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 E §15.407**

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
FR432902F	01	Initial issue of report	Jun. 18, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.403(i)	6dB & 26dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)	Maximum Conducted Output Power	Pass	-
3.3	15.407(a)	Power Spectral Density	Pass	-
3.4	15.407(b)	Unwanted Emissions	Pass	8.24 dB under the limit at 162.84 MHz
3.5	15.207	AC Conducted Emission	Pass	13.83 dB under the limit at 13.56 MHz
3.6	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/manufacturer 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: Michelle Chen

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		
5725 MHz ~ 5850 MHz	Peak Gain (dBi)	-0.8

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 E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- 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)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Note:

1. The above Frequency and Channel with "*" are 802.11n HT40 and 802.11ac VHT40 and 802.11ax HE40.
2. The above Frequency and Channel with "#" are 802.11ac VHT80 and 802.11ax HE80.

2.2 Test Mode

This device support 26/52/106/242/484/996-tone RU.

The PSD of partial RU is reduced to be smaller than full RU according to TCB workshop interim guidance Oct. 2018.

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 and 996-tone RU is covered by 80MHz 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 Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20 (Covered by VHT20)	MCS0
802.11n HT40 (Covered by VHT40)	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0

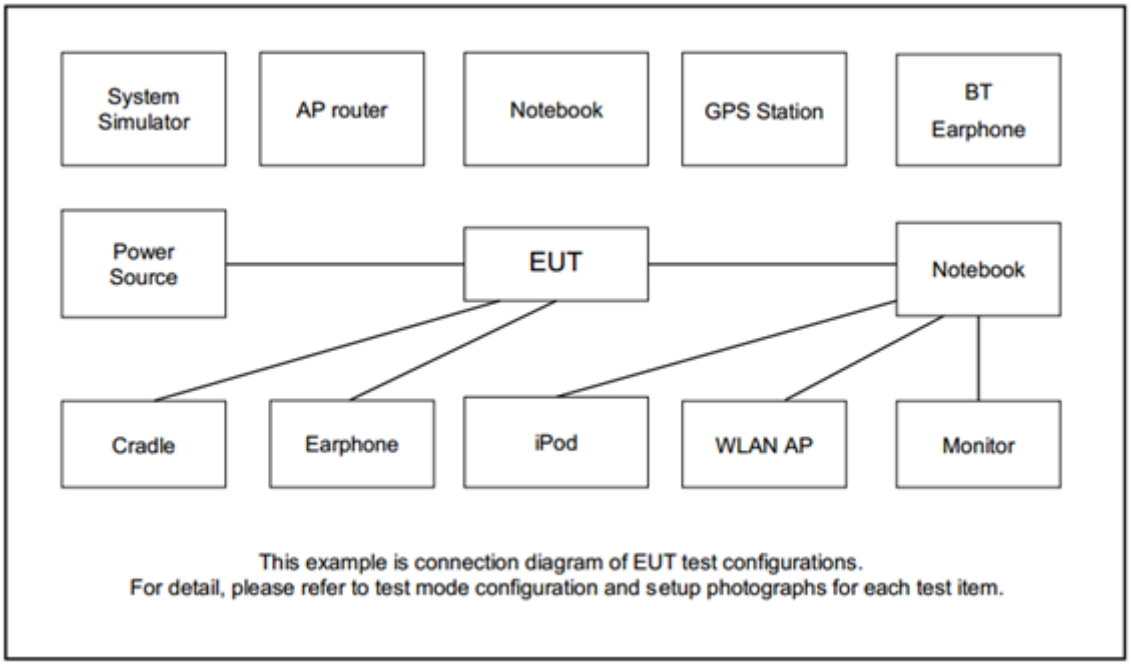
Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Bluetooth Link + NFC Charging pen 1 + USB Cable (Charging from Adapter) + Battery

Ch. #		Band IV：5725-5850 MHz	
		802.11a	802.11ac VHT80
L	Low	149	-
M	Middle	157	155
H	High	165	-

Ch. #		Band IV：5725-5850 MHz		
		802.11ax HE20	802.11ax HE40	802.11ax HE80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

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 3400	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	N/A	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.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

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

26dB and 99% Occupied bandwidth are reporting only.

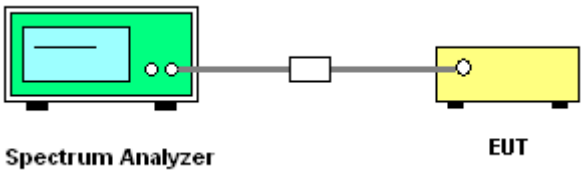
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85 GHz
2. Set RBW = 100 kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in 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.

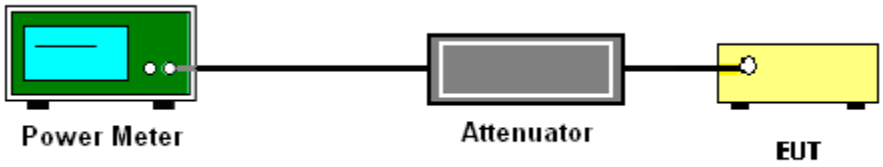
3.2.3 Test Procedures

The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM-G (Measurement using a gated RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit at its maximum power control level.
3. Measure the average power of the transmitter.
4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Section F) Maximum power spectral density.

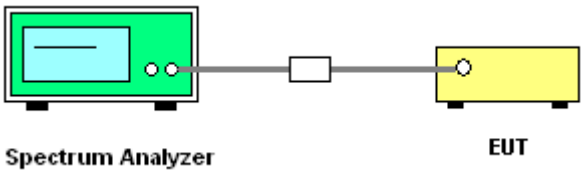
 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300kHz.
- Set VBW ≥ 1 MHz.
- Add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

1. The RF output of EUT is connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.4.1 Limit of Unwanted Emissions

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

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(2) Unwanted spurious emissions falls in restricted bands shall comply with the general field strength limits as below table,

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

Note: The following formula is used to convert the EIRP to field strength.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.3

(3) KDB789033 D02 v02r01 G)2)c)

(i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of −27 dBm/MHz.

(ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.

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 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000 MHz

   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

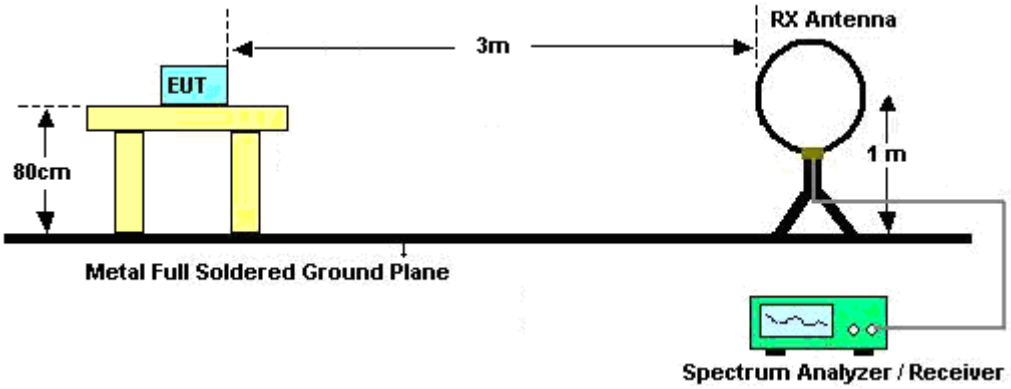
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 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.
2. 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.
3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.

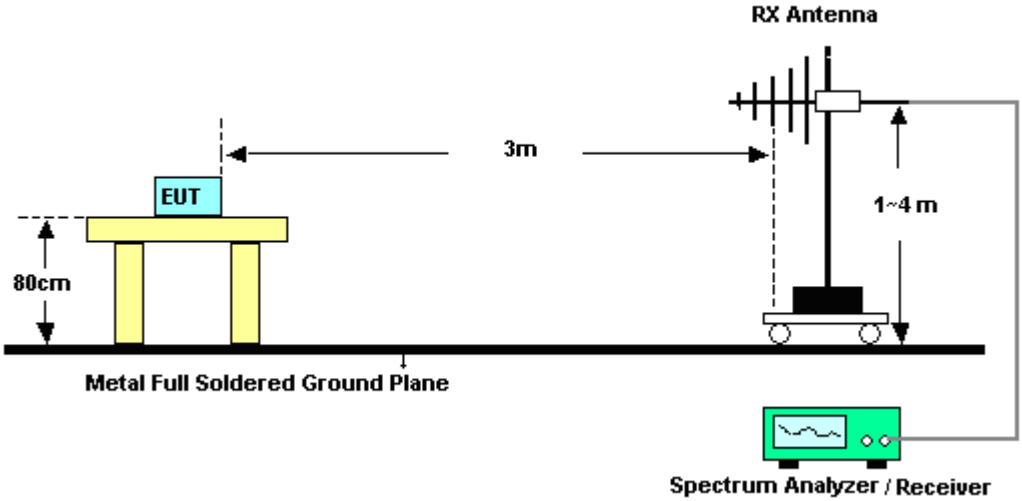
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit 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 "-".

3.4.4 Test Setup

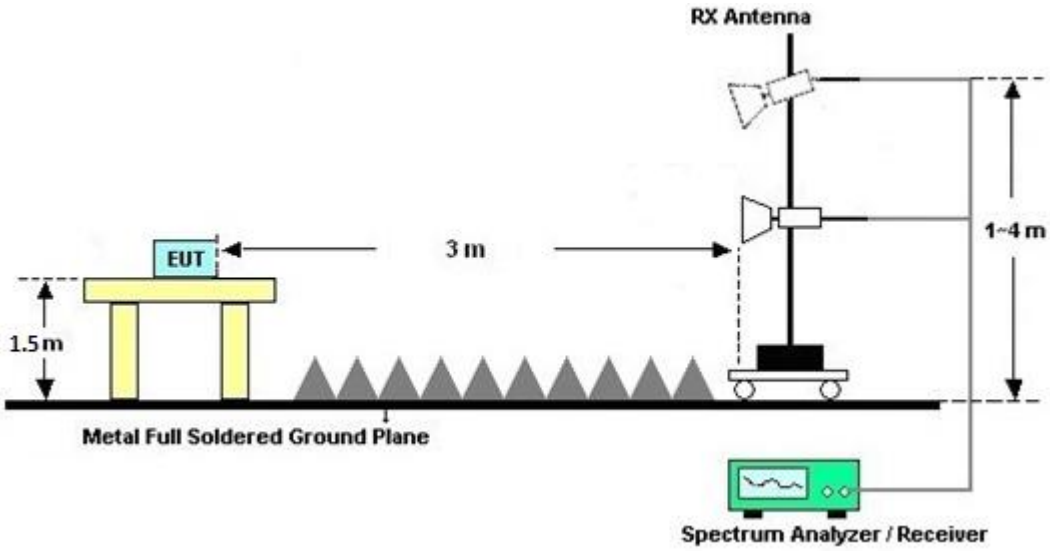
For radiated emissions below 30MHz



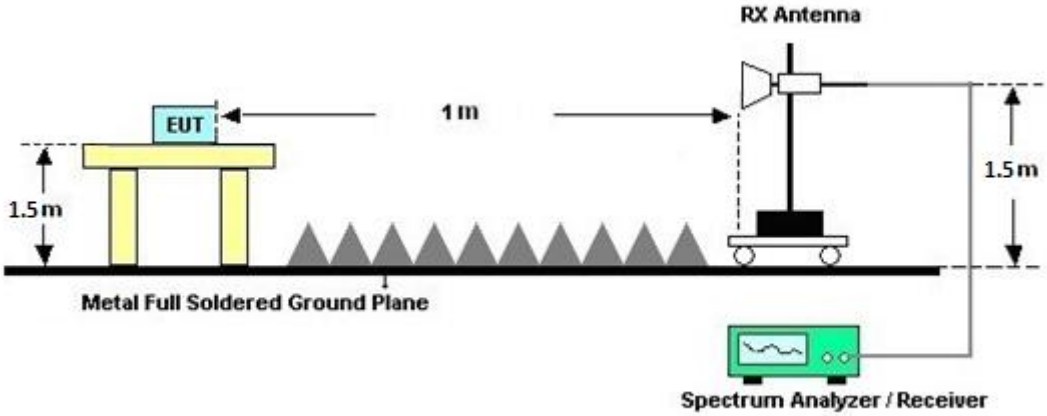
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



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

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 came out very similar.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

3.4.8 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.5 AC Conducted Emission Measurement

3.5.1 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 (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

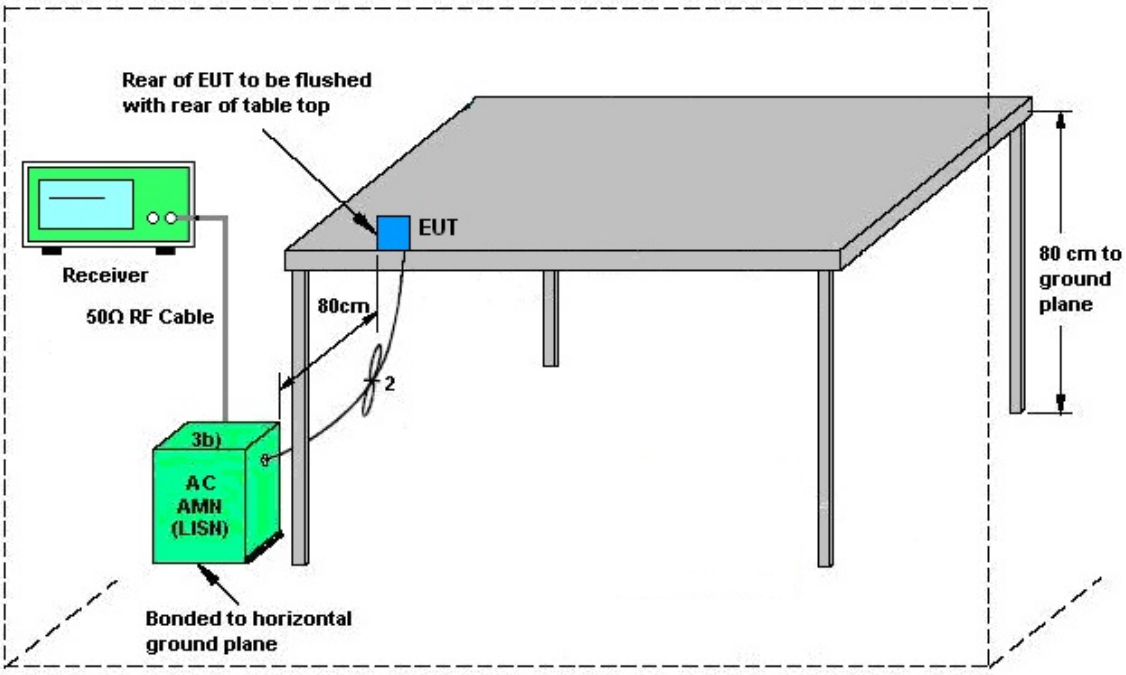
3.5.2 Measuring Instruments

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

3.5.3 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 with Maximum Hold Mode.

3.5.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 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.

3.6.2 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
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	SCHWARZBECK	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)
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	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 24, 2023	Apr. 22, 2024~ May 11, 2024	Nov. 23, 2024	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 23, 2024	Apr. 22, 2024~ May 11, 2024	Feb. 22, 2025	Radiation (03CH07-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Apr. 10, 2024~ May 10, 2024	Nov. 06, 2024	Conducted (TH02-HY)
Power Sensor	DARE	RPR3008W	RPR8W-2301 017 (NO:20)	10MHz~8GHz	Jul. 26, 2023	Apr. 10, 2024~ May 10, 2024	Jul. 25, 2024	Conducted (TH02-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Aug. 30, 2023	Apr. 10, 2024~ May 10, 2024	Aug. 31, 2024	Conducted (TH02-HY)
DC Power Supply	GW Instek	GPE-2323	GEU810970	0V~64V ; 0A~6A	Nov. 16, 2023	Apr. 23. 2024~ May 10, 2024	Nov. 15, 2024	Conducted (TH02-HY)

5 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.50 dB

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.30 dB

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.60 dB

Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.30 dB

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.30 dB

Appendix A. Test Result of Conducted Test Items

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

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

U-NII-3 single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	149	5745	16.83	-	19.96	-	16.37	-	0.5	Pass
11a	6Mbps	1	157	5785	16.83	-	20.04	-	16.37	-	0.5	Pass
11a	6Mbps	1	165	5825	16.78	-	20.16	-	16.34	-	0.5	Pass
VHT20	MCS0	1	149	5745	17.73	-	20.33	-	17.54	-	0.5	Pass
VHT20	MCS0	1	157	5785	17.73	-	20.38	-	17.31	-	0.5	Pass
VHT20	MCS0	1	165	5825	18.78	-	20.56	-	18.36	-	0.5	Pass
VHT40	MCS0	1	151	5755	36.66	-	41.68	-	35.51	-	0.5	Pass
VHT40	MCS0	1	159	5795	36.66	-	41.84	-	35.60	-	0.5	Pass
VHT80	MCS0	1	155	5775	76.48	-	82.30	-	76.32	-	0.5	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 single antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)		FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	9.80	-	30.00	-	-0.80	-	Pass
11a	6Mbps	1	157	5785	9.90	-	30.00	-	-0.80	-	Pass
11a	6Mbps	1	165	5825	9.70	-	30.00	-	-0.80	-	Pass
HT20	MCS0	1	149	5745	9.70	-	30.00	-	-0.80	-	Pass
HT20	MCS0	1	157	5785	9.60	-	30.00	-	-0.80	-	Pass
HT20	MCS0	1	165	5825	9.60	-	30.00	-	-0.80	-	Pass
HT40	MCS0	1	151	5755	9.70	-	30.00	-	-0.80	-	Pass
HT40	MCS0	1	159	5795	9.70	-	30.00	-	-0.80	-	Pass
VHT20	MCS0	1	149	5745	9.80	-	30.00	-	-0.80	-	Pass
VHT20	MCS0	1	157	5785	9.70	-	30.00	-	-0.80	-	Pass
VHT20	MCS0	1	165	5825	9.70	-	30.00	-	-0.80	-	Pass
VHT40	MCS0	1	151	5755	9.80	-	30.00	-	-0.80	-	Pass
VHT40	MCS0	1	159	5795	9.80	-	30.00	-	-0.80	-	Pass
VHT80	MCS0	1	155	5775	9.70	-	30.00	-	-0.80	-	Pass

TEST RESULTS DATA
Power Spectral Density

U-NII-3 single antenna															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density with Duty Factor (dBm/500kHz)		Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	0.04	-	2.22	-	-4.31	-	30.00	-	-0.80	-	Pass
11a	6Mbps	1	157	5785	0.04	-	2.22	-	-4.05	-	30.00	-	-0.80	-	Pass
11a	6Mbps	1	165	5825	0.04	-	2.22	-	-4.37	-	30.00	-	-0.80	-	Pass
VHT20	MCS0	1	149	5745	0.06	-	2.22	-	-4.68	-	30.00	-	-0.80	-	Pass
VHT20	MCS0	1	157	5785	0.06	-	2.22	-	-4.83	-	30.00	-	-0.80	-	Pass
VHT20	MCS0	1	165	5825	0.06	-	2.22	-	-4.61	-	30.00	-	-0.80	-	Pass
VHT40	MCS0	1	151	5755	0.10	-	2.22	-	-7.53	-	30.00	-	-0.80	-	Pass
VHT40	MCS0	1	159	5795	0.10	-	2.22	-	-7.57	-	30.00	-	-0.80	-	Pass
VHT80	MCS0	1	155	5775	0.23	-	2.22	-	-10.95	-	30.00	-	-0.80	-	Pass

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

U-NII-3 single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
						Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
HE20	MCS0	1	149	5745	Full	18.78	-	20.76	-	18.19	-	0.5	Pass
HE20	MCS0	1	157	5785	Full	18.78	-	20.41	-	18.21	-	0.5	Pass
HE20	MCS0	1	165	5825	Full	18.78	-	20.59	-	18.11	-	0.5	Pass
HE40	MCS0	1	151	5755	Full	37.76	-	41.55	-	36.96	-	0.5	Pass
HE40	MCS0	1	159	5795	Full	37.86	-	41.73	-	36.88	-	0.5	Pass
HE80	MCS0	1	155	5775	Full	77.68	-	80.80	-	78.02	-	0.5	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power (dBm)		FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	1	149	5745	Full	9.90	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	149	5745	26/0	0.60	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	149	5745	52/37	3.50	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	149	5745	106/53	6.40	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	Full	9.80	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	26/4	1.20	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	52/38	3.60	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	106/53	6.30	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	Full	9.80	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	26/8	0.30	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	52/40	2.90	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	106/54	6.20	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	151	5755	Full	9.90	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	151	5755	242/61	7.00	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	159	5795	Full	9.90	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	159	5795	242/62	7.10	-	30.00	-	-0.80	-	Pass
HE80	MCS0	1	155	5775	Full	9.80	-	30.00	-	-0.80	-	Pass
HE80	MCS0	1	155	5775	484/65	6.80	-	30.00	-	-0.80	-	Pass
HE80	MCS0	1	155	5775	484/66	7.00	-	30.00	-	-0.80	-	Pass

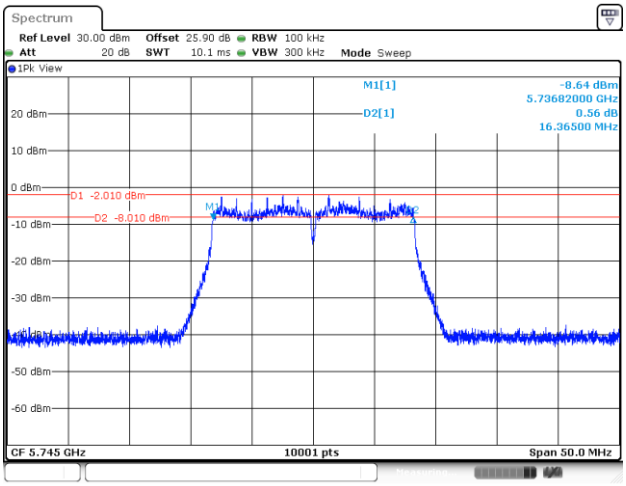
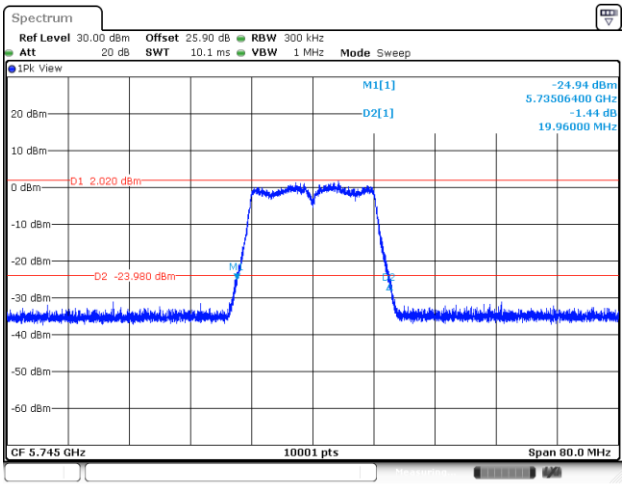
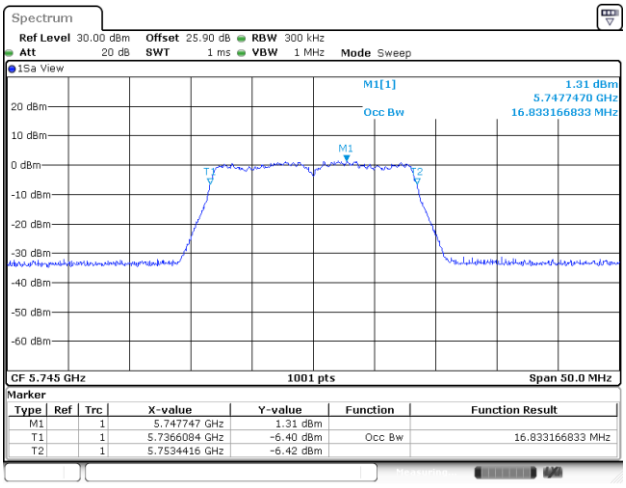
Report Number : FR432902F

TEST RESULTS DATA
Power Spectral Density

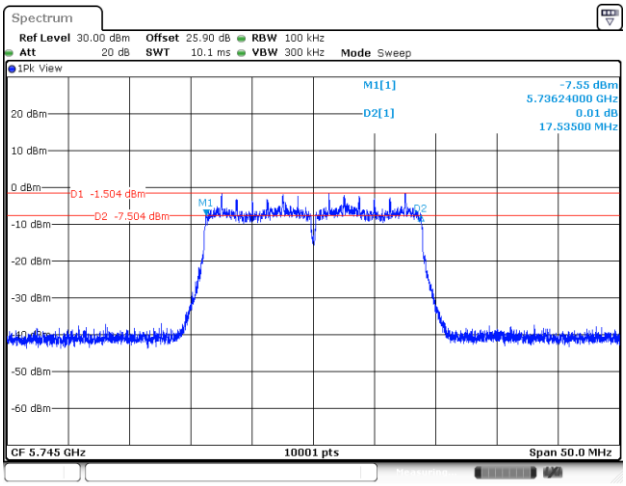
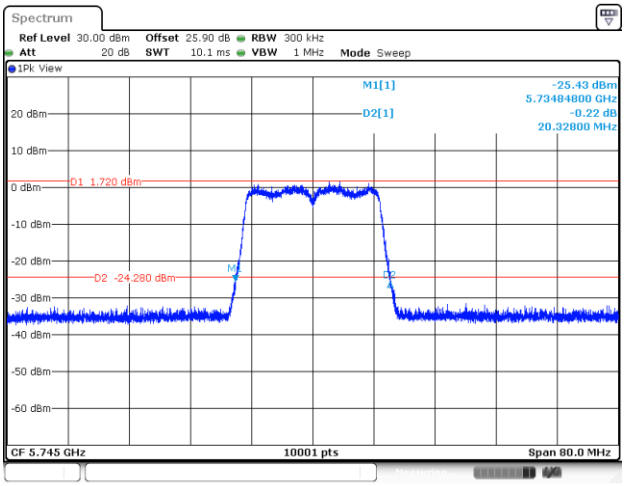
U-NII-3 single antenna																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density with Duty Factor (dBm/500kHz)		Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
						Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	1	149	5745	Full	0.06	-	2.22	-	-4.54	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	149	5745	26/0	0.06	-	2.22	-	-4.85	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	149	5745	52/37	0.06	-	2.22	-	-4.62	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	149	5745	106/53	0.06	-	2.22	-	-4.93	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	Full	0.06	-	2.22	-	-4.58	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	26/4	0.06	-	2.22	-	-4.72	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	52/38	0.06	-	2.22	-	-4.81	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	157	5785	106/53	0.06	-	2.22	-	-4.94	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	Full	0.06	-	2.22	-	-4.66	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	26/8	0.06	-	2.22	-	-5.00	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	52/40	0.06	-	2.22	-	-5.17	-	30.00	-	-0.80	-	Pass
HE20	MCS0	1	165	5825	106/54	0.06	-	2.22	-	-4.97	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	151	5755	Full	0.12	-	2.22	-	-7.44	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	151	5755	242/61	0.12	-	2.22	-	-7.86	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	159	5795	Full	0.12	-	2.22	-	-7.60	-	30.00	-	-0.80	-	Pass
HE40	MCS0	1	159	5795	242/62	0.12	-	2.22	-	-7.94	-	30.00	-	-0.80	-	Pass
HE80	MCS0	1	155	5775	Full	0.23	-	2.22	-	-10.21	-	30.00	-	-0.80	-	Pass
HE80	MCS0	1	155	5775	484/65	0.23	-	2.22	-	-10.71	-	30.00	-	-0.80	-	Pass
HE80	MCS0	1	155	5775	484/66	0.23	-	2.22	-	-10.52	-	30.00	-	-0.80	-	Pass

Test Result of 6dB and 26dB and 99% Occupied Bandwidth

<802.11a>

6dB Bandwidth	26dB Bandwidth
	
99% Occupied Bandwidth	**N/A**
	

<802.11ac VHT20>

6dB Bandwidth	26dB Bandwidth
	
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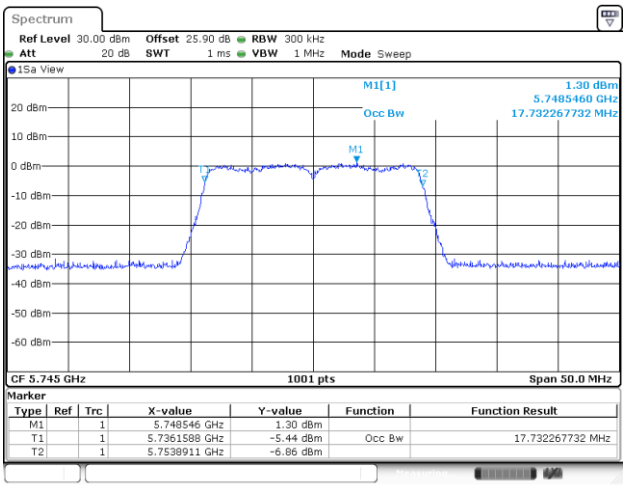
99% Occupied Bandwidth	**N/A**
	
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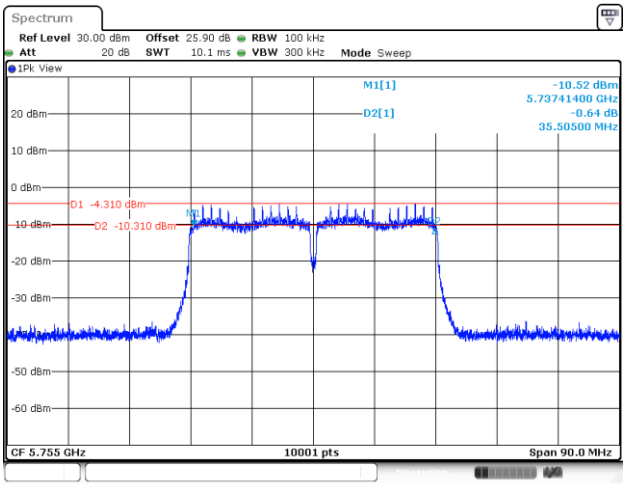
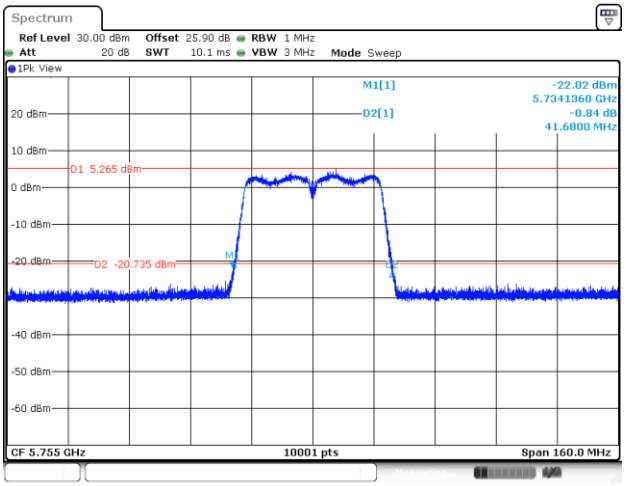
<802.11ac VHT40>

6dB Bandwidth	26dB Bandwidth
	
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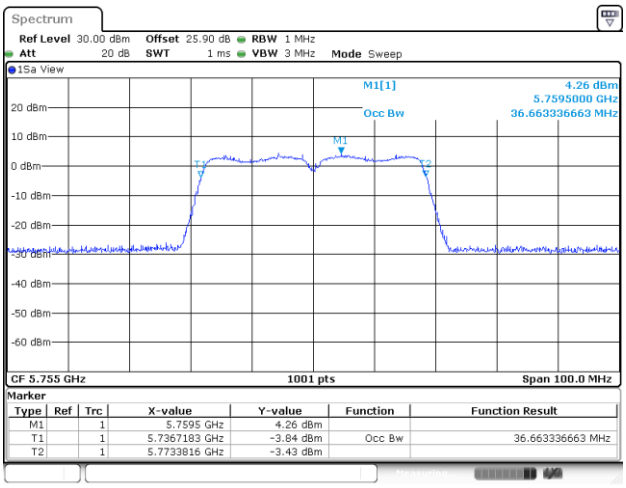
99% Occupied Bandwidth	**N/A**
	
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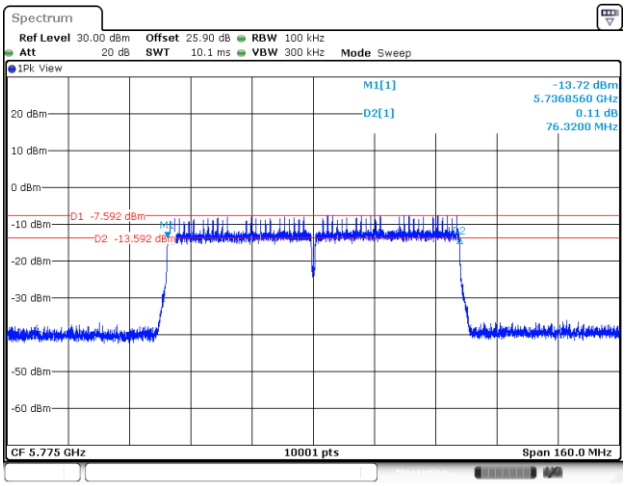
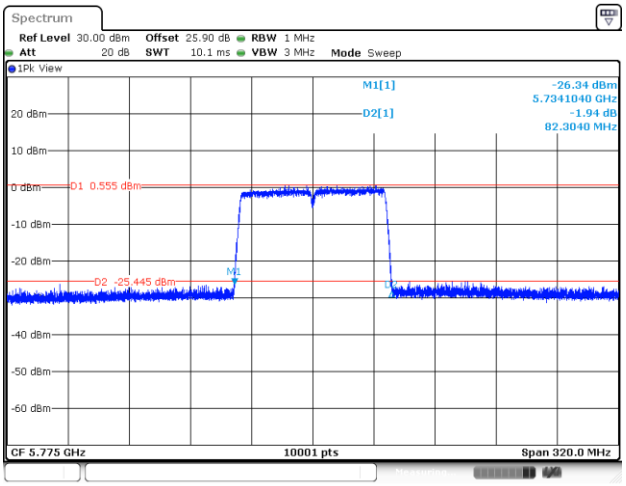
<802.11ac VHT80>

6dB Bandwidth	26dB Bandwidth
	
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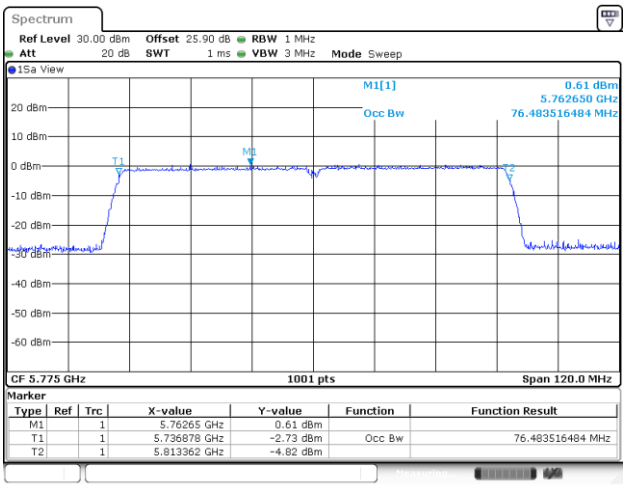
99% Occupied Bandwidth	**N/A**
	
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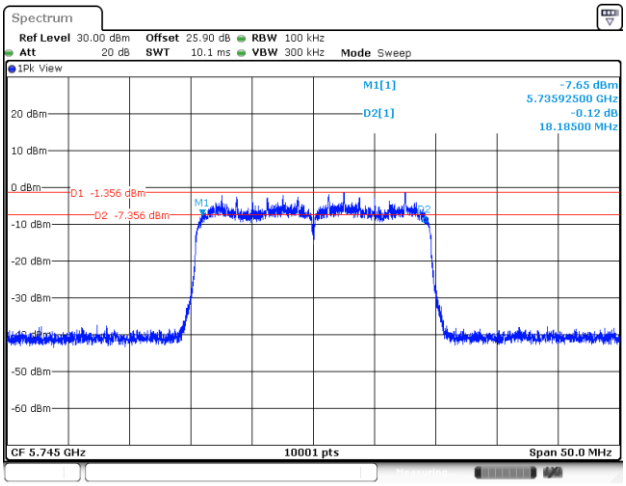
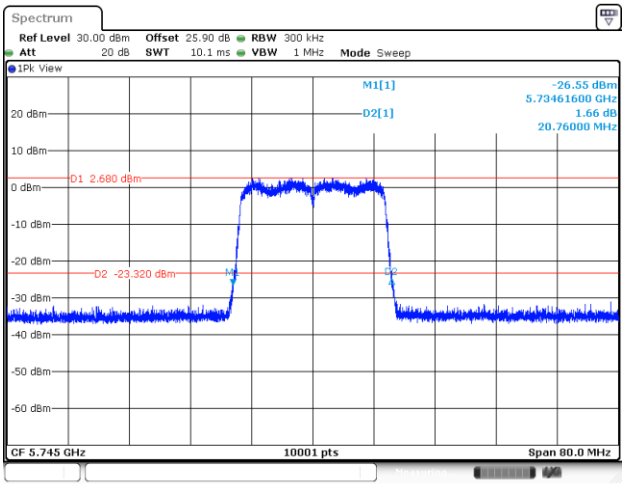
<802.11ax HE20>

6dB Bandwidth	26dB Bandwidth
	
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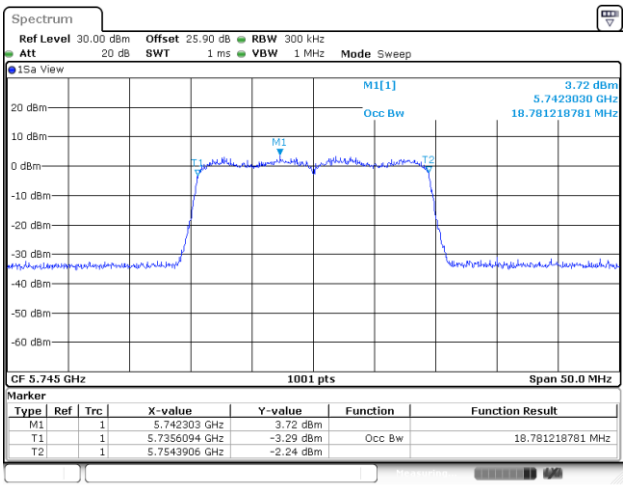
99% Occupied Bandwidth	**N/A**
	
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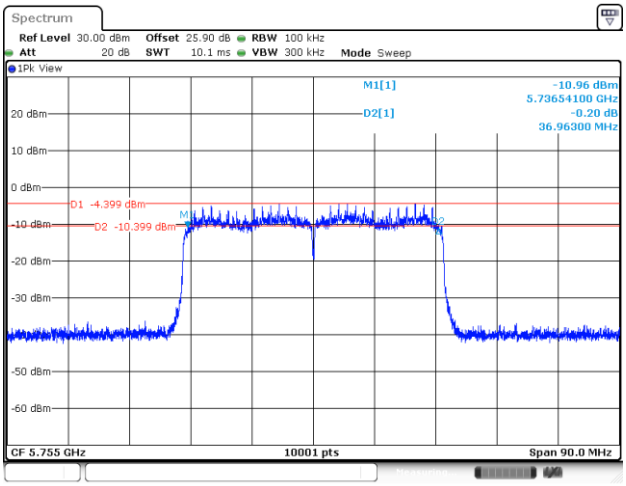
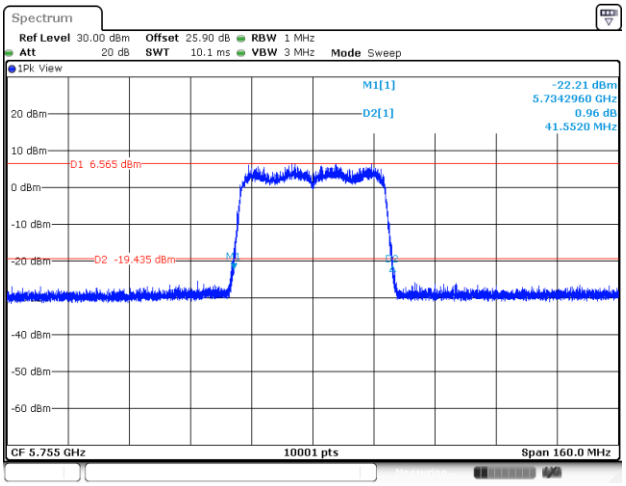
<802.11ax HE40>

6dB Bandwidth	26dB Bandwidth
	
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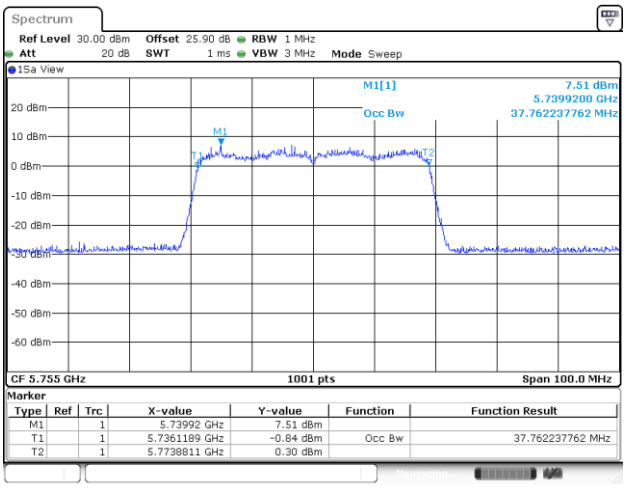
99% Occupied Bandwidth	**N/A**
	
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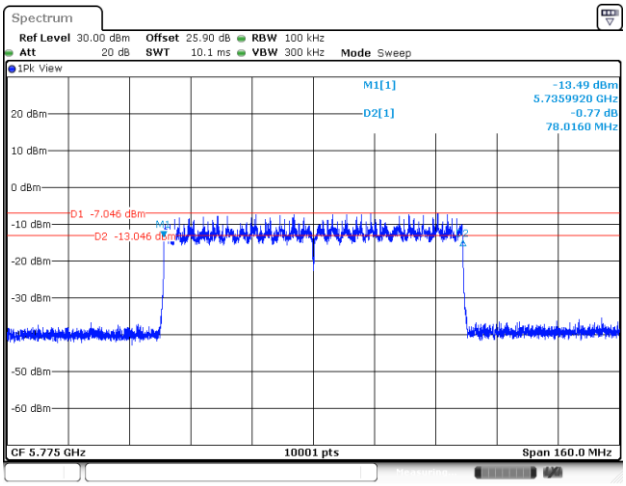
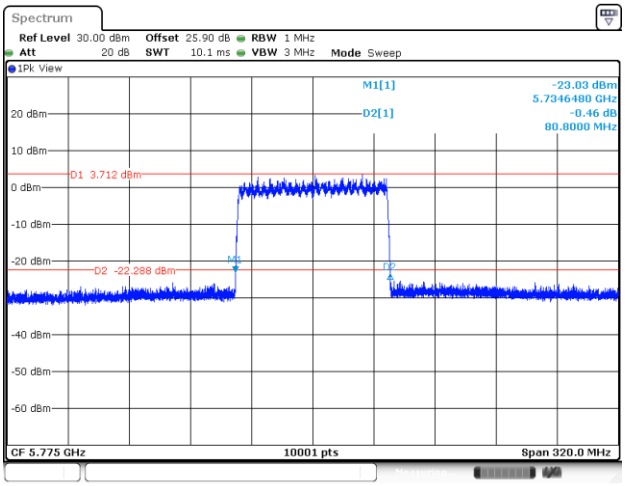
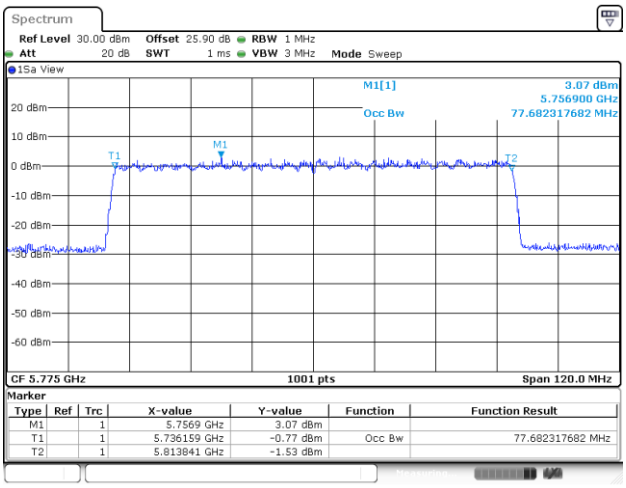
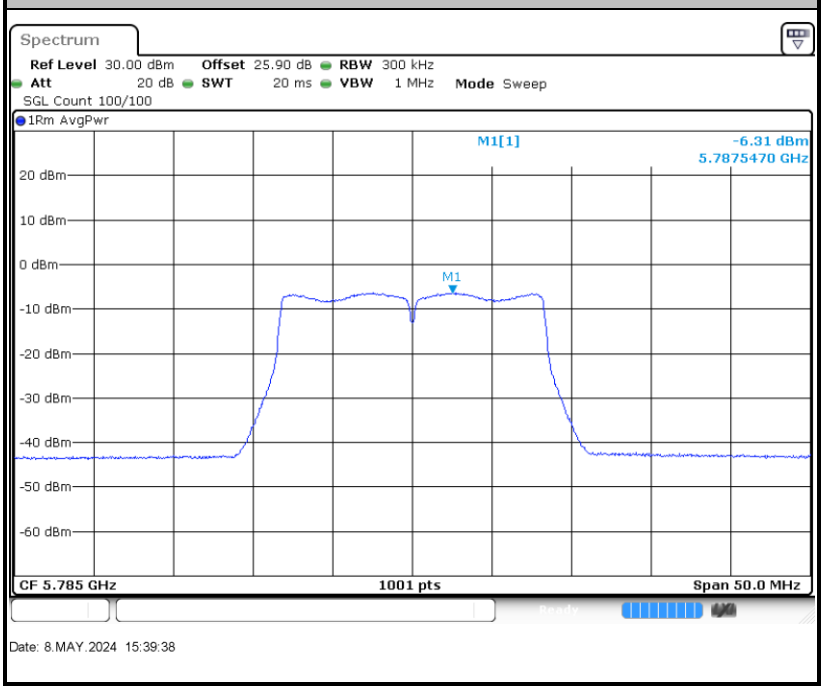
<802.11ax HE80>

6dB Bandwidth	26dB Bandwidth
	
Date: 8.MAY.2024 16:08:59	Date: 8.MAY.2024 16:09:20
99% Occupied Bandwidth	**N/A**
	
Date: 8.MAY.2024 16:08:16	

Test Result of Power Spectral Density

<802.11a>

Maximum Power Density Plot (dBm/300kHz)

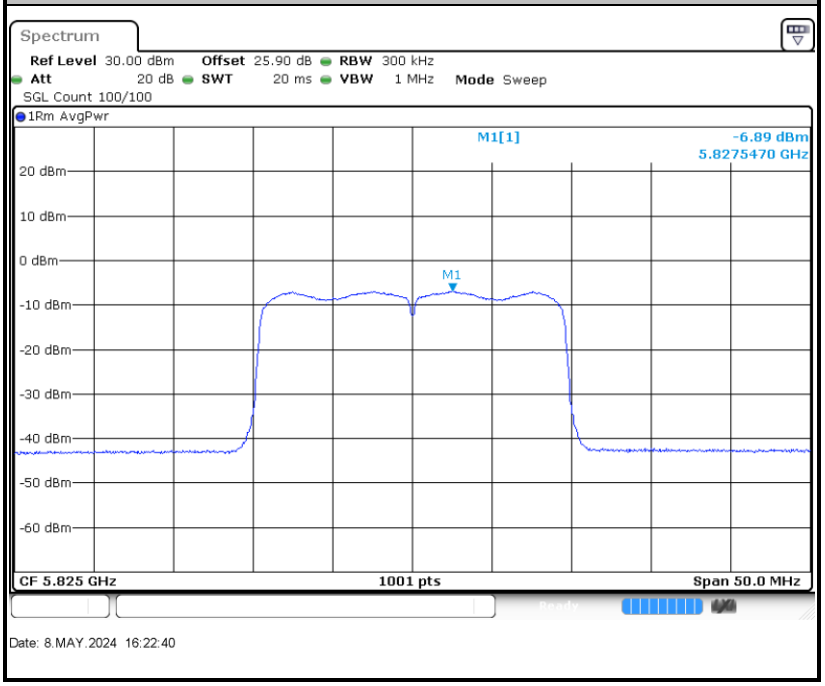


Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

<802.11ac VHT20>

Maximum Power Density Plot (dBm/300kHz)

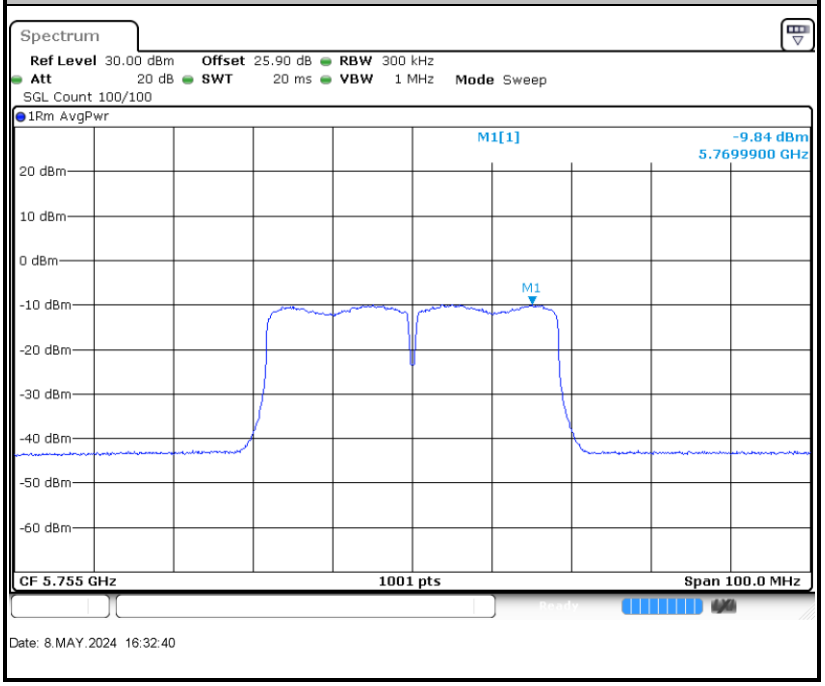


Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

<802.11ac VHT40>

Maximum Power Density Plot (dBm/300kHz)

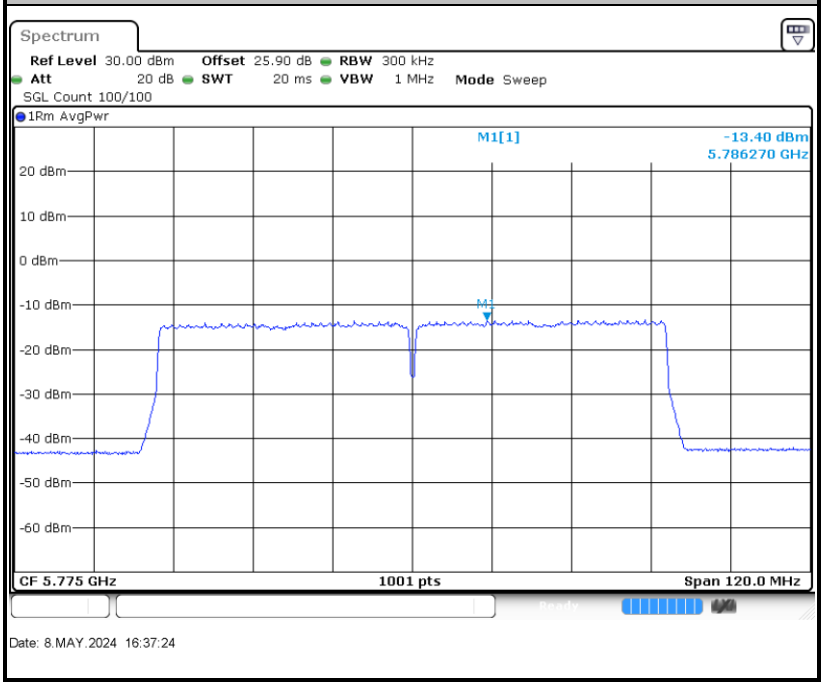


Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

<802.11ac VHT80>

Maximum Power Density Plot (dBm/300kHz)

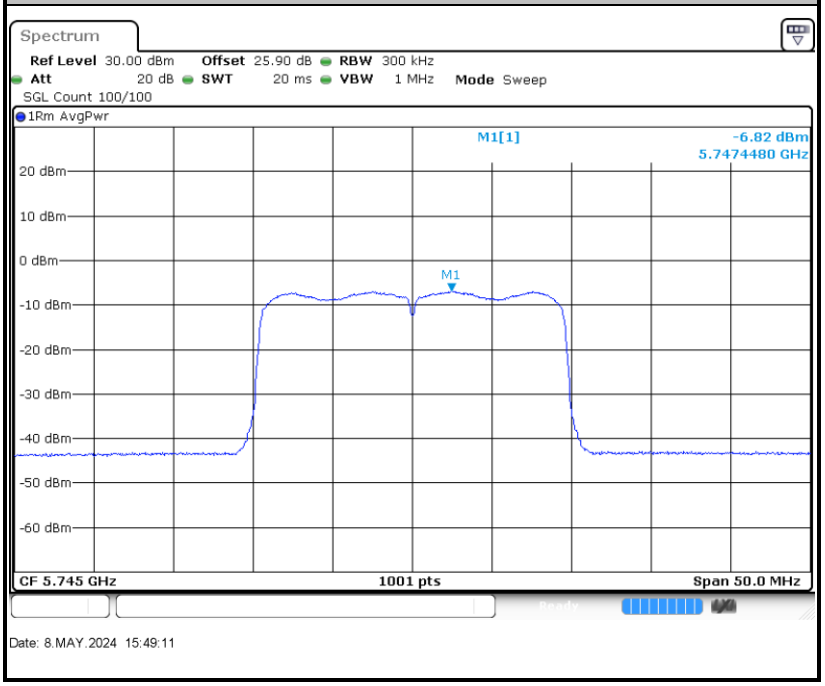


Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

<802.11ax HE20>

Maximum Power Density Plot (dBm/300kHz)

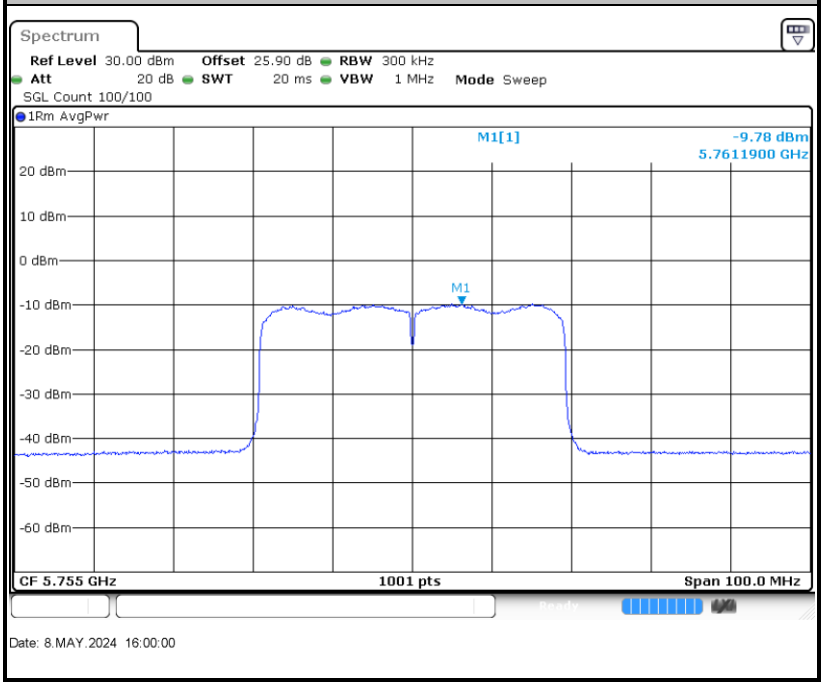


Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

<802.11ax HE40>

Maximum Power Density Plot (dBm/300kHz)

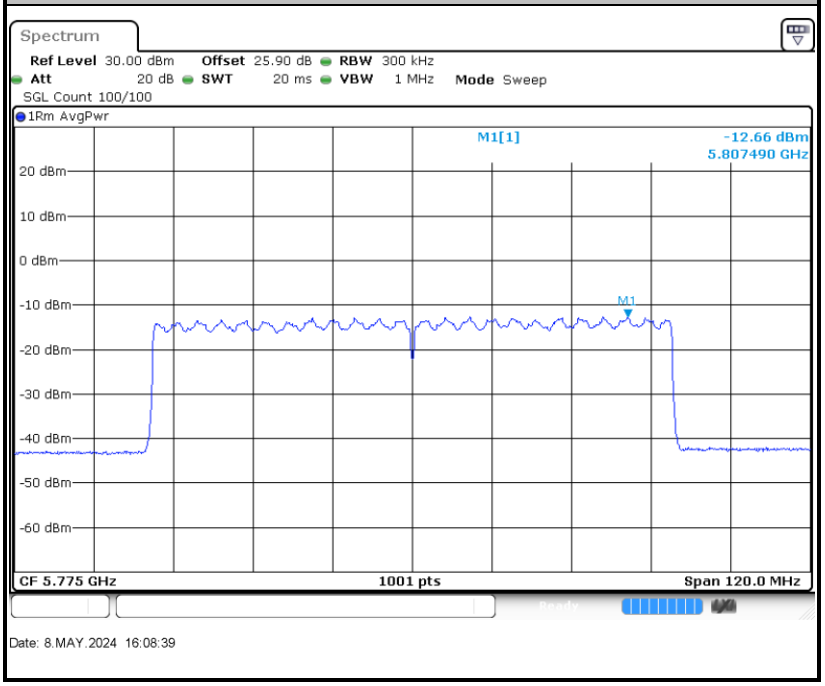


Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

<802.11ax HE80>

Maximum Power Density Plot (dBm/300kHz)



Note:

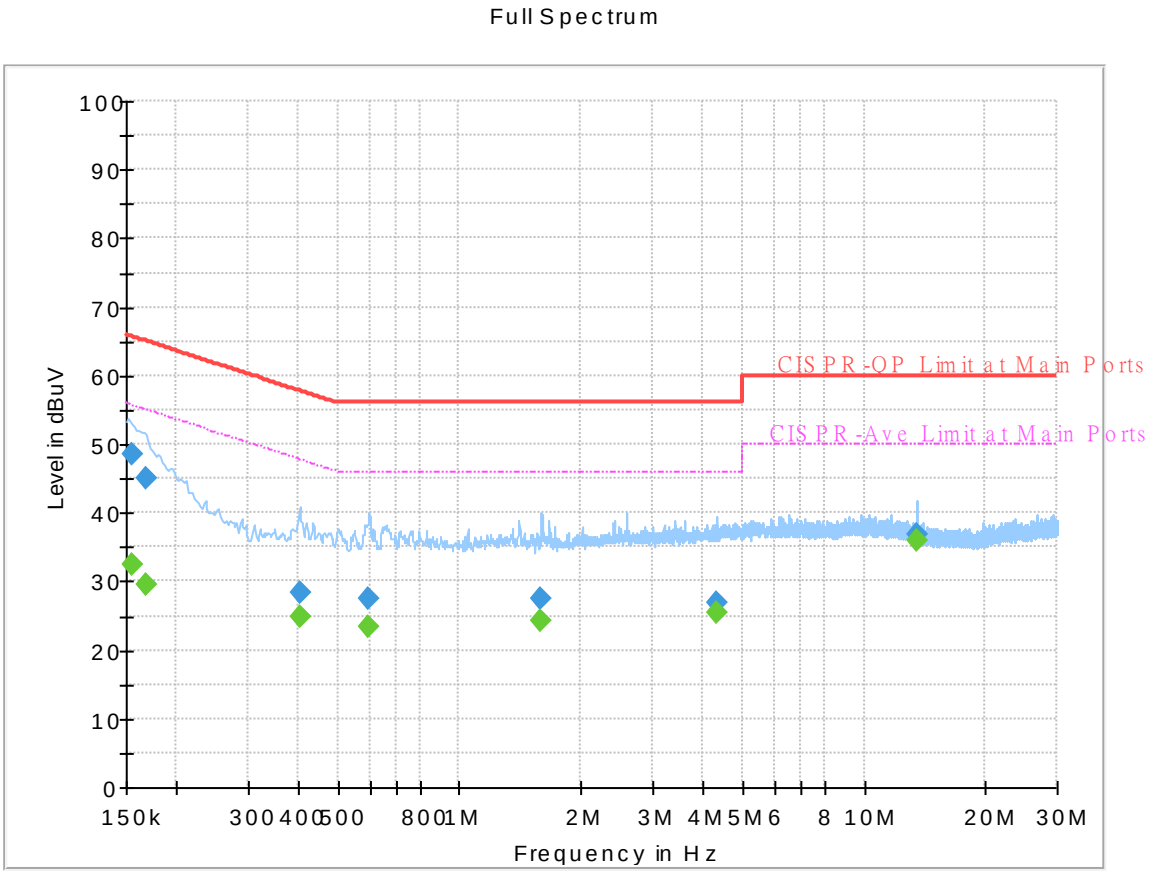
1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

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

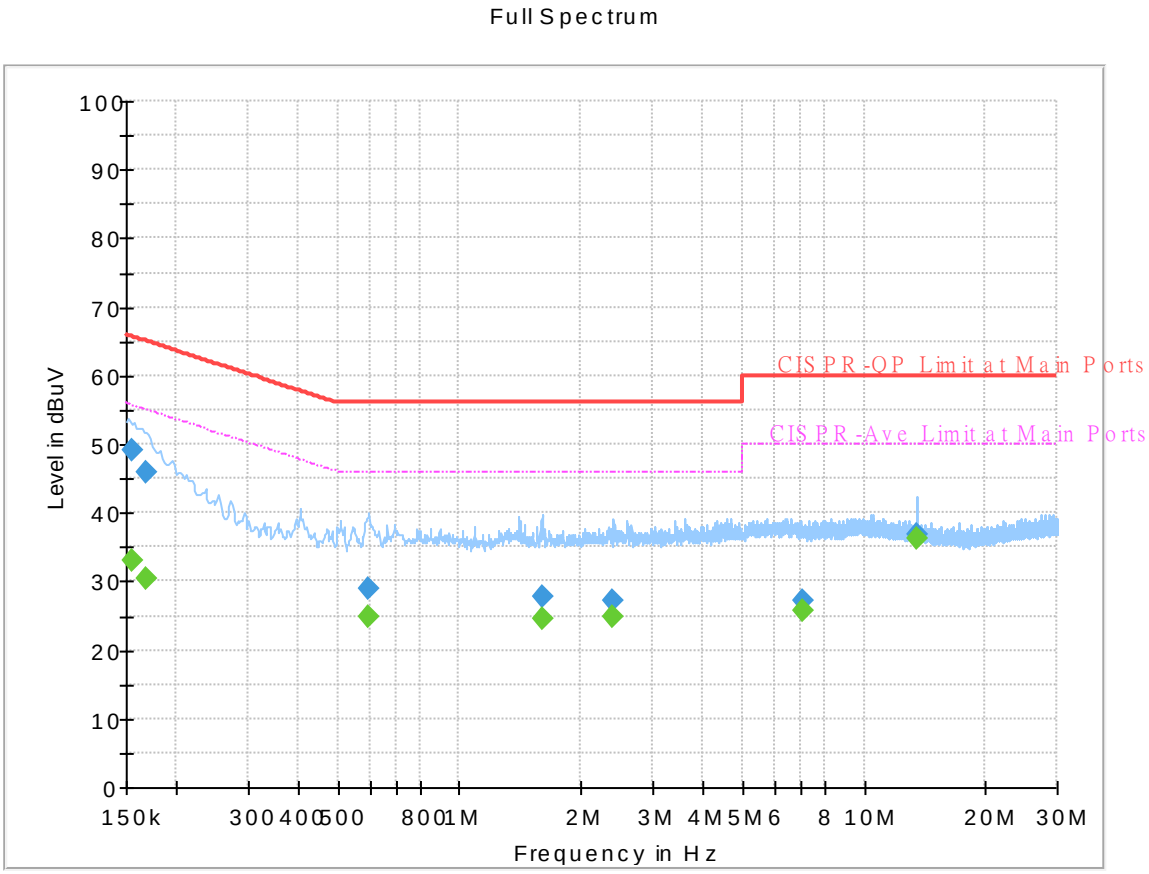


Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154500	---	32.31	55.75	23.44	L1	OFF	19.8
0.154500	48.44	---	65.75	17.31	L1	OFF	19.8
0.168000	---	29.44	55.06	25.62	L1	OFF	19.8
0.168000	45.04	---	65.06	20.02	L1	OFF	19.8
0.402000	---	24.82	47.81	22.99	L1	OFF	19.8
0.402000	28.42	---	57.81	29.39	L1	OFF	19.8
0.597750	---	23.27	46.00	22.73	L1	OFF	19.8
0.597750	27.52	---	56.00	28.48	L1	OFF	19.8
1.594500	---	24.38	46.00	21.62	L1	OFF	19.9
1.594500	27.57	---	56.00	28.43	L1	OFF	19.9
4.339500	---	25.38	46.00	20.62	L1	OFF	19.9
4.339500	26.88	---	56.00	29.12	L1	OFF	19.9
13.560000	---	36.07	50.00	13.93	L1	OFF	20.2
13.560000	36.75	---	60.00	23.25	L1	OFF	20.2

EUT Information

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



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154500	---	33.03	55.75	22.72	N	OFF	19.8
0.154500	49.22	---	65.75	16.53	N	OFF	19.8
0.168000	---	30.48	55.06	24.58	N	OFF	19.8
0.168000	45.79	---	65.06	19.27	N	OFF	19.8
0.593250	---	24.72	46.00	21.28	N	OFF	19.8
0.593250	28.88	---	56.00	27.12	N	OFF	19.8
1.596750	---	24.48	46.00	21.52	N	OFF	19.9
1.596750	27.92	---	56.00	28.08	N	OFF	19.9
2.404500	---	24.80	46.00	21.20	N	OFF	19.9
2.404500	27.26	---	56.00	28.74	N	OFF	19.9
7.082250	---	25.70	50.00	24.30	N	OFF	20.1
7.082250	27.05	---	60.00	32.95	N	OFF	20.1
13.560000	---	36.17	50.00	13.83	N	OFF	20.3
13.560000	36.88	---	60.00	23.12	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%

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5605.6	49.79	-18.41	68.2	36.95	34.73	12.79	34.68	400	252	P	H
		5665.8	49.23	-30.7	79.93	36	35.06	12.88	34.71	400	252	P	H
		5713.4	51	-57.95	108.95	37.6	35.2	12.94	34.74	400	252	P	H
		5722.8	56.51	-60.67	117.18	43.09	35.2	12.96	34.74	400	252	P	H
	*	5745	98.72	-	-	85.29	35.2	12.99	34.76	400	252	P	H
	*	5745	91.42	-	-	77.99	35.2	12.99	34.76	400	252	A	H
													H
													H
		5639.8	48.63	-19.57	68.2	35.55	34.94	12.84	34.7	270	219	P	V
		5699	52.02	-52.44	104.46	38.63	35.2	12.92	34.73	270	219	P	V
		5717.6	55.07	-55.06	110.13	41.66	35.2	12.95	34.74	270	219	P	V
		5723.6	57.41	-61.6	119.01	44	35.2	12.96	34.75	270	219	P	V
	*	5745	102.22	-	-	88.79	35.2	12.99	34.76	270	219	P	V
	*	5745	94.93	-	-	81.5	35.2	12.99	34.76	270	219	A	V
													V
													V

WIFI Ant. 1	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)
802.11a CH 157 5785MHz		5637.6	49.14	-19.06	68.2	36.08	34.93	12.83	34.7	398	232	P	H
		5678	50.19	-38.77	88.96	36.91	35.11	12.89	34.72	398	232	P	H
		5702	49.71	-56.05	105.76	36.31	35.2	12.93	34.73	398	232	P	H
		5721	48.76	-64.32	113.08	35.34	35.2	12.96	34.74	398	232	P	H
	*	5785	98.41	-	-	84.94	35.2	13.05	34.78	398	232	P	H
	*	5785	91.15	-	-	77.68	35.2	13.05	34.78	398	232	A	H
		5853.4	47.68	-66.77	114.45	34.38	35.01	13.11	34.82	398	232	P	H
		5857	50.75	-59.49	110.24	37.44	35.01	13.12	34.82	398	232	P	H
		5892.6	51.12	-41.02	92.14	37.73	35.09	13.14	34.84	398	232	P	H
		5928.8	50.26	-17.94	68.2	36.91	35.04	13.17	34.86	398	232	P	H
													H
													H
		5635.2	49.26	-18.94	68.2	36.22	34.91	12.83	34.7	279	218	P	V
		5673.4	49.95	-35.61	85.56	36.69	35.09	12.89	34.72	279	218	P	V
		5718.2	49.77	-60.53	110.3	36.36	35.2	12.95	34.74	279	218	P	V
		5724.4	50.09	-70.74	120.83	36.68	35.2	12.96	34.75	279	218	P	V
	*	5785	102.88	-	-	89.41	35.2	13.05	34.78	279	218	P	V
	*	5785	95.69	-	-	82.22	35.2	13.05	34.78	279	218	A	V
		5850.8	49.92	-70.46	120.38	36.63	35	13.11	34.82	279	218	P	V
		5863	51.1	-57.46	108.56	37.77	35.03	13.12	34.82	279	218	P	V
		5886.4	50.08	-46.66	96.74	36.71	35.07	13.14	34.84	279	218	P	V
		5932.4	50.95	-17.25	68.2	37.59	35.04	13.18	34.86	279	218	P	V
													V
													V

WIFI Ant. 1	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)
	*	5825	97.51	-	-	84.12	35.1	13.09	34.8	393	239	P	H
	*	5825	90.52	-	-	77.13	35.1	13.09	34.8	393	239	A	H
		5850.8	49.87	-70.51	120.38	36.58	35	13.11	34.82	393	239	P	H
		5860.8	50.51	-58.66	109.17	37.19	35.02	13.12	34.82	393	239	P	H
		5905.4	50.24	-32.43	82.67	36.85	35.09	13.15	34.85	393	239	P	H
		5929.4	50.26	-17.94	68.2	36.91	35.04	13.17	34.86	393	239	P	H
													H
802.11a													H
CH 165	*	5825	103.03	-	-	89.64	35.1	13.09	34.8	290	216	P	V
5825MHz	*	5825	95.75	-	-	82.36	35.1	13.09	34.8	290	216	A	V
		5851.8	53.85	-64.25	118.1	40.56	35	13.11	34.82	290	216	P	V
		5860.6	54.89	-54.34	109.23	41.57	35.02	13.12	34.82	290	216	P	V
		5890.2	50.02	-43.9	93.92	36.64	35.08	13.14	34.84	290	216	P	V
		5949.4	50.4	-17.8	68.2	37.08	35	13.19	34.87	290	216	P	V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	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)
802.11a CH 149 5745MHz		11490	46.21	-27.79	74	45.55	38.18	19.48	57	-	-	P	H
		17235	50.44	-17.76	68.2	40.88	41.64	23.91	55.99	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		11490	45.38	-28.62	74	44.72	38.18	19.48	57	-	-	P	V
		17235	50.39	-17.81	68.2	40.83	41.64	23.91	55.99	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	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)
802.11a CH 157 5785MHz		11570	45.31	-28.69	74	44.39	38.24	19.53	56.85	-	-	P	H
		17355	49.8	-18.4	68.2	40.19	41.41	24	55.8	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		11570	45.78	-28.22	74	44.86	38.24	19.53	56.85	-	-	P	V
		17355	50.42	-17.78	68.2	40.81	41.41	24	55.8	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	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)
802.11a CH 165 5825MHz		11650	46.3	-27.7	74	44.92	38.5	19.59	56.71	-	-	P	H
		17475	50.89	-17.31	68.2	40.92	41.5	24.07	55.6	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		11650	46.47	-27.53	74	45.09	38.5	19.59	56.71	-	-	P	V
		17475	50.05	-18.15	68.2	40.08	41.5	24.07	55.6	-	-	P	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.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1	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)
		5642.4	50.54	-17.66	68.2	37.45	34.95	12.84	34.7	394	251	P	H
		5681.8	56.46	-35.31	91.77	43.15	35.13	12.9	34.72	394	251	P	H
		5717.8	53.27	-56.91	110.18	39.86	35.2	12.95	34.74	394	251	P	H
		5721.8	56.25	-58.65	114.9	42.83	35.2	12.96	34.74	394	251	P	H
	*	5775	91.36	-	-	77.9	35.2	13.03	34.77	394	251	P	H
	*	5775	84.47	-	-	71.01	35.2	13.03	34.77	394	251	A	H
		5854.4	50.07	-62.1	112.17	36.77	35.01	13.11	34.82	394	251	P	H
		5870.2	52.28	-54.26	106.54	38.94	35.04	13.13	34.83	394	251	P	H
		5903	51.16	-33.28	84.44	37.77	35.09	13.15	34.85	394	251	P	H
		5939.8	50.39	-17.81	68.2	37.06	35.02	13.18	34.87	394	251	P	H
802.11ac													H
VHT80													H
CH 155		5645.8	52.28	-15.92	68.2	39.16	34.97	12.85	34.7	298	220	P	V
5775MHz		5699.2	61.88	-42.73	104.61	48.49	35.2	12.92	34.73	298	220	P	V
		5706.2	65.91	-41.03	106.94	52.52	35.2	12.93	34.74	298	220	P	V
		5724.4	66.81	-54.02	120.83	53.4	35.2	12.96	34.75	298	220	P	V
	*	5775	95.77	-	-	82.31	35.2	13.03	34.77	298	220	P	V
	*	5775	88.75	-	-	75.29	35.2	13.03	34.77	298	220	A	V
		5850.2	60.98	-60.76	121.74	47.69	35	13.11	34.82	298	220	P	V
		5866.8	61.79	-45.7	107.49	48.47	35.03	13.12	34.83	298	220	P	V
		5875.6	55.66	-49.09	104.75	42.31	35.05	13.13	34.83	298	220	P	V
		5939.6	50.23	-17.97	68.2	36.9	35.02	13.18	34.87	298	220	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1	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)
		11550	45.48	-28.52	74	44.64	38.2	19.52	56.88	-	-	P	H
		17325	50.11	-18.09	68.2	40.48	41.5	23.98	55.85	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ac													H
VHT80													H
CH 155		11550	45.35	-28.65	74	44.51	38.2	19.52	56.88	-	-	P	V
5775MHz		17325	49.46	-18.74	68.2	39.83	41.5	23.98	55.85	-	-	P	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.												

Band 4 5725~5850MHz

WIFI 802.11ax HE20_Full (Band Edge @ 3m)

WIFI Ant. 1	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)
		5607.6	50.4	-17.8	68.2	37.54	34.75	12.79	34.68	396	266	P	H
		5690.8	49.42	-49	98.42	36.08	35.16	12.91	34.73	396	266	P	H
		5719.2	50.03	-60.55	110.58	36.62	35.2	12.95	34.74	396	266	P	H
		5724.6	56.57	-64.72	121.29	43.16	35.2	12.96	34.75	396	266	P	H
	*	5745	98.58	-	-	85.15	35.2	12.99	34.76	396	266	P	H
	*	5745	90.41	-	-	76.98	35.2	12.99	34.76	396	266	A	H
802.11ax													H
HE20 Full													H
CH 149		5649.4	49.4	-18.8	68.2	36.25	35	12.85	34.7	282	216	P	V
5745MHz		5683.8	49.74	-43.51	93.25	36.42	35.14	12.9	34.72	282	216	P	V
		5718.2	62.84	-47.46	110.3	49.43	35.2	12.95	34.74	282	216	P	V
		5724.6	61.86	-59.43	121.29	48.45	35.2	12.96	34.75	282	216	P	V
	*	5745	103.74	-	-	90.31	35.2	12.99	34.76	282	216	P	V
	*	5745	94.41	-	-	80.98	35.2	12.99	34.76	282	216	A	V
													V
													V

WIFI Ant. 1	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)
		5605.2	49.24	-18.96	68.2	36.4	34.73	12.79	34.68	397	227	P	H
		5684.4	50.17	-43.52	93.69	36.85	35.14	12.9	34.72	397	227	P	H
		5701.8	49.68	-56.02	105.7	36.28	35.2	12.93	34.73	397	227	P	H
		5720.4	48.66	-63.05	111.71	35.25	35.2	12.95	34.74	397	227	P	H
	*	5785	97.97	-	-	84.5	35.2	13.05	34.78	397	227	P	H
	*	5785	89.89	-	-	76.42	35.2	13.05	34.78	397	227	A	H
		5854.8	48.92	-62.34	111.26	35.62	35.01	13.11	34.82	397	227	P	H
		5867.8	49.37	-57.84	107.21	36.04	35.04	13.12	34.83	397	227	P	H
		5896.4	50.91	-38.42	89.33	37.51	35.09	13.15	34.84	397	227	P	H
		5929.2	50.42	-17.78	68.2	37.07	35.04	13.17	34.86	397	227	P	H
802.11ax													H
HE20 Full													H
CH 157		5608	49.07	-19.13	68.2	36.21	34.75	12.79	34.68	279	218	P	V
5785MHz		5671.8	49.56	-34.81	84.37	36.31	35.09	12.88	34.72	279	218	P	V
		5713.4	48.82	-60.13	108.95	35.42	35.2	12.94	34.74	279	218	P	V
		5722.6	49.75	-66.98	116.73	36.33	35.2	12.96	34.74	279	218	P	V
	*	5785	105.04	-	-	91.57	35.2	13.05	34.78	279	218	P	V
	*	5785	94.94	-	-	81.47	35.2	13.05	34.78	279	218	A	V
		5851.2	49.44	-70.02	119.46	36.15	35	13.11	34.82	279	218	P	V
		5861.6	49.17	-59.78	108.95	35.85	35.02	13.12	34.82	279	218	P	V
		5891.4	51.88	-41.15	93.03	38.5	35.08	13.14	34.84	279	218	P	V
		5927.6	50.96	-17.24	68.2	37.61	35.04	13.17	34.86	279	218	P	V
													V
													V

WIFI Ant. 1	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)
	*	5825	98.65	-	-	85.26	35.1	13.09	34.8	391	238	P	H
	*	5825	89.99	-	-	76.6	35.1	13.09	34.8	391	238	A	H
		5850	52.71	-69.49	122.2	39.42	35	13.11	34.82	391	238	P	H
		5868.4	50.11	-56.94	107.05	36.78	35.04	13.12	34.83	391	238	P	H
		5875.8	51.08	-53.53	104.61	37.73	35.05	13.13	34.83	391	238	P	H
		5930.8	50.46	-17.74	68.2	37.11	35.04	13.17	34.86	391	238	P	H
802.11ax													H
HE20 Full													H
CH 165	*	5825	103.08	-	-	89.69	35.1	13.09	34.8	291	217	P	V
5825MHz	*	5825	95.04	-	-	81.65	35.1	13.09	34.8	291	217	A	V
		5850.4	54.36	-66.93	121.29	41.07	35	13.11	34.82	291	217	P	V
		5855.2	51.28	-59.46	110.74	37.98	35.01	13.11	34.82	291	217	P	V
		5906.2	50.38	-31.7	82.08	36.99	35.09	13.15	34.85	291	217	P	V
		5944.6	49.5	-18.7	68.2	36.17	35.01	13.19	34.87	291	217	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 1	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)
		11490	45.48	-28.52	74	44.82	38.18	19.48	57	-	-	P	H
		17235	50.35	-17.85	68.2	40.79	41.64	23.91	55.99	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 149		11490	45.6	-28.4	74	44.94	38.18	19.48	57	-	-	P	V
5745MHz		17235	50.3	-17.9	68.2	40.74	41.64	23.91	55.99	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	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)
		11570	44.94	-29.06	74	44.02	38.24	19.53	56.85	-	-	P	H
		17355	50.18	-18.02	68.2	40.57	41.41	24	55.8	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 157		11570	45.52	-28.48	74	44.6	38.24	19.53	56.85	-	-	P	V
5785MHz		17355	49.75	-18.45	68.2	40.14	41.41	24	55.8	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	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)
		11650	46.48	-27.52	74	45.1	38.5	19.59	56.71	-	-	P	H
		17475	50.23	-17.97	68.2	40.26	41.5	24.07	55.6	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 165		11650	46.44	-27.56	74	45.06	38.5	19.59	56.71	-	-	P	V
5825MHz		17475	50.26	-17.94	68.2	40.29	41.5	24.07	55.6	-	-	P	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.

Band 4 5725~5850MHz

WIFI 802.11ax HE20_Partial 106 (Band Edge @ 3m)

WIFI Ant. 1	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 165 5825MHz	*	5825	100.4	-	-	87.01	35.1	13.09	34.8	400	280	P	H
	*	5825	93.61	-	-	80.22	35.1	13.09	34.8	400	280	A	H
		5853	49.63	-65.73	115.36	36.33	35.01	13.11	34.82	400	280	P	H
		5868.8	49.96	-56.97	106.93	36.62	35.04	13.13	34.83	400	280	P	H
		5895.8	50.48	-39.29	89.77	37.08	35.09	13.15	34.84	400	280	P	H
		5925.2	50.61	-17.59	68.2	37.25	35.05	13.17	34.86	400	280	P	H
													H
													H
	*	5825	108.03	-	-	94.64	35.1	13.09	34.8	304	218	P	V
	*	5825	99.39	-	-	86	35.1	13.09	34.8	304	218	A	V
		5852	51.13	-66.51	117.64	37.84	35	13.11	34.82	304	218	P	V
		5858.6	52.24	-57.55	109.79	38.92	35.02	13.12	34.82	304	218	P	V
		5913	50.71	-26.34	77.05	37.33	35.07	13.16	34.85	304	218	P	V
		5931.4	51.53	-16.67	68.2	38.17	35.04	13.18	34.86	304	218	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11ax HE40_Full (Band Edge @ 3m)

WIFI Ant. 1	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)
		5627.2	48.54	-19.66	68.2	35.55	34.86	12.82	34.69	392	265	P	H
		5670.8	50.58	-33.05	83.63	37.34	35.08	12.88	34.72	392	265	P	H
		5716.8	55.14	-54.77	109.91	41.73	35.2	12.95	34.74	392	265	P	H
		5724	60.44	-59.48	119.92	47.03	35.2	12.96	34.75	392	265	P	H
	*	5755	95.26	-	-	81.82	35.2	13	34.76	392	265	P	H
	*	5755	88.28	-	-	74.84	35.2	13	34.76	392	265	A	H
		5853.6	49.06	-64.93	113.99	35.76	35.01	13.11	34.82	392	265	P	H
		5857.2	49.6	-60.58	110.18	36.29	35.01	13.12	34.82	392	265	P	H
		5918.8	50.16	-22.61	72.77	36.78	35.06	13.17	34.85	392	265	P	H
		5946.2	49.29	-18.91	68.2	35.96	35.01	13.19	34.87	392	265	P	H
802.11ax													H
HE40 Full													H
CH 151		5602.8	49.7	-18.5	68.2	36.88	34.72	12.78	34.68	282	217	P	V
5755MHz		5699.4	51.06	-53.7	104.76	37.67	35.2	12.92	34.73	282	217	P	V
		5717.4	65.39	-44.68	110.07	51.98	35.2	12.95	34.74	282	217	P	V
		5725	69.84	-52.36	122.2	56.43	35.2	12.96	34.75	282	217	P	V
	*	5755	101.05	-	-	87.61	35.2	13	34.76	282	217	P	V
	*	5755	92.09	-	-	78.65	35.2	13	34.76	282	217	A	V
		5851.8	50.15	-67.95	118.1	36.86	35	13.11	34.82	282	217	P	V
		5857	50.56	-59.68	110.24	37.25	35.01	13.12	34.82	282	217	P	V
		5915.8	50.61	-24.37	74.98	37.23	35.07	13.16	34.85	282	217	P	V
		5929	50.1	-18.1	68.2	36.75	35.04	13.17	34.86	282	217	P	V
													V
													V

WIFI Ant. 1	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)
		5617.8	48.31	-19.89	68.2	35.38	34.81	12.81	34.69	392	254	P	H
		5676	50.21	-37.27	87.48	36.94	35.1	12.89	34.72	392	254	P	H
		5700.6	50.82	-54.55	105.37	37.42	35.2	12.93	34.73	392	254	P	H
		5723.4	47.73	-70.82	118.55	34.32	35.2	12.96	34.75	392	254	P	H
	*	5795	95.56	-	-	82.09	35.2	13.06	34.79	392	254	P	H
	*	5795	88.7	-	-	75.23	35.2	13.06	34.79	392	254	A	H
		5852.6	50	-66.27	116.27	36.7	35.01	13.11	34.82	392	254	P	H
		5867.6	49.42	-57.85	107.27	36.09	35.04	13.12	34.83	392	254	P	H
		5913.4	51.15	-25.61	76.76	37.77	35.07	13.16	34.85	392	254	P	H
		5928.2	50.18	-18.02	68.2	36.83	35.04	13.17	34.86	392	254	P	H
802.11ax													H
HE40 Full													H
CH 159		5609.6	49.4	-18.8	68.2	36.53	34.76	12.79	34.68	291	217	P	V
5795MHz		5698.8	49.68	-54.64	104.32	36.29	35.2	12.92	34.73	291	217	P	V
		5709.4	49.53	-58.3	107.83	36.13	35.2	12.94	34.74	291	217	P	V
		5721	49.14	-63.94	113.08	35.72	35.2	12.96	34.74	291	217	P	V
	*	5795	100.38	-	-	86.91	35.2	13.06	34.79	291	217	P	V
	*	5795	91.63	-	-	78.16	35.2	13.06	34.79	291	217	A	V
		5850.4	57.15	-64.14	121.29	43.86	35	13.11	34.82	291	217	P	V
		5858.6	52.77	-57.02	109.79	39.45	35.02	13.12	34.82	291	217	P	V
		5879	50.23	-52	102.23	36.87	35.06	13.13	34.83	291	217	P	V
		5927.2	50.51	-17.69	68.2	37.15	35.05	13.17	34.86	291	217	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11ax HE40_Full (Harmonic @ 3m)

WIFI Ant. 1	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)
		11510	46.02	-27.98	74	45.28	38.2	19.49	56.95	-	-	P	H
		17265	49.52	-18.68	68.2	39.86	41.67	23.94	55.95	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 151		11510	45.62	-28.38	74	44.88	38.2	19.49	56.95	-	-	P	V
5755MHz		17265	50.03	-18.17	68.2	40.37	41.67	23.94	55.95	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	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)
		11590	45.14	-28.86	74	44.12	38.28	19.55	56.81	-	-	P	H
		17385	50.16	-18.04	68.2	40.42	41.47	24.02	55.75	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 159		11590	45.27	-28.73	74	44.25	38.28	19.55	56.81	-	-	P	V
5795MHz		17385	50.21	-17.99	68.2	40.47	41.47	24.02	55.75	-	-	P	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.												

Band 4 5725~5850MHz

WIFI 802.11ax HE80_Full (Band Edge @ 3m)

WIFI Ant. 1	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)
		5624.6	51.53	-16.67	68.2	38.55	34.85	12.82	34.69	393	253	P	H
		5690.6	55.86	-42.41	98.27	42.52	35.16	12.91	34.73	393	253	P	H
		5701.8	56.25	-49.45	105.7	42.85	35.2	12.93	34.73	393	253	P	H
		5724.6	54.44	-66.85	121.29	41.03	35.2	12.96	34.75	393	253	P	H
	*	5775	93.09	-	-	79.63	35.2	13.03	34.77	393	253	P	H
	*	5775	85.37	-	-	71.91	35.2	13.03	34.77	393	253	A	H
		5850	50.71	-71.49	122.2	37.42	35	13.11	34.82	393	253	P	H
		5862.4	54.43	-54.3	108.73	41.11	35.02	13.12	34.82	393	253	P	H
		5903.2	52.2	-32.09	84.29	38.81	35.09	13.15	34.85	393	253	P	H
		5941.4	51.47	-16.73	68.2	38.14	35.02	13.18	34.87	393	253	P	H
802.11ax													H
HE80 Full													H
CH 155		5623	54.41	-13.79	68.2	41.45	34.84	12.81	34.69	282	217	P	V
5775MHz		5689.2	66.77	-30.47	97.24	53.43	35.16	12.91	34.73	282	217	P	V
		5719.6	68.13	-42.56	110.69	54.72	35.2	12.95	34.74	282	217	P	V
		5723.6	65.27	-53.74	119.01	51.86	35.2	12.96	34.75	282	217	P	V
	*	5775	96.58	-	-	83.12	35.2	13.03	34.77	282	217	P	V
	*	5775	89.31	-	-	75.85	35.2	13.03	34.77	282	217	A	V
		5850.2	63.49	-58.25	121.74	50.2	35	13.11	34.82	282	217	P	V
		5862.2	65.17	-43.61	108.78	51.85	35.02	13.12	34.82	282	217	P	V
		5875	58.92	-46.28	105.2	45.57	35.05	13.13	34.83	282	217	P	V
		5929.4	51.59	-16.61	68.2	38.24	35.04	13.17	34.86	282	217	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11ax HE80_Full (Harmonic @ 3m)

WIFI Ant. 1	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)
		11550	45.59	-28.41	74	44.75	38.2	19.52	56.88	-	-	P	H
		17325	50.06	-18.14	68.2	40.43	41.5	23.98	55.85	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE80 Full													H
CH 155		11550	45.94	-28.06	74	45.1	38.2	19.52	56.88	-	-	P	V
5775MHz		17325	50.01	-18.19	68.2	40.38	41.5	23.98	55.85	-	-	P	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.

Emission below 1GHz

5GHz WIFI 802.11ax HE80 Full (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE80 Full LF		30.54	23.04	-16.96	40	27.59	24.27	1.12	29.94	-	-	P	H
		162.84	35.26	-8.24	43.5	46.39	16.12	2.59	29.84	-	-	P	H
		213.06	34.25	-9.25	43.5	46.31	14.9	2.87	29.83	-	-	P	H
		764.8	31.06	-14.94	46	27.55	27.79	5.14	29.42	-	-	P	H
		870.5	32.96	-13.04	46	27.69	28.75	5.55	29.03	-	-	P	H
		951.7	34.22	-11.78	46	26.71	30.4	5.77	28.66	-	-	P	H
													H
													H
													H
													H
													H
													H
		30	30.32	-9.68	40	34.64	24.51	1.11	29.94	-	-	P	V
		56.73	28.88	-11.12	40	45.16	12.07	1.57	29.92	-	-	P	V
		166.89	31.98	-11.52	43.5	43.43	15.77	2.62	29.84	-	-	P	V
		752.9	31.01	-14.99	46	27.66	27.72	5.1	29.47	-	-	P	V
		885.9	32.58	-13.42	46	27.25	28.64	5.62	28.93	-	-	P	V
		953.8	34.45	-11.55	46	26.78	30.53	5.78	28.64	-	-	P	V
													V
													V
													V
													V
													V
													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	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5646	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		5646	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 @ 5646MHz:

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)

= Leve(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 5646MHz:

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)

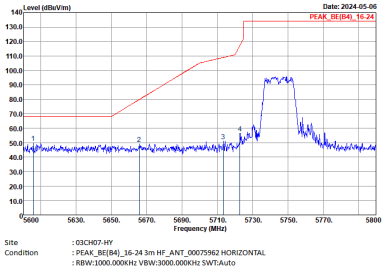
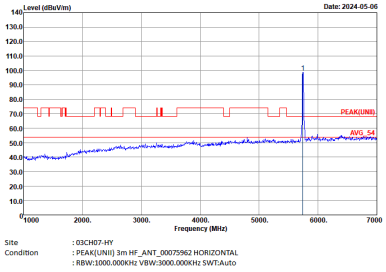
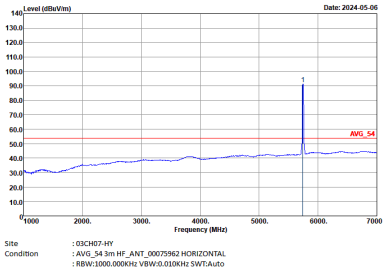
Both peak and average measured complies with the limit line, so test result is “PASS”.

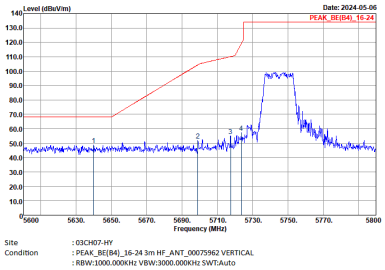
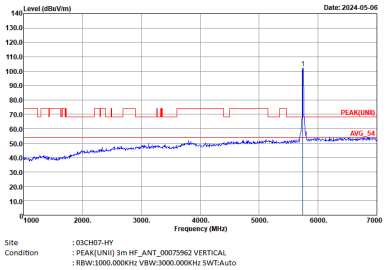
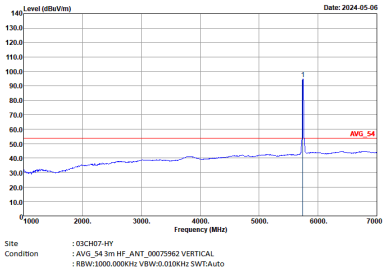
Appendix D. Radiated Spurious Emission Plots

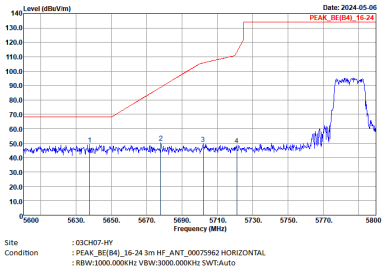
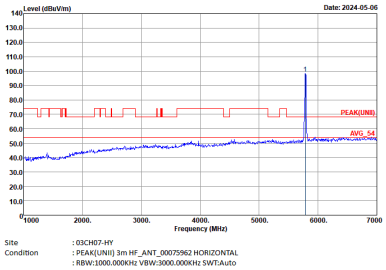
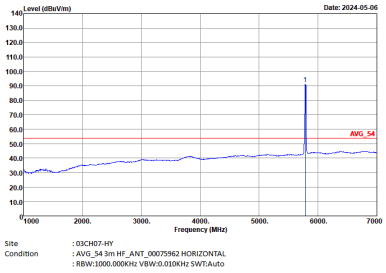
Test Engineer :	Jesse Wang, Stan Hsieh and Ken Wu	**Temperature :**	22.1~26.0°C
		Relative Humidity :	48.2~69.5%

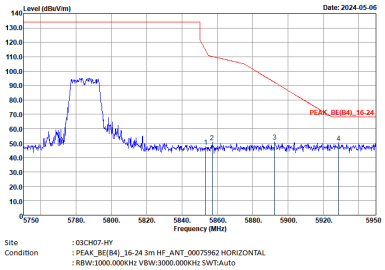
Band 4 - 5725~5850MHz

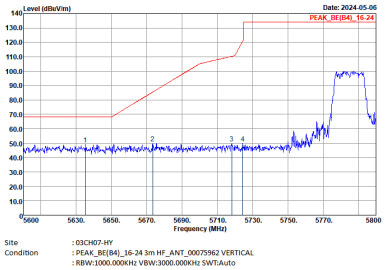
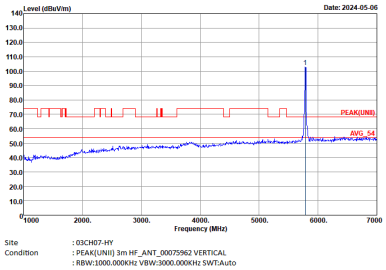
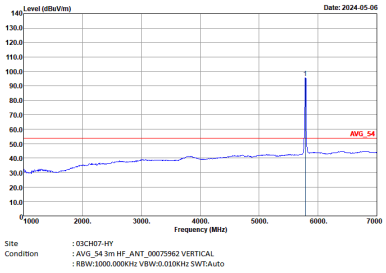
WIFI 802.11a (Band Edge @ 3m)

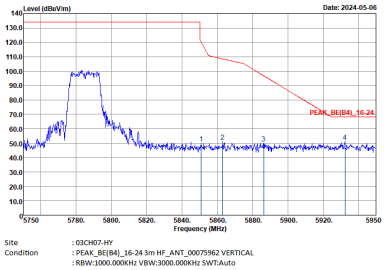
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

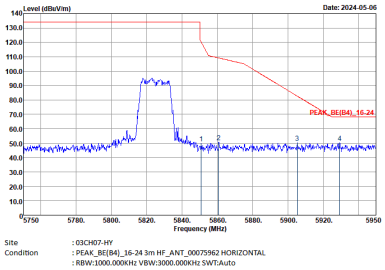
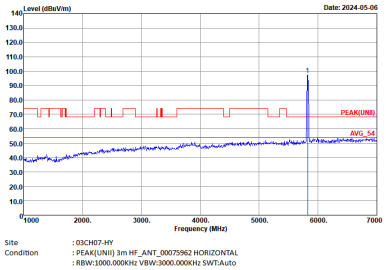
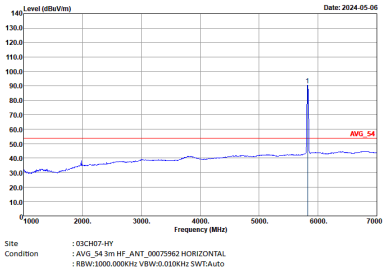
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

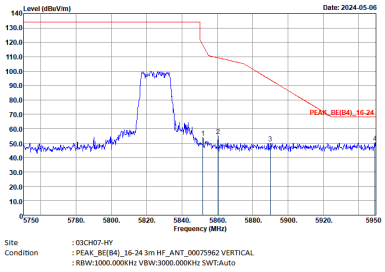
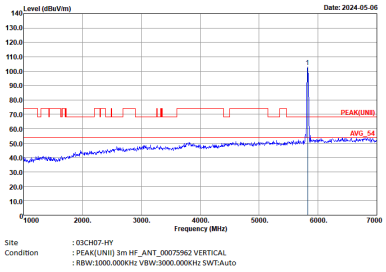
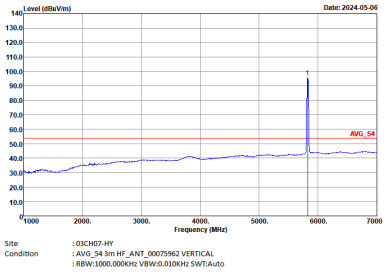
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
Peak		Left blank

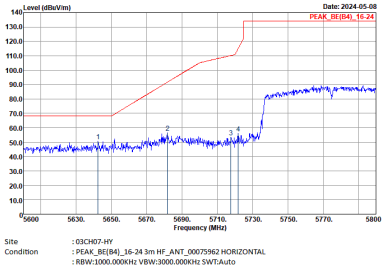
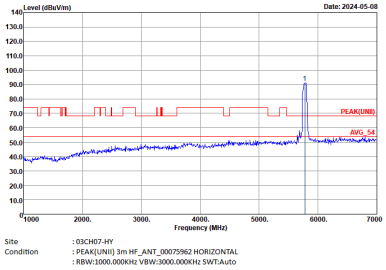
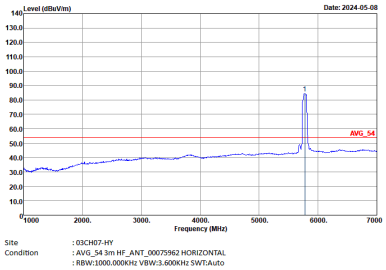
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

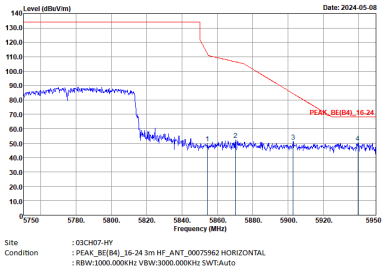
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak		Left blank

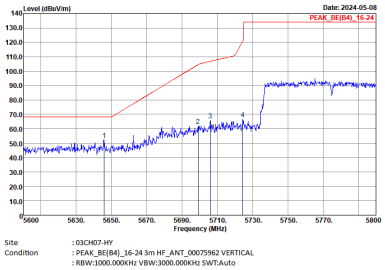
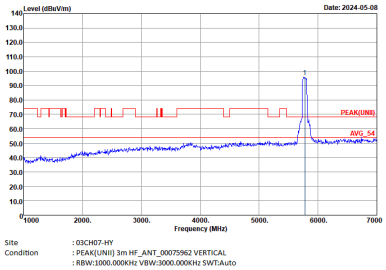
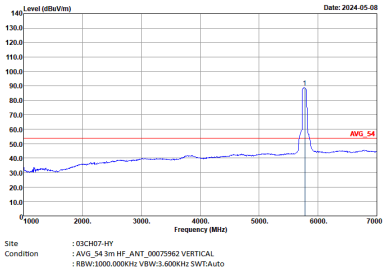
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

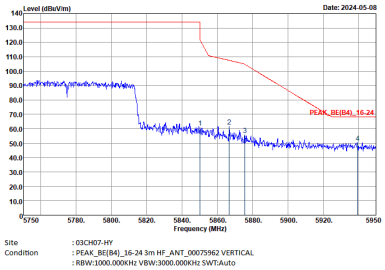
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

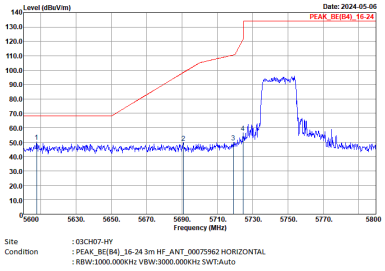
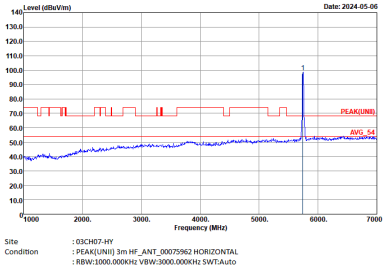
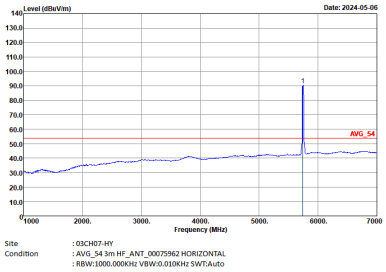
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Fundamental
Peak		Left blank

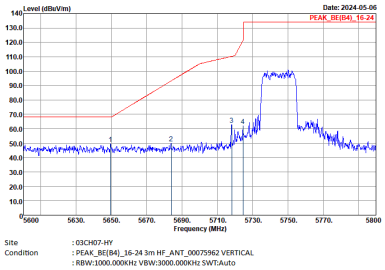
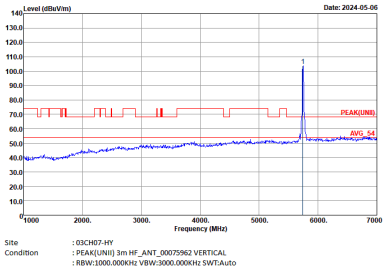
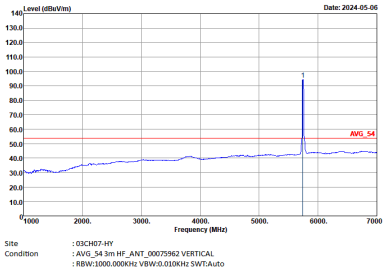
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

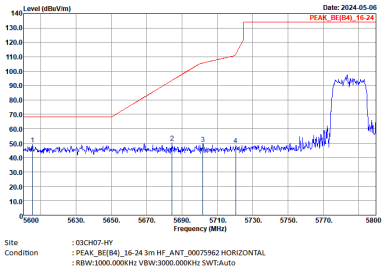
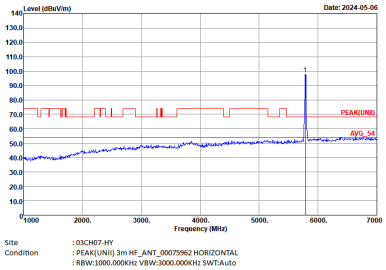
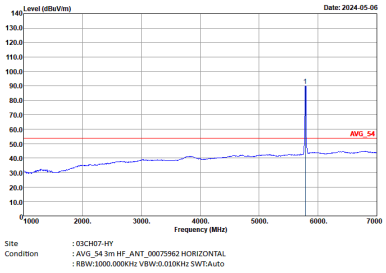
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Vertical	Fundamental
Peak		Left blank

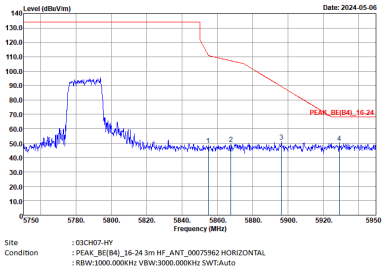
Band 4 - 5725~5850MHz

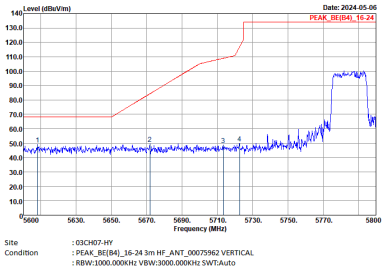
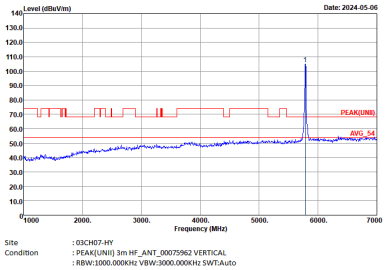
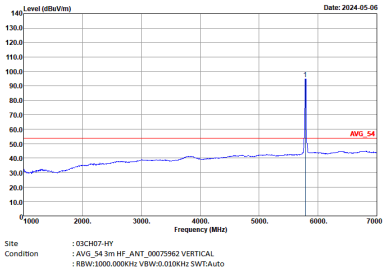
WIFI 802.11ax HE20 Full (Band Edge @ 3m)

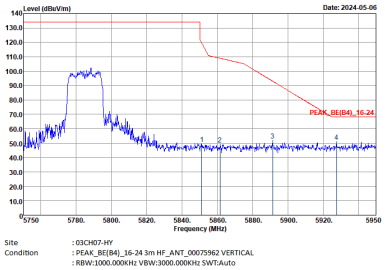
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH149 5745MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

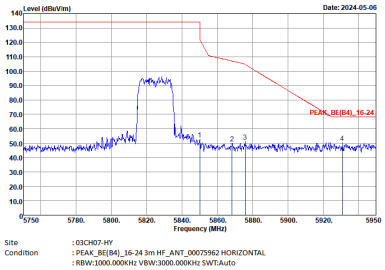
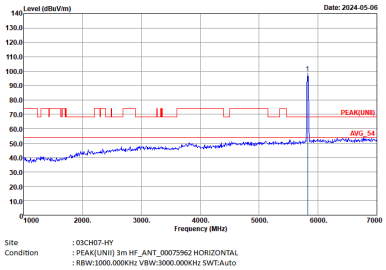
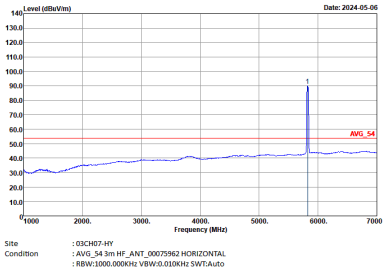
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH149 5745MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

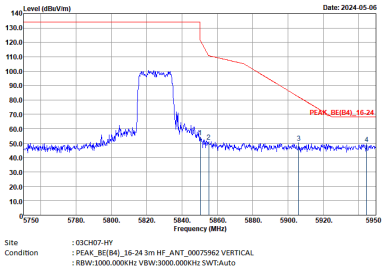
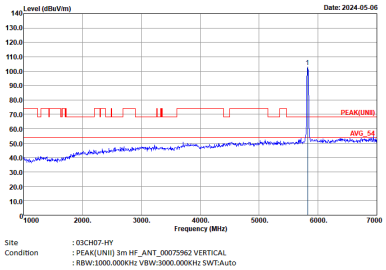
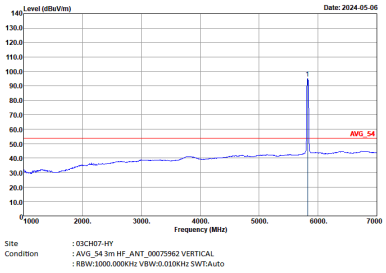
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH157 5785MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH157 5785MHz	
1	Horizontal	Fundamental
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH157 5785MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

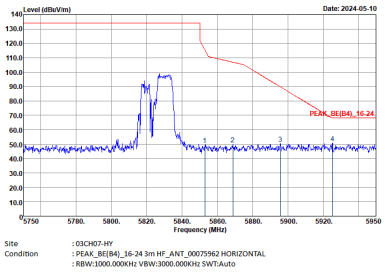
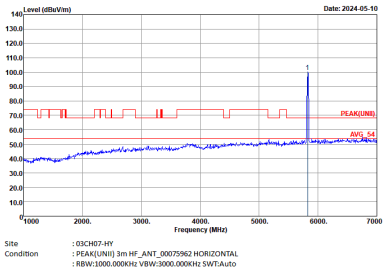
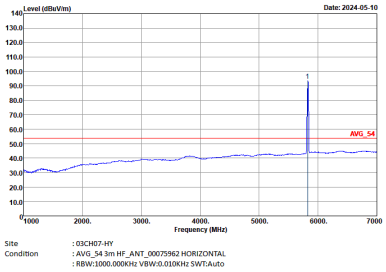
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH157 5785MHz	
1	Vertical	Fundamental
Peak		Left blank

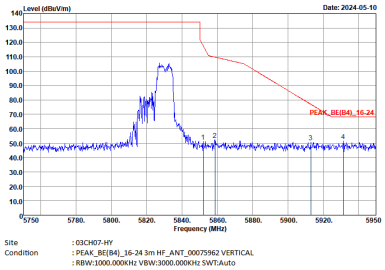
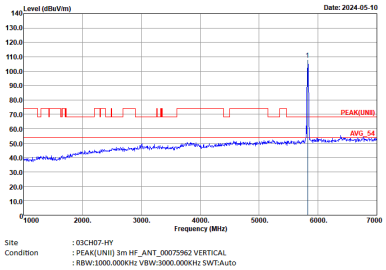
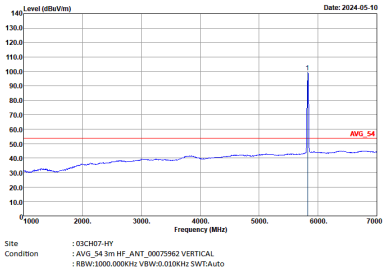
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH165 5825MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH165 5825MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

Band 4 5725~5850MHz

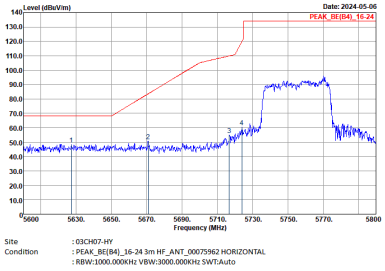
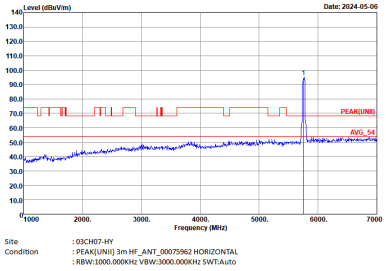
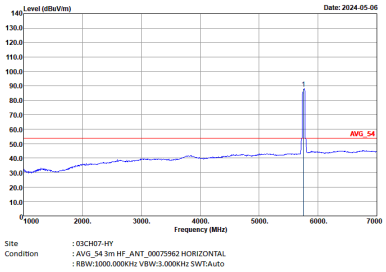
WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

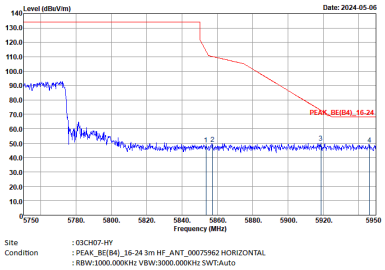
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH165 5825MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

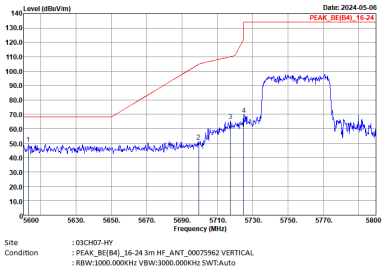
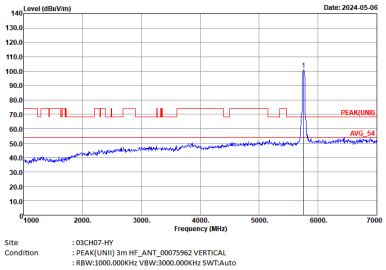
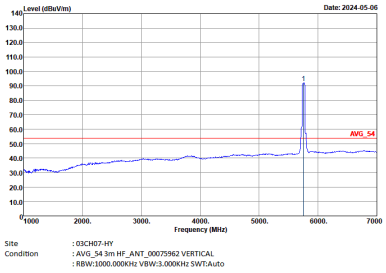
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH165 5825MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

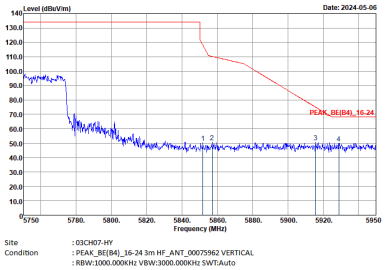
Band 4 5725~5850MHz

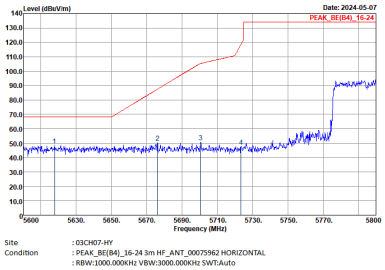
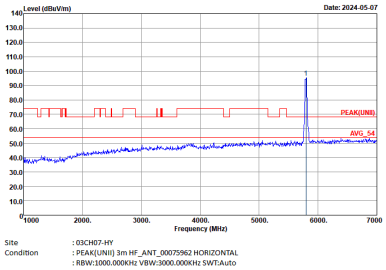
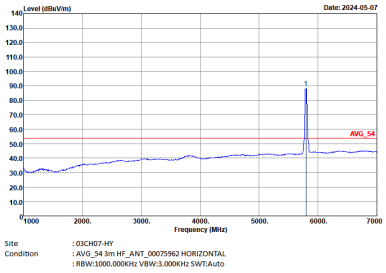
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

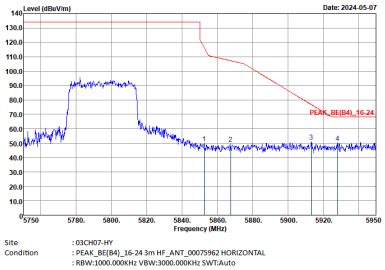
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH151 5755MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

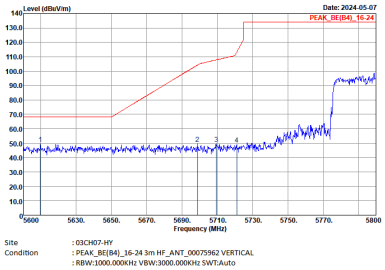
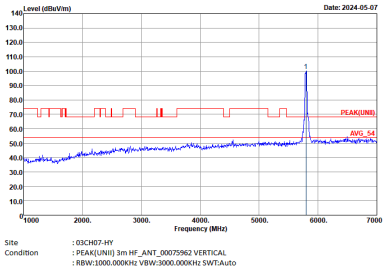
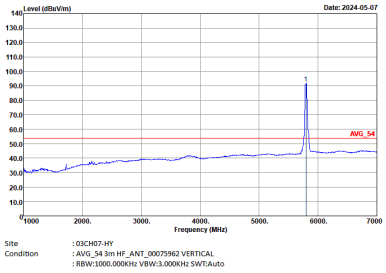
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH151 5755MHz	
1	Horizontal	Fundamental
Peak		Left blank

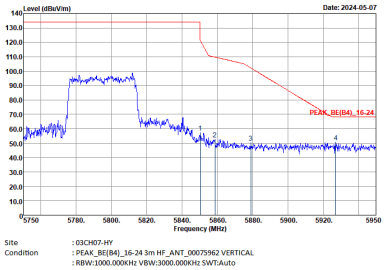
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH151 5755MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH151 5755MHz	
1	Vertical	Fundamental
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full HT40 CH159 5795MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

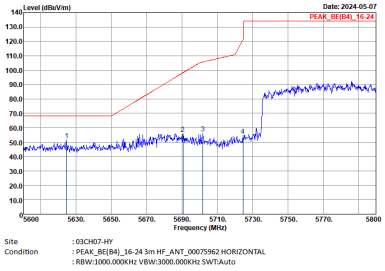
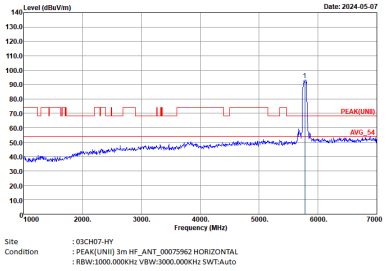
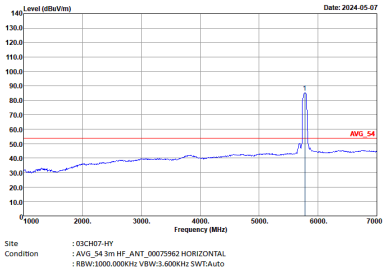
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full HT40 CH159 5795MHz	
1	Horizontal	Fundamental
Peak		Left blank

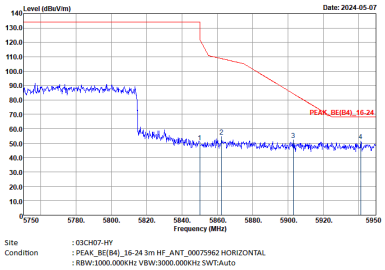
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH159 5795MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

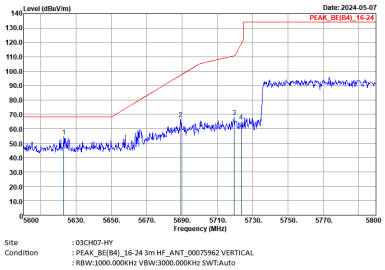
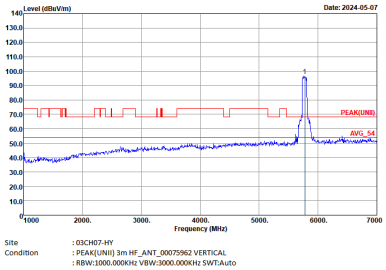
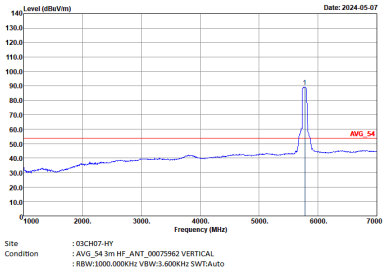
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH159 5795MHz	
1	Vertical	Fundamental
Peak		Left blank

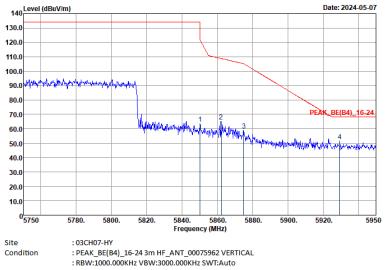
Band 4 5725~5850MHz

WIFI 802.11ax HE80 Full (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH155 5775MHz	
1	Horizontal	Fundamental
Peak		
Avg	Left blank	

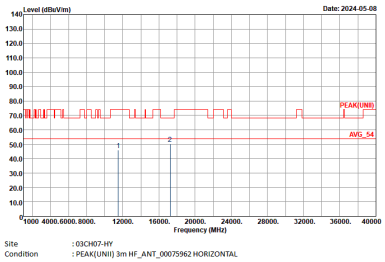
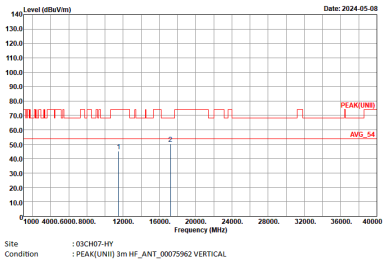
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH155 5775MHz	
1	Horizontal	Fundamental
Peak		Left blank

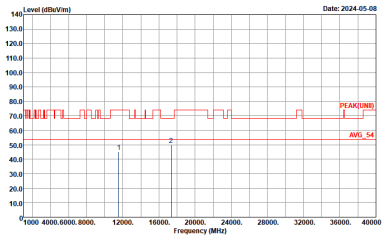
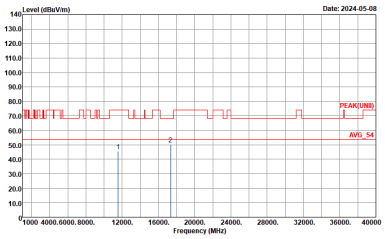
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH155 5775MHz	
1	Vertical	Fundamental
Peak		
Avg	Left blank	

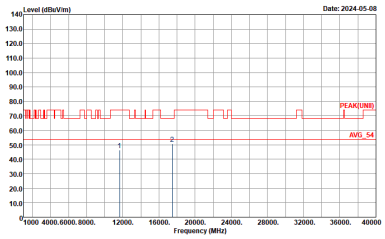
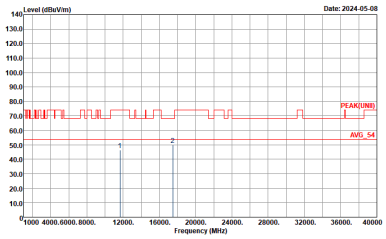
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH155 5775MHz	
1	Vertical	Fundamental
Peak		Left blank

Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

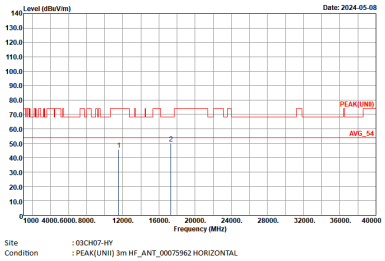
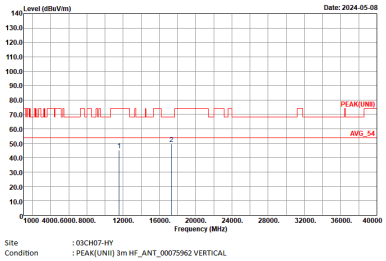
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH07-HY Condition : PEAK(UNII) 3m HF_ANT_00075962 HORIZONTAL	 Site : 03CH07-HY Condition : PEAK(UNII) 3m HF_ANT_00075962 VERTICAL

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.		

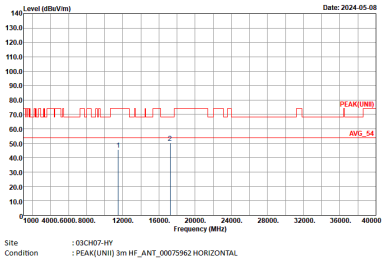
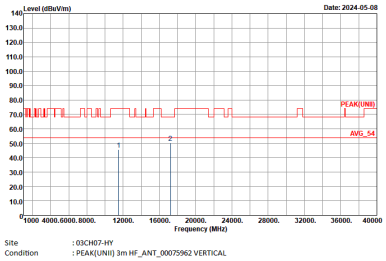
Band 4 5725~5850MHz

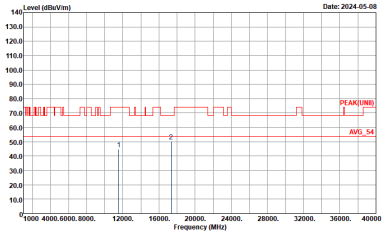
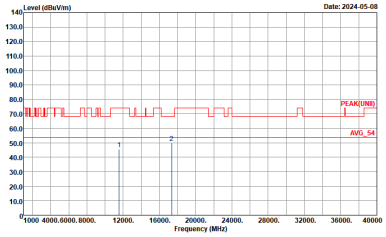
WIFI 802.11ac VHT80 (Harmonic @ 3m)

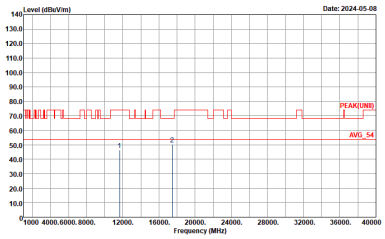
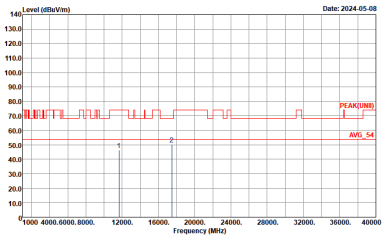
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Vertical
Peak Avg.		

Band 4 - 5725~5850MHz

WIFI 802.11ax HE20 Full (Harmonic @ 3m)

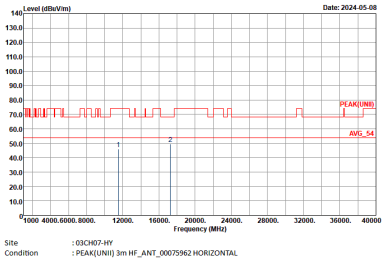
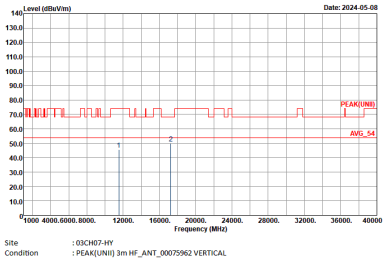
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ax HE20 Full CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.		

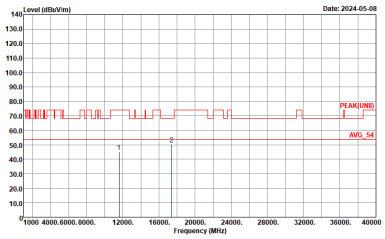
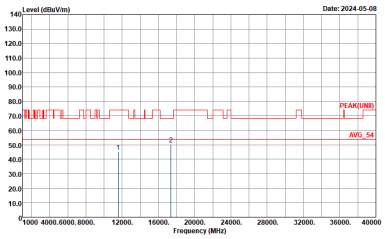
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ax HE20 Full CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ax HE20 Full CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH07-HY Condition : PEAK(UNII) 3m HF_ANT_00075962 HORIZONTAL	 Site : 03CH07-HY Condition : PEAK(UNII) 3m HF_ANT_00075962 VERTICAL

Band 4 5725~5850MHz

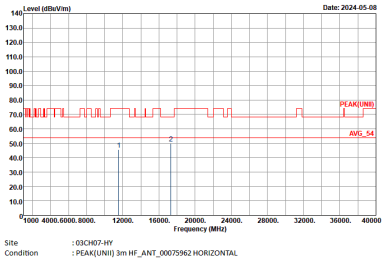
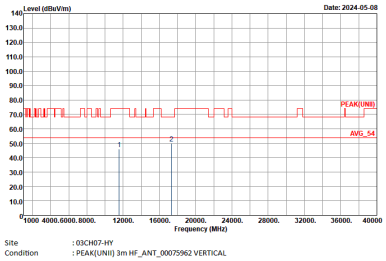
WIFI 802.11ax HE40 Full (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH151 5755MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH159 5795MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH07-HY Condition : PEAK(UNII) 3m HF_ANT_00075962 HORIZONTAL	 Site : 03CH07-HY Condition : PEAK(UNII) 3m HF_ANT_00075962 VERTICAL

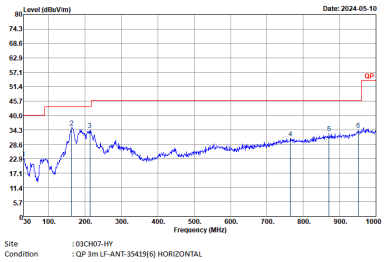
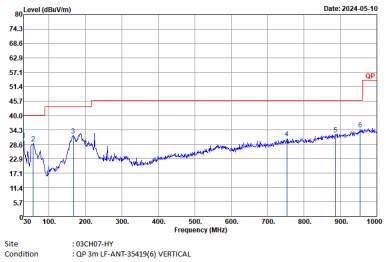
Band 4 5725~5850MHz

WIFI 802.11ax HE80 Full (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ax HE80 Full CH155 5775MHz	
1	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

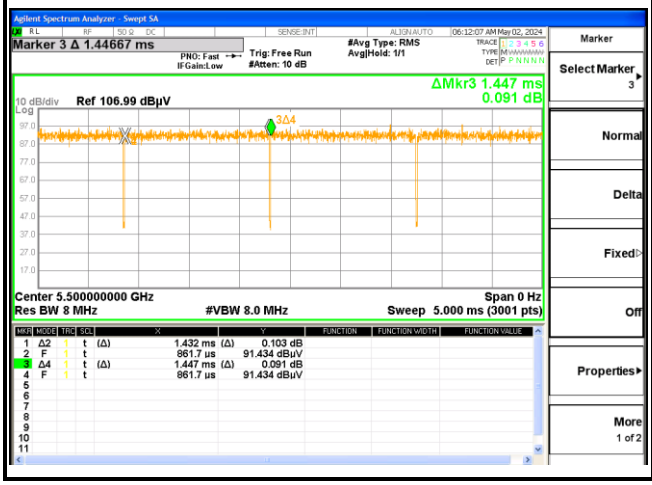
5GHz WIFI 802.11ax HE80 Full (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ax HE80 Full LF	
1	Horizontal	Vertical
QP / Peak		

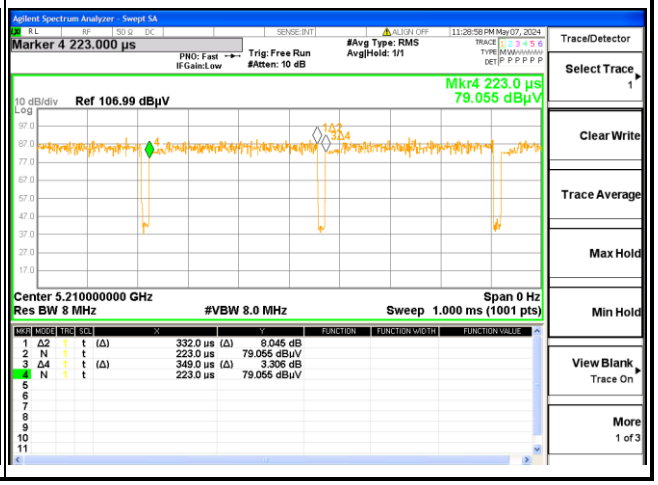
Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11a	98.96	-	-	10Hz
5GHz 802.11ac VHT80	95.13	332	3.01	3.6kHz
5GHz 802.11ax HE20 Full RU	98.58	-	-	10Hz
5GHz 802.11ax HE20 106 RU	99.05	-	-	10Hz
5GHz 802.11ax HE40 Full RU	97.35	552	1.81	3kHz
5GHz 802.11ax HE80 Full RU	94.82	292.7	3.42	3.6kHz

802.11a

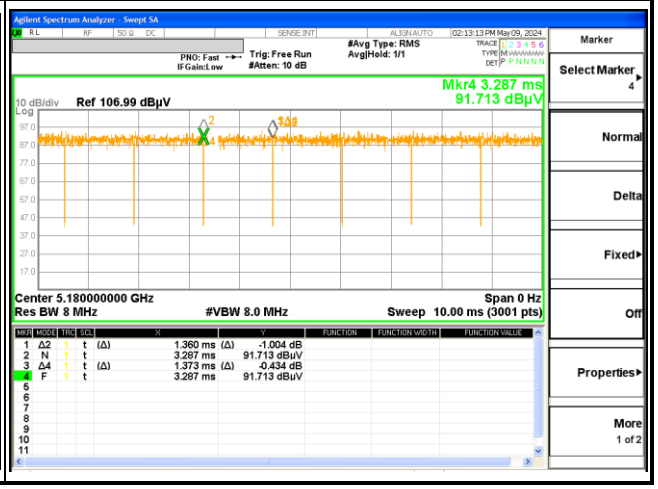
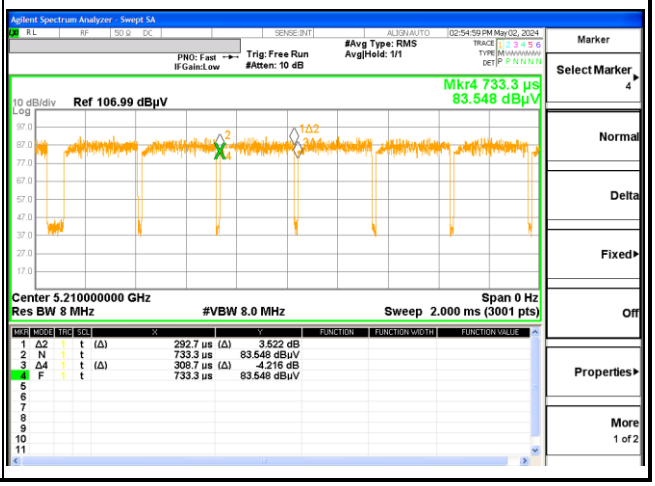


5GHz 802.11ac VHT80



5GHz 802.11ax HE20 Full RU

5GHz 802.11ax HE20 106 RU



5GHz 802.11ax HE40 Full RU	5GHz 802.11ax HE80 Full RU