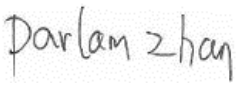
TEST REPORT

Application No.:	SHCR2212002802ME
FCC ID:	OU5VSM01
Applicant:	GE Medical Systems Information Technologies, Inc.
Address of Applicant:	9900 Innovation Drive, Wauwatosa, WI 53226 USA
Manufacturer:	GE Medical Systems Information Technologies, Inc.
Address of Manufacturer:	9900 Innovation Drive, Wauwatosa, WI 53226 USA
Equipment Under Test (EUT):	
EUT Name:	VSM WLAN module
Model No.:	VSM-WLAN-01
Trade Mark:	GE
Standard(s) :	47 CFR Part 15, Subpart E 15.407
	RSS-247 Issue 2, February 2017
	RSS-Gen Issue 5 Amendment 2 (February 2021)
Date of Receipt:	2022-12-22
Date of Test:	2023-03-06 to 2023-06-09
Date of Issue:	2023-06-12
Test Result:	**Pass***

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

Parlam Zhan
Laboratory Manager

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2023-06-12	/

Authorized for issue by:				
				
		Wade Zhang/Project Engineer		
				
		Parlam Zhan/Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**FCC Requirement**	**IC Requirement**	**Method**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15.203	RSS-Gen Clause 6.8	N/A	Pass
Transmission in the Absence of Data	47 CFR Part 15, Subpart C 15.407 (c)	RSS-247 Section 6.4(a)	N/A	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	**FCC Requirement**	**IC Requirement**	**Method**	**Result**
99% Bandwidth	N/A	RSS-Gen Section 6.7	KDB 789033 II D	Pass
26dB Emission bandwidth	47 CFR Part 15, Subpart C 15.407 (a)	RSS-247 Section 6.2.1(1)	KDB 789033 D02 II C 1	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	47 CFR Part 15, Subpart C 15.407 (e)	RSS-247 Section 6.2.4	KDB 789033 D02 II C 2	Pass
Maximum Conducted output power	47 CFR Part 15, Subpart C 15.407 (a)	RSS-247 Section 6.2.1&6.2.2&6.2.3&6.2.4	KDB 789033 D02 II E	Pass
Peak Power spectrum density	47 CFR Part 15, Subpart C 15.407 (a)	RSS-247 Section 6.2.1&6.2.2&6.2.3& 6.2.4	KDB 789033 D02 II F	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	RSS-247 Section 3.3 & RSS-Gen Section 8.9	KDB 789033 D02 II G	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	RSS-247 Section 3.3 & RSS-Gen Section 8.9	KDB 789033 D02 II G	Pass

3 Contents

Page

1 COVER PAGE 1

2 TEST SUMMARY 3

3 CONTENTS 4

4 GENERAL INFORMATION 6

4.1 DETAILS OF E.U.T. 6
4.2 DESCRIPTION OF SUPPORT UNITS 6
4.3 POWER LEVEL SETTING USING IN TEST: 6
4.4 MEASUREMENT UNCERTAINTY & DECISION RULE 7
4.5 TEST LOCATION 7
4.6 TEST FACILITY 8
4.7 DEVIATION FROM STANDARDS 8
4.8 ABNORMALITIES FROM STANDARD CONDITIONS 8

5 EQUIPMENT LIST 9

6 RADIO SPECTRUM TECHNICAL REQUIREMENT 10

6.1 ANTENNA REQUIREMENT 10
6.1.1 Test Requirement: *10*
6.1.2 Conclusion *10*
6.2 TRANSMISSION IN THE ABSENCE OF DATA 11
6.2.1 Test Requirement: *11*
6.2.2 Conclusion *11*

7 RADIO SPECTRUM MATTER TEST RESULTS 12

7.1 DUTY CYCLE 12
7.1.1 E.U.T. Operation *12*
7.1.2 Test Mode Description *12*
7.1.3 Test Setup Diagram *13*
7.1.4 Measurement Procedure and Data *13*
7.2 26DB EMISSION BANDWIDTH 16
7.2.1 E.U.T. Operation *16*
7.2.2 Test Mode Description *16*
7.2.3 Test Setup Diagram *17*
7.2.4 Measurement Procedure and Data *17*
7.3 MINIMUM 6 DB BANDWIDTH (5.725-5.85 GHZ BAND) 18
7.3.1 E.U.T. Operation *18*
7.3.2 Test Mode Description *18*
7.3.3 Test Setup Diagram *18*
7.3.4 Measurement Procedure and Data *18*
7.4 MAXIMUM CONDUCTED OUTPUT POWER 19
7.4.1 E.U.T. Operation *19*
7.4.2 Test Mode Description *19*
7.4.3 Test Setup Diagram *20*

7.4.4 Measurement Procedure and Data....20
7.5 PEAK POWER SPECTRUM DENSITY....21
7.5.1 E.U.T. Operation....21
7.5.2 Test Mode Description....21
7.5.3 Test Setup Diagram....22
7.5.4 Measurement Procedure and Data....22
7.6 RADIATED EMISSIONS (ABOVE 1GHZ)....23
7.6.1 E.U.T. Operation....23
7.6.2 Test Mode Description....23
7.6.3 Test Setup Diagram....24
7.6.4 Measurement Procedure and Data....25
7.7 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS....92
7.7.1 E.U.T. Operation....92
7.7.2 Test Mode Description....93
7.7.3 Test Setup Diagram....93
7.7.4 Measurement Procedure and Data....94
7.8 FREQUENCY STABILITY....125
7.8.1 E.U.T. Operation....125
7.8.2 Test Mode Description....125
7.8.3 Test Setup Diagram....126
7.8.4 Measurement Procedure and Data....126
7.9 RADIATED EMISSIONS (BELOW 1GHZ)....127
7.9.1 E.U.T. Operation....127
7.9.2 Test Mode Description....127
7.9.3 Test Setup Diagram....128
7.9.4 Measurement Procedure and Data....129

8 TEST SETUP PHOTO....132

9 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)....132

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.3V
Test Voltage:	DC 3.3V
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)
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing:	802.11a/n(HT20): 20MHz; 802.11n(HT40): 40MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	PCB Antenna
Antenna Gain:	Antenna 1: 2.38dBi (Provided by manufacturer) Antenna 2: 1dBi (Provided by manufacturer)
Date Rate:	802.11a:6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-MCS7

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	L460	-
SecureCRT	VanDyke	V 6.2.0	-
Serial port adapter plate	-	Test Plate 3	-

4.3 Power level setting using in test:

Channel	802.11a	802.11n (HT20)	802.11n (HT40)
UNII Band 1	5	5	5
UNII Band 2A	5	5	5
UNII Band 2C	5	5	5
UNII Band 3	5	5	5

4.4 Measurement Uncertainty & Decision Rule

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).

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	2022-12-20	2023-12-19
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2022-12-20	2023-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2022-08-02	2023-08-01
Signal Generator	R&S	SMR20	SHEM006-1	2022-08-02	2023-08-01
Signal Generator	Agilent	N5182A	SHEM182-1	2022-08-02	2023-08-01
Communication Tester	R&S	CMW270	SHEM183-1	2022-07-25	2023-07-24
Communication Tester	R&S	CMW500	SHEM268-1	2022-07-25	2023-07-24
Power Sensor	Keysight	U2021XA * 4	SHEM184-1	2022-08-02	2023-08-01
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2022-11-08	2024-11-07
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2022-12-20	2023-12-19
DC Power Supply	MCH	MCH-303A	SHEM210-1	2022-12-20	2023-12-19
Conducted test Cable	/	RF01~RF04	/	2022-12-20	2023-12-19
Switcher	Tonscend	JS0806	SHEM184-1	2022-08-02	2023-08-01
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
Coaxial Cable	TST		SHEM263-1	2022-08-02	2023-08-01
Test software	TST	TST PASS	Version: 2.0	/	/
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2022-12-20	2023-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2022-12-20	2023-12-19
Communication Tester	R&S	CMW500	SHEM268-1	2022-07-25	2023-07-24
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2022-12-20	2023-12-19
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2021-09-11	2023-09-10
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2022-05-07	2024-05-06
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2022/8/11	2024-08-10
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2021-09-18	2023-09-17
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2021-09-18	2023-09-17
Pre-Amplifier	HP	8447D	SHEM236-1	2022-08-02	2023-08-01
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2022-12-20	2023-12-19
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	2021-05-25	2024-05-24
RE test Cable	/	RE01, RE02, RE06	/	2023-01-07	2024-01-06
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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is PCB antenna and no consideration of replacement. The best case gain is 2.38dBi of antenna 1, and 1dBi of antenna 2.

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

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 Duty Cycle

Test Requirement KDB 789033 D02 II B 1

Test Method: KDB 789033 II B 1

7.1.1 E.U.T. Operation

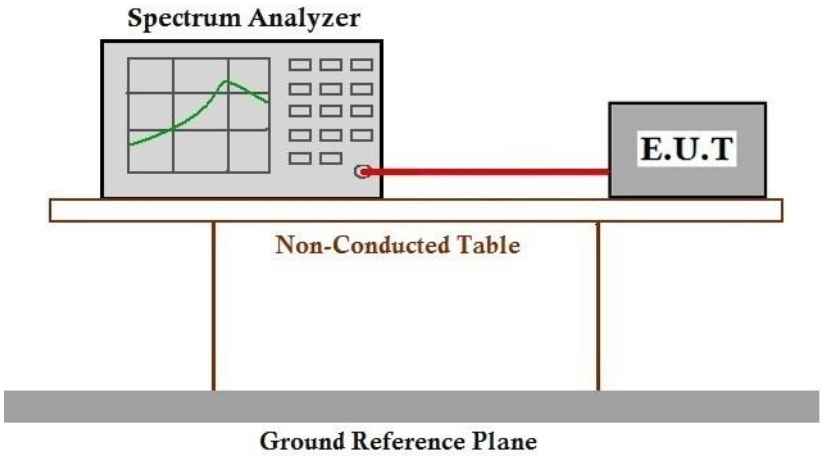
Operating Environment:

Temperature: 22.1 °C Humidity: 37.0 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.2 99% Bandwidth

Test Requirement N/A
Test Method: KDB 789033 II D

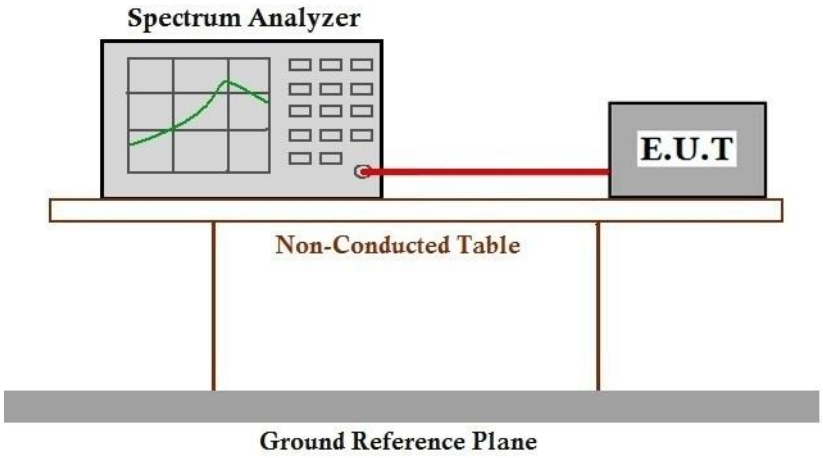
7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 22.1 °C Humidity: 37.0 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. 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 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)
Test Method: KDB 789033 D02 II C 1

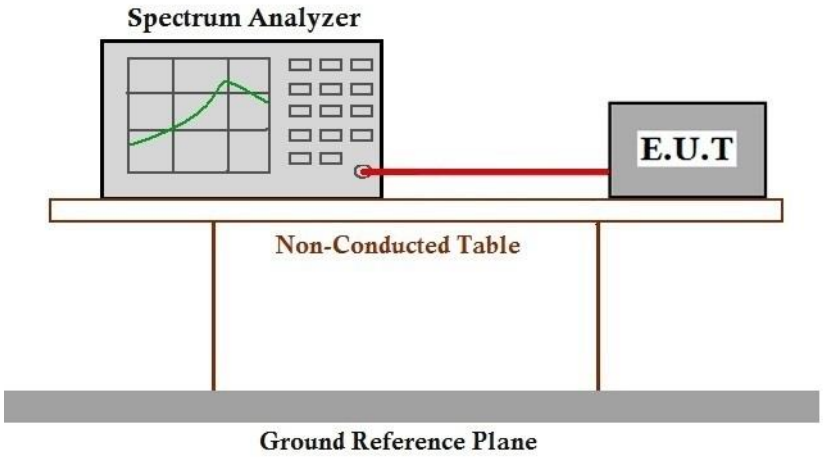
7.3.1 E.U.T. Operation

Operating Environment:
Temperature: 22.1 °C Humidity: 36.9 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. 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 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

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

Test Method: KDB 789033 D02 II C 2

Limit:

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

7.4.1 E.U.T. Operation

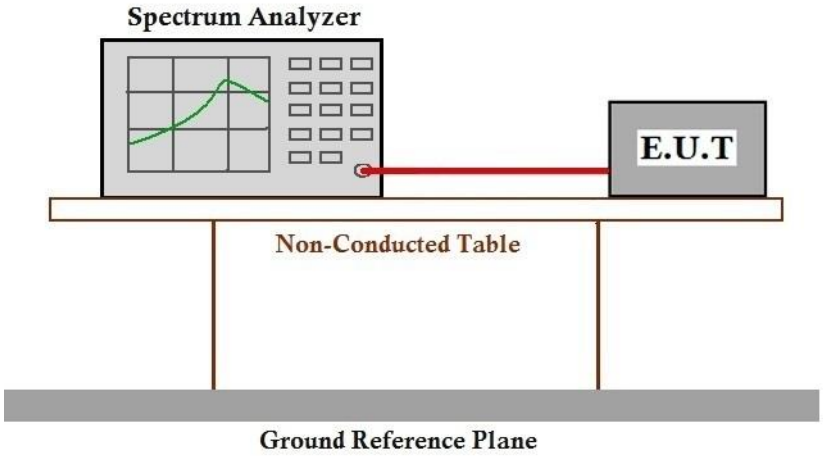
Operating Environment:

Temperature: 22.1 °C Humidity: 36.8 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	07	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), final test modes are considering the modulation and worse data rates. 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 Maximum Conducted output power

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

Test Method: KDB 789033 D02 II E

Limit:

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device 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.

7.5.1 E.U.T. Operation

Operating Environment:

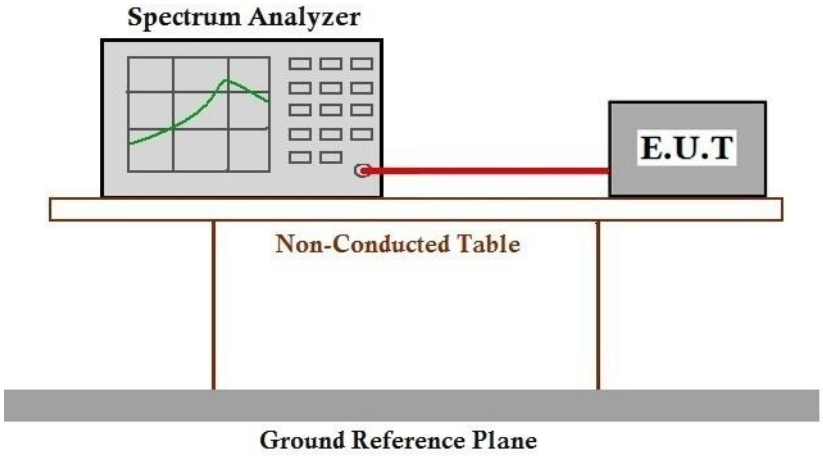
Temperature: 22.1 °C Humidity: 36.9 % RH Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	TX mode (U-NII-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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

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

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: KDB 789033 D02 II F

Limit:

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

7.6.1 E.U.T. Operation

Operating Environment:

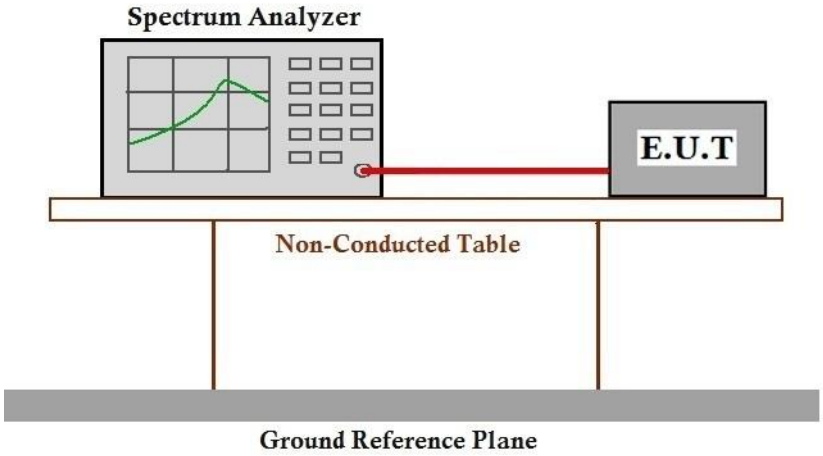
Temperature: 22.1 °C Humidity: 36.7 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 Radiated Emissions (Above 1GHz)

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

Test Method: KDB 789033 D02 II G

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1GHz	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:

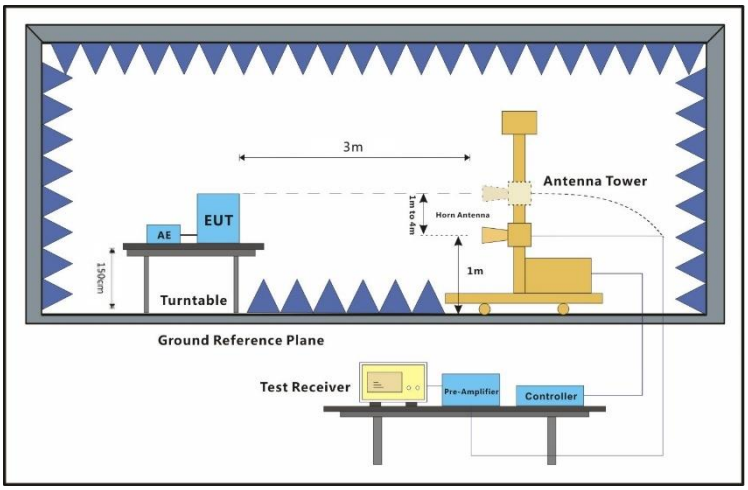
Temperature: 22.1 °C Humidity: 36.8 % RH Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. 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 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

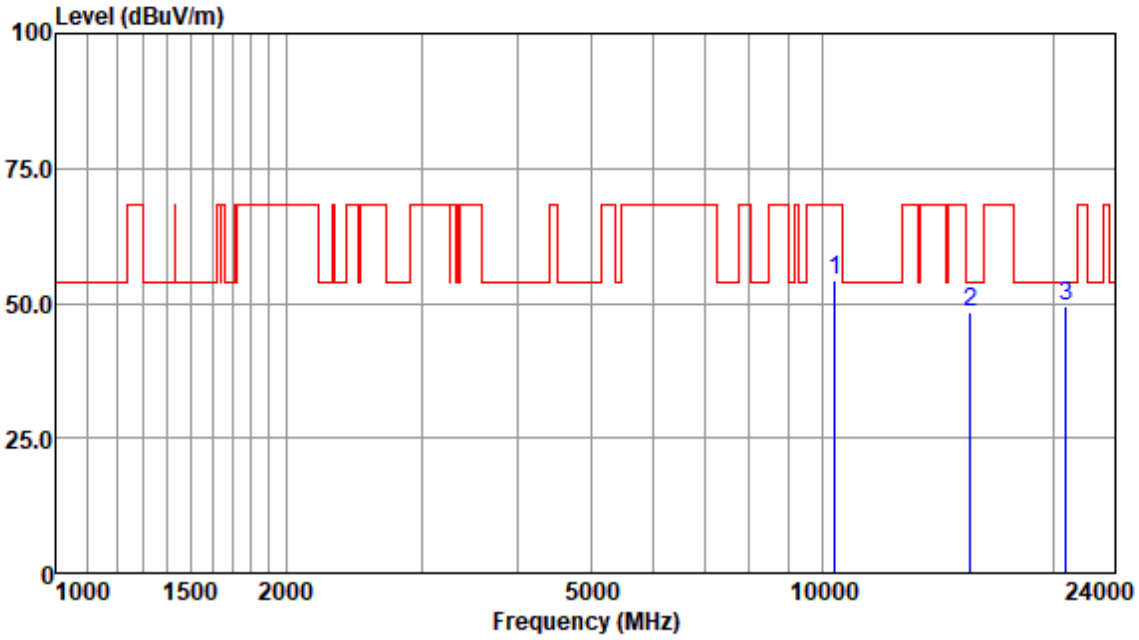
2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit 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.

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

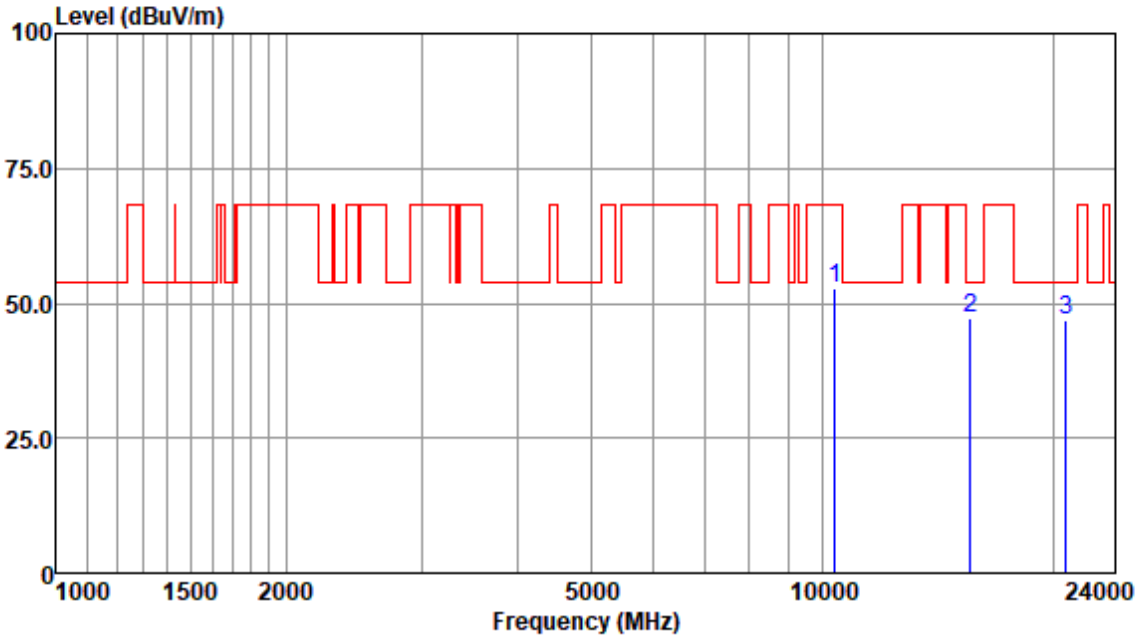


Antenna Polarity :HORIZONTAL

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	
10360.00	47.20	34.93	6.53	34.40	54.26	68.20	-13.94	Peak
15540.00	37.73	37.43	9.99	36.78	48.37	54.00	-5.63	Peak
20720.00	30.02	43.41	11.90	36.05	49.28	54.00	-4.72	Peak

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

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

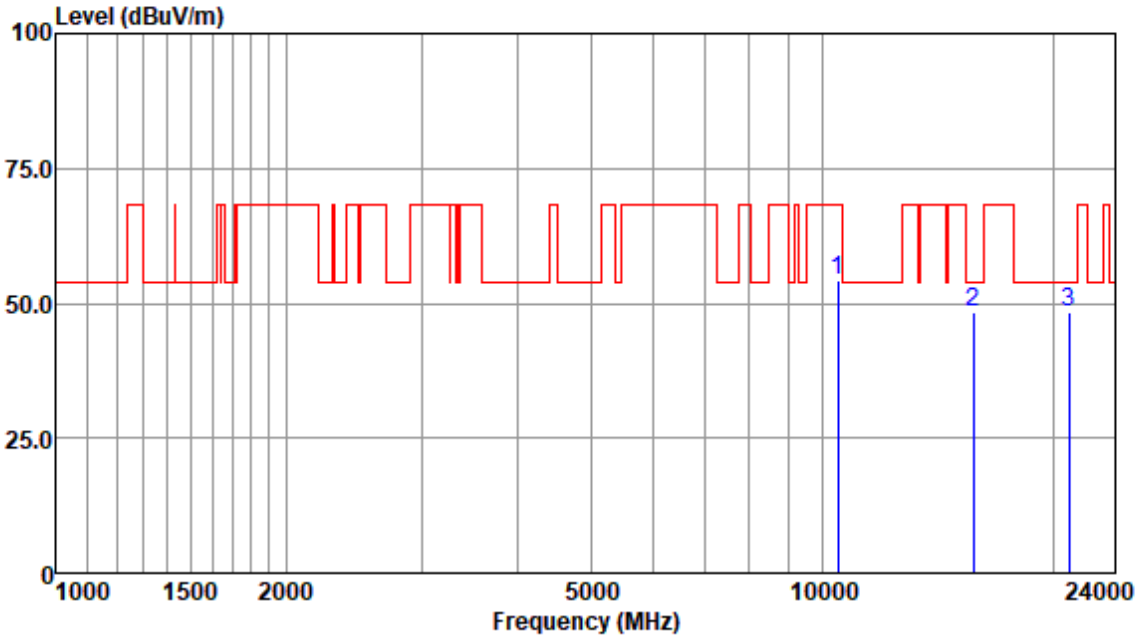


Antenna Polarity :VERTICAL

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	
10360.00	45.58	34.93	6.53	34.40	52.64	68.20	-15.56	Peak
15540.00	36.65	37.43	9.99	36.78	47.29	54.00	-6.71	Peak
20720.00	27.78	43.41	11.90	36.05	47.04	54.00	-6.96	Peak

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

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

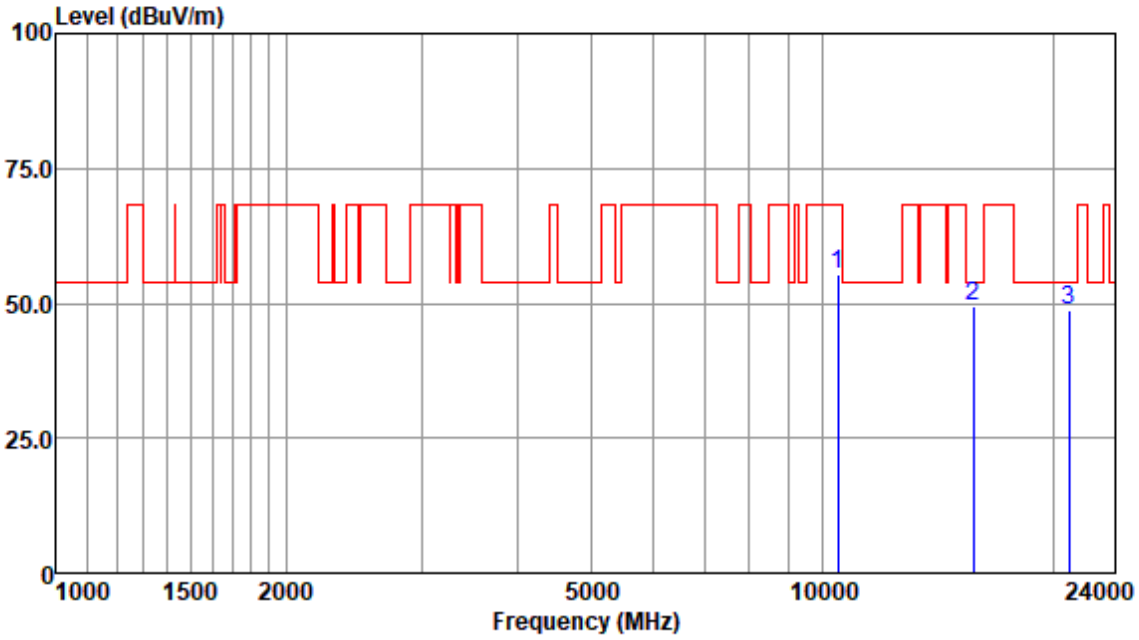


Antenna Polarity :HORIZONTAL

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	
10440.00	47.14	34.92	6.56	34.46	54.16	68.20	-14.04	Peak
15660.00	37.20	37.51	10.11	36.63	48.19	54.00	-5.81	Peak
20880.00	28.87	43.48	11.97	36.05	48.27	54.00	-5.73	Peak

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

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

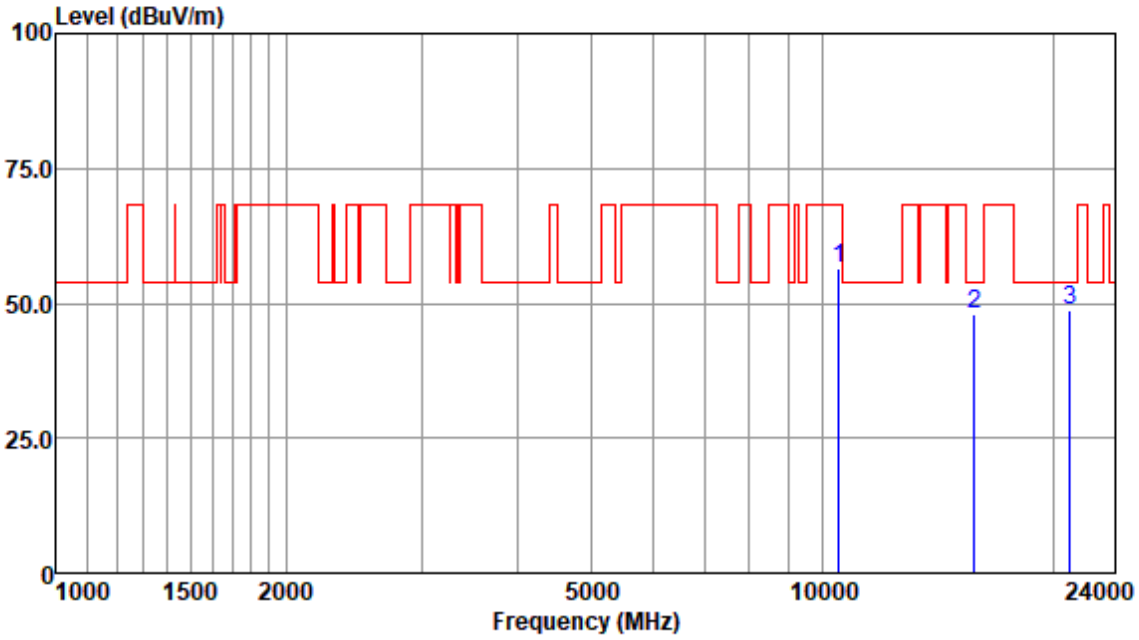


Antenna Polarity :VERTICAL

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	
10440.00	48.15	34.92	6.56	34.46	55.17	68.20	-13.03	Peak
15660.00	38.37	37.51	10.11	36.63	49.36	54.00	-4.64	Peak
20880.00	29.24	43.48	11.97	36.05	48.64	54.00	-5.36	Peak

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

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

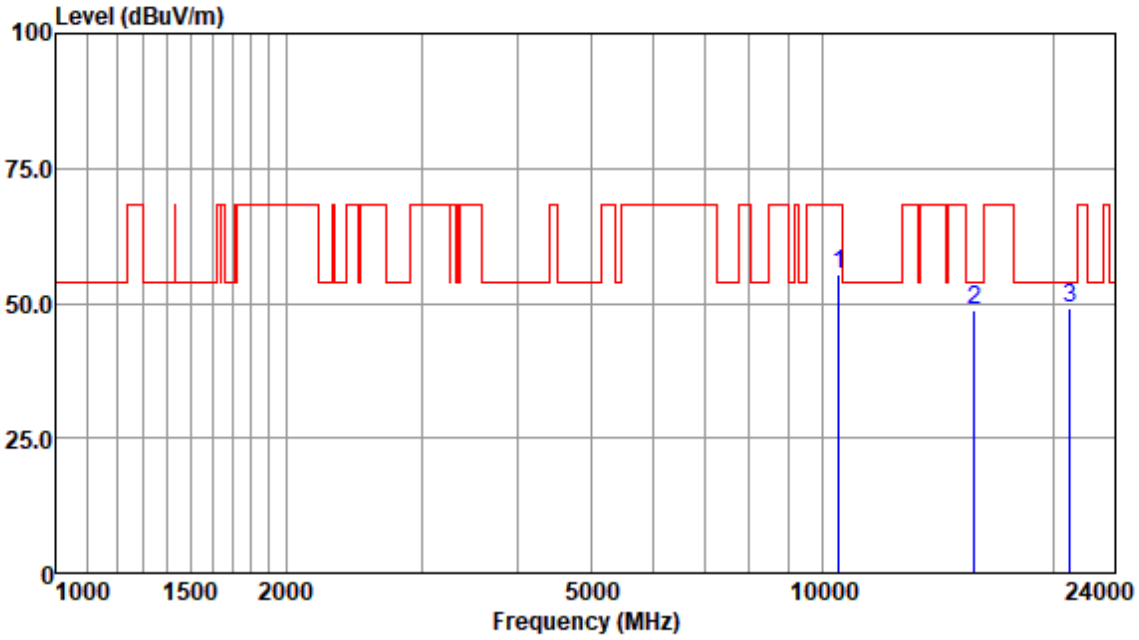


Antenna Polarity :HORIZONTAL

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	
10480.00	49.24	34.95	6.58	34.48	56.29	68.20	-11.91	Peak
15720.00	37.28	37.54	9.80	36.58	48.04	54.00	-5.96	Peak
20960.00	29.21	43.52	12.00	36.06	48.67	54.00	-5.33	Peak

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

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

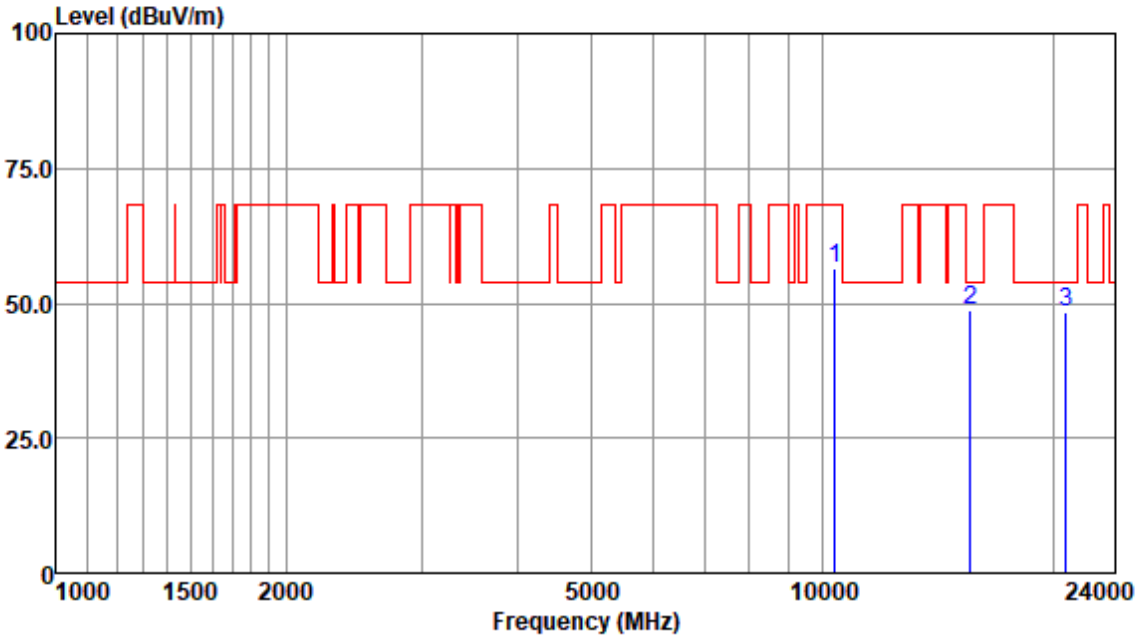


Antenna Polarity :VERTICAL

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	
10480.00	48.12	34.95	6.58	34.48	55.17	68.20	-13.03	Peak
15720.00	37.90	37.54	9.80	36.58	48.66	54.00	-5.34	Peak
20960.00	29.46	43.52	12.00	36.06	48.92	54.00	-5.08	Peak

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

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



Antenna Polarity :HORIZONTAL

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	
10360.00	49.33	34.93	6.53	34.40	56.39	68.20	-11.81	Peak
15540.00	38.23	37.43	9.99	36.78	48.87	54.00	-5.13	Peak
20720.00	28.96	43.41	11.90	36.05	48.22	54.00	-5.78	Peak

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

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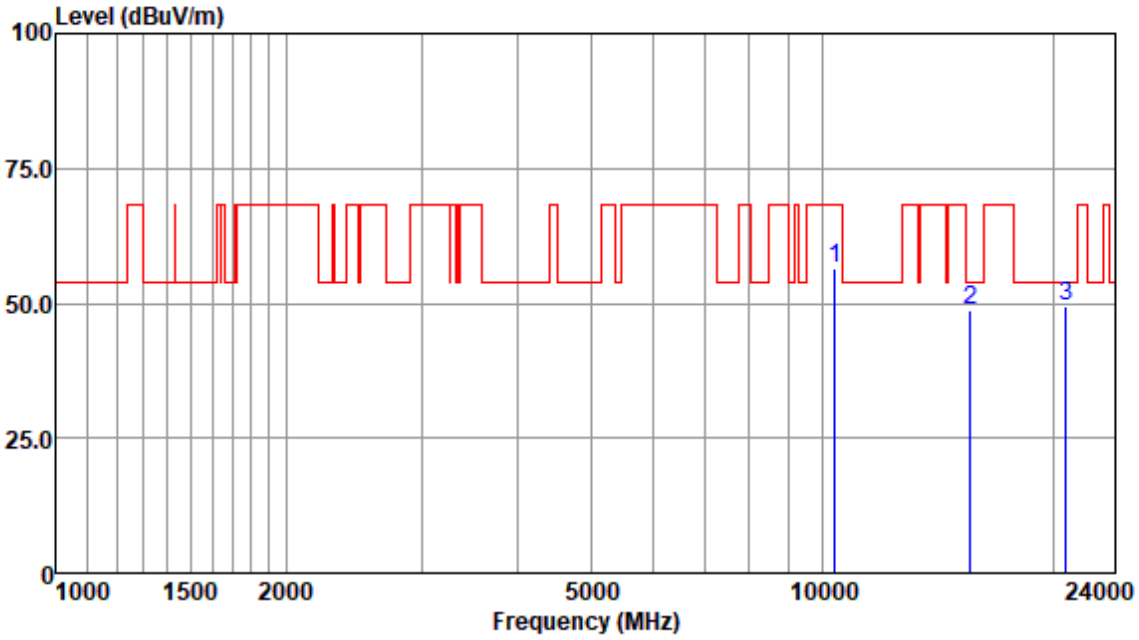
Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

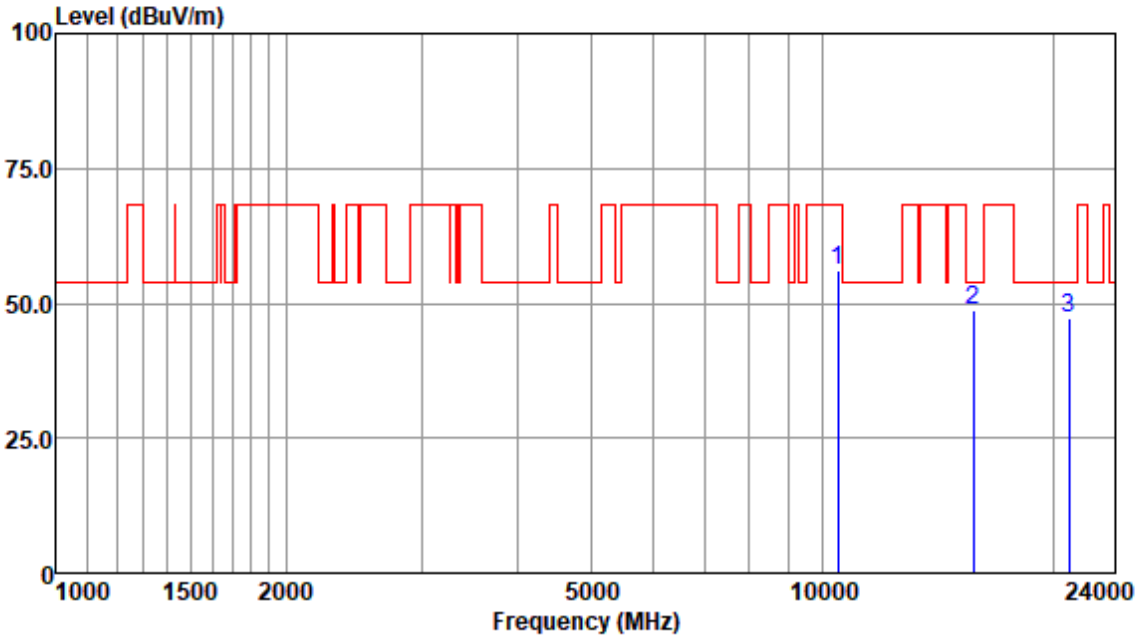


Antenna Polarity :VERTICAL

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	
10360.00	49.32	34.93	6.53	34.40	56.38	68.20	-11.82	Peak
15540.00	38.10	37.43	9.99	36.78	48.74	54.00	-5.26	Peak
20720.00	30.20	43.41	11.90	36.05	49.46	54.00	-4.54	Peak

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

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

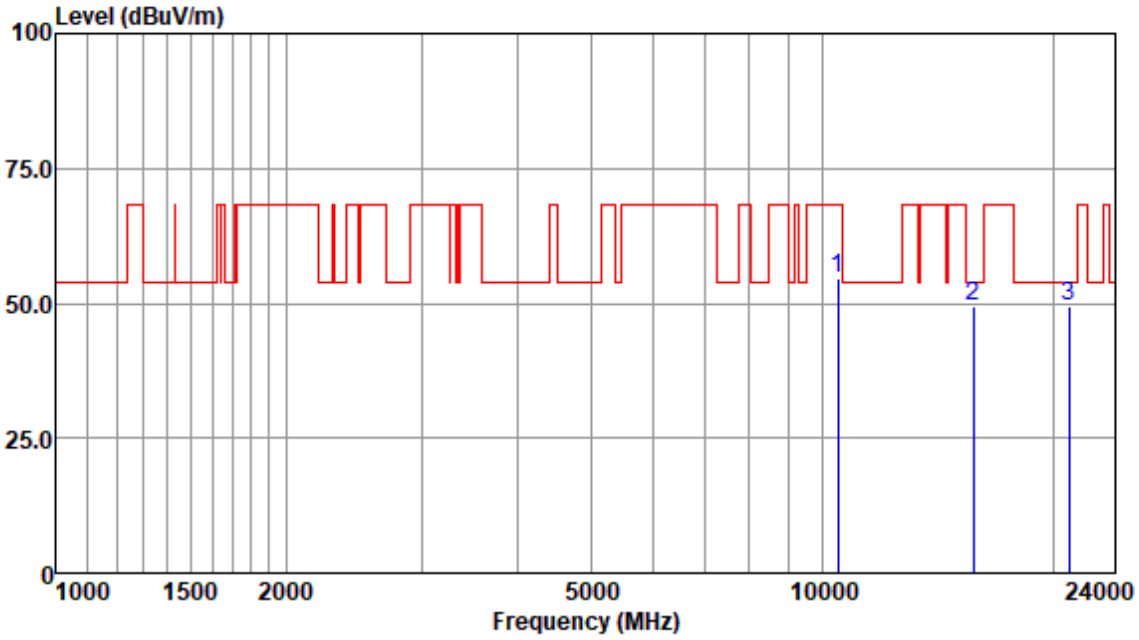


Antenna Polarity :HORIZONTAL

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	
10440.00	49.15	34.92	6.56	34.46	56.17	68.20	-12.03	Peak
15660.00	37.66	37.51	10.11	36.63	48.65	54.00	-5.35	Peak
20880.00	27.93	43.48	11.97	36.05	47.33	54.00	-6.67	Peak

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

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

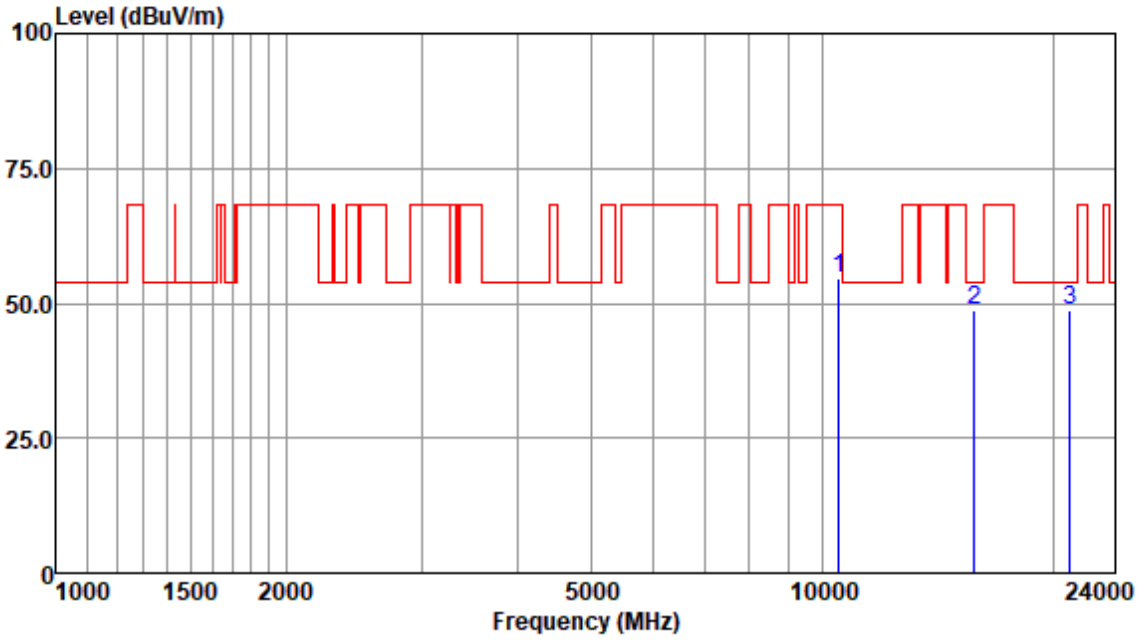


Antenna Polarity :VERTICAL

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	
10440.00	47.76	34.92	6.56	34.46	54.78	68.20	-13.42	Peak
15660.00	38.37	37.51	10.11	36.63	49.36	54.00	-4.64	Peak
20880.00	30.15	43.48	11.97	36.05	49.55	54.00	-4.45	Peak

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

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

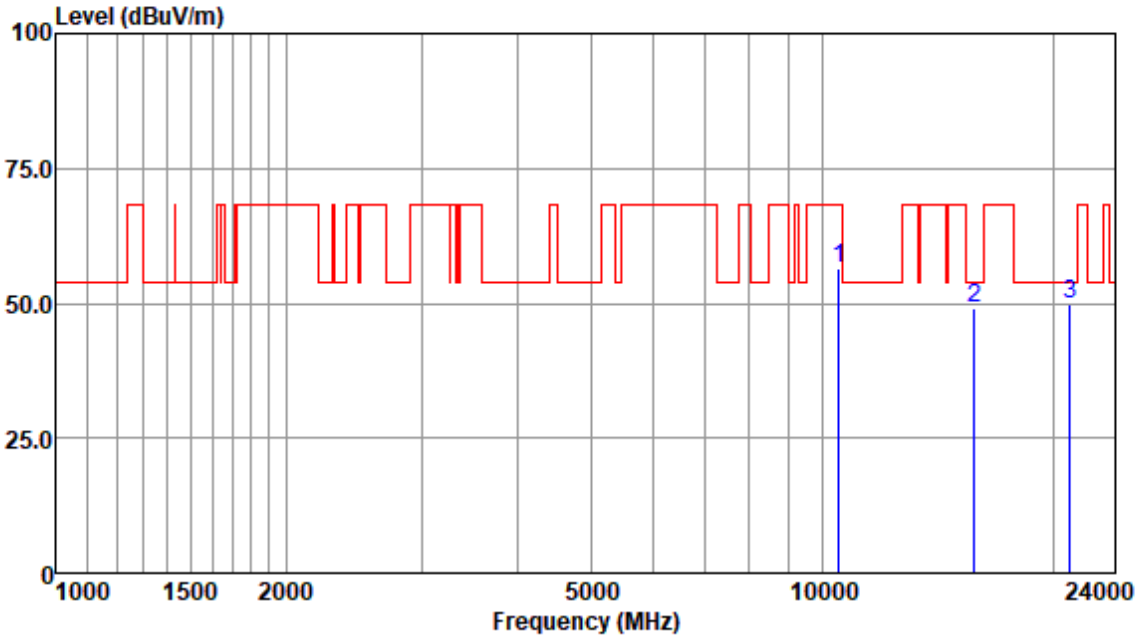


Antenna Polarity :HORIZONTAL

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	
10480.00	47.47	34.95	6.58	34.48	54.52	68.20	-13.68	Peak
15720.00	37.87	37.54	9.80	36.58	48.63	54.00	-5.37	Peak
20960.00	29.13	43.52	12.00	36.06	48.59	54.00	-5.41	Peak

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

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

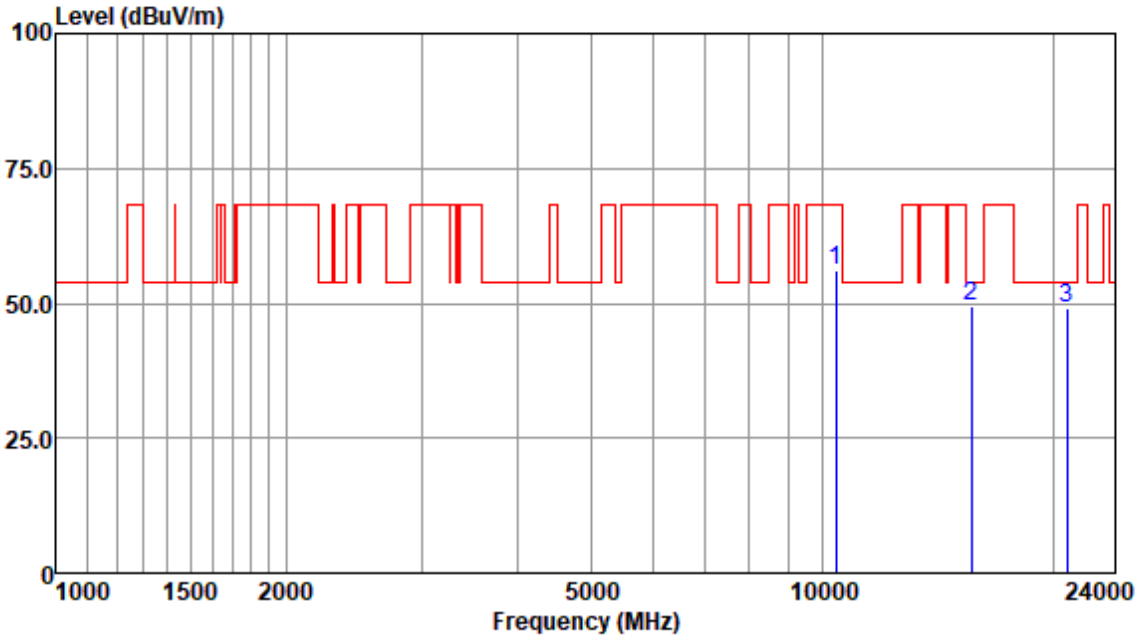


Antenna Polarity :VERTICAL

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	
10480.00	49.28	34.95	6.58	34.48	56.33	68.20	-11.87	Peak
15720.00	38.43	37.54	9.80	36.58	49.19	54.00	-4.81	Peak
20960.00	30.25	43.52	12.00	36.06	49.71	54.00	-4.29	Peak

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

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

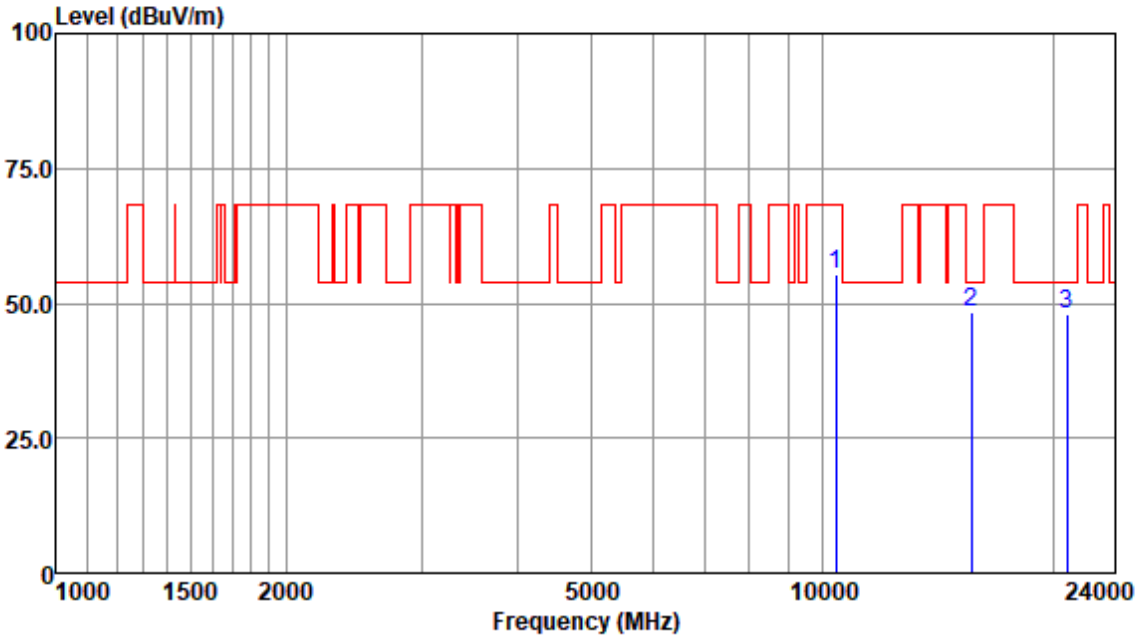


Antenna Polarity :HORIZONTAL

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	
10380.00	49.20	34.93	6.53	34.40	56.26	68.20	-11.94	Peak
15570.00	38.88	37.45	10.03	36.73	49.63	54.00	-4.37	Peak
20760.00	29.85	43.41	11.90	36.05	49.11	54.00	-4.89	Peak

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

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

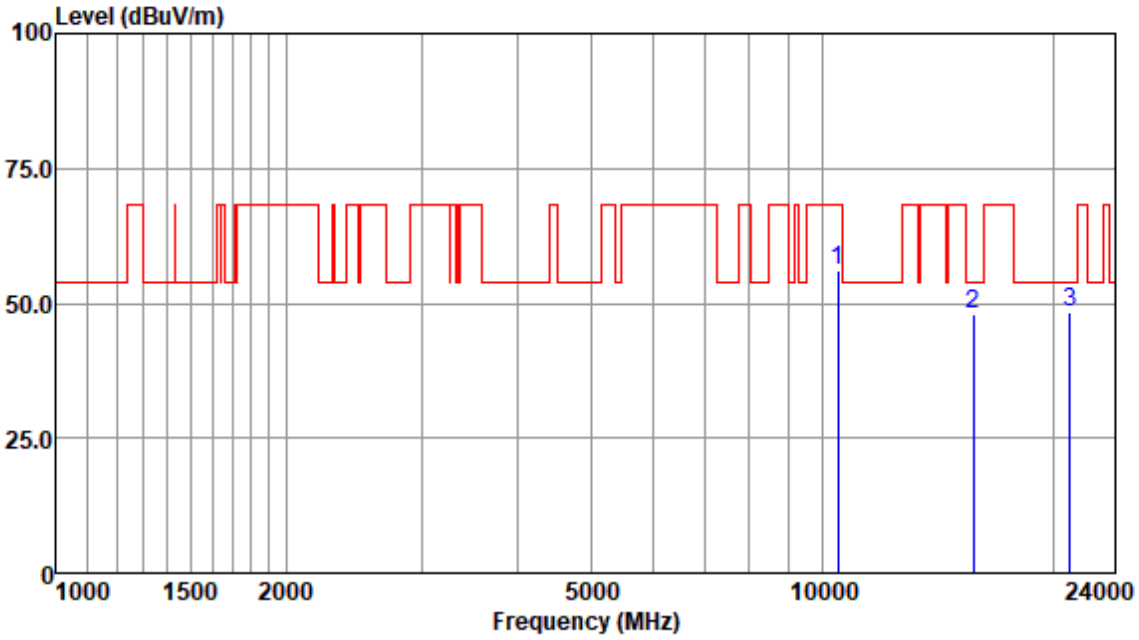


Antenna Polarity :VERTICAL

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	
10380.00	48.30	34.93	6.53	34.40	55.36	68.20	-12.84	Peak
15570.00	37.73	37.45	10.03	36.73	48.48	54.00	-5.52	Peak
20760.00	28.79	43.41	11.90	36.05	48.05	54.00	-5.95	Peak

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

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



Antenna Polarity :HORIZONTAL

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	
10460.00	49.21	34.95	6.58	34.48	56.26	68.20	-11.94	Peak
15690.00	37.10	37.51	10.11	36.63	48.09	54.00	-5.91	Peak
20920.00	28.91	43.52	12.00	36.06	48.37	54.00	-5.63	Peak

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

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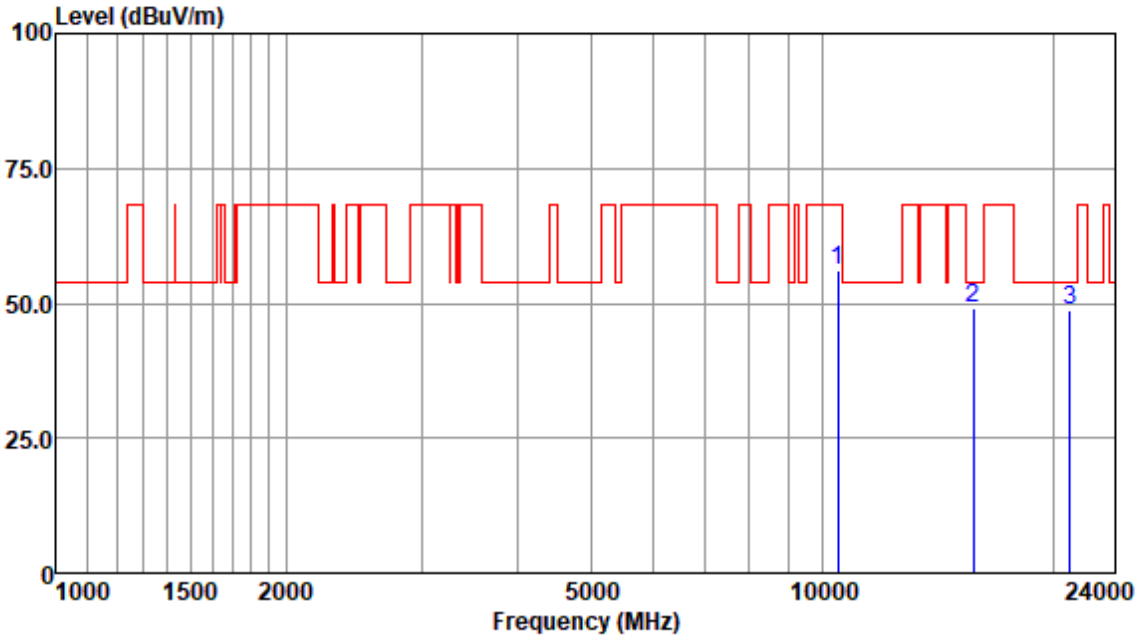
Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High

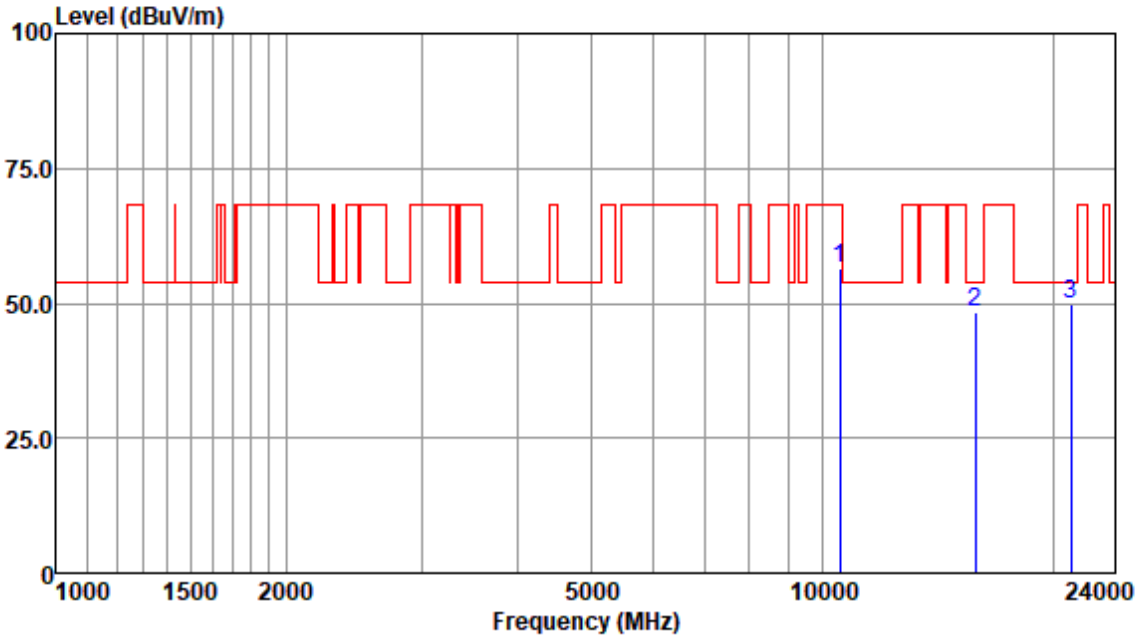


Antenna Polarity :VERTICAL

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	
10460.00	49.06	34.95	6.58	34.48	56.11	68.20	-12.09	Peak
15690.00	37.98	37.51	10.11	36.63	48.97	54.00	-5.03	Peak
20920.00	29.07	43.52	12.00	36.06	48.53	54.00	-5.47	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

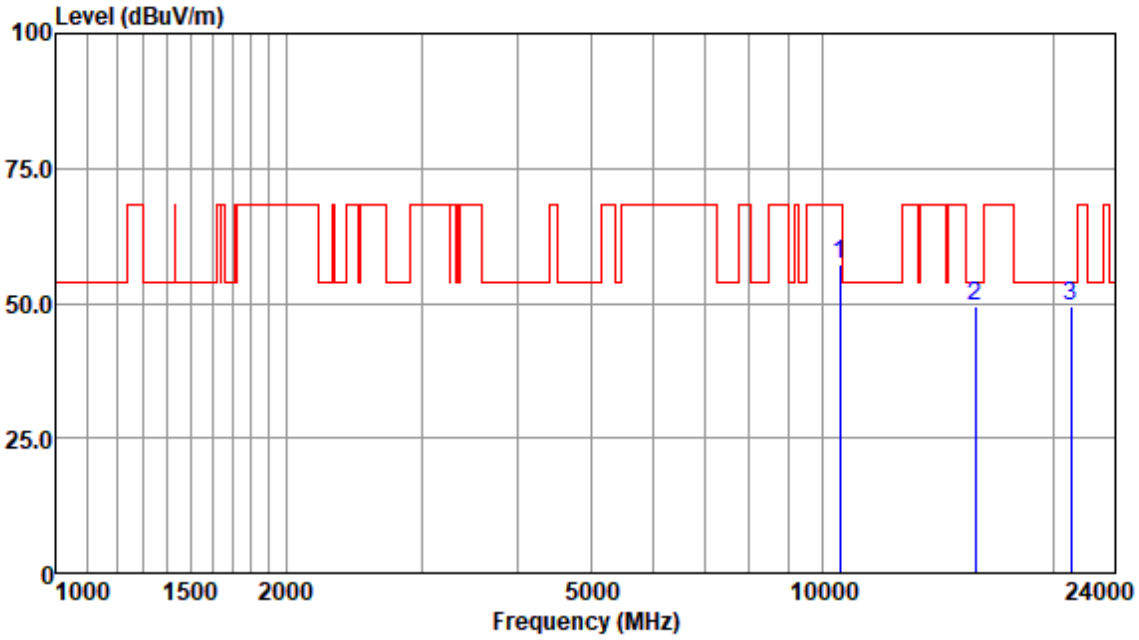


Antenna Polarity :HORIZONTAL

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	
10520.00	49.26	34.98	6.60	34.51	56.33	68.20	-11.87	Peak
15780.00	37.85	37.56	9.48	36.55	48.34	54.00	-5.66	Peak
21040.00	30.20	43.58	12.07	36.06	49.79	54.00	-4.21	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

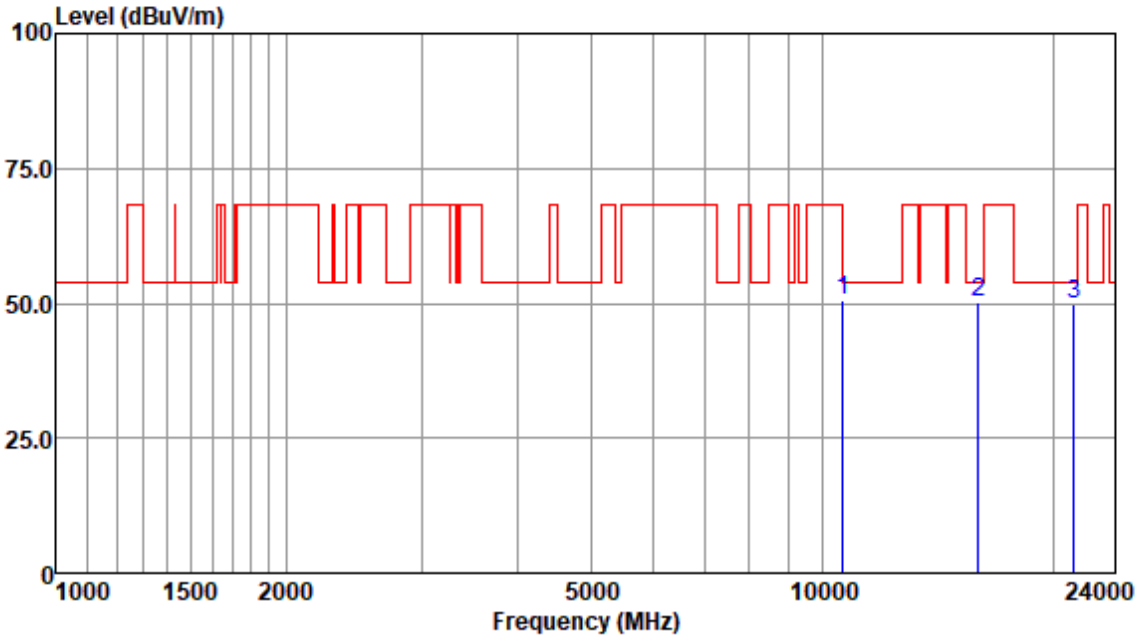


Antenna Polarity :VERTICAL

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	
10520.00	50.12	34.98	6.60	34.51	57.19	68.20	-11.01	Peak
15780.00	39.09	37.56	9.48	36.55	49.58	54.00	-4.42	Peak
21040.00	29.79	43.58	12.07	36.06	49.38	54.00	-4.62	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

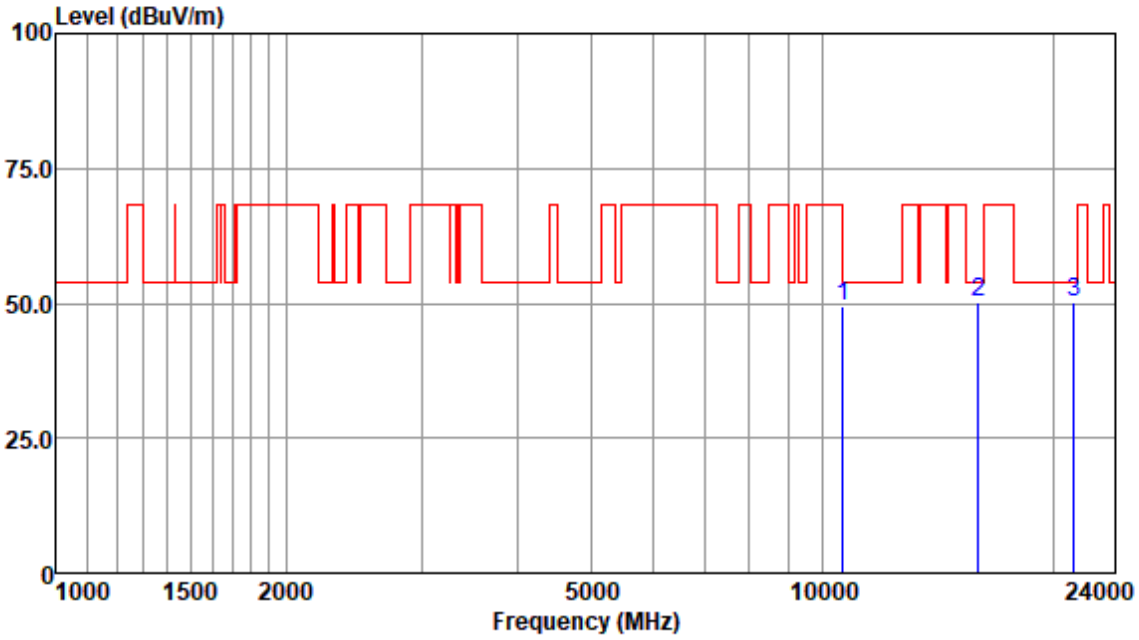


Antenna Polarity :HORIZONTAL

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	
10600.00	43.27	35.07	6.66	34.59	50.41	54.00	-3.59	Peak
15900.00	40.27	37.65	8.85	36.48	50.29	54.00	-3.71	Peak
21200.00	30.02	43.65	12.14	36.07	49.74	54.00	-4.26	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

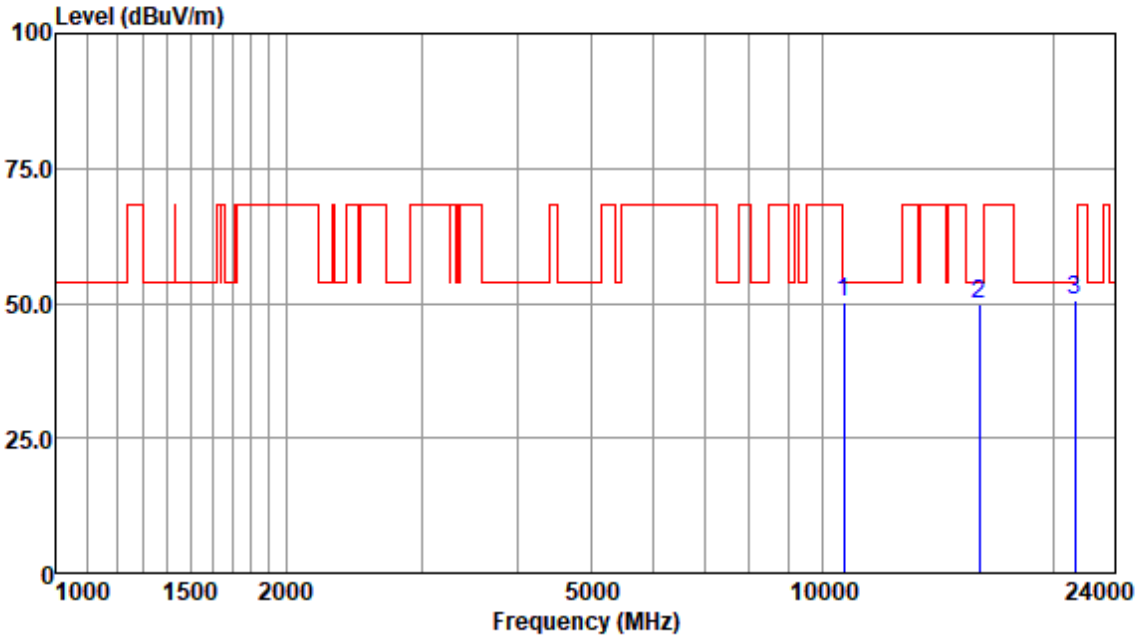


Antenna Polarity :VERTICAL

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	
10600.00	42.19	35.07	6.66	34.59	49.33	54.00	-4.67	Peak
15900.00	40.12	37.65	8.85	36.48	50.14	54.00	-3.86	Peak
21200.00	30.33	43.65	12.14	36.07	50.05	54.00	-3.95	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

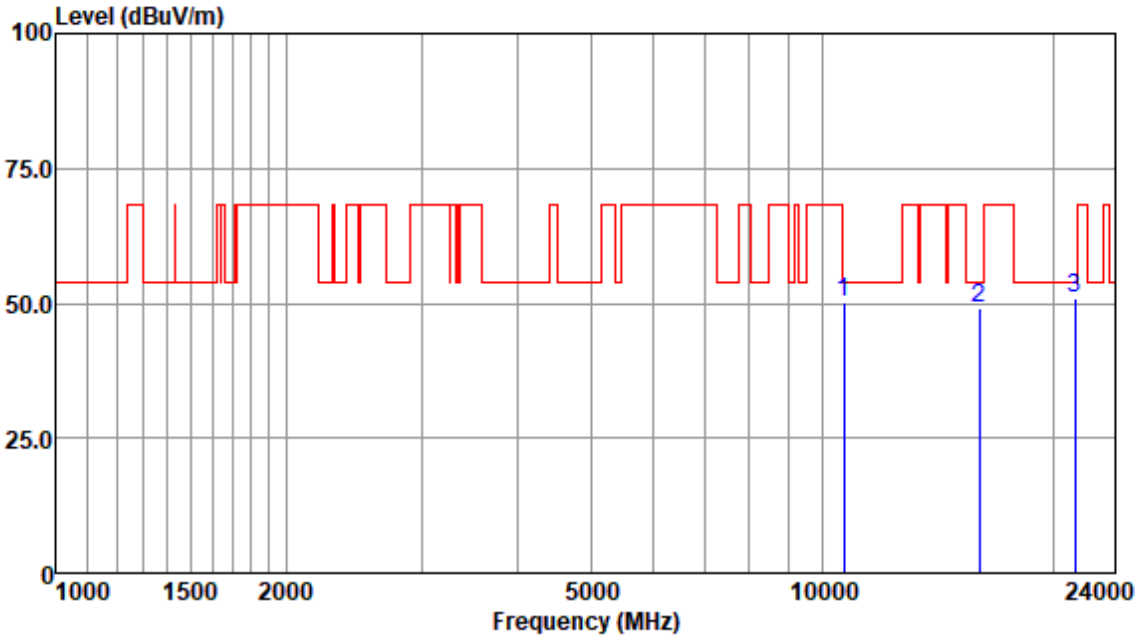


Antenna Polarity :HORIZONTAL

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	
10640.00	43.12	35.10	6.68	34.61	50.29	54.00	-3.71	Peak
15960.00	39.85	37.74	8.60	36.42	49.77	54.00	-4.23	Peak
21280.00	30.89	43.69	12.18	36.07	50.69	54.00	-3.31	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

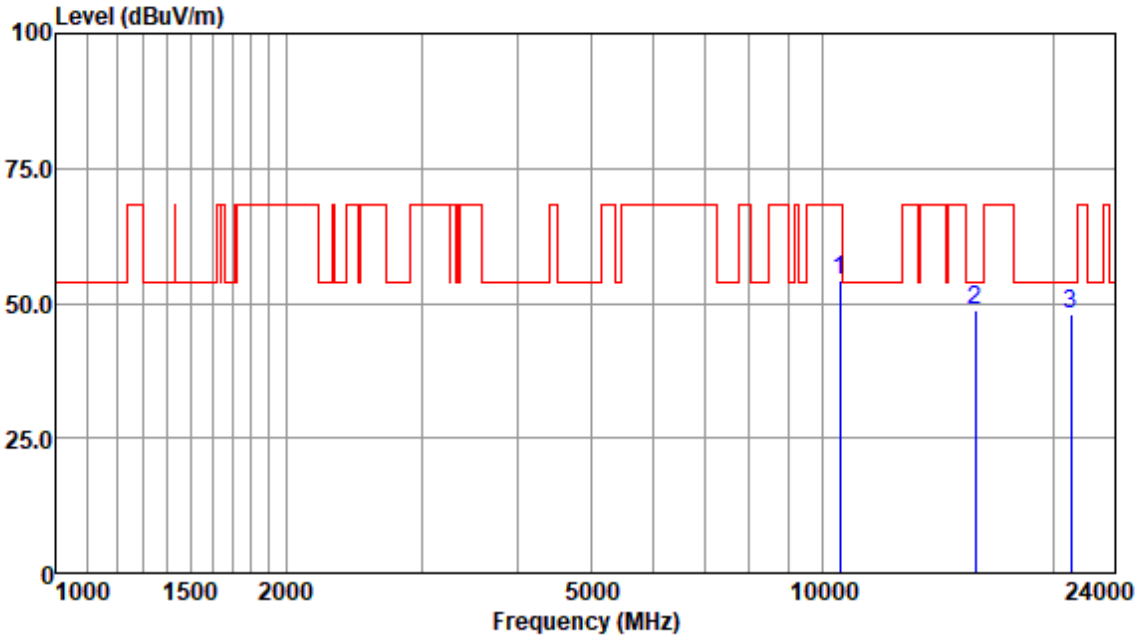


Antenna Polarity :VERTICAL

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	
10640.00	43.16	35.10	6.68	34.61	50.33	54.00	-3.67	Peak
15960.00	39.24	37.74	8.60	36.42	49.16	54.00	-4.84	Peak
21280.00	31.13	43.69	12.18	36.07	50.93	54.00	-3.07	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

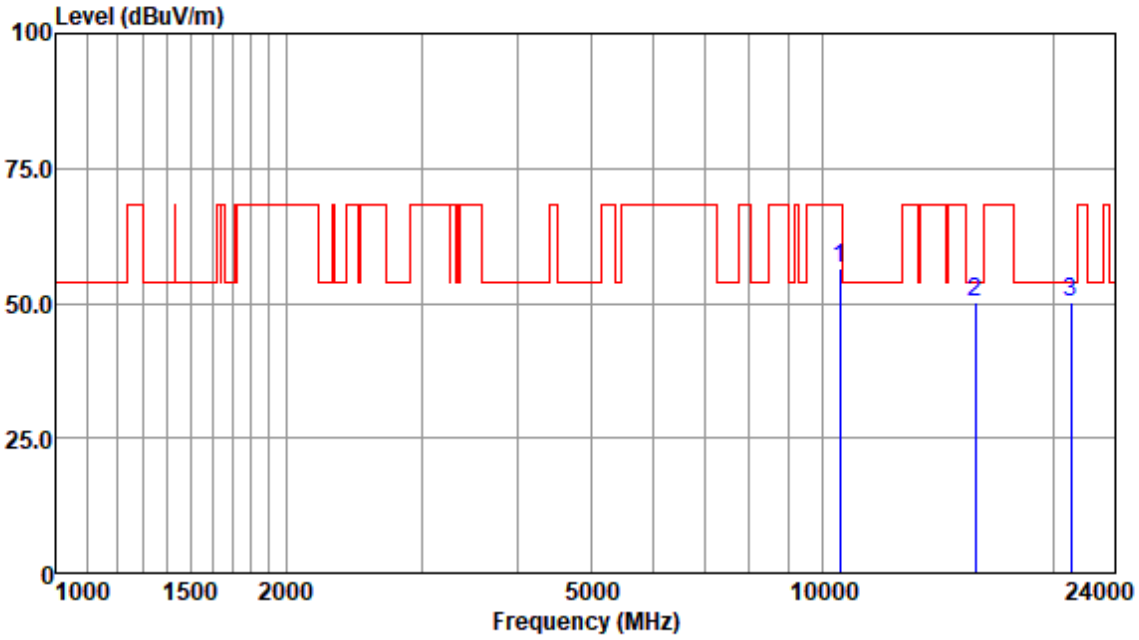


Antenna Polarity :HORIZONTAL

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	
10520.00	47.09	34.98	6.60	34.51	54.16	68.20	-14.04	Peak
15780.00	38.06	37.56	9.48	36.55	48.55	54.00	-5.45	Peak
21040.00	28.50	43.58	12.07	36.06	48.09	54.00	-5.91	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

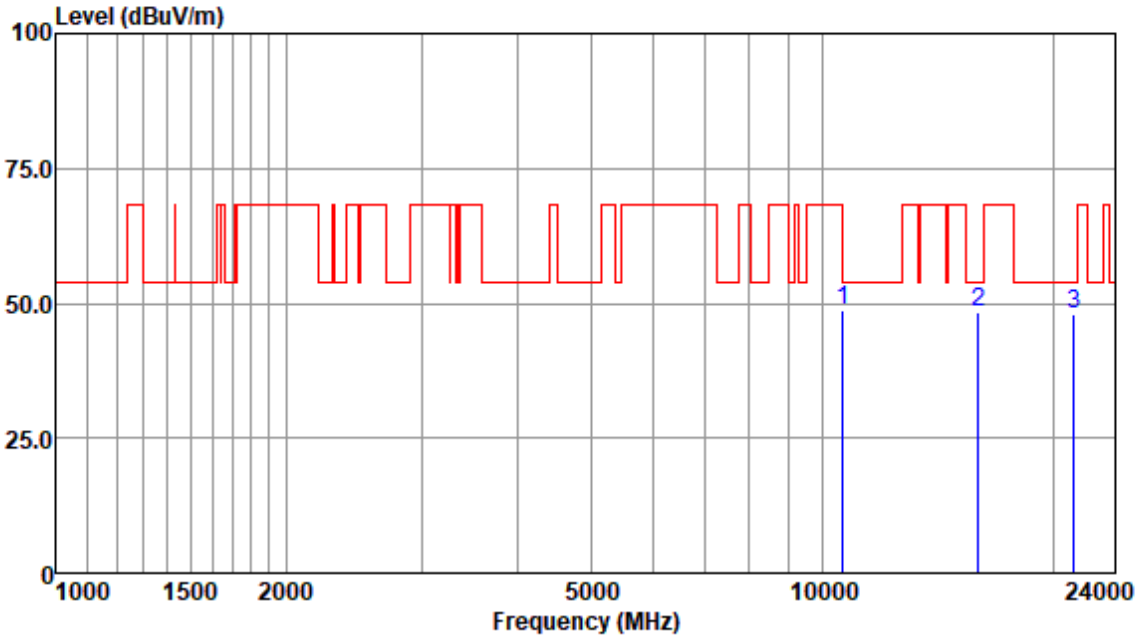


Antenna Polarity :VERTICAL

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	
10520.00	49.32	34.98	6.60	34.51	56.39	68.20	-11.81	Peak
15780.00	39.52	37.56	9.48	36.55	50.01	54.00	-3.99	Peak
21040.00	30.70	43.58	12.07	36.06	50.29	54.00	-3.71	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

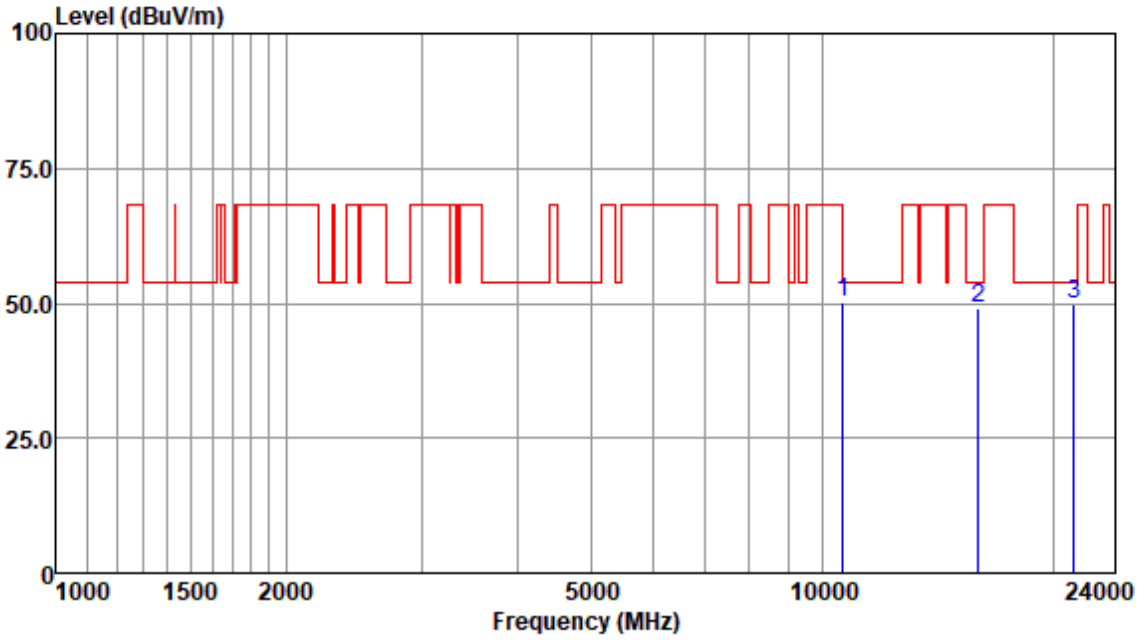


Antenna Polarity :HORIZONTAL

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	
10600.00	41.68	35.07	6.66	34.59	48.82	54.00	-5.18	Peak
15900.00	38.39	37.65	8.85	36.48	48.41	54.00	-5.59	Peak
21200.00	28.35	43.65	12.14	36.07	48.07	54.00	-5.93	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

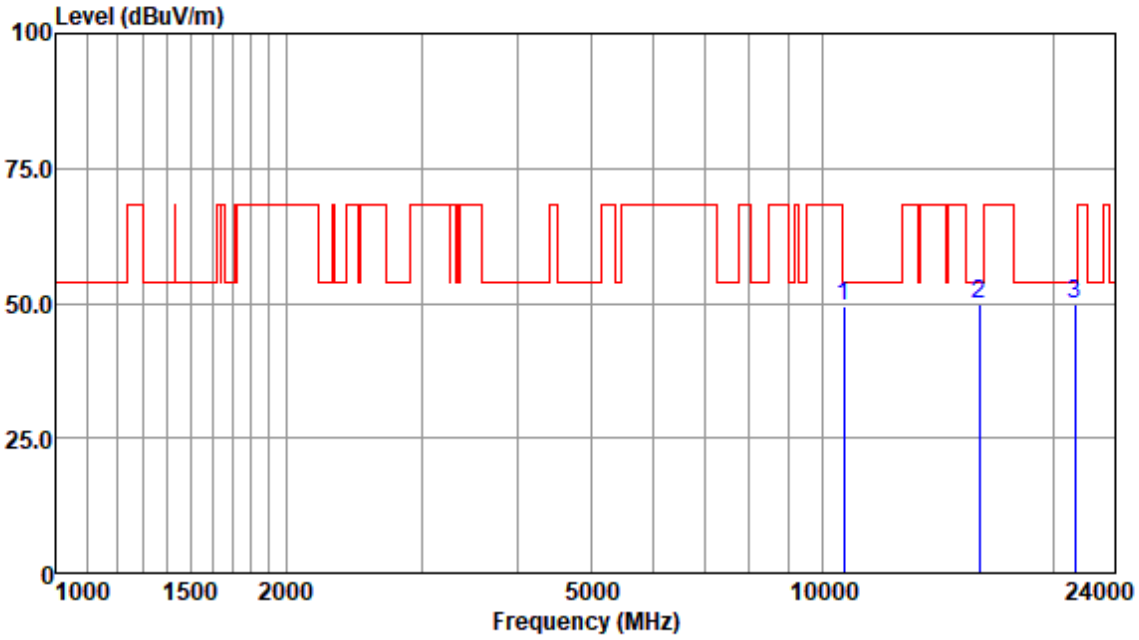


Antenna Polarity :VERTICAL

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	
10600.00	43.19	35.07	6.66	34.59	50.33	54.00	-3.67	Peak
15900.00	39.24	37.65	8.85	36.48	49.26	54.00	-4.74	Peak
21200.00	30.12	43.65	12.14	36.07	49.84	54.00	-4.16	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High

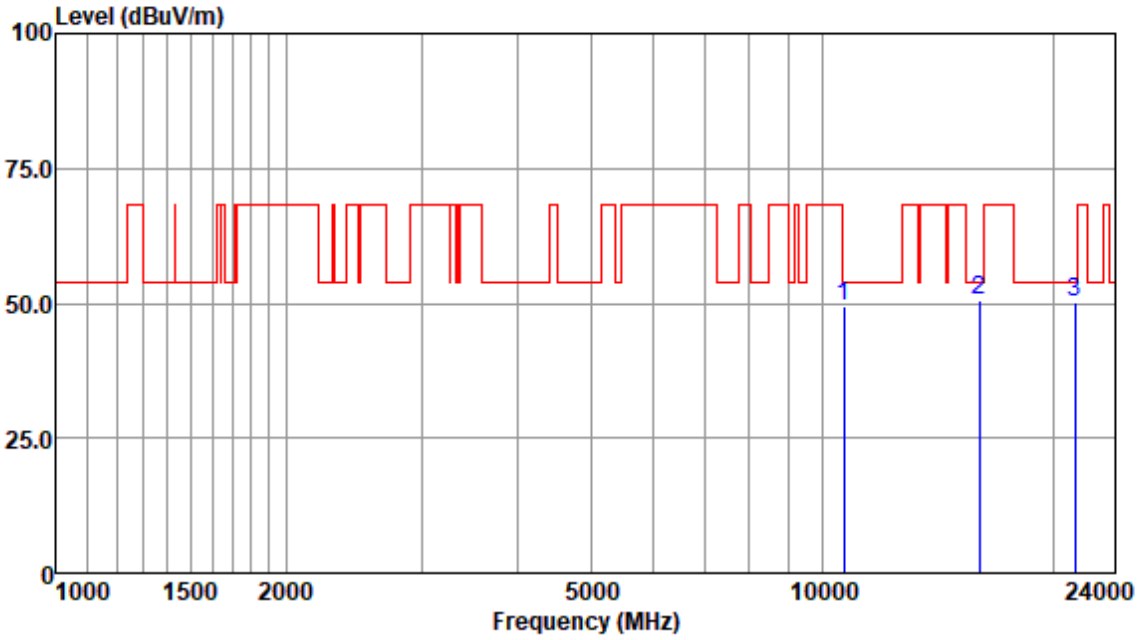


Antenna Polarity :HORIZONTAL

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	
10640.00	42.46	35.10	6.68	34.61	49.63	54.00	-4.37	Peak
15960.00	39.79	37.74	8.60	36.42	49.71	54.00	-4.29	Peak
21280.00	30.07	43.69	12.18	36.07	49.87	54.00	-4.13	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High

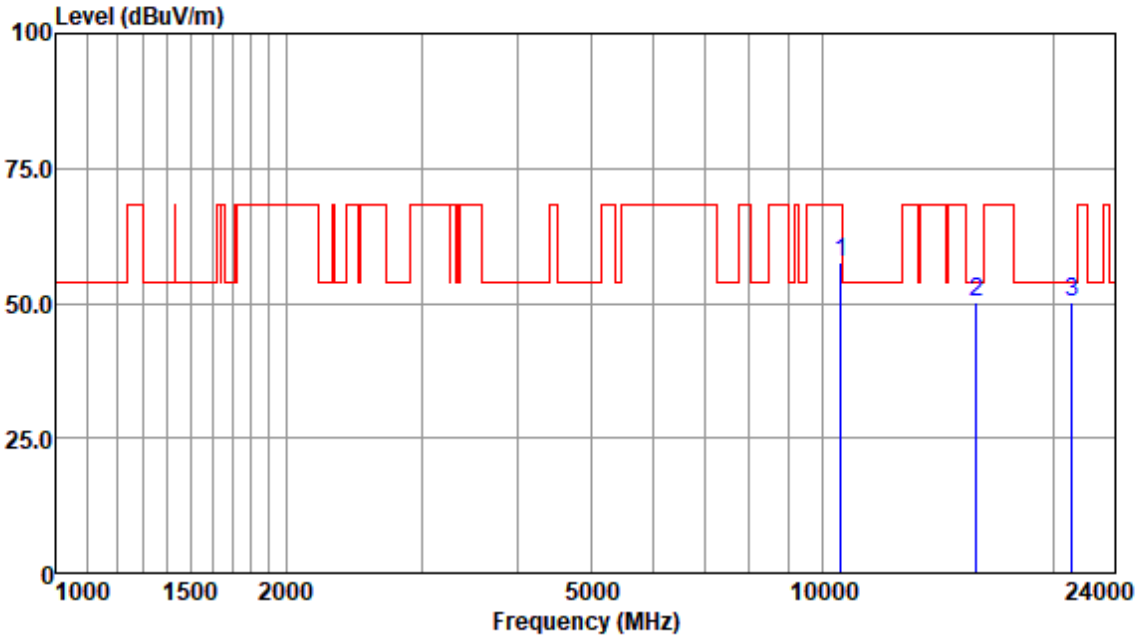


Antenna Polarity :VERTICAL

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	
10640.00	42.11	35.10	6.68	34.61	49.28	54.00	-4.72	Peak
15960.00	40.79	37.74	8.60	36.42	50.71	54.00	-3.29	Peak
21280.00	30.47	43.69	12.18	36.07	50.27	54.00	-3.73	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

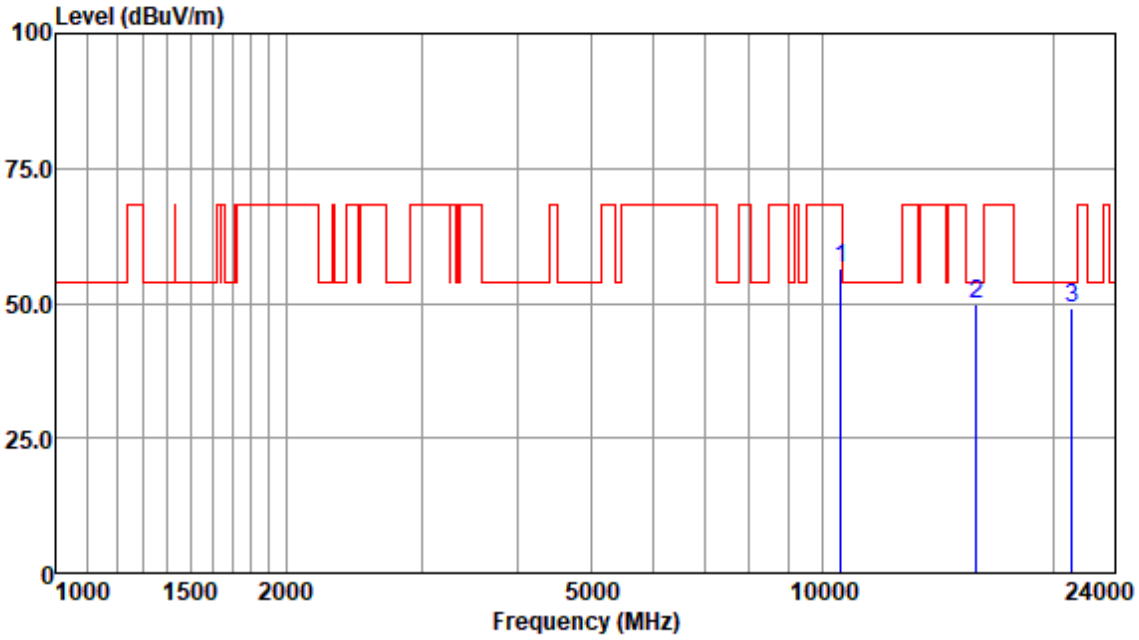


Antenna Polarity :HORIZONTAL

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	
10540.00	50.65	35.01	6.62	34.54	57.74	68.20	-10.46	Peak
15810.00	40.10	37.61	9.16	36.51	50.36	54.00	-3.64	Peak
21080.00	30.55	43.58	12.07	36.06	50.14	54.00	-3.86	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

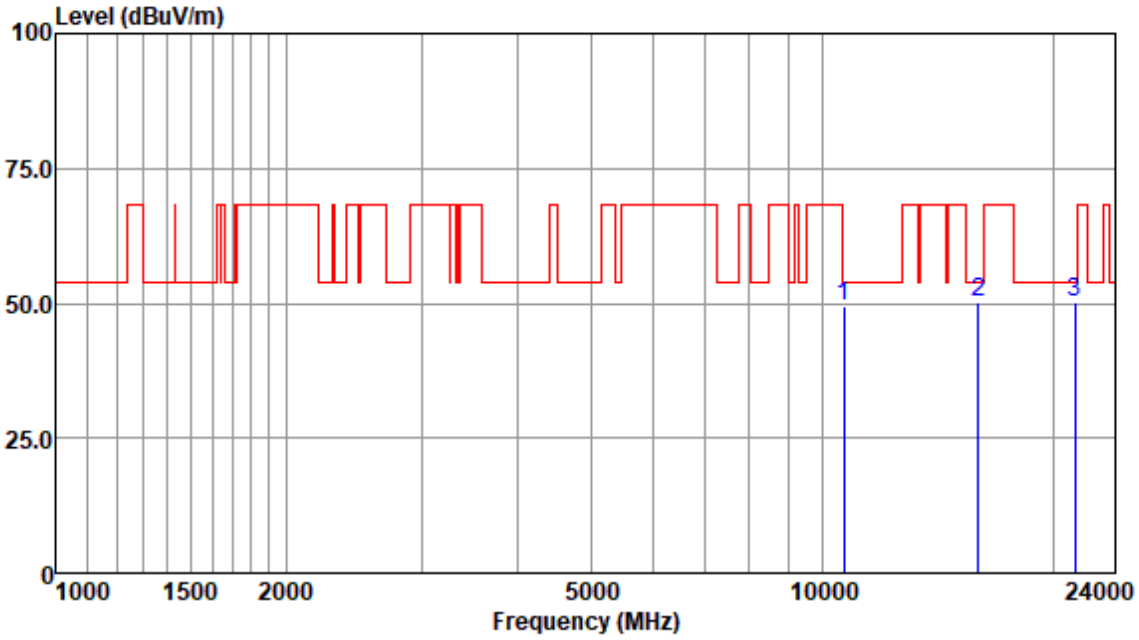


Antenna Polarity :VERTICAL

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	
10540.00	49.27	35.01	6.62	34.54	56.36	68.20	-11.84	Peak
15810.00	39.61	37.61	9.16	36.51	49.87	54.00	-4.13	Peak
21080.00	29.59	43.58	12.07	36.06	49.18	54.00	-4.82	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High

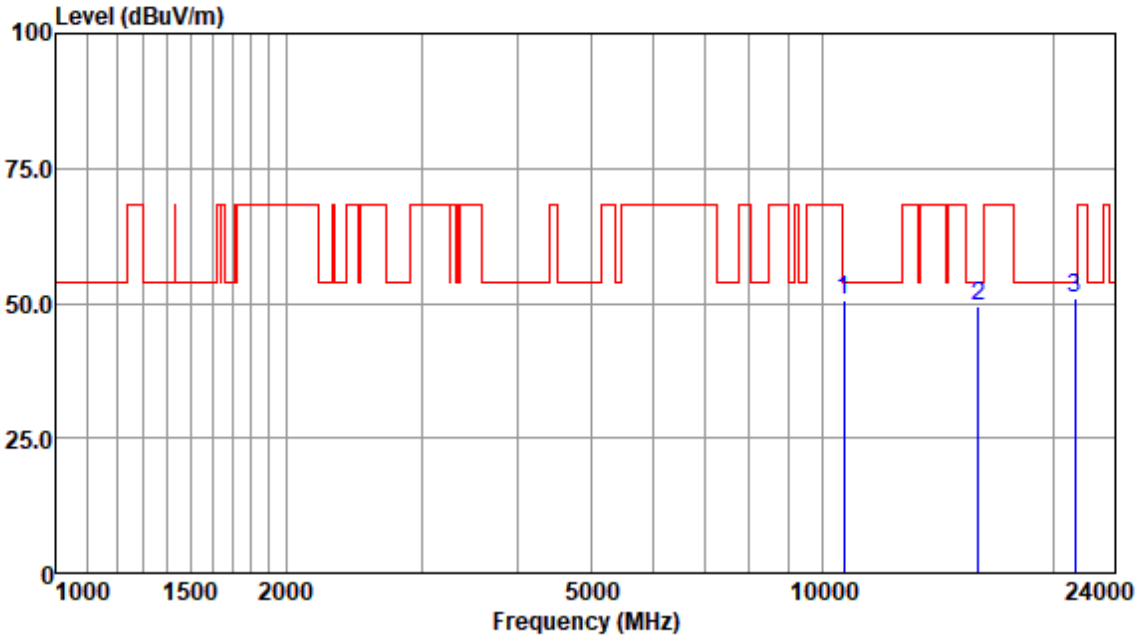


Antenna Polarity :HORIZONTAL

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	
10620.00	42.22	35.07	6.66	34.59	49.36	54.00	-4.64	Peak
15930.00	40.39	37.70	8.53	36.45	50.17	54.00	-3.83	Peak
21240.00	30.49	43.69	12.18	36.07	50.29	54.00	-3.71	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High

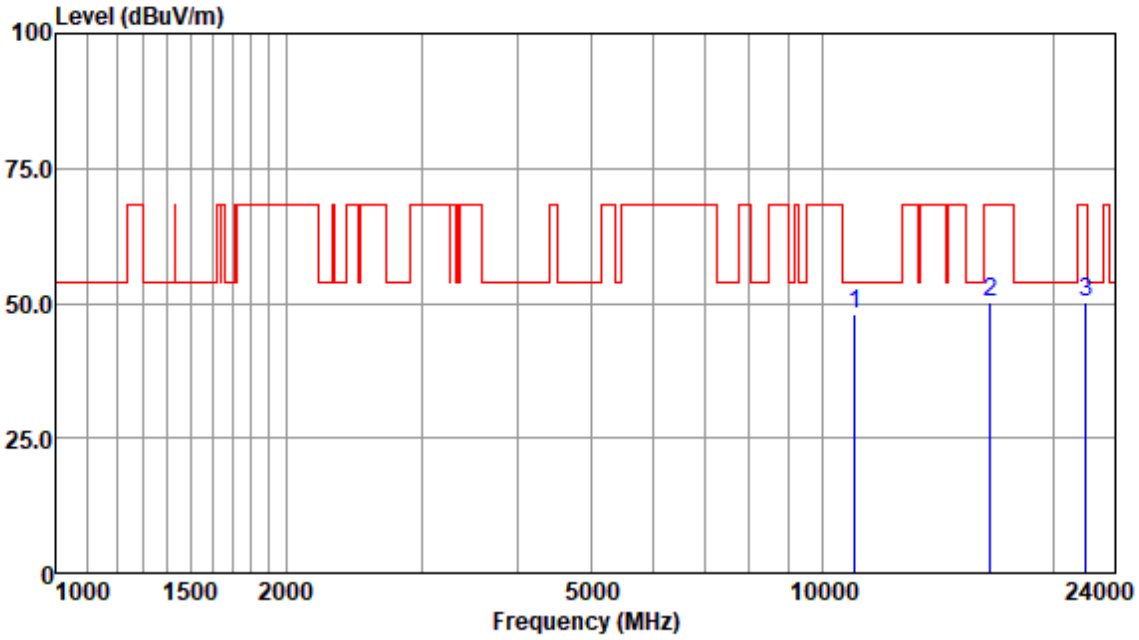


Antenna Polarity :VERTICAL

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	
10620.00	43.50	35.07	6.66	34.59	50.64	54.00	-3.36	Peak
15930.00	39.74	37.70	8.53	36.45	49.52	54.00	-4.48	Peak
21240.00	31.17	43.69	12.18	36.07	50.97	54.00	-3.03	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

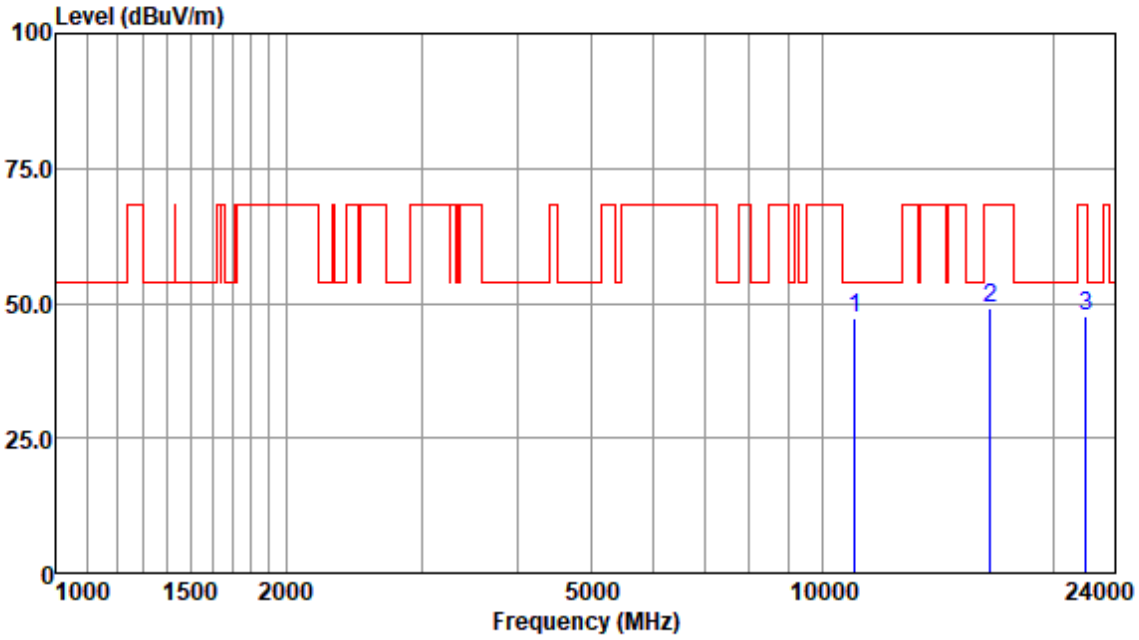


Antenna Polarity :HORIZONTAL

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	
11000.00	40.91	35.42	6.89	35.08	48.14	54.00	-5.86	Peak
16500.00	38.72	38.47	9.26	36.11	50.34	68.20	-17.86	Peak
22000.00	29.67	44.07	12.56	36.11	50.19	68.20	-18.01	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

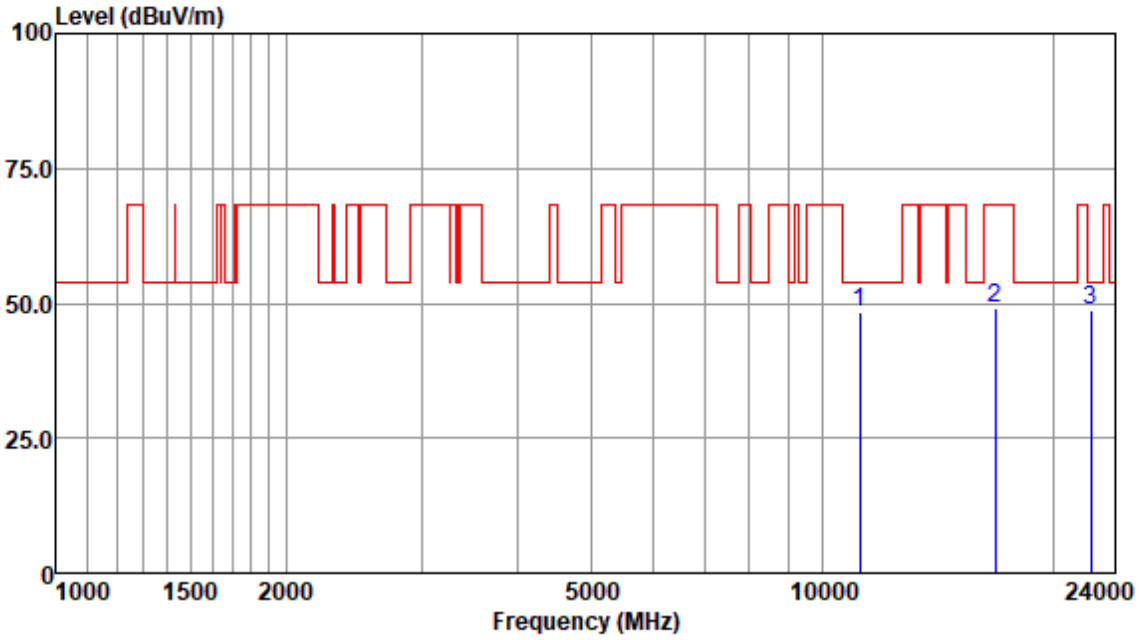


Antenna Polarity :VERTICAL

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	
11000.00	40.14	35.42	6.89	35.08	47.37	54.00	-6.63	Peak
16500.00	37.52	38.47	9.26	36.11	49.14	68.20	-19.06	Peak
22000.00	27.20	44.07	12.56	36.11	47.72	68.20	-20.48	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

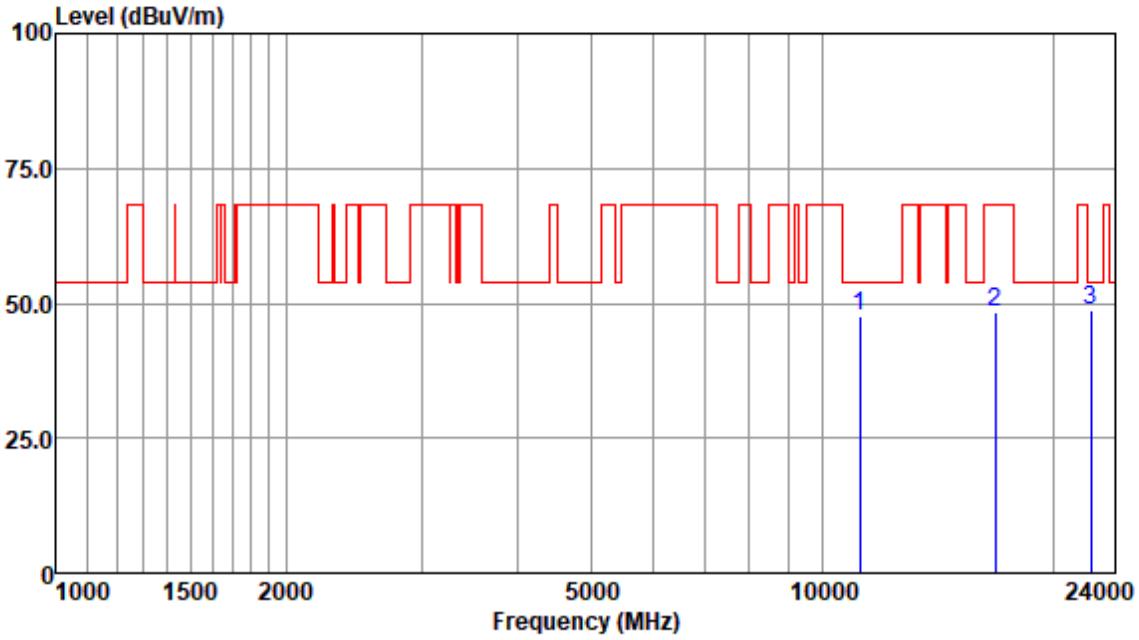


Antenna Polarity :HORIZONTAL

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	
11160.00	41.00	35.53	7.00	35.27	48.26	54.00	-5.74	Peak
16740.00	36.30	39.15	9.59	36.03	49.01	68.20	-19.19	Peak
22320.00	27.80	44.21	12.70	36.12	48.59	54.00	-5.41	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

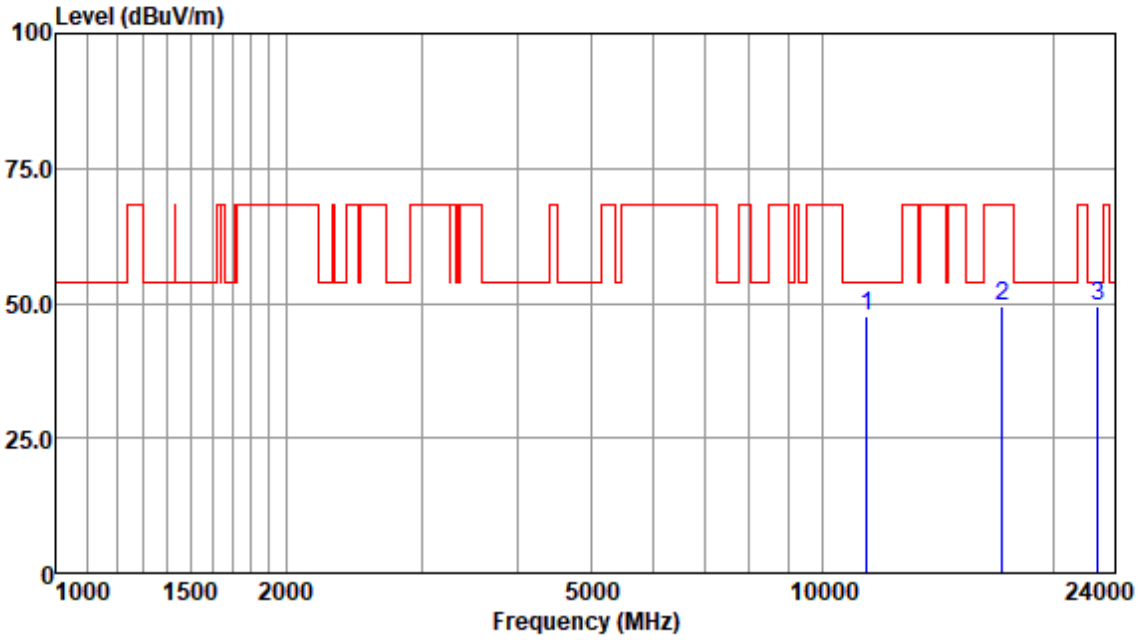


Antenna Polarity :VERTICAL

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	
11160.00	40.20	35.53	7.00	35.27	47.46	54.00	-6.54	Peak
16740.00	35.55	39.15	9.59	36.03	48.26	68.20	-19.94	Peak
22320.00	27.95	44.21	12.70	36.12	48.74	54.00	-5.26	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

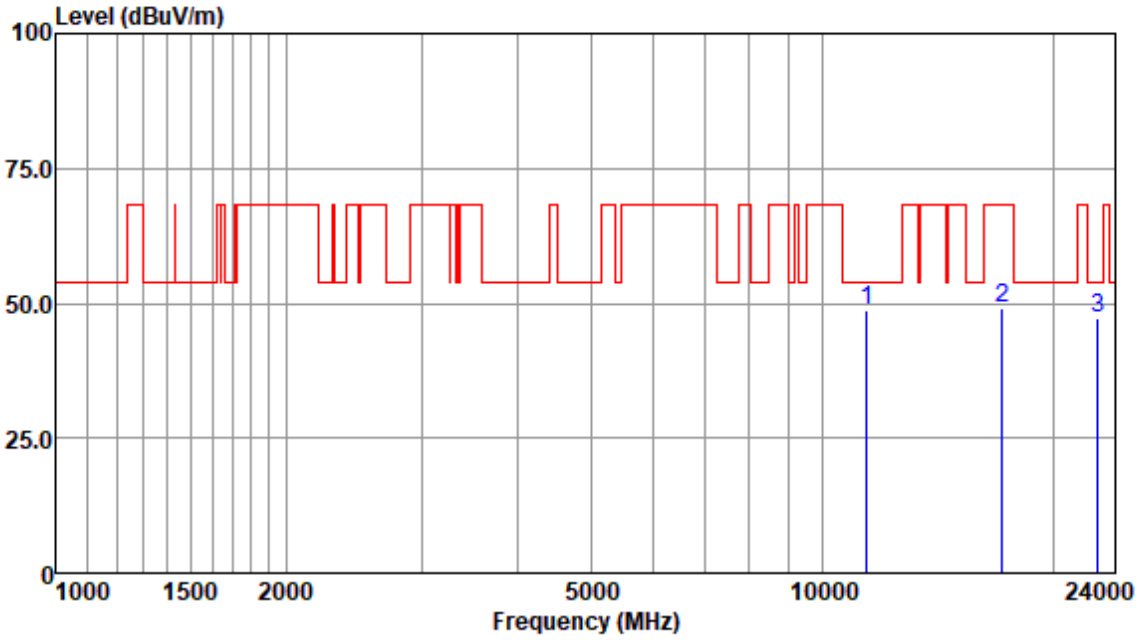


Antenna Polarity :HORIZONTAL

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	
11400.00	40.46	35.73	7.28	35.74	47.73	54.00	-6.27	Peak
17100.00	35.26	40.12	9.99	36.03	49.34	68.20	-18.86	Peak
22800.00	28.33	44.45	12.94	36.15	49.57	54.00	-4.43	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

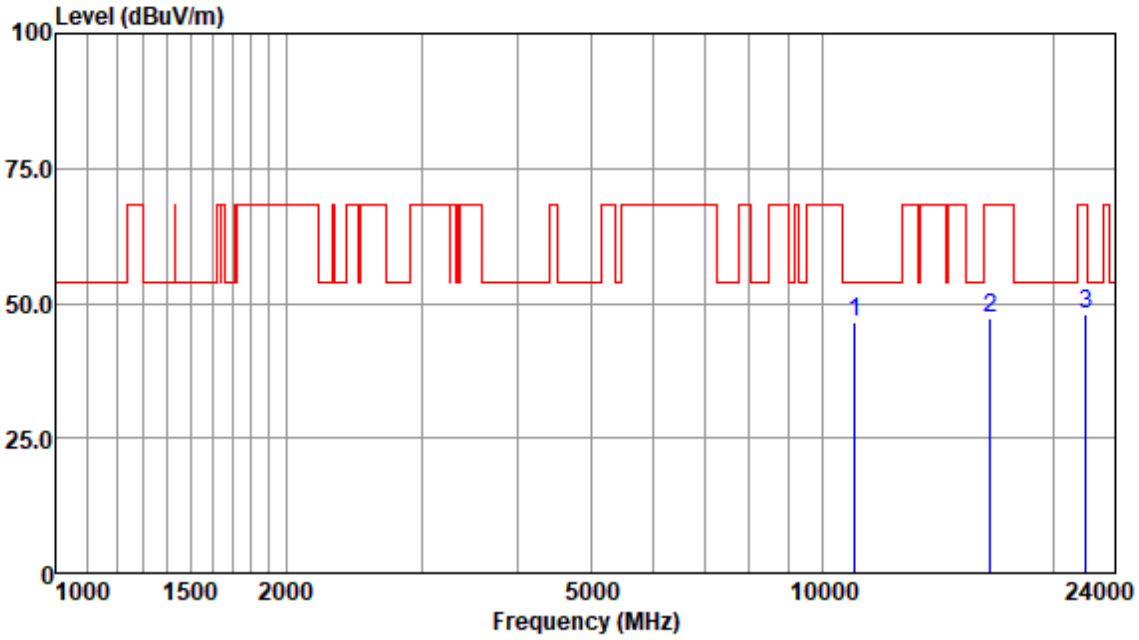


Antenna Polarity :VERTICAL

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	
11400.00	41.40	35.73	7.28	35.74	48.67	54.00	-5.33	Peak
17100.00	35.16	40.12	9.99	36.03	49.24	68.20	-18.96	Peak
22800.00	26.05	44.45	12.94	36.15	47.29	54.00	-6.71	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

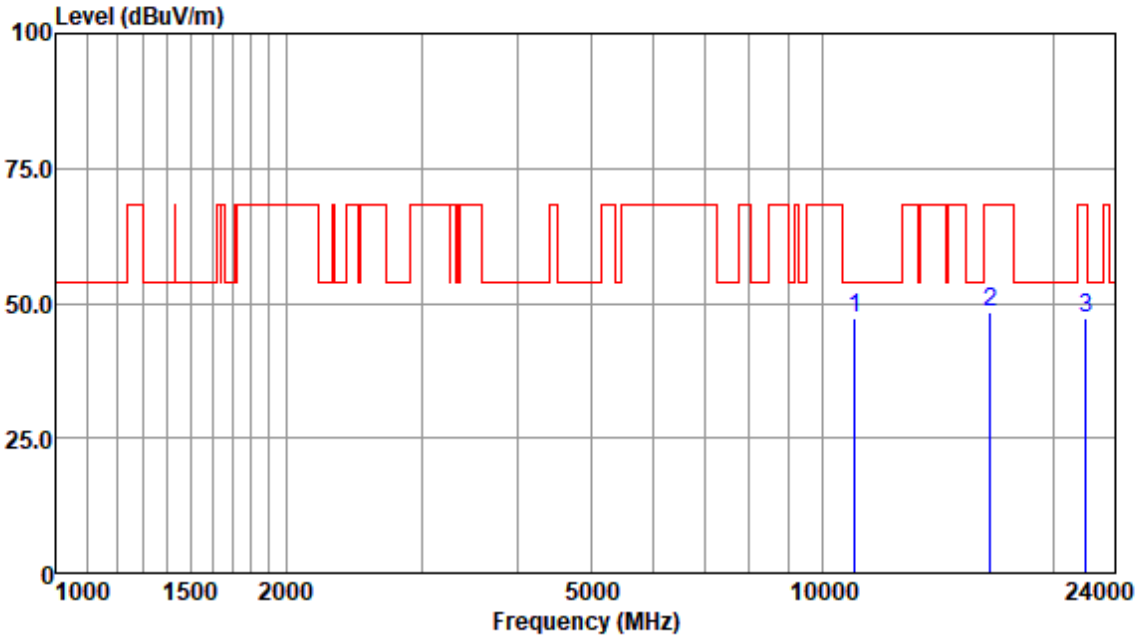


Antenna Polarity :HORIZONTAL

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	
11000.00	39.31	35.42	6.89	35.08	46.54	54.00	-7.46	Peak
16500.00	35.75	38.47	9.26	36.11	47.37	68.20	-20.83	Peak
22000.00	27.44	44.07	12.56	36.11	47.96	68.20	-20.24	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

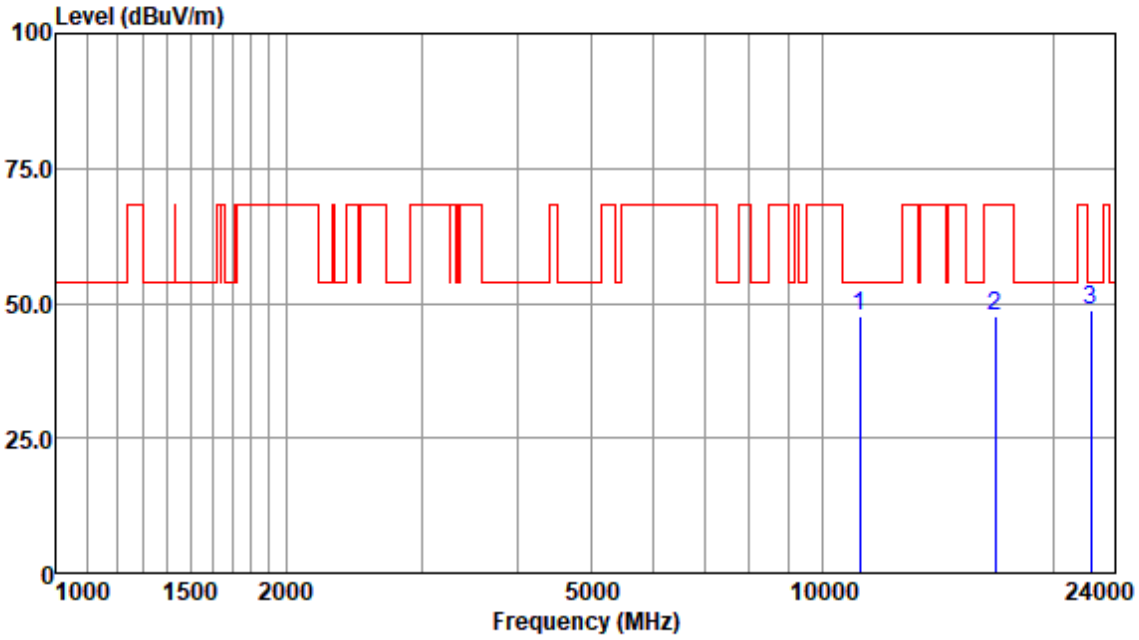


Antenna Polarity :VERTICAL

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	
11000.00	39.94	35.42	6.89	35.08	47.17	54.00	-6.83	Peak
16500.00	36.76	38.47	9.26	36.11	48.38	68.20	-19.82	Peak
22000.00	26.77	44.07	12.56	36.11	47.29	68.20	-20.91	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

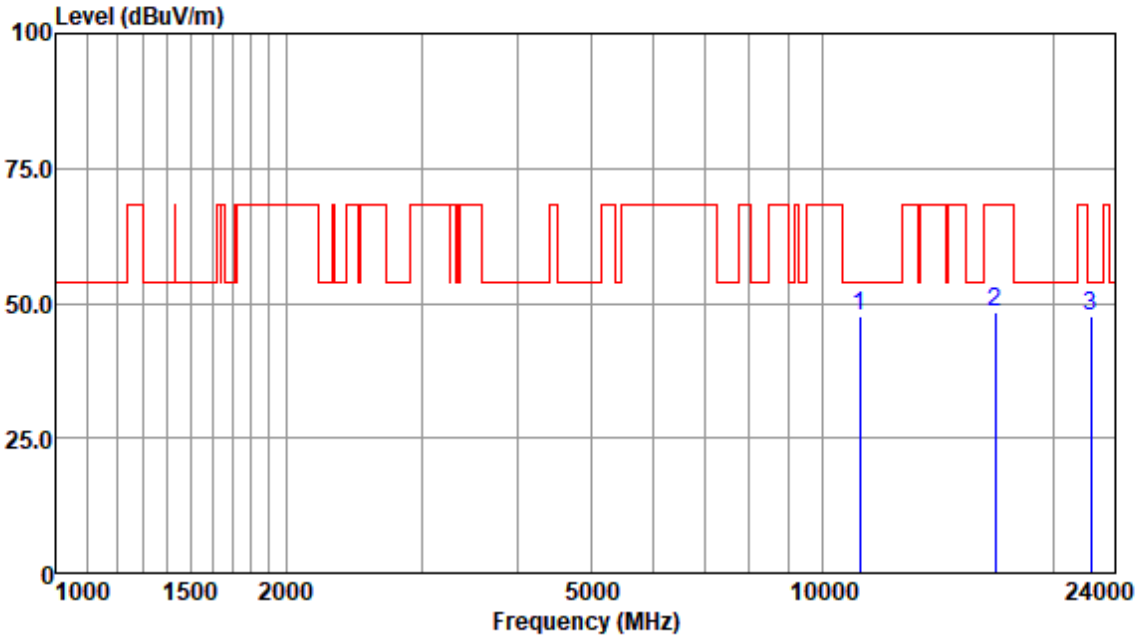


Antenna Polarity :HORIZONTAL

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	
11160.00	40.37	35.53	7.00	35.27	47.63	54.00	-6.37	Peak
16740.00	34.81	39.15	9.59	36.03	47.52	68.20	-20.68	Peak
22320.00	27.95	44.21	12.70	36.12	48.74	54.00	-5.26	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

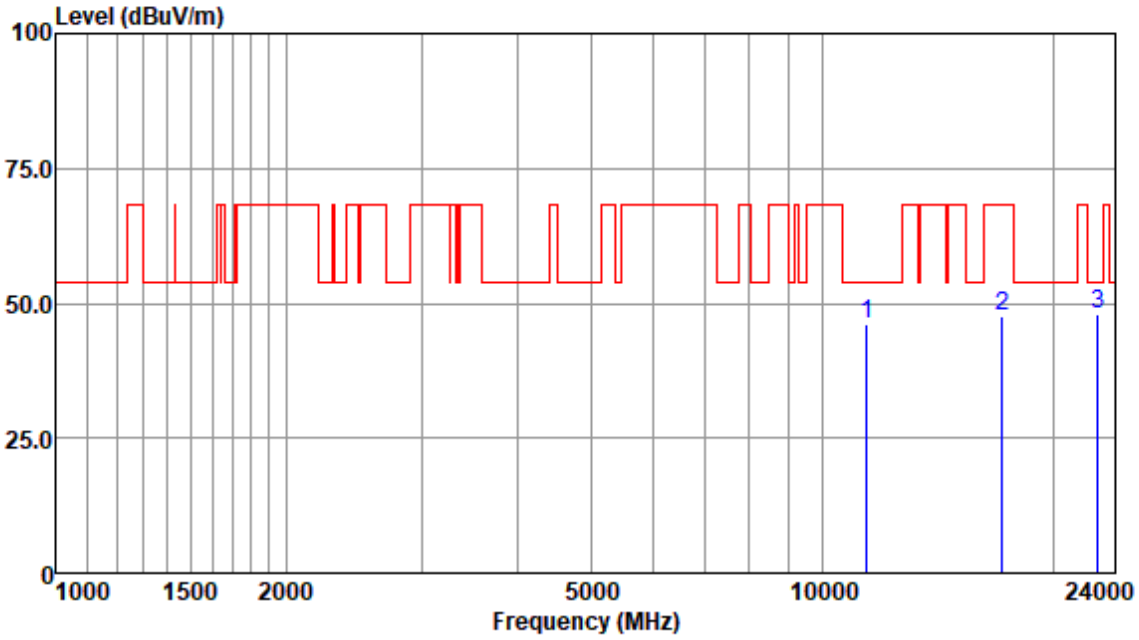


Antenna Polarity :VERTICAL

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	
11160.00	40.19	35.53	7.00	35.27	47.45	54.00	-6.55	Peak
16740.00	35.57	39.15	9.59	36.03	48.28	68.20	-19.92	Peak
22320.00	26.95	44.21	12.70	36.12	47.74	54.00	-6.26	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High

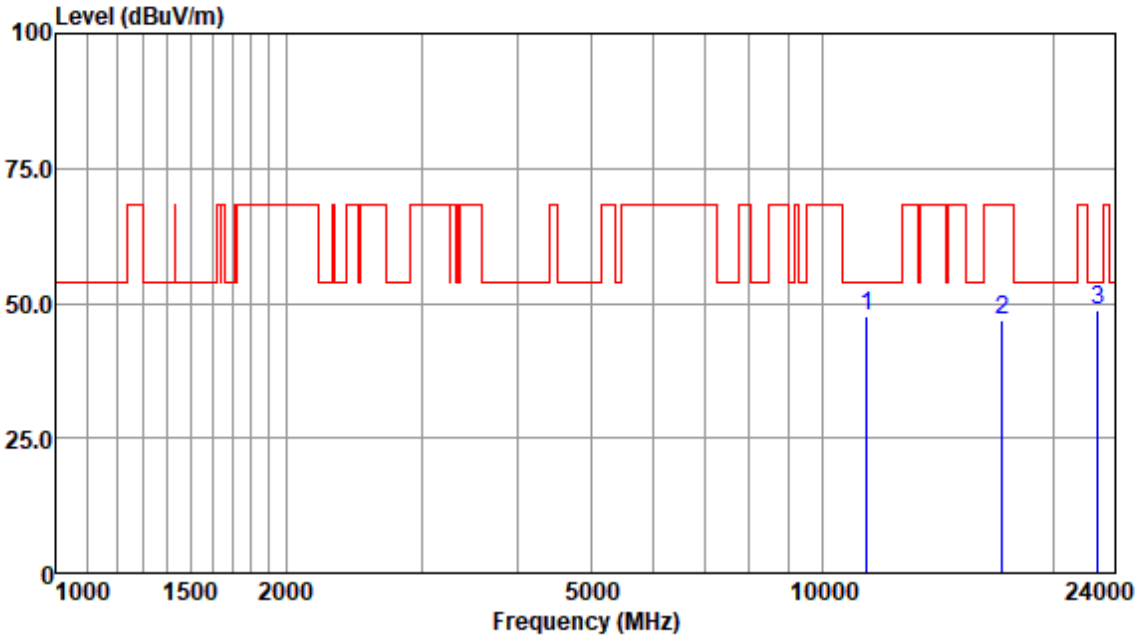


Antenna Polarity :HORIZONTAL

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	
11400.00	38.74	35.73	7.28	35.74	46.01	54.00	-7.99	Peak
17100.00	33.44	40.12	9.99	36.03	47.52	68.20	-20.68	Peak
22800.00	26.73	44.45	12.94	36.15	47.97	54.00	-6.03	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High

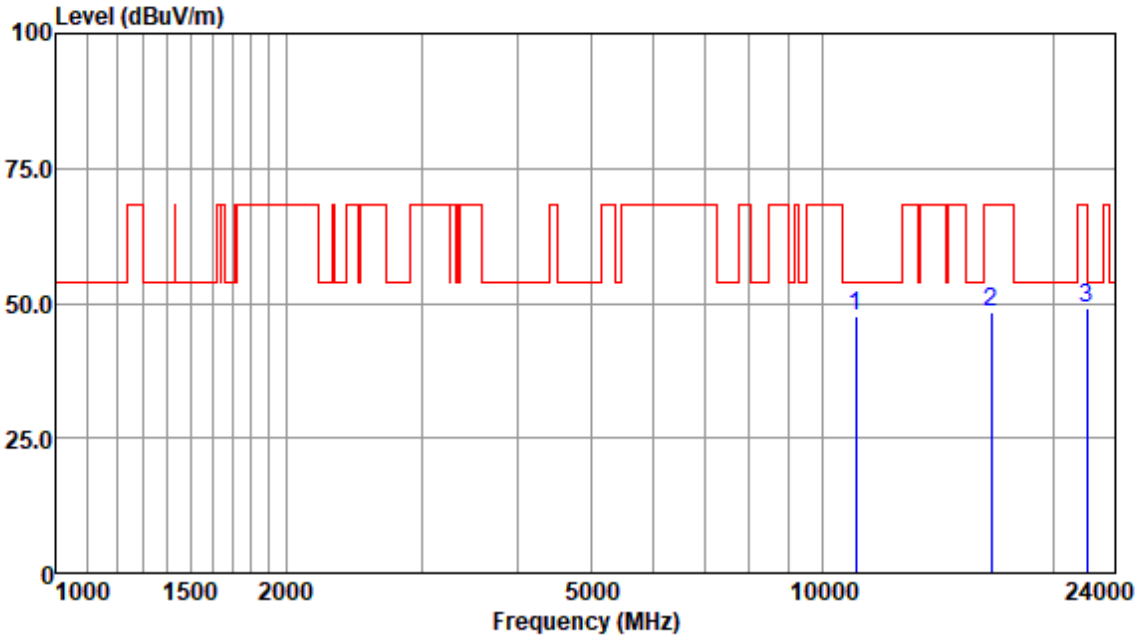


Antenna Polarity :VERTICAL

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	
11400.00	40.40	35.73	7.28	35.74	47.67	54.00	-6.33	Peak
17100.00	32.93	40.12	9.99	36.03	47.01	68.20	-21.19	Peak
22800.00	27.34	44.45	12.94	36.15	48.58	54.00	-5.42	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

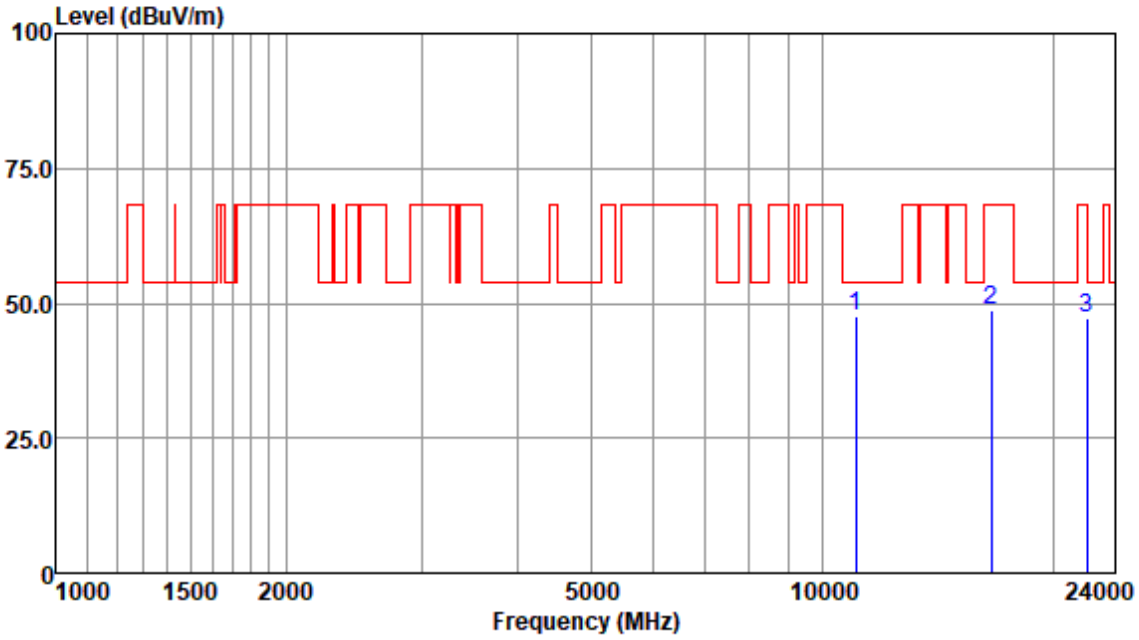


Antenna Polarity :HORIZONTAL

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	
11020.00	40.23	35.42	6.89	35.08	47.46	54.00	-6.54	Peak
16530.00	36.40	38.61	9.33	36.09	48.25	68.20	-19.95	Peak
22040.00	28.39	44.07	12.56	36.11	48.91	54.00	-5.09	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

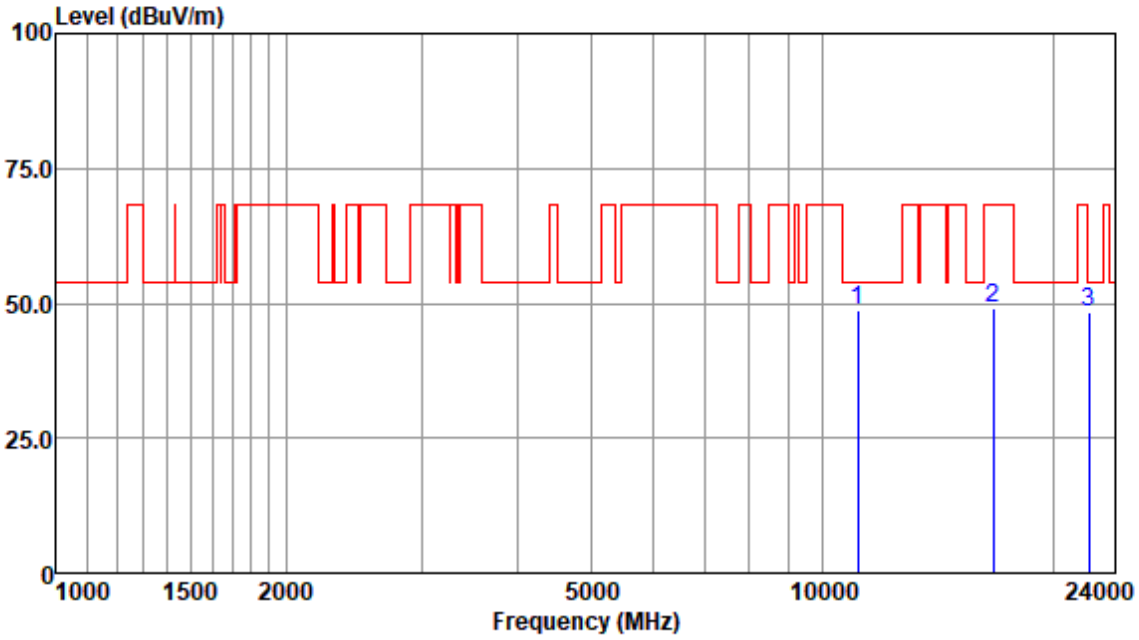


Antenna Polarity :VERTICAL

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	
11020.00	40.29	35.42	6.89	35.08	47.52	54.00	-6.48	Peak
16530.00	36.74	38.61	9.33	36.09	48.59	68.20	-19.61	Peak
22040.00	26.69	44.07	12.56	36.11	47.21	54.00	-6.79	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle

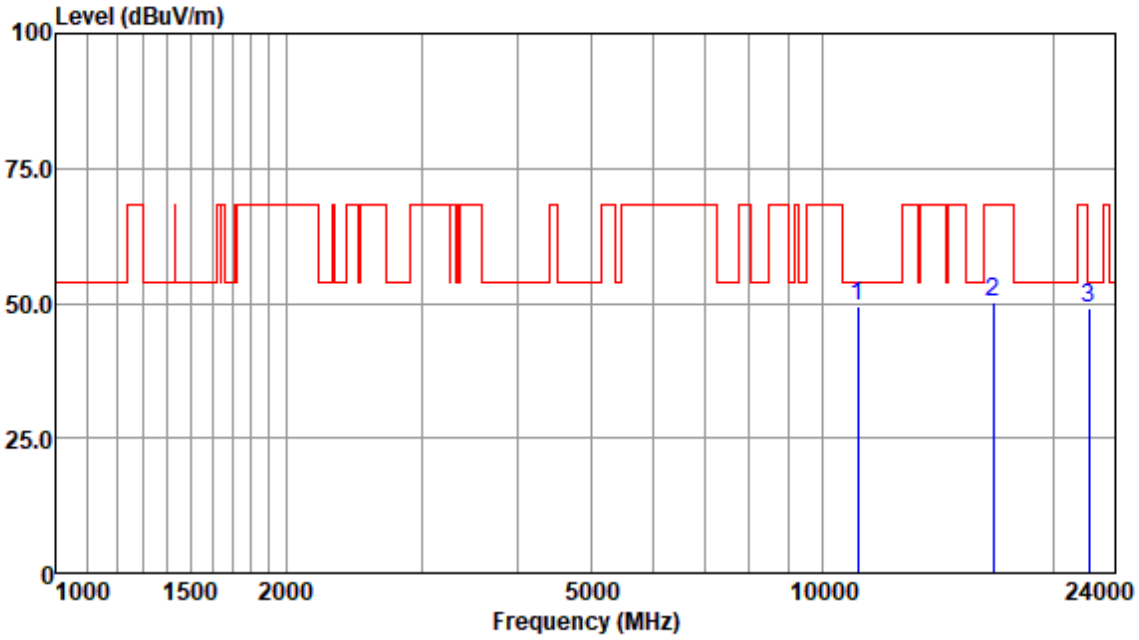


Antenna Polarity :HORIZONTAL

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	
11100.00	41.50	35.47	6.92	35.17	48.72	54.00	-5.28	Peak
16650.00	36.85	38.88	9.46	36.05	49.14	68.20	-19.06	Peak
22200.00	27.73	44.14	12.63	36.12	48.38	54.00	-5.62	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle

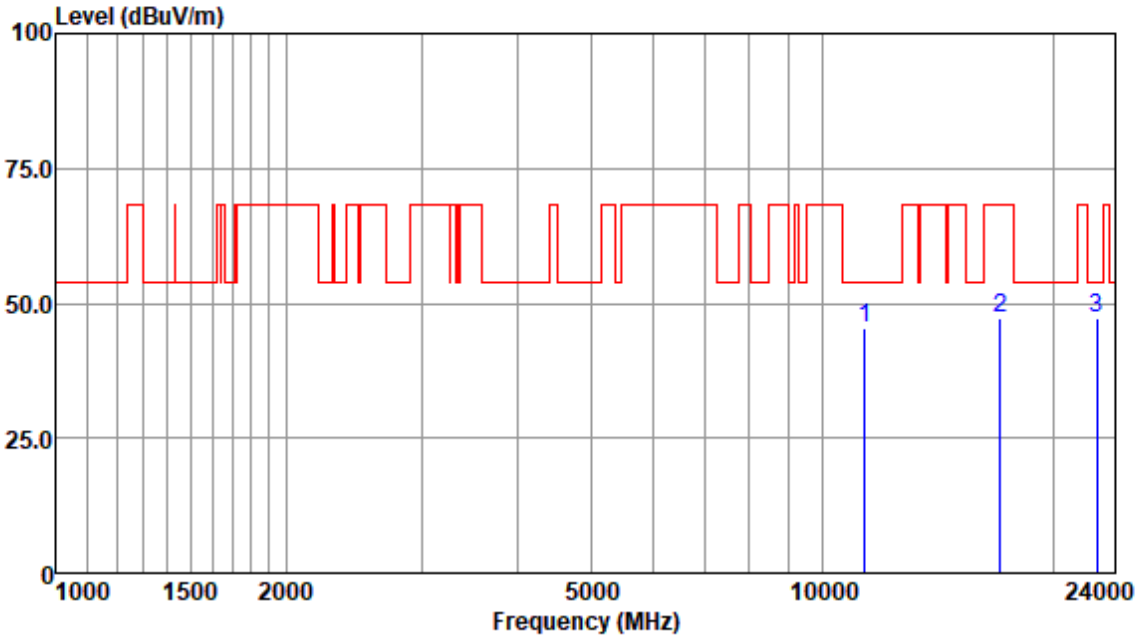


Antenna Polarity :VERTICAL

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	
11100.00	42.41	35.47	6.92	35.17	49.63	54.00	-4.37	Peak
16650.00	37.99	38.88	9.46	36.05	50.28	68.20	-17.92	Peak
22200.00	28.52	44.14	12.63	36.12	49.17	54.00	-4.83	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High

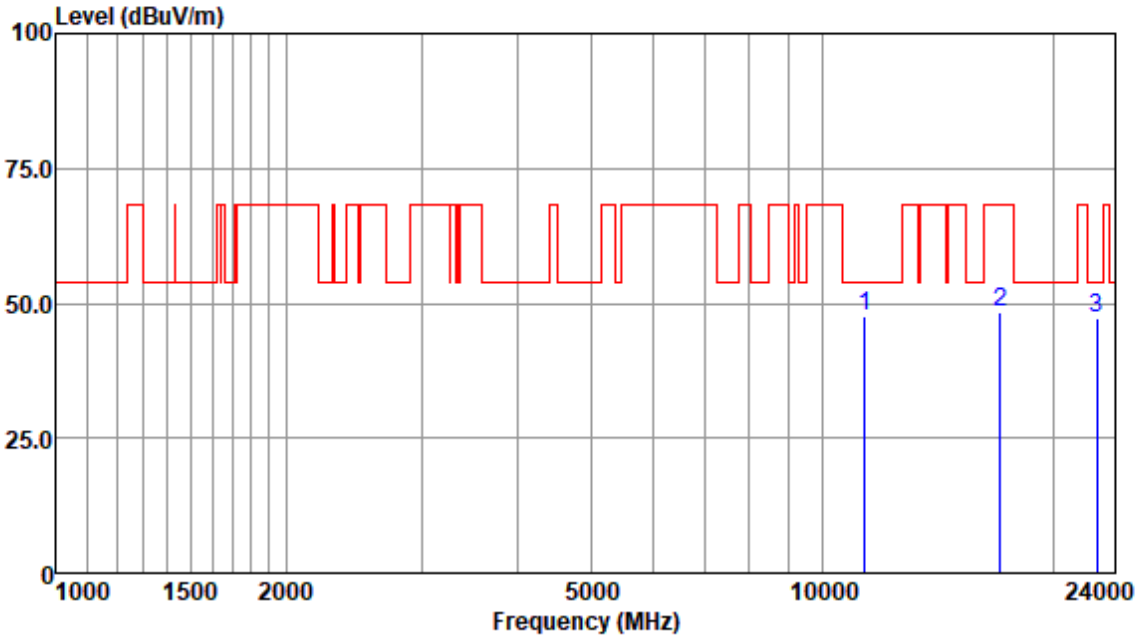


Antenna Polarity :HORIZONTAL

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	
11340.00	38.24	35.67	7.20	35.60	45.51	54.00	-8.49	Peak
17010.00	33.43	39.96	9.92	36.03	47.28	68.20	-20.92	Peak
22680.00	26.01	44.38	12.87	36.14	47.12	54.00	-6.88	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High

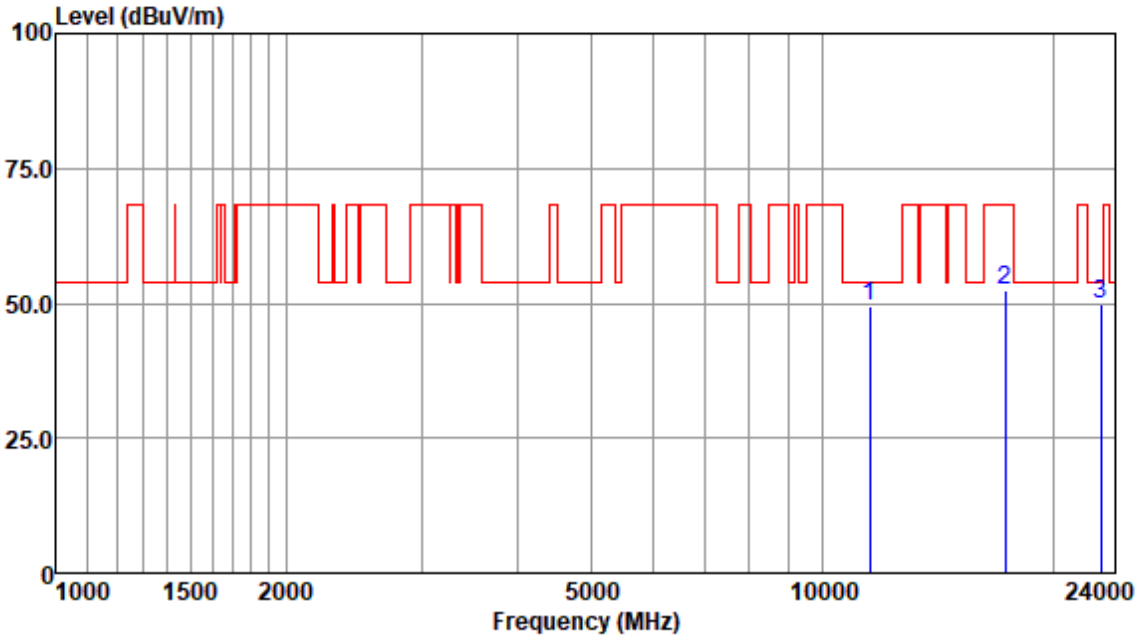


Antenna Polarity :VERTICAL

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	
11340.00	40.45	35.67	7.20	35.60	47.72	54.00	-6.28	Peak
17010.00	34.66	39.96	9.92	36.03	48.51	68.20	-19.69	Peak
22680.00	26.25	44.38	12.87	36.14	47.36	54.00	-6.64	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

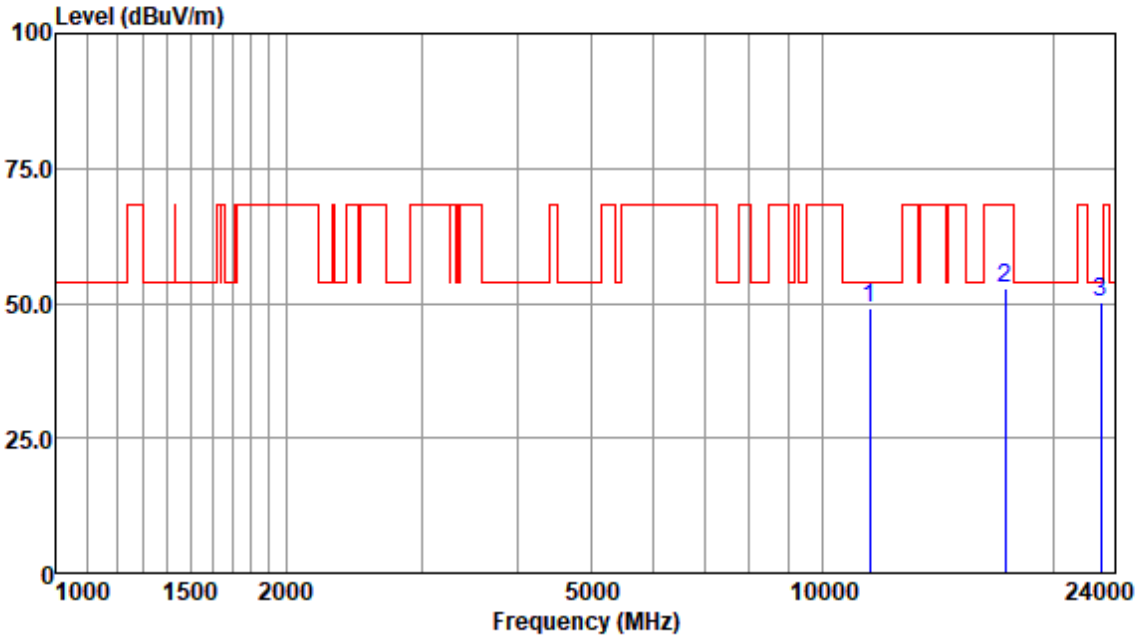


Antenna Polarity :HORIZONTAL

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	
11490.00	42.34	35.79	7.36	35.88	49.61	54.00	-4.39	Peak
17235.00	37.63	40.60	10.19	36.14	52.28	68.20	-15.92	Peak
22980.00	28.38	44.52	13.01	36.15	49.76	54.00	-4.24	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

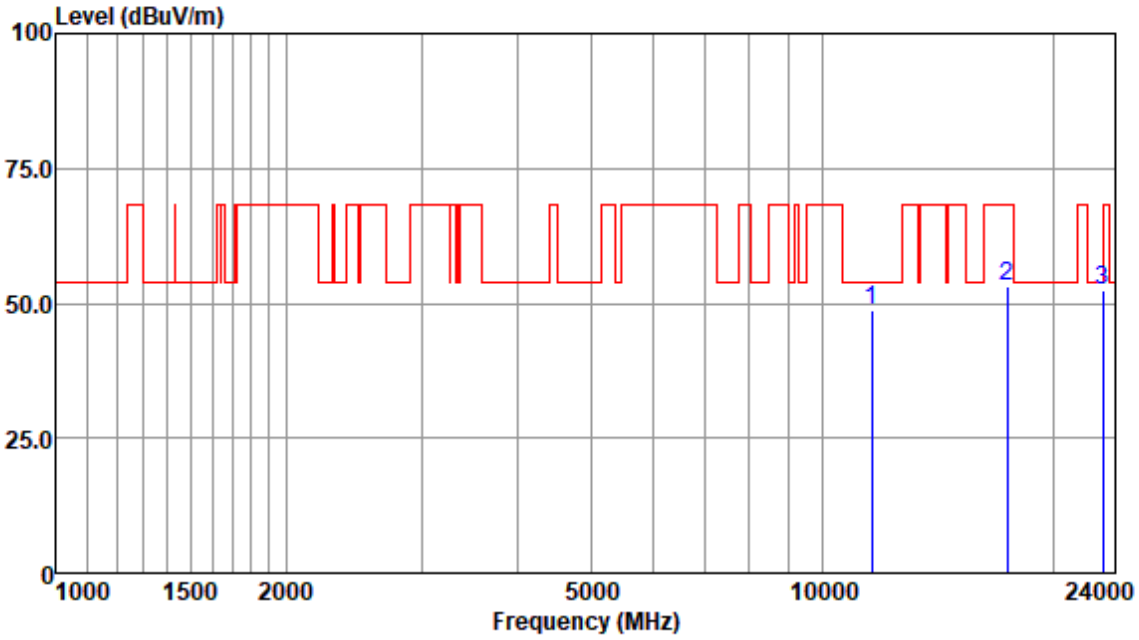


Antenna Polarity :VERTICAL

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	
11490.00	41.68	35.79	7.36	35.88	48.95	54.00	-5.05	Peak
17235.00	38.06	40.60	10.19	36.14	52.71	68.20	-15.49	Peak
22980.00	28.78	44.52	13.01	36.15	50.16	54.00	-3.84	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

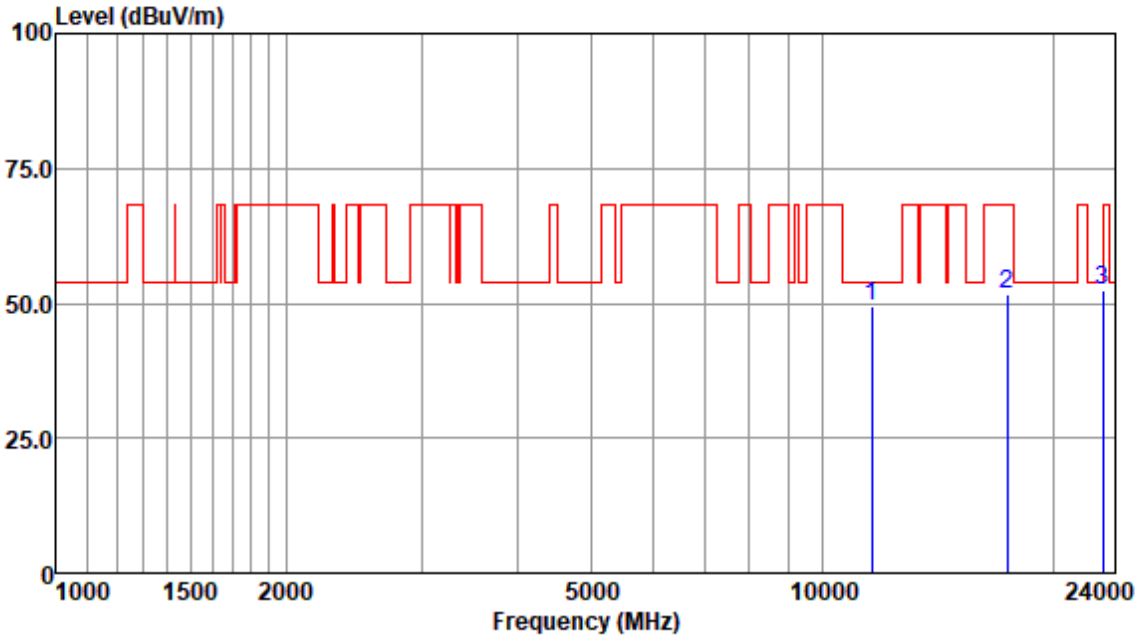


Antenna Polarity :HORIZONTAL

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	
11570.00	41.61	35.78	7.44	36.02	48.81	54.00	-5.19	Peak
17355.00	38.17	40.95	10.32	36.25	53.19	68.20	-15.01	Peak
23140.00	30.71	44.62	13.12	36.16	52.29	68.20	-15.91	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

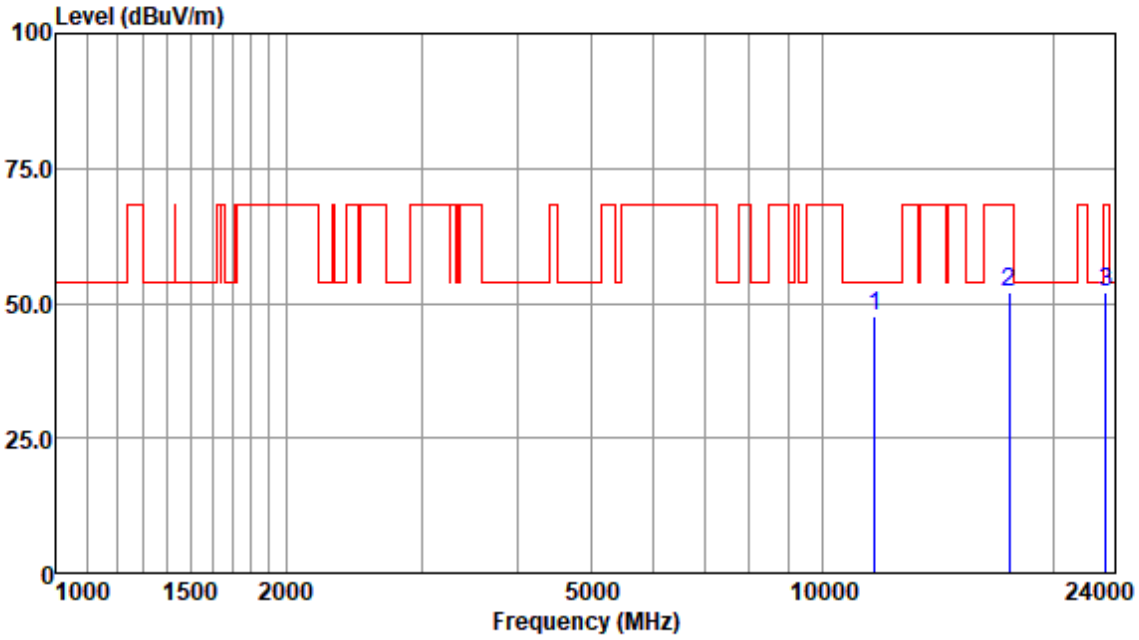


Antenna Polarity :VERTICAL

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	
11570.00	42.38	35.78	7.44	36.02	49.58	54.00	-4.42	Peak
17355.00	36.80	40.95	10.32	36.25	51.82	68.20	-16.38	Peak
23140.00	30.67	44.62	13.12	36.16	52.25	68.20	-15.95	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

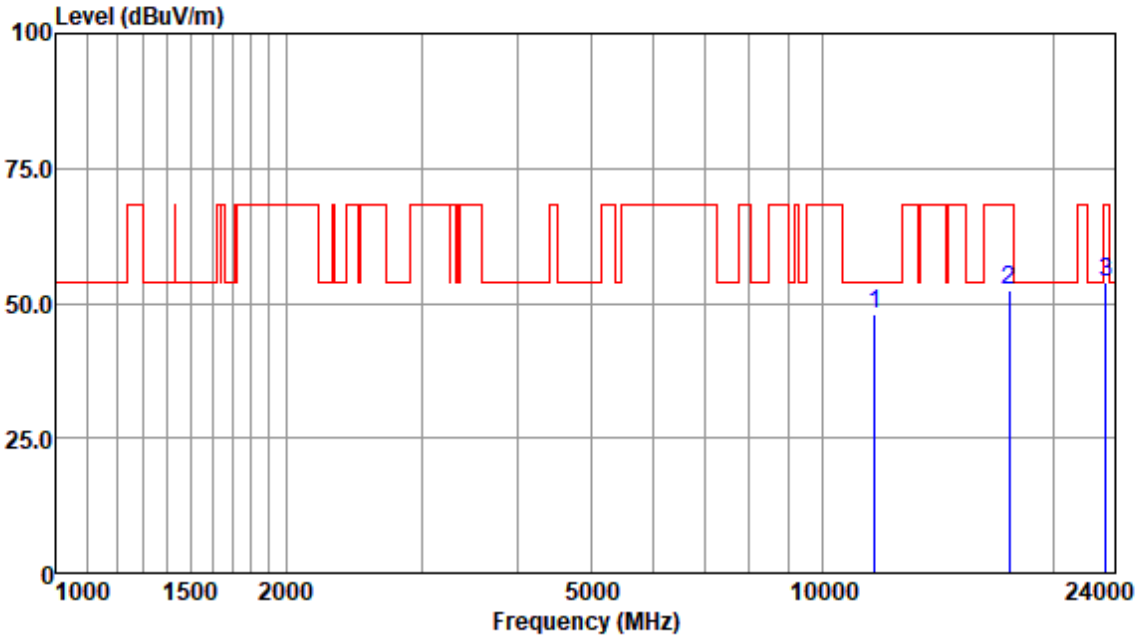


Antenna Polarity :HORIZONTAL

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	
11650.00	40.55	35.77	7.56	36.23	47.65	54.00	-6.35	Peak
17475.00	36.51	41.30	10.45	36.37	51.89	68.20	-16.31	Peak
23300.00	30.46	44.69	13.19	36.17	52.17	68.20	-16.03	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

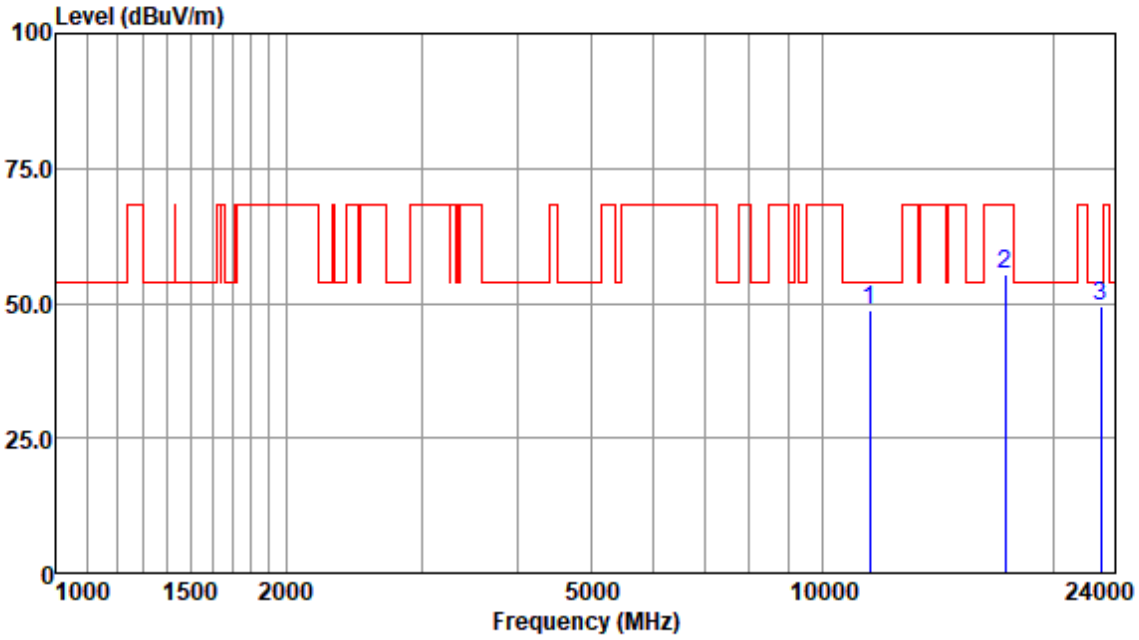


Antenna Polarity :VERTICAL

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	
11650.00	41.04	35.77	7.56	36.23	48.14	54.00	-5.86	Peak
17475.00	36.91	41.30	10.45	36.37	52.29	68.20	-15.91	Peak
23300.00	32.11	44.69	13.19	36.17	53.82	68.20	-14.38	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

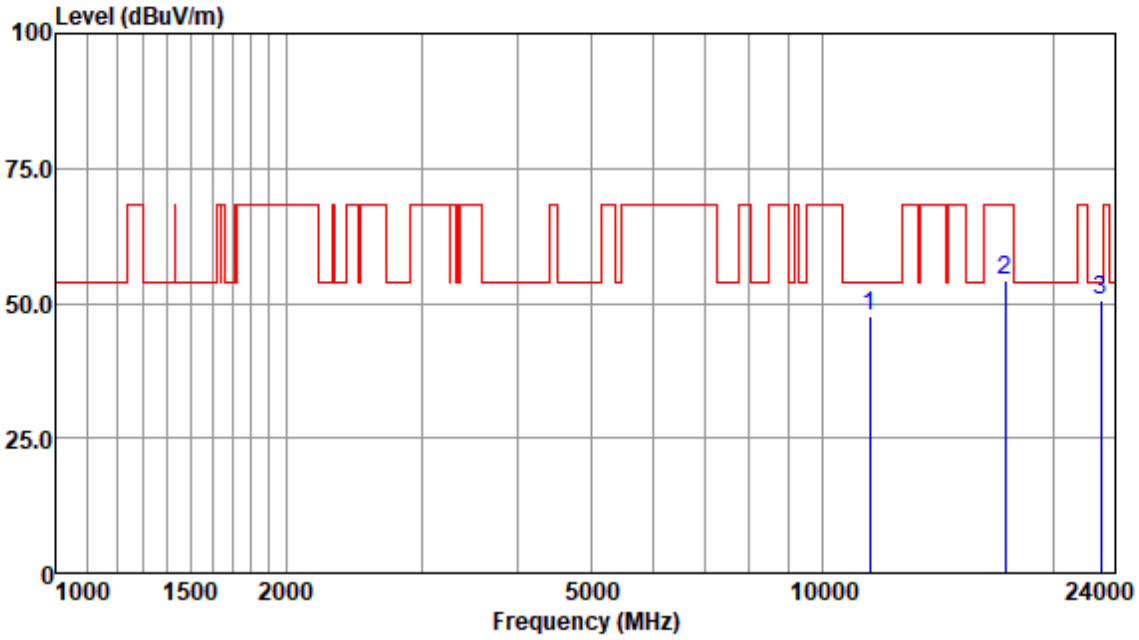


Antenna Polarity :HORIZONTAL

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	
11490.00	41.32	35.79	7.36	35.88	48.59	54.00	-5.41	Peak
17235.00	40.81	40.60	10.19	36.14	55.46	68.20	-12.74	Peak
22980.00	28.25	44.52	13.01	36.15	49.63	54.00	-4.37	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

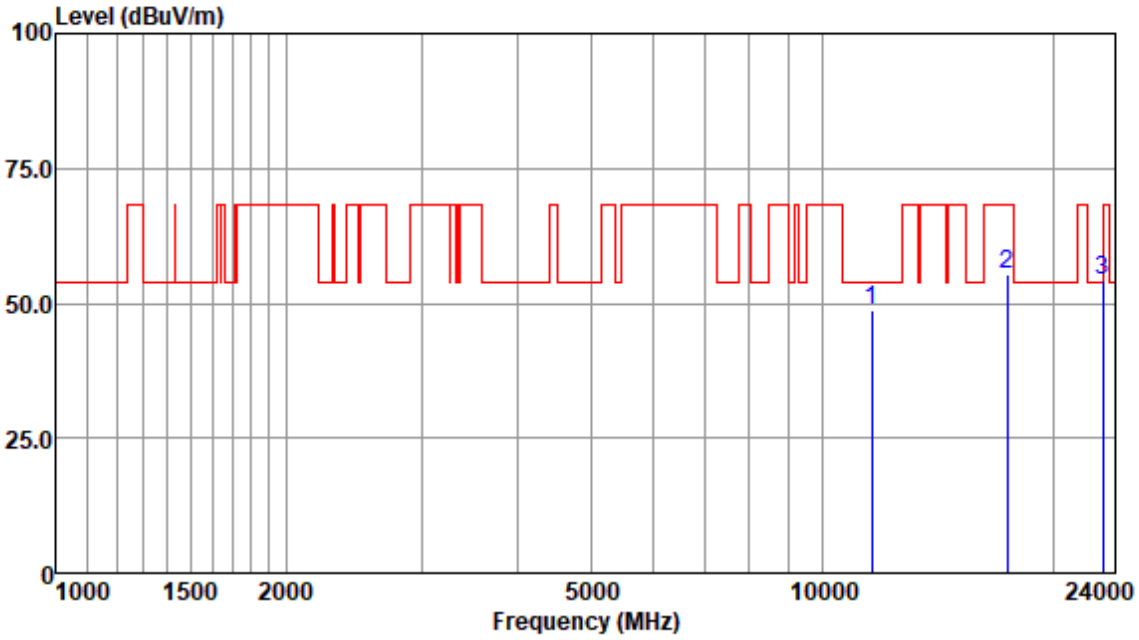


Antenna Polarity :VERTICAL

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	
11490.00	40.38	35.79	7.36	35.88	47.65	54.00	-6.35	Peak
17235.00	39.60	40.60	10.19	36.14	54.25	68.20	-13.95	Peak
22980.00	29.11	44.52	13.01	36.15	50.49	54.00	-3.51	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

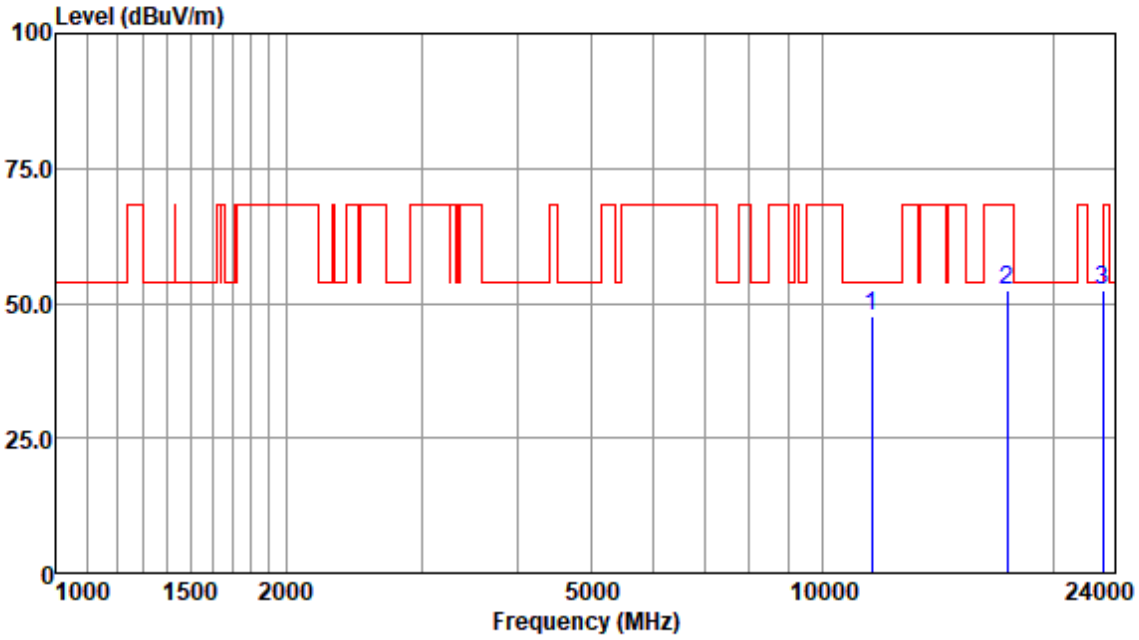


Antenna Polarity :HORIZONTAL

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	
11570.00	41.36	35.78	7.44	36.02	48.56	54.00	-5.44	Peak
17355.00	40.36	40.95	10.32	36.25	55.38	68.20	-12.82	Peak
23140.00	32.61	44.62	13.12	36.16	54.19	68.20	-14.01	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

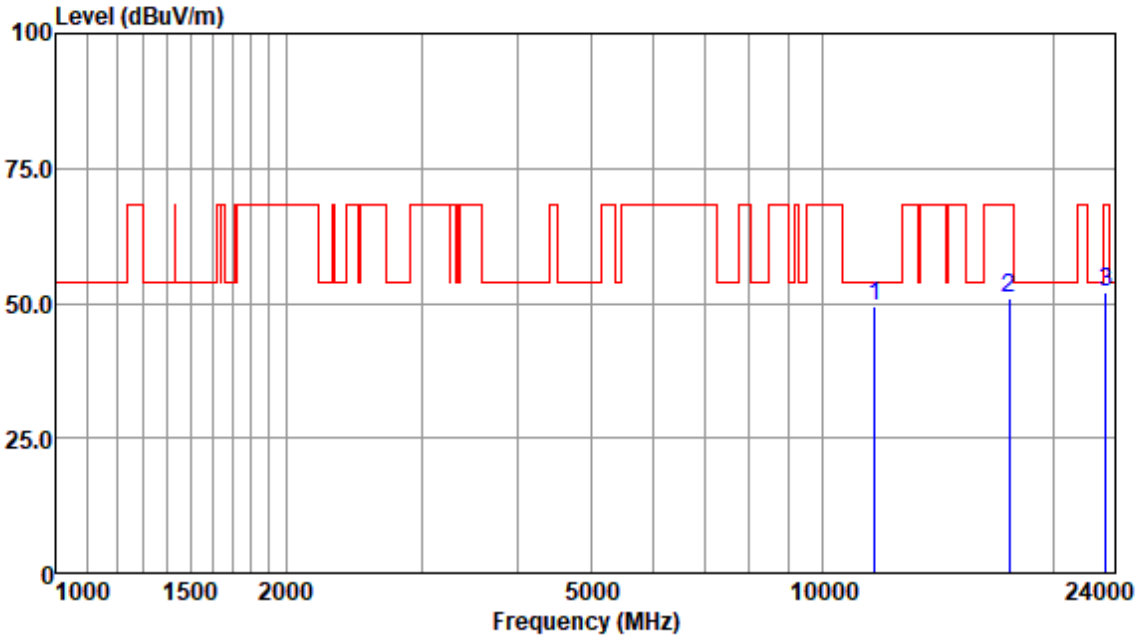


Antenna Polarity :VERTICAL

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	
11570.00	40.31	35.78	7.44	36.02	47.51	54.00	-6.49	Peak
17355.00	37.28	40.95	10.32	36.25	52.30	68.20	-15.90	Peak
23140.00	30.75	44.62	13.12	36.16	52.33	68.20	-15.87	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High

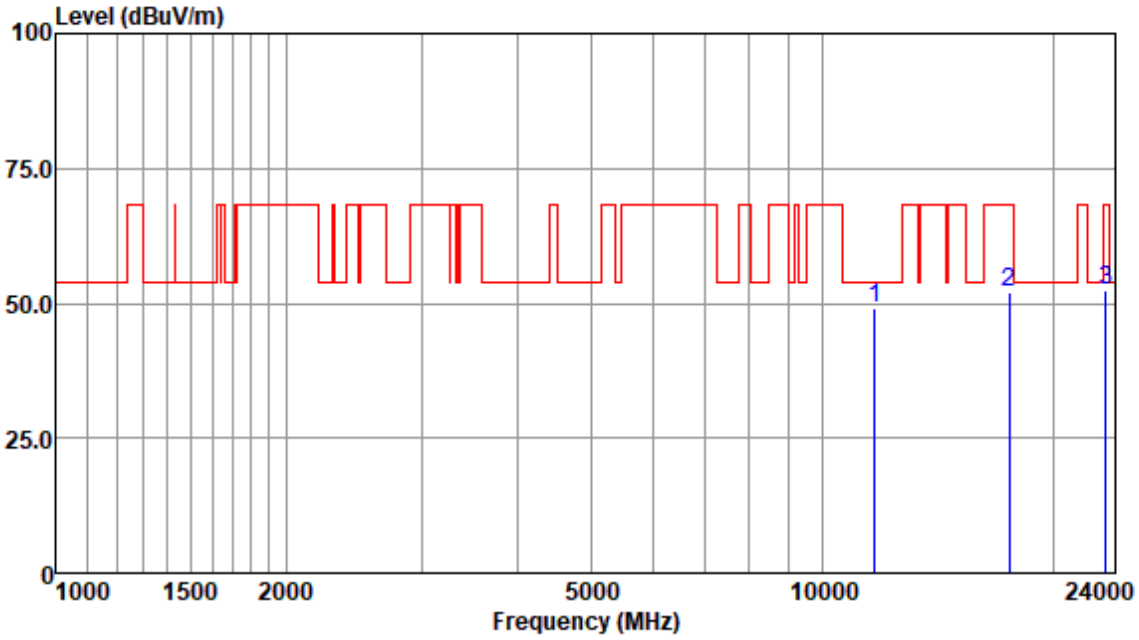


Antenna Polarity :HORIZONTAL

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	
11650.00	42.42	35.77	7.56	36.23	49.52	54.00	-4.48	Peak
17475.00	35.68	41.30	10.45	36.37	51.06	68.20	-17.14	Peak
23300.00	30.48	44.69	13.19	36.17	52.19	68.20	-16.01	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High

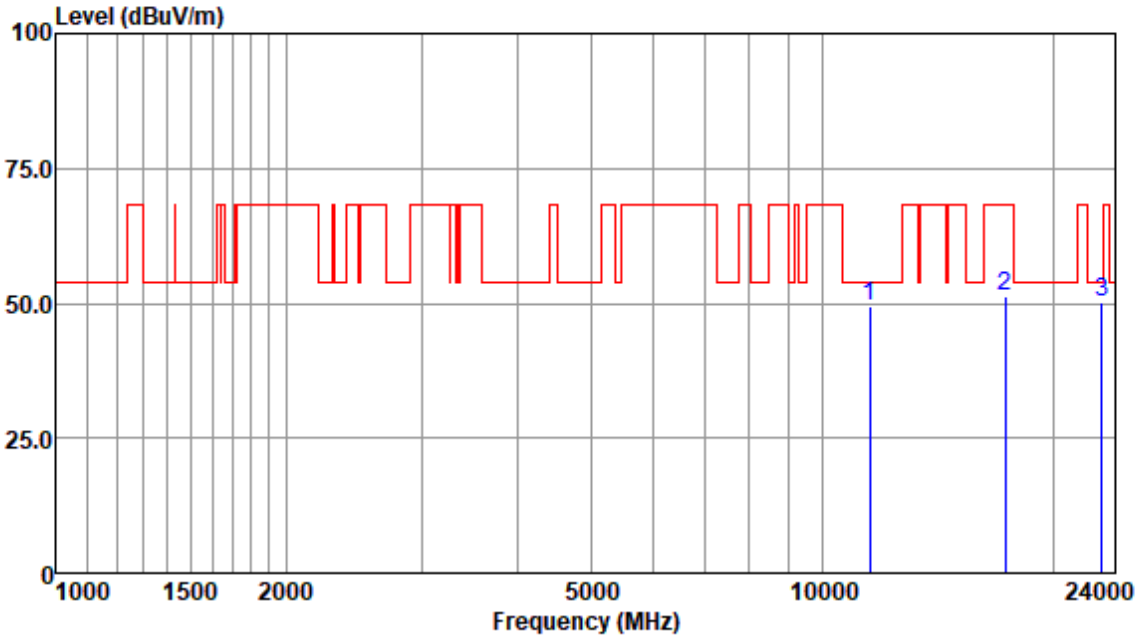


Antenna Polarity :VERTICAL

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	
11650.00	42.04	35.77	7.56	36.23	49.14	54.00	-4.86	Peak
17475.00	36.48	41.30	10.45	36.37	51.86	68.20	-16.34	Peak
23300.00	30.73	44.69	13.19	36.17	52.44	68.20	-15.76	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

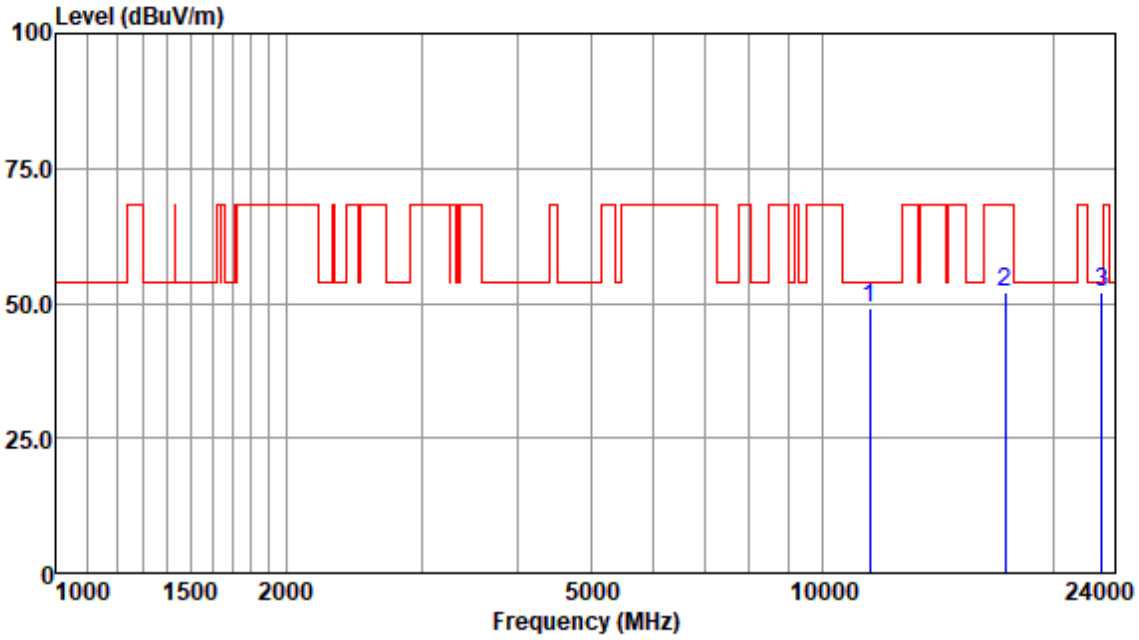


Antenna Polarity :HORIZONTAL

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	
11510.00	42.36	35.78	7.40	35.95	49.59	54.00	-4.41	Peak
17265.00	36.72	40.60	10.19	36.14	51.37	68.20	-16.83	Peak
23020.00	28.71	44.55	13.05	36.16	50.15	54.00	-3.85	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

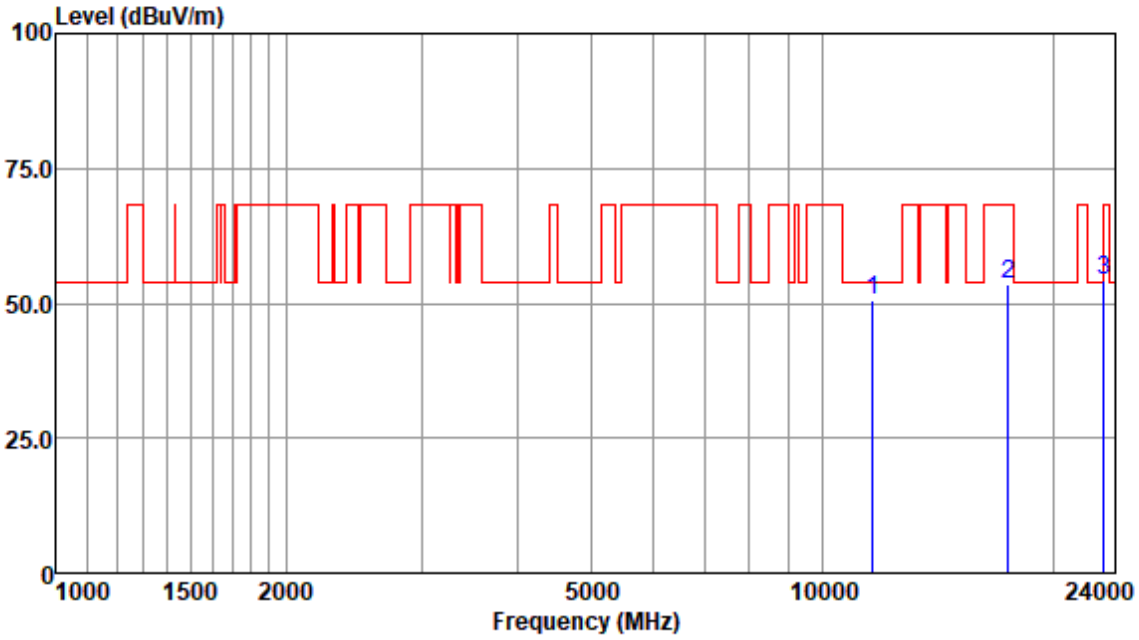


Antenna Polarity :VERTICAL

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	
11510.00	41.70	35.78	7.40	35.95	48.93	54.00	-5.07	Peak
17265.00	37.51	40.60	10.19	36.14	52.16	68.20	-16.04	Peak
23020.00	30.49	44.55	13.05	36.16	51.93	54.00	-2.07	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High

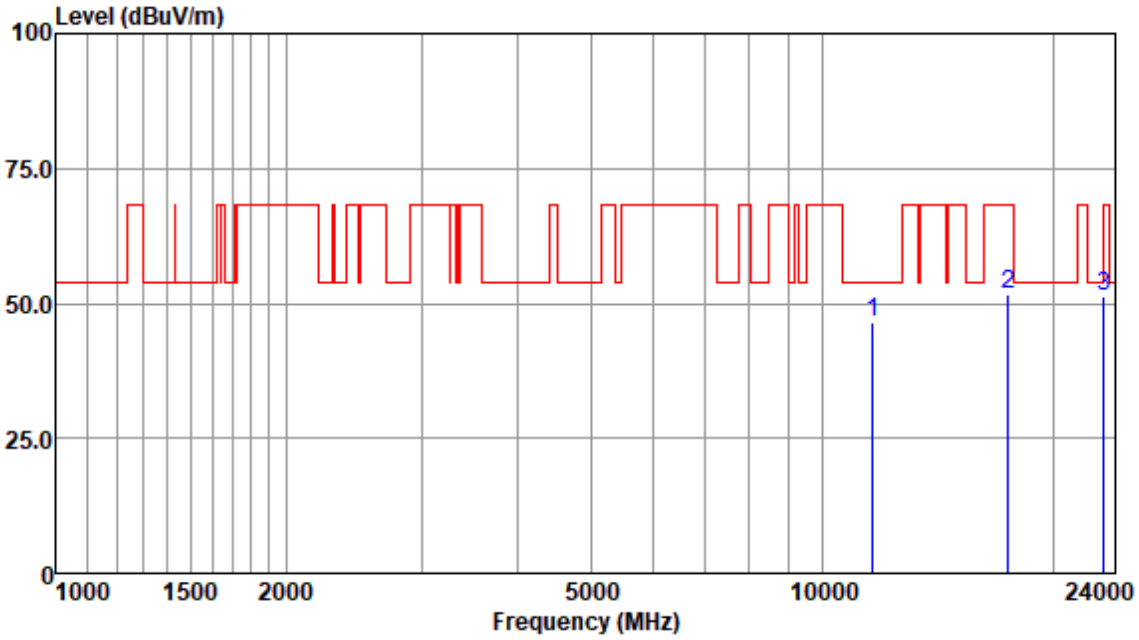


Antenna Polarity :HORIZONTAL

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	
11590.00	43.38	35.78	7.48	36.09	50.55	54.00	-3.45	Peak
17385.00	38.13	41.12	10.39	36.31	53.33	68.20	-14.87	Peak
23180.00	32.71	44.62	13.12	36.16	54.29	68.20	-13.91	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Antenna Polarity :VERTICAL

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	
11590.00	39.42	35.78	7.48	36.09	46.59	54.00	-7.41	Peak
17385.00	36.33	41.12	10.39	36.31	51.53	68.20	-16.67	Peak
23180.00	29.73	44.62	13.12	36.16	51.31	68.20	-16.89	Peak

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

7.8 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: KDB 789033 D02 II G

Limit:

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

*(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.

7.8.1 E.U.T. Operation

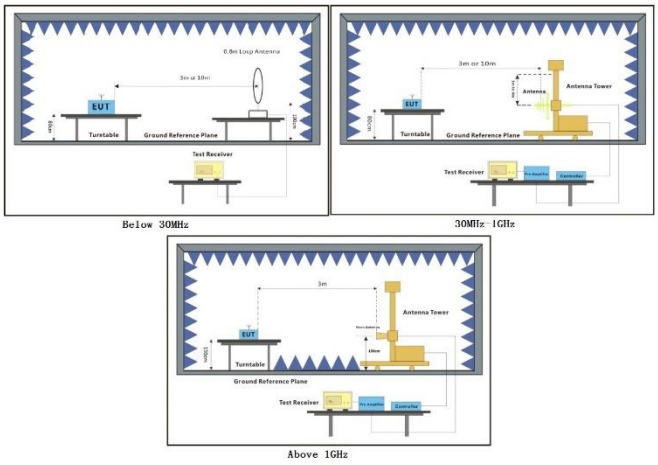
Operating Environment:

Temperature: 22.1 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram



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 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.

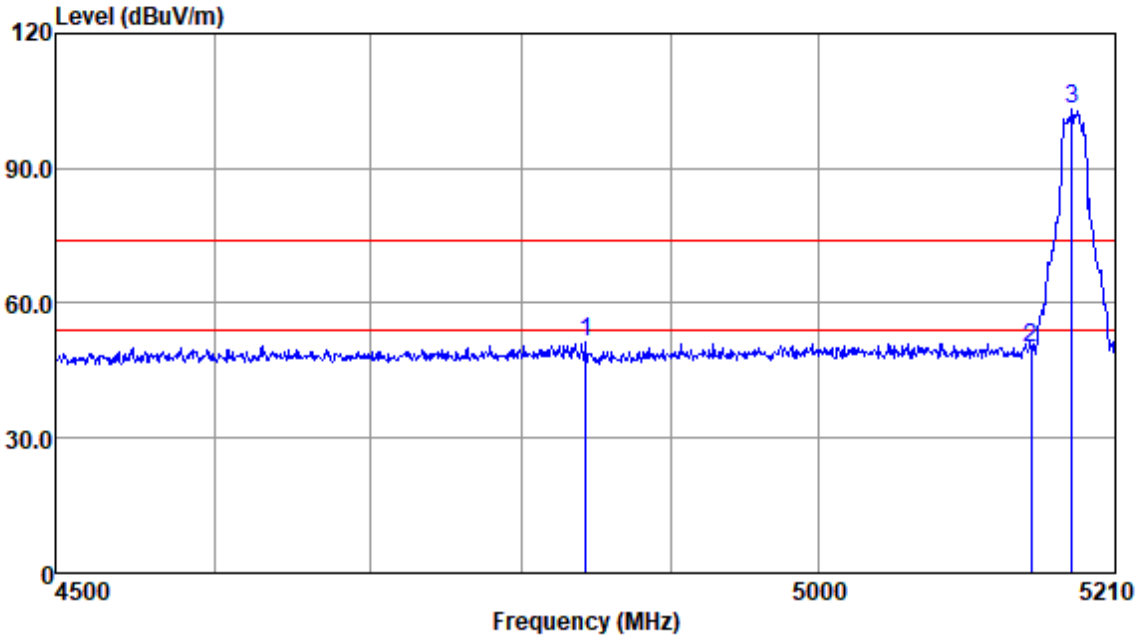
h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

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

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

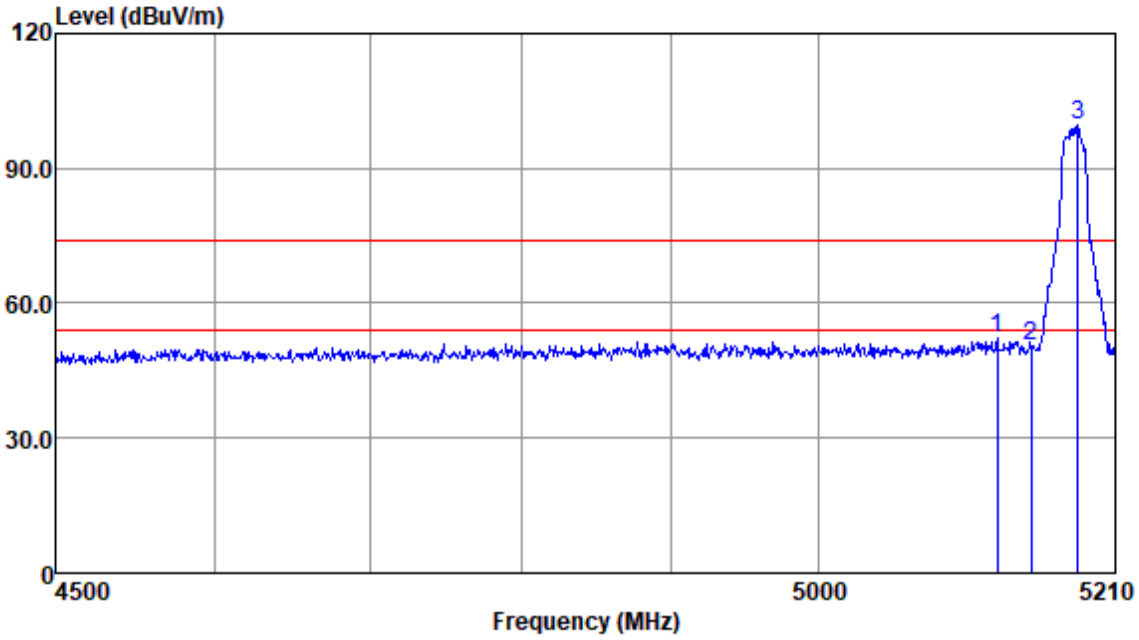


Antenna Polarity :HORIZONTAL

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	
4842.00	49.73	33.66	4.63	36.80	51.22	74.00	-22.78	Peak
5150.00	48.52	33.78	4.78	36.88	50.20	74.00	-23.80	Peak
5178.80	101.63	33.87	4.76	36.89	103.37	74.00	29.37	Peak

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

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

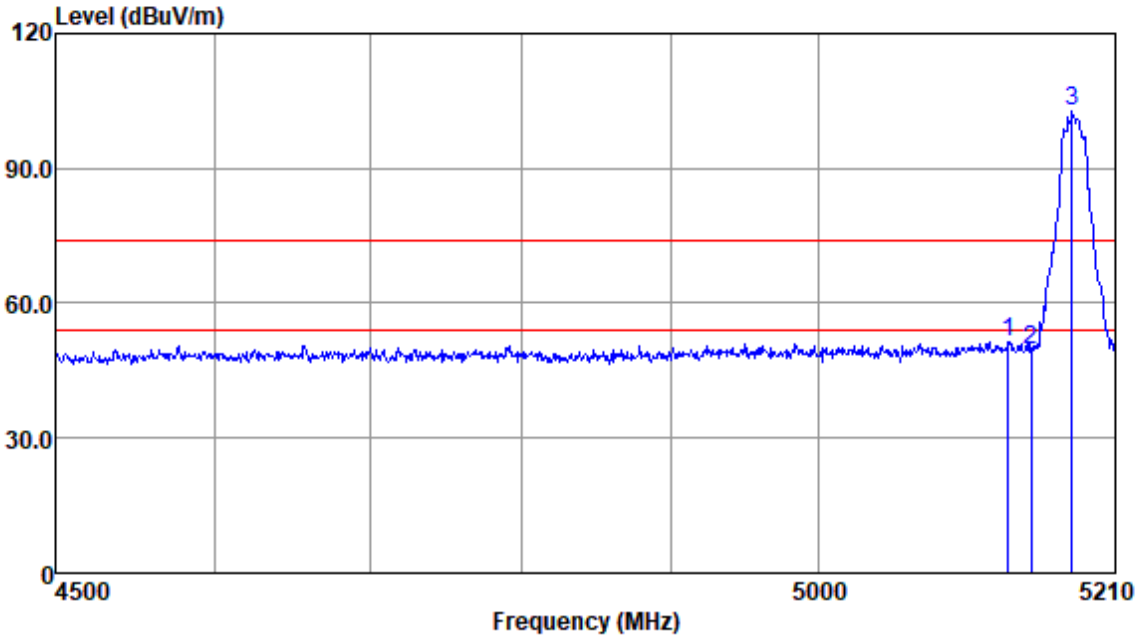


Antenna Polarity :VERTICAL

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	
5125.96	50.52	33.71	4.80	36.87	52.16	74.00	-21.84	Peak
5150.00	48.84	33.78	4.78	36.88	50.52	74.00	-23.48	Peak
5183.35	97.76	33.87	4.76	36.89	99.50	74.00	25.50	Peak

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

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

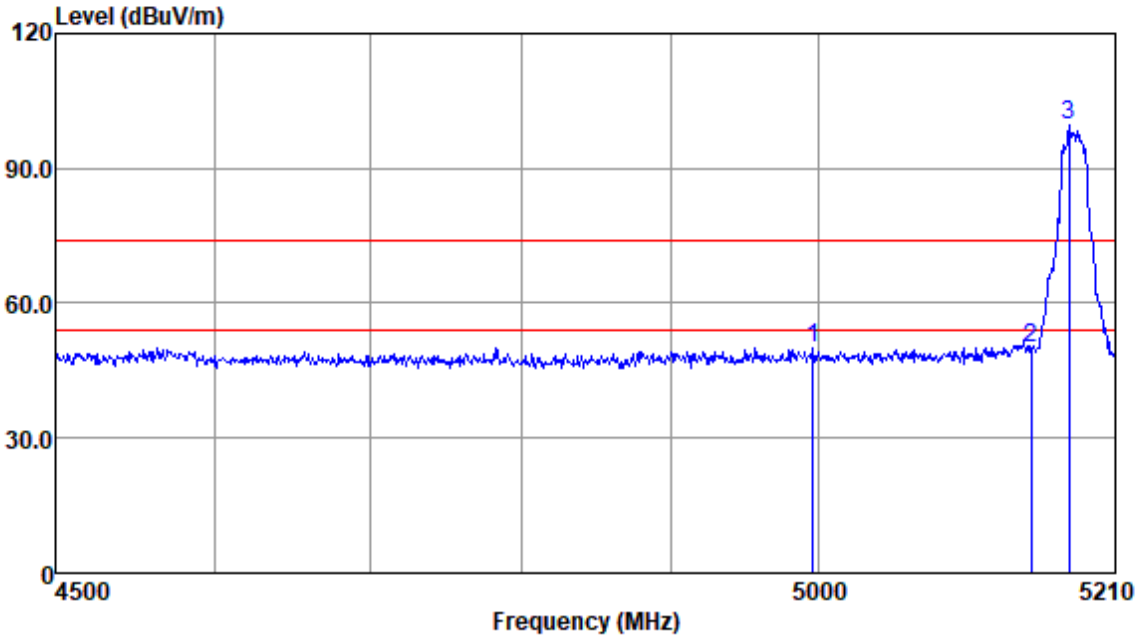


Antenna Polarity :HORIZONTAL

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	
5133.48	49.85	33.74	4.80	36.88	51.51	74.00	-22.49	Peak
5150.00	48.00	33.78	4.78	36.88	49.68	74.00	-24.32	Peak
5178.80	100.95	33.87	4.76	36.89	102.69	74.00	28.69	Peak

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

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

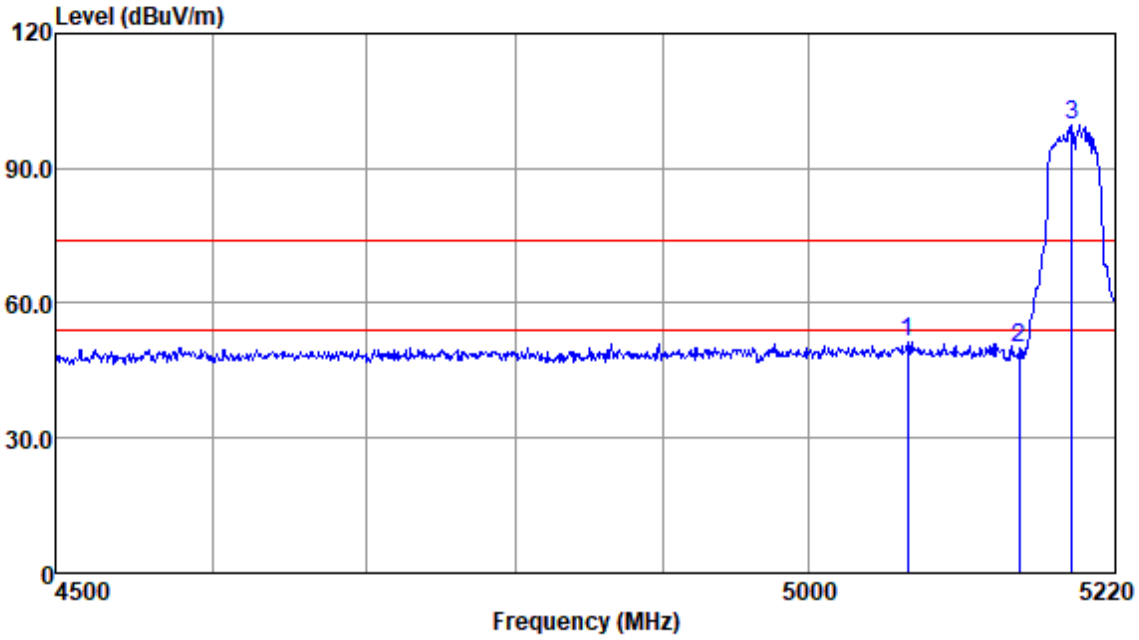


Antenna Polarity :VERTICAL

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	
4996.95	48.21	33.69	4.90	36.84	49.96	74.00	-24.04	Peak
5150.00	48.26	33.78	4.78	36.88	49.94	74.00	-24.06	Peak
5176.52	98.01	33.87	4.76	36.89	99.75	74.00	25.75	Peak

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

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

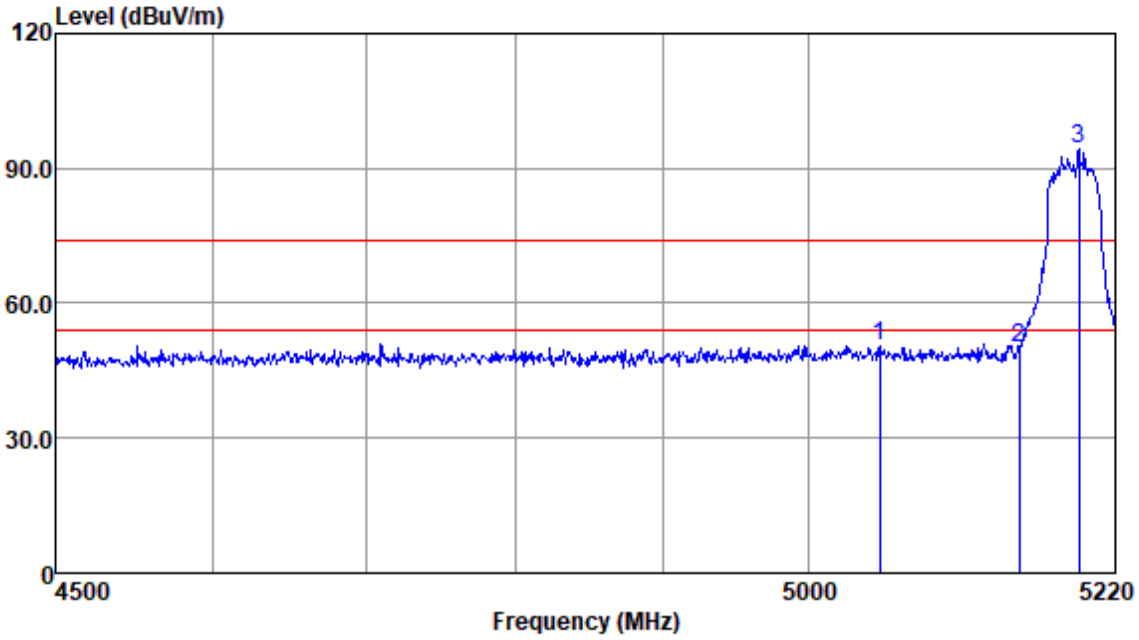


Antenna Polarity :HORIZONTAL

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	
5070.34	49.71	33.68	4.85	36.86	51.38	74.00	-22.62	Peak
5150.00	48.24	33.78	4.78	36.88	49.92	74.00	-24.08	Peak
5188.33	98.02	33.91	4.76	36.89	99.80	74.00	25.80	Peak

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

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

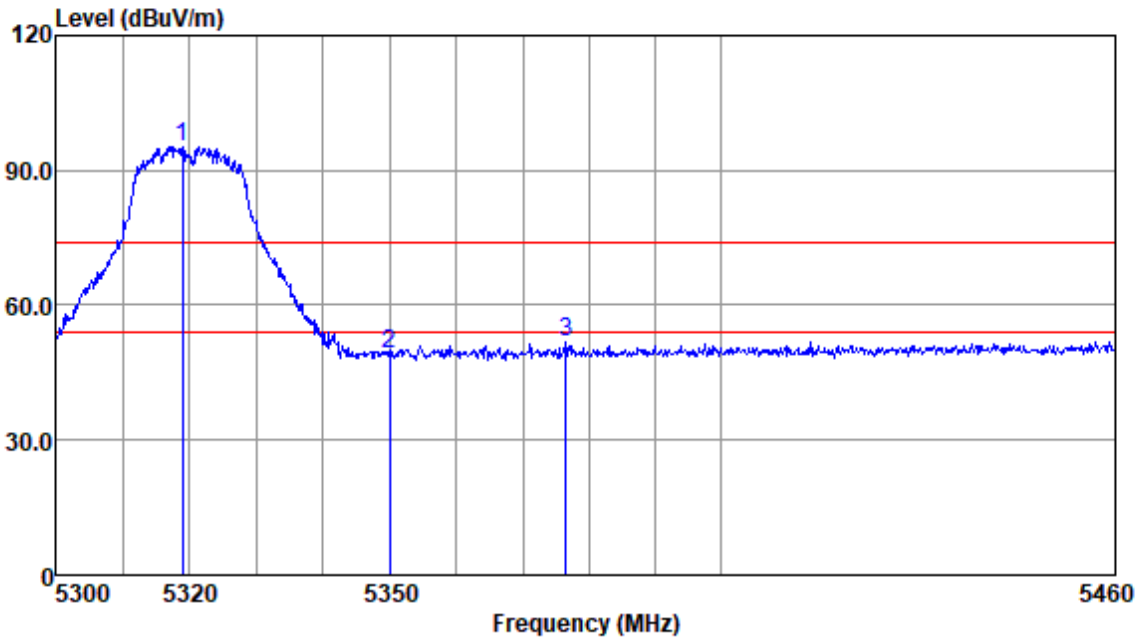


Antenna Polarity :VERTICAL

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	
5050.81	48.86	33.69	4.86	36.85	50.56	74.00	-23.44	Peak
5150.00	48.28	33.78	4.78	36.88	49.96	74.00	-24.04	Peak
5193.73	92.37	33.91	4.75	36.89	94.14	74.00	20.14	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

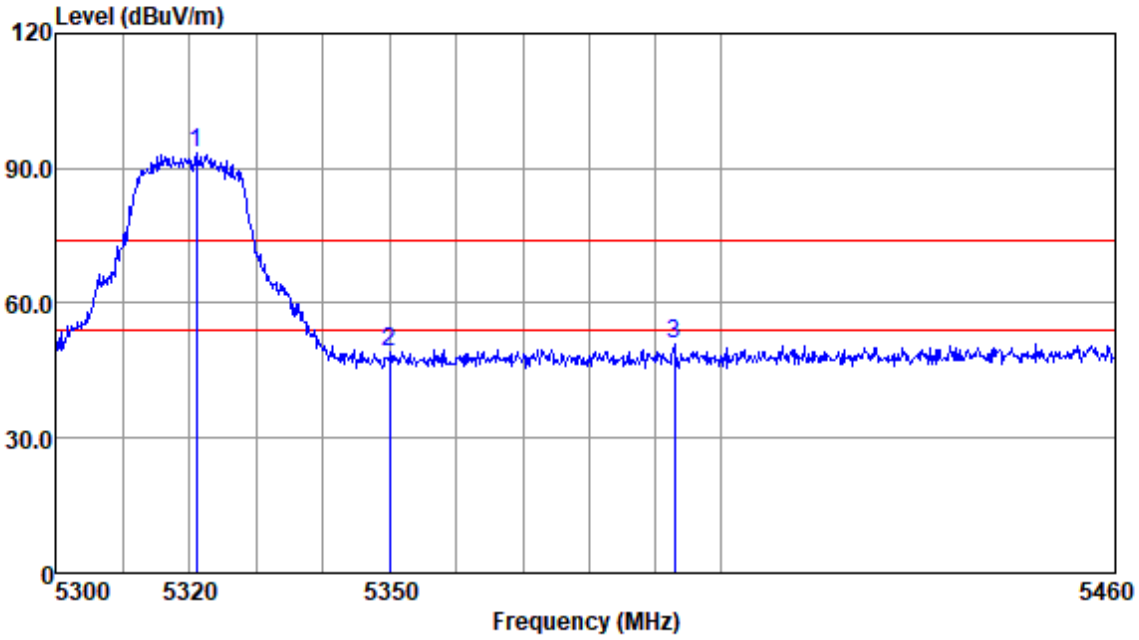


Antenna Polarity :HORIZONTAL

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	
5318.95	93.16	34.16	4.91	36.93	95.30	74.00	21.30	Peak
5350.00	46.78	34.19	4.95	36.94	48.98	74.00	-25.02	Peak
5376.53	49.30	34.29	4.98	36.95	51.62	74.00	-22.38	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

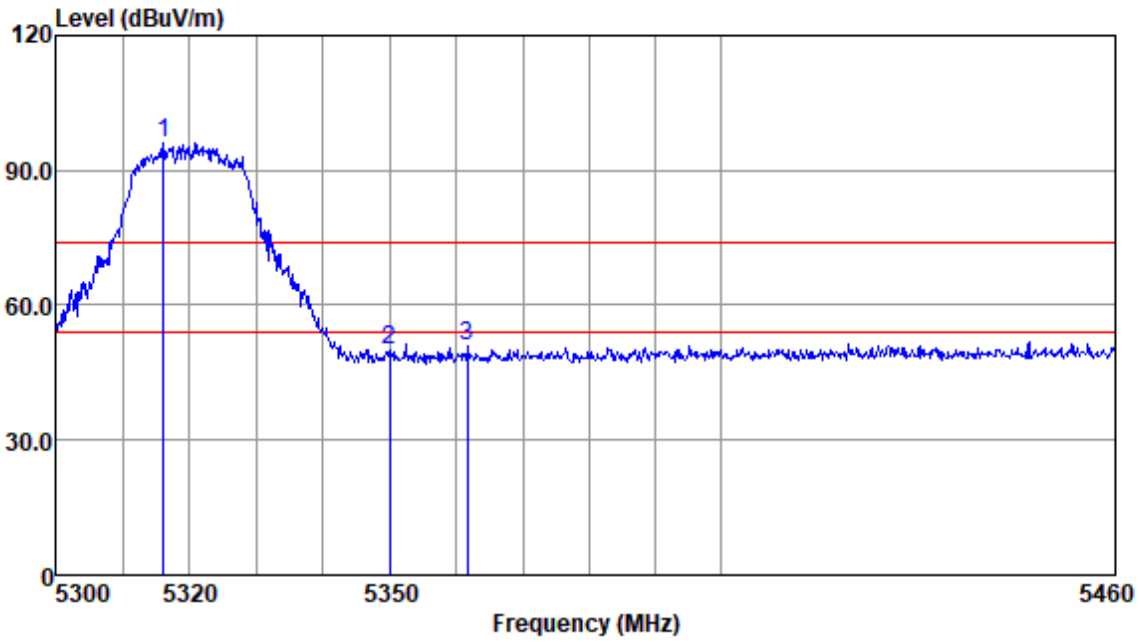


Antenna Polarity :VERTICAL

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	
5321.01	91.25	34.16	4.91	36.93	93.39	74.00	19.39	Peak
5350.00	46.80	34.19	4.95	36.94	49.00	74.00	-25.00	Peak
5392.86	48.41	34.34	5.00	36.95	50.80	74.00	-23.20	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High

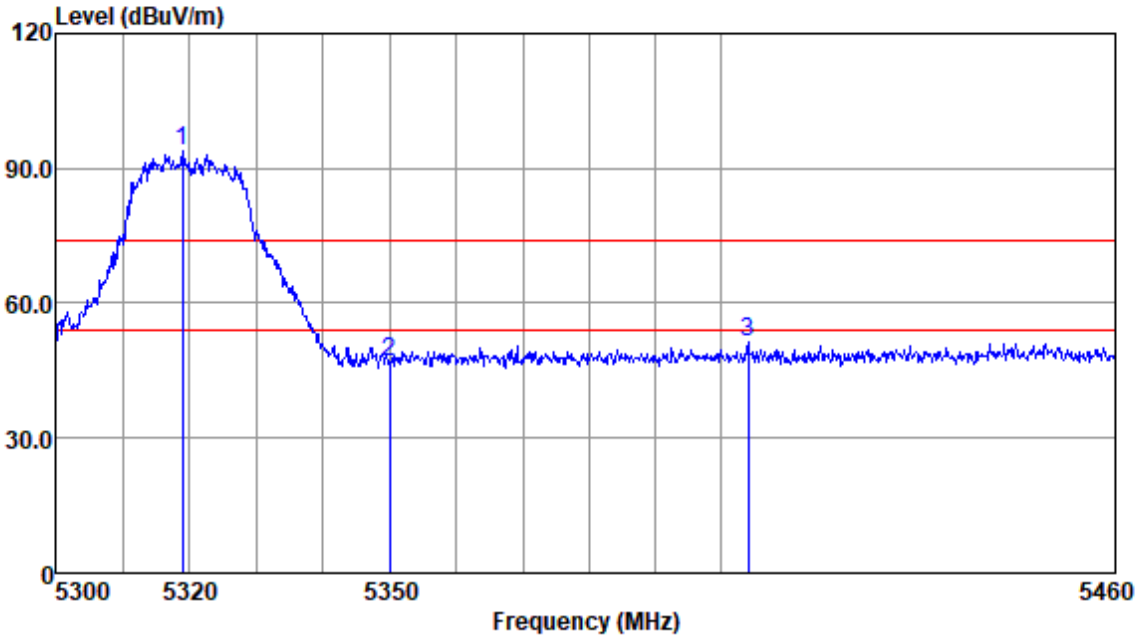


Antenna Polarity :HORIZONTAL

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	
5316.10	94.13	34.16	4.91	36.93	96.27	74.00	22.27	Peak
5350.00	47.95	34.19	4.95	36.94	50.15	74.00	-23.85	Peak
5361.68	48.73	34.24	4.98	36.94	51.01	74.00	-22.99	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High

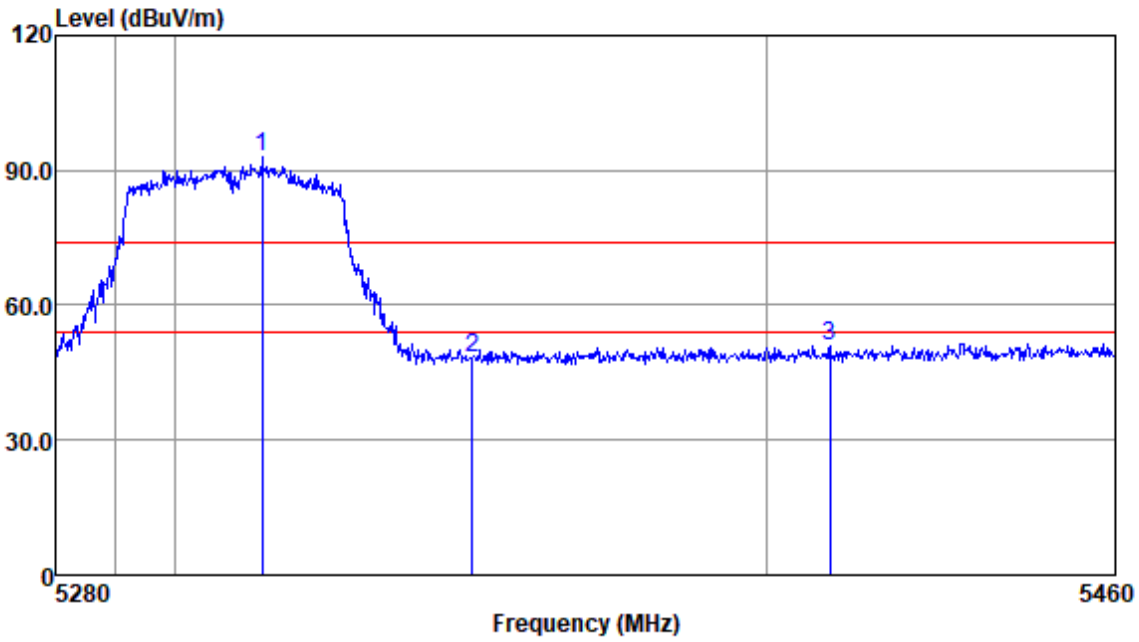


Antenna Polarity :VERTICAL

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	
5318.95	91.73	34.16	4.91	36.93	93.87	74.00	19.87	Peak
5350.00	44.86	34.19	4.95	36.94	47.06	74.00	-26.94	Peak
5404.10	49.09	34.36	5.02	36.95	51.52	74.00	-22.48	Peak

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

Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High

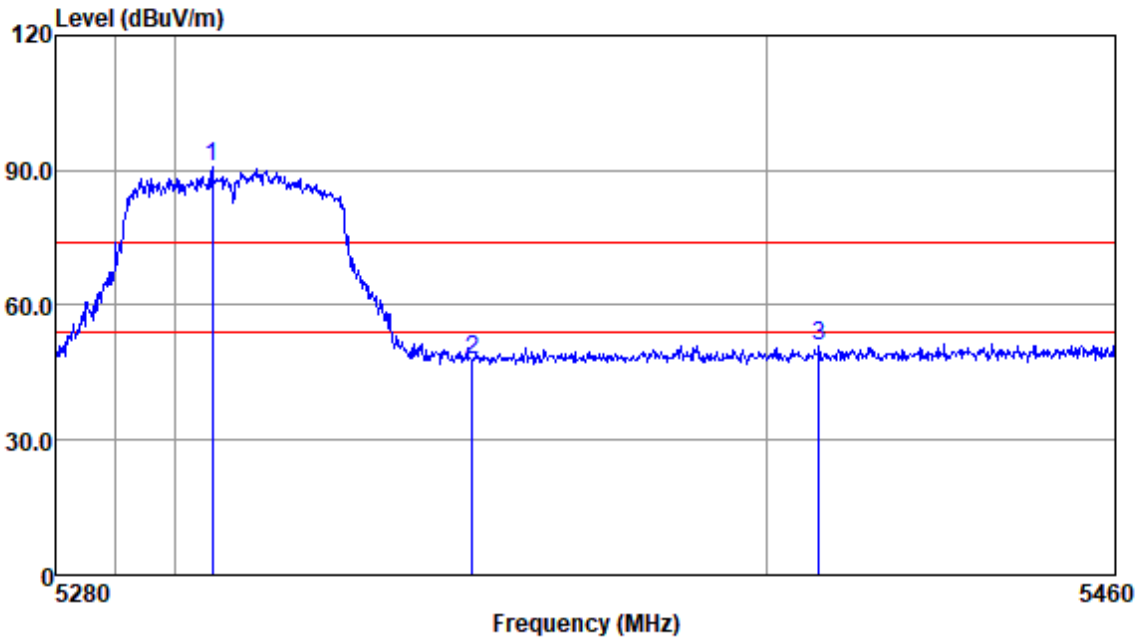


Antenna Polarity :HORIZONTAL

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	
5314.63	90.68	34.16	4.91	36.93	92.82	74.00	18.82	Peak
5350.00	45.87	34.19	4.95	36.94	48.07	74.00	-25.93	Peak
5410.99	48.63	34.36	5.02	36.95	51.06	74.00	-22.94	Peak

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

Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High

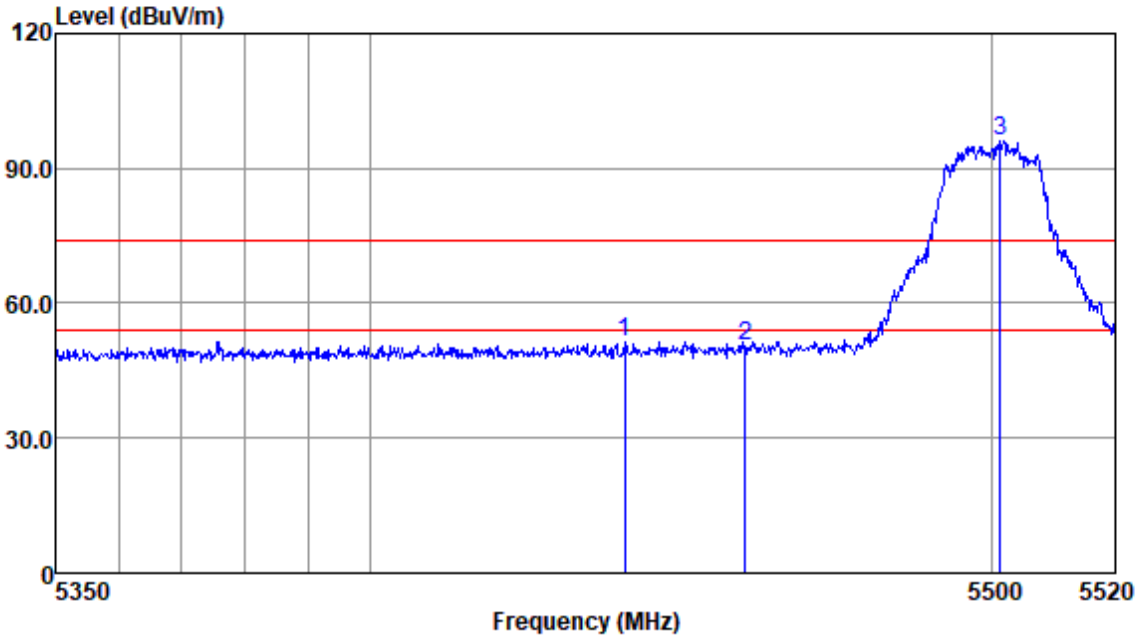


Antenna Polarity :VERTICAL

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	
5306.26	88.68	34.14	4.88	36.92	90.78	74.00	16.78	Peak
5350.00	45.76	34.19	4.95	36.94	47.96	74.00	-26.04	Peak
5408.99	48.54	34.36	5.02	36.95	50.97	74.00	-23.03	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

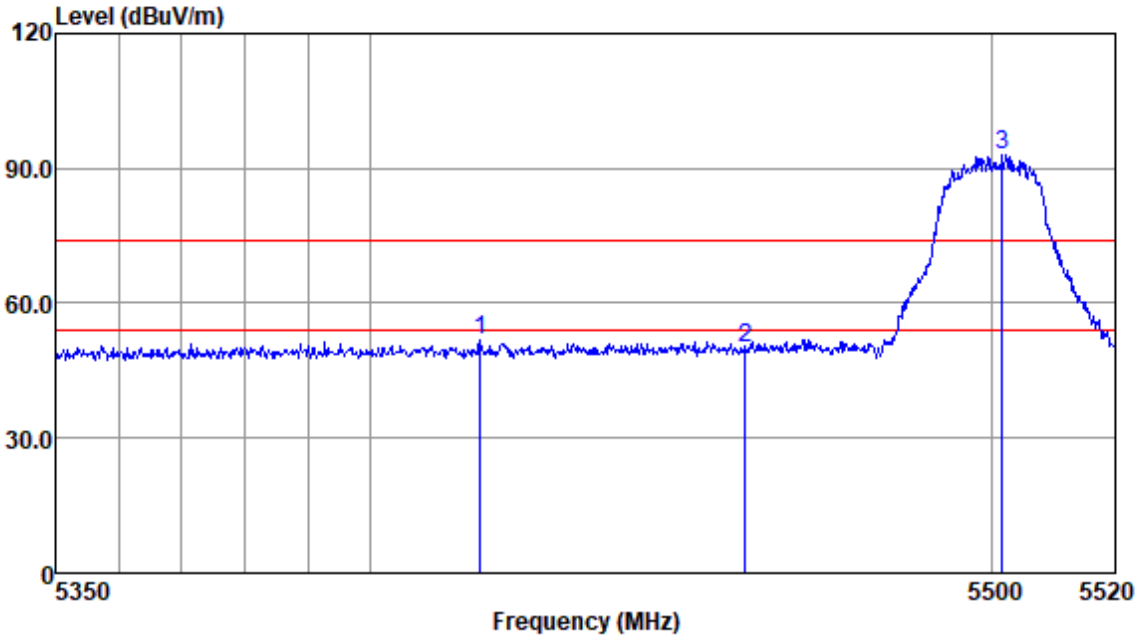


Antenna Polarity :HORIZONTAL

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	
5440.63	48.82	34.42	5.07	36.96	51.35	74.00	-22.65	Peak
5460.00	47.95	34.44	5.09	36.97	50.51	74.00	-23.49	Peak
5501.21	93.07	34.52	5.40	36.98	96.01	74.00	22.01	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

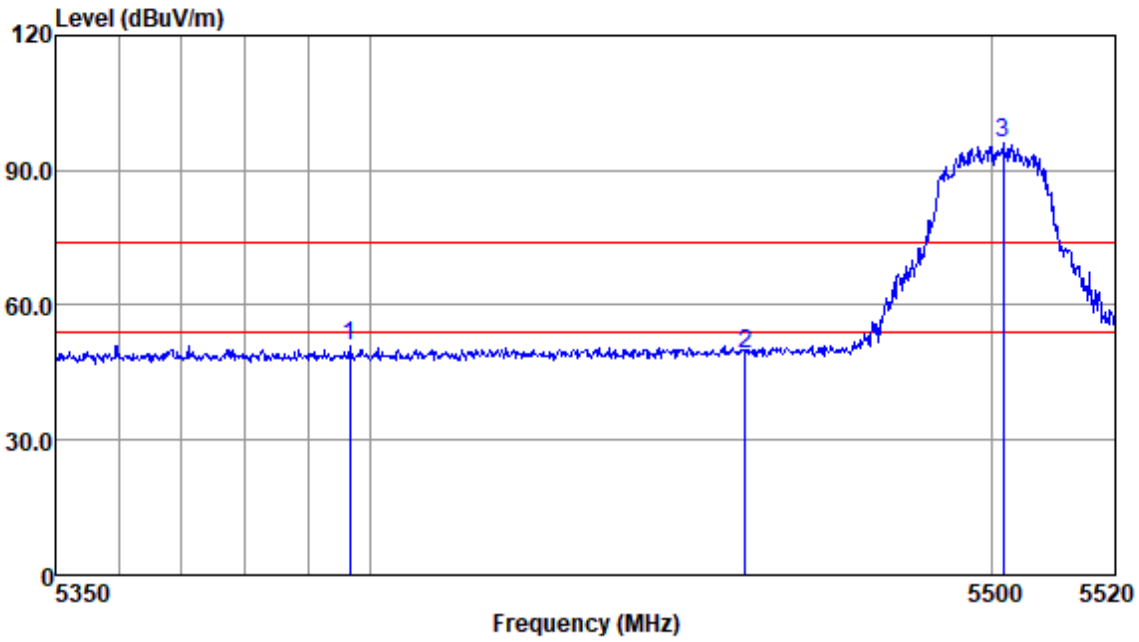


Antenna Polarity :VERTICAL

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	
5417.53	49.22	34.39	5.05	36.96	51.70	74.00	-22.30	Peak
5460.00	47.34	34.44	5.09	36.97	49.90	74.00	-24.10	Peak
5501.56	90.13	34.52	5.40	36.98	93.07	74.00	19.07	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

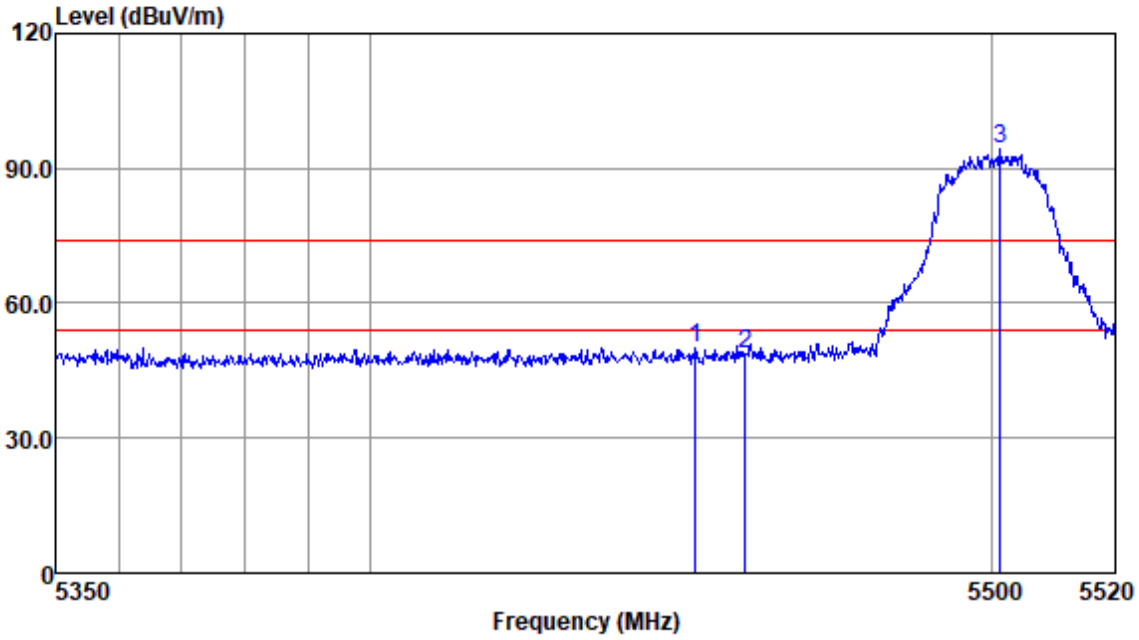


Antenna Polarity :HORIZONTAL

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	
5396.73	48.53	34.34	5.02	36.95	50.94	74.00	-23.06	Peak
5460.00	46.68	34.44	5.09	36.97	49.24	74.00	-24.76	Peak
5501.73	93.04	34.52	5.40	36.98	95.98	74.00	21.98	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

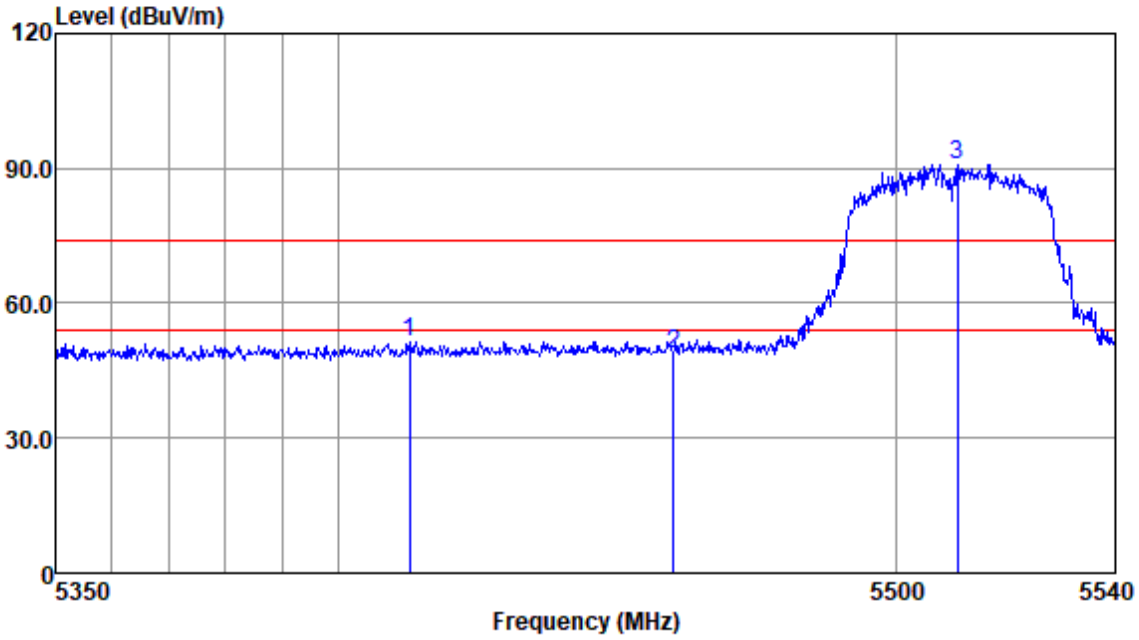


Antenna Polarity :VERTICAL

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	
5452.04	47.60	34.44	5.09	36.97	50.16	74.00	-23.84	Peak
5460.00	46.05	34.44	5.09	36.97	48.61	74.00	-25.39	Peak
5501.21	91.50	34.52	5.40	36.98	94.44	74.00	20.44	Peak

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

Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

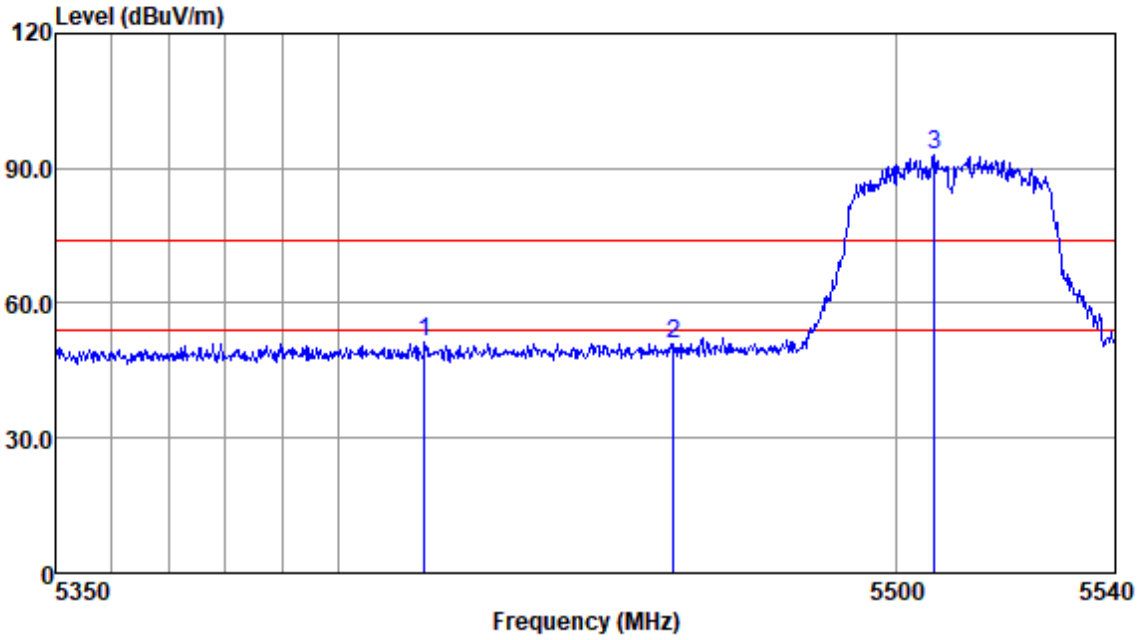


Antenna Polarity :HORIZONTAL

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	
5412.72	49.02	34.36	5.05	36.95	51.48	74.00	-22.52	Peak
5460.00	46.31	34.44	5.09	36.97	48.87	74.00	-25.13	Peak
5511.27	87.99	34.52	5.40	36.98	90.93	74.00	16.93	Peak

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

Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

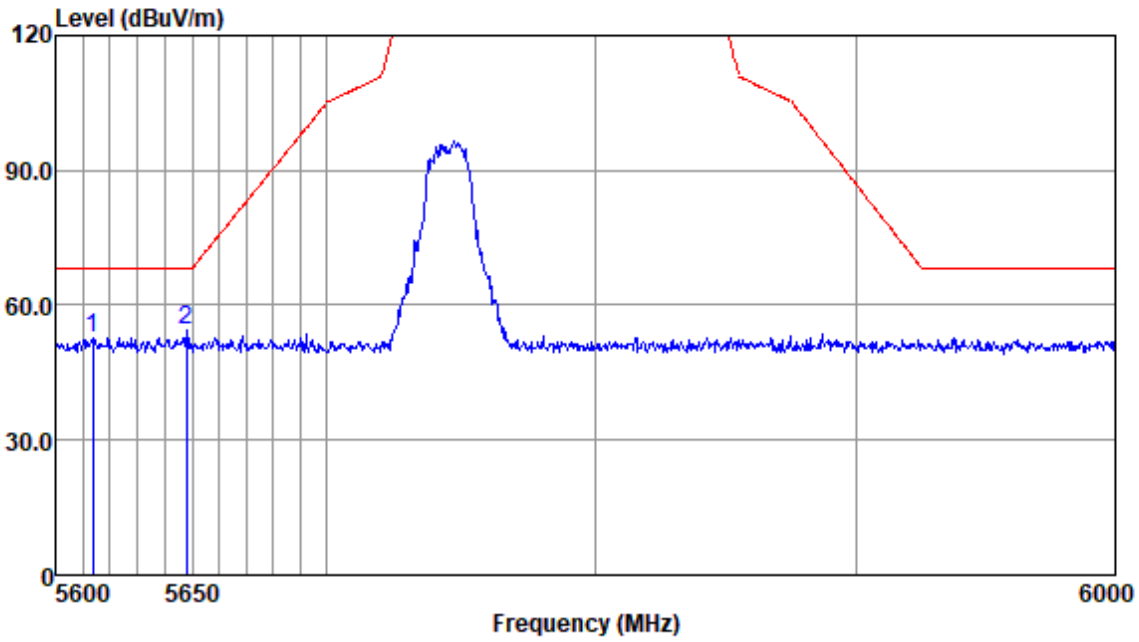


Antenna Polarity :VERTICAL

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	
5415.37	48.77	34.36	5.05	36.95	51.23	74.00	-22.77	Peak
5460.00	48.38	34.44	5.09	36.97	50.94	74.00	-23.06	Peak
5507.04	90.01	34.52	5.40	36.98	92.95	74.00	18.95	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

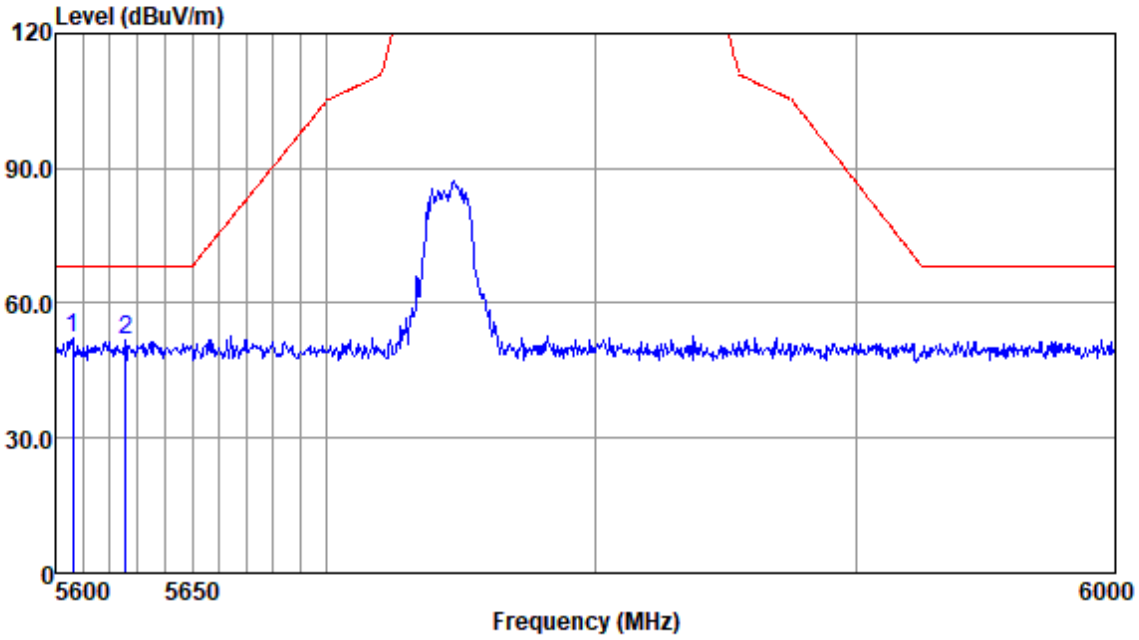


Antenna Polarity :HORIZONTAL

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	
5613.54	49.57	34.52	5.78	37.00	52.87	68.20	-15.33	Peak
5648.11	50.89	34.53	5.83	37.00	54.25	68.20	-13.95	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

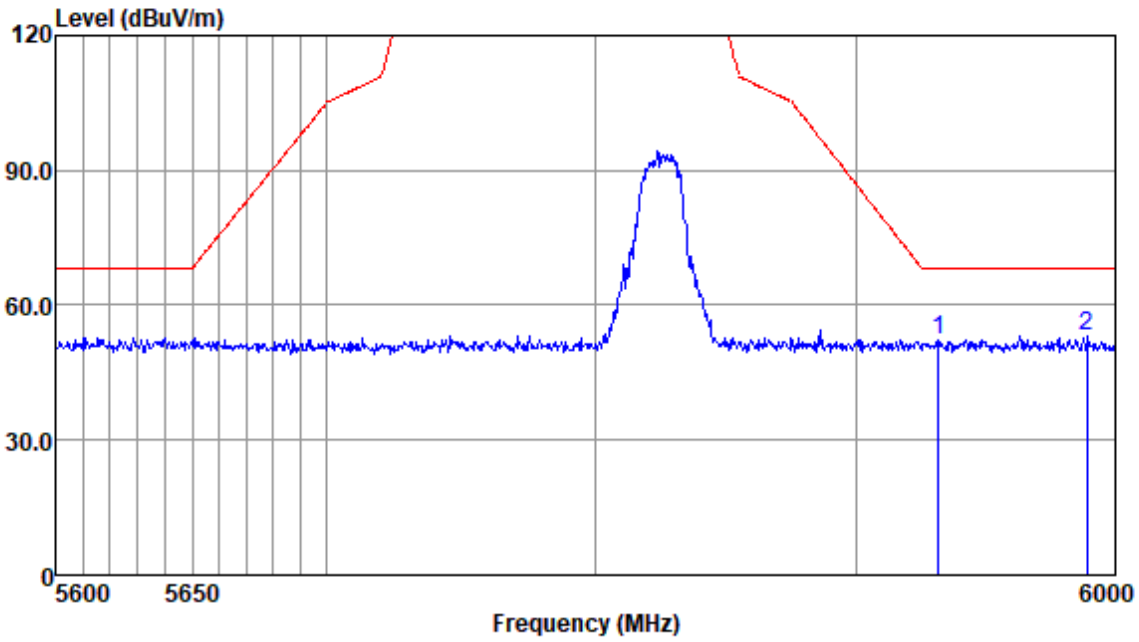


Antenna Polarity :VERTICAL

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	
5606.19	49.04	34.52	5.78	37.00	52.34	68.20	-15.86	Peak
5625.56	48.34	34.53	5.80	37.00	51.67	68.20	-16.53	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High

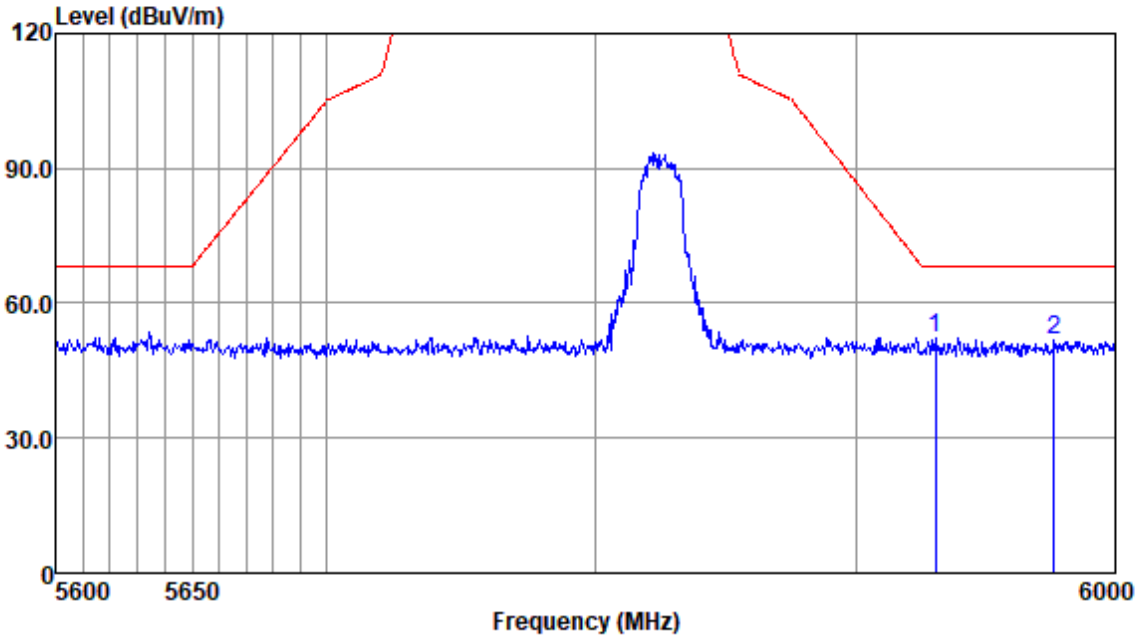


Antenna Polarity :HORIZONTAL

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	
5931.27	48.68	34.81	6.00	37.05	52.44	68.20	-15.76	Peak
5988.83	49.39	34.94	5.88	37.06	53.15	68.20	-15.05	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High

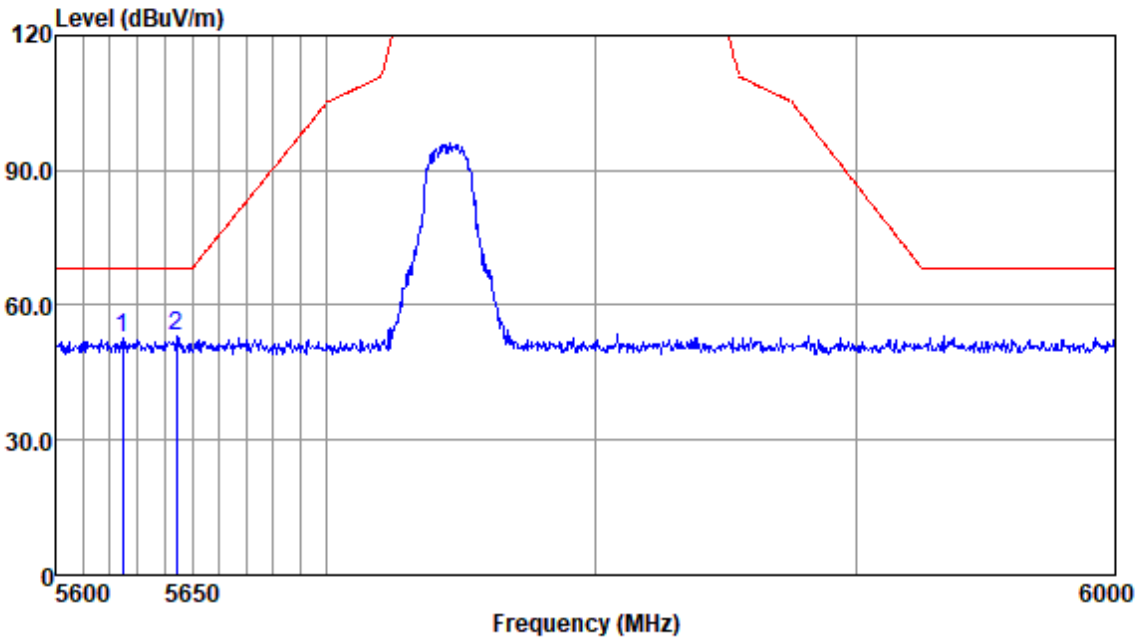


Antenna Polarity :VERTICAL

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	
5930.04	48.51	34.81	6.00	37.05	52.27	68.20	-15.93	Peak
5976.04	47.94	34.94	5.88	37.06	51.70	68.20	-16.50	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

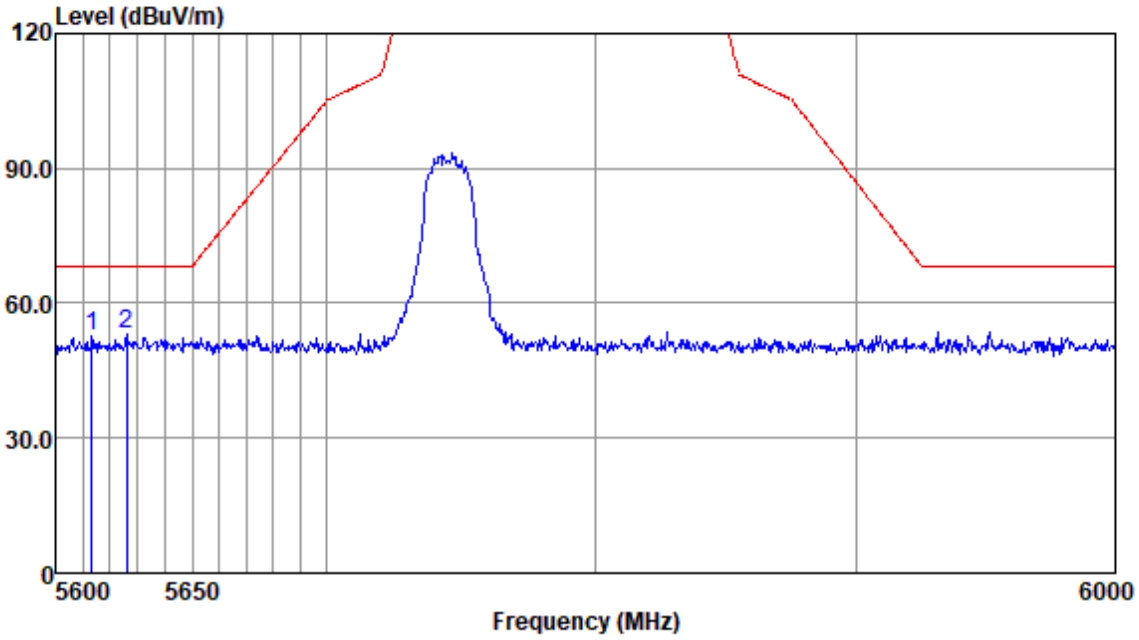


Antenna Polarity :HORIZONTAL

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	
5624.39	49.24	34.53	5.80	37.00	52.57	68.20	-15.63	Peak
5644.22	49.96	34.53	5.83	37.00	53.32	68.20	-14.88	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

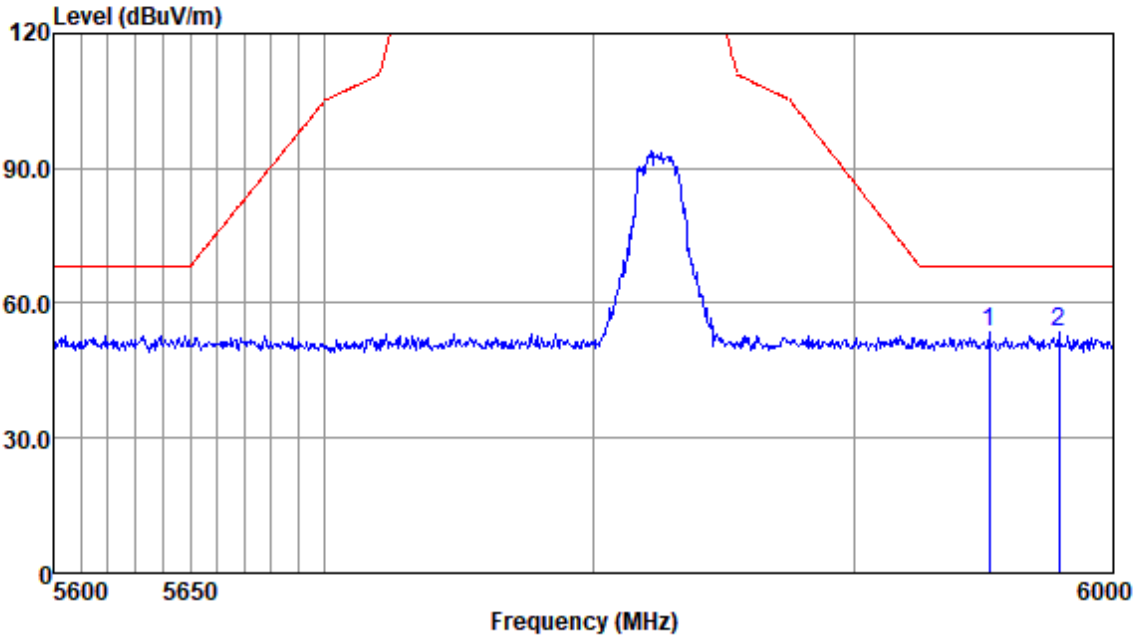


Antenna Polarity :VERTICAL

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	
5613.15	49.23	34.52	5.78	37.00	52.53	68.20	-15.67	Peak
5625.95	49.91	34.53	5.80	37.00	53.24	68.20	-14.96	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High

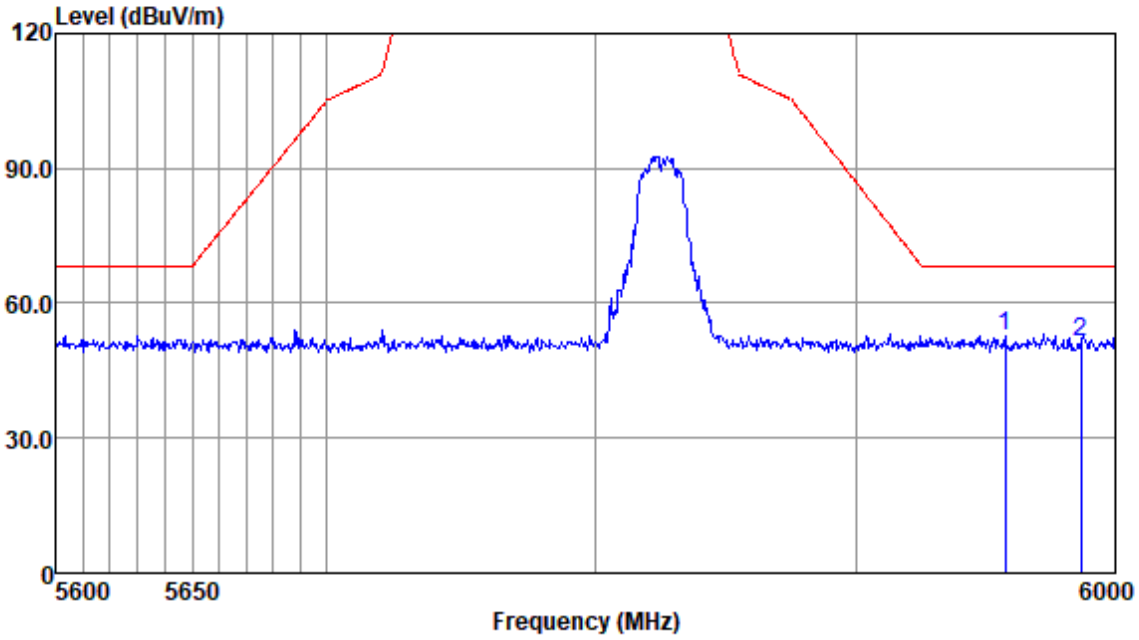


Antenna Polarity :HORIZONTAL

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	
5951.76	49.92	34.85	5.96	37.05	53.68	68.20	-14.52	Peak
5978.93	49.66	34.94	5.88	37.06	53.42	68.20	-14.78	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High

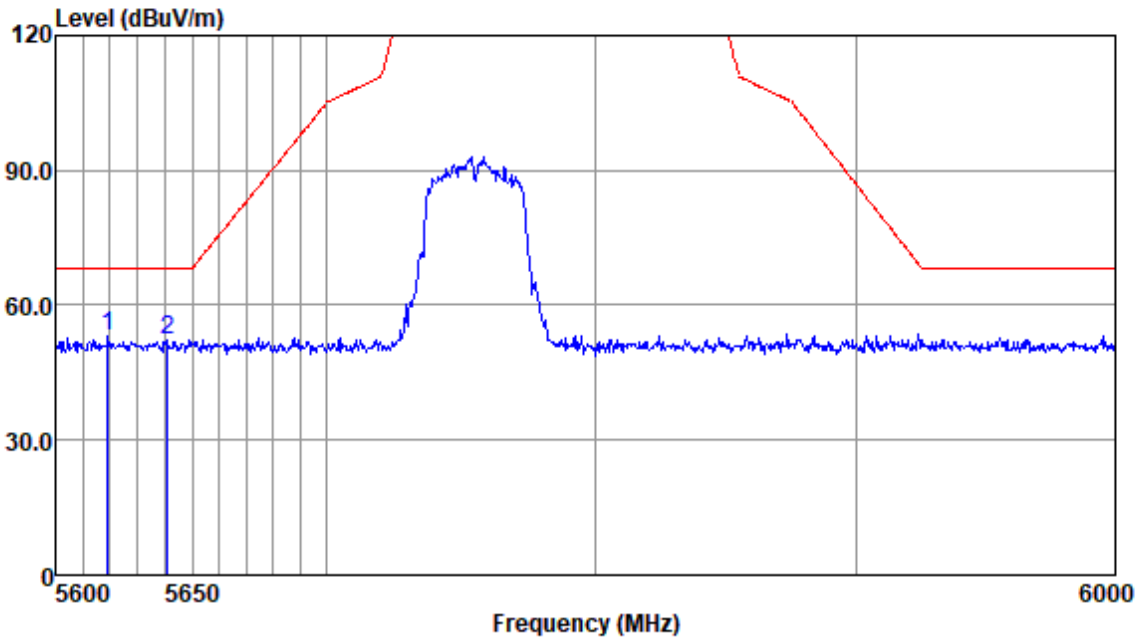


Antenna Polarity :VERTICAL

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	
5957.10	49.01	34.85	5.92	37.05	52.73	68.20	-15.47	Peak
5986.77	47.56	34.94	5.88	37.06	51.32	68.20	-16.88	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

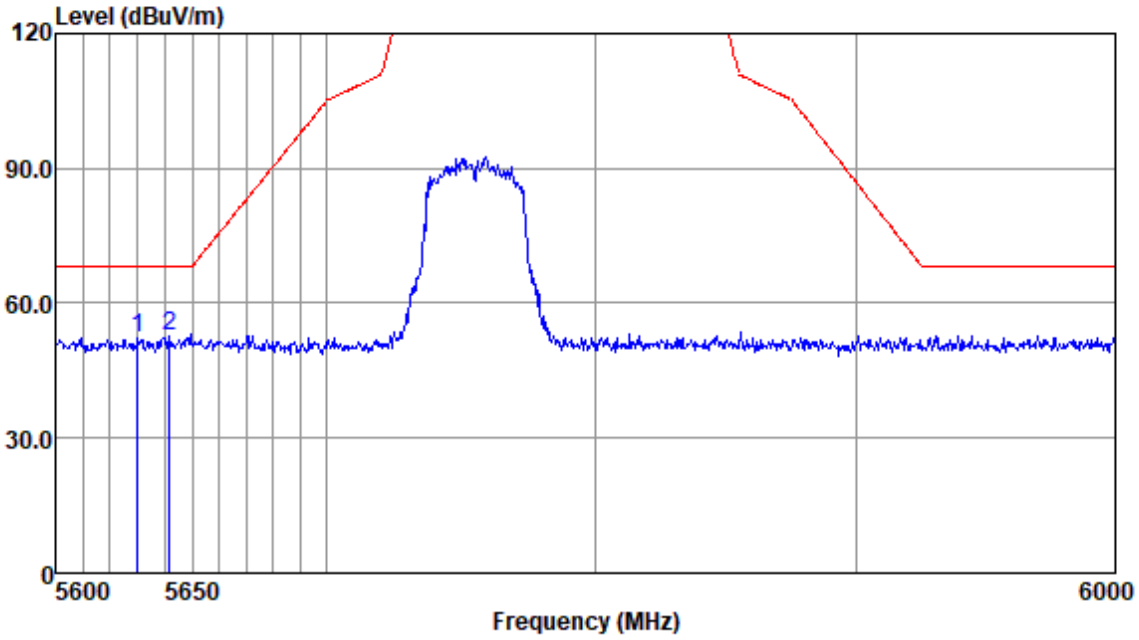


Antenna Polarity :HORIZONTAL

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	
5618.96	49.73	34.52	5.80	37.00	53.05	68.20	-15.15	Peak
5641.10	48.92	34.53	5.83	37.00	52.28	68.20	-15.92	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

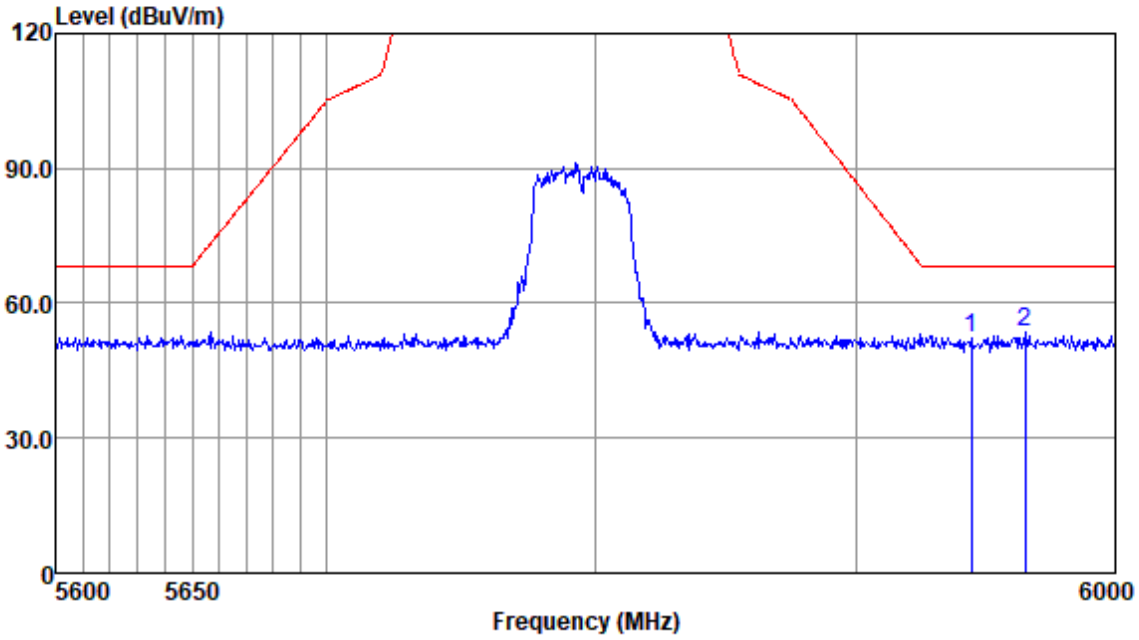


Antenna Polarity :VERTICAL

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	
5630.22	48.77	34.53	5.80	37.00	52.10	68.20	-16.10	Peak
5641.88	49.30	34.53	5.83	37.00	52.66	68.20	-15.54	Peak

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

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High

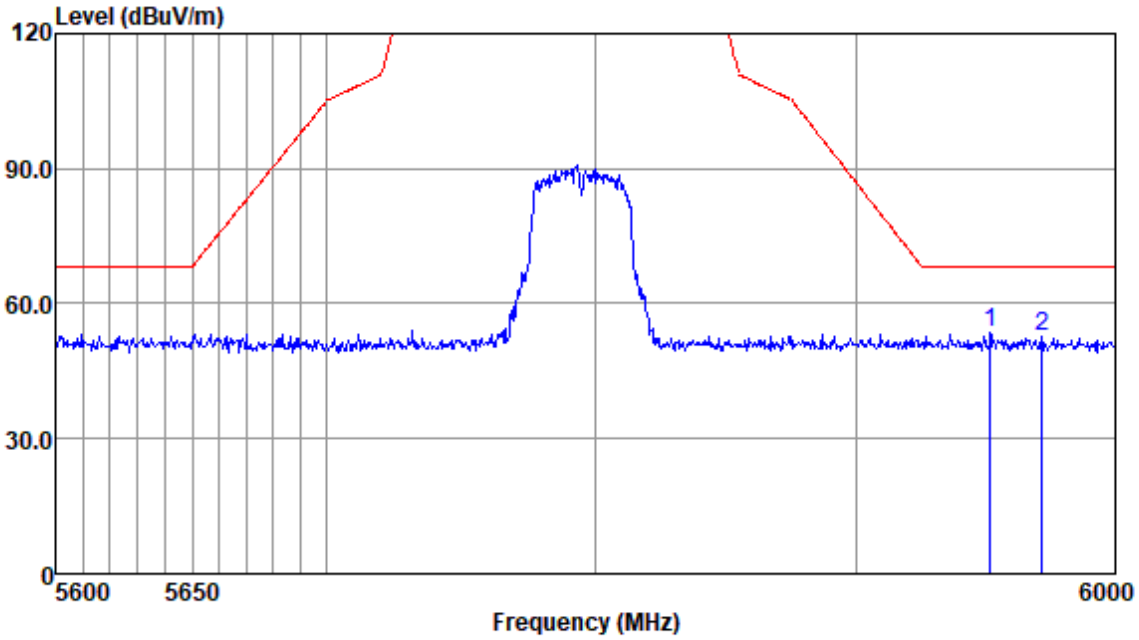


Antenna Polarity :HORIZONTAL

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	
5943.97	48.67	34.85	5.96	37.05	52.43	68.20	-15.77	Peak
5964.92	49.72	34.90	5.92	37.05	53.49	68.20	-14.71	Peak

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

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Antenna Polarity :VERTICAL

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	
5951.35	49.72	34.85	5.96	37.05	53.48	68.20	-14.72	Peak
5971.51	49.12	34.90	5.92	37.05	52.89	68.20	-15.31	Peak

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

7.9 Frequency Stability

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

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

7.9.1 E.U.T. Operation

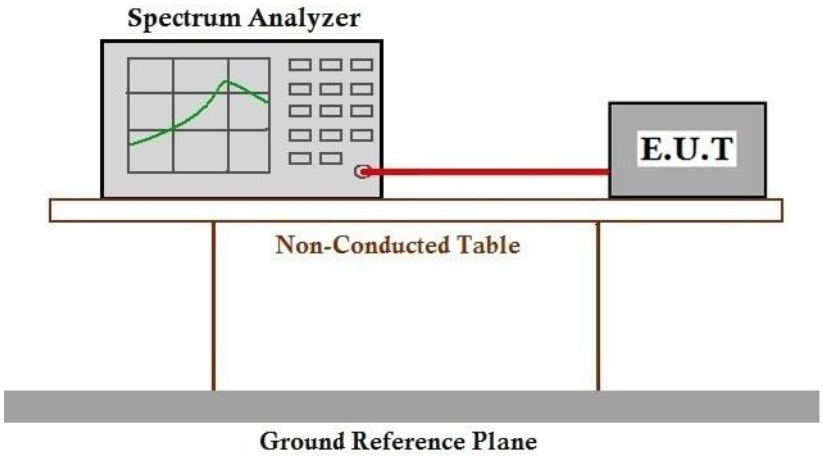
Operating Environment:

Temperature: 22.1 °C Humidity: 37.2 % RH Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	07	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.10 Radiated Emissions (Below 1GHz)

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

Test Method: KDB 789033 D02 II G

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

7.10.1 E.U.T. Operation

Operating Environment:

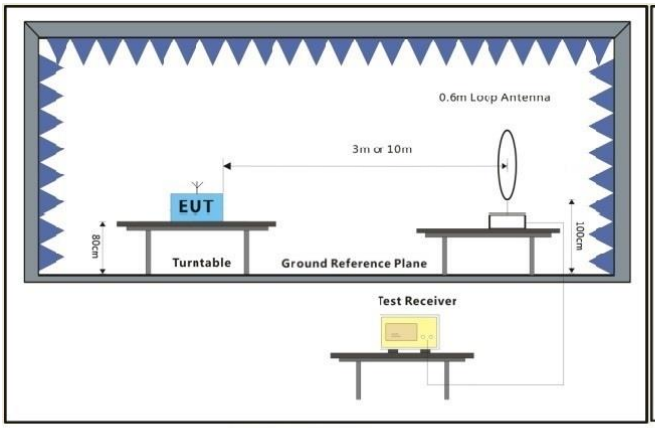
Temperature: 22.1 °C Humidity: 36.7 % RH Atmospheric Pressure: 1010 mbar

7.10.2 Test Mode Description

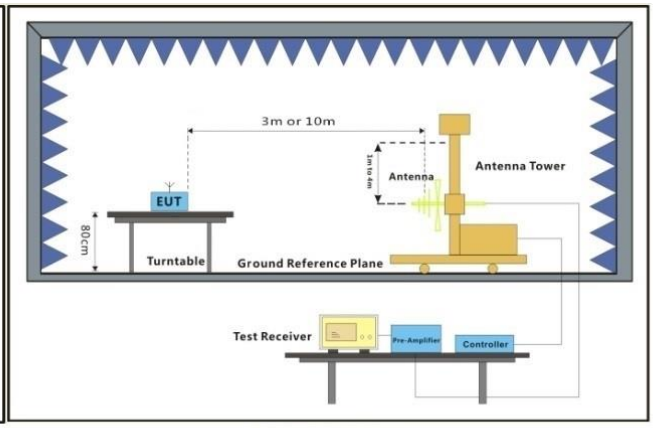
Pre-scan / Final test	Mode Code	Description
Pre-scan	04	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Pre-scan	05	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Pre-scan	06	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Pre-scan	07	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.10.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz

7.10.4 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:

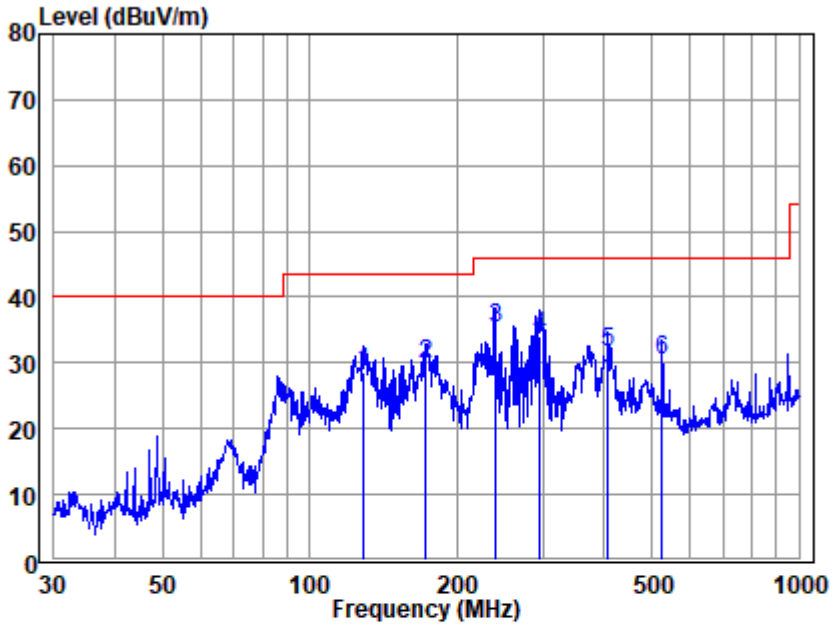
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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: 04; Polarity: Horizontal

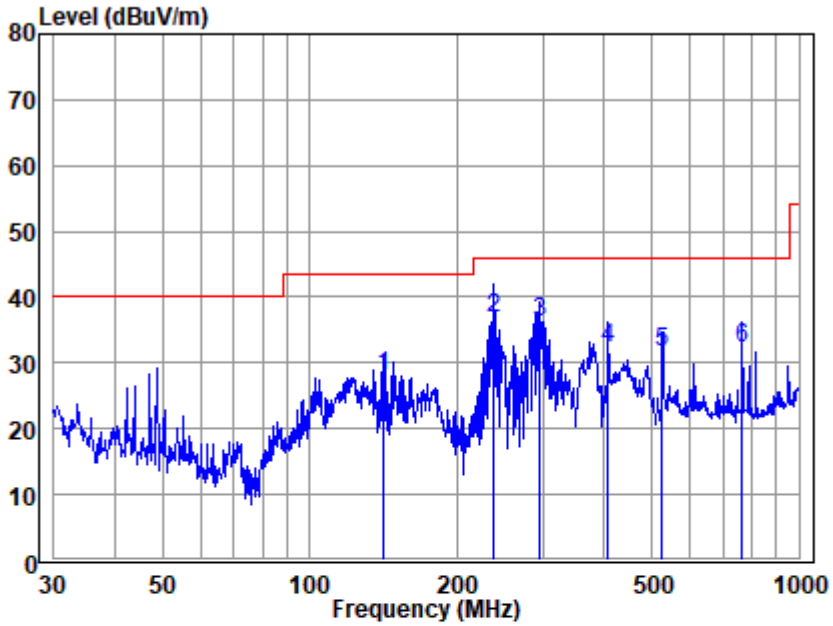


Antenna Polarity :Horizontal
EUT/Project :2802ME
Test mode :04

	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	
1	128.56	48.20	11.83	2.21	33.54	28.70	43.50	-14.80	QP
2	171.99	48.20	12.50	2.60	33.41	29.89	43.50	-13.61	QP
3	239.15	53.87	11.42	3.15	33.14	35.30	46.00	-10.70	QP
4	296.18	49.88	13.43	3.66	33.01	33.96	46.00	-12.04	QP
5	407.51	44.56	15.74	4.17	32.92	31.55	46.00	-14.45	QP
6	526.40	39.78	18.23	5.32	33.00	30.33	46.00	-15.67	QP

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

Test Mode: 04; Polarity: Vertical



Antenna Polarity :Vertical
EUT/Project :2802ME
Test mode :04

	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	
1	141.33	46.00	12.97	2.47	33.52	27.92	43.50	-15.58	QP
2	237.48	55.56	11.26	3.16	33.15	36.83	46.00	-9.17	QP
3	294.11	52.28	13.41	3.61	33.01	36.29	46.00	-9.71	QP
4	407.51	45.28	15.74	4.17	32.92	32.27	46.00	-13.73	QP
5	526.40	41.17	18.23	5.32	33.00	31.72	46.00	-14.28	QP
6	766.06	36.00	22.40	6.37	32.64	32.13	46.00	-13.87	QP

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

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2212002802ME

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2212002802ME

-- End of the Report --