



FCC RADIO TEST REPORT

FCC ID : QYLAX201NG
Equipment : WLAN module
Brand Name : Getac
Model Name : AX201NGW
Marketing Name : AX201NGW
Applicant : Getac Technology Corporation.
5F., Building A, No. 209, Sec. 1, Nangang Rd.,
Nangang Dist., Taipei City 11568, Taiwan, R.O.C.
Standard : FCC Part 15 Subpart C §15.247

The product was received on Jan. 06, 2020 and testing was started from Jan. 21, 2020 and completed on Feb. 15, 2020. We, SPORTON INTERNATIONAL INC., EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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



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History of this test report

Report No.	Version	Description	Issued Date
FR6D2154-33C	01	Initial issue of report	Feb. 24, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)
3.1	15.247(b)	Power Output Measurement	Pass
3.2	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass
3.3	15.203 & 15.247(b)	Antenna Requirement	Pass

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

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.

Reviewed by: Wii Chang

Report Producer: Celery Wei

1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ax, and Wi-Fi 5GHz 802.11a/n/ac/ax

Product Specification subjective to this standard	
Sample 1	EUT with Host 1
Sample 2	EUT with Host 2
Antenna Type	WLAN: <Chain A> : PIFA Antenna <Chain B> : PIFA Antenna Bluetooth: PIFA Antenna

The product was installed into Tablet (Brand Name: Getac, Model Name: A140,A140G2) during test, and the host information was recorded in the following table.

Host Information	
Host 1	EUT with Model Name A140G2 and SKU 1
Host 2	EUT with Model Name A140G2 and SKU 2

SKU	SKU 1	SKU 2
CPU	i5 (i5-10210U)	i7 (i7-10510U)
WWAN	Support (EM7455)	Support (EM7455)
WLAN	Support (AX201NGW)	Support (AX201NGW)
RFID	Not Support	Support (PN7462)
GPS	Not Support	Support (MC1010)
Finger printer	N/A(RS-232)	Support
BCR	Not Support	Support

1.2 Modification of EUT

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



1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH05-HY	03CH07-HY

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

FCC designation No.: TW1190

1.4 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ 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

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 (X 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	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442		

2.2 Test Mode

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

Single Mode

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0

MIMO Mode

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0

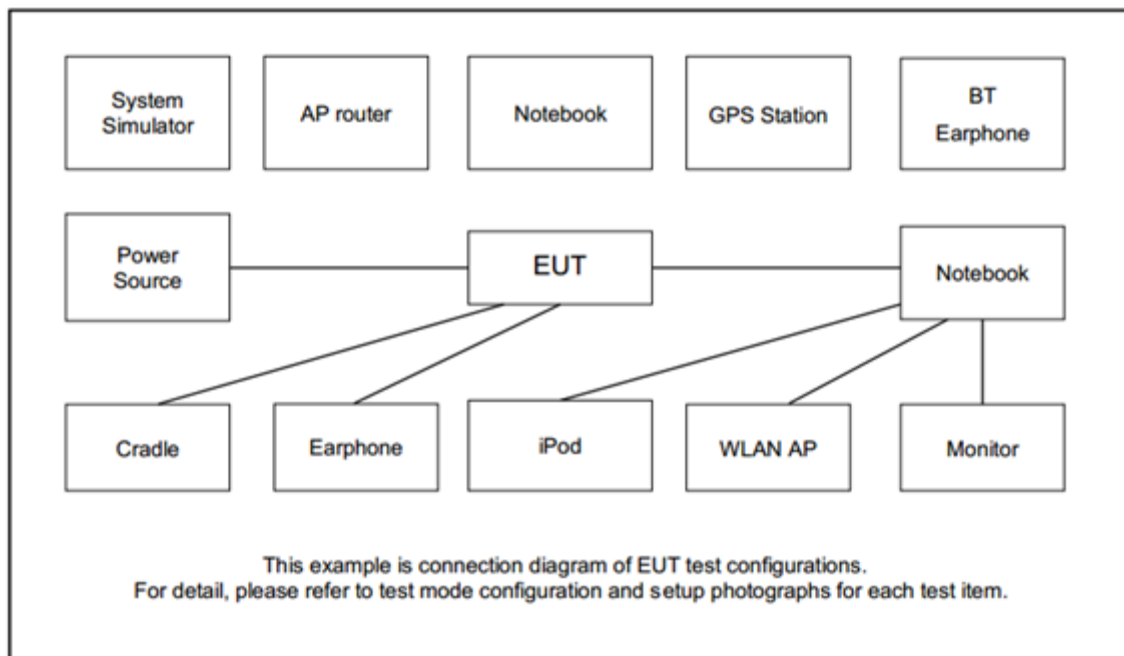
<CDD Mode>

Ch. #	2400-2483.5 MHz		
	802.11b	802.11ax HE20	802.11ax HE40
Low	01	-	03
Middle	-	06	-
High	-	-	-

Remark:

1. For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.
2. For Radiated Test Cases, the tests were performed with sample 2 and AC adapter (FSP065-RBBN3).

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

2.5 EUT Operation Test Setup

The RF test items, utility "DRTU_V12.1947.0-10428" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

3 Test Result

3.1 Output Power Measurement

3.1.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the 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.

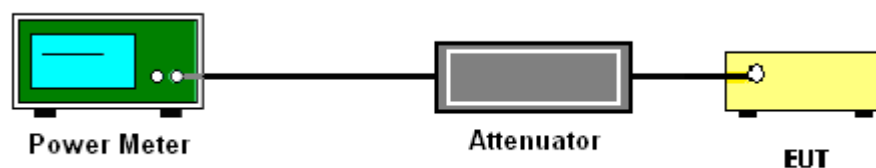
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.1 Method AVGPM
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.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.1.4 Test Setup



3.1.5 Test Result of Average Output Power

Please refer to Appendix A.

3.2 Radiated Band Edges and Spurious Emission Measurement

3.2.1 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

3.2.2 Measuring Instruments

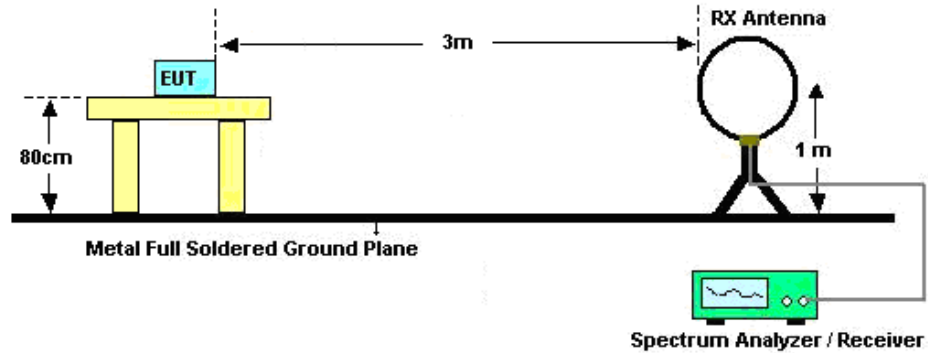
See list of measuring equipment of this test report.

3.2.3 Test Procedures

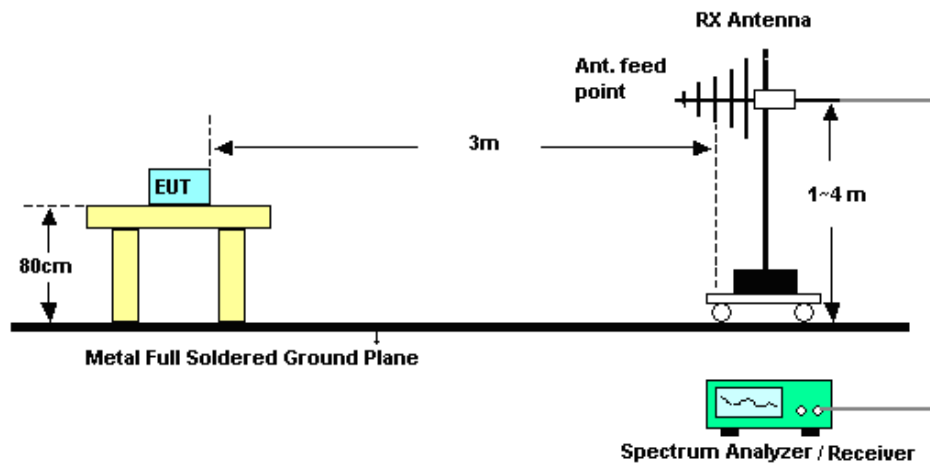
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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 average 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; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - $VBW = 10$ Hz, when duty cycle is no less than 98 percent.
 - $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.2.4 Test Setup

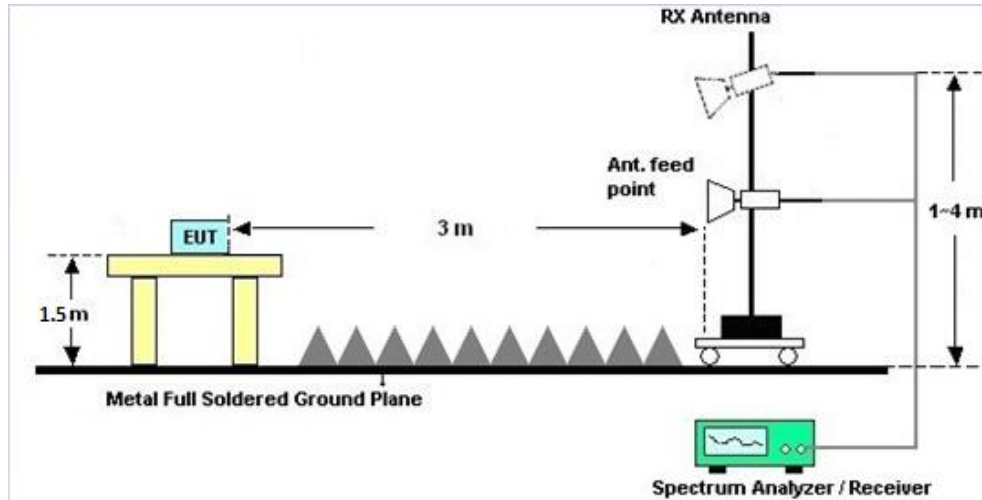
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.2.5 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 alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.2.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

3.3 Antenna Requirements

3.3.1 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.

3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.3.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

<CDD Modes>						
	Chain A	Chain B	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	-0.33	0.34	0.34	3.02	0.00	0.00

Power Limit Reduction = $DG(\text{Power}) - 6\text{dBi}$, (min = 0)

PSD Limit Reduction = $DG(\text{PSD}) - 6\text{dBi}$, (min = 0)



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H2	41410069	N/A	Jun. 17, 2019	Jan. 21, 2020~ Jan. 22, 2020	Jun. 16, 2020	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 10	10MHz~6GHz	Dec. 23, 2019	Jan. 21, 2020~ Jan. 22, 2020	Dec. 22, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Aug. 14, 2019	Jan. 21, 2020~ Jan. 22, 2020	Aug. 13, 2020	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067	N/A	Aug. 15, 2019	Jan. 21, 2020~ Jan. 22, 2020	Aug. 14, 2020	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Dec. 26, 2019	Feb. 14, 2020~ Feb. 15, 2020	Dec. 25, 2020	Radiation (03CH07-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	35419 & 03	30MHz~1GHz	Apr. 30, 2019	Feb. 14, 2020~ Feb. 15, 2020	Apr. 29, 2020	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Dec. 06, 2019	Feb. 14, 2020~ Feb. 15, 2020	Dec. 05, 2020	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917058 4	18GHz~40GHz	Dec. 10, 2019	Feb. 14, 2020~ Feb. 15, 2020	Dec. 09, 2020	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz~1GHz	May 20, 2019	Feb. 14, 2020~ Feb. 15, 2020	May 19, 2020	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590075	1GHz~18GHz	Apr. 24, 2019	Feb. 14, 2020~ Feb. 15, 2020	Apr. 23, 2020	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Nov. 01, 2019	Feb. 14, 2020~ Feb. 15, 2020	Oct. 31, 2020	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 13, 2019	Feb. 14, 2020~ Feb. 15, 2020	Dec. 12, 2020	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A (MXE)	MY53290053	20Hz~26.5GHz	Jan. 18, 2020	Feb. 14, 2020~ Feb. 15, 2020	Jan. 17, 2021	Radiation (03CH07-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz~44GHz	Feb. 10, 2020	Feb. 14, 2020~ Feb. 15, 2020	Feb. 09, 2021	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24971/4, MY28655/4	9kHz~30MHz	Feb. 26, 2019	Feb. 14, 2020~ Feb. 15, 2020	Feb. 25, 2020	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4, MY24971/4, MY15682/4	30MHz~1GHz	Feb. 26, 2019	Feb. 14, 2020~ Feb. 15, 2020	Feb. 25, 2020	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4, MY24971/4, MY15682/4	1GHz~18GHz	Feb. 26, 2019	Feb. 14, 2020~ Feb. 15, 2020	Feb. 25, 2020	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Feb. 14, 2020~ Feb. 15, 2020	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Feb. 14, 2020~ Feb. 15, 2020	N/A	Radiation (03CH07-HY)
Software	Audix	E3 6.2009-8-24	N/A	N/A	N/A	Feb. 14, 2020~ Feb. 15, 2020	N/A	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2	18GHz~40GHz	Feb. 26, 2019	Feb. 14, 2020~ Feb. 15, 2020	Feb. 25, 2020	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.6
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

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

Test Engineer:	Kathy Chen	Temperature:	21~25	°C
Test Date:	2020/1/21~2020/1/22	Relative Humidity:	51~54	%
Tool & Version	DRTU , version12.1947.0-10428			

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Chain A	Chain B	SUM	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	
11b	1Mbps	1	1	2412	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
11b	1Mbps	1	6	2437	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
11b	1Mbps	1	11	2462	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
11b	1Mbps	1	12	2467	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
11b	1Mbps	1	13	2472	17.40	17.10		30.00	30.00	-0.33	0.34	17.07	17.44	36.00	36.00	Pass
11g	6Mbps	1	1	2412	16.90	16.80		30.00	30.00	-0.33	0.34	16.57	17.14	36.00	36.00	Pass
11g	6Mbps	1	6	2437	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
11g	6Mbps	1	11	2462	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
11g	6Mbps	1	12	2467	14.90	15.30		30.00	30.00	-0.33	0.34	14.57	15.64	36.00	36.00	Pass
11g	6Mbps	1	13	2472	12.40	12.40		30.00	30.00	-0.33	0.34	12.07	12.74	36.00	36.00	Pass
HT20	MCS0	1	1	2412	16.90	16.90		30.00	30.00	-0.33	0.34	16.57	17.24	36.00	36.00	Pass
HT20	MCS0	1	6	2437	17.40	17.30		30.00	30.00	-0.33	0.34	17.07	17.64	36.00	36.00	Pass
HT20	MCS0	1	11	2462	16.40	15.90		30.00	30.00	-0.33	0.34	16.07	16.24	36.00	36.00	Pass
HT20	MCS0	1	12	2467	14.90	15.40		30.00	30.00	-0.33	0.34	14.57	15.74	36.00	36.00	Pass
HT20	MCS0	1	13	2472	12.90	11.90		30.00	30.00	-0.33	0.34	12.57	12.24	36.00	36.00	Pass
HT40	MCS0	1	3	2422	16.90	17.40		30.00	30.00	-0.33	0.34	16.57	17.74	36.00	36.00	Pass
HT40	MCS0	1	6	2437	17.40	17.40		30.00	30.00	-0.33	0.34	17.07	17.74	36.00	36.00	Pass
HT40	MCS0	1	9	2452	15.90	15.80		30.00	30.00	-0.33	0.34	15.57	16.14	36.00	36.00	Pass
HT40	MCS0	1	10	2457	12.40	12.40		30.00	30.00	-0.33	0.34	12.07	12.74	36.00	36.00	Pass
HT40	MCS0	1	11	2462	12.40	12.40		30.00	30.00	-0.33	0.34	12.07	12.74	36.00	36.00	Pass

2.4GHz Band MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Chain A	Chain B	SUM	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	
HT20	MCS0	2	1	2412	13.90	13.30	16.62	30.00		0.34		16.96		36.00		Pass
HT20	MCS0	2	6	2437	14.40	14.10	17.26	30.00		0.34		17.60		36.00		Pass
HT20	MCS0	2	11	2462	12.90	12.90	15.91	30.00		0.34		16.25		36.00		Pass
HT20	MCS0	2	12	2467	11.90	11.80	14.86	30.00		0.34		15.20		36.00		Pass
HT20	MCS0	2	13	2472	8.90	8.80	11.86	30.00		0.34		12.20		36.00		Pass
HT40	MCS0	2	3	2422	13.90	13.50	16.71	30.00		0.34		17.05		36.00		Pass
HT40	MCS0	2	6	2437	14.40	14.20	17.31	30.00		0.34		17.65		36.00		Pass
HT40	MCS0	2	9	2452	12.90	12.70	15.81	30.00		0.34		16.15		36.00		Pass
HT40	MCS0	2	10	2457	9.40	9.20	12.31	30.00		0.34		12.65		36.00		Pass
HT40	MCS0	2	11	2462	9.40	9.30	12.36	30.00		0.34		12.70		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)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Chain A	Chain B	SUM	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	
HE20	MCS0	1	1	2412	Full	17.40	16.90		30.00	30.00	-0.33	0.34	17.07	17.24	36.00	36.00	Pass
HE20	MCS0	1	6	2437	Full	17.30	17.30		30.00	30.00	-0.33	0.34	16.97	17.64	36.00	36.00	Pass
HE20	MCS0	1	11	2462	Full	15.90	15.90		30.00	30.00	-0.33	0.34	15.57	16.24	36.00	36.00	Pass
HE20	MCS0	1	12	2467	Full	15.40	15.40		30.00	30.00	-0.33	0.34	15.07	15.74	36.00	36.00	Pass
HE20	MCS0	1	13	2472	Full	11.90	10.40		30.00	30.00	-0.33	0.34	11.57	10.74	36.00	36.00	Pass
HE40	MCS0	1	3	2422	Full	16.40	16.30		30.00	30.00	-0.33	0.34	16.07	16.64	36.00	36.00	Pass
HE40	MCS0	1	6	2437	Full	16.40	16.40		30.00	30.00	-0.33	0.34	16.07	16.74	36.00	36.00	Pass
HE40	MCS0	1	9	2452	Full	15.90	15.90		30.00	30.00	-0.33	0.34	15.57	16.24	36.00	36.00	Pass
HE40	MCS0	1	10	2457	Full	11.80	12.40		30.00	30.00	-0.33	0.34	11.47	12.74	36.00	36.00	Pass
HE40	MCS0	1	11	2462	Full	12.80	12.40		30.00	30.00	-0.33	0.34	12.47	12.74	36.00	36.00	Pass

2.4GHz Band MIMO																	
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Chain A	Chain B	SUM	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	Chain A	Chain B	
HE20	MCS0	2	1	2412	Full	13.90	13.40	16.67	30.00		0.34		17.01		36.00		Pass
HE20	MCS0	2	6	2437	Full	14.40	14.20	17.31	30.00		0.34		17.65		36.00		Pass
HE20	MCS0	2	11	2462	Full	12.90	12.70	15.81	30.00		0.34		16.15		36.00		Pass
HE20	MCS0	2	12	2467	Full	12.40	12.10	15.26	30.00		0.34		15.60		36.00		Pass
HE20	MCS0	2	13	2472	Full	7.40	7.20	10.31	30.00		0.34		10.65		36.00		Pass
HE40	MCS0	2	3	2422	Full	13.40	13.00	16.21	30.00		0.34		16.55		36.00		Pass
HE40	MCS0	2	6	2437	Full	13.40	13.30	16.36	30.00		0.34		16.70		36.00		Pass
HE40	MCS0	2	9	2452	Full	12.80	12.70	15.76	30.00		0.34		16.10		36.00		Pass
HE40	MCS0	2	10	2457	Full	8.90	8.90	11.91	30.00		0.34		12.25		36.00		Pass
HE40	MCS0	2	11	2462	Full	9.40	9.20	12.31	30.00		0.34		12.65		36.00		Pass

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



Appendix B. Radiated Spurious Emission

Test Engineer :	Jesse Wang, Stan Hsieh, and Ken Wu	Temperature :	21~23°C
		Relative Humidity :	55~57%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
A		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2360.295	55.07	-18.93	74	40.75	31.87	17.67	35.22	100	207	P	H
		2385.285	43.32	-10.68	54	28.98	31.83	17.74	35.23	100	207	A	H
	*	2412	106.77	-	-	92.41	31.87	17.74	35.25	100	207	P	H
	*	2412	103.46	-	-	89.1	31.87	17.74	35.25	100	207	A	H
													H
													H
		2344.86	54.08	-19.92	74	39.73	31.9	17.66	35.21	312	175	P	V
		2383.815	43.56	-10.44	54	29.22	31.83	17.74	35.23	312	175	A	V
	*	2412	104.82	-	-	90.46	31.87	17.74	35.25	312	175	P	V
	*	2412	101.81	-	-	87.45	31.87	17.74	35.25	312	175	A	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												

**2.4GHz 2400~2483.5MHz****WIFI 802.11b (Harmonic @ 3m)**

WIFI Chain A	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	43.87	-30.13	74	57.05	34.05	11.8	59.03	100	0	P	H
													H
													H
													H
		4824	41.72	-32.28	74	54.9	34.05	11.8	59.03	100	0	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE20 (Band Edge @ 3m)

WIFI Chain B	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 CH 06 2437MHz		2321.34	54.11	-19.89	74	39.84	31.87	17.59	35.19	100	318	P	H
		2388.96	43.32	-10.68	54	29.01	31.8	17.74	35.23	100	318	A	H
	*	2437	107.81	-	-	93.28	32	17.79	35.26	100	318	P	H
	*	2437	98.32	-	-	83.79	32	17.79	35.26	100	318	A	H
		2494.82	53.92	-20.08	74	39.28	32.1	17.84	35.3	100	318	P	H
		2484.32	43.66	-10.34	54	29.04	32.07	17.84	35.29	100	318	A	H
		2345	54.38	-19.62	74	40.03	31.9	17.66	35.21	130	40	P	V
		2386.72	43.27	-10.73	54	28.96	31.8	17.74	35.23	130	40	A	V
	*	2437	104.67	-	-	90.14	32	17.79	35.26	130	40	P	V
	*	2437	94.61	-	-	80.08	32	17.79	35.26	130	40	A	V
		2499.72	54.51	-19.49	74	39.87	32.1	17.84	35.3	130	40	P	V
		2483.83	43.65	-10.35	54	29.03	32.07	17.84	35.29	130	40	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 802.11ax HE20 (Harmonic @ 3m)

WIFI Chain B	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 CH 06 2437MHz		4874	42.17	-31.83	74	55.1	34.1	11.89	58.92	100	0	P	H
		7311	41.08	-32.92	74	49.38	35.6	14.4	58.3	100	0	P	H
													H
													H
		4874	40.84	-33.16	74	53.77	34.1	11.89	58.92	100	0	P	V
		7311	40.89	-33.11	74	49.19	35.6	14.4	58.3	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11ax HE40 (Band Edge @ 3m)

WIFI Chain A+B	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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 CH 03 2422MHz		2385.32	54.24	-19.76	74	39.9	31.83	17.74	35.23	100	196	P	H
		2389.66	44.01	-9.99	54	29.7	31.8	17.74	35.23	100	196	A	H
	*	2422	102.38	-	-	87.91	31.93	17.79	35.25	100	196	P	H
	*	2422	93.01	-	-	78.54	31.93	17.79	35.25	100	196	A	H
		2492.44	53.83	-20.17	74	39.19	32.1	17.84	35.3	100	196	P	H
		2485.6	44.19	-9.81	54	29.57	32.07	17.84	35.29	100	196	A	H
		2373.42	54.26	-19.74	74	39.98	31.83	17.67	35.22	357	172	P	V
		2389.94	43.91	-10.09	54	29.6	31.8	17.74	35.23	357	172	A	V
	*	2422	101.47	-	-	87	31.93	17.79	35.25	357	172	P	V
	*	2422	92.26	-	-	77.79	31.93	17.79	35.25	357	172	A	V
		2494.42	54.6	-19.4	74	39.96	32.1	17.84	35.3	357	172	P	V
		2485.51	44.15	-9.85	54	29.53	32.07	17.84	35.29	357	172	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 802.11ax HE40 (Harmonic @ 3m)

WIFI Chain A+B	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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 CH 03 2422MHz		4844	40.27	-33.73	74	53.34	34.1	11.82	58.99	100	0	P	H
		7266	40.37	-33.63	74	48.69	35.6	14.36	58.28	100	0	P	H
													H
													H
		4844	40.31	-33.69	74	53.38	34.1	11.82	58.99	100	0	P	V
		7266	40.29	-33.71	74	48.61	35.6	14.36	58.28	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz
WIFI 802.11ax HE40 (LF)

WIFI Chain A+B	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (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 LF		30	31.11	-8.89	40	35.29	24.6	1.2	29.98	-	-	P	H
		45.93	24.62	-15.38	40	37.11	16.3	1.2	29.99	-	-	P	H
		194.97	27.55	-15.95	43.5	40.29	14.83	2.29	29.86	-	-	P	H
		764.1	30.01	-15.99	46	27.17	27.87	4.36	29.39	-	-	P	H
		857.2	37.64	-8.36	46	33.04	28.96	4.72	29.08	100	0	P	H
		956.6	32.71	-13.29	46	25.48	30.69	5.06	28.52	-	-	P	H
													H
													H
													H
													H
													H
													H
		30	33.09	-6.91	40	37.27	24.6	1.2	29.98	100	0	P	V
		39.18	19.98	-20.02	40	28.88	19.88	1.2	29.98	-	-	P	V
		72.12	22.99	-17.01	40	38.9	12.5	1.58	29.99	-	-	P	V
		836.9	30.49	-15.51	46	26.53	28.41	4.7	29.15	-	-	P	V
		895.7	31.74	-14.26	46	27	28.76	4.92	28.94	-	-	P	V
		959.4	33.78	-12.22	46	26.37	30.85	5.06	28.5	-	-	P	V
													V
													V
													V
													V
													V
													V
													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 over limit 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	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
A+B		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

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



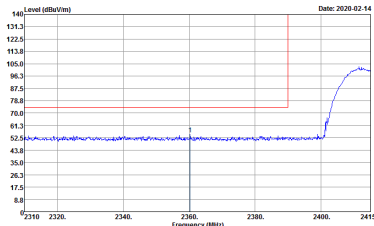
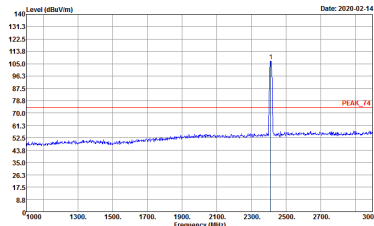
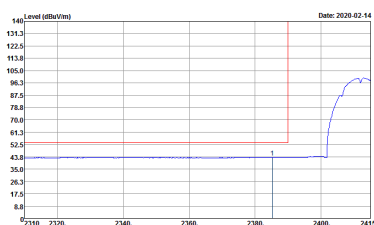
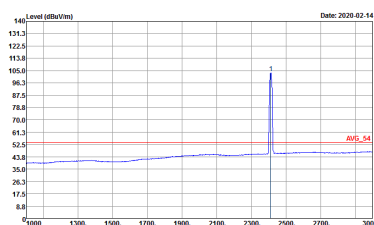
Appendix C. Radiated Spurious Emission Plots

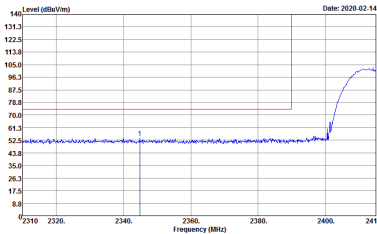
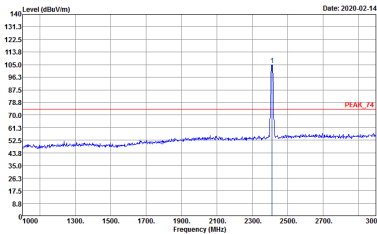
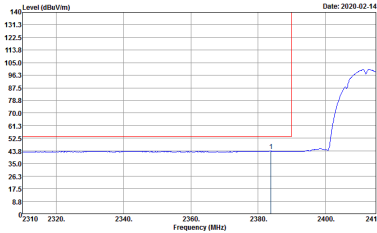
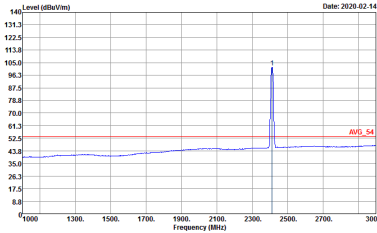
Test Engineer :	Jesse Wang, Stan Hsieh, and Ken Wu	Temperature :	21~23°C
		Relative Humidity :	55~57%

Note symbol

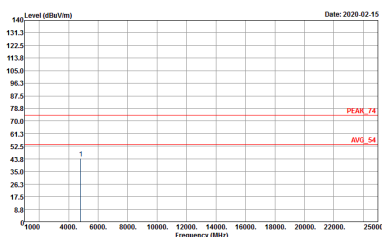
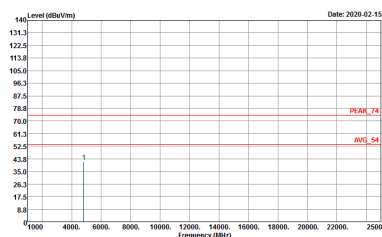
-L	Low channel location
-R	High channel location

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

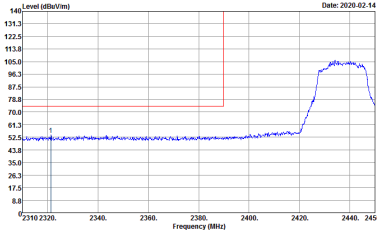
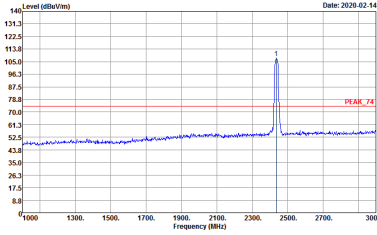
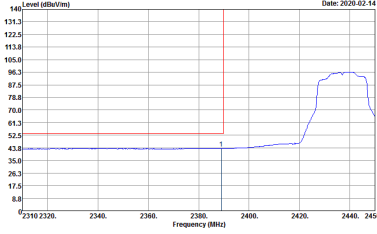
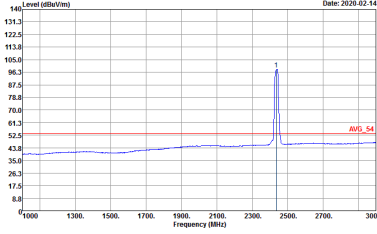
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11b CH01 2412MHz	
A	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 602154-33 Mode : 5	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 602154-33 Mode : 5
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 602154-33 Mode : 5	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 602154-33 Mode : 5

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11b CH01 2412MHz	
A	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14
	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14

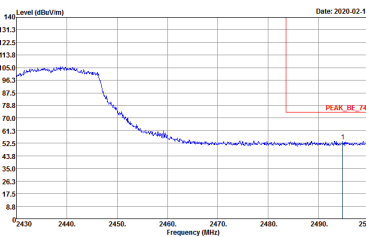
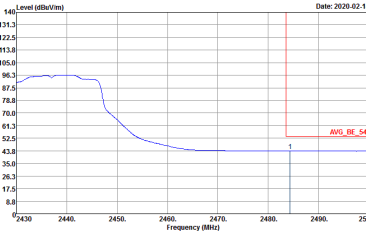
2.4GHz 2400~2483.5MHz
WIFI 802.11b (Harmonic @ 3m)

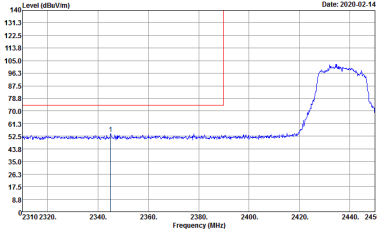
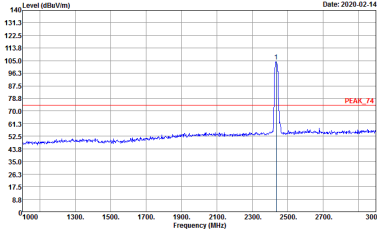
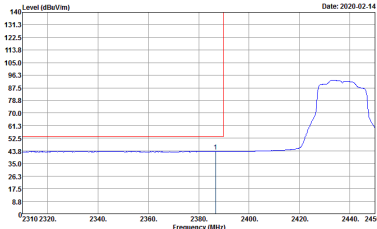
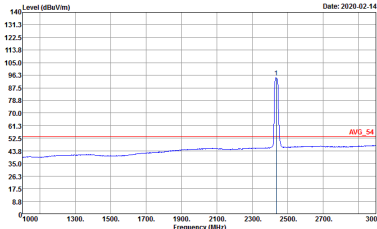
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Chain	802.11b CH01 2412MHz	
A	Horizontal	Vertical
Peak Avg.	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 602154-33 Mode : S	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : Peak Project : 602154-33 Mode : S

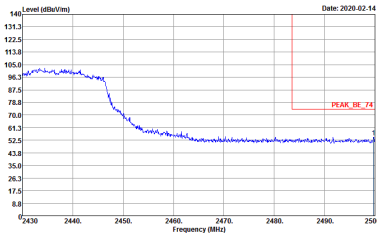
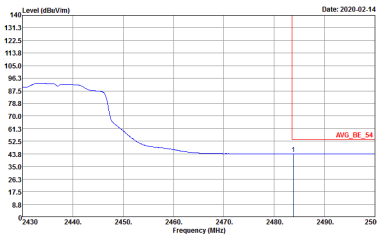
2.4GHz 2400~2483.5MHz
WIFI 802.11ax HE20 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE20 CH06 2437MHz - L	
B	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 6D2154-33 Mode : 6	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 6D2154-33 Mode : 6
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 6D2154-33 Mode : 6	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 6D2154-33 Mode : 6



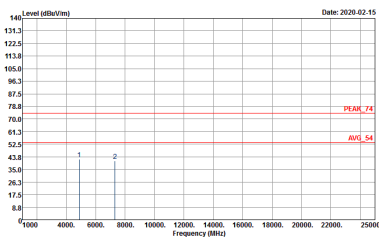
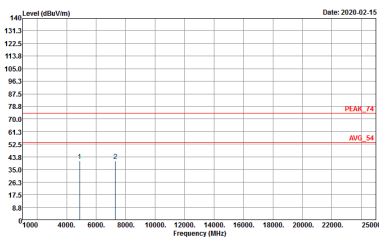
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE20 CH06 2437MHz - R	
B	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 6	Left blank
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 6	Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE20 CH06 2437MHz - L	
B	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : Peak Mode : 6D2154-33 Mode : 6	 Site : 03CH07-HY Condition : PEAK_74.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : Peak Mode : 6D2154-33 Mode : 6
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : Peak Mode : 6D2154-33 Mode : 6	 Site : 03CH07-HY Condition : AVG_54.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : Peak Mode : 6D2154-33 Mode : 6

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE20 CH06 2437MHz - R	
B	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 6	Left blank
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 6	Left blank

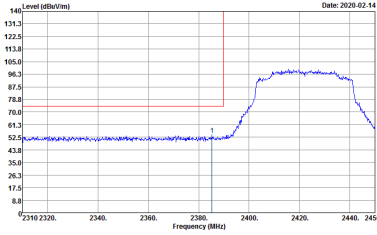
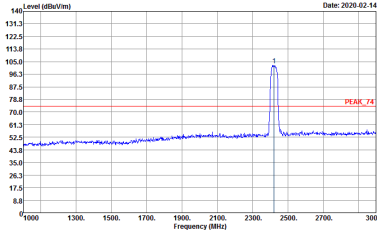
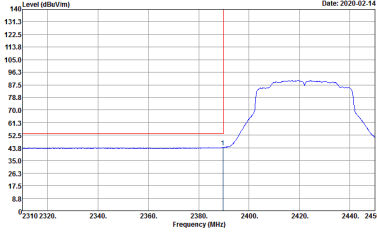
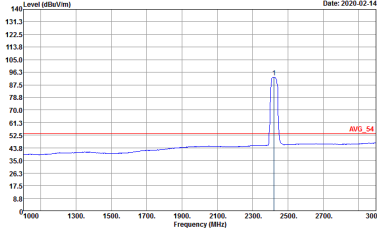


2.4GHz 2400~2483.5MHz
WIFI 802.11ax HE20 (Harmonic @ 3m)

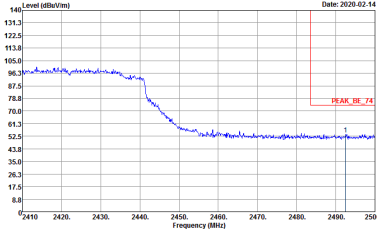
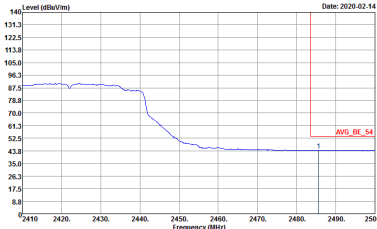
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Chain	802.11ax HE20 CH06 2437MHz	
B	Horizontal	Vertical
Peak Avg.	 Site : ESCH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 602154-33 Mode : 6	 Site : ESCH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : Peak Project : 602154-33 Mode : 6



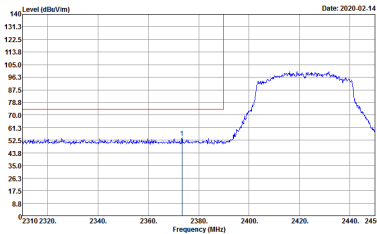
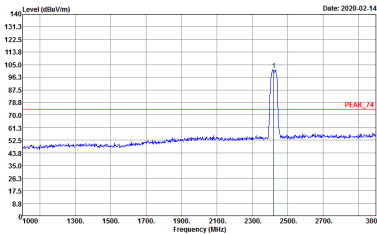
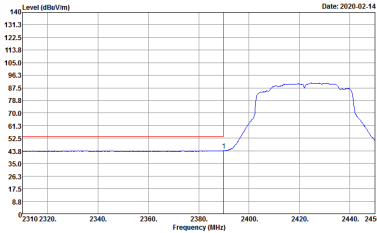
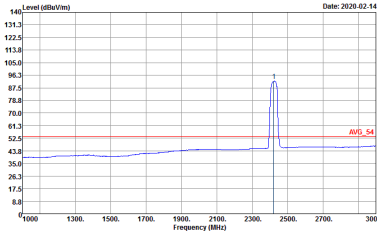
2.4GHz 2400~2483.5MHz
WIFI 802.11ax HE40 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE40 CH03 2422MHz - L	
A+B	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 6D2154-33 Date: 2020.02.14	 Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 6D2154-33 Date: 2020.02.14
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 6D2154-33 Date: 2020.02.14	 Site : 03CH07-HY Condition : AVG_54 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Mode : 6D2154-33 Date: 2020.02.14

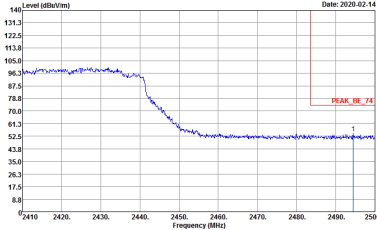
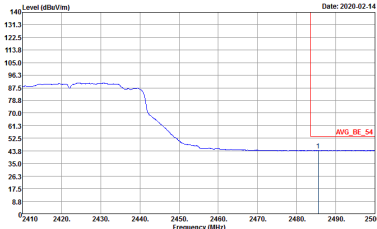


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE40 CH03 2422MHz - R	
A+B	Horizontal	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 7	Left blank
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 HORIZONTAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 7	Left blank

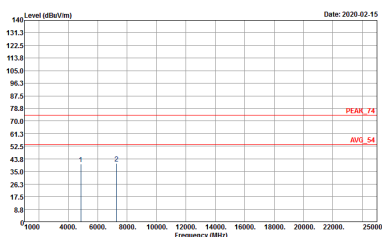
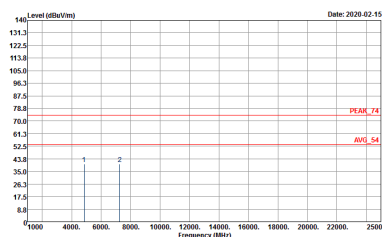


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE40 CH03 2422MHz - L	
A+B	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK, BE_74.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14	 Site : 03CH07-HY Condition : PEAK, 74.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14
Avg.	 Site : 03CH07-HY Condition : AVG, BE_54.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3.000kHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14	 Site : 03CH07-HY Condition : AVG, 54.3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3.000kHz SWT:Auto Project : Peak Mode : 602154-33 Date: 2020-02-14

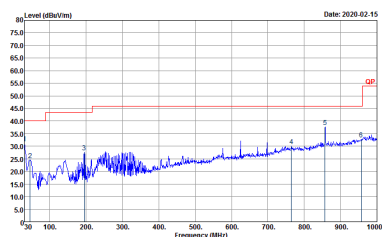
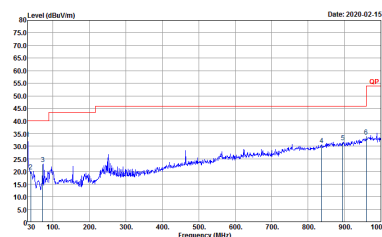


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
Chain	802.11ax HE40 CH03 2422MHz - R	
A+B	Vertical	Fundamental
Peak	 Site : 03CH07-HY Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : 6D2154-33 Mode : 7	Left blank
Avg.	 Site : 03CH07-HY Condition : AVG_BE_54 3m HF_ANT_00075962 VERTICAL Detector : RBW:1000.000kHz VBW:3.000kHz SWT:Auto Project : 6D2154-33 Mode : 7	Left blank

2.4GHz 2400~2483.5MHz
WIFI 802.11ax HE40 (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Chain	802.11ax HE40 CH03 2422MHz	
A+B	Horizontal	Vertical
Peak Avg.	 Site : ESCH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL Detector : Peak Project : 602154-33 Mode : 7	 Site : ESCH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL Detector : Peak Project : 602154-33 Mode : 7

Emission below 1GHz
WIFI 802.11ax HE40 (LF)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
Chain	802.11ax HE40 CH03 2422MHz	
A+B	Horizontal	Vertical
QP / Peak	 Site : ESCH07-HY Condition : QP 3m LF-ANT-35419(6) HORIZONTAL Detector : Peak Project : 602154-33 Mode : B	 Site : ESCH07-HY Condition : QP 3m LF-ANT-35419(6) VERTICAL Detector : Peak Project : 602154-33 Mode : B

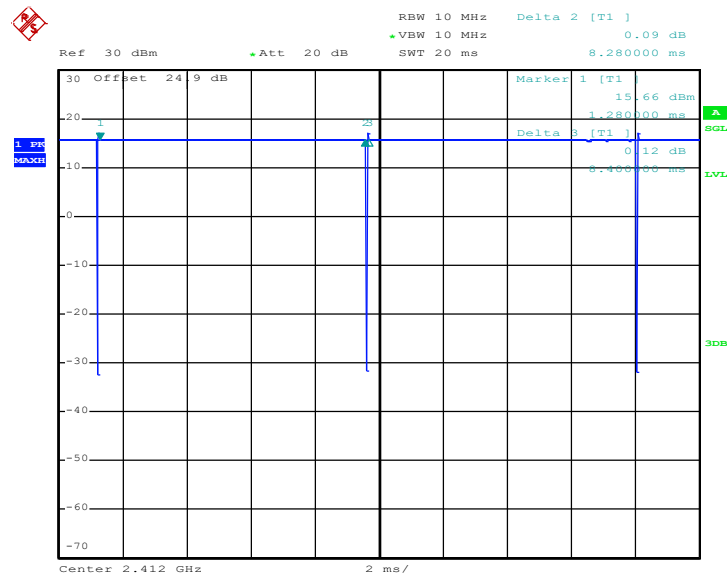


Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
A	802.11b	98.57	-	-	10Hz	0.06
B	802.11ax20	98.26	-	-	10Hz	0.08
A+B	802.11ax40 for Chain A	97.64	3925	0.25	300Hz	0.10
A+B	802.11ax40 for Chain B	97.39	3920	0.26	300Hz	0.11

<Chain A>

802.11b



Date: 22.JAN.2020 17:06:52



802.11ax HE20



MIMO <Chain A>

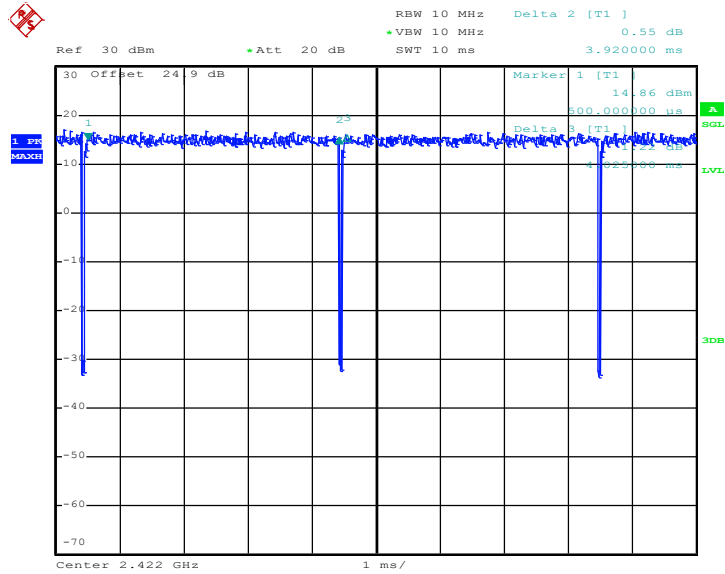
802.11ax HE40





MIMO <Chain B>

802.11ax HE40



Date: 22.JAN.2020 17:49:48