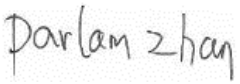
TEST REPORT

Application No.:	SHCR2504001038ME
FCC ID:	2BO7DEM5
Applicant:	Changzhou Sifary Medical Technology Co., Ltd.
Address of Applicant:	No. 26 Yandanghe Road, Xinbei District 213000 Changzhou Jiangsu, China
Manufacturer:	Changzhou Sifary Medical Technology Co., Ltd.
Address of Manufacturer:	No. 26 Yandanghe Road, Xinbei District 213000 Changzhou Jiangsu, China
Factory:	Changzhou Sifary Medical Technology Co., Ltd.
Address of Factory:	No. 26 Yandanghe Road, Xinbei District 213000 Changzhou Jiangsu, China
Equipment Under Test (EUT):	
EUT Name:	Intraoral Scanner
Model No.:	Helios 700, Helios 780, MyScanner-W, Helios 7X Pro
Remark:	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark:	Eighteeth for Helios 700 and Helios 780 MyScanner-W has no trade mark Eighteeth and PRECISION TECH for Helios 7X Pro
Standard(s) :	47 CFR Part 15, Subpart E 15.407
Date of Receipt:	2025-04-28
Date of Test:	2025-04-29 to 2025-05-29
Date of Issue:	2025-06-23
Test Result:	**Pass***

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

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2025-06-23	/

Authorized for issue by:				
Tested By		 **Wade Zhang/Project Engineer**		
Approved By		 **Parlam Zhan / Reviewer**		

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		N/A	47 CFR Part 15, Subpart E 15.407 (c)	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 12.3	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Duty Cycle		ANSI C63.10 (2013) Section 12.2	ANSI C63.10 (2013) Section 12.2	Pass
99% Bandwidth		ANSI C63.10 (2013) Section 12.4.2	ANSI C63.10 (2013) Section 12.4.2	Pass
26dB Emission bandwidth		ANSI C63.10 (2013) Section 12.4.1	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band)		ANSI C63.10 (2013) Section 6.9.2	47 CFR Part 15, Subpart E 15.407 (e)	Pass
Peak Power spectrum density		ANSI C63.10 (2013) Section 12.5	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions (Below 1GHz)		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions (Above 1GHz)		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)		ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)	Pass
Frequency Stability		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart E 15.407 (g)	Pass

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model Helios 700 was tested since their differences were the model number and appearance.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.6V 3300mAh Battery Charger Power supply: AC100-240V 50/60Hz Charger Power output: DC 6V 3A Test voltage: AC 120V 60Hz & DC 3.6V
Operation Frequency/Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels); U-NII-2A: 5260-5320MHz (4 Channels); U-NII-2C: 5500-5700MHz (11 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency/Number of channels/(40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-2A: 5270-5310MHz (2 Channels); U-NII-2C: 5510-5670MHz (5 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency/Number of channels (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-2A: 5290MHz (1 Channels); U-NII-2C: 5530-5610MHz (2 Channels); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a/n/ac 20: 20MHz; 802.11n/ac 40: 40MHz; 802.11ac 80: 80MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	FPC Antenna
Antenna Gain:	4.64dBi
Antenna Number:	1

4.2 Power level setting using in test:

Test Mode	802.11 a	802.11n (HT20)	802.11a c(VHT20)
Channel	Ant 1	Ant 1	Ant 1
36	14	13	13
40	14	13	13
48	14	13	13
52	14	13	13
60	14	13	13
64	14	13	13
100	14	13	13
116	14	13	13
140	12	11	12
149	12	11	12
157	12	11	12
165	12	11	12

Test Mode	802.11 n(HT40)	802.11a c(VHT40)
Channel	Ant 1	Ant 1

38	13	13
46	13	13
54	13	13
62	13	13
102	13	13
110	13	13
134	13	13
151	12	13
159	12	13

Test Mode	802.ac(VHT80)
Channel	Ant1
42	13
58	13
106	13
122	13
155	13

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	ThinkPad T14p	-
Router	NETGEAR	RAX50	-
SecureCRT	VanDyke	V 6.2.0	-
Serial port adapter plate	-	Test Plate 3	-

4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty cycle	0.4%
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-6GHz)
		5.4dB (6GHz-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.

4.5 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678
No tests were sub-contracted.
Note:
1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal 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.

4.6 Test Facility

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

• A2LA (Certificate No. 6332.01)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• FCC (Designation Number: CN1301)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

• ISED (CAB Identifier: CN0020)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.
Company Number: 8617A

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2024/12/18	2025-12-17
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2024/12/18	2025-12-17
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2025-04-30	2026-04-29
Signal Generator	R&S	SMR20	SHEM006-1	2024-07-31	2025-07-30
Signal Generator	Agilent	N5182A	SHEM182-1	2024-07-31	2025-07-30
Communication Tester	R&S	CMW270	SHEM183-1	2025-04-30	2026-04-29
Communication Tester	R&S	CMW500	SHEM268-1	2025-04-30	2026-04-29
Power Sensor	Keysight	U2021XA * 4	SHEM293-1	2024-07-31	2025-07-30
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2024-11-05	2026-11-04
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2024/12/18	2025-12-17
DC Power Supply	HP	6010A	SHEM222-1	2024/12/18	2025-12-17
Conducted test Cable	/	RF01~RF04	/	2024/12/18	2025-12-17
Switcher	Tonscend	JS0806	SHEM293-1	2024-07-31	2025-07-30
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
Switcher+Power Sensor	TST	TSPS2023R	SHEM263-1	2024-07-31	2025-07-30
Test software	TST	TST PASS	Version: 2.0	/	/
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2024/12/18	2025-12-17
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2024/12/18	2025-12-17
Communication Tester	R&S	CMW500	SHEM268-1	2025-04-30	2026-04-29
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2024/12/18	2025-12-17
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2023-09-03	2025-09-02
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2025-04-12	2027-04-11
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2024-08-05	2026-08-04
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2023-09-03	2025-09-02
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2023-09-03	2025-09-02
Pre-Amplifier	HP	8447D	SHEM236-1	2024/12/18	2025-12-17
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2024/12/18	2025-12-17
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2023-05-06	2026-05-05
RE test Cable	/	PT18-NMNM-10M	SHEM217-2	2024/12/18	2025-12-17
Test software	ESE	E3	Version: 6.111221a	/	/

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 permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is FPC Antenna and no consideration of replacement. The best case gain of the antenna is 4.64 dBi.

Antenna location: Refer to internal photo.

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

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 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.

7 Radio Spectrum Matter Test Results

7.1 Maximum Conducted output power

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

Test Method: ANSI C63.10 (2013) Section 12.3

Limit:

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

7.1.1 E.U.T. Operation

Operating Environment:

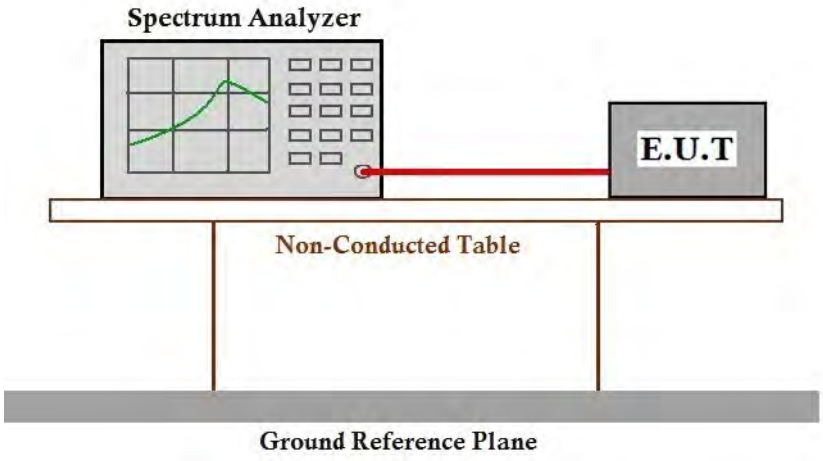
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

AV Output power Level = Reading level +Cable loss + DCCF

Please Refer to Appendix for Details

7.2 Duty Cycle

Test Requirement ANSI C63.10 (2013) Section 12.2
Test Method: ANSI C63.10 (2013) Section 12.2

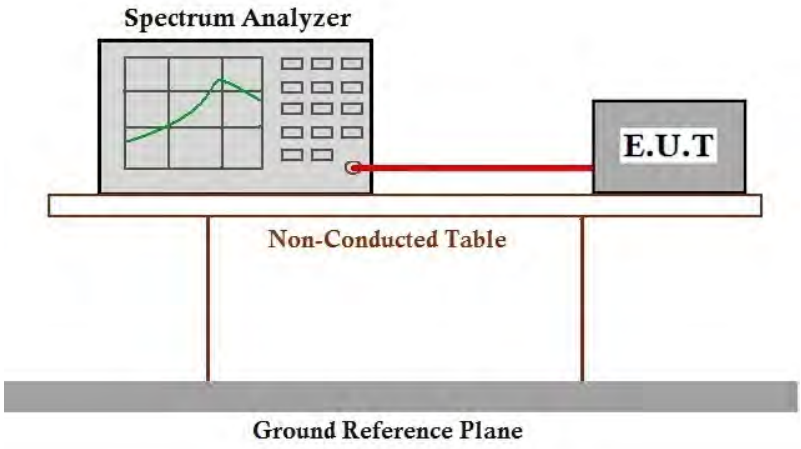
7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.3 99% Bandwidth

Test Requirement ANSI C63.10 (2013) Section 12.4.2

Test Method: ANSI C63.10 (2013) Section 12.4.2

7.3.1 E.U.T. Operation

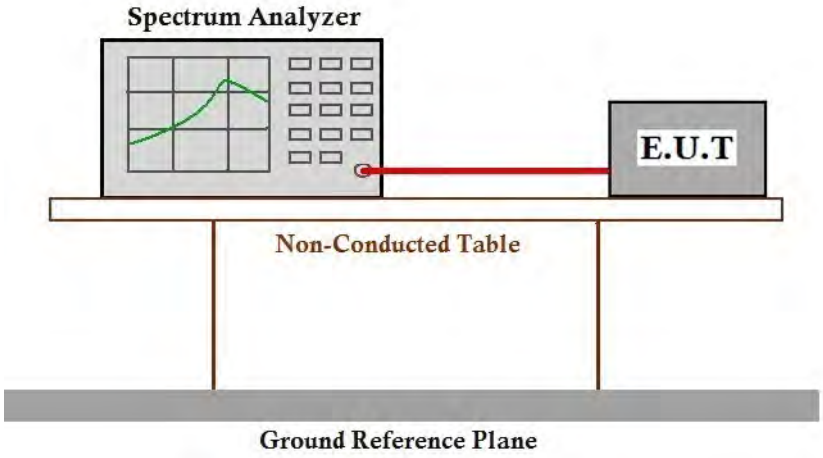
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.4 26dB Emission bandwidth

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

Test Method: ANSI C63.10 (2013) Section 12.4.1

7.4.1 E.U.T. Operation

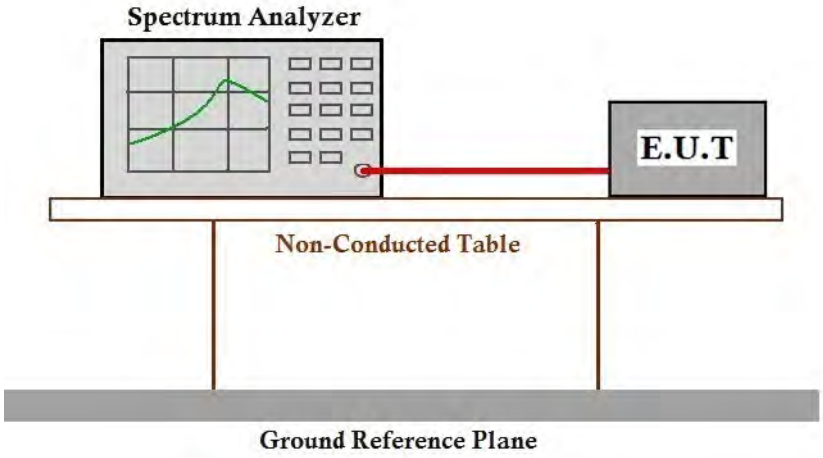
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.5 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

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

Test Method: ANSI C63.10 (2013) Section 6.9.2

Limit:

Frequency band(MHz)	Limit
5725-5850	⩾500 kHz

7.5.1 E.U.T. Operation

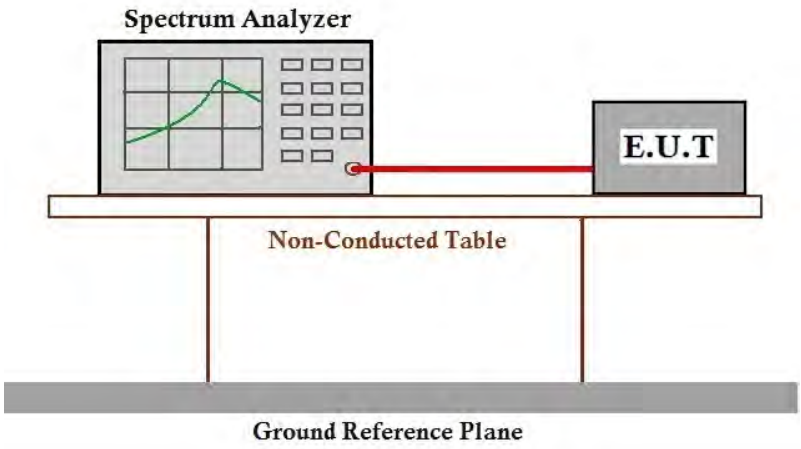
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	TX mode (U-NII-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.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Peak Power spectrum density

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

Test Method: ANSI C63.10 (2013) Section 12.5

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.

7.6.1 E.U.T. Operation

Operating Environment:

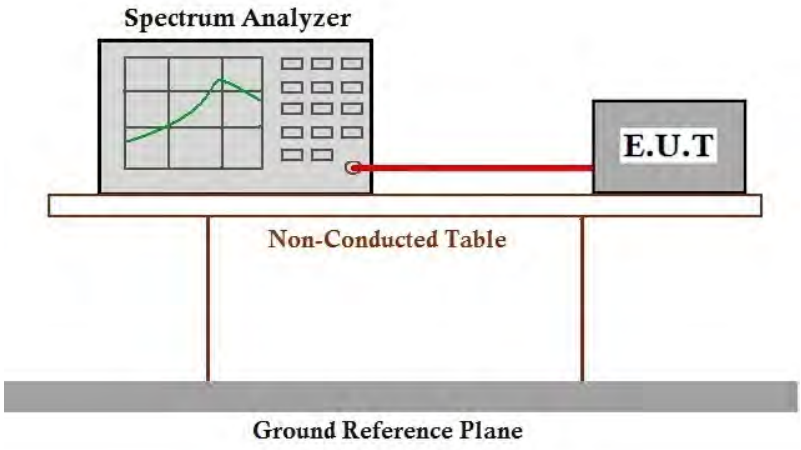
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

RBW conversion factor from 300kHz to 500kHz (2.22dB) for UNII Band 3 has been considered.

Please Refer to Appendix for Details

7.7 Radiated Emissions which fall in the restricted bands

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

Test Method: ANSI C63.10 (2013) Section 6.10.5

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

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

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

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

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz 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 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 at the band edge.

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.

7.7.1 E.U.T. Operation

Operating Environment:

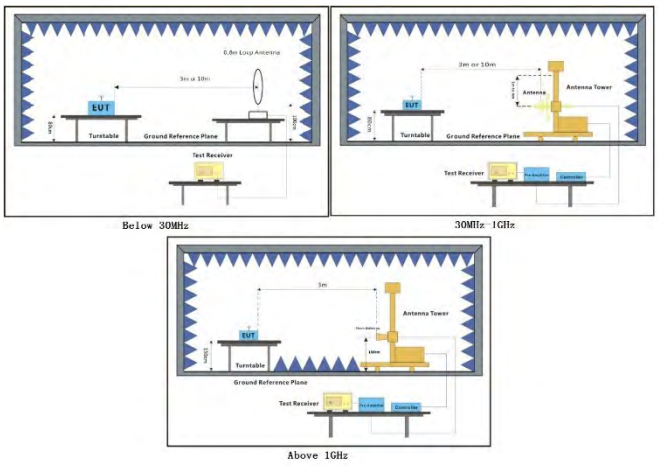
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.7.3 Test Setup Diagram



7.7.4 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.

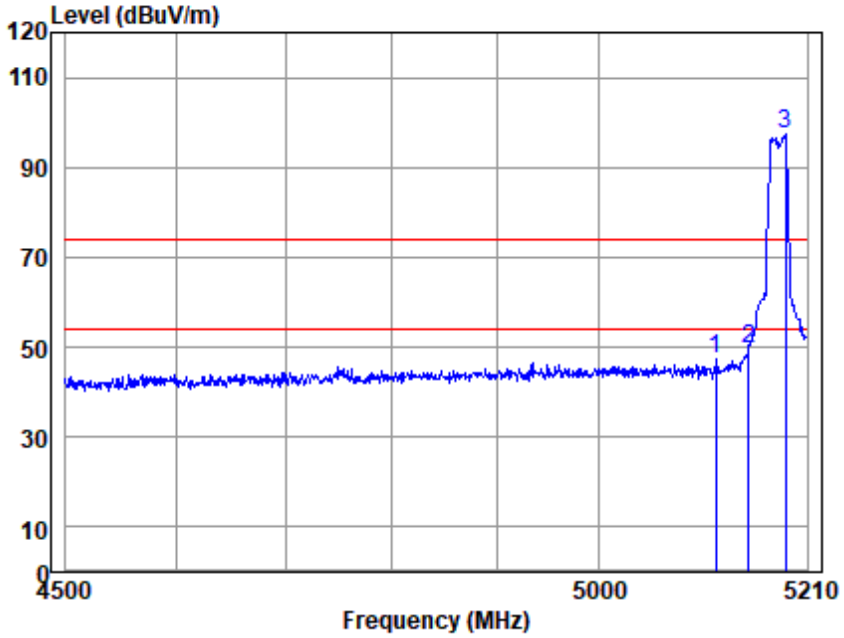
j. Repeat above procedures until all frequencies measured was complete.

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

Remark 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

Remark 3. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geqslant$1/T (Duty cycle$<$98%) or 10Hz (Duty cycle$\geqslant$98%) for Average detection (AV) at frequency above 1GHz.

Test Mode: 01; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

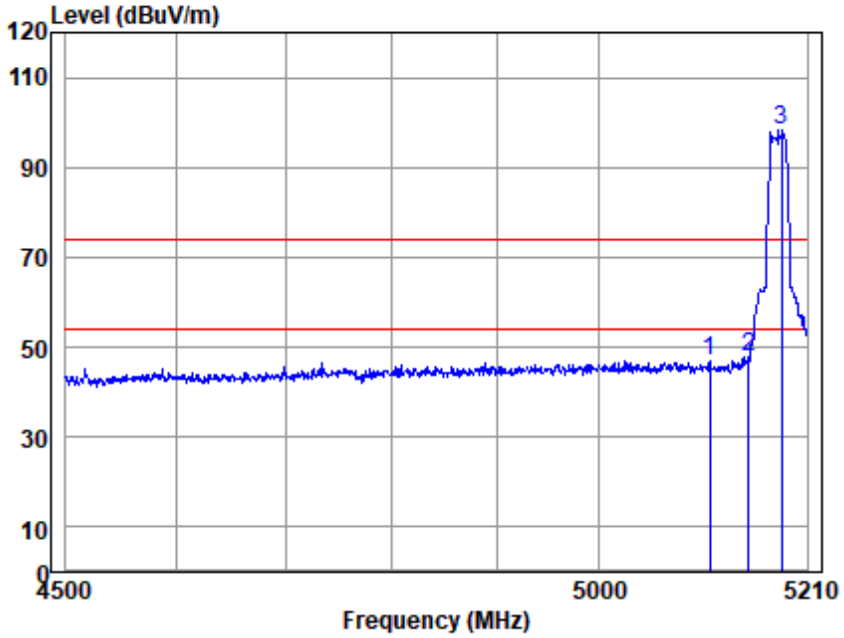


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5116.958	44.80	33.71	5.55	36.87	47.19	74.00	-26.81	Peak
5150.000	47.24	33.78	5.54	36.88	49.68	74.00	-24.32	Peak
5187.912	94.97	33.91	5.65	36.89	97.64	74.00	23.64	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

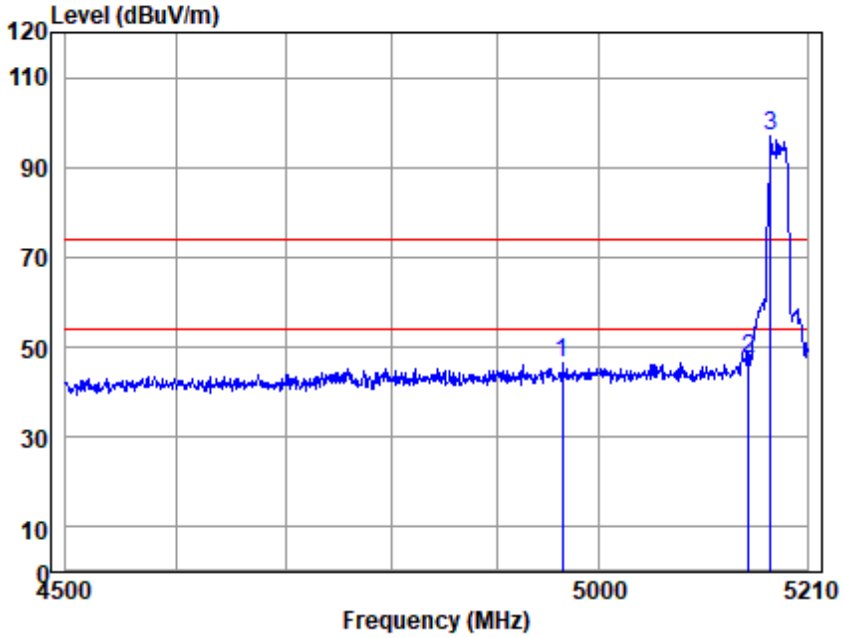


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5110.964	44.67	33.67	5.53	36.87	47.00	74.00	-27.00	Peak
5150.000	45.38	33.78	5.54	36.88	47.82	74.00	-26.18	Peak
5184.113	95.68	33.87	5.65	36.89	98.31	74.00	24.31	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

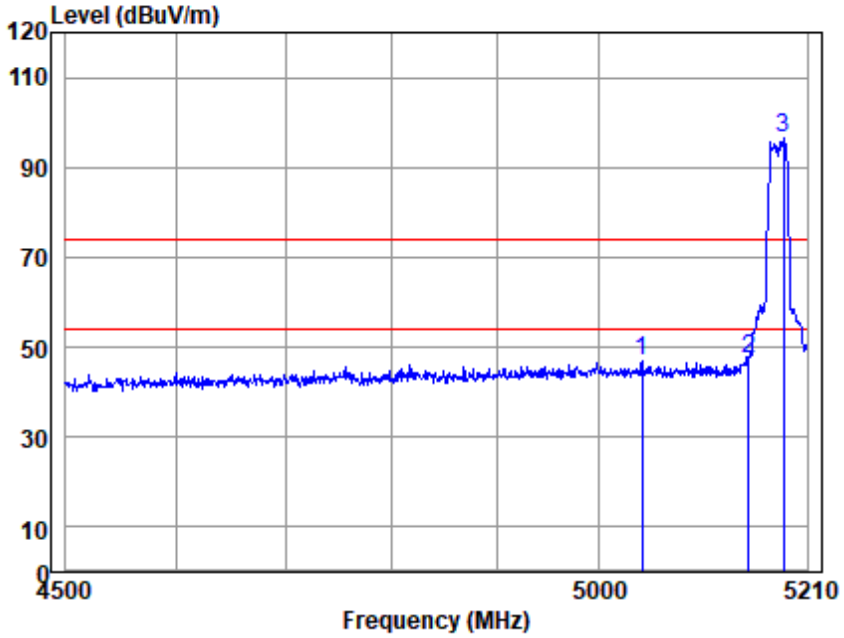


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4964.110	44.25	33.65	5.46	36.83	46.53	74.00	-27.47	Peak
5150.000	45.04	33.78	5.54	36.88	47.48	74.00	-26.52	Peak
5172.733	94.31	33.87	5.65	36.89	96.94	74.00	22.94	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

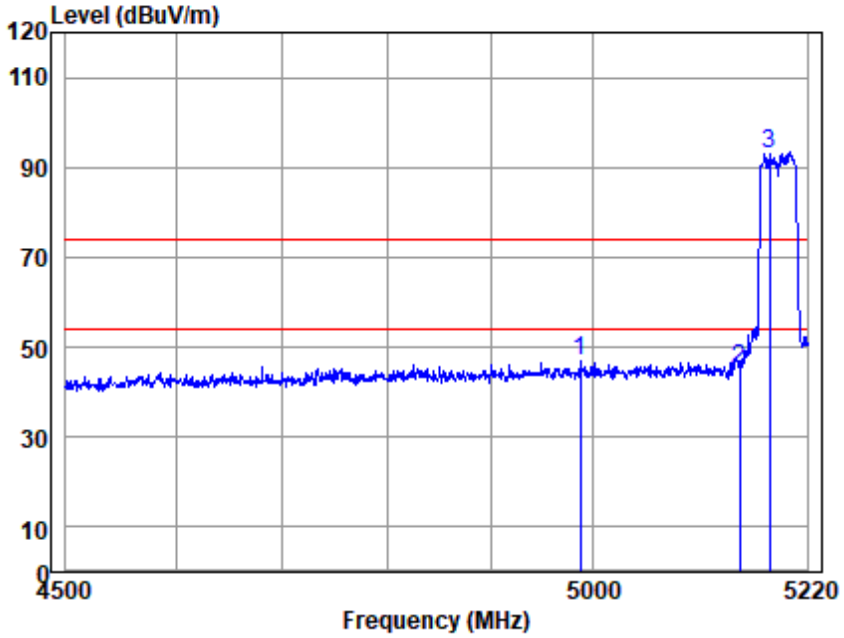


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5042.540	44.73	33.69	5.59	36.85	47.16	74.00	-26.84	Peak
5150.000	44.95	33.78	5.54	36.88	47.39	74.00	-26.61	Peak
5185.632	93.76	33.87	5.65	36.89	96.39	74.00	22.39	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

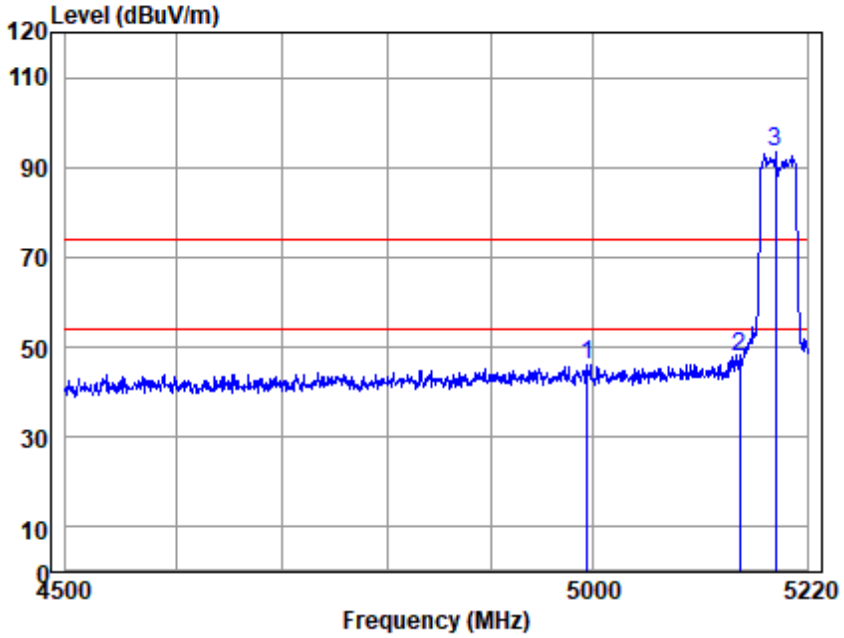


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4988.229	44.65	33.67	5.65	36.84	47.13	74.00	-26.87	Peak
5150.000	42.90	33.78	5.54	36.88	45.34	74.00	-28.66	Peak
5181.406	90.42	33.87	5.65	36.89	93.05	74.00	19.05	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

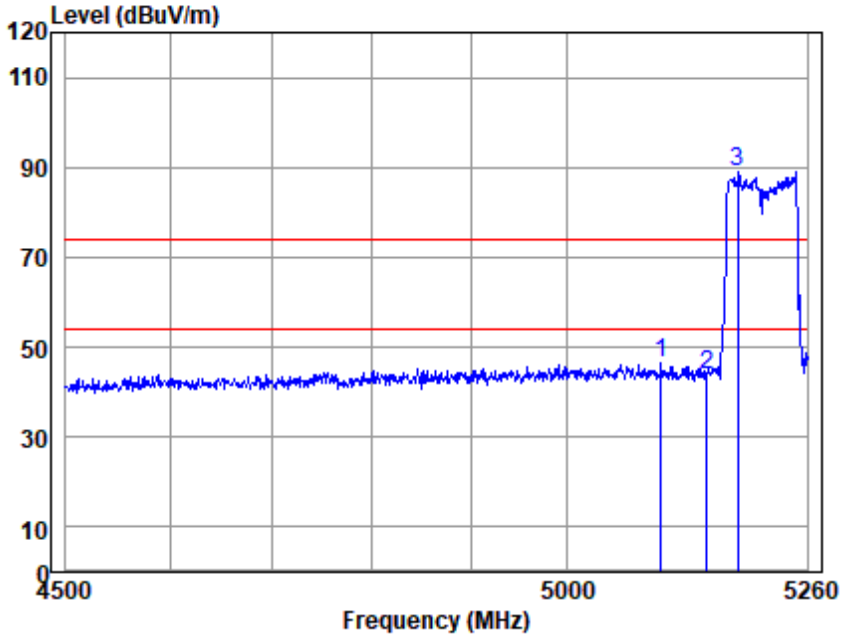


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
4995.638	43.57	33.69	5.64	36.84	46.06	74.00	-27.94	Peak
5150.000	45.25	33.78	5.54	36.88	47.69	74.00	-26.31	Peak
5186.792	90.64	33.91	5.65	36.89	93.31	74.00	19.31	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

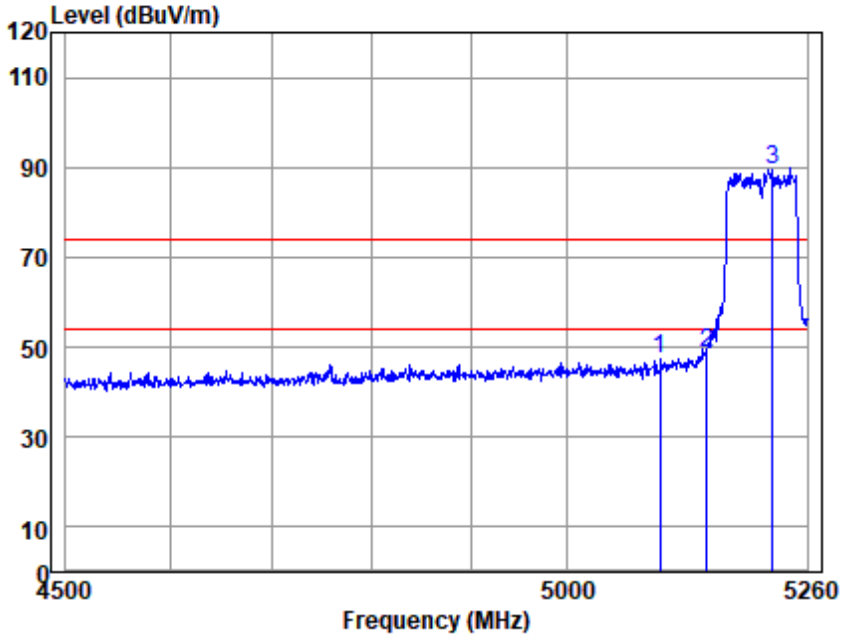


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5100.754	44.20	33.67	5.53	36.87	46.53	74.00	-27.47	Peak
5150.000	41.53	33.78	5.54	36.88	43.97	74.00	-30.03	Peak
5184.213	86.26	33.87	5.65	36.89	88.89	74.00	14.89	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

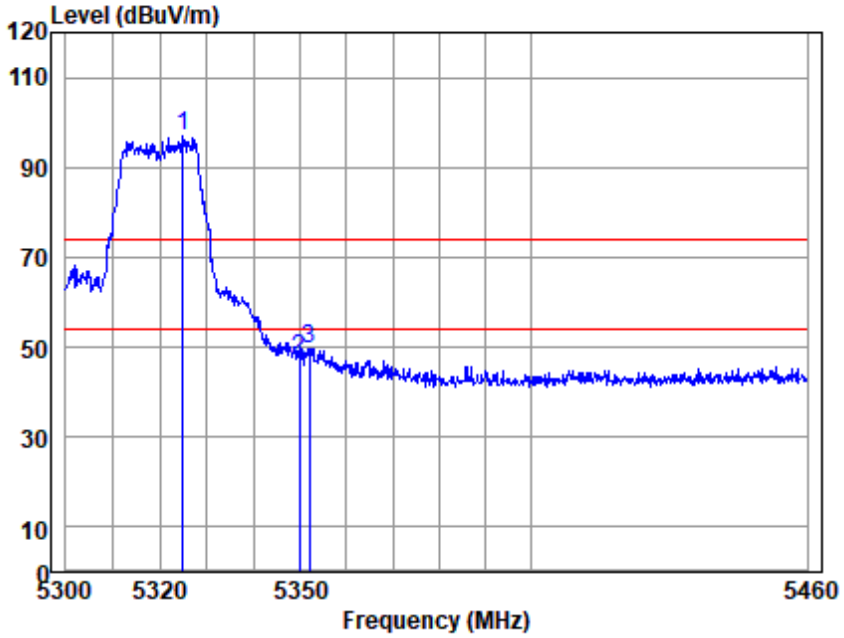


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5099.958	45.18	33.67	5.53	36.87	47.51	74.00	-26.49	Peak
5150.000	46.16	33.78	5.54	36.88	48.60	74.00	-25.40	Peak
5222.376	86.89	33.97	5.70	36.90	89.66	74.00	15.66	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

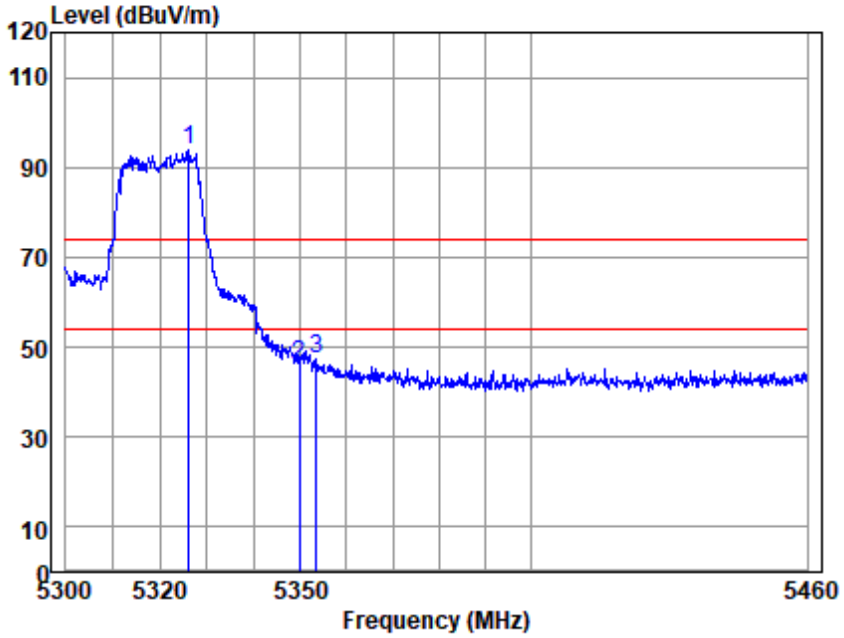


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5324.964	94.15	34.17	5.47	36.93	96.86	74.00	22.86	Peak
5350.000	44.48	34.19	5.60	36.94	47.33	74.00	-26.67	Peak
5352.116	46.75	34.19	5.60	36.94	49.60	74.00	-24.40	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

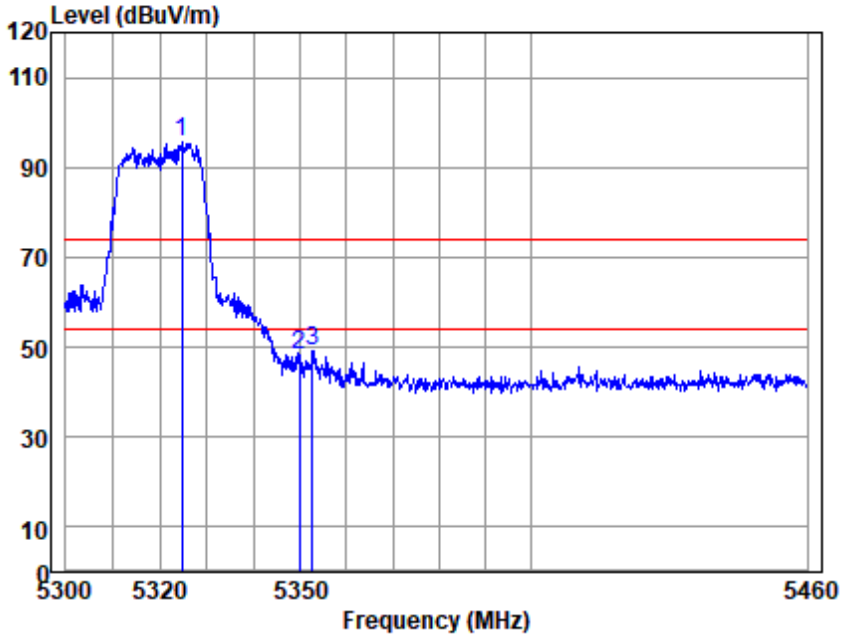


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5326.231	91.31	34.17	5.47	36.93	94.02	74.00	20.02	Peak
5350.000	43.00	34.19	5.60	36.94	45.85	74.00	-28.15	Peak
5353.548	44.44	34.19	5.60	36.94	47.29	74.00	-26.71	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

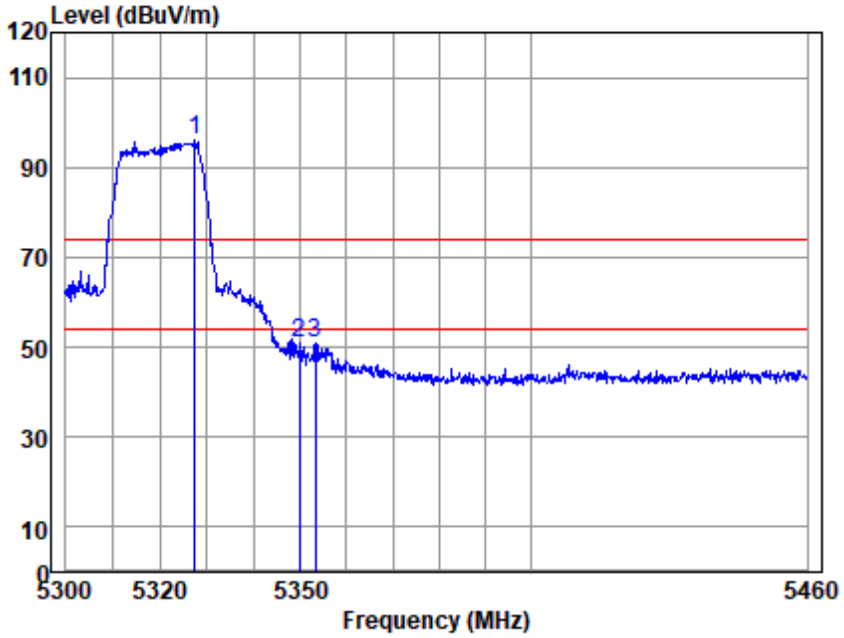


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5324.806	92.79	34.17	5.47	36.93	95.50	74.00	21.50	Peak
5350.000	45.21	34.19	5.60	36.94	48.06	74.00	-25.94	Peak
5352.752	46.30	34.19	5.60	36.94	49.15	74.00	-24.85	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

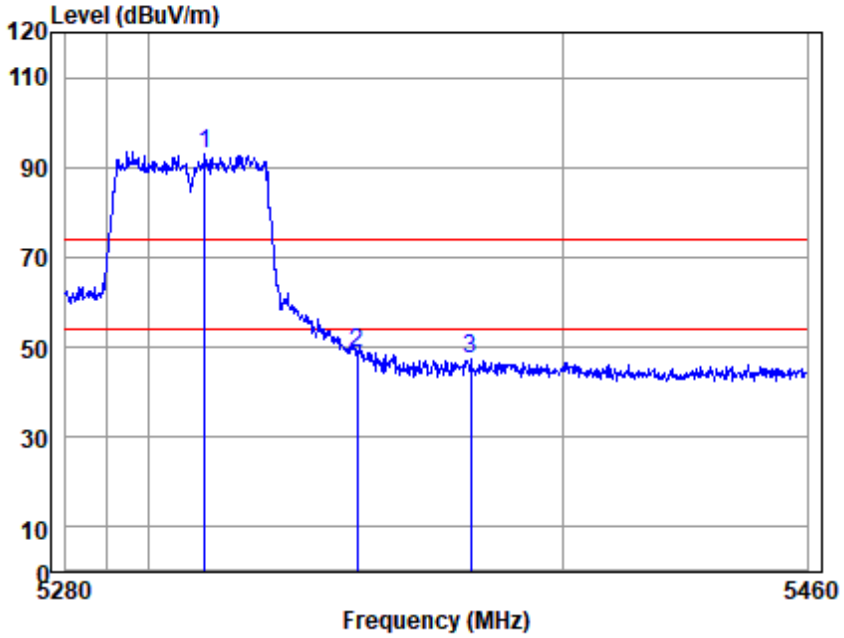


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5327.499	93.24	34.17	5.47	36.93	95.95	74.00	21.95	Peak
5350.000	48.03	34.19	5.60	36.94	50.88	74.00	-23.12	Peak
5353.389	47.87	34.19	5.60	36.94	50.72	74.00	-23.28	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

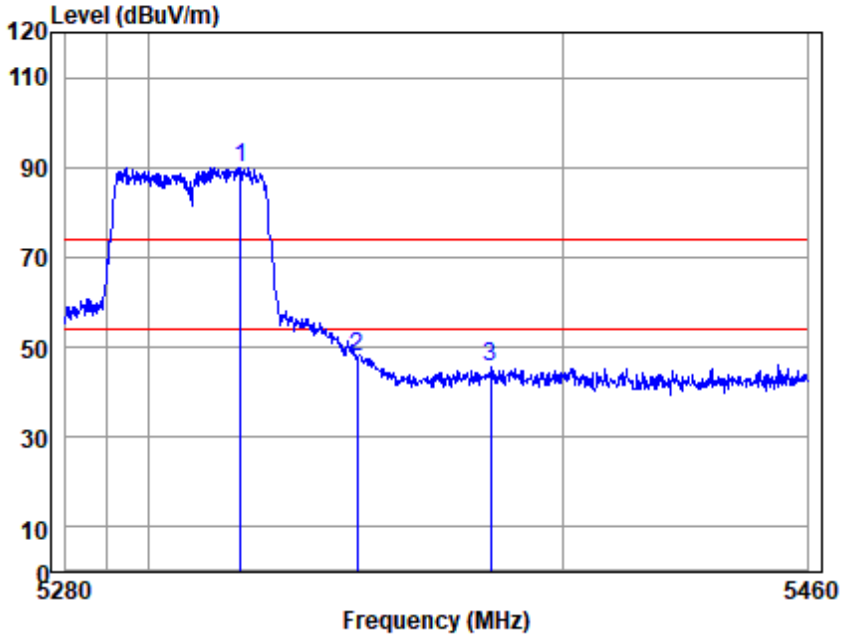


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5313.381	90.28	34.16	5.44	36.93	92.95	74.00	18.95	Peak
5350.000	45.92	34.19	5.60	36.94	48.77	74.00	-25.23	Peak
5377.712	44.29	34.29	5.63	36.95	47.26	74.00	-26.74	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

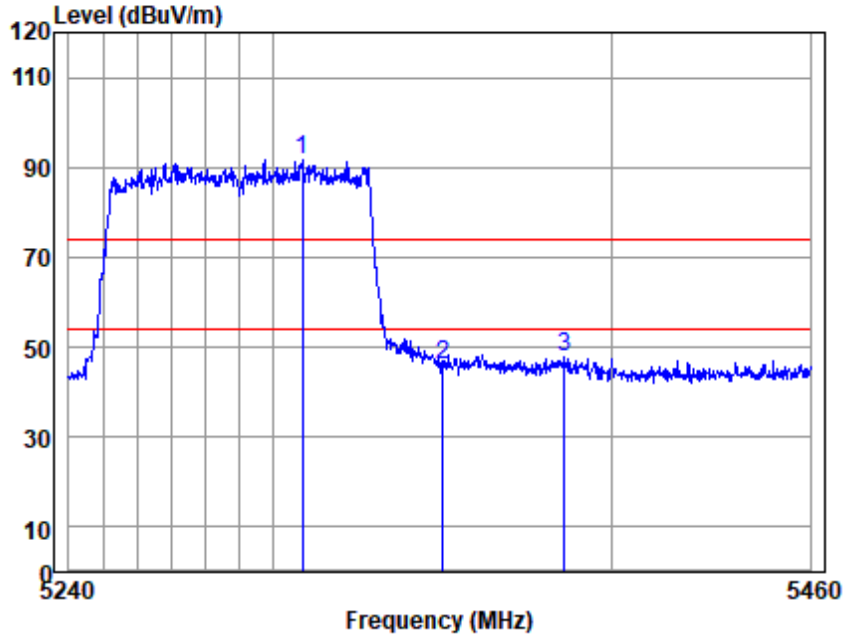


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5321.938	87.10	34.16	5.44	36.93	89.77	74.00	15.77	Peak
5350.000	44.86	34.19	5.60	36.94	47.71	74.00	-26.29	Peak
5382.401	42.60	34.29	5.63	36.95	45.57	74.00	-28.43	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:High

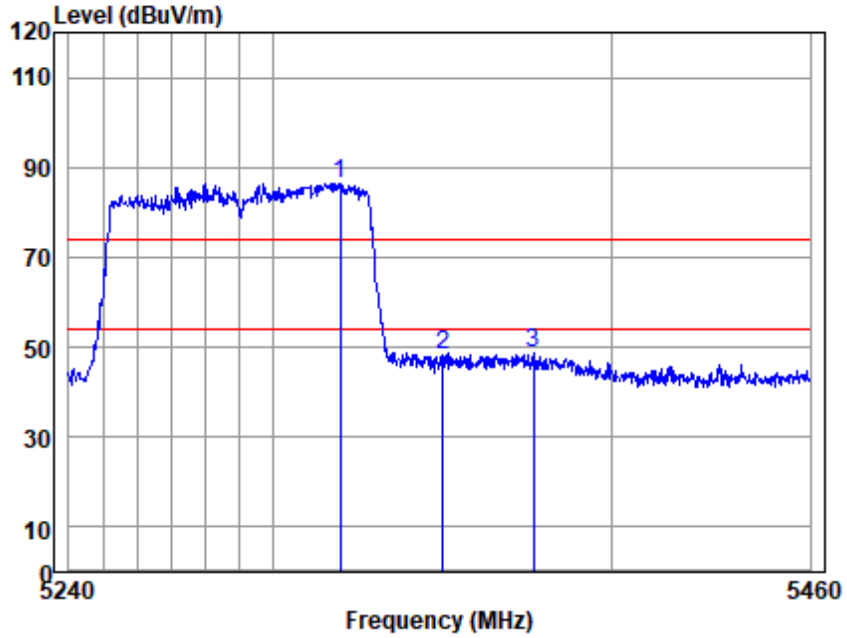


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5308.326	89.08	34.16	5.44	36.93	91.75	74.00	17.75	Peak
5350.000	43.11	34.19	5.60	36.94	45.96	74.00	-28.04	Peak
5386.176	44.70	34.34	5.70	36.95	47.79	74.00	-26.21	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:High

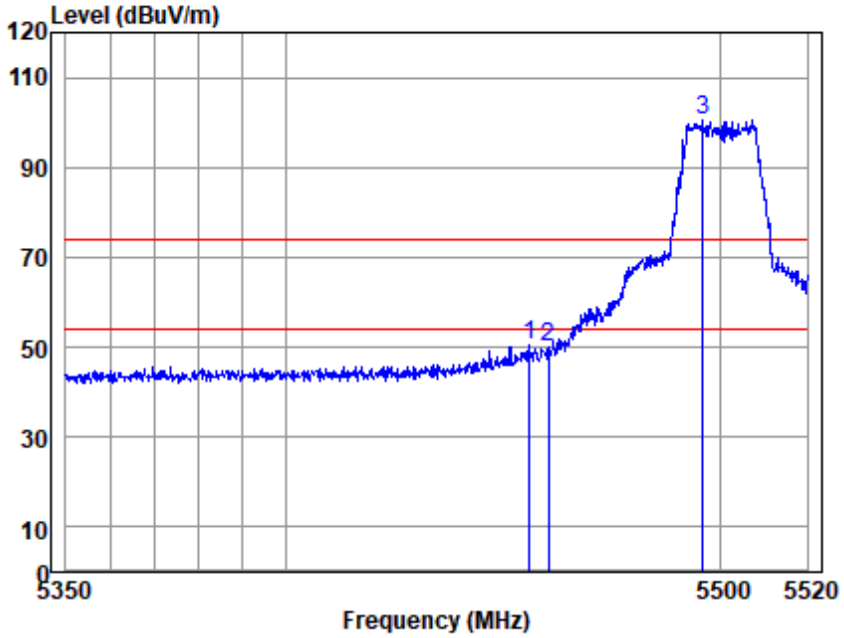


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5319.472	83.81	34.16	5.44	36.93	86.48	74.00	12.48	Peak
5350.000	45.20	34.19	5.60	36.94	48.05	74.00	-25.95	Peak
5376.880	45.82	34.29	5.63	36.95	48.79	74.00	-25.21	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

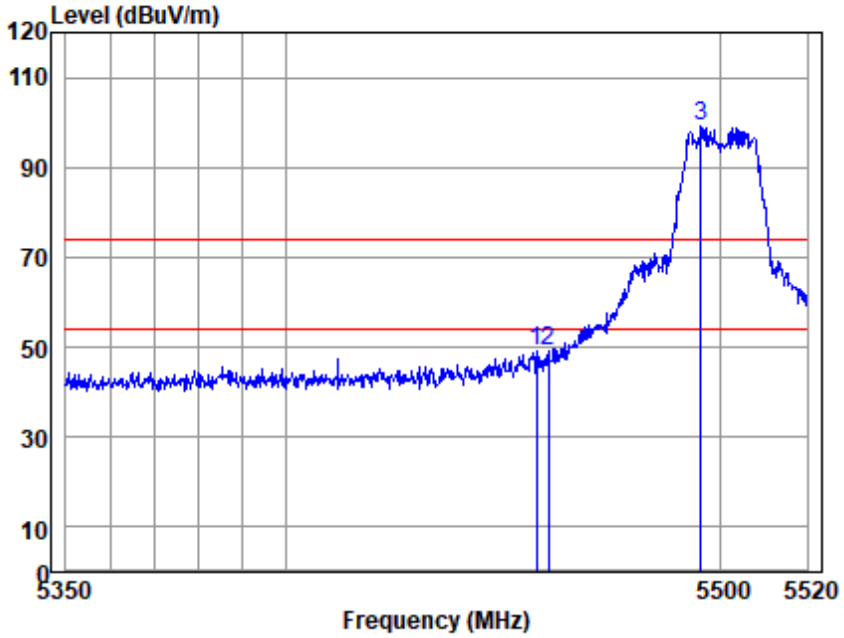


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5455.626	47.30	34.44	5.75	36.97	50.52	74.00	-23.48	Peak
5460.000	46.68	34.44	5.75	36.97	49.90	74.00	-24.10	Peak
5495.707	97.24	34.52	5.73	36.98	100.51	74.00	26.51	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

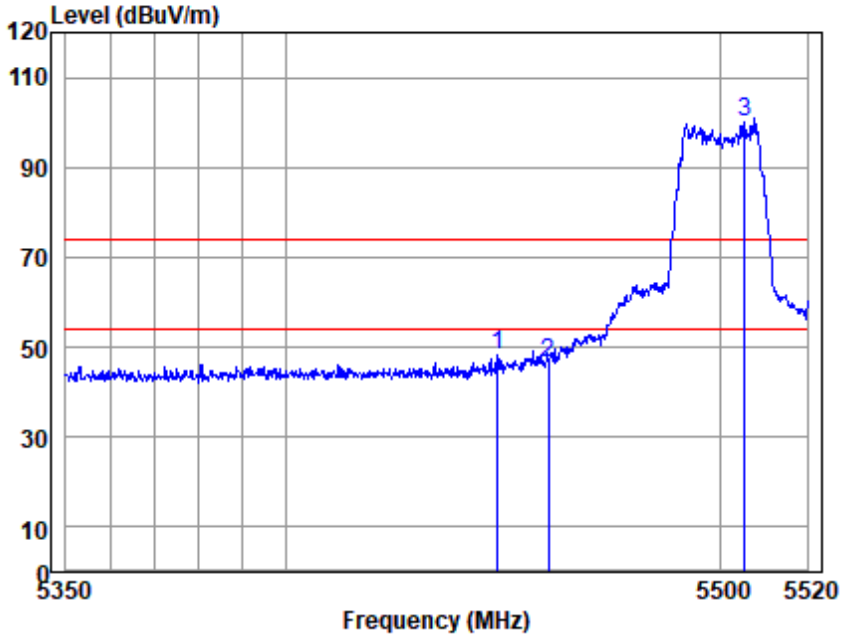


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5457.333	45.99	34.44	5.75	36.97	49.21	74.00	-24.79	Peak
5460.000	45.94	34.44	5.75	36.97	49.16	74.00	-24.84	Peak
5495.363	95.74	34.52	5.73	36.98	99.01	74.00	25.01	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

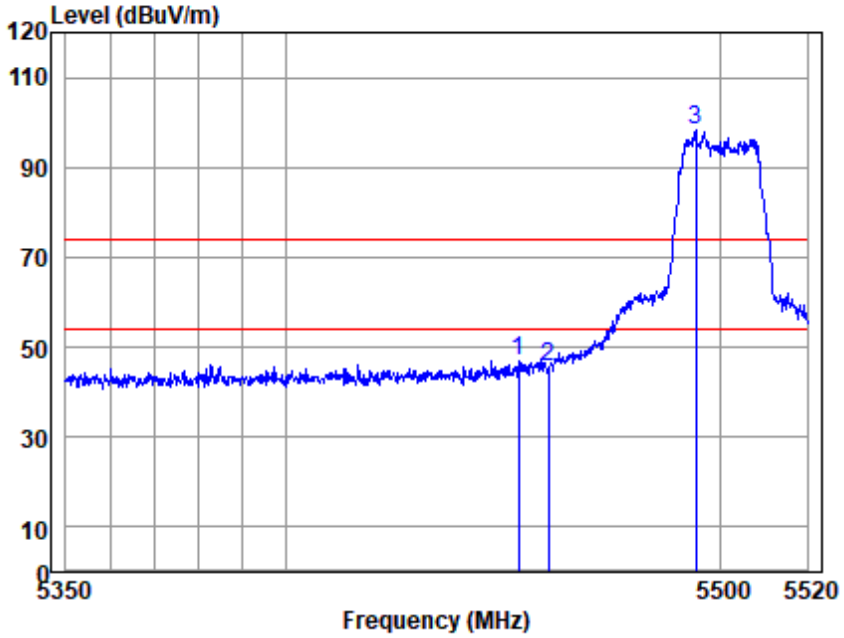


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5448.463	45.07	34.44	5.75	36.97	48.29	74.00	-25.71	Peak
5460.000	43.34	34.44	5.75	36.97	46.56	74.00	-27.44	Peak
5505.515	96.83	34.52	5.73	36.98	100.10	74.00	26.10	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

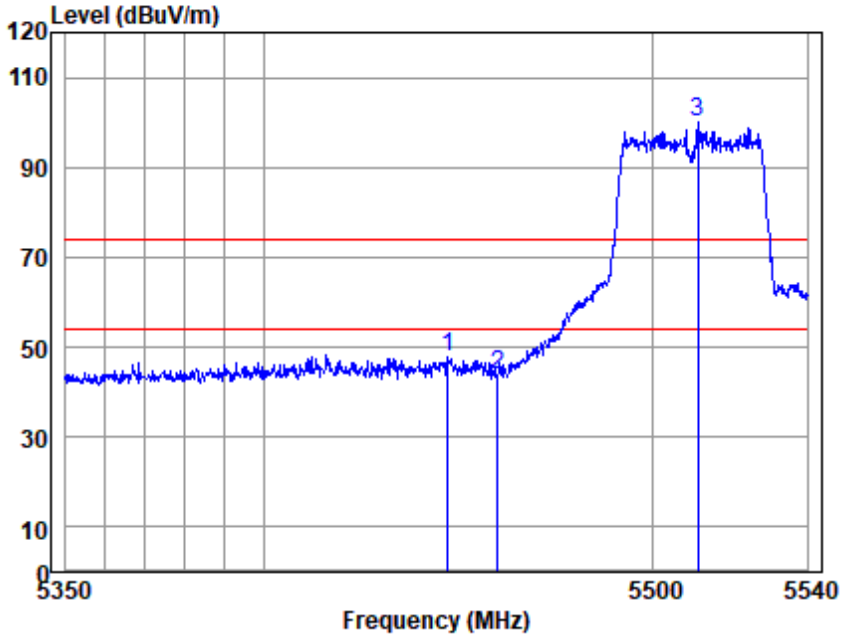


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5453.237	43.89	34.44	5.75	36.97	47.11	74.00	-26.89	Peak
5460.000	42.29	34.44	5.75	36.97	45.51	74.00	-28.49	Peak
5494.160	95.23	34.49	5.67	36.98	98.41	74.00	24.41	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

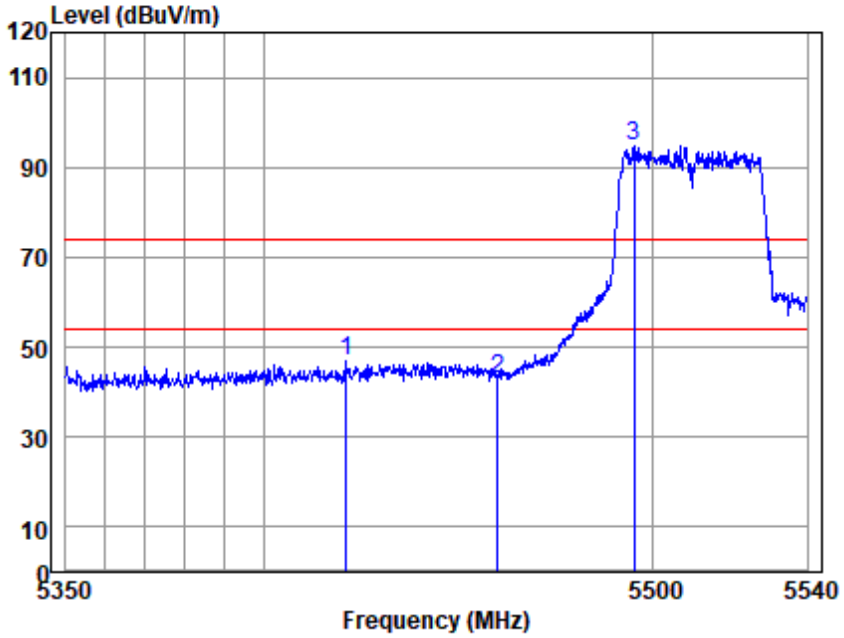


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5447.212	44.64	34.42	5.72	36.96	47.82	74.00	-26.18	Peak
5460.000	40.76	34.44	5.75	36.97	43.98	74.00	-30.02	Peak
5511.653	96.80	34.52	5.71	36.98	100.05	74.00	26.05	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

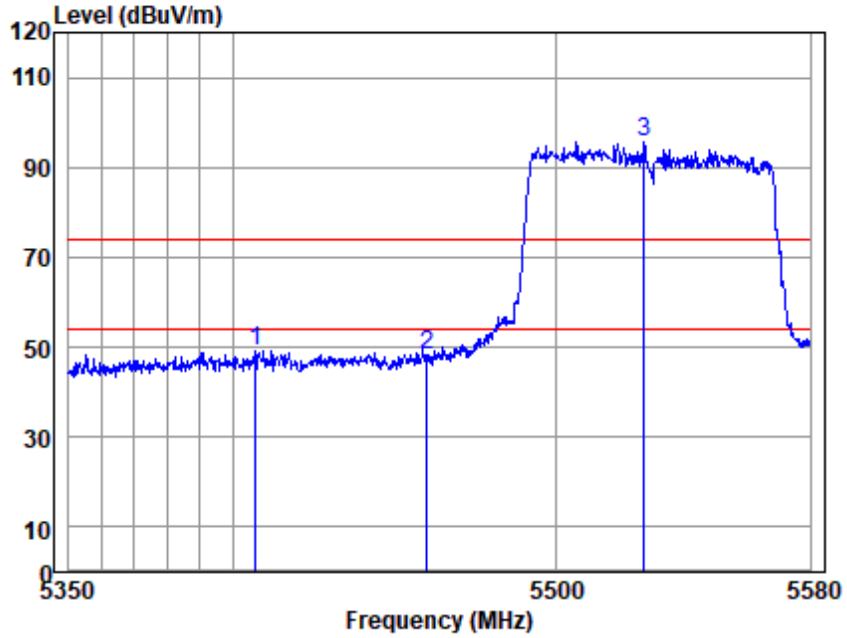


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5421.042	44.07	34.39	5.64	36.96	47.14	74.00	-26.86	Peak
5460.000	39.71	34.44	5.75	36.97	42.93	74.00	-31.07	Peak
5495.136	91.79	34.49	5.67	36.98	94.97	74.00	20.97	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

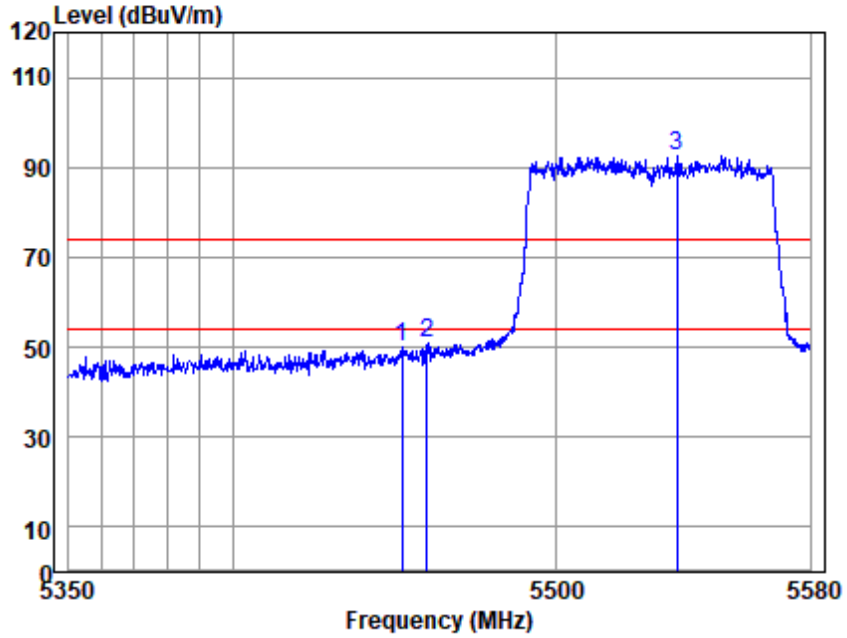


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5407.051	46.11	34.36	5.75	36.95	49.27	74.00	-24.73	Peak
5460.000	45.03	34.44	5.75	36.97	48.25	74.00	-25.75	Peak
5527.635	92.23	34.52	5.70	36.99	95.46	74.00	21.46	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

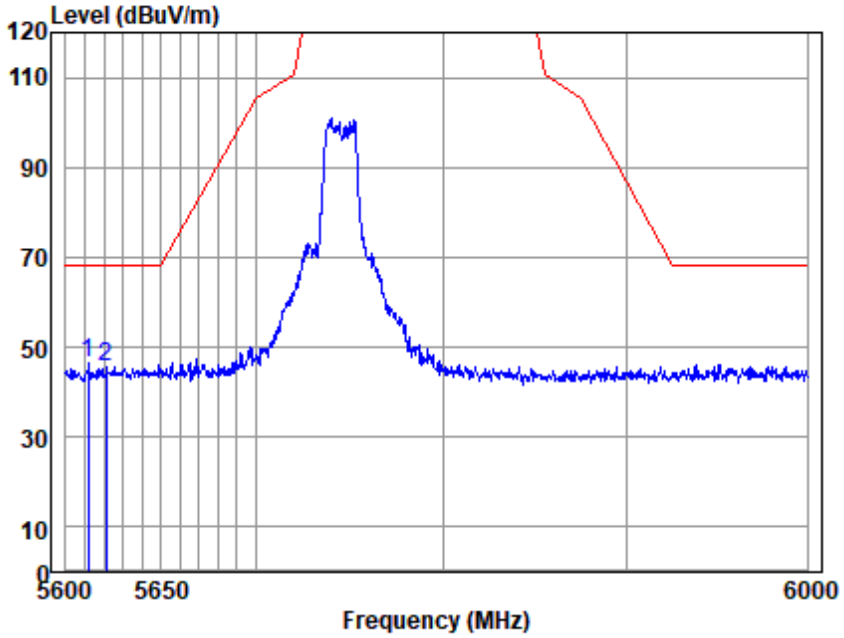


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5452.303	46.84	34.44	5.75	36.97	50.06	74.00	-23.94	Peak
5460.000	47.49	34.44	5.75	36.97	50.71	74.00	-23.29	Peak
5537.882	89.40	34.52	5.70	36.99	92.63	74.00	18.63	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

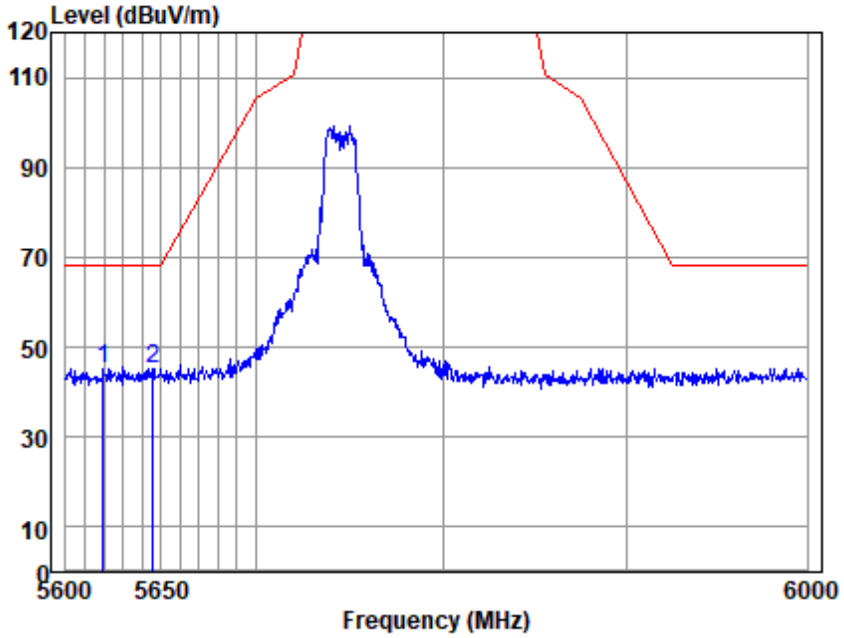


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5611.990	42.97	34.52	5.79	37.00	46.28	68.20	-21.92	Peak
5621.290	42.45	34.52	5.79	37.00	45.76	68.20	-22.44	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

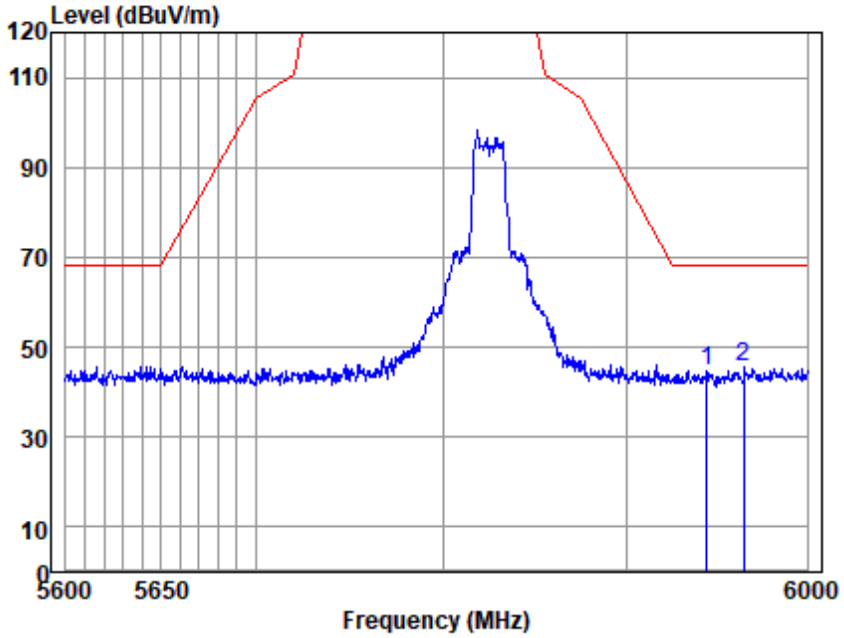


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5619.352	41.67	34.52	5.79	37.00	44.98	68.20	-23.22	Peak
5645.776	41.97	34.53	5.87	37.00	45.37	68.20	-22.83	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

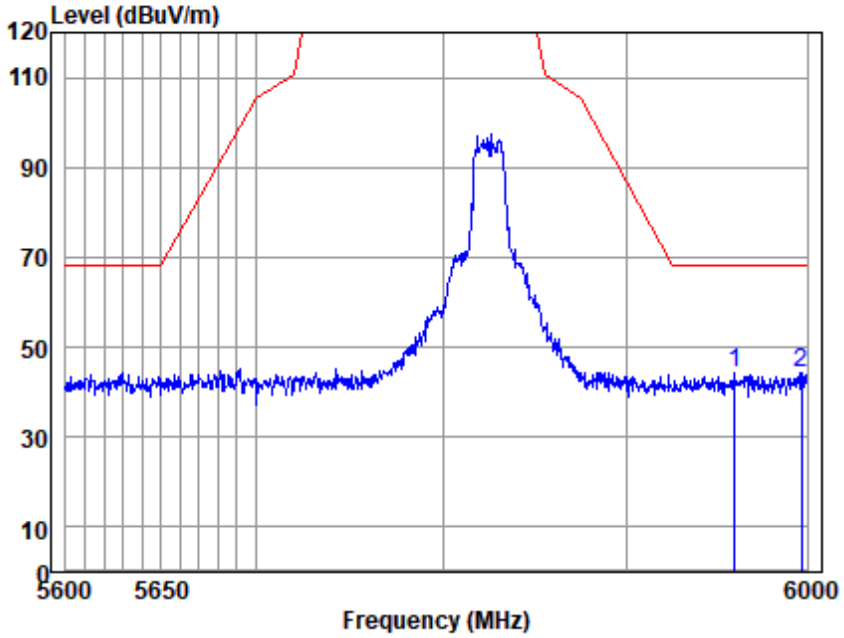


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5944.375	41.00	34.85	5.71	37.05	44.51	68.20	-23.69	Peak
5964.917	41.67	34.90	5.97	37.05	45.49	68.20	-22.71	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

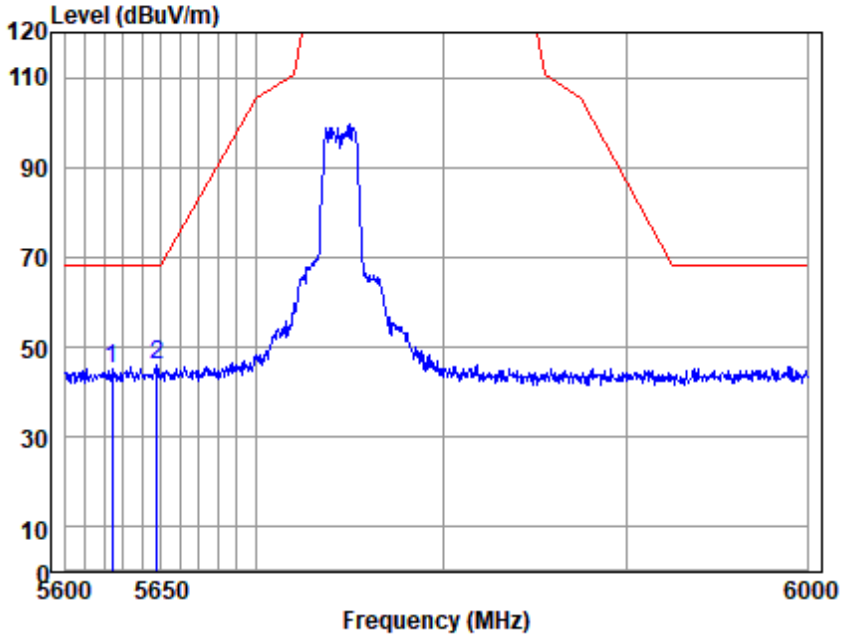


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5959.980	40.27	34.90	5.97	37.05	44.09	68.20	-24.11	Peak
5996.689	40.72	34.99	5.85	37.06	44.50	68.20	-23.70	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

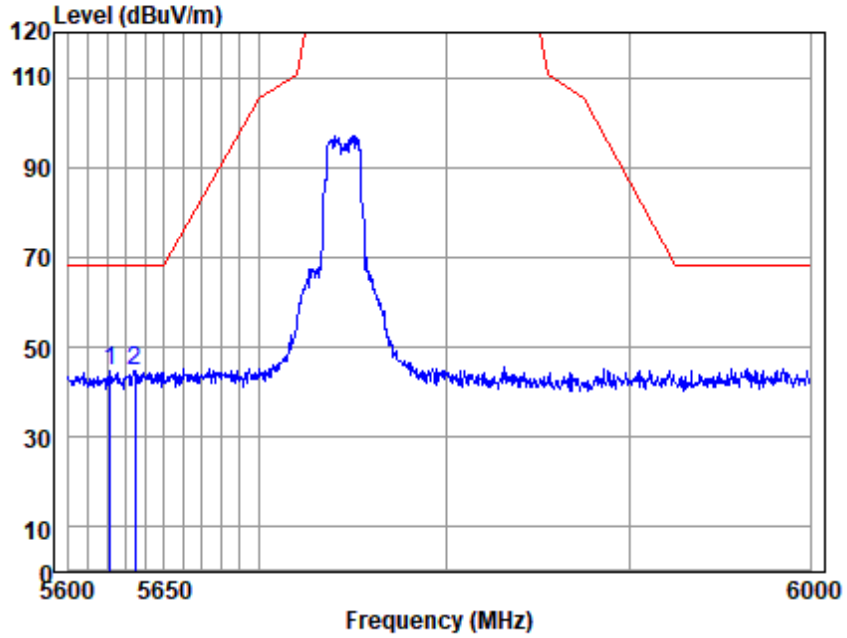


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5624.006	41.82	34.53	5.83	37.00	45.18	68.20	-23.02	Peak
5647.725	42.64	34.53	5.87	37.00	46.04	68.20	-22.16	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

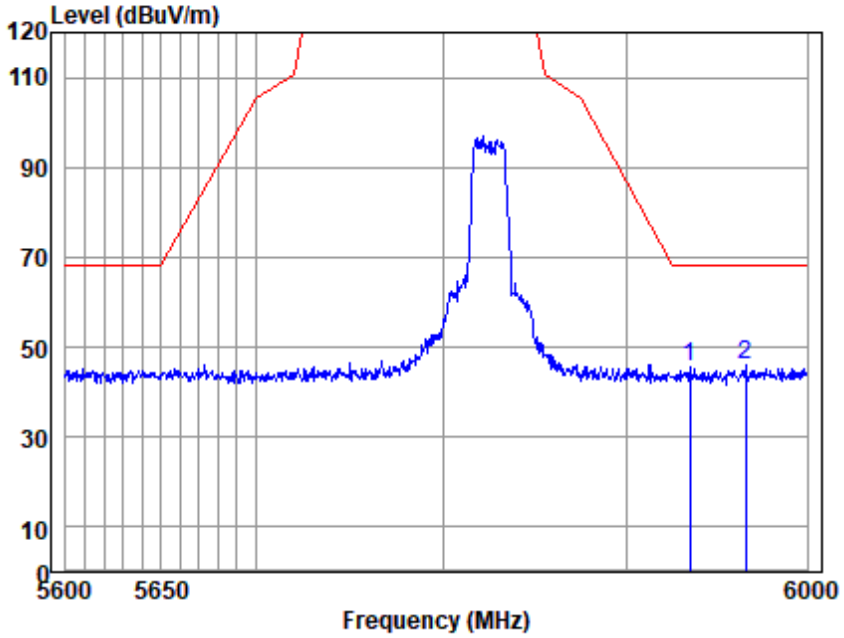


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5621.678	41.29	34.52	5.79	37.00	44.60	68.20	-23.60	Peak
5634.492	41.36	34.53	5.83	37.00	44.72	68.20	-23.48	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

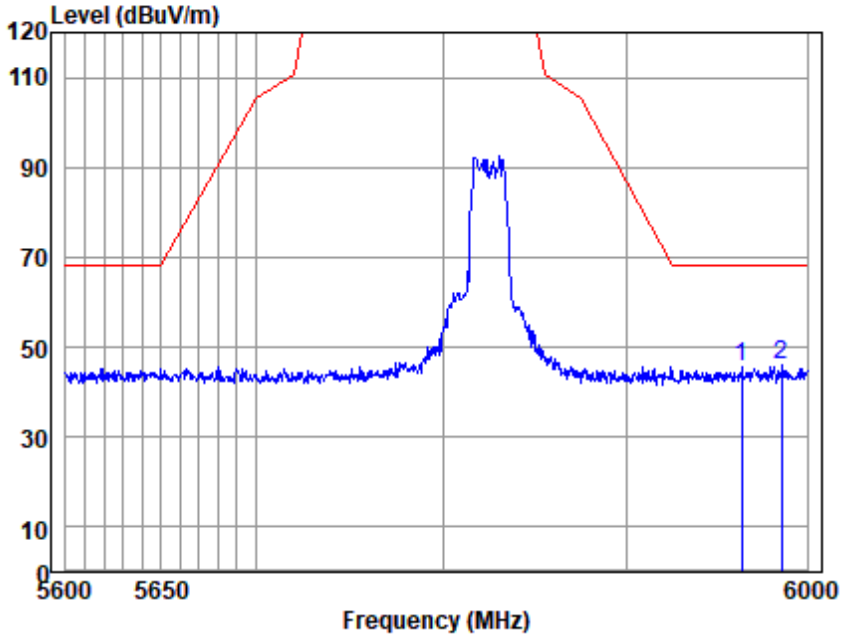


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5934.950	41.94	34.81	5.91	37.05	45.61	68.20	-22.59	Peak
5965.740	42.35	34.90	5.97	37.05	46.17	68.20	-22.03	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

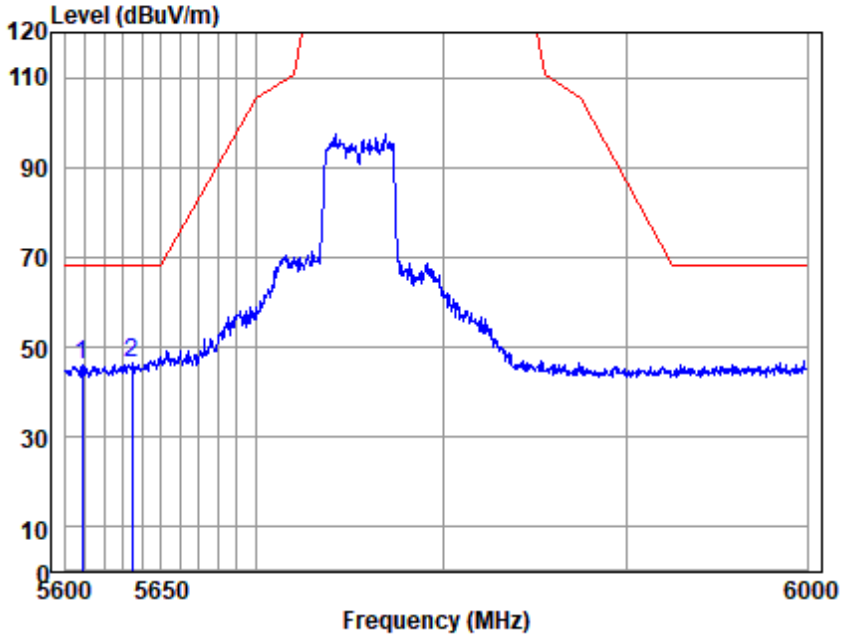


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5963.682	41.75	34.90	5.97	37.05	45.57	68.20	-22.63	Peak
5985.942	42.47	34.94	5.88	37.06	46.23	68.20	-21.97	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

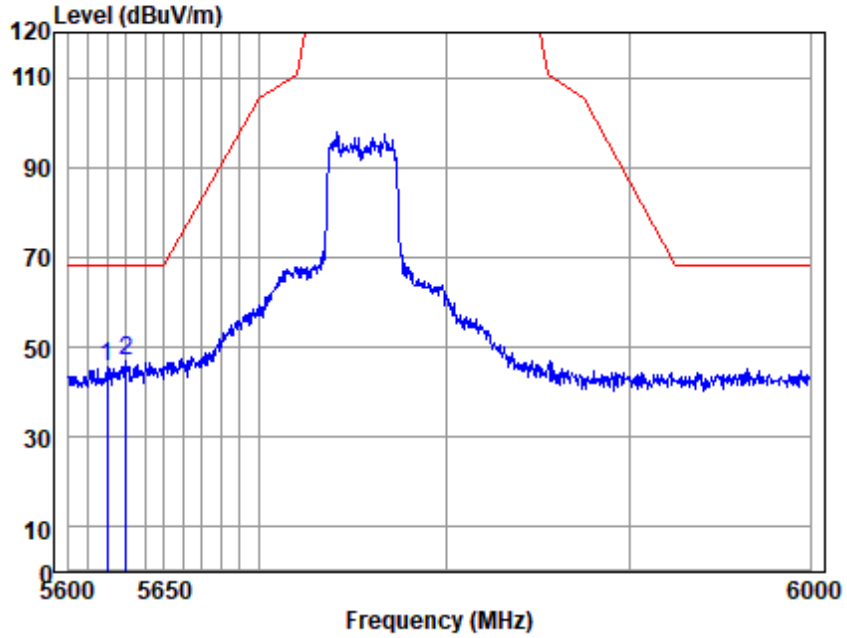


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5608.506	42.67	34.52	5.79	37.00	45.98	68.20	-22.22	Peak
5634.492	43.23	34.53	5.83	37.00	46.59	68.20	-21.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

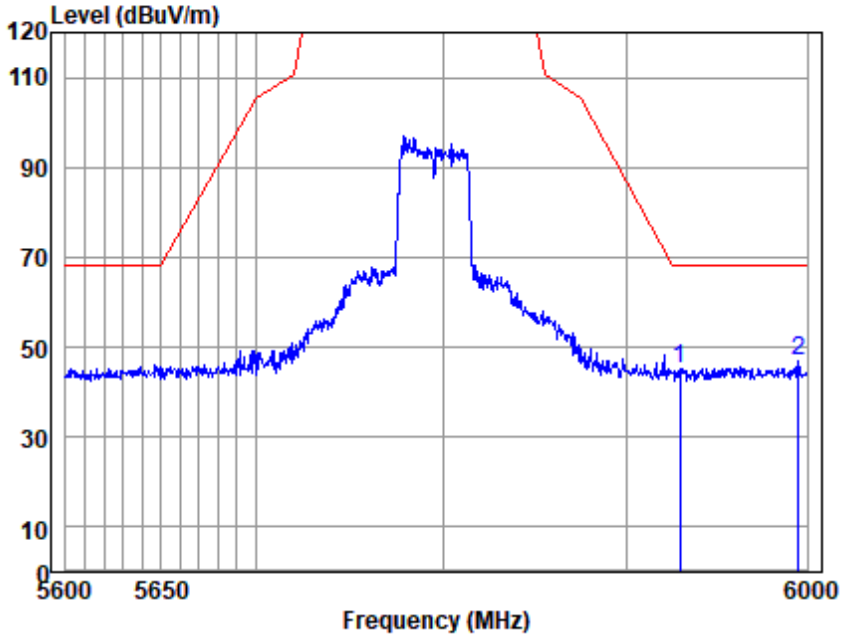


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5620.127	42.12	34.52	5.79	37.00	45.43	68.20	-22.77	Peak
5630.217	43.41	34.53	5.83	37.00	46.77	68.20	-21.43	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

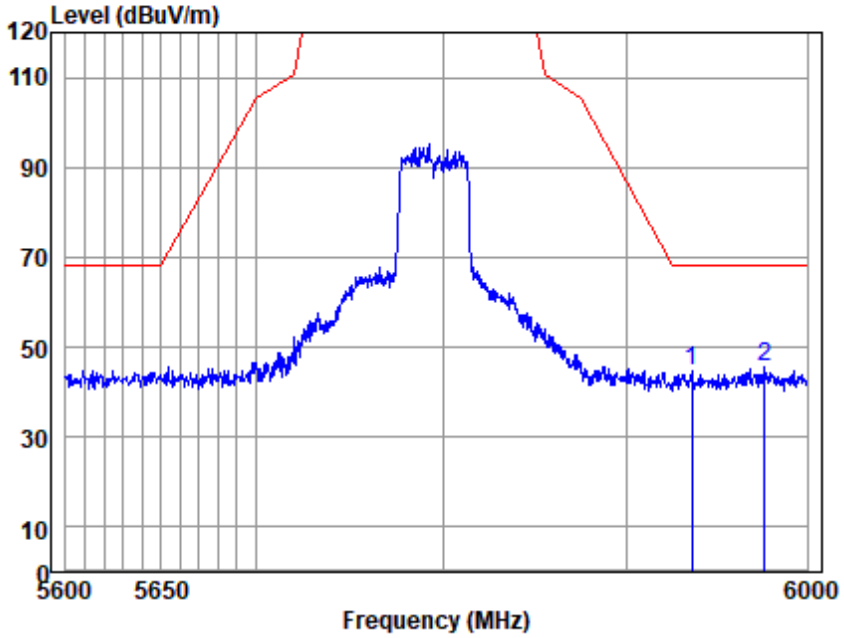


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5929.220	41.51	34.81	5.91	37.05	45.18	68.20	-23.02	Peak
5995.035	43.09	34.99	5.85	37.06	46.87	68.20	-21.33	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

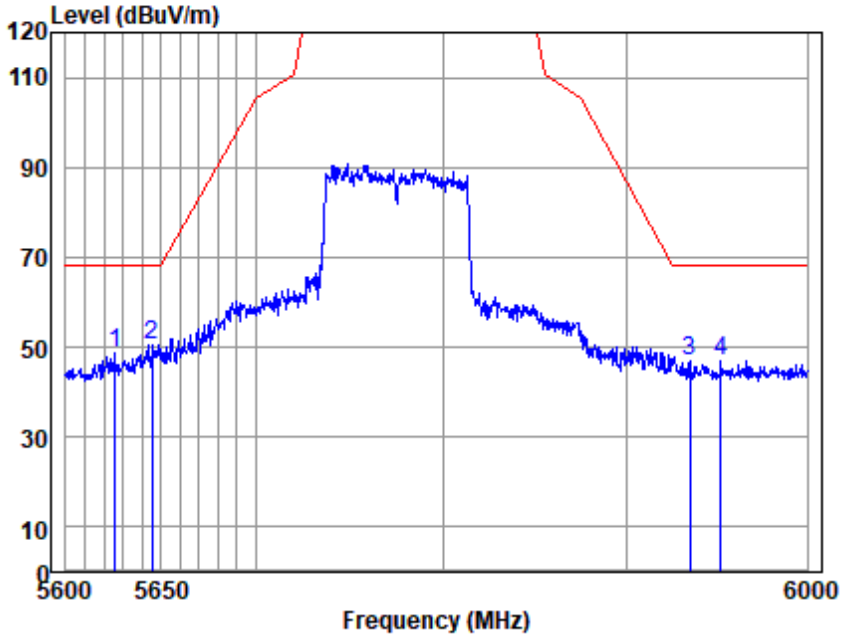


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5935.769	41.15	34.81	5.91	37.05	44.82	68.20	-23.38	Peak
5976.451	42.00	34.94	5.88	37.06	45.76	68.20	-22.44	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:High

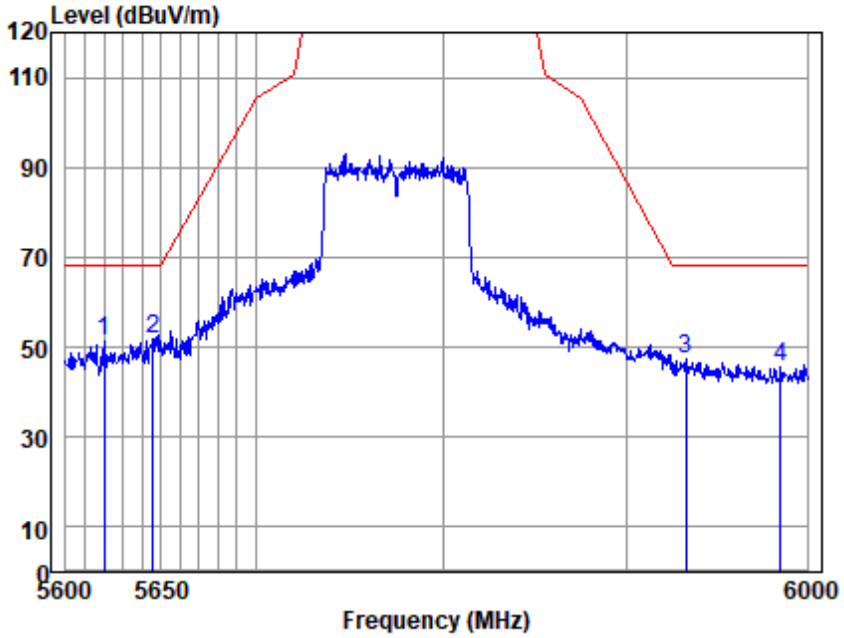


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5625.558	45.17	34.53	5.83	37.00	48.53	68.20	-19.67	Peak
5645.387	47.06	34.53	5.87	37.00	50.46	68.20	-17.74	Peak
5934.950	43.33	34.81	5.91	37.05	47.00	68.20	-21.20	Peak
5952.172	43.34	34.85	5.71	37.05	46.85	68.20	-21.35	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:High



Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
5620.127	48.03	34.52	5.79	37.00	51.34	68.20	-16.86	Peak
5645.776	48.56	34.53	5.87	37.00	51.96	68.20	-16.24	Peak
5932.494	43.57	34.81	5.91	37.05	47.24	68.20	-20.96	Peak
5985.116	41.81	34.94	5.88	37.06	45.57	68.20	-22.63	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.8 Radiated Emissions (Below 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)
Test Method: ANSI C63.10 (2013) Section 6.4,6.5
Measurement Distance: 3m

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
960-1000	500	3

7.8.1 E.U.T. Operation

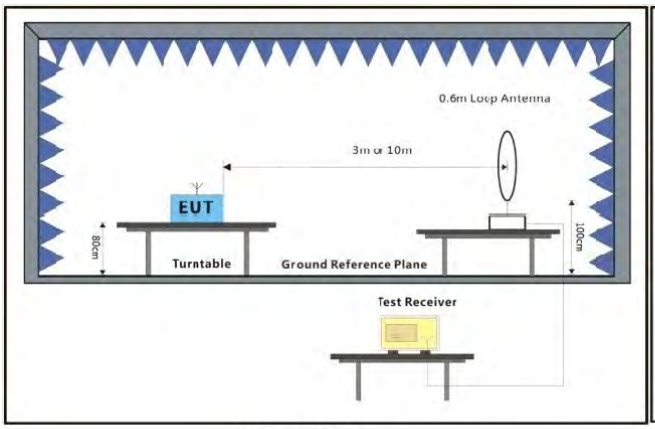
Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

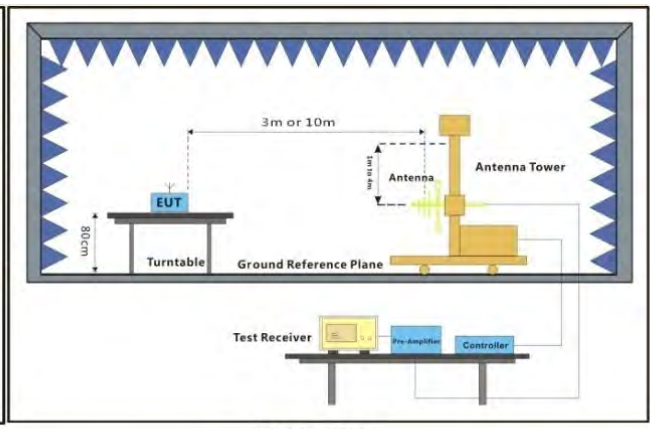
Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst 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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.8.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz

7.8.4 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 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. 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.

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 (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.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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 quasi-peak method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. 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.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

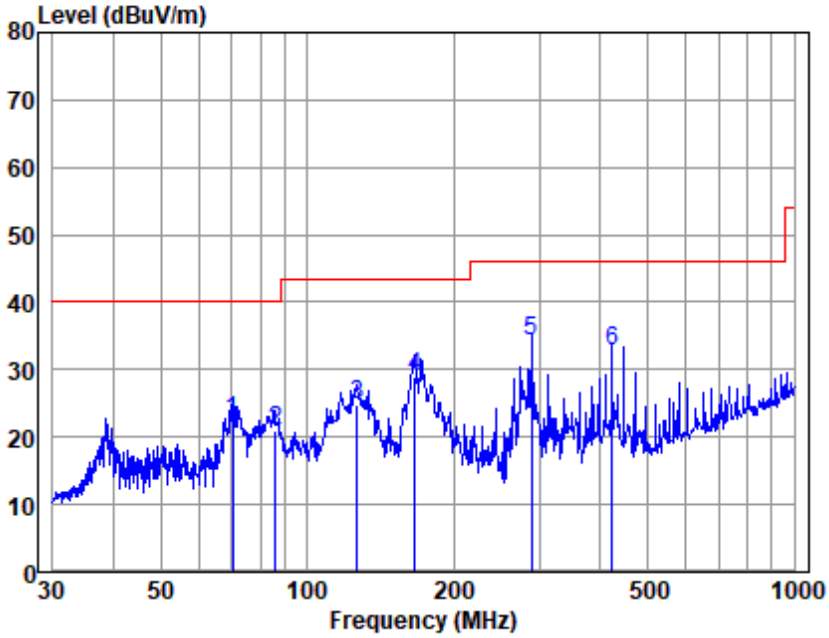
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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 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.

Test Mode: 01; Polarity: Horizontal

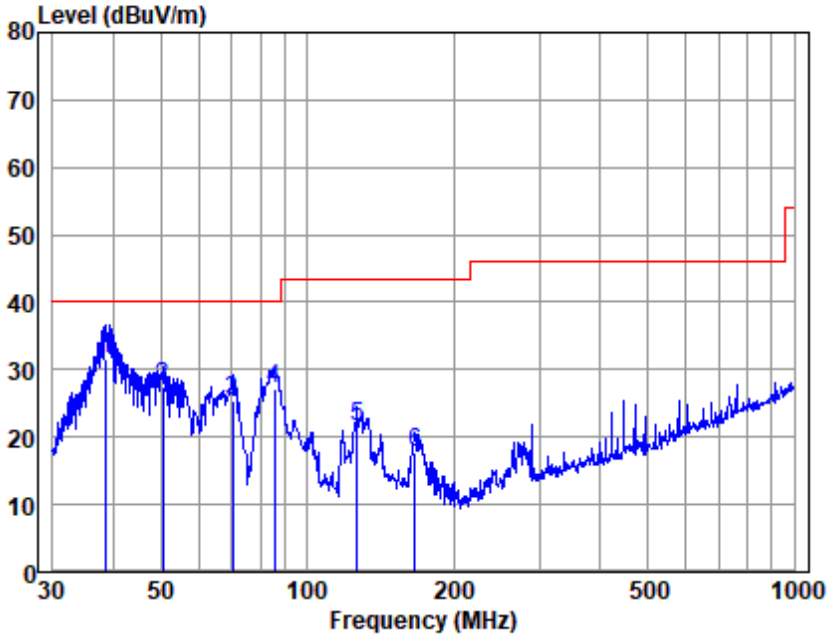


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME
Test mode :01

	Freq	Read Level	Antenna Factor	Cable Loss	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	70.337	38.44	10.30	0.78	22.33	40.00	-17.67	QP
2	85.898	38.51	8.50	0.93	20.84	40.00	-19.16	QP
3	126.329	39.24	11.40	1.16	24.75	43.50	-18.75	QP
4	166.068	42.16	12.50	1.33	29.08	43.50	-14.42	QP
5	289.002	46.88	12.02	1.80	34.20	46.00	-11.80	QP
6	422.058	42.93	15.12	2.26	32.83	46.00	-13.17	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical



Antenna Polarity :VERTICAL
EUT/Project :1038ME
Test mode :01

	Freq	Read Level	Antenna Factor	Cable Loss	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	38.616	45.19	13.10	0.48	31.57	40.00	-8.43	QP
2	50.586	40.70	13.20	0.63	27.33	40.00	-12.67	QP
3	70.337	41.47	10.30	0.78	25.36	40.00	-14.64	QP
4	85.598	45.02	8.40	0.93	27.25	40.00	-12.75	QP
5	126.772	36.10	11.40	1.16	21.61	43.50	-21.89	QP
6	166.068	30.80	12.50	1.33	17.72	43.50	-25.78	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.9 Radiated Emissions (Above 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)
Test Method: ANSI C63.10 (2013) Section 6.6
Measurement Distance: 3m

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

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

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

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

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz 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 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 at the band edge.

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.

7.9.1 E.U.T. Operation

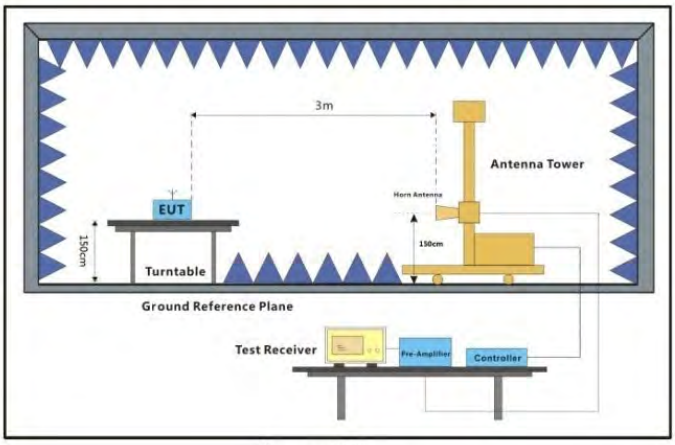
Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.9.3 Test Setup Diagram



Above 1GHz

7.9.4 Measurement Procedure and Data

a. 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.

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 (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.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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 or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. 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.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. 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.

3. 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.

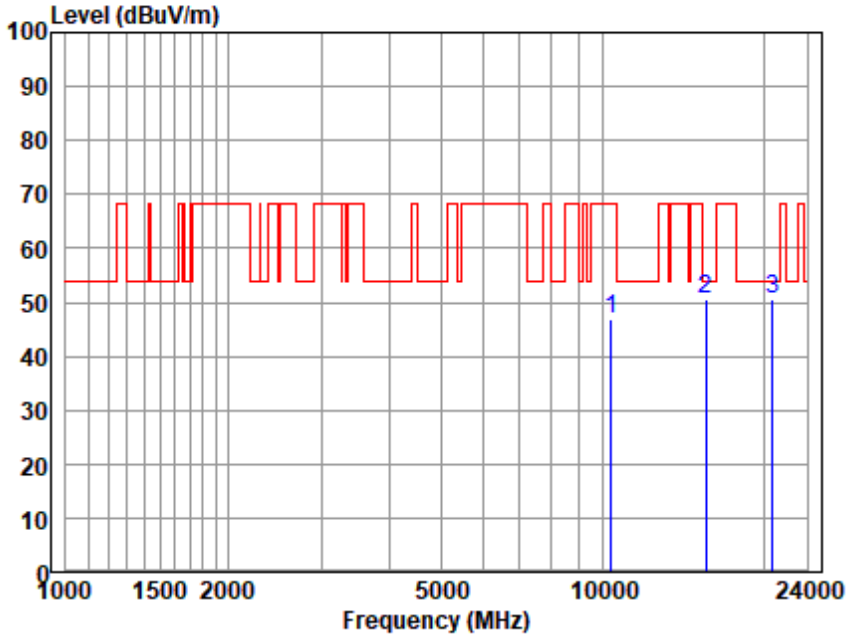
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

5. 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.

6.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

7. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geqslant$1/T (Duty cycle$<$98%) or 10Hz (Duty cycle$\geqslant$98%) for Average detection (AV) at frequency above 1GHz.

Test Mode: 01; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

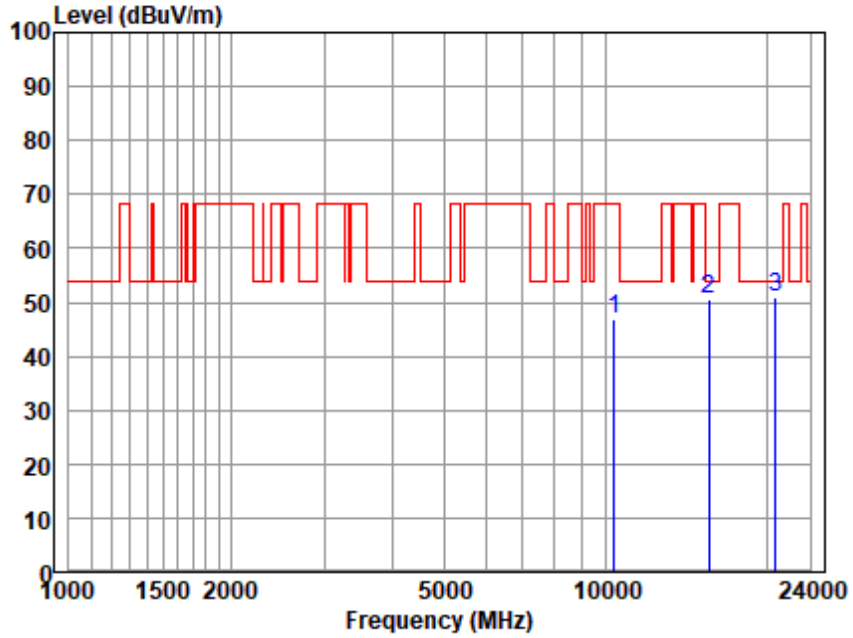


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10360.350	33.64	37.85	9.02	33.56	46.95	68.20	-21.25	Peak
15528.240	31.58	43.36	12.59	36.82	50.71	54.00	-3.29	Peak
20735.830	31.07	43.94	14.46	38.82	50.65	54.00	-3.35	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

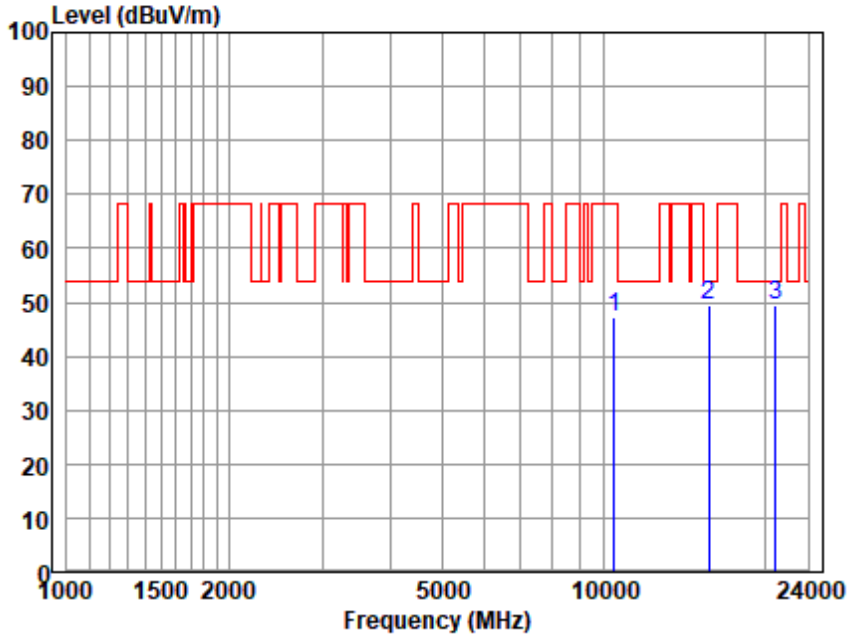


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10360.350	33.53	37.85	9.02	33.56	46.84	68.20	-21.36	Peak
15528.240	31.45	43.36	12.59	36.82	50.58	54.00	-3.42	Peak
20735.830	31.36	43.94	14.46	38.82	50.94	54.00	-3.06	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

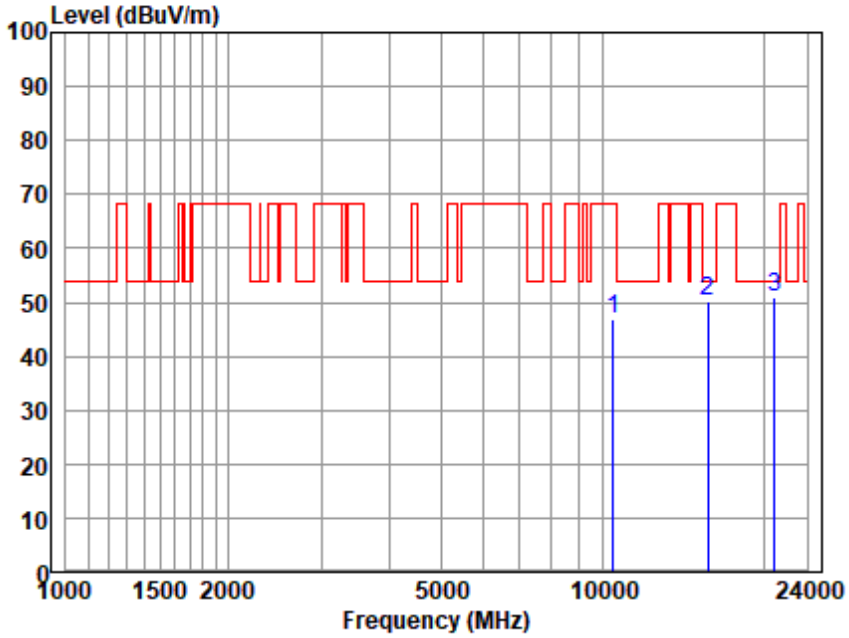


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10440.490	33.88	37.88	9.03	33.60	47.19	68.20	-21.01	Peak
15677.000	30.48	43.04	12.63	36.81	49.34	54.00	-4.66	Peak
20868.050	29.81	43.98	14.50	39.02	49.27	54.00	-4.73	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

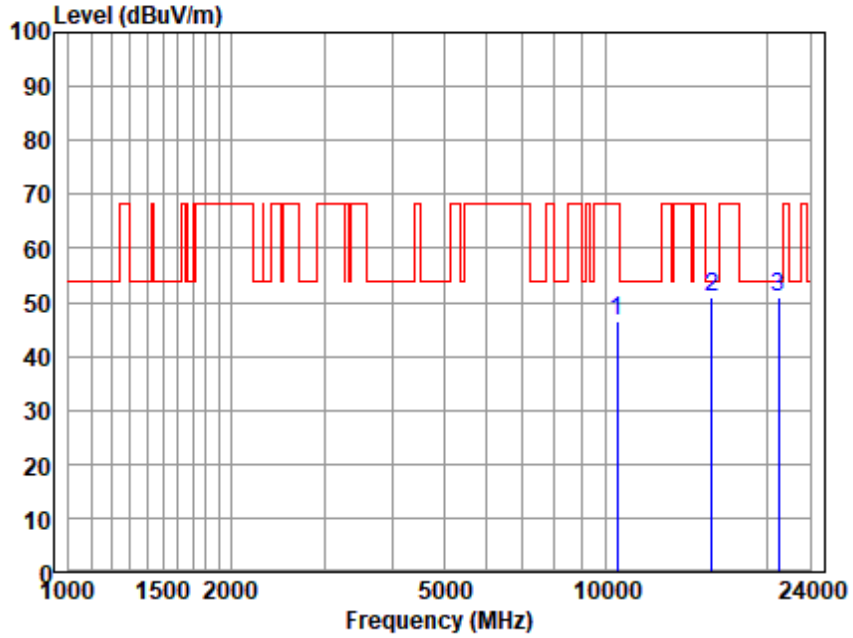


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10440.490	33.44	37.88	9.03	33.60	46.75	68.20	-21.45	Peak
15677.000	31.25	43.04	12.63	36.81	50.11	54.00	-3.89	Peak
20868.050	31.33	43.98	14.50	39.02	50.79	54.00	-3.21	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

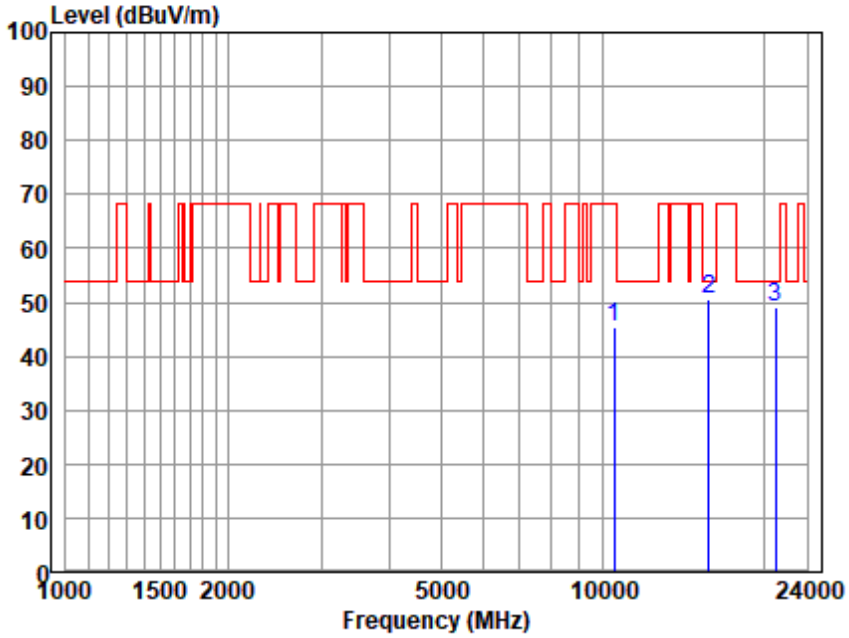


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10480.710	33.24	37.90	9.04	33.62	46.56	68.20	-21.64	Peak
15726.900	32.24	42.93	12.54	36.81	50.90	54.00	-3.10	Peak
20934.480	31.49	44.00	14.53	39.12	50.90	54.00	-3.10	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

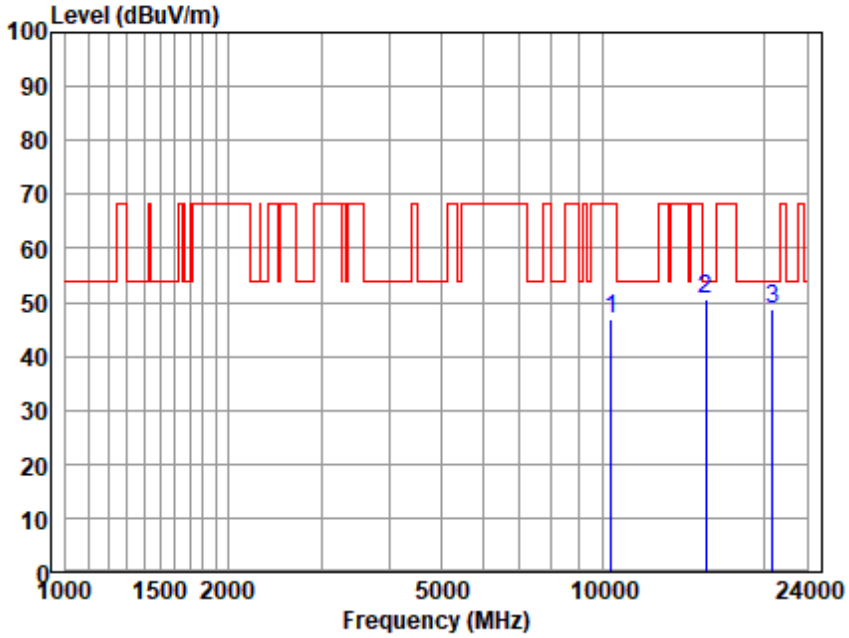


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10480.710	31.94	37.90	9.04	33.62	45.26	68.20	-22.94	Peak
15726.900	31.81	42.93	12.54	36.81	50.47	54.00	-3.53	Peak
20934.480	29.65	44.00	14.53	39.12	49.06	54.00	-4.94	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

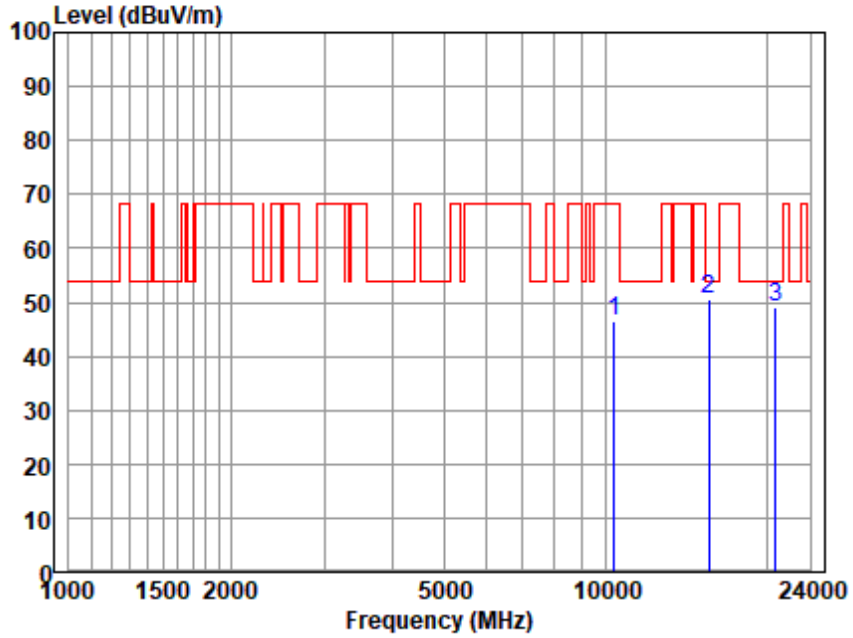


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10360.350	33.54	37.85	9.02	33.56	46.85	68.20	-21.35	Peak
15528.240	31.55	43.36	12.59	36.82	50.68	54.00	-3.32	Peak
20735.830	29.23	43.94	14.46	38.82	48.81	54.00	-5.19	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

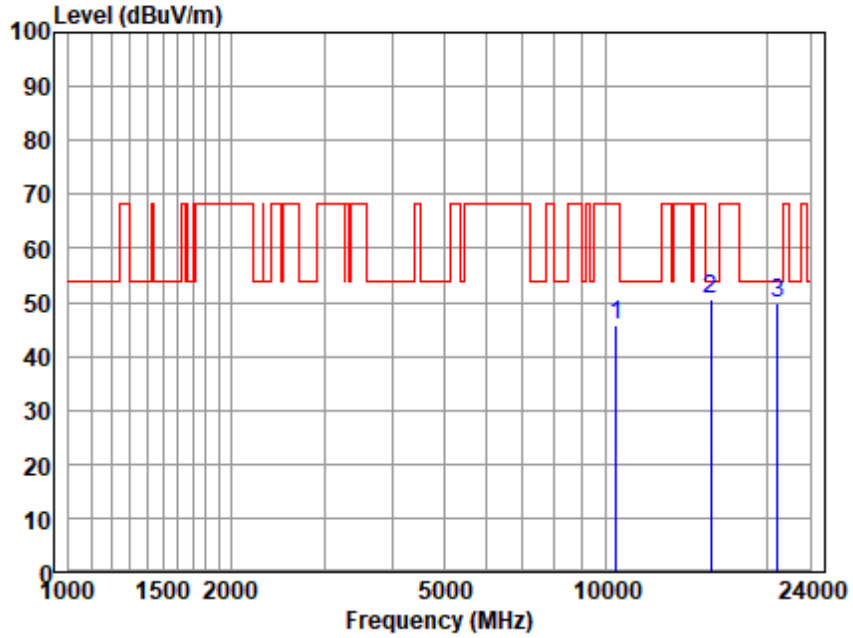


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10360.350	33.33	37.85	9.02	33.56	46.64	68.20	-21.56	Peak
15528.240	31.29	43.36	12.59	36.82	50.42	54.00	-3.58	Peak
20735.830	29.65	43.94	14.46	38.82	49.23	54.00	-4.77	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

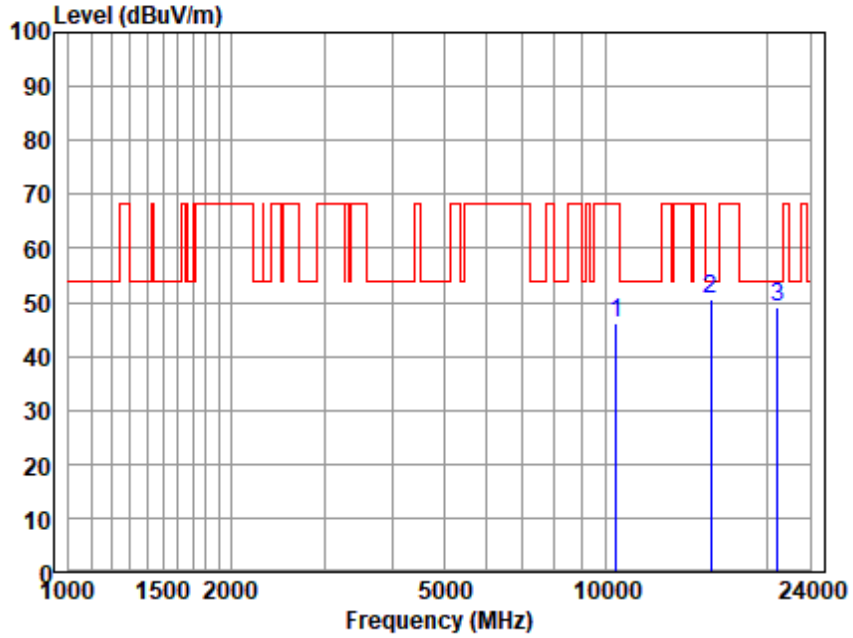


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10440.490	32.40	37.88	9.03	33.60	45.71	68.20	-22.49	Peak
15677.000	31.73	43.04	12.63	36.81	50.59	54.00	-3.41	Peak
20868.050	30.51	43.98	14.50	39.02	49.97	54.00	-4.03	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

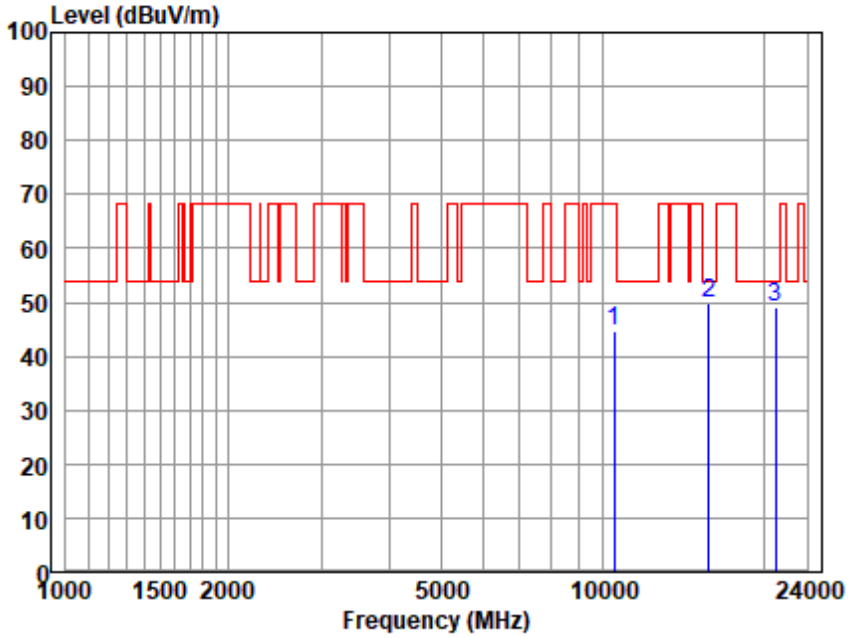


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10440.490	32.69	37.88	9.03	33.60	46.00	68.20	-22.20	Peak
15677.000	31.57	43.04	12.63	36.81	50.43	54.00	-3.57	Peak
20868.050	29.65	43.98	14.50	39.02	49.11	54.00	-4.89	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

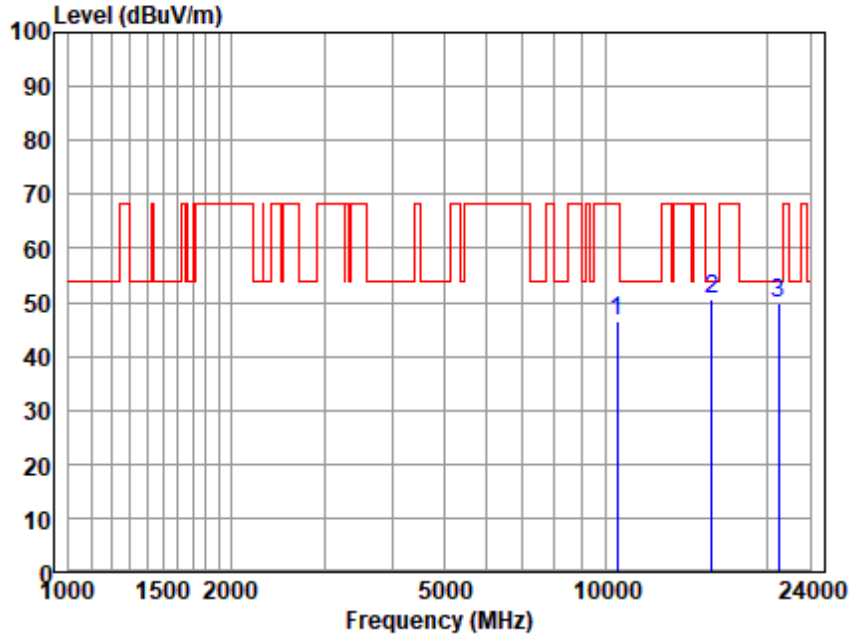


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10480.710	31.47	37.90	9.04	33.62	44.79	68.20	-23.41	Peak
15726.900	31.00	42.93	12.54	36.81	49.66	54.00	-4.34	Peak
20934.480	29.85	44.00	14.53	39.12	49.26	54.00	-4.74	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

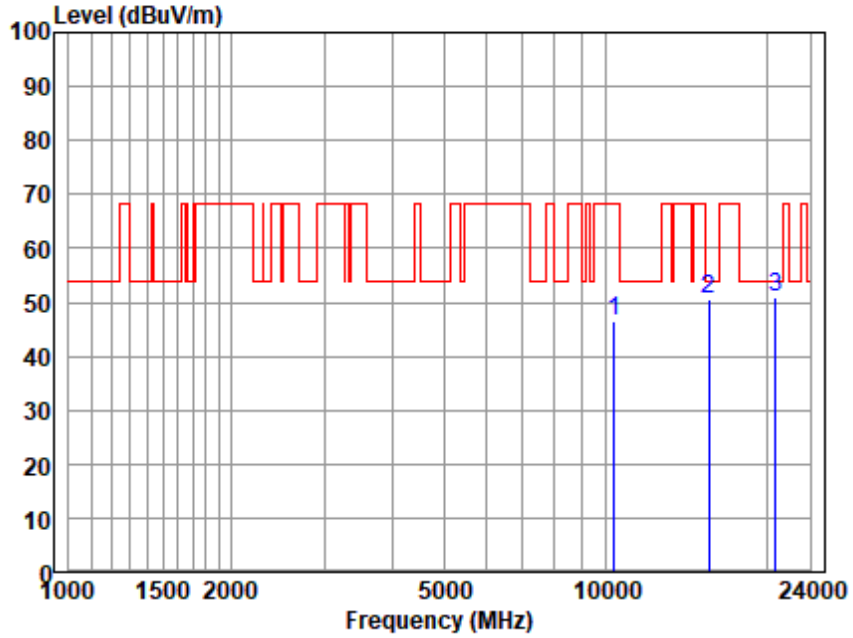


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10480.710	33.04	37.90	9.04	33.62	46.36	68.20	-21.84	Peak
15726.900	31.74	42.93	12.54	36.81	50.40	54.00	-3.60	Peak
20934.480	30.27	44.00	14.53	39.12	49.68	54.00	-4.32	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

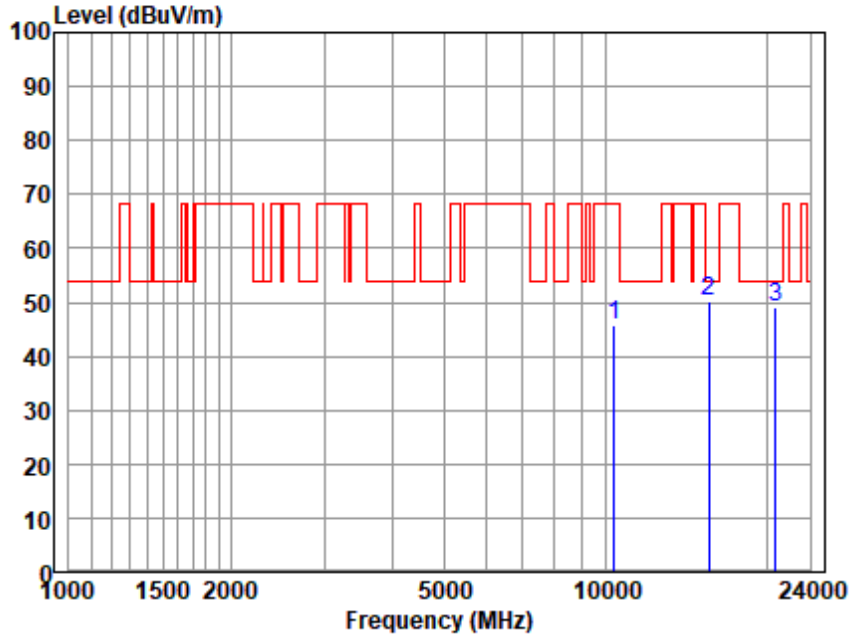


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10380.350	33.19	37.85	9.02	33.56	46.50	68.20	-21.70	Peak
15577.670	31.58	43.25	12.64	36.81	50.66	54.00	-3.34	Peak
20735.830	31.42	43.94	14.46	38.82	51.00	54.00	-3.00	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

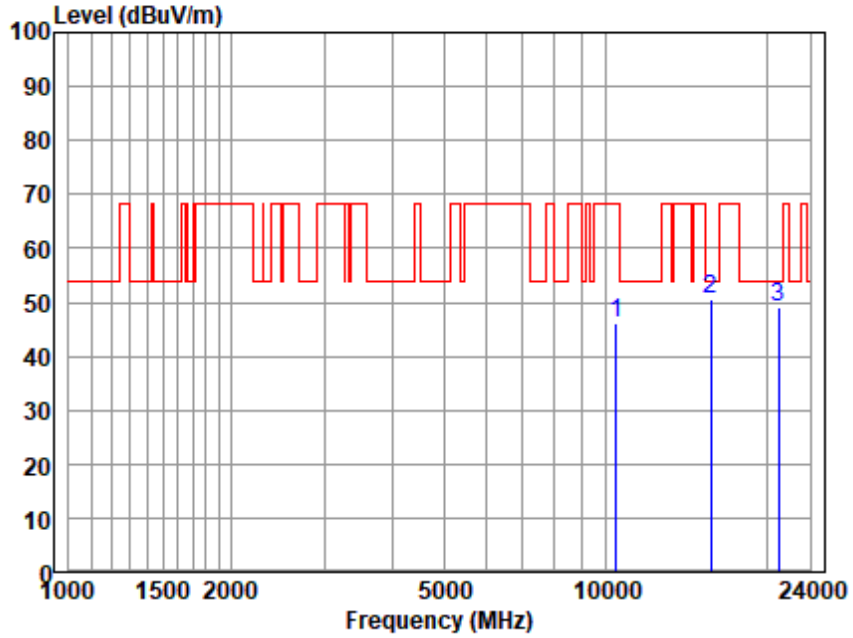


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10380.350	32.38	37.85	9.02	33.56	45.69	68.20	-22.51	Peak
15577.670	30.97	43.25	12.64	36.81	50.05	54.00	-3.95	Peak
20735.830	29.50	43.94	14.46	38.82	49.08	54.00	-4.92	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

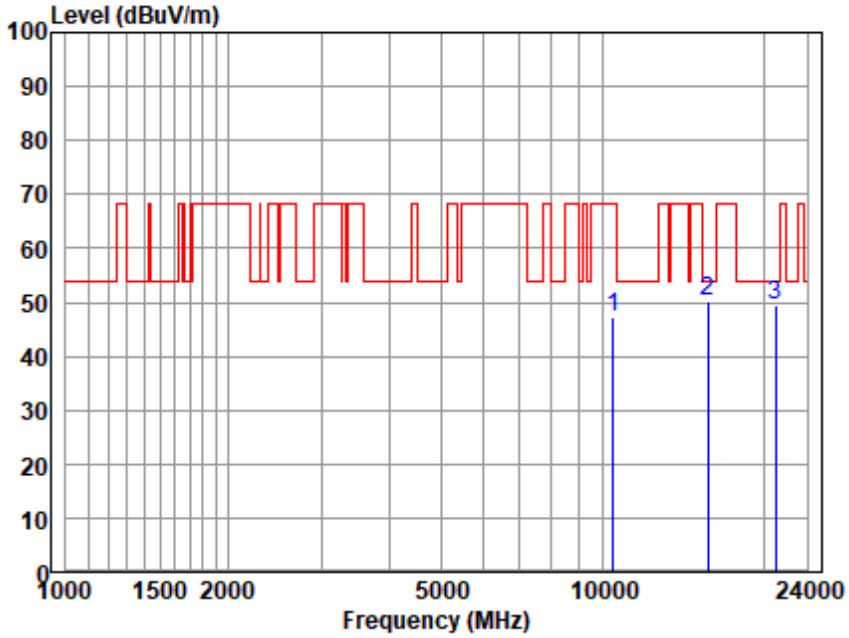


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10460.710	32.98	37.90	9.04	33.62	46.30	68.20	-21.90	Peak
15677.000	31.53	43.04	12.63	36.81	50.39	54.00	-3.61	Peak
20934.480	29.78	44.00	14.53	39.12	49.19	54.00	-4.81	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

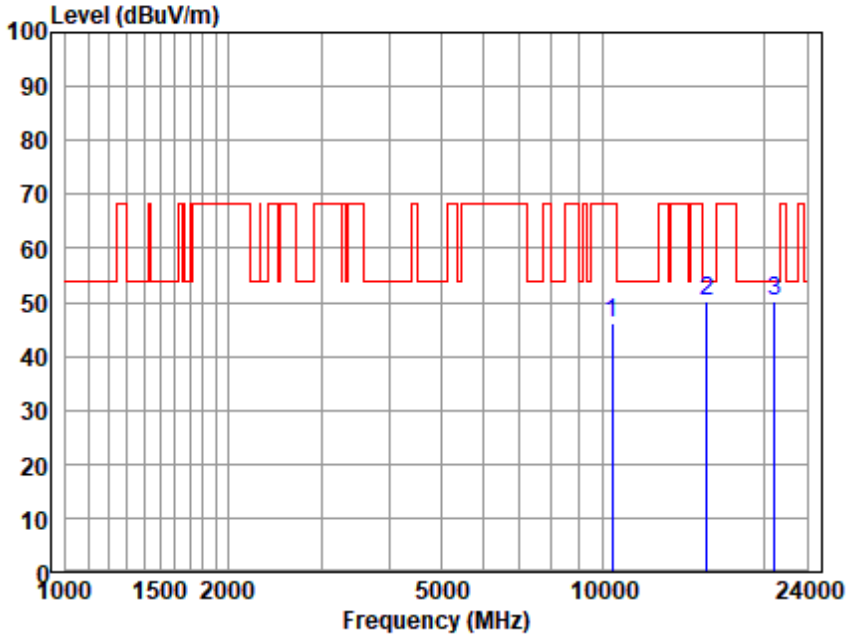


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10460.710	33.78	37.90	9.04	33.62	47.10	68.20	-21.10	Peak
15677.000	31.46	43.04	12.63	36.81	50.32	54.00	-3.68	Peak
20934.480	30.08	44.00	14.53	39.12	49.49	54.00	-4.51	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

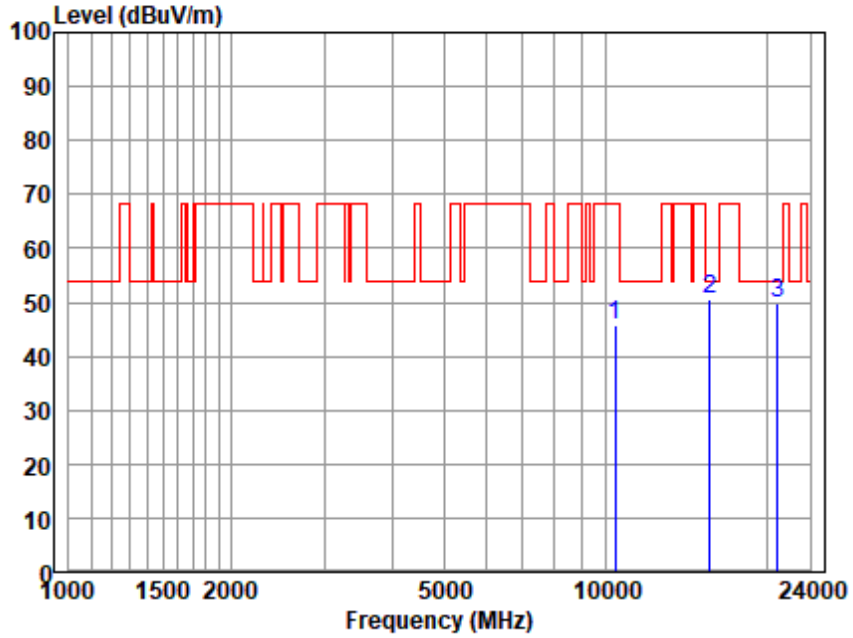


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10420.370	32.68	37.87	9.03	33.58	46.00	68.20	-22.20	Peak
15627.260	31.13	43.14	12.70	36.81	50.16	54.00	-3.84	Peak
20868.050	30.78	43.98	14.50	39.02	50.24	54.00	-3.76	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

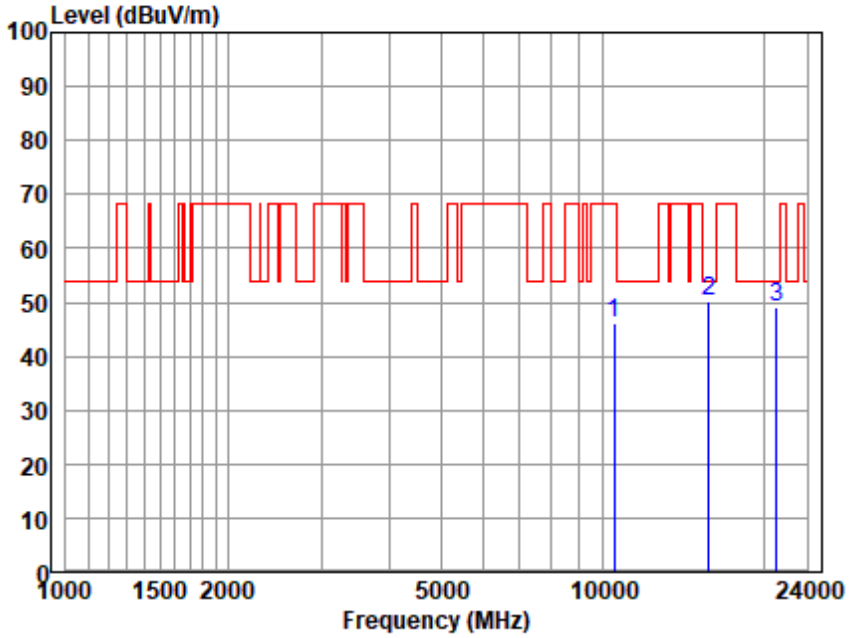


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10420.370	32.54	37.87	9.03	33.58	45.86	68.20	-22.34	Peak
15627.260	31.40	43.14	12.70	36.81	50.43	54.00	-3.57	Peak
20868.050	30.18	43.98	14.50	39.02	49.64	54.00	-4.36	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

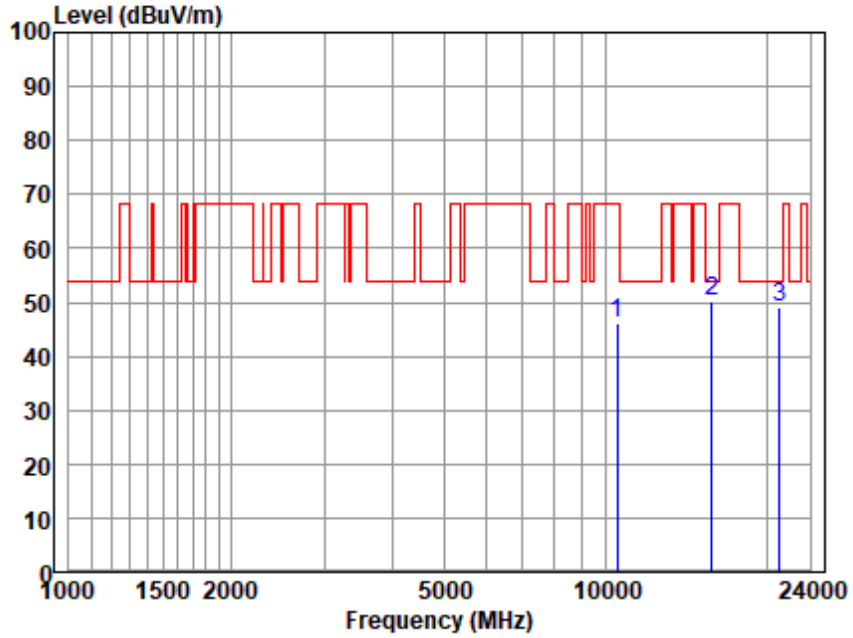


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10520.040	32.69	37.91	9.05	33.63	46.02	68.20	-22.18	Peak
15776.960	31.57	42.79	12.50	36.80	50.06	54.00	-3.94	Peak
21067.960	29.79	44.05	14.57	39.31	49.10	54.00	-4.90	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

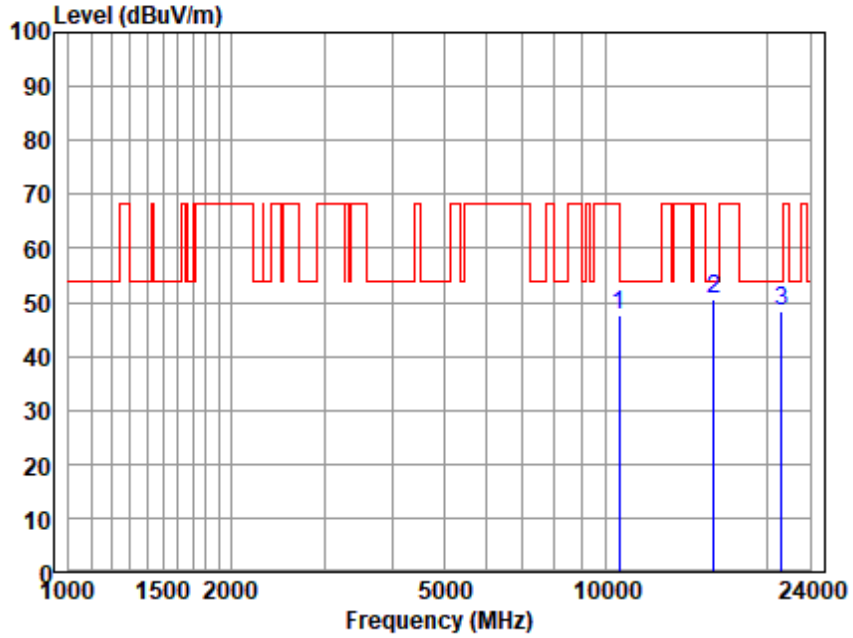


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10520.040	32.85	37.91	9.05	33.63	46.18	68.20	-22.02	Peak
15776.960	31.56	42.79	12.50	36.80	50.05	54.00	-3.95	Peak
21067.960	29.71	44.05	14.57	39.31	49.02	54.00	-4.98	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

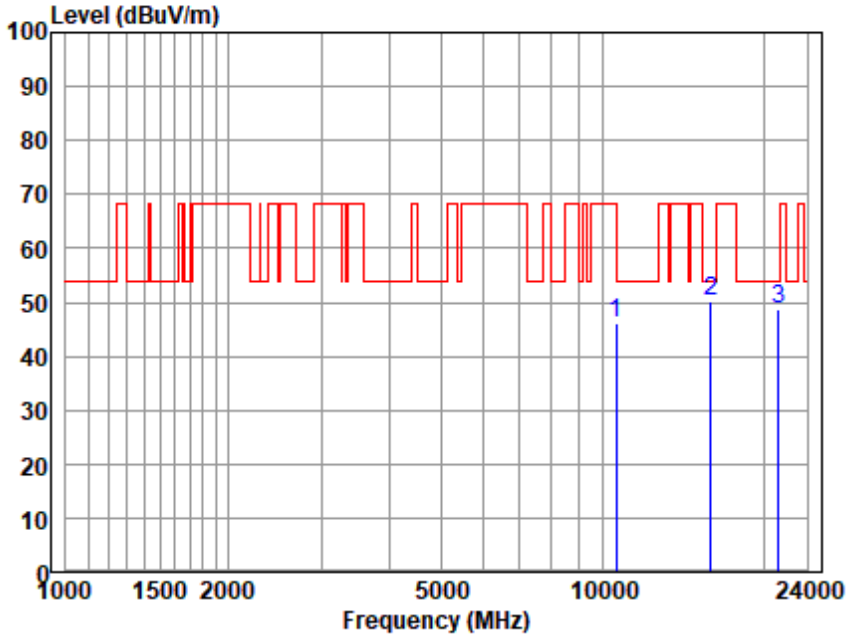


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10600.670	34.24	37.99	9.08	33.69	47.62	54.00	-6.38	Peak
15877.560	32.17	42.51	12.47	36.72	50.43	54.00	-3.57	Peak
21202.300	29.11	44.09	14.61	39.51	48.30	54.00	-5.70	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

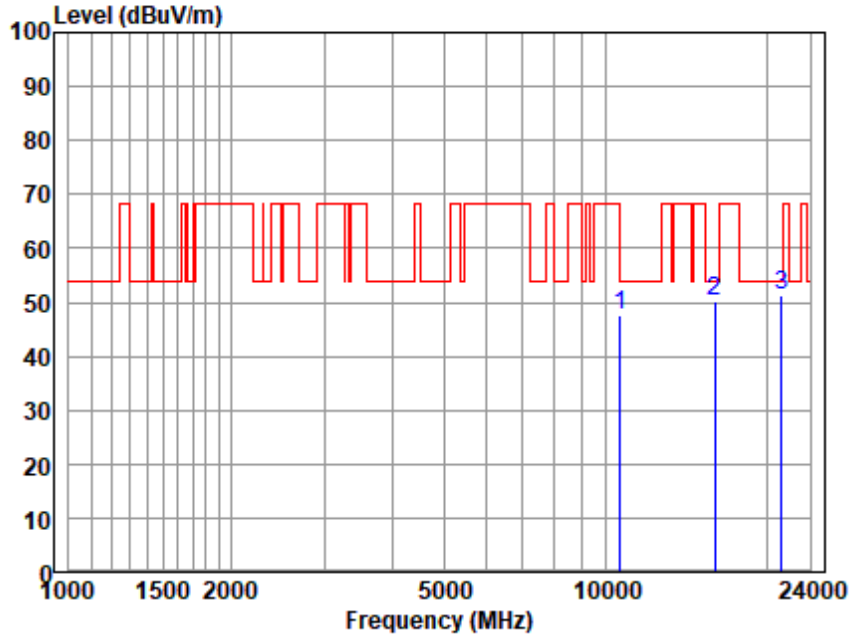


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10600.670	32.77	37.99	9.08	33.69	46.15	54.00	-7.85	Peak
15877.560	31.86	42.51	12.47	36.72	50.12	54.00	-3.88	Peak
21202.300	29.49	44.09	14.61	39.51	48.68	54.00	-5.32	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

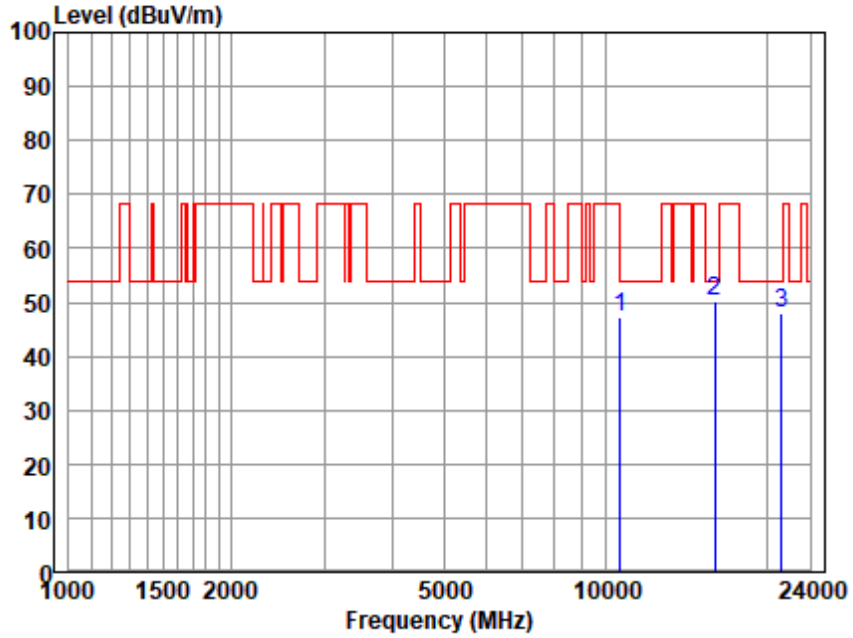


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10640.420	34.35	38.02	9.09	33.71	47.75	54.00	-6.25	Peak
15978.800	32.06	42.32	12.44	36.63	50.19	54.00	-3.81	Peak
21269.790	32.09	44.11	14.64	39.61	51.23	54.00	-2.77	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

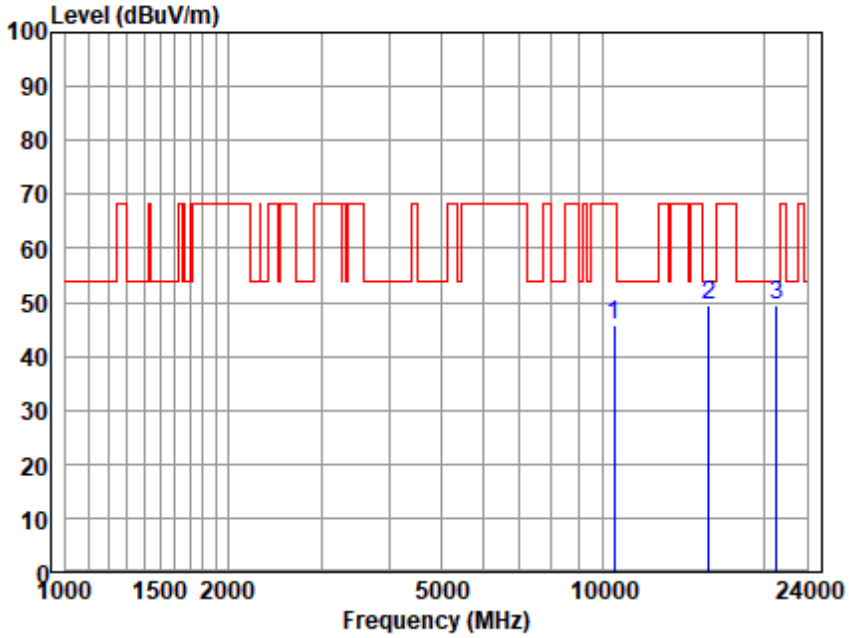


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10640.420	33.69	38.02	9.09	33.71	47.09	54.00	-6.91	Peak
15978.800	31.88	42.32	12.44	36.63	50.01	54.00	-3.99	Peak
21269.790	28.78	44.11	14.64	39.61	47.92	54.00	-6.08	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

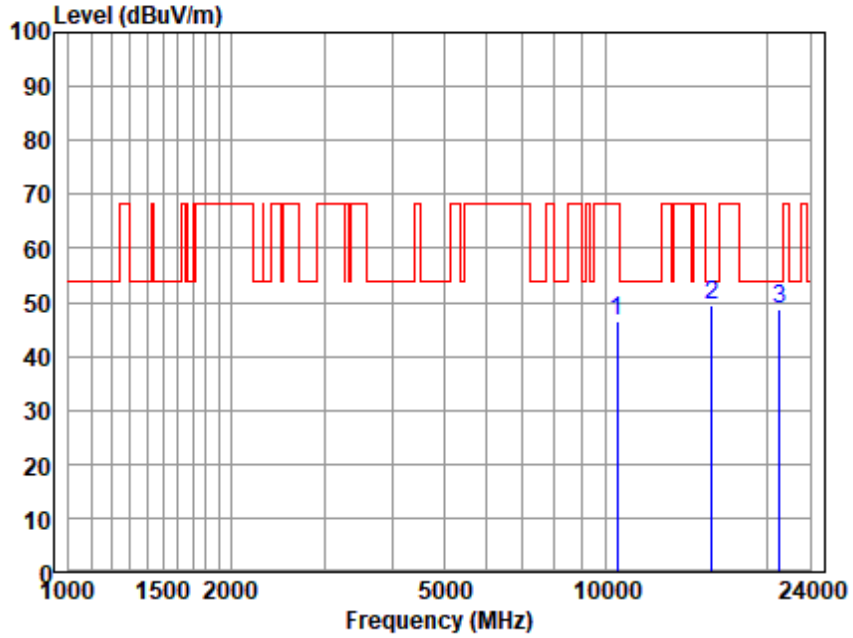


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10520.040	32.24	37.91	9.05	33.63	45.57	68.20	-22.63	Peak
15776.960	31.03	42.79	12.50	36.80	49.52	54.00	-4.48	Peak
21067.960	30.03	44.05	14.57	39.31	49.34	54.00	-4.66	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

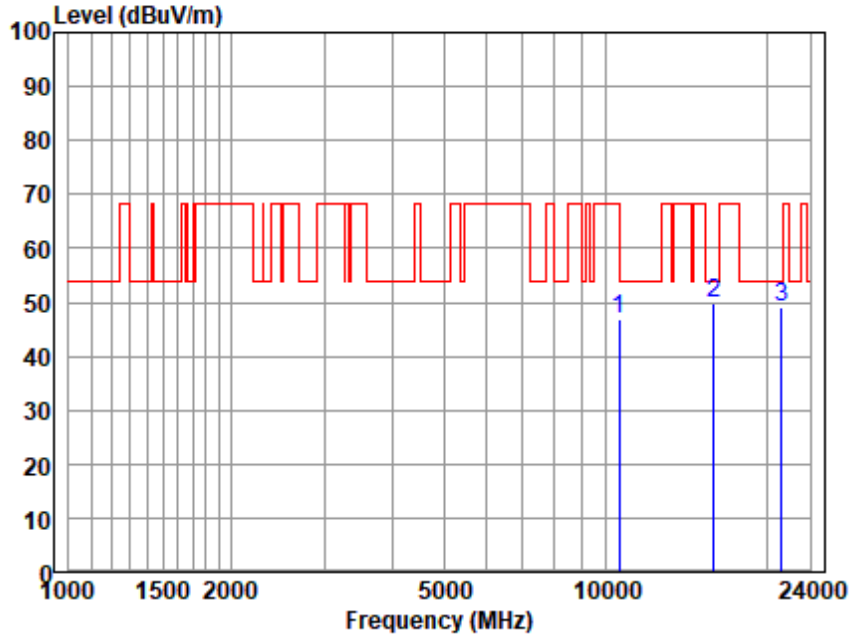


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10520.040	33.16	37.91	9.05	33.63	46.49	68.20	-21.71	Peak
15776.960	30.82	42.79	12.50	36.80	49.31	54.00	-4.69	Peak
21067.960	29.47	44.05	14.57	39.31	48.78	54.00	-5.22	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

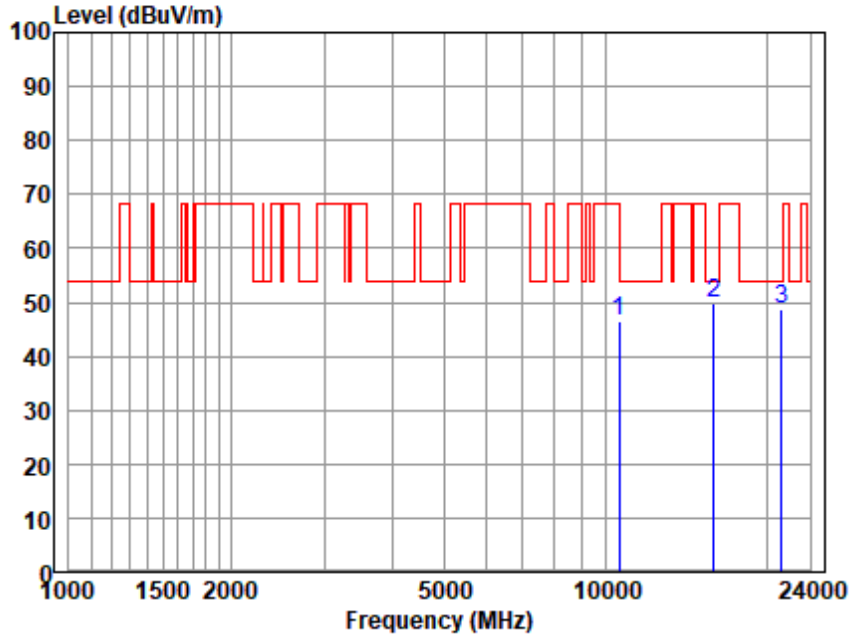


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10600.670	33.33	37.99	9.08	33.69	46.71	54.00	-7.29	Peak
15877.560	31.67	42.51	12.47	36.72	49.93	54.00	-4.07	Peak
21202.300	29.86	44.09	14.61	39.51	49.05	54.00	-4.95	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

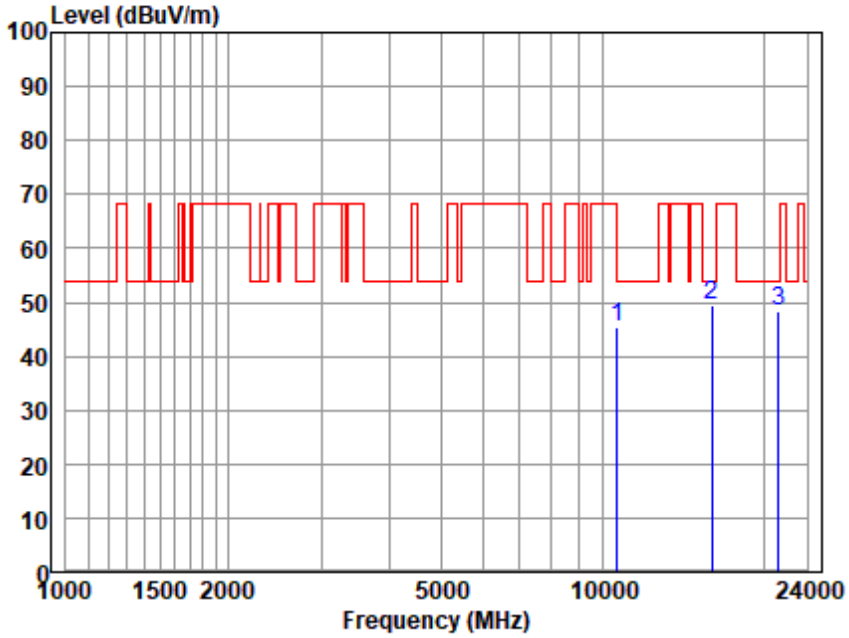


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10600.670	33.27	37.99	9.08	33.69	46.65	54.00	-7.35	Peak
15877.560	31.64	42.51	12.47	36.72	49.90	54.00	-4.10	Peak
21202.300	29.55	44.09	14.61	39.51	48.74	54.00	-5.26	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

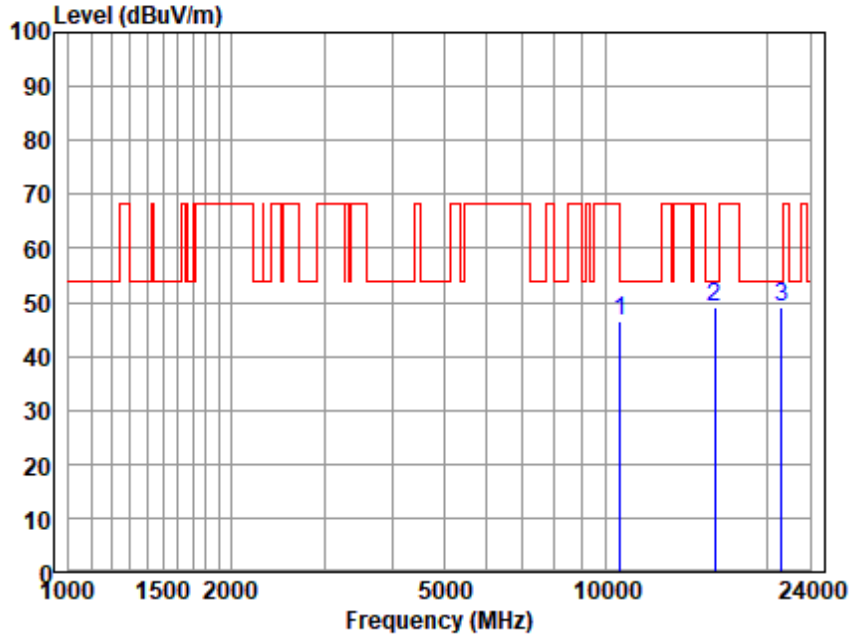


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10640.420	31.98	38.02	9.09	33.71	45.38	54.00	-8.62	Peak
15978.800	31.22	42.32	12.44	36.63	49.35	54.00	-4.65	Peak
21269.790	29.25	44.11	14.64	39.61	48.39	54.00	-5.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

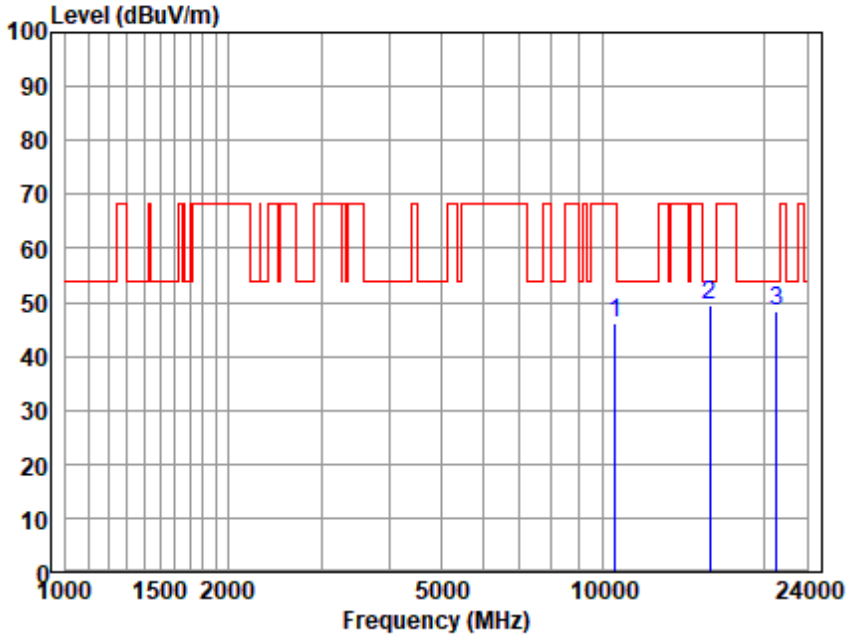


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10640.420	32.92	38.02	9.09	33.71	46.32	54.00	-7.68	Peak
15978.800	30.94	42.32	12.44	36.63	49.07	54.00	-4.93	Peak
21269.790	30.11	44.11	14.64	39.61	49.25	54.00	-4.75	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

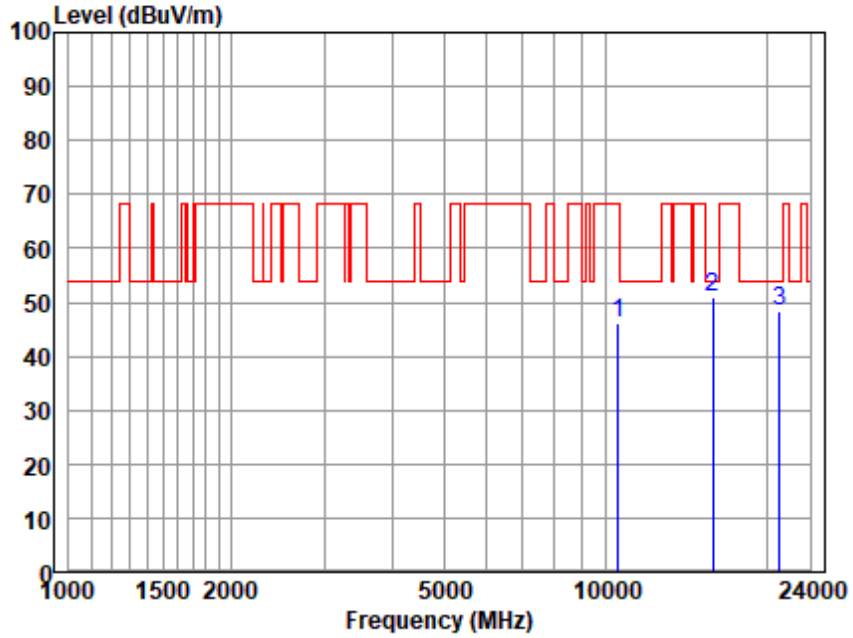


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10540.470	32.63	37.94	9.05	33.65	45.97	68.20	-22.23	Peak
15827.180	31.16	42.65	12.48	36.76	49.53	54.00	-4.47	Peak
21067.960	29.18	44.05	14.57	39.31	48.49	54.00	-5.51	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

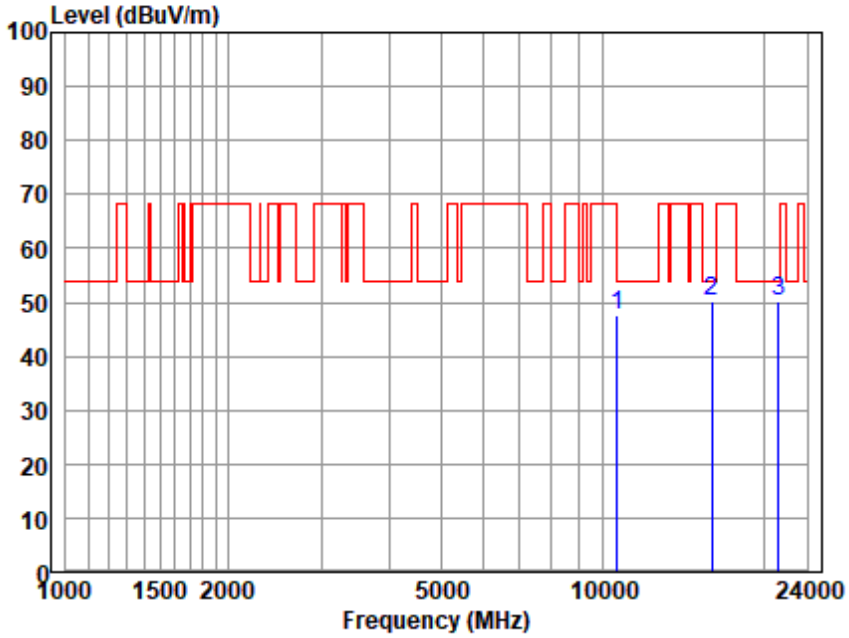


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10540.470	32.69	37.94	9.05	33.65	46.03	68.20	-22.17	Peak
15827.180	32.39	42.65	12.48	36.76	50.76	54.00	-3.24	Peak
21067.960	29.02	44.05	14.57	39.31	48.33	54.00	-5.67	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

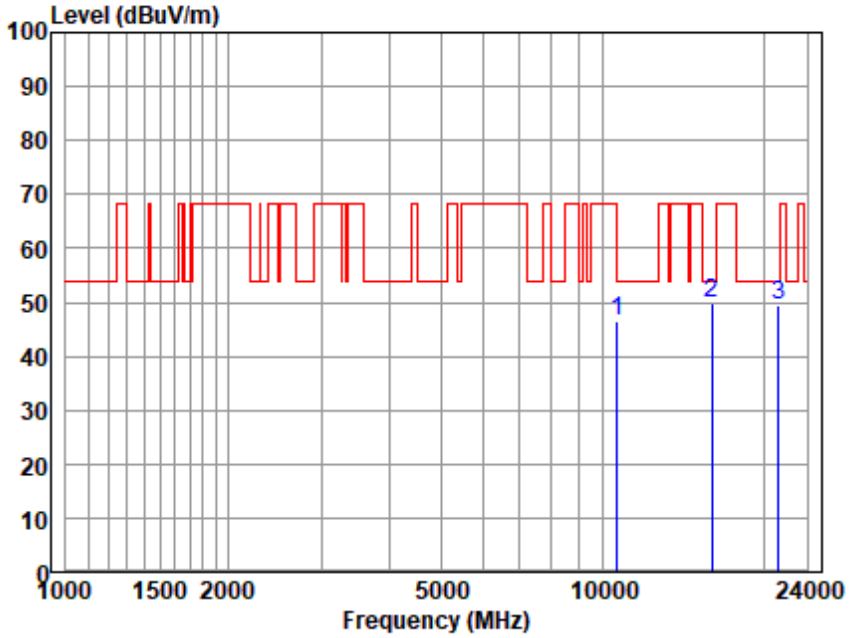


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10620.670	34.29	37.99	9.08	33.69	47.67	54.00	-6.33	Peak
15928.100	31.93	42.37	12.46	36.67	50.09	54.00	-3.91	Peak
21269.790	30.94	44.11	14.64	39.61	50.08	54.00	-3.92	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

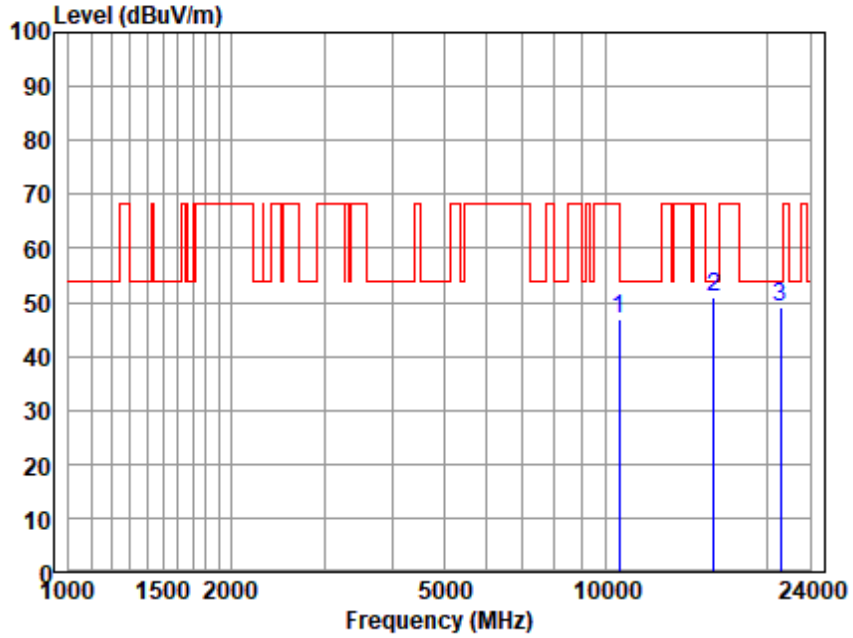


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10620.670	32.95	37.99	9.08	33.69	46.33	54.00	-7.67	Peak
15928.100	31.81	42.37	12.46	36.67	49.97	54.00	-4.03	Peak
21269.790	30.20	44.11	14.64	39.61	49.34	54.00	-4.66	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

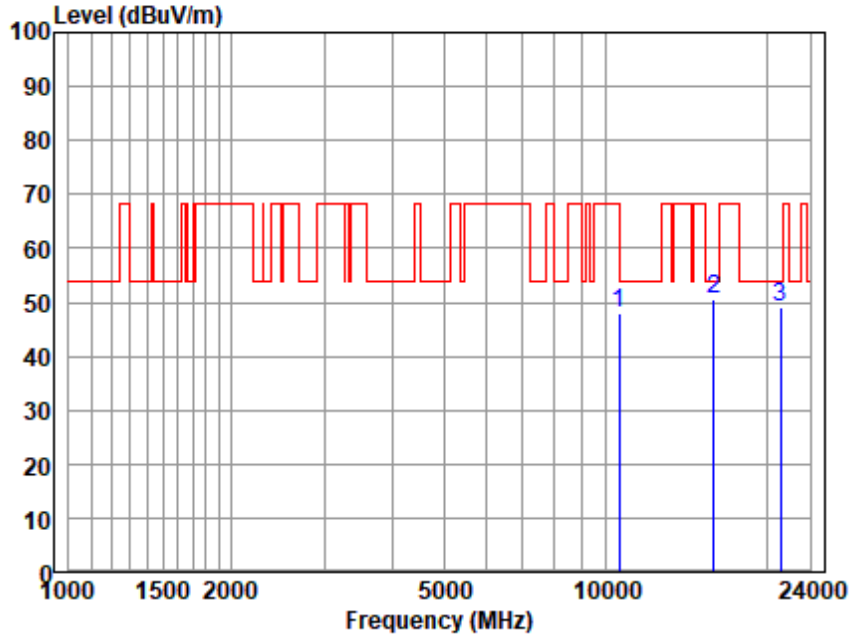


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10580.020	33.44	37.96	9.07	33.67	46.80	68.20	-21.40	Peak
15877.560	32.51	42.51	12.47	36.72	50.77	54.00	-3.23	Peak
21135.030	29.73	44.07	14.59	39.41	48.98	54.00	-5.02	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

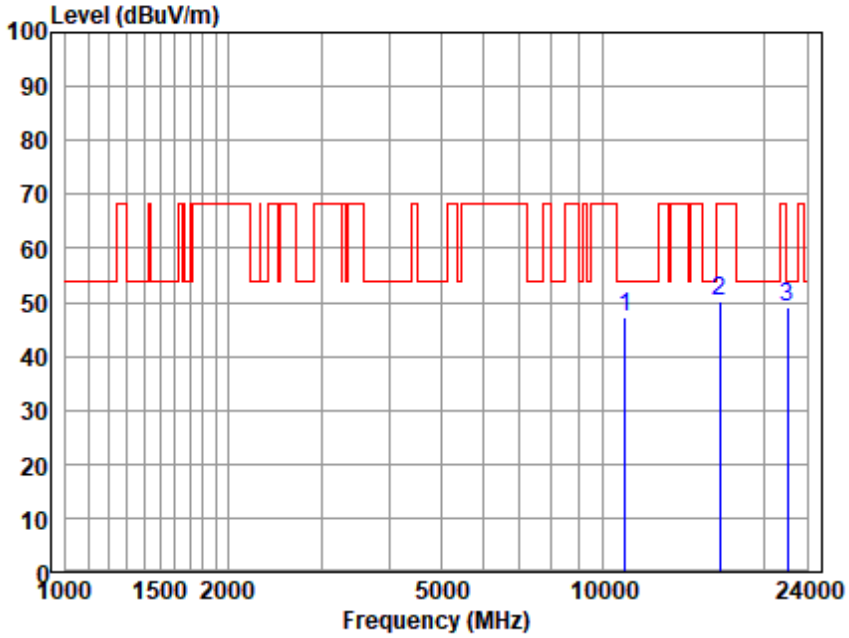


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
10580.020	34.73	37.96	9.07	33.67	48.09	68.20	-20.11	Peak
15877.560	32.13	42.51	12.47	36.72	50.39	54.00	-3.61	Peak
21135.030	29.97	44.07	14.59	39.41	49.22	54.00	-4.78	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

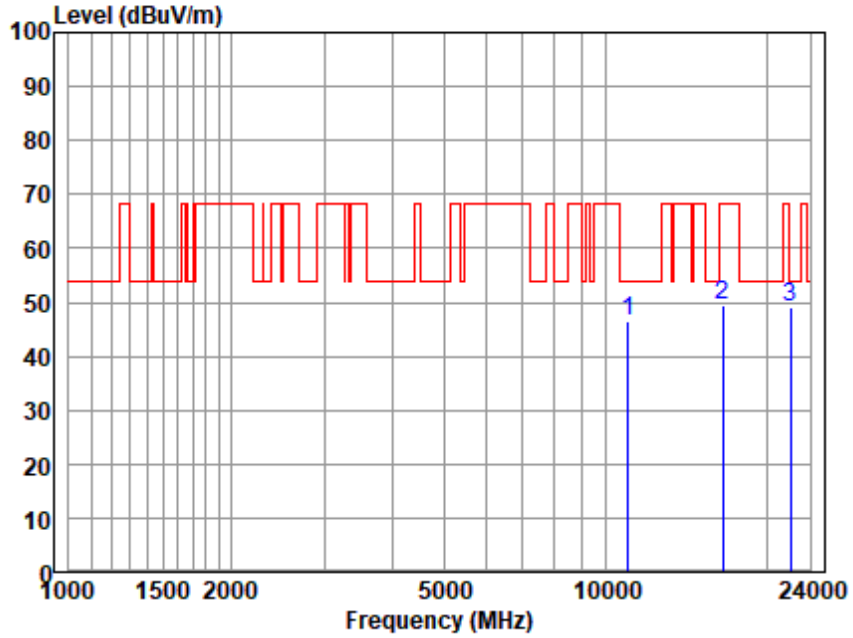


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11000.900	33.91	38.28	9.37	34.15	47.41	54.00	-6.59	Peak
16494.770	31.69	41.74	12.79	36.20	50.02	68.20	-18.18	Peak
22026.500	30.69	44.36	14.88	40.70	49.23	54.00	-4.77	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

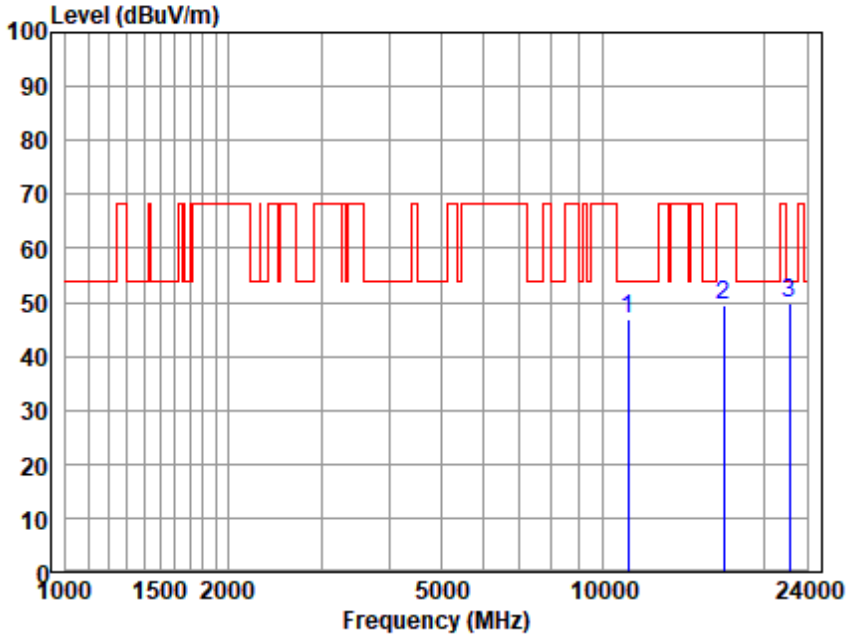


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11000.900	32.83	38.28	9.37	34.15	46.33	54.00	-7.67	Peak
16494.770	31.29	41.74	12.79	36.20	49.62	68.20	-18.58	Peak
22026.500	30.55	44.36	14.88	40.70	49.09	54.00	-4.91	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

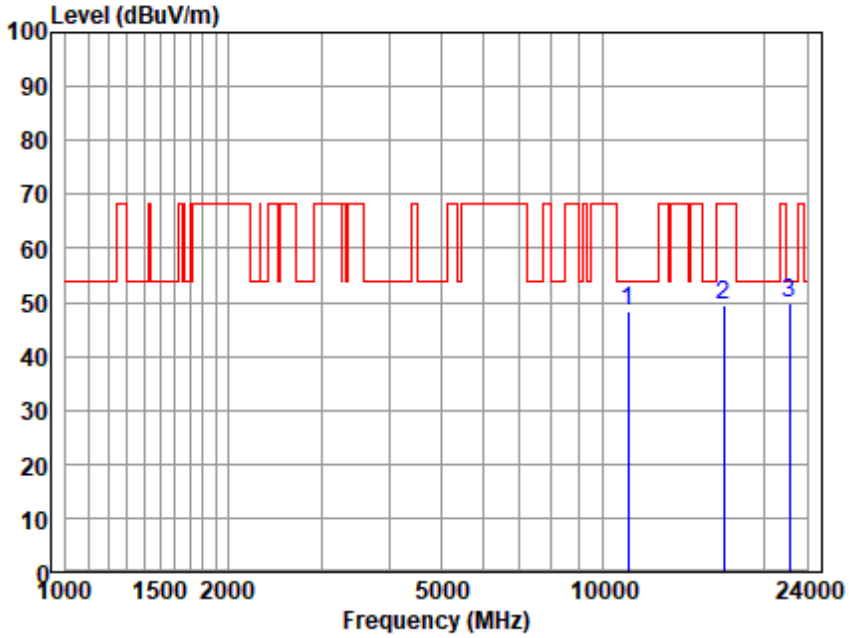


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11160.850	33.43	38.28	9.58	34.54	46.75	54.00	-7.25	Peak
16758.970	30.91	41.69	12.78	35.97	49.41	68.20	-18.79	Peak
22308.290	31.68	44.44	14.97	41.09	50.00	54.00	-4.00	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

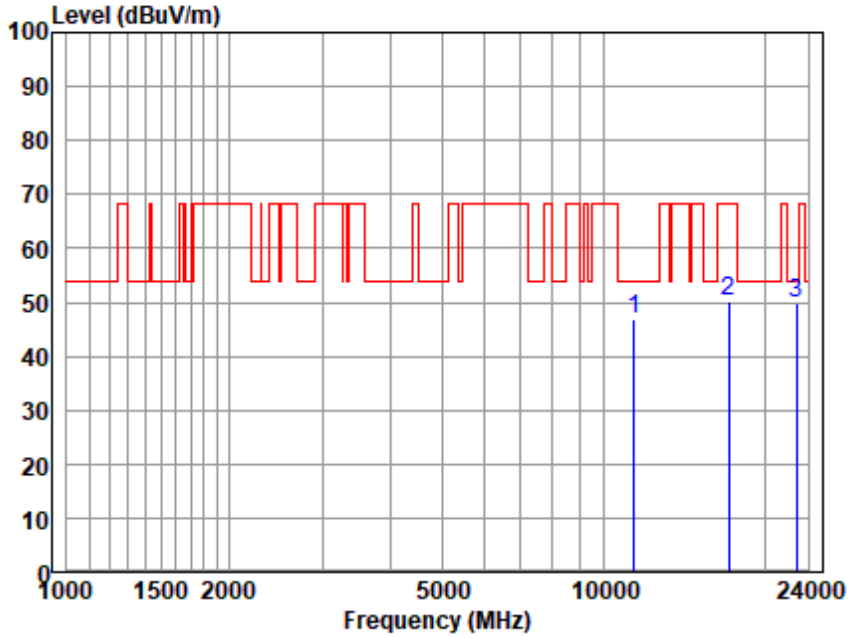


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11160.850	34.98	38.28	9.58	34.54	48.30	54.00	-5.70	Peak
16758.970	30.84	41.69	12.78	35.97	49.34	68.20	-18.86	Peak
22308.290	31.66	44.44	14.97	41.09	49.98	54.00	-4.02	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

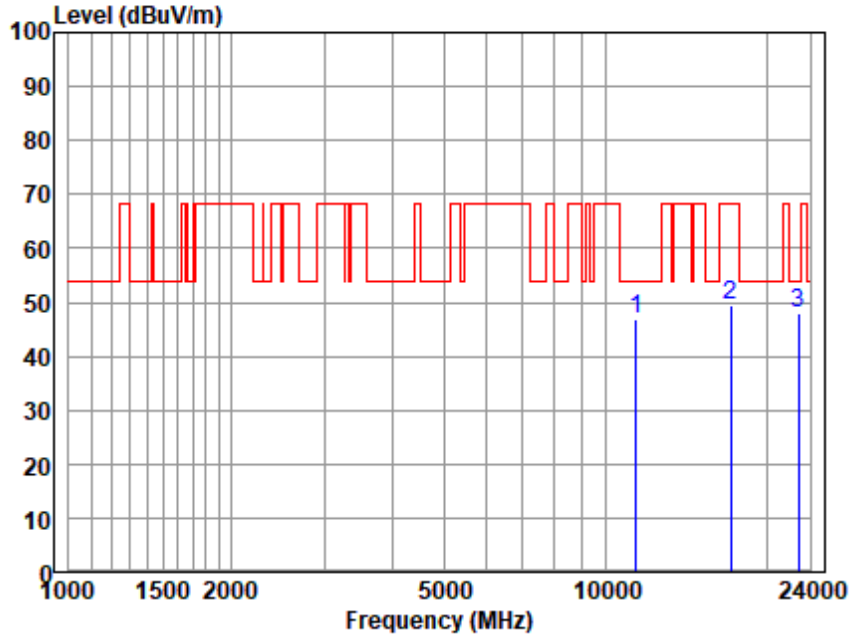


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11400.850	34.01	38.28	9.85	35.43	46.71	54.00	-7.29	Peak
17081.600	30.88	41.79	13.09	35.58	50.18	68.20	-18.02	Peak
22810.130	31.86	44.60	15.12	41.79	49.79	54.00	-4.21	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

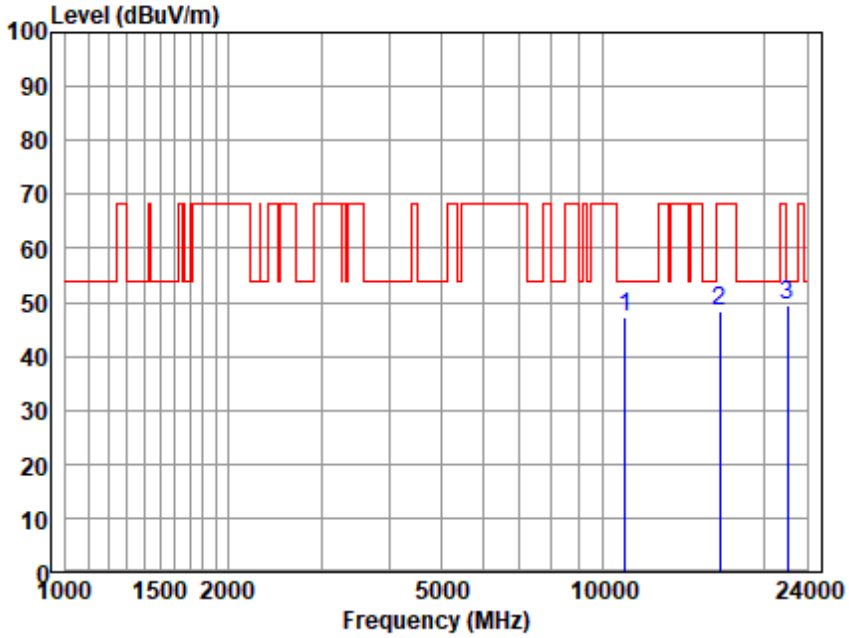


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11400.850	34.06	38.28	9.85	35.43	46.76	54.00	-7.24	Peak
17081.600	30.30	41.79	13.09	35.58	49.60	68.20	-18.60	Peak
22810.130	30.03	44.60	15.12	41.79	47.96	54.00	-6.04	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

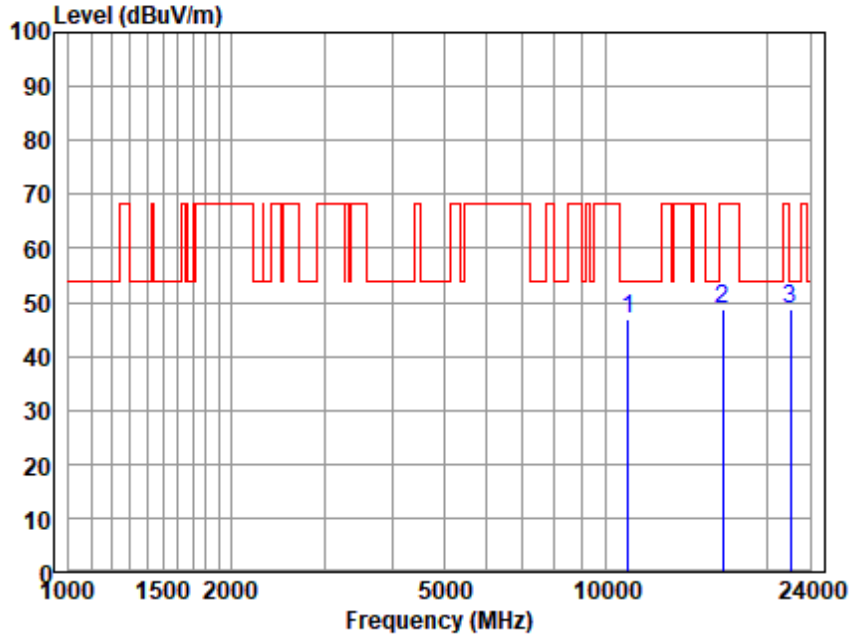


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11000.900	33.59	38.28	9.37	34.15	47.09	54.00	-6.91	Peak
16494.770	30.04	41.74	12.79	36.20	48.37	68.20	-19.83	Peak
22026.500	30.85	44.36	14.88	40.70	49.39	54.00	-4.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

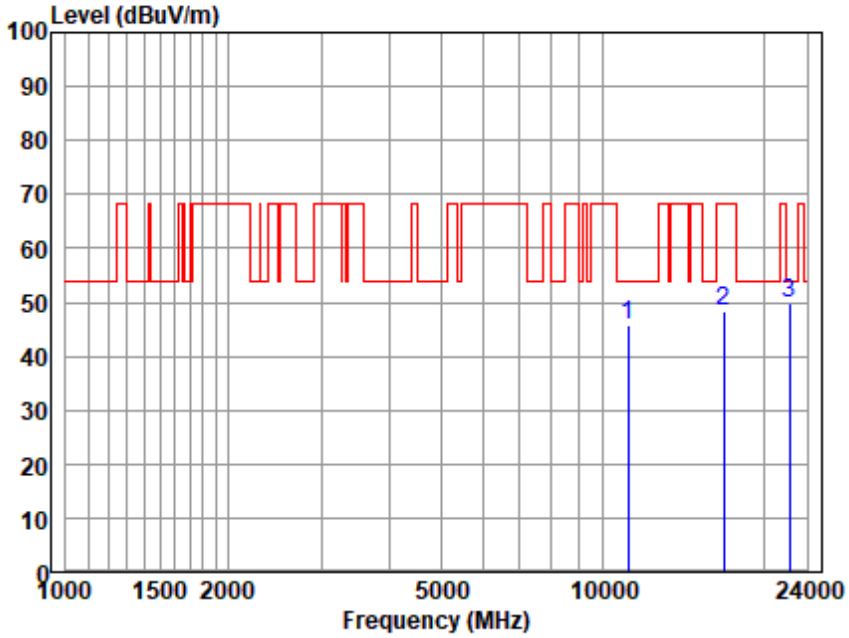


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11000.900	33.24	38.28	9.37	34.15	46.74	54.00	-7.26	Peak
16494.770	30.21	41.74	12.79	36.20	48.54	68.20	-19.66	Peak
22026.500	30.33	44.36	14.88	40.70	48.87	54.00	-5.13	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

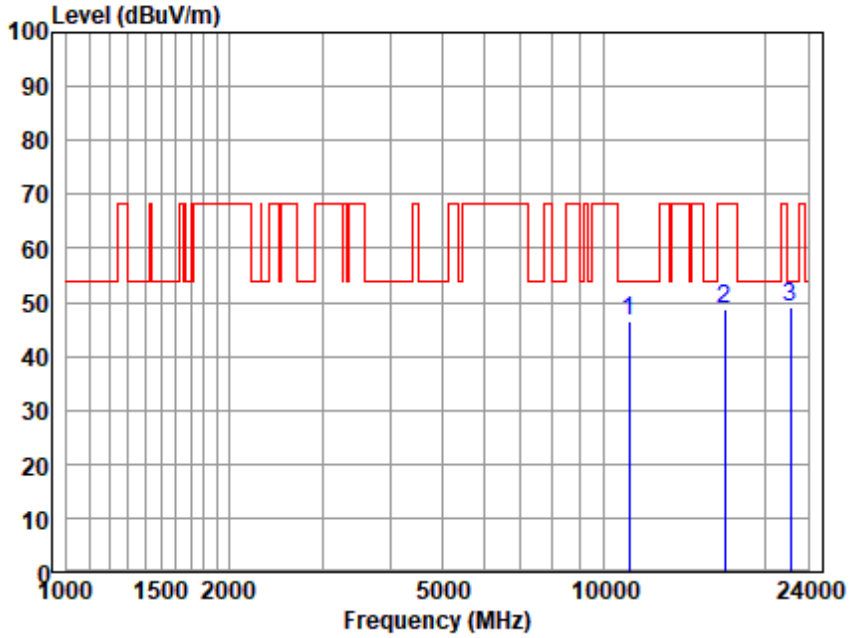


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11160.850	32.59	38.28	9.58	34.54	45.91	54.00	-8.09	Peak
16758.970	29.96	41.69	12.78	35.97	48.46	68.20	-19.74	Peak
22308.290	31.48	44.44	14.97	41.09	49.80	54.00	-4.20	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

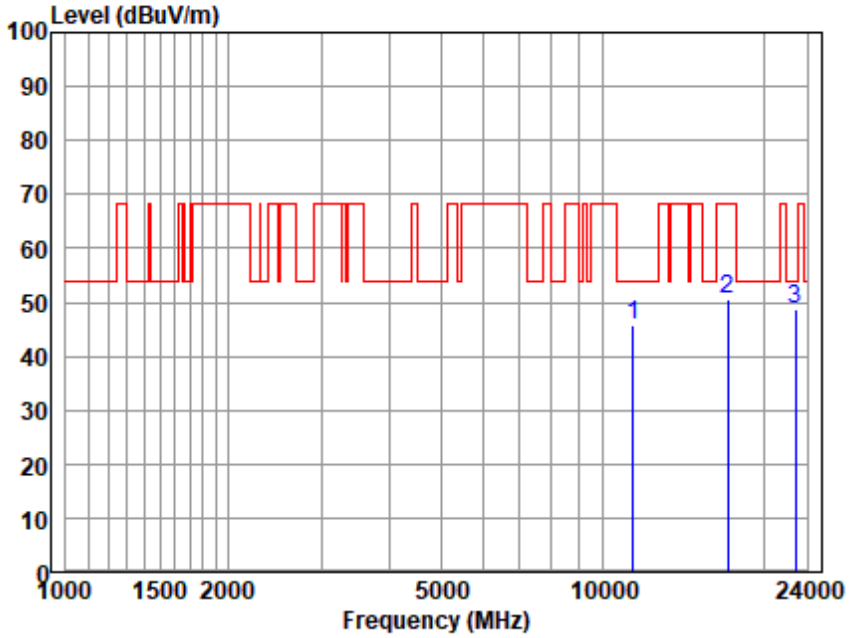


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11160.850	33.19	38.28	9.58	34.54	46.51	54.00	-7.49	Peak
16758.970	30.37	41.69	12.78	35.97	48.87	68.20	-19.33	Peak
22308.290	30.63	44.44	14.97	41.09	48.95	54.00	-5.05	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

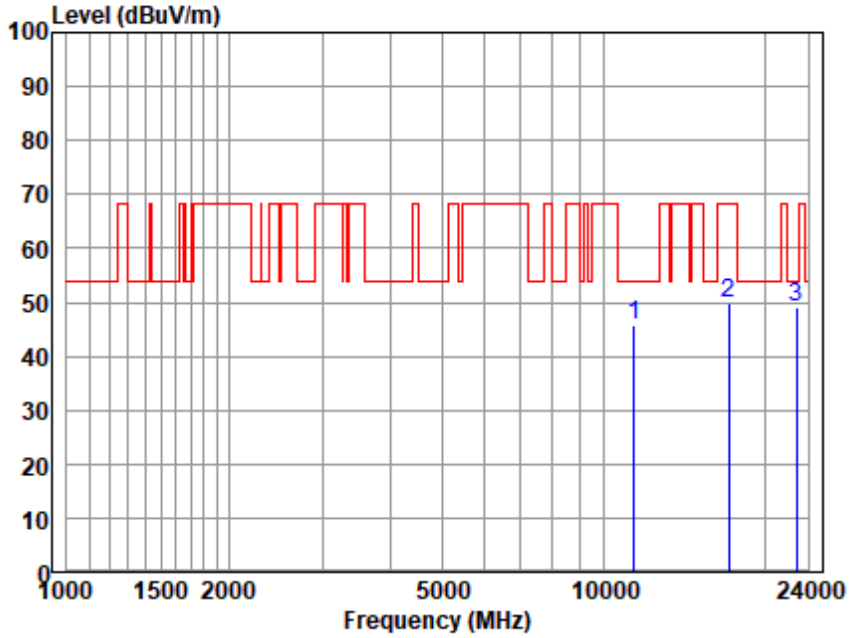


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11400.850	33.01	38.28	9.85	35.43	45.71	54.00	-8.29	Peak
17081.600	31.25	41.79	13.09	35.58	50.55	68.20	-17.65	Peak
22810.130	30.76	44.60	15.12	41.79	48.69	54.00	-5.31	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

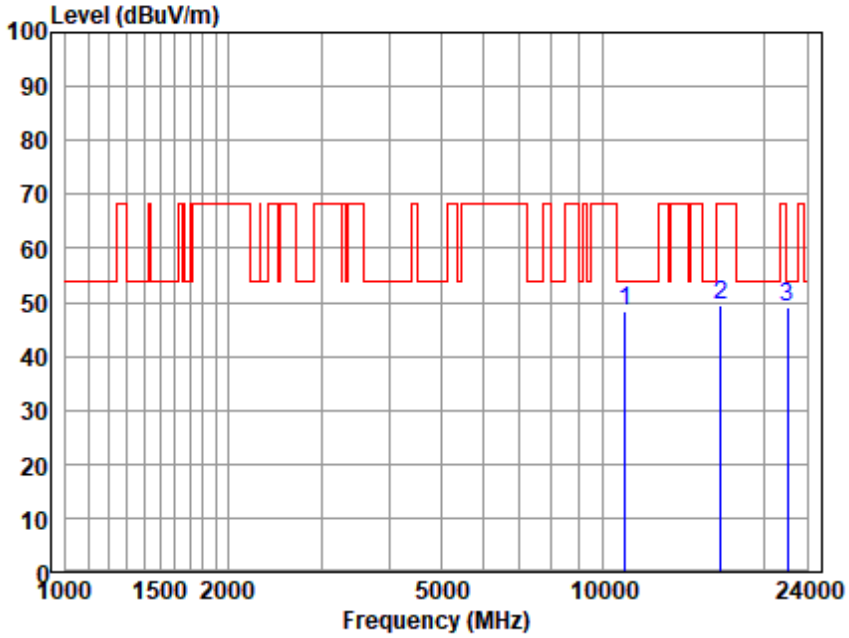


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11400.850	33.04	38.28	9.85	35.43	45.74	54.00	-8.26	Peak
17081.600	30.67	41.79	13.09	35.58	49.97	68.20	-18.23	Peak
22810.130	31.27	44.60	15.12	41.79	49.20	54.00	-4.80	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

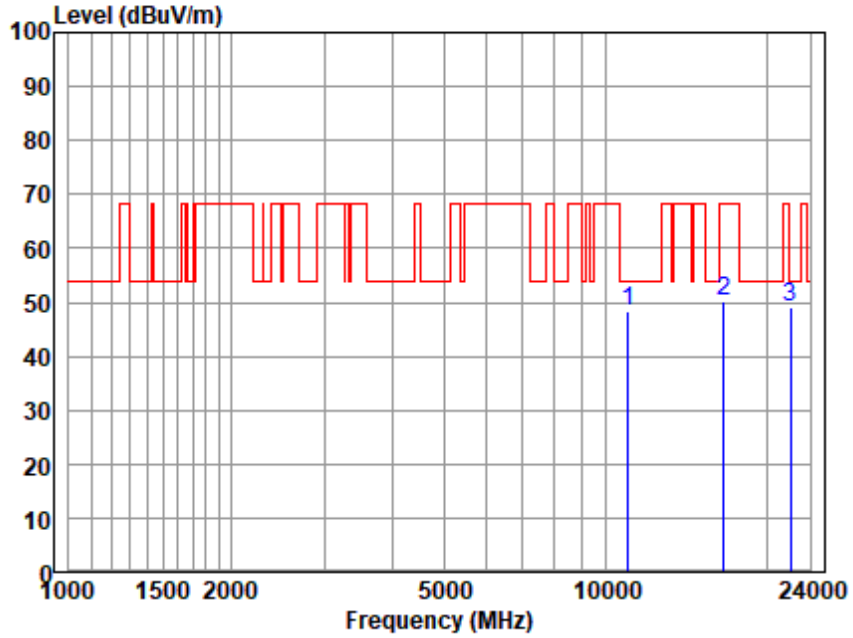


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11020.900	34.82	38.28	9.37	34.15	48.32	54.00	-5.68	Peak
16547.280	31.27	41.67	12.79	36.16	49.57	68.20	-18.63	Peak
22026.500	30.53	44.36	14.88	40.70	49.07	54.00	-4.93	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

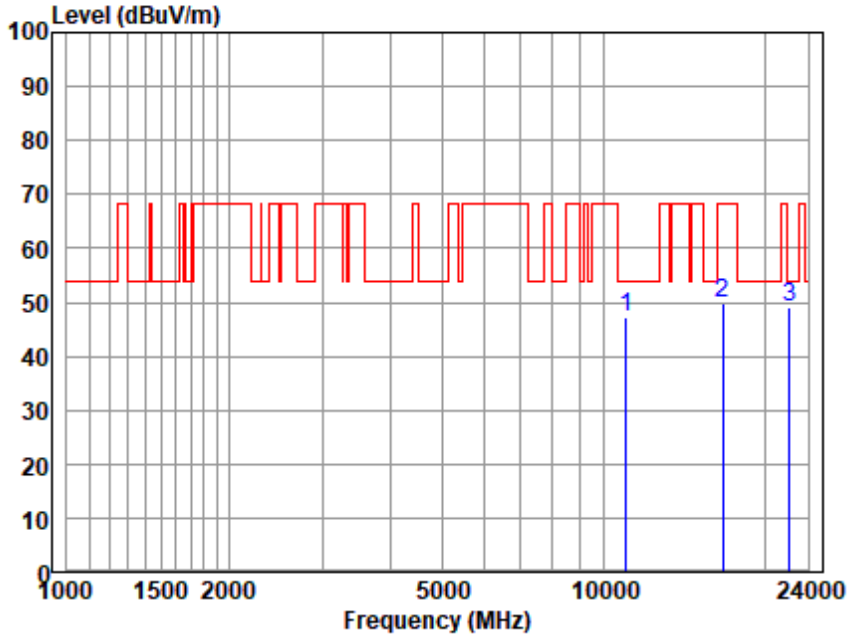


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11020.900	34.82	38.28	9.37	34.15	48.32	54.00	-5.68	Peak
16547.280	31.99	41.67	12.79	36.16	50.29	68.20	-17.91	Peak
22026.500	30.53	44.36	14.88	40.70	49.07	54.00	-4.93	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:middle

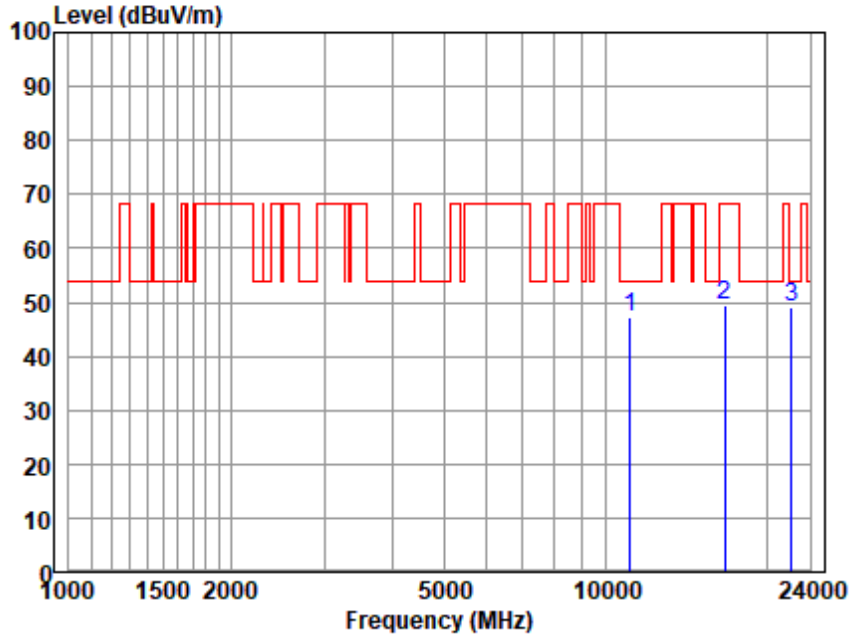


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11000.150	33.87	38.28	9.37	34.15	47.37	54.00	-6.63	Peak
16652.790	31.53	41.65	12.78	36.08	49.88	68.20	-18.32	Peak
22166.950	30.81	44.40	14.93	40.90	49.24	54.00	-4.76	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:middle

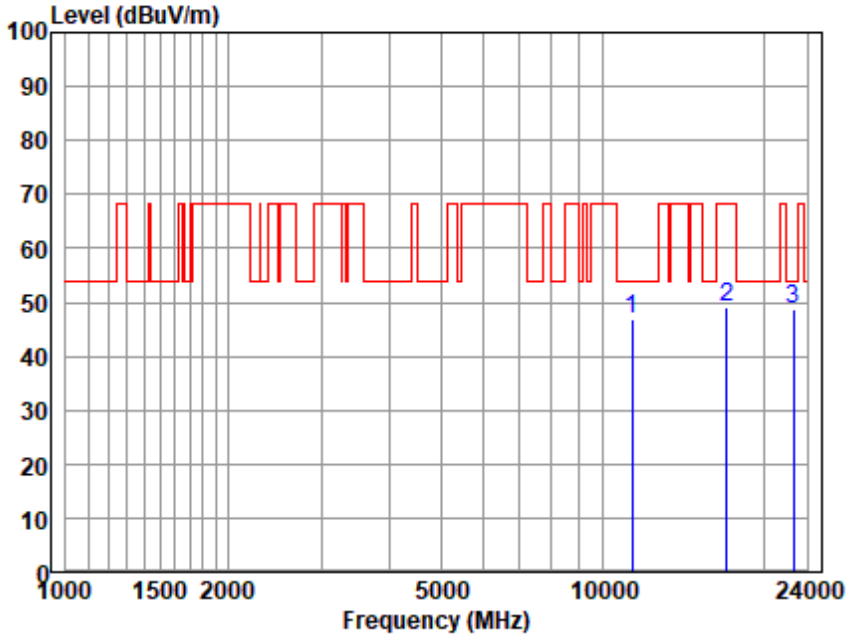


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11100.150	33.89	38.28	9.47	34.35	47.29	54.00	-6.71	Peak
16652.790	31.01	41.65	12.78	36.08	49.36	68.20	-18.84	Peak
22166.950	30.79	44.40	14.93	40.90	49.22	54.00	-4.78	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

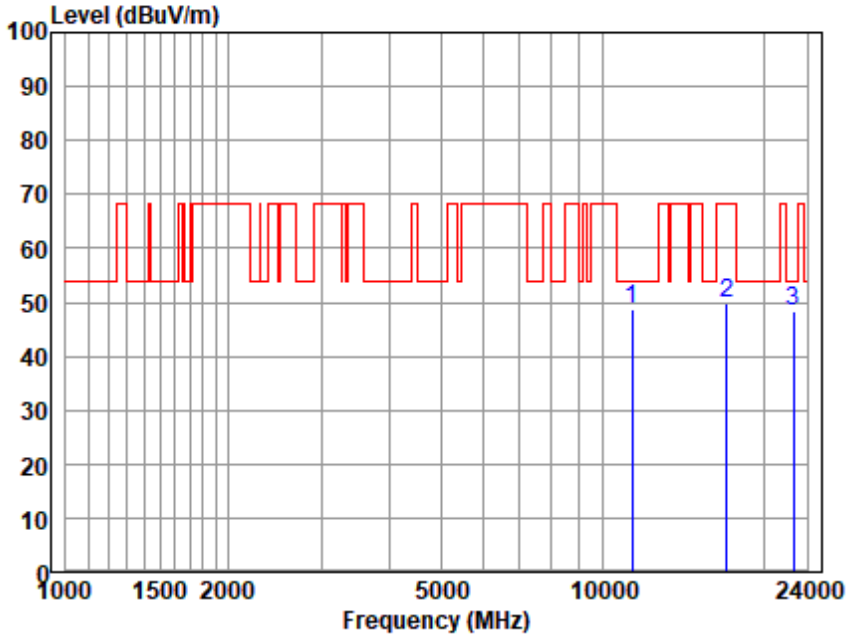


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11340.560	33.84	38.28	9.81	35.17	46.76	54.00	-7.24	Peak
17027.400	29.93	41.72	13.08	35.64	49.09	68.20	-19.11	Peak
22665.610	30.60	44.55	15.08	41.59	48.64	54.00	-5.36	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

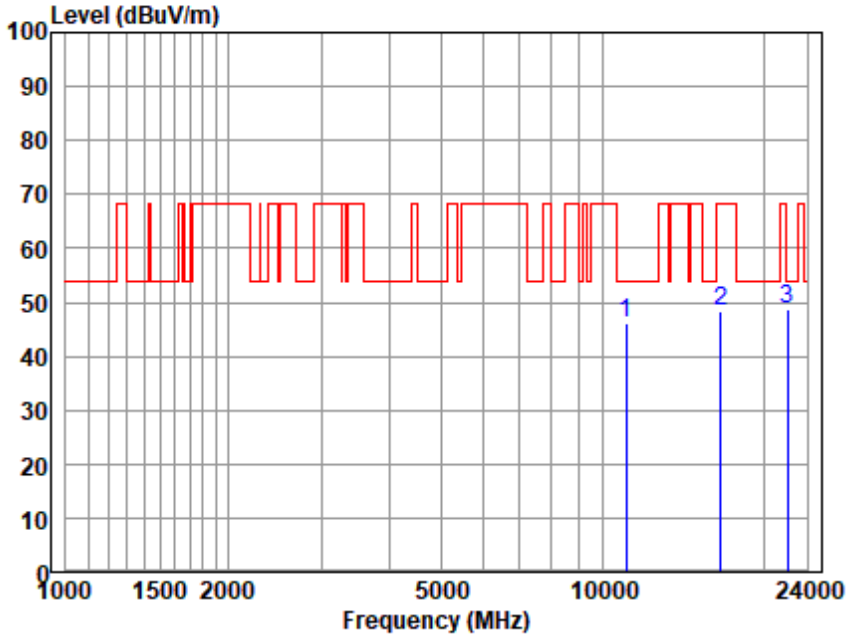


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11340.560	35.88	38.28	9.81	35.17	48.80	54.00	-5.20	Peak
17027.400	30.63	41.72	13.08	35.64	49.79	68.20	-18.41	Peak
22665.610	30.25	44.55	15.08	41.59	48.29	54.00	-5.71	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

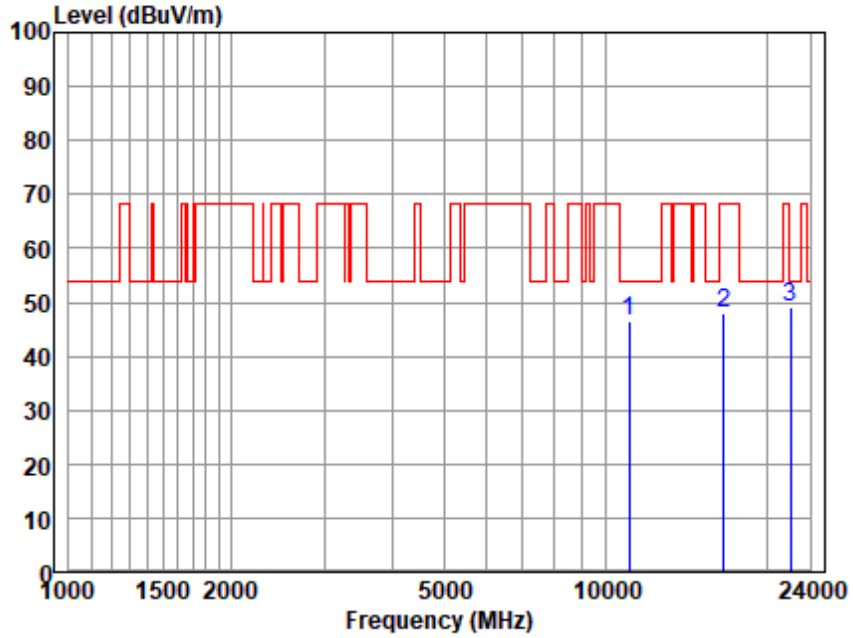


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11060.970	32.60	38.28	9.42	34.25	46.05	54.00	-7.95	Peak
16599.950	29.90	41.61	12.79	36.12	48.18	68.20	-20.02	Peak
22096.620	30.34	44.38	14.90	40.80	48.82	54.00	-5.18	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

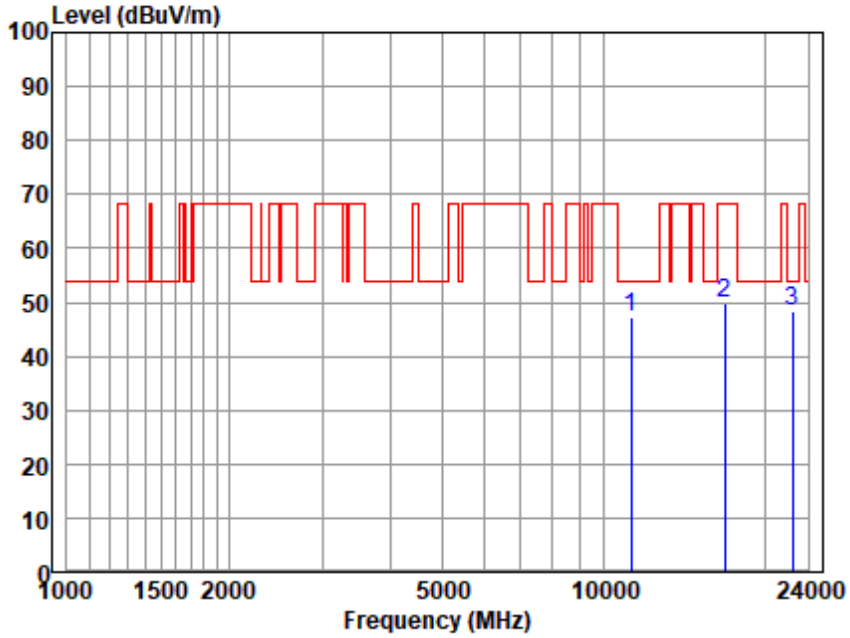


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11060.970	33.10	38.28	9.42	34.25	46.55	54.00	-7.45	Peak
16599.950	29.78	41.61	12.79	36.12	48.06	68.20	-20.14	Peak
22096.620	30.46	44.38	14.90	40.80	48.94	54.00	-5.06	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:High

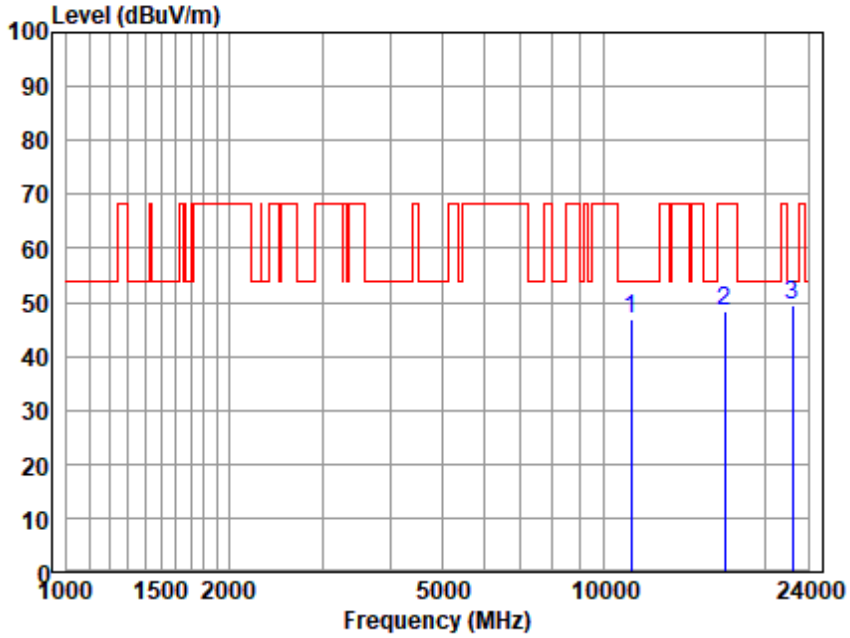


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11220.990	33.95	38.28	9.69	34.79	47.13	54.00	-6.87	Peak
16812.320	31.26	41.70	12.85	35.90	49.91	68.20	-18.29	Peak
22450.540	30.25	44.49	15.01	41.29	48.46	54.00	-5.54	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:High

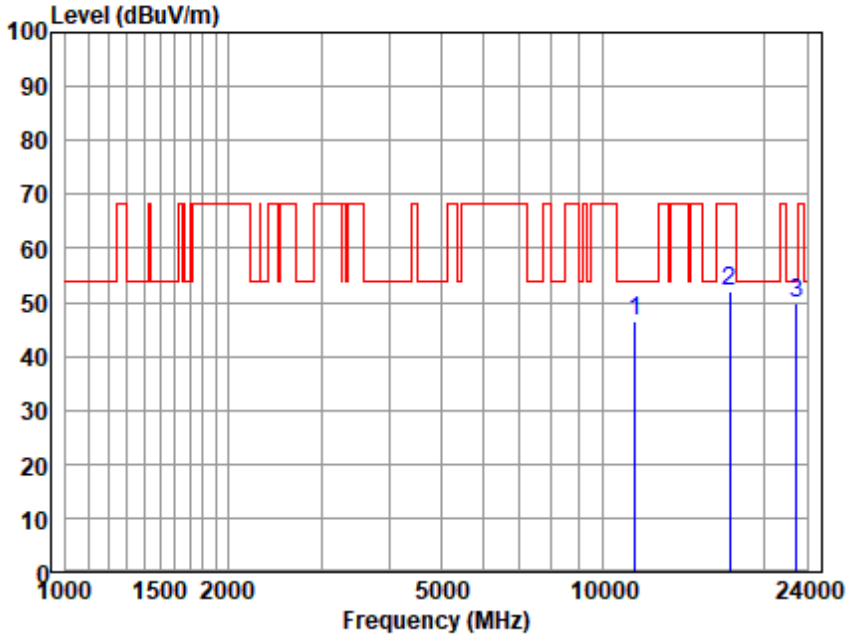


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11220.990	33.76	38.28	9.69	34.79	46.94	54.00	-7.06	Peak
16812.320	29.59	41.70	12.85	35.90	48.24	68.20	-19.96	Peak
22450.540	31.32	44.49	15.01	41.29	49.53	54.00	-4.47	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

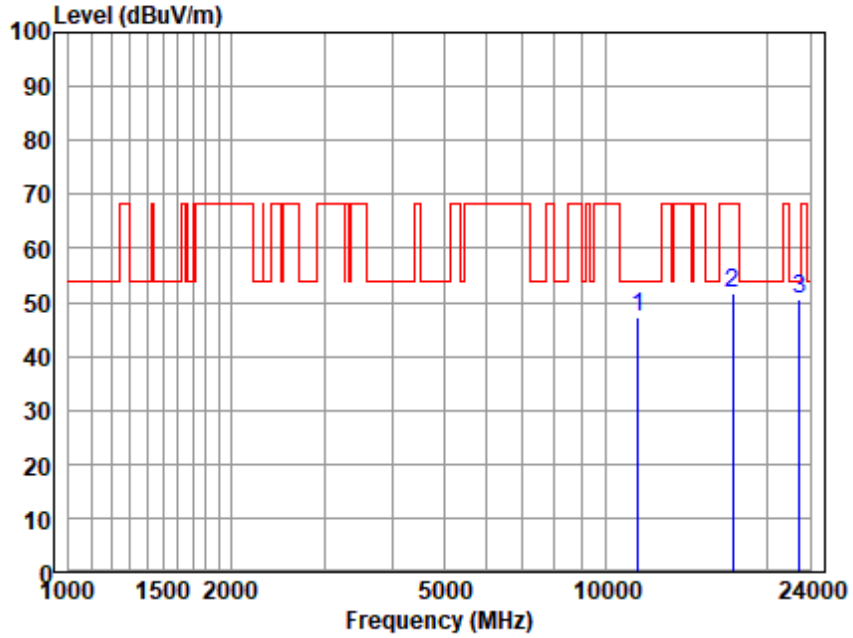


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11490.600	33.93	38.28	9.88	35.68	46.41	54.00	-7.59	Peak
17245.240	32.16	42.00	13.15	35.39	51.92	68.20	-16.28	Peak
22955.580	32.05	44.64	15.17	41.99	49.87	54.00	-4.13	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

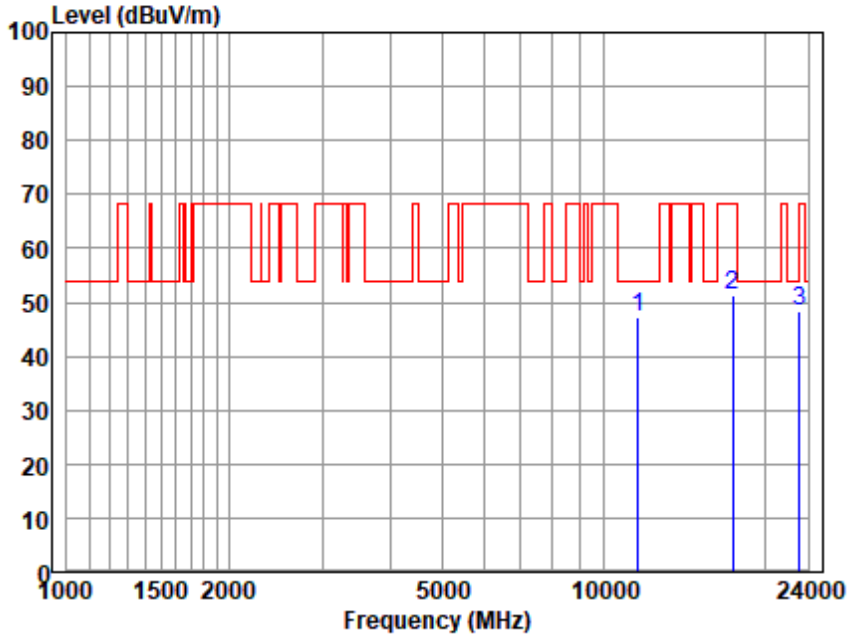


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11490.600	34.88	38.28	9.88	35.68	47.36	54.00	-6.64	Peak
17245.240	32.02	42.00	13.15	35.39	51.78	68.20	-16.42	Peak
22955.580	32.83	44.64	15.17	41.99	50.65	54.00	-3.35	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

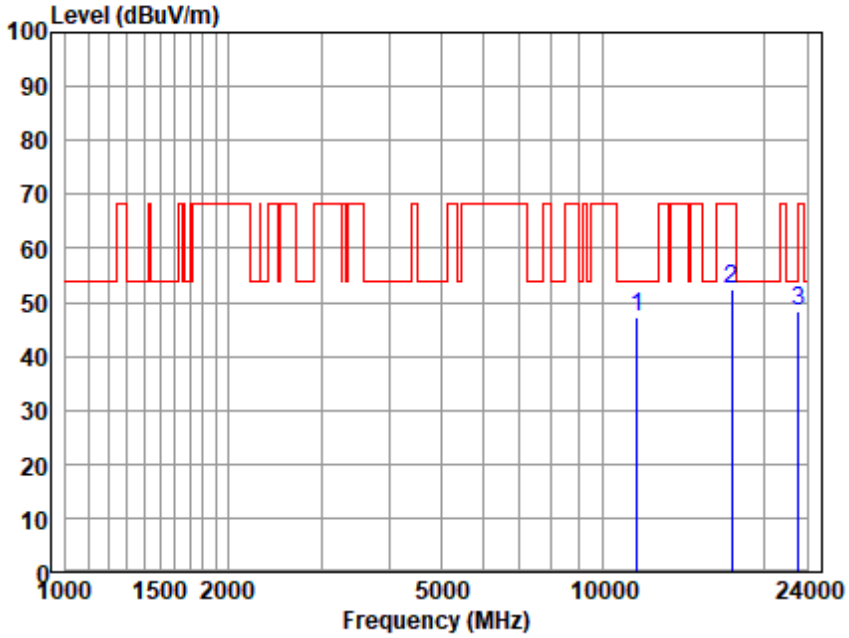


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11570.810	35.17	38.29	9.90	35.96	47.40	54.00	-6.60	Peak
17355.200	31.28	42.22	13.19	35.24	51.45	68.20	-16.75	Peak
23175.490	30.59	44.71	15.24	42.28	48.26	68.20	-19.94	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

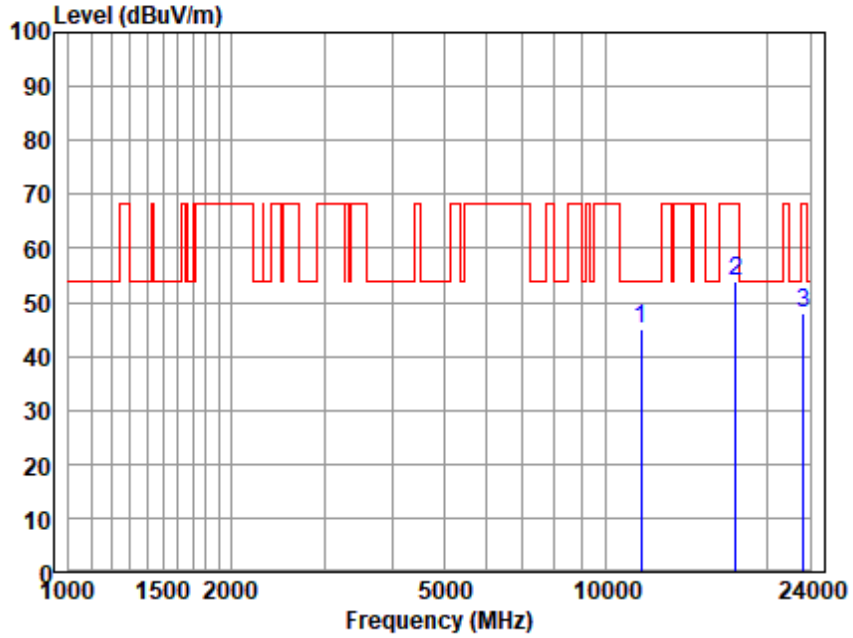


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11570.810	34.85	38.29	9.90	35.96	47.08	54.00	-6.92	Peak
17355.200	32.17	42.22	13.19	35.24	52.34	68.20	-15.86	Peak
23175.490	30.51	44.71	15.24	42.28	48.18	68.20	-20.02	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

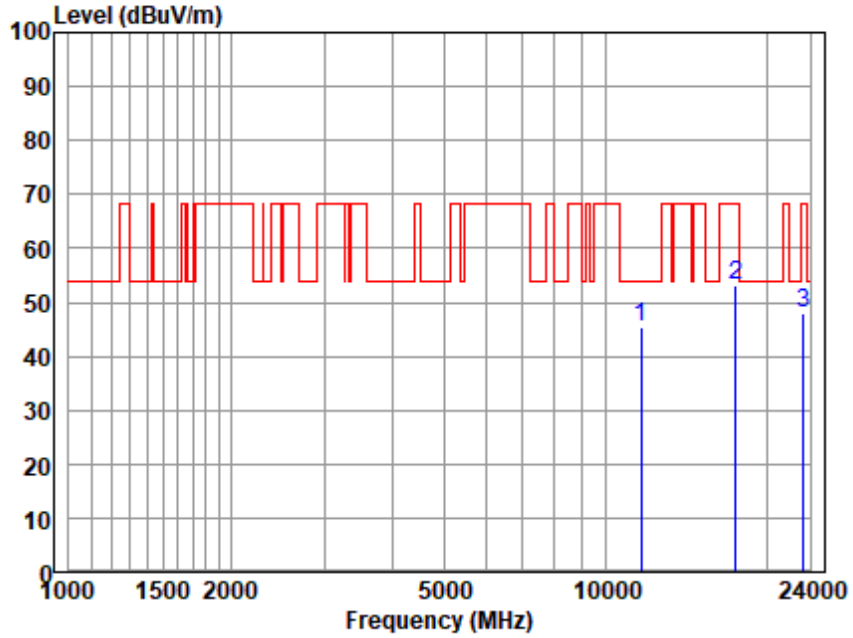


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11650.500	33.11	38.30	9.91	36.41	44.91	54.00	-9.09	Peak
17465.870	33.55	42.26	13.23	35.08	53.96	68.20	-14.24	Peak
23323.270	30.54	44.75	15.28	42.48	48.09	68.20	-20.11	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

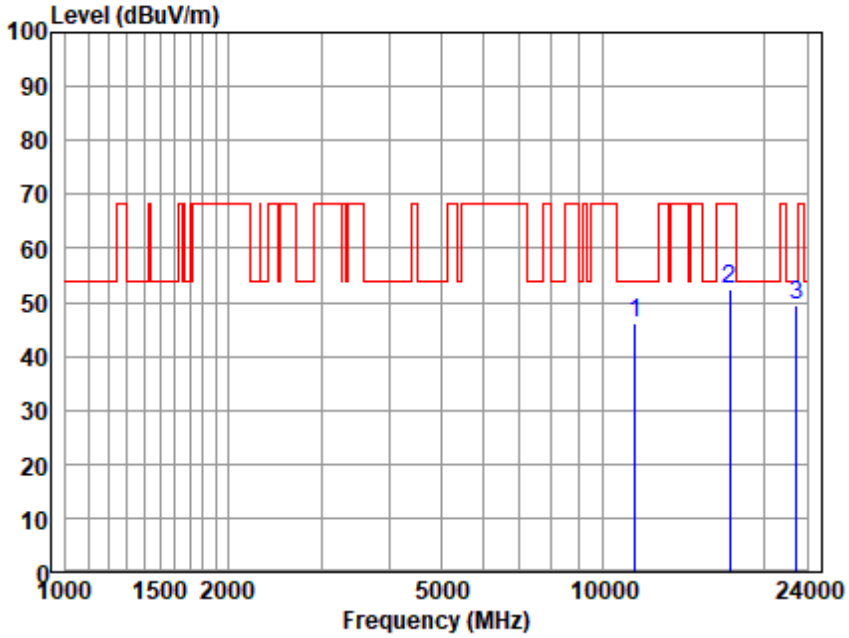


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11650.500	33.65	38.30	9.91	36.41	45.45	54.00	-8.55	Peak
17465.870	32.64	42.26	13.23	35.08	53.05	68.20	-15.15	Peak
23323.270	30.50	44.75	15.28	42.48	48.05	68.20	-20.15	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

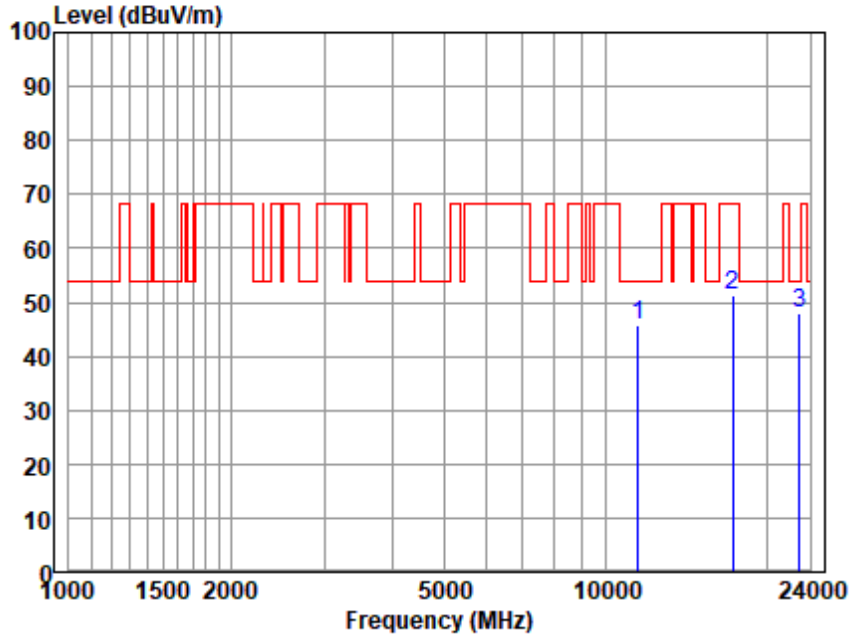


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11490.600	33.67	38.28	9.88	35.68	46.15	54.00	-7.85	Peak
17245.240	32.76	42.00	13.15	35.39	52.52	68.20	-15.68	Peak
22955.580	31.53	44.64	15.17	41.99	49.35	54.00	-4.65	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low

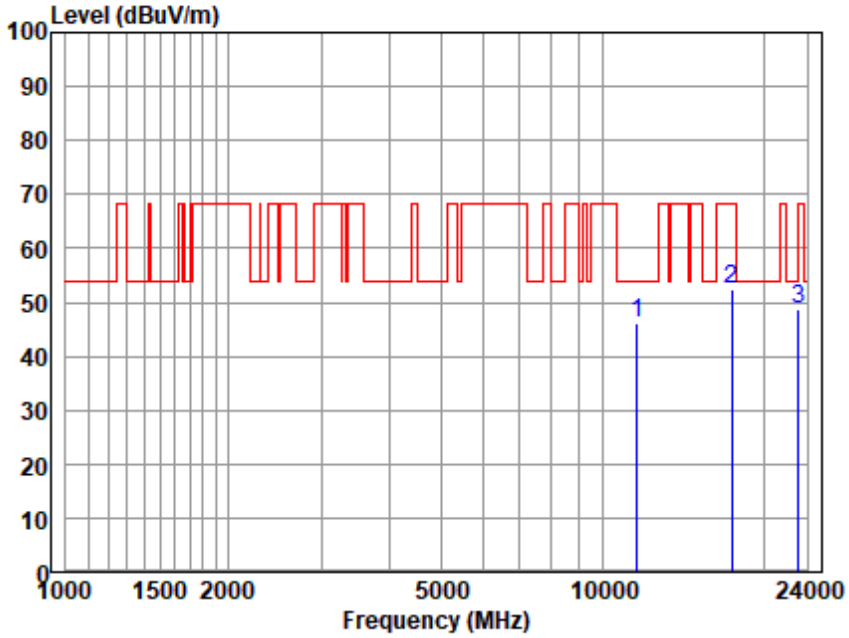


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11490.600	33.25	38.28	9.88	35.68	45.73	54.00	-8.27	Peak
17245.240	31.71	42.00	13.15	35.39	51.47	68.20	-16.73	Peak
22955.580	30.26	44.64	15.17	41.99	48.08	54.00	-5.92	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

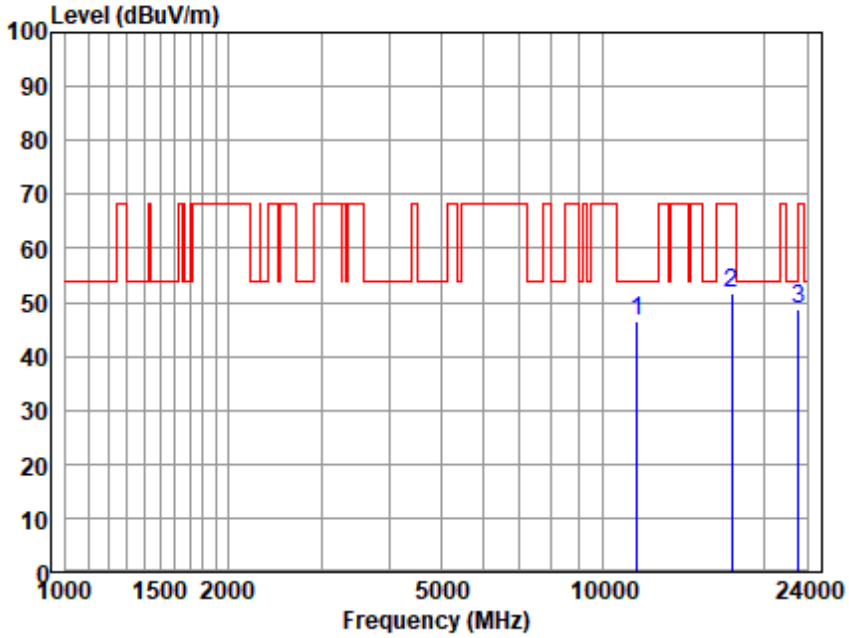


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11570.810	33.86	38.29	9.90	35.96	46.09	54.00	-7.91	Peak
17355.200	32.15	42.22	13.19	35.24	52.32	68.20	-15.88	Peak
23175.490	31.12	44.71	15.24	42.28	48.79	68.20	-19.41	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle

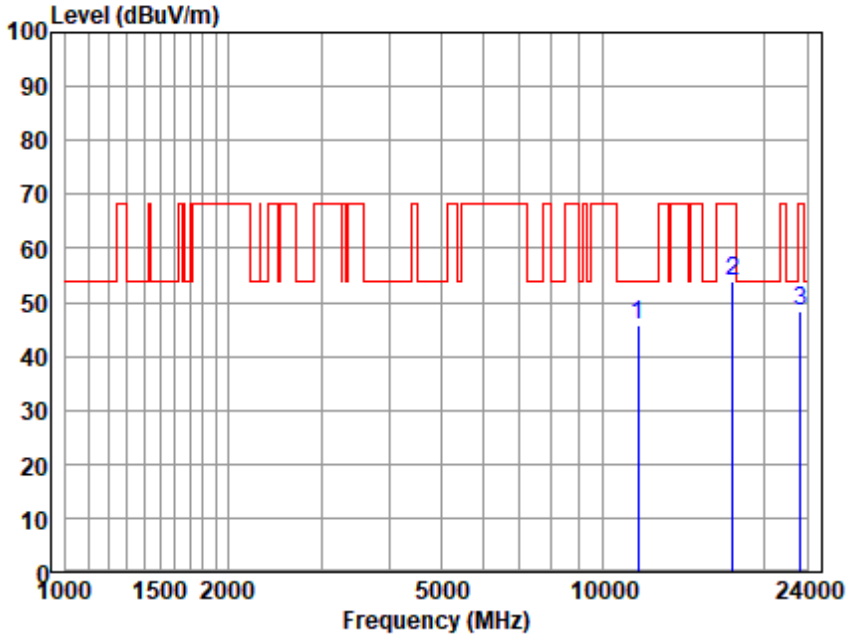


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11570.810	34.12	38.29	9.90	35.96	46.35	54.00	-7.65	Peak
17355.200	31.55	42.22	13.19	35.24	51.72	68.20	-16.48	Peak
23175.490	30.92	44.71	15.24	42.28	48.59	68.20	-19.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

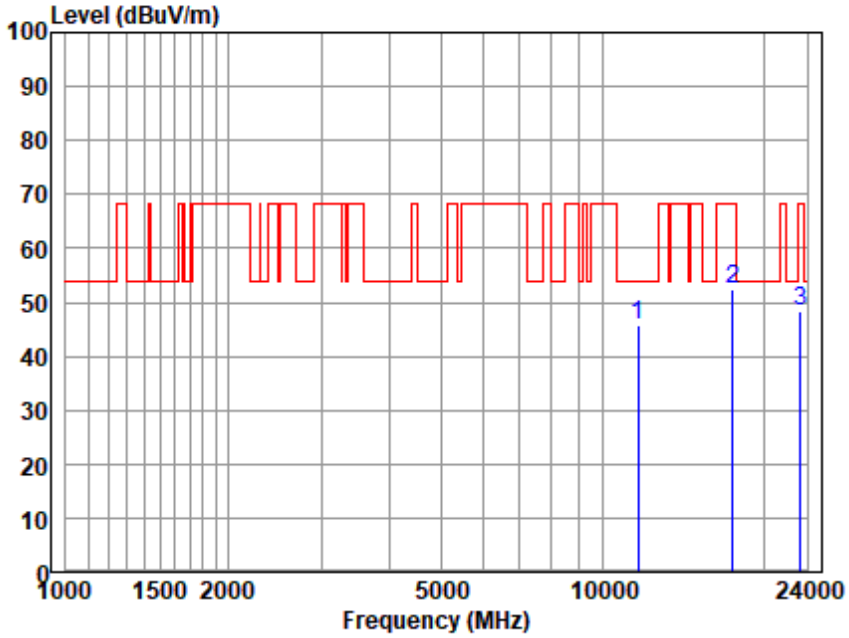


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11650.500	34.00	38.30	9.91	36.41	45.80	54.00	-8.20	Peak
17465.870	33.56	42.26	13.23	35.08	53.97	68.20	-14.23	Peak
23323.270	30.88	44.75	15.28	42.48	48.43	68.20	-19.77	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High

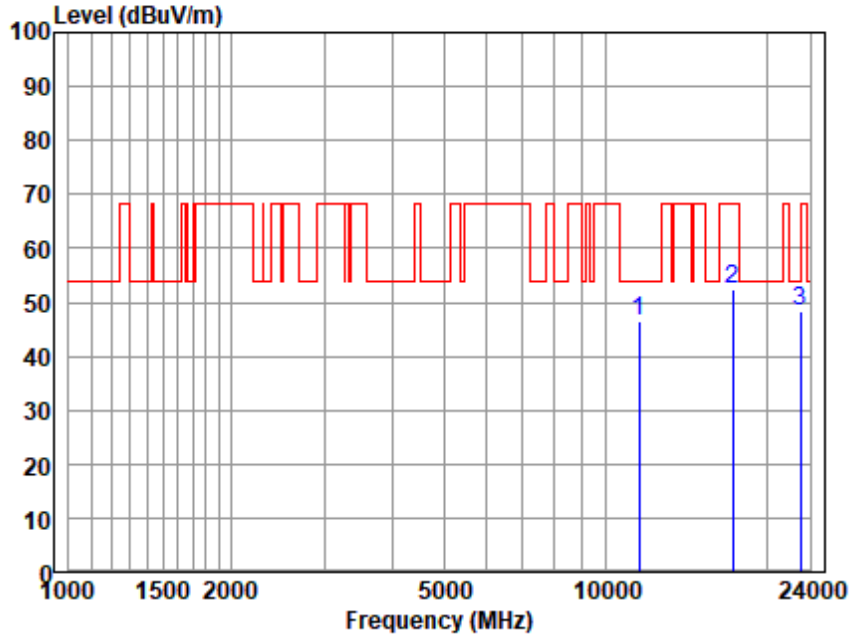


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11650.500	33.82	38.30	9.91	36.41	45.62	54.00	-8.38	Peak
17465.870	31.82	42.26	13.23	35.08	52.23	68.20	-15.97	Peak
23323.270	30.66	44.75	15.28	42.48	48.21	68.20	-19.99	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

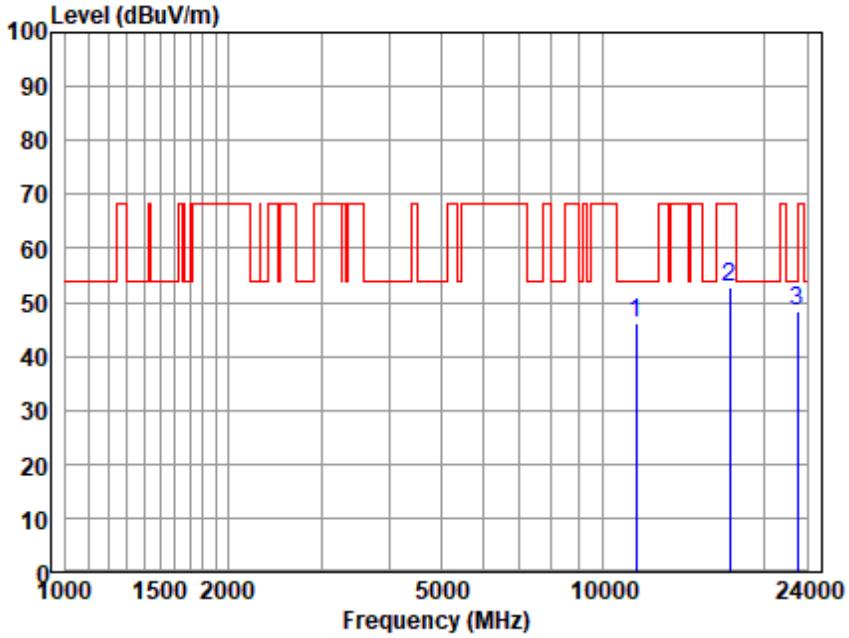


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11510.140	34.03	38.29	9.89	35.80	46.41	54.00	-7.59	Peak
17245.240	32.60	42.00	13.15	35.39	52.36	68.20	-15.84	Peak
23028.650	30.59	44.66	15.19	42.08	48.36	54.00	-5.64	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low

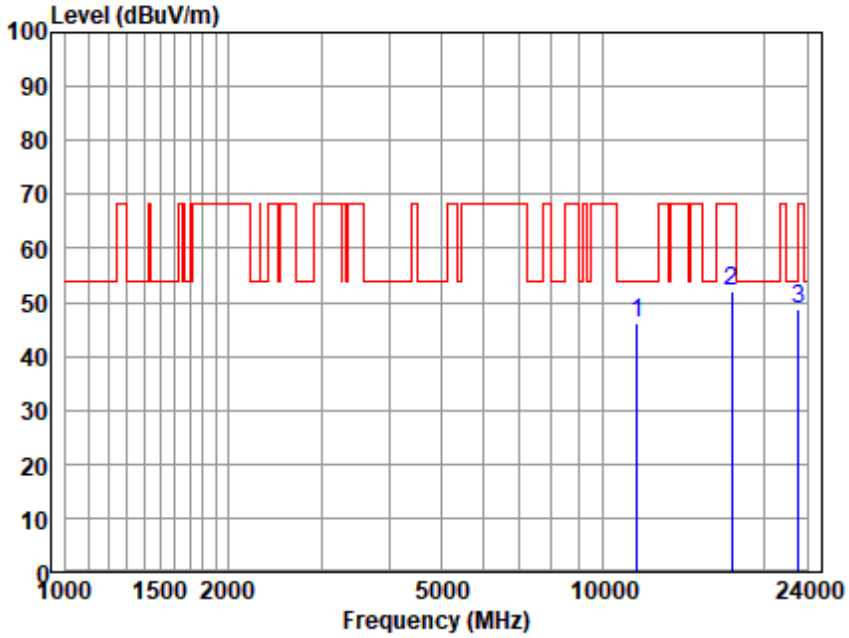


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11510.140	33.91	38.29	9.89	35.80	46.29	54.00	-7.71	Peak
17245.240	33.04	42.00	13.15	35.39	52.80	68.20	-15.40	Peak
23028.650	30.68	44.66	15.19	42.08	48.45	54.00	-5.55	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

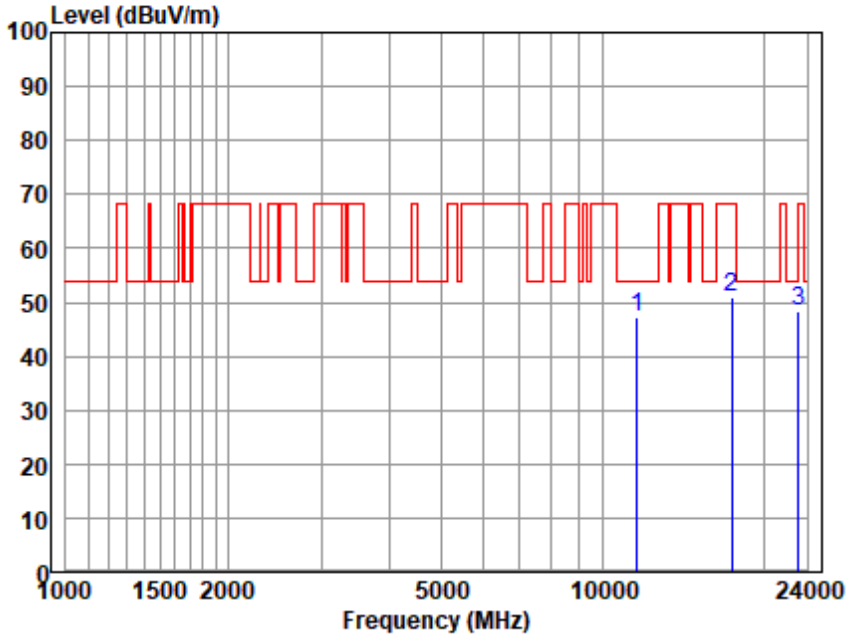


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11590.590	34.05	38.29	9.92	36.11	46.15	54.00	-7.85	Peak
17410.450	31.70	42.24	13.21	35.16	51.99	68.20	-16.21	Peak
23175.490	30.88	44.71	15.24	42.28	48.55	68.20	-19.65	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High

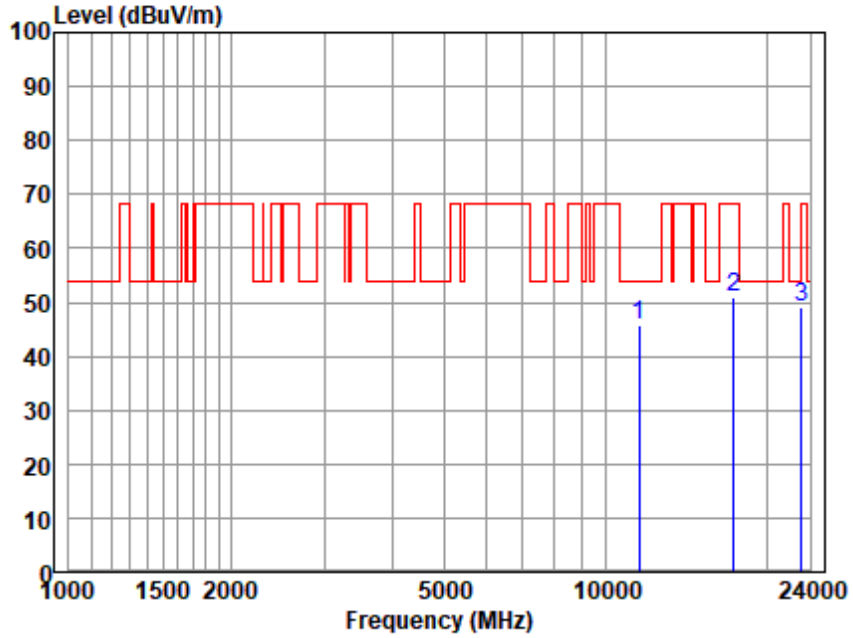


Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11590.590	35.18	38.29	9.92	36.11	47.28	54.00	-6.72	Peak
17410.450	30.77	42.24	13.21	35.16	51.06	68.20	-17.14	Peak
23175.490	30.53	44.71	15.24	42.28	48.20	68.20	-20.00	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low

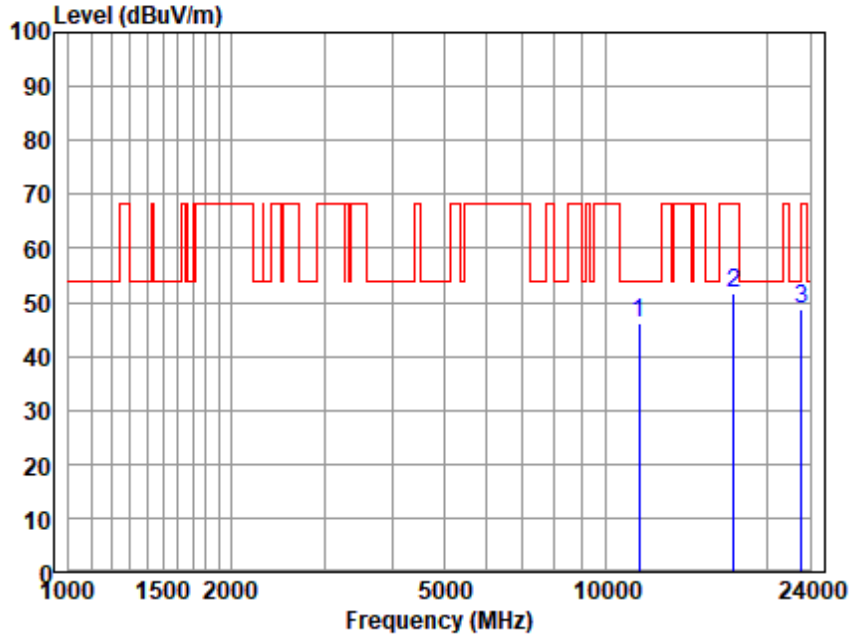


Antenna Polarity :HORIZONTAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11550.810	33.70	38.29	9.90	35.96	45.93	54.00	-8.07	Peak
17300.130	31.00	42.11	13.17	35.32	50.96	68.20	-17.24	Peak
23101.950	31.32	44.69	15.21	42.18	49.04	54.00	-4.96	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



Antenna Polarity :VERTICAL
EUT/Project :1038ME

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
11550.810	33.86	38.29	9.90	35.96	46.09	54.00	-7.91	Peak
17300.130	31.60	42.11	13.17	35.32	51.56	68.20	-16.64	Peak
23101.950	31.16	44.69	15.21	42.18	48.88	54.00	-5.12	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

Test Requirement 47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)

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.		

7.10.1 E.U.T. Operation

Operating Environment:

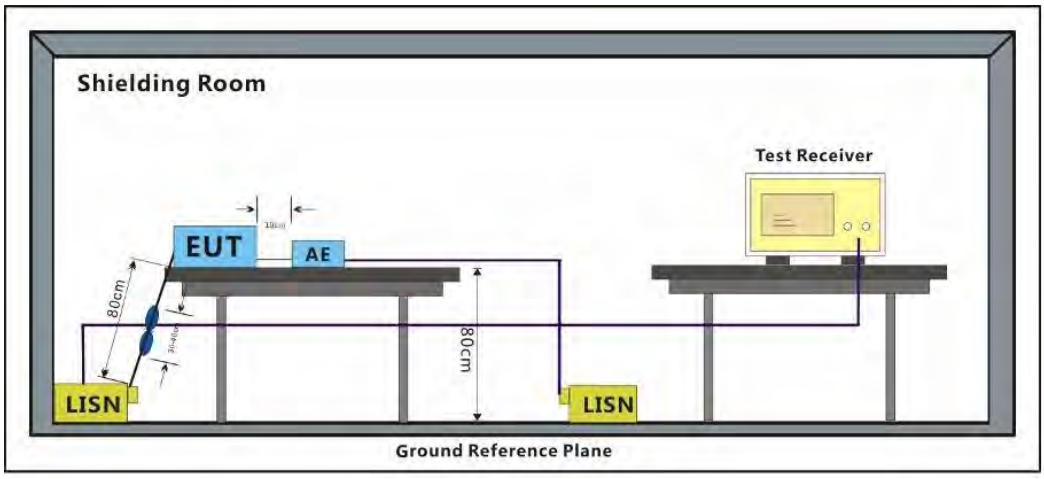
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.10.3 Test Setup Diagram



7.10.4 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,

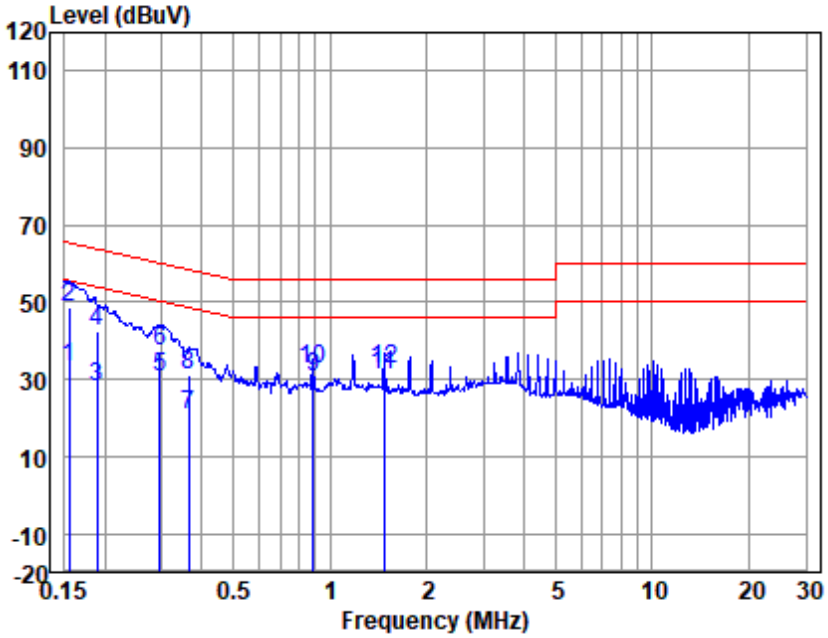
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test 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 1: Level=Read Level+ Cable Loss+ LISN Factor

Remark 2: Pre-test AC 120V/50-60Hz&AC 240V/50-60Hz then choose the AC 120/60Hz as worst case.

Test Mode: 01; Line: Live line

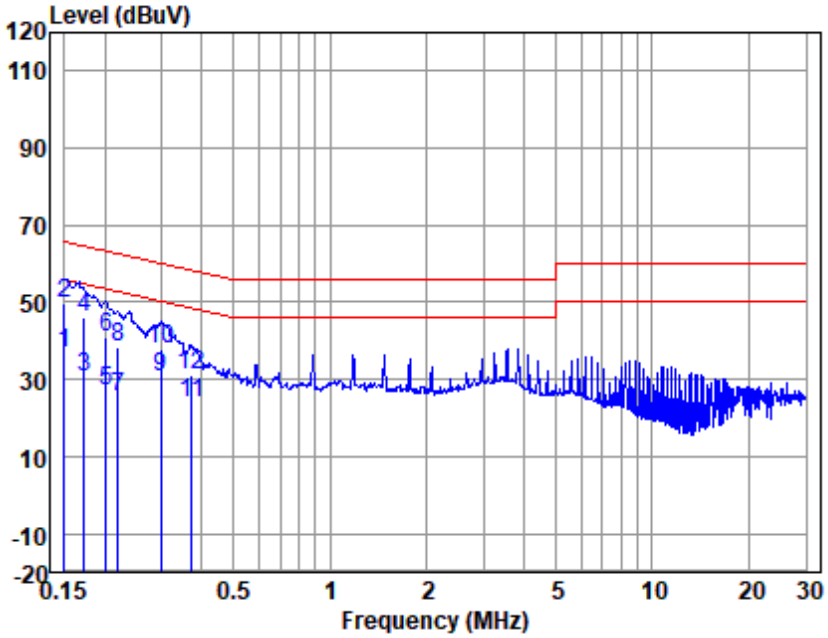


LISN : LINE
EUT/Project No : 1038ME
Test Mode : 01

	Freq	Read level	LISN Factor	Cable Loss	Emission Level	Limit	Over Limit	Remark
	(MHz)	(dBuV)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.15	22.83	0.50	9.90	33.23	55.74	-22.51	Average
2	0.15	38.54	0.50	9.90	48.94	65.74	-16.80	QP
3	0.19	17.52	0.50	9.90	27.92	54.06	-26.14	Average
4	0.19	32.34	0.50	9.90	42.74	64.06	-21.32	QP
5	0.30	20.32	0.42	9.90	30.64	50.37	-19.73	Average
6	0.30	27.25	0.42	9.90	37.57	60.37	-22.80	QP
7	0.36	10.47	0.37	9.90	20.74	48.65	-27.91	Average
8	0.36	20.87	0.37	9.90	31.14	58.65	-27.51	QP
9	0.88	20.65	0.30	9.90	30.85	46.00	-15.15	Average
10	0.88	22.72	0.30	9.90	32.92	56.00	-23.08	QP
11	1.47	21.13	0.30	9.90	31.33	46.00	-14.67	Average
12	1.47	22.64	0.30	9.90	32.84	56.00	-23.16	QP

Notes: Emission Level = Read Level +LISN Factor + Cable loss

Test Mode: 01; Line: Neutral Line



LISN : NEUTRAL
EUT/Project No : 1038ME
Test Mode : 01

	Freq	Read level	LISN Factor	Cable Loss	Emission Level	Limit	Over Limit	Remark
	(MHz)	(dBuV)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.15	26.29	0.44	9.90	36.63	56.00	-19.37	Average
2	0.15	39.53	0.44	9.90	49.87	66.00	-16.13	QP
3	0.17	20.52	0.42	9.90	30.84	54.86	-24.02	Average
4	0.17	35.89	0.42	9.90	46.21	64.86	-18.65	QP
5	0.20	16.55	0.40	9.90	26.85	53.54	-26.69	Average
6	0.20	30.46	0.40	9.90	40.76	63.54	-22.78	QP
7	0.22	15.03	0.40	9.90	25.33	52.83	-27.50	Average
8	0.22	28.08	0.40	9.90	38.38	62.83	-24.45	QP
9	0.30	20.45	0.40	9.90	30.75	50.28	-19.53	Average
10	0.30	27.52	0.40	9.90	37.82	60.28	-22.46	QP
11	0.37	13.51	0.40	9.90	23.81	48.47	-24.66	Average
12	0.37	20.68	0.40	9.90	30.98	58.47	-27.49	QP

Notes: Emission Level = Read Level +LISN Factor + Cable loss

7.11 Frequency Stability

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

Test Method: ANSI C63.10 (2013) Section 6.8

7.11.1 E.U.T. Operation

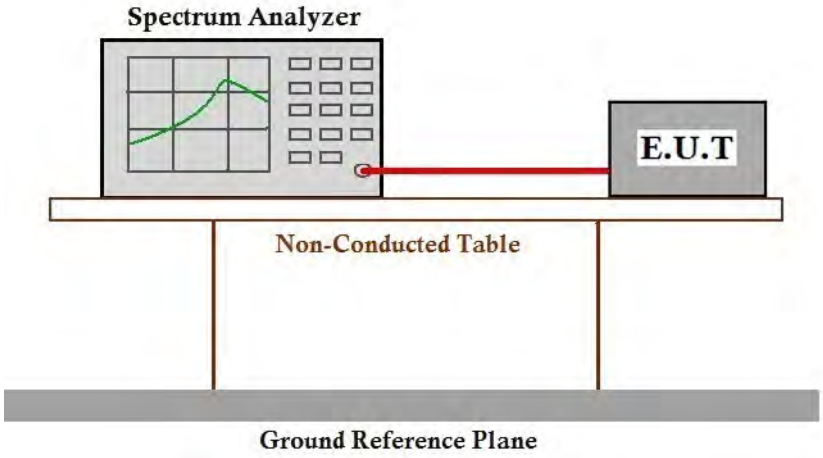
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.11.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_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.
Final test	02	TX mode (U-NII-2A) _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.
Final test	03	TX mode (U-NII-2C) _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.
Final test	04	TX mode (U-NII-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.

7.11.3 Test Setup Diagram



7.11.4 Measurement Procedure and Data

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2504001038ME

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2504001038ME

10 Appendix

10.1 Appendix A1: Emission Bandwidth

10.1.1 Test Result

Test Mode	Antenna	Channel	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.600	5169.160	5190.760	---	---
		5220	21.600	5209.120	5230.720	---	---
		5240	21.520	5229.160	5250.680	---	---
		5260	21.760	5249.160	5270.920	---	---
		5300	21.720	5289.120	5310.840	---	---
		5320	21.760	5309.160	5330.920	---	---
		5500	21.800	5489.040	5510.840	---	---
		5580	21.800	5569.040	5590.840	---	---
		5700	21.920	5689.000	5710.920	---	---
		5745	21.800	5734.080	5755.880	---	---
		5785	21.760	5774.120	5795.880	---	---
		5825	21.640	5814.040	5835.680	---	---
11N20SISO	Ant1	5180	21.680	5169.160	5190.840	---	---
		5220	21.840	5209.000	5230.840	---	---
		5240	21.920	5228.920	5250.840	---	---
		5260	21.920	5249.080	5271.000	---	---
		5300	21.760	5288.920	5310.680	---	---
		5320	22.120	5308.840	5330.960	---	---
		5500	22.000	5489.080	5511.080	---	---
		5580	21.840	5568.960	5590.800	---	---
		5700	21.480	5689.200	5710.680	---	---
		5745	21.720	5734.080	5755.800	---	---
		5785	22.000	5773.960	5795.960	---	---
		5825	22.000	5813.920	5835.920	---	---
11N40SISO	Ant1	5190	40.480	5169.760	5210.240	---	---
		5230	39.840	5210.000	5249.840	---	---
		5270	40.400	5249.760	5290.160	---	---
		5310	40.480	5289.760	5330.240	---	---
		5510	40.480	5489.680	5530.160	---	---
		5550	40.160	5530.000	5570.160	---	---
		5670	40.480	5649.760	5690.240	---	---
		5755	40.400	5734.760	5775.160	---	---
		5795	40.640	5774.600	5815.240	---	---
11AC20SISO	Ant1	5180	21.640	5169.200	5190.840	---	---
		5220	21.480	5209.240	5230.720	---	---

		5240	21.480	5229.280	5250.760	---	---
		5260	21.520	5249.200	5270.720	---	---
		5300	21.600	5289.120	5310.720	---	---
		5320	21.960	5309.080	5331.040	---	---
		5500	22.040	5488.800	5510.840	---	---
		5580	21.720	5569.000	5590.720	---	---
		5700	21.600	5689.200	5710.800	---	---
		5745	21.960	5733.960	5755.920	---	---
		5785	21.960	5774.000	5795.960	---	---
		5825	22.240	5813.800	5836.040	---	---
11AC40SISO	Ant1	5190	40.160	5169.920	5210.080	---	---
		5230	40.080	5209.840	5249.920	---	---
		5270	39.920	5250.000	5289.920	---	---
		5310	40.080	5289.840	5329.920	---	---
		5510	40.000	5489.920	5529.920	---	---
		5550	40.400	5529.760	5570.160	---	---
		5670	40.480	5649.760	5690.240	---	---
		5755	40.160	5734.840	5775.000	---	---
		5795	40.320	5774.680	5815.000	---	---
11AC80SISO	Ant1	5210	82.240	5168.880	5251.120	---	---
		5290	82.080	5249.360	5331.440	---	---
		5530	82.080	5488.880	5570.960	---	---
		5610	82.720	5568.880	5651.600	---	---
		5775	82.240	5733.720	5815.960	---	---

10.1.2 Test Graphs

11A_Ant1_5180

11A_Ant1_5220

11A_Ant1_5240

11A_Ant1_5260

11A_Ant1_5300

11A_Ant1_5320

11A_Ant1_5500

11A_Ant1_5580

11A_Ant1_5700

11A_Ant1_5745

11A_Ant1_5785

11A_Ant1_5825

11N20SISO_Ant1_5180

11N20SISO_Ant1_5220

11N20SISO_Ant1_5240

11N20SISO_Ant1_5260

11N20SISO_Ant1_5300

11N20SISO_Ant1_5320

11N20SISO_Ant1_5500

11N20SISO_Ant1_5580

11N20SISO_Ant1_5700

11N20SISO_Ant1_5745

11N20SISO_Ant1_5785

11N20SISO_Ant1_5825

11N40SISO_Ant1_5190

11N40SISO_Ant1_5230

11N40SISO_Ant1_5270

11N40SISO_Ant1_5310

11N40SISO_Ant1_5510

11N40SISO_Ant1_5550

11N40SISO_Ant1_5670

11N40SISO_Ant1_5755

11N40SISO_Ant1_5795

11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5220

11AC20SISO_Ant1_5240

11AC20SISO_Ant1_5260

11AC20SISO_Ant1_5300

11AC20SISO_Ant1_5320

11AC20SISO_Ant1_5500

11AC20SISO_Ant1_5580

11AC20SISO_Ant1_5700

11AC20SISO_Ant1_5745

11AC20SISO_Ant1_5785

11AC20SISO_Ant1_5825

11AC40SISO_Ant1_5190

11AC40SISO_Ant1_5230

11AC40SISO_Ant1_5270

11AC40SISO_Ant1_5310

11AC40SISO_Ant1_5510

11AC40SISO_Ant1_5550

11AC40SISO_Ant1_5670

11AC40SISO_Ant1_5755

11AC40SISO_Ant1_5795

11AC80SISO_Ant1_5210

11AC80SISO_Ant1_5290

11AC80SISO_Ant1_5530

11AC80SISO_Ant1_5610

11AC80SISO_Ant1_5775

10.2 Appendix A2: Occupied channel bandwidth

10.2.1 Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.521	5171.1846	5188.7056	---	---
		5220	17.613	5211.1301	5228.7431	---	---
		5240	17.593	5231.1464	5248.7394	---	---
		5260	17.868	5250.9705	5268.8385	---	---
		5300	17.787	5290.9551	5308.7421	---	---
		5320	17.809	5310.9461	5328.7551	---	---
		5500	17.675	5491.0602	5508.7352	---	---
		5580	17.889	5570.9443	5588.8333	---	---
		5700	17.879	5690.9945	5708.8735	---	---
		5745	17.732	5736.0451	5753.7771	---	---
		5785	17.856	5775.9901	5793.8461	---	---
		5825	17.742	5815.9949	5833.7369	---	---
11N20SISO	Ant1	5180	18.536	5170.6757	5189.2117	---	---
		5220	18.473	5210.7403	5229.2133	---	---
		5240	18.515	5230.7013	5249.2163	---	---
		5260	18.647	5250.6717	5269.3187	---	---
		5300	18.668	5290.5716	5309.2396	---	---
		5320	18.674	5310.5803	5329.2543	---	---
		5500	18.615	5490.6404	5509.2554	---	---
		5580	18.732	5570.5402	5589.2722	---	---
		5700	18.631	5690.6085	5709.2395	---	---
		5745	18.655	5735.6097	5754.2647	---	---
		5785	18.753	5775.5805	5794.3335	---	---
		5825	18.614	5815.6074	5834.2214	---	---
11N40SISO	Ant1	5190	36.904	5171.5976	5208.5016	---	---
		5230	36.719	5211.6448	5248.3638	---	---
		5270	36.914	5251.5484	5288.4624	---	---
		5310	36.969	5291.5214	5328.4904	---	---
		5510	36.889	5491.5306	5528.4196	---	---
		5550	36.927	5531.4888	5568.4158	---	---
		5670	37.073	5651.5257	5688.5987	---	---
		5755	36.978	5736.5557	5773.5337	---	---
		5795	37.000	5776.5722	5813.5722	---	---
11AC20SISO	Ant1	5180	18.203	5170.8922	5189.0952	---	---
		5220	18.184	5210.8709	5229.0549	---	---
		5240	18.167	5230.8746	5249.0416	---	---
		5260	18.262	5250.8101	5269.0721	---	---
		5300	18.702	5290.5664	5309.2684	---	---
		5320	18.647	5310.6033	5329.2503	---	---
		5500	18.618	5490.5673	5509.1853	---	---
		5580	18.754	5570.5316	5589.2856	---	---
		5700	18.627	5690.6604	5709.2874	---	---
		5745	18.649	5735.6068	5754.2558	---	---
		5785	18.752	5775.5655	5794.3175	---	---
		5825	18.728	5815.5139	5834.2419	---	---

11AC40SISO	Ant1	5190	36.821	5171.5542	5208.3752	---	---
		5230	36.740	5211.5515	5248.2915	---	---
		5270	36.775	5251.6129	5288.3879	---	---
		5310	36.705	5291.6124	5328.3174	---	---
		5510	36.781	5491.5168	5528.2978	---	---
		5550	36.892	5531.4162	5568.3082	---	---
		5670	36.899	5651.4901	5688.3891	---	---
		5755	36.800	5736.5699	5773.3699	---	---
		5795	36.877	5776.5653	5813.4423	---	---
11AC80SISO	Ant1	5210	76.245	5171.9642	5248.2092	---	---
		5290	75.909	5252.1316	5328.0406	---	---
		5530	75.967	5491.8309	5567.7979	---	---
		5610	76.190	5571.8939	5648.0839	---	---
		5775	76.215	5736.8631	5813.0781	---	---

10.2.2 Test Graphs

11A_Ant1_5180

11A_Ant1_5220

11A_Ant1_5240

11A_Ant1_5260

11A_Ant1_5300

11A_Ant1_5320

11A_Ant1_5500

11A_Ant1_5580

11A_Ant1_5700

11A_Ant1_5745

11A_Ant1_5785


11A_Ant1_5825


11N20SISO_Ant1_5180

11N20SISO_Ant1_5220

11N20SISO_Ant1_5240

11N20SISO_Ant1_5260

11N20SISO_Ant1_5300

11N20SISO_Ant1_5320

11N20SISO_Ant1_5500

11N20SISO_Ant1_5580

11N20SISO_Ant1_5700

11N20SISO_Ant1_5745

11N20SISO_Ant1_5785

11N20SISO_Ant1_5825

11N40SISO_Ant1_5190