



FCC RADIO TEST REPORT

FCC ID : 2AMK2-RM02AA
Equipment : reMarkable Paper Pro
Brand Name : reMarkable
Model Name : RM02A
Applicant : reMarkable AS
Fridtjof Nansens vei 12, 0369 Oslo, Norway
Manufacturer : reMarkable AS
Fridtjof Nansens vei 12, 0369 Oslo, Norway
Standard : FCC Part 15 Subpart C §15.247

The product was received on Mar. 29, 2024 and testing was performed from Apr. 10, 2024 to May 11, 2024. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FR432902C	01	Initial issue of report	Jun. 18, 2024
FR432902C	02	Revise Applicant This report is an updated version, replacing the report issued on Jun. 18, 2024.	Jun. 27, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	0.88 dB under the limit at 2483.52 MHz
3.6	15.207	AC Conducted Emission	Pass	11.65 dB under the limit at 13.56 MHz
3.7	15.203	Antenna Requirement	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Keven Cheng

Report Producer: Rebecca Wu



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, and NFC.
Antenna Type WLAN: Monopole Antenna Bluetooth: Monopole Antenna NFC: Coil Inductor Antenna

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	1.6

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No.
	TH02-HY, CO05-HY, 03CH07-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190



1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

2.2 Test Mode

This device support 26/52/106/242/484-tone RU.

The PSD of partial RU is reduced to be smaller than full RU according to TCB workshop interim guidance Oct. 2022.

The 802.11ax mode is investigated among different tones, full resource units (RU), partial resource units. The partial RU has no higher power than full RU's, thus the full RU is chosen as main test configuration.

The 242-tone RU is covered by 20MHz channel, 484-tone RU is covered by 40MHz channel.

The power for 802.11n HT20/ HT40 mode is smaller than 802.11ac mode, so all other conducted and radiated test is covered by 802.11ac mode.

The final test modes include the worst data rates for each modulation shown in the table below.

Single Antenna

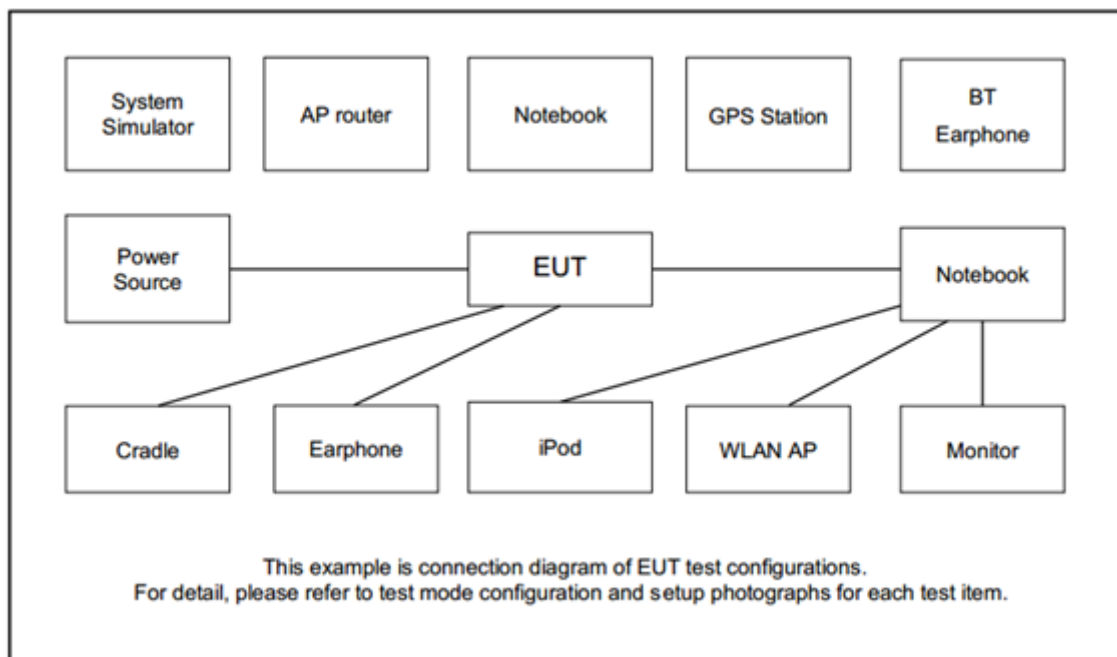
Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20 (Covered by VHT20)	MCS0
802.11n HT40 (Covered by VHT40)	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0

Test Cases	
AC Conducted Emission	Mode 1 :Bluetooth Link + WLAN (2.4GHz) Link + NFC Charging to pen 1 + USB Cable (Charging from Adapter) + Battery

Ch. #	2400-2483.5 MHz				
	802.11b	802.11g	802.11ac VHT20	802.11ax HE20	802.11ax HE40
Low	01	01	-	01	03
Middle	06	06	-	06	06
High	11	11	11	11	09

Remark: For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Phone	Apple	A1586	N/A	N/A	N/A
4.	Adapter	Aohai	G9BR1	FCC DoC	N/A	N/A
5.	Adapter	PHILIPS	DLP6341C	NA	N/A	N/A



2.5 EUT Operation Test Setup

The RF test items, utility “putty 0.78” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

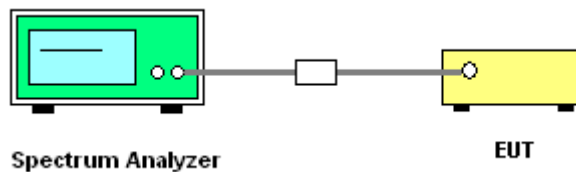
3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) $\geq 3 * RBW$.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5 MHz, the limit for output power is 30 dBm. If transmitting antenna with directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

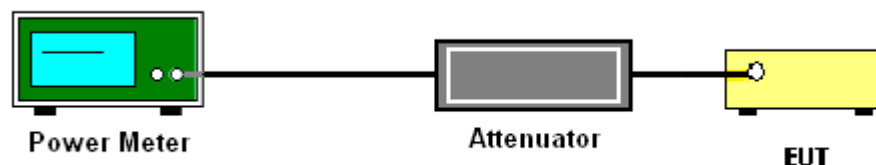
3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.2.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
2. The RF output of EUT is connected to the power meter by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Average Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band at any time interval of continuous transmission.

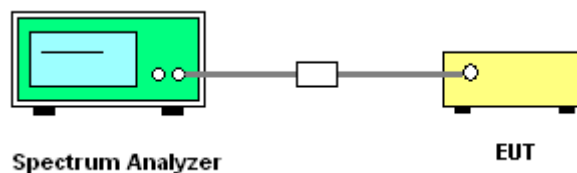
3.3.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

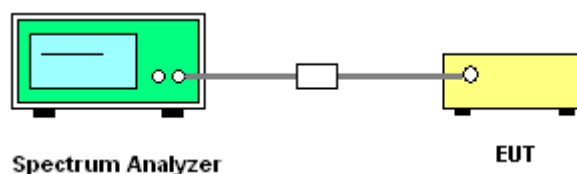
3.4.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.4.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Please refer to Appendix A.



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device is measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

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

3.5.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
4. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.

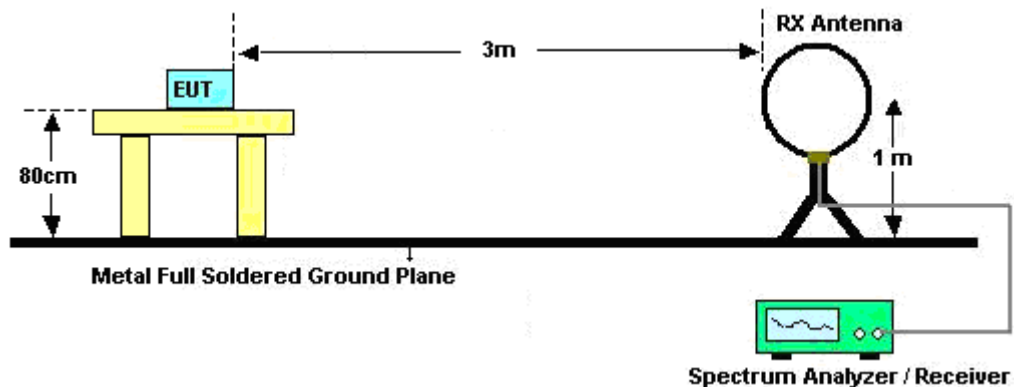
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.
8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW = 3 MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

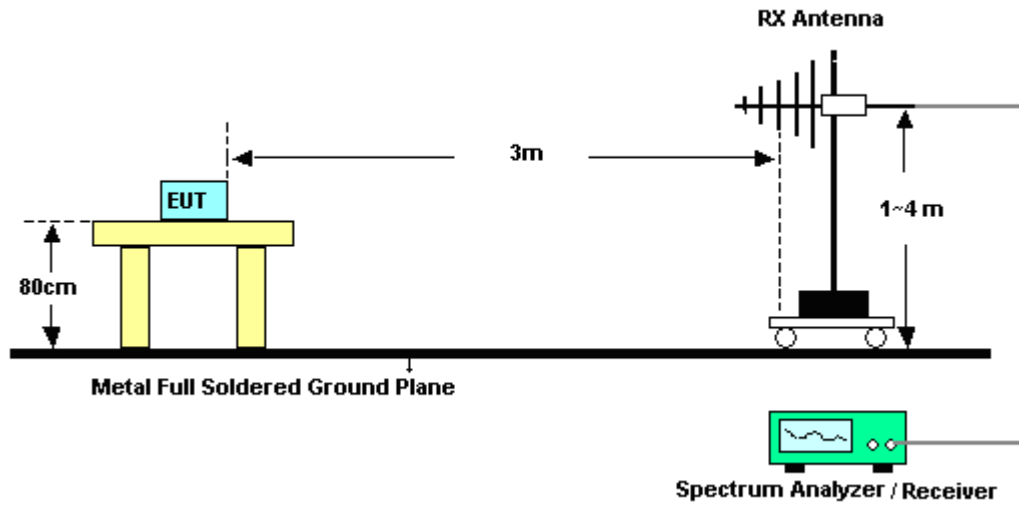
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

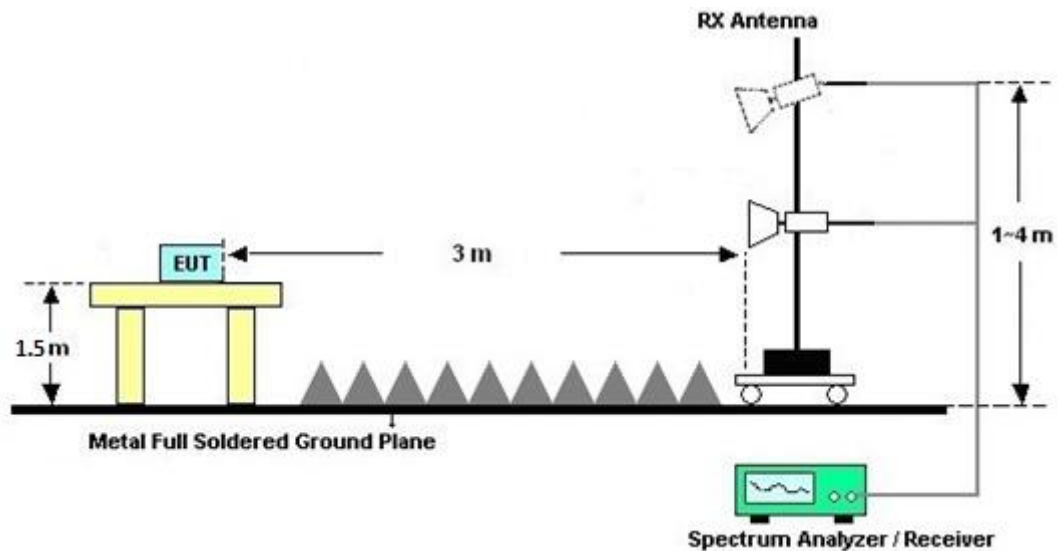
For radiated emissions below 30MHz



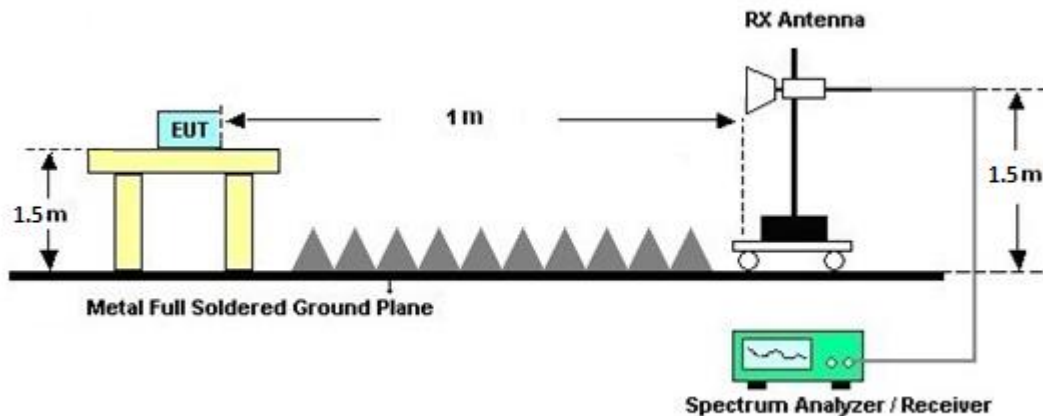
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result comes out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

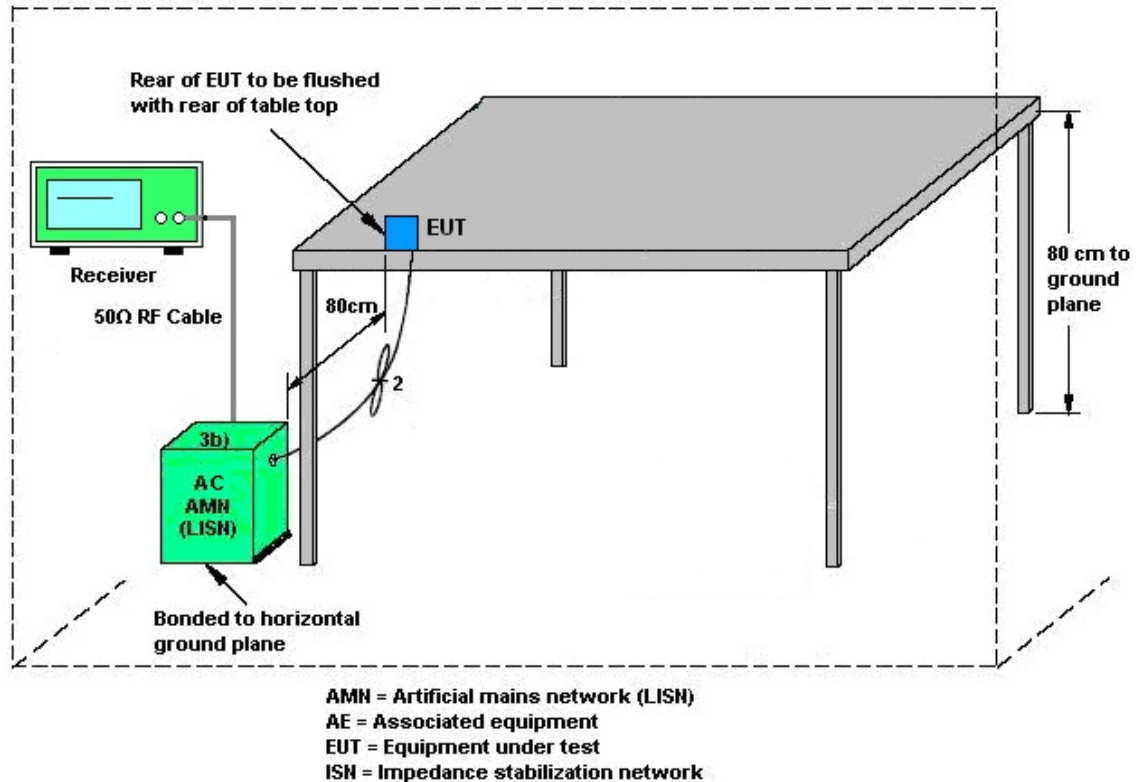
3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.6.3 Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.7 Antenna Requirements

3.7.1 Standard Applicable

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Double Ridge Horn Antenna	ETS-Lindgren	3117	00075962	1GHz ~ 18GHz	Nov. 27, 2023	Apr. 22, 2024~ May 11, 2024	Nov. 26, 2024	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	1590075	1GHz~18GHz	Apr. 19, 2024	Apr. 22, 2024~ May 11, 2024	Apr. 18, 2025	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Mar. 23, 2024	Apr. 22, 2024~ May 11, 2024	Mar. 22, 2025	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	0600789	18-40GHz	Jul. 25, 2023	Apr. 22, 2024~ May 11, 2024	Jul. 24, 2024	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Mar. 26, 2024	Apr. 22, 2024~ May 11, 2024	Mar. 25, 2025	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4 MY24971/4 MY15682/4	30MHz to 18GHz	Feb. 21, 2024	Apr. 22, 2024~ May 11, 2024	Feb. 20, 2025	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4 MY24971/4	9KHz to 30MHz	Feb. 21, 2024	Apr. 22, 2024~ May 11, 2024	Feb. 20, 2025	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126	532078/126E	30MHz~18GHz	Sep. 15, 2023	Apr. 22, 2024~ May 11, 2024	Sep. 14, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2	18GHz~40GHz	Feb. 21, 2024	Apr. 22, 2024~ May 11, 2024	Feb. 20, 2025	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/2	9KHz ~ 40GHz	Apr. 22, 2024	Apr. 22, 2024~ May 11, 2024	Apr. 21, 2025	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Apr. 22, 2024~ May 11, 2024	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Apr. 22, 2024~ May 11, 2024	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Apr. 22, 2024~ May 11, 2024	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Apr. 22, 2024~ May 11, 2024	N/A	Radiation (03CH07-HY)
Software	Audix	E3	N/A	N/A	N/A	Apr. 22, 2024~ May 11, 2024	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	Mar. 01, 2024	Apr. 22, 2024~ May 11, 2024	Feb. 28, 2025	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 24, 2023	Apr. 22, 2024~ May 11, 2024	Nov. 23, 2024	Radiation (03CH07-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Apr. 10, 2024~ May 09, 2024	Nov. 06, 2024	Conducted (TH02-HY)
Power Sensor	DARE	RPR3008W	RPR8W-23010 17 (NO:20)	10MHz~8GHz	Jul. 26, 2023	Apr. 10, 2024~ May 09, 2024	Jul. 25, 2024	Conducted (TH02-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Aug. 30, 2023	Apr. 10, 2024~ May 09, 2024	Aug. 31, 2024	Conducted (TH02-HY)
DC Power Supply	GW Instek	GPE-2323	GEU810970	0V~64V; 0A~6A	Nov. 16, 2023	Apr. 10, 2024~ May 09, 2024	Nov. 15, 2024	Conducted (TH02-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Apr. 27, 2024	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 06, 2023	Apr. 27, 2024	Dec. 05, 2024	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Oct. 26, 2023	Apr. 27, 2024	Oct. 25, 2024	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 22, 2023	Apr. 27, 2024	Nov. 21, 2024	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Apr. 27, 2024	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBE CK	VTSD 9561-F N	00691	N/A	Jul. 28, 2023	Apr. 27, 2024	Jul. 27, 2024	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 28, 2023	Apr. 27, 2024	Dec. 27, 2024	Conduction (CO05-HY)



5 Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.5 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.3 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.6 dB
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Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.3 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3 dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kevin Xiao	Temperature:	21~25	°C
Test Date:	2024/04/10 ~ 2024/05/09	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band Single Antenna								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant1		
11b	1Mbps	1	1	2412	13.39	10.06	0.50	Pass
11b	1Mbps	1	6	2437	13.34	10.06	0.50	Pass
11b	1Mbps	1	11	2462	13.39	10.05	0.50	Pass
11g	6Mbps	1	1	2412	16.78	16.33	0.50	Pass
11g	6Mbps	1	6	2437	16.93	16.34	0.50	Pass
11g	6Mbps	1	11	2462	16.83	16.33	0.50	Pass
VHT20	MCS0	1	1	2412	17.68	17.28	0.50	Pass
VHT20	MCS0	1	6	2437	18.13	17.51	0.50	Pass
VHT20	MCS0	1	11	2462	17.73	17.29	0.50	Pass
VHT40	MCS0	1	3	2422	36.46	35.46	0.50	Pass
VHT40	MCS0	1	6	2437	36.46	35.34	0.50	Pass
VHT40	MCS0	1	9	2452	35.46	35.48	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant1	Ant1	Ant1	Ant1	Ant1	
11b	1Mbps	1	1	2412	15.40	30.00	1.60	17.00	36.00	Pass
11b	1Mbps	1	6	2437	15.40	30.00	1.60	17.00	36.00	Pass
11b	1Mbps	1	11	2462	15.40	30.00	1.60	17.00	36.00	Pass
11g	6Mbps	1	1	2412	13.00	30.00	1.60	14.60	36.00	Pass
11g	6Mbps	1	6	2437	15.30	30.00	1.60	16.90	36.00	Pass
11g	6Mbps	1	11	2462	13.70	30.00	1.60	15.30	36.00	Pass
HT20	MCS0	1	1	2412	12.50	30.00	1.60	14.10	36.00	Pass
HT20	MCS0	1	6	2437	15.20	30.00	1.60	16.80	36.00	Pass
HT20	MCS0	1	11	2462	13.30	30.00	1.60	14.90	36.00	Pass
HT40	MCS0	1	3	2422	11.00	30.00	1.60	12.60	36.00	Pass
HT40	MCS0	1	6	2437	12.20	30.00	1.60	13.80	36.00	Pass
HT40	MCS0	1	9	2452	11.00	30.00	1.60	12.60	36.00	Pass
VHT20	MCS0	1	1	2412	12.60	30.00	1.60	14.20	36.00	Pass
VHT20	MCS0	1	6	2437	15.30	30.00	1.60	16.90	36.00	Pass
VHT20	MCS0	1	11	2462	13.30	30.00	1.60	14.90	36.00	Pass
VHT40	MCS0	1	3	2422	11.20	30.00	1.60	12.80	36.00	Pass
VHT40	MCS0	1	6	2437	12.30	30.00	1.60	13.90	36.00	Pass
VHT40	MCS0	1	9	2452	11.10	30.00	1.60	12.70	36.00	Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band Single Antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)		DG (dBi)	Peak PSD Limit (dBm/3kHz)	Pass/Fail
					Ant1	Worse + 3.01	Ant1	Ant1	
11b	1Mbps	1	1	2412	-3.24		1.60	8.00	Pass
11b	1Mbps	1	6	2437	-3.27		1.60	8.00	Pass
11b	1Mbps	1	11	2462	-3.51		1.60	8.00	Pass
11g	6Mbps	1	1	2412	-13.64		1.60	8.00	Pass
11g	6Mbps	1	6	2437	-10.58		1.60	8.00	Pass
11g	6Mbps	1	11	2462	-12.94		1.60	8.00	Pass
VHT20	MCS0	1	1	2412	-14.32		1.60	8.00	Pass
VHT20	MCS0	1	6	2437	-9.59		1.60	8.00	Pass
VHT20	MCS0	1	11	2462	-13.16		1.60	8.00	Pass
VHT40	MCS0	1	3	2422	-19.45		1.60	8.00	Pass
VHT40	MCS0	1	6	2437	-15.20		1.60	8.00	Pass
VHT40	MCS0	1	9	2452	-18.82		1.60	8.00	Pass

Measured power density (dBm) has offset with cable loss.

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band Single Antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
						Ant1	Ant1		
HE20	MCS0	1	1	2412	Full	18.78	18.31	0.50	Pass
HE20	MCS0	1	6	2437	Full	18.83	18.27	0.50	Pass
HE20	MCS0	1	11	2462	Full	18.78	18.38	0.50	Pass
HE40	MCS0	1	3	2422	Full	37.86	36.14	0.50	Pass
HE40	MCS0	1	6	2437	Full	37.76	36.76	0.50	Pass
HE40	MCS0	1	9	2452	Full	37.76	36.42	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant1	Ant1	Ant1	Ant1	Ant1	
HE20	MCS0	1	1	2412	Full	12.70	30.00	1.60	14.30	36.00	Pass
HE20	MCS0	1	1	2412	26/0	3.00	30.00	1.60	4.60	36.00	Pass
HE20	MCS0	1	1	2412	52/37	5.20	30.00	1.60	6.80	36.00	Pass
HE20	MCS0	1	1	2412	106/53	8.10	30.00	1.60	9.70	36.00	Pass
HE20	MCS0	1	6	2437	Full	15.40	30.00	1.60	17.00	36.00	Pass
HE20	MCS0	1	6	2437	26/4	8.10	30.00	1.60	9.70	36.00	Pass
HE20	MCS0	1	6	2437	52/38	9.70	30.00	1.60	11.30	36.00	Pass
HE20	MCS0	1	6	2437	106/53	12.30	30.00	1.60	13.90	36.00	Pass
HE20	MCS0	1	11	2462	Full	13.50	30.00	1.60	15.10	36.00	Pass
HE20	MCS0	1	11	2462	26/8	4.20	30.00	1.60	5.80	36.00	Pass
HE20	MCS0	1	11	2462	52/40	6.40	30.00	1.60	8.00	36.00	Pass
HE20	MCS0	1	11	2462	106/54	8.60	30.00	1.60	10.20	36.00	Pass
HE40	MCS0	1	3	2422	Full	11.30	30.00	1.60	12.90	36.00	Pass
HE40	MCS0	1	3	2422	242/61	8.60	30.00	1.60	10.20	36.00	Pass
HE40	MCS0	1	6	2437	Full	12.40	30.00	1.60	14.00	36.00	Pass
HE40	MCS0	1	6	2437	242/61	9.20	30.00	1.60	10.80	36.00	Pass
HE40	MCS0	1	9	2452	Full	11.20	30.00	1.60	12.80	36.00	Pass
HE40	MCS0	1	9	2452	242/62	9.00	30.00	1.60	10.60	36.00	Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

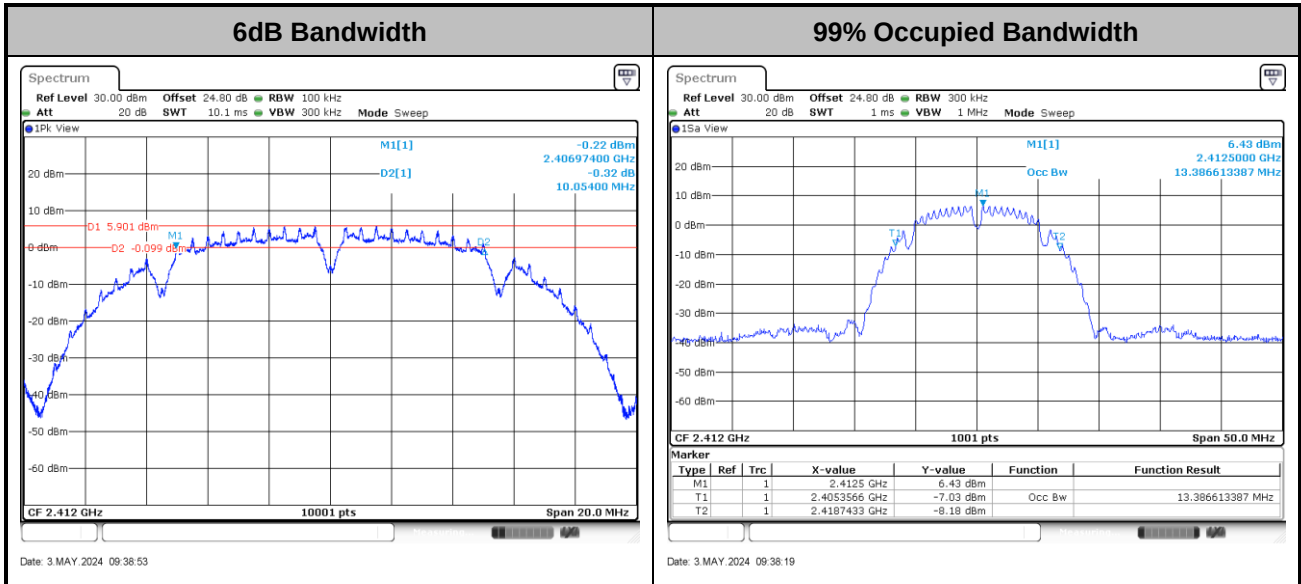
2.4GHz Band Single Antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak PSD (dBm/3kHz)		DG (dBi)	Peak PSD Limit (dBm/3kHz)	Pass/Fail
						Ant1	Worse + 3.01	Ant1	Ant1	
HE20	MCS0	1	1	2412	Full	-14.68		1.60	8.00	Pass
HE20	MCS0	1	1	2412	26/0	-15.03		1.60	8.00	Pass
HE20	MCS0	1	1	2412	52/37	-15.02		1.60	8.00	Pass
HE20	MCS0	1	1	2412	106/53	-14.89		1.60	8.00	Pass
HE20	MCS0	1	6	2437	Full	-10.03		1.60	8.00	Pass
HE20	MCS0	1	6	2437	26/4	-10.10		1.60	8.00	Pass
HE20	MCS0	1	6	2437	52/38	-10.69		1.60	8.00	Pass
HE20	MCS0	1	6	2437	106/53	-10.52		1.60	8.00	Pass
HE20	MCS0	1	11	2462	Full	-14.10		1.60	8.00	Pass
HE20	MCS0	1	11	2462	26/8	-14.12		1.60	8.00	Pass
HE20	MCS0	1	11	2462	52/40	-14.32		1.60	8.00	Pass
HE20	MCS0	1	11	2462	106/54	-14.61		1.60	8.00	Pass
HE40	MCS0	1	3	2422	Full	-19.64		1.60	8.00	Pass
HE40	MCS0	1	3	2422	242/61	-19.82		1.60	8.00	Pass
HE40	MCS0	1	6	2437	Full	-18.16		1.60	8.00	Pass
HE40	MCS0	1	6	2437	242/61	-18.31		1.60	8.00	Pass
HE40	MCS0	1	9	2452	Full	-18.73		1.60	8.00	Pass
HE40	MCS0	1	9	2452	242/62	-19.15		1.60	8.00	Pass

Measured power density (dBm) has offset with cable loss.



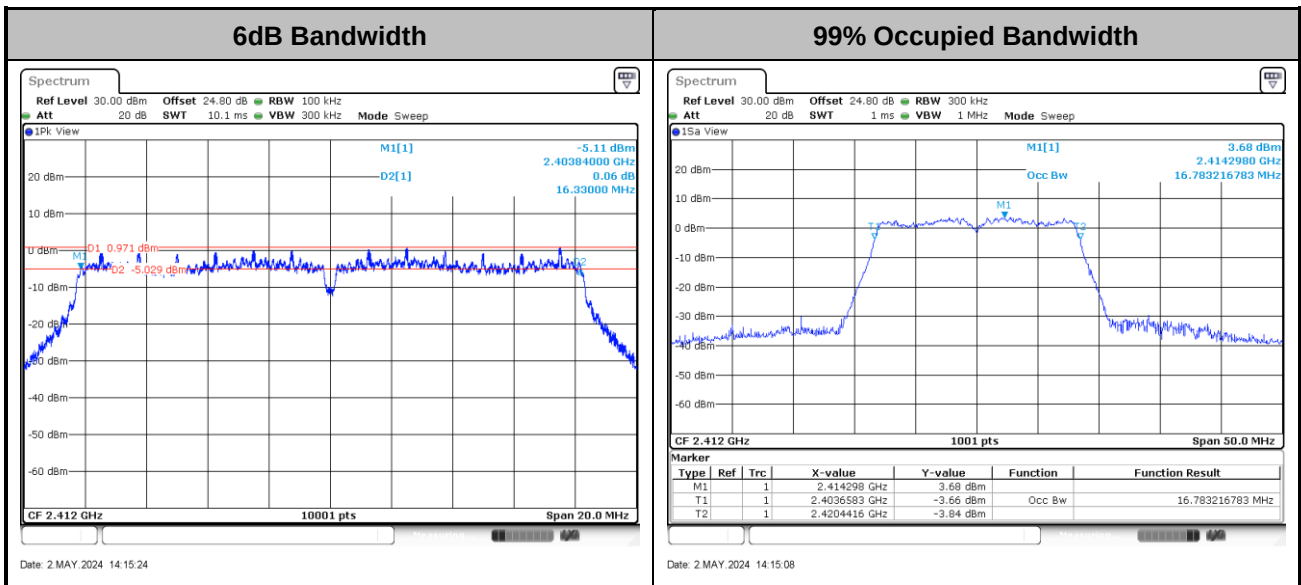
6dB and 99% Occupied Bandwidth

<802.11b>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

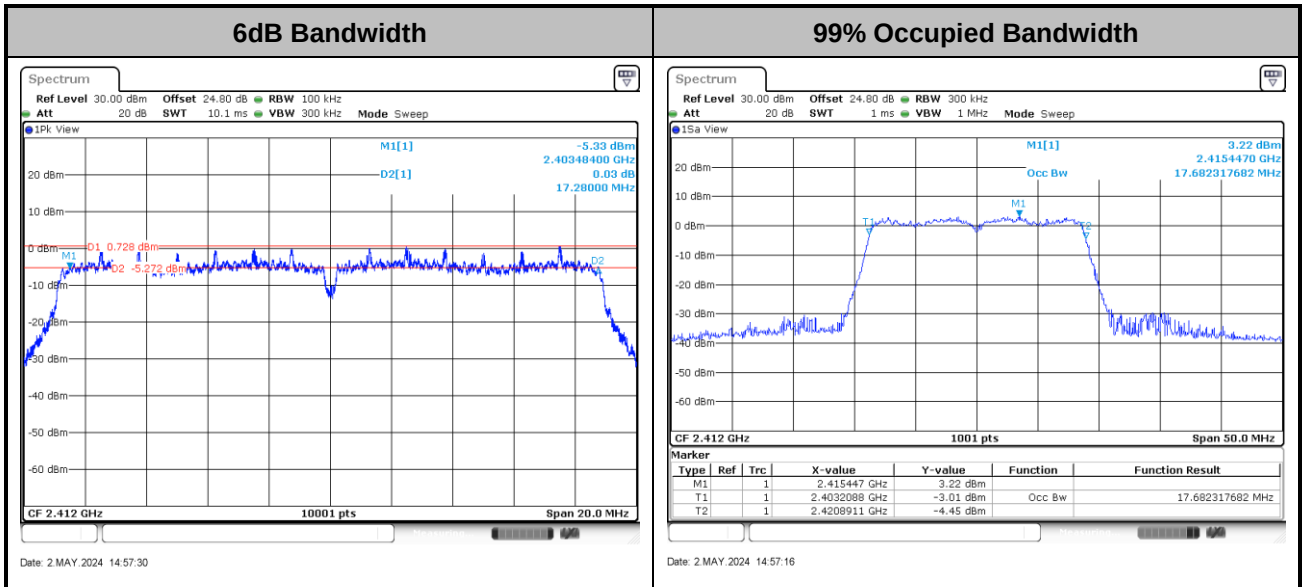
<802.11g>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

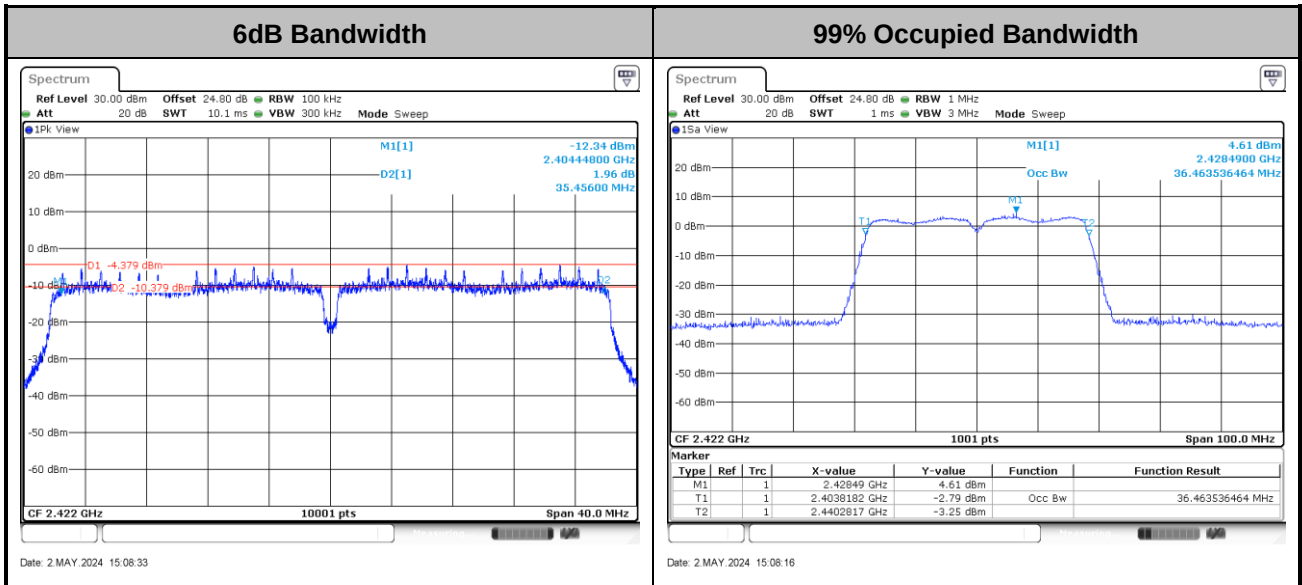


<802.11ac VHT20>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

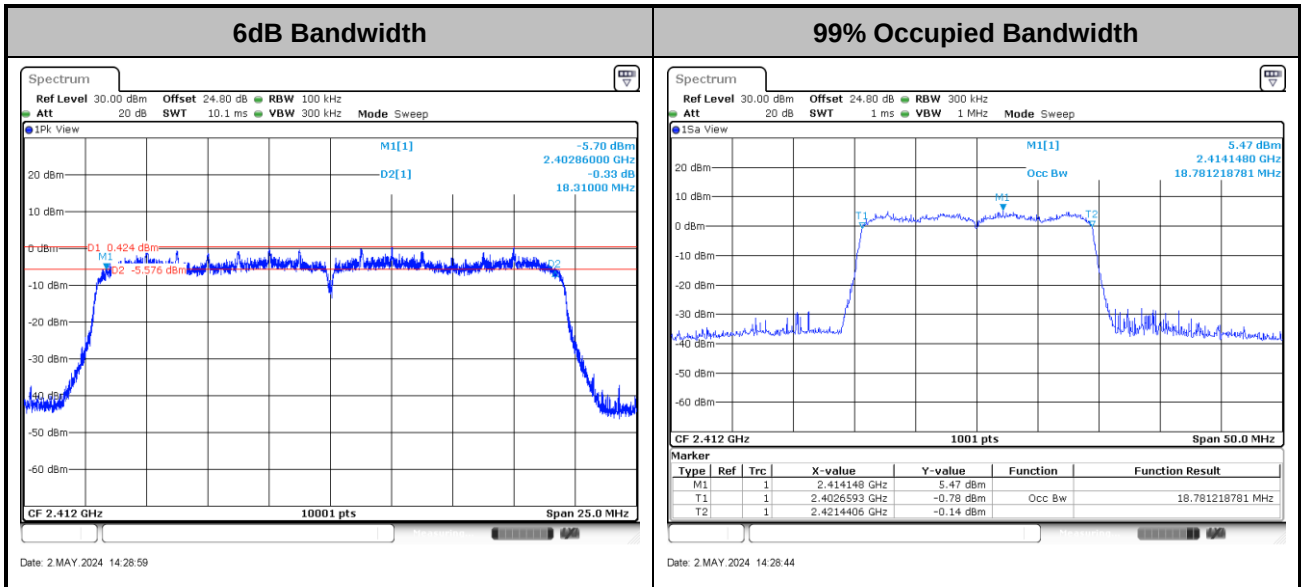
<802.11ac VHT40>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

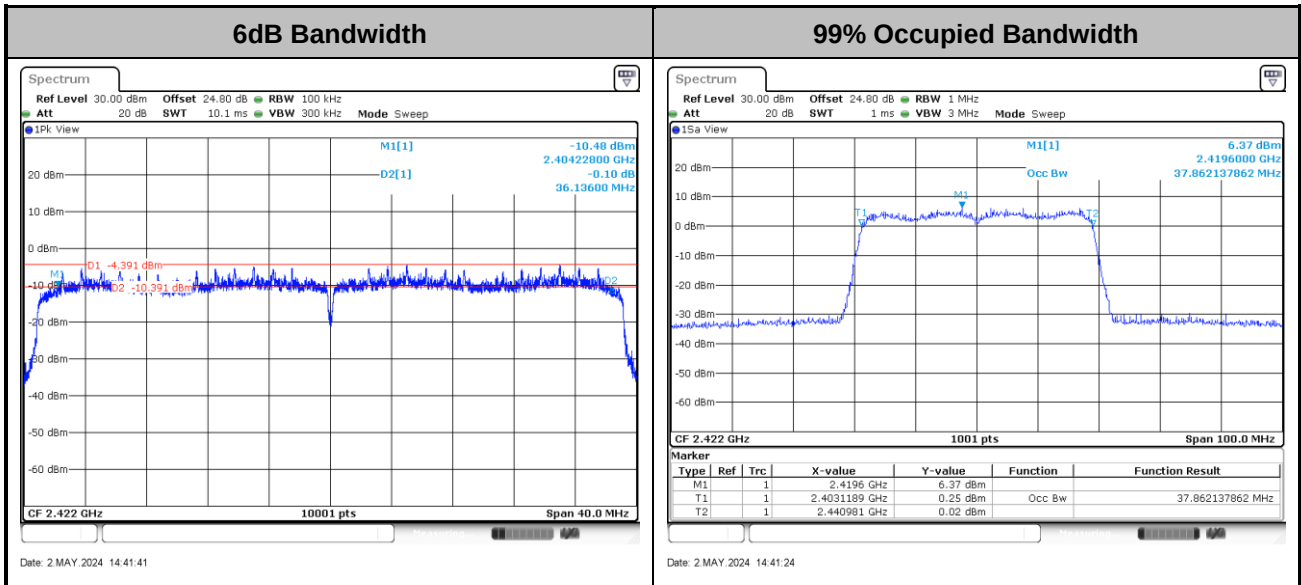


<802.11ax HE20>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

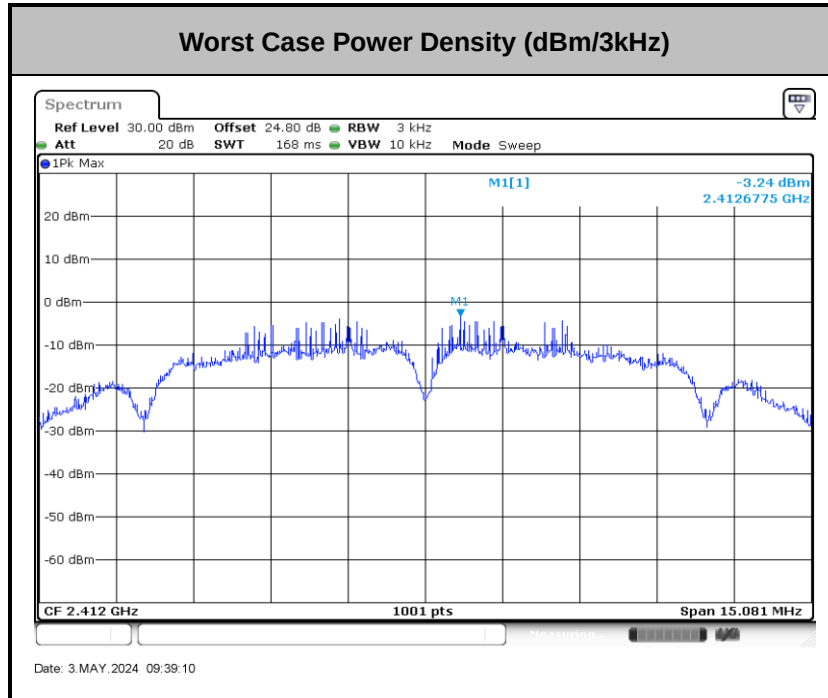
<802.11ax HE40>



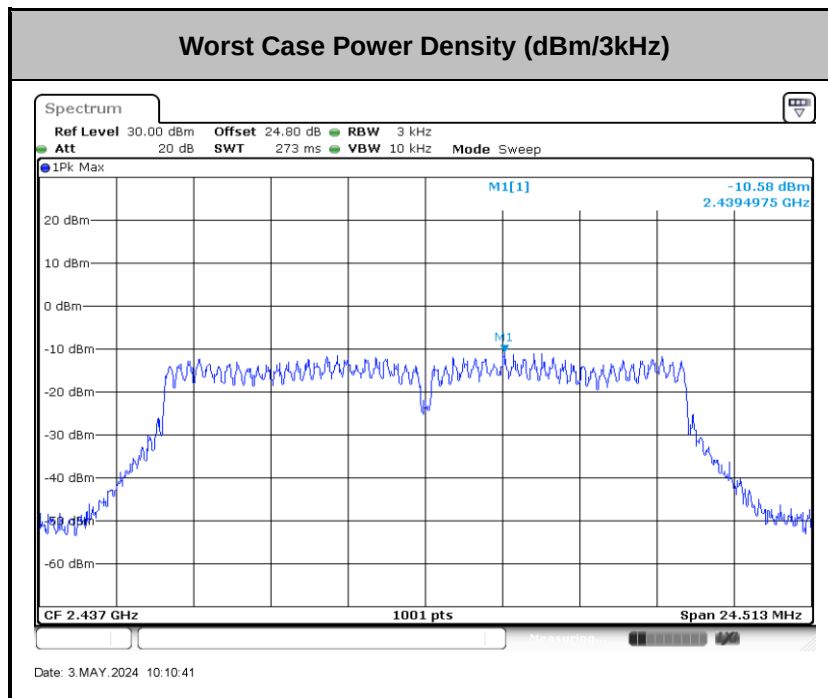
Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

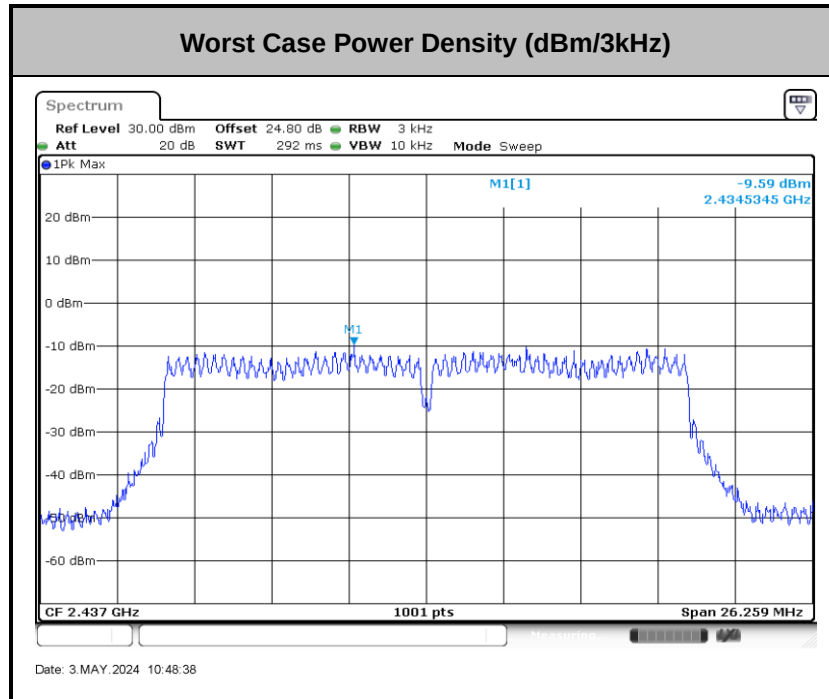
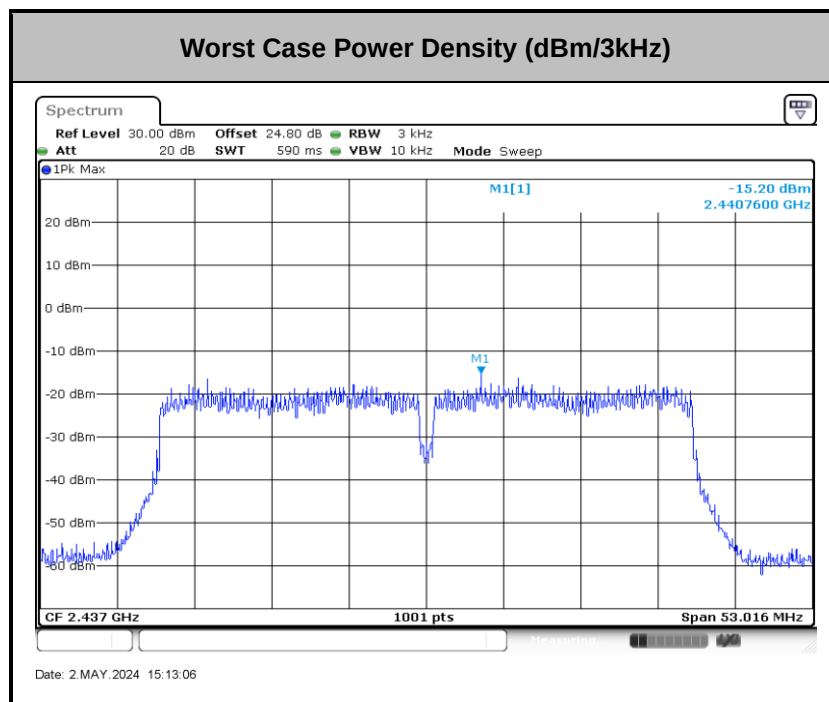
Power Spectral Density(dBm/3kHz)

<802.11b>

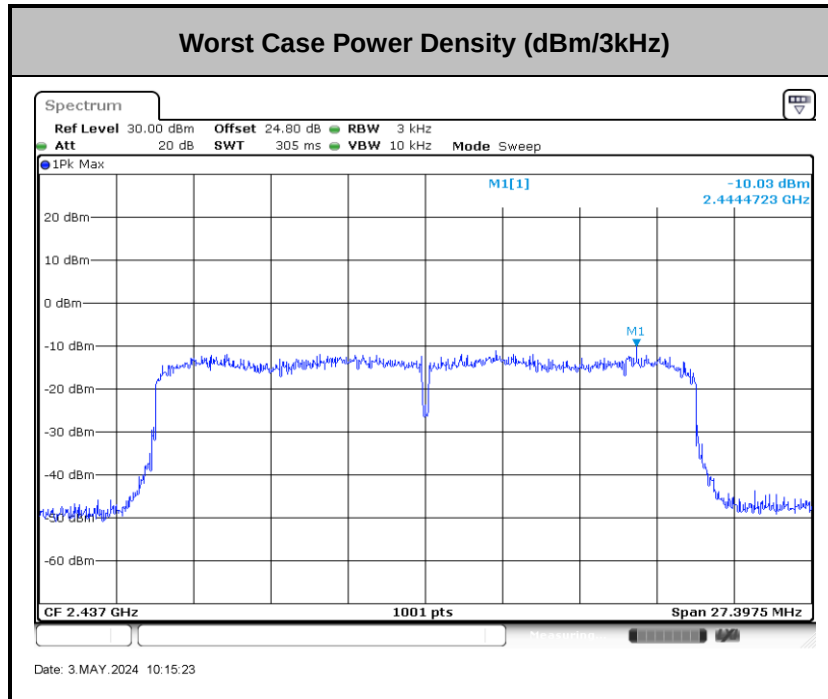


<802.11g>

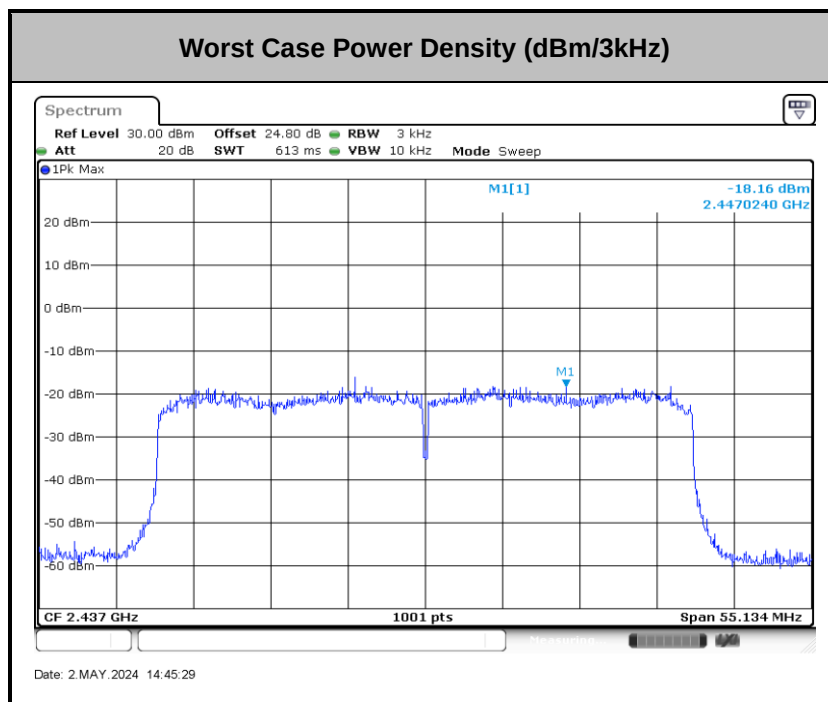


<802.11ac VHT20>

<802.11ac VHT40>


<802.11ax HE20>



<802.11ax HE40>





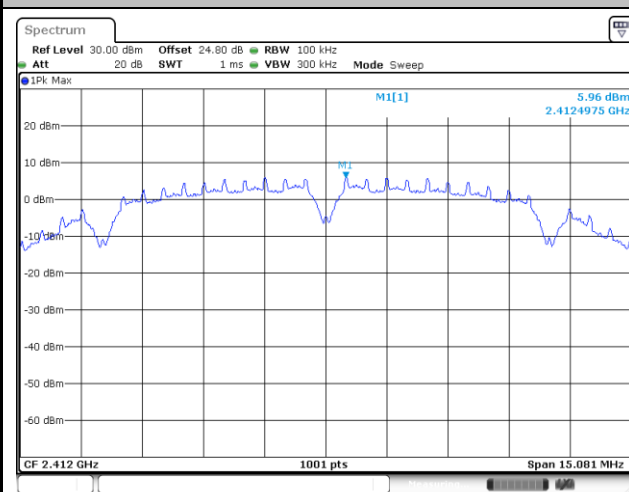
Band Edges and Spurious Emission

Number of TX = 1, Ant. 1 (Measured)

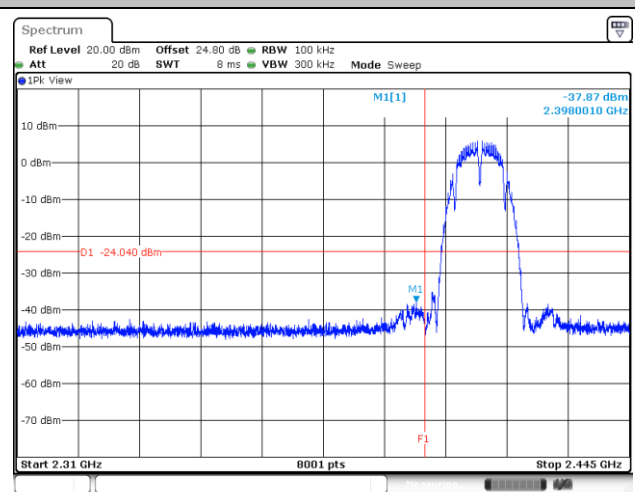
Test Mode : 802.11b

Test Channel : 01

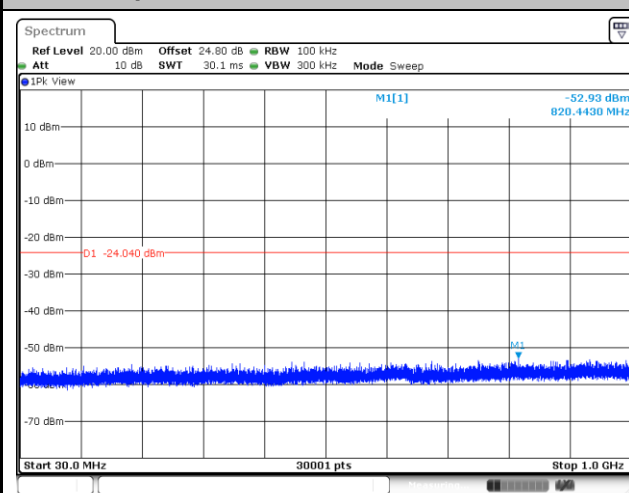
100kHz PSD reference Level



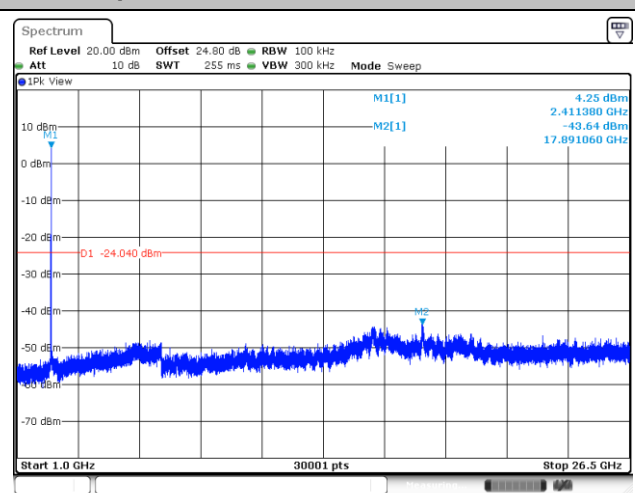
Low Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

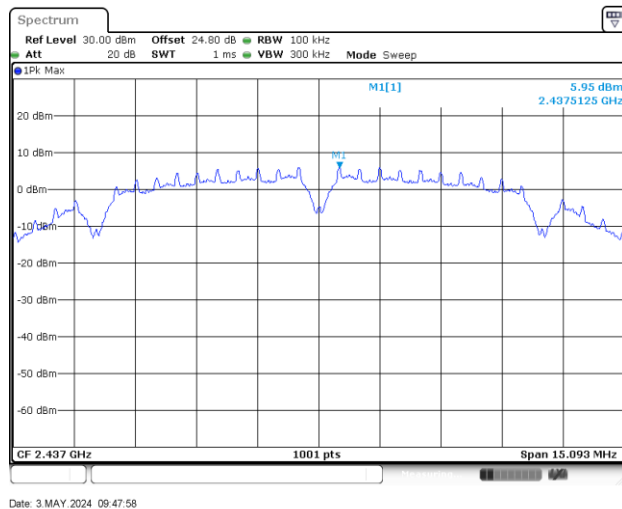




Test Mode : 802.11b

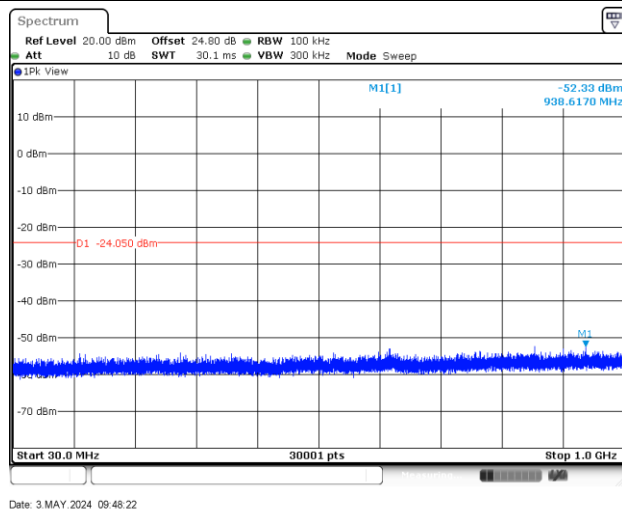
Test Channel : 06

100kHz PSD reference Level

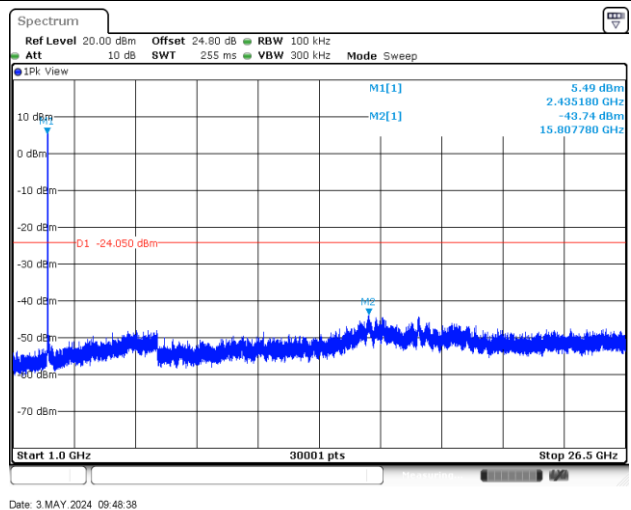


Middle Channel Plot

Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

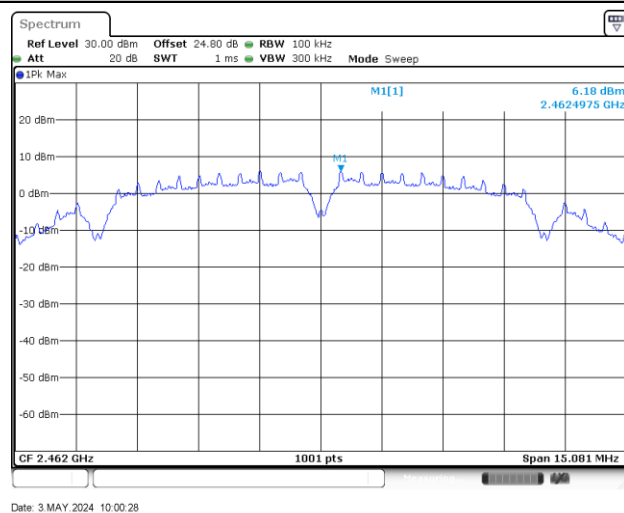




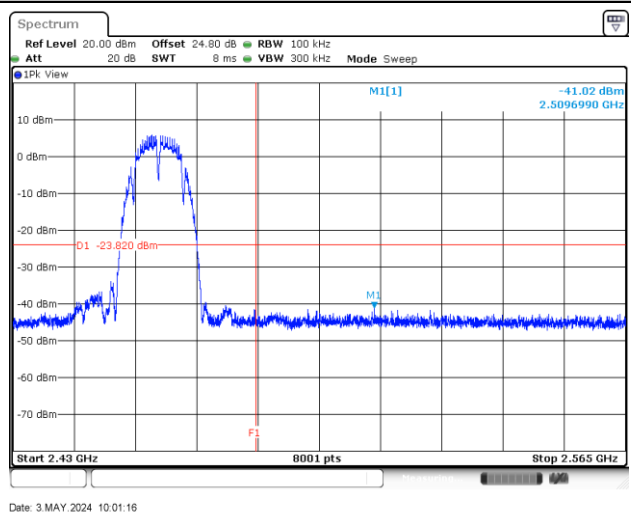
Test Mode : 802.11b

Test Channel : 11

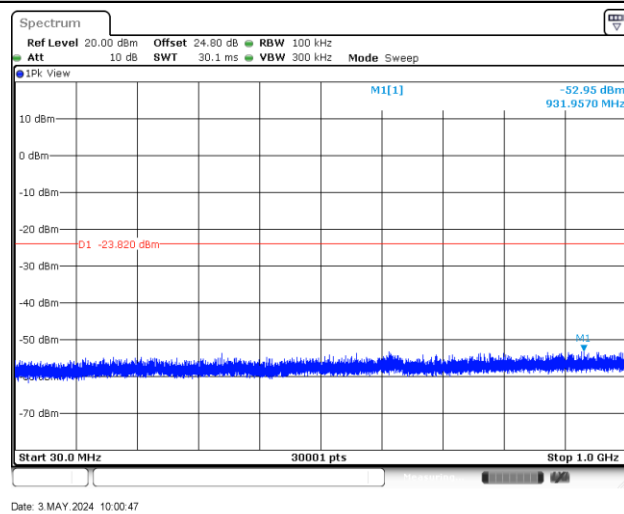
100kHz PSD reference Level



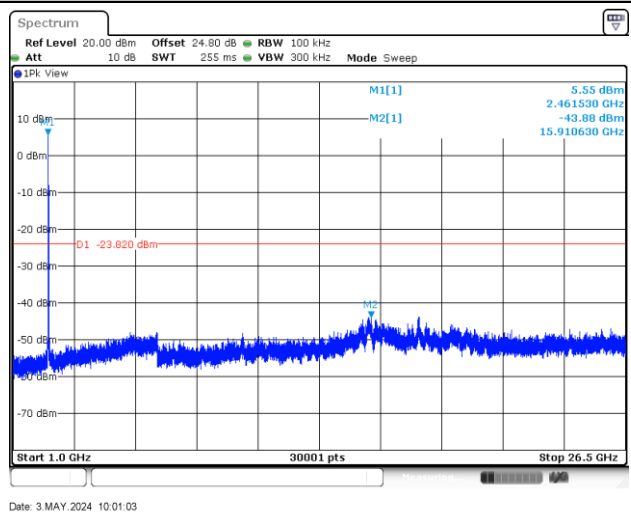
High Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

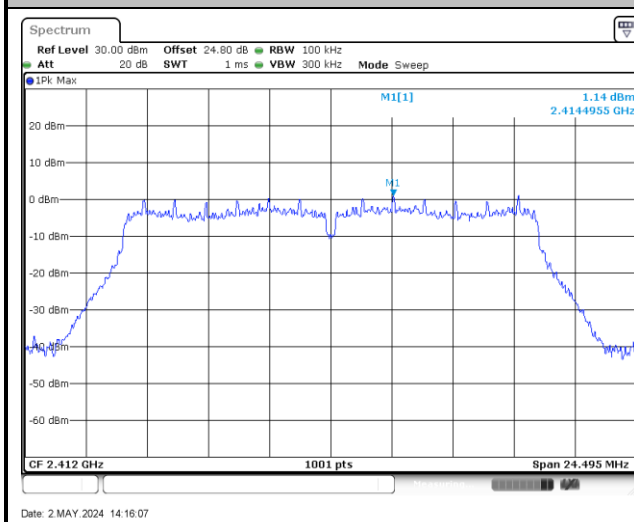




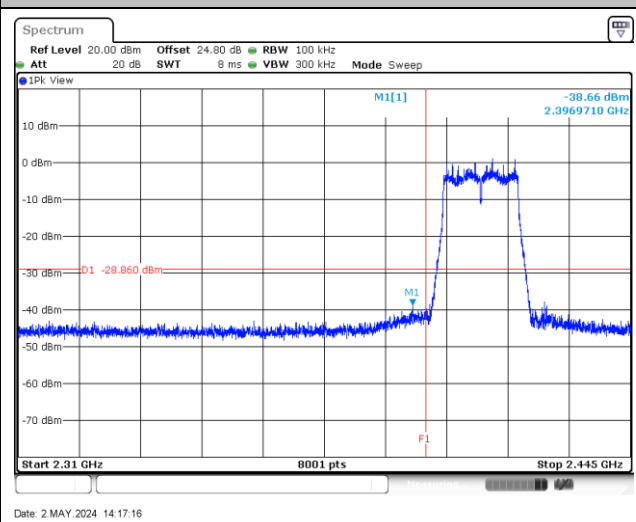
Test Mode : 802.11g

Test Channel : 01

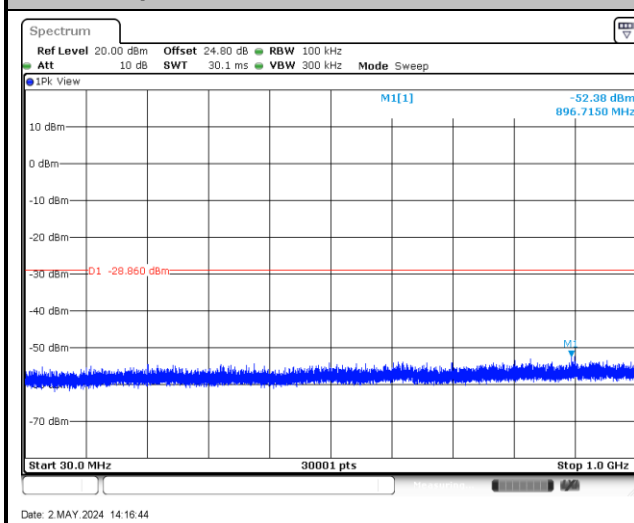
100kHz PSD reference Level



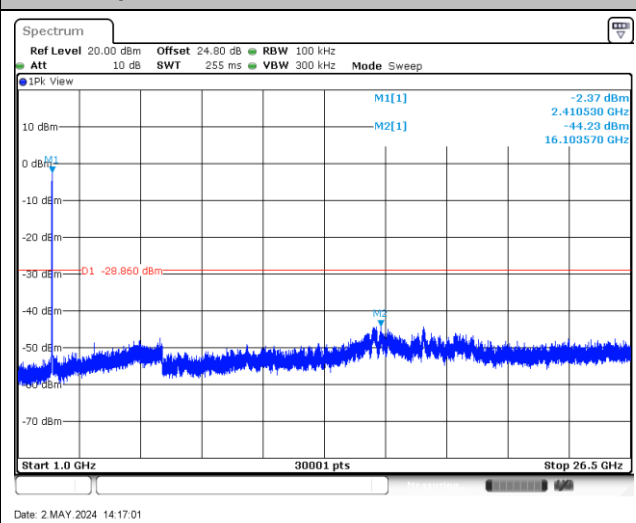
Low Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

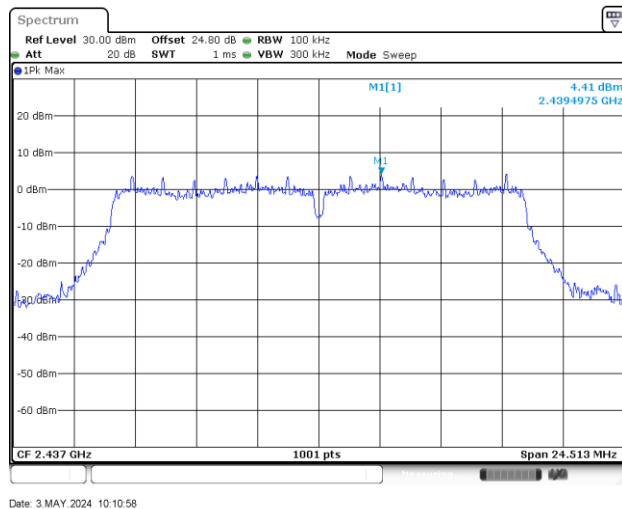




Test Mode : 802.11g

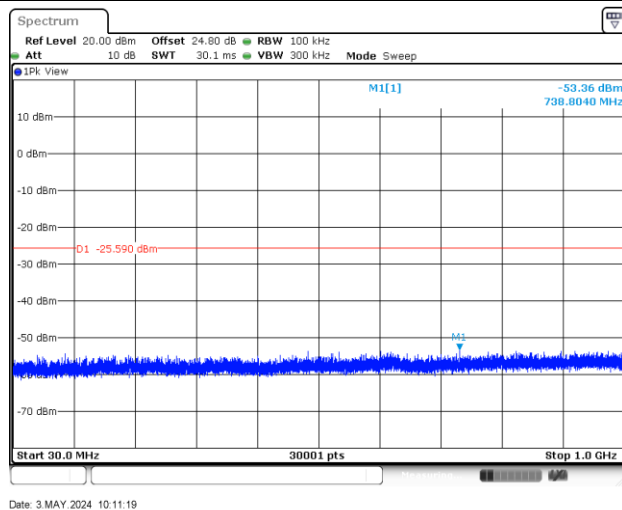
Test Channel : 06

100kHz PSD reference Level

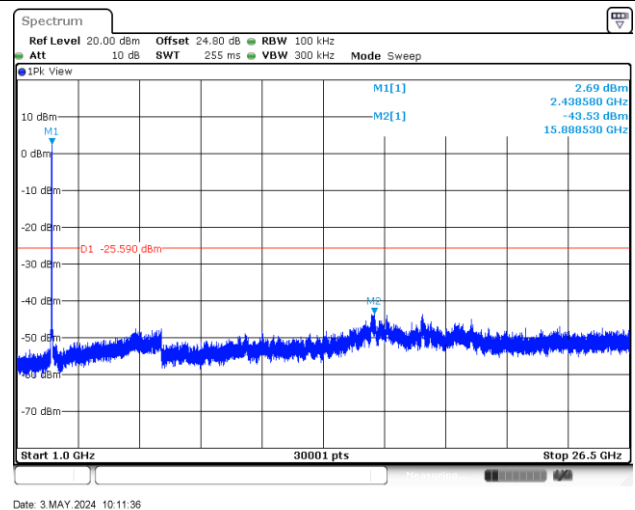


Middle Channel Plot

Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

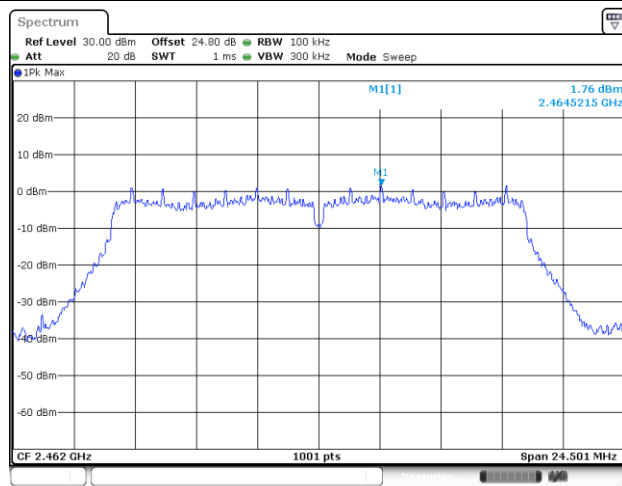




Test Mode : 802.11g

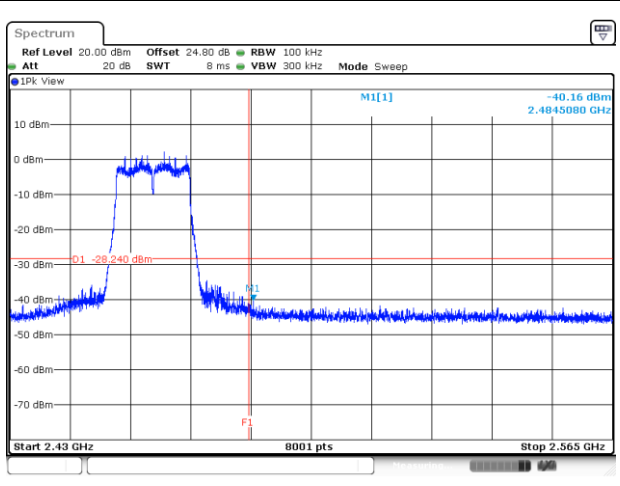
Test Channel : 11

100kHz PSD reference Level



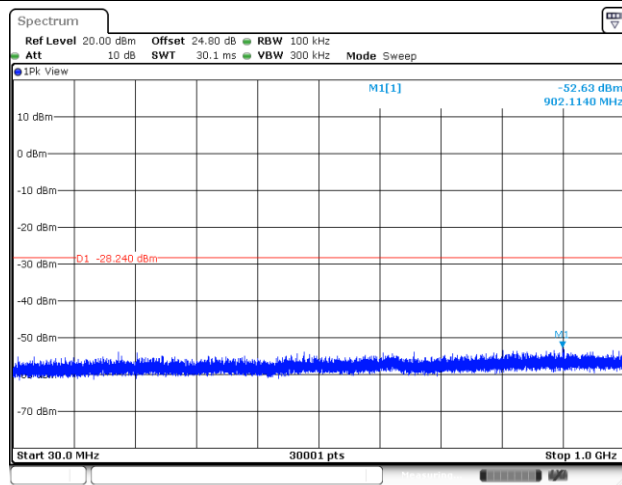
Date: 2 MAY 2024 14:23:12

High Channel Plot



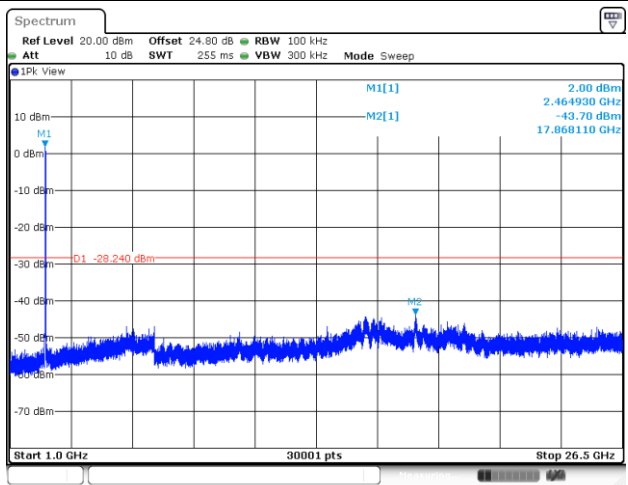
Date: 3 MAY 2024 11:14:19

Spurious Emission 30MHz~1GHz



Date: 2 MAY 2024 14:23:39

Spurious Emission 1GHz~26.5GHz



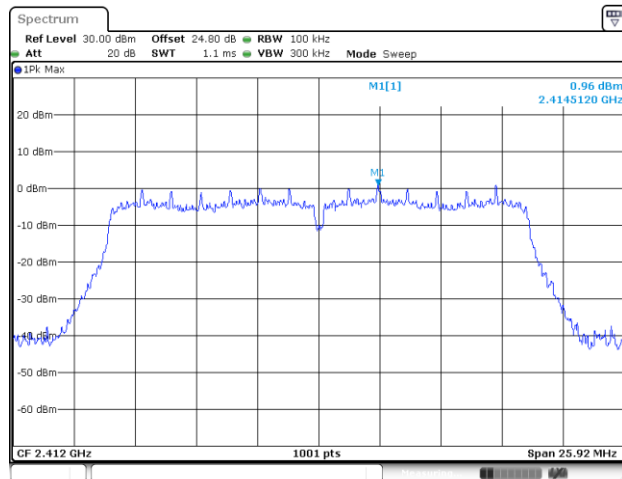
Date: 2 MAY 2024 14:23:55



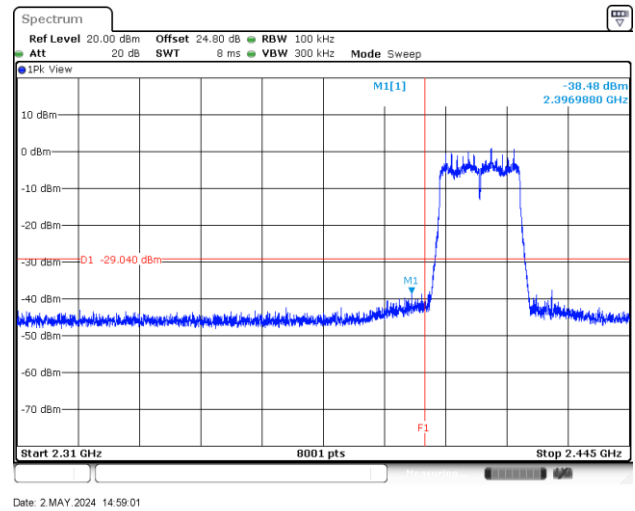
Test Mode : 802.11ac VHT20

Test Channel : 01

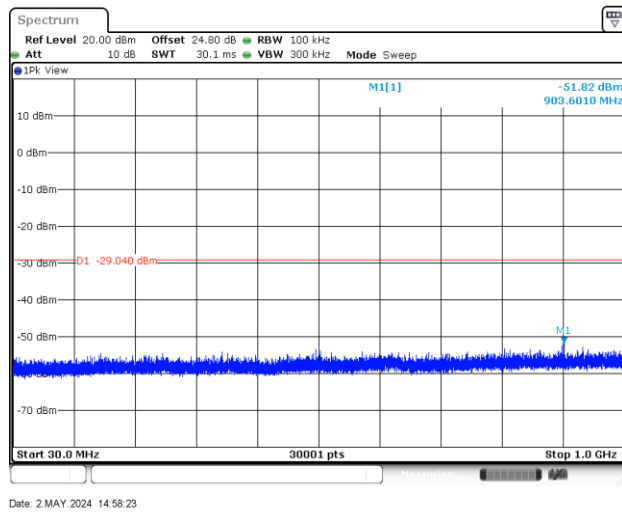
100kHz PSD reference Level



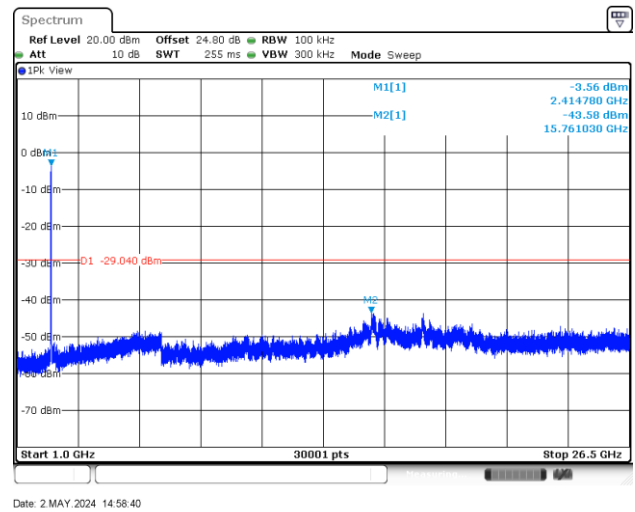
Low Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

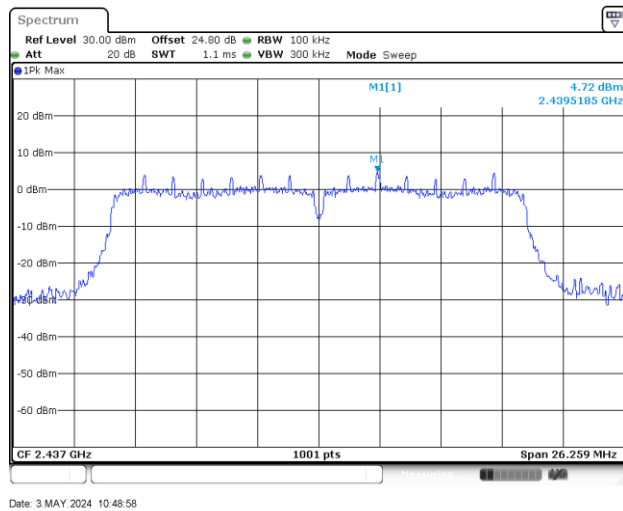




Test Mode : 802.11ac VHT20

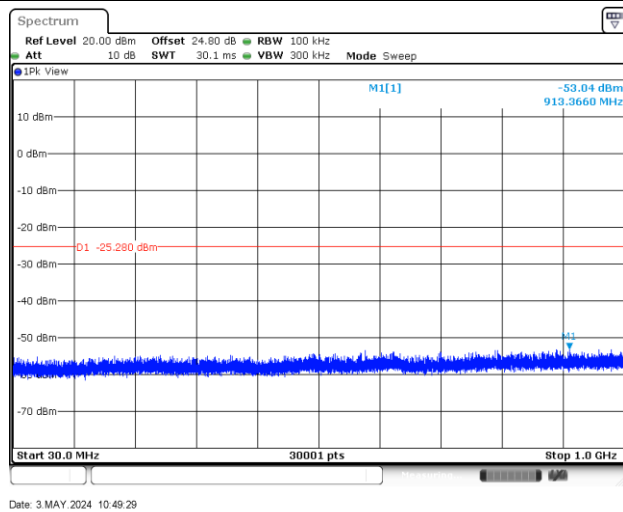
Test Channel : 06

100kHz PSD reference Level

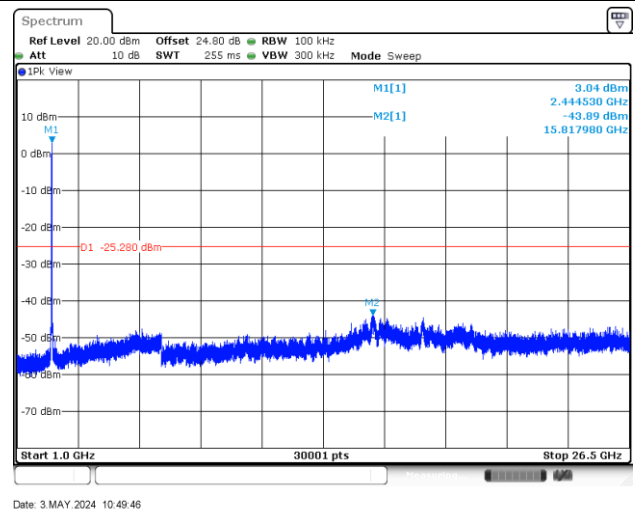


Middle Channel Plot

Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

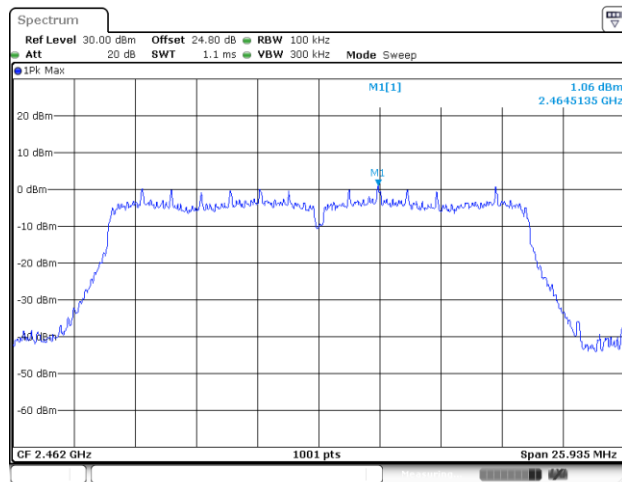




Test Mode : 802.11ac VHT20

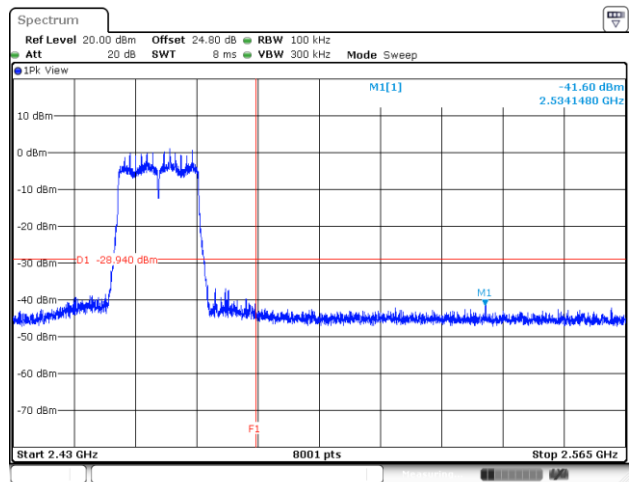
Test Channel : 11

100kHz PSD reference Level



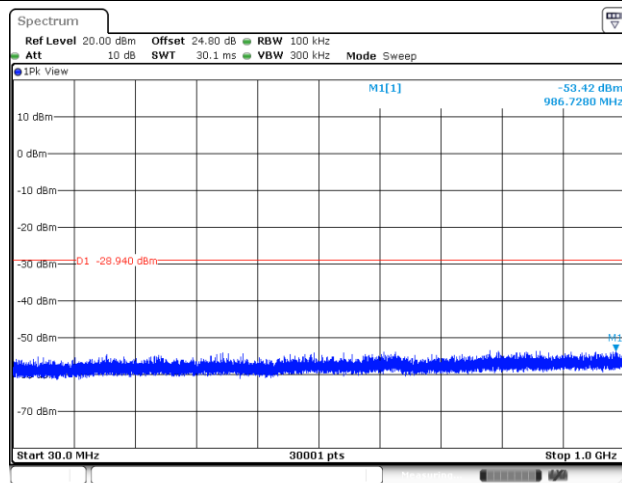
Date: 2 MAY 2024 15:05:54

High Channel Plot



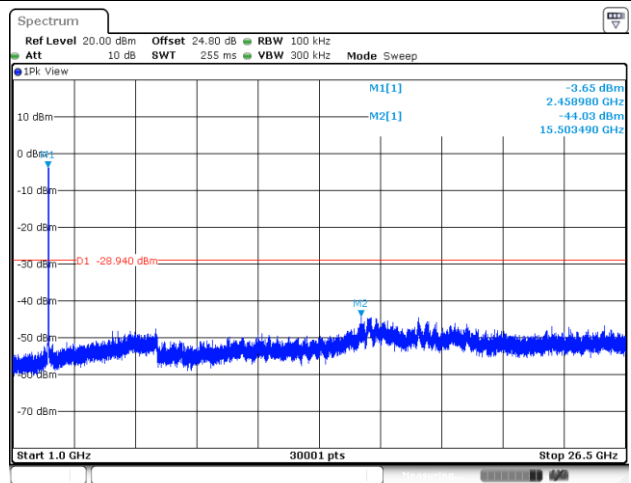
Date: 2 MAY 2024 15:06:46

Spurious Emission 30MHz~1GHz



Date: 2 MAY 2024 15:06:13

Spurious Emission 1GHz~26.5GHz



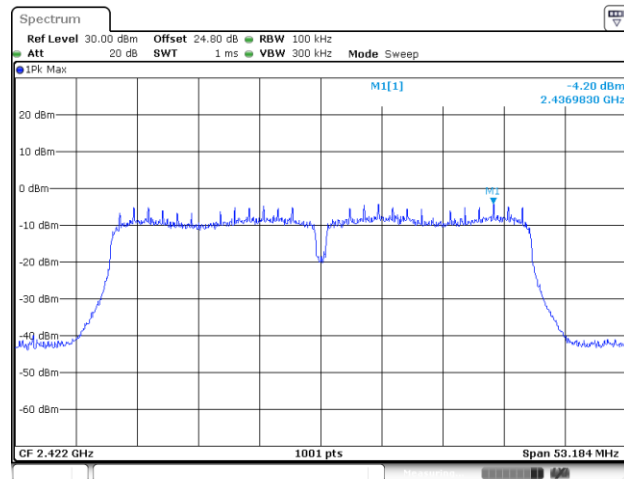
Date: 2 MAY 2024 15:06:30



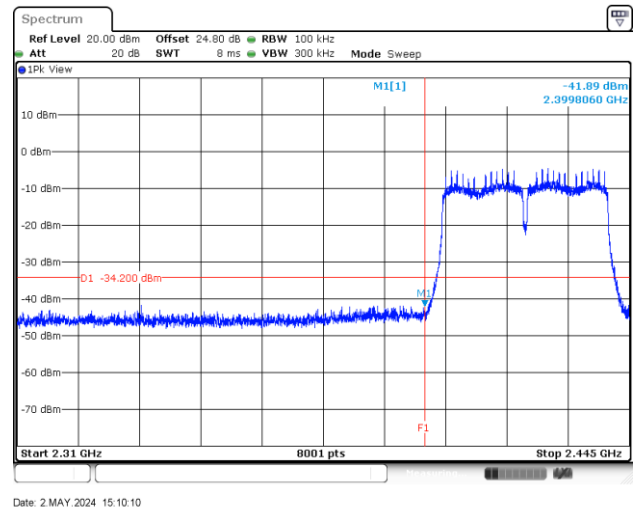
Test Mode : 802.11ac VHT40

Test Channel : 03

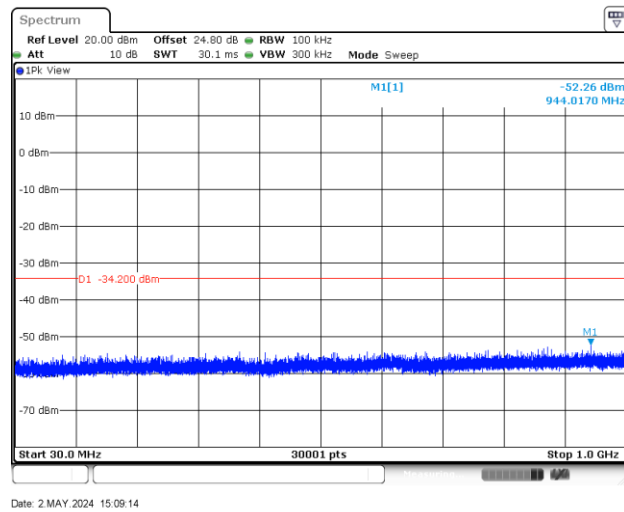
100kHz PSD reference Level



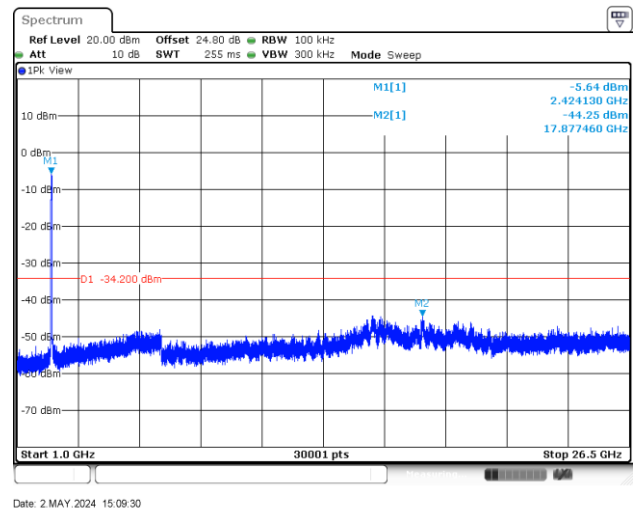
Low Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

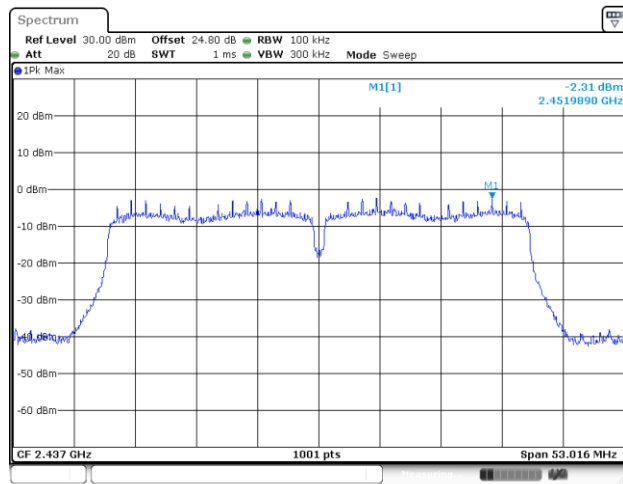




Test Mode : 802.11ac VHT40

Test Channel : 06

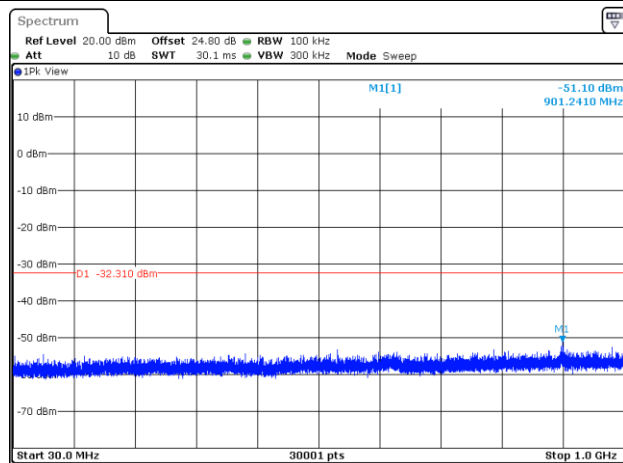
100kHz PSD reference Level



Date: 2 MAY 2024 15:13:27

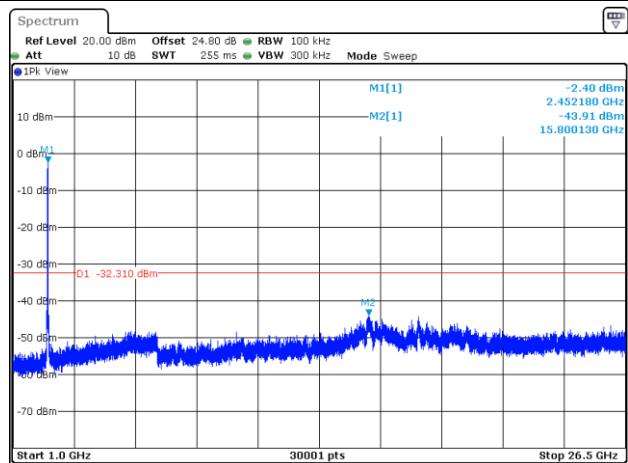
Middle Channel Plot

Spurious Emission 30MHz~1GHz



Date: 2 MAY 2024 15:13:51

Spurious Emission 1GHz~26.5GHz



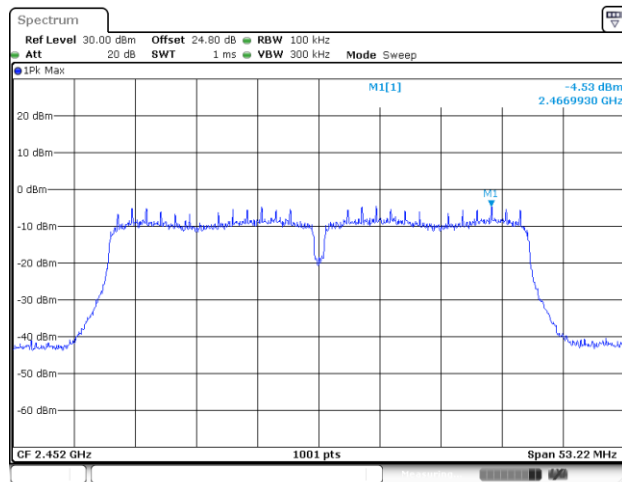
Date: 2 MAY 2024 15:14:07



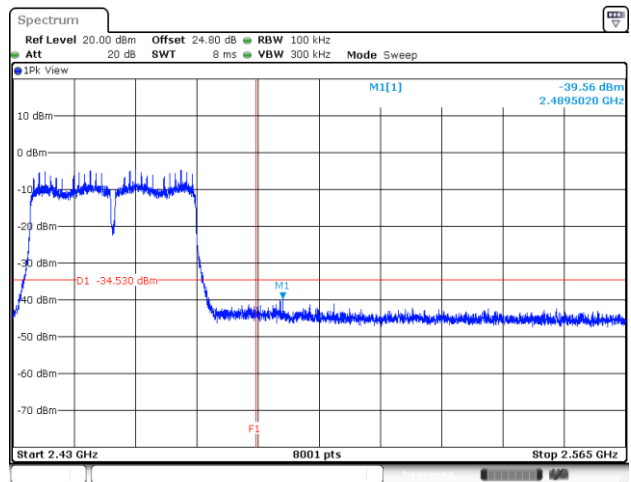
Test Mode : 802.11ac VHT40

Test Channel : 09

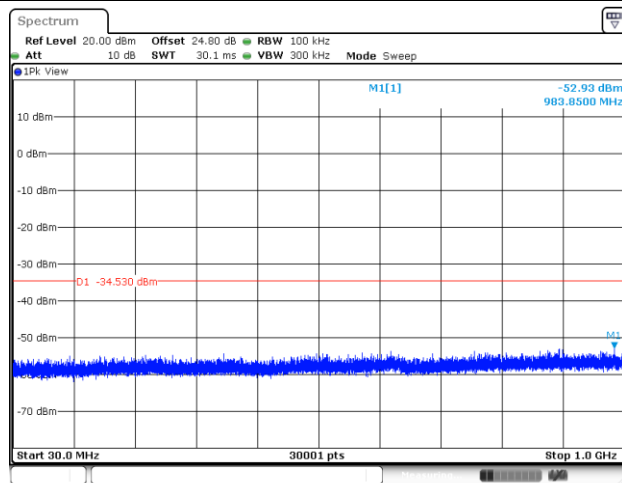
100kHz PSD reference Level



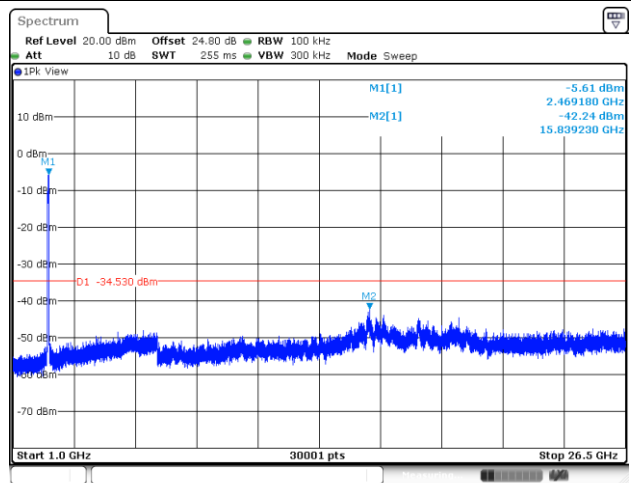
High Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

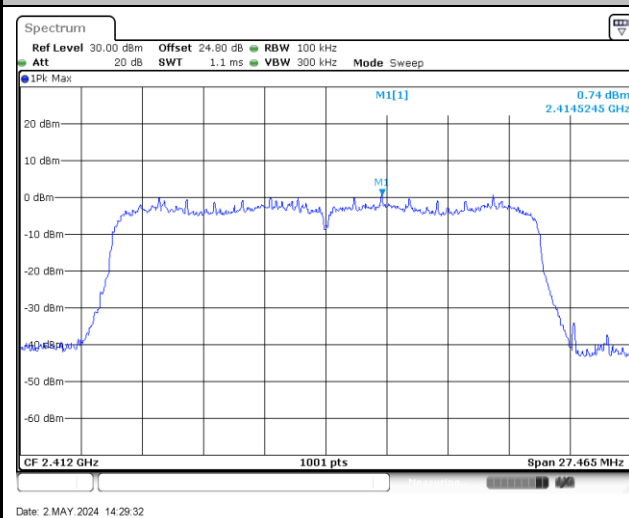




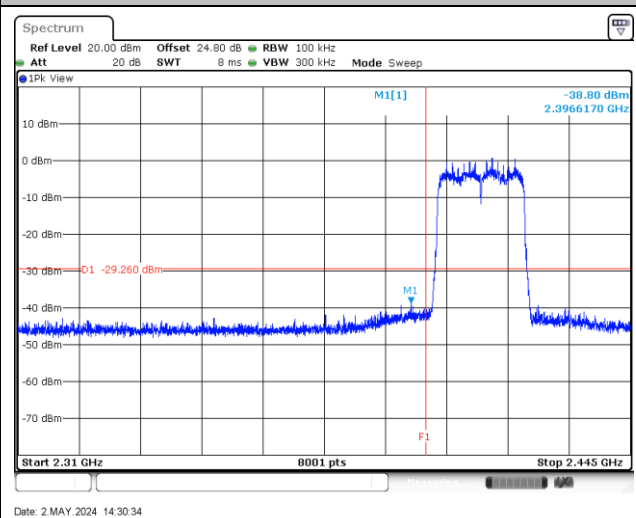
Test Mode : 802.11ax HE20_FullIRU

Test Channel : 01

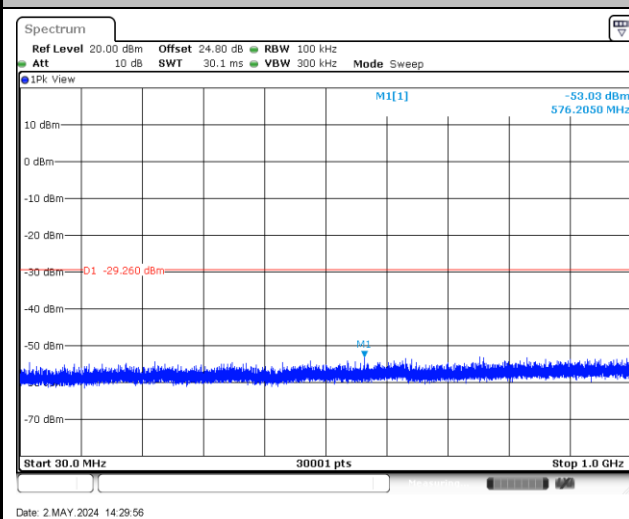
100kHz PSD reference Level



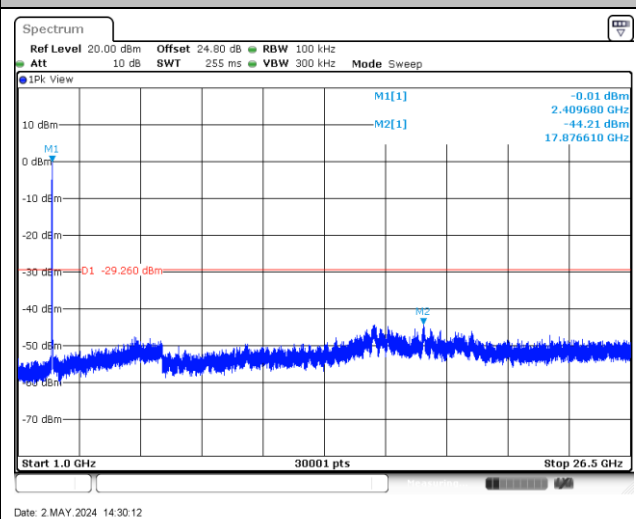
Low Channel Plot



Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

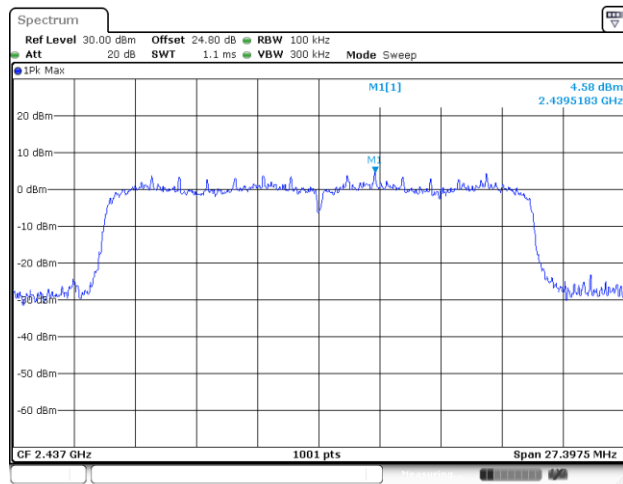




Test Mode : 802.11ax HE20_FullIRU

Test Channel : 06

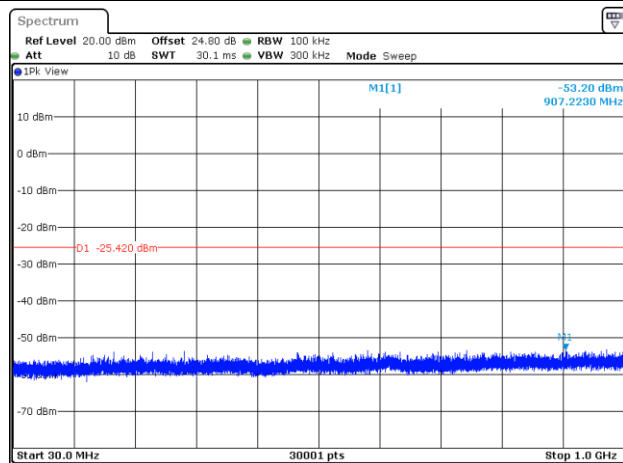
100kHz PSD reference Level



Date: 3 MAY 2024 10:15:41

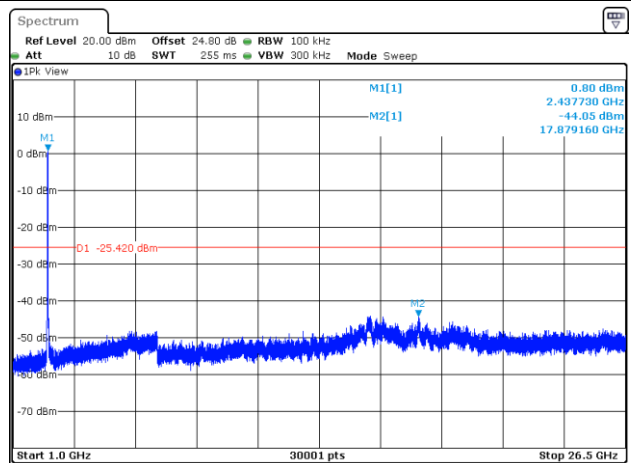
Middle Channel Plot

Spurious Emission 30MHz~1GHz



Date: 3 MAY 2024 10:16:00

Spurious Emission 1GHz~26.5GHz



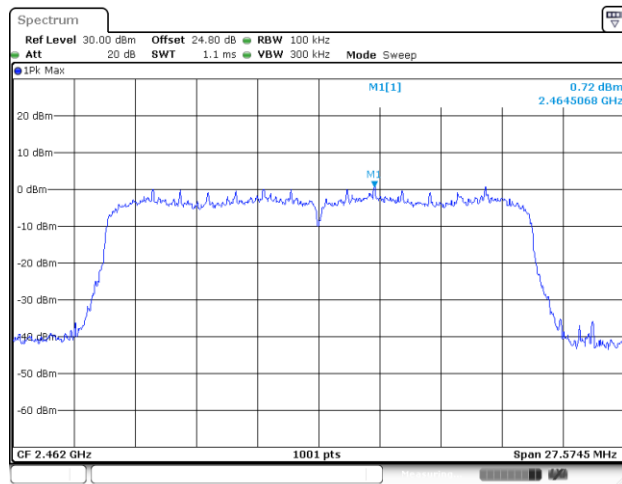
Date: 3 MAY 2024 10:16:20



Test Mode : 802.11ax HE20_FullIRU

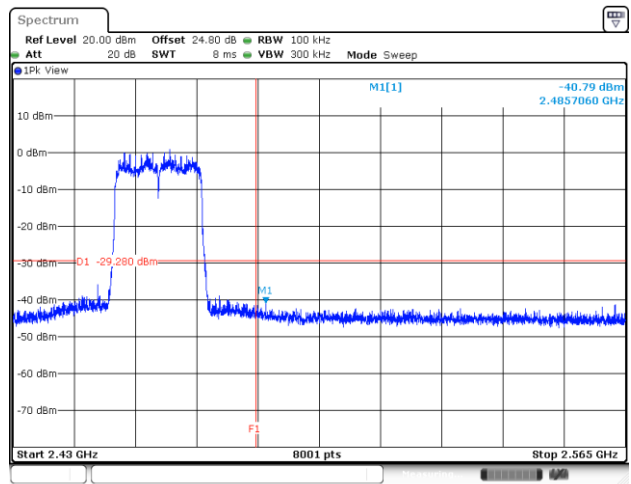
Test Channel : 11

100kHz PSD reference Level



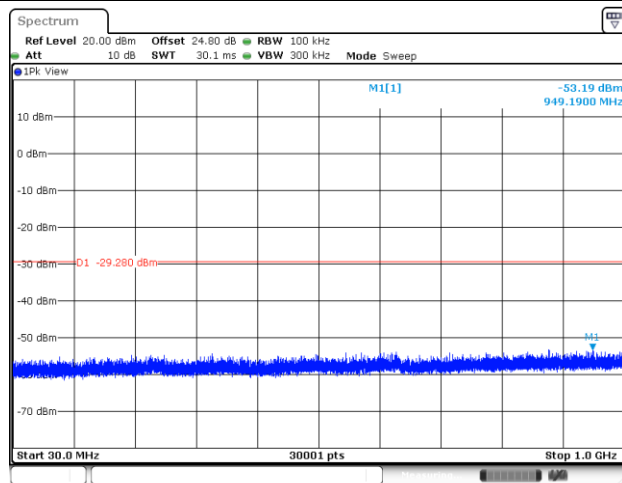
Date: 2 MAY 2024 14:33:13

High Channel Plot



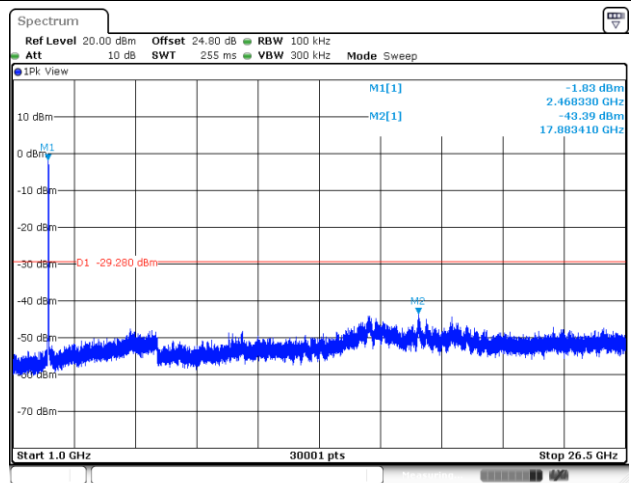
Date: 2 MAY 2024 14:34:47

Spurious Emission 30MHz~1GHz



Date: 2 MAY 2024 14:33:38

Spurious Emission 1GHz~26.5GHz



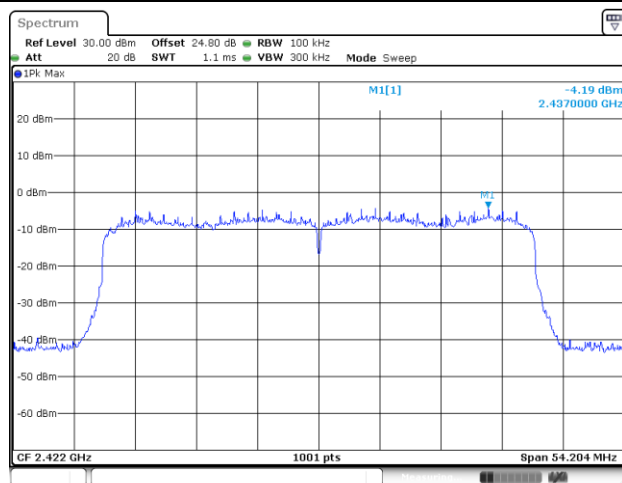
Date: 2 MAY 2024 14:34:08



Test Mode : 802.11ax HE40_FullIRU

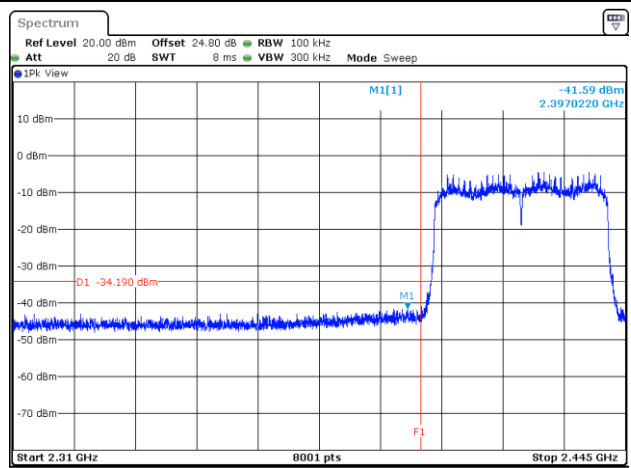
Test Channel : 03

100kHz PSD reference Level



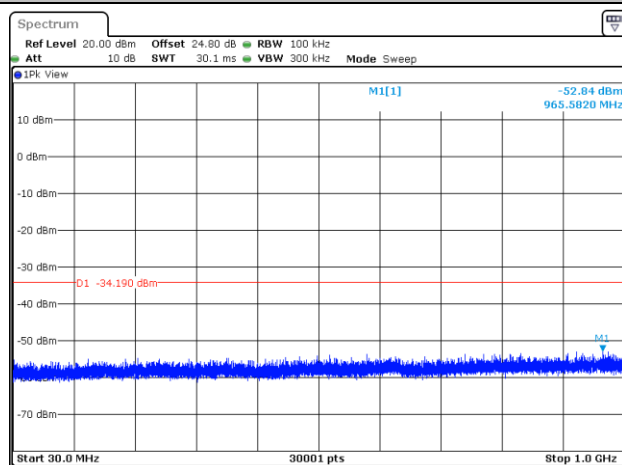
Date: 2 MAY 2024 14:42:20

Low Channel Plot



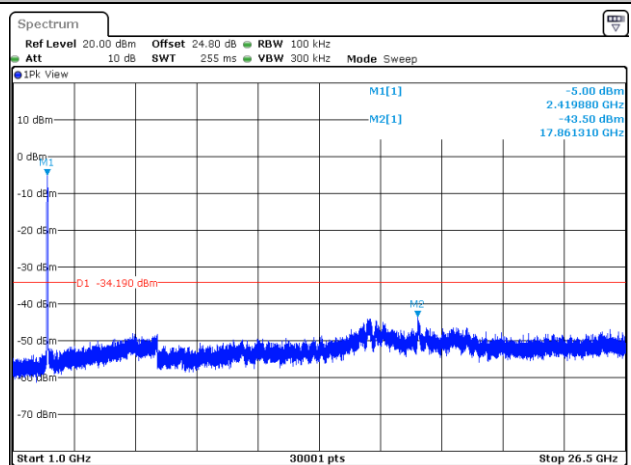
Date: 2 MAY 2024 14:43:10

Spurious Emission 30MHz~1GHz



Date: 2 MAY 2024 14:42:39

Spurious Emission 1GHz~26.5GHz



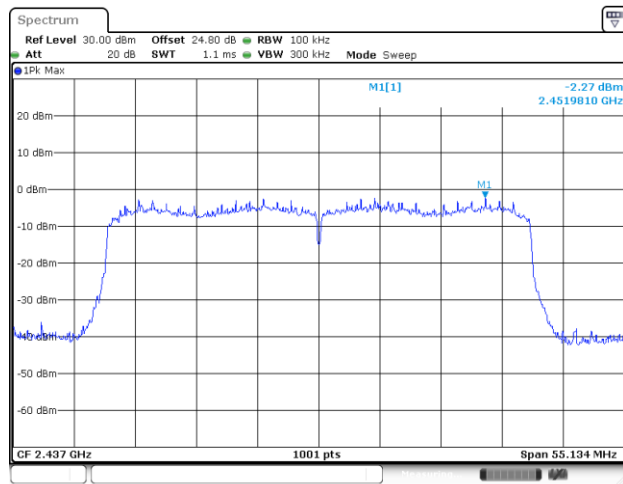
Date: 2 MAY 2024 14:42:57



Test Mode : 802.11ax HE40_FullIRU

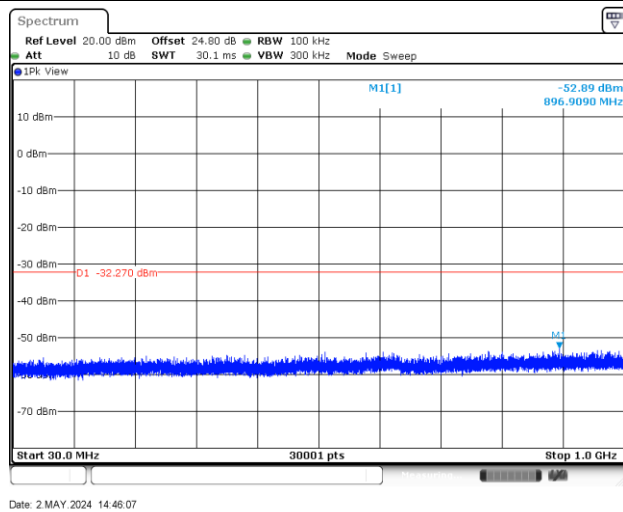
Test Channel : 06

100kHz PSD reference Level

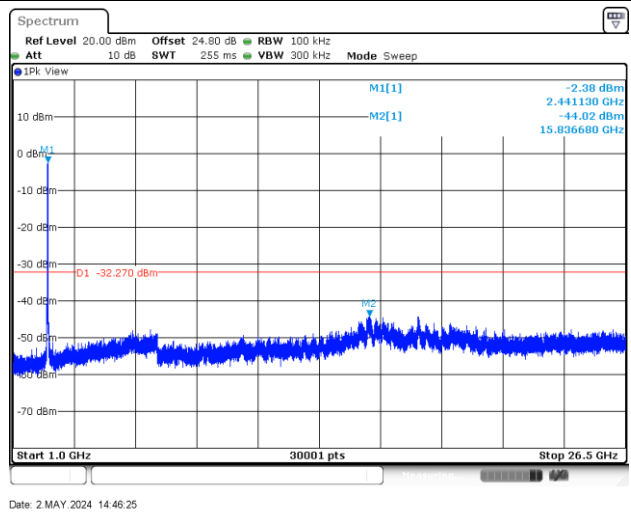


Middle Channel Plot

Spurious Emission 30MHz~1GHz



Spurious Emission 1GHz~26.5GHz

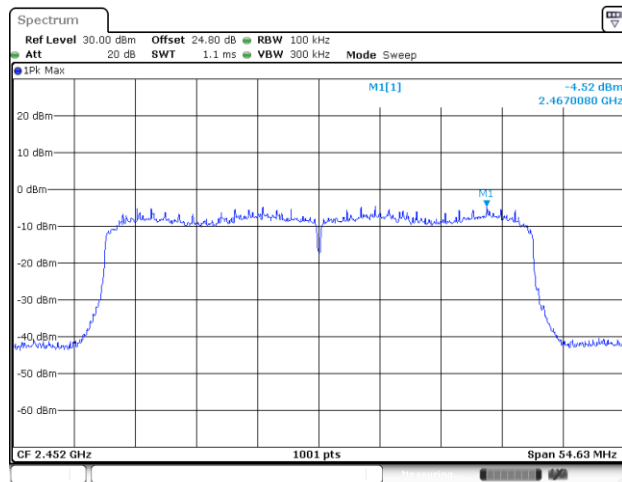




Test Mode : 802.11ax HE40_FullIRU

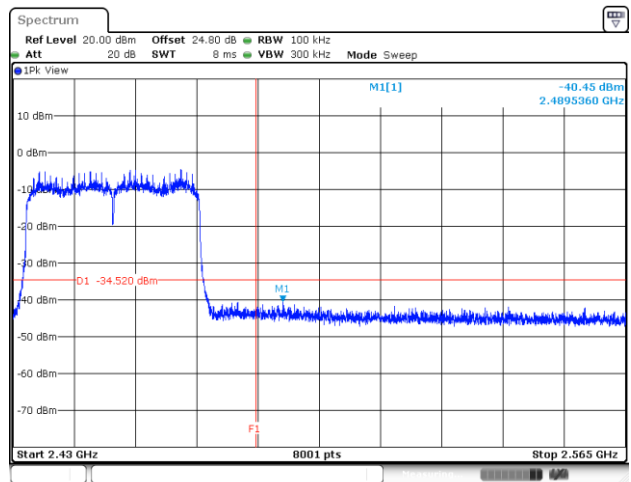
Test Channel : 09

100kHz PSD reference Level



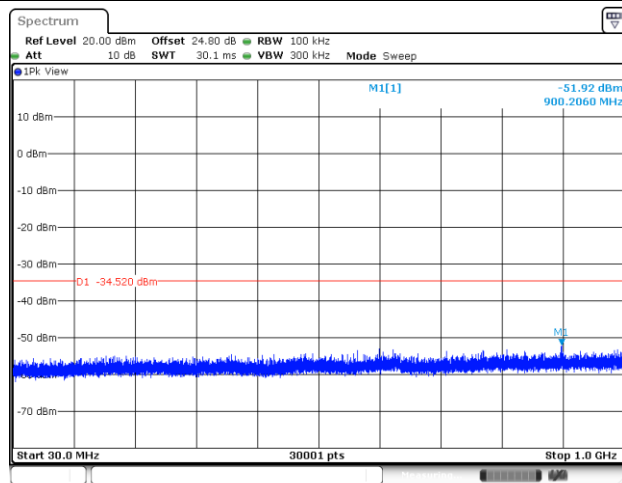
Date: 2 MAY 2024 14:49:09

High Channel Plot



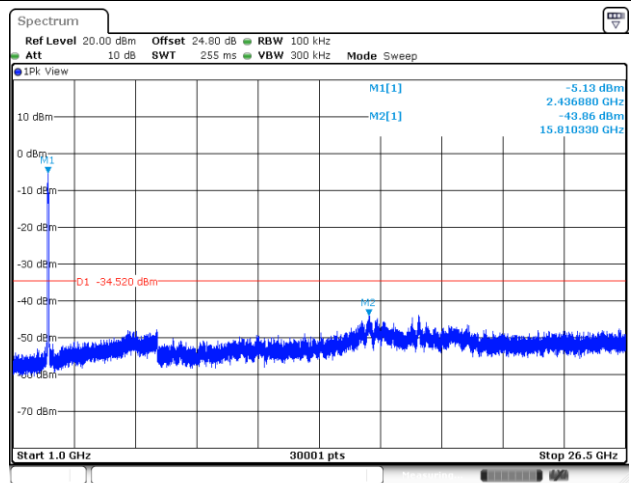
Date: 2 MAY 2024 14:50:06

Spurious Emission 30MHz~1GHz



Date: 2 MAY 2024 14:49:30

Spurious Emission 1GHz~26.5GHz



Date: 2 MAY 2024 14:49:46



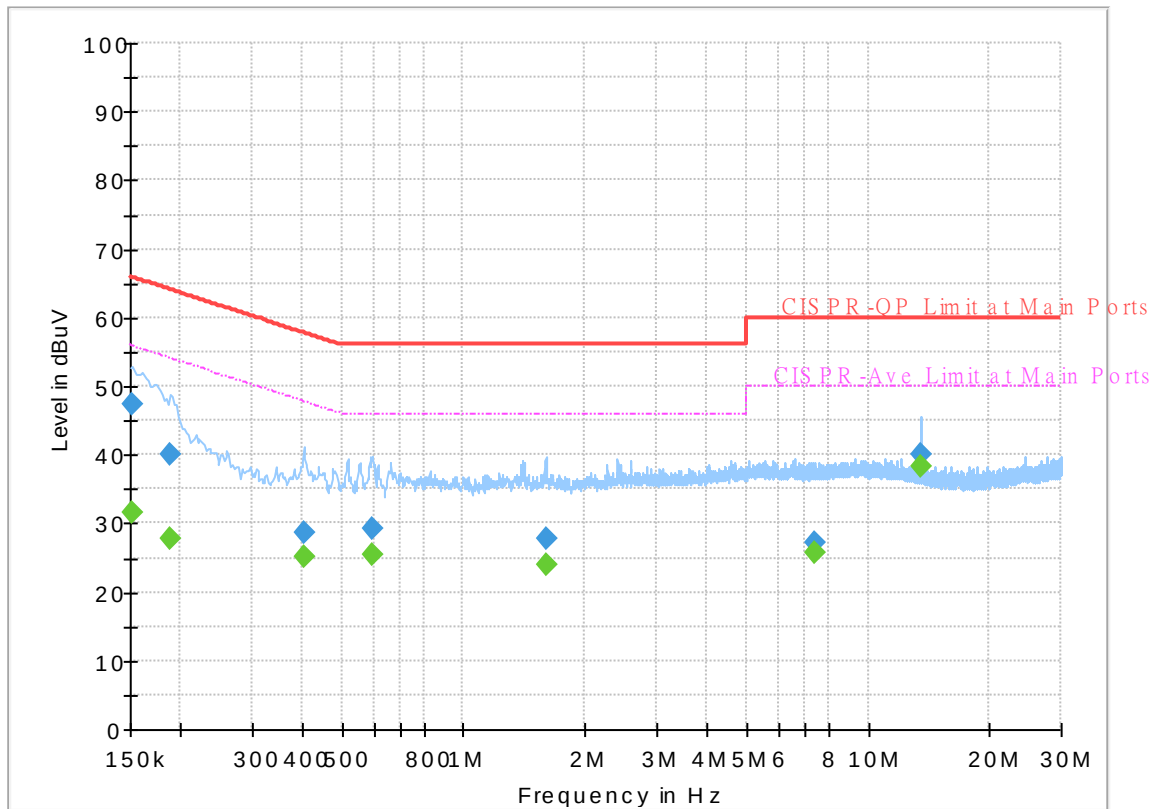
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Calvin Wang	Temperature :	23~26℃
		Relative Humidity :	45~55%

EUT Information

Report NO : 432902
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



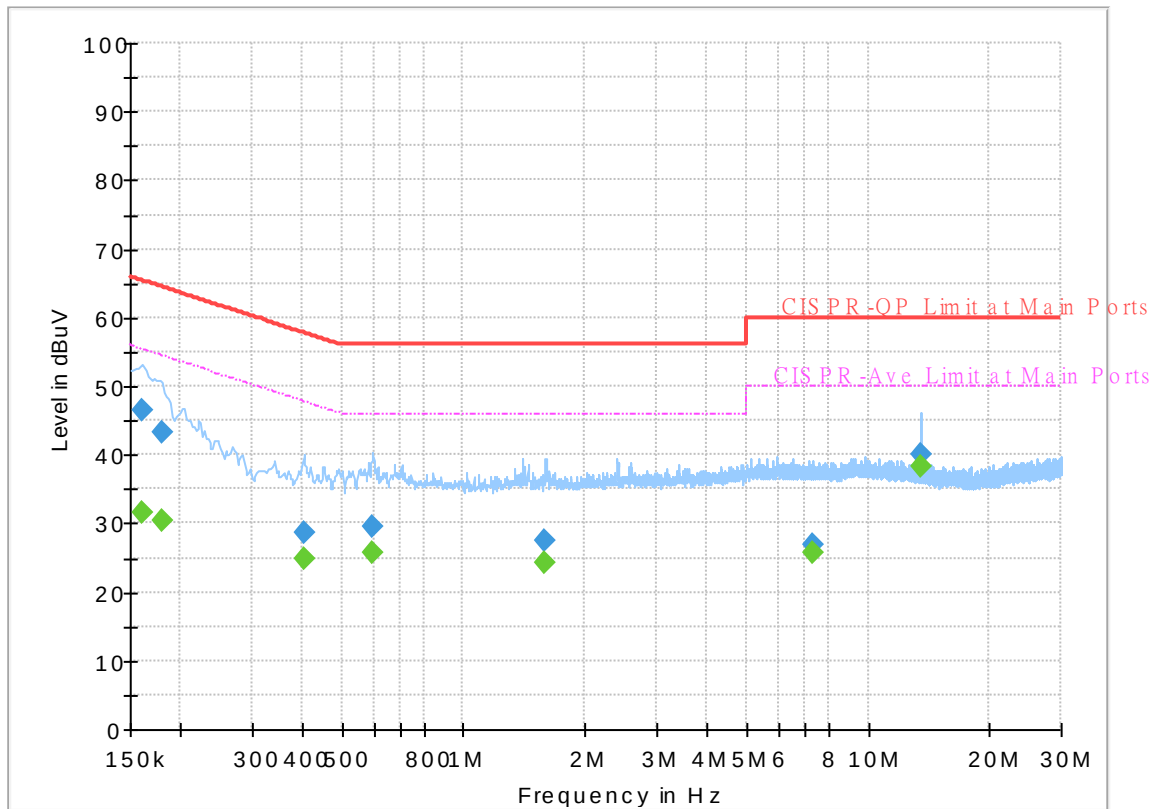
Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	31.48	55.88	24.40	L1	OFF	19.8
0.152250	47.49	---	65.88	18.39	L1	OFF	19.8
0.188250	---	27.86	54.11	26.25	L1	OFF	19.8
0.188250	40.06	---	64.11	24.05	L1	OFF	19.8
0.402000	---	25.11	47.81	22.70	L1	OFF	19.8
0.402000	28.68	---	57.81	29.13	L1	OFF	19.8
0.597750	---	25.31	46.00	20.69	L1	OFF	19.8
0.597750	29.24	---	56.00	26.76	L1	OFF	19.8
1.596750	---	24.12	46.00	21.88	L1	OFF	19.9
1.596750	27.84	---	56.00	28.16	L1	OFF	19.9
7.365750	---	25.80	50.00	24.20	L1	OFF	20.0
7.365750	27.14	---	60.00	32.86	L1	OFF	20.0
13.560000	---	38.18	50.00	11.82	L1	OFF	20.2
13.560000	39.99	---	60.00	20.01	L1	OFF	20.2

EUT Information

Report NO : 432902
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	31.59	55.40	23.81	N	OFF	19.8
0.161250	46.50	---	65.40	18.90	N	OFF	19.8
0.179250	---	30.31	54.52	24.21	N	OFF	19.8
0.179250	43.33	---	64.52	21.19	N	OFF	19.8
0.404250	---	24.87	47.77	22.90	N	OFF	19.8
0.404250	28.54	---	57.77	29.23	N	OFF	19.8
0.595500	---	25.81	46.00	20.19	N	OFF	19.8
0.595500	29.42	---	56.00	26.58	N	OFF	19.8
1.594500	---	24.13	46.00	21.87	N	OFF	19.9
1.594500	27.34	---	56.00	28.66	N	OFF	19.9
7.311750	---	25.86	50.00	24.14	N	OFF	20.1
7.311750	26.91	---	60.00	33.09	N	OFF	20.1
13.560000	---	38.35	50.00	11.65	N	OFF	20.3
13.560000	39.93	---	60.00	20.07	N	OFF	20.3



Appendix C. Radiated Spurious Emission

Test Engineer :	Jesse Wang, Stan Hsieh, and Ken Wu	Temperature :	22.1~26.0°C
		Relative Humidity :	48.2~69.5%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preampl Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2386.755	57.15	-16.85	74	41.15	31.97	18.35	34.32	139	151	P	H
		2386.335	49.91	-4.09	54	33.92	31.96	18.35	34.32	139	151	A	H
	*	2412	102.75	-	-	86.67	32	18.39	34.31	139	151	P	H
	*	2412	99.71	-	-	83.63	32	18.39	34.31	139	151	A	H
													H
		2386.335	57.57	-16.43	74	41.58	31.96	18.35	34.32	374	183	P	V
		2386.335	51.55	-2.45	54	35.56	31.96	18.35	34.32	374	183	A	V
	*	2412	105.92	-	-	89.84	32	18.39	34.31	374	183	P	V
	*	2412	102.91	-	-	86.83	32	18.39	34.31	374	183	A	V
													V
802.11b CH 06 2437MHz		2322.74	54.29	-19.71	74	38.3	32.1	18.24	34.35	143	145	P	H
		2371.6	43.67	-10.33	54	27.78	31.9	18.32	34.33	143	145	A	H
	*	2437	104.1	-	-	88.03	31.93	18.44	34.3	143	145	P	H
	*	2437	101.1	-	-	85.03	31.93	18.44	34.3	143	145	A	H
		2488.94	54.99	-19.01	74	38.51	32.19	18.56	34.27	143	145	P	H
		2484.04	44.36	-9.64	54	27.96	32.14	18.54	34.28	143	145	A	H
		2356.76	55.53	-18.47	74	39.53	32.03	18.3	34.33	355	176	P	V
		2371.74	43.69	-10.31	54	27.8	31.9	18.32	34.33	355	176	A	V
	*	2437	107.35	-	-	91.28	31.93	18.44	34.3	355	176	P	V
	*	2437	104.27	-	-	88.2	31.93	18.44	34.3	355	176	A	V
		2483.55	54.81	-19.19	74	38.41	32.14	18.54	34.28	355	176	P	V
		2484.53	44.69	-9.31	54	28.28	32.15	18.54	34.28	355	176	A	V



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 11 2462MHz	*	2462	104.46	-	-	88.15	32.1	18.5	34.29	111	146	P	H
	*	2462	101.33	-	-	85.02	32.1	18.5	34.29	111	146	A	H
		2487.24	55.26	-18.74	74	38.82	32.17	18.55	34.28	111	146	P	H
		2486.6	45.81	-8.19	54	29.37	32.17	18.55	34.28	111	146	A	H
													H
													H
	*	2462	106.58	-	-	90.27	32.1	18.5	34.29	399	197	P	V
	*	2462	103.51	-	-	87.2	32.1	18.5	34.29	399	197	A	V
		2486.88	54.99	-19.01	74	38.55	32.17	18.55	34.28	399	197	P	V
		2486.36	45.91	-8.09	54	29.48	32.16	18.55	34.28	399	197	A	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	40.95	-33.05	74	52.83	34.2	13.06	59.14	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4824	46.33	-27.67	74	58.21	34.2	13.06	59.14	330	233	P	V
		4824	42.53	-11.47	54	54.41	34.2	13.06	59.14	330	233	A	V
													V
													V
													V
													V
													V
													V
													V



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 06 2437MHz		4874	42.12	-31.88	74	53.72	34.25	13.07	58.92	-	-	P	H
		7311	42	-32	74	48.48	35.8	15.28	57.56	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4874	46.09	-27.91	74	57.69	34.25	13.07	58.92	346	220	P	V
		4874	42.64	-11.36	54	54.24	34.25	13.07	58.92	346	220	A	V
		7311	41.93	-32.07	74	48.41	35.8	15.28	57.56	-	-	P	V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 11 2462MHz		4924	42.79	-31.21	74	54.22	34.35	13.06	58.84	-	-	P	H
		7386	41.47	-32.53	74	47.97	35.73	15.41	57.64	-	-	P	H
													H
													H
													H
													H
													H
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													H
													H
		4924	47.35	-26.65	74	58.78	34.35	13.06	58.84	301	221	P	V
		4924	43.78	-10.22	54	55.21	34.35	13.06	58.84	301	221	A	V
		7386	41.17	-32.83	74	47.67	35.73	15.41	57.64	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2387.91	63.41	-10.59	74	47.4	31.98	18.35	34.32	115	142	P	H
		2390	49.6	-4.4	54	33.57	32	18.35	34.32	115	142	A	H
	*	2412	102.44	-	-	86.36	32	18.39	34.31	115	142	P	H
	*	2412	94.9	-	-	78.82	32	18.39	34.31	115	142	A	H
													H
													H
		2389.905	66.08	-7.92	74	50.05	32	18.35	34.32	365	179	P	V
		2390	51.43	-2.57	54	35.4	32	18.35	34.32	365	179	A	V
	*	2412	105.39	-	-	89.31	32	18.39	34.31	365	179	P	V
	*	2412	98.21	-	-	82.13	32	18.39	34.31	365	179	A	V
													V
													V
802.11g CH 06 2437MHz		2388.4	60.89	-13.11	74	44.88	31.98	18.35	34.32	161	149	P	H
		2389.94	46.13	-7.87	54	30.1	32	18.35	34.32	161	149	A	H
	*	2437	106.46	-	-	90.39	31.93	18.44	34.3	161	149	P	H
	*	2437	98.8	-	-	82.73	31.93	18.44	34.3	161	149	A	H
		2486.07	59.18	-14.82	74	42.75	32.16	18.55	34.28	161	149	P	H
		2483.5	46.98	-7.02	54	30.59	32.13	18.54	34.28	161	149	A	H
		2389.1	60.21	-13.79	74	44.19	31.99	18.35	34.32	355	179	P	V
		2389.94	46.23	-7.77	54	30.2	32	18.35	34.32	355	179	A	V
	*	2437	108.95	-	-	92.88	31.93	18.44	34.3	355	179	P	V
	*	2437	101.31	-	-	85.24	31.93	18.44	34.3	355	179	A	V
		2483.5	59.85	-14.15	74	43.46	32.13	18.54	34.28	355	179	P	V
		2483.5	47.48	-6.52	54	31.09	32.13	18.54	34.28	355	179	A	V



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 11 2462MHz	*	2462	101.79	-	-	85.48	32.1	18.5	34.29	110	146	P	H
	*	2462	94.03	-	-	77.72	32.1	18.5	34.29	110	146	A	H
		2483.88	63.85	-10.15	74	47.45	32.14	18.54	34.28	110	146	P	H
		2483.52	48.98	-5.02	54	32.58	32.14	18.54	34.28	110	146	A	H
													H
													H
	*	2462	104.39	-	-	88.08	32.1	18.5	34.29	391	175	P	V
	*	2462	96.77	-	-	80.46	32.1	18.5	34.29	391	175	A	V
		2483.84	67.82	-6.18	74	51.42	32.14	18.54	34.28	391	175	P	V
		2483.52	52.12	-1.88	54	35.72	32.14	18.54	34.28	391	175	A	V
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Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	39.83	-34.17	74	51.71	34.2	13.06	59.14	100	0	P	H
													H
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		4824	40.31	-33.69	74	52.19	34.2	13.06	59.14	100	0	P	V
													V
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[illegible]

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 11 2462MHz		4924	39.5	-34.5	74	51.01	34.35	13.06	58.92	-	-	P	H
		7386	40.45	-33.55	74	47.13	35.73	15.41	57.82	-	-	P	H
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		4924	39.48	-34.52	74	50.99	34.35	13.06	58.92	-	-	P	V
		7386	40.32	-33.68	74	47	35.73	15.41	57.82	-	-	P	V
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2.4GHz 2400~2483.5MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 11 2462MHz	*	2462	103.71	-	-	87.4	32.1	18.5	34.29	138	149	P	H
	*	2462	95.36	-	-	79.05	32.1	18.5	34.29	138	149	A	H
		2484.08	66.74	-7.26	74	50.34	32.14	18.54	34.28	138	149	P	H
		2483.52	49.78	-4.22	54	33.38	32.14	18.54	34.28	138	149	A	H
													H
													H
	*	2462	104.54	-	-	88.23	32.1	18.5	34.29	390	177	P	V
	*	2462	96.13	-	-	79.82	32.1	18.5	34.29	390	177	A	V
		2485.36	71.38	-2.62	74	54.96	32.15	18.55	34.28	390	177	P	V
		2483.52	53.09	-0.91	54	36.69	32.14	18.54	34.28	390	177	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

[illegible]



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Full (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 01 2412MHz		2387.91	66.09	-7.91	74	50.08	31.98	18.35	34.32	117	142	P	H
		2390	50.41	-3.59	54	34.38	32	18.35	34.32	117	142	A	H
	*	2412	103.37	-	-	87.29	32	18.39	34.31	117	142	P	H
	*	2412	93.84	-	-	77.76	32	18.39	34.31	117	142	A	H
													H
													H
		2389.17	66.59	-7.41	74	50.57	31.99	18.35	34.32	365	174	P	V
		2390	52.35	-1.65	54	36.32	32	18.35	34.32	365	174	A	V
	*	2412	105.61	-	-	89.53	32	18.39	34.31	365	174	P	V
	*	2412	97.18	-	-	81.1	32	18.39	34.31	365	174	A	V
													V
													V
802.11ax HE20 Full CH 06 2437MHz		2388.54	64.11	-9.89	74	48.09	31.99	18.35	34.32	162	149	P	H
		2389.8	47.67	-6.33	54	31.64	32	18.35	34.32	162	149	A	H
	*	2437	107.99	-	-	91.92	31.93	18.44	34.3	162	149	P	H
	*	2437	98.4	-	-	82.33	31.93	18.44	34.3	162	149	A	H
		2484.18	60.03	-13.97	74	43.63	32.14	18.54	34.28	162	149	P	H
		2483.5	48.01	-5.99	54	31.62	32.13	18.54	34.28	162	149	A	H
		2388.68	61.53	-12.47	74	45.51	31.99	18.35	34.32	354	179	P	V
		2389.8	47.99	-6.01	54	31.96	32	18.35	34.32	354	179	A	V
	*	2437	109.85	-	-	93.78	31.93	18.44	34.3	354	179	P	V
	*	2437	100.96	-	-	84.89	31.93	18.44	34.3	354	179	A	V
		2486.77	61.77	-12.23	74	45.33	32.17	18.55	34.28	354	179	P	V
		2483.5	48.75	-5.25	54	32.36	32.13	18.54	34.28	354	179	A	V



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 11 2462MHz	*	2462	101.07	-	-	84.76	32.1	18.5	34.29	126	146	P	H
	*	2462	92.55	-	-	76.24	32.1	18.5	34.29	126	146	A	H
		2485.24	68.3	-5.7	74	51.89	32.15	18.54	34.28	126	146	P	H
		2483.56	50.48	-3.52	54	34.08	32.14	18.54	34.28	126	146	A	H
													H
													H
	*	2462	103.95	-	-	87.64	32.1	18.5	34.29	390	173	P	V
	*	2462	95.78	-	-	79.47	32.1	18.5	34.29	390	173	A	V
		2484.68	72.07	-1.93	74	55.66	32.15	18.54	34.28	390	173	P	V
		2483.52	53.12	-0.88	54	36.72	32.14	18.54	34.28	390	173	A	V
													V
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Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE20 Full (Harmonic @ 3m)

[illegible]



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 06 2437MHz		4874	41.78	-32.22	74	53.49	34.25	13.07	59.03	-	-	P	H
		7311	42.02	-31.98	74	48.67	35.8	15.28	57.73	-	-	P	H
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		4874	41.71	-32.29	74	53.42	34.25	13.07	59.03	-	-	P	V
		7311	43.08	-30.92	74	49.73	35.8	15.28	57.73	-	-	P	V
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WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 11 2462MHz		4924	39.35	-34.65	74	50.86	34.35	13.06	58.92	-	-	P	H
		7386	40.6	-33.4	74	47.28	35.73	15.41	57.82	-	-	P	H
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2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Partial 106/54 CH 11 2462MHz	*	2462	107.23	-	-	90.92	32.1	18.5	34.29	158	143	P	H
	*	2462	99.4	-	-	83.09	32.1	18.5	34.29	158	143	A	H
		2484.88	65.05	-8.95	74	48.64	32.15	18.54	34.28	158	143	P	H
		2484.4	49.08	-4.92	54	32.68	32.14	18.54	34.28	158	143	A	H
													H
													H
	*	2462	110.11	-	-	93.8	32.1	18.5	34.29	389	177	P	V
	*	2462	100.38	-	-	84.07	32.1	18.5	34.29	389	177	A	V
		2484.24	69.19	-4.81	74	52.79	32.14	18.54	34.28	389	177	P	V
		2484.04	51.36	-2.64	54	34.96	32.14	18.54	34.28	389	177	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 03 2422MHz		2389.94	62.85	-11.15	74	46.82	32	18.35	34.32	117	142	P	H
		2383.78	49.93	-4.07	54	33.97	31.94	18.34	34.32	117	142	A	H
	*	2422	99.07	-	-	82.95	32	18.42	34.3	117	142	P	H
	*	2422	90.02	-	-	73.9	32	18.42	34.3	117	142	A	H
		2498.32	54.59	-19.41	74	38	32.28	18.58	34.27	117	142	P	H
		2496.22	45.75	-8.25	54	29.19	32.26	18.57	34.27	117	142	A	H
		2384.34	64.16	-9.84	74	48.2	31.94	18.34	34.32	369	175	P	V
		2389.94	52.23	-1.77	54	36.2	32	18.35	34.32	369	175	A	V
	*	2422	102	-	-	85.88	32	18.42	34.3	369	175	P	V
	*	2422	92.92	-	-	76.8	32	18.42	34.3	369	175	A	V
		2489.64	54.71	-19.29	74	38.22	32.2	18.56	34.27	369	175	P	V
		2490.76	45.74	-8.26	54	29.24	32.21	18.56	34.27	369	175	A	V
802.11ax HE40 Full CH 06 2437MHz		2389.94	60.57	-13.43	74	44.54	32	18.35	34.32	116	143	P	H
		2389.24	50.08	-3.92	54	34.06	31.99	18.35	34.32	116	143	A	H
	*	2437	98.84	-	-	82.77	31.93	18.44	34.3	116	143	P	H
	*	2437	90.61	-	-	74.54	31.93	18.44	34.3	116	143	A	H
		2483.5	59.74	-14.26	74	43.35	32.13	18.54	34.28	116	143	P	H
		2484.25	48.11	-5.89	54	31.71	32.14	18.54	34.28	116	143	A	H
		2384.06	62.97	-11.03	74	47.01	31.94	18.34	34.32	295	174	P	V
		2389.52	52.06	-1.94	54	36.03	32	18.35	34.32	295	174	A	V
	*	2437	99.35	-	-	83.28	31.93	18.44	34.3	295	174	P	V
	*	2437	91.24	-	-	75.17	31.93	18.44	34.3	295	174	A	V
		2484.11	60.71	-13.29	74	44.31	32.14	18.54	34.28	295	174	P	V
		2484.18	49.42	-4.58	54	33.02	32.14	18.54	34.28	295	174	A	V



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 09 2452MHz		2339.26	53.99	-20.01	74	37.96	32.1	18.27	34.34	108	148	P	H
		2359	44.9	-9.1	54	28.92	32.01	18.3	34.33	108	148	A	H
	*	2452	96.82	-	-	80.61	32.02	18.48	34.29	108	148	P	H
	*	2452	88.39	-	-	72.18	32.02	18.48	34.29	108	148	A	H
		2487.89	61.07	-12.93	74	44.61	32.18	18.56	34.28	108	148	P	H
		2487.33	50	-4	54	33.56	32.17	18.55	34.28	108	148	A	H
		2378.18	54.15	-19.85	74	38.24	31.9	18.33	34.32	391	176	P	V
		2364.74	44.89	-9.11	54	28.96	31.95	18.31	34.33	391	176	A	V
	*	2452	100.43	-	-	84.22	32.02	18.48	34.29	391	176	P	V
	*	2452	91.01	-	-	74.8	32.02	18.48	34.29	391	176	A	V
		2485.16	65.75	-8.25	74	49.34	32.15	18.54	34.28	391	176	P	V
		2486.91	52.78	-1.22	54	36.34	32.17	18.55	34.28	391	176	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (Harmonic @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 03 2422MHz		4844	40.23	-33.77	74	52.07	34.2	13.06	59.1	-	-	P	H
		7266	41.46	-32.54	74	48.14	35.8	15.19	57.67	-	-	P	H
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		4844	39.82	-34.18	74	51.66	34.2	13.06	59.1	-	-	P	V
		7266	41.98	-32.02	74	48.66	35.8	15.19	57.67	-	-	P	V
													V
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													V



WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 06 2437MHz		4874	39.91	-34.09	74	51.62	34.25	13.07	59.03	-	-	P	H
		7311	41.69	-32.31	74	48.34	35.8	15.28	57.73	-	-	P	H
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													H
		4874	39.83	-34.17	74	51.54	34.25	13.07	59.03	-	-	P	V
		7311	41.21	-32.79	74	47.86	35.8	15.28	57.73	-	-	P	V
													V
													V
													V
													V
													V
													V
													V

[illegible]

Emission below 1GHz

2.4GHz WIFI 802.11ax HE20 (LF)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11ax HE20 LF		31.08	23.07	-16.93	40	27.87	24.01	1.13	29.94	-	-	P	H
		162.03	35.55	-7.95	43.5	46.63	16.18	2.58	29.84	-	-	P	H
		191.73	34.03	-9.47	43.5	46.38	14.69	2.79	29.83	-	-	P	H
		843.9	32.49	-13.51	46	27.69	28.54	5.44	29.18	-	-	P	H
		903.4	32.63	-13.37	46	27.06	28.72	5.68	28.83	-	-	P	H
		958	34.34	-11.66	46	26.49	30.65	5.8	28.6	-	-	P	H
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		30	30.68	-9.32	40	35	24.51	1.11	29.94	-	-	P	V
		56.19	29.01	-10.99	40	45.21	12.17	1.55	29.92	-	-	P	V
		184.71	32.4	-11.1	43.5	44.77	14.7	2.76	29.83	-	-	P	V
		776.7	31.11	-14.89	46	27.48	27.82	5.18	29.37	-	-	P	V
		887.3	33.17	-12.83	46	27.84	28.63	5.62	28.92	-	-	P	V
		950.3	34.48	-11.52	46	27.08	30.32	5.76	28.68	-	-	P	V
													V
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													V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												
	3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is Margin line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Margin (dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
2. Margin (dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
2. Margin (dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Jesse Wang, Stan Hsieh, and Ken Wu	Temperature :	22.1~26.0°C
		Relative Humidity :	48.2~69.5%

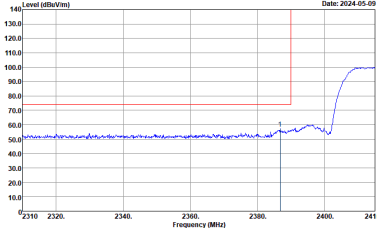
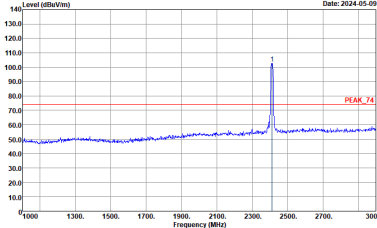
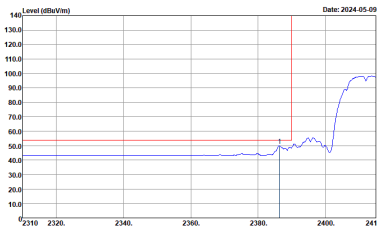
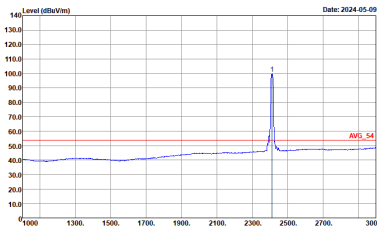
Note symbol

-L	Low channel location
-R	High channel location

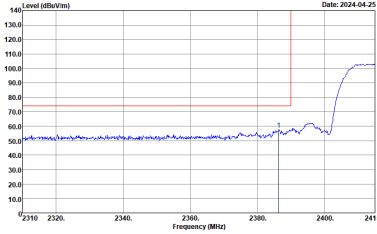
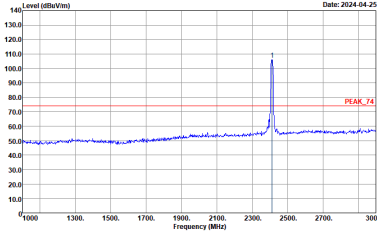
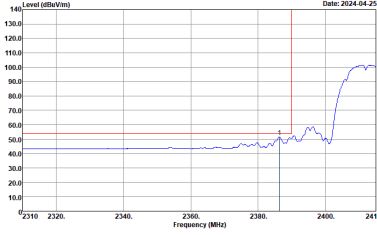
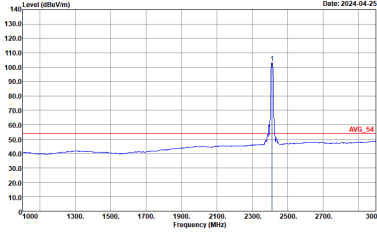


2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
	Horizontal	Fundamental
Peak	 Site Condition : 03CH07-HY : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	 Site Condition : 03CH07-HY : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	 Site Condition : 03CH07-HY : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	 Site Condition : 03CH07-HY : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto

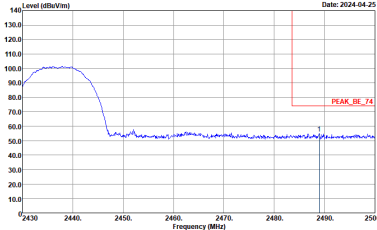
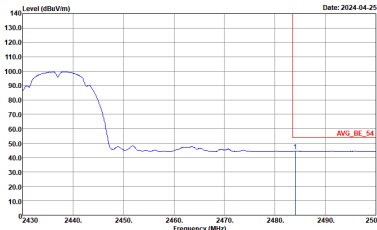


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
	Horizontal	Fundamental
Peak	Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto

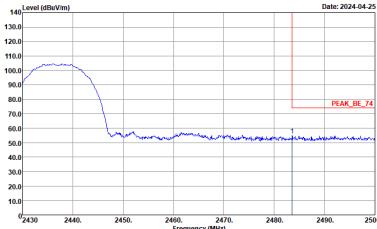
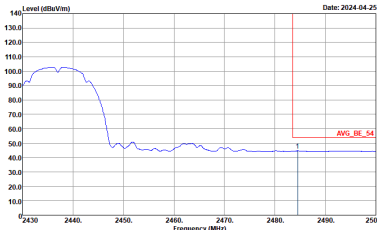


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
	Horizontal	Fundamental
Peak	 Site : 03CH07-RV Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Left blank
Avg.	 Site : 03CH07-RV Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	Left blank

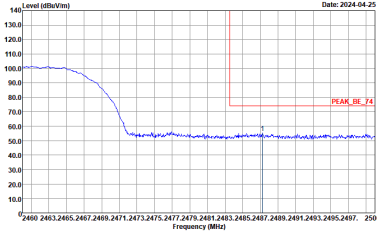
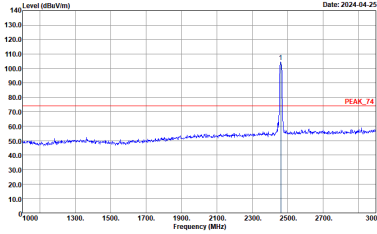
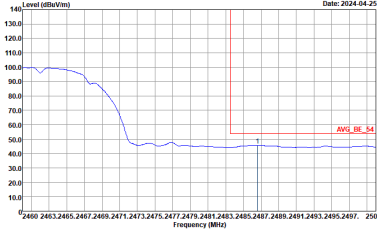
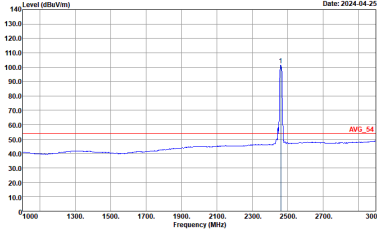


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
	Vertical	Fundamental
Peak	Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	Site : 03CH07-HY Condition : AVG_BE_34 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:5.000kHz SWTAuto	Site : 03CH07-HY Condition : AVG_34 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:5.000kHz SWTAuto



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
	Vertical	Fundamental
Peak	 Site : 03CH07-RV Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Left blank
Avg.	 Site : 03CH07-RV Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Left blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
	Horizontal	Fundamental
Peak	 Site : 03CH07-RY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	 Site : 03CH07-RY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	 Site : 03CH07-RY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	 Site : 03CH07-RY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto

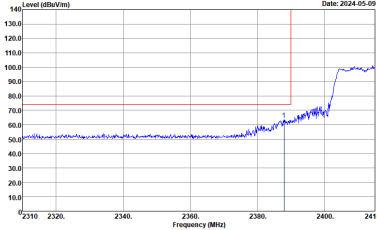
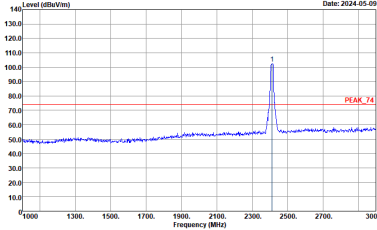
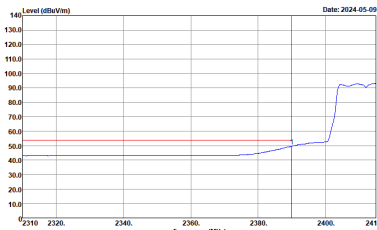
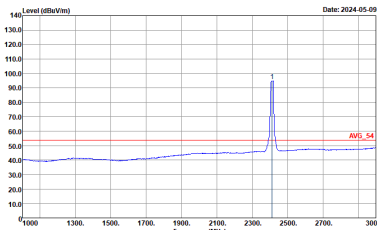


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
	Vertical	Fundamental
Peak	Site : 03CH07-RY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Site : 03CH07-RY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	Site : 03CH07-RY Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	Site : 03CH07-RY Condition : AVG_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto

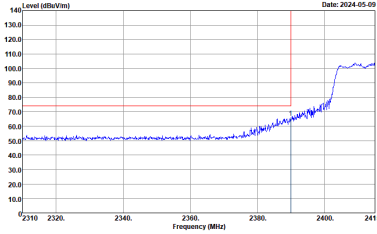
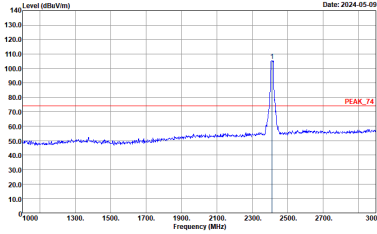
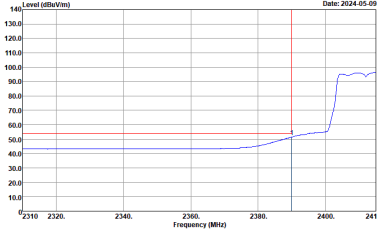
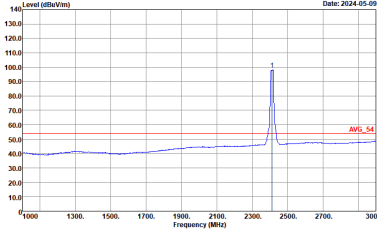


2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto

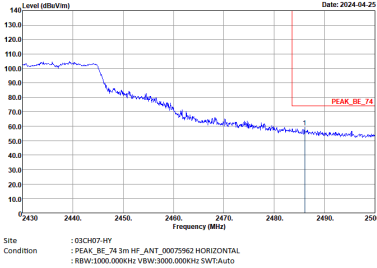
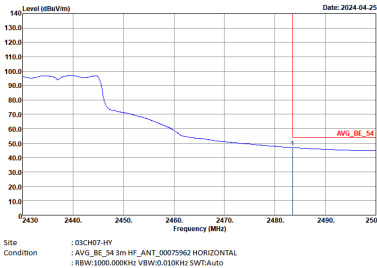


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
	Horizontal	Fundamental
Peak	Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto
Avg.	Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
	Horizontal	Fundamental
Peak	 Site : 03CH07-RV Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto	Left blank
Avg.	 Site : 03CH07-RV Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWTAuto	Left blank