FCC RF Test Report

APPLICANT	:	vivo Mobile Communication Co., Ltd.
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	vivo
MODEL NAME	:	V2208
FCC ID	:	2AUCY-V2202V
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System
TEST DATE(S)	:	Aug. 16, 2022 ~ Aug. 22, 2022

We, Sporton International Inc. (ShenZhen), 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 of Sporton International Inc. (ShenZhen), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

Sporton International Inc. (ShenZhen)
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055
People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR281001	Rev. 01	Initial issue of report	Sep. 14, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 2.73 dB at 2483.69 MHz
3.6	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

vivo Mobile Communication Co., Ltd.
No.1, vivo Road, Chang'an, Dongguan, Guangdong, China

1.2 Manufacturer

vivo Mobile Communication Co., Ltd.
No.1, vivo Road, Chang'an, Dongguan, Guangdong, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	vivo
Model Name	V2208
FCC ID	2AUCY-V2202V
IMEI Code	Conducted: 861947060177342 Radiation: 861947060178662/861947060178670
HW Version	MP_0.1
SW Version	PD2215EF_EX_A_12.0.4.9.W30.V2403L6
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to antenna	802.11n HT40 : 25.37 dBm (0.3443 W) 802.11ax HE40 : 25.72 dBm (0.3733 W)
Antenna Type / Gain	PIFA Antenna type with gain -1.9 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)

Note: The device support partial RU for 802.11ax mode.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Re-use of Measured Data

1.6.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: V2208, FCC ID: 2AUCY-V2202V) is electrically identical to the reference device (Model: V2202, FCC ID: 2AUCY-V2202) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C for WLAN 11b/g/n20/ax20 (equipment class: DTS) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: 2AUCY-V2202V.

1.6.2 Model Difference Information

The **main** difference between FCC ID: 2AUCY-V2202 and FCC ID: 2AUCY-V2202V is as below:

- Add WLAN 2.4G 11n HT40/ ax HE40 modes and 5GNR Band n5/n41.
- Remove LTE Band 13/26/66 and 5GNR Band n2/n66/n78.
- Bluetooth/ WLAN 2.4G change the gain from -3.0 dBi to -1.9dBi; WLAN 5G U-NII-1 change the gain from -3.0 dBi to 0.6dBi; WLAN 5G U-NII-2A change the gain from -3.0 dBi to -2.2dBi; WLAN 5G U-NII-3 change the gain from -3.0 dBi to -3.5dBi.

Other differences and all the details of similarity and difference can be found in the confidential documents (V2208_Operational Description of Product Equality Declaration).

1.6.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID (Parent)	Reference Title	Report Title/Section
15C	DTS (WLAN)	2400~2483.5	2AUCY-V2202	FR260813C	All sections applicable

1.6.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model

Summary for power and RSE spot check for each rule entry and technology is listed as below:

Test Item	Mode	2AUCY-V2202 Parent Worst Result	2AUCY-V2202V Variant Check Result	Difference (dB)
Conducted Power (Peak) (dBm)	802.11b	20.58	20.31	0.27
	802.11g	25.43	25.34	0.09
	802.11n HT20	25.64	25.53	0.11
	802.11ax HE20	25.28	25.20	0.08
Radiated Spurious Emission (dBuV/m) @ 3m	802.11ax HE20	-6.34	-10.94	4.60

Conclusion:
Conducted Power and Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level and RSE spot check are shown within expected level compliant to limit line.

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.

1.7 Testing Location

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH02-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-SZ	AUDIX	E3	6.2009-8-24a
2.	CO01-SZ	AUDIX	E3	6.120613b

1.9 Applicable Standards

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

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. 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: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

2.1 Carrier Frequency and Channel

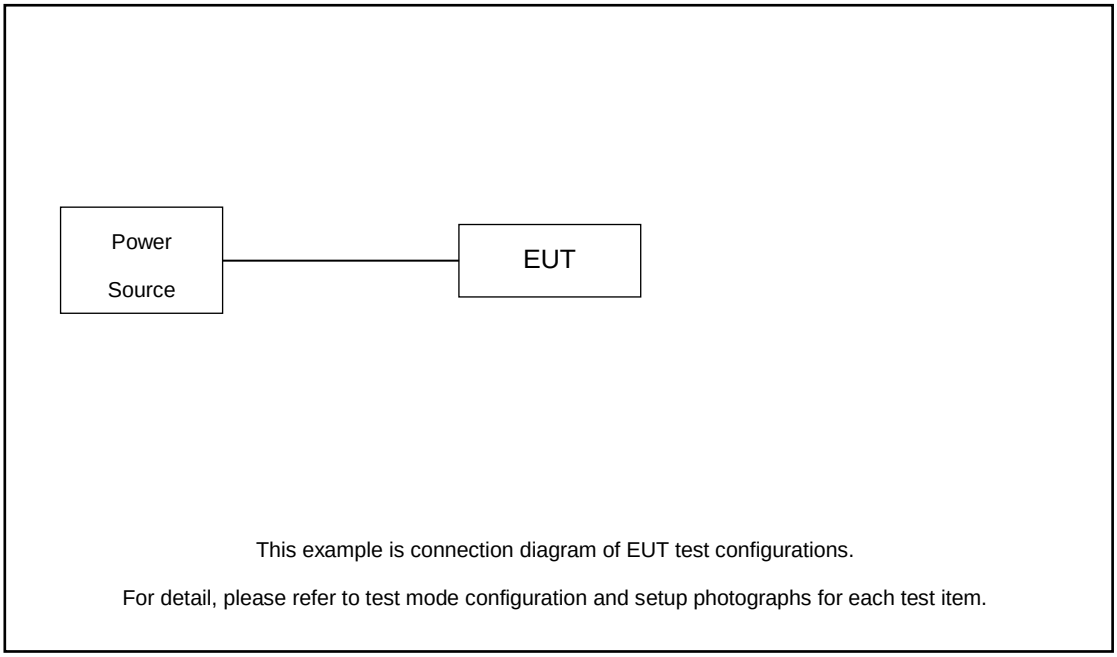
Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11n HT40	**MCS0**
802.11ax HE40	**MCS0**

2.3 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit.

2.5 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 1.5 dB and 10dB attenuator.

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

= 1.5 + 10 = 11.5 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dBBandwidth

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

3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

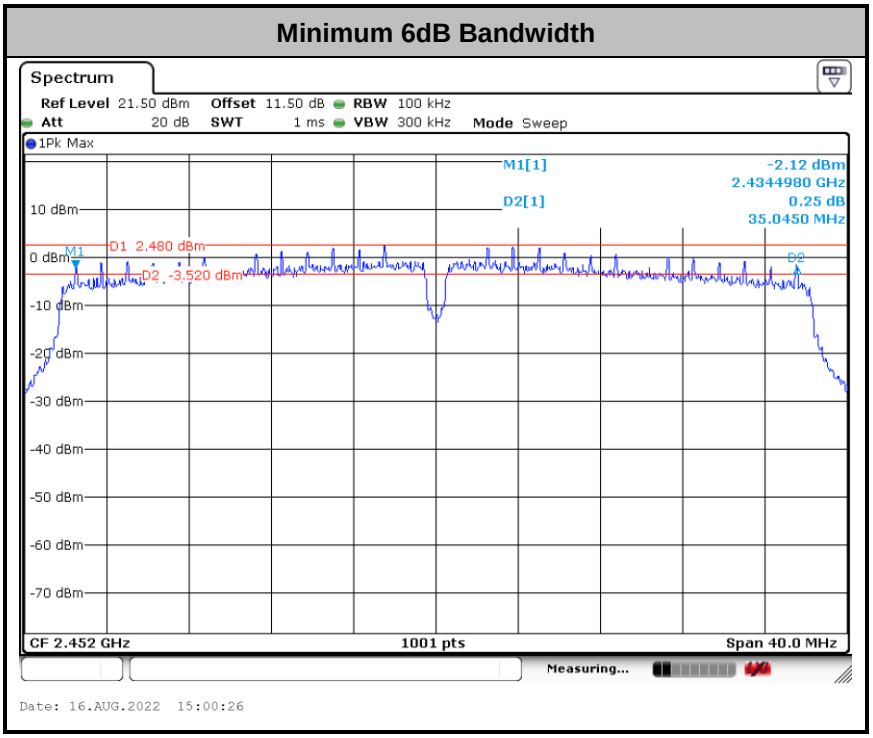
1. The testing follows ANSI C63.10-2013 clause 11.8
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup

3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth



3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

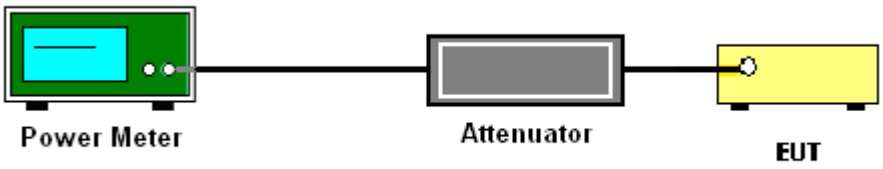
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of ANSI C63.10-2013 clause 11.9.1.3 PKPM1 Peak power meter or ANSI C63.10-2013 clause 11.9.2.3.1 Method AVGPM method.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

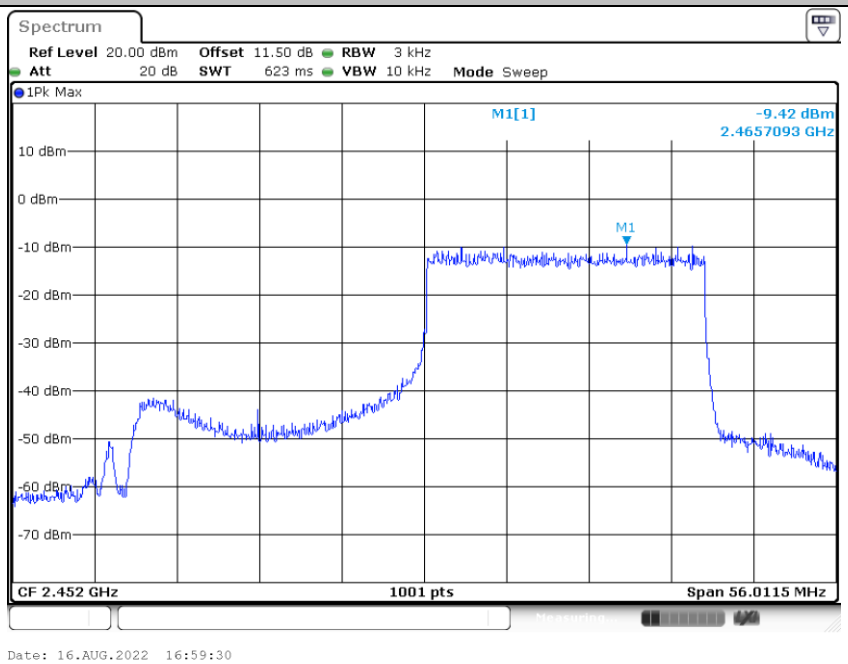
1. The testing follows Measurement Procedure of ANSI C63.10-2013 clause 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup

3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

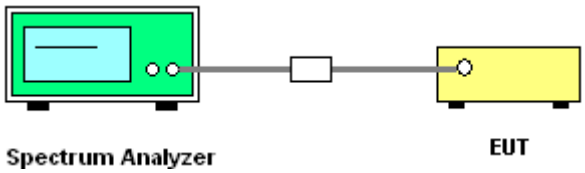
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.13
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

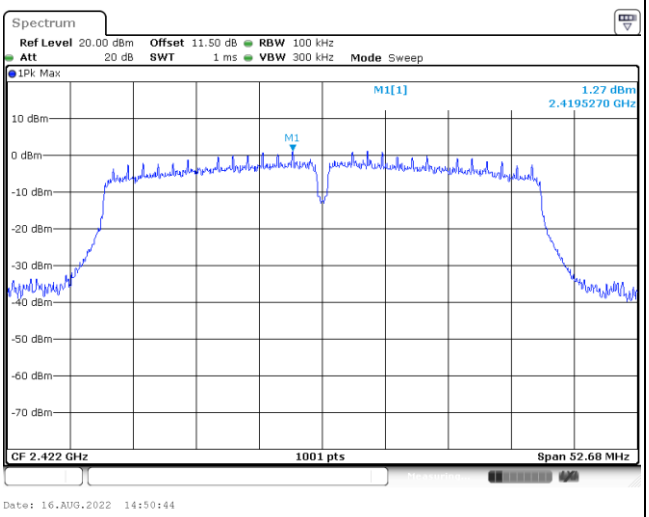
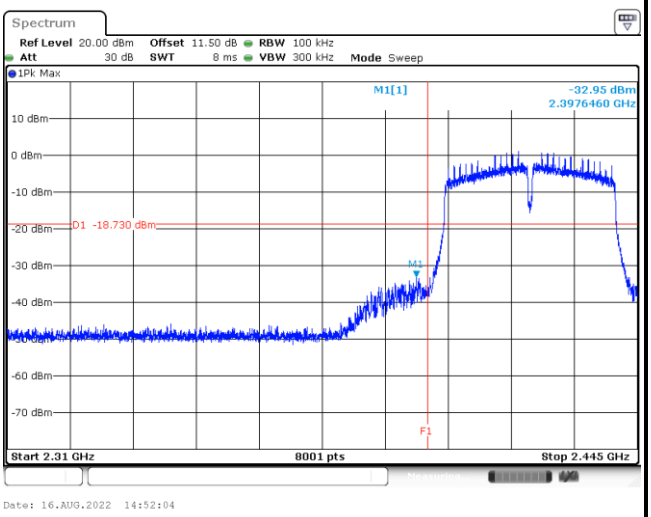
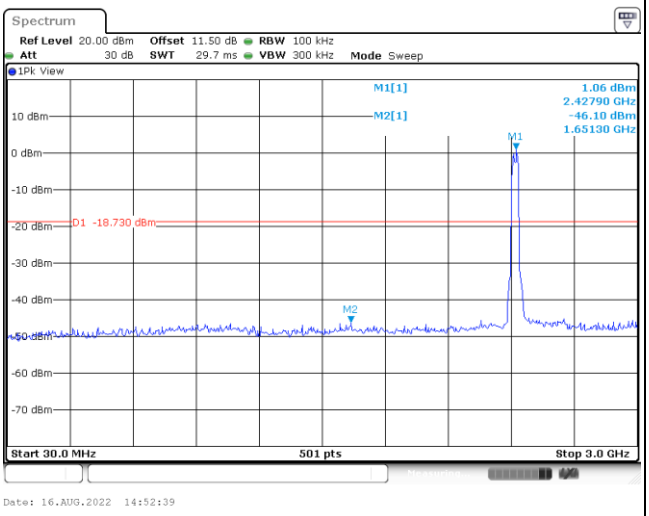
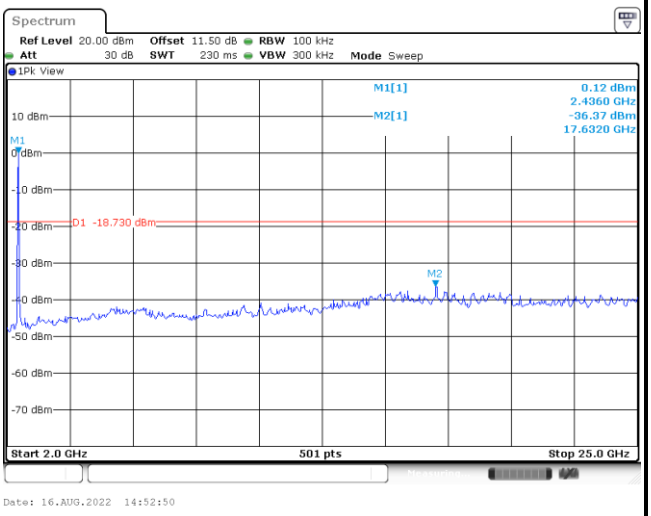
3.4.4 Test Setup



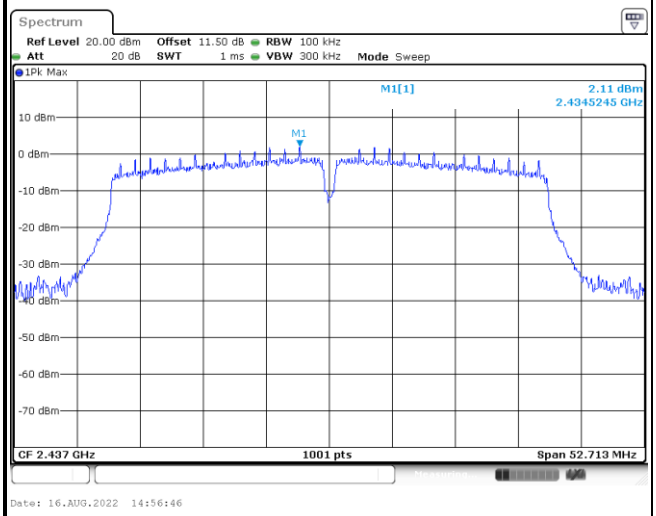
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

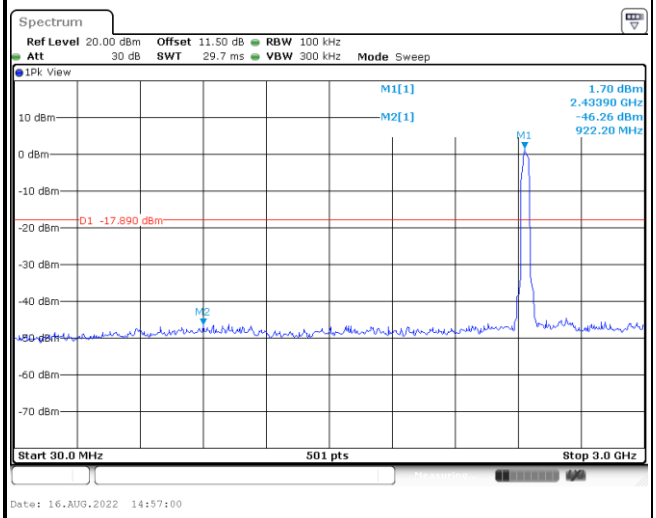
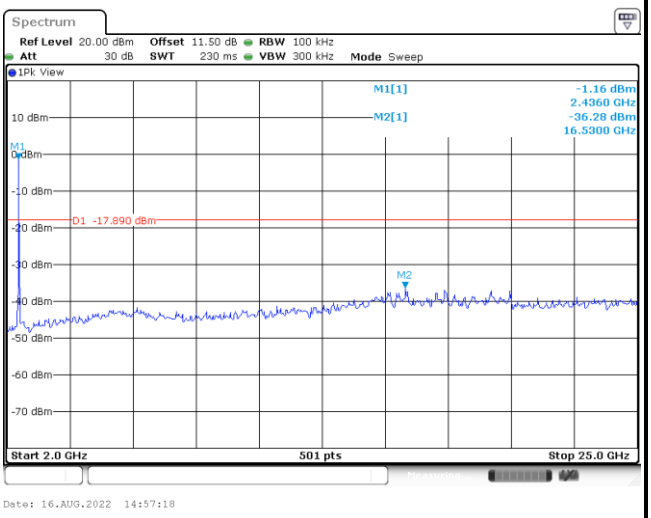
Test Engineer :	Chen Ran	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

Test Mode :	802.11n HT40	**Test Channel :**	03

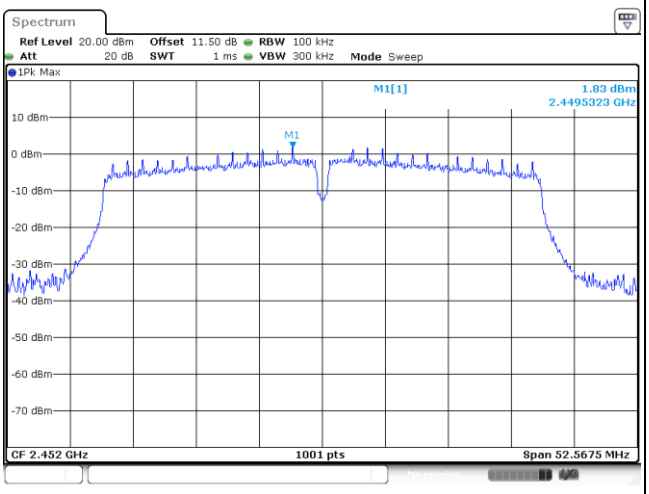
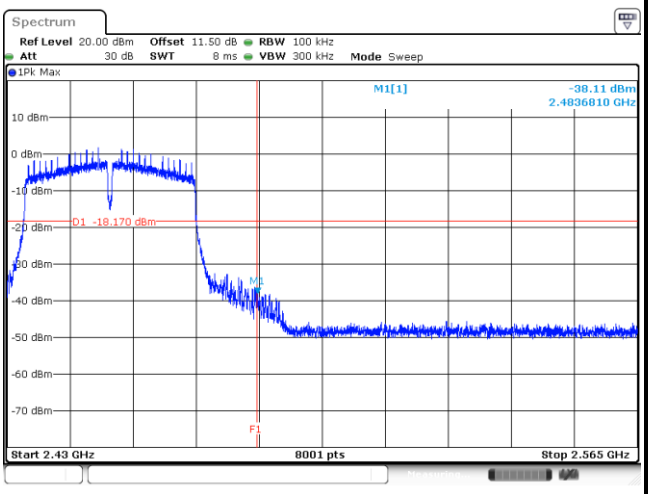
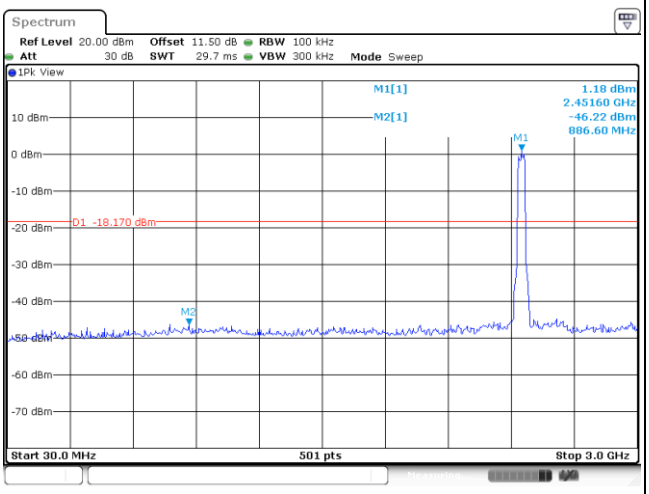
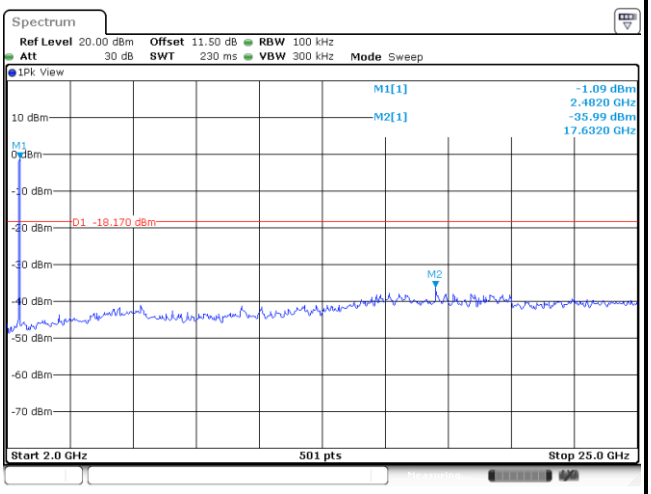
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	06

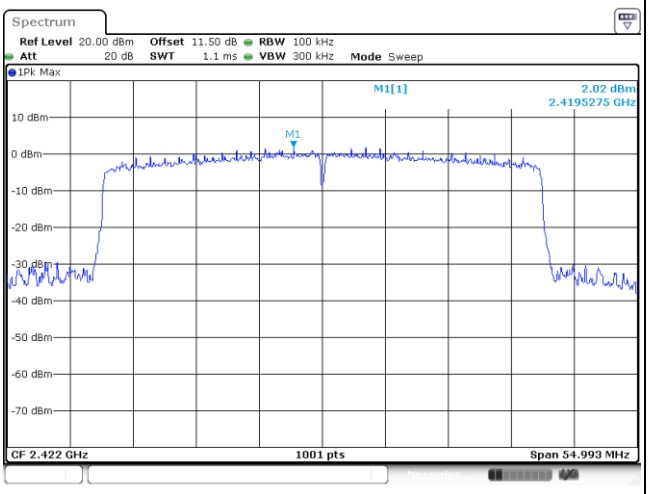
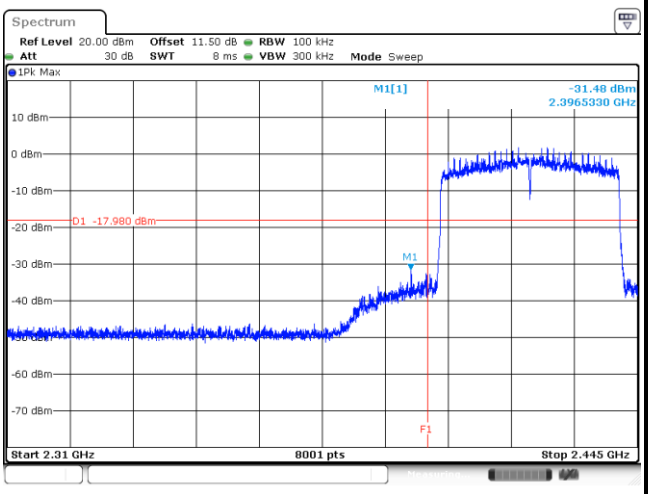
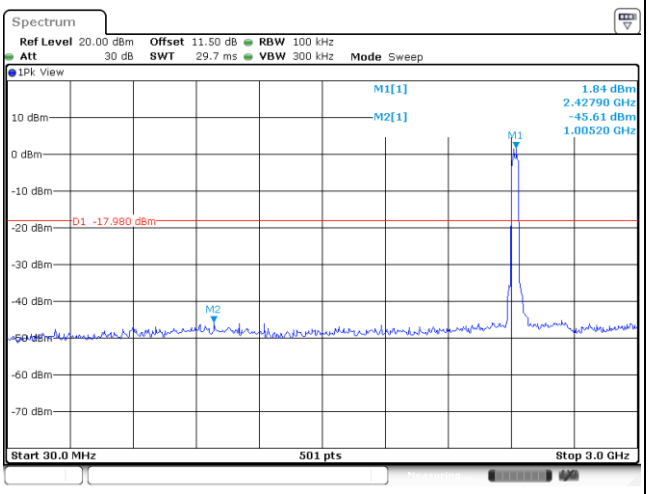
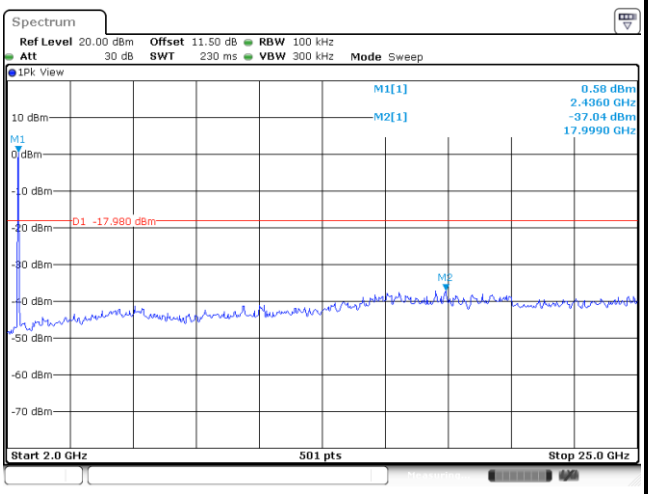
100kHz PSD reference Level	
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

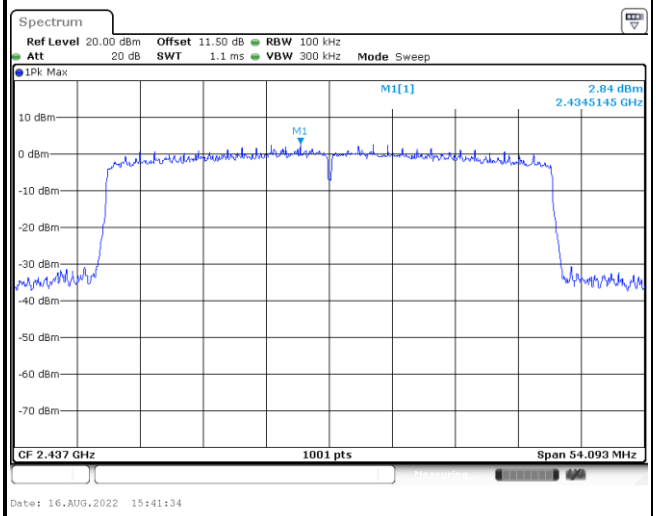
Test Mode :	802.11n HT40	Test Channel :	09

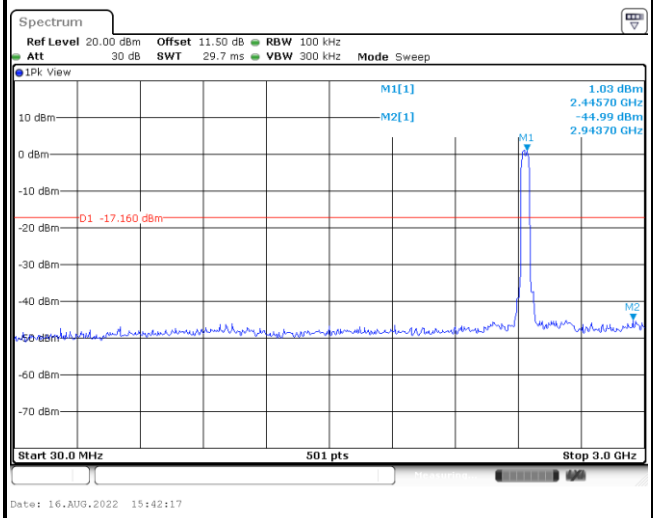
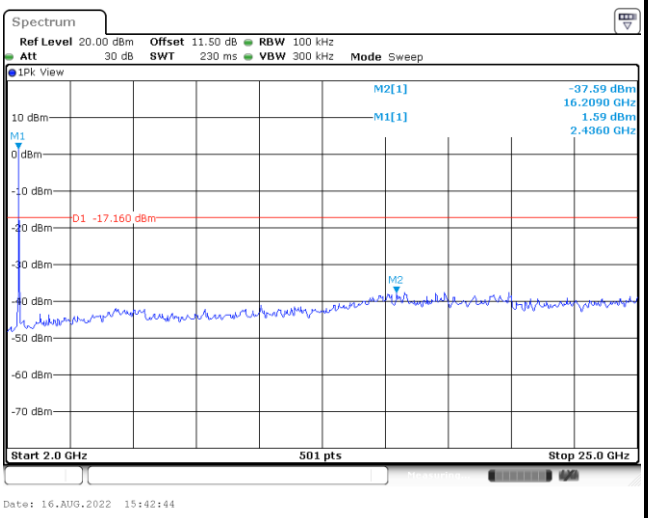
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11ax HE40	Test Channel :	03

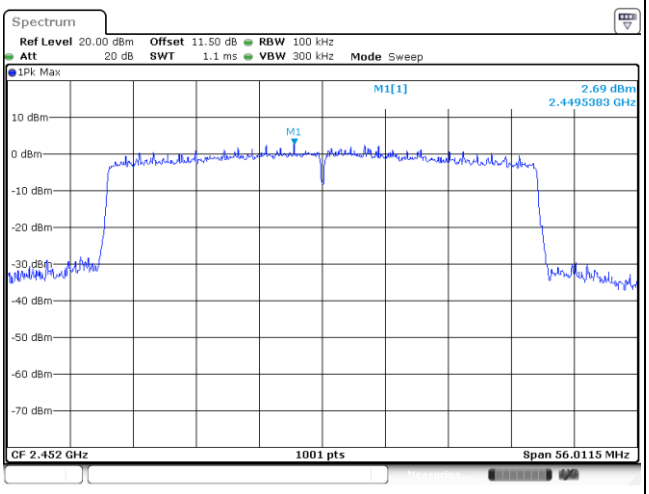
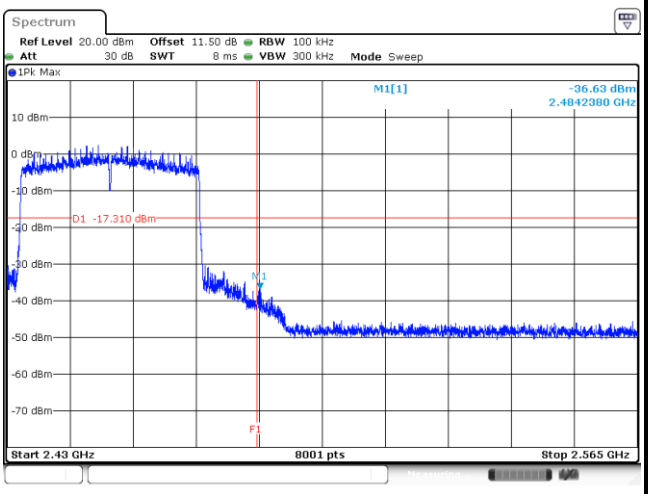
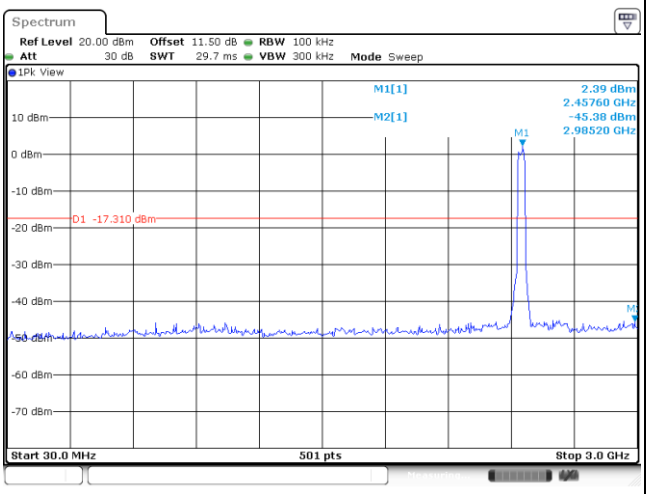
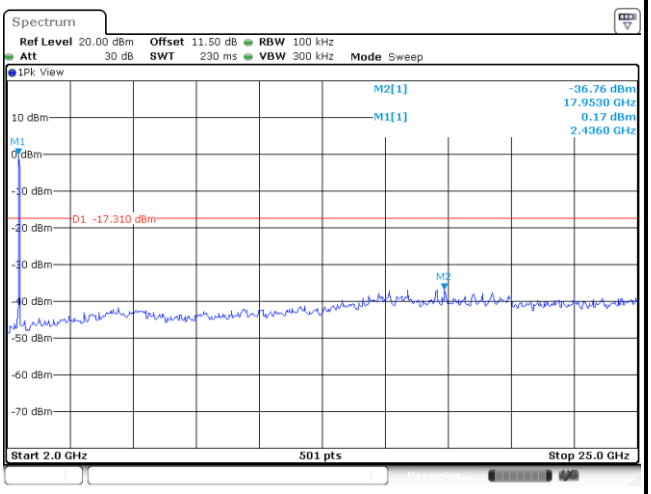
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11ax HE40	Test Channel :	06

100kHz PSD reference Level	
	

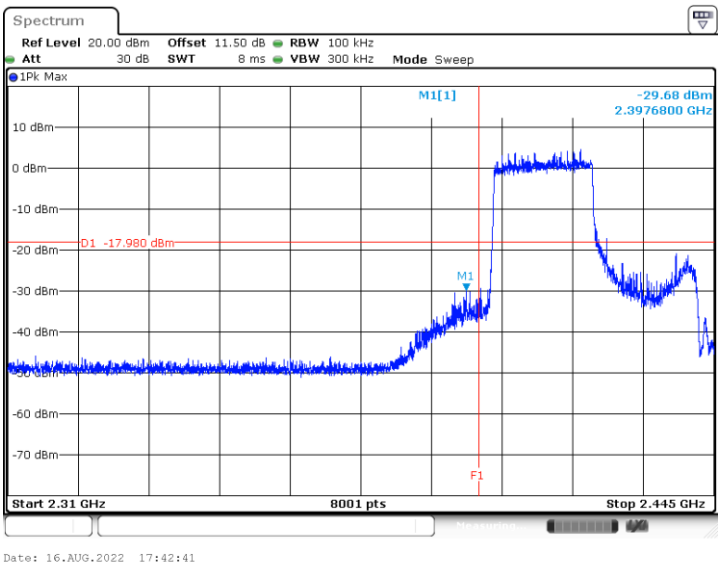
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11ax HE40	Test Channel :	09

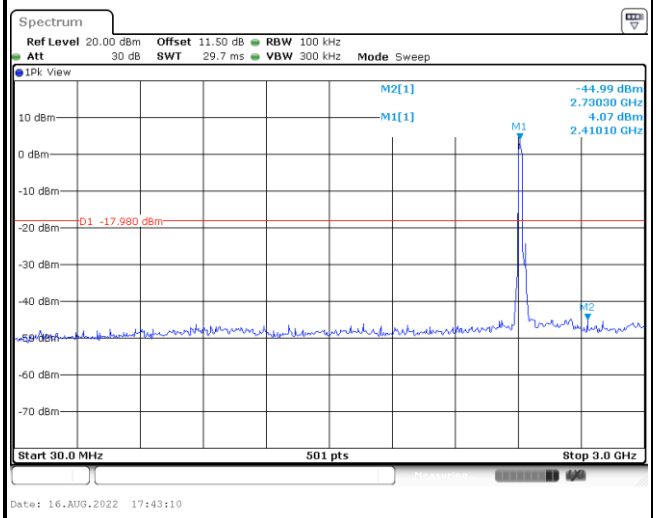
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11ax HE40-Partial RU	Test Channel :	03

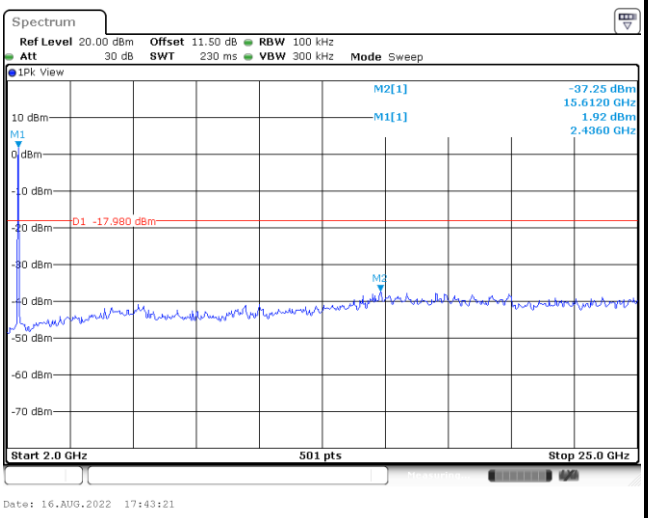
Channel Plot



Spurious Emission 30MHz~3GHz

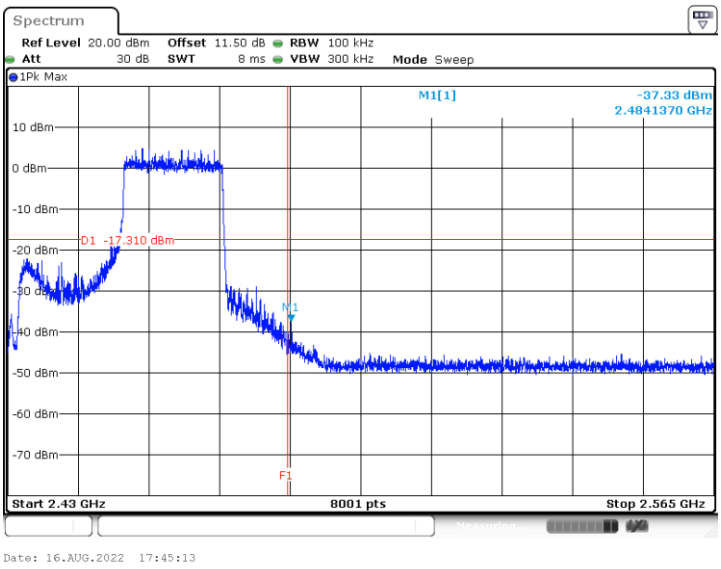


Spurious Emission 2GHz~25GHz

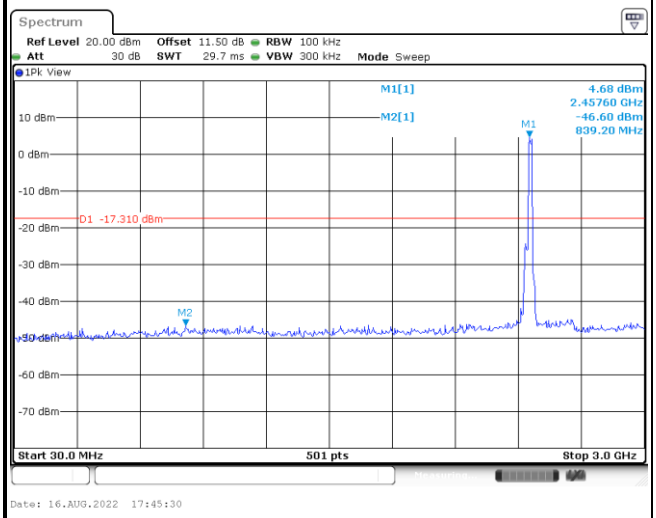


Test Mode :	802.11ax HE40-Partial RU	Test Channel :	09

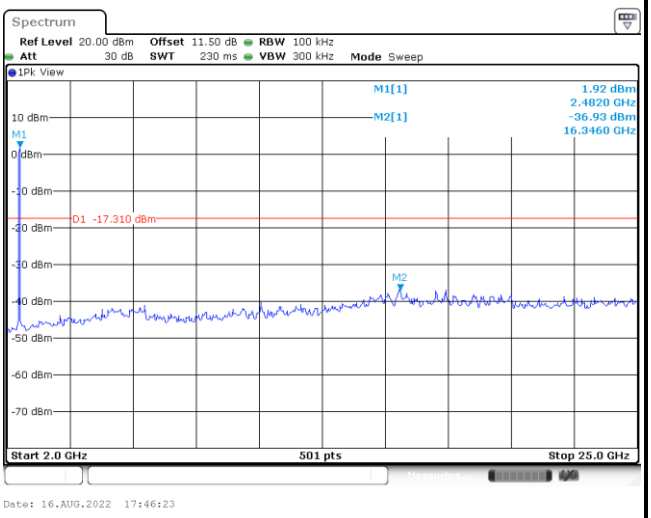
Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

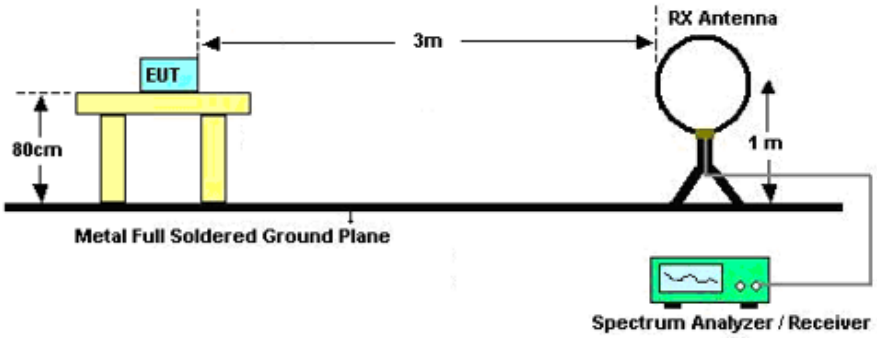
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

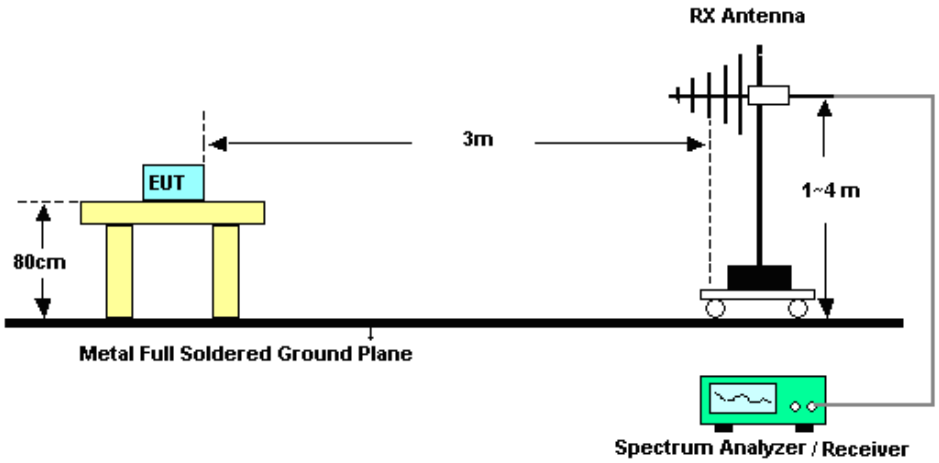
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - 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.

3.5.4 Test Setup

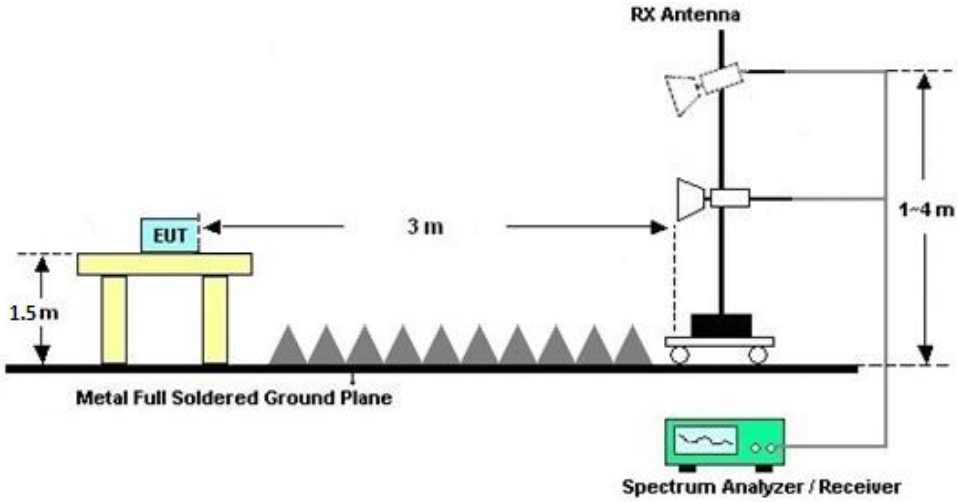
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.5.7 Duty Cycle

Please refer to Appendix C.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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.

3.6.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 07, 2022	Aug. 16, 2022	Apr. 08, 2023	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 28, 2021	Aug. 16, 2022	Dec. 27, 2022	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1542004	50MHz Bandwidth	Dec. 28, 2021	Aug. 16, 2022	Dec. 27, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2022	Aug. 22, 2022	Jul. 06, 2023	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 28, 2022	Aug. 22, 2022	Jun. 27, 2024	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Sep. 28, 2021	Aug. 22, 2022	Sep. 27, 2022	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 07, 2022	Aug. 22, 2022	Jul. 06, 2023	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 07, 2022	Aug. 22, 2022	Jul. 06, 2023	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 10 2022	Aug. 22, 2022	Apr. 10, 2023	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 22, 2021	Aug. 22, 2022	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 22, 2021	Aug. 22, 2022	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 22, 2021	Aug. 22, 2022	Oct. 21, 2022	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Aug. 22, 2022	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Aug. 22, 2022	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Aug. 22, 2022	NCR	Radiation (03CH02-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1dB**

---------- THE END ----------

Appendix A. Conducted Test Results

Report Number : FR281001

Test Engineer:	Chen Ran	Temperature:	21~25	°C
Test Date:	2022/8/16	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band Single Antenna								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
					Ant0	Ant0		
HT40	MCS0	1	3	2422	36.46	35.12	0.50	Pass
HT40	MCS0	1	6	2437	36.56	35.14	0.50	Pass
HT40	MCS0	1	9	2452	36.66	35.05	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band Single Antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant0	Ant0	Ant0	Ant0	Ant0	
HT40	MCS0	1	3	2422	25.32	30.00	-1.90	23.42	36.00	Pass
HT40	MCS0	1	6	2437	25.37	30.00	-1.90	23.47	36.00	Pass
HT40	MCS0	1	9	2452	25.11	30.00	-1.90	23.21	36.00	Pass

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

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna								
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Average Conducted Power (dBm)	DG (dBi)	EIRP Power (dBm)	Pass /Fail
					Ant0	Ant0	Ant0	
HT40	MCS0	1	3	2422	15.40	-1.90	13.50	Pass
HT40	MCS0	1	6	2437	15.50	-1.90	13.60	Pass
HT40	MCS0	1	9	2452	14.10	-1.90	12.20	Pass

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band Single Antenna								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)	DG (dBi)	Peak PSD Limit (dBm/3kHz)	Pass/Fail
					Ant0	Ant0	Ant0	
HT40	MCS0	1	3	2422	-13.86	-1.90	8.00	Pass
HT40	MCS0	1	6	2437	-12.41	-1.90	8.00	Pass
HT40	MCS0	1	9	2452	-12.38	-1.90	8.00	Pass

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

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band Single Antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
						Ant0	Ant0		
HE40	MCS0	1	3	2422	Full	37.76	36.66	0.50	Pass
HE40	MCS0	1	6	2437	Full	37.76	36.06	0.50	Pass
HE40	MCS0	1	9	2452	Full	37.86	37.34	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band Single Antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant0	Ant0	Ant0	Ant0	Ant0	
HE40	MCS0	1	3	2422	Full	25.62	30.00	-1.90	23.72	36.00	Pass
HE40	MCS0	1	3	2422	242/61	25.57	30.00	-1.90	23.67	36.00	Pass
HE40	MCS0	1	6	2437	Full	25.65	30.00	-1.90	23.75	36.00	Pass
HE40	MCS0	1	9	2452	Full	25.72	30.00	-1.90	23.82	36.00	Pass
HE40	MCS0	1	9	2452	242/62	25.63	30.00	-1.90	23.73	36.00	Pass

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

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power (dBm)	DG (dBi)	EIRP Power (dBm)	Pass /Fail
						Ant0	Ant0	Ant0	
HE40	MCS0	1	3	2422	Full	16.40	-1.90	14.50	Pass
HE40	MCS0	1	3	2422	242/61	16.30	-1.90	14.40	Pass
HE40	MCS0	1	6	2437	Full	16.60	-1.90	14.70	Pass
HE40	MCS0	1	9	2452	Full	16.80	-1.90	14.90	Pass
HE40	MCS0	1	9	2452	242/62	16.60	-1.90	14.70	Pass

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band Single Antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak PSD (dBm/3kHz)	DG (dBi)	Peak PSD Limit (dBm/3kHz)	Pass/Fail
						Ant0	Ant0	Ant0	
HE40	MCS0	1	3	2422	Full	-12.57	-1.90	8.00	Pass
HE40	MCS0	1	3	2422	242/61	-10.06	-1.90	8.00	Pass
HE40	MCS0	1	6	2437	Full	-12.14	-1.90	8.00	Pass
HE40	MCS0	1	9	2452	Full	-11.67	-1.90	8.00	Pass
HE40	MCS0	1	9	2452	242/62	-9.42	-1.90	8.00	Pass

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

Appendix B. Radiated Spurious Emission

Test Engineer :	Zhicheng Li	**Temperature :**	24~25°C
		Relative Humidity :	48~49%

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (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)
	*	2389.66	58.98	-15.02	74	53.98	31.7	5.55	32.25	296	54	P	H
		2389.52	45.76	-8.24	54	40.76	31.7	5.55	32.25	296	54	A	H
	*	2422	98.2	-	-	92.85	31.9	5.59	32.14	296	54	P	H
		2422	88.76	-	-	83.41	31.9	5.59	32.14	296	54	A	H
802.11n	*	2489.15	51.77	-22.23	74	45.94	32.1	5.68	31.95	296	54	P	H
HT40		2485.65	42.98	-11.02	54	37.2	32.07	5.66	31.95	296	54	A	H
CH 03	*	2389.94	63.3	-10.7	74	58.29	31.7	5.55	32.24	193	124	P	V
2422MHz		2389.38	48.6	-5.4	54	43.6	31.7	5.55	32.25	193	124	A	V
	*	2422	101.47	-	-	96.12	31.9	5.59	32.14	193	124	P	V
		2422	92.07	-	-	86.72	31.9	5.59	32.14	193	124	A	V
	*	2499.44	51.77	-22.23	74	45.84	32.1	5.68	31.85	193	124	P	V
		2483.76	42.95	-11.05	54	37.17	32.07	5.66	31.95	193	124	A	V
	*	2349.06	50.89	-23.11	74	45.96	31.7	5.49	32.26	302	118	P	H
		2389.52	42.31	-11.69	54	37.31	31.7	5.55	32.25	302	118	A	H
	*	2437	97.41	-	-	91.94	32	5.61	32.14	302	118	P	H
		2437	88.25	-	-	82.78	32	5.61	32.14	302	118	A	H
802.11n	*	2489.01	51.42	-22.58	74	45.59	32.1	5.68	31.95	302	118	P	H
HT40		2496.43	42.68	-11.32	54	36.75	32.1	5.68	31.85	302	118	A	H
CH 06	*	2388.54	51.26	-22.74	74	46.26	31.7	5.55	32.25	196	122	P	V
2437MHz		2389.8	43.21	-10.79	54	38.2	31.7	5.55	32.24	196	122	A	V
	*	2437	101.17	-	-	95.7	32	5.61	32.14	196	122	P	V
		2437	91.89	-	-	86.42	32	5.61	32.14	196	122	A	V
	*	2490.34	52.47	-21.53	74	46.64	32.1	5.68	31.95	196	122	P	V
		2483.55	43.42	-10.58	54	37.64	32.07	5.66	31.95	196	122	A	V

	*	2375.24	50.2	-23.8	74	45.22	31.7	5.53	32.25	349	141	P	H
		2389.52	41.61	-12.39	54	36.61	31.7	5.55	32.25	349	141	A	H
	*	2452	97.02	-	-	91.46	32	5.61	32.05	349	141	P	H
		2452	87.3	-	-	81.74	32	5.61	32.05	349	141	A	H
802.11n	*	2484.11	57.9	-16.1	74	52.12	32.07	5.66	31.95	349	141	P	H
HT40		2484.39	47.53	-6.47	54	41.75	32.07	5.66	31.95	349	141	A	H
CH 09	*	2322.74	50.89	-23.11	74	46.06	31.63	5.47	32.27	164	120	P	V
2452MHz		2389.66	42.38	-11.62	54	37.38	31.7	5.55	32.25	164	120	A	V
	*	2452	100.23	-	-	94.67	32	5.61	32.05	164	120	P	V
		2452	90.91	-	-	85.35	32	5.61	32.05	164	120	A	V
	*	2483.69	62.38	-11.62	74	56.6	32.07	5.66	31.95	164	120	P	V
		2484.39	51.18	-2.82	54	45.4	32.07	5.66	31.95	164	120	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (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)
802.11n		4844	42.17	-31.83	74	57.53	33.8	8.74	57.9	-	-	P	H
HT40	*	7266	45.08	-28.92	74	57.55	35.71	11.19	59.37	-	-	P	H
CH 03		4844	41.8	-32.2	74	57.16	33.8	8.74	57.9	-	-	P	V
2422MHz	*	7266	45.38	-28.62	74	57.85	35.71	11.19	59.37	-	-	P	V
802.11n		4874	42.15	-31.85	74	57.53	33.73	8.79	57.9	-	-	P	H
HT40	*	7311	44.66	-29.34	74	57.32	35.72	11.09	59.47	-	-	P	H
CH 06		4874	42.14	-31.86	74	57.52	33.73	8.79	57.9	-	-	P	V
2437MHz	*	7311	45.73	-28.27	74	58.39	35.72	11.09	59.47	-	-	P	V
802.11n		4904	42.99	-31.01	74	58.33	33.7	8.86	57.9	-	-	P	H
HT40	*	7356	44.29	-29.71	74	57.08	35.74	11.08	59.61	-	-	P	H
CH 09		4904	42.63	-31.37	74	57.97	33.7	8.86	57.9	-	-	P	V
2452MHz	*	7356	44.01	-29.99	74	56.8	35.74	11.08	59.61	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (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)
	*	2389.24	61.16	-12.84	74	56.16	31.7	5.55	32.25	335	128	P	H
		2389.52	46.84	-7.16	54	41.84	31.7	5.55	32.25	335	128	A	H
	*	2422	101.8	-	-	96.45	31.9	5.59	32.14	335	128	P	H
		2422	89.55	-	-	84.2	31.9	5.59	32.14	335	128	A	H
802.11ax	*	2491.18	52.41	-21.59	74	46.58	32.1	5.68	31.95	335	128	P	H
HE40 Full		2483.5	42.67	-11.33	54	36.89	32.07	5.66	31.95	335	128	A	H
CH 03	*	2388.68	60.18	-13.82	74	55.18	31.7	5.55	32.25	159	112	P	V
2422MHz		2389.52	50.83	-3.17	54	45.83	31.7	5.55	32.25	159	112	A	V
	*	2422	104.17	-	-	98.82	31.9	5.59	32.14	159	112	P	V
		2422	93.25	-	-	87.9	31.9	5.59	32.14	159	112	A	V
	*	2484.18	52.3	-21.7	74	46.52	32.07	5.66	31.95	159	112	P	V
		2484.39	42.95	-11.05	54	37.17	32.07	5.66	31.95	159	112	A	V
	*	2386.72	54.99	-19.01	74	49.99	31.7	5.55	32.25	341	128	P	H
		2389.52	43.24	-10.76	54	38.24	31.7	5.55	32.25	341	128	A	H
	*	2437	100.45	-	-	94.98	32	5.61	32.14	341	128	P	H
		2437	89.89	-	-	84.42	32	5.61	32.14	341	128	A	H
802.11ax	*	2483.83	54.04	-19.96	74	48.26	32.07	5.66	31.95	341	128	P	H
HE40 Full		2483.97	44.16	-9.84	54	38.38	32.07	5.66	31.95	341	128	A	H
CH 06	*	2389.24	56.96	-17.04	74	51.96	31.7	5.55	32.25	127	122	P	V
2437MHz		2389.66	45.22	-8.78	54	40.22	31.7	5.55	32.25	127	122	A	V
	*	2437	104.75	-	-	99.28	32	5.61	32.14	127	122	P	V
		2437	93.38	-	-	87.91	32	5.61	32.14	127	122	A	V
	*	2483.62	55.51	-18.49	74	49.73	32.07	5.66	31.95	127	122	P	V
		2483.5	45.74	-8.26	54	39.96	32.07	5.66	31.95	127	122	A	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)
802.11ax HE40 Full CH 09 2452MHz	*	2389.94	54.16	-19.84	74	49.15	31.7	5.55	32.24	361	138	P	H
		2389.52	43.68	-10.32	54	38.68	31.7	5.55	32.25	361	138	A	H
	*	2452	101.17	-	-	95.61	32	5.61	32.05	361	138	P	H
		2452	89.47	-	-	83.91	32	5.61	32.05	361	138	A	H
	*	2483.62	60.67	-13.33	74	54.89	32.07	5.66	31.95	361	138	P	H
		2483.62	49.36	-4.64	54	43.58	32.07	5.66	31.95	361	138	A	H
	*	2388.12	56.91	-17.09	74	51.91	31.7	5.55	32.25	124	123	P	V
		2389.94	45.59	-8.41	54	40.58	31.7	5.55	32.24	124	123	A	V
	*	2452	103.54	-	-	97.98	32	5.61	32.05	124	123	P	V
		2452	92.89	-	-	87.33	32	5.61	32.05	124	123	A	V
	*	2483.62	63.98	-10.02	74	58.2	32.07	5.66	31.95	124	123	P	V
		2483.5	51.19	-2.81	54	45.41	32.07	5.66	31.95	124	123	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (Harmonic @ 3m)

WIFI Ant. 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		4844	42.06	-31.94	74	57.42	33.8	8.74	57.9	-	-	P	H
HE40 Full	*	7266	46.29	-27.71	74	58.76	35.71	11.19	59.37	-	-	P	H
CH 03		4844	41.32	-32.68	74	56.68	33.8	8.74	57.9	-	-	P	V
2422MHz	*	7266	45.13	-28.87	74	57.6	35.71	11.19	59.37	-	-	P	V
802.11ax		4874	41.37	-32.63	74	56.75	33.73	8.79	57.9	-	-	P	H
HE40 Full	*	7311	45.3	-28.7	74	57.96	35.72	11.09	59.47	-	-	P	H
CH 06		4874	41.99	-32.01	74	57.37	33.73	8.79	57.9	-	-	P	V
2437MHz	*	7311	44.62	-29.38	74	57.28	35.72	11.09	59.47	-	-	P	V
802.11ax		4904	42.26	-31.74	74	57.6	33.7	8.86	57.9	-	-	P	H
HE40 Full	*	7356	44.52	-29.48	74	57.31	35.74	11.08	59.61	-	-	P	H
CH 09		4904	41.78	-32.22	74	57.12	33.7	8.86	57.9	-	-	P	V
2452MHz	*	7356	44.88	-29.12	74	57.67	35.74	11.08	59.61	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Partial 242 (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)
		2389.94	59.12	-14.88	74	54.11	31.7	5.55	32.24	347	131	P	H
		2388.68	46.49	-7.51	54	41.49	31.7	5.55	32.25	347	131	A	H
		2422	102.43	-	-	97.08	31.9	5.59	32.14	347	131	P	H
802.11ax		2422	91.35	-	-	86	31.9	5.59	32.14	347	131	A	H
HE40		2483.69	51.53	-22.47	74	45.75	32.07	5.66	31.95	347	131	P	H
Partial		2489.85	42.25	-11.75	54	36.42	32.1	5.68	31.95	347	131	A	H
242/61		2388.68	62.09	-11.91	74	57.09	31.7	5.55	32.25	200	124	P	V
CH 03		2389.66	48.37	-5.63	54	43.37	31.7	5.55	32.25	200	124	A	V
2422MHz		2422	105.62	-	-	100.27	31.9	5.59	32.14	200	124	P	V
		2422	94.02	-	-	88.67	31.9	5.59	32.14	200	124	A	V
		2497.76	51.7	-22.3	74	45.77	32.1	5.68	31.85	200	124	P	V
		2490.2	42.24	-11.76	54	36.41	32.1	5.68	31.95	200	124	A	V
		2323.44	51.38	-22.62	74	46.55	31.63	5.47	32.27	359	139	P	H
		2389.24	42.05	-11.95	54	37.05	31.7	5.55	32.25	359	139	A	H
		2452	102.53	-	-	96.97	32	5.61	32.05	359	139	P	H
802.11ax		2452	90.63	-	-	85.07	32	5.61	32.05	359	139	A	H
HE40		2483.62	63.16	-10.84	74	57.38	32.07	5.66	31.95	359	139	P	H
Partial		2483.5	49.06	-4.94	54	43.28	32.07	5.66	31.95	359	139	A	H
242/62		2389.38	51.93	-22.07	74	46.93	31.7	5.55	32.25	152	120	P	V
CH 09		2389.24	42.32	-11.68	54	37.32	31.7	5.55	32.25	152	120	A	V
2452MHz		2452	105.41	-	-	99.85	32	5.61	32.05	152	120	P	V
		2452	93.57	-	-	88.01	32	5.61	32.05	152	120	A	V
		2484.88	64.26	-9.74	74	58.48	32.07	5.66	31.95	152	120	P	V
		2483.69	51.27	-2.73	54	45.49	32.07	5.66	31.95	152	120	A	V

2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 Partial 242 (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)
802.11ax HE40 Partial 242/61 CH 03 2422MHz		4844	41.21	-32.79	74	56.57	33.8	8.74	57.9	-	-	P	H
	*	7266	44.95	-29.05	74	57.42	35.71	11.19	59.37	-	-	P	H
		4844	41.78	-32.22	74	57.14	33.8	8.74	57.9	-	-	P	V
	*	7266	45.31	-28.69	74	57.78	35.71	11.19	59.37	-	-	P	V
802.11ax HE40 Partial 242/62 CH 09 2452MHz		4904	41.25	-32.75	74	56.59	33.7	8.86	57.9	-	-	P	H
	*	7356	44.78	-29.22	74	57.57	35.74	11.08	59.61	-	-	P	H
		4904	41.28	-32.72	74	56.62	33.7	8.86	57.9	-	-	P	V
	*	7356	44.34	-29.66	74	57.13	35.74	11.08	59.61	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11 ax HE40 Full (LF)

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 HE40 Full CH 09 LF		59.1	17.91	-22.09	40	30.95	19.64	2.23	34.91	-	-	P	H
		157.07	20.29	-23.21	43.5	33.11	19.3	2.58	34.7	-	-	P	H
		390.84	21.74	-24.26	46	31.02	21.94	3.3	34.52	-	-	P	H
		544.1	24.34	-21.66	46	30.61	24.6	3.63	34.5	-	-	P	H
		741.01	26.52	-19.48	46	29.33	27.68	3.91	34.4	-	-	P	H
		845.77	27.59	-18.41	46	29.26	28.58	4.05	34.3	-	-	P	H
		61.04	26.82	-13.18	40	40.03	19.4	2.28	34.89	-	-	P	V
		160.95	20.51	-22.99	43.5	33.3	19.32	2.59	34.7	-	-	P	V
		288.99	19.54	-26.46	46	31.5	19.54	3.12	34.62	-	-	P	V
		479.11	22.58	-23.42	46	30.15	23.53	3.4	34.5	-	-	P	V
		656.62	25.11	-20.89	46	29.3	26.39	3.91	34.49	-	-	P	V
		775.93	26.97	-19.03	46	29.38	28.02	3.92	34.35	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Margin (dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Margin (dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Margin (dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

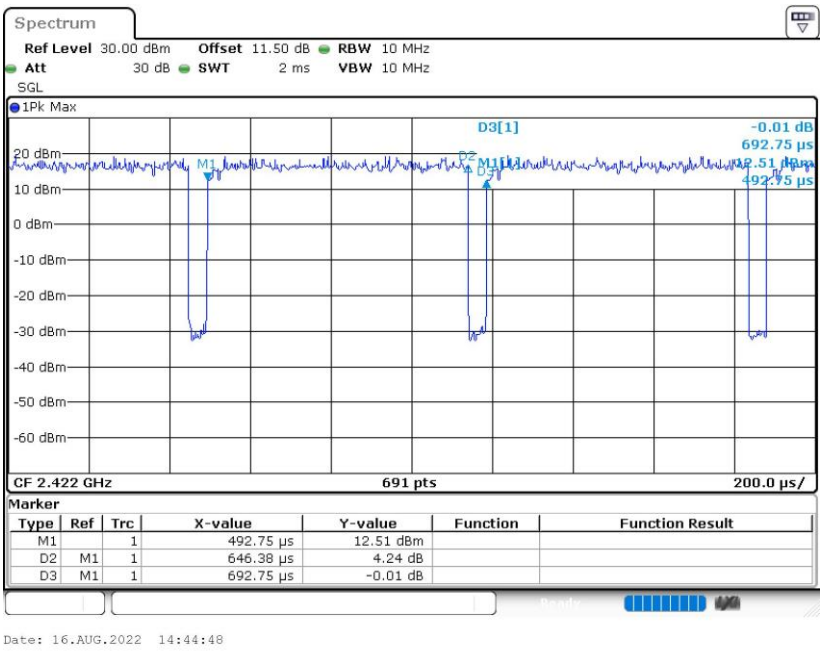
= -10.46(dB)

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

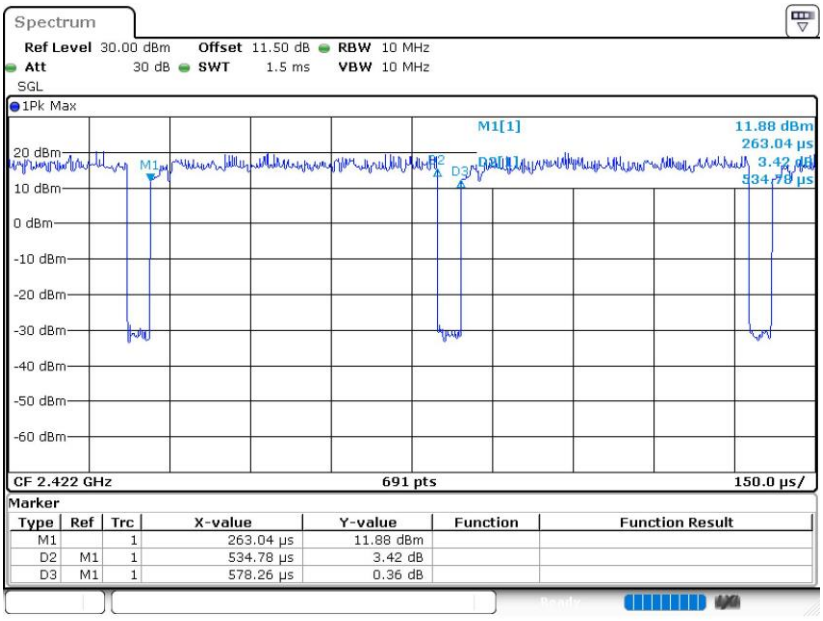
Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11n HT40	93.31	0.646	1.547	3kHz
802.11ax HE40	92.48	0.535	1.870	3kHz

802.11n HT40



802.11ax HE40



Appendix E. Reference Report

Please refer to Sporton report number FR260813C which is issued separately.