



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR241000202403

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TEST REPORT

Application No.: SHCR2410002024HS
FCC ID: 2BRFD-AS360
Applicant: ASMOKE USA INC
Address of Applicant: 244 Madison Avenue, SUITE 1666, New York, NY 10016
Manufacturer: ASMOKE USA INC
Address of Manufacturer: 244 Madison Avenue, SUITE 1666, New York, NY 10016
Factory: 1.Jiangsu Henglu Electronic Technology Co., Ltd
2.Guangdong Hyxion Smart Kitchen Co.Ltd
Address of Factory: 1.86 Center Road, North Park, JingjiangEconomic Development Zone, Jingjiang, 214522, Jiangsu, China
2. NO.1 and No.2 Haixin Road Hongmei Town, Dongguan, China
Equipment Under Test (EUT):
EUT Name: ASMOKE Essential
Model No.: AS360
Trade Mark: ASMOKE
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2024-10-14
Date of Test: 2024-10-28 to 2024-11-07
Date of Issue: 2024-11-13

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



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Revision Record			
Version	Description	Date	Remark
00	Original	2024-11-13	/

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

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Customer Declaration

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.3	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Conducted Average Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.3	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 14.4V 6.6Ah Li-ion Battery
Test Voltage:	DC 14.4V
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK);802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	1
Channel Spacing:	5MHz
Antenna Type:	FPC Antenna
Antenna Gain:	1.9dBi (Provided by manufacturer)
Antenna Number:	1

4.2 Power level setting using in test:

Channel	802.11b	802.11g	802.11n(HT20)
1	Default	Default	Default
6	Default	Default	Default
11	Default	Default	Default

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	LENOVO	L460	-

4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty cycle	0.4%
4	Occupied Bandwidth	3%
5	RF conducted power	0.6dB
6	RF power density	2.9dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).
3. Sample source: sent by customer.

4.6 Test Facility

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

• **A2LA (Certificate No. 6332.01)**

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

• **FCC (Designation Number: CN1301)**

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

• **ISED (CAB Identifier: CN0020)**

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

• **VCCI (Member No.: 3061)**

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

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2023-12-19	2024-12-18
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2023-12-19	2024-12-18
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2024-07-31	2025-07-30
Signal Generator	R&S	SMR20	SHEM006-1	2024-07-31	2025-07-30
Signal Generator	Agilent	N5182A	SHEM182-1	2024-07-31	2025-07-30
Communication Tester	R&S	CMW270	SHEM183-1	2024-05-23	2025-05-22
Communication Tester	R&S	CMW500	SHEM268-1	2024-05-23	2025-05-22
Power Sensor	Keysight	U2021XA * 4	SHEM293-1	2024-07-31	2025-07-30
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2024-11-05	2026-11-04
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2023-12-19	2024-12-18
DC Power Supply	HP	6010A	SHEM222-1	2023-12-19	2024-12-18
Conducted test Cable	/	RF01~RF04	/	2023-12-19	2024-12-18
Switcher	Tonscend	JS0806	SHEM293-1	2024-07-31	2025-07-30
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
Switcher+Power Sensor	TST	TSPS2023R	SHEM263-1	2024-07-31	2025-07-30
Test software	TST	TST PASS	Version: 2.0	/	/
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2023-12-19	2024-12-18
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2023-12-19	2024-12-18
Communication Tester	R&S	CMW500	SHEM268-1	2024-05-23	2025-05-22
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2023-12-19	2024-12-18
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2023-09-03	2025-09-02
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2023-04-17	2025-04-16
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2024-08-05	2026-08-04
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2023-09-03	2025-09-02
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2023-09-03	2025-09-02
Pre-Amplifier	HP	8447D	SHEM236-1	2023-12-19	2024-12-18
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2023-12-19	2024-12-18
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2023-05-06	2026-05-05
RE test Cable	/	PT18-NMMN-10M	SHEM217-2	2023-12-19	2024-12-18
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 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement:

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

15.247(b) (4) requirement:

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

EUT Antenna:

The antenna is FPC antenna and no consideration of replacement. The best case gain of the antenna is 1.9 dBi.

Antenna location: Refer to internal photo.

7 Radio Spectrum Matter Test Results

7.1 Conducted Average Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.2

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

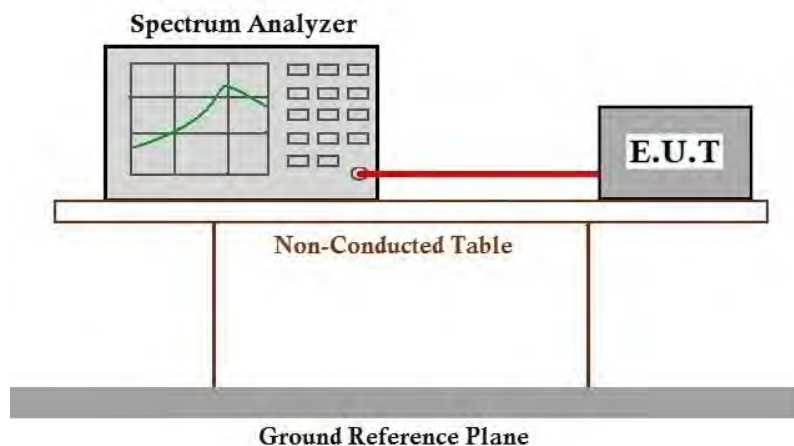
Humidity: 73.8 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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





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7.1.4 Measurement Procedure and Data

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

Please Refer to Appendix for Details

7.2 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
 Test Method: ANSI C63.10 (2013) Section 11.10.3
 Limit: ≥ 500 kHz

7.2.1 E.U.T. Operation

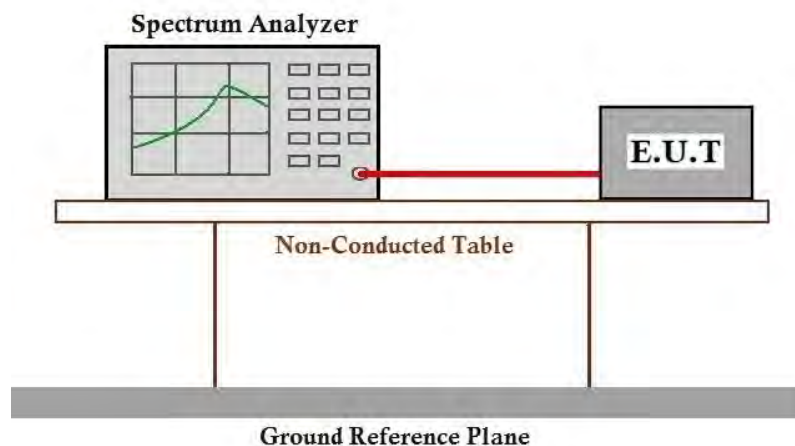
Operating Environment:

Temperature: 23.3 °C Humidity: 73.7 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)

Test Method: ANSI C63.10 (2013) Section 11.10.3

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.3.1 E.U.T. Operation

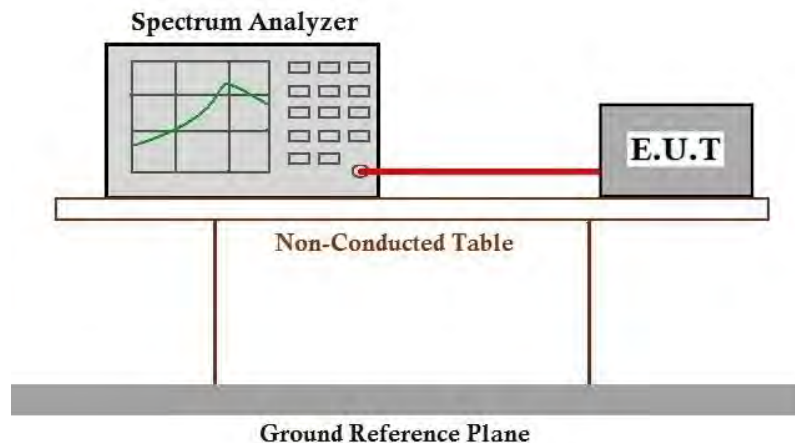
Operating Environment:

Temperature: 23.4 °C Humidity: 73.6 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
Test Method: ANSI C63.10 (2013) Section 11.13.3.2

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.4.1 E.U.T. Operation

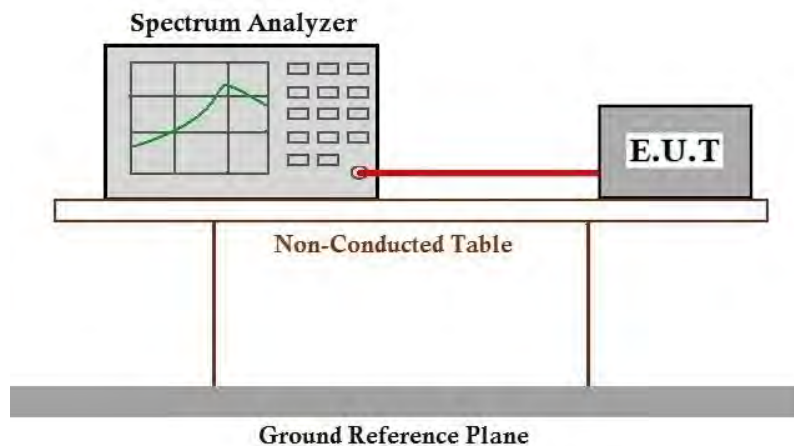
Operating Environment:

Temperature: 23.3 °C Humidity: 73.6 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.11

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C

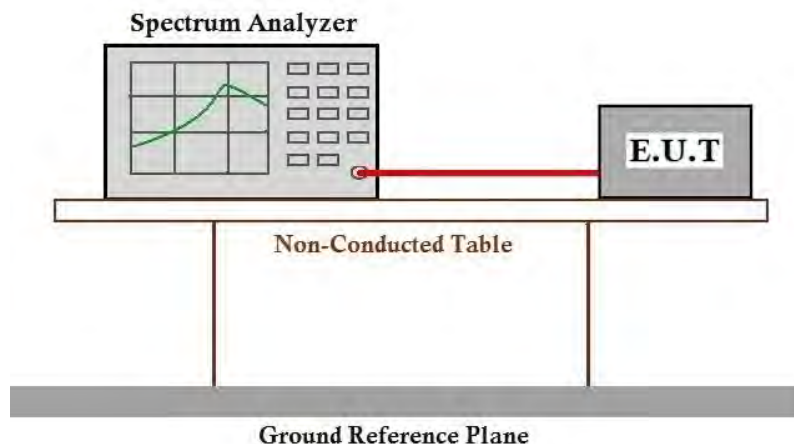
Humidity: 73.6 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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

Please Refer to Appendix for Details

7.6 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

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

Limit:

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

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.

7.6.1 E.U.T. Operation

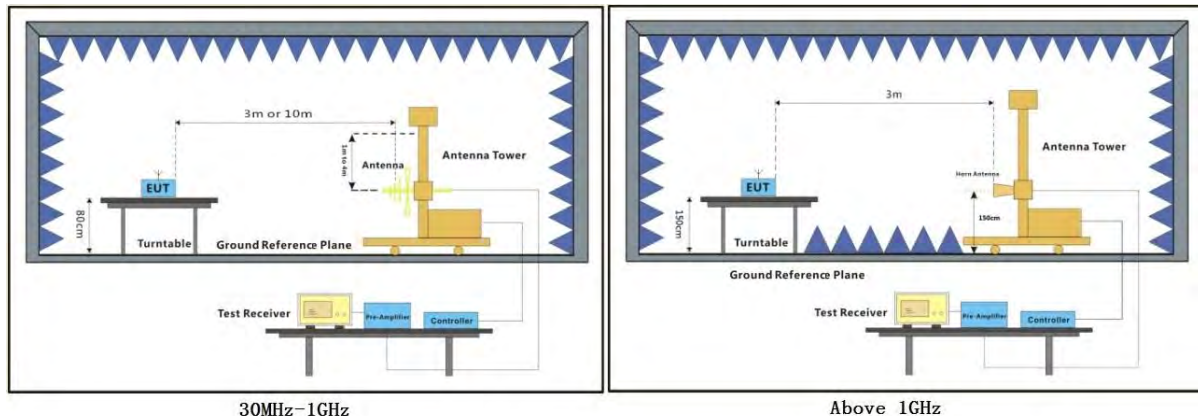
Operating Environment:

Temperature: 23.3 °C Humidity: 73.6 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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



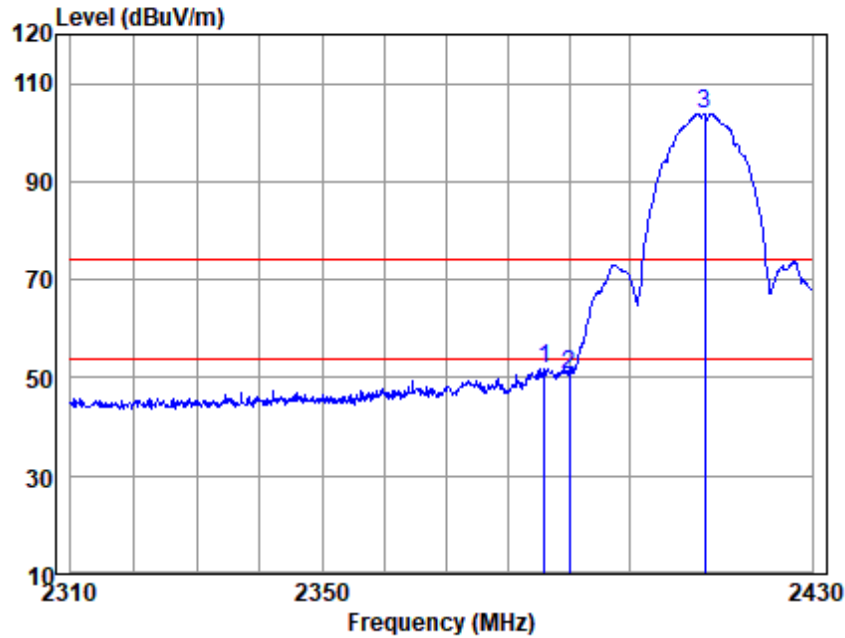
7.6.4 Measurement Procedure and Data

- 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.
- 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.
- 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.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- Repeat above procedures until all frequencies measured was complete.

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

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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



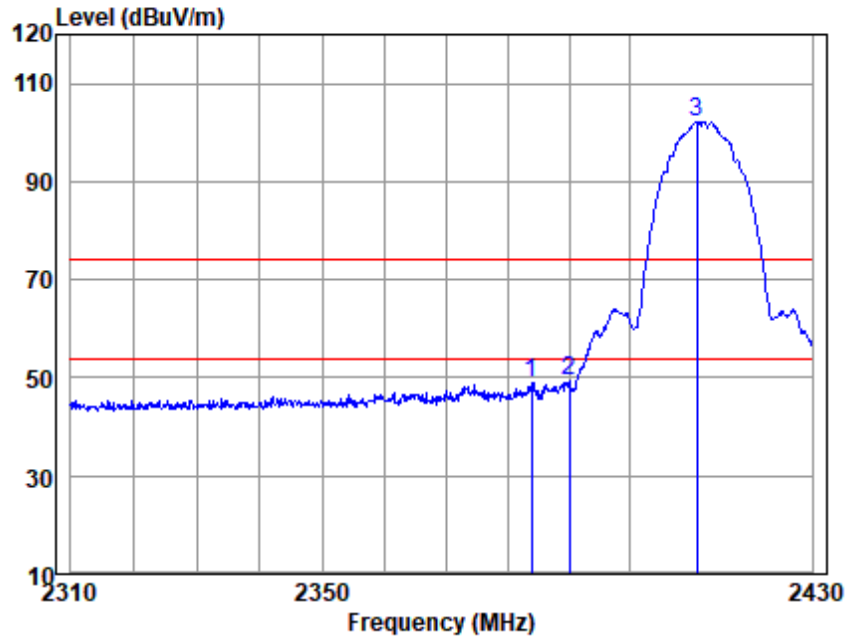
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2385.978	55.04	28.80	3.33	35.18	51.99	74.00	-22.01	Peak
2390.000	53.58	28.80	3.33	35.18	50.53	74.00	-23.47	Peak
2412.221	106.80	28.90	3.35	35.20	103.85	74.00	29.85	Peak

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

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



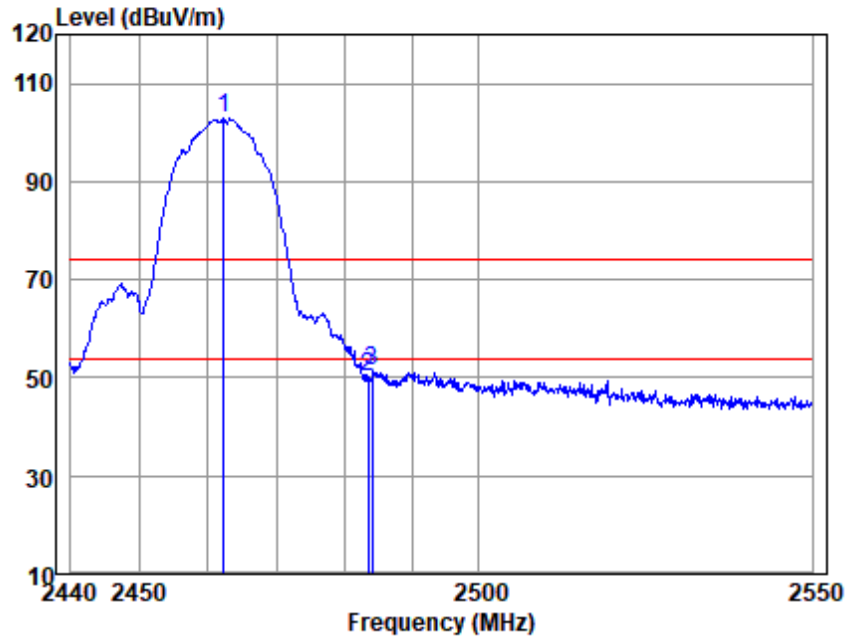
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2383.803	52.10	28.80	3.33	35.18	49.05	74.00	-24.95	Peak
2390.000	52.43	28.80	3.33	35.18	49.38	74.00	-24.62	Peak
2411.000	105.27	28.89	3.34	35.20	102.30	74.00	28.30	Peak

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

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



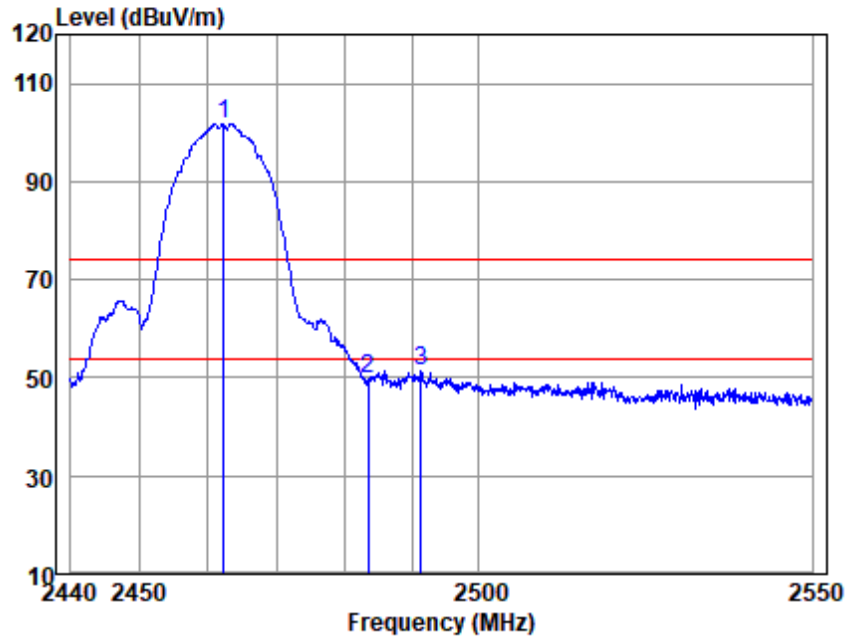
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2462.265	105.66	29.05	3.39	35.24	102.86	74.00	28.86	Peak
2483.500	52.96	29.09	3.41	35.26	50.20	74.00	-23.80	Peak
2484.186	54.22	29.09	3.41	35.26	51.46	74.00	-22.54	Peak

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

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



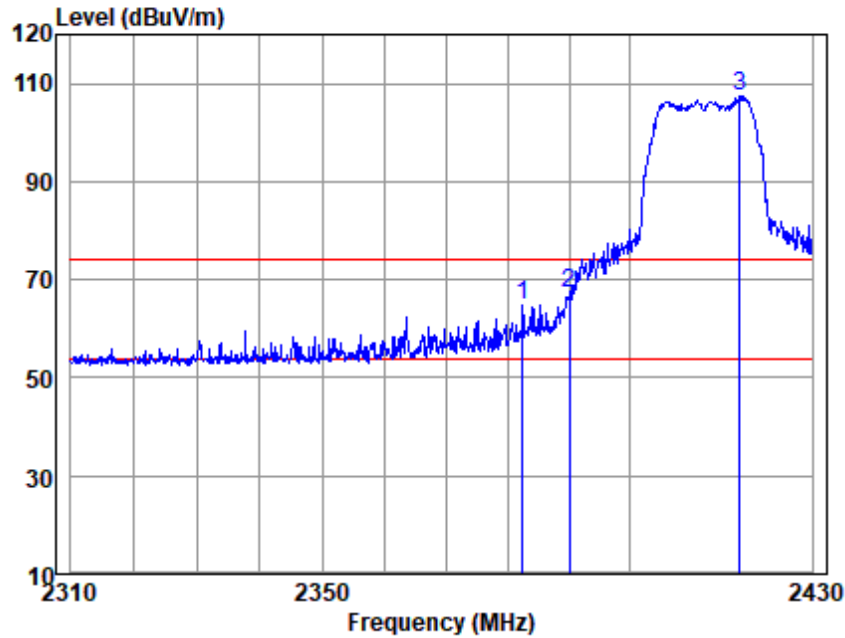
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2462.265	104.63	29.05	3.39	35.24	101.83	74.00	27.83	Peak
2483.500	52.44	29.09	3.41	35.26	49.68	74.00	-24.32	Peak
2491.426	54.14	29.10	3.41	35.26	51.39	74.00	-22.61	Peak

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

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



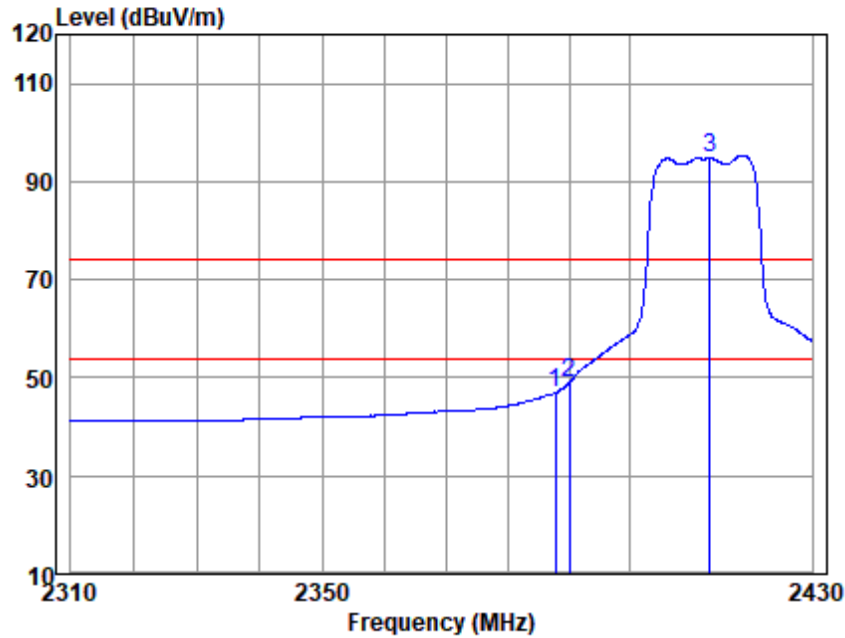
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2382.355	67.89	28.76	3.32	35.17	64.80	74.00	-9.20	Peak
2390.000	70.26	28.80	3.33	35.18	67.21	74.00	-6.79	Peak
2418.092	110.23	28.90	3.35	35.20	107.28	74.00	33.28	Peak

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

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



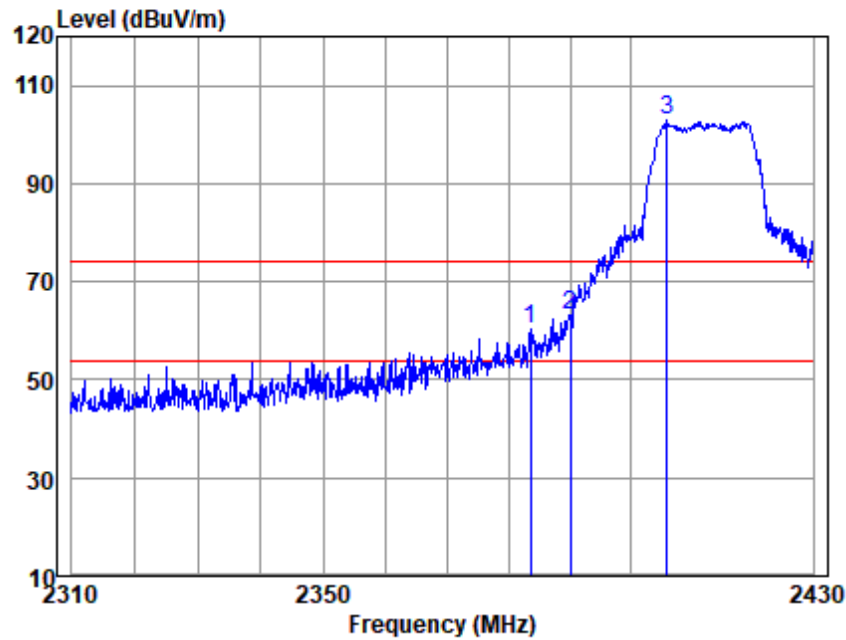
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2387.791	50.00	28.80	3.33	35.18	46.95	54.00	-7.05	Average
2390.000	52.11	28.80	3.33	35.18	49.06	54.00	-4.94	Average
2413.076	97.94	28.90	3.35	35.20	94.99	54.00	40.99	Average

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

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



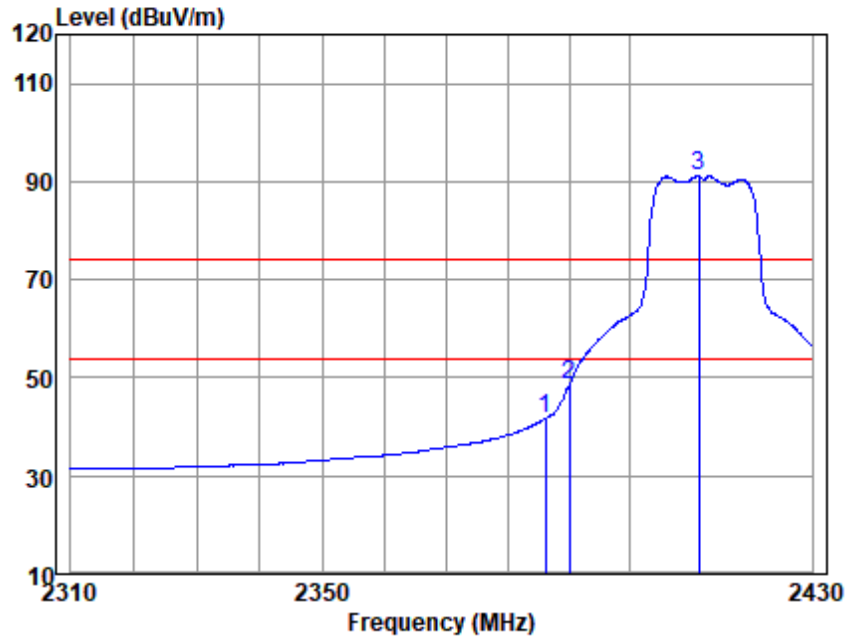
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2383.562	63.33	28.80	3.33	35.18	60.28	74.00	-13.72	Peak
2390.000	66.38	28.80	3.33	35.18	63.33	74.00	-10.67	Peak
2405.877	105.93	28.89	3.34	35.20	102.96	74.00	28.96	Peak

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

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



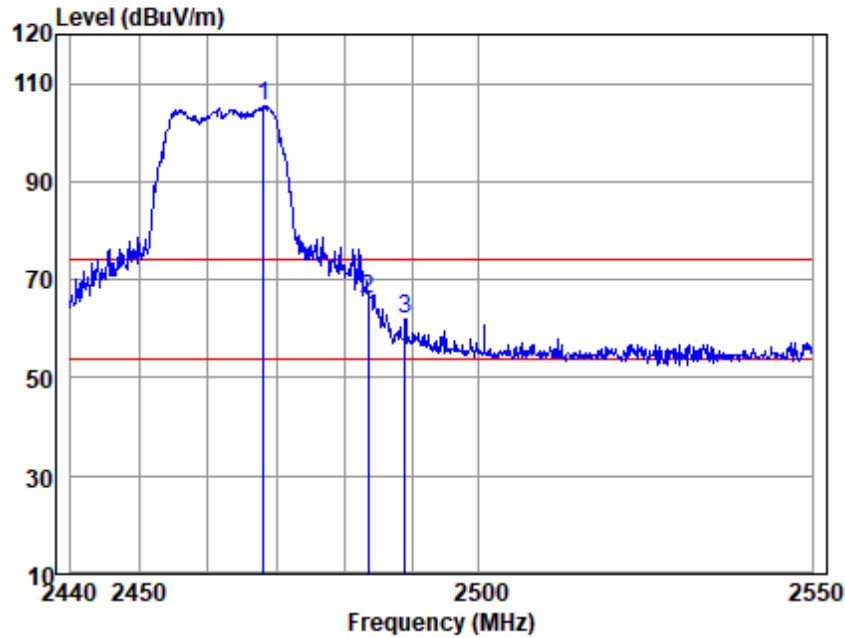
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2386.098	44.71	28.80	3.33	35.18	41.66	54.00	-12.34	Average
2390.000	51.56	28.80	3.33	35.18	48.51	54.00	-5.49	Average
2411.244	94.14	28.90	3.35	35.20	91.19	54.00	37.19	Average

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

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



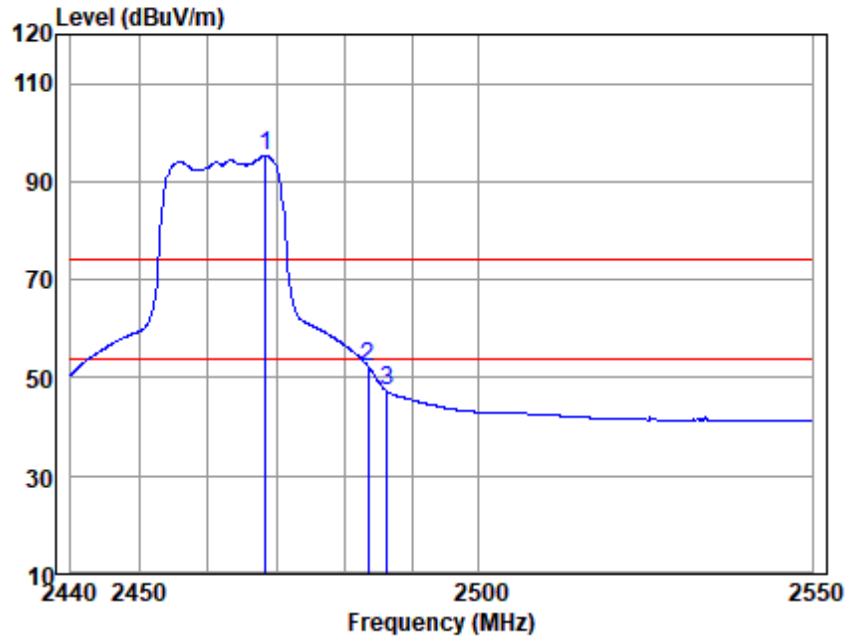
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2468.135	108.08	29.06	3.40	35.25	105.29	74.00	31.29	Peak
2483.500	68.91	29.09	3.41	35.26	66.15	74.00	-7.85	Peak
2489.010	64.69	29.09	3.41	35.26	61.93	74.00	-12.07	Peak

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

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



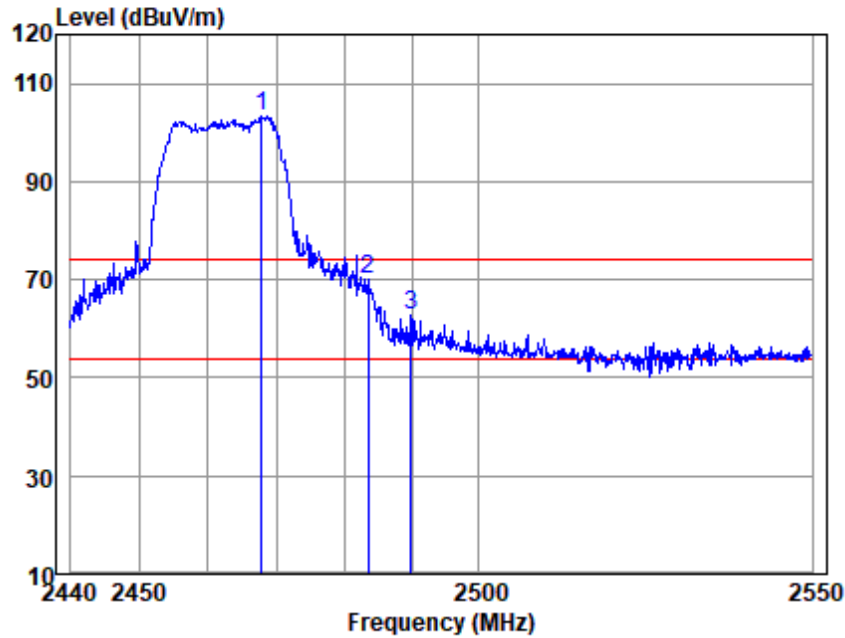
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2468.462	98.04	29.06	3.40	35.25	95.25	54.00	41.25	Average
2483.500	55.03	29.09	3.41	35.26	52.27	54.00	-1.73	Average
2486.377	50.02	29.09	3.41	35.26	47.26	54.00	-6.74	Average

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

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



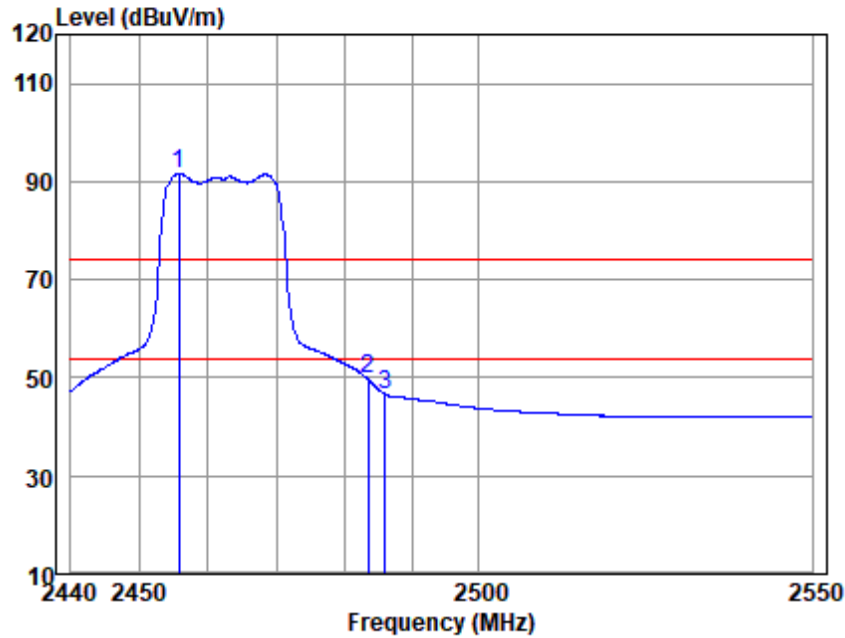
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2467.917	106.08	29.06	3.40	35.25	103.29	74.00	29.29	Peak
2483.500	73.00	29.09	3.41	35.26	70.24	74.00	-3.76	Peak
2489.888	65.60	29.10	3.41	35.26	62.85	74.00	-11.15	Peak

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

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



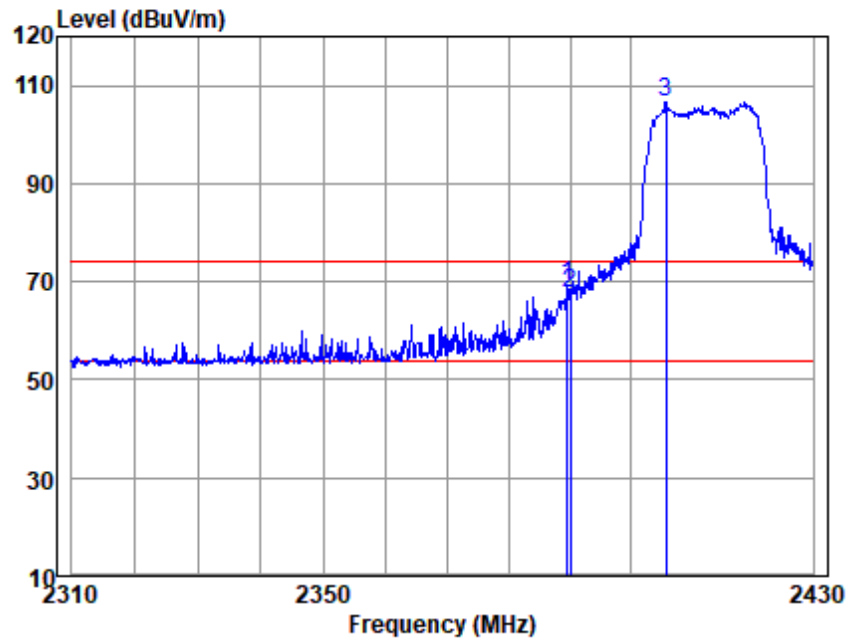
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2455.759	94.55	29.04	3.38	35.24	91.73	54.00	37.73	Average
2483.500	52.60	29.09	3.41	35.26	49.84	54.00	-4.16	Average
2486.048	49.45	29.09	3.41	35.26	46.69	54.00	-7.31	Average

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

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



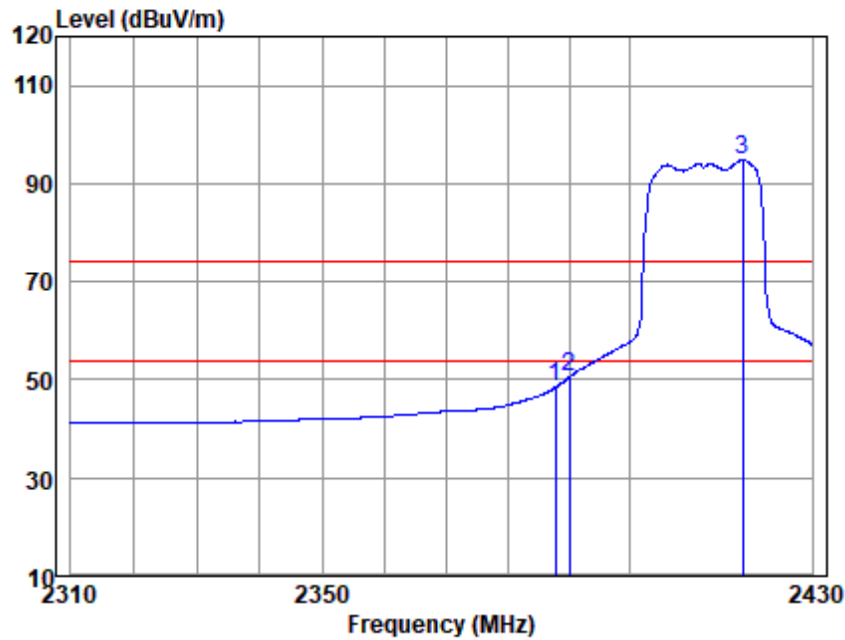
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2389.605	72.17	28.80	3.33	35.18	69.12	74.00	-4.88	Peak
2390.000	70.84	28.80	3.33	35.18	67.79	74.00	-6.21	Peak
2405.633	109.67	28.89	3.34	35.20	106.70	74.00	32.70	Peak

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

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



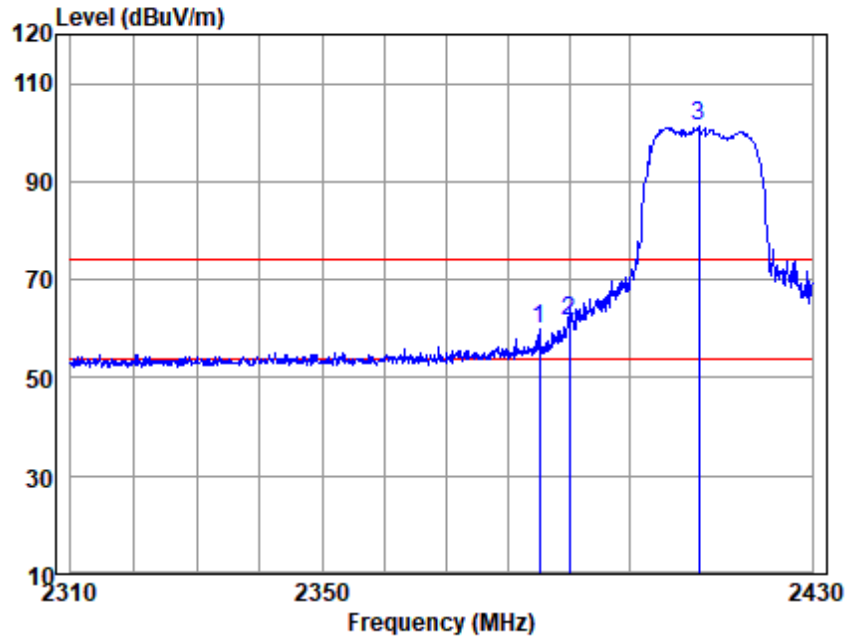
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2387.791	51.49	28.80	3.33	35.18	48.44	54.00	-5.56	Average
2390.000	53.57	28.80	3.33	35.18	50.52	54.00	-3.48	Average
2418.582	97.75	28.92	3.36	35.21	94.82	54.00	40.82	Average

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

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



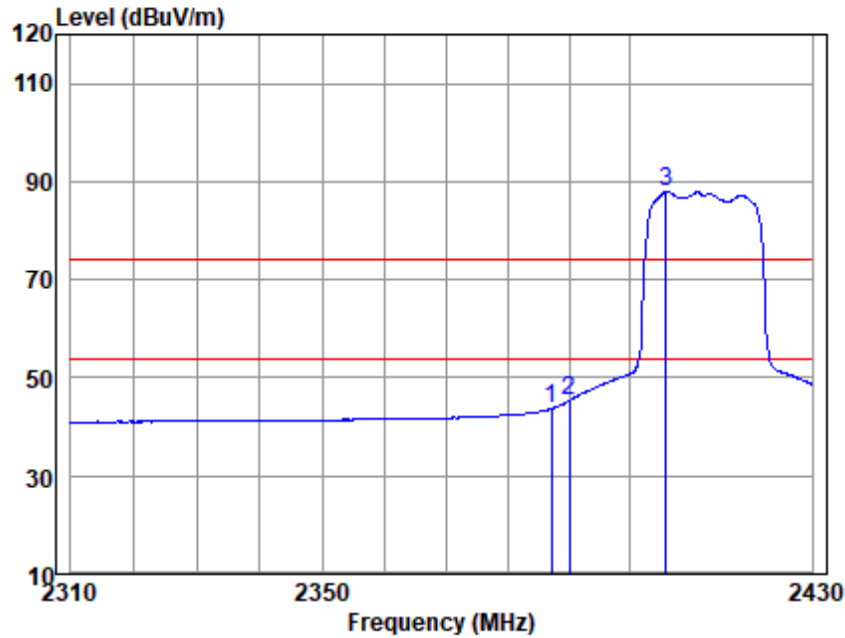
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2385.132	62.92	28.80	3.33	35.18	59.87	74.00	-14.13	Peak
2390.000	64.77	28.80	3.33	35.18	61.72	74.00	-12.28	Peak
2411.244	104.39	28.90	3.35	35.20	101.44	74.00	27.44	Peak

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

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



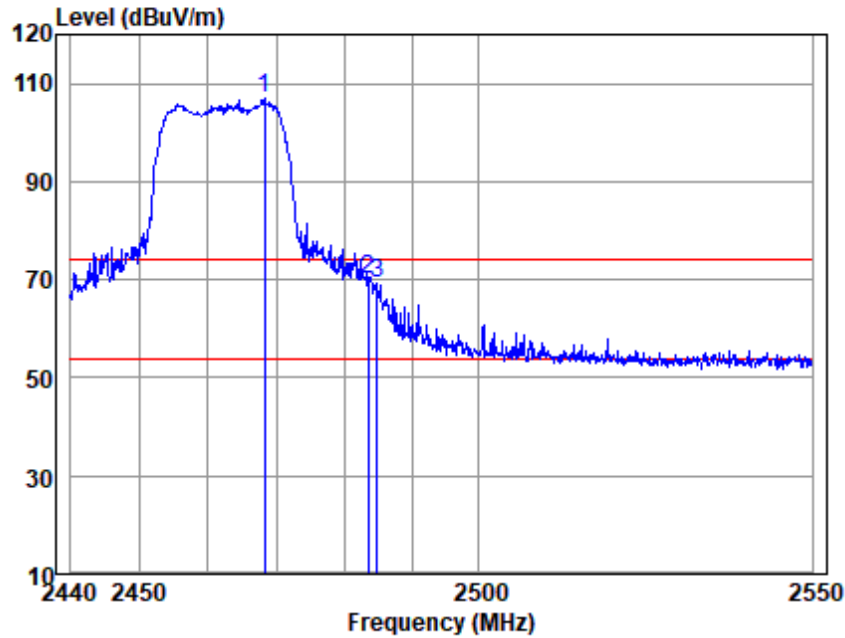
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2387.065	46.73	28.80	3.33	35.18	43.68	54.00	-10.32	Average
2390.000	48.35	28.80	3.33	35.18	45.30	54.00	-8.70	Average
2405.877	90.94	28.89	3.34	35.20	87.97	54.00	33.97	Average

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

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



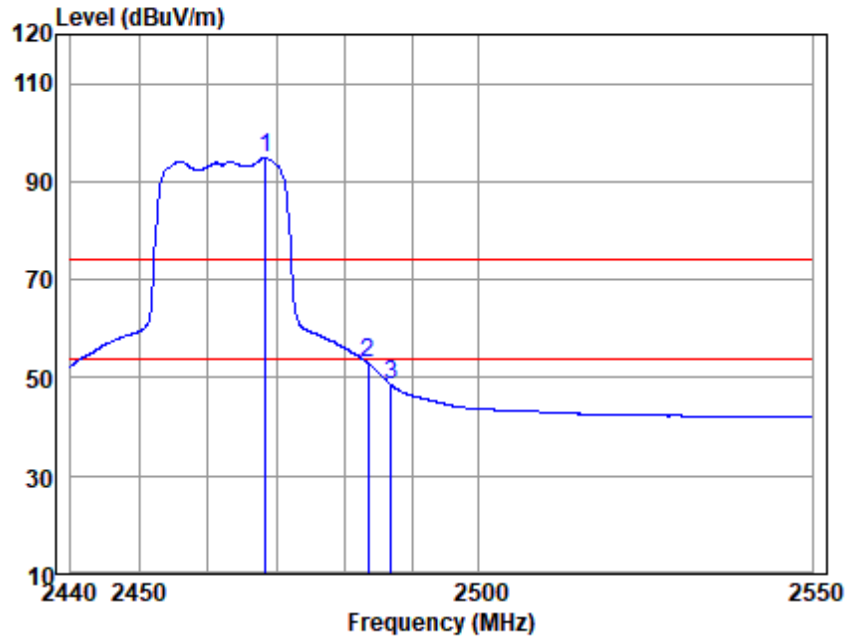
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
2468.353	109.65	29.06	3.40	35.25	106.86	74.00	32.86	Peak
2483.500	72.78	29.09	3.41	35.26	70.02	74.00	-3.98	Peak
2484.843	72.03	29.09	3.41	35.26	69.27	74.00	-4.73	Peak

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

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

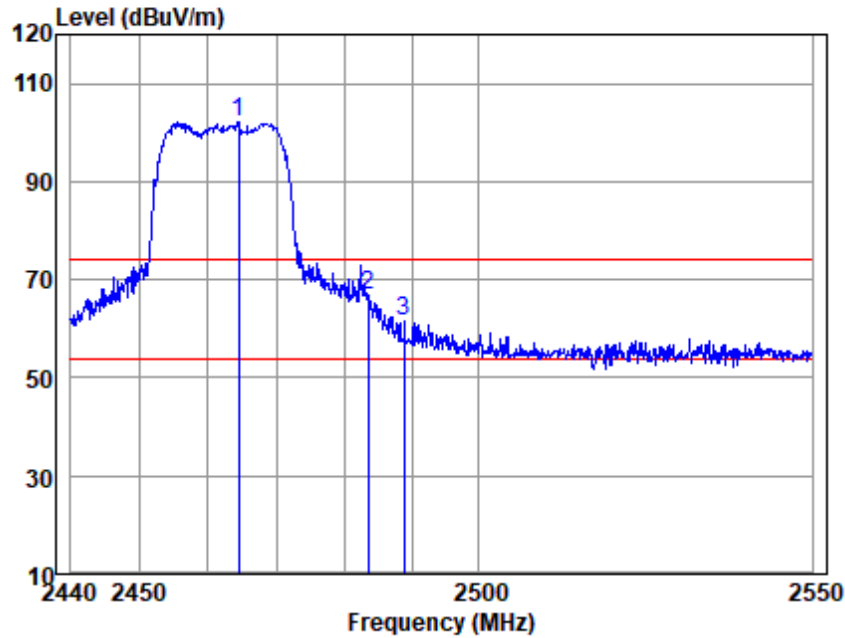


Antenna Polarity :HORIZONTAL
EUT/Project :2024HS

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	
2468.462	97.57	29.06	3.40	35.25	94.78	54.00	40.78	Average
2483.500	55.75	29.09	3.41	35.26	52.99	54.00	-1.01	Average
2486.926	51.32	29.09	3.41	35.26	48.56	54.00	-5.44	Average

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

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



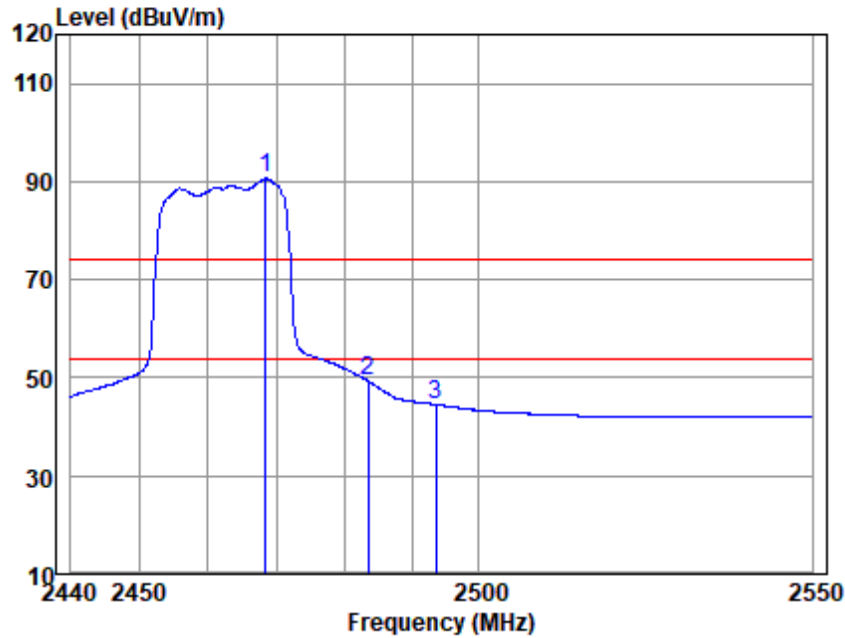
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2464.438	104.82	29.05	3.39	35.24	102.02	74.00	28.02	Peak
2483.500	69.70	29.09	3.41	35.26	66.94	74.00	-7.06	Peak
2488.900	64.39	29.09	3.41	35.26	61.63	74.00	-12.37	Peak

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

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



Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
2468.462	93.37	29.06	3.40	35.25	90.58	54.00	36.58	Average
2483.500	52.13	29.09	3.41	35.26	49.37	54.00	-4.63	Average
2493.514	47.34	29.10	3.41	35.26	44.59	54.00	-9.41	Average

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

7.7 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

Limit:

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

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

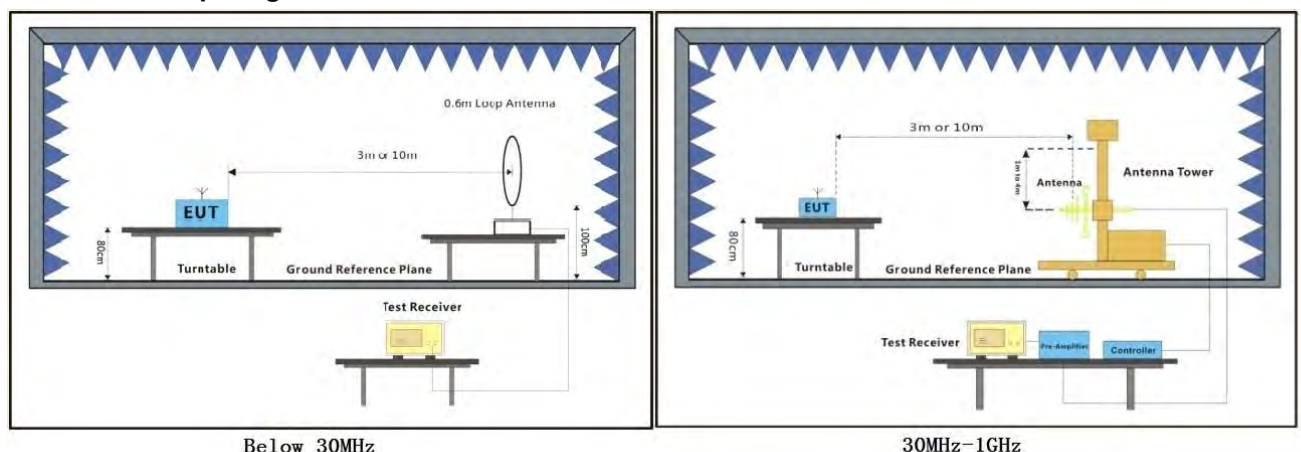
Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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



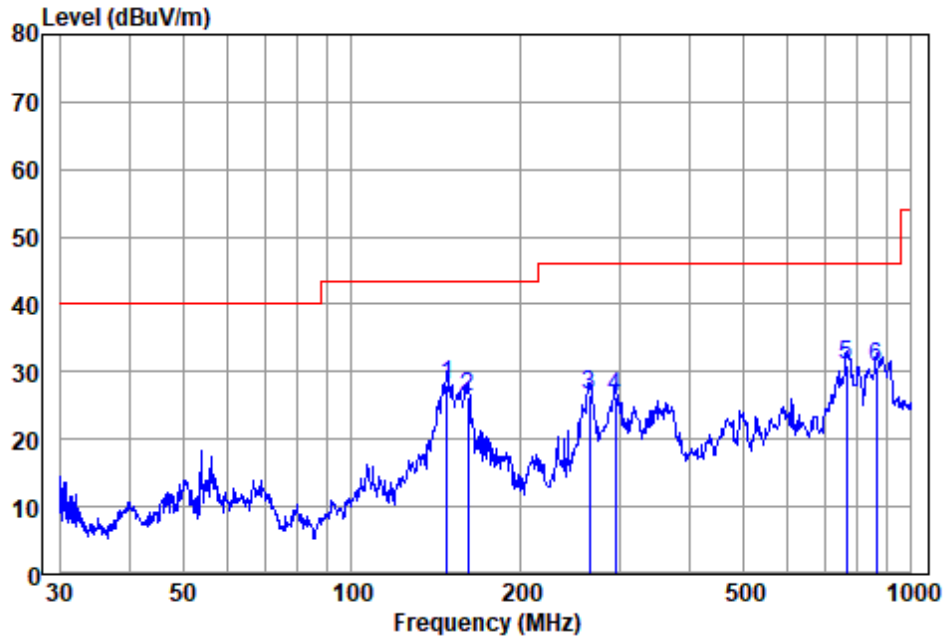
7.7.4 Measurement Procedure and Data

- a. For 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. 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. $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$
2. 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.

Test Mode: 03; Polarity: Horizontal

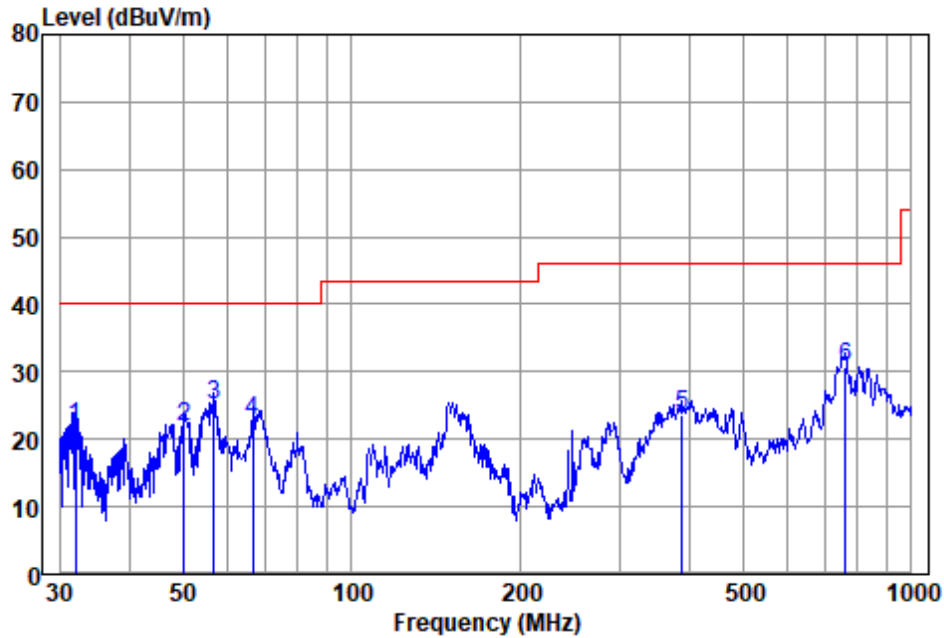


Antenna Polarity :HORIZONTAL
EUT/Project :2024HS
Test mode :03

	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	147.921	44.84	13.70	2.52	33.01	28.05	43.50	-15.45	QP
2	161.474	43.16	13.55	2.63	33.00	26.34	43.50	-17.16	QP
3	265.676	43.75	12.16	3.40	32.83	26.48	46.00	-19.52	QP
4	295.147	42.27	13.25	3.58	32.89	26.21	46.00	-19.79	QP
5	766.057	34.59	22.67	6.03	32.30	30.99	46.00	-15.01	QP
6	866.088	32.83	23.27	6.48	31.93	30.65	46.00	-15.35	QP

Note1:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 03; Polarity: Vertical



Antenna Polarity :VERTICAL
EUT/Project :2024HS
Test mode :03

	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	32.067	41.79	12.21	1.14	33.20	21.94	40.00	-18.06	QP
2	50.232	39.82	13.90	1.41	33.20	21.93	40.00	-18.07	QP
3	56.792	43.14	13.52	1.51	33.20	24.97	40.00	-15.03	QP
4	66.499	42.15	12.15	1.64	33.20	22.74	40.00	-17.26	QP
5	389.355	36.64	15.70	4.15	32.78	23.71	46.00	-22.29	QP
6	763.376	34.43	22.63	6.03	32.30	30.79	46.00	-15.21	QP

Note1:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.8 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.8.1 E.U.T. Operation

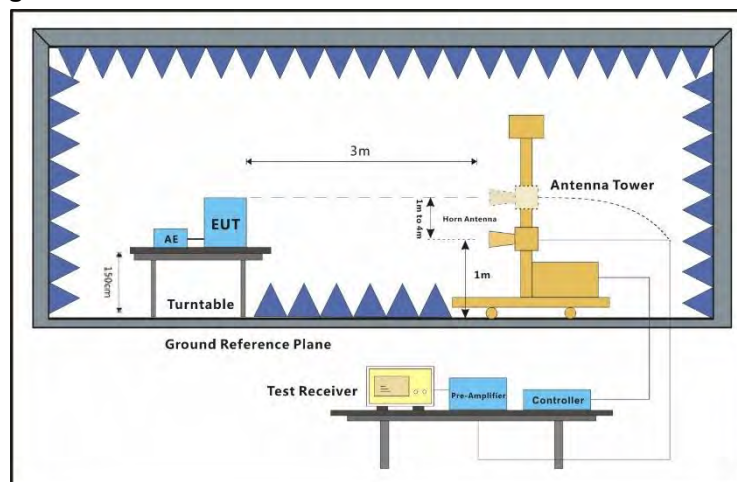
Operating Environment:

Temperature: 23.4 °C Humidity: 73.6 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode_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 @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), 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



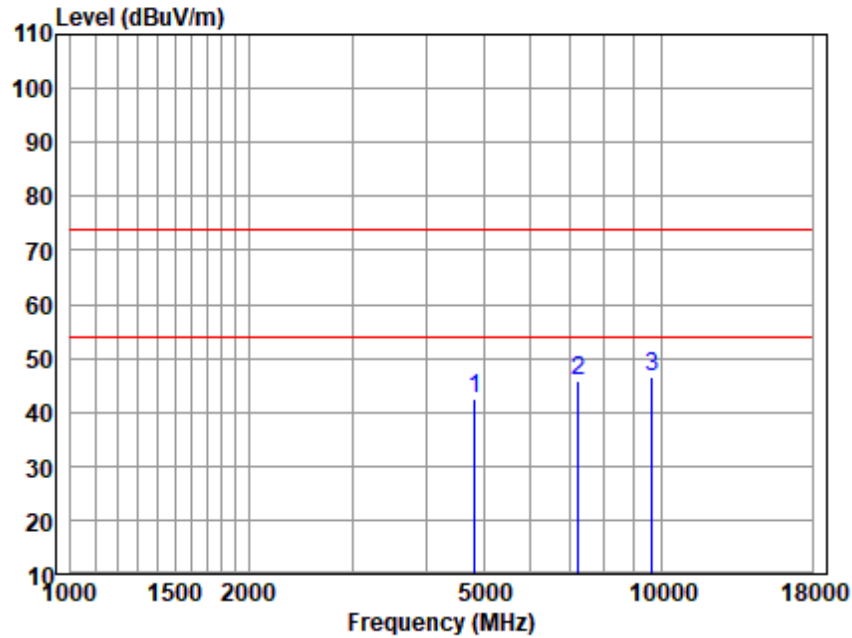
7.8.4 Measurement Procedure and Data

- a. For 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. $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$
2. Scan from 1GHz to 25GHz, 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.

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



Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
4824.016	40.28	33.60	5.24	36.79	42.33	74.00	-31.67	Peak
7242.052	37.82	36.29	7.36	35.50	45.97	74.00	-28.03	Peak
9641.257	33.44	37.71	8.76	33.56	46.35	74.00	-27.65	Peak

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



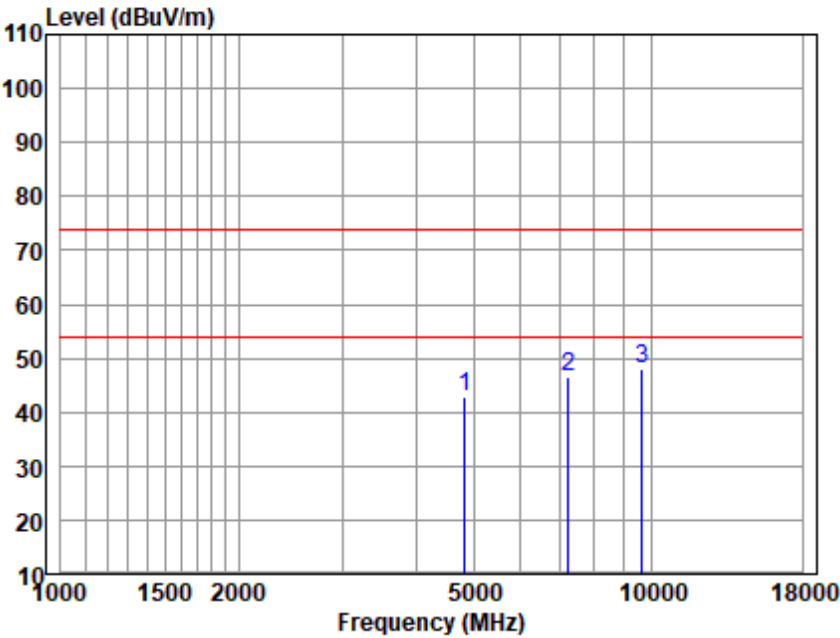
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Test Mode: 03; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low

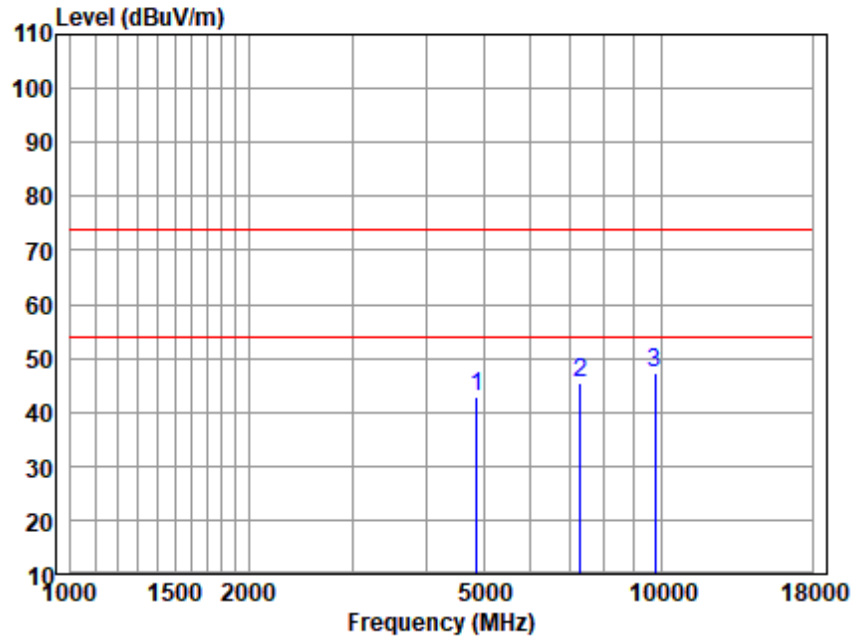


Antenna Polarity :VERTICAL
EUT/Project :2024HS

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	
4824.016	40.78	33.60	5.24	36.79	42.83	74.00	-31.17	Peak
7242.052	38.28	36.29	7.36	35.50	46.43	74.00	-27.57	Peak
9641.257	35.07	37.71	8.76	33.56	47.98	74.00	-26.02	Peak

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

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



Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
4874.043	40.82	33.66	5.28	36.81	42.95	74.00	-31.05	Peak
7305.122	37.13	36.32	7.42	35.44	45.43	74.00	-28.57	Peak
9753.371	34.57	37.54	8.80	33.50	47.41	74.00	-26.59	Peak

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



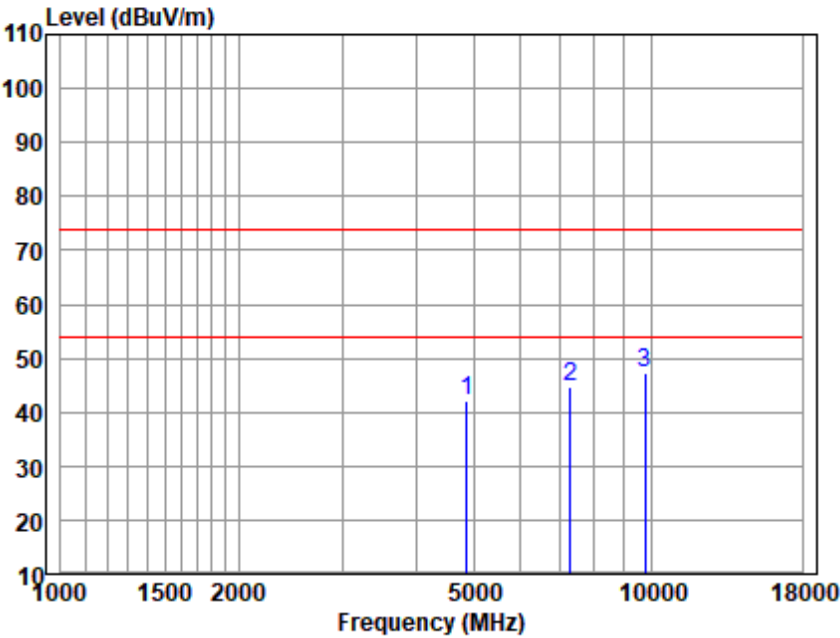
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Test Mode: 03; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle

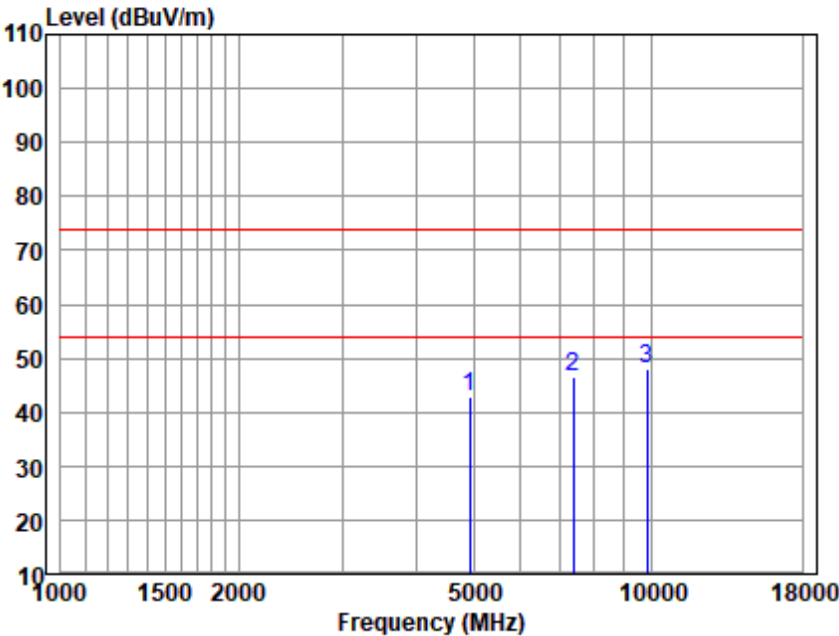


Antenna Polarity :VERTICAL
EUT/Project :2024HS

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	
4874.043	40.14	33.66	5.28	36.81	42.27	74.00	-31.73	Peak
7305.122	36.31	36.32	7.42	35.44	44.61	74.00	-29.39	Peak
9753.371	34.43	37.54	8.80	33.50	47.27	74.00	-26.73	Peak

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

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



Antenna Polarity :HORIZONTAL
EUT/Project :2024HS

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	
4924.721	40.75	33.64	5.32	36.82	42.89	74.00	-31.11	Peak
7390.070	38.01	36.36	7.49	35.37	46.49	74.00	-27.51	Peak
9838.312	34.97	37.60	8.84	33.45	47.96	74.00	-26.04	Peak

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



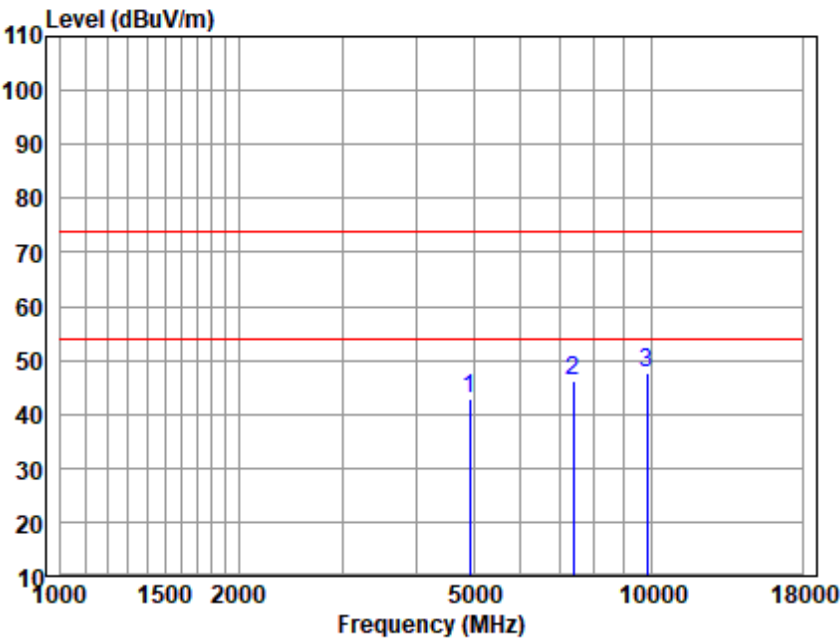
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Test Mode: 03; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High

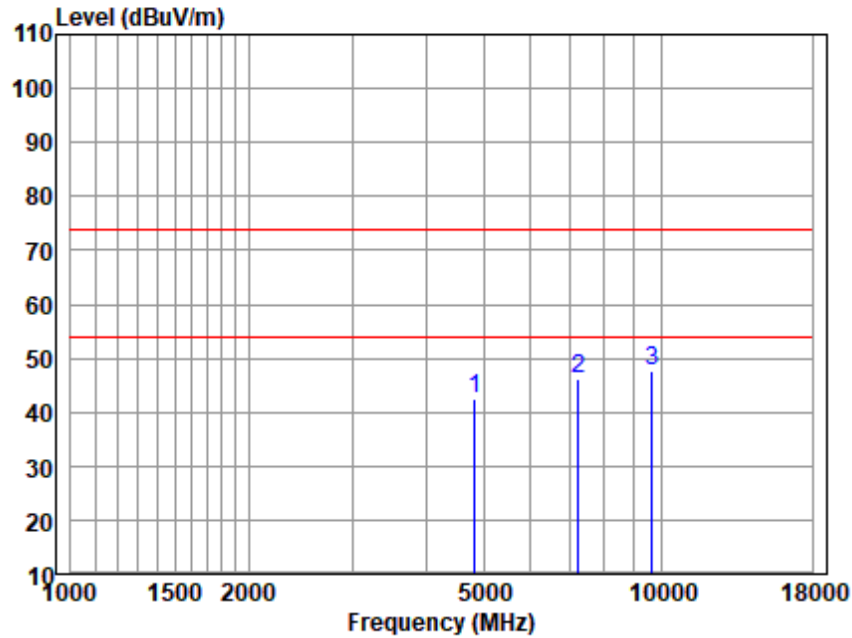


Antenna Polarity :VERTICAL
EUT/Project :2024HS

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	
4924.721	40.65	33.64	5.32	36.82	42.79	74.00	-31.21	Peak
7390.070	37.52	36.36	7.49	35.37	46.00	74.00	-28.00	Peak
9838.312	34.61	37.60	8.84	33.45	47.60	74.00	-26.40	Peak

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

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



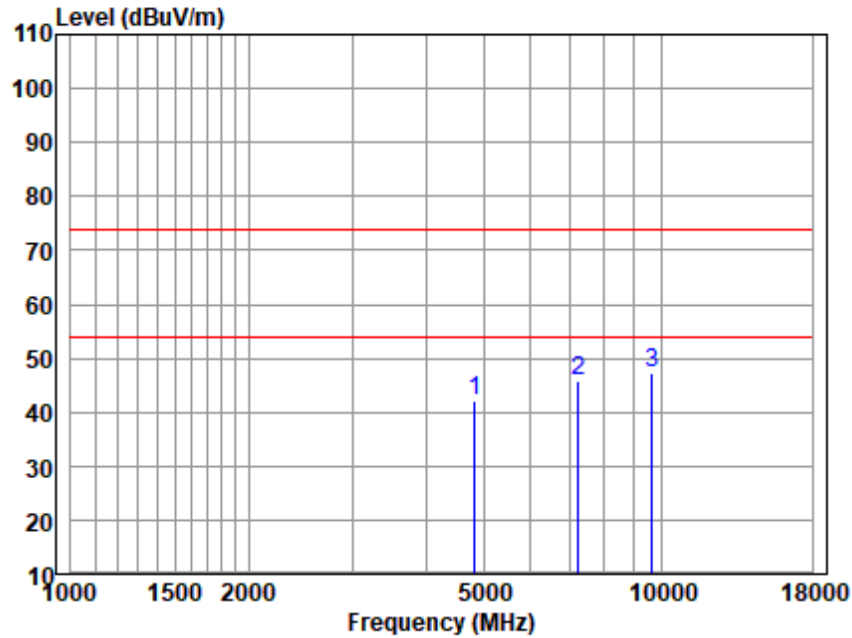
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
4824.016	40.26	33.60	5.24	36.79	42.31	74.00	-31.69	Peak
7242.052	37.90	36.29	7.36	35.50	46.05	74.00	-27.95	Peak
9641.257	34.89	37.71	8.76	33.56	47.80	74.00	-26.20	Peak

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

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



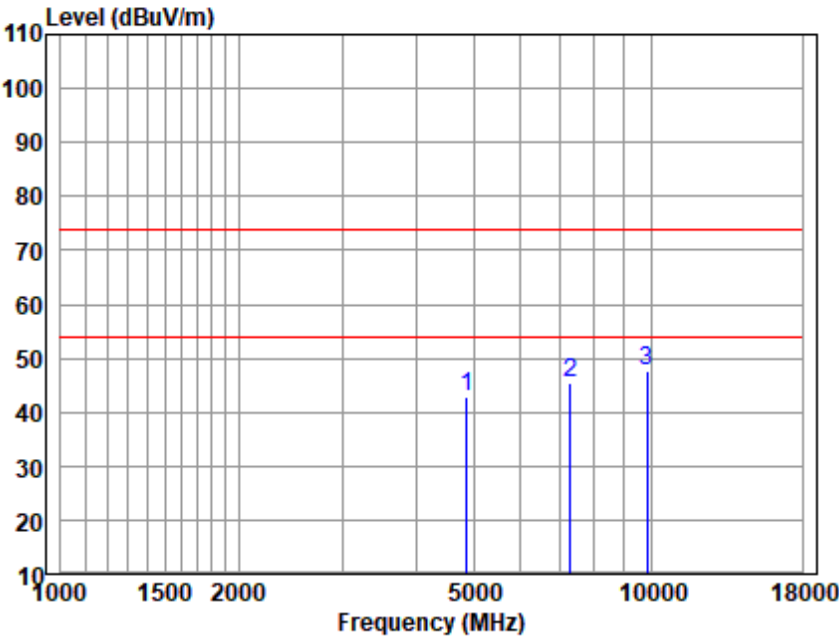
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
4824.016	40.10	33.60	5.24	36.79	42.15	74.00	-31.85	Peak
7242.052	37.79	36.29	7.36	35.50	45.94	74.00	-28.06	Peak
9641.257	34.23	37.71	8.76	33.56	47.14	74.00	-26.86	Peak

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

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



Antenna Polarity :HORIZONTAL
EUT/Project :2024HS

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	
4874.043	40.68	33.66	5.28	36.81	42.81	74.00	-31.19	Peak
7305.122	37.21	36.32	7.42	35.44	45.51	74.00	-28.49	Peak
9838.312	34.64	37.60	8.84	33.45	47.63	74.00	-26.37	Peak

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



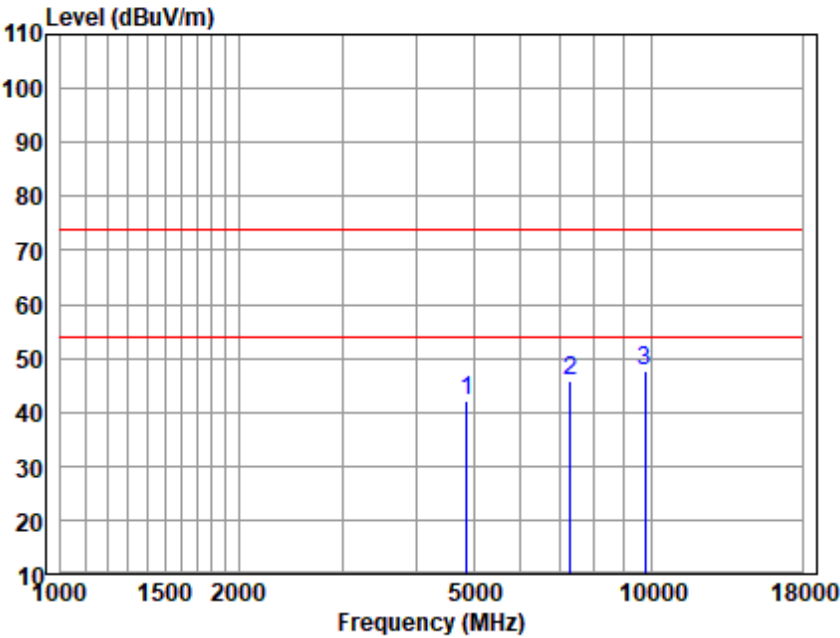
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Test Mode: 03; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:middle

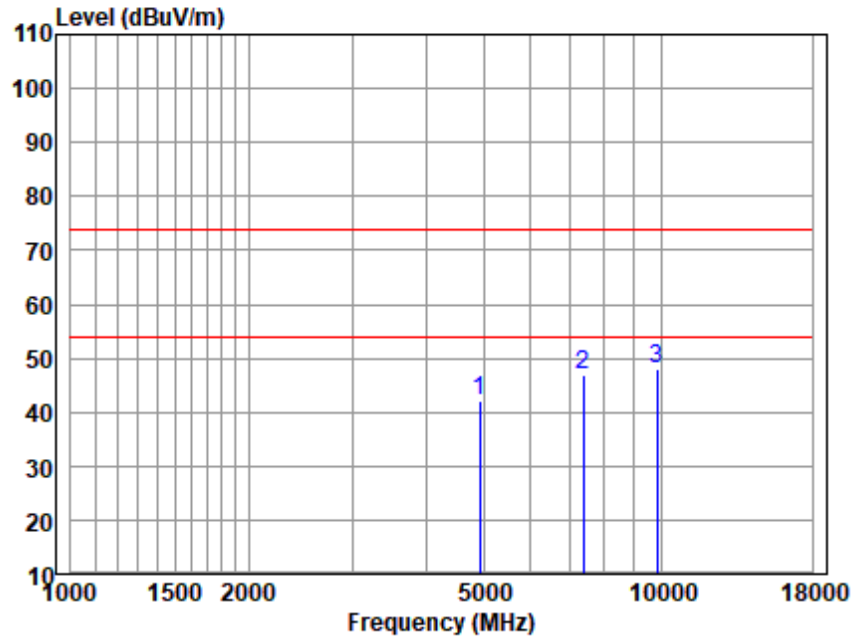


Antenna Polarity :VERTICAL
EUT/Project :2024HS

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	
4874.043	39.94	33.66	5.28	36.81	42.07	74.00	-31.93	Peak
7305.122	37.63	36.32	7.42	35.44	45.93	74.00	-28.07	Peak
9753.371	34.85	37.54	8.80	33.50	47.69	74.00	-26.31	Peak

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

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



Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
4924.721	39.96	33.64	5.32	36.82	42.10	74.00	-31.90	Peak
7390.070	38.35	36.36	7.49	35.37	46.83	74.00	-27.17	Peak
9838.312	34.86	37.60	8.84	33.45	47.85	74.00	-26.15	Peak

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



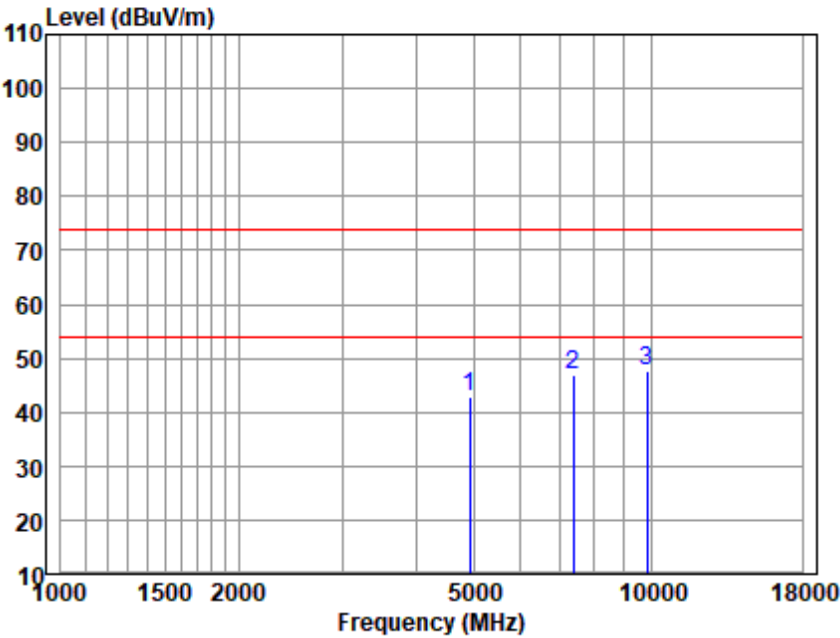
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Antenna Polarity :VERTICAL
EUT/Project :2024HS

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	
4924.721	40.53	33.64	5.32	36.82	42.67	74.00	-31.33	Peak
7390.070	38.32	36.36	7.49	35.37	46.80	74.00	-27.20	Peak
9838.312	34.54	37.60	8.84	33.45	47.53	74.00	-26.47	Peak

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



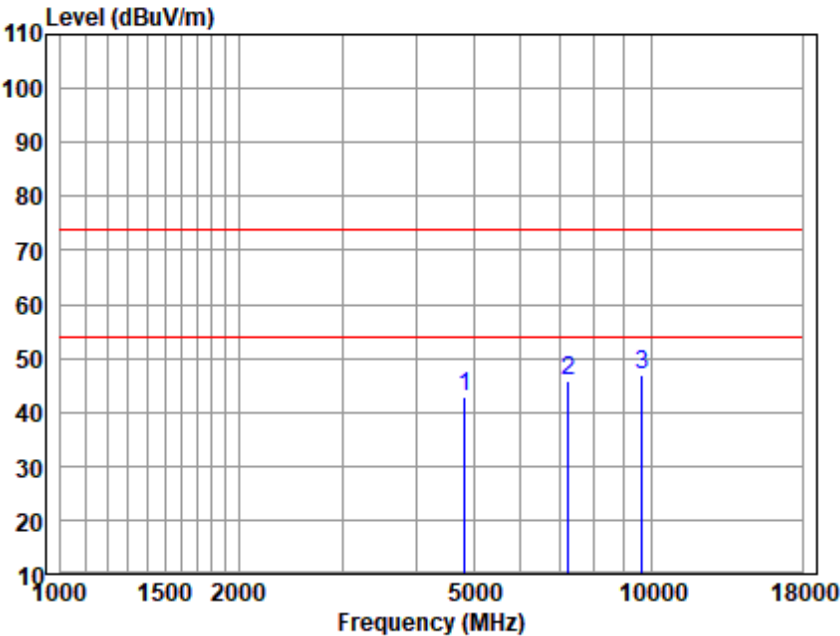
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Test Mode: 03; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

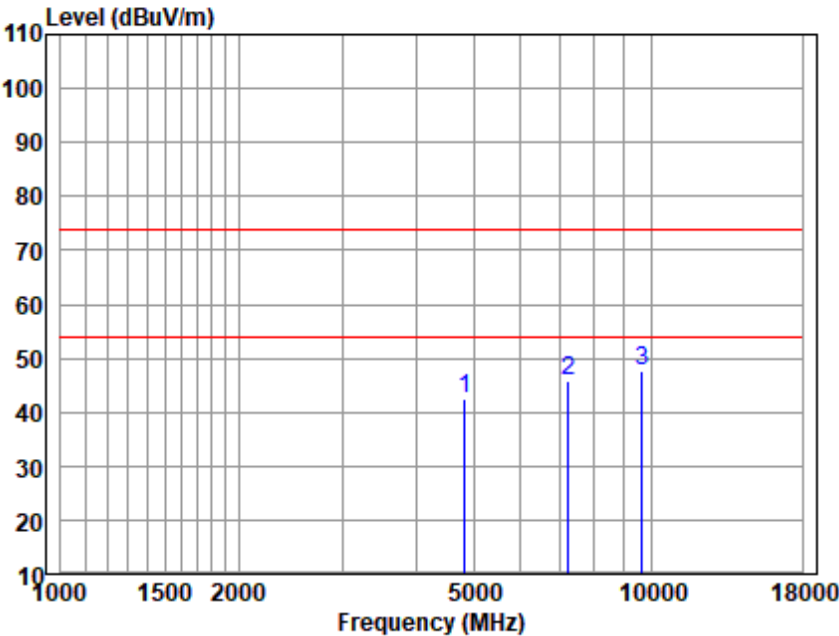


Antenna Polarity :HORIZONTAL
EUT/Project :2024HS

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	
4824.016	40.81	33.60	5.24	36.79	42.86	74.00	-31.14	Peak
7242.052	37.61	36.29	7.36	35.50	45.76	74.00	-28.24	Peak
9641.257	33.86	37.71	8.76	33.56	46.77	74.00	-27.23	Peak

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

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

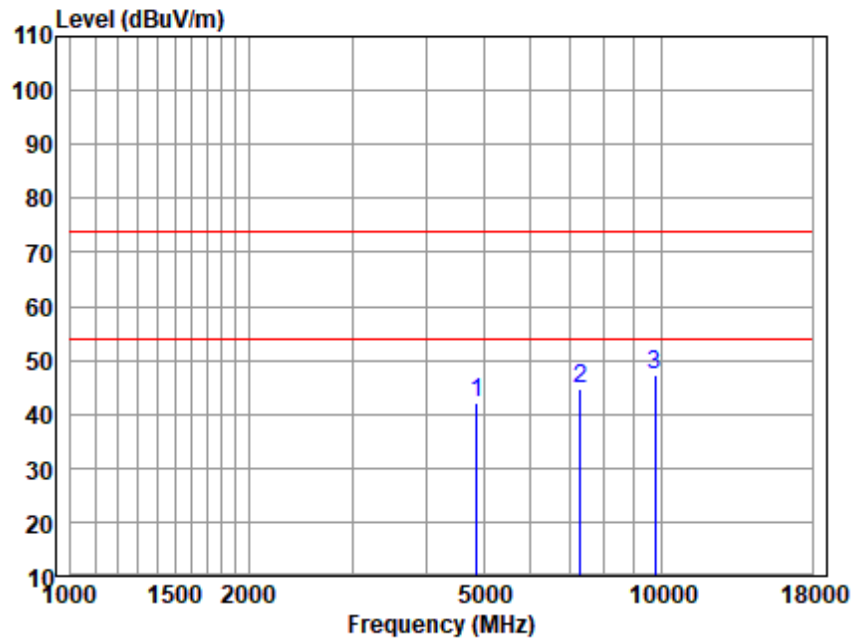


Antenna Polarity :VERTICAL
EUT/Project :2024HS

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	
4824.016	40.35	33.60	5.24	36.79	42.40	74.00	-31.60	Peak
7242.052	37.61	36.29	7.36	35.50	45.76	74.00	-28.24	Peak
9641.257	34.71	37.71	8.76	33.56	47.62	74.00	-26.38	Peak

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

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



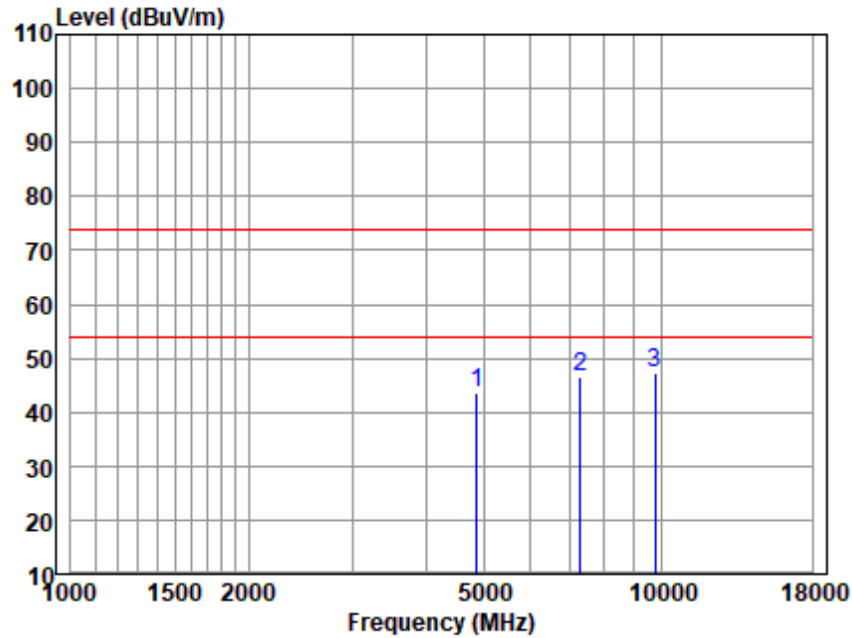
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
4874.043	40.03	33.66	5.28	36.81	42.16	74.00	-31.84	Peak
7305.122	36.27	36.32	7.42	35.44	44.57	74.00	-29.43	Peak
9753.371	34.49	37.54	8.80	33.50	47.33	74.00	-26.67	Peak

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

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



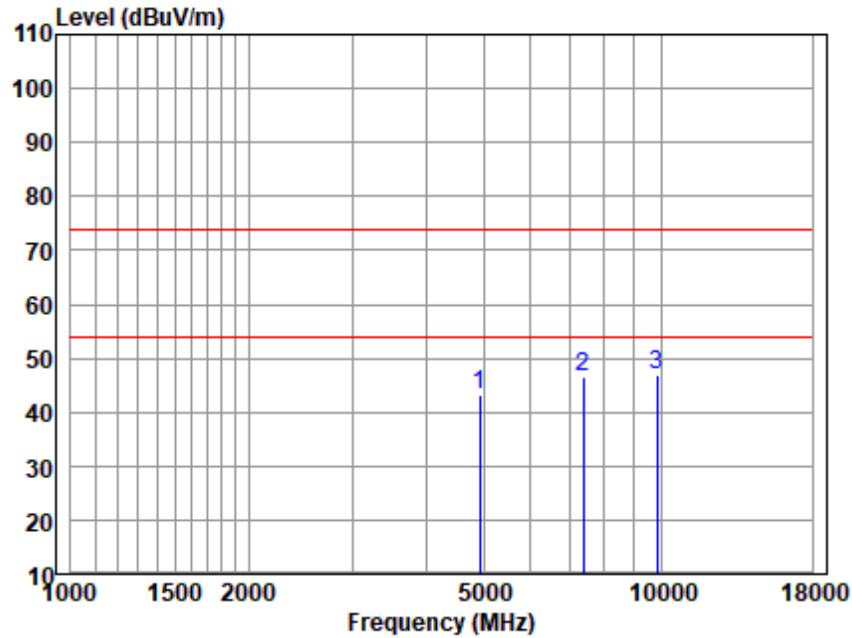
Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
4874.043	41.33	33.66	5.28	36.81	43.46	74.00	-30.54	Peak
7305.122	38.19	36.32	7.42	35.44	46.49	74.00	-27.51	Peak
9753.371	34.41	37.54	8.80	33.50	47.25	74.00	-26.75	Peak

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

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



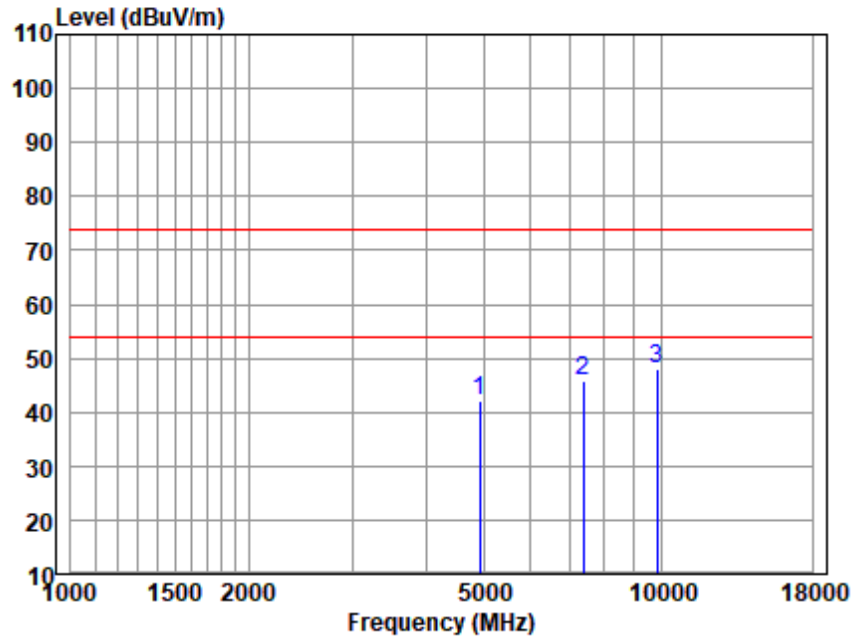
Antenna Polarity :HORIZONTAL

EUT/Project :2024HS

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	
4924.721	40.92	33.64	5.32	36.82	43.06	74.00	-30.94	Peak
7390.070	38.05	36.36	7.49	35.37	46.53	74.00	-27.47	Peak
9838.312	34.02	37.60	8.84	33.45	47.01	74.00	-26.99	Peak

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

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



Antenna Polarity :VERTICAL

EUT/Project :2024HS

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	
4924.721	40.05	33.64	5.32	36.82	42.19	74.00	-31.81	Peak
7390.070	37.32	36.36	7.49	35.37	45.80	74.00	-28.20	Peak
9838.312	34.97	37.60	8.84	33.45	47.96	74.00	-26.04	Peak

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



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2410002024HS

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2410002024HS

10 Appendix

10.1 Appendix A: DTS Bandwidth

10.1.1 Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.080	2407.600	2416.680	≥ 0.5	PASS
		2437	9.080	2432.600	2441.680	≥ 0.5	PASS
		2462	9.080	2457.600	2466.680	≥ 0.5	PASS
11G	Ant1	2412	16.200	2404.040	2420.240	≥ 0.5	PASS
		2437	16.160	2429.040	2445.200	≥ 0.5	PASS
		2462	16.360	2453.960	2470.320	≥ 0.5	PASS
11N20SISO	Ant1	2412	17.560	2403.400	2420.960	≥ 0.5	PASS
		2437	17.520	2428.400	2445.920	≥ 0.5	PASS
		2462	17.520	2453.360	2470.880	≥ 0.5	PASS

11B Ant1 2462



11G_Ant1_2412



11G_Ant1_2437



11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462





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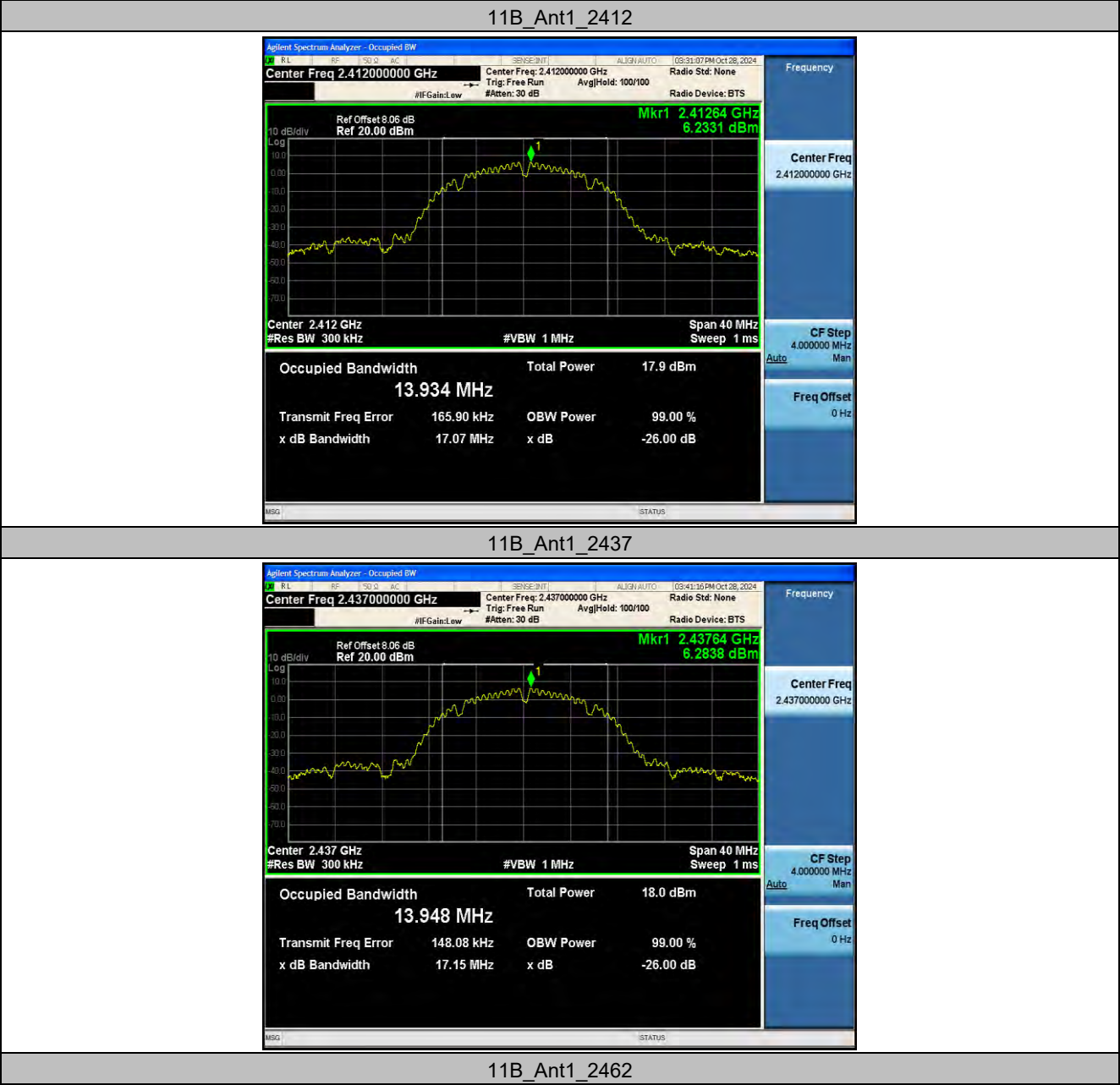
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10.2 Appendix B: Occupied Channel Bandwidth

10.2.1 Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.934	2405.1989	2419.1329	---	---
		2437	13.948	2430.1741	2444.1221	---	---
		2462	13.959	2455.1585	2469.1175	---	---
11G	Ant1	2412	16.802	2403.7456	2420.5476	---	---
		2437	16.847	2428.7173	2445.5643	---	---
		2462	16.858	2453.7216	2470.5796	---	---
11N20SISO	Ant1	2412	17.980	2403.1485	2421.1285	---	---
		2437	17.978	2428.1523	2446.1303	---	---
		2462	17.950	2453.1843	2471.1343	---	---

10.2.2 Test Graphs

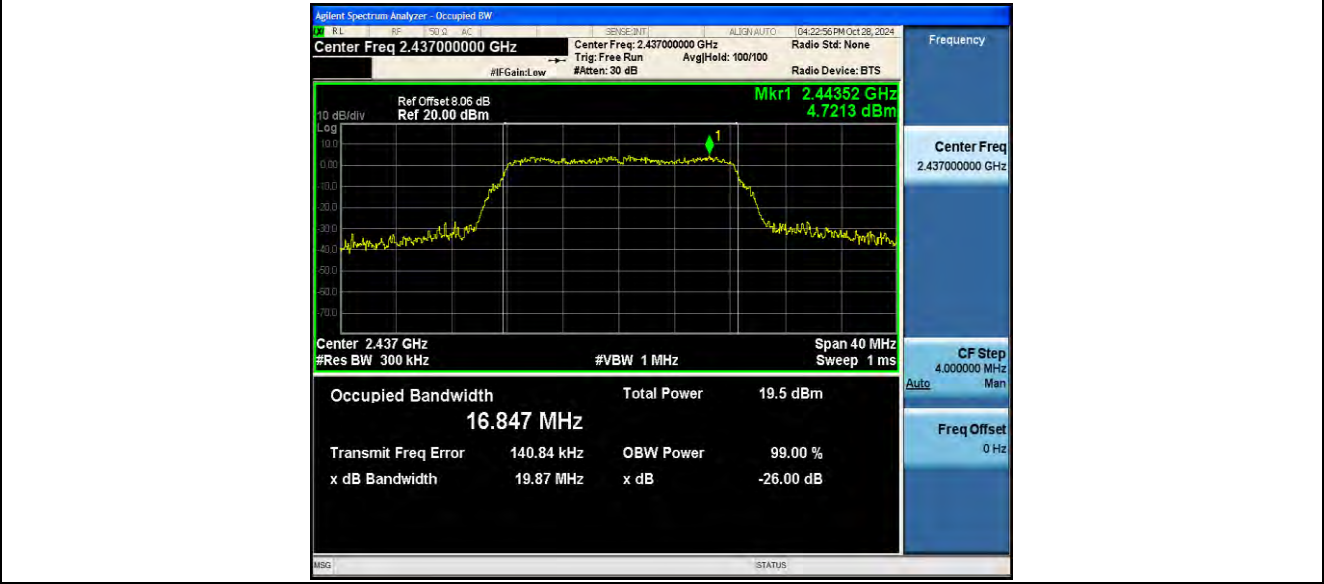




11G_Ant1_2412



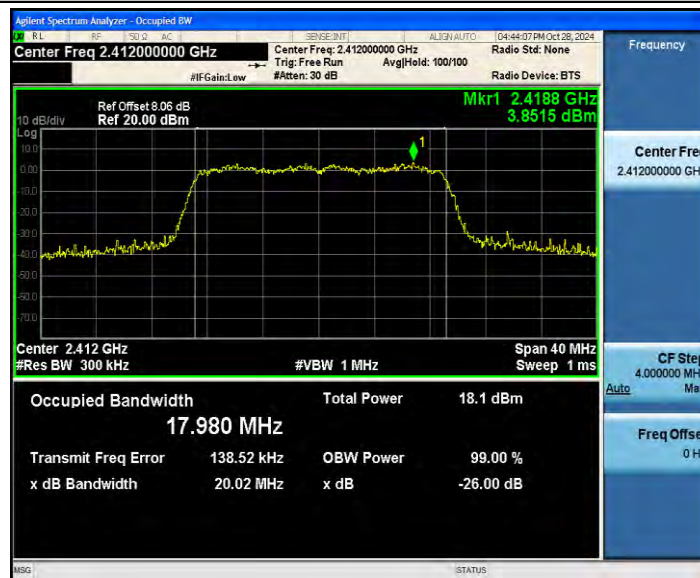
11G_Ant1_2437



11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437





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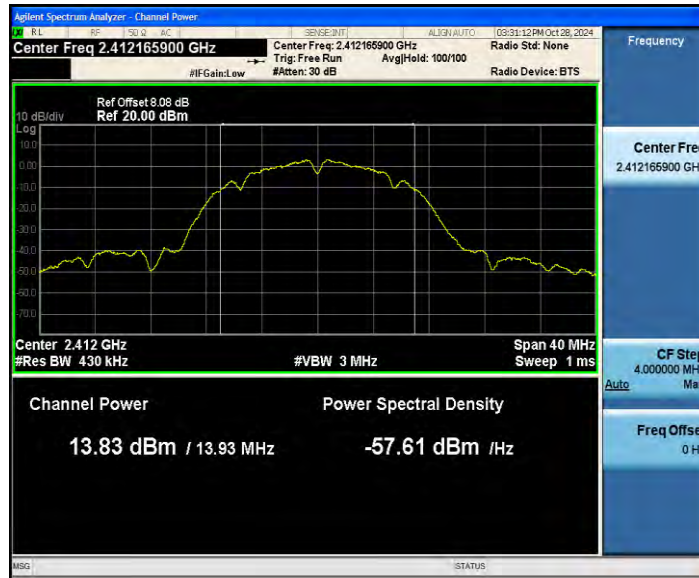
10.3 Appendix C: Maximum conducted output power

10.3.1 Test Result

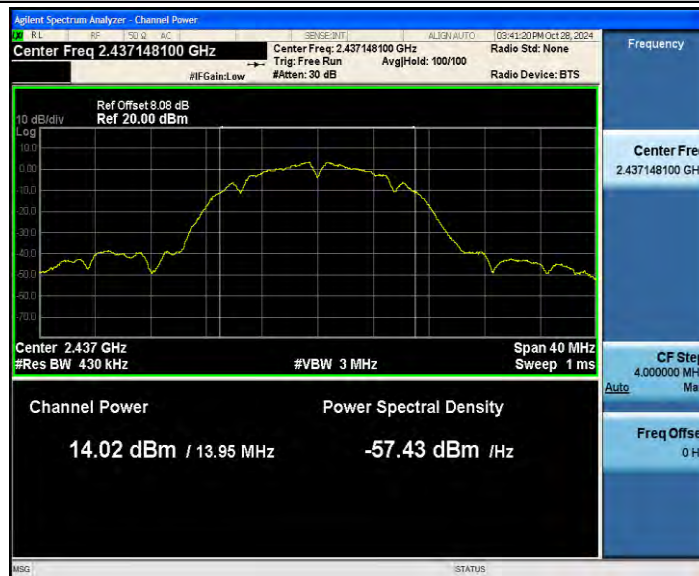
Test Mode	Antenna	Channel	Level [dBm]	10Log(1/X) Factor [dB]	Power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	13.81	0.02	13.83	≤30.00	PASS
		2437	14.00	0.02	14.02	≤30.00	PASS
		2462	14.18	0.02	14.20	≤30.00	PASS
11G	Ant1	2412	13.23	0.12	13.35	≤30.00	PASS
		2437	13.40	0.12	13.52	≤30.00	PASS
		2462	13.72	0.12	13.84	≤30.00	PASS
11N20SISO	Ant1	2412	11.94	0.13	12.07	≤30.00	PASS
		2437	12.15	0.13	12.28	≤30.00	PASS
		2462	12.37	0.13	12.50	≤30.00	PASS

10.3.2 Test Graphs

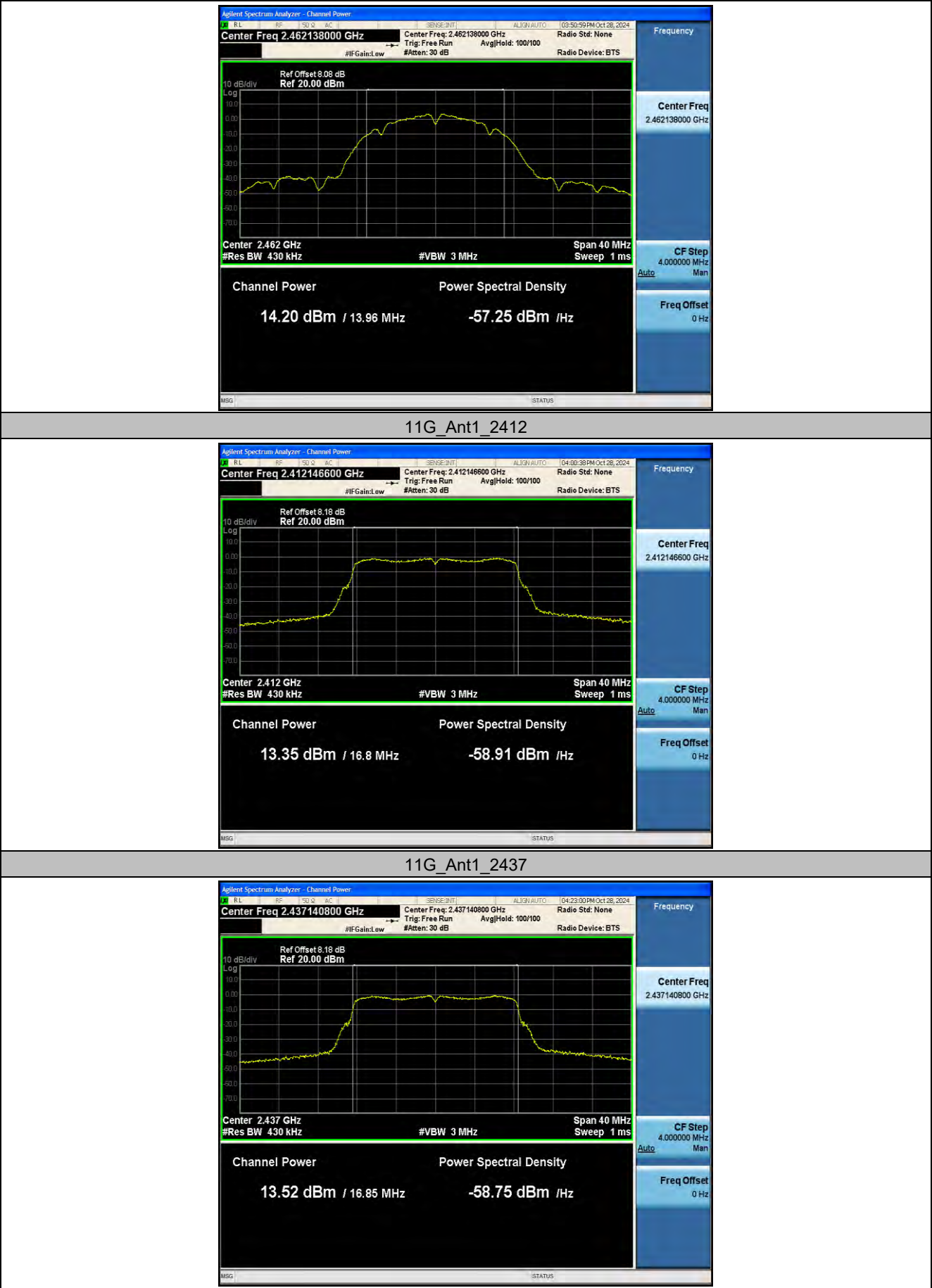
11B_Ant1_2412



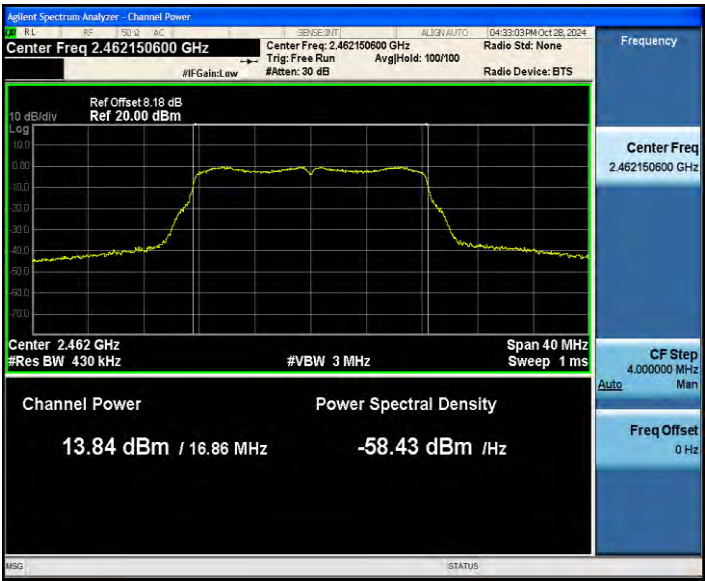
11B_Ant1_2437



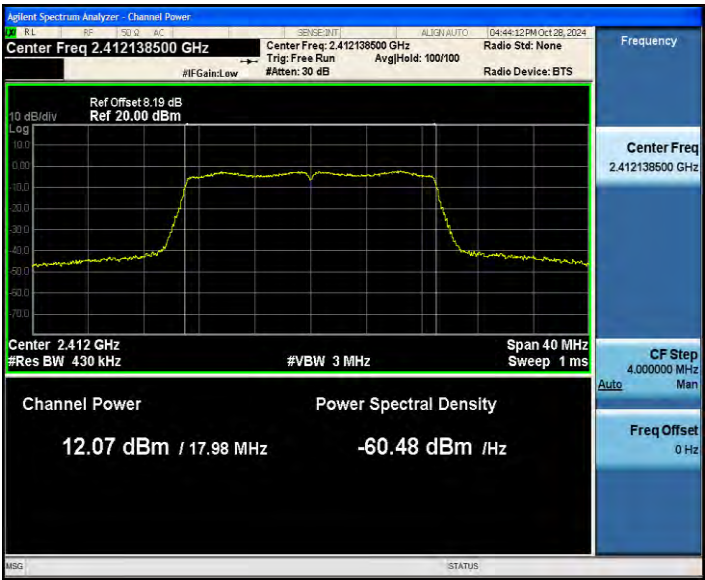
11B_Ant1_2462



11G_Ant1_2462



11N20SISO_Ant1_2412



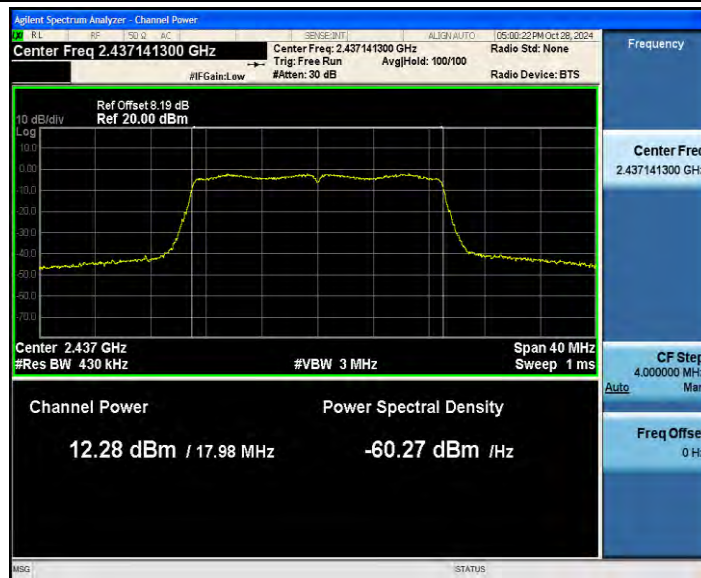
11N20SISO_Ant1_2437

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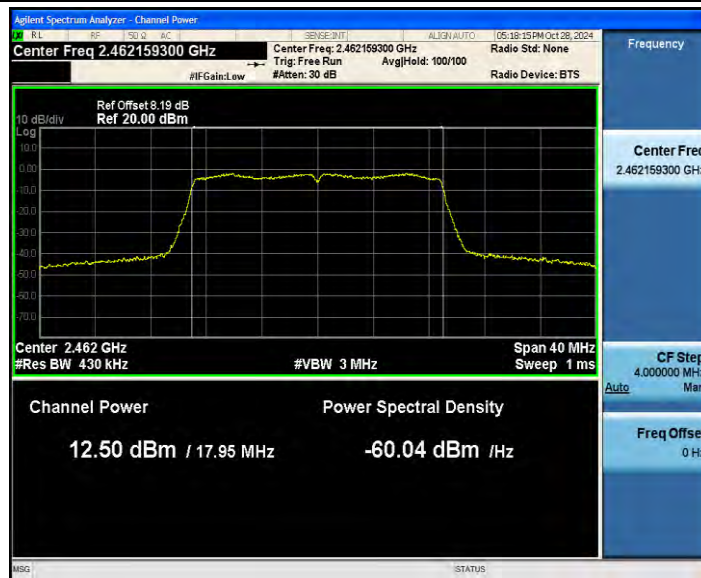
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11N20SISO_Ant1_2462





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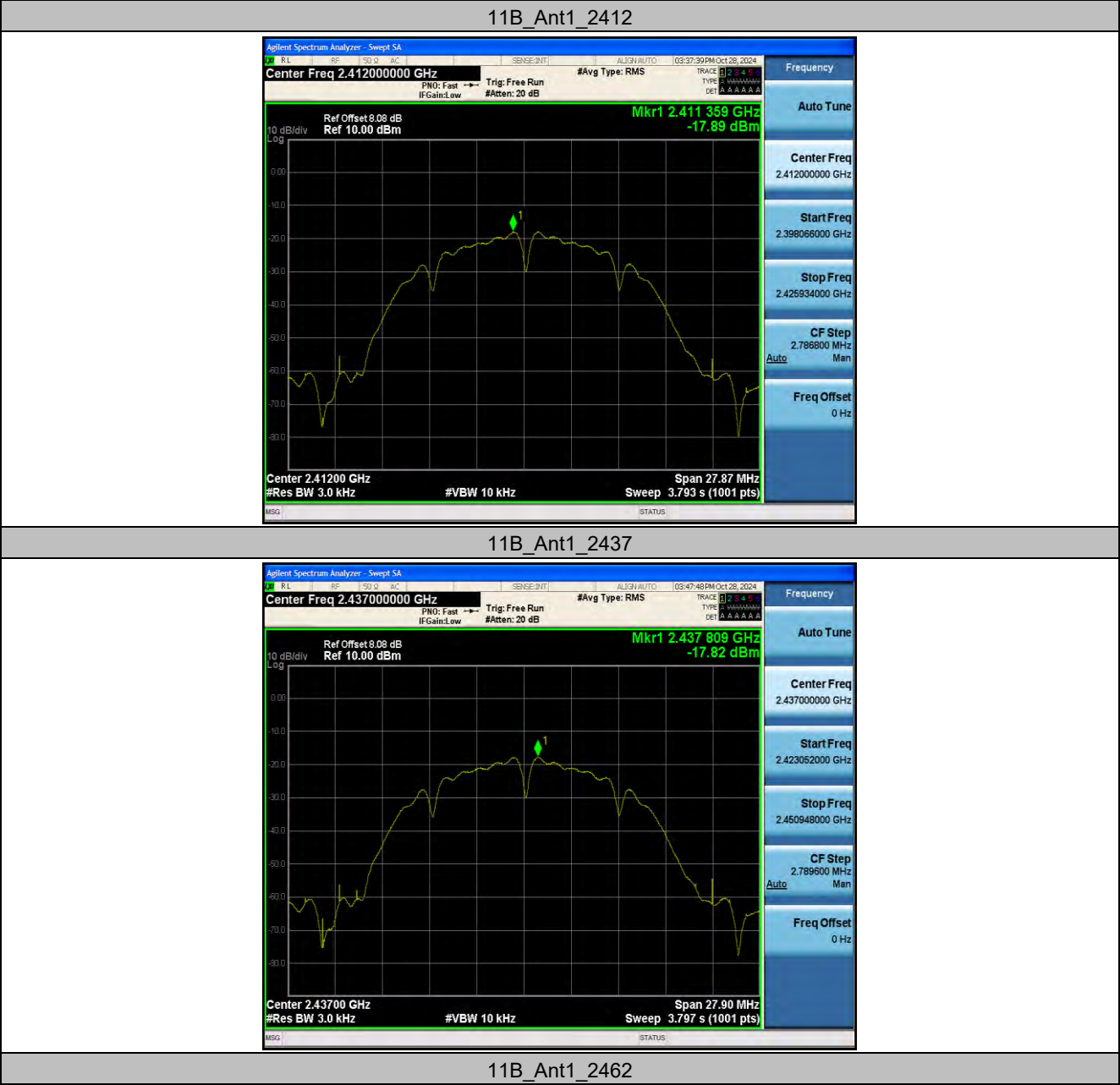
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10.4 Appendix D: Maximum power spectral density

10.4.1 Test Result

Test Mode	Antenna	Channel	Level [dBm/3-100kHz]	10Log(1/X) Factor [dB]	PSD [dBm/3-100kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-17.91	0.02	-17.89	≤8.00	PASS
		2437	-17.84	0.02	-17.82	≤8.00	PASS
		2462	-17.65	0.02	-17.63	≤8.00	PASS
11G	Ant1	2412	-21.06	0.12	-20.94	≤8.00	PASS
		2437	-20.89	0.12	-20.77	≤8.00	PASS
		2462	-20.66	0.12	-20.54	≤8.00	PASS
11N20SISO	Ant1	2412	-22.39	0.13	-22.26	≤8.00	PASS
		2437	-22.30	0.13	-22.17	≤8.00	PASS
		2462	-21.97	0.13	-21.84	≤8.00	PASS

10.4.2 Test Graphs





11G_Ant1_2412



11G_Ant1_2437



11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462





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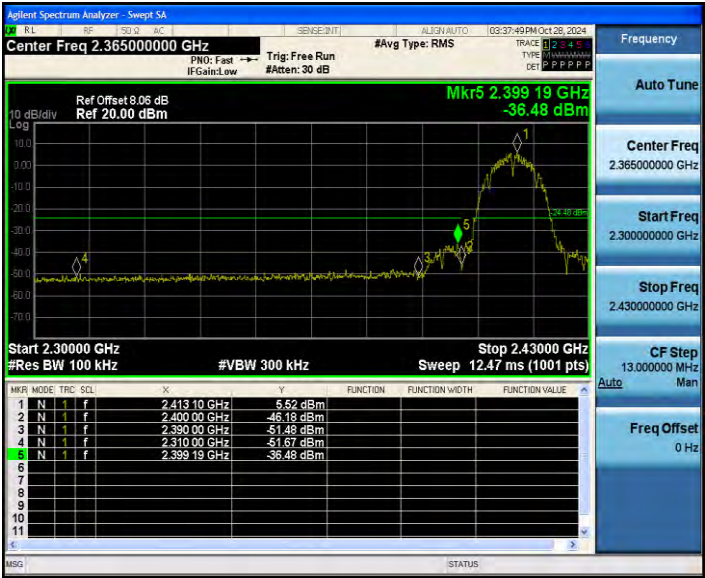
10.5 Appendix E: Band edge measurements

10.5.1 Test Result

Test Mode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.52	-36.48	≤-24.48	PASS
		High	2462	6.33	-44.31	≤-23.67	PASS
11G	Ant1	Low	2412	2.96	-34.36	≤-27.04	PASS
		High	2462	3.23	-40.07	≤-26.77	PASS
11N20SISO	Ant1	Low	2412	1.60	-37.07	≤-28.4	PASS
		High	2462	1.68	-39.87	≤-28.32	PASS

10.5.2 Test Graphs

11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412



11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



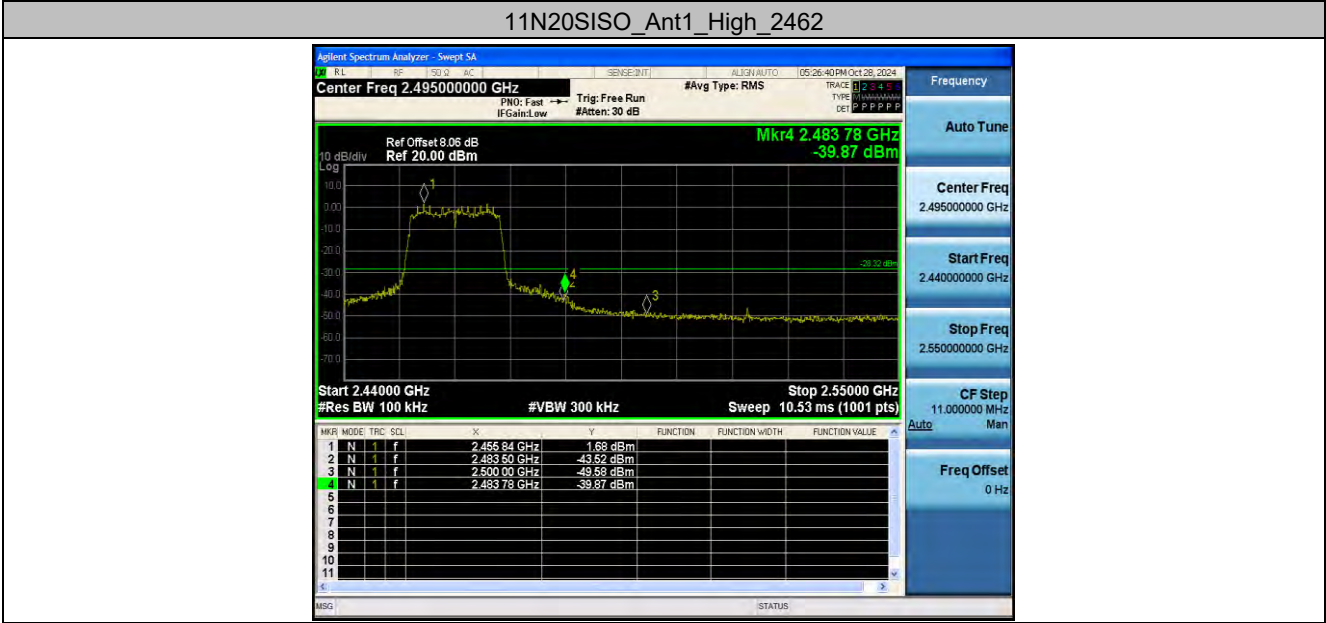


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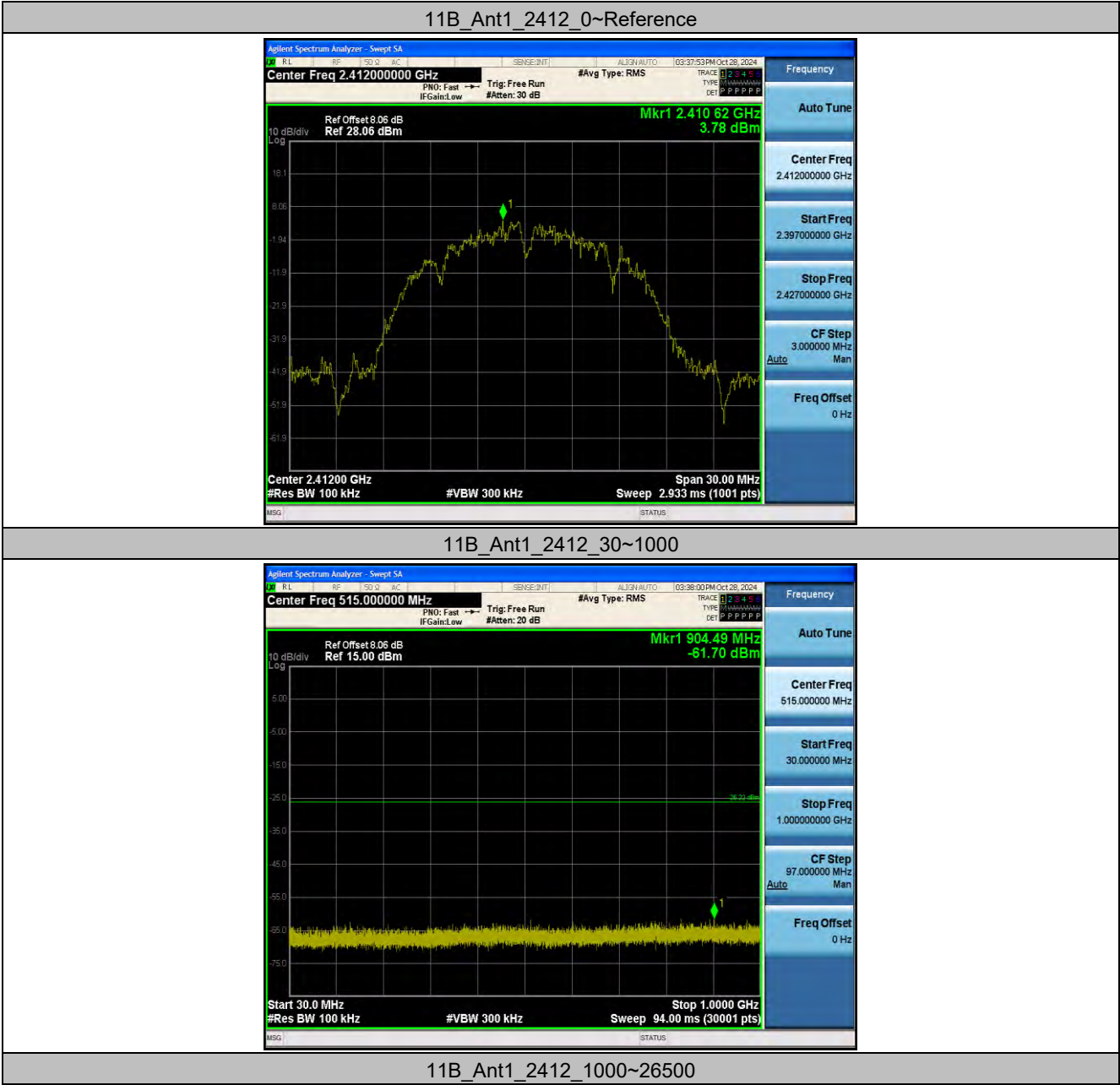


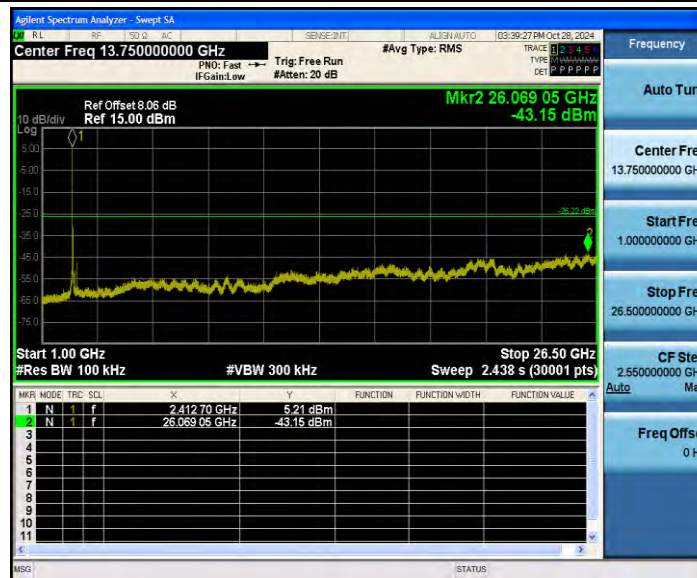
10.6 Appendix F: Conducted Spurious Emission

10.6.1 Test Result

Test Mode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	3.78	3.78	---	PASS
			30~1000	3.78	-61.7	≤-26.22	PASS
			1000~26500	3.78	-43.15	≤-26.22	PASS
		2437	Reference	4.21	4.21	---	PASS
			30~1000	4.21	-58.88	≤-25.79	PASS
			1000~26500	4.21	-42.41	≤-25.79	PASS
		2462	Reference	4.43	4.43	---	PASS
			30~1000	4.43	-61.68	≤-25.57	PASS
			1000~26500	4.43	-42.95	≤-25.57	PASS
11G	Ant1	2412	Reference	2.03	2.03	---	PASS
			30~1000	2.03	-61.5	≤-27.97	PASS
			1000~26500	2.03	-41.17	≤-27.97	PASS
		2437	Reference	2.37	2.37	---	PASS
			30~1000	2.37	-61.67	≤-27.63	PASS
			1000~26500	2.37	-42.87	≤-27.63	PASS
		2462	Reference	-0.56	-0.56	---	PASS
			30~1000	-0.56	-61.2	≤-30.56	PASS
			1000~26500	-0.56	-42.82	≤-30.56	PASS
11N20SISO	Ant1	2412	Reference	0.76	0.76	---	PASS
			30~1000	0.76	-61.82	≤-29.24	PASS
			1000~26500	0.76	-43.36	≤-29.24	PASS
		2437	Reference	-0.83	-0.83	---	PASS
			30~1000	-0.83	-61.58	≤-30.83	PASS
			1000~26500	-0.83	-42.88	≤-30.83	PASS
		2462	Reference	-0.18	-0.18	---	PASS
			30~1000	-0.18	-61.25	≤-30.18	PASS
			1000~26500	-0.18	-42.72	≤-30.18	PASS

10.6.2 Test Graphs

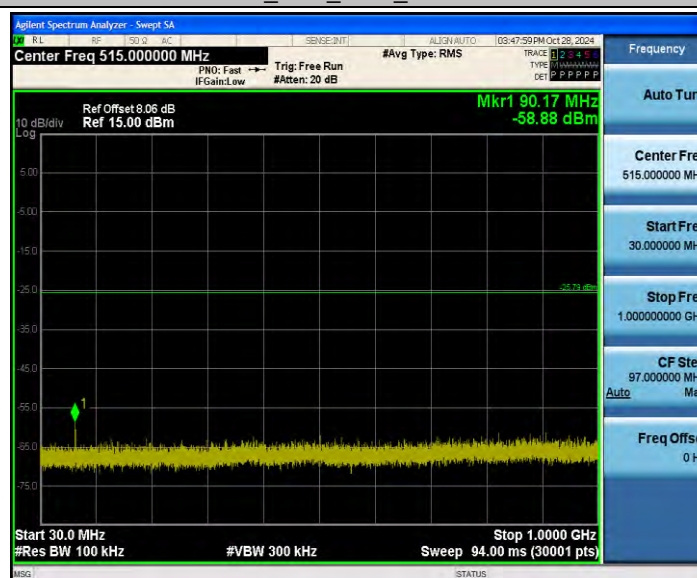




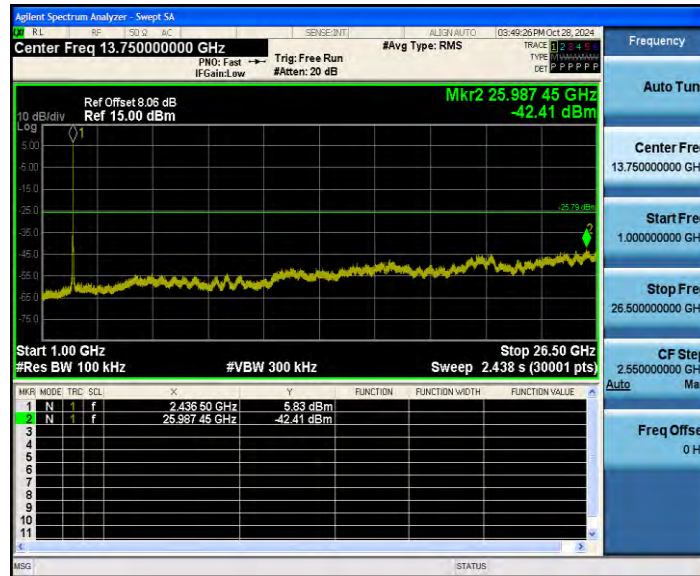
11B_Ant1_2437_0~Reference



11B_Ant1_2437_30~1000



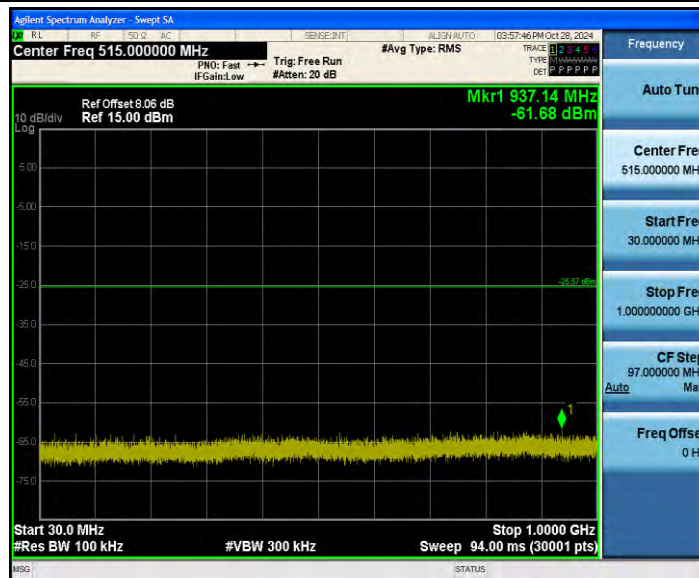
11B_Ant1_2437_1000~26500



11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000



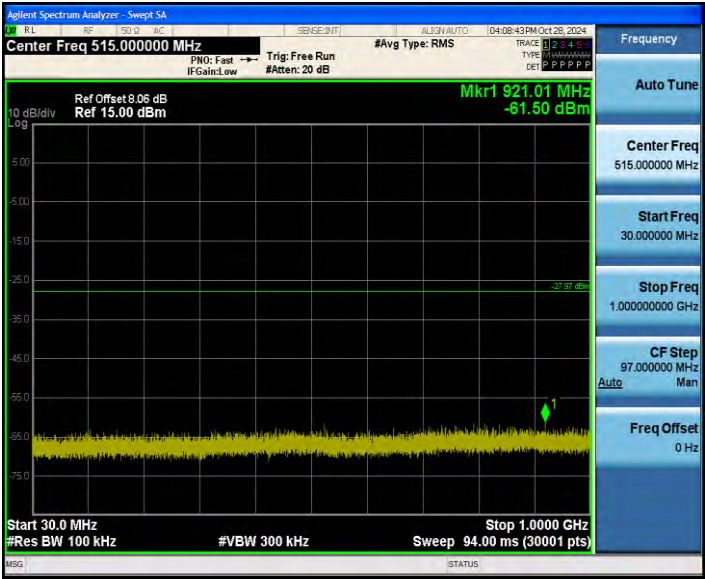
11B_Ant1_2462_1000~26500



11G_Ant1_2412_0~Reference



11G_Ant1_2412_30~1000



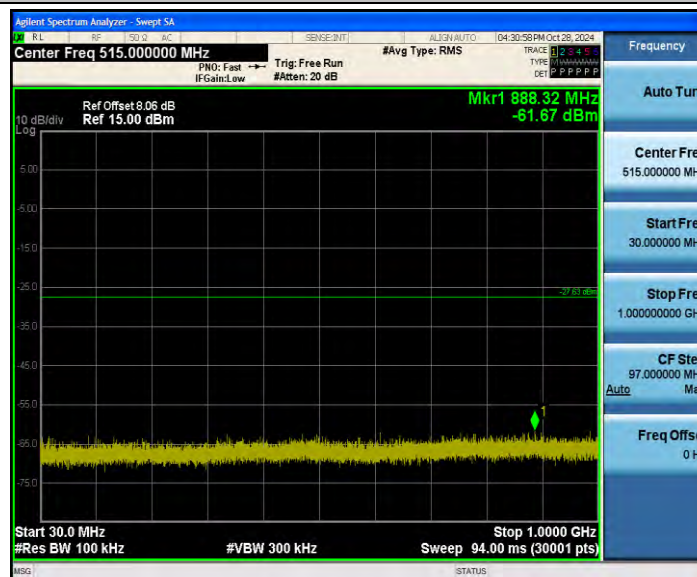
11G_Ant1_2412_1000~26500



11G_Ant1_2437_0~Reference



11G_Ant1_2437_30~1000



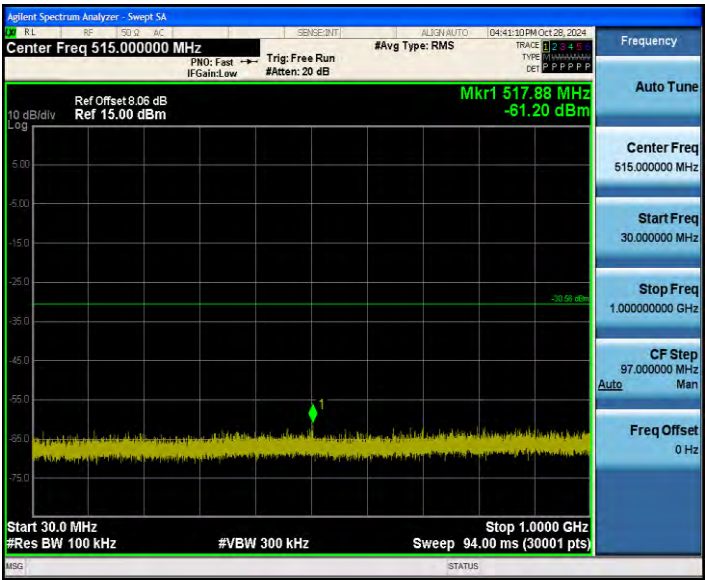
11G_Ant1_2437_1000~26500



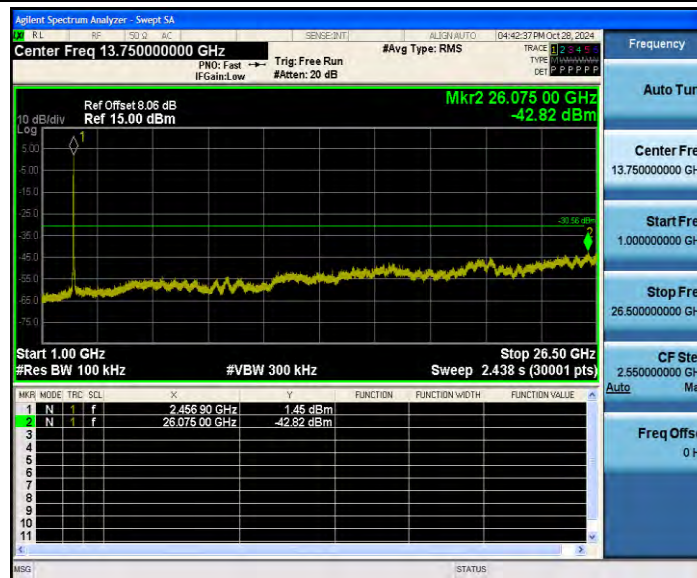
11G_Ant1_2462_0~Reference



11G_Ant1_2462_30~1000



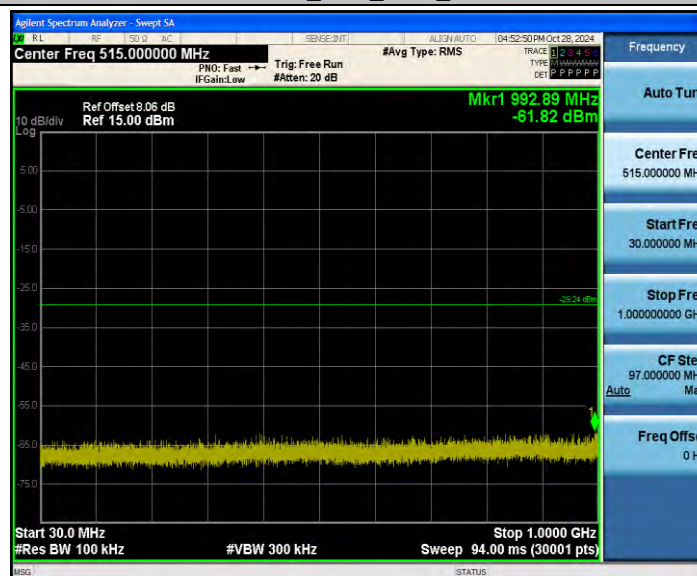
11G_Ant1_2462_1000~26500



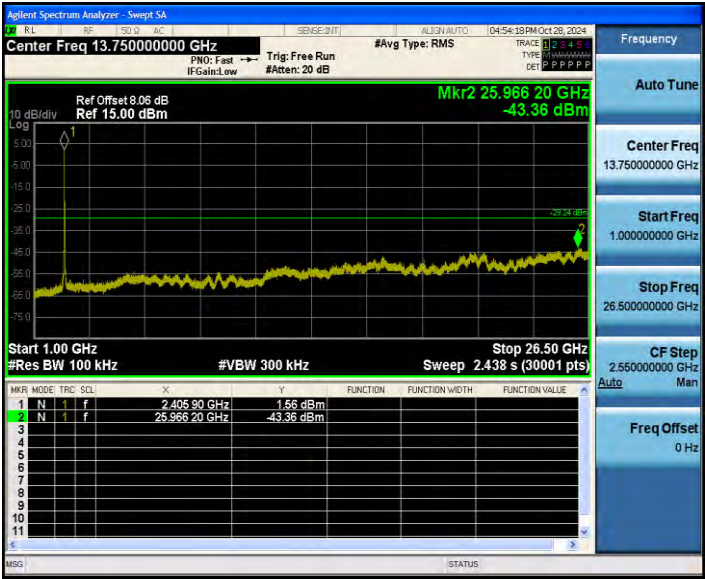
11N20SISO_Ant1_2412_0~Reference



11N20SISO_Ant1_2412_30~1000



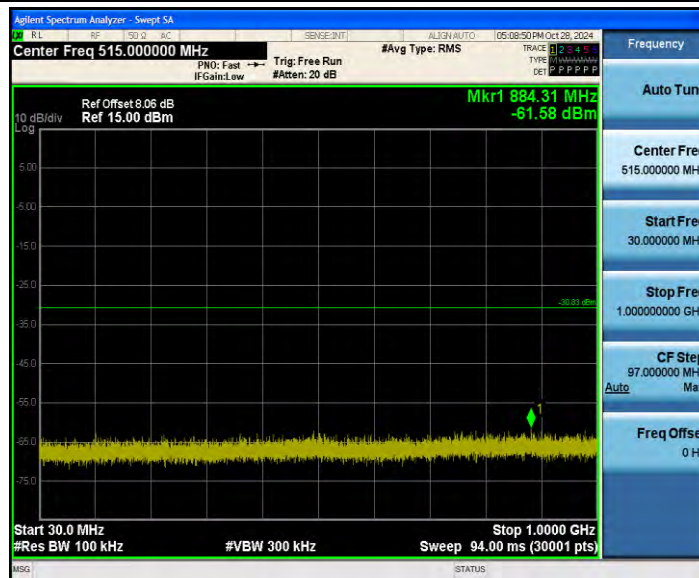
11N20SISO_Ant1_2412_1000~26500



11N20SISO_Ant1_2437_0~Reference



11N20SISO_Ant1_2437_30~1000



11N20SISO_Ant1_2437_1000~26500



11N20SISO_Ant1_2462_0~Reference



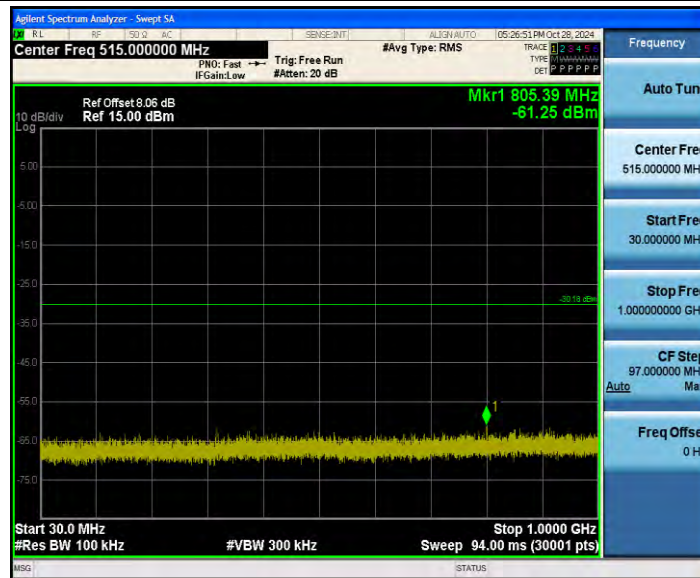
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11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500





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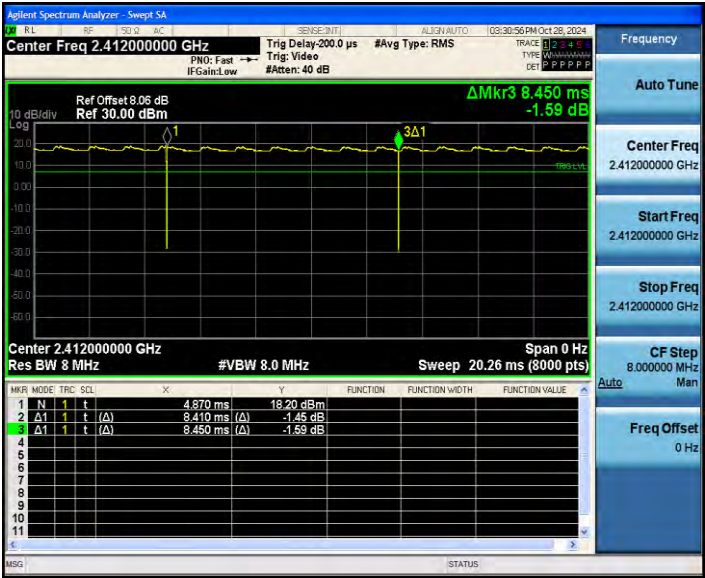
10.7 Appendix G: Duty Cycle

10.7.1 Test Result

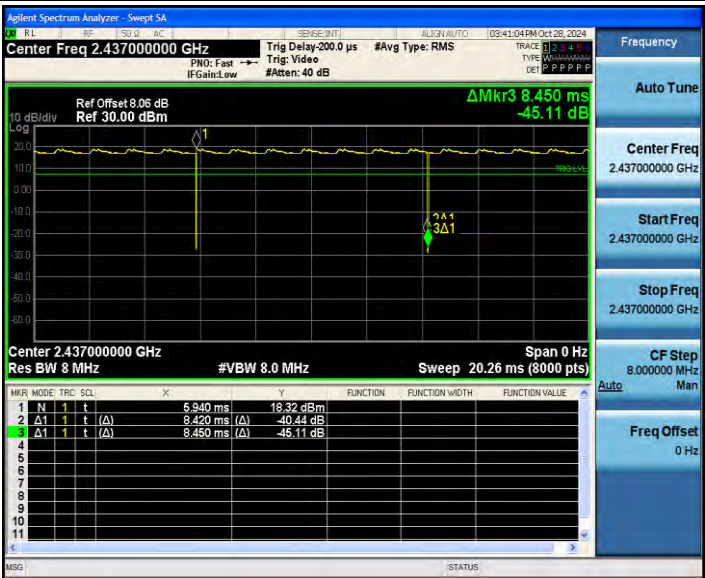
Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	8.41	8.45	99.53	---	---
		2437	8.42	8.45	99.64	---	---
		2462	8.41	8.45	99.53	---	---
11G	Ant1	2412	1.40	1.44	97.22	---	---
		2437	1.40	1.44	97.22	---	---
		2462	1.40	1.44	97.22	---	---
11N20SISO	Ant1	2412	1.30	1.34	97.01	---	---
		2437	1.31	1.35	97.04	---	---
		2462	1.31	1.35	97.04	---	---

10.7.2 Test Graphs

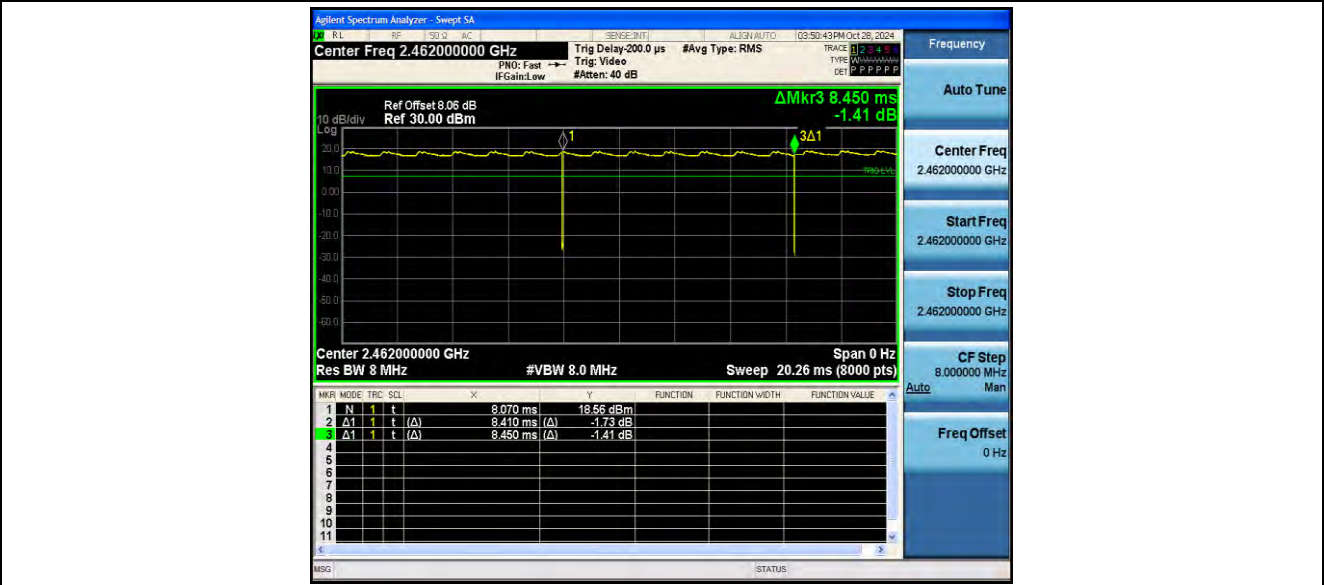
11B_Ant1_2412



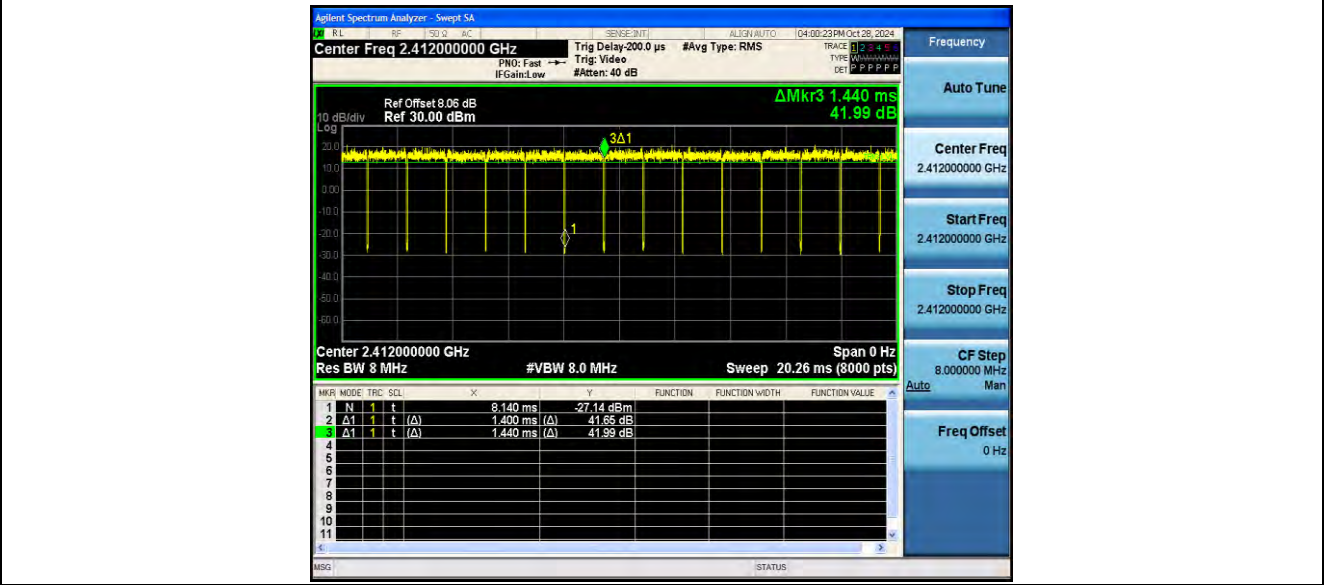
11B_Ant1_2437



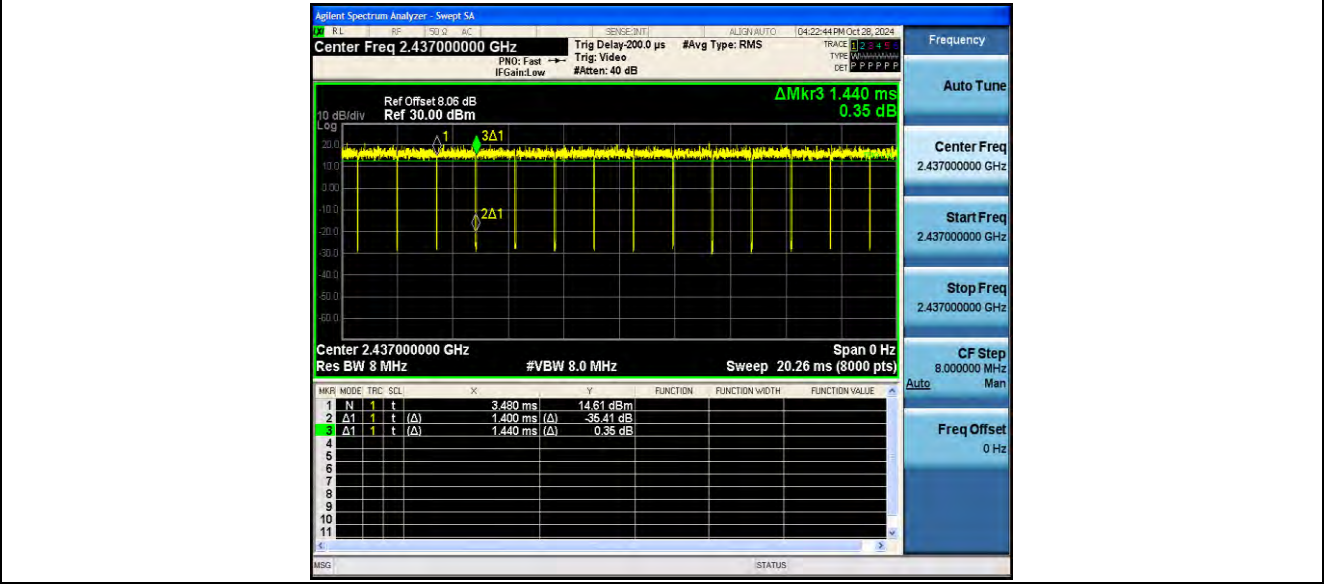
11B_Ant1_2462



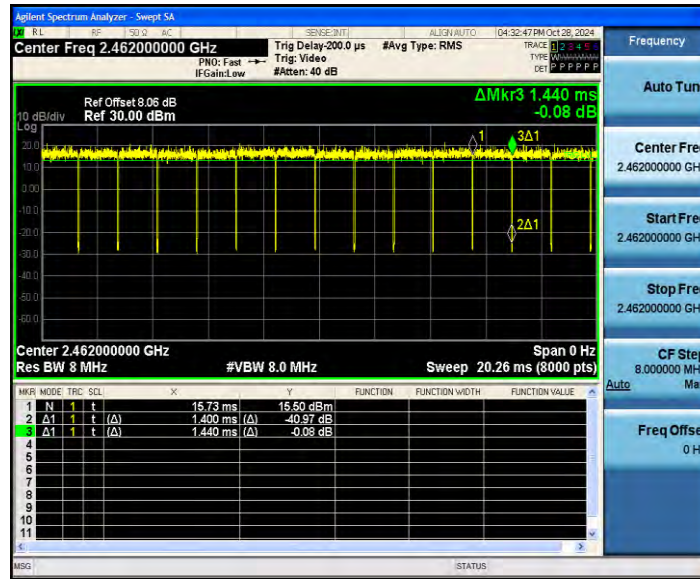
11G_Ant1_2412



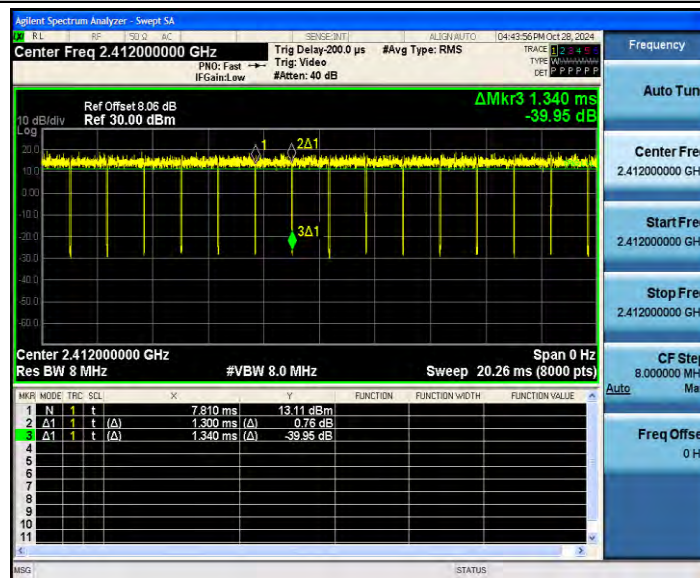
11G_Ant1_2437



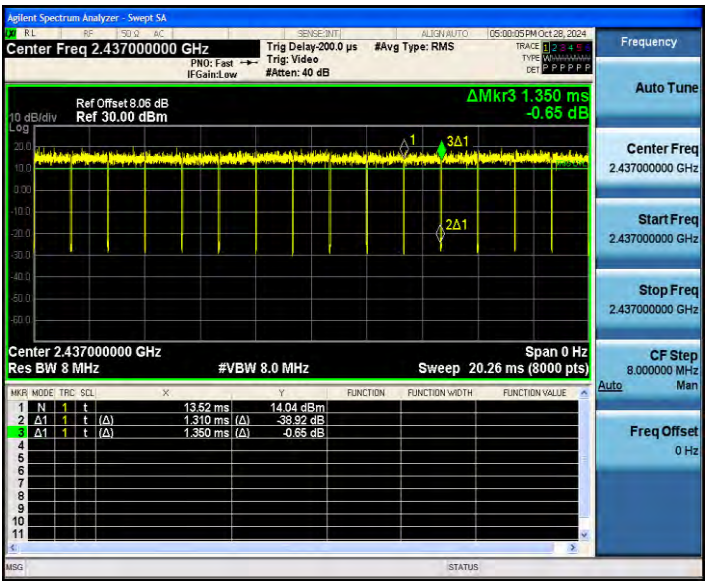
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

