

# TEST REPORT

**Application No.:** SHEM2102001596CR  
**FCC ID:** 2A6NLGT500AF  
**Applicant:** Suzhou Story Network Technology Co., Ltd.  
**Address of Applicant:** Room 1108, Sino-Singapore Eco Building, No.2 Keying Road, Suzhou Industrial Park, Jiangsu Province, China  
**Manufacturer:** Suzhou Story Network Technology Co., Ltd.  
**Address of Manufacturer:** Room 1108, Sino-Singapore Eco Building, No.2 Keying Road, Suzhou Industrial Park, Jiangsu Province, China  
**Factory:** Suzhou Story Network Technology Co., Ltd.  
**Address of Factory:** Room 1108, Sino-Singapore Eco Building, No.2 Keying Road, Suzhou Industrial Park, Jiangsu Province, China

**Equipment Under Test (EUT):**

**EUT Name:** LTE MiFi  
**Model No.:** GT500AF  
**Trade Mark:** Getcom.AI  
**Standard(s) :** 47 CFR Part 15, Subpart E 15.407  
**Date of Receipt:** 2021-05-27  
**Date of Test:** 2021-11-09 to 2021-11-20  
**Date of Issue:** 2021-12-13

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

*Parlam Zhan*

Parlam Zhan  
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2021-12-13	/

Authorized for issue by:				
				
		<u>Micheal Niu / Project Engineer</u>		
				
		<u>Parlam Zhan / Reviewer</u>		



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## 2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Transmission in the Absence of Data	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart E 15.407 (c)	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207 & 47 CFR Part 15, Subpart E 15.407 b(6)	Pass
99% Bandwidth	47 CFR Part 15, Subpart E 15.407	KDB 789033 II D	N/A	Pass
26dB Emission bandwidth	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 1	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band )	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 2	47 CFR Part 15, Subpart E 15.407 (e)	Pass
Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II E	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Peak Power spectrum density	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II F	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Radiated Emissions	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Frequency Stability	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart E 15.407 (g)	Pass

N/A: Not applicable



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: DC 5V

Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels
	UNII Band III	802.11a/n(HT20)/ac(VHT20)	5745-5825	5
		802.11n(HT40)/ac(VHT40)	5755-5795	2
		802.11ac(VHT80)	5775	1
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)			
Date Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-15 802.11ac: MCS0-9			
Channel Spacing:	802.11a/n(HT20)/ac(VHT20): 20MHz 802.11n(HT40)/ac(VHT40): 40MHz 802.11ac(VHT80): 80MHz			
Antenna Gain:	Ant 1: 1.94dBi (Provided by manufacturer) Ant 2: 2.66dBi (Provided by manufacturer) Directional gain: 5.32dBi			
Antenna Type:	Antenna 1: FPC Antenna Antenna 2: FPC Antenna			



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## 4.2 Power level setting using in test:

Channel	802.11a		802.11n(HT20)		802.11ac(VHT21)	
	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2
149	40	45	48	52	48	52
157	40	45	48	52	48	52
165	40	45	48	52	48	52
Channel	802.11n(HT40)		802.11ac(VHT40)			
	Ant 1	Ant 2	Ant 1	Ant 2		
151	51	55	51	55		
159	51	55	51	55		
Channel	802.11ac(VHT80)					
	Ant 1	Ant 2				
155	51	55				



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### 4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Note Book	Acer	ZQT	NXM0QCN01031403EE876

### 4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$8.4 \times 10^{-8}$
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)
		4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
9	Radiated Spurious Emission Test	5.4dB (Above 18GHz)
		1°C
		3%
		1.5%
10	Temperature Test	3%
11	Humidity Test	1.5%
12	Supply Voltages	3%
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.



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## 4.5 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.

## 4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### • CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

### • A2LA (Certificate No. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

### • FCC (Designation Number: CN1172)

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

### • ISED (CAB identifier: CN0072)

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 (Member No.: 1938)

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.

## 4.7 Deviation from Standards

None

## 4.8 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date
<b>Conducted Emission at Mains Terminals (150kHz-30MHz)</b>						
1	EMI Test Receive	R&S	ESCI	100781	02/01/2021	01/31/2022
2	LISN	R&S	ENV216	101604	10/12/2021	10/11/2022
3	LISN	Schwarzbeck	NNLK 8129	8129-143	10/12/2021	10/11/2022
4	Pulse Limiter	R&S	ESH3-Z2	100609	02/01/2021	01/31/2022
5	CE test Cable	Thermax	/	14	10/16/2021	10/15/2022
6	Test Software	Farad	EZ-EMC	CCS-03A1	N.C.R	N.C.R
<b>RF Conducted Test</b>						
1	Spectrum Analyzer	Agilent	E4446A	MY44020154	04/16/2021	04/15/2022
2	Spectrum Analyzer	Keysight	N9020A	MY55370209	10/11/2021	10/10/2022
3	Spectrum Analyzer	Keysight	N9010A	MY56480443	02/01/2021	01/31/2022
4	Signal Generator	Agilent	N5182A	MY50142015	08/27/2021	08/26/2022
5	Radio Communication Test Station	Anritsu	MT8000A	6262012849	N/A	N/A
6	Radio Communication Analyzer	Anritsu	MT8821C	6201692222	N/A	N/A
7	Universal Radio Communication Tester	R&S	CMW500	159275	10/12/2021	10/11/2022
8	Universal Radio Communication Tester	R&S	CMW500	167239	04/16/2021	04/15/2022
9	Power Meter	Anritsu	ML2495A	1445010	04/15/2021	04/14/2022
10	Switcher	CCSRF	FY562	KUS2001M001-3	10/12/2021	10/11/2022
11	AC Power Source	EXTECH	6605	1570106	N.C.R	N.C.R
12	DC Power Supply	Aglient	E3632A	MY50340053	N.C.R	N.C.R
13	6dB Attenuator	Mini-Circuits	NAT-6-2W	15542-1	N.C.R	N.C.R
14	Power Divider	AI SI	IOWOPE2068	PE2068	N.C.R	N.C.R
15	Filter	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
16	Conducted test cable	/	RF01-RF04	/	04/15/2021	04/14/2022
17	Software	BST	TST-PASS	N/A	N/A	N/A
18	Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	04/15/2021	04/14/2022
19	Thermometer	Anymetre	TH603	CCS007	10/14/2021	10/13/2022
<b>RF Radiated Test</b>						
1	Spectrum Analyzer	R&S	FSV40	101493	10/11/2021	10/10/2022
2	Signal Generator	Agilent	E8257C	MY43321570	10/18/2021	10/17/2022
3	Loop Antenna	Schwarzbeck	HXYZ9170	9170-108	02/22/2021	02/21/2022
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/21/2021	06/20/2023
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/13/2021	04/12/2023
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	10/26/2020	10/25/2022
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/22/2021	02/21/2023
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/22/2021	02/21/2022
9	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/15/2021	04/14/2022
10	Amplifier(18~40GHz)	COM-POWER	PAM-840A	461332	10/18/2021	10/17/2022
11	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R
12	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R
13	Filter (5450MHz~5770 MHz)	MICRO-TRONICS	BRC50704-01	2	N.C.R	N.C.R
14	Filter (5690 MHz~5930 MHz)	MICRO-TRONICS	BRC50705-01	4	N.C.R	N.C.R
15	Filter (5150 MHz~5350 MHz)	MICRO-TRONICS	BRC50703-01	2	N.C.R	N.C.R



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16	Filter (885 MHz~915 MHz)	MICRO-TRONICS	BRM14698	1	N.C.R	N.C.R
17	Filter (815 MHz~860 MHz)	MICRO-TRONICS	BRM14697	1	N.C.R	N.C.R
18	Filter (1745 MHz~1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R
19	Filter (1922 MHz~1977 MHz)	MICRO-TRONICS	BRM50715	1	N.C.R	N.C.R
20	Filter (2550 MHz)	MICRO-TRONICS	HPM13362	5	N.C.R	N.C.R
21	Filter (1532 MHz~1845 MHz)	MICRO-TRONICS	BRM50713	1	N.C.R	N.C.R
22	Filter (2.4GHz)	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
23	RE test cable	/	RE01-RE04	/	04/15/2021	04/14/2022
24	Software	Faratronic	EZ_EMV-v 3A1	N/A	N/A	N/A



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## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

#### 6.1.2 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 1 and antenna 2 is FPC antenna, and all no consideration of replacement. The best case gain of the antenna 1 is 1.94dBi. and antenna 2 is 2.66dBi.

Antenna location: Refer to Appendix (Internal Photos).



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## 6.2 Transmission in the Absence of Data

### 6.2.1 Test Requirement:

47 CFR Part 15, Subpart E 15.407 (c)

### 6.2.2 Conclusion

Standard Requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Applicants shall include in their application for equipment authorization a description of how this requirement is met.

EUT Details:

WIFI chip (RTL8822C-1315) support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detect absence of information to transmit or operational failure, it will be automatically shut off.



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## 7 Radio Spectrum Matter Test Results

### 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207 & 47 CFR Part 15, Subpart E 15.407 b(6)

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

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

\*Decreases with the logarithm of the frequency.



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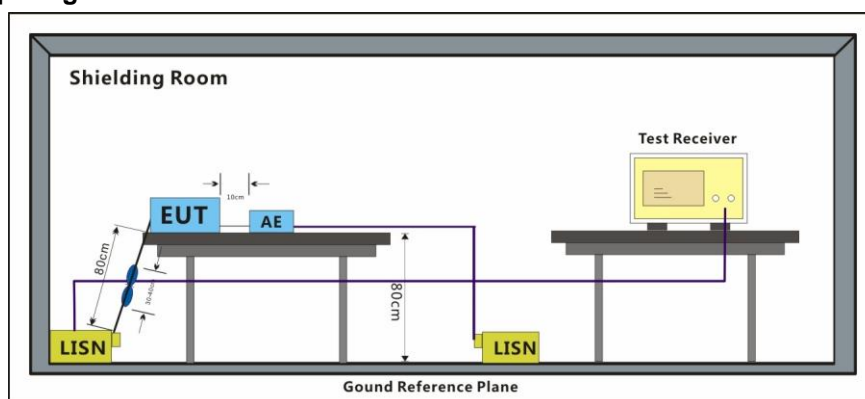
### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.1.2 Test Setup Diagram



### 7.1.3 Measurement Procedure and Data

- 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 50ohm/50μH + 5ohm 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 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor



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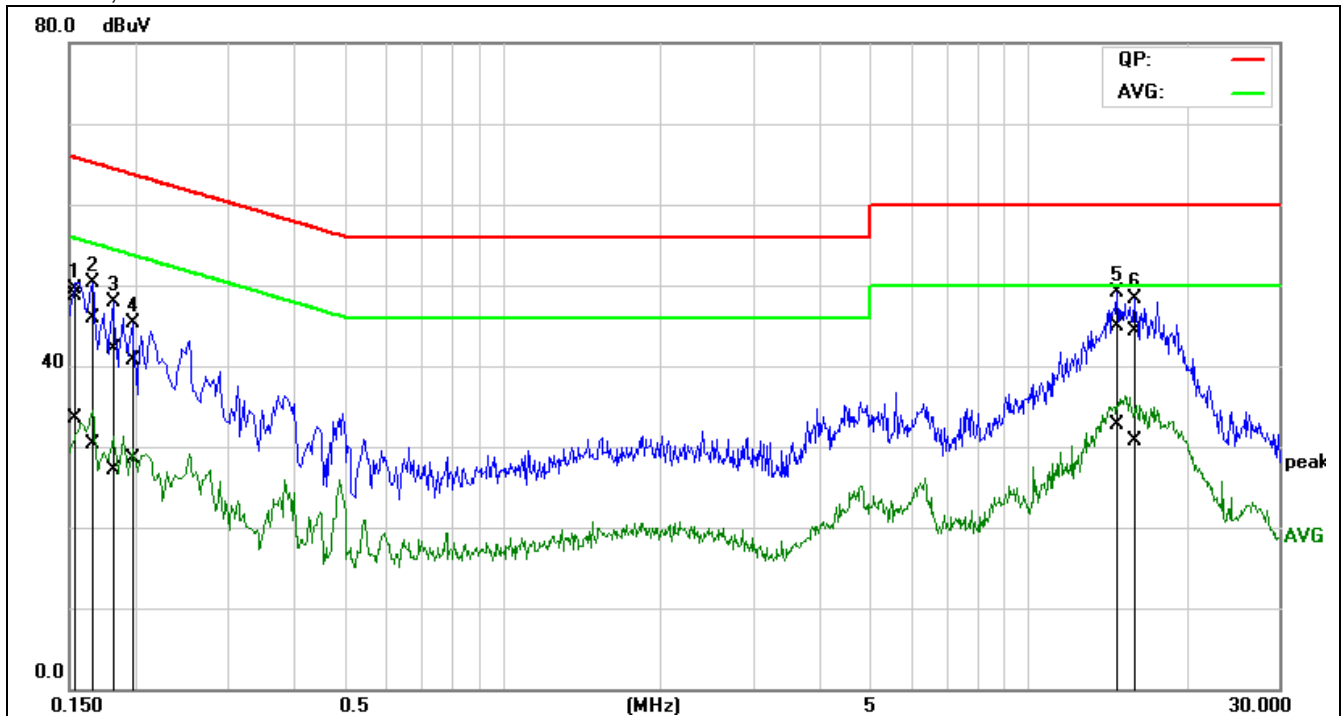
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Mode:b; Line:Live Line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1502	29.29	14.13	19.46	48.75	33.59	65.98	55.99	-17.23	-22.40	Pass
2	0.1642	26.36	10.86	19.46	45.82	30.32	65.24	55.25	-19.42	-24.93	Pass
3	0.1822	22.57	7.67	19.46	42.03	27.13	64.38	54.38	-22.35	-27.25	Pass
4	0.1963	21.32	9.07	19.46	40.78	28.53	63.76	53.77	-22.98	-25.24	Pass
5*	14.7656	24.87	12.55	20.13	45.00	32.68	60.00	50.00	-15.00	-17.32	Pass
6	15.9533	24.20	10.64	20.16	44.36	30.80	60.00	50.00	-15.64	-19.20	Pass



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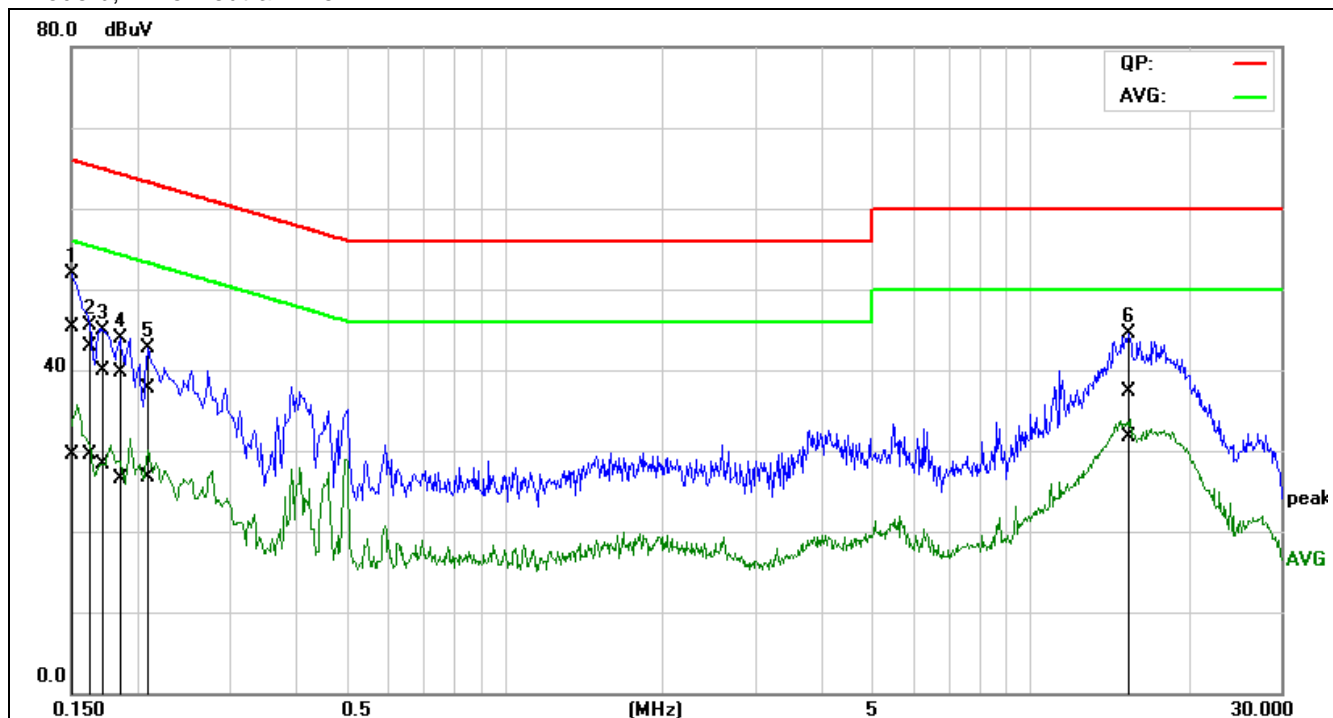
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Mode:b; Line:Neutral Line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1505	25.98	10.01	19.42	45.40	29.43	65.97	55.97	-20.57	-26.54	Pass
2	0.1638	23.42	10.12	19.42	42.84	29.54	65.26	55.27	-22.42	-25.73	Pass
3	0.1733	20.58	8.86	19.42	40.00	28.28	64.80	54.80	-24.80	-26.52	Pass
4	0.1836	20.24	7.00	19.43	39.67	26.43	64.32	54.32	-24.65	-27.89	Pass
5	0.2075	18.23	7.35	19.43	37.66	26.78	63.30	53.30	-25.64	-26.52	Pass
6*	15.4294	17.25	11.64	20.14	37.39	31.78	60.00	50.00	-22.61	-18.22	Pass



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## 7.2 99% Bandwidth

Test Requirement N/A

Test Method: KDB 789033 II D

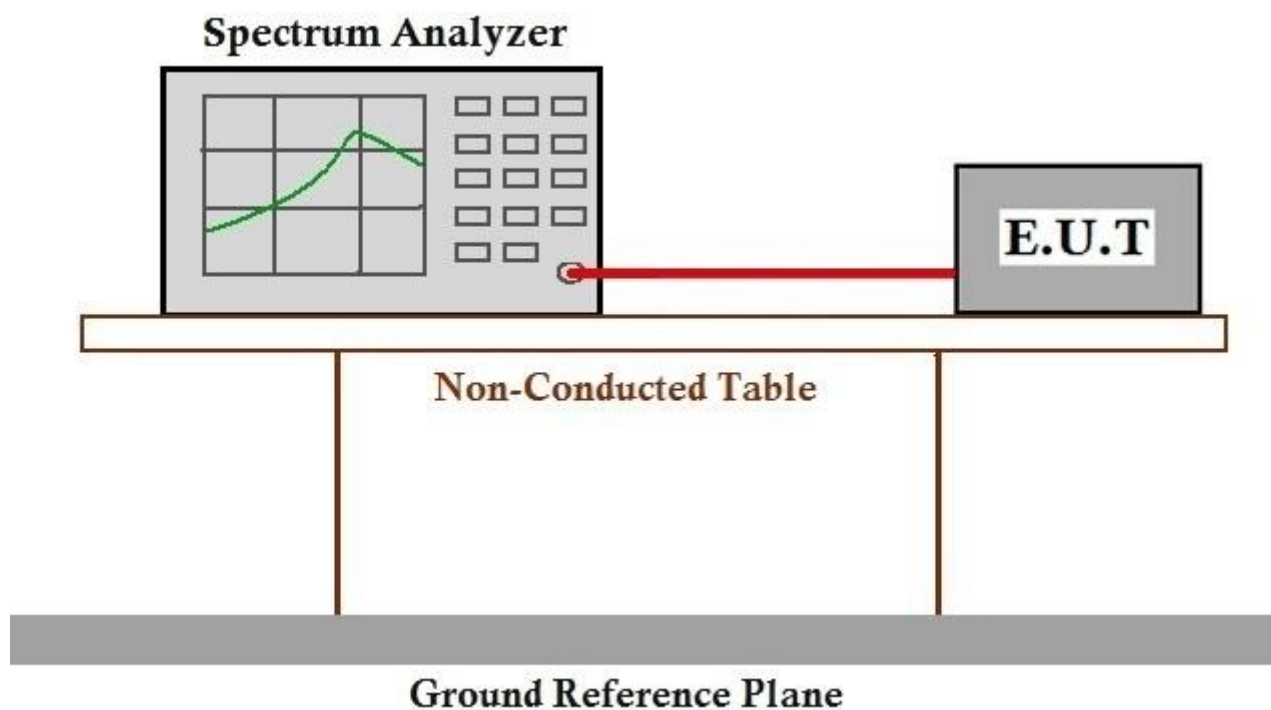
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.2.2 Test Setup Diagram



### 7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210200159602



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### 7.3 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II C 1

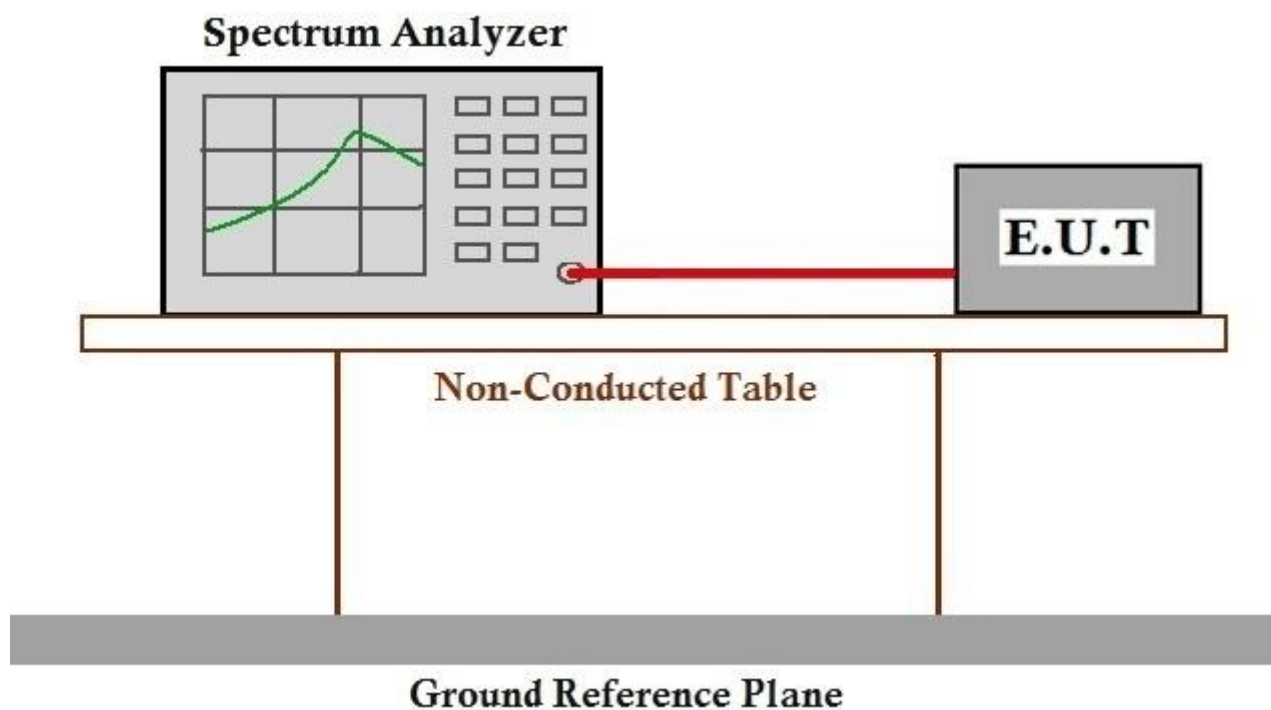
#### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

#### 7.3.2 Test Setup Diagram



#### 7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210200159602



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## 7.4 Minimum 6 dB bandwidth (5.725-5.85 GHz band )

Test Requirement 47 CFR Part 15, Subpart E 15.407 (e)  
 Test Method: KDB 789033 D02 II C 2  
 Limit:  $\geq 500$  kHz

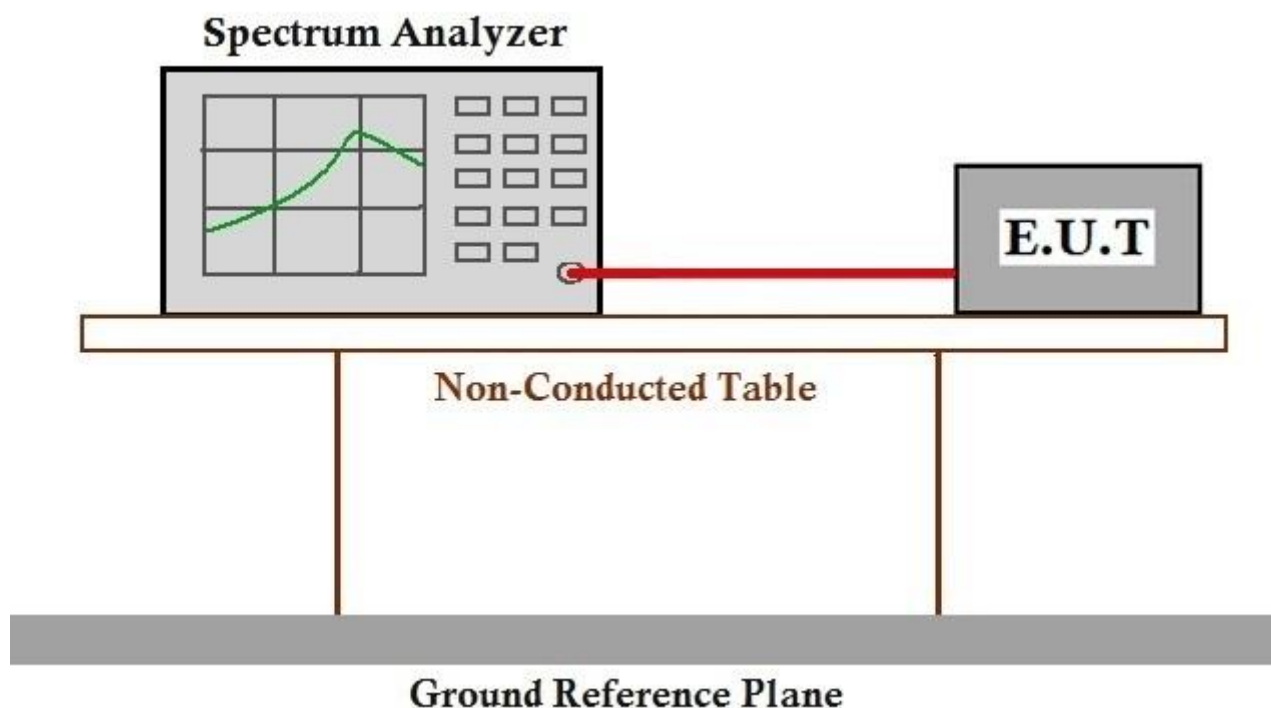
### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.4.2 Test Setup Diagram



### 7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210200159602



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## 7.5 Maximum Conducted output power

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

Frequency band(MHz)	Limit
5150-5250	$\leq 1\text{W}(30\text{dBm})$ for master device
	$\leq 250\text{mW}(24\text{dBm})$ for client device
5250-5350	$\leq 250\text{mW}(24\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$
5470-5725	$\leq 250\text{mW}(24\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$
5725-5850	$\leq 1\text{W}(30\text{dBm})$
Remark:	<p>* Where B is the 26dB emission bandwidth in MHz.</p> <p>The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.</p>



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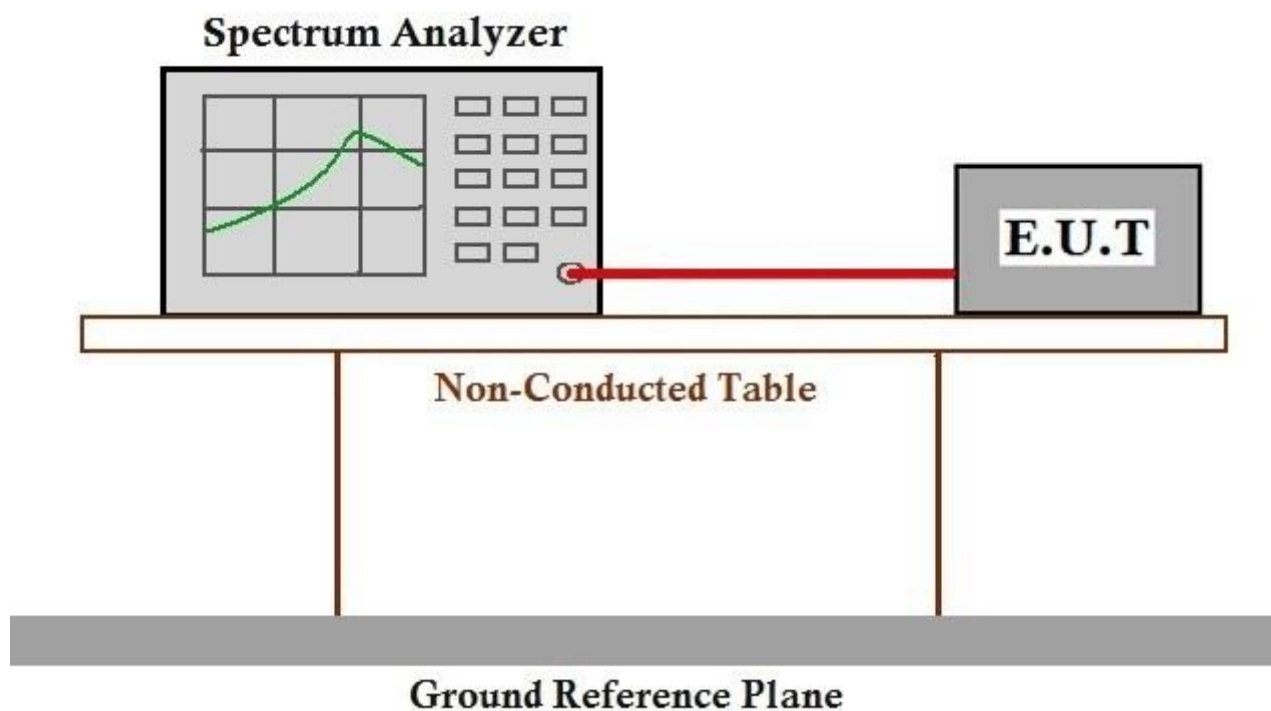
### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.5.2 Test Setup Diagram



### 7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210200159602



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## 7.6 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II F

Limit:

Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark:	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.



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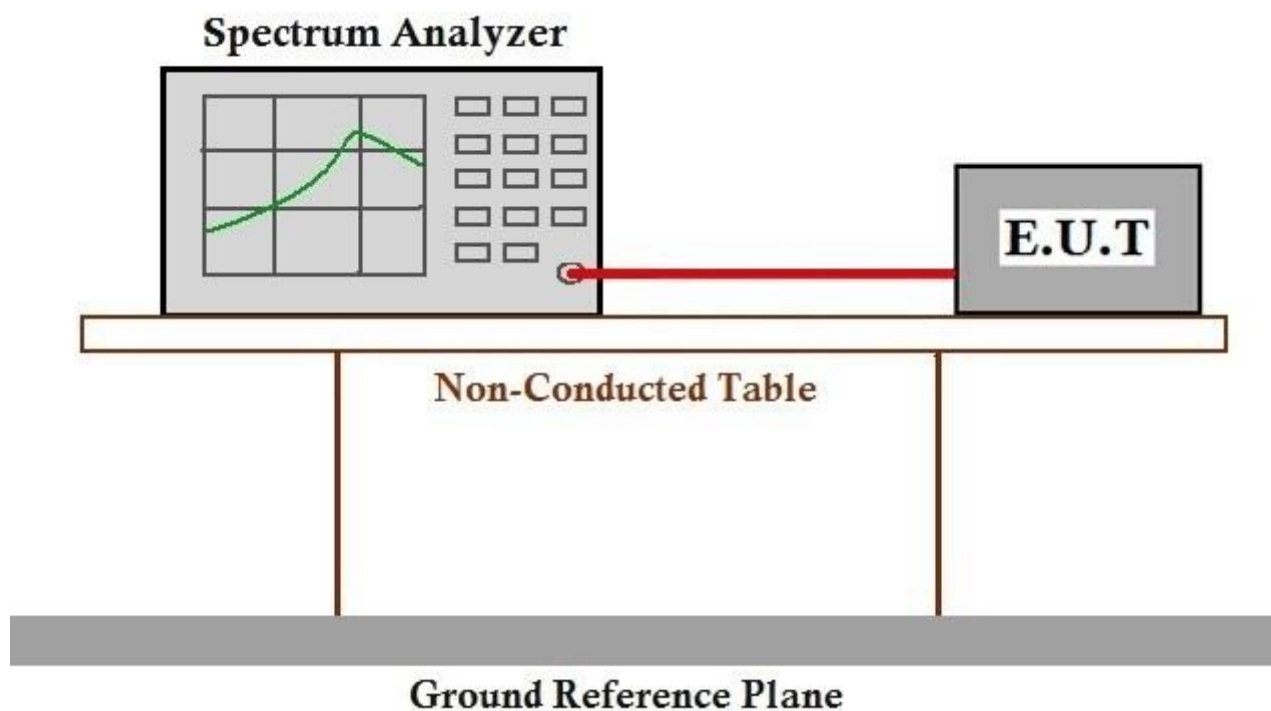
### 7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.6.2 Test Setup Diagram



### 7.6.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210200159602



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## 7.7 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

### Limit:

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 (68.2dBuV/m).

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 (68.2dBuV/m).

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 (68.2dBuV/m).

For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz (68.2dBuV/m) at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz (105.2dBuV/m) at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz (110.8dBuV/m) at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz (122.2dBuV/m) at the band edge.



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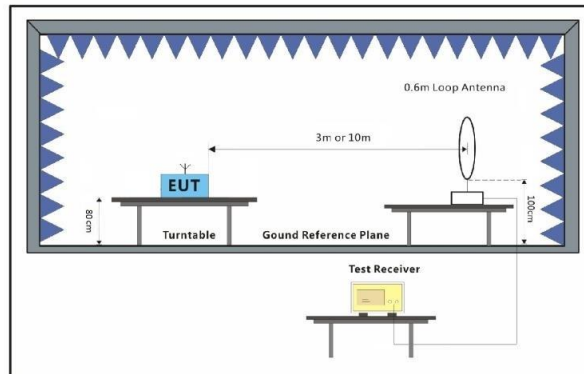
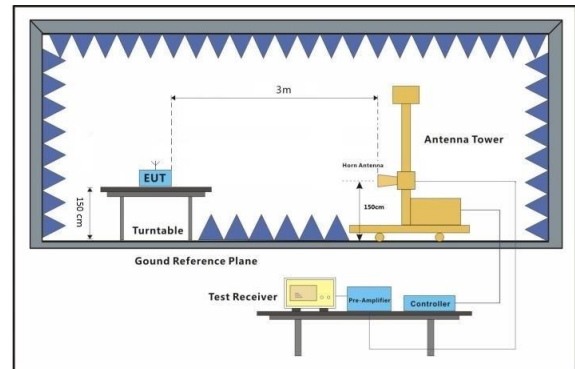
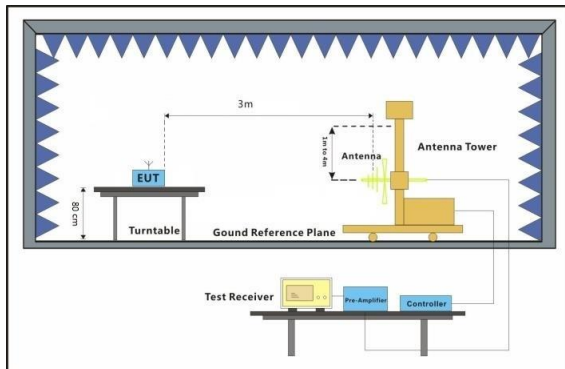
### 7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.7.2 Test Setup Diagram





### 7.7.3 Measurement Procedure and Data

- a. For below 1GHz, 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 chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) 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. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

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 40GHz, the disturbance above 18GHz and 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. 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.
5. 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 ac/n modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.



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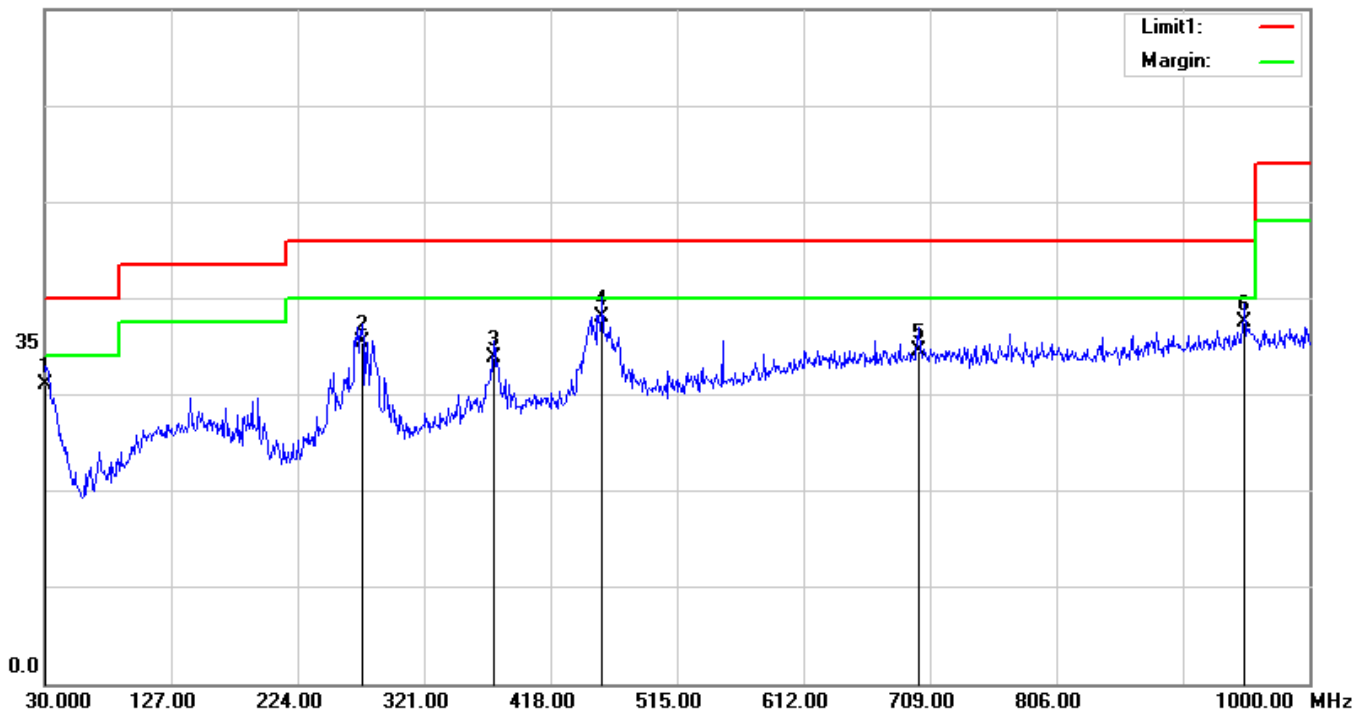
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30MHz-1GHz

Horizontal

70.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.9700	5.70	25.38	31.08	40.00	-8.92	100	229	QP
2	273.4700	15.43	19.93	35.36	46.00	-10.64	100	321	QP
3	374.3500	10.82	22.96	33.78	46.00	-12.22	100	337	QP
4	457.7700	13.70	24.45	38.15	46.00	-7.85	100	186	QP
5	700.2700	7.06	27.50	34.56	46.00	-11.44	104	361	QP
6	950.5300	8.16	29.30	37.46	46.00	-8.54	100	212	QP



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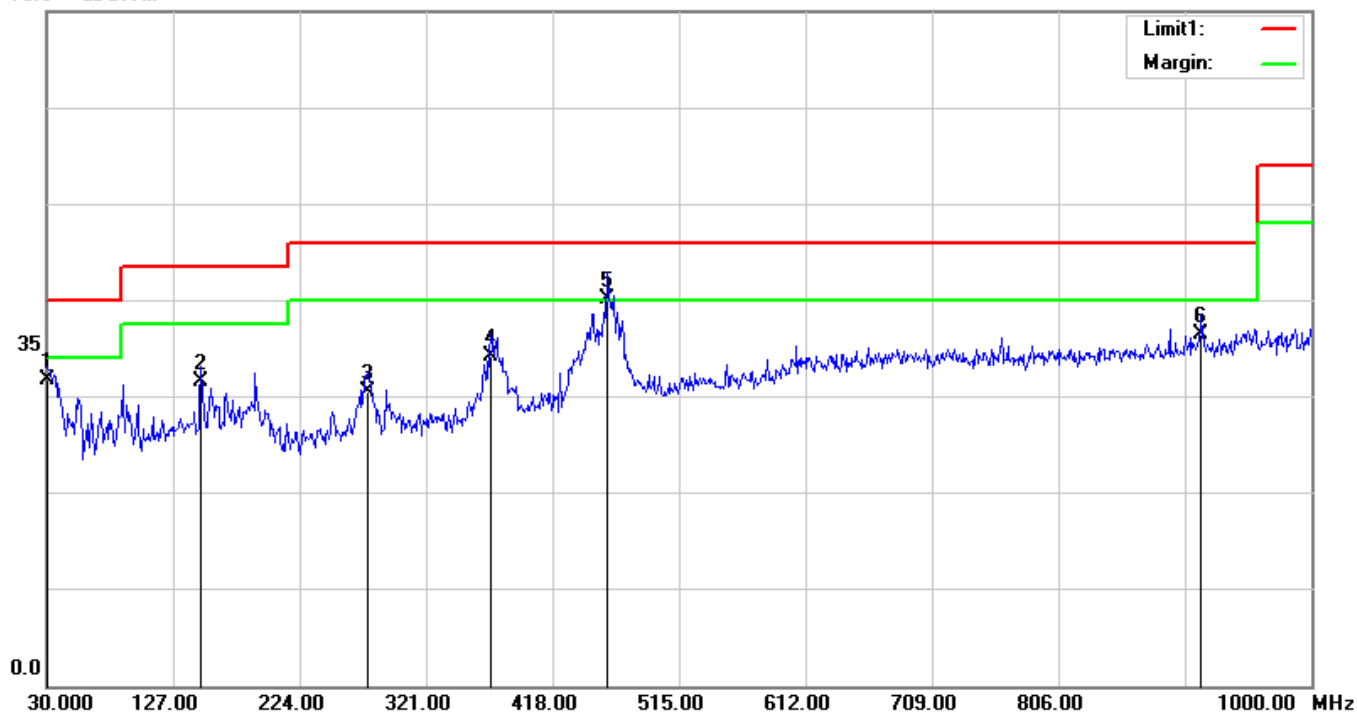
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Vertical

70.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.9700	6.36	25.38	31.74	40.00	-8.26	100	286	QP
2	148.3400	11.54	20.09	31.63	43.50	-11.87	100	225	QP
3	276.3800	10.46	20.01	30.47	46.00	-15.53	99	0	QP
4	370.4700	11.39	22.87	34.26	46.00	-11.74	100	22	QP
5	459.7100	15.66	24.49	40.15	46.00	-5.85	100	11	QP
6	915.6100	7.54	28.87	36.41	46.00	-9.59	100	143	QP



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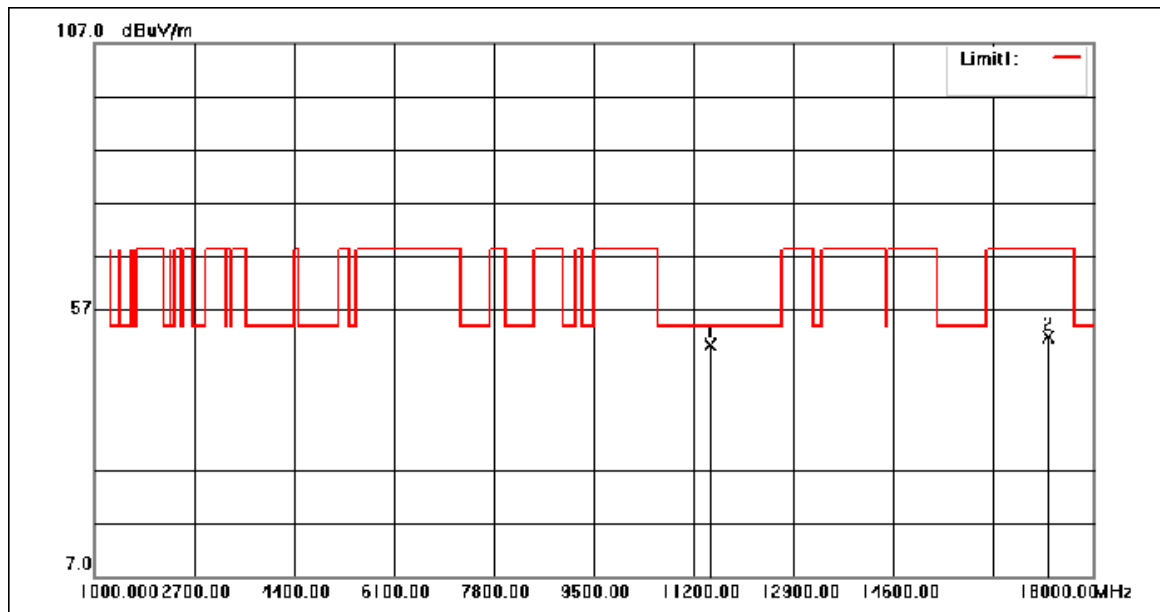
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Above 1GHz

Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	49.49	0.94	50.43	54.00	-3.57	peak
2	17235.000	42.81	9.05	51.86	68.30	-16.44	peak



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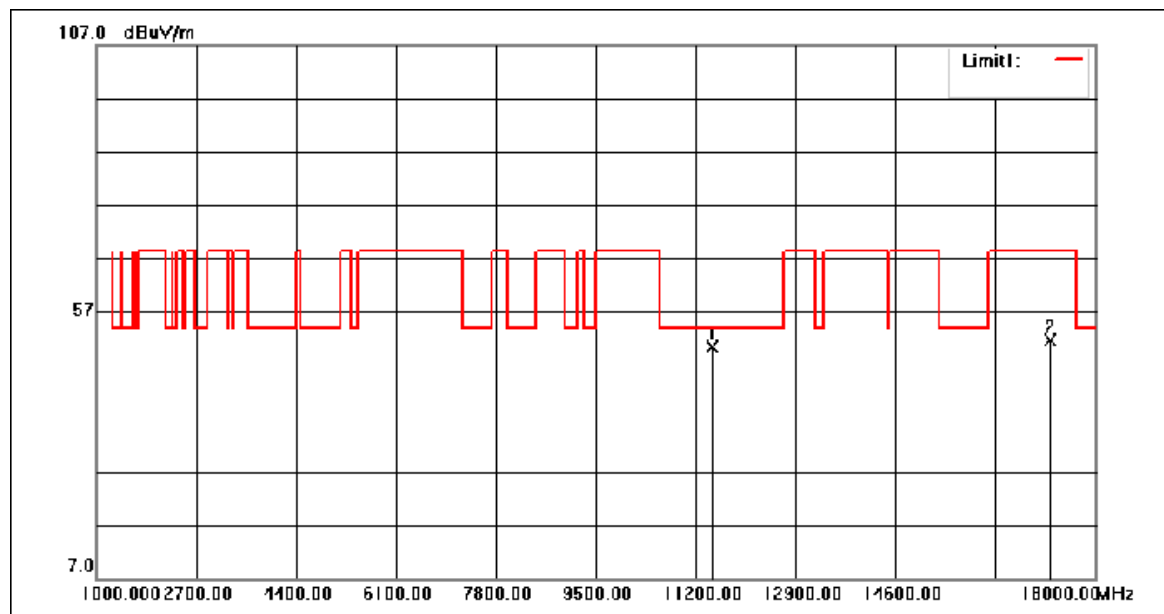
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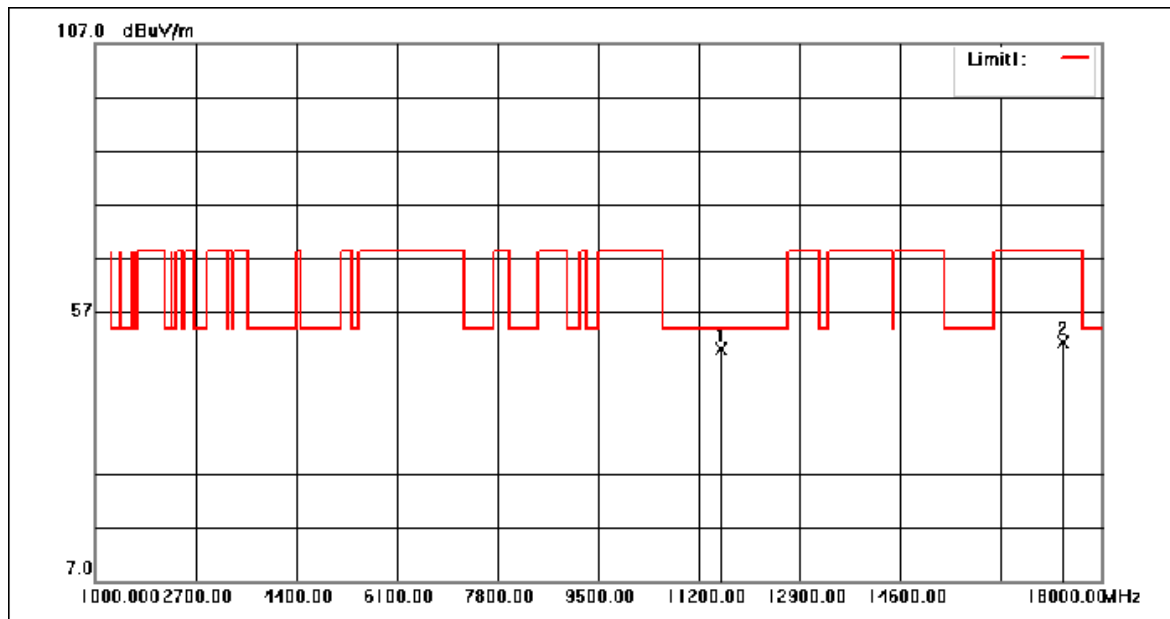
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	49.36	0.94	50.30	54.00	-3.70	peak
2	17235.000	42.46	9.05	51.51	68.30	-16.79	peak



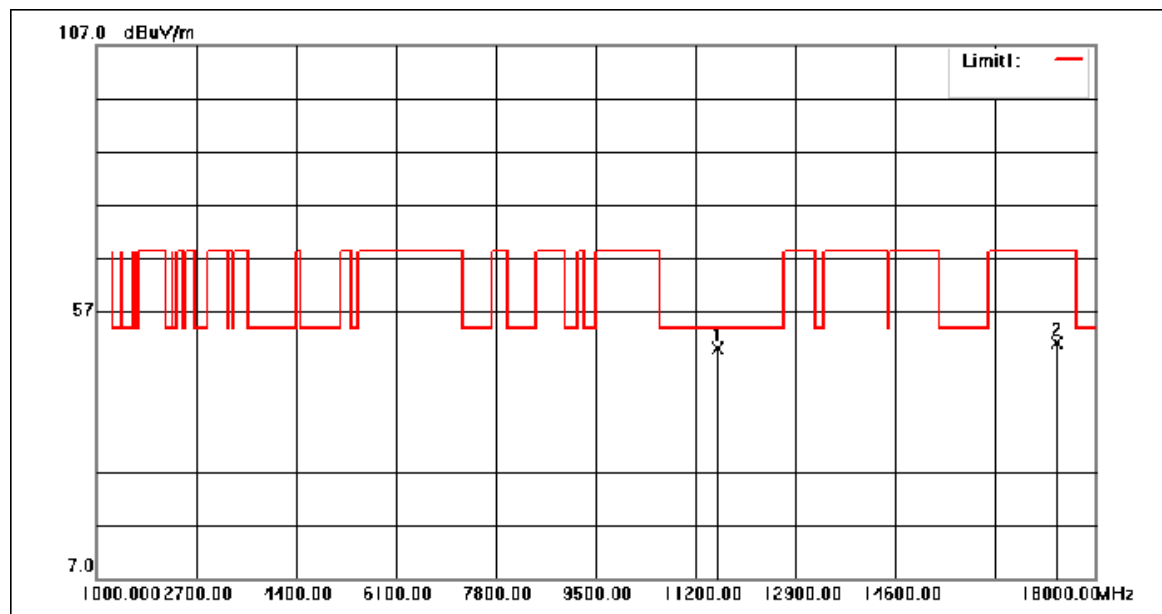
Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	49.02	1.18	50.20	54.00	-3.80	peak
2	17355.000	42.41	8.98	51.39	68.30	-16.91	peak



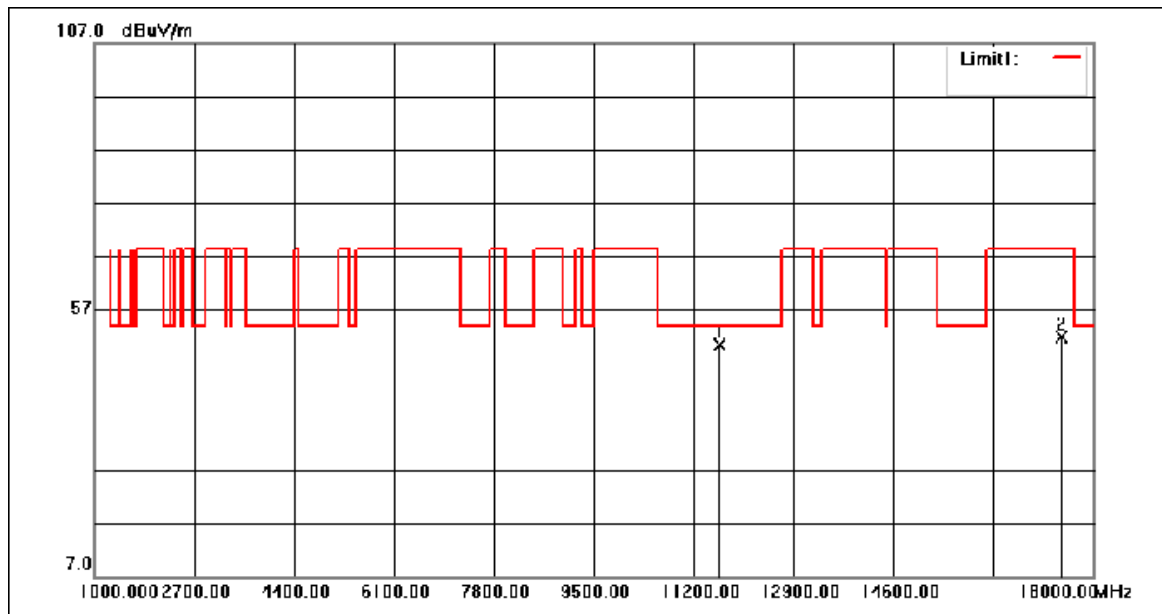
Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	49.01	1.18	50.19	54.00	-3.81	peak
2	17355.000	42.05	8.98	51.03	68.30	-17.27	peak



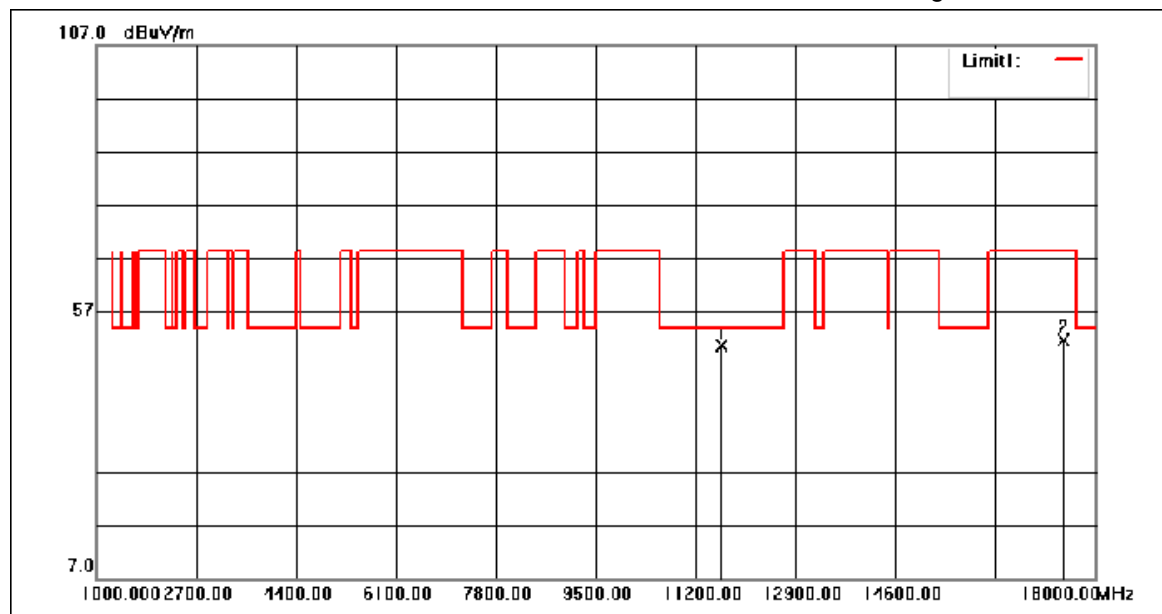
Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	49.01	1.45	50.46	54.00	-3.54	peak
2	17475.000	43.05	8.90	51.95	68.30	-16.35	peak



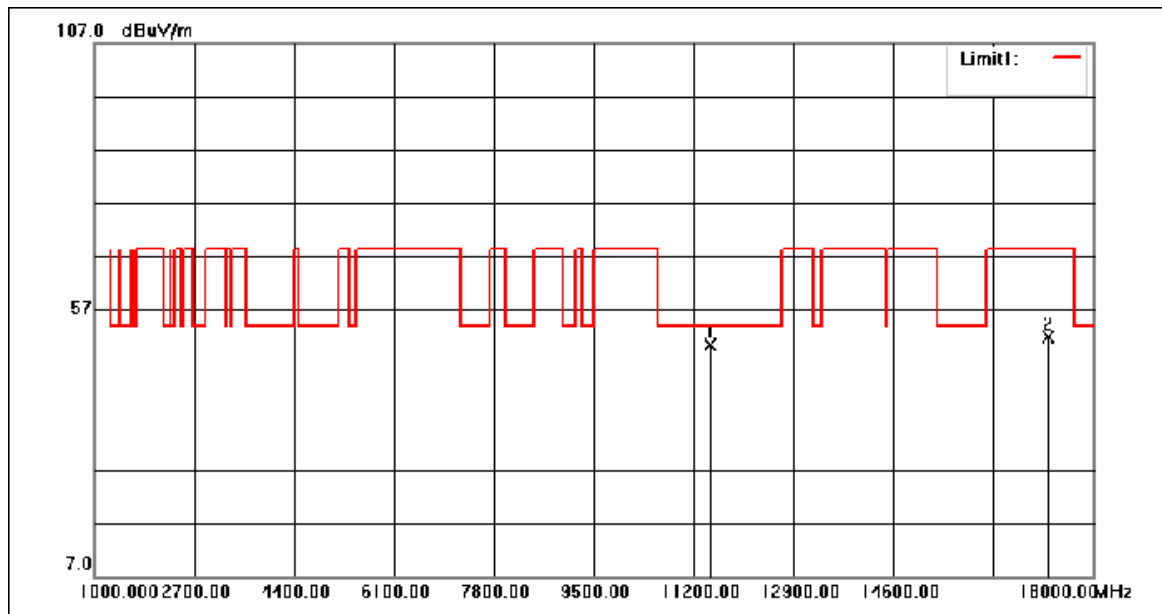
Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	49.28	1.45	50.73	54.00	-3.27	peak
2	17475.000	42.65	8.90	51.55	68.30	-16.75	peak



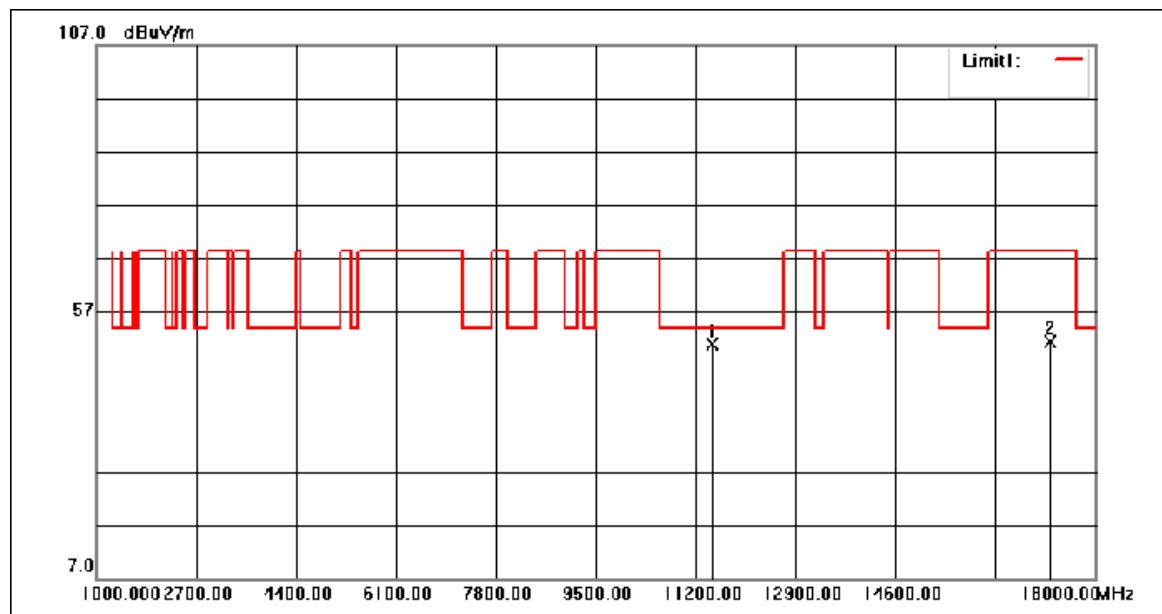
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	49.34	0.94	50.28	54.00	-3.72	peak
2	17235.000	42.85	9.05	51.90	68.30	-16.40	peak



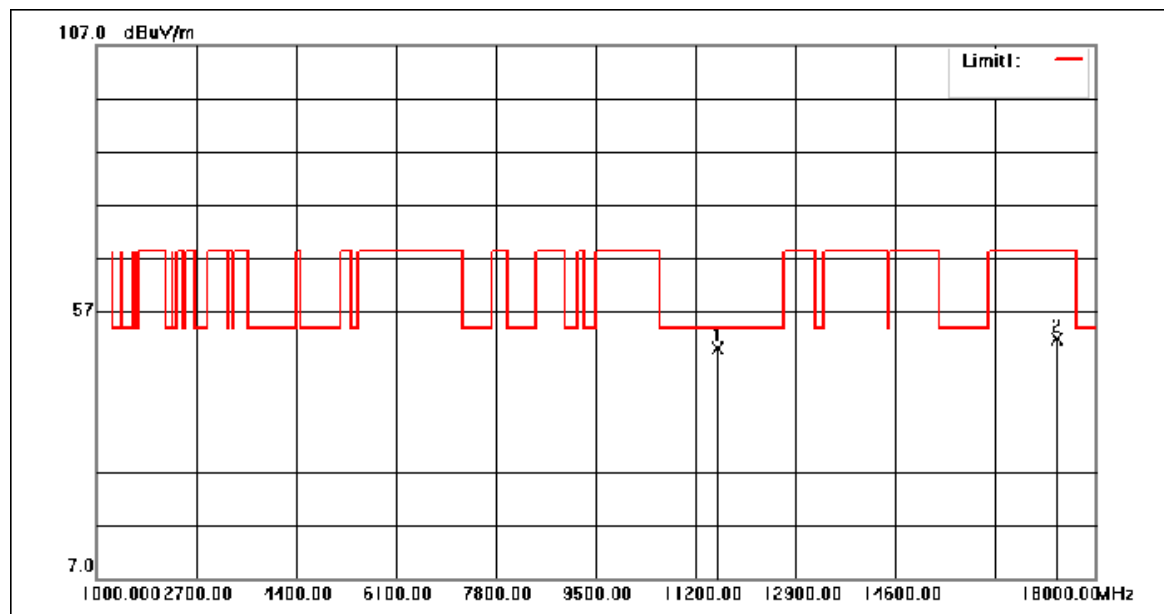
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	49.83	0.94	50.77	54.00	-3.23	peak
2	17235.000	42.36	9.05	51.41	68.30	-16.89	peak



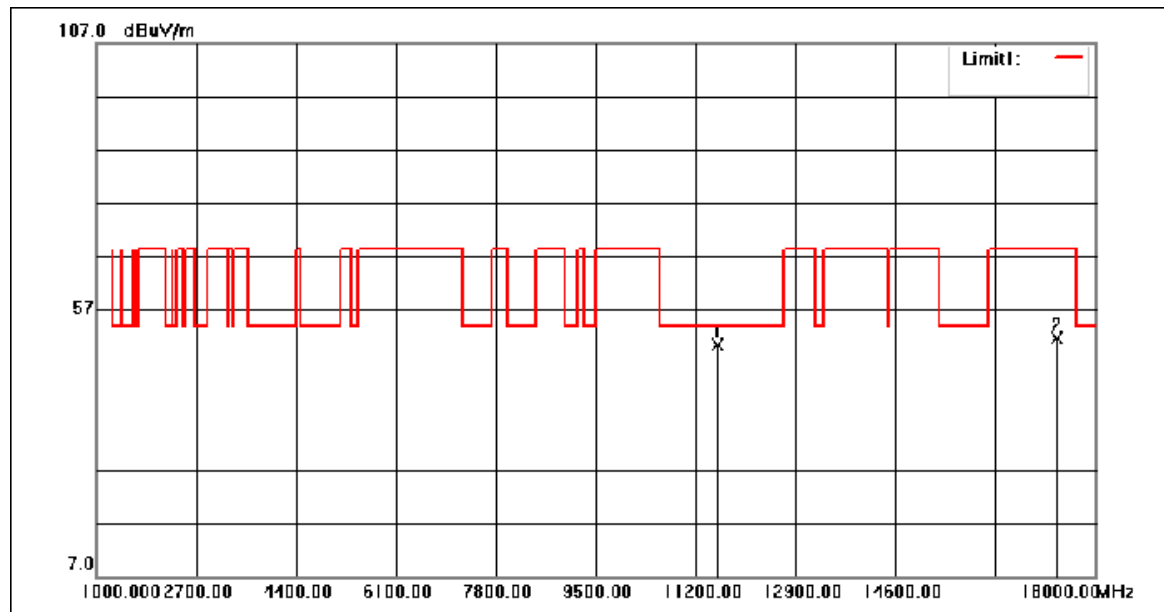
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	49.03	1.18	50.21	54.00	-3.79	peak
2	17355.000	42.90	8.98	51.88	68.30	-16.42	peak



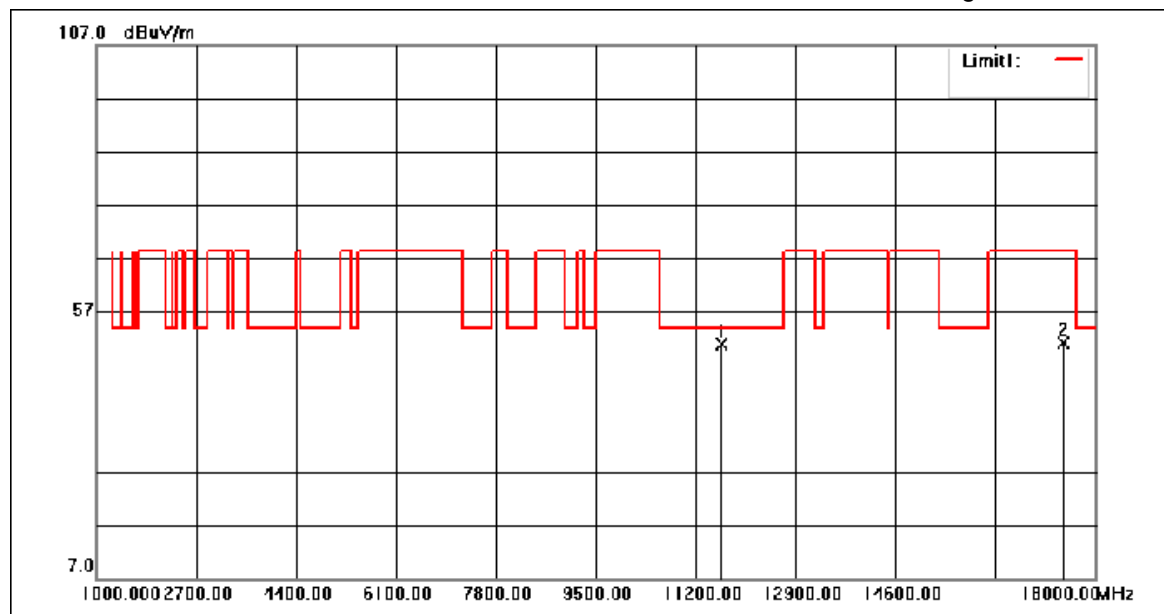
Mode: b; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	49.14	1.18	50.32	54.00	-3.68	peak
2	17355.000	42.74	8.98	51.72	68.30	-16.58	peak



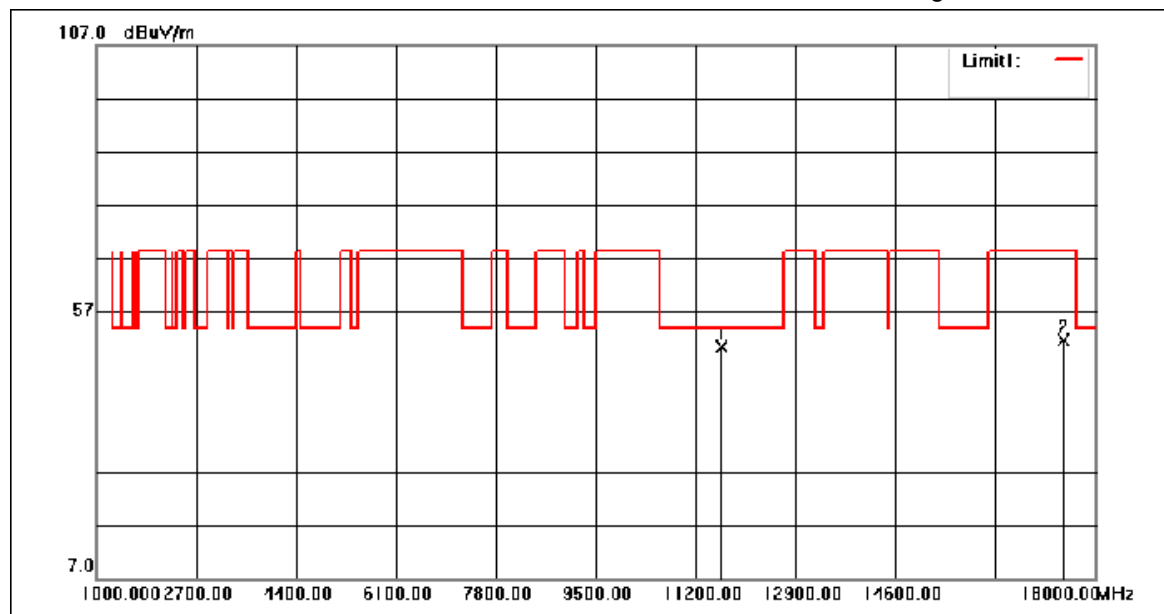
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	49.47	1.45	50.92	54.00	-3.08	peak
2	17475.000	42.17	8.90	51.07	68.30	-17.23	peak



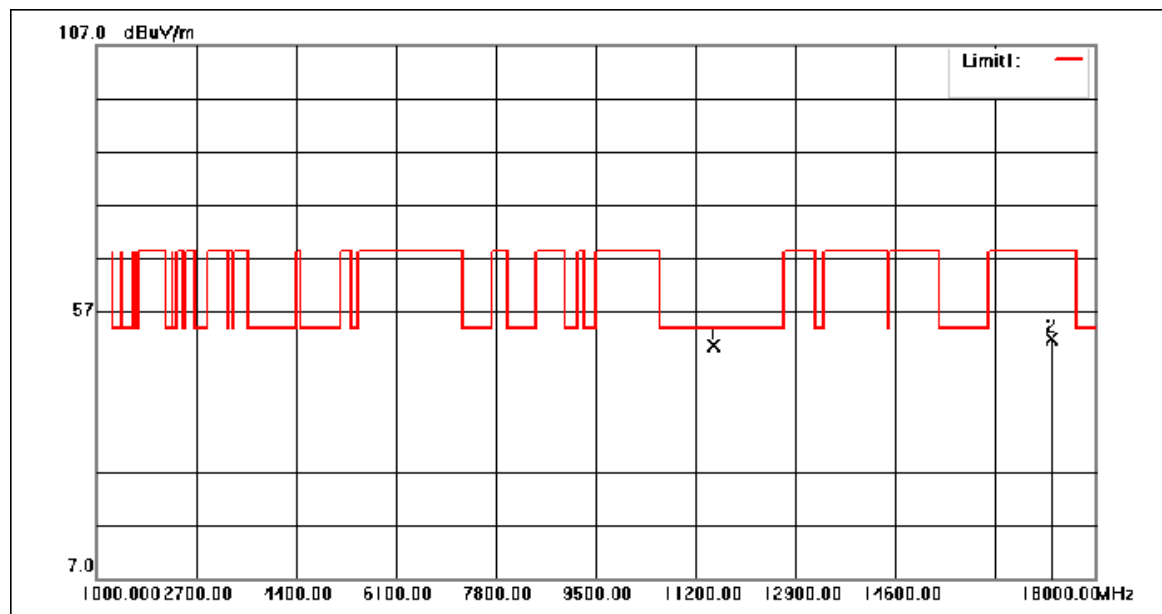
Mode: b; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	49.04	1.45	50.49	54.00	-3.51	peak
2	17475.000	42.83	8.90	51.73	68.30	-16.57	peak



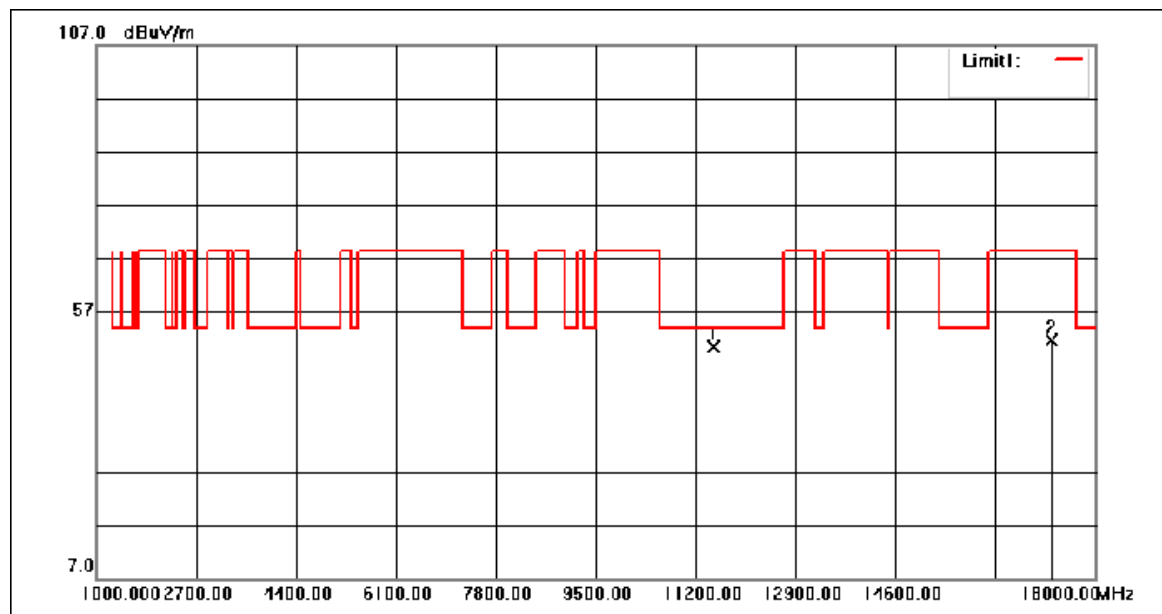
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	49.59	0.99	50.58	54.00	-3.42	peak
2	17265.000	42.90	9.03	51.93	68.30	-16.37	peak



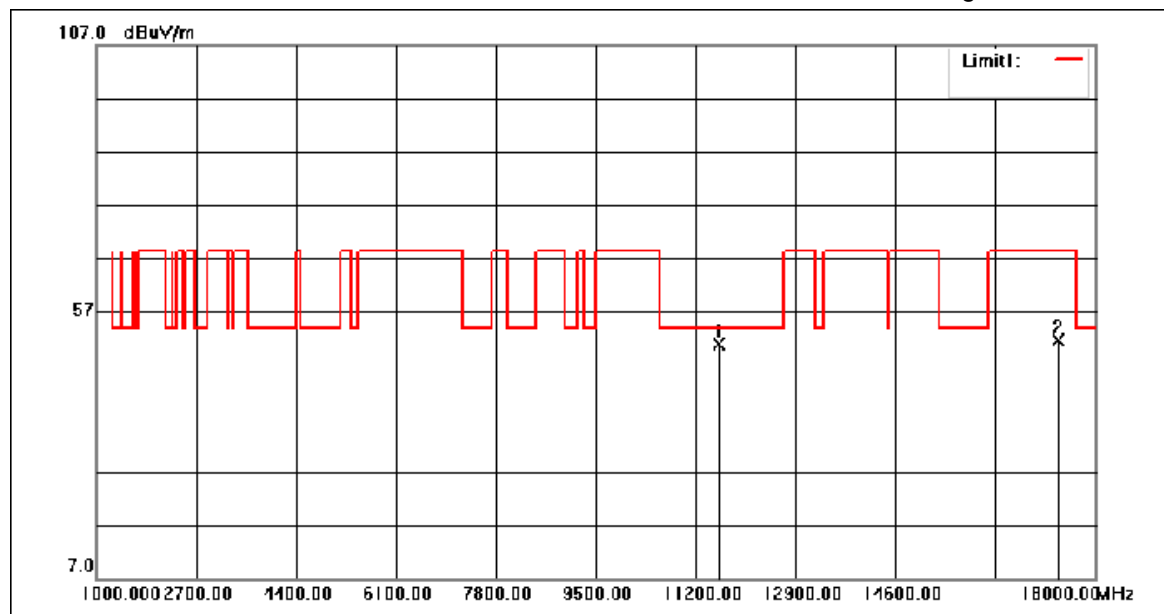
Mode: b; Polarization: Vertical; Modulation: n; bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	49.39	0.99	50.38	54.00	-3.62	peak
2	17265.000	42.68	9.03	51.71	68.30	-16.59	peak



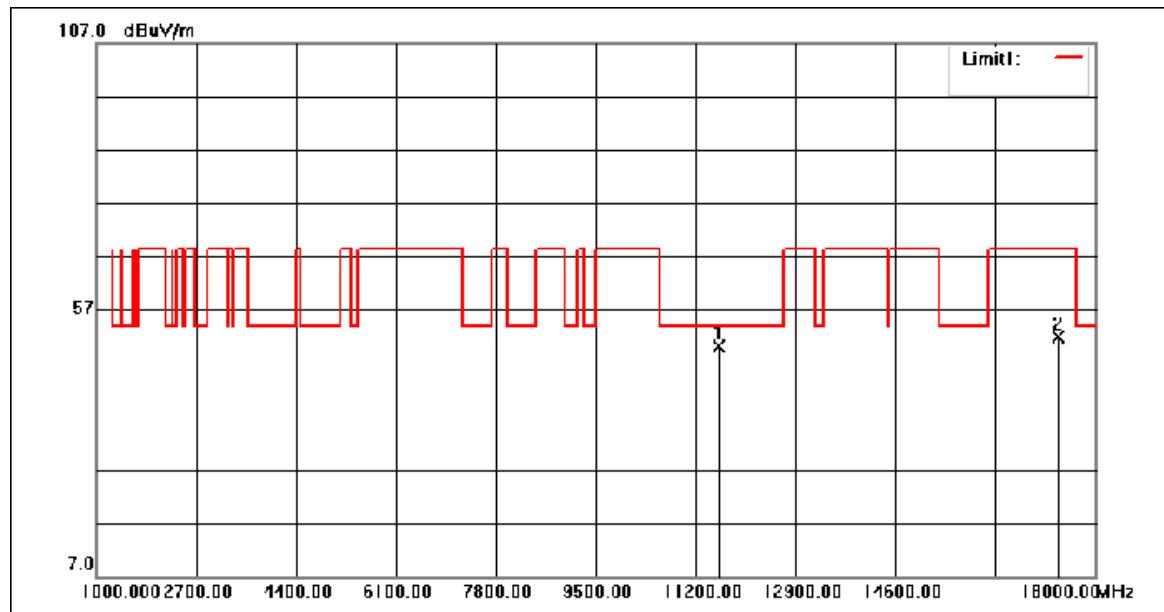
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	49.69	1.25	50.94	54.00	-3.06	peak
2	17385.000	42.74	8.96	51.70	68.30	-16.60	peak



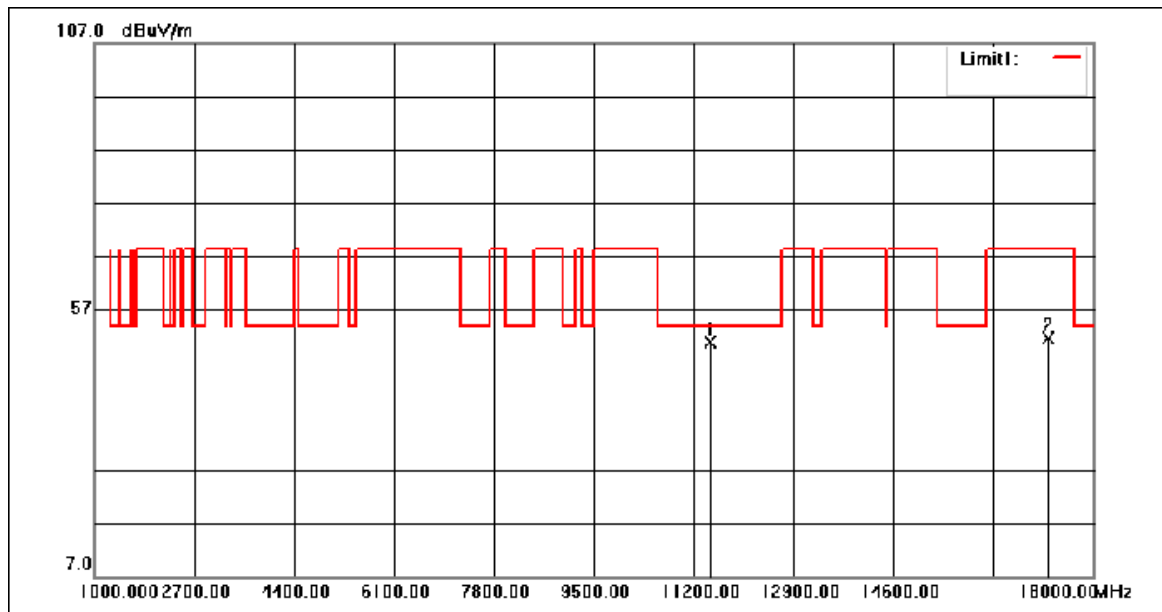
Mode: b; Polarization: Vertical; Modulation: n; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	48.76	1.25	50.01	54.00	-3.99	peak
2	17385.000	42.93	8.96	51.89	68.30	-16.41	peak



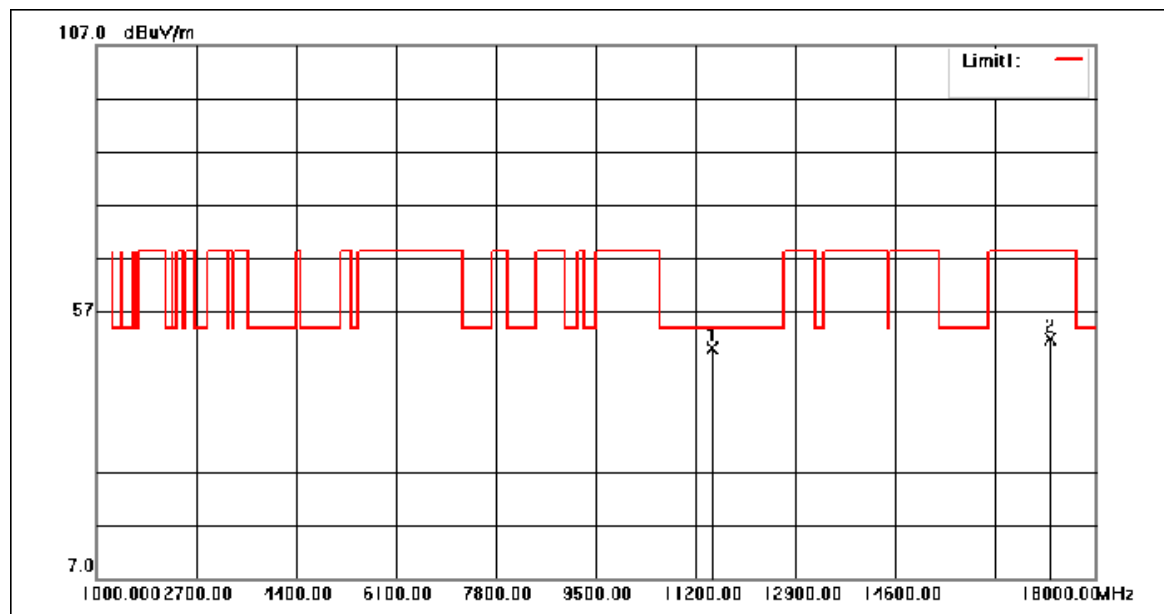
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	49.84	0.94	50.78	54.00	-3.22	peak
2	17235.000	42.52	9.05	51.57	68.30	-16.73	peak



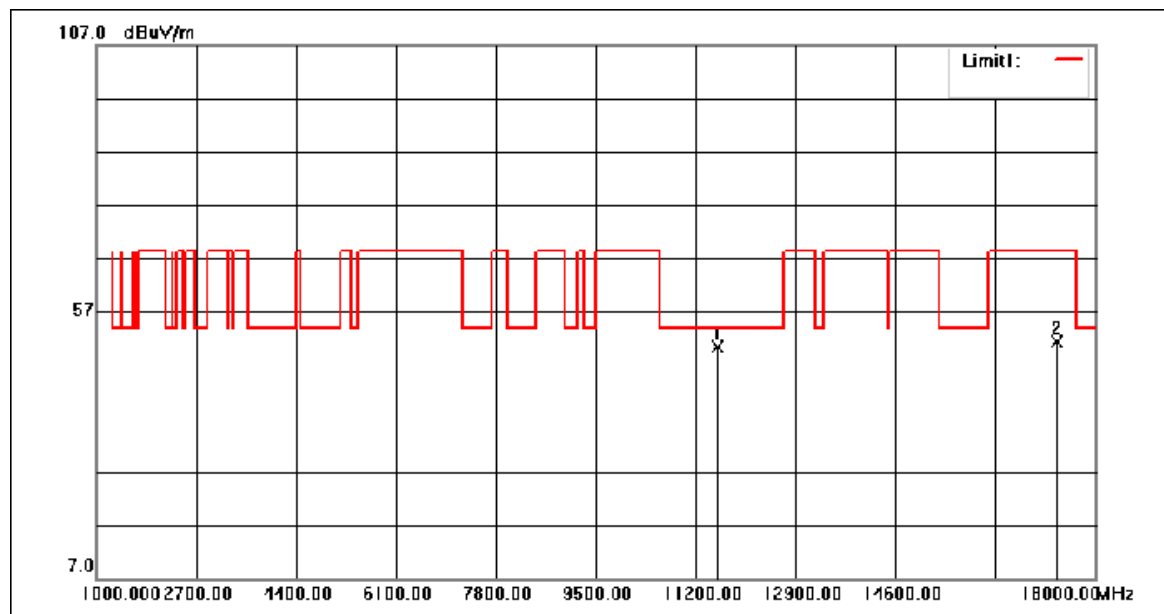
Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	49.17	0.94	50.11	54.00	-3.89	peak
2	17235.000	42.92	9.05	51.97	68.30	-16.33	peak



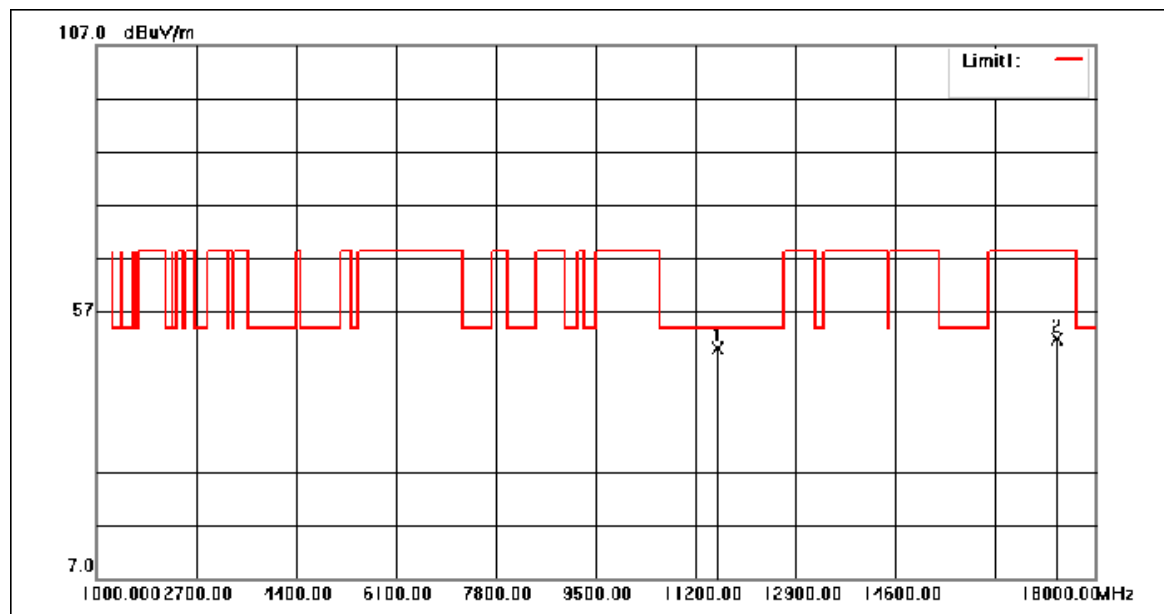
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	49.30	1.18	50.48	54.00	-3.52	peak
2	17355.000	42.36	8.98	51.34	68.30	-16.96	peak



Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	48.97	1.18	50.15	54.00	-3.85	peak
2	17355.000	42.82	8.98	51.80	68.30	-16.50	peak



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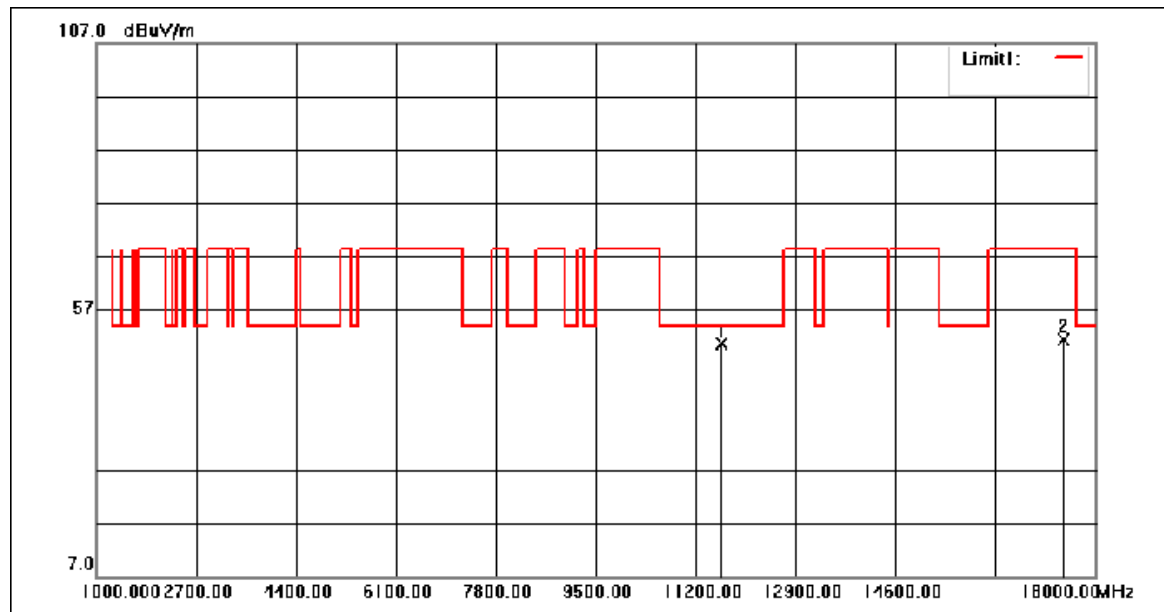
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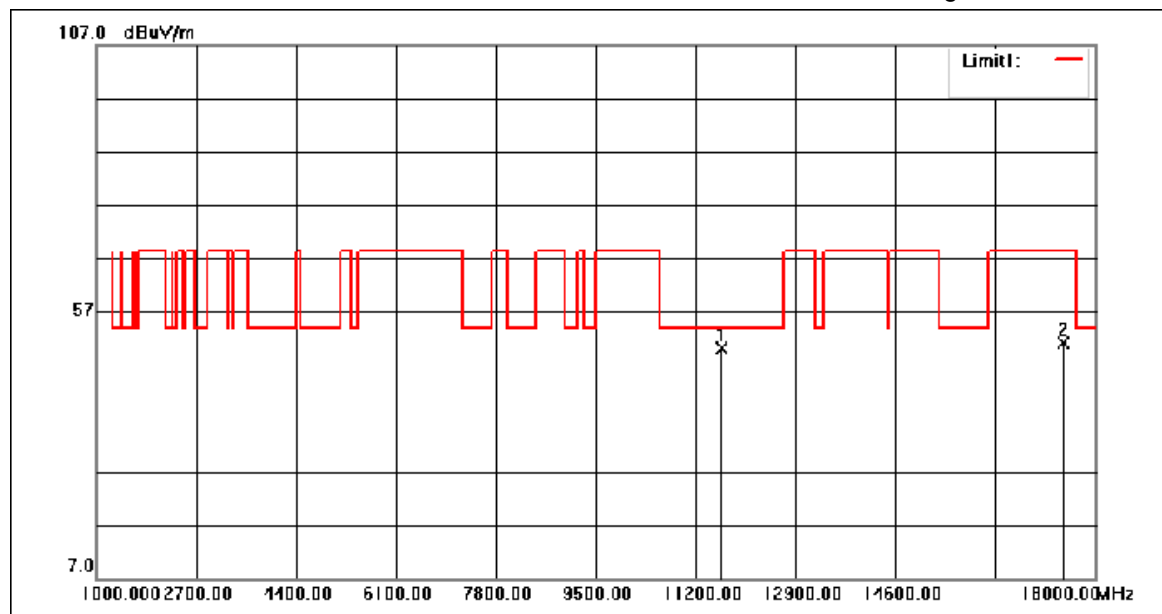
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	49.22	1.45	50.67	54.00	-3.33	peak
2	17475.000	42.53	8.90	51.43	68.30	-16.87	peak



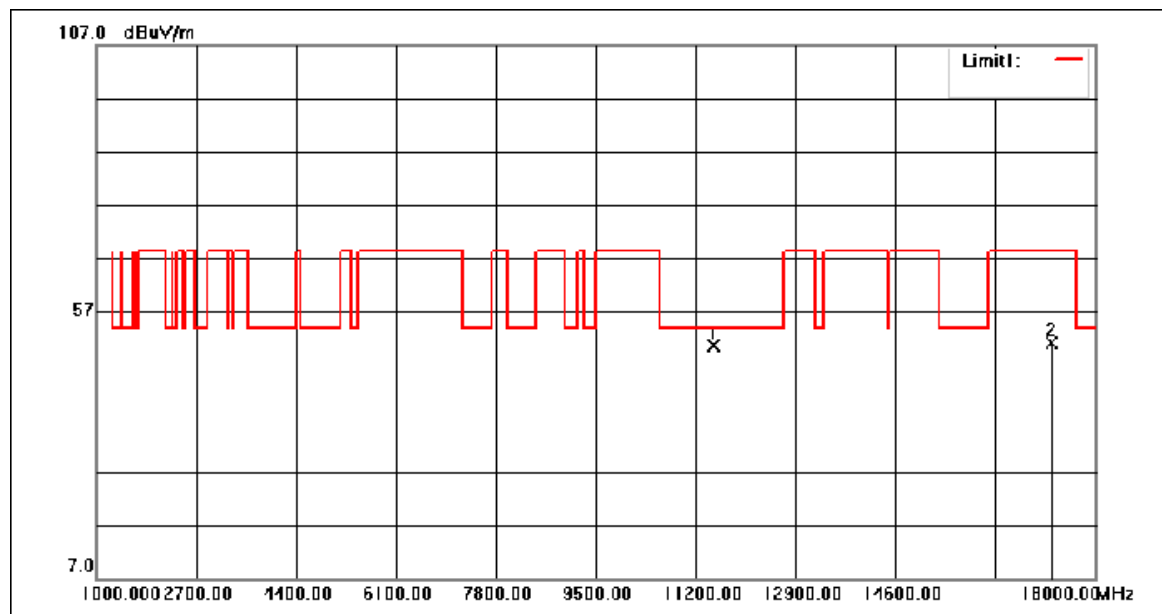
Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	48.59	1.45	50.04	54.00	-3.96	peak
2	17475.000	42.13	8.90	51.03	68.30	-17.27	peak



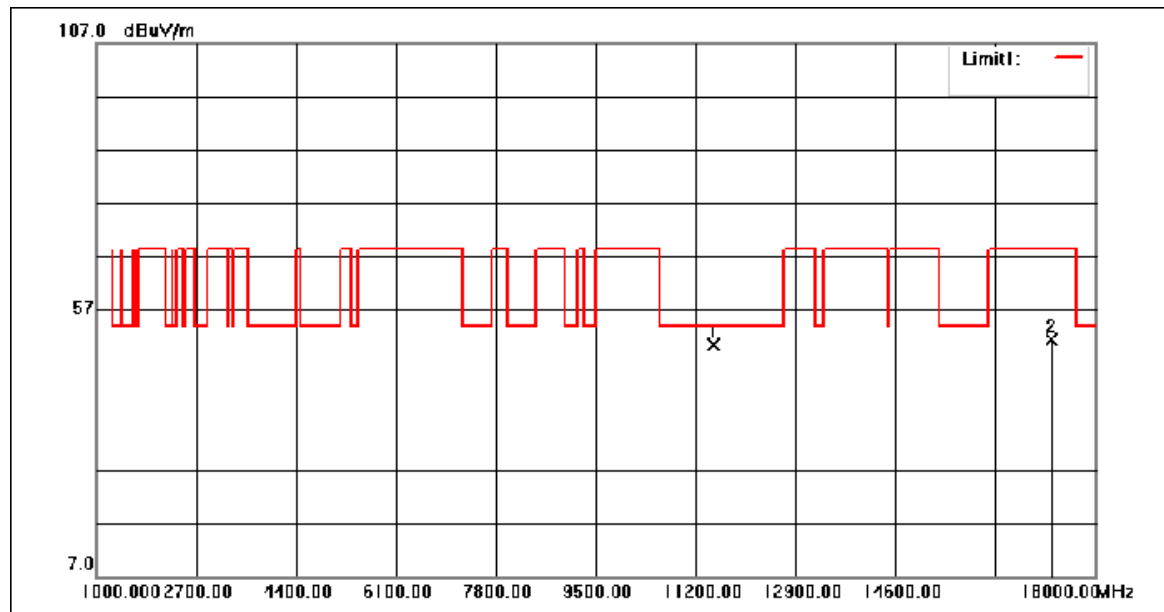
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	49.76	0.99	50.75	54.00	-3.25	peak
2	17265.000	42.13	9.03	51.16	68.30	-17.14	peak



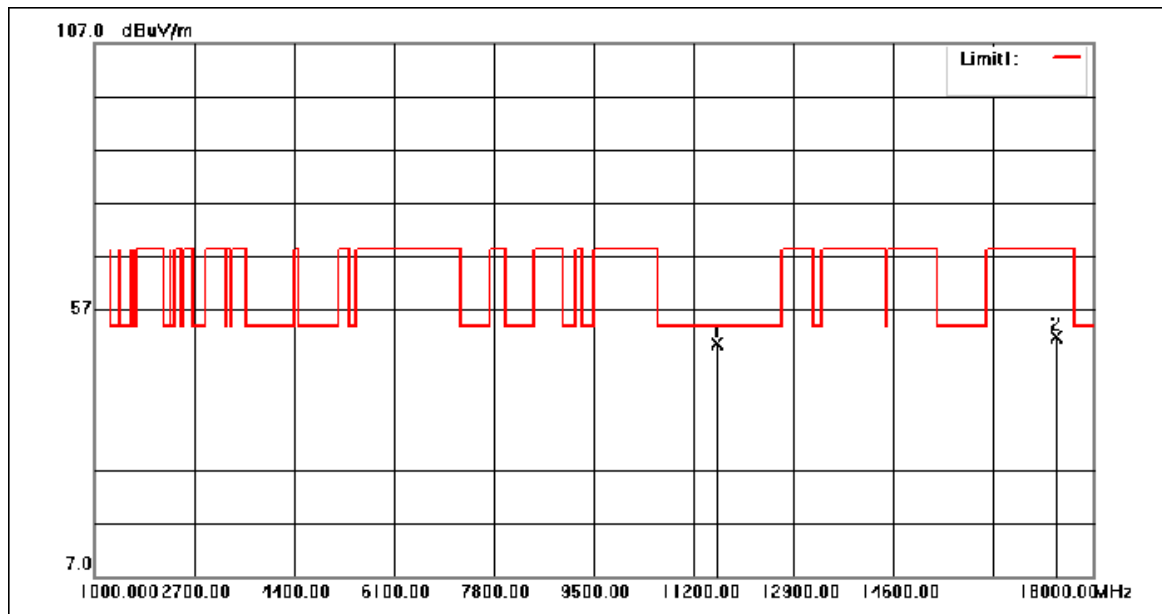
Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	49.40	0.99	50.39	54.00	-3.61	peak
2	17265.000	42.38	9.03	51.41	68.30	-16.89	peak



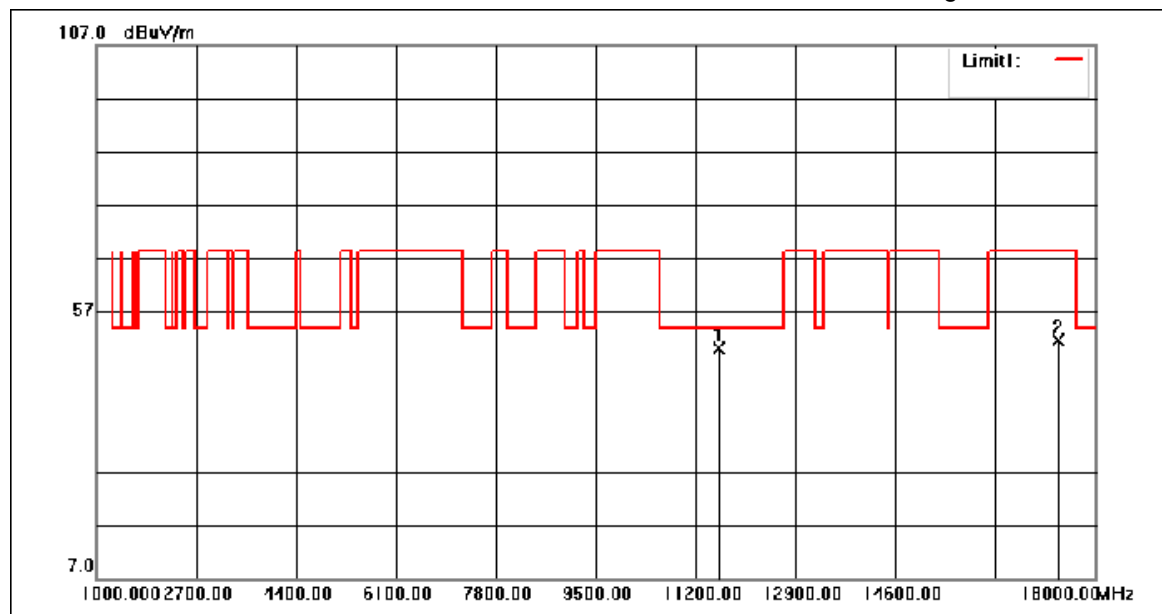
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	49.37	1.25	50.62	54.00	-3.38	peak
2	17385.000	42.91	8.96	51.87	68.30	-16.43	peak



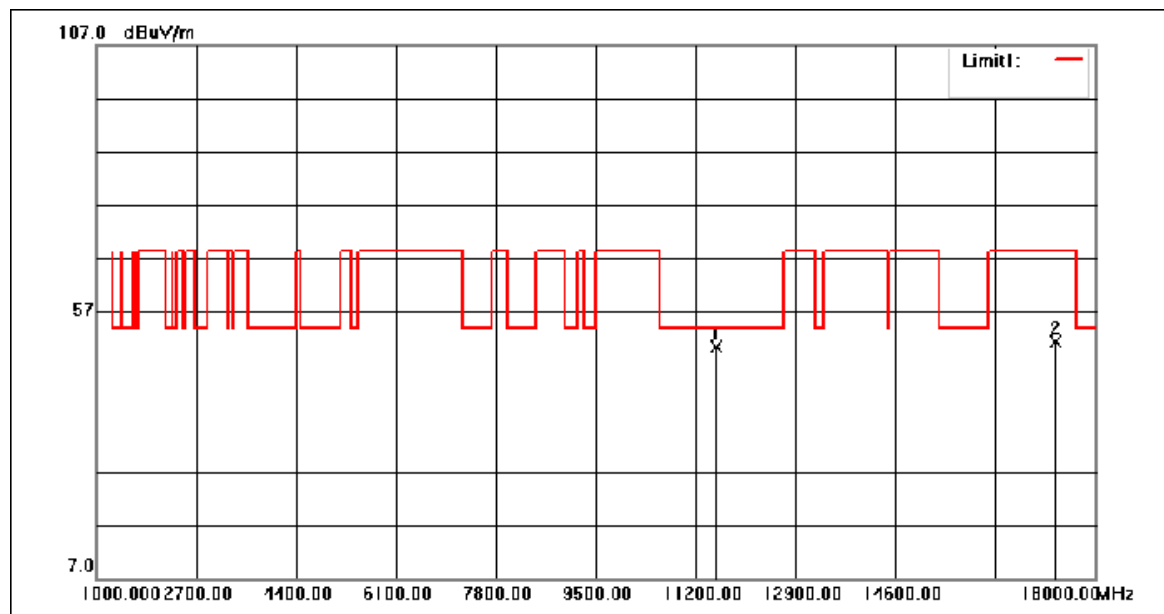
Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	48.95	1.25	50.20	54.00	-3.80	peak
2	17385.000	42.61	8.96	51.57	68.30	-16.73	peak



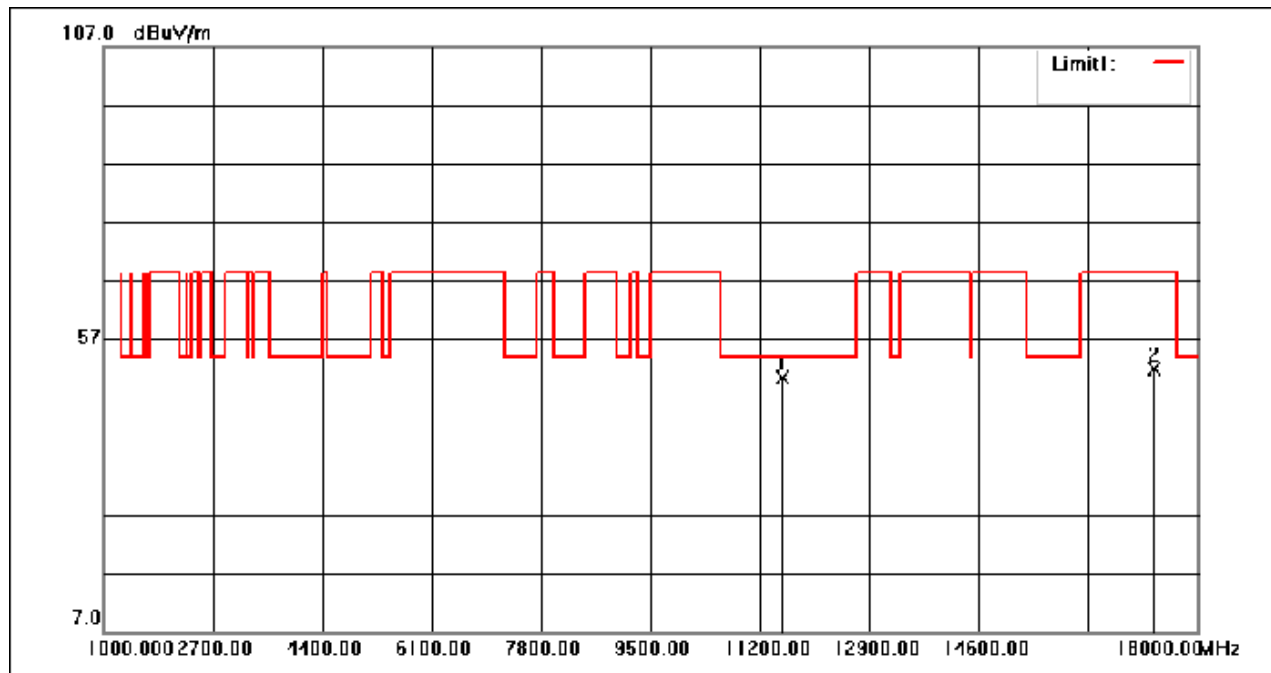
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 80MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11550.000	49.14	1.12	50.26	54.00	-3.74	peak
2	17325.000	42.36	8.99	51.35	68.30	-16.95	peak



Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 80MHz; Channel: middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11550.000	49.17	1.12	50.29	54.00	-3.71	peak
2	17325.000	42.91	8.99	51.90	68.30	-16.40	peak



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Testing Center EMC Lab

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## 7.8 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 &amp; 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.



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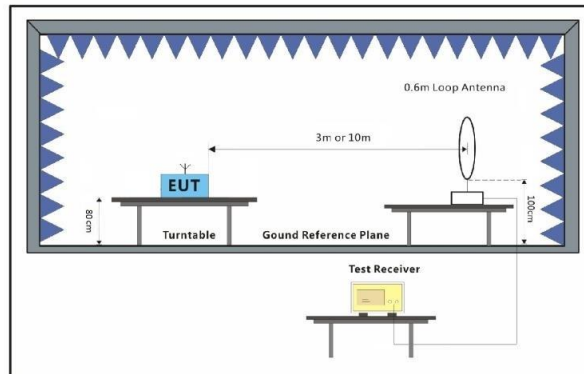
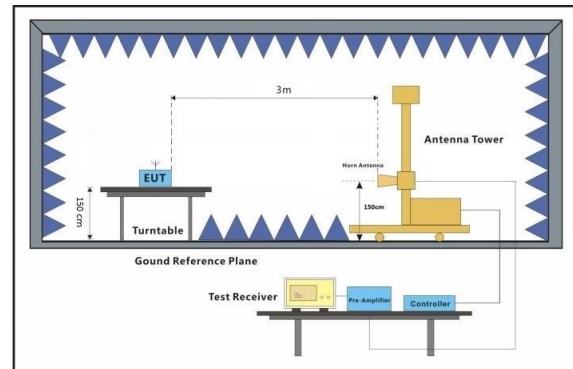
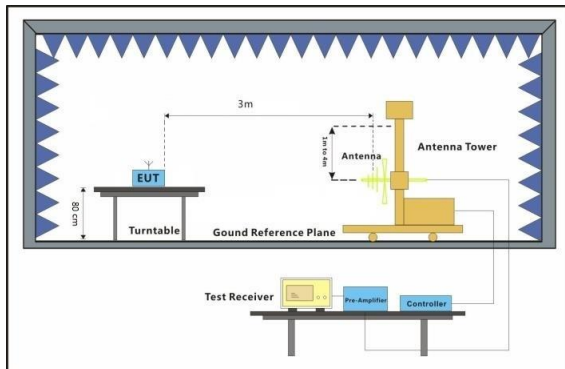
### 7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.8.2 Test Setup Diagram





### 7.8.3 Measurement Procedure and Data

- a. For below 1GHz, 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 chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) 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. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: 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.

Remark 3: 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 ac/n modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.



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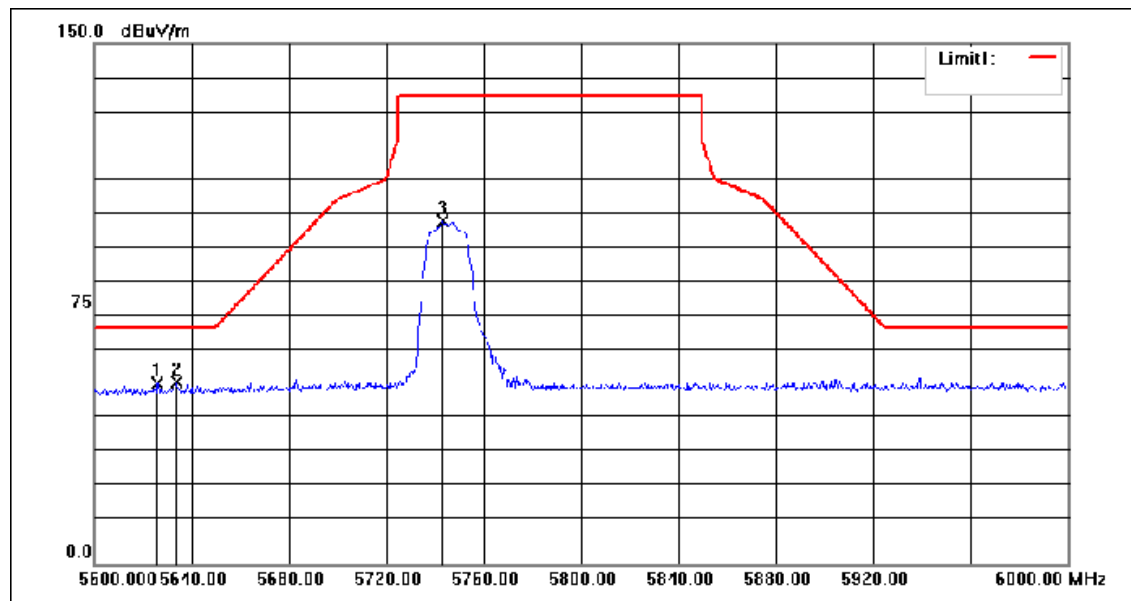
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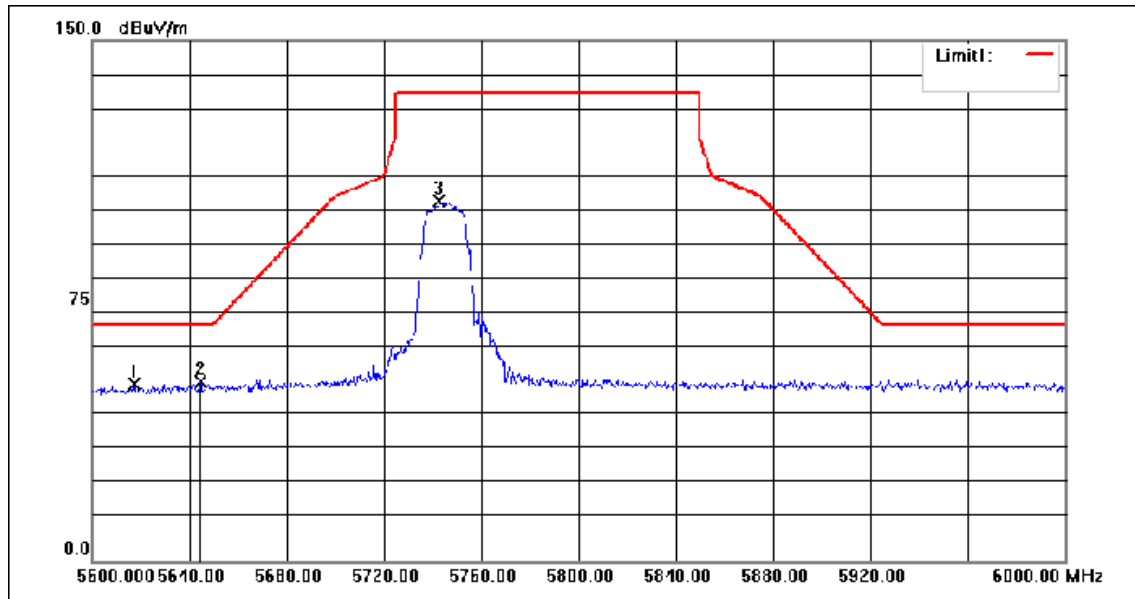
Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5626.000	58.72	-6.90	51.82	68.20	-16.38	peak
2	5633.600	59.07	-6.88	52.19	68.20	-16.01	peak
3	5743.200	105.26	-6.61	98.65	135.00	-36.35	peak



Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5617.200	57.69	-6.92	50.77	68.20	-17.43	peak
2	5644.400	58.27	-6.85	51.42	68.20	-16.78	peak
3	5742.800	110.15	-6.61	103.54	135.00	-31.46	peak



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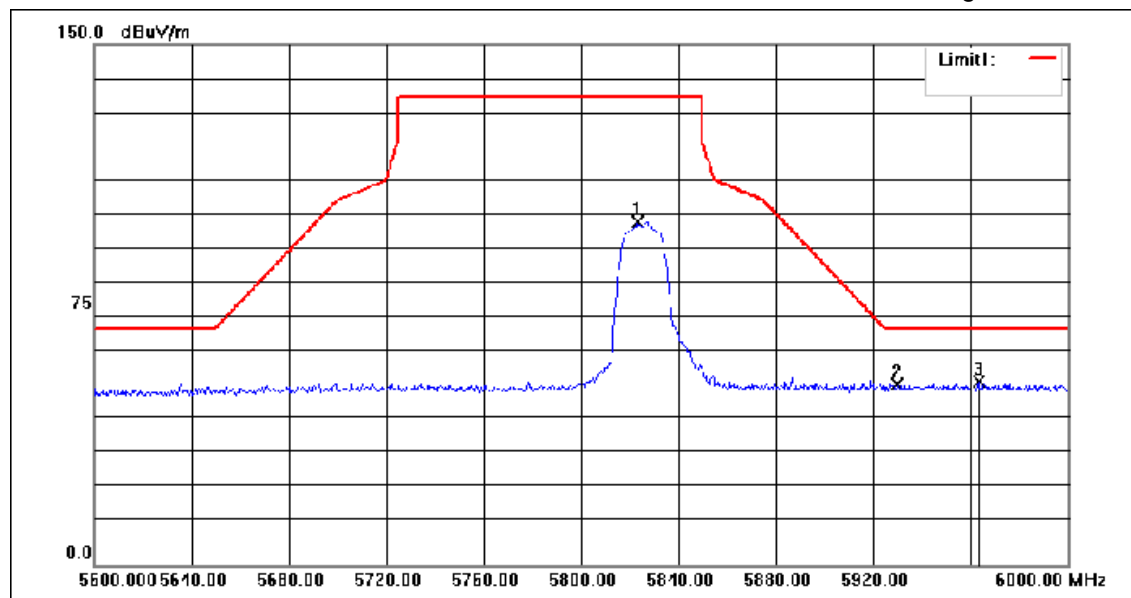
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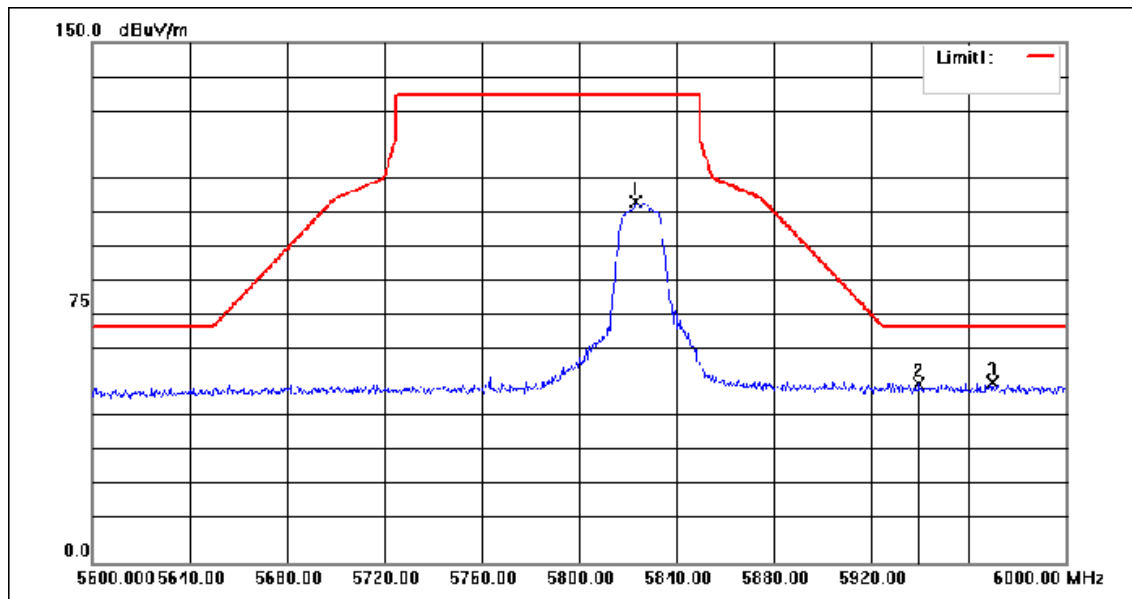
Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5823.200	105.17	-6.33	98.84	135.00	-36.16	peak
2	5930.000	57.81	-5.74	52.07	68.20	-16.13	peak
3	5963.200	58.10	-5.56	52.54	68.20	-15.66	peak



Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5823.200	110.29	-6.33	103.96	135.00	-31.04	peak
2	5939.600	57.32	-5.69	51.63	68.20	-16.57	peak
3	5970.000	57.46	-5.52	51.94	68.20	-16.26	peak



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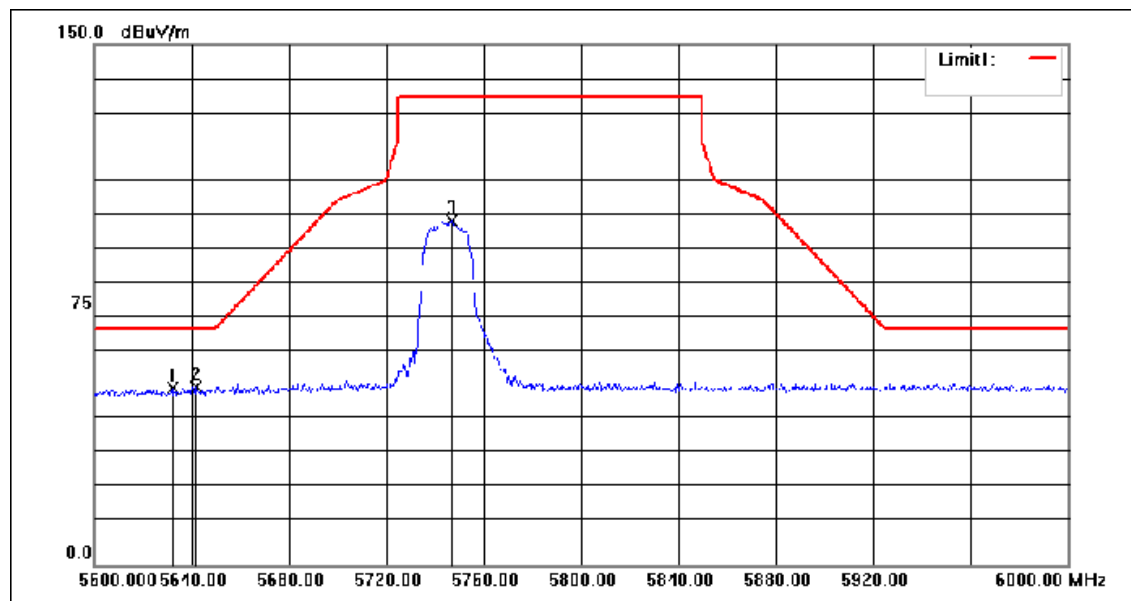
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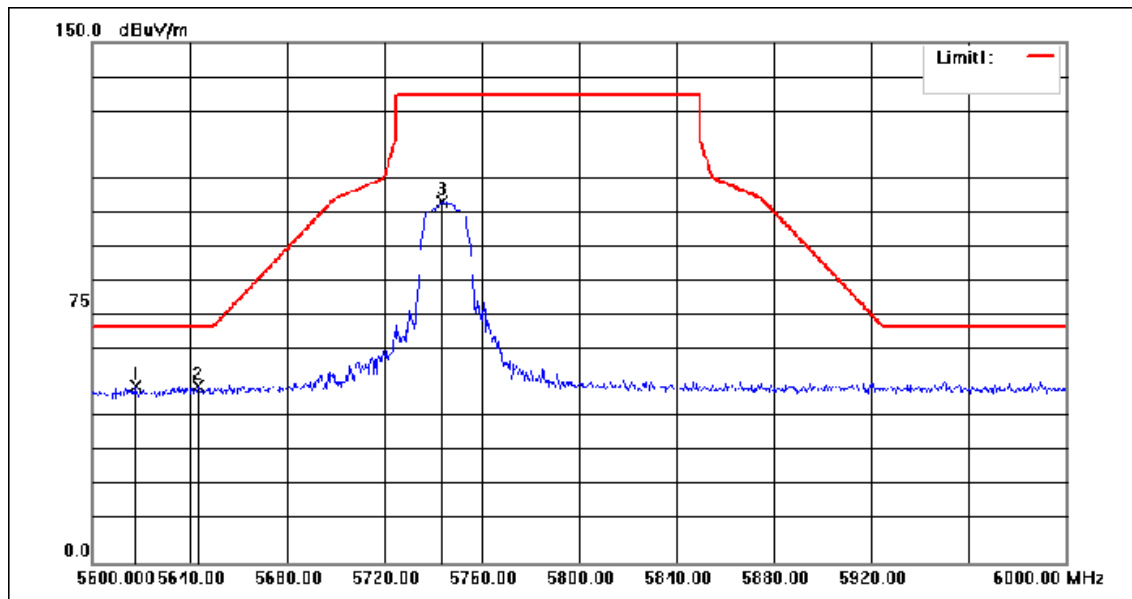
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5632.000	57.68	-6.89	50.79	68.20	-17.41	peak
2	5642.000	58.08	-6.87	51.21	68.20	-16.99	peak
3	5746.800	105.68	-6.60	99.08	135.00	-35.92	peak



Mode: b; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5617.600	57.79	-6.92	50.87	68.20	-17.33	peak
2	5643.600	57.68	-6.85	50.83	68.20	-17.37	peak
3	5743.600	110.51	-6.60	103.91	135.00	-31.09	peak



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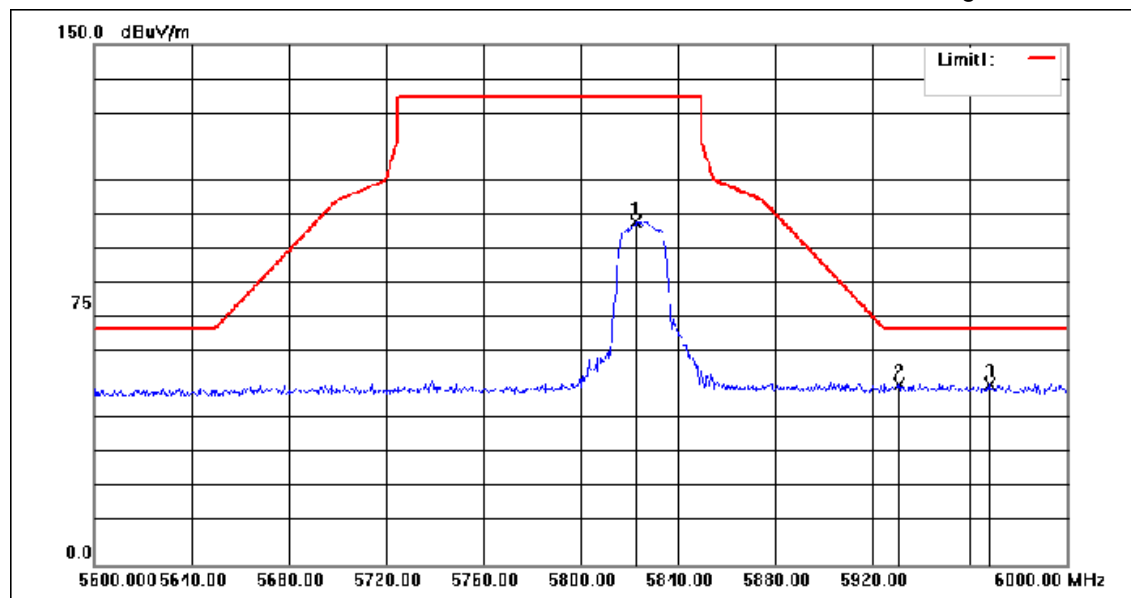
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5822.800	105.28	-6.33	98.95	135.00	-36.05	peak
2	5930.800	57.78	-5.74	52.04	68.20	-16.16	peak
3	5968.000	57.63	-5.54	52.09	68.20	-16.11	peak



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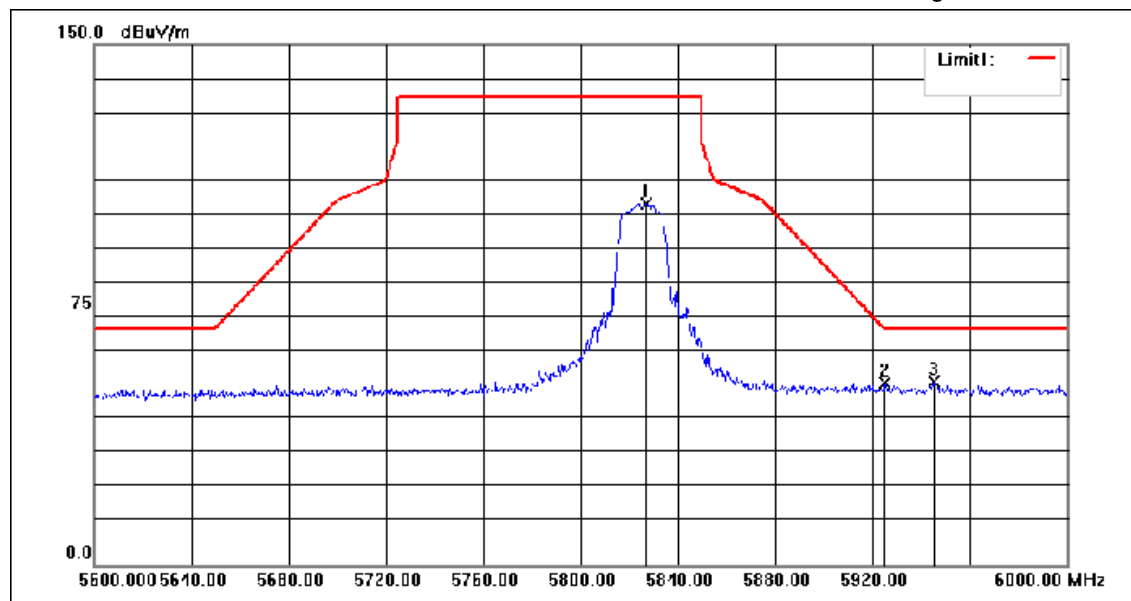
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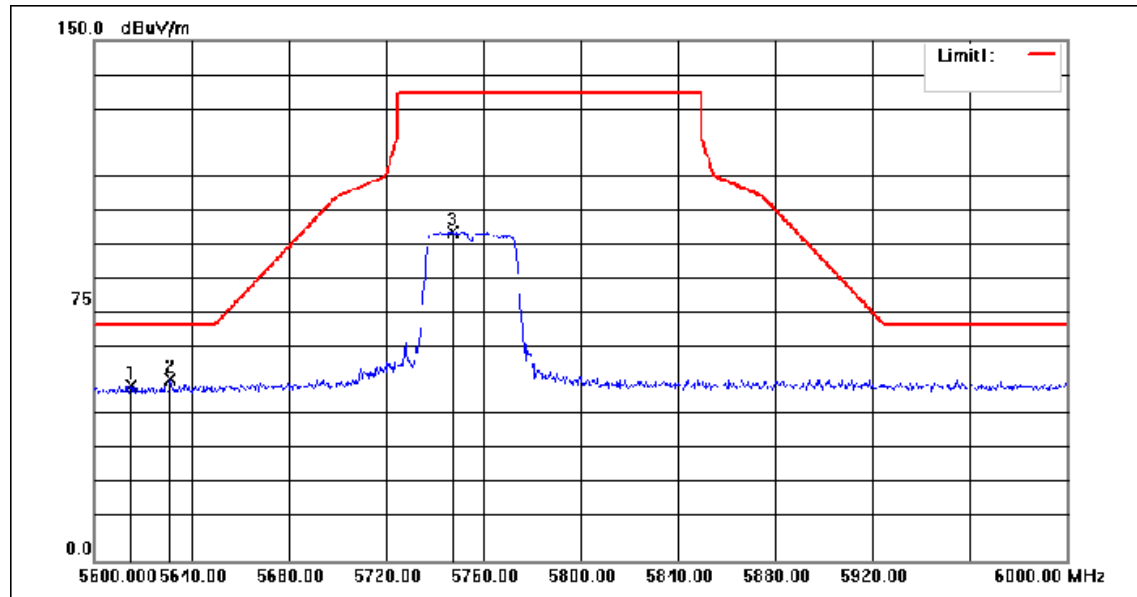
Mode: b; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5826.800	110.52	-6.31	104.21	135.00	-30.79	peak
2	5925.200	57.93	-5.77	52.16	68.20	-16.04	peak
3	5945.200	58.23	-5.66	52.57	68.20	-15.63	peak



Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5615.200	57.43	-6.93	50.50	68.20	-17.70	peak
2	5631.200	59.10	-6.89	52.21	68.20	-15.99	peak
3	5747.600	101.39	-6.60	94.79	135.00	-40.21	peak



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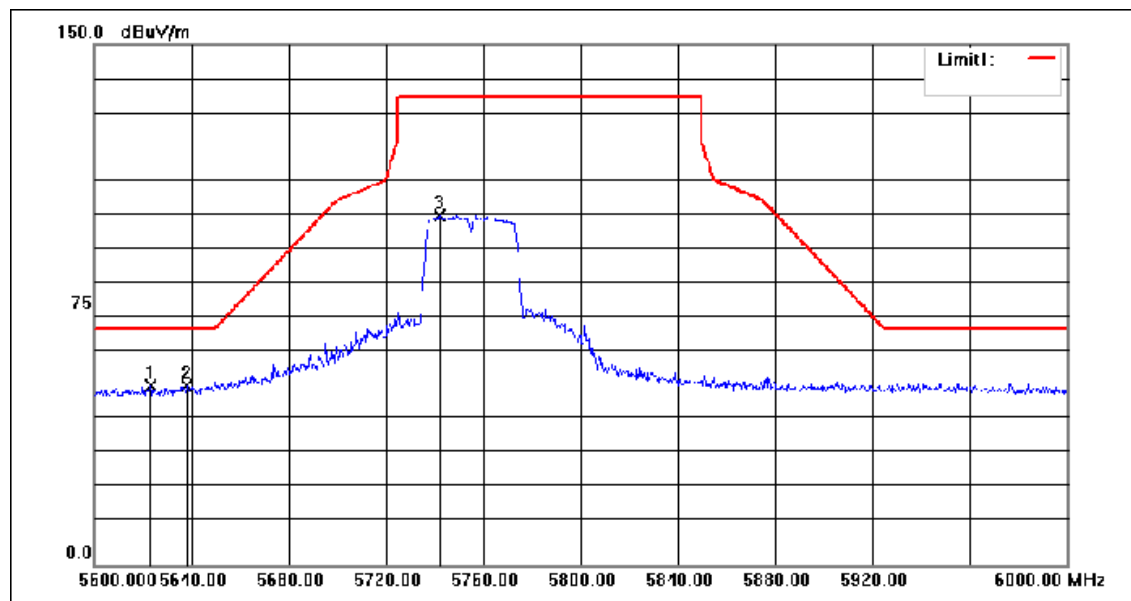
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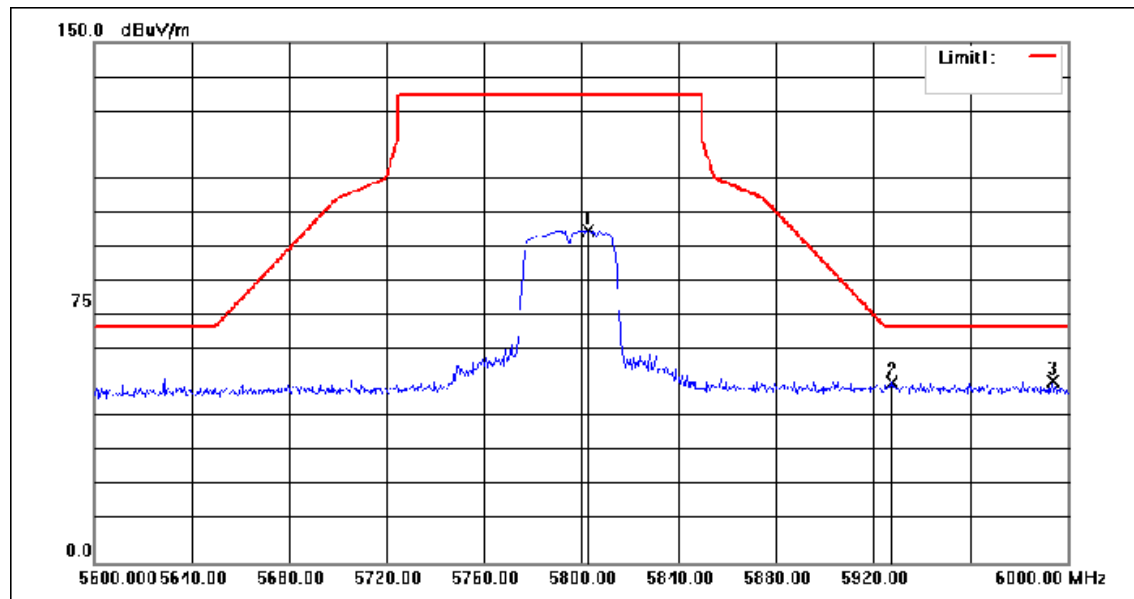
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5623.200	58.46	-6.92	51.54	68.20	-16.66	peak
2	5638.000	58.46	-6.87	51.59	68.20	-16.61	peak
3	5742.000	107.30	-6.61	100.69	135.00	-34.31	peak



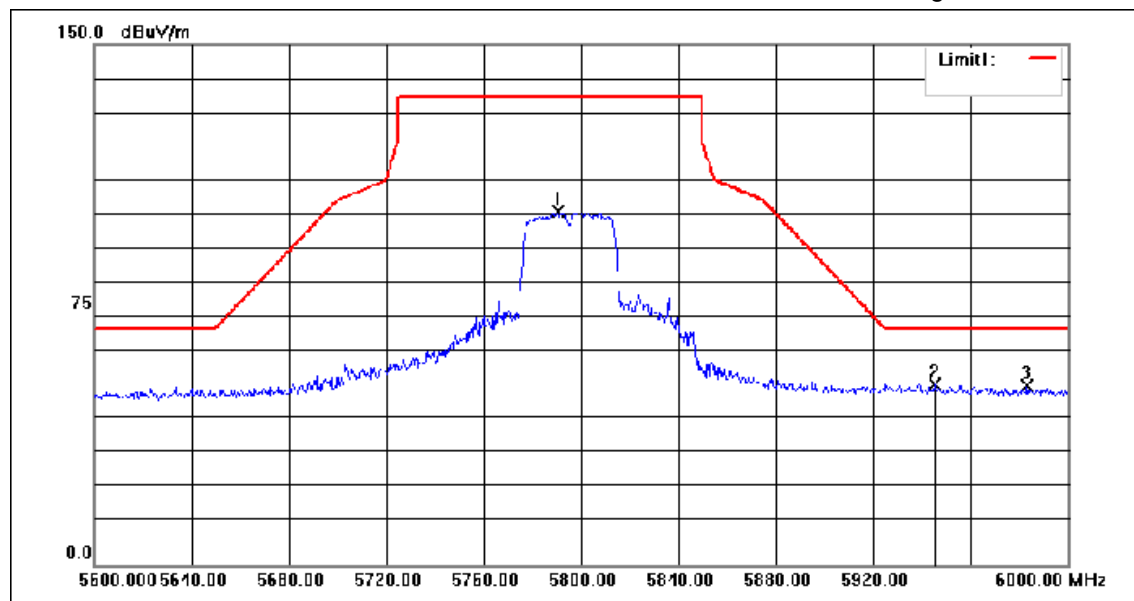
Mode: b; Polarization: Horizontal; Modulation: n; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5802.800	102.28	-6.45	95.83	135.00	-39.17	peak
2	5927.600	57.62	-5.76	51.86	68.20	-16.34	peak
3	5993.600	57.86	-5.40	52.46	68.20	-15.74	peak



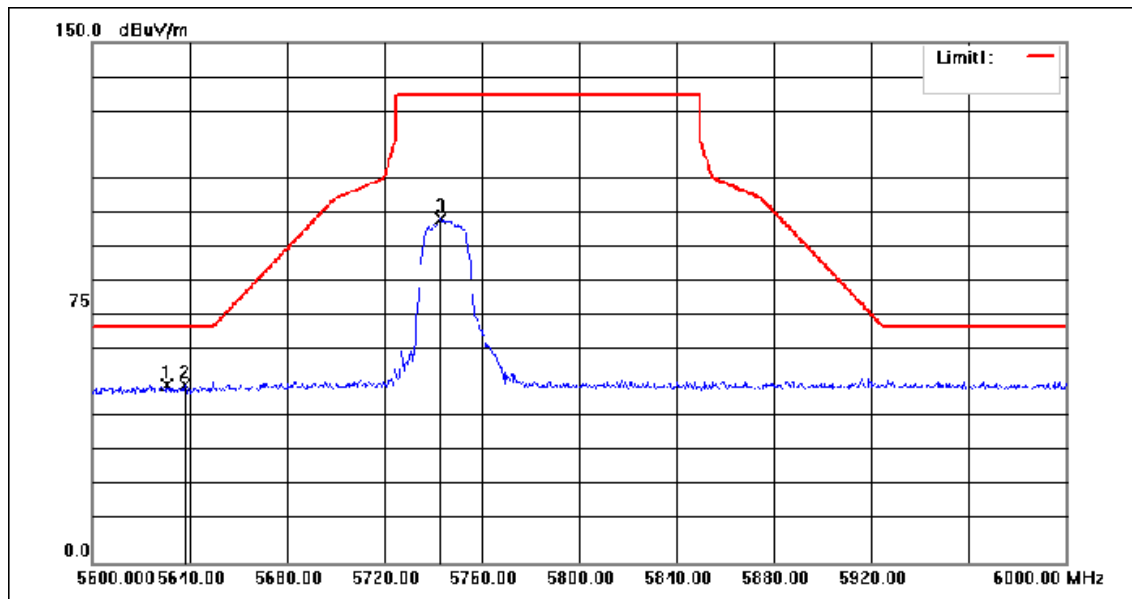
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5790.800	108.12	-6.48	101.64	135.00	-33.36	peak
2	5945.200	57.52	-5.66	51.86	68.20	-16.34	peak
3	5983.200	57.14	-5.45	51.69	68.20	-16.51	peak



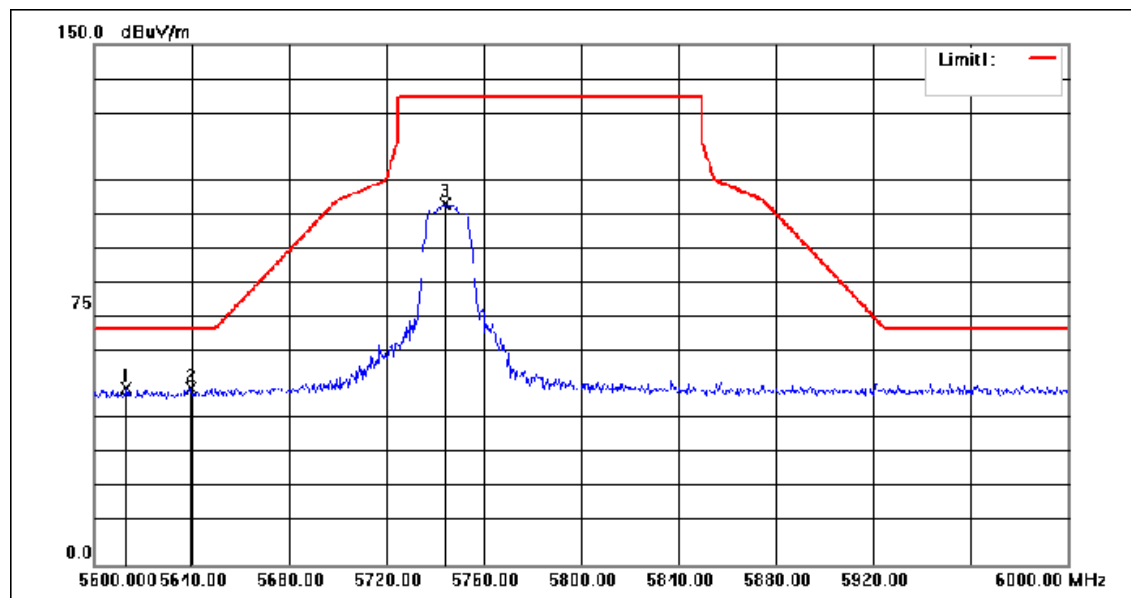
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5630.400	58.00	-6.89	51.11	68.20	-17.09	peak
2	5638.000	58.03	-6.87	51.16	68.20	-17.04	peak
3	5743.200	105.81	-6.61	99.20	135.00	-35.80	peak



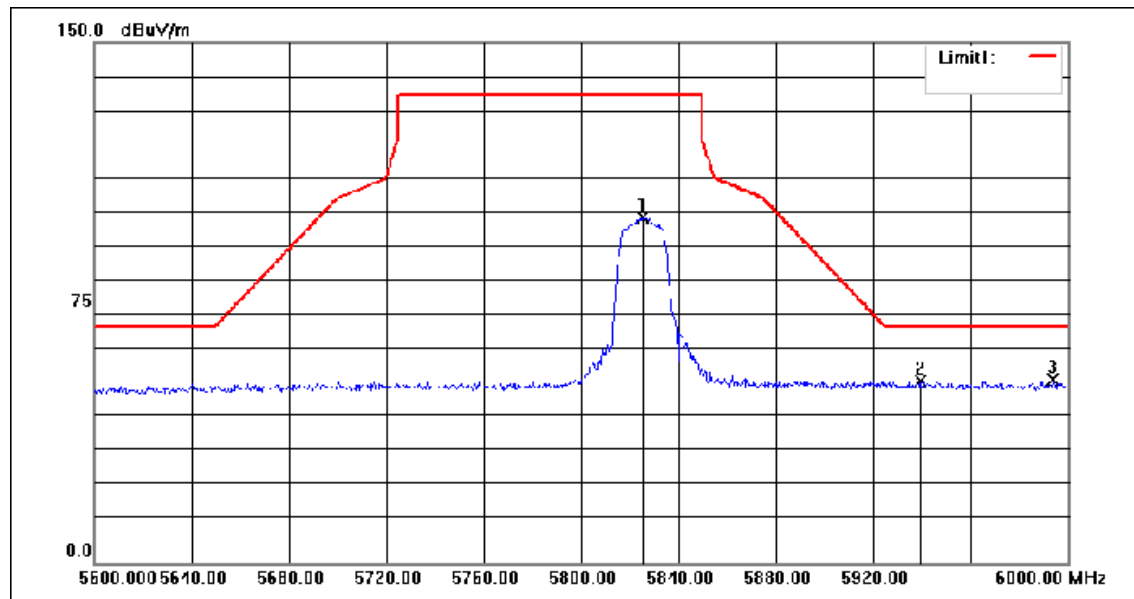
Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5613.200	57.62	-6.94	50.68	68.20	-17.52	peak
2	5639.600	57.78	-6.87	50.91	68.20	-17.29	peak
3	5744.000	110.51	-6.60	103.91	135.00	-31.09	peak



Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 20MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5825.200	105.87	-6.32	99.55	135.00	-35.45	peak
2	5939.200	57.97	-5.70	52.27	68.20	-15.93	peak
3	5994.000	58.03	-5.39	52.64	68.20	-15.56	peak



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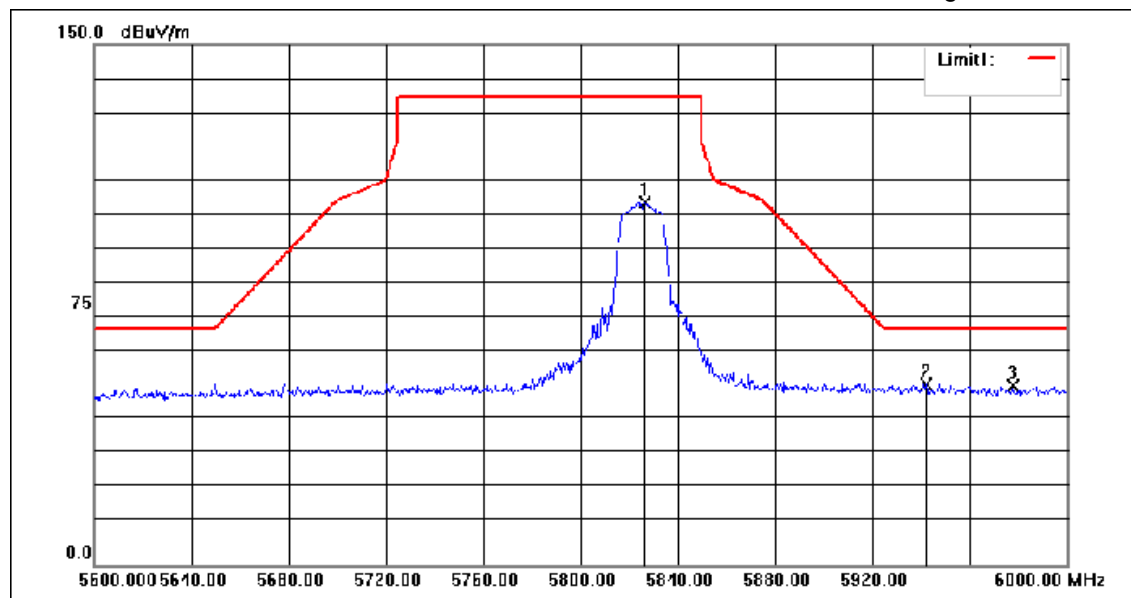
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5826.400	110.87	-6.32	104.55	135.00	-30.45	peak
2	5942.000	57.70	-5.68	52.02	68.20	-16.18	peak
3	5978.000	57.12	-5.48	51.64	68.20	-16.56	peak



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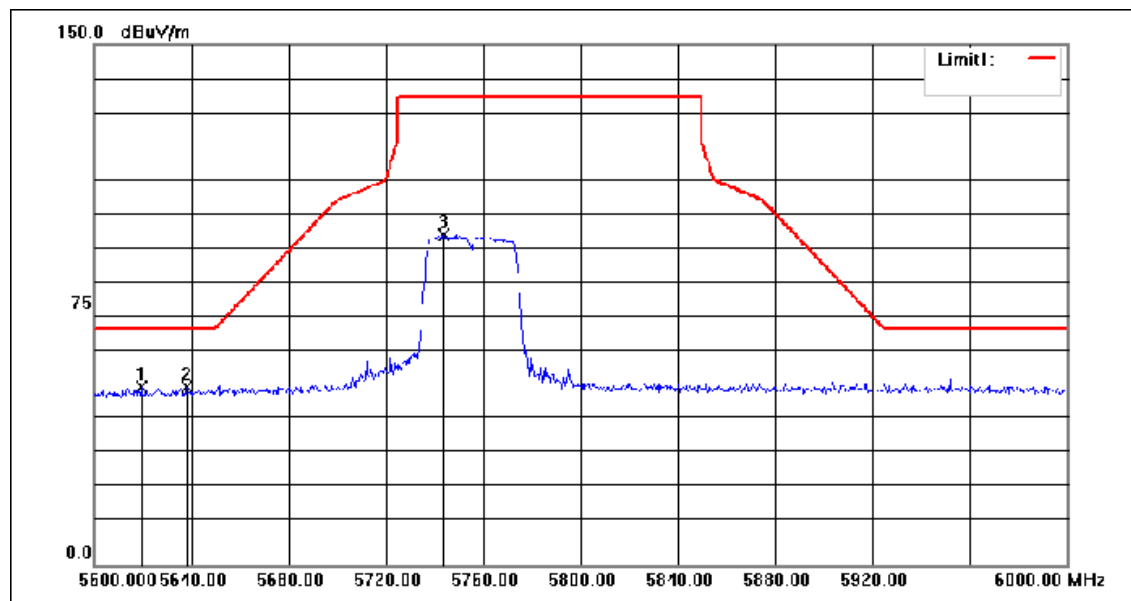
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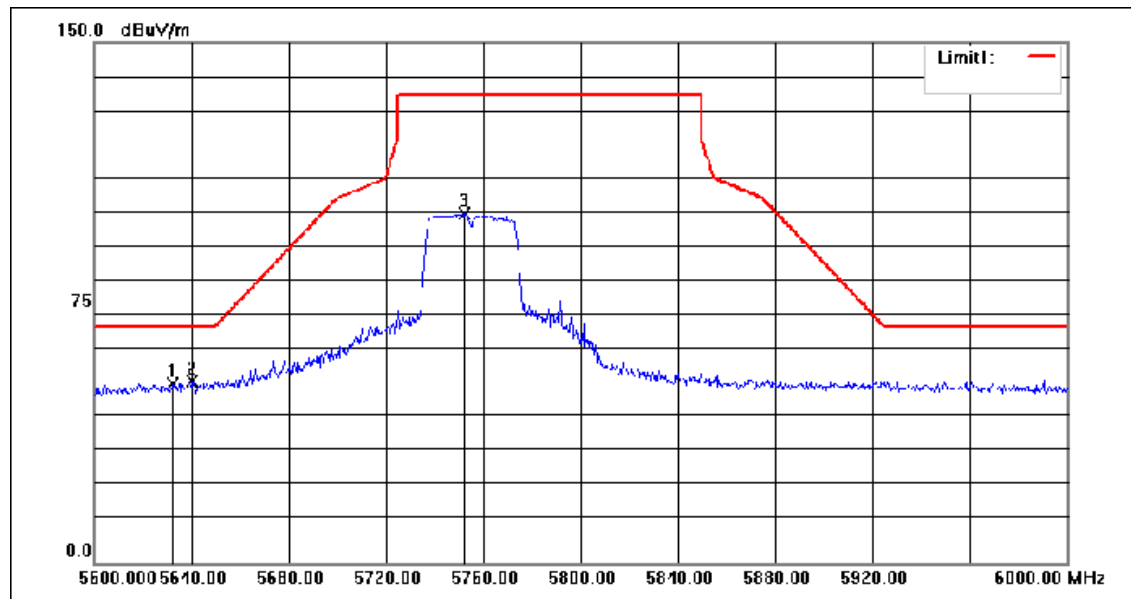
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5619.200	57.93	-6.92	51.01	68.20	-17.19	peak
2	5638.000	58.18	-6.87	51.31	68.20	-16.89	peak
3	5743.600	101.60	-6.60	95.00	135.00	-40.00	peak



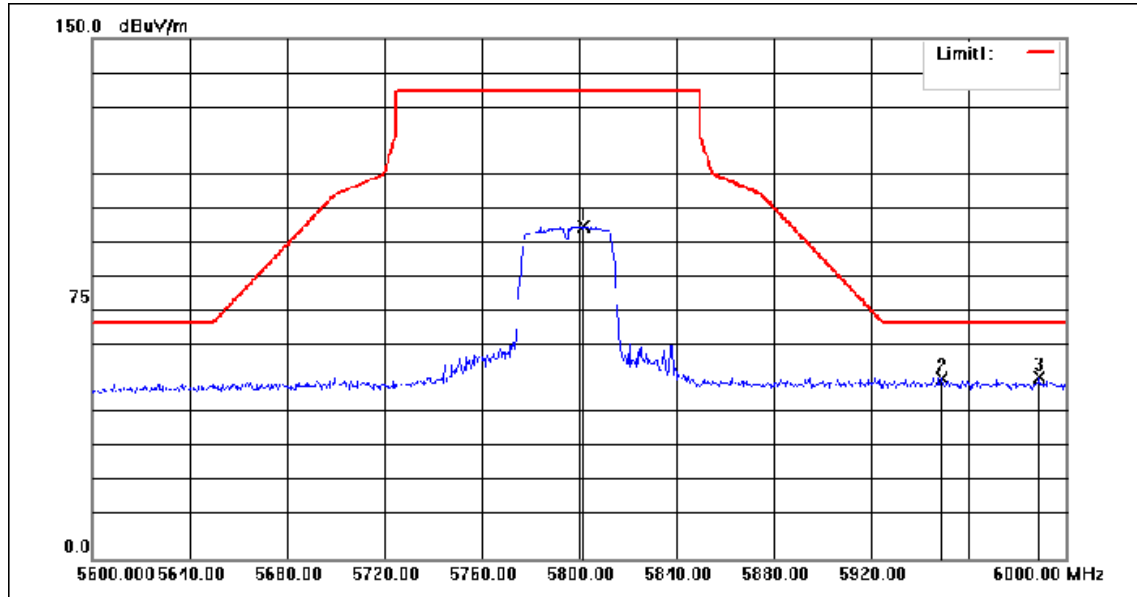
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5632.400	58.62	-6.89	51.73	68.20	-16.47	peak
2	5640.400	59.19	-6.87	52.32	68.20	-15.88	peak
3	5752.000	107.39	-6.58	100.81	135.00	-34.19	peak



Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5801.600	102.17	-6.45	95.72	135.00	-39.28	peak
2	5949.200	57.61	-5.64	51.97	68.20	-16.23	peak
3	5989.200	57.68	-5.42	52.26	68.20	-15.94	peak



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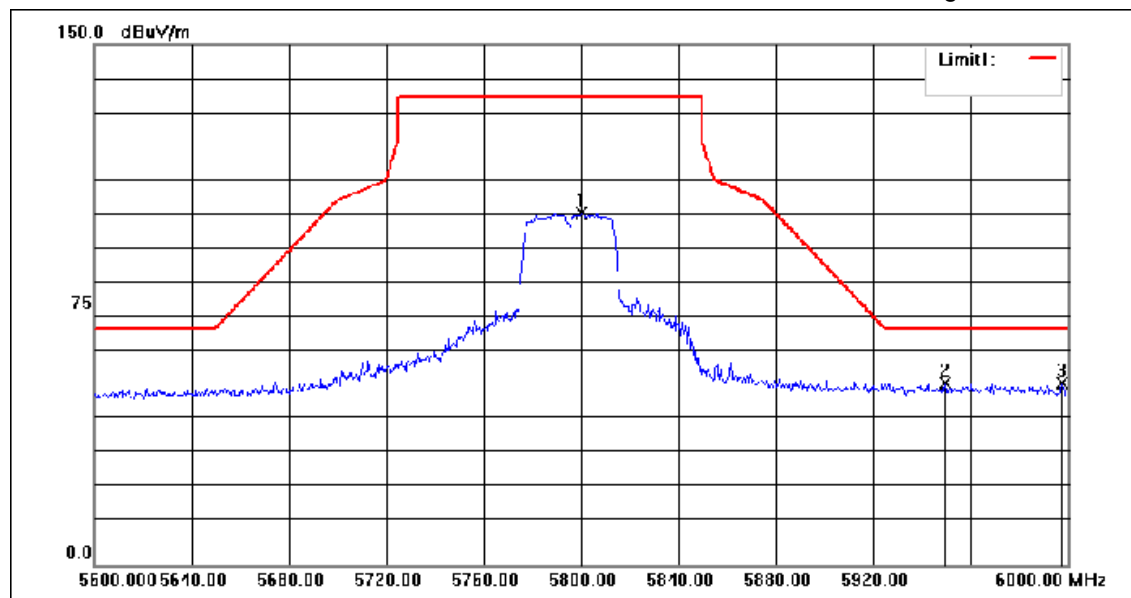
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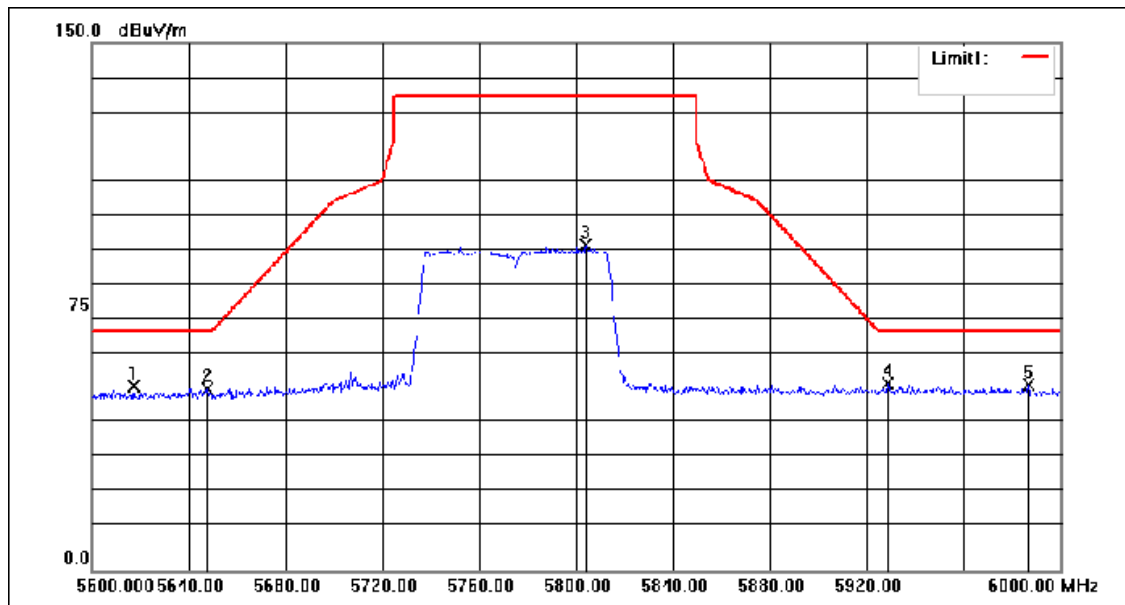
Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 40MHz; Channel: High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5800.400	107.88	-6.46	101.42	135.00	-33.58	peak
2	5949.600	58.04	-5.64	52.40	68.20	-15.80	peak
3	5997.600	57.79	-5.38	52.41	68.20	-15.79	peak



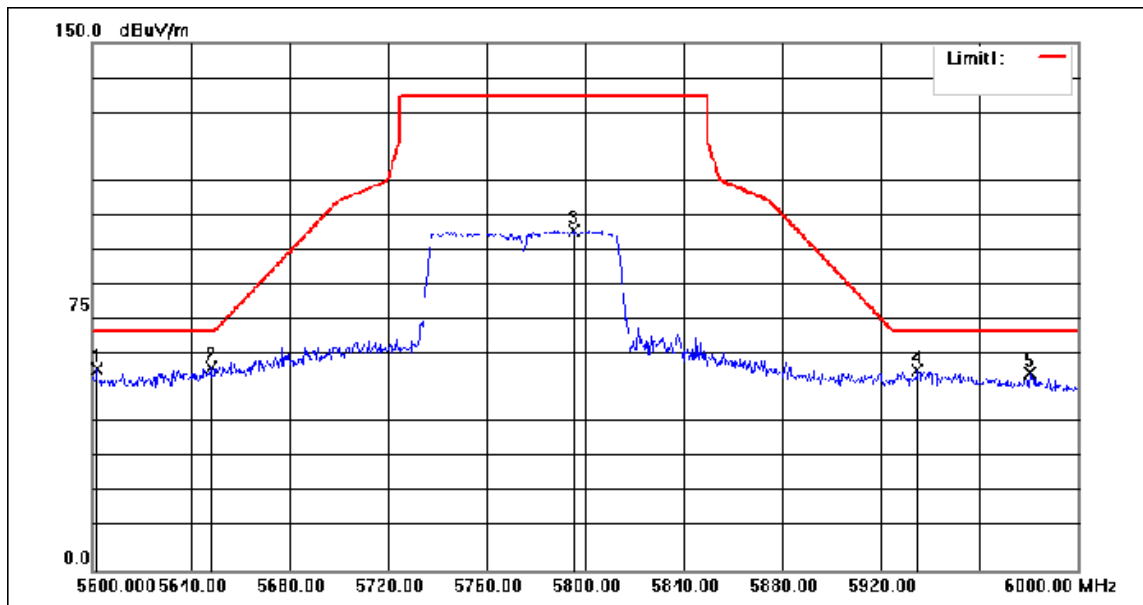
Mode: b; Polarization: Horizontal; Modulation: ac; bandwidth: 80MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5617.200	59.17	-6.92	52.25	68.20	-15.95	peak
2	5647.600	58.49	-6.85	51.64	68.20	-16.56	peak
3	5804.000	98.87	-6.44	92.43	135.00	-42.57	peak
4	5928.800	58.76	-5.75	53.01	68.20	-15.19	peak
5	5986.800	58.30	-5.44	52.86	68.20	-15.34	peak



Mode: b; Polarization: Vertical; Modulation: ac; bandwidth: 80MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5601.600	64.17	-6.97	57.20	68.20	-11.00	peak
2	5648.000	64.60	-6.85	57.75	68.20	-10.45	peak
3	5795.200	103.04	-6.48	96.56	135.00	-38.44	peak
4	5934.800	62.70	-5.72	56.98	68.20	-11.22	peak
5	5980.400	61.48	-5.46	56.02	68.20	-12.18	peak



## 7.9 Frequency Stability

Test Requirement	47 CFR Part 15, Subpart E 15.407 (g)
Test Method:	ANSI C63.10 (2013) Section 6.8
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

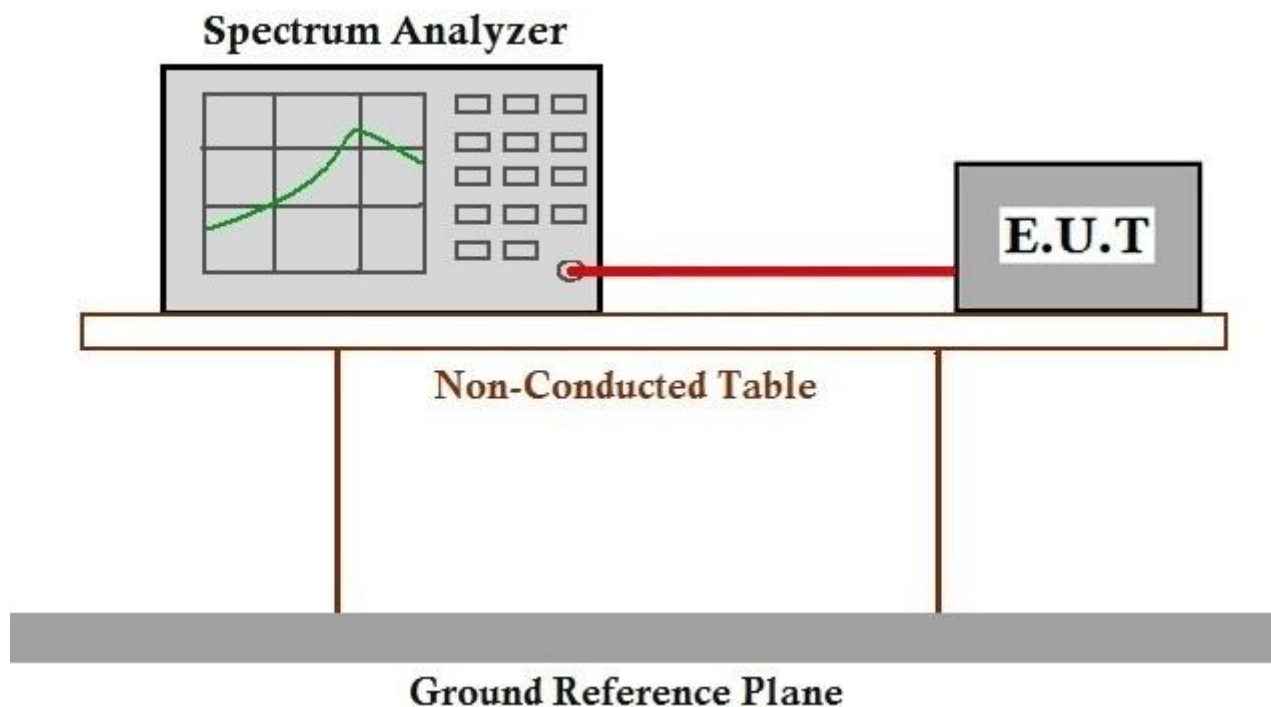
### 7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode b:TX mode (Band 3)\_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 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

### 7.9.2 Test Setup Diagram



### 7.9.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210200159602



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## 8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

## 9 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

**- End of the Report -**



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