FCC RF Test Report

APPLICANT	:	**Motorola Mobility LLC**
EQUIPMENT	:	**Mobile Cellular Phone**
BRAND NAME	:	**Motorola**
MODEL NAME	:	**XT2435-1**
FCC ID	:	**IHDT56AM4**
STANDARD	:	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	:	**(DTS) Digital Transmission System**
TEST DATE(S)	:	**May 22, 2024 ~ Jun. 12, 2024**

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

Jason Jia

Approved by: Jason Jia

ACCREDITED
Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR352916-18	Rev. 01	Initial issue of report	Jun. 21, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Report Only	-
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 4.14 dB at 2389.95 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 11.58 dB at 0.564 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-

Note:

This is a variant report for XT2435-1. The change note could be referred to the XT2435-1_Operational Description of Product Equality Declaration which is exhibit separately. Based on the similarity between current and previous project, only add 802.11n HT40 related test cases from original test report (Sporton Report Number FR352916C) were verified for the differences.

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.

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2435-1
FCC ID	IHDT56AM4
IMEI Code	Conducted: 352433390004452/352433390004460 Conduction: 35243390002415/352433390002423 Radiation: 352433390002571/352433390002589
HW Version	DVT1
SW Version	U3UT34.4
EUT Stage	Identical Prototype

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 : 24.31 dBm (0.2698 W)
Antenna Type / Gain	IFA Antenna type with gain -2.7 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1 (US)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-331L
AC Adapter 1 (EU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-332L
AC Adapter 1 (UK)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-333L
AC Adapter 1 (BR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-337L
AC Adapter 2 (US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-331
AC Adapter 2 (EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-332
AC Adapter 2 (BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-337
Battery 1	**Brand Name**	Motorola(Jiade)	**Model Name**	QA50
Battery 2	**Brand Name**	Motorola (ATL)	**Model Name**	QA50
USB Cable 1	**Brand Name**	Motorola (WASHIN)	**Model Name**	S928D92375
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	S928D95755

1.7 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-KS 03CH05-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	FCC 15C-15E Test Tools Ver10.0_210607	10.0
2.	03CH05-KS	AUDIX	E3	210616
3.	CO01-KS	AUDIX	E3	6.2009-8-24

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: 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, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

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

2.2 Test Mode

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

Modulation	Data Rate
802.11n HT40	MCS0

Test Cases	
AC Conducted Emission	Mode 1 :GSM 850 Idle + Bluetooth Link + WLAN Link (2.4G)+ USB Cable 2 (Charging from Adapter1) + Earphone + Battery1

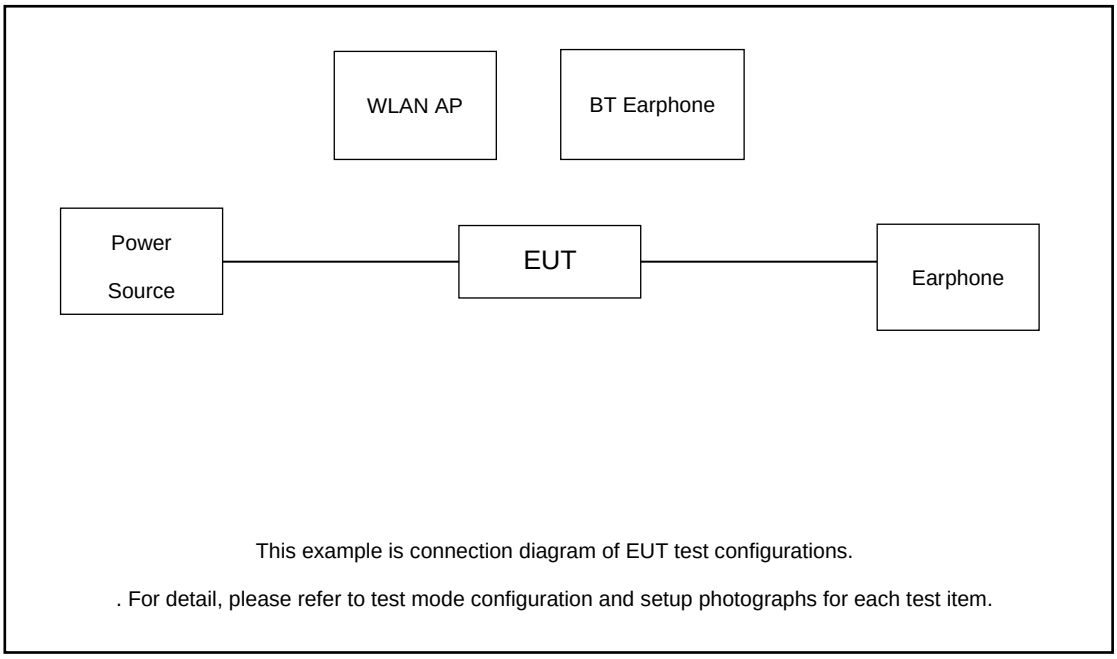
RSE Co-location
802.11n40 CH03 Tx + EN DC_41A-n78A Link

Remark:

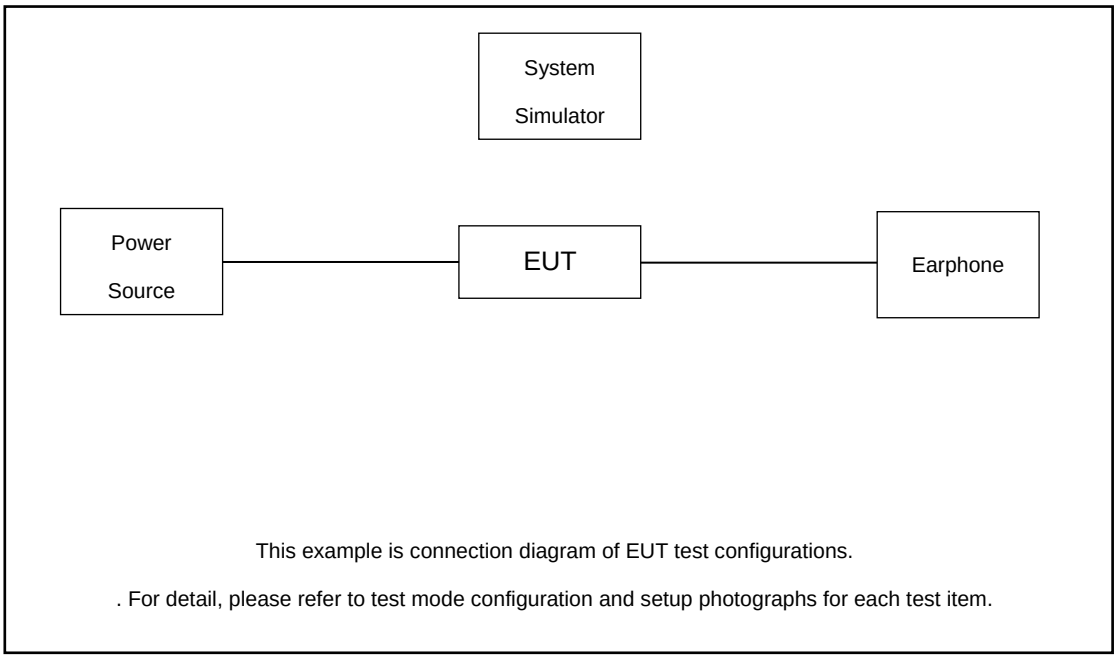
1. For Radiated Test Cases, the tests were performance with Adapter 1, Earphone and USB Cable2.
2. The RSE co-location mode is assessed from the worst WLAN TX + WWAN Link mode.

2.3 Connection Diagram of Test System

AC Conducted Emission:



Radiated Emission:



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Lenovo	thinkplus-BH3	N/A	N/A	N/A
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
4.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
5.	Earphone	N/A	N/A	N/A	N/A	N/A
6.	SD Card	Kingston	8GB	N/A	N/A	N/A

2.5 EUT Operation Test Setup

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

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

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 0.8 dB and 10dB attenuator.

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

= 0.8 + 10 = 10.8 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth and 99% Bandwidth

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

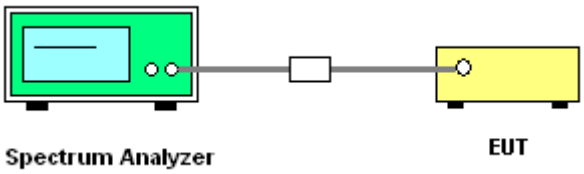
3.1.2 Measuring Instruments

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) = 1%~5% of OBW and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

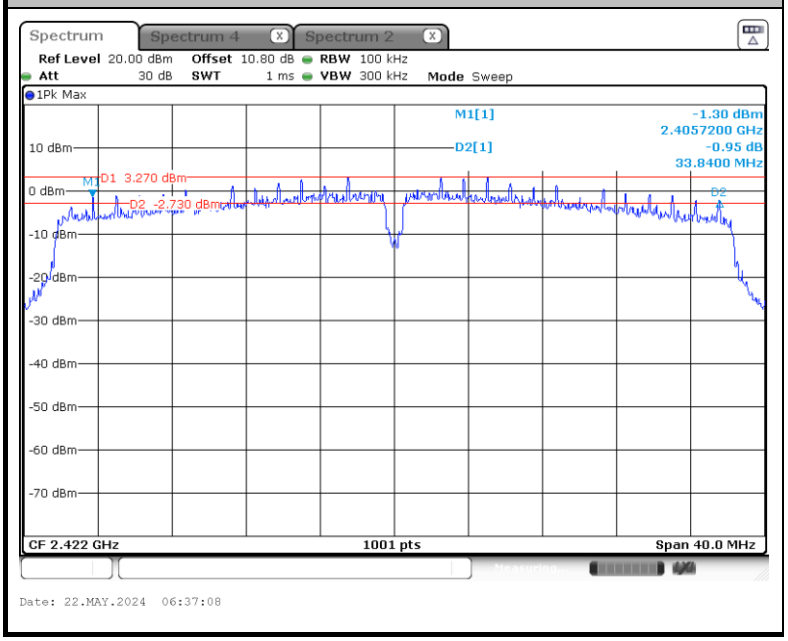
3.1.4 Test Setup



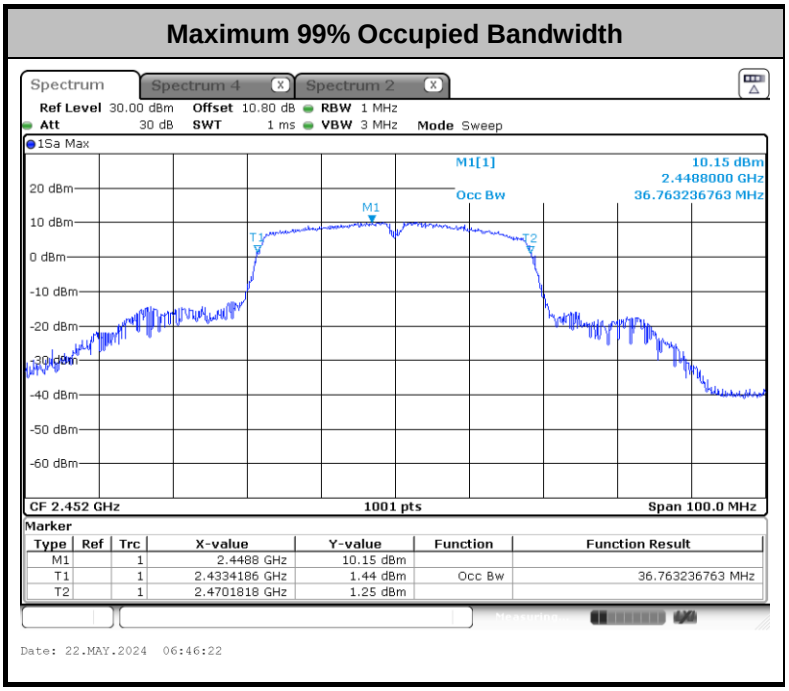
3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth



Maximum 99% Occupied Bandwidth



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

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.

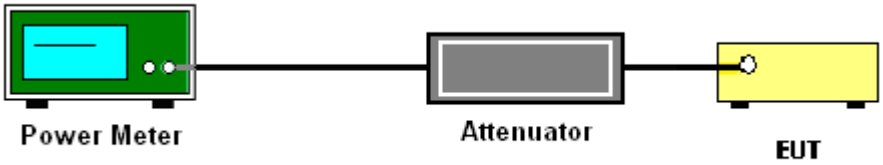
3.2.2 Measuring Instruments

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 (Reporting Only)

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.

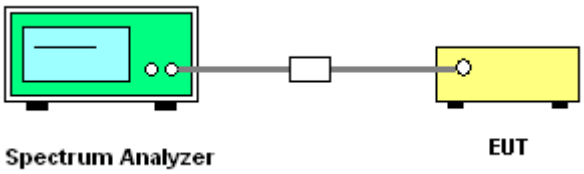
3.3.2 Measuring Instruments

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.

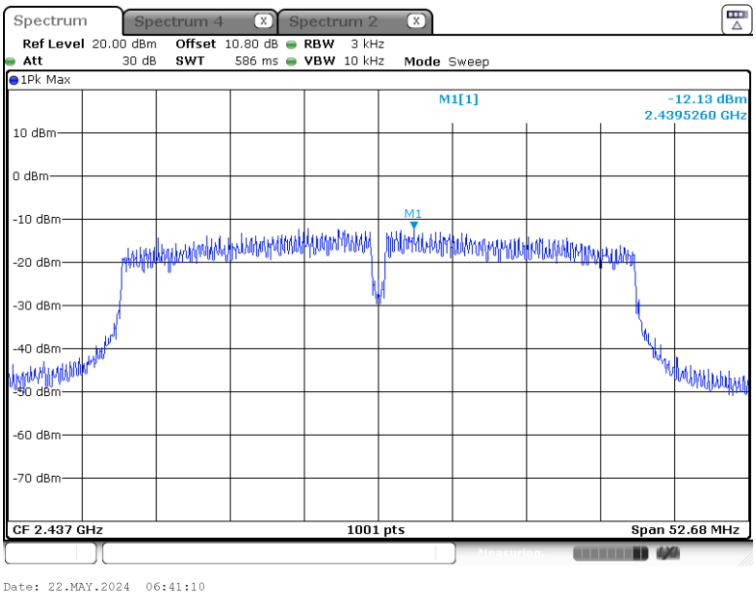
3.3.4 Test Setup



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.

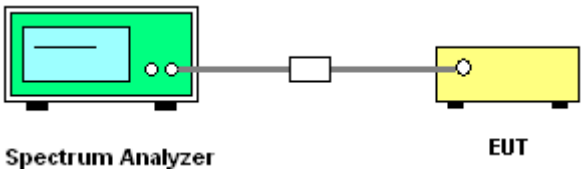
3.4.2 Measuring Instruments

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 11.11
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

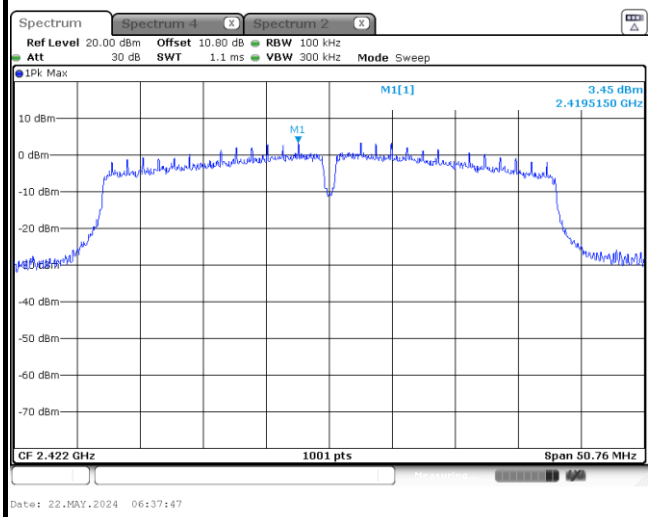


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

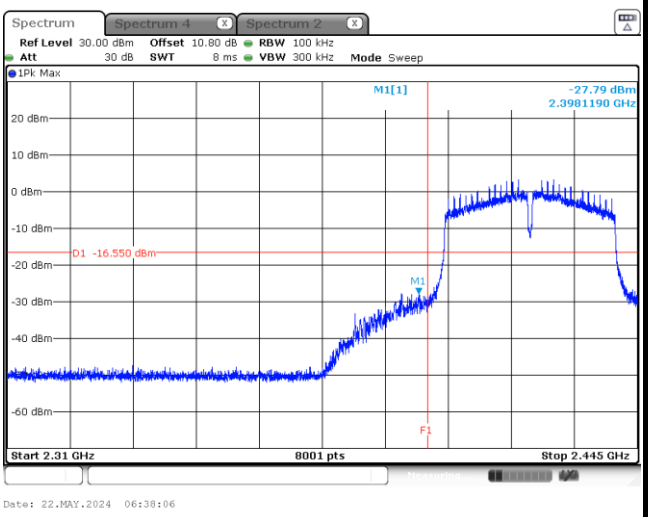
Test Engineer :	Jacob Zhang	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

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

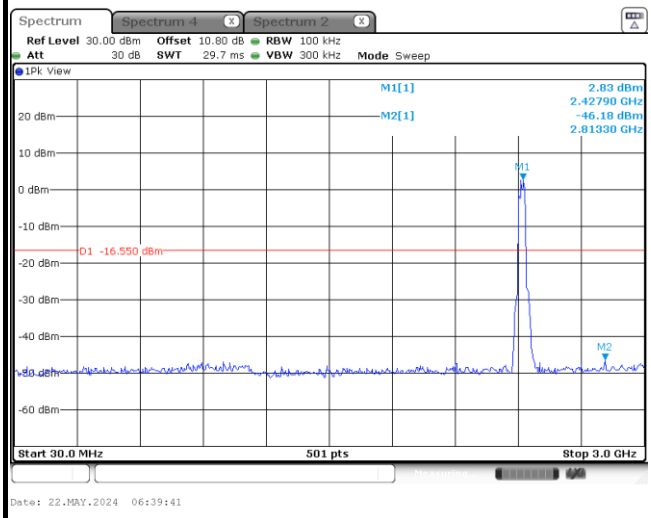
100kHz PSD reference Level



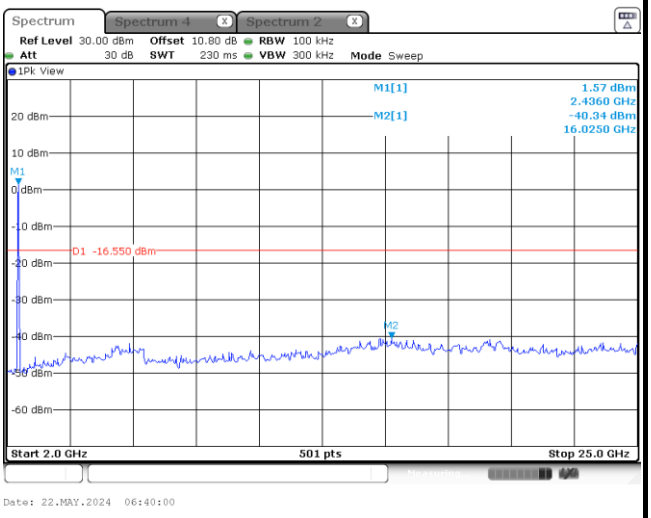
Channel Plot



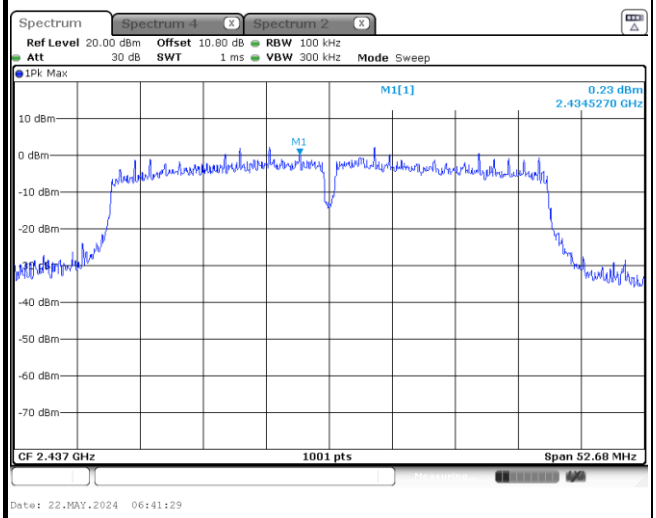
Spurious Emission Plot-1

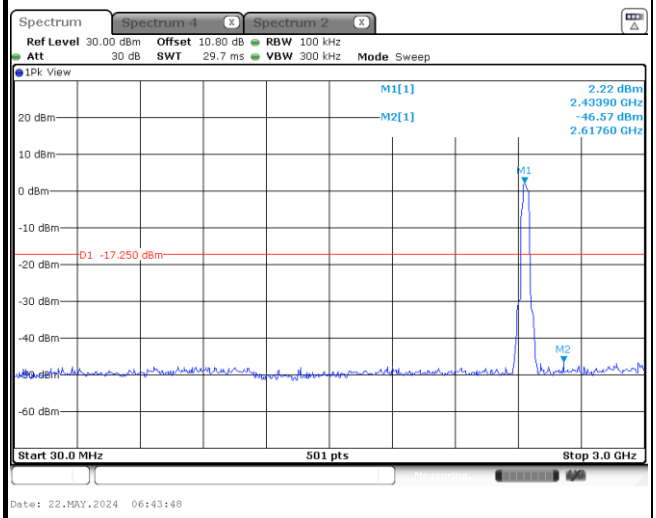
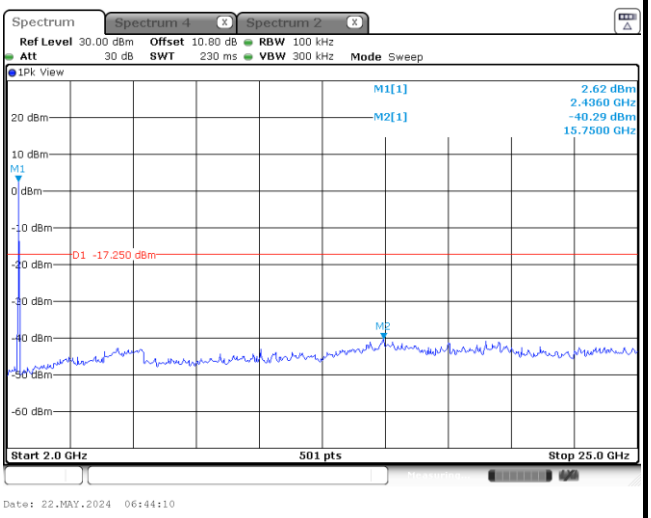


Spurious Emission Plot-2

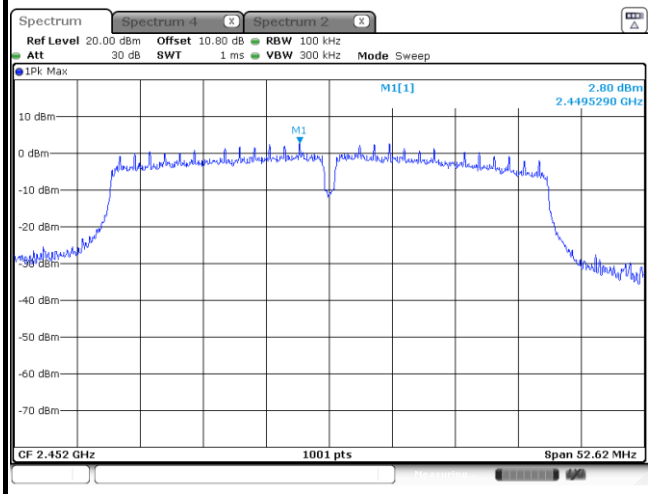
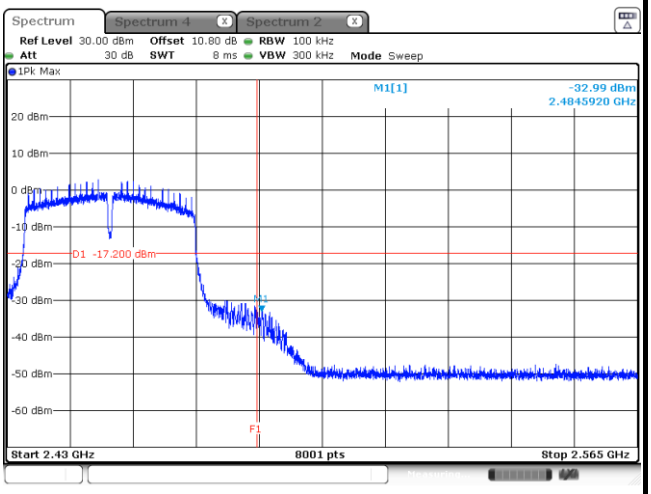
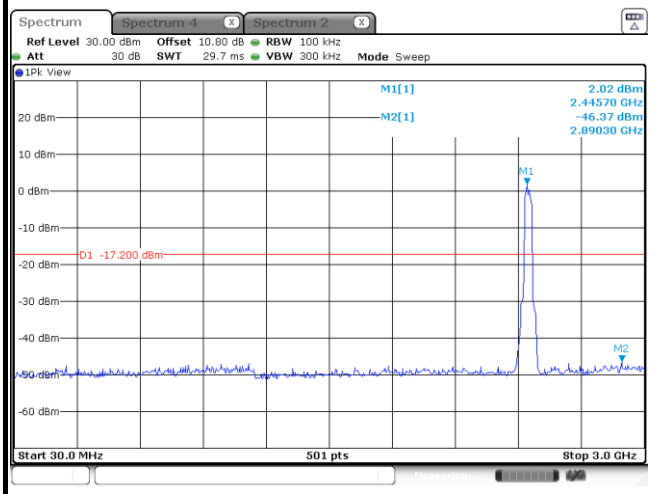
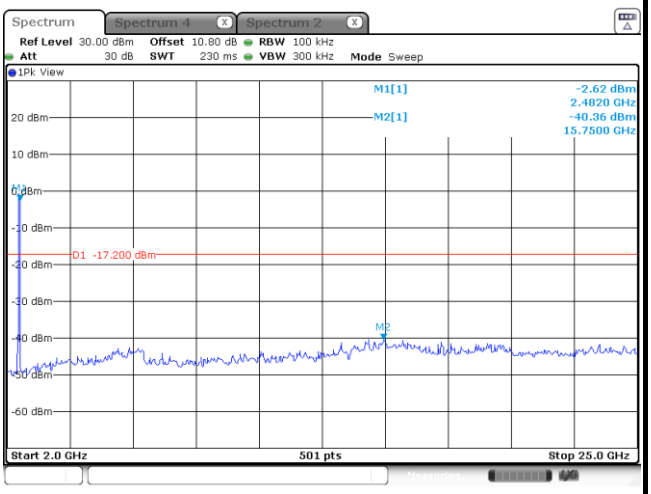


Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	

Spurious Emission Plot-1	Spurious Emission Plot-2
	

Test Mode :	802.11n HT40	Test Channel :	09

100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

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

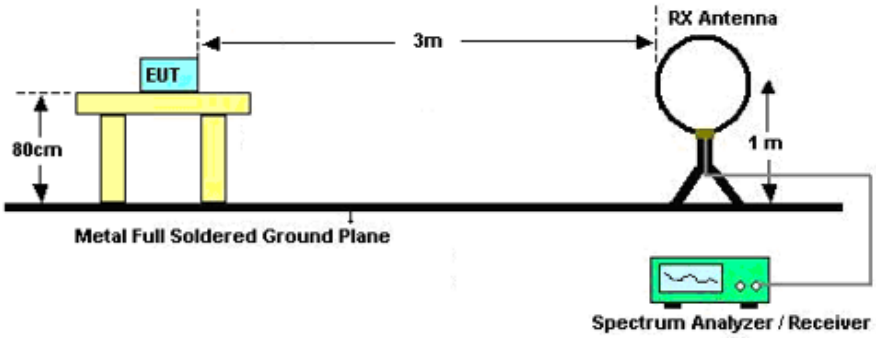
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

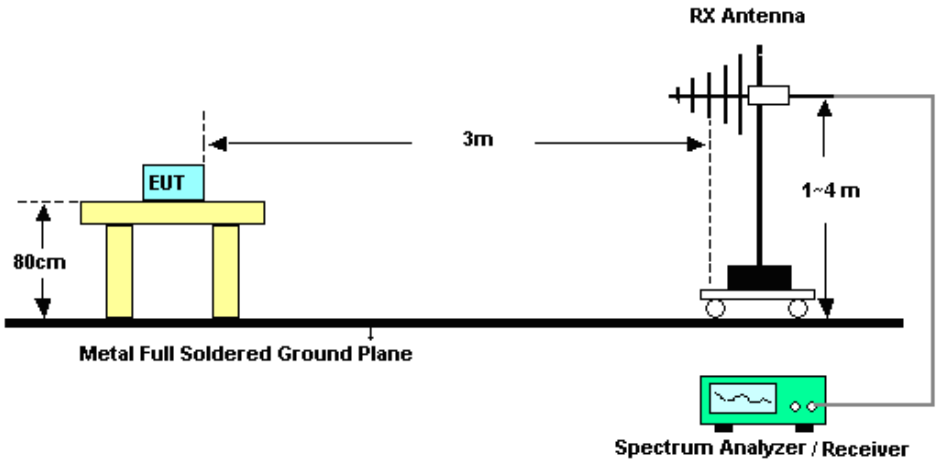
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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

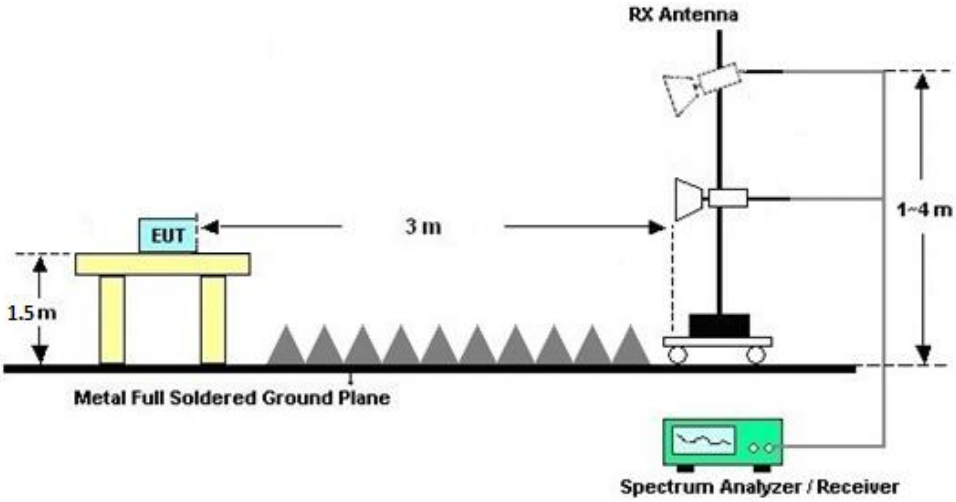
For radiated emissions below 30MHz



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 C.

3.5.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of Emission (MHz)	Conducted Limit (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.

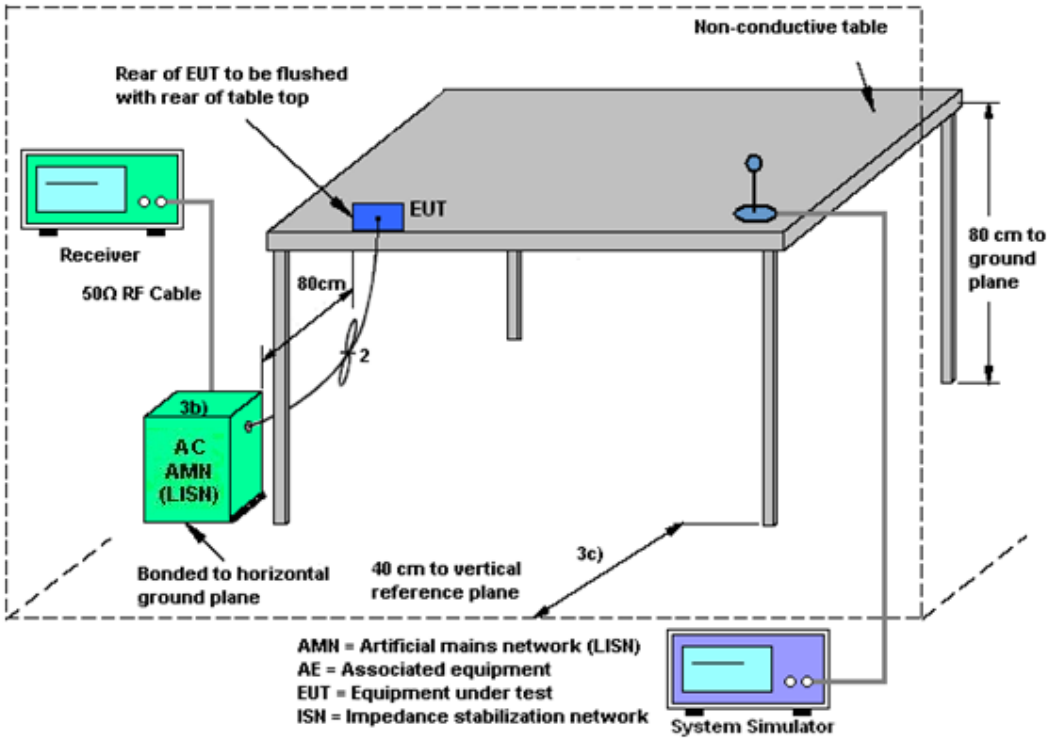
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was 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 should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 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	101040	10Hz~40GHz	Oct. 11, 2023	May 22, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	May 22, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	May 22, 2024	Jan. 01, 2025	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 18, 2024	Jun. 01, 2024	Apr. 17, 2025	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Jun. 01, 2024	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr. 18, 2024	Jun. 01, 2024	Apr. 17, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Jun. 01, 2024	Oct. 10, 2024	Conduction (CO01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023	Jun. 12, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 18, 2024	Jun. 12, 2024	Apr. 17, 2025	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Jun. 12, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Jun. 12, 2024	Aug. 18, 2024	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 23, 2023	Jun. 12, 2024	Oct. 22, 2024	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2024	Jun. 12, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 06, 2023	Jun. 12, 2024	Jul. 05, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM18G40GA	060852	18~40GHz	Jan. 05, 2024	Jun. 12, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
high gain Amplifier	EM	EM01G18GA	060839	1Ghz-18Ghz	Oct. 10, 2023	Jun. 12, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM01G18GA	060833	1Ghz-18Ghz	Jan. 03, 2024	Jun. 12, 2024	Jan. 02, 2025	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jun. 12, 2024	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jun. 12, 2024	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jun. 12, 2024	NCR	Radiation (03CH05-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

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 Conducted Measurement

Conducted Spurious Emission & Bandedge	**±2.26 dB**
Occupied Channel Bandwidth	**±0.1%**
Conducted Power	**±0.46 dB**
Conducted Power Spectral Density	**±0.88 dB**
Frequency	**±0.4 Hz**

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.84 dB**

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.30 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.02 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.22 dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.34 dB**

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

Appendix A. Conducted Test Results

Report Number : FR352916-18

A1 - DTS Part

Test Engineer:	Jacob Zhang	Temperature:	21~25	°C
Test Date:	2024/5/22	Relative Humidity:	51~54	%

Report Number : 352916-18

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
HT40	MCS0	1	3	2422	36.26	33.84	0.50	Pass
HT40	MCS0	1	6	2437	36.56	35.12	0.50	Pass
HT40	MCS0	1	9	2452	36.76	35.08	0.50	Pass

Report Number : 352916-18

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
HT40	MCS0	1	3	2422	23.53	30.00	-2.70	20.83	36.00	Pass
HT40	MCS0	1	6	2437	24.31	30.00	-2.70	21.61	36.00	Pass
HT40	MCS0	1	9	2452	23.76	30.00	-2.70	21.06	36.00	Pass

Report Number : 352916-18

TEST RESULTS DATA
Average Power Table
(Reporting Only)

2.4GHz Band						
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
HT40	MCS0	1	3	2422	0	13.27
HT40	MCS0	1	6	2437	0	16.11
HT40	MCS0	1	9	2452	0	13.77

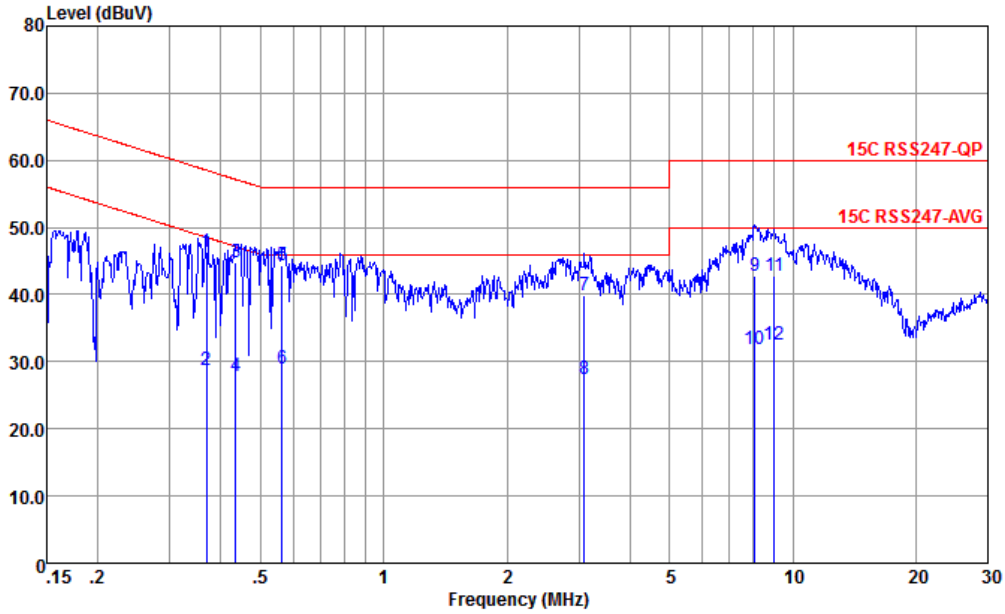
Report Number : 352916-18

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
HT40	MCS0	1	3	2422	-14.86	-2.70	8.00	Pass
HT40	MCS0	1	6	2437	-12.13	-2.70	8.00	Pass
HT40	MCS0	1	9	2452	-14.46	-2.70	8.00	Pass

Appendix B. AC Conducted Emission Test Results

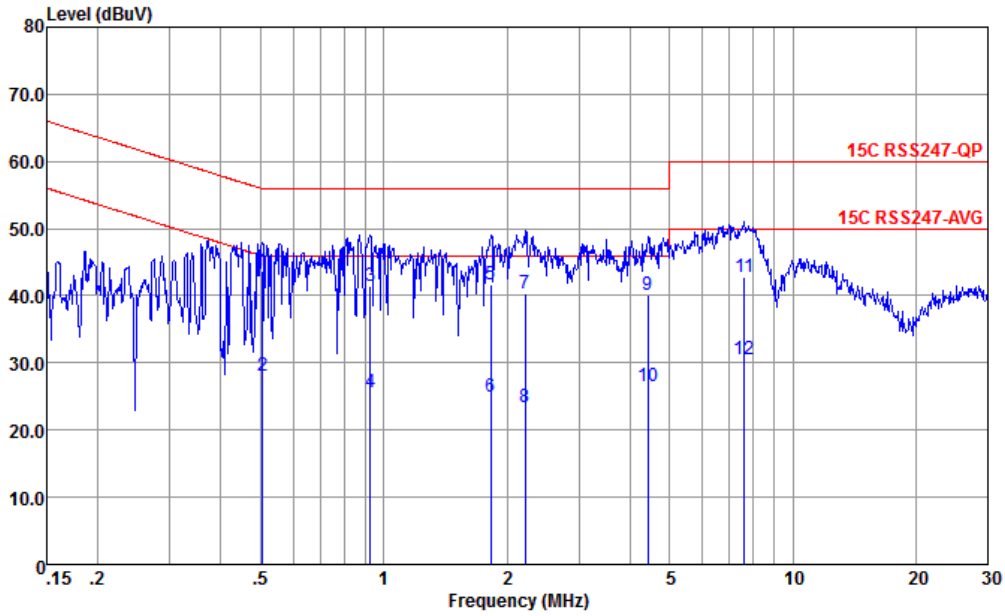
Test Engineer :	Amos	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : 15C RSS247-QP LISN-060105-L 2023 LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.369	46.44	-12.08	58.52	36.14	0.01	10.29	QP
2		0.369	28.64	-19.88	48.52	18.34	0.01	10.29	Average
3		0.435	44.70	-12.45	57.15	34.45	-0.01	10.26	QP
4		0.435	27.80	-19.35	47.15	17.55	-0.01	10.26	Average
5	*	0.564	44.42	-11.58	56.00	34.27	-0.04	10.19	QP
6		0.564	29.02	-16.98	46.00	18.87	-0.04	10.19	Average
7		3.090	39.84	-16.16	56.00	29.85	-0.08	10.07	QP
8		3.090	27.44	-18.56	46.00	17.45	-0.08	10.07	Average
9		8.062	42.77	-17.23	60.00	32.51	-0.15	10.41	QP
10		8.062	31.97	-18.03	50.00	21.71	-0.15	10.41	Average
11		9.011	42.76	-17.24	60.00	32.38	-0.15	10.53	QP
12		9.011	32.56	-17.44	50.00	22.18	-0.15	10.53	Average

Test Engineer :	Amos	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : 15C RSS247-QP LISN-060105-N 2023 NEUTRAL

	Freq MHz	Level dBuV	Over Limit dB	Limit Line dBuV	Read Level dBuV	LISN Factor dB	Cable Loss dB	Remark
1 *	0.505	43.65	-12.35	56.00	33.50	-0.07	10.22	QP
2	0.505	28.15	-17.85	46.00	18.00	-0.07	10.22	Average
3	0.928	41.50	-14.50	56.00	31.49	-0.09	10.10	QP
4	0.928	25.60	-20.40	46.00	15.59	-0.09	10.10	Average
5	1.829	41.56	-14.44	56.00	31.60	-0.12	10.08	QP
6	1.829	24.86	-21.14	46.00	14.90	-0.12	10.08	Average
7	2.213	40.25	-15.75	56.00	30.29	-0.12	10.08	QP
8	2.213	23.45	-22.55	46.00	13.49	-0.12	10.08	Average
9	4.430	40.13	-15.87	56.00	30.20	-0.13	10.06	QP
10	4.430	26.43	-19.57	46.00	16.50	-0.13	10.06	Average
11	7.606	42.73	-17.27	60.00	32.50	-0.12	10.35	QP
12	7.606	30.43	-19.57	50.00	20.20	-0.12	10.35	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)

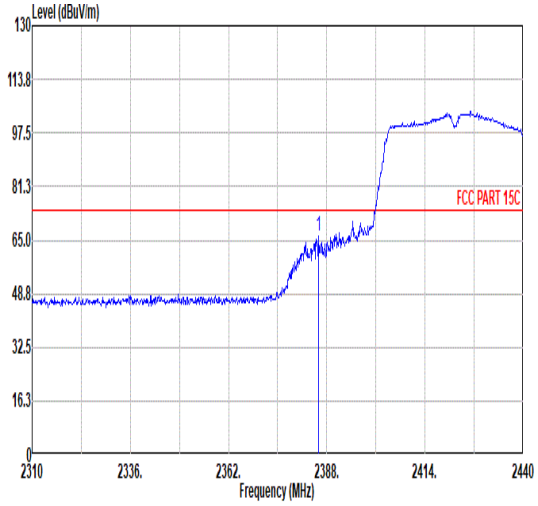
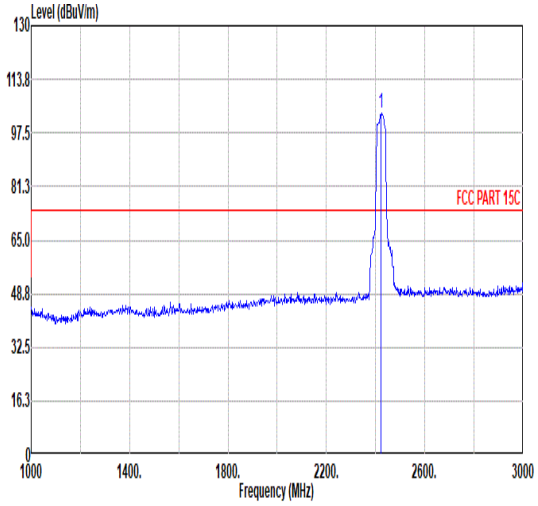
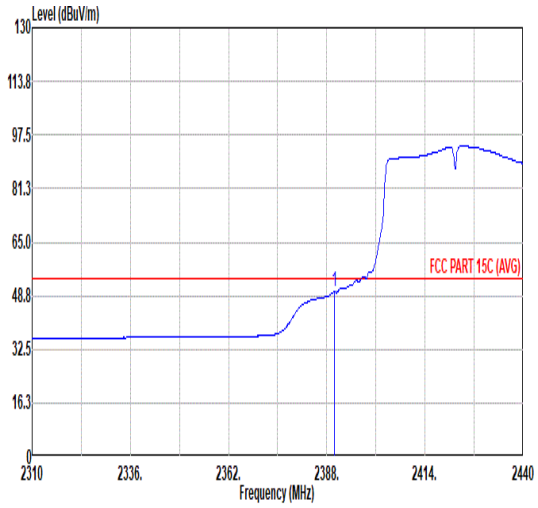
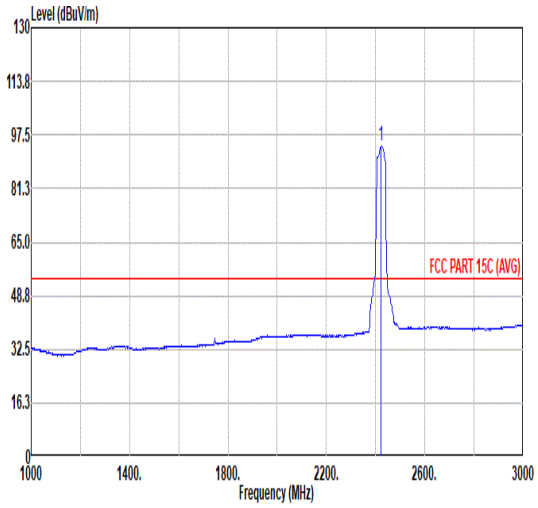
Appendix C. Radiated Spurious Emission Test Data

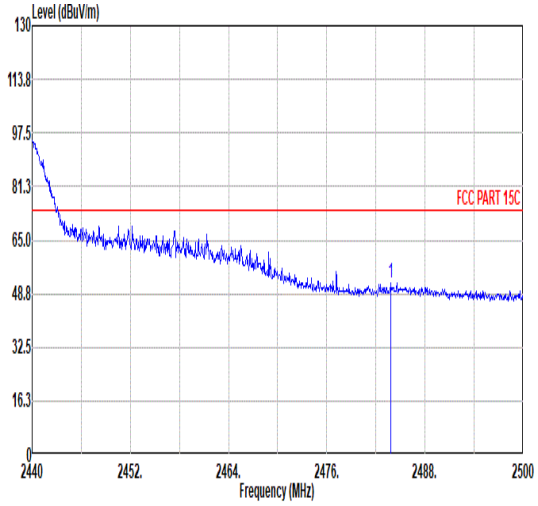
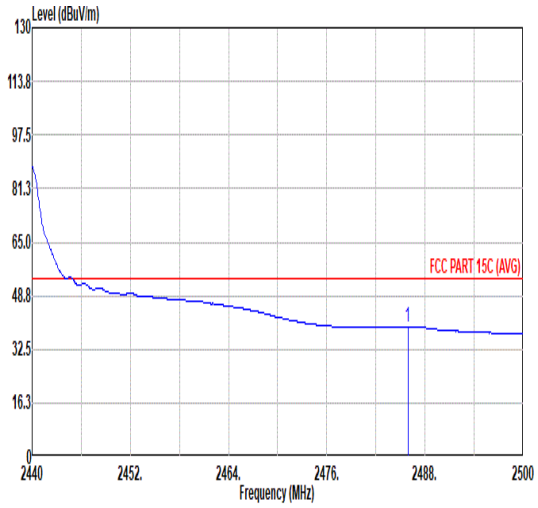
Radiated Spurious Emission Test Modes

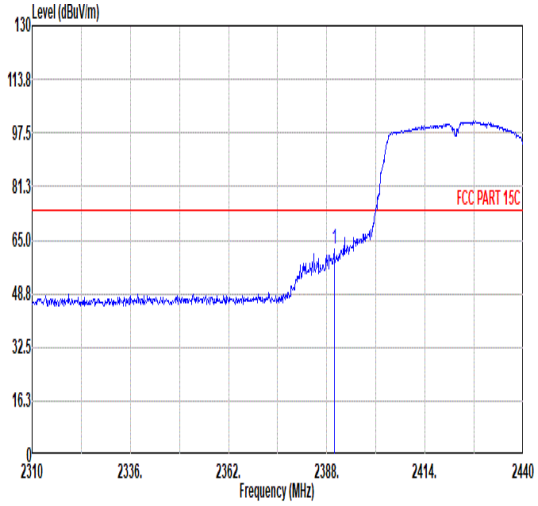
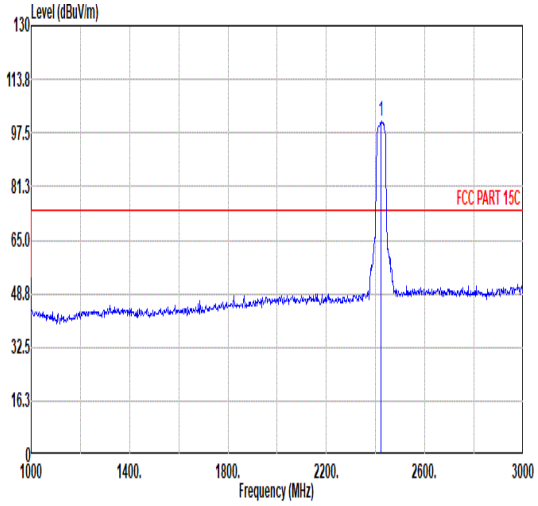
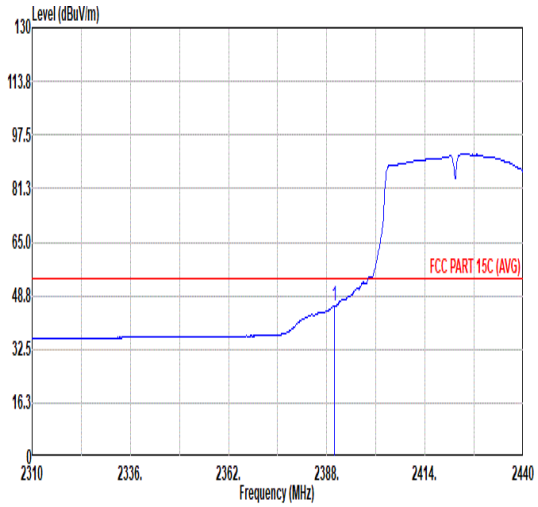
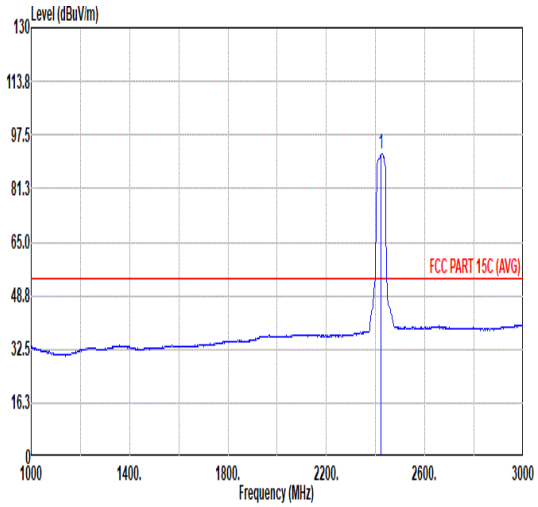
Mode	Band (MHz)	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	2400-2483.5	802.11n HT40	03	2422	MCS0	-	-
Mode 2	2400-2483.5	802.11n HT40	06	2437	MCS0	-	-
Mode 3	2400-2483.5	802.11n HT40	09	2452	MCS0	-	-

Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	802.11n HT40	03	2389.95	49.86	54.00	-4.14	H	AVERAGE	Pass	Band Edge
1	802.11n HT40	03	7266.00	42.11	74.00	-31.89	V	PEAK	Pass	Harmonic
2	802.11n HT40	06	2483.50	44.97	54.00	-9.03	H	AVERAGE	Pass	Band Edge
2	802.11n HT40	06	7311.00	43.39	74.00	-30.61	H	PEAK	Pass	Harmonic
3	802.11n HT40	09	2484.58	49.83	54.00	-4.17	H	AVERAGE	Pass	Band Edge
3	802.11n HT40	09	7356.00	42.64	74.00	-31.36	V	PEAK	Pass	Harmonic

Mode	1	
	Band Edge - L	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2385.92 66.06 74.00 -7.94 57.85 32.16 7.10 37.05 6.00 100 111 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2422.00 103.60 ------ ------ 95.08 32.35 7.16 36.99 6.00 100 111 PEAK
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 49.86 54.00 -4.14 41.60 32.20 7.11 37.05 6.00 100 111 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2422.00 94.24 ------ ------ 85.72 32.35 7.16 36.99 6.00 100 111 AVERAGE

Mode	1	
	Band Edge - R	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2483.86 52.19 74.00 -21.81 43.31 32.47 7.26 36.85 6.00 100 111 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2485.90 39.41 54.00 -14.59 30.52 32.47 7.26 36.84 6.00 100 111 AVERAGE	Blank

Mode	1	
	Band Edge - L	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 62.46 74.00 -11.54 54.20 32.20 7.11 37.05 6.00 335 68 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2422.00 101.16 ------ ------ 92.64 32.35 7.16 36.99 6.00 335 68 PEAK
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 45.66 54.00 -8.34 37.40 32.20 7.11 37.05 6.00 335 68 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2422.00 91.75 ------ ------ 83.23 32.35 7.16 36.99 6.00 335 68 AVERAGE

Mode	1	
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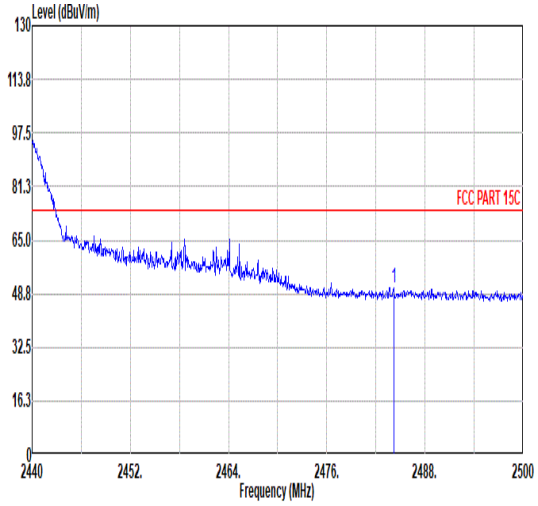
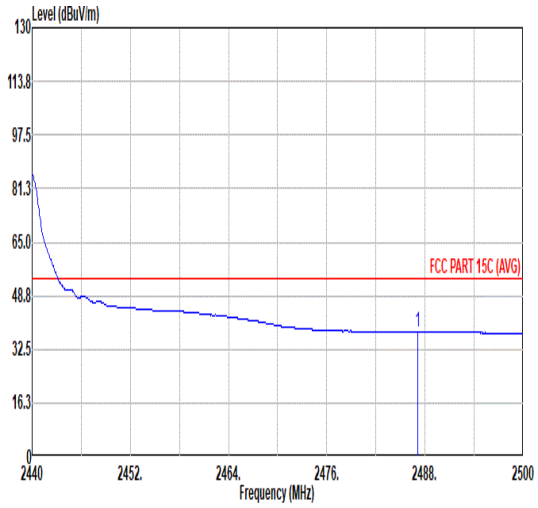
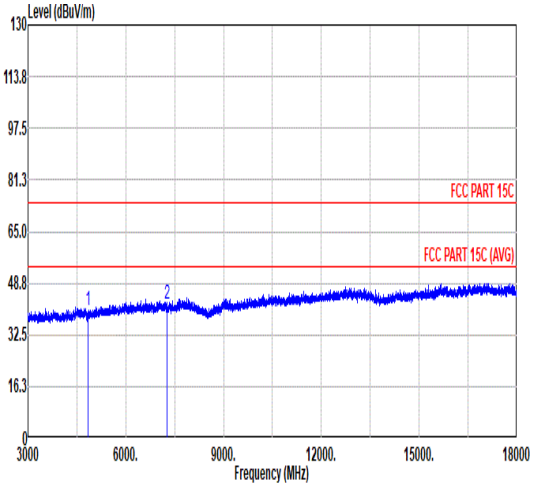
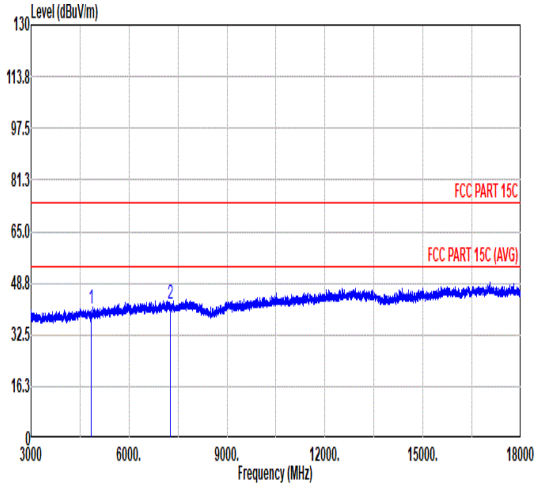
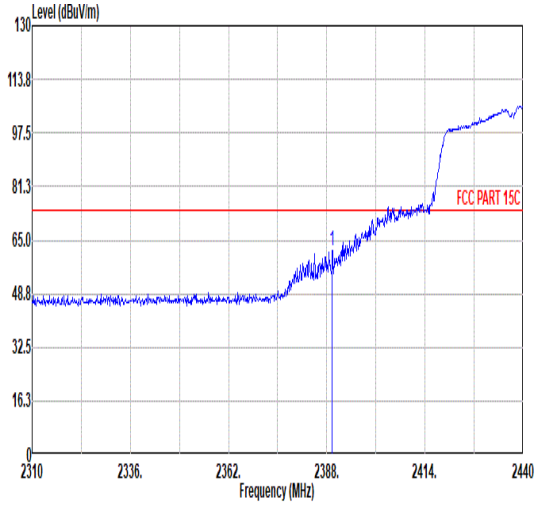
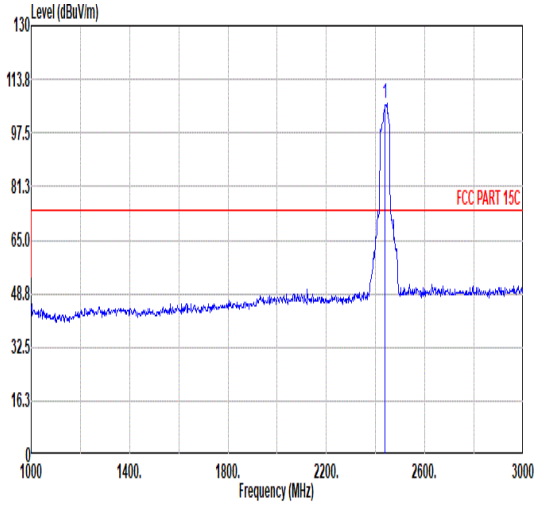
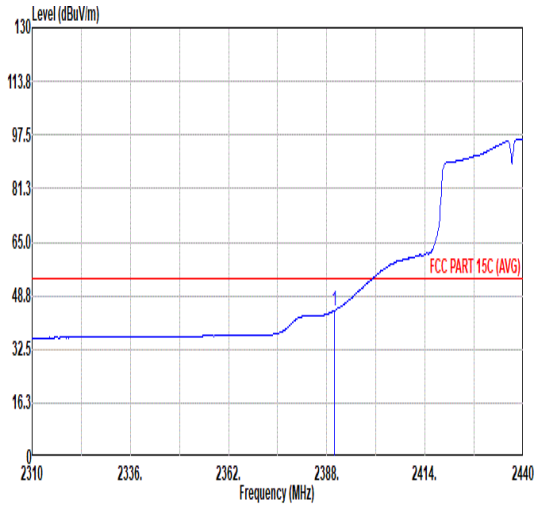
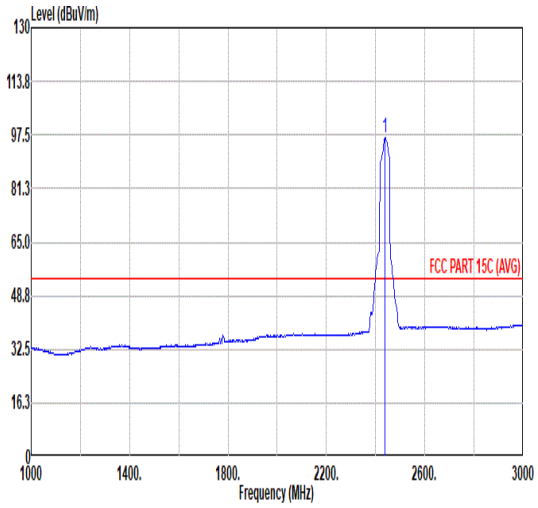
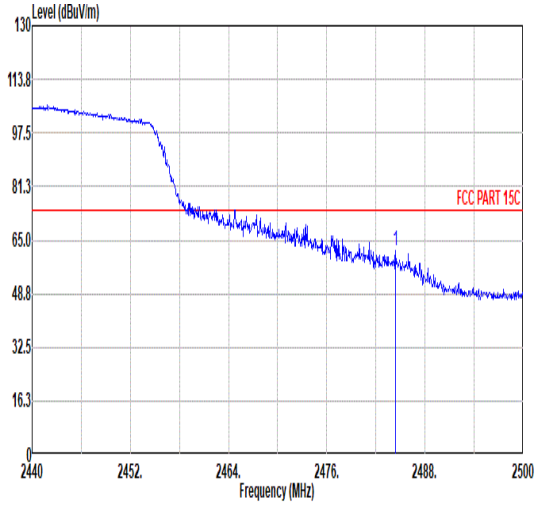
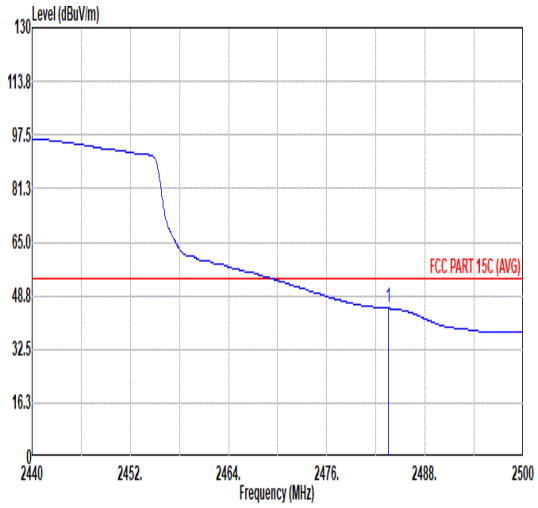
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2484.16 50.72 74.00 -23.28 41.84 32.47 7.26 36.85 6.00 335 68 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2487.10 37.97 54.00 -16.03 29.08 32.47 7.26 36.84 6.00 335 68 AVERAGE	Blank

Mode	1	
	Harmonic	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Vertical
Peak Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4844.00 40.27 74.00 -33.73 61.41 34.12 10.25 65.51 0.00 -- -- PEAK 2 7266.00 42.10 74.00 -31.90 59.86 35.70 12.72 66.18 0.00 -- -- PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4844.00 40.83 74.00 -33.17 61.97 34.12 10.25 65.51 0.00 -- -- PEAK 2 7266.00 42.11 74.00 -31.89 59.87 35.70 12.72 66.18 0.00 -- -- PEAK

Mode	2	
	Band Edge - L	
	2400-2483.5_802.11n HT40_CH06_2437MHz	
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.43 61.85 74.00 -12.15 53.61 32.19 7.10 37.05 6.00 100 139 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2437.00 106.31 ------ ------ 97.65 32.39 7.20 36.93 6.00 100 139 PEAK
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 44.20 54.00 -9.80 35.94 32.20 7.11 37.05 6.00 100 139 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2437.00 96.53 ------ ------ 87.91 32.38 7.19 36.95 6.00 100 139 AVERAGE

Mode	2	
	Band Edge - R	
	2400-2483.5_802.11n HT40_CH06_2437MHz	
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2484.40 61.79 74.00 -12.21 52.91 32.47 7.26 36.85 6.00 100 139 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2483.50 44.97 54.00 -9.03 36.09 32.47 7.26 36.85 6.00 100 139 AVERAGE	Blank

Mode	2	
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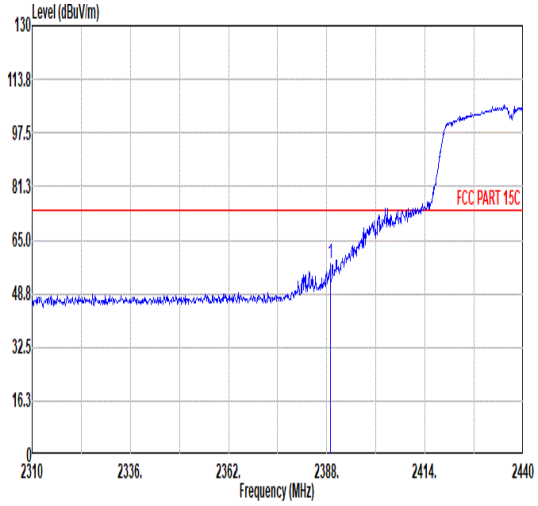
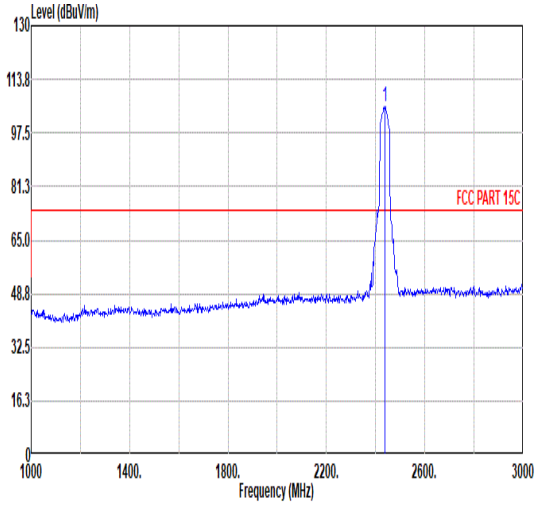
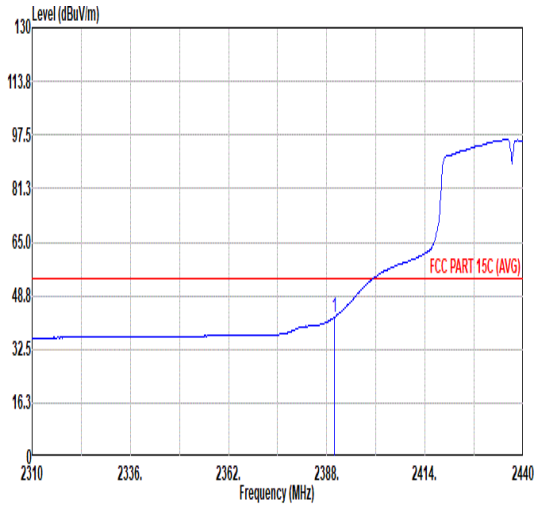
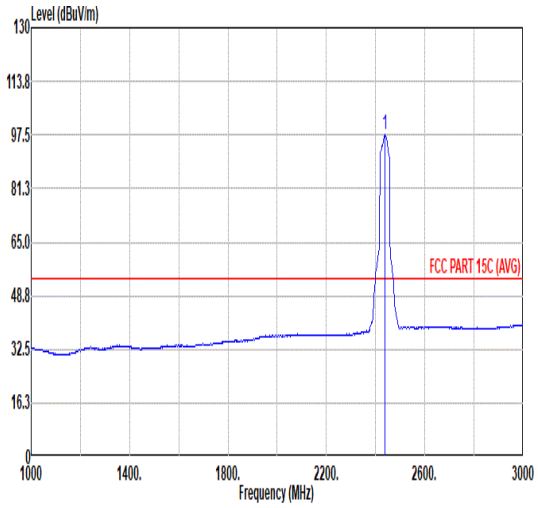
	2400-2483.5_802.11n HT40_CH06_2437MHz	
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2388.91 57.80 74.00 -16.20 49.56 32.19 7.10 37.05 6.00 375 77 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2437.00 105.59 ------ ------ 96.97 32.38 7.19 36.95 6.00 375 77 PEAK
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 42.14 54.00 -11.86 33.88 32.20 7.11 37.05 6.00 375 77 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2437.00 97.42 ------ ------ 88.81 32.38 7.18 36.95 6.00 375 77 AVERAGE

Mode	2	
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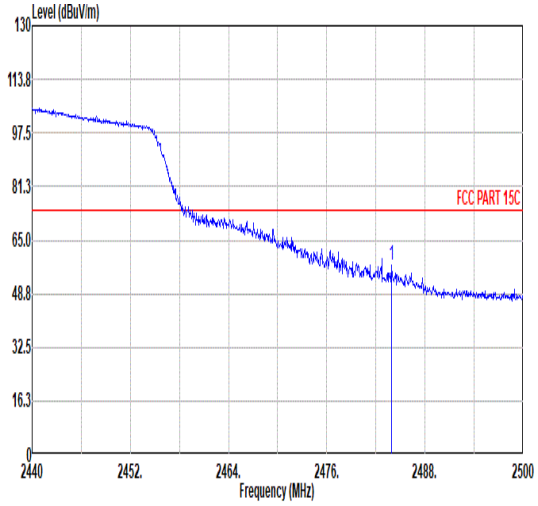
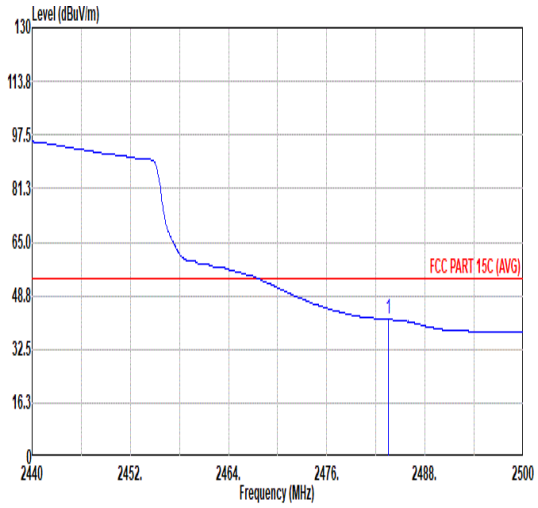
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2483.92 57.37 74.00 -16.63 48.49 32.47 7.26 36.85 6.00 375 77 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2483.56 41.67 54.00 -12.33 32.79 32.47 7.26 36.85 6.00 375 77 AVERAGE	Blank

Mode	2	
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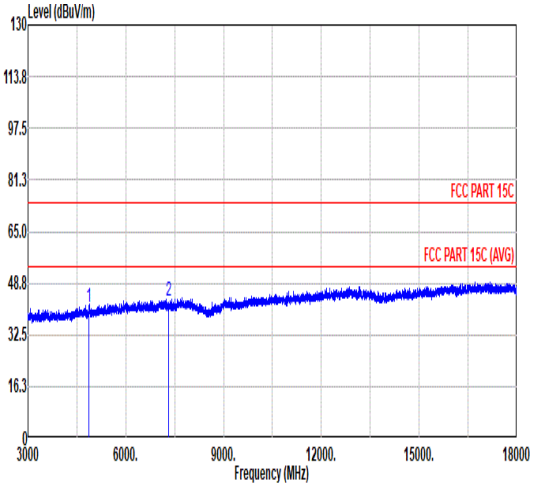
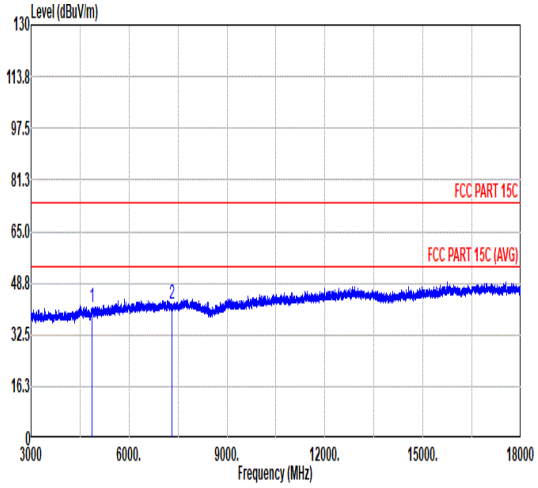
ANT	-	
Pol.	Horizontal	Vertical
Peak Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4874.00 41.24 74.00 -32.76 62.34 34.14 10.29 65.53 0.00 -- -- PEAK 2 7311.00 43.39 74.00 -30.61 61.24 35.72 12.72 66.29 0.00 -- -- PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4874.00 41.17 74.00 -32.83 62.27 34.14 10.29 65.53 0.00 -- -- PEAK 2 7311.00 42.00 74.00 -32.00 59.85 35.72 12.72 66.29 0.00 -- -- PEAK

Mode	3	
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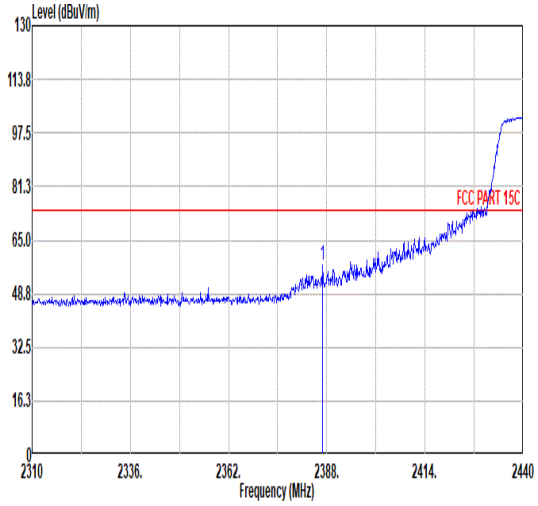
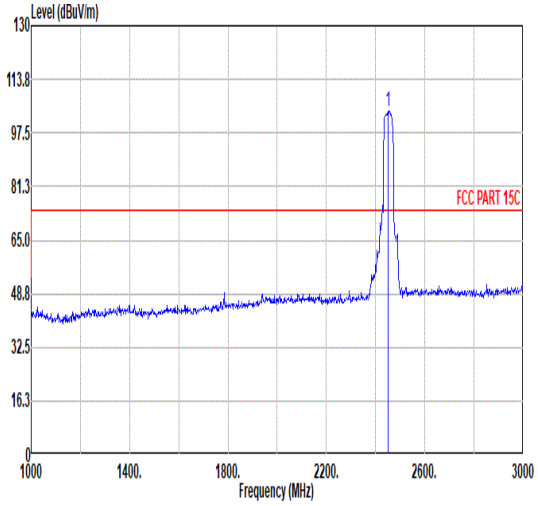
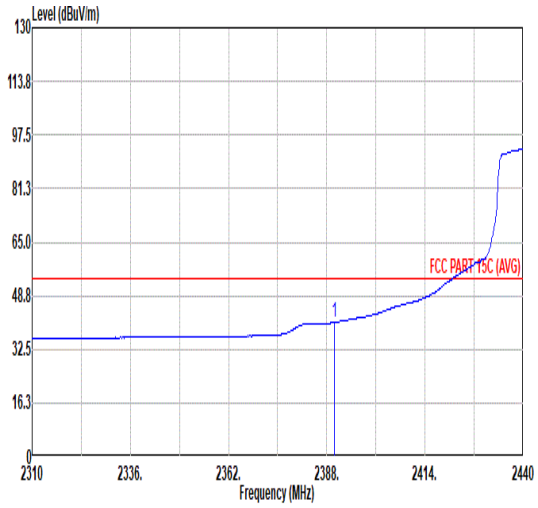
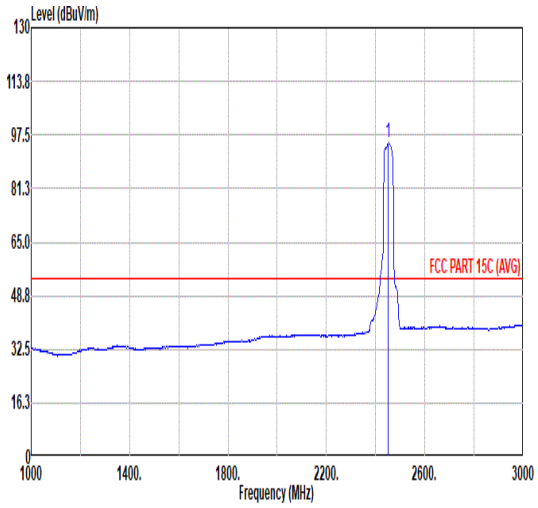
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2386.96 57.32 74.00 -16.68 49.10 32.17 7.10 37.05 6.00 101 102 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2452.00 104.12 ------ ------ 95.41 32.41 7.21 36.91 6.00 101 102 PEAK
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 40.66 54.00 -13.34 32.40 32.20 7.11 37.05 6.00 101 102 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2452.00 94.95 ------ ------ 86.25 32.41 7.21 36.92 6.00 101 102 AVERAGE

Mode	3	
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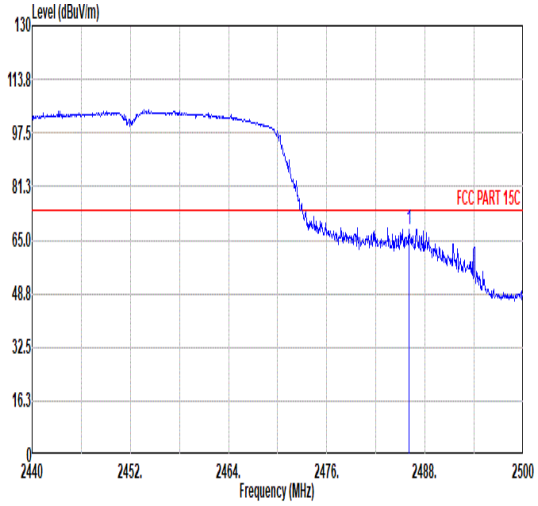
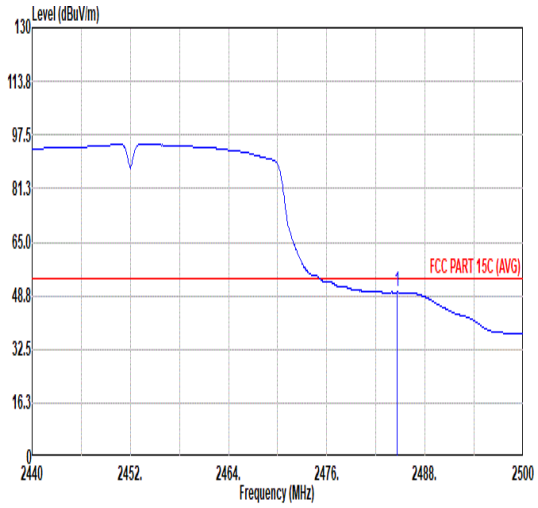
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2486.02 68.34 74.00 -5.66 59.45 32.47 7.26 36.84 6.00 101 102 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2484.58 49.83 54.00 -4.17 40.95 32.47 7.26 36.85 6.00 101 102 AVERAGE	Blank

Mode	3	
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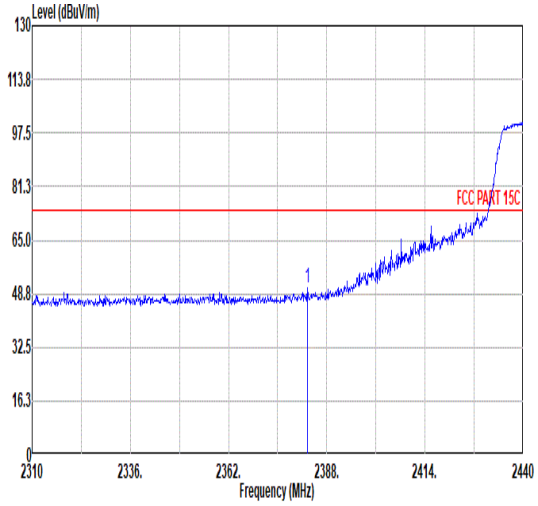
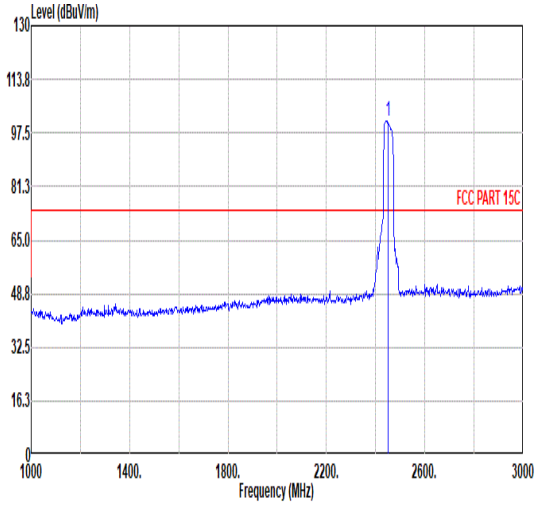
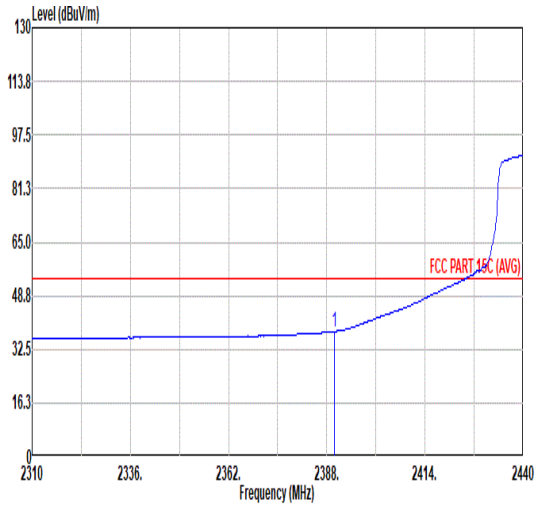
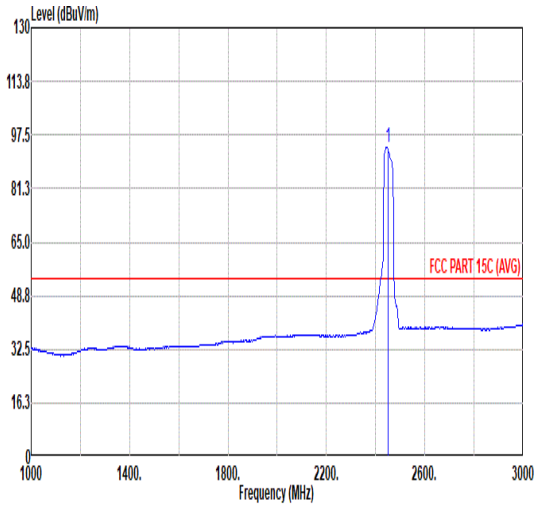
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2382.80 50.69 74.00 -23.31 42.52 32.13 7.09 37.05 6.00 374 75 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2452.00 101.20 ------ ------ 92.57 32.38 7.19 36.94 6.00 374 75 PEAK
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 37.96 54.00 -16.04 29.70 32.20 7.11 37.05 6.00 374 75 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2452.00 93.71 ------ ------ 85.07 32.39 7.19 36.94 6.00 374 75 AVERAGE

Mode	3	
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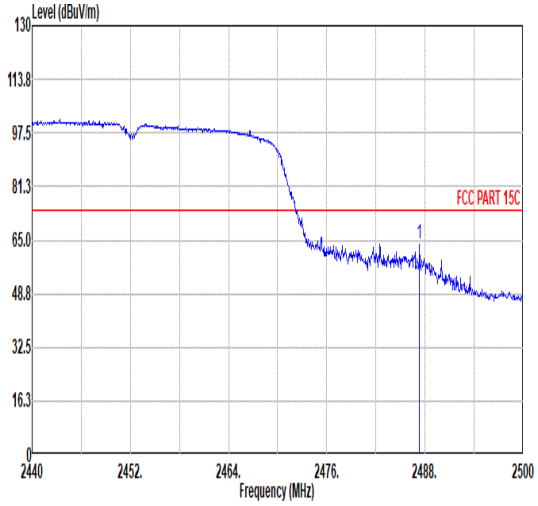
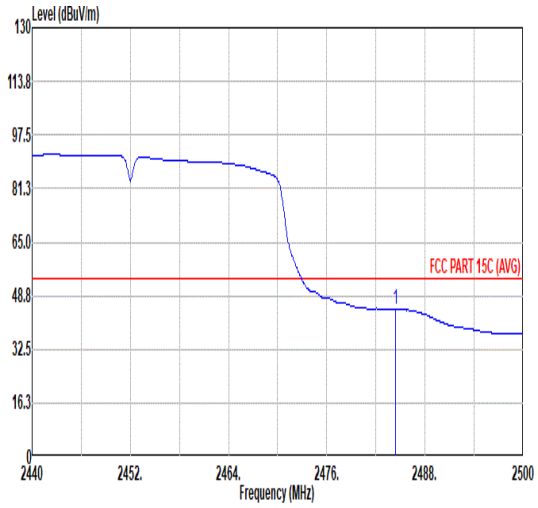
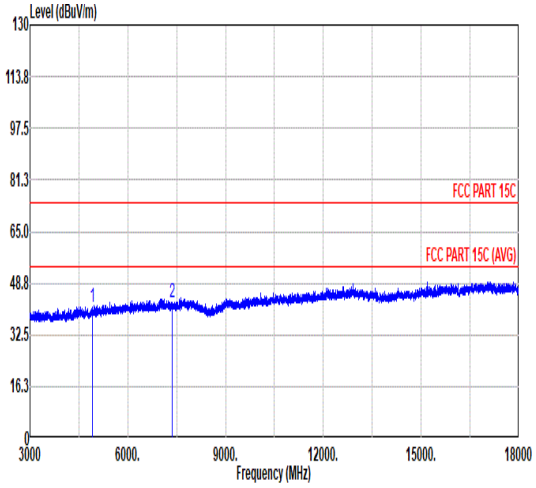
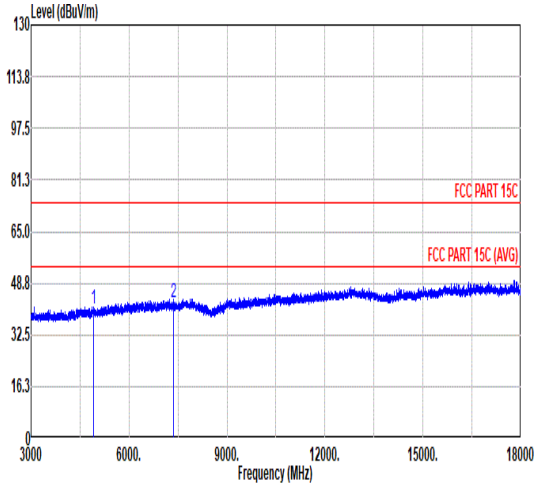
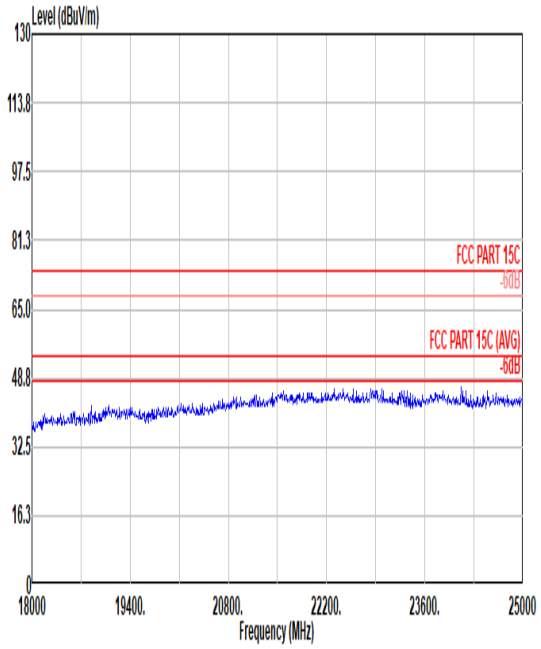
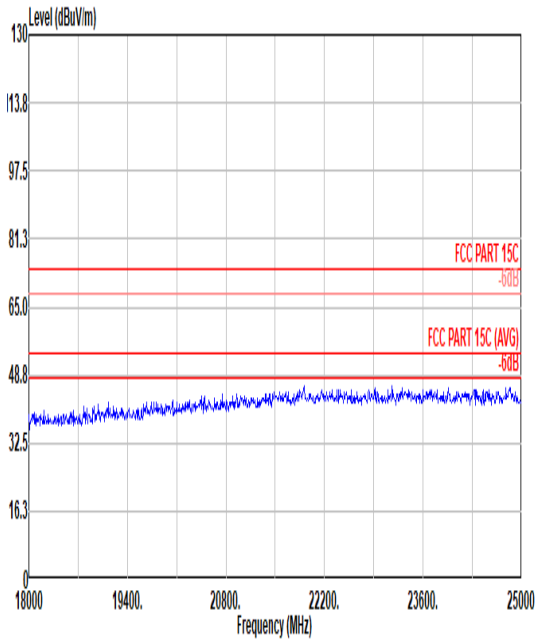
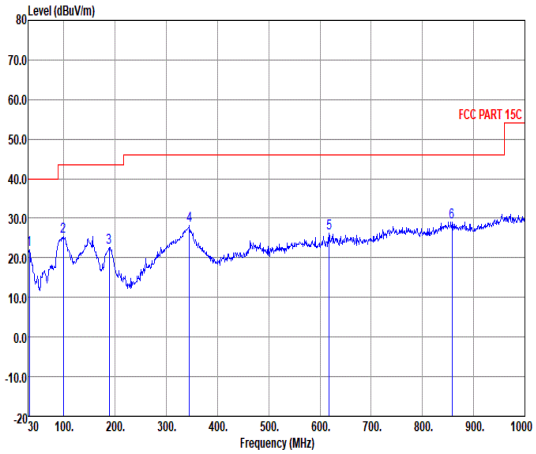
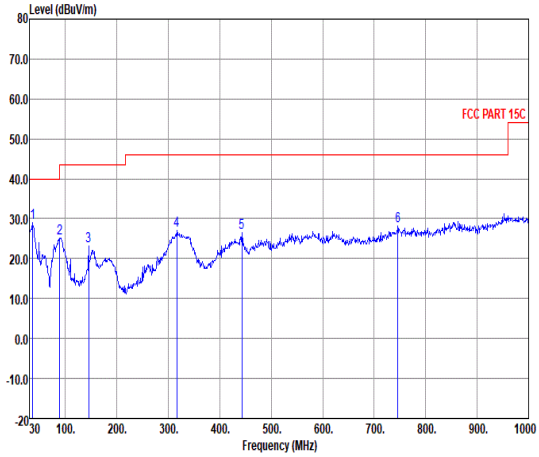
	2400-2483.5_802.11n HT40_CH09_2452MHz	
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2487.34 63.72 74.00 -10.28 54.83 32.47 7.26 36.84 6.00 374 75 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2484.40 44.64 54.00 -9.36 35.76 32.47 7.26 36.85 6.00 374 75 AVERAGE	Blank

Mode	3	
	Harmonic	
	2400-2483.5_802.11n HT40_CH09_2452MHz	
ANT	-	
Pol.	Horizontal	Vertical
Peak Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4904.00 41.40 74.00 -32.60 62.45 34.17 10.33 65.55 0.00 -- -- PEAK 2 7356.00 42.64 74.00 -31.36 60.52 35.80 12.73 66.41 0.00 -- -- PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4904.00 40.87 74.00 -33.13 61.92 34.17 10.33 65.55 0.00 -- -- PEAK 2 7356.00 42.64 74.00 -31.36 60.52 35.80 12.73 66.41 0.00 -- -- PEAK

Mode	1	
	18G-25G	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Vertical
Peak Avg		

Mode	1	
	30-1G	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Vertical
QP		

	Freq	Level	Over Limit	Limit Line	Read Level	CableLoss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB	cm	deg	
1	32.91	22.09	-17.91	40.00	31.21	0.76	23.06	32.94	---	---	Peak
2	98.87	25.52	-17.98	43.50	40.02	1.50	16.87	32.87	---	---	Peak
3	188.11	22.49	-21.01	43.50	37.60	2.08	15.65	32.84	---	---	Peak
4	345.25	28.07	-17.93	46.00	37.84	2.83	20.32	32.92	---	---	Peak
5	617.82	26.15	-19.85	46.00	30.35	3.79	25.04	33.03	---	---	Peak
6	857.41	29.14	-16.86	46.00	30.36	4.47	26.60	32.29	---	---	Peak

	Freq	Level	Over Limit	Limit Line	Read Level	CableLoss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB	cm	deg	
1	36.79	28.96	-11.04	40.00	40.12	0.83	20.92	32.91	---	---	Peak
2	89.17	25.14	-18.36	43.50	41.61	1.41	14.97	32.85	---	---	Peak
3	145.43	23.29	-20.21	43.50	37.81	1.82	16.48	32.82	---	---	Peak
4	316.15	26.97	-19.03	46.00	37.44	2.71	19.68	32.86	---	---	Peak
5	443.22	26.59	-19.41	46.00	34.00	3.21	22.41	33.03	---	---	Peak
6	745.86	28.12	-17.88	46.00	30.97	4.18	25.78	32.81	---	---	Peak

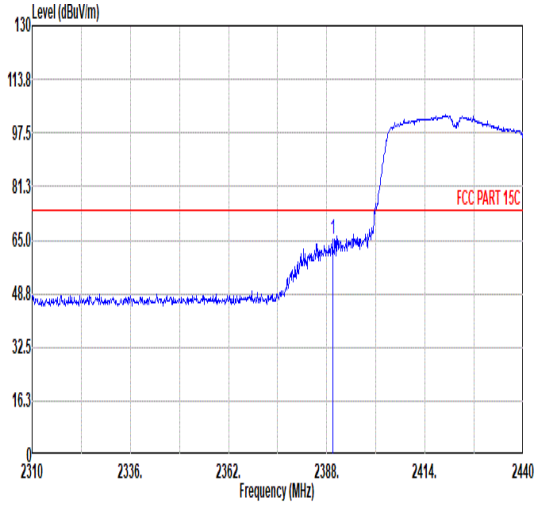
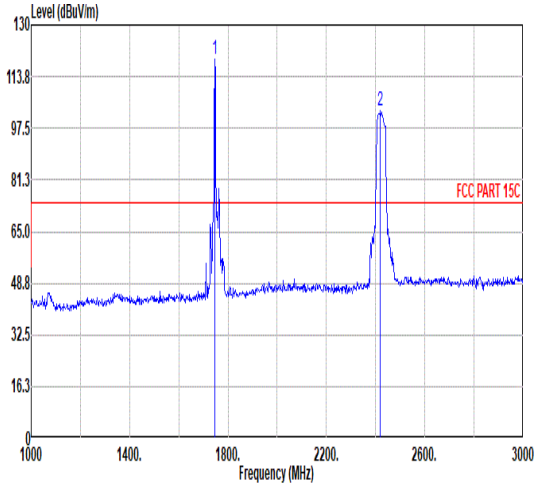
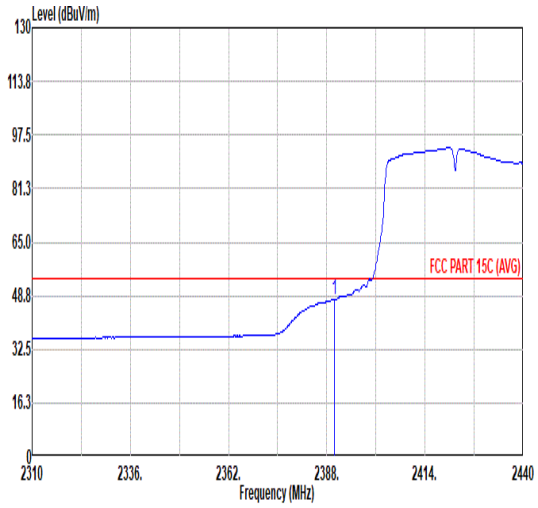
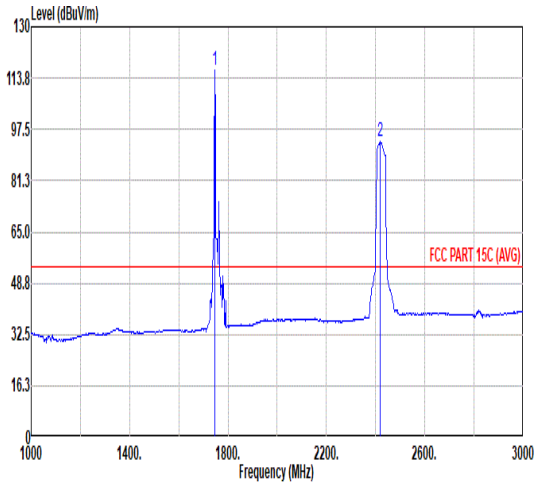
<Co-location>

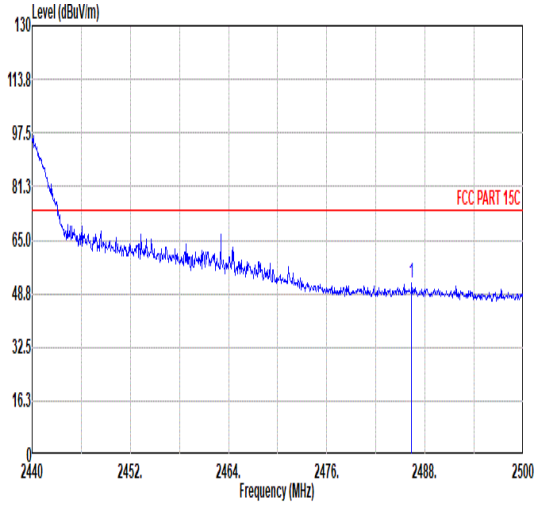
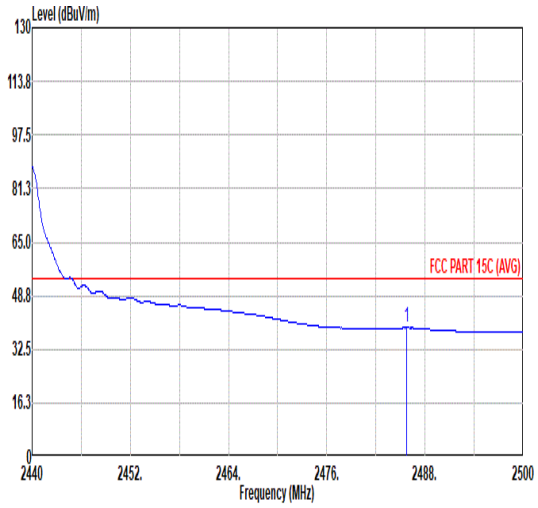
Radiated Spurious Emission Test Modes

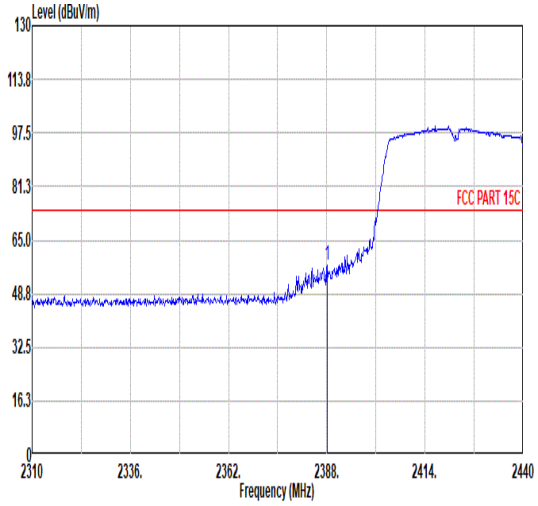
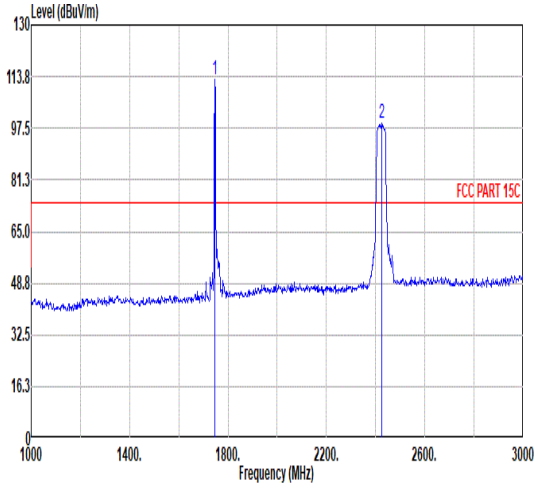
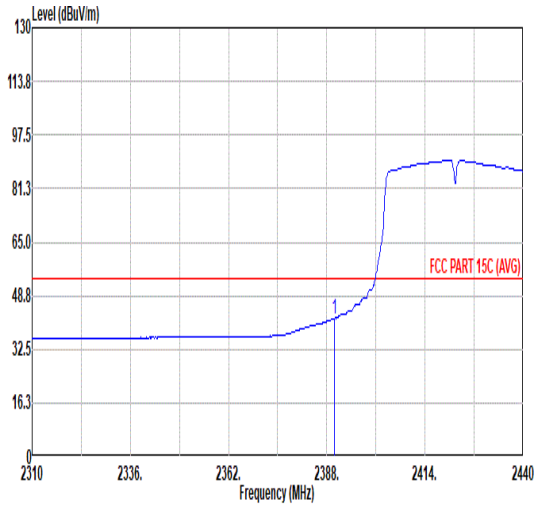
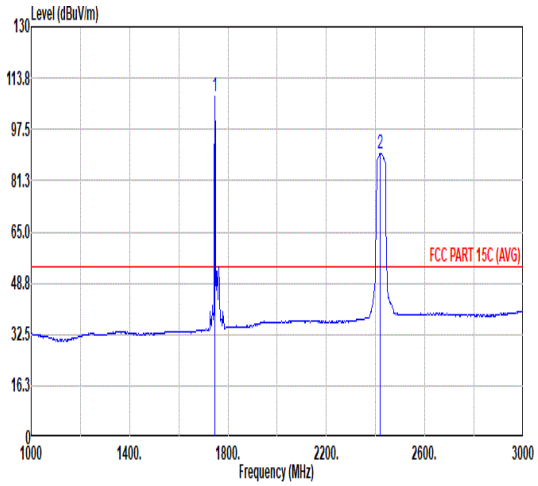
Mode	Band (MHz)	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 4	2400-2483.5	802.11n HT40	03	2422	MCS0	-	-
	Part 27Q DC_41A_n78A						

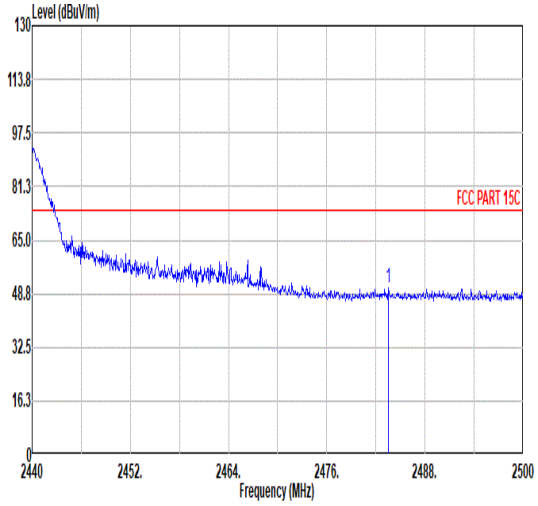
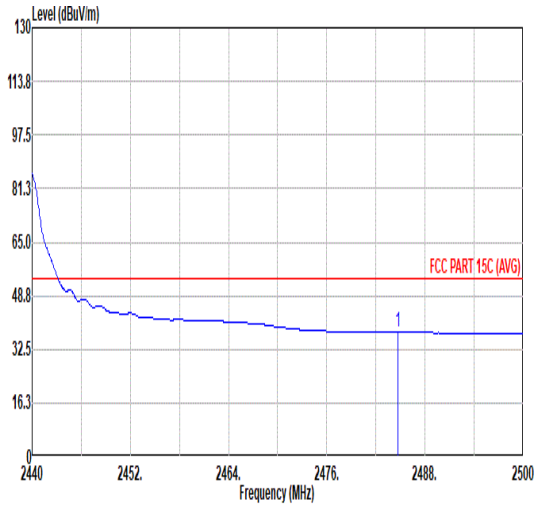
Summary of each worse mode

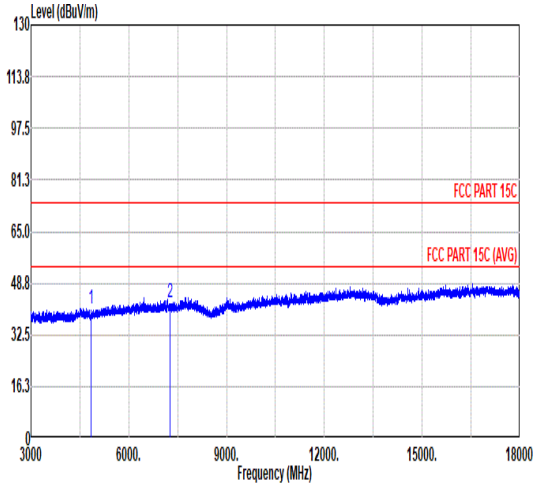
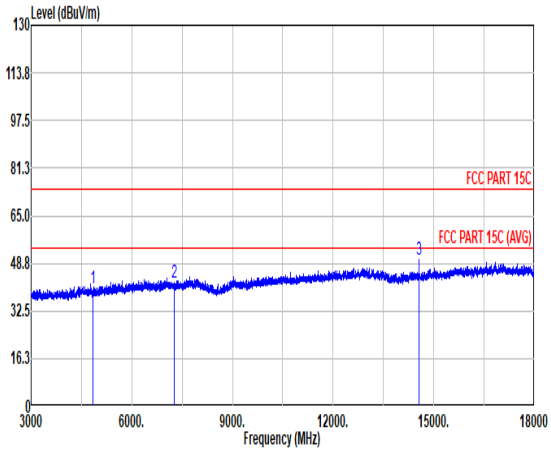
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
4	802.11n HT40	03	2389.95	47.75	54.00	-6.25	H	AVERAGE	Pass	Band Edge
4	802.11n HT40	03	7266.00	42.56	74.00	-31.44	H	PEAK	Pass	Harmonic

Mode	4	
	Band Edge - L	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.56 65.25 74.00 -8.75 57.00 32.20 7.10 37.05 6.00 100 114 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 1746.00 118.98 ------ ------ 114.28 29.53 6.06 36.89 6.00 100 114 Peak 2 2420.00 102.91 ------ ------ 94.41 32.34 7.15 36.99 6.00 100 114 Peak
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 47.75 54.00 -6.25 39.49 32.20 7.11 37.05 6.00 100 114 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 1746.00 116.18 ------ ------ 111.48 29.53 6.06 36.89 6.00 100 114 Average 2 2420.00 93.67 ------ ------ 85.17 32.34 7.15 36.99 6.00 100 114 Average

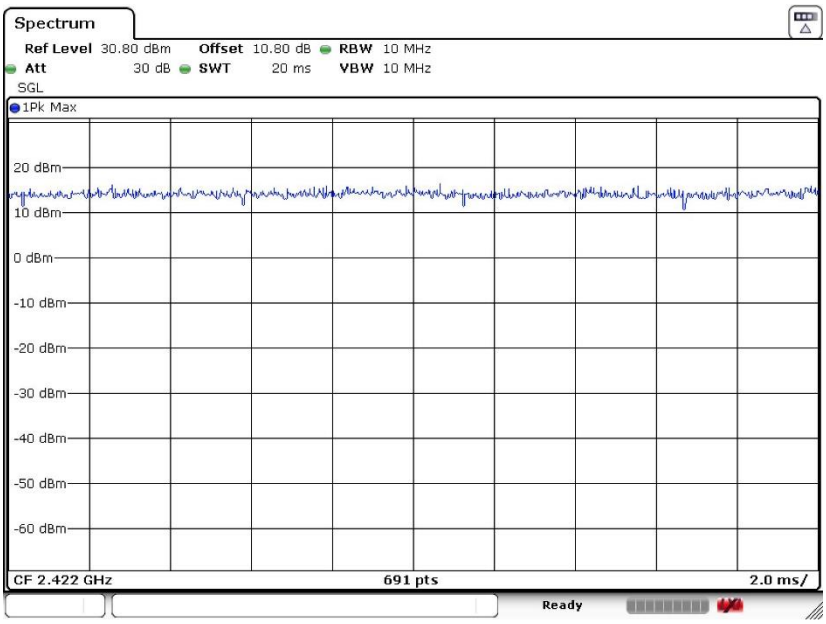
Mode	4	
	Band Edge - R	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2486.38 52.18 74.00 -21.82 43.29 32.47 7.26 36.84 6.00 100 114 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2485.78 39.07 54.00 -14.93 30.18 32.47 7.26 36.84 6.00 100 114 AVERAGE	Blank

Mode	4	
	Band Edge - L	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2388.13 57.43 74.00 -16.57 49.20 32.18 7.10 37.05 6.00 372 79 PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 1746.00 112.62 ------ ------ 107.92 29.53 6.06 36.89 6.00 372 79 Peak 2 2424.00 99.01 ------ ------ 90.49 32.35 7.16 36.99 6.00 372 79 Peak
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2389.95 41.94 54.00 -12.06 33.68 32.20 7.11 37.05 6.00 372 79 AVERAGE	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 1746.00 108.02 ------ ------ 103.32 29.53 6.06 36.89 6.00 372 79 Average 2 2420.00 89.91 ------ ------ 81.41 32.34 7.15 36.99 6.00 372 79 Average

Mode	4	
	Band Edge - R	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Vertical	Fundamental
Peak	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2483.56 50.57 74.00 -23.43 41.69 32.47 7.26 36.85 6.00 372 79 PEAK	Blank
Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 2484.70 37.80 54.00 -16.20 28.92 32.47 7.26 36.85 6.00 372 79 AVERAGE	Blank

Mode	4	
	Harmonic	
	2400-2483.5_802.11n HT40_CH03_2422MHz	
ANT	-	
Pol.	Horizontal	Vertical
Peak Avg	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4844.00 40.76 74.00 -33.24 61.90 34.12 10.25 65.51 0.00 -- -- PEAK 2 7266.00 42.56 74.00 -31.44 60.32 35.70 12.72 66.18 0.00 -- -- PEAK	 Freq Level Limit Line Margin Read Level Ant Factor Cable Loss Preamp Factor Aux Factor APos TPos Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 4844.00 40.42 74.00 -33.58 61.56 34.12 10.25 65.51 0.00 -- -- PEAK 2 7266.00 42.39 74.00 -31.61 60.15 35.70 12.72 66.18 0.00 -- -- PEAK 3 14553.00 50.26 71.75 -21.49 57.14 39.25 18.40 64.53 0.00 -- -- Peak

Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11n HT40	100%	-	-	10Hz

802.11n HT40