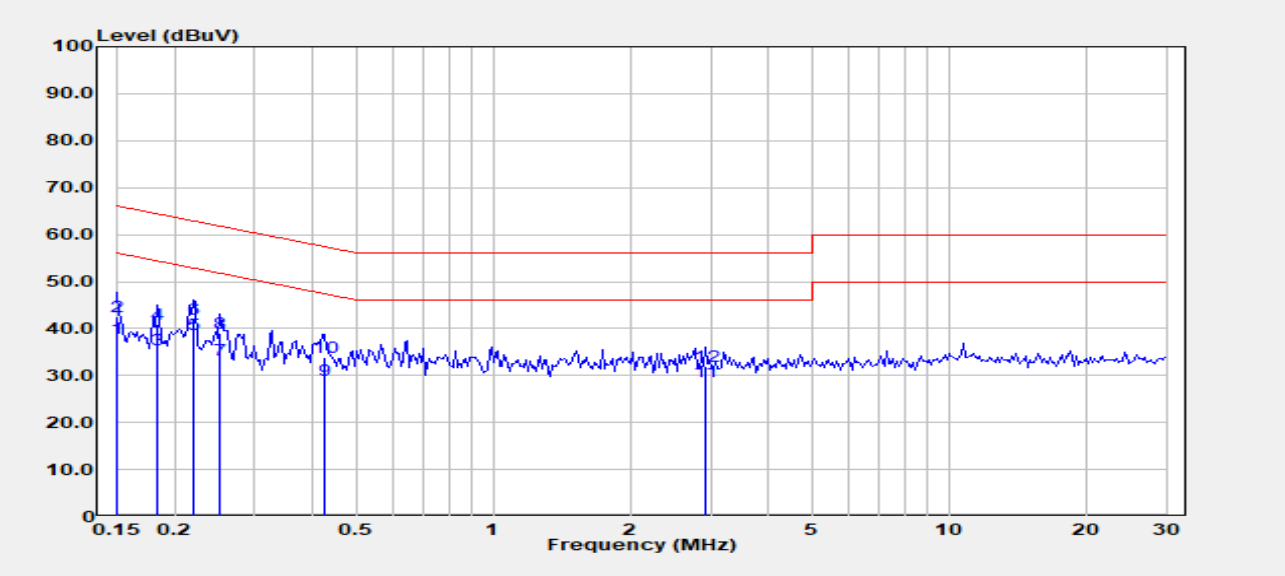
<table>
<tr><td>Test Requirement:</td><td colspan="3">47 CFR Part 15 Section 15.407(b)</td></tr>
<tr><td>Test Method:</td><td colspan="3">ANSI C63.10: 2013 Section 6.2</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">150kHz to 30MHz</td></tr>
<tr><td>Receiver Setup:</td><td colspan="3">RBW = 9kHz, VBW = 30kHz</td></tr>
<tr><td rowspan="5">Limit:</td><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
<tr><td colspan="3">* Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test Procedure:</td><td colspan="3">1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
</table>

Test Setup:	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.
Final Test Mode:	Refer to section 2.7 for details. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 4 for details
Test Results:	Pass

Measurement Data:

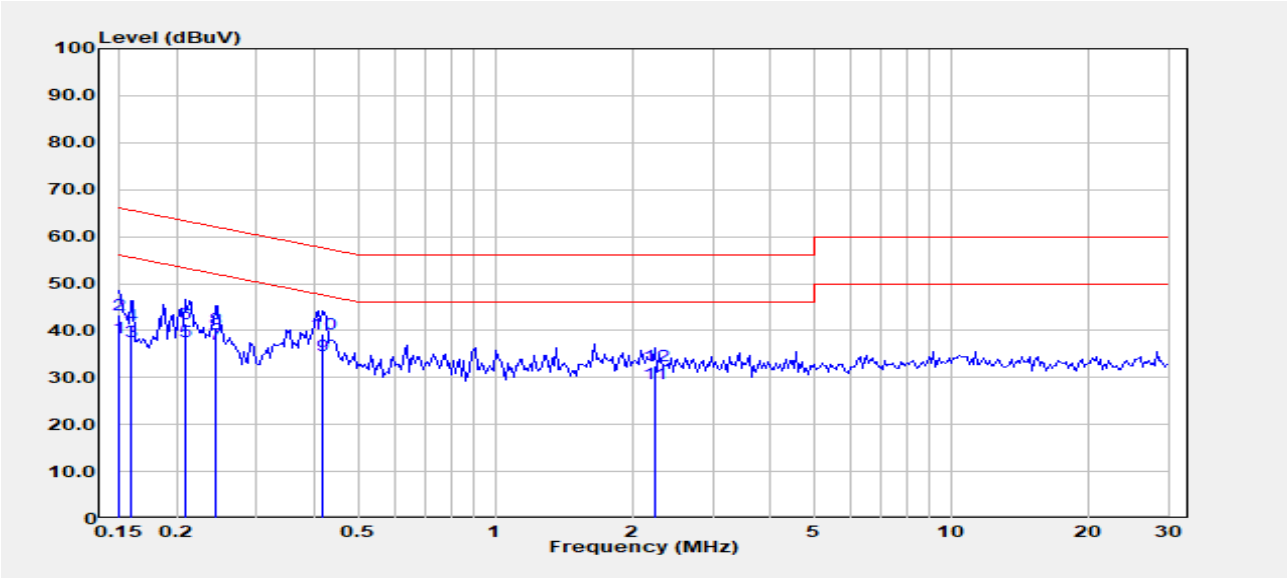
An initial pre-scan was performed on the live and neutral lines with peak detector.
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Test Mode: 12; Line: Live line



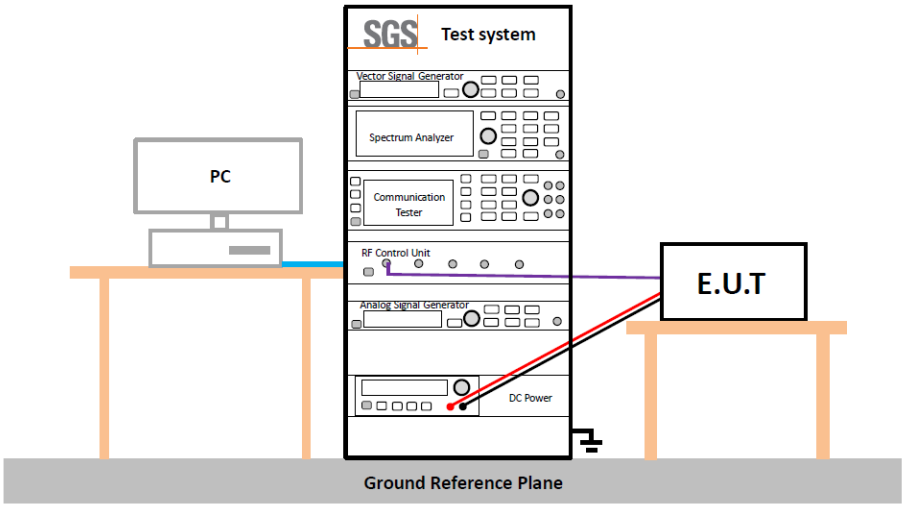
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	17.56	20.25	37.82	56.00	-18.18	Average
2	0.1500	22.42	20.25	42.68	66.00	-23.32	QP
3	0.1835	15.31	20.11	35.43	54.33	-18.90	Average
4	0.1835	20.93	20.11	41.04	64.33	-23.28	QP
5	0.2197	18.79	20.06	38.85	52.83	-13.98	Average
6	0.2197	21.95	20.06	42.01	62.83	-20.82	QP
7	0.2521	13.19	20.07	33.26	51.69	-18.43	Average
8	0.2521	18.90	20.07	38.97	61.69	-22.72	QP
9	0.4282	8.96	20.05	29.01	47.29	-18.28	Average
10	0.4282	13.80	20.05	33.85	57.29	-23.43	QP
11	2.9152	8.72	19.88	28.60	46.00	-17.40	Average
12	2.9152	12.10	19.88	31.98	56.00	-24.02	QP

Test Mode: 12; Line: Neutral Line

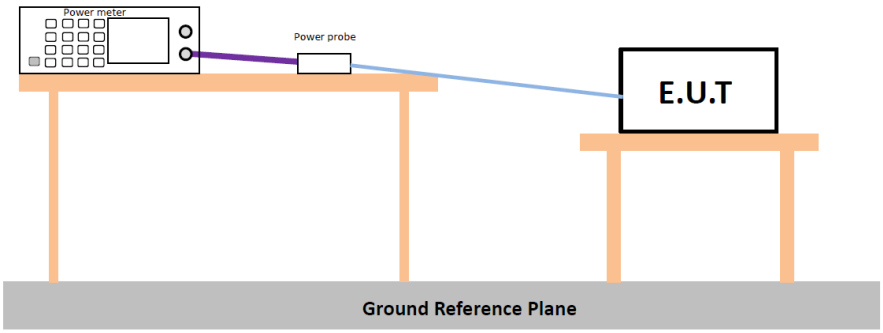


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	18.21	20.18	38.40	56.00	-17.60	Average
2	0.1500	23.28	20.18	43.46	66.00	-22.54	QP
3	0.1582	17.59	20.17	37.76	55.56	-17.80	Average
4	0.1582	21.06	20.17	41.23	65.56	-24.33	QP
5	0.2083	17.49	20.11	37.60	53.27	-15.67	Average
6	0.2083	21.38	20.11	41.49	63.27	-21.78	QP
7	0.2442	16.91	20.10	37.01	51.95	-14.94	Average
8	0.2442	20.28	20.10	40.38	61.95	-21.57	QP
9	0.4193	14.61	20.08	34.69	47.46	-12.78	Average
10	0.4193	19.23	20.08	39.31	57.46	-18.16	QP
11	2.2367	8.71	19.91	28.62	46.00	-17.38	Average
12	2.2367	12.50	19.91	32.40	56.00	-23.60	QP

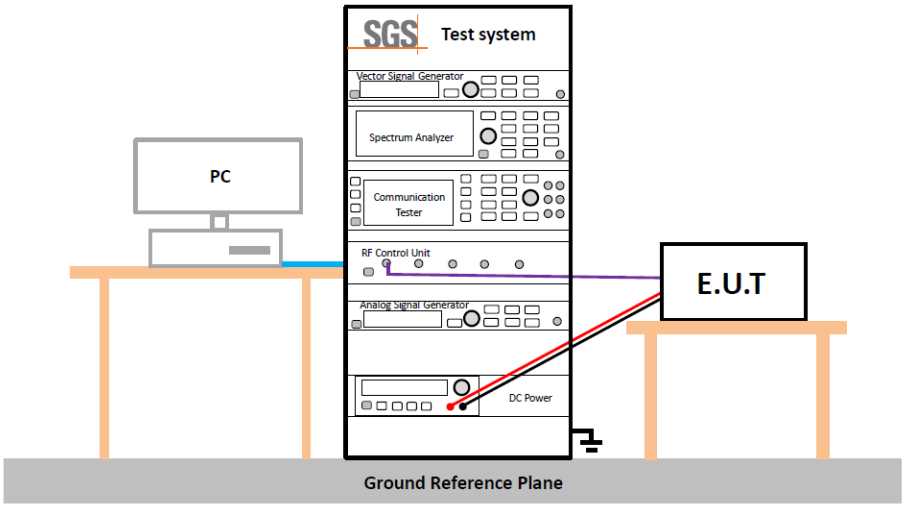
5.3 Duty Cycle

Test Requirement:	ANSI C63.10 :2013 Section 12.2
Test Method:	ANSI C63.10 :2013 Section 12.2
Test Setup:	
Instruments Used:	Refer to section 4 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 2.7 for details.
Limit:	No restriction limits
Test Results:	For report purpose
The detailed test data see: **Appendix**	

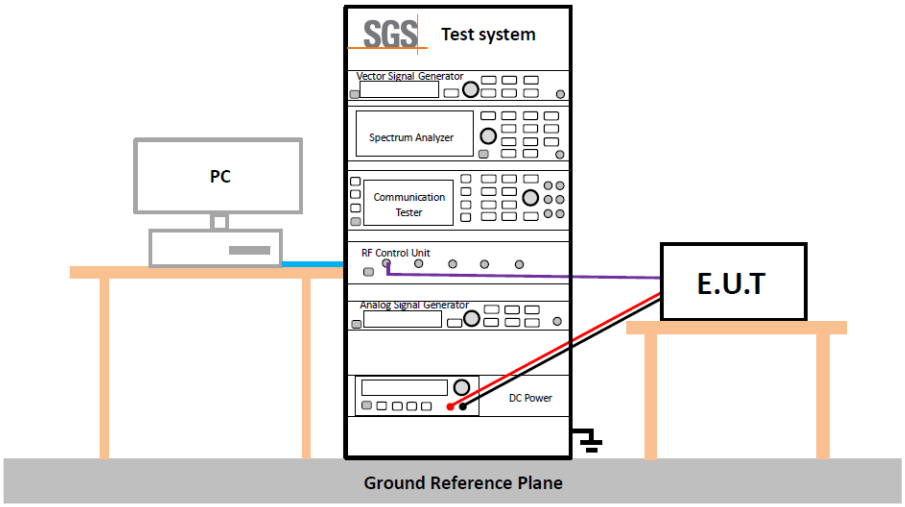
5.4 Maximum e.i.r.p.

Test Requirement:	47 CFR Part 15 Section 15.407(a) 15.407(a)(7)
Test Method:	ANSI C63.10 :2013 Section11.9.2.3
Test Setup:	 * Test with power meter (Detector function: Average)
Test Instruments:	Refer to section 4 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 2.7 for details.
Limit:	For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm and the device must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power.
Test Results:	Pass
The detailed test data see: **Appendix**	

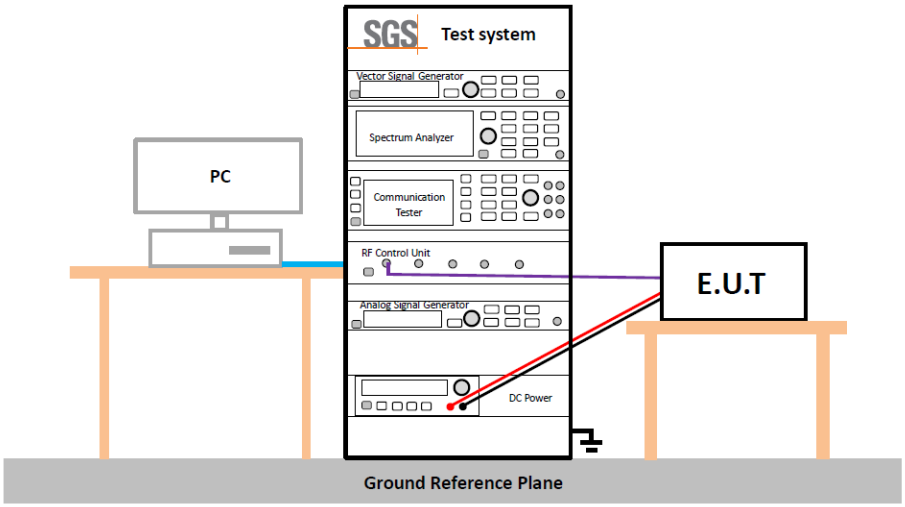
5.5 26dB Emission Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(a), KDB 789033 D02
Test Method:	ANSI C63.10: 2013 Section 11.8 Option 2
Test Setup:	
Instruments Used:	Refer to section 4 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 2.7 for details.
Limit:	The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.
Test Results:	Pass
The detailed test data see: **Appendix**	

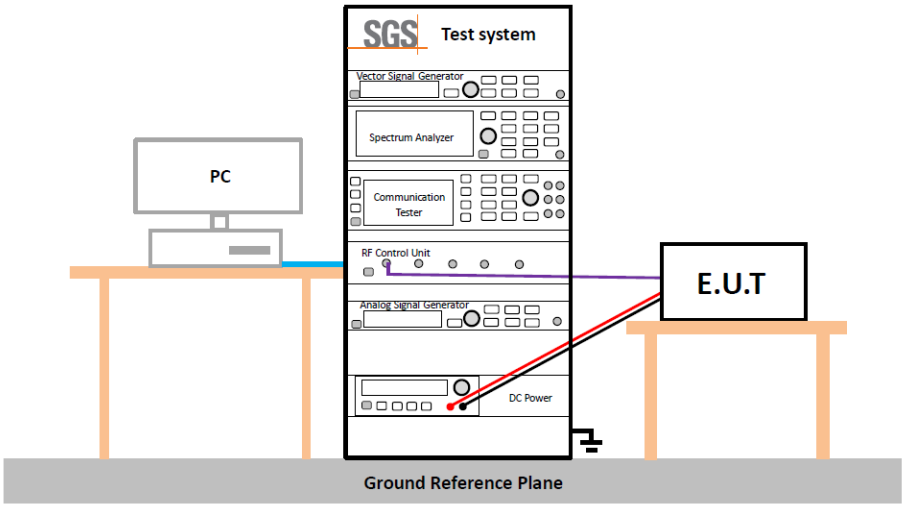
5.6 99% Occupied Bandwidth

Test Requirement:	RSS-248,4.4
Test Method:	ANSI C63.10: 2013 Section 6.9.3
Test Setup:	
Instruments Used:	Refer to section 4 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 2.7 for details.
Limit:	The occupied bandwidth of an RLAN device shall not exceed 320 MHz.
Test Results:	For report purpose
The detailed test data see: **Appendix**	

5.7 Power Spectral Density

Test Requirement:	47 CFR Part 15 Section 15.407(a) 15.407(a)(7)
Test Method:	ANSI C63.10: 2013 Section 11.10.2 KDB 789033 D02 v02r01, Section F.
Test Setup:	
Instruments Used:	Refer to section 4 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 2.7 for details.
Limit:	For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 dBm e.i.r.p. in any 1-megahertz band.
Test Results:	Pass
The detailed test data see: **Appendix**	

5.8 In-Band Emissions

Test Requirement:	47 CFR Part 15 Section 15.407(b)(6)
Test Method:	KDB 987594 D02 U-NII 6GHz EMC Measurement v01
Test Setup:	
Instruments Used:	Refer to section 4 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 2.7 for details. Only the worst case is recorded in the report.
Limit:	For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.
Test Results:	Pass
The detailed test data see: **Appendix**	

5.9 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15 Section 15.205 and 15.209
Test Method:	ANSI C63.10: 2013 Section 6.4 / 6.5 / 6.6
Test Site:	Measurement Distance: 3m or 10m (Semi-Anechoic Chamber)
Test frequency:	9kHz ~ 40GHz(or 10 Harmonic)

Test Setup:

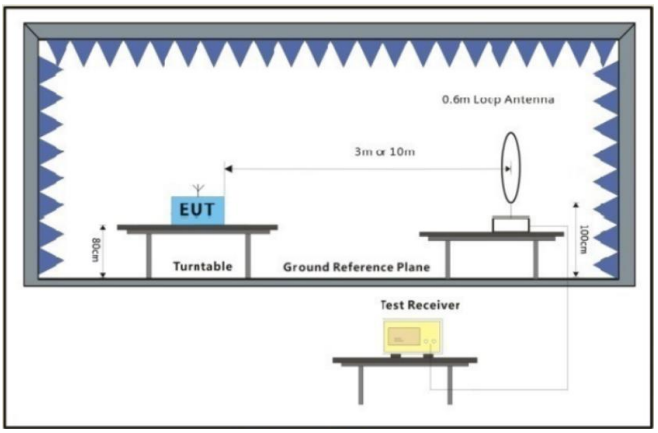


Figure 1. 9kHz to 30MHz

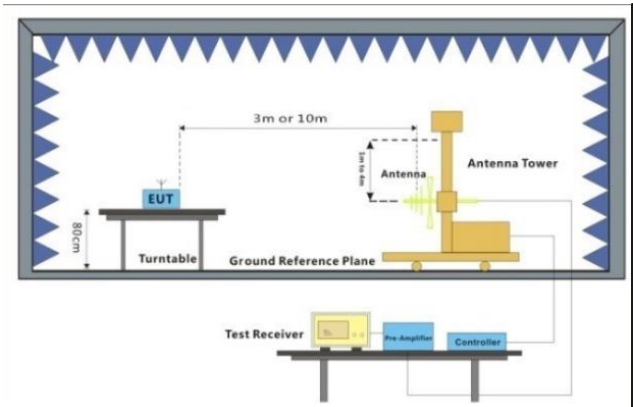


Figure 1. 30MHz to 1GHz

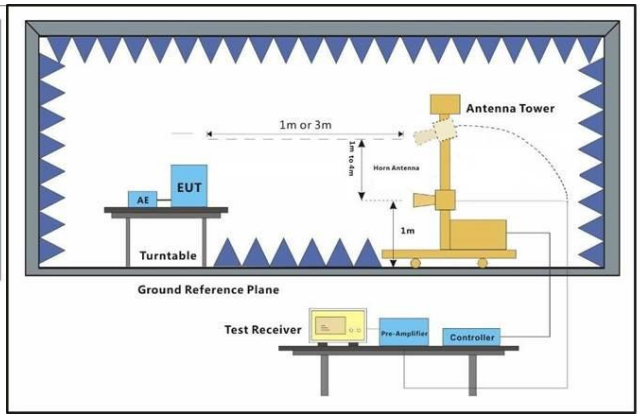


Figure 2. Above 1 GHz

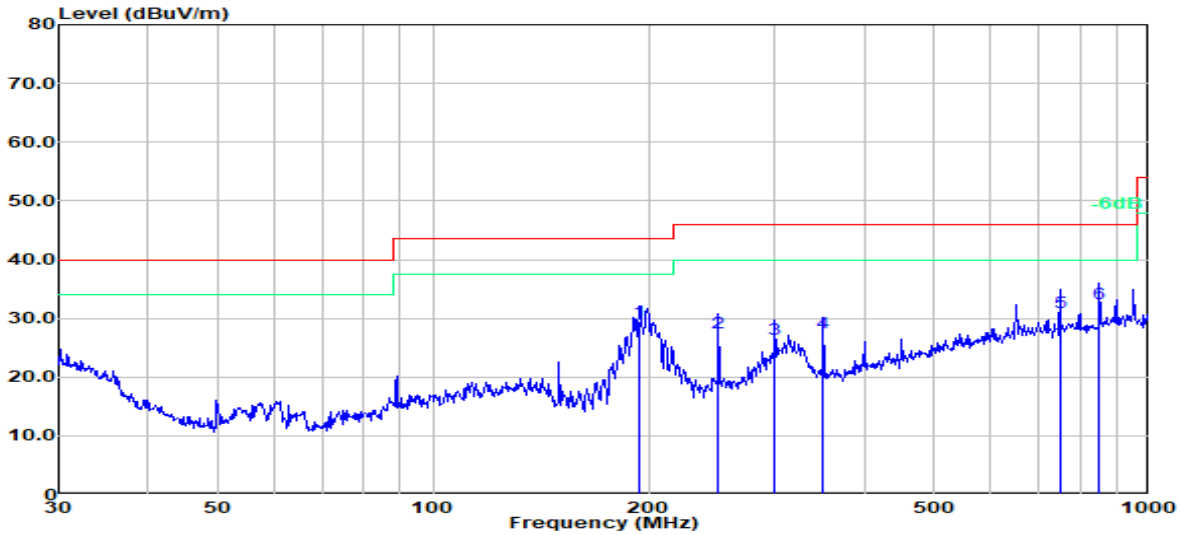
Test Procedure:	a. For below 1GHz test, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz test, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation (Distance from antenna to EUT is 1m for measurements >18GHz). c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. Test the EUT in the outermost channels. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete. j. The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported k. The disturbance above 18GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed. l. At a measurement distance of 1 meter the limit line was increased by 20*LOG(3/1) = 9.54 dB. Remark： 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report. 3. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 4. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. 5. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The

	points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 6. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 7. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. 8. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report. 9. This test item was investigated while operating in SISO and MIMO mode, however, it was determined that SISO antenna 1 operation for a modulation and MiMO antenna operation for ax modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.
Test Configuration:	Measurements below 30MHz • RBW = 10 kHz • VBW = 30 kHz • Detector = Peak & Average & Quasi-peak • Trace mode = max hold Measurements Below 1000MHz • RBW = 120 kHz • VBW = 300 kHz • Detector = Quasi-peak • Trace mode = max hold Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW ≥ 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold Average Measurements Above 1000MHz • RBW = 1 MHz • VBW = 10Hz, when duty cycle is no less than 98 percent. • VBW ≥ 1/T, when duty cycle is less than 98 percent where Tis the minimum

	transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
Final Test Mode:	Refer to section 2.7 for details. For below 1GHz part, through pre-scan all channels, but only the worst case is recorded in the report.
Instruments Used:	Refer to section 4 for details
Test Results:	Pass

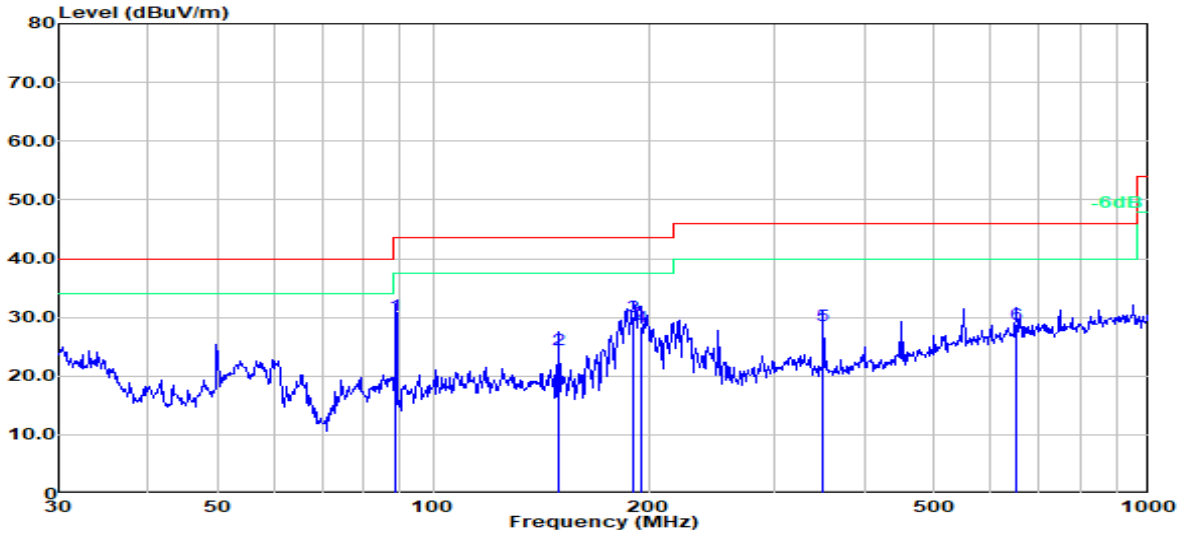
Radiated emission below 1GHz

Test Mode: 12; Polarity: Horizontal;



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	194.4534	17.81	11.70	29.51	43.50	-13.99	200	308	QP
2	250.3012	12.97	14.54	27.51	46.00	-18.49	100	316	QP
3	300.3672	10.58	15.97	26.55	46.00	-19.45	100	302	QP
4	350.4768	10.86	16.65	27.51	46.00	-18.49	100	66	QP
5	750.1083	6.77	24.29	31.06	46.00	-14.94	100	322	QP
6	851.0353	7.50	25.01	32.51	46.00	-13.49	100	168	QP

Test Mode: 12; Polarity: Vertical;



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	88.6525	18.76	11.50	30.26	43.50	-13.24	100	274	QP
2	149.4857	12.52	11.99	24.51	43.50	-18.99	100	38	QP
3	190.4050	18.56	11.60	30.16	43.50	-13.34	100	133	QP
4	195.1365	16.77	11.72	28.49	43.50	-15.01	200	125	QP
5	350.4768	11.99	16.65	28.64	46.00	-17.36	100	0	QP
6	651.9418	5.48	23.28	28.76	46.00	-17.24	100	172	QP

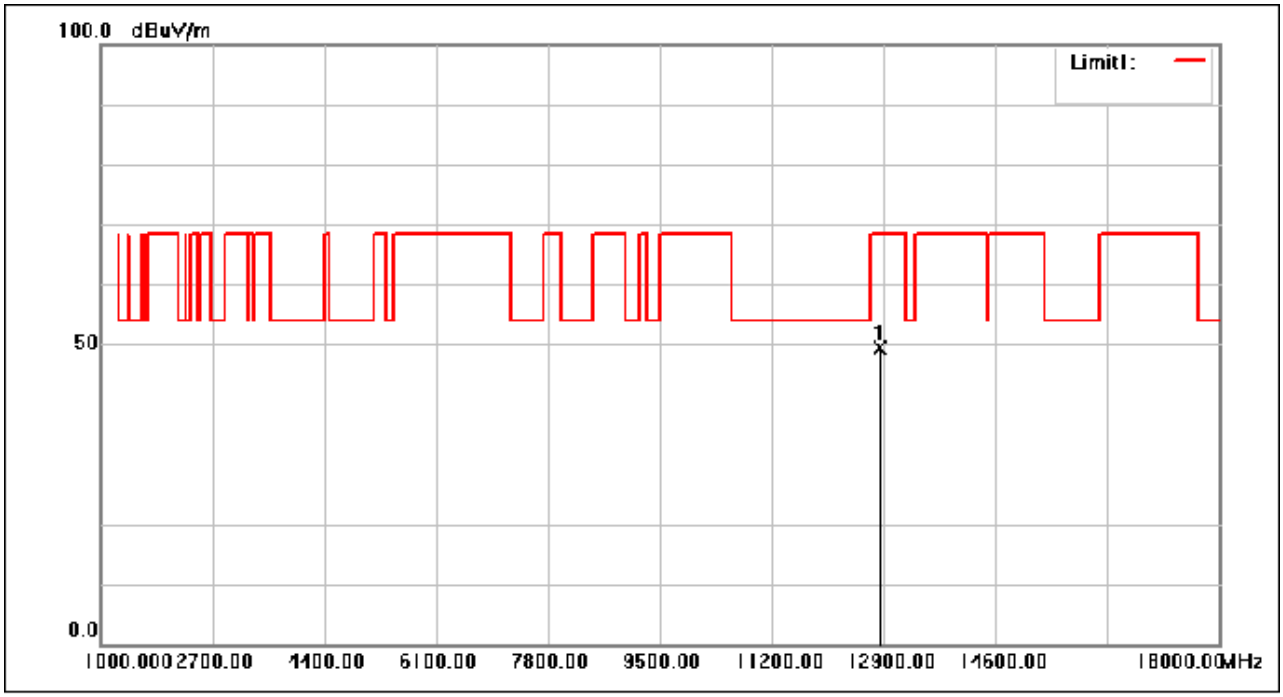
Remark:

All channels have been tested, but only the worst case data displayed in this report.

Transmitter emission Above 1GHz

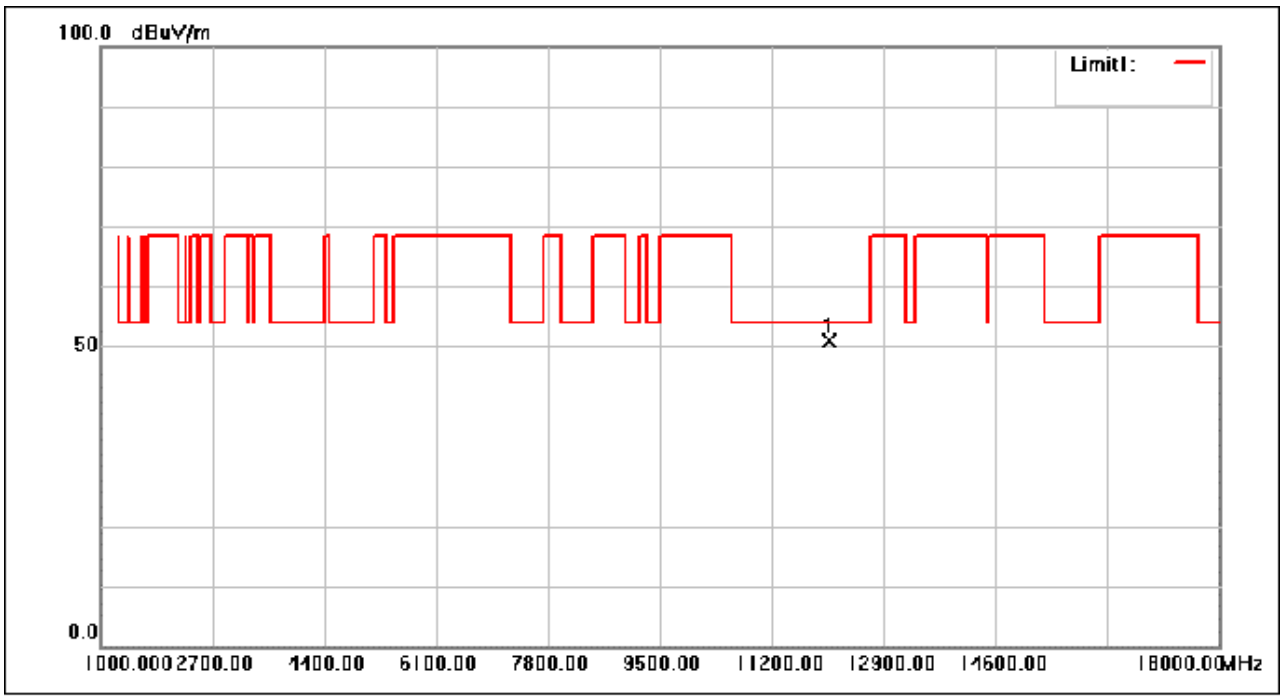
Band5

Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



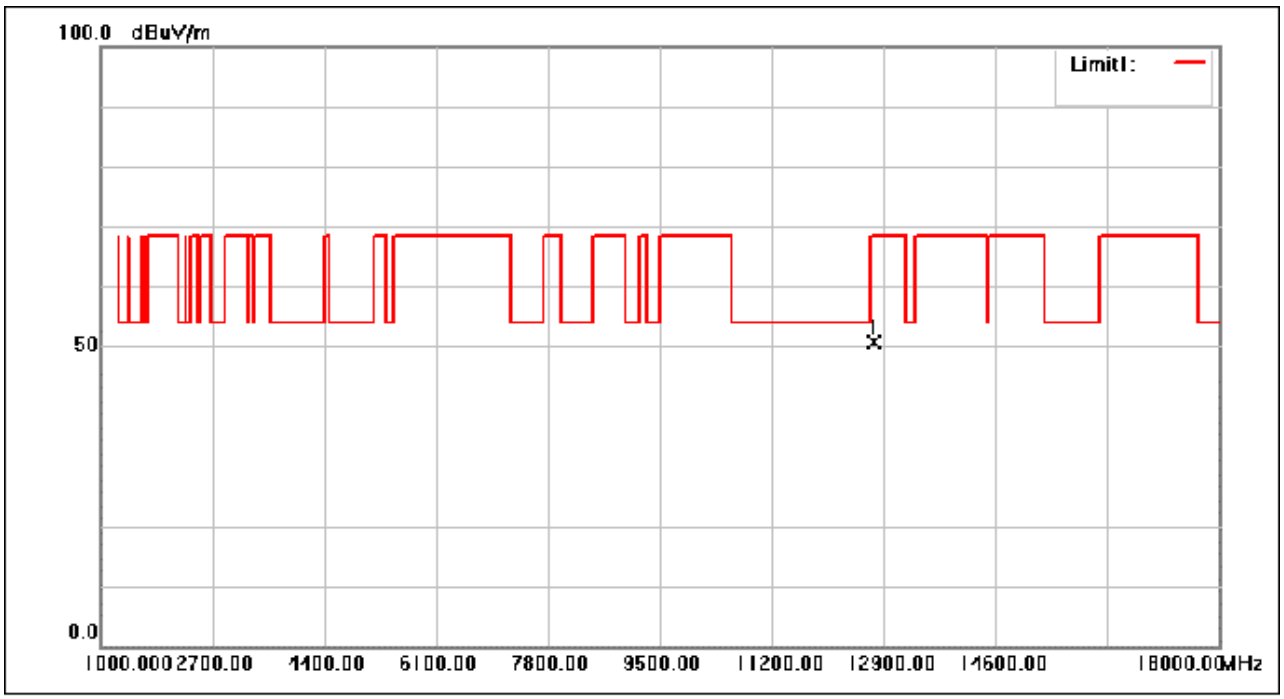
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12850.410	46.07	3.25	49.32	68.30	-18.98	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



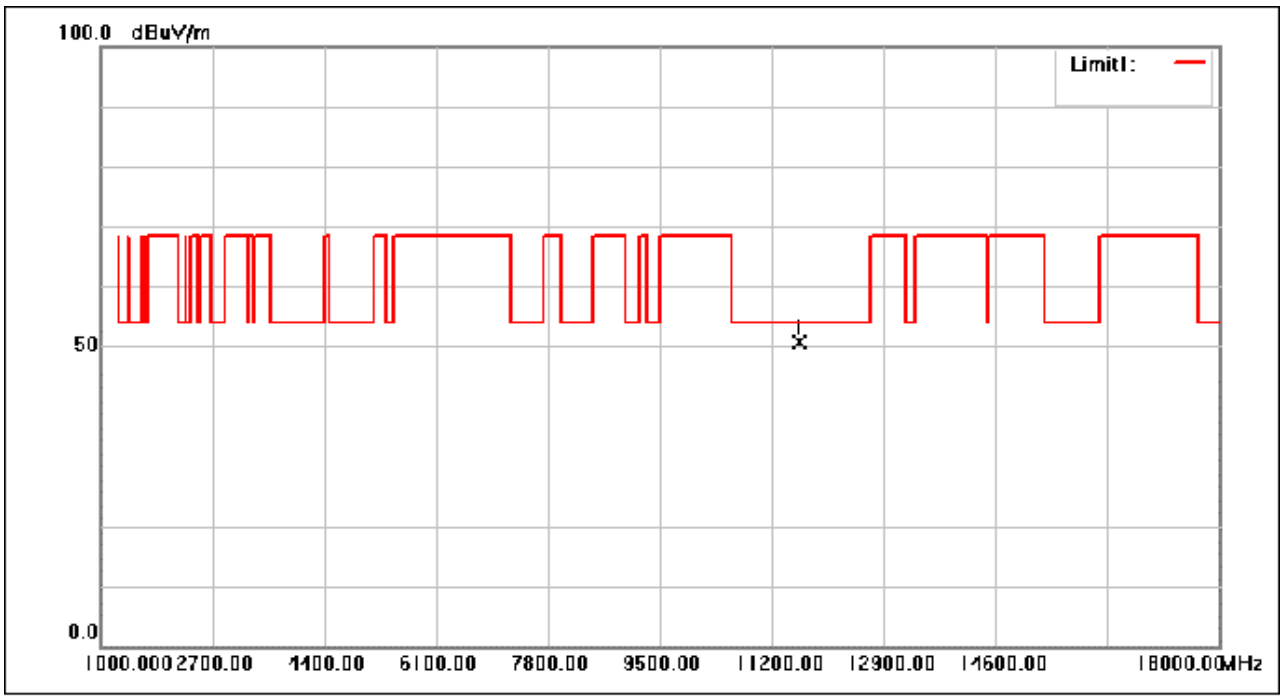
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12073.640	48.24	2.53	50.77	54.00	-3.23	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



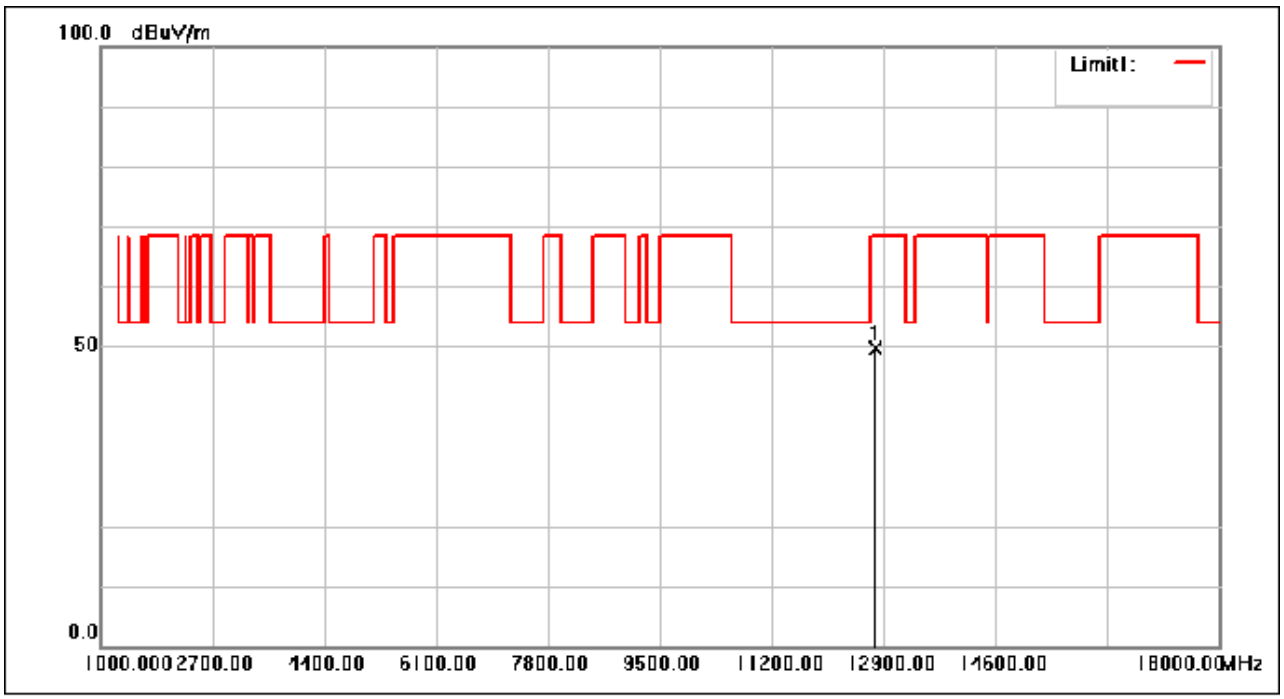
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12760.050	47.70	2.94	50.64	68.30	-17.66	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



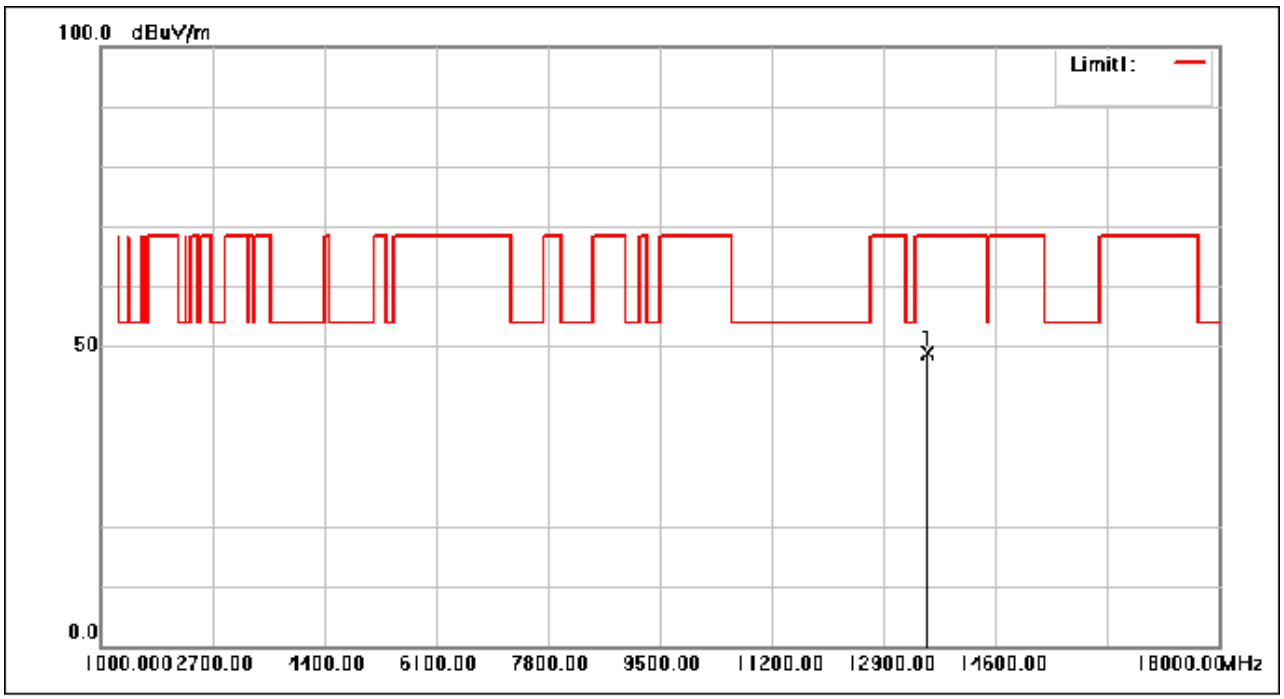
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11615.740	49.34	1.34	50.68	54.00	-3.32	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



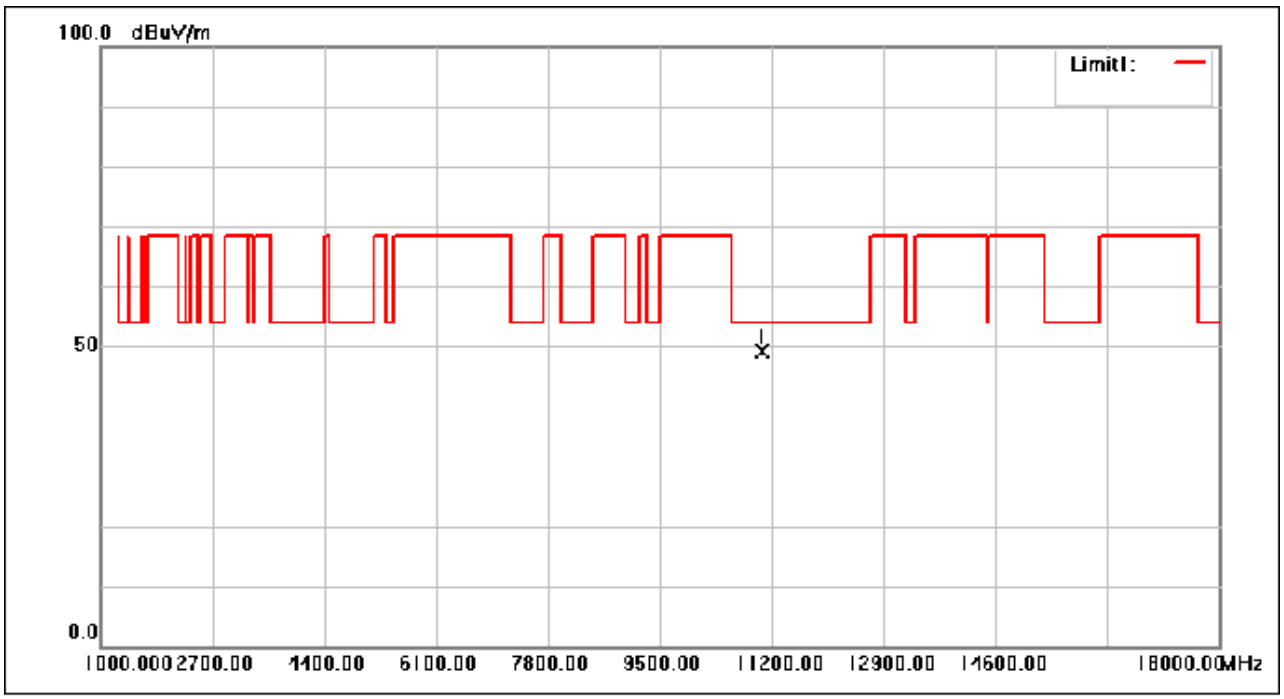
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12771.800	46.64	2.99	49.63	68.30	-18.67	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



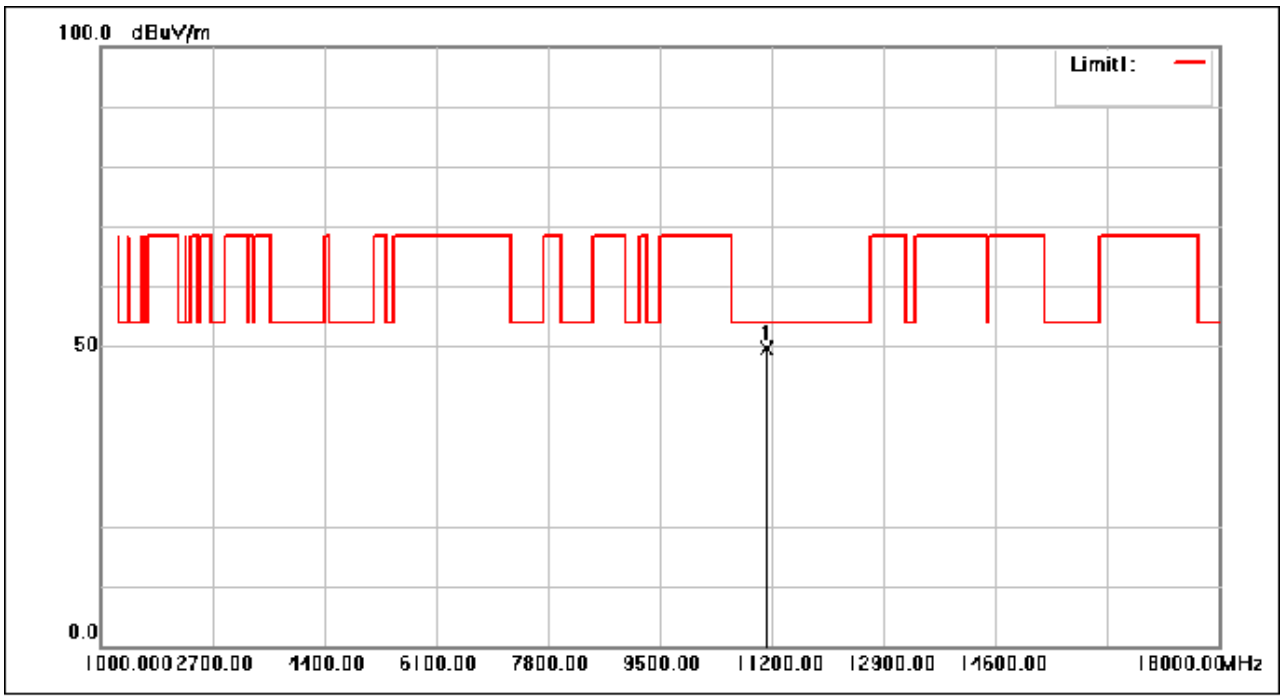
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13566.880	46.20	2.69	48.89	68.30	-19.41	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



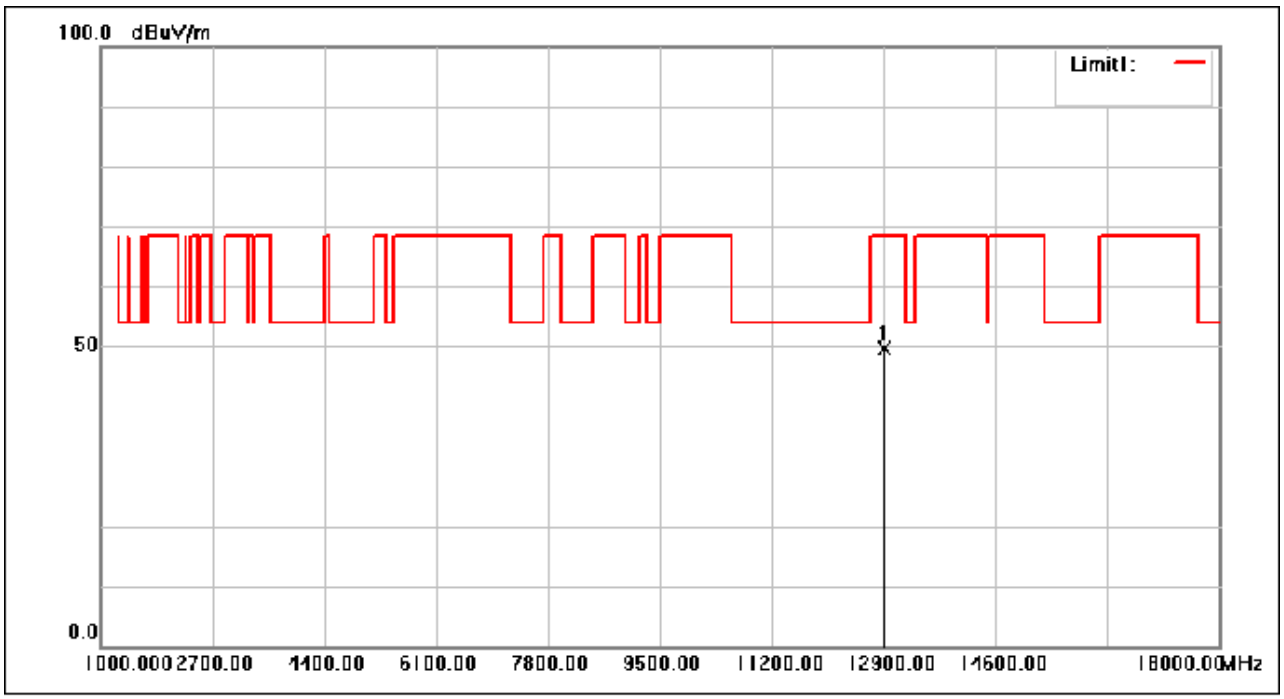
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11054.450	48.60	0.58	49.18	54.00	-4.82	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



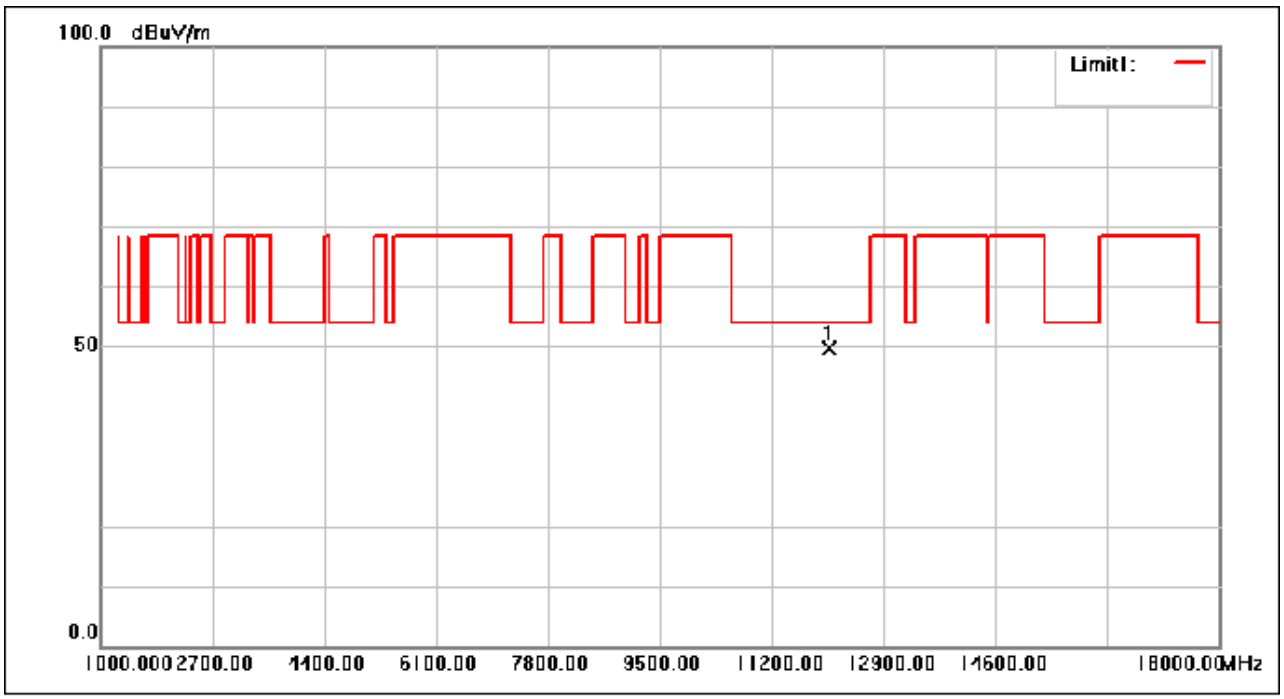
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11110.040	49.06	0.63	49.69	54.00	-4.31	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:middle



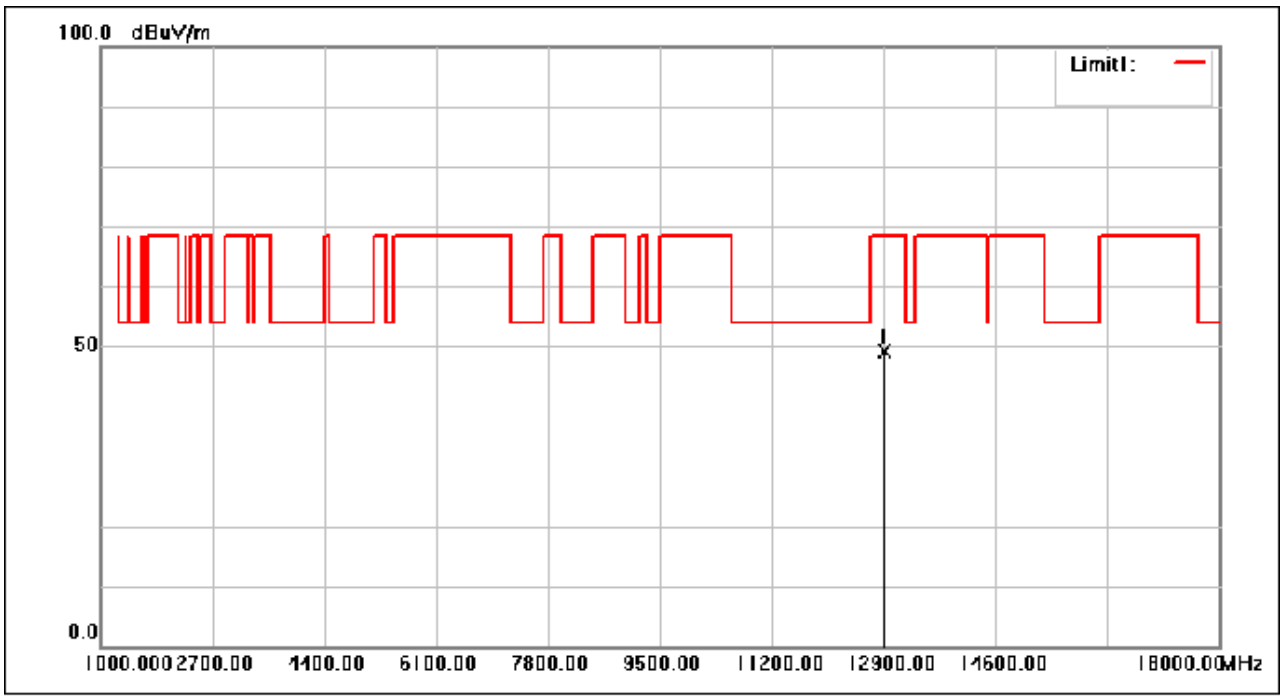
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12908.980	46.18	3.45	49.63	68.30	-18.67	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:middle



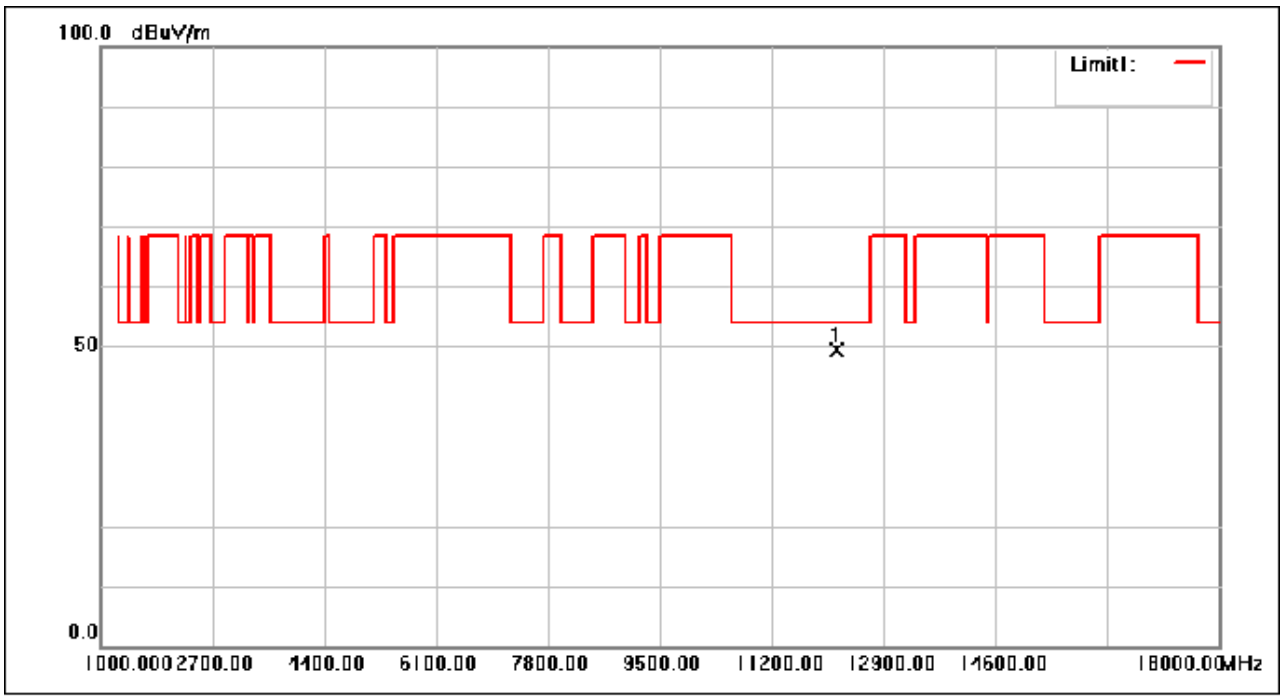
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12068.920	47.05	2.54	49.59	54.00	-4.41	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



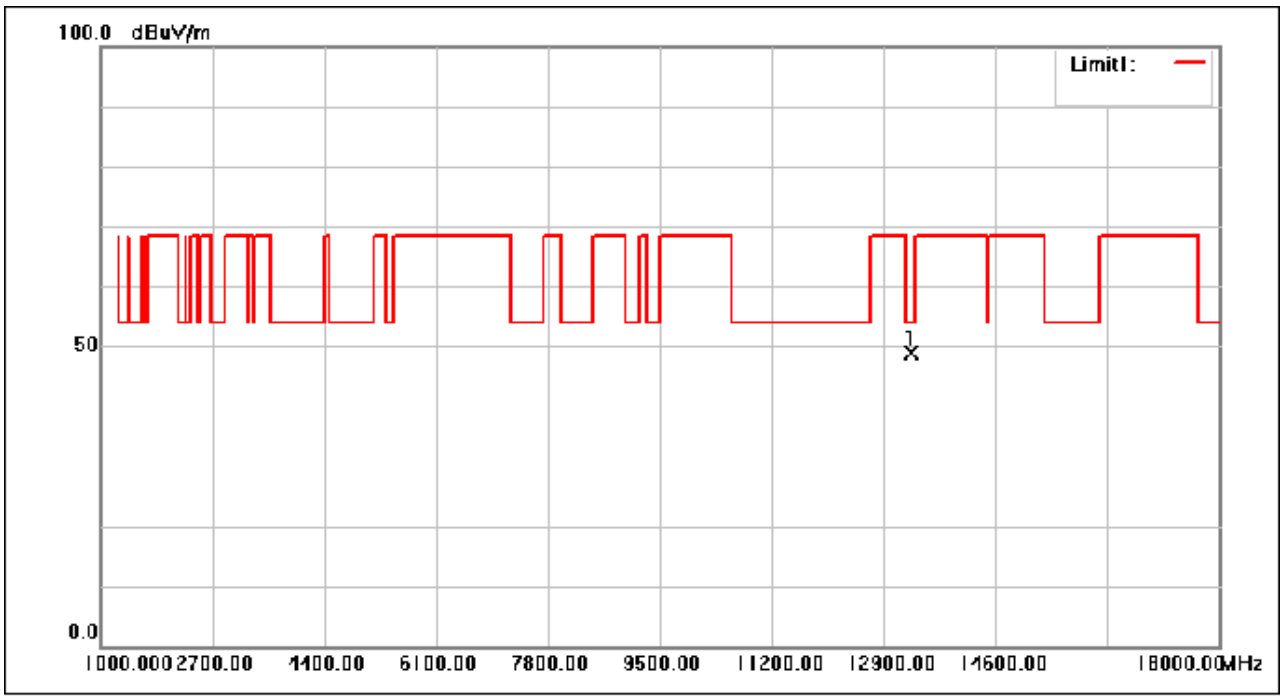
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12907.410	45.57	3.44	49.01	68.30	-19.29	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



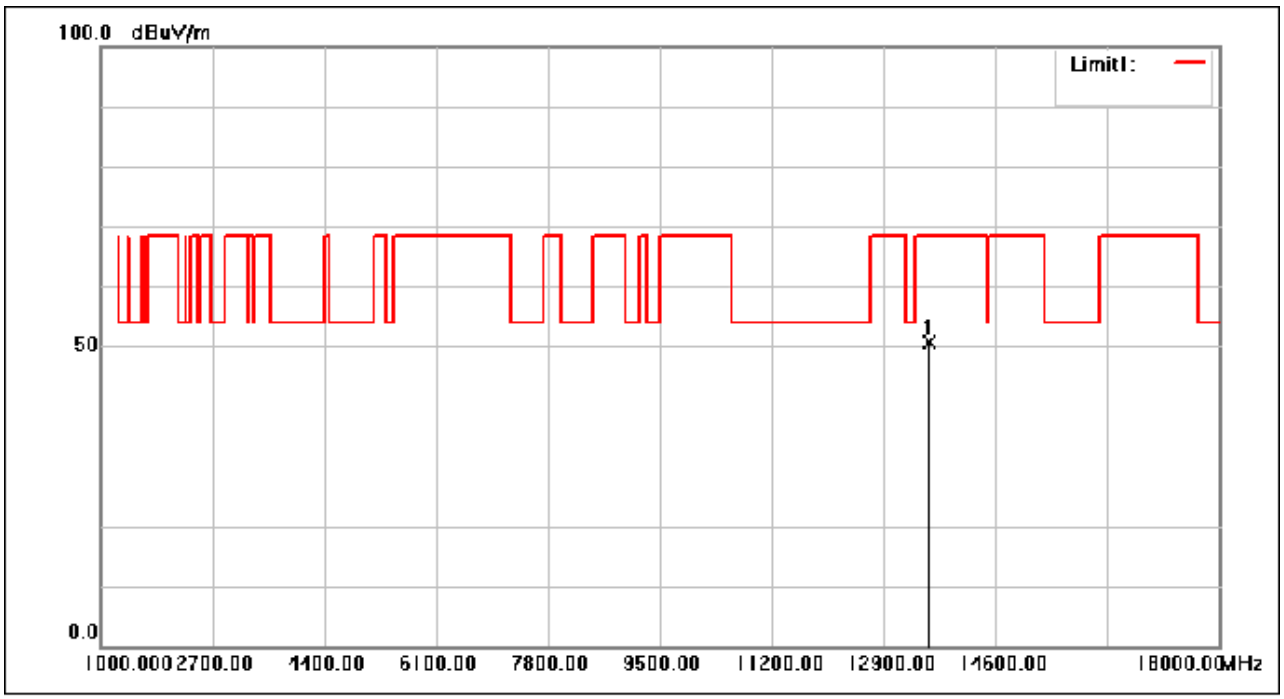
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12190.220	47.01	2.40	49.41	54.00	-4.59	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



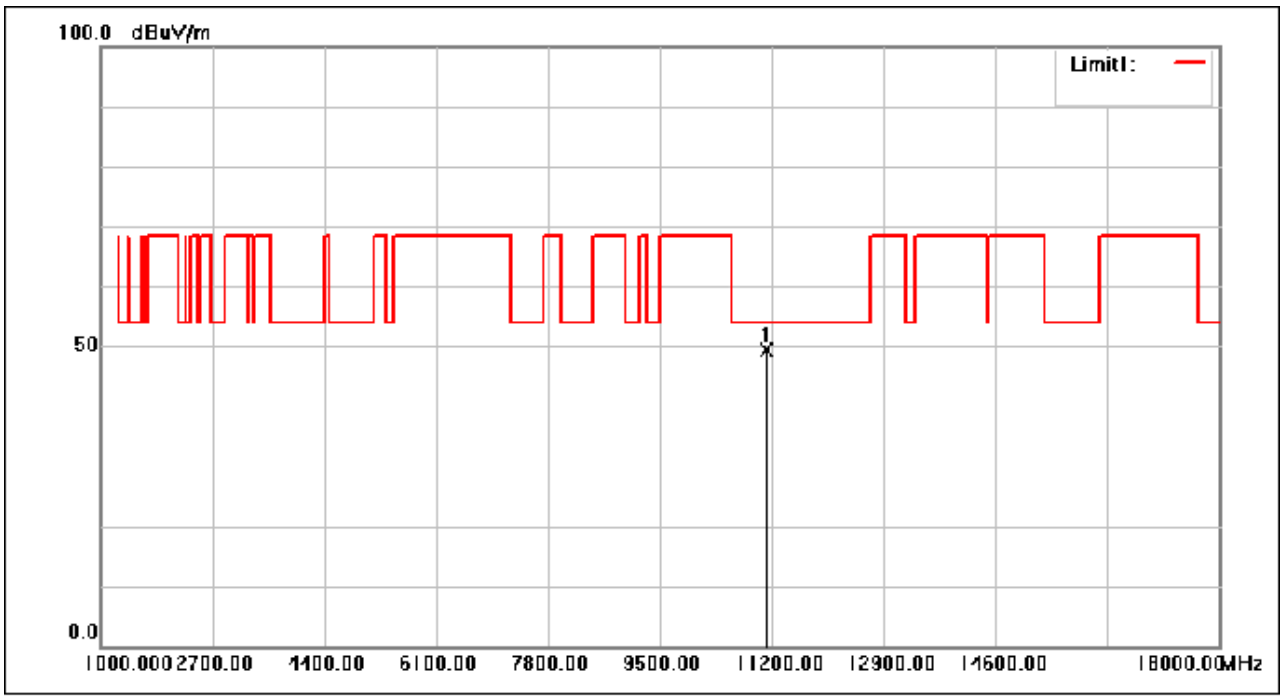
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13318.990	45.99	2.96	48.95	54.00	-5.05	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



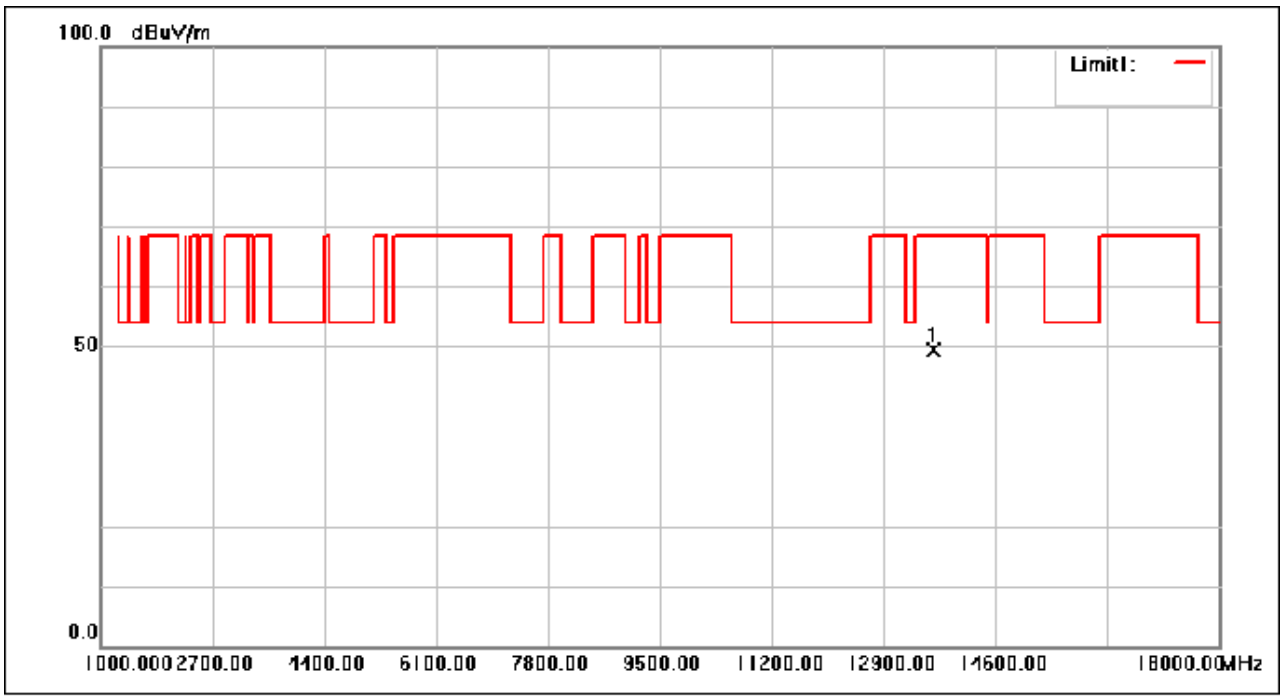
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13581.790	48.00	2.74	50.74	68.30	-17.56	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:middle



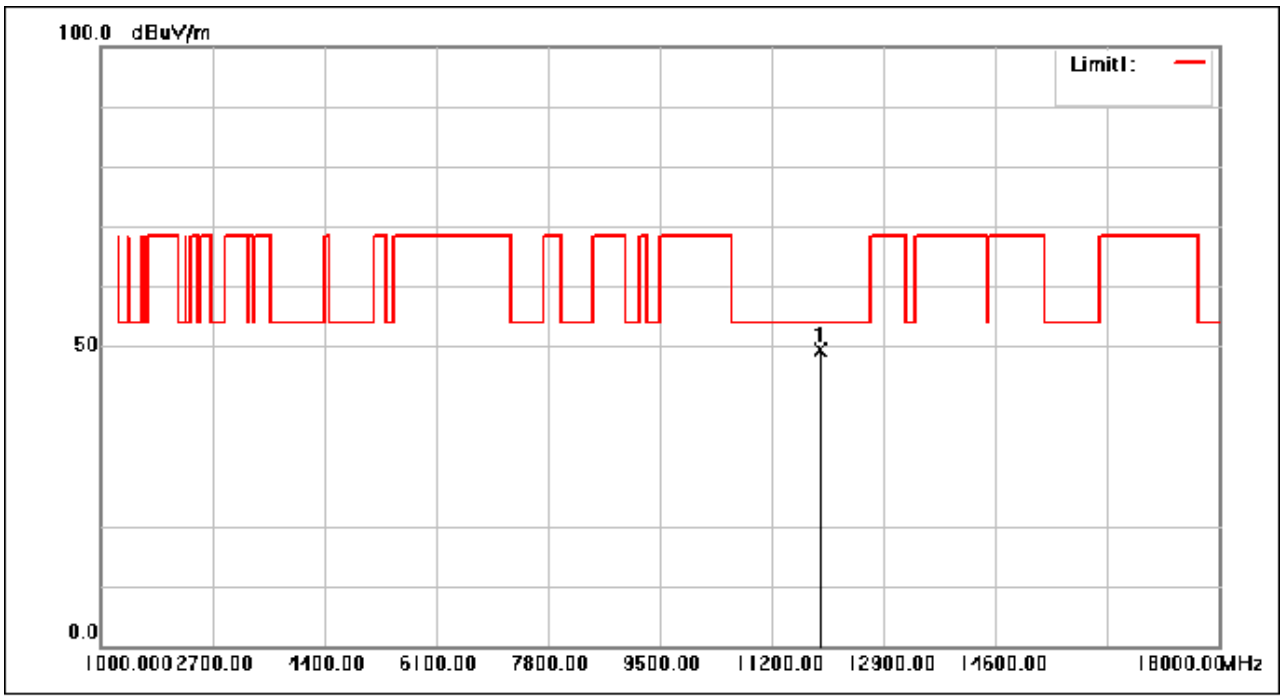
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11128.390	48.63	0.65	49.28	54.00	-4.72	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:middle



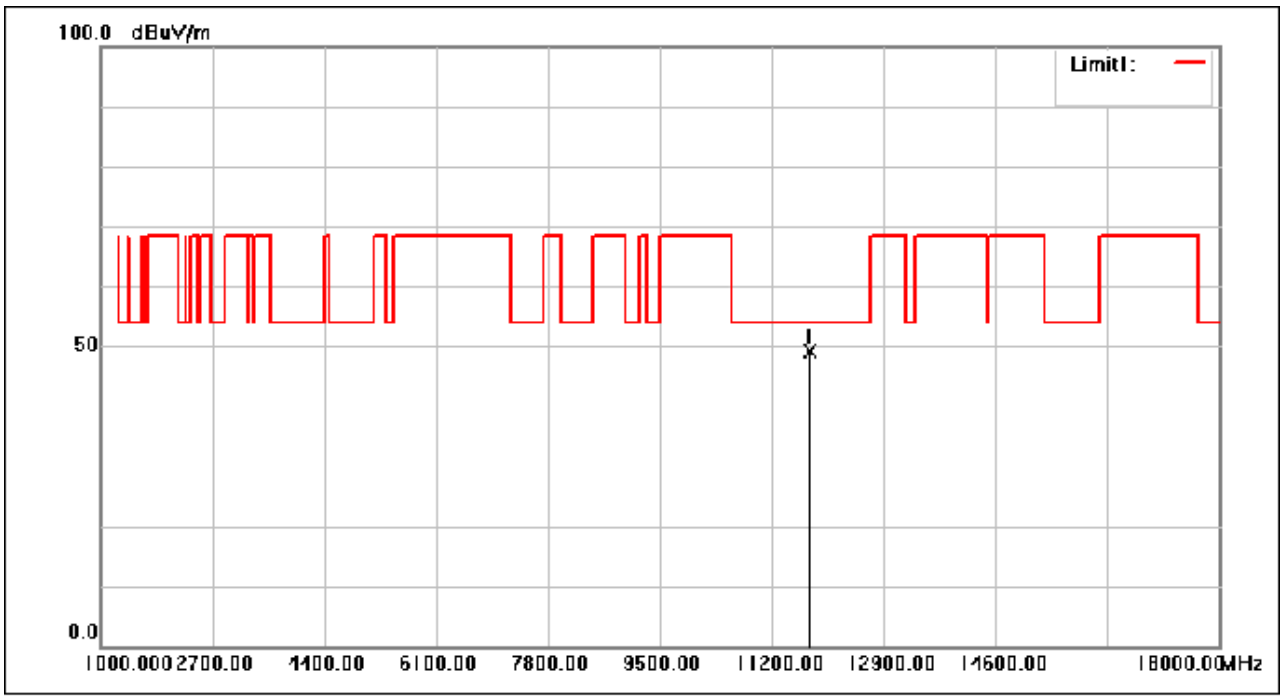
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13652.320	46.51	2.93	49.44	68.30	-18.86	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



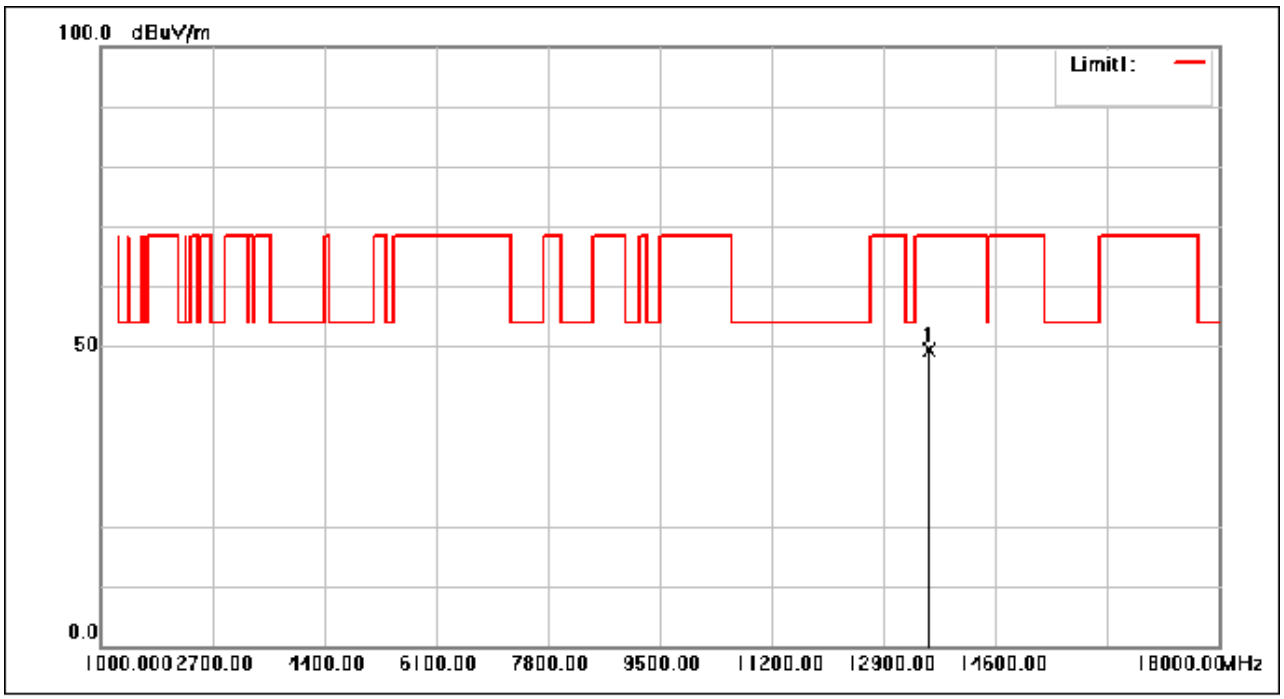
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11946.640	47.05	2.43	49.48	54.00	-4.52	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



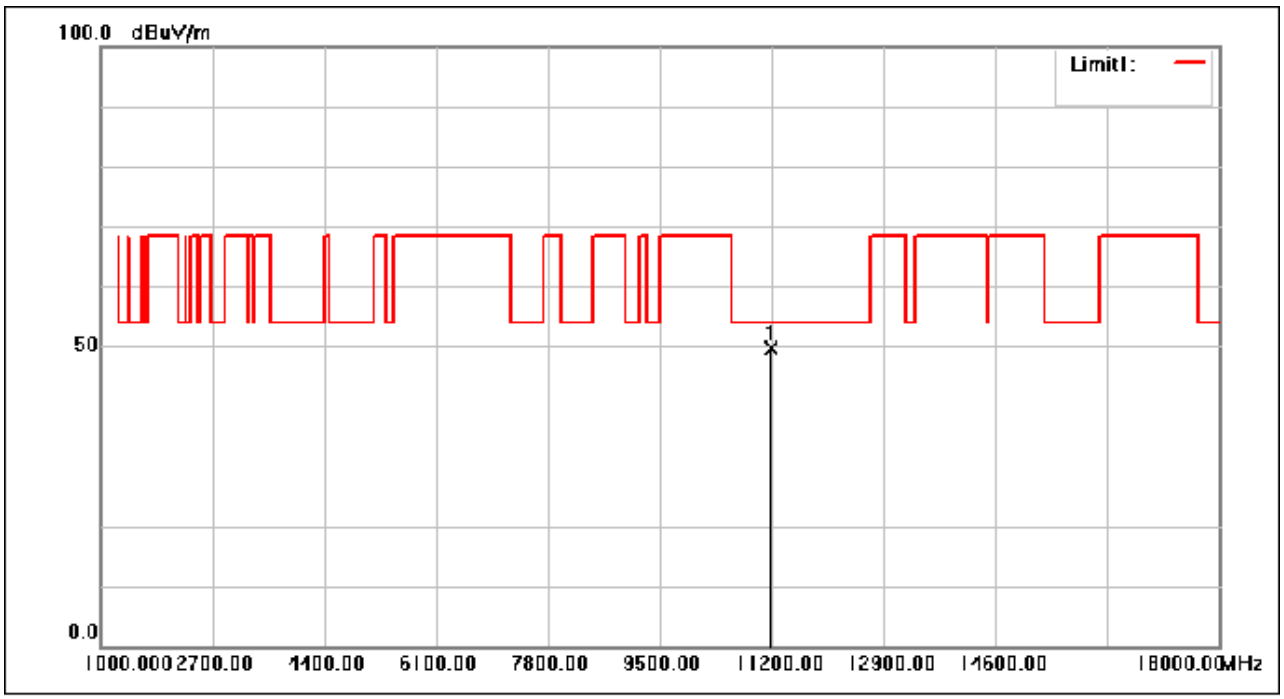
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11771.020	47.31	1.85	49.16	54.00	-4.84	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:Low



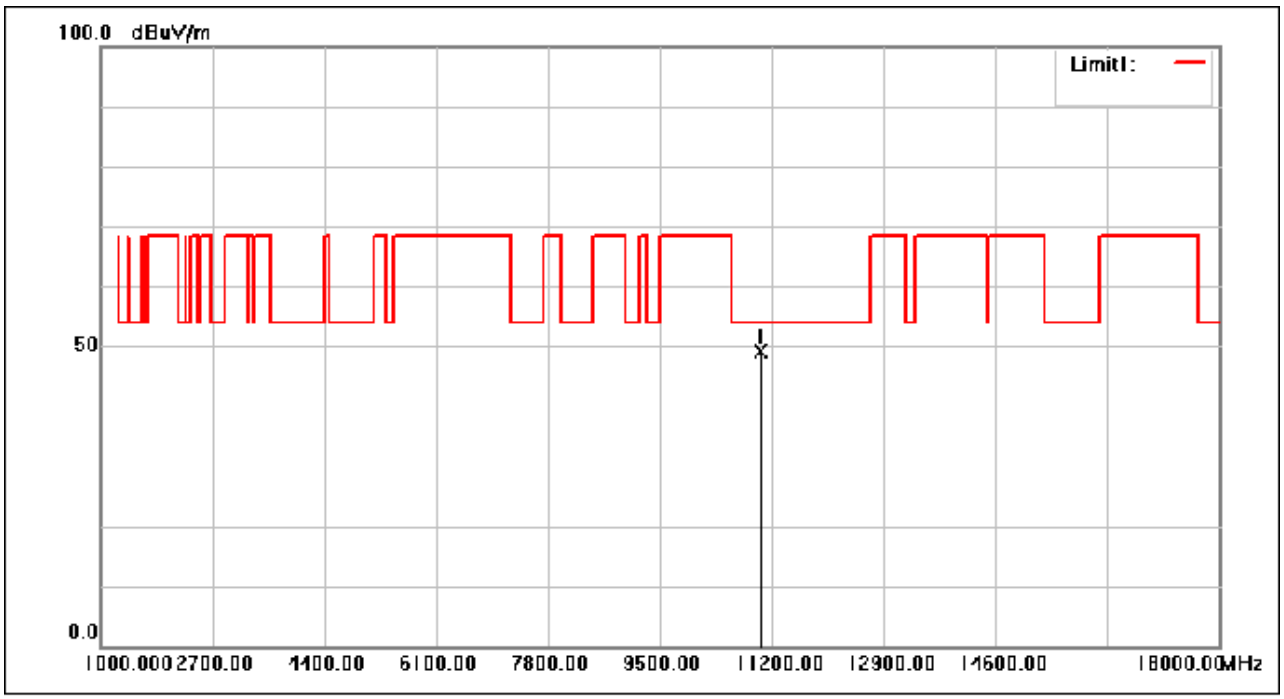
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13589.690	46.72	2.76	49.48	68.30	-18.82	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:Low



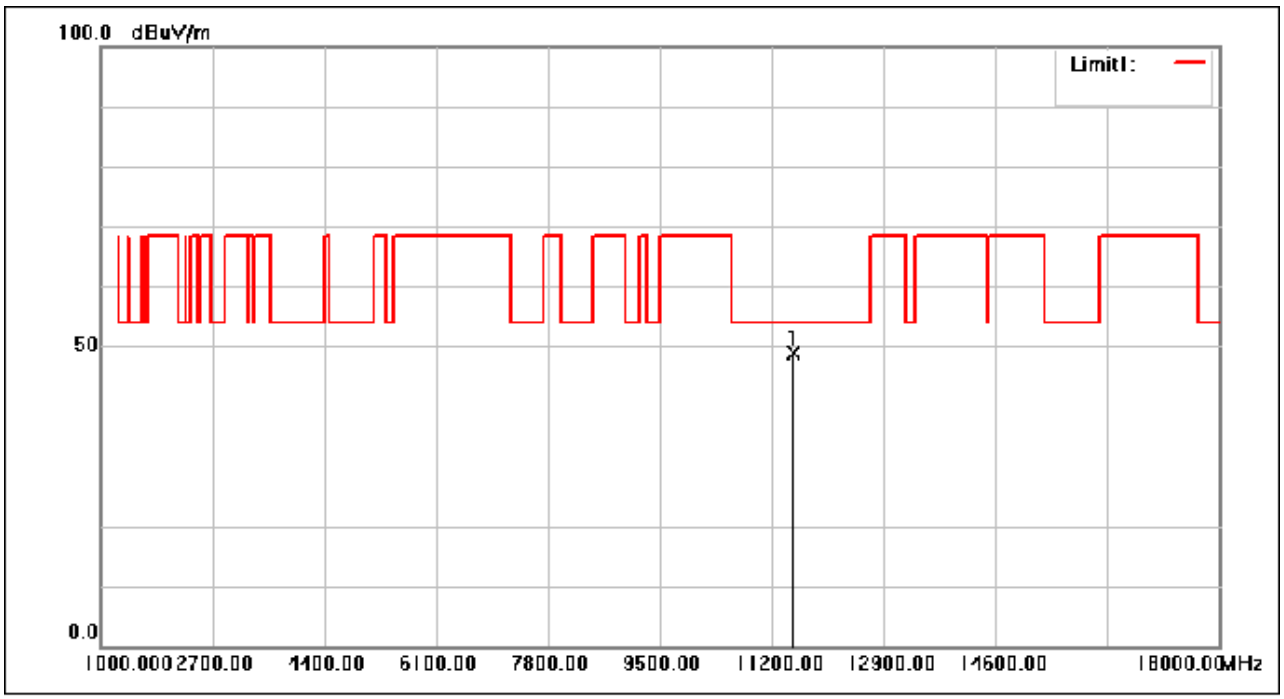
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11197.160	48.82	0.70	49.52	54.00	-4.48	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:middle



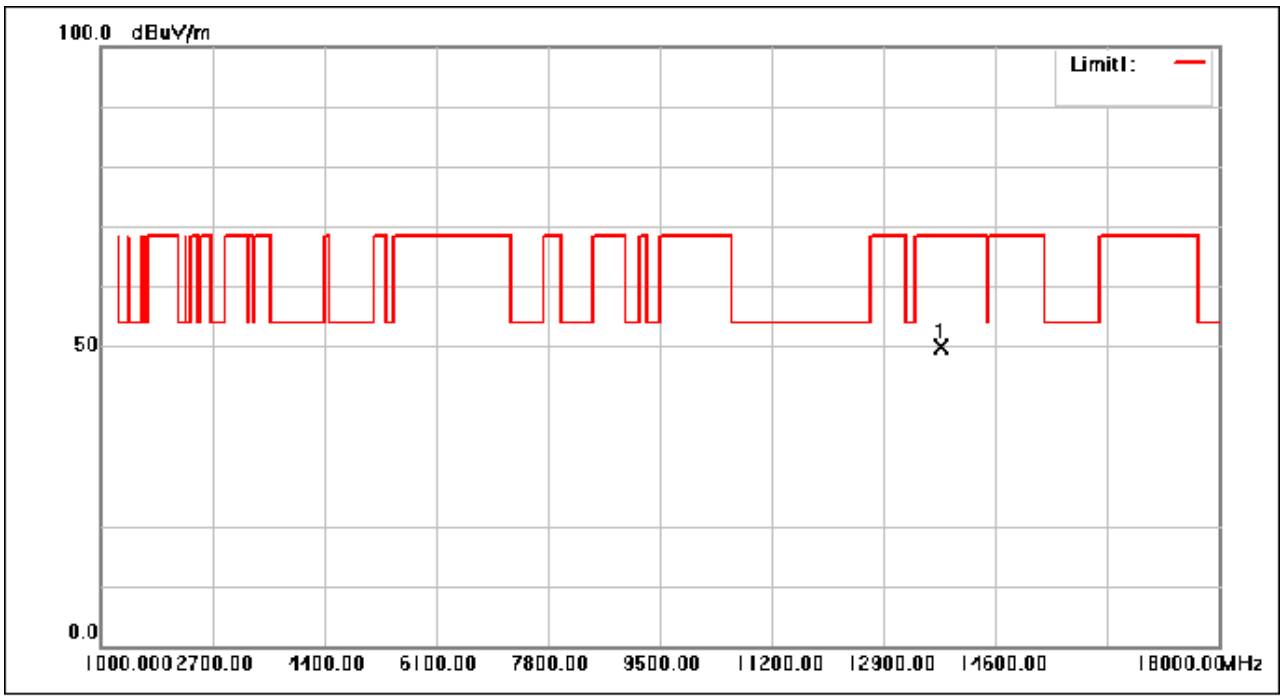
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11029.380	48.54	0.57	49.11	54.00	-4.89	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:middle



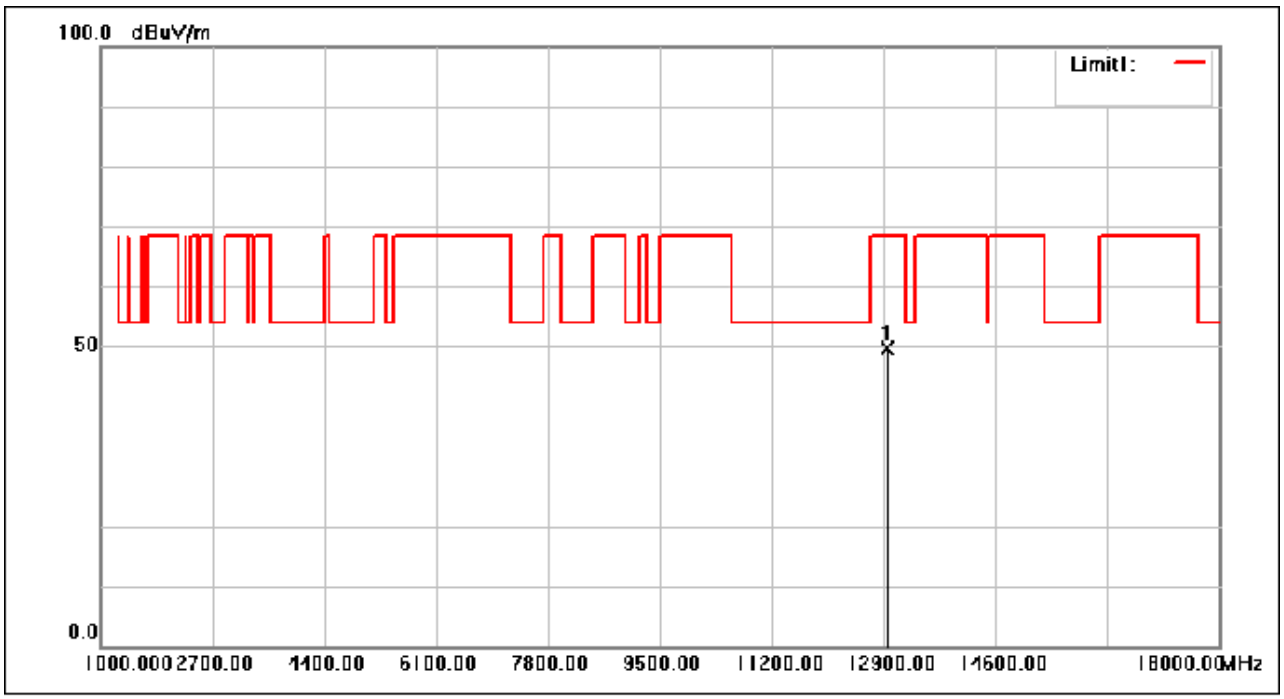
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11530.890	47.77	1.06	48.83	54.00	-5.17	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:High



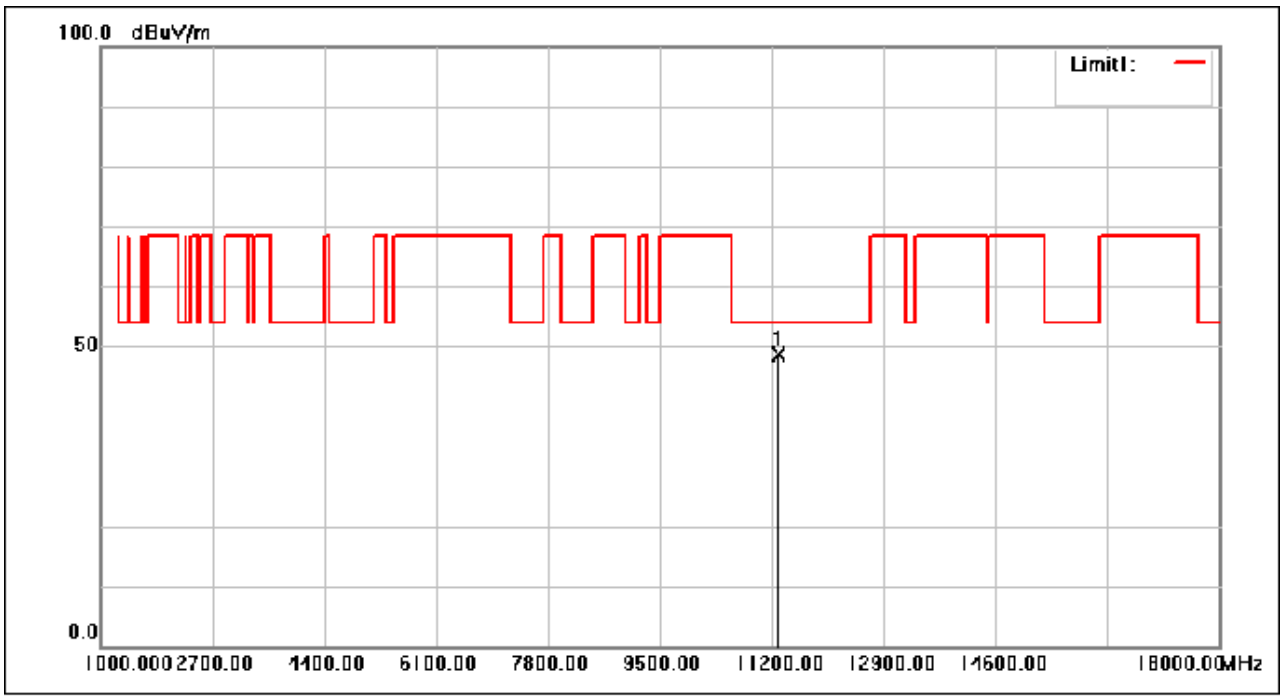
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13763.040	46.58	3.24	49.82	68.30	-18.48	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:High



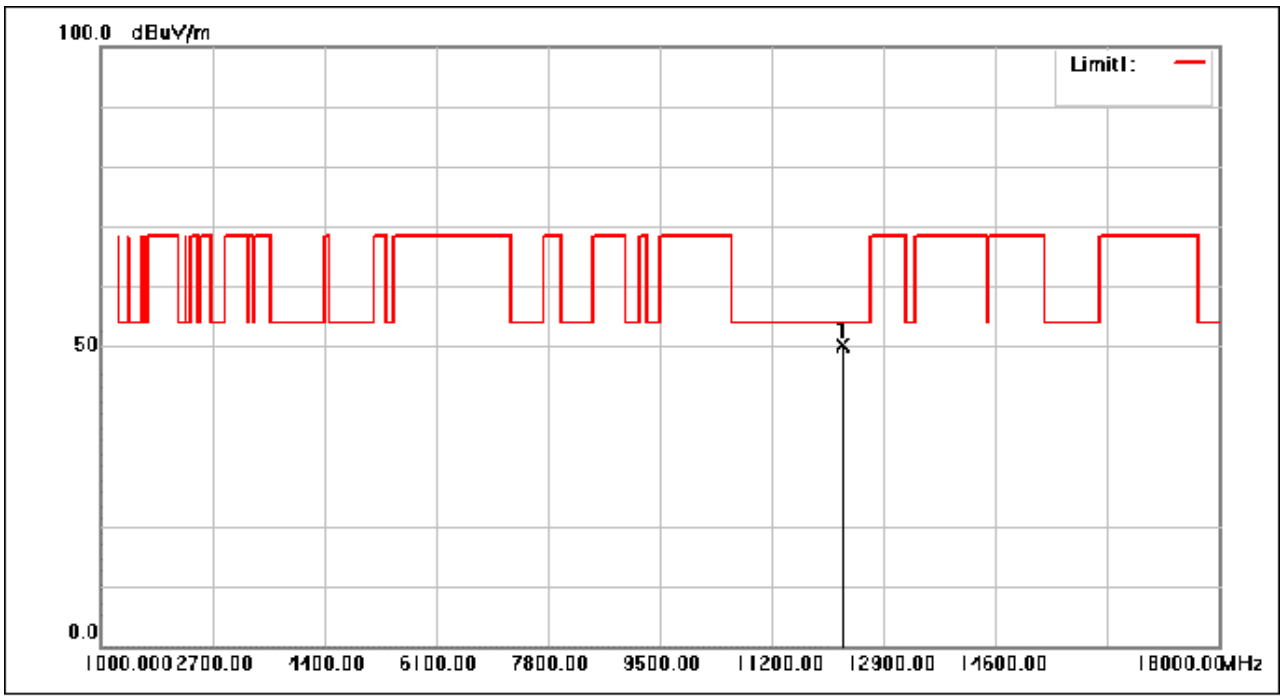
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12961.110	45.91	3.63	49.54	68.30	-18.76	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:Low



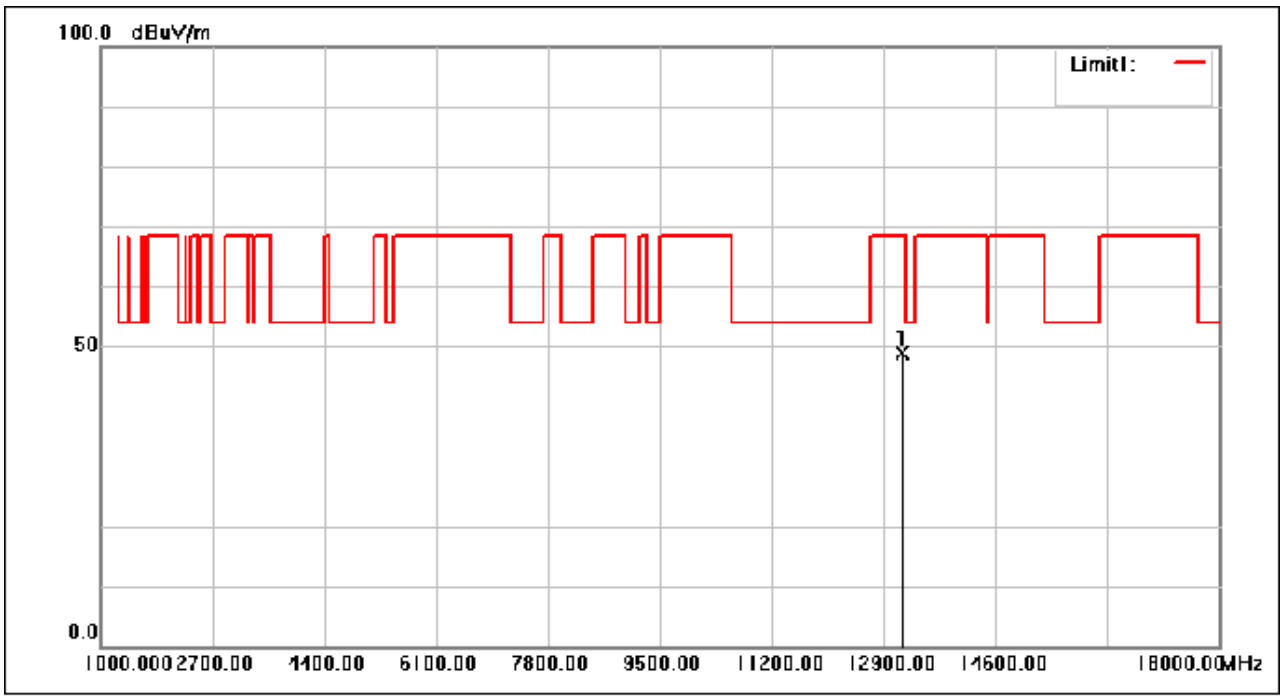
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11303.480	47.84	0.79	48.63	54.00	-5.37	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:Low



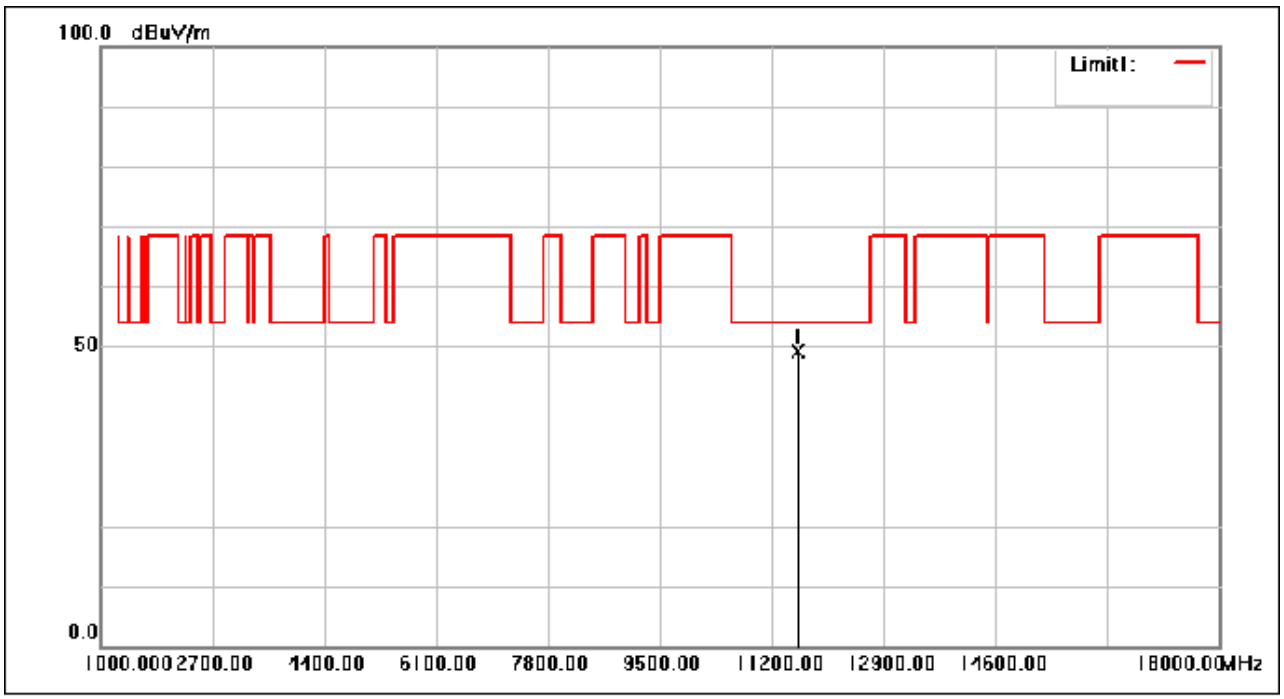
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12282.430	47.91	2.30	50.21	54.00	-3.79	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:middle



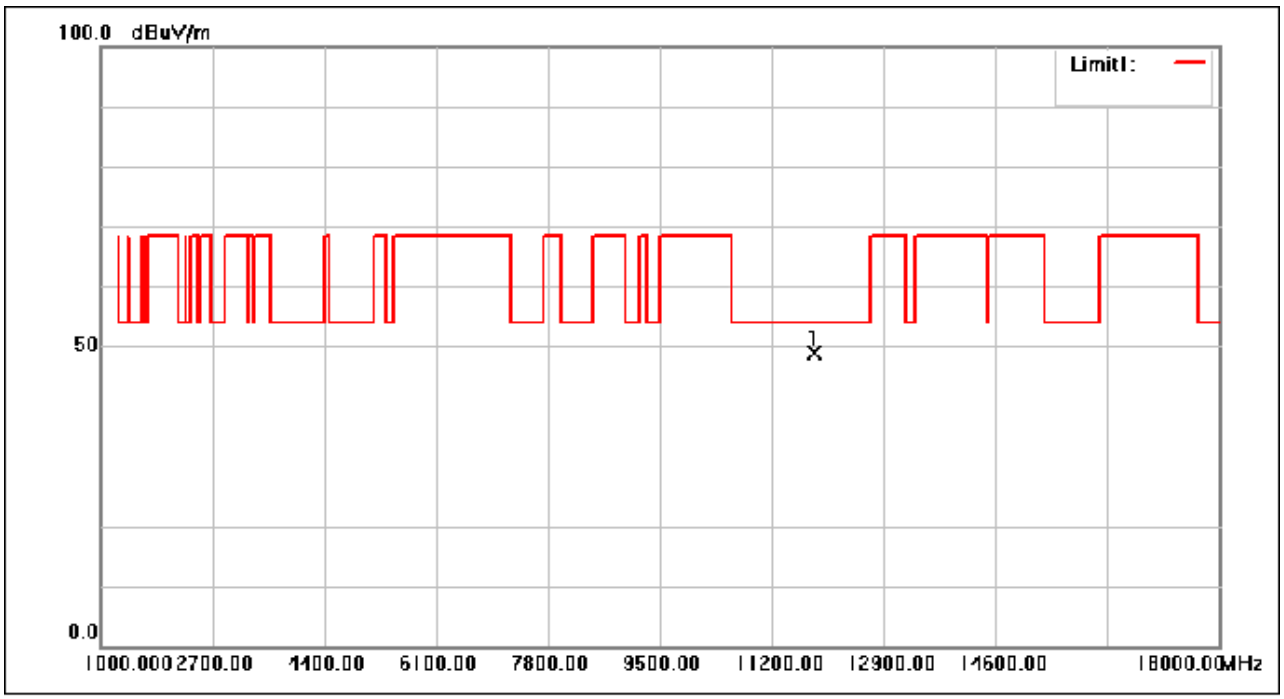
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13185.930	45.59	3.30	48.89	68.30	-19.41	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:middle



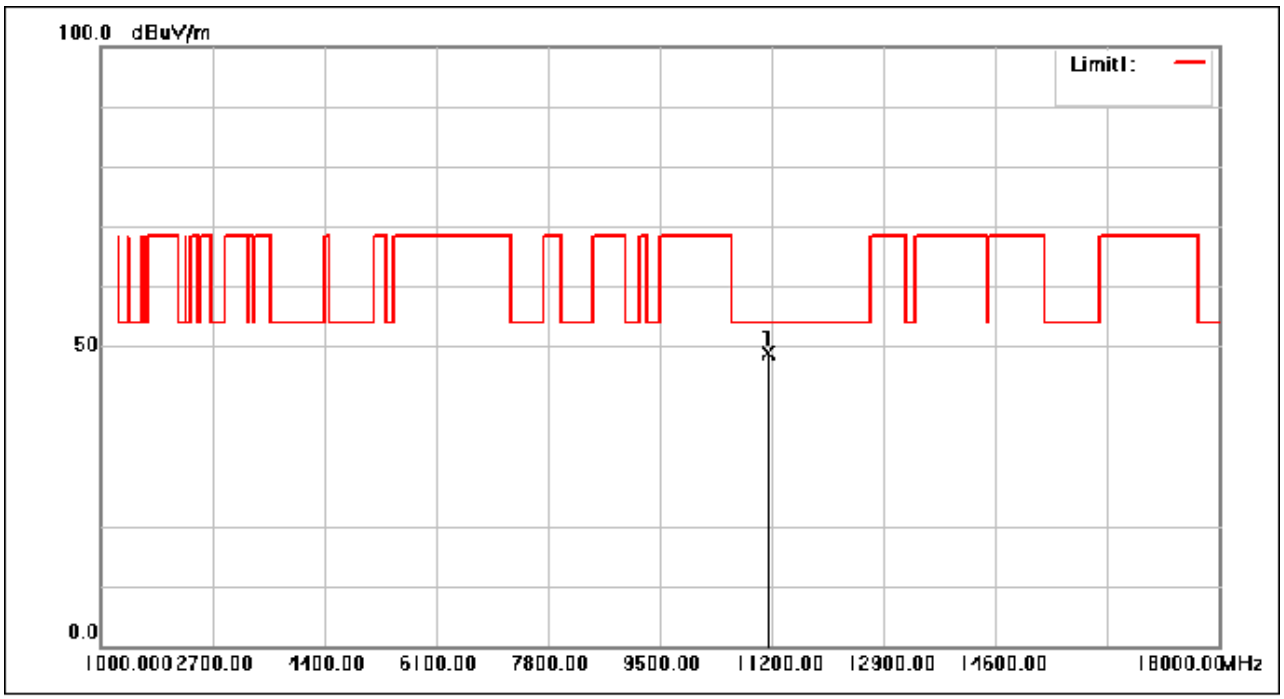
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11601.390	47.78	1.29	49.07	54.00	-4.93	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11847.770	46.68	2.10	48.78	54.00	-5.22	peak

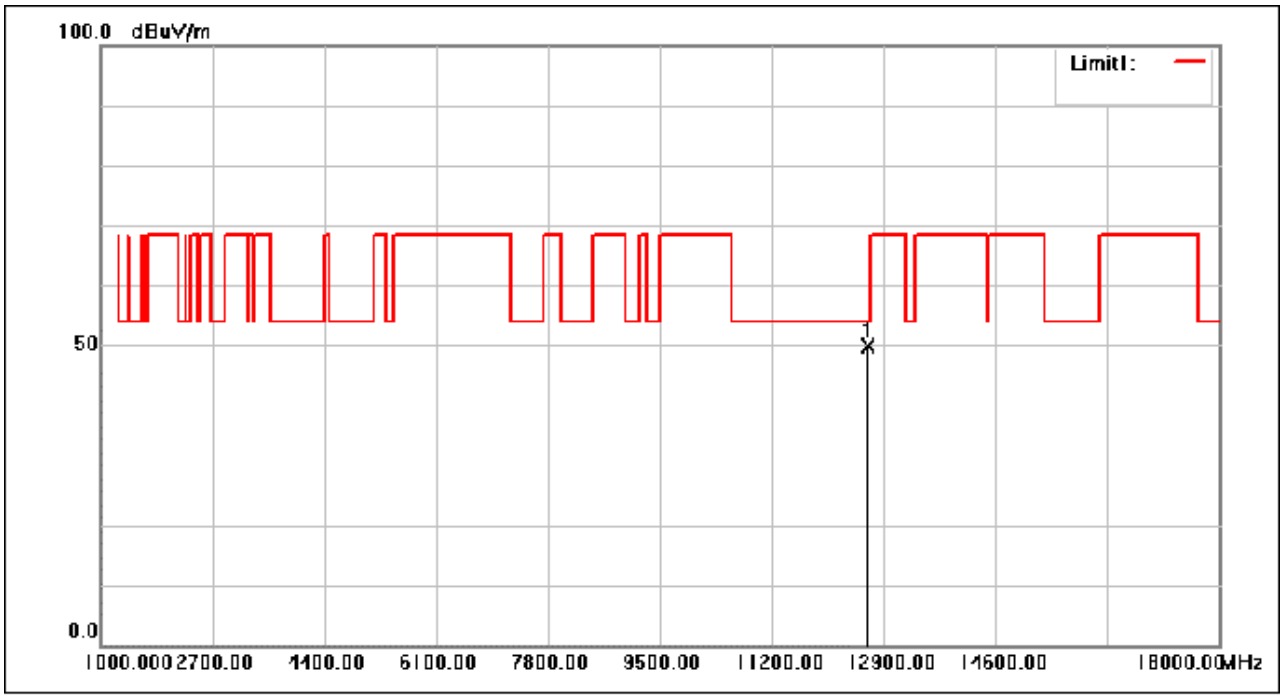
Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11140.190	48.27	0.66	48.93	54.00	-5.07	peak

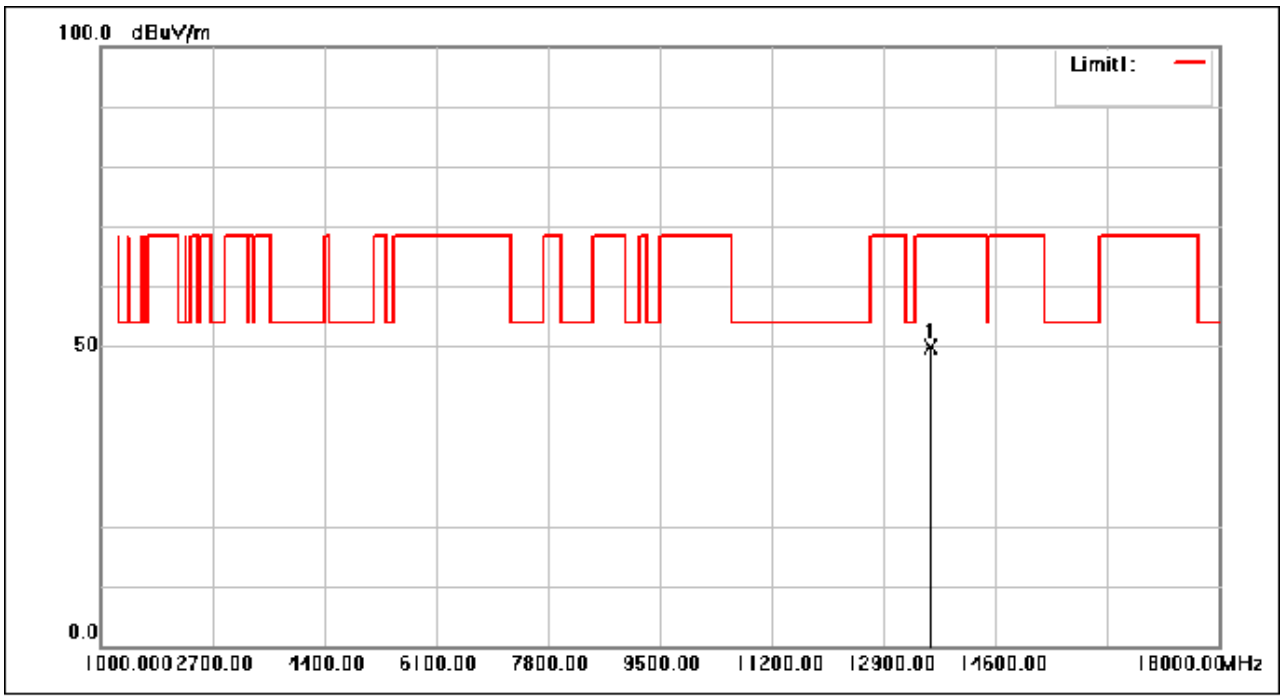
Band7

Test Mode: 14; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



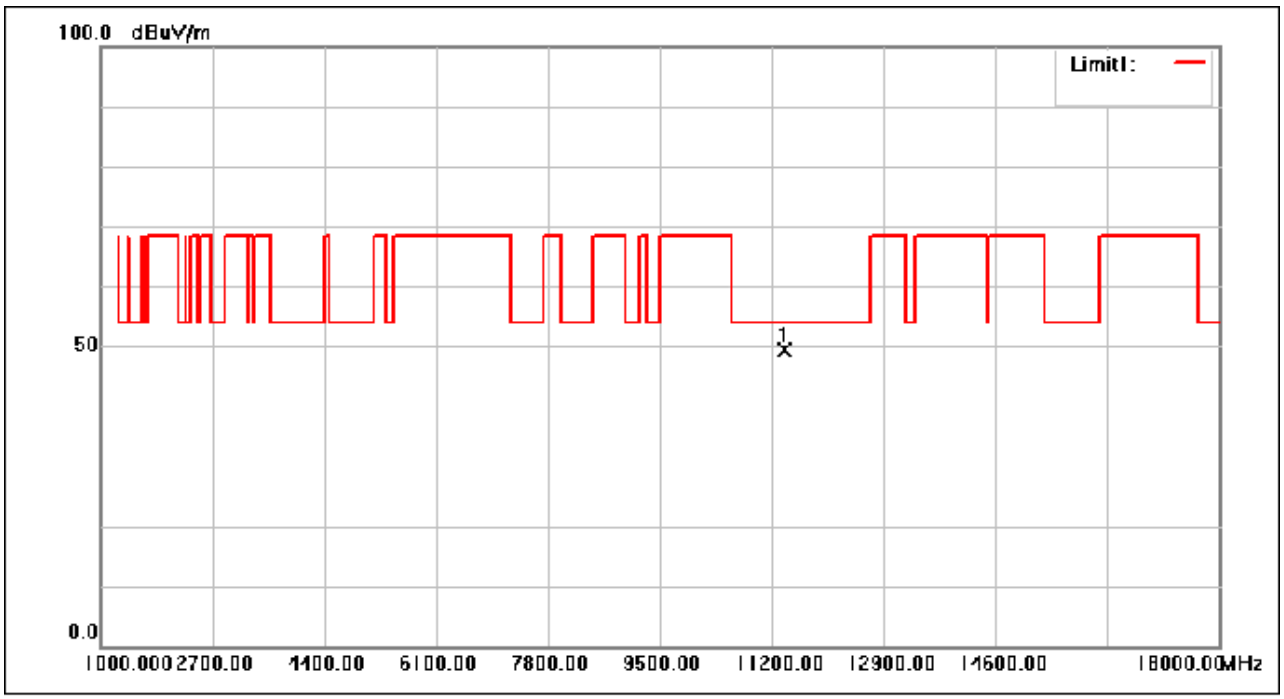
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12654.960	47.19	2.59	49.78	54.00	-4.22	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



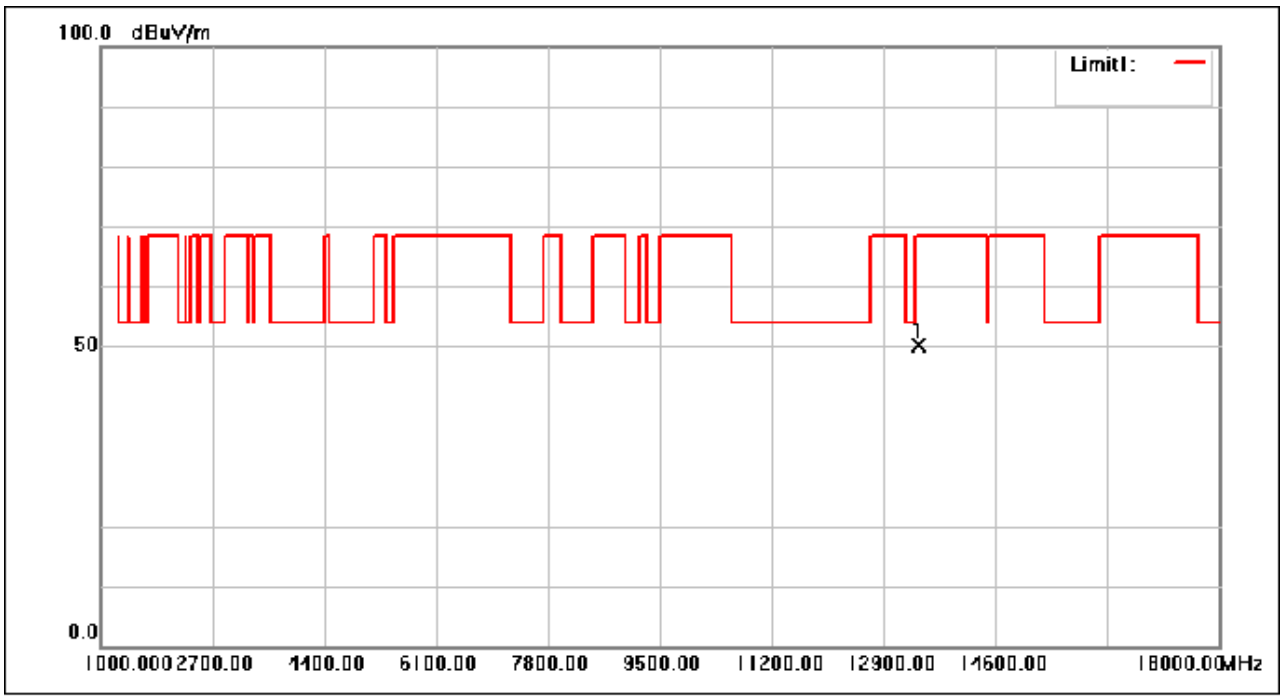
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13612.540	46.99	2.82	49.81	68.30	-18.49	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



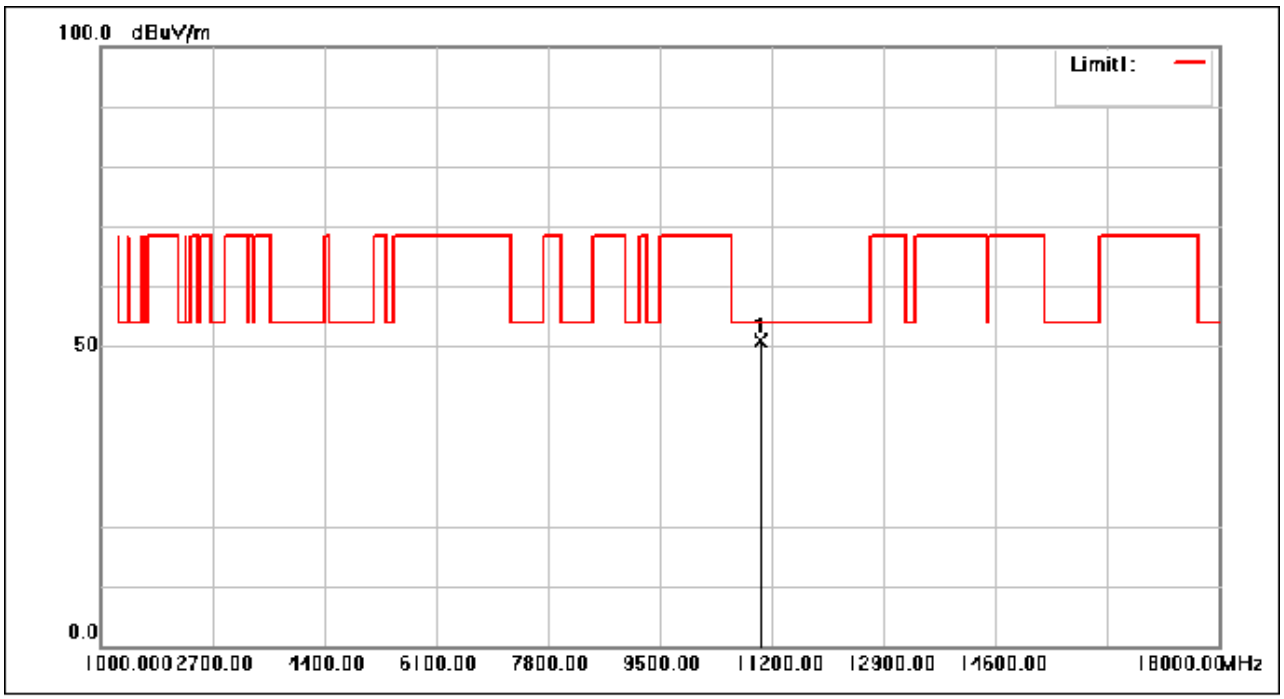
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11397.140	48.50	0.86	49.36	54.00	-4.64	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



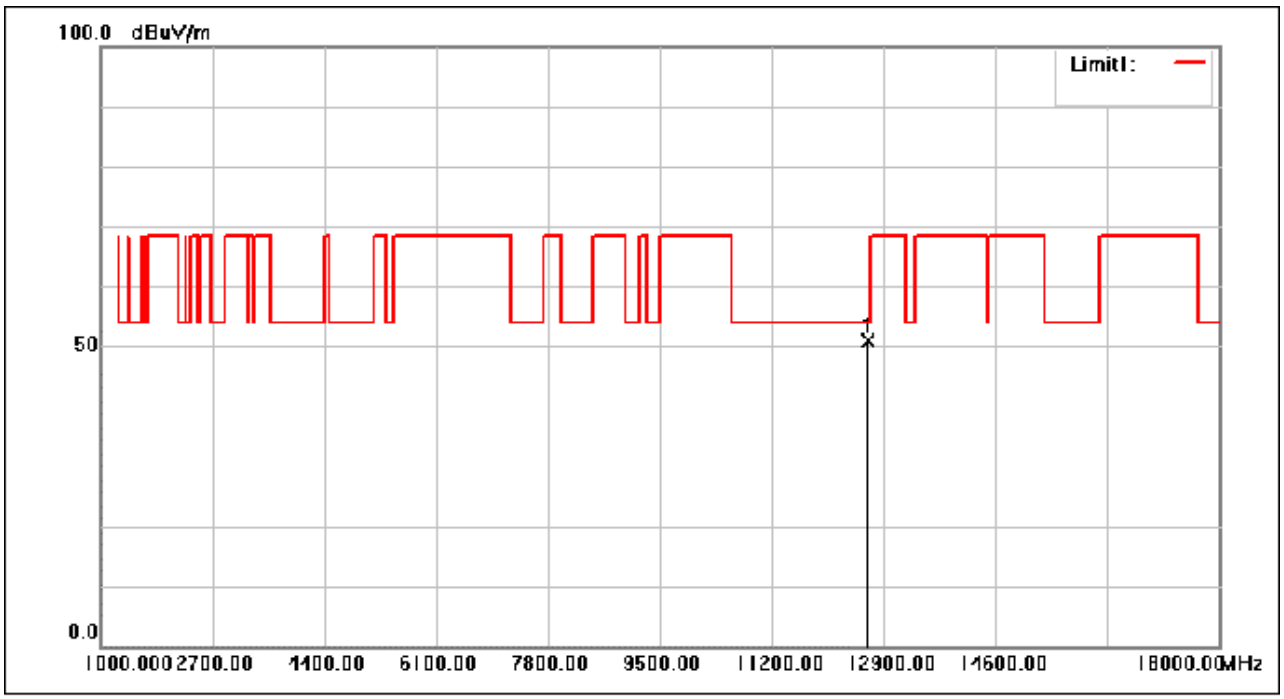
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13435.510	47.55	2.67	50.22	68.30	-18.08	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



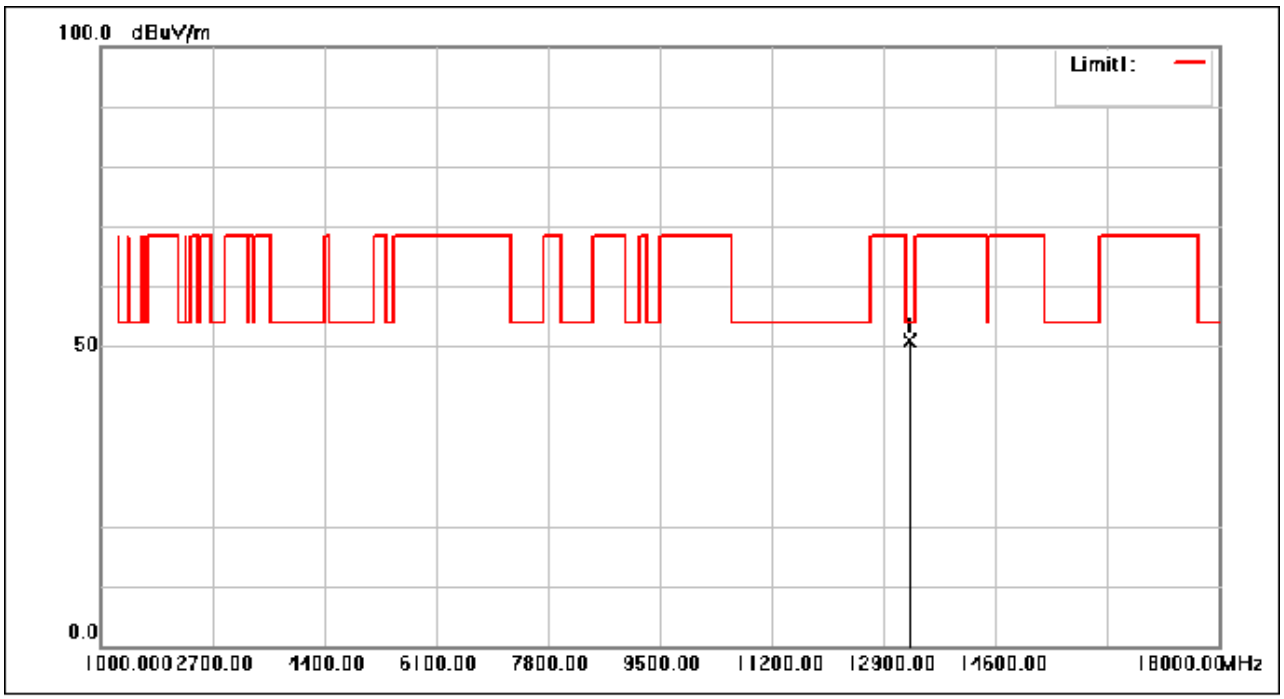
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11035.310	50.43	0.56	50.99	54.00	-3.01	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



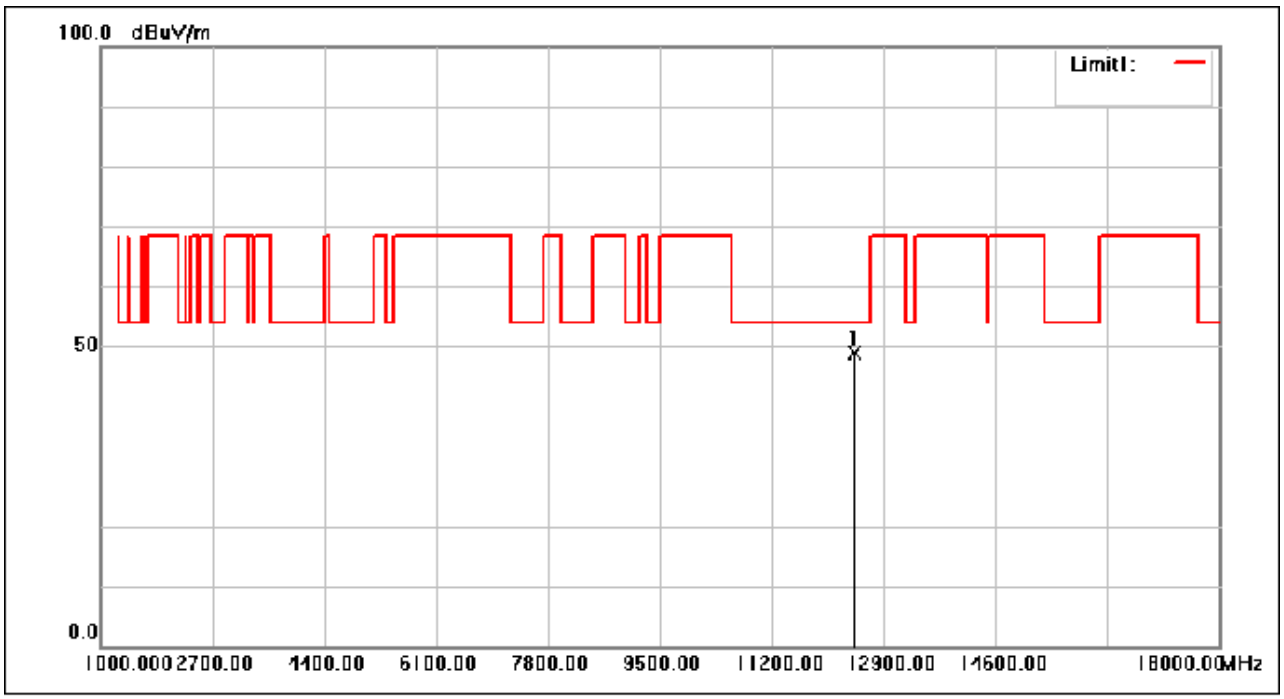
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12654.310	48.32	2.59	50.91	54.00	-3.09	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



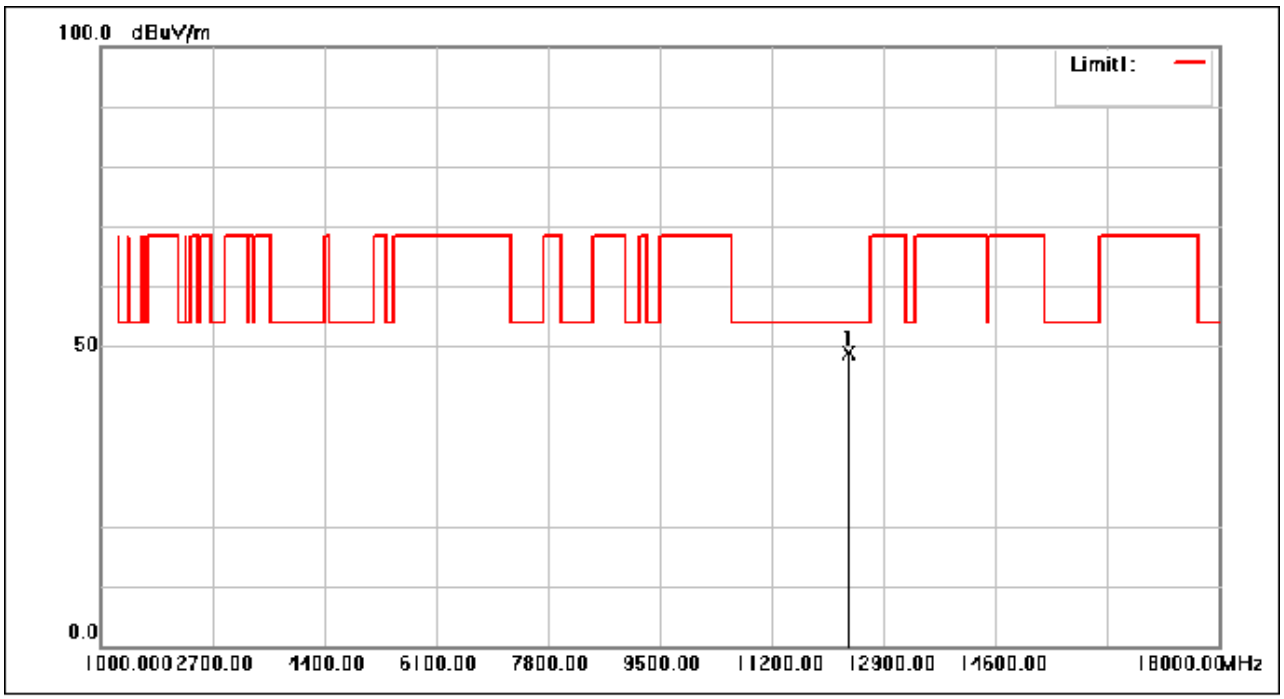
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13288.270	47.90	3.04	50.94	54.00	-3.06	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



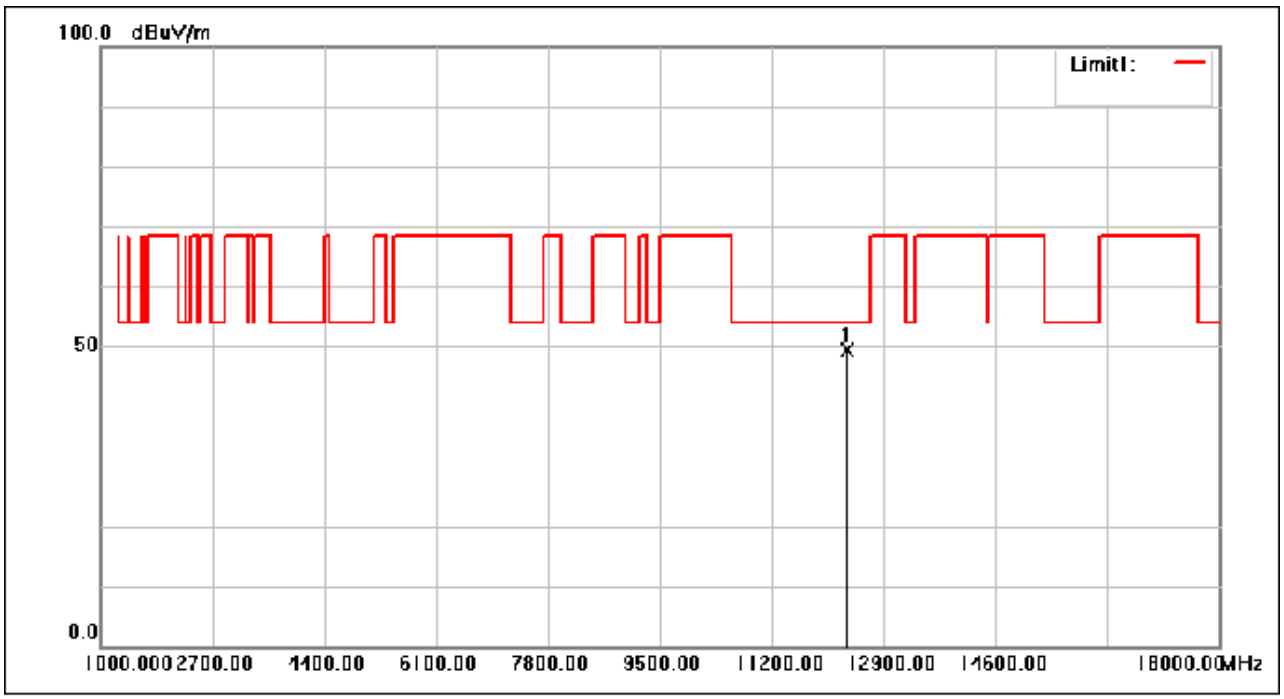
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12464.390	46.88	2.09	48.97	54.00	-5.03	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:middle



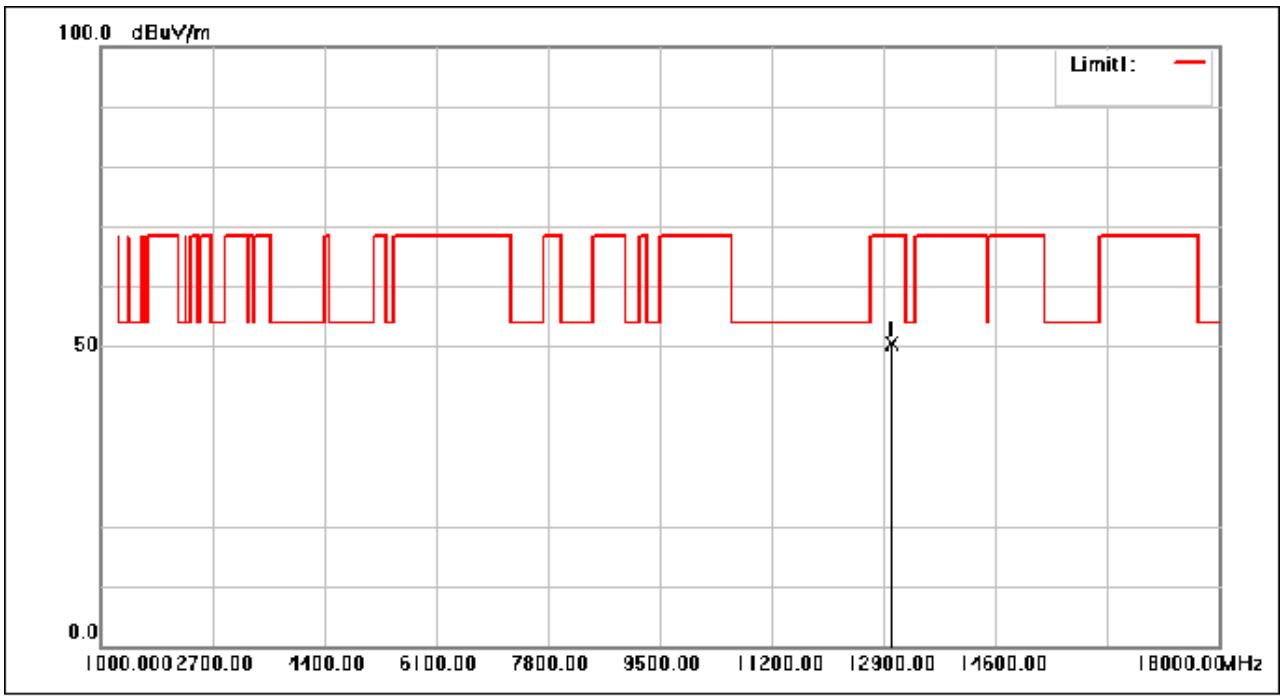
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12367.450	46.70	2.21	48.91	54.00	-5.09	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:middle



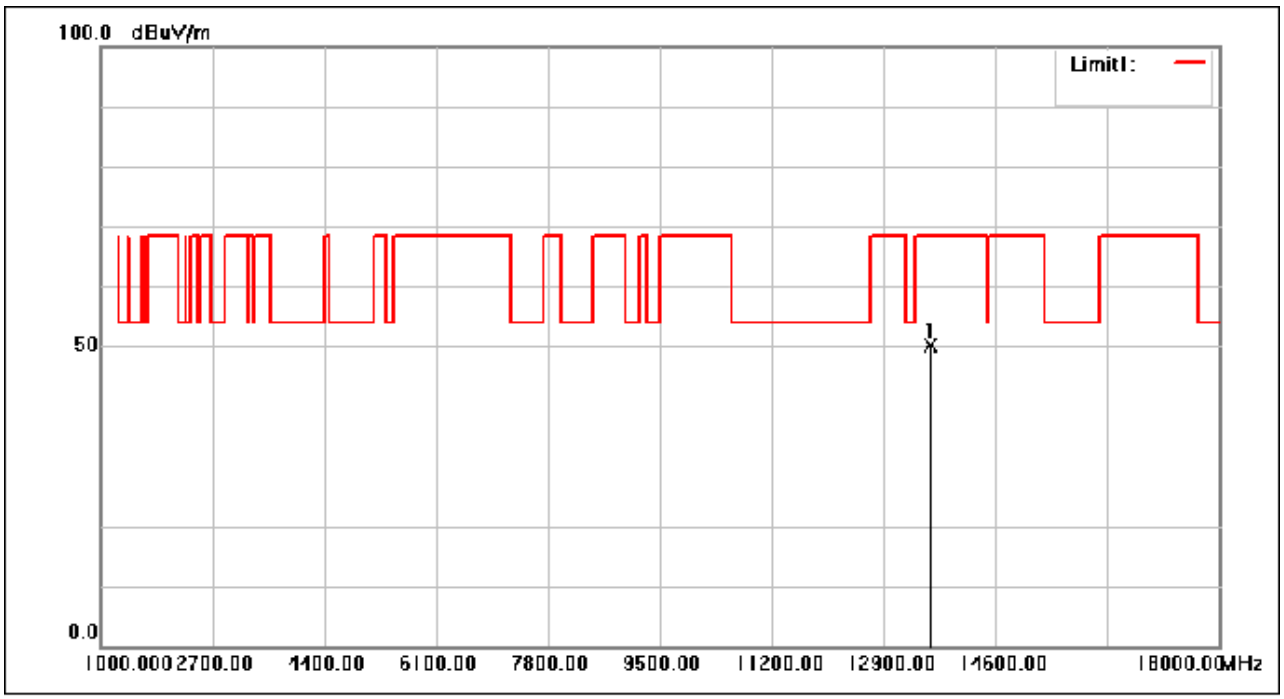
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12341.410	47.18	2.23	49.41	54.00	-4.59	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



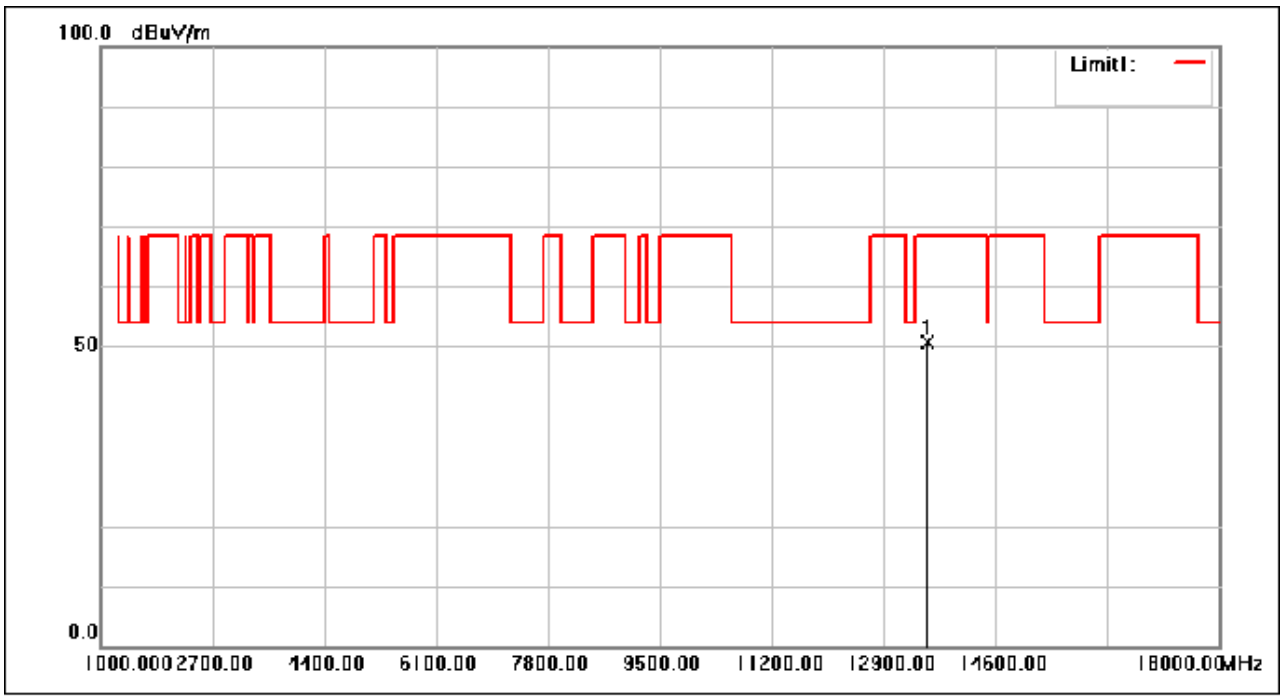
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13026.810	46.67	3.69	50.36	68.30	-17.94	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



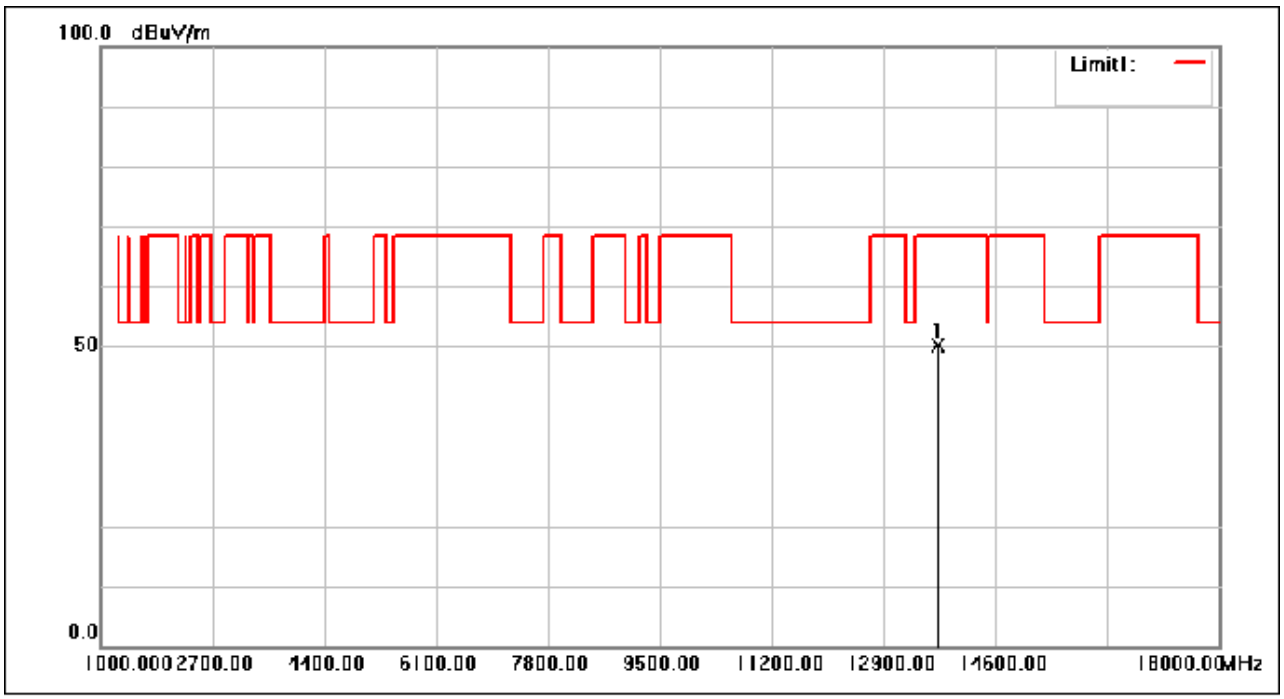
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13621.250	47.28	2.85	50.13	68.30	-18.17	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



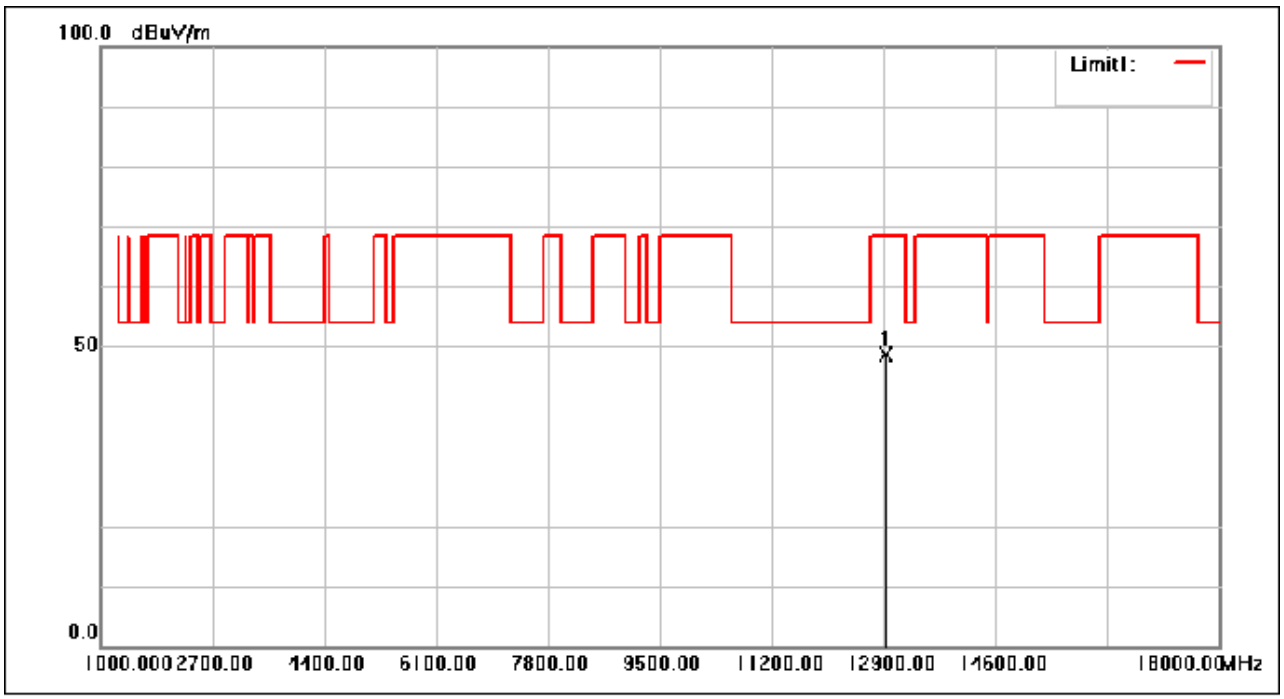
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13564.250	47.86	2.69	50.55	68.30	-17.75	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



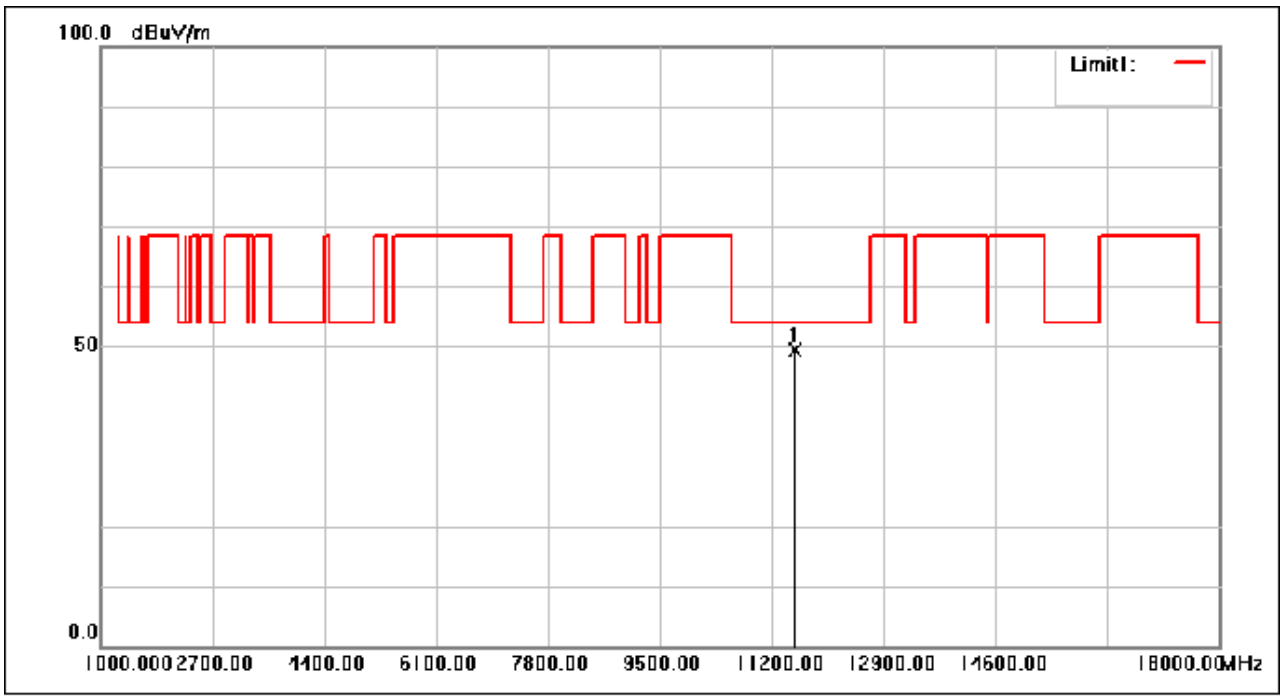
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13724.130	47.12	3.13	50.25	68.30	-18.05	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:middle



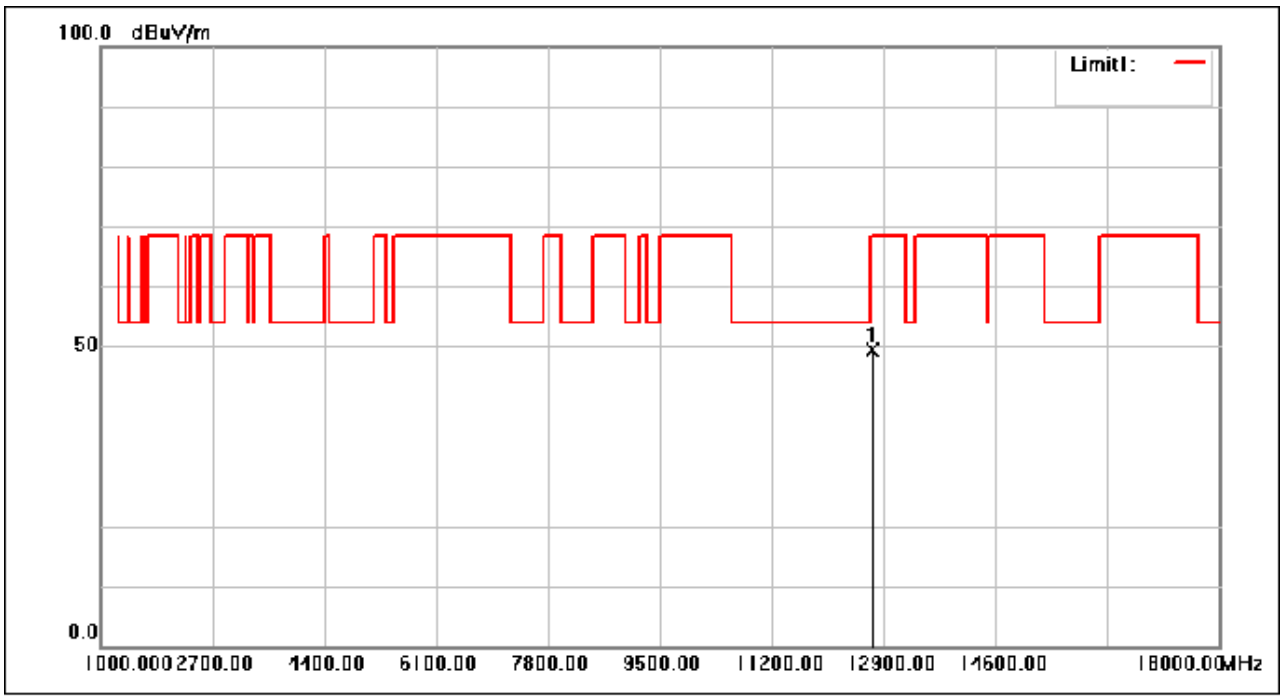
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12939.230	45.20	3.55	48.75	68.30	-19.55	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:middle



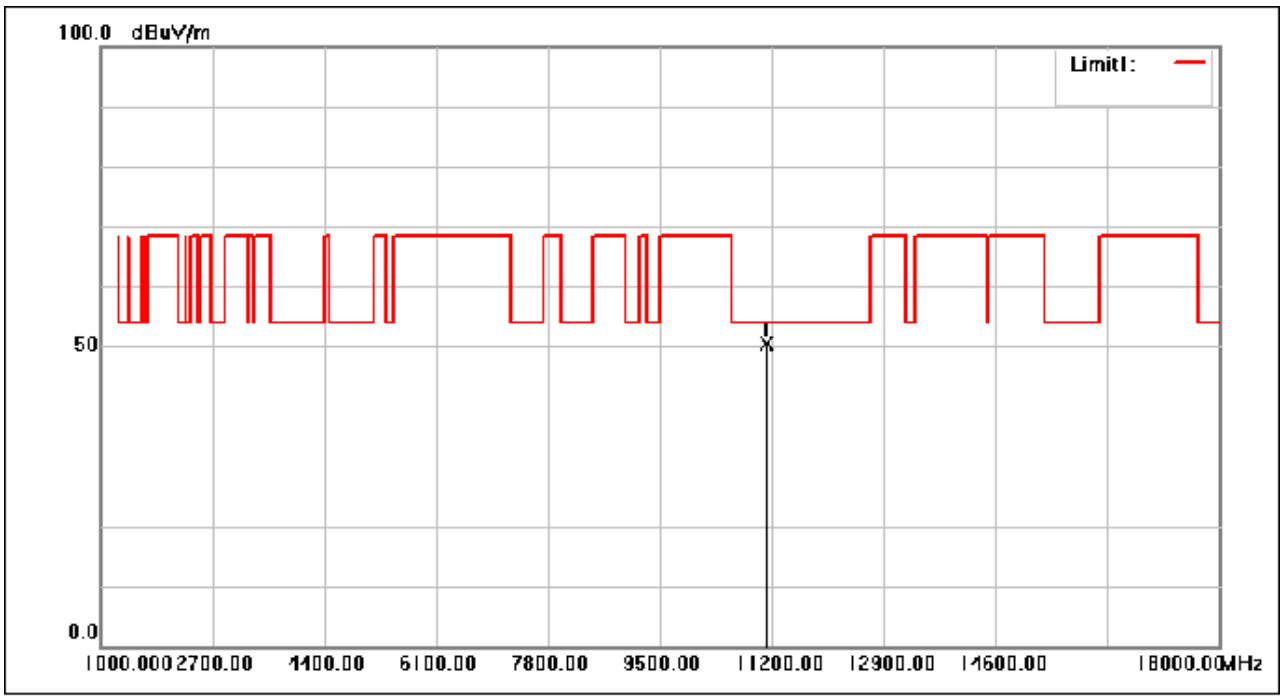
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11544.110	48.40	1.09	49.49	54.00	-4.51	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



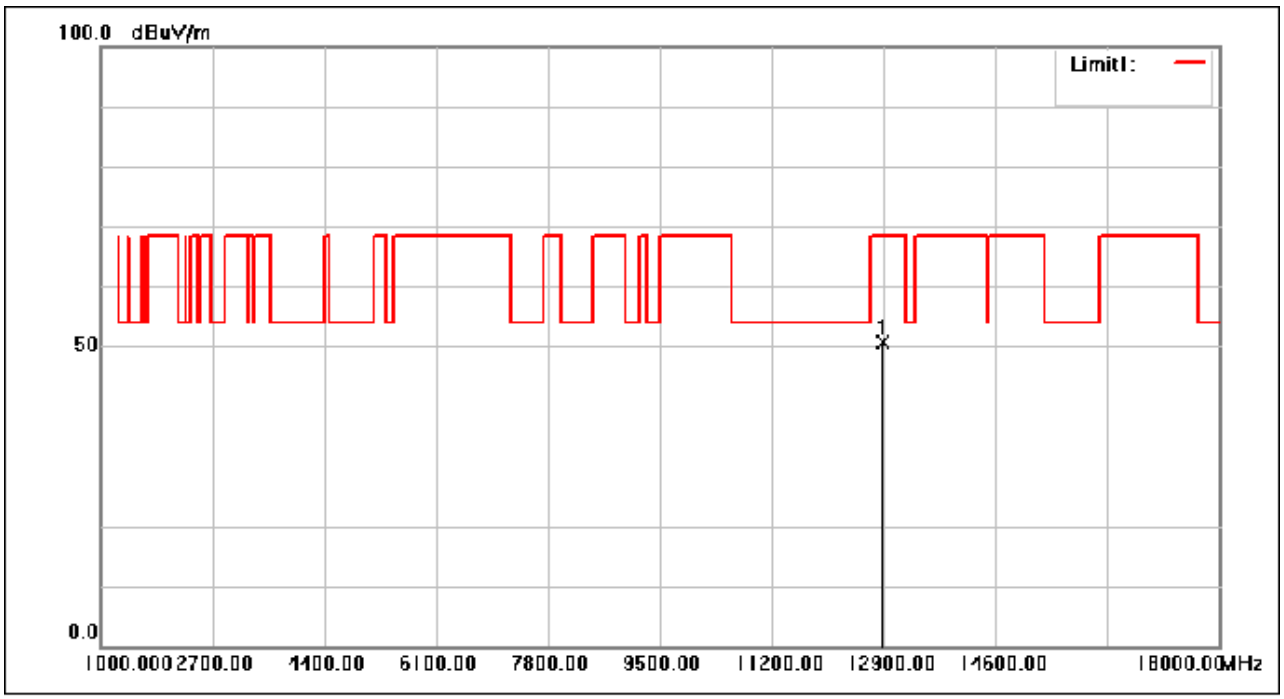
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12720.430	46.62	2.81	49.43	68.30	-18.87	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



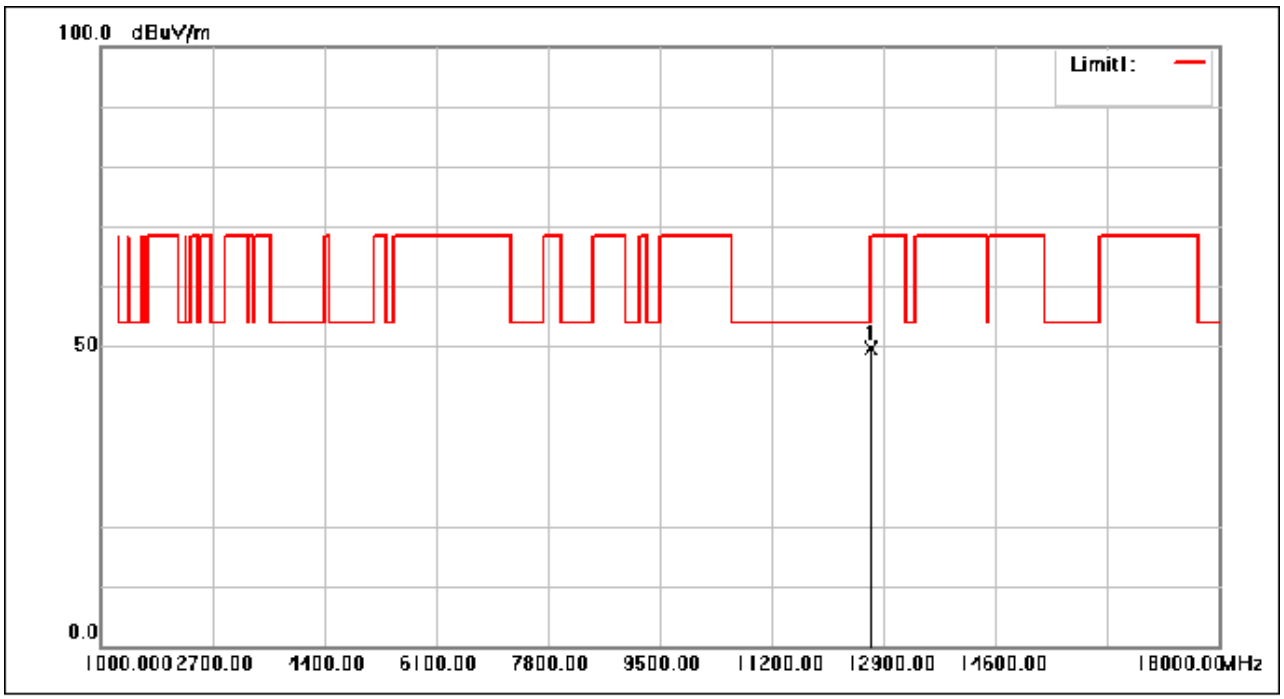
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11120.090	49.75	0.63	50.38	54.00	-3.62	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:Low



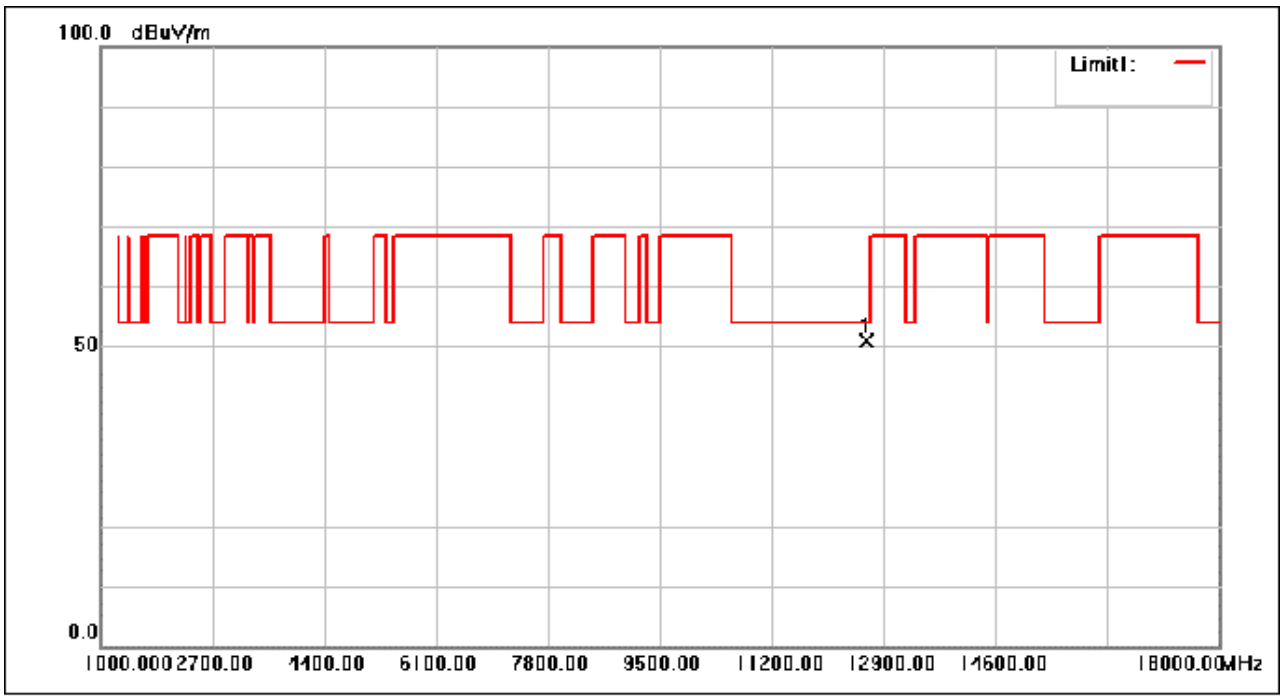
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12893.240	47.36	3.39	50.75	68.30	-17.55	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:Low



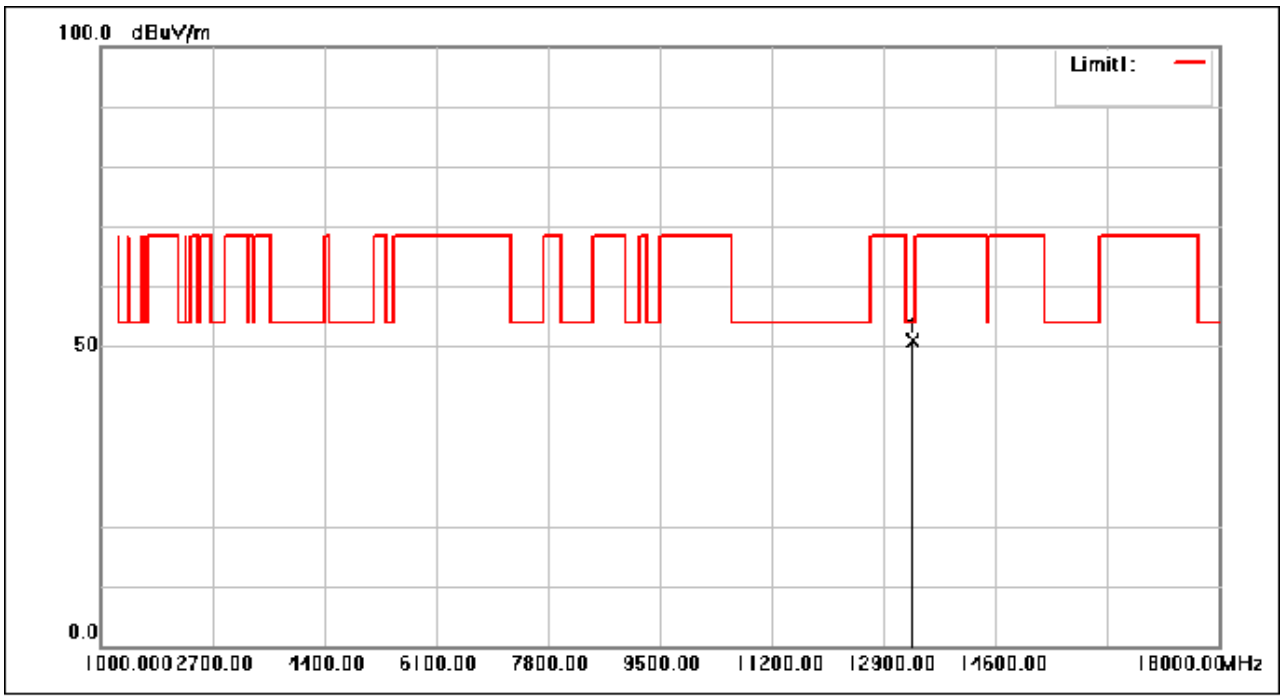
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12702.720	46.82	2.75	49.57	68.30	-18.73	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:middle



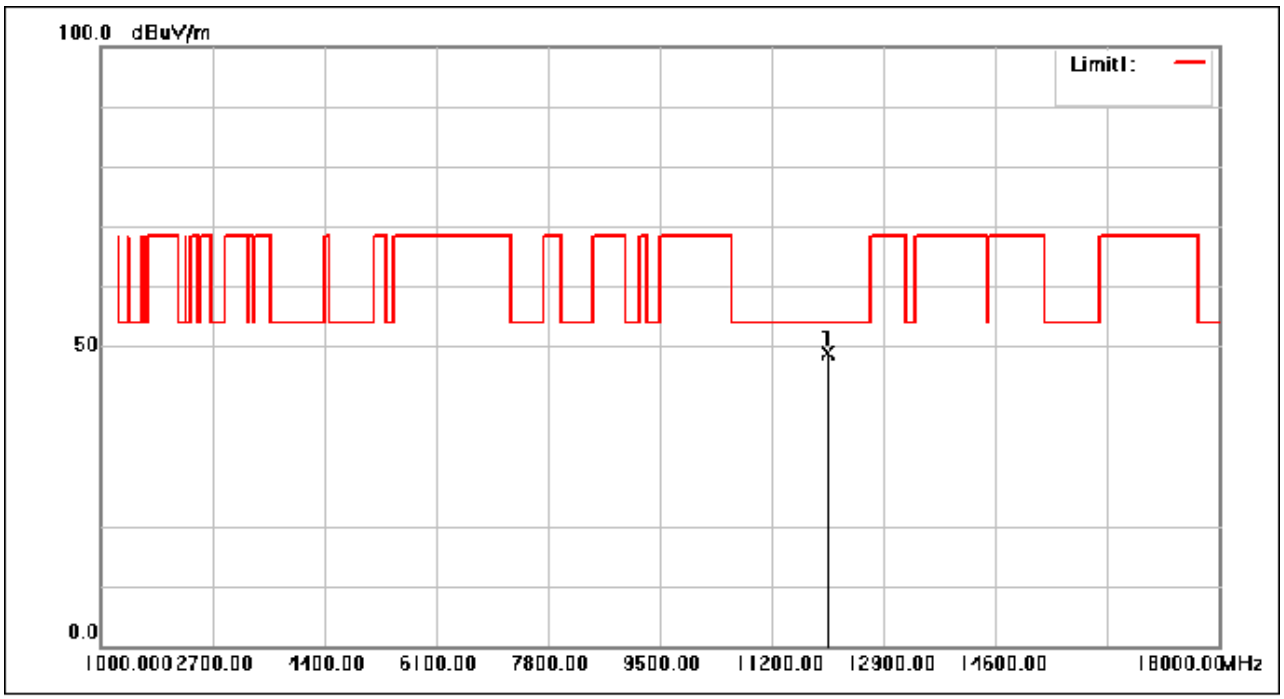
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12642.360	48.32	2.55	50.87	54.00	-3.13	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:middle



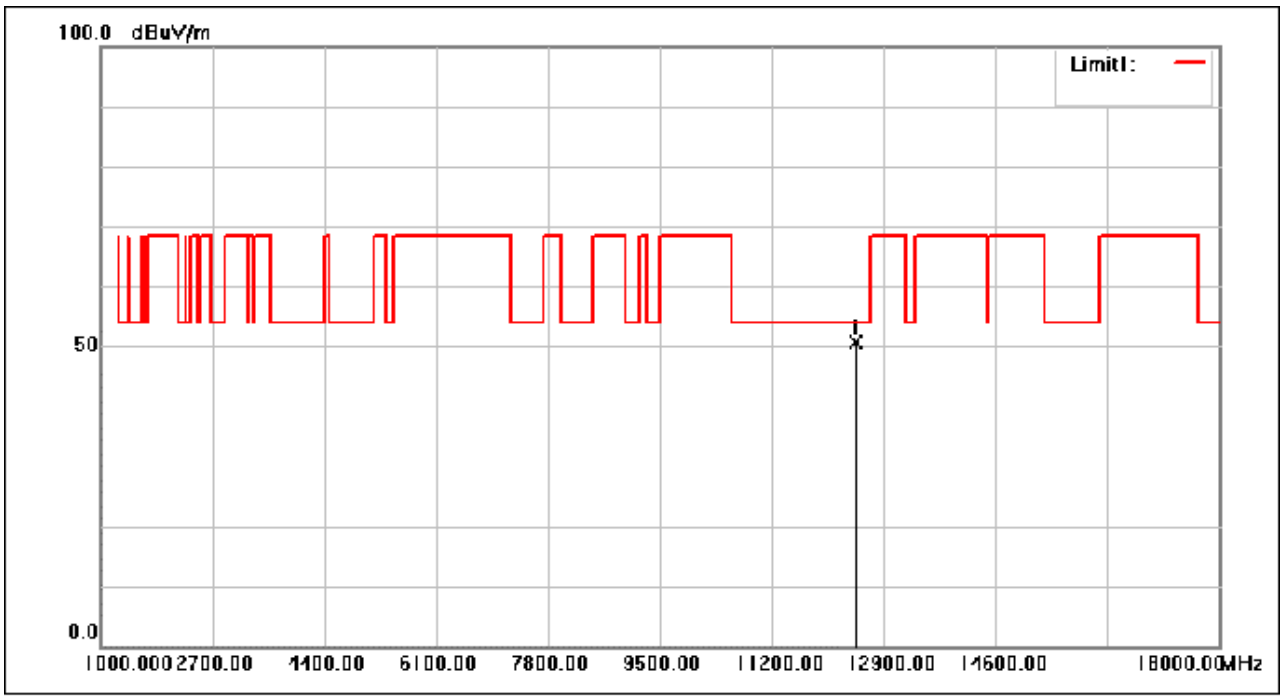
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13348.050	47.92	2.89	50.81	54.00	-3.19	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:High



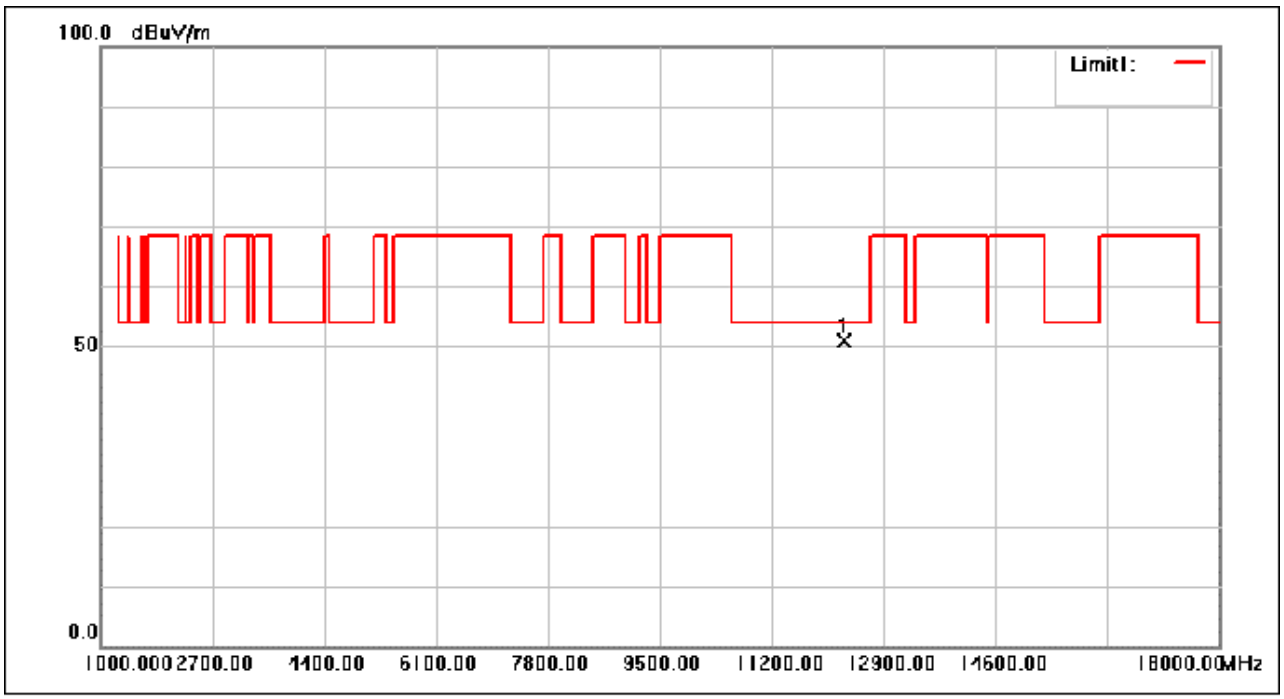
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12053.680	46.29	2.55	48.84	54.00	-5.16	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:High



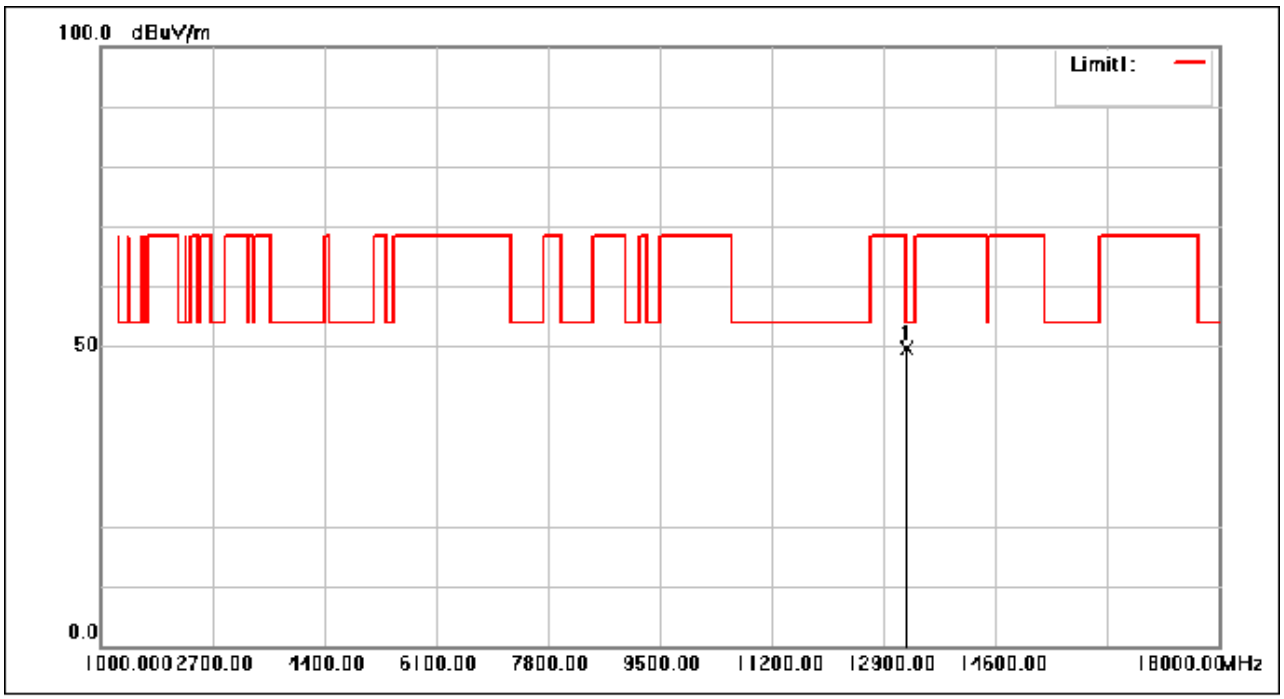
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12478.910	48.58	2.08	50.66	54.00	-3.34	peak

Test Mode: 14; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:Low



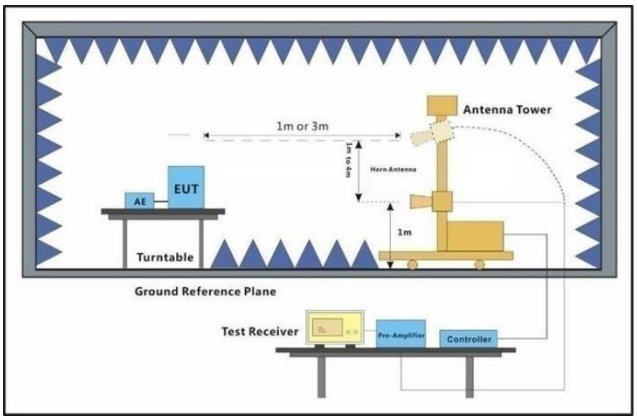
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	12293.960	48.54	2.28	50.82	54.00	-3.18	peak

Test Mode: 14; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13249.290	46.39	3.14	49.53	68.30	-18.77	peak

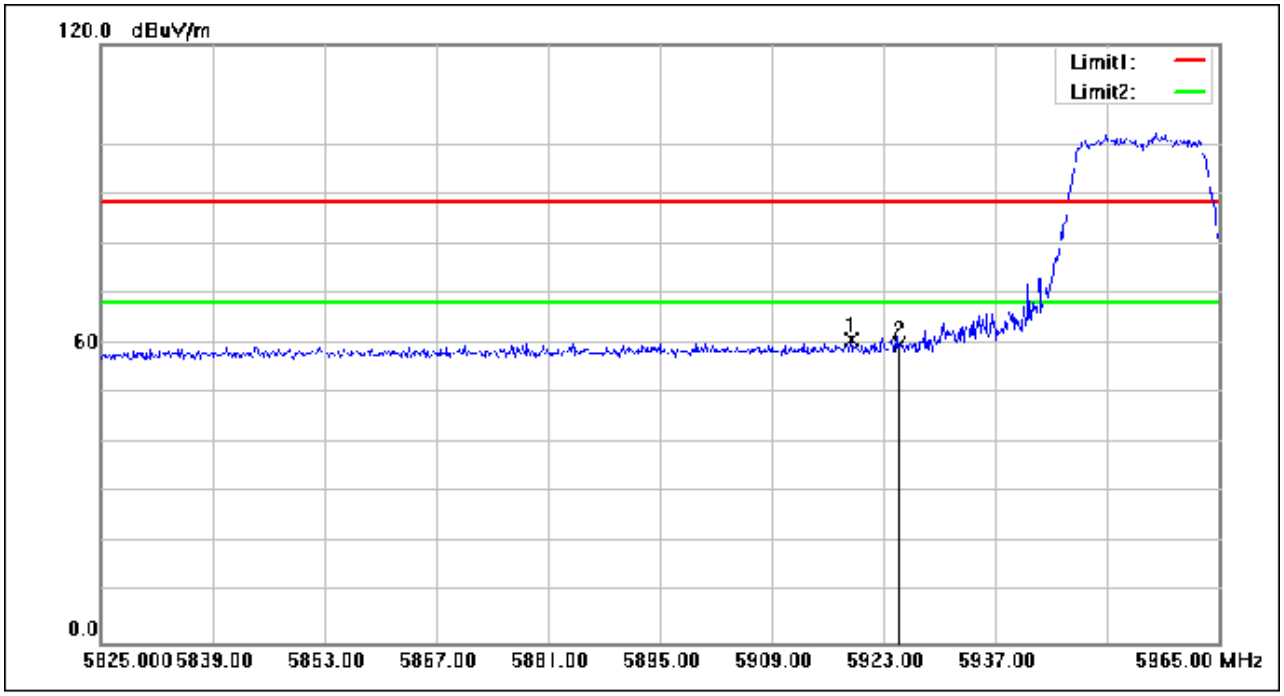
5.10 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15 Section 15.407(b)		
Test Method:	ANSI C63.10: 2013 Section 11.12		
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)		
Limit:	Frequency	Limit (dBuV/m)	Remark
	30MHz-88MHz	40.0	Quasi-peak
	88MHz-216MHz	43.5	Quasi-peak
	216MHz-960MHz	46.0	Quasi-peak
	960MHz-1GHz	54.0	Quasi-peak
	Above 1GHz	54.0	Average Value
		74.0	Peak Value
Test Setup:			
Test Procedure:	a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.		

	f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel g. Test the EUT in the outermost channels. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1.Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. This test item was investigated while operating in SISO and MIMO mode, however, it was determined that SISO antenna 1 operation for a modulation and MiMO antenna operation for ax modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.
Test Configuration:	Measurements Below 1000MHz • RBW = 120 kHz • VBW = 300 kHz • Detector = Quasi-peak • Trace mode = max hold Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW ≥ 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold Average Measurements Above 1000MHz • RBW = 1 MHz • VBW = 10Hz, when duty cycle is no less than 98 percent. • VBW ≥ 1/T, when duty cycle is less than 98 percent where Tis the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
Final Test Mode:	Refer to section 2.7 for details.
Instruments Used:	Refer to section 4 for details
Test Results:	Pass

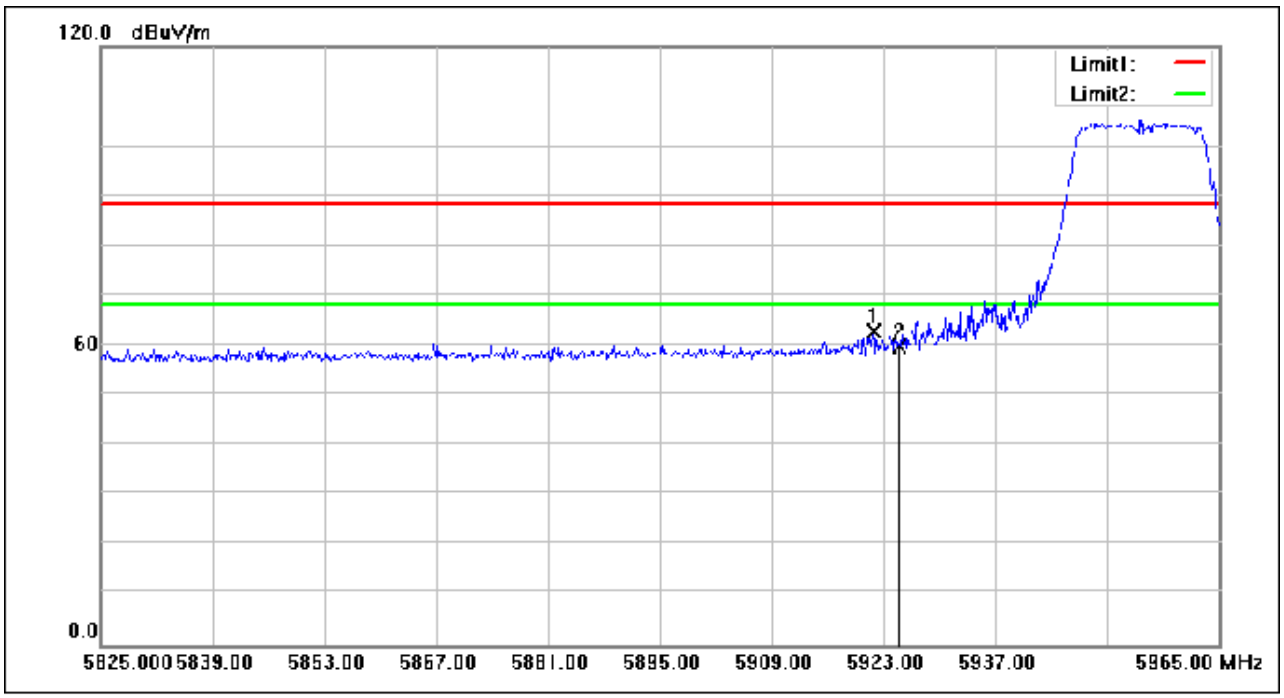
Restricted bands around fundamental frequency

Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



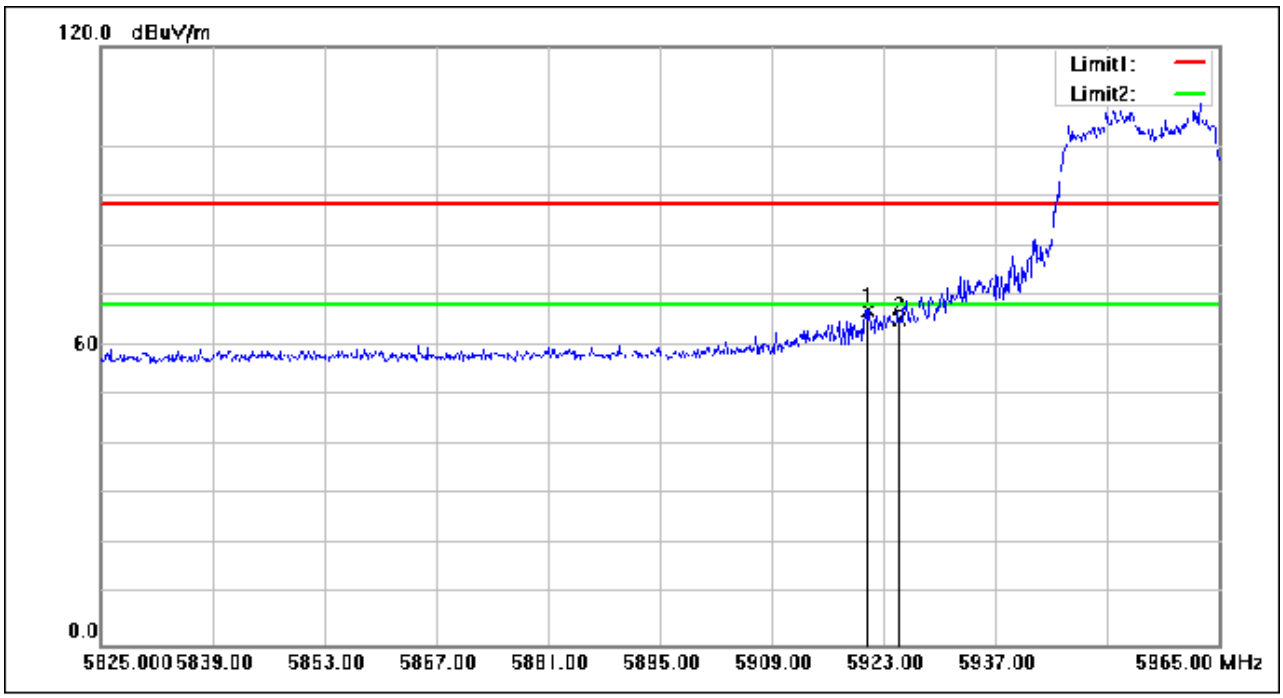
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5918.940	76.74	-16.12	60.62	88.30	-27.68	peak
2	5925.000	75.93	-16.09	59.84	88.30	-28.46	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



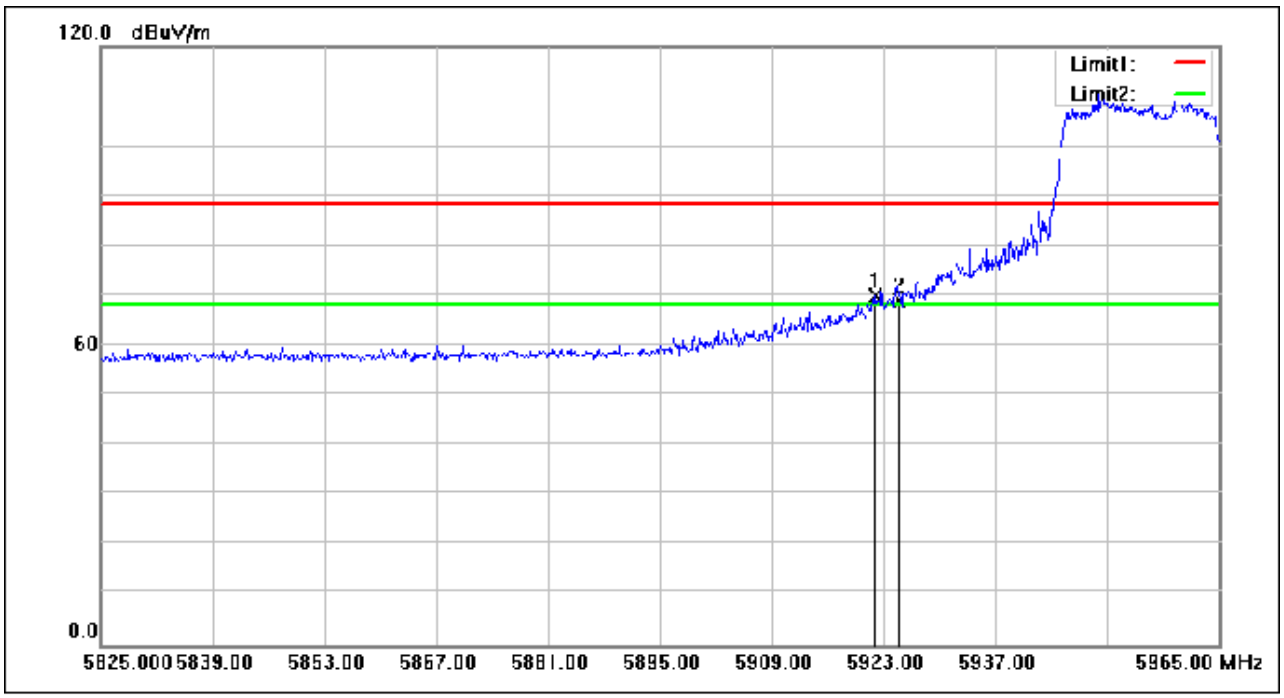
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5921.740	79.10	-16.11	62.99	88.30	-25.31	peak
2	5925.000	75.91	-16.09	59.82	88.30	-28.48	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



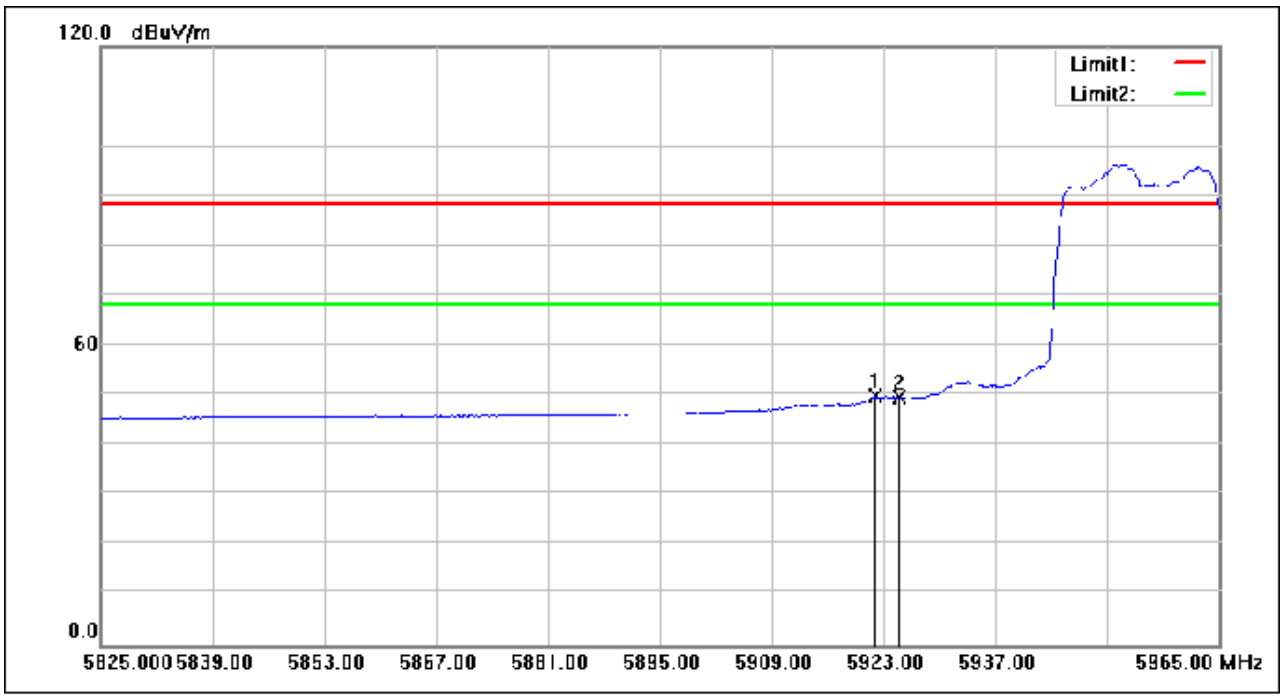
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5921.040	83.27	-16.11	67.16	88.30	-21.14	peak
2	5925.000	81.40	-16.09	65.31	88.30	-22.99	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



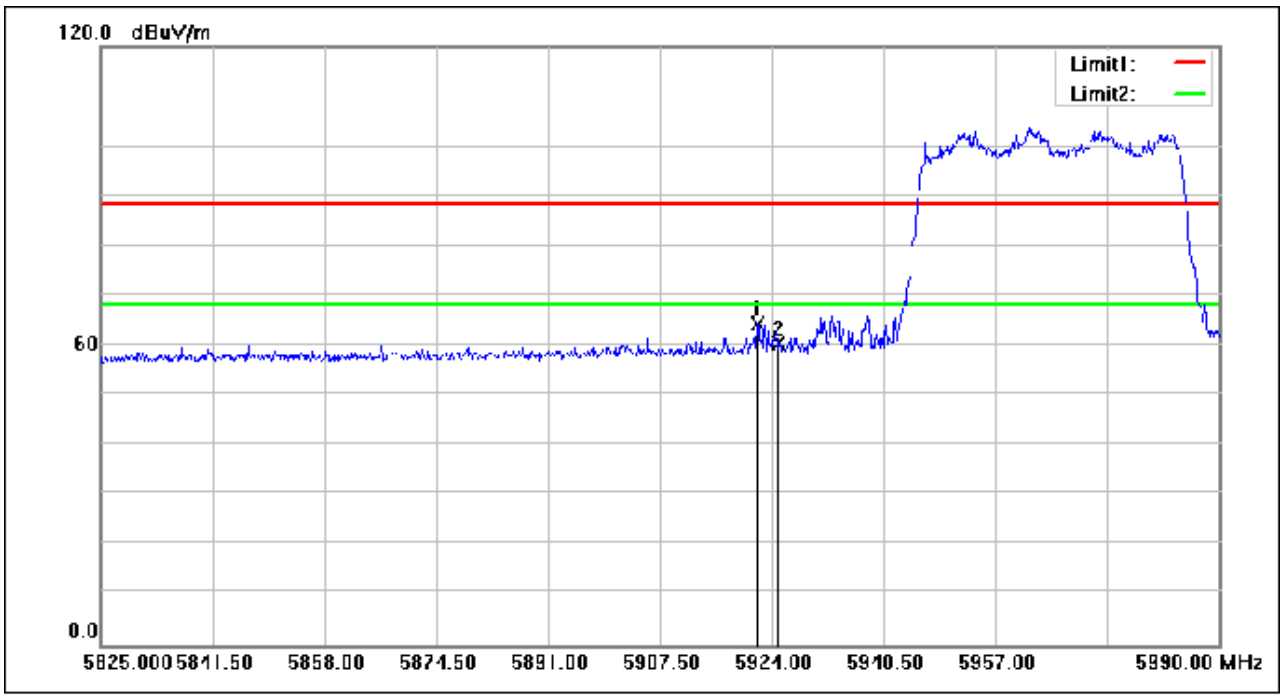
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5921.880	86.21	-16.11	70.10	88.30	-18.20	peak
2	5925.000	85.26	-16.09	69.17	88.30	-19.13	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



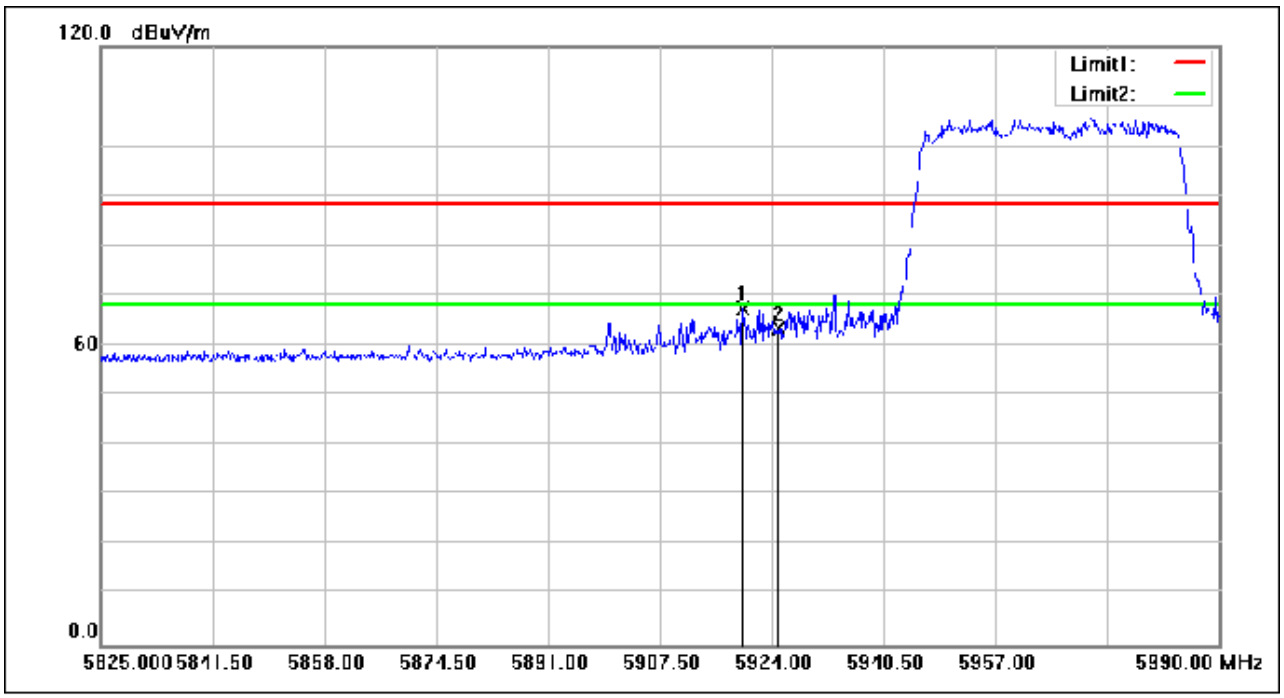
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5921.880	66.04	-16.11	49.93	68.30	-18.37	AVG
2	5925.000	65.71	-16.09	49.62	68.30	-18.68	AVG

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



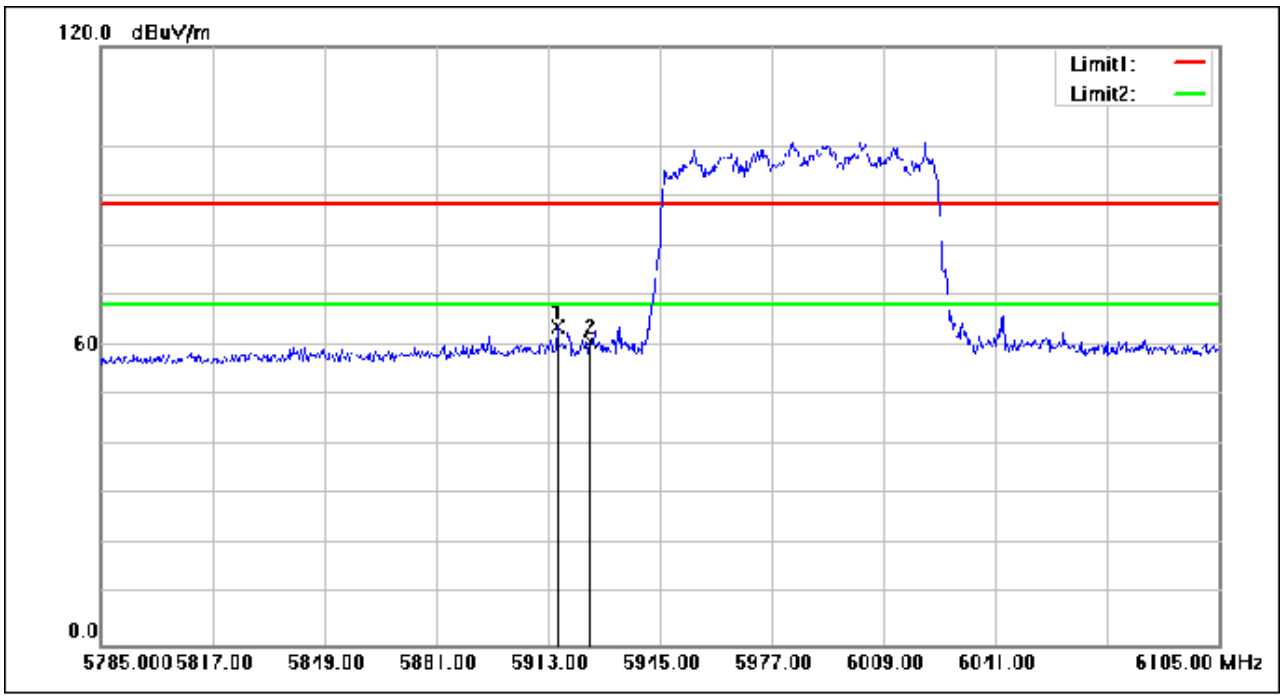
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5921.855	80.34	-16.11	64.23	88.30	-24.07	peak
2	5925.000	76.40	-16.09	60.31	88.30	-27.99	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



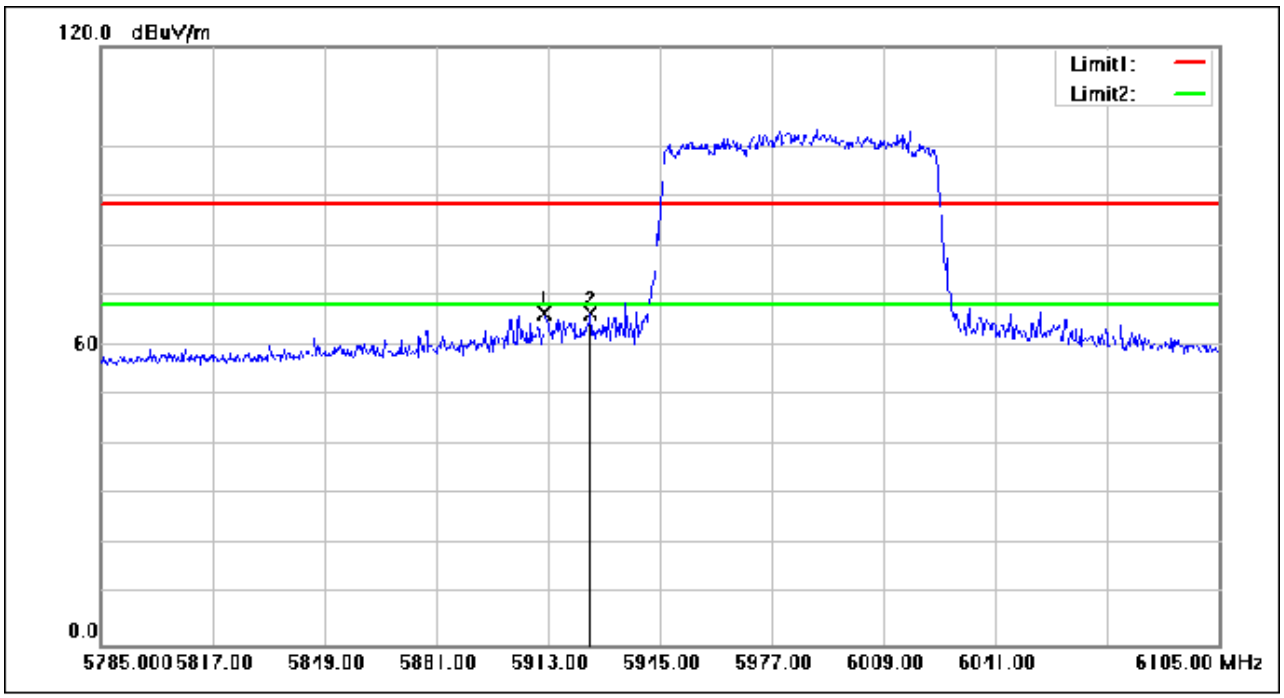
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5919.710	83.49	-16.11	67.38	88.30	-20.92	peak
2	5925.000	79.61	-16.09	63.52	88.30	-24.78	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:Low



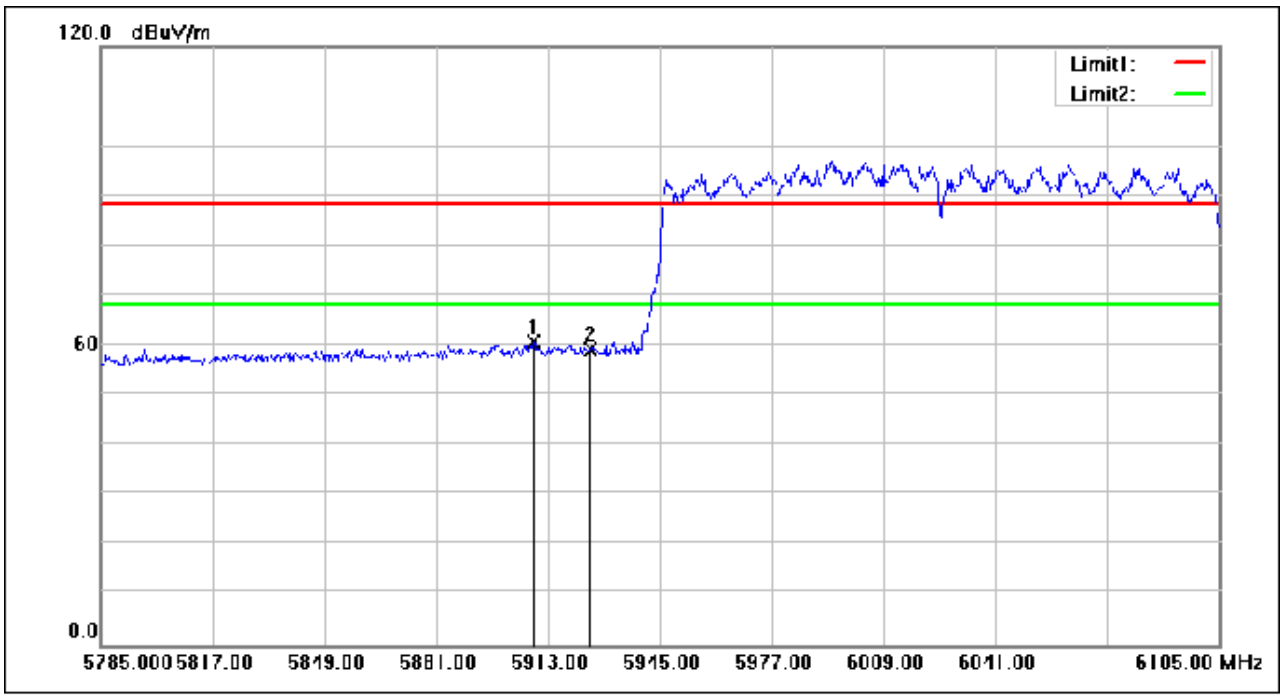
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5915.560	79.98	-16.13	63.85	88.30	-24.45	peak
2	5925.000	76.87	-16.09	60.78	88.30	-27.52	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:80MHz; Channel:Low



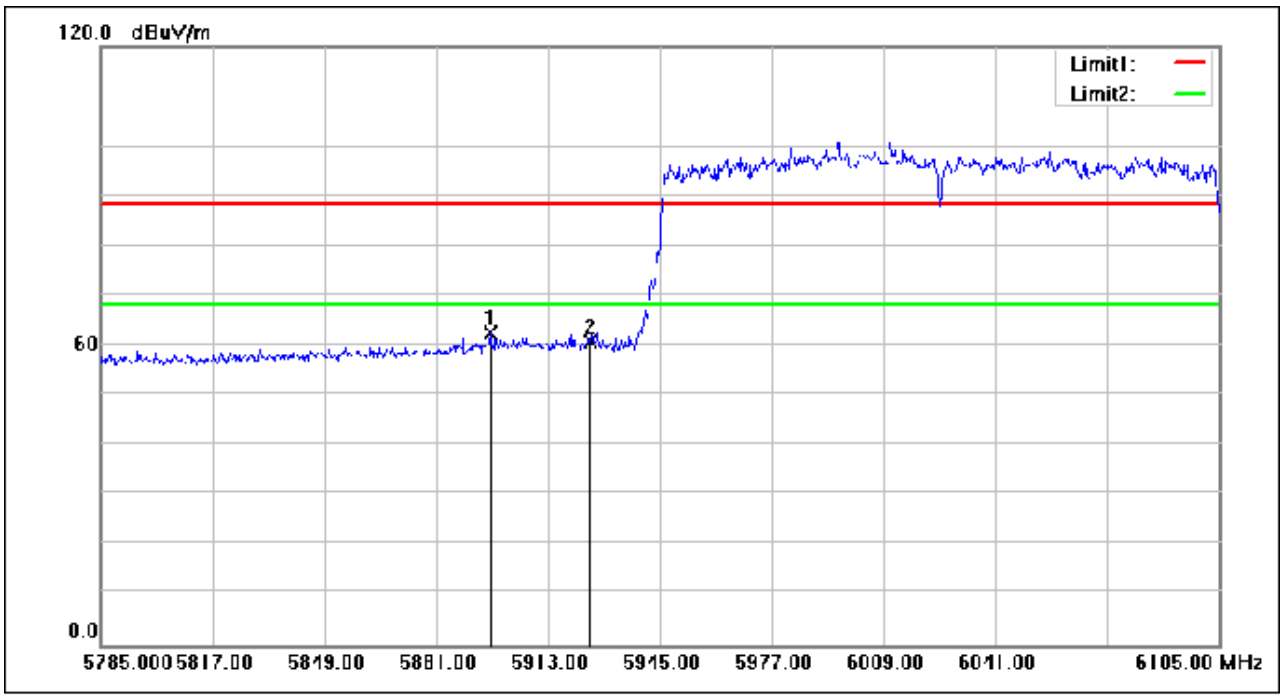
No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5912.040	82.45	-16.14	66.31	88.30	-21.99	peak
2	5925.000	82.67	-16.09	66.58	88.30	-21.72	peak

Test Mode: 12; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5908.840	76.77	-16.16	60.61	88.30	-27.69	peak
2	5925.000	75.49	-16.09	59.40	88.30	-28.90	peak

Test Mode: 12; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:160MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV/m)	Correction factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5896.360	78.70	-16.21	62.49	88.30	-25.81	peak
2	5925.000	76.73	-16.09	60.64	88.30	-27.66	peak

1) All channels have been tested, but only the worst case data displayed in this report.

6 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2406000993AT

7 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2406000993AT

- End of the Report -