



# FCC RADIO TEST REPORT

FCC ID : 2AFZZ1219NY  
Equipment : Mobile Phone  
Brand Name : Redmi  
Model Name : 22041219NY  
Applicant : Xiaomi Communications Co., Ltd.  
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085  
Manufacturer : Xiaomi Communications Co., Ltd.  
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085  
Standard : FCC Part 15 Subpart C §15.247

The product was received on Feb. 15, 2022 and testing was performed from Feb. 19, 2022 to Mar. 08, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Approved by: Louis Wu

**Sporton International Inc. Wensan Laboratory**

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan



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### History of this test report

Report No.	Version	Description	Issue Date
FR212127C	01	Initial issue of report	Mar. 09, 2022



### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	3.17 dB under the limit at 4924.000 MHz
3.6	15.207	AC Conducted Emission	Pass	7.03 dB under the limit at 1.475 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

**Declaration of Conformity:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to this report "Uncertainty of Evaluation".

**Comments and Explanations:**

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

**Reviewed by: Lewis Ho**

**Report Producer: Vivian Hsu**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, FM Receiver, NFC, and GNSS.

Product Feature	
Sample 1	4+64G with battery 1
Sample 2	6+128G with battery 2
Sample 3	4+128G with battery 1
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna GPS / Glonass / BDS / Galileo: PIFA Antenna NFC: Coil Antenna FM Receiver: Using earphone as Antenna

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	-1.85

**Remark:** The EUT's information above is declared by manufacturer. Please refer to Comments and Explanations in report summary.

## 1.2 Modification of EUT

No modifications made to the EUT during the testing.



### 1.3 Testing Location

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH05-HY, 03CH16-HY, CO07-HY

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

FCC designation No.: TW3786

### 1.4 Applicable Standards

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

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

**Remark:**

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.



## 2 Test Configuration of Equipment Under Test

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

The final test modes consider the modulation and the worst data rates as shown in the table below.

### Single Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

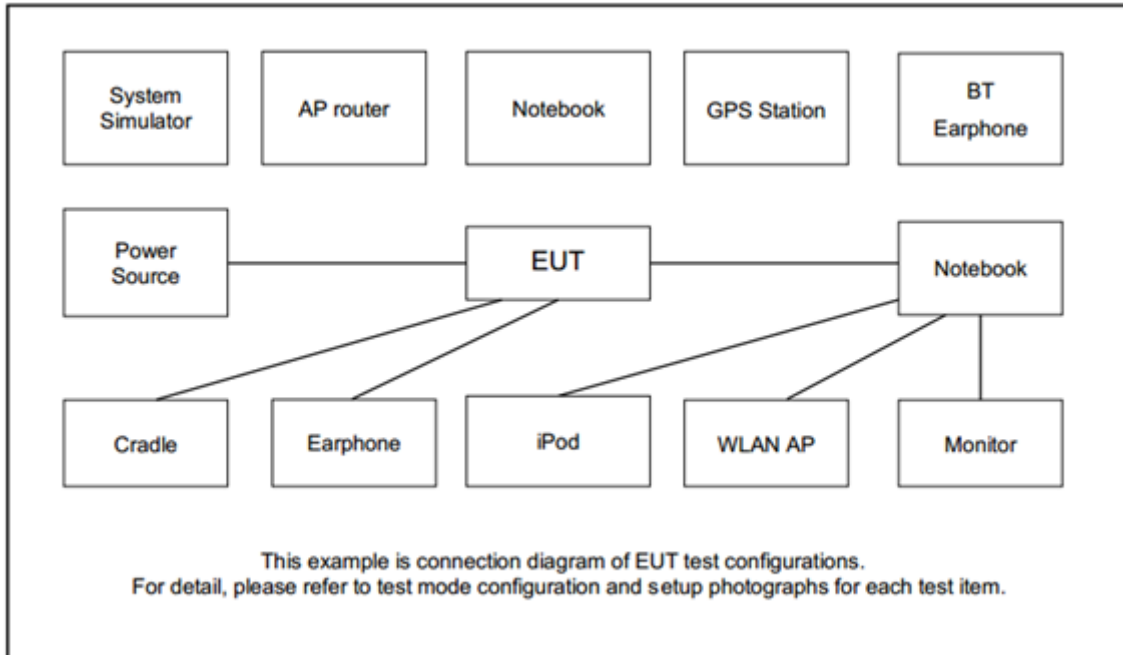
Test Cases	
AC Conducted Emission	Mode 1 :Bluetooth Link + WLAN (2.4GHz) Link + MPEG4 + Earphone + USB Cable 1 (Charging from Adapter) for Sample 2
<b>Remark:</b> For Radiated Test Cases, the tests were performed with USB Cable 1 and Sample 2	

Ch. #	2400-2483.5 MHz		
	802.11b	802.11g	802.11n HT20
Low	01	01	01
Middle	06	06	06
High	11	11	11

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



### 2.3 Connection Diagram of Test System



### 2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony	SBH20	PY7-RD0010	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Earphone	MI	EM023	N/A	Unshielded, 1.25m	N/A



## 2.5 EUT Operation Test Setup

The RF test items, make the EUT (SW: MIUI 13 Global 22.1.21 Beat) get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

## 2.6 Measurement Results Explanation Example

**For all conducted test items:**

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

Example:

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

*Offset = RF cable loss + attenuator factor.*

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

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

### 3 Test Result

#### 3.1 6dB and 99% Bandwidth Measurement

##### 3.1.1 Limit of 6dB and 99% Bandwidth

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

##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

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

##### 3.1.4 Test Setup

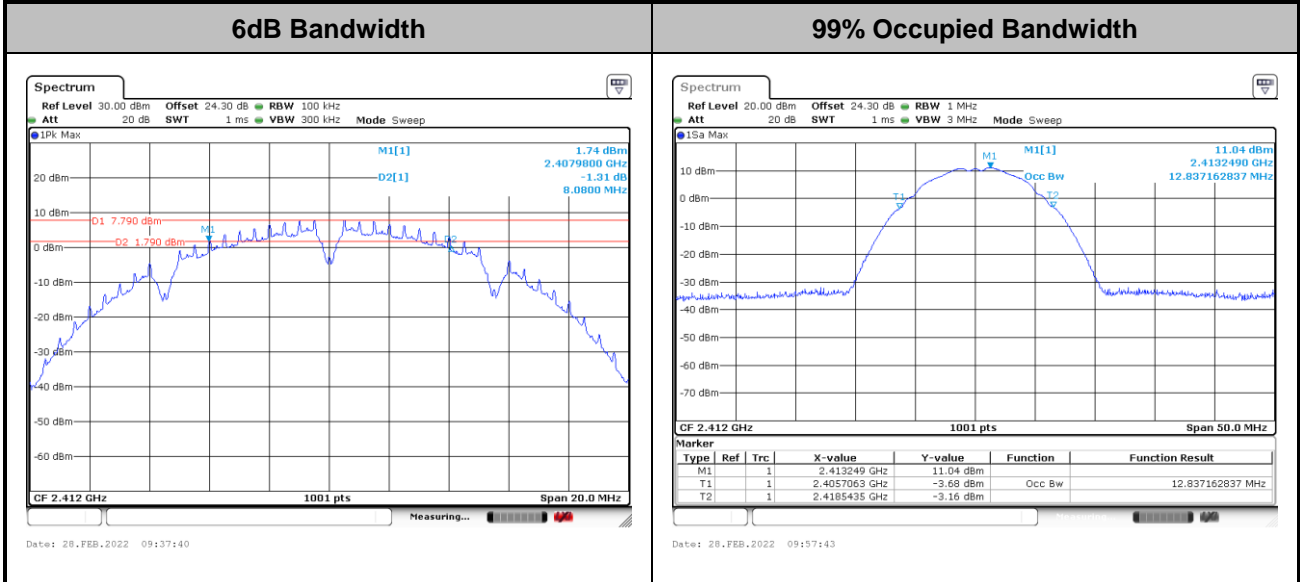




### 3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

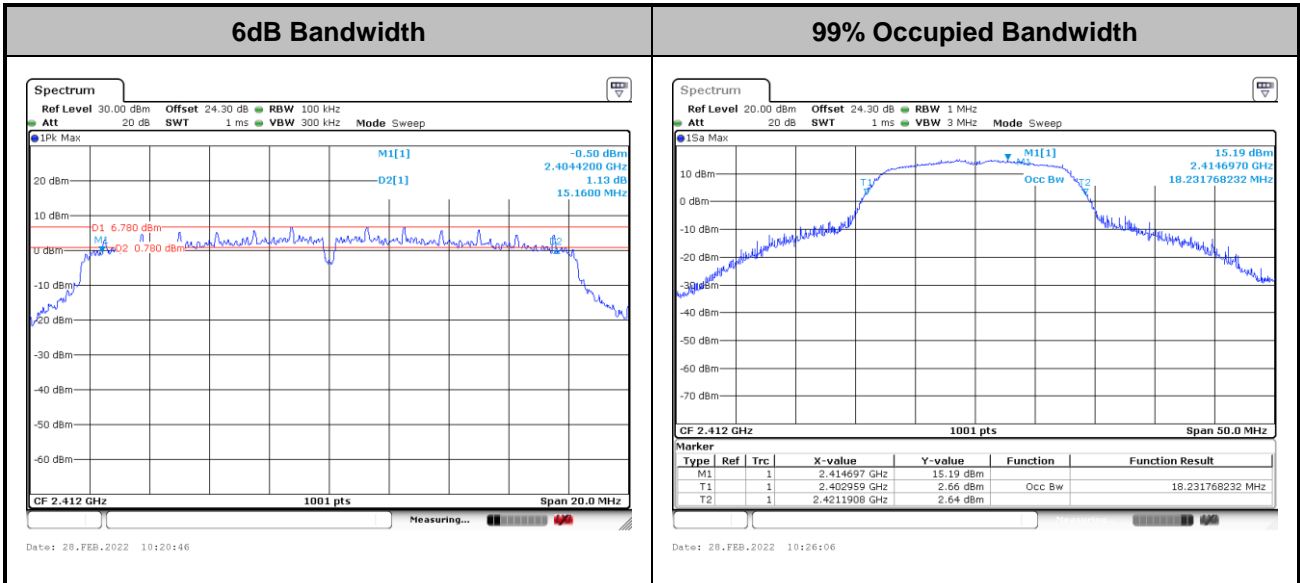
Please refer to Appendix A.

<802.11b>



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

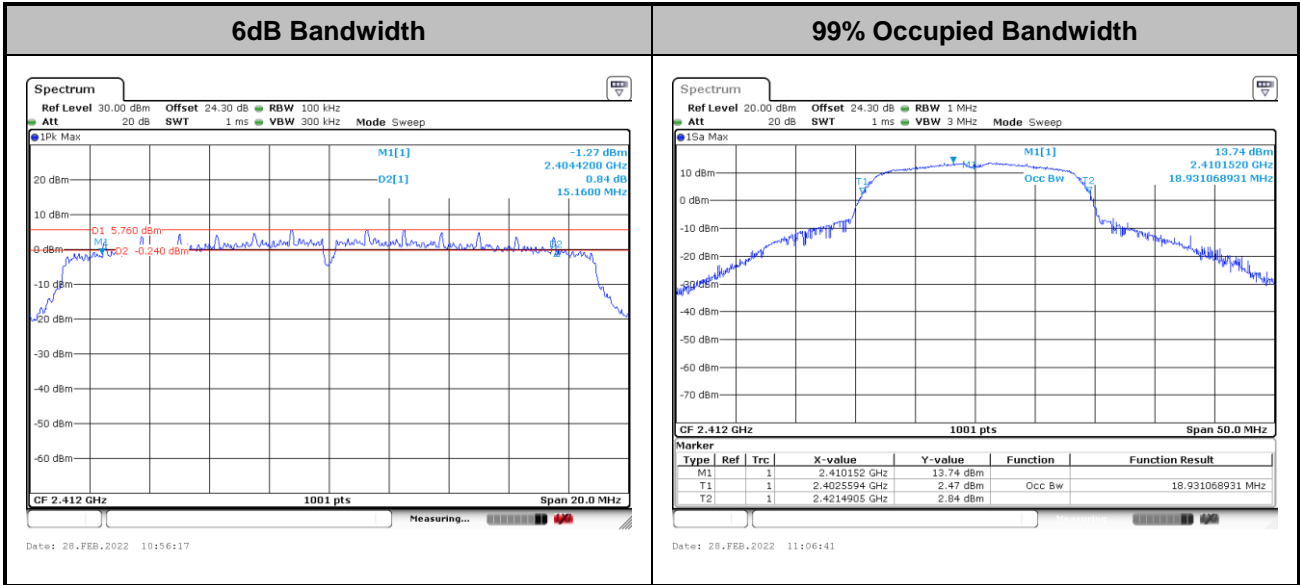
<802.11g>



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



<802.11n HT20>



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

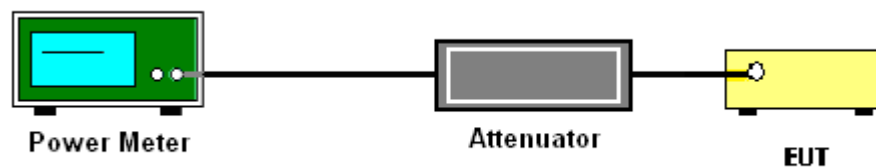
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

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

### 3.2.4 Test Setup



### 3.2.5 Test Result of Average Output Power

Please refer to Appendix A.



### **3.3 Power Spectral Density Measurement**

#### **3.3.1 Limit of Power Spectral Density**

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

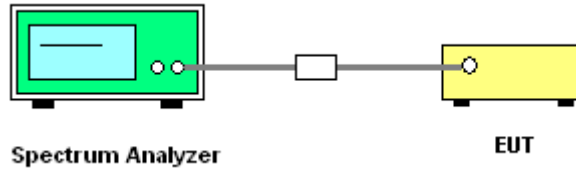
#### **3.3.2 Measuring Instruments**

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

#### **3.3.3 Test Procedures**

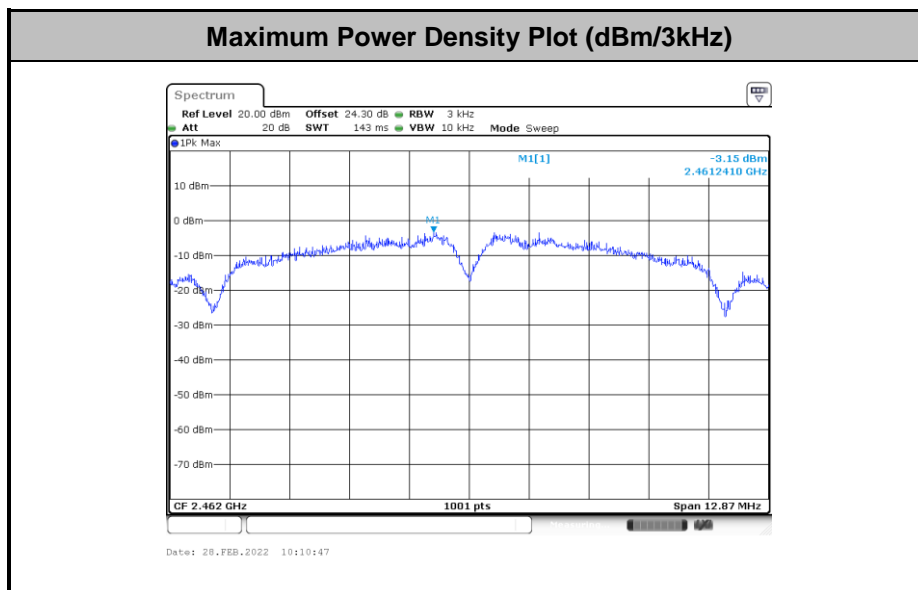
1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.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

### 3.3.4 Test Setup



### 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





## 3.4 Conducted Band Edges and Spurious Emission Measurement

### 3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

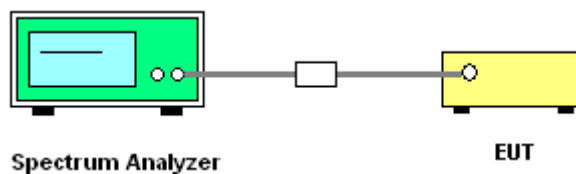
### 3.4.2 Measuring Instruments

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

### 3.4.3 Test Procedures

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

### 3.4.4 Test Setup

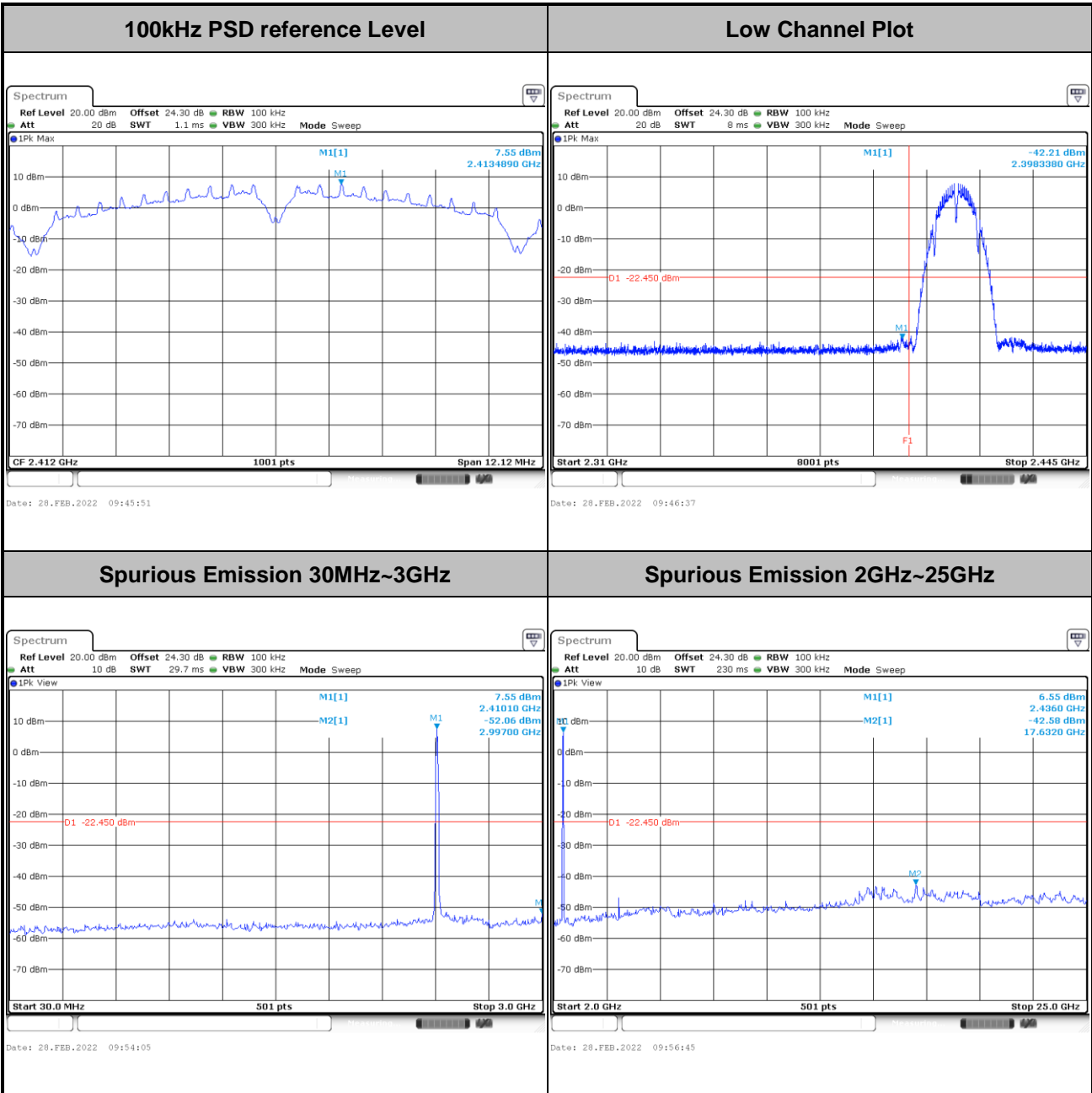




### 3.4.5 Test Result of Conducted Band Edges and Spurious Emission

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

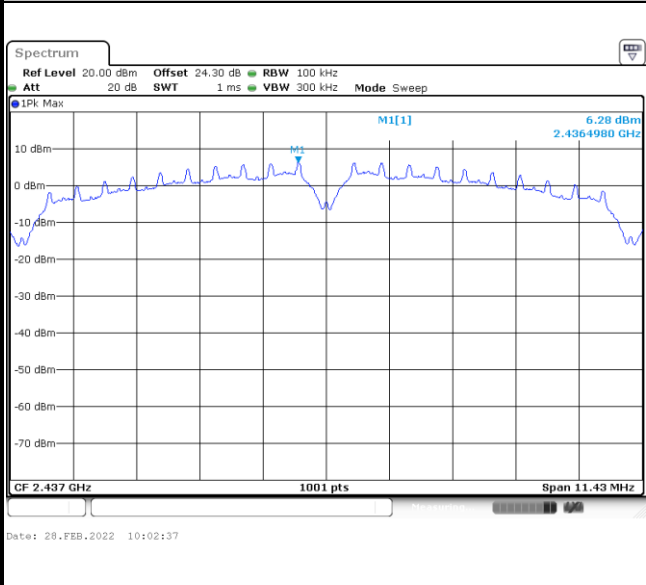
Test Mode :	802.11b	Test Channel :	01
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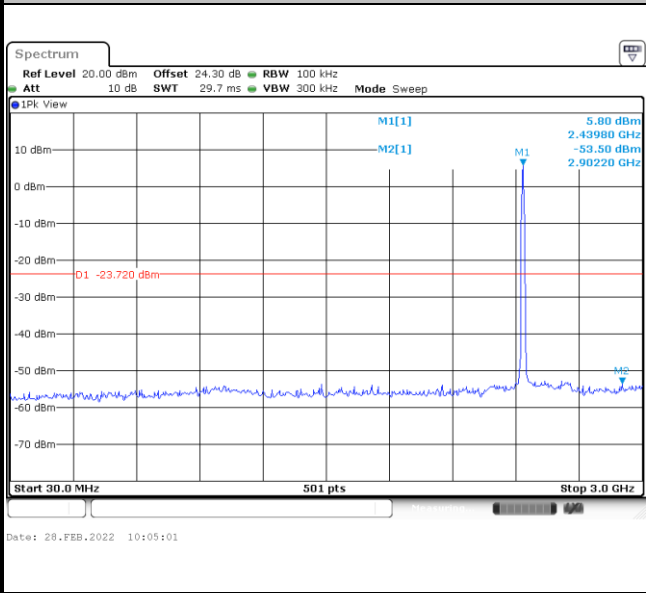


Test Mode :	802.11b	Test Channel :	06
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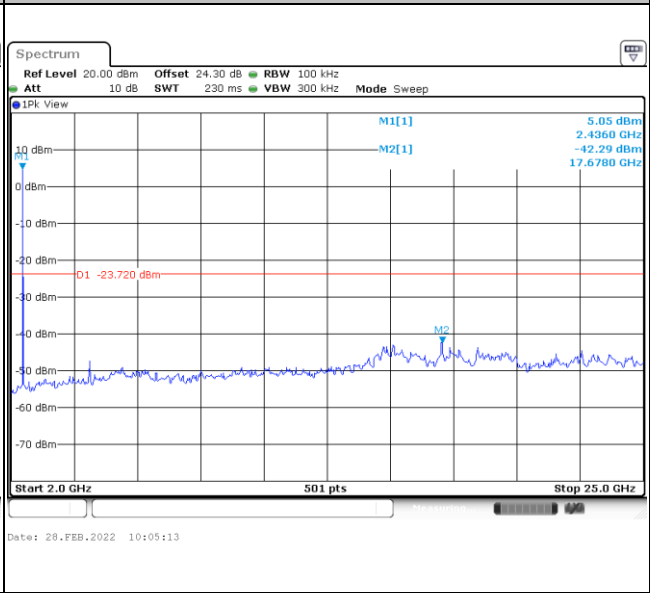
<b>100kHz PSD reference Level</b>	<b>Mid Channel Plot</b>
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**Spurious Emission 30MHz~3GHz**

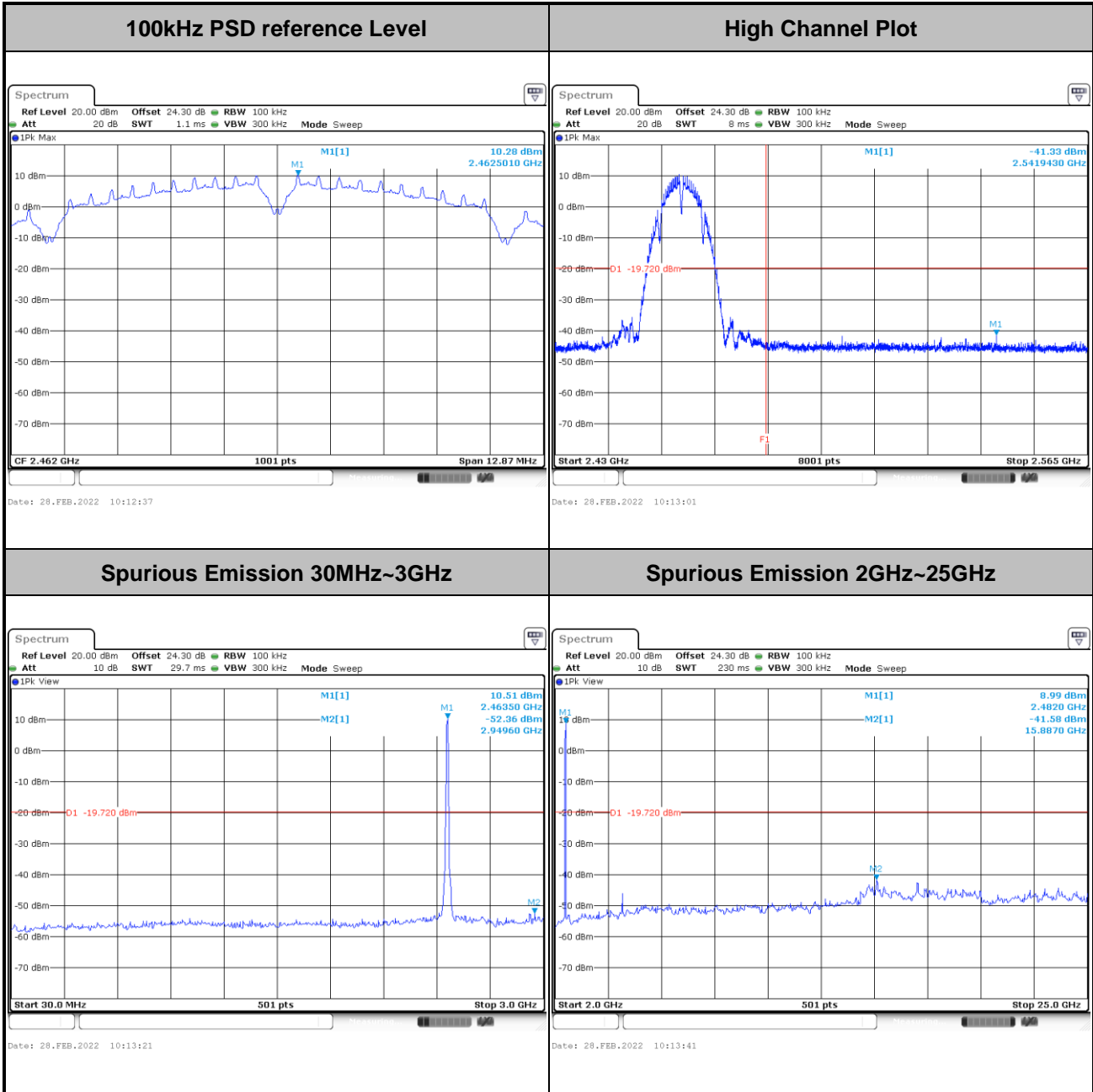


**Spurious Emission 2GHz~25GHz**



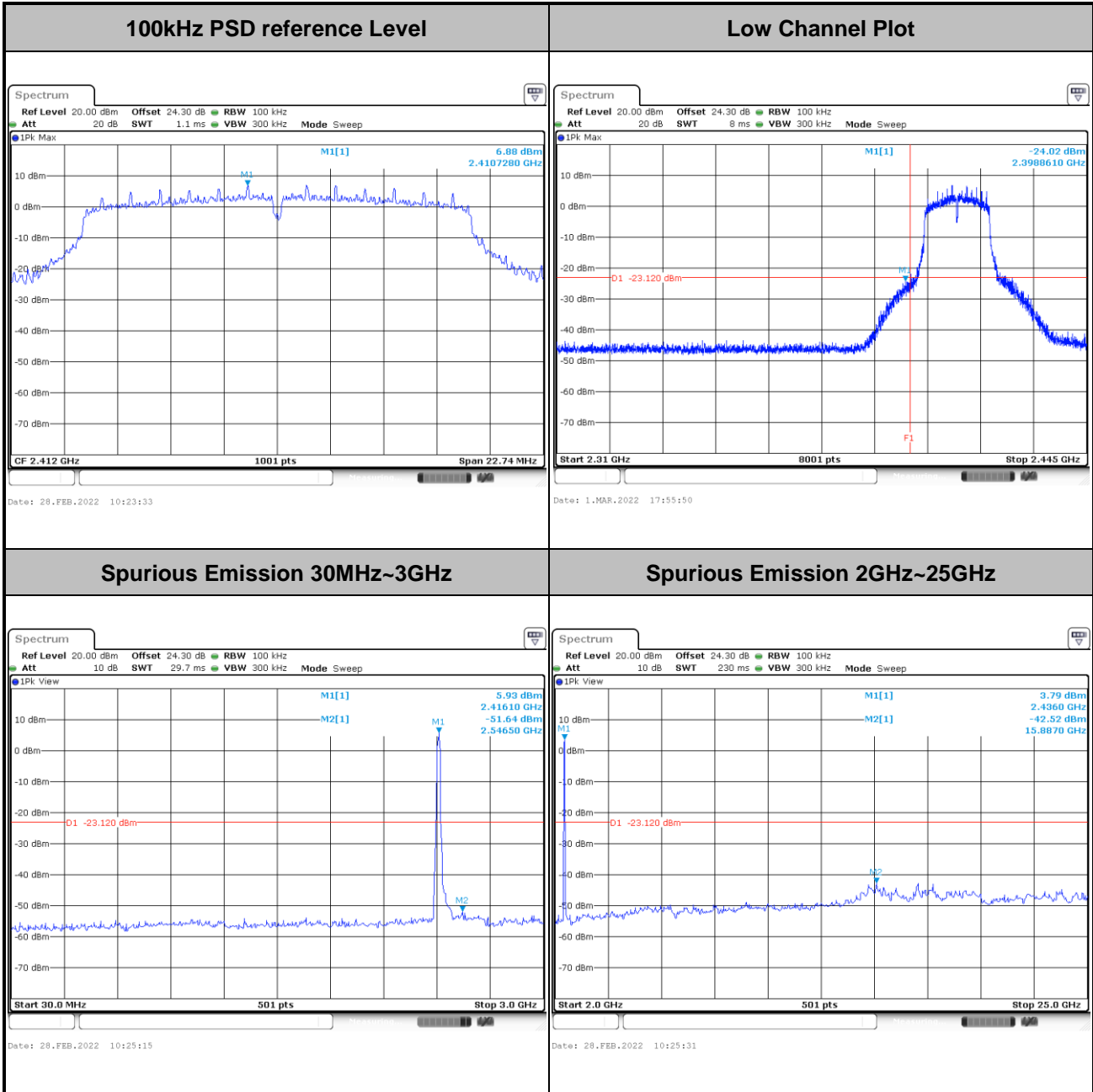


Test Mode :	802.11b	Test Channel :	11
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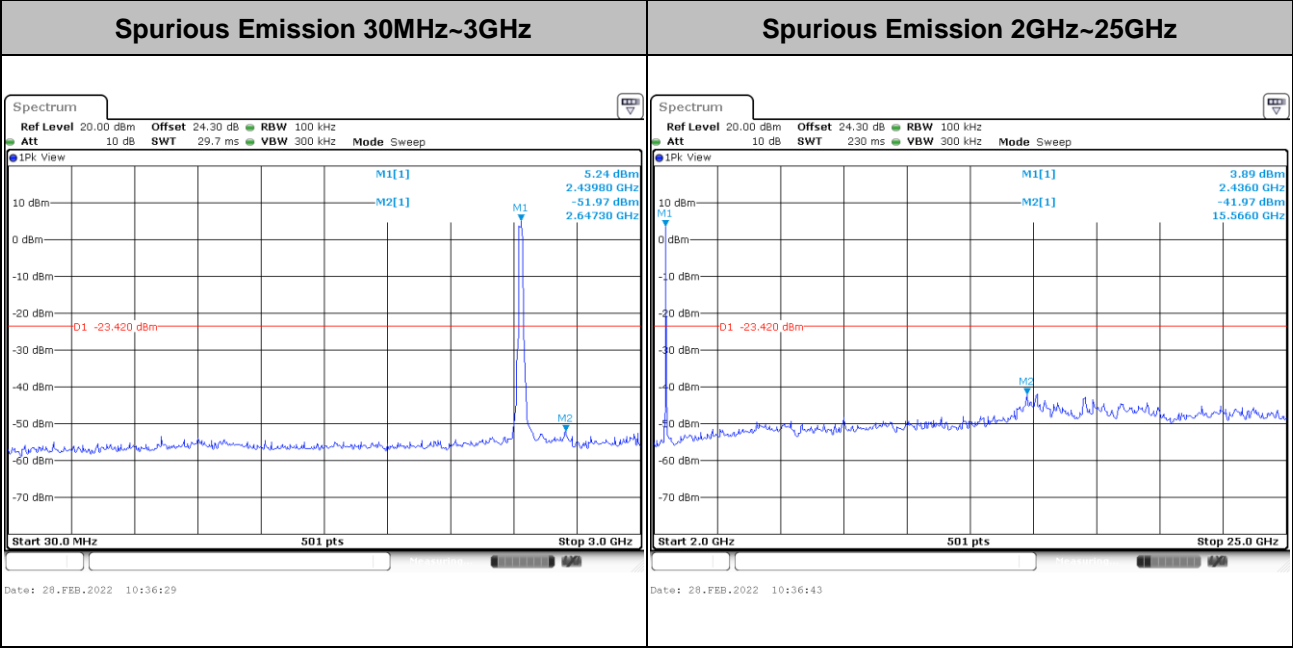
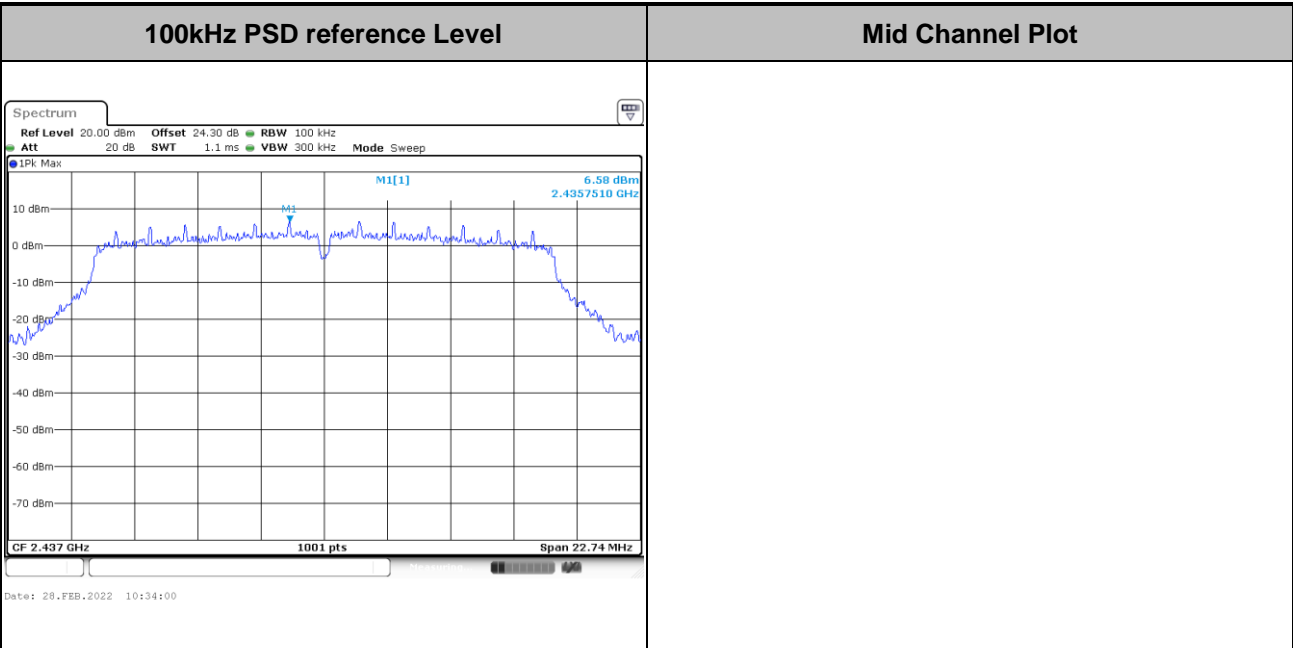


Test Mode :	802.11g	Test Channel :	01
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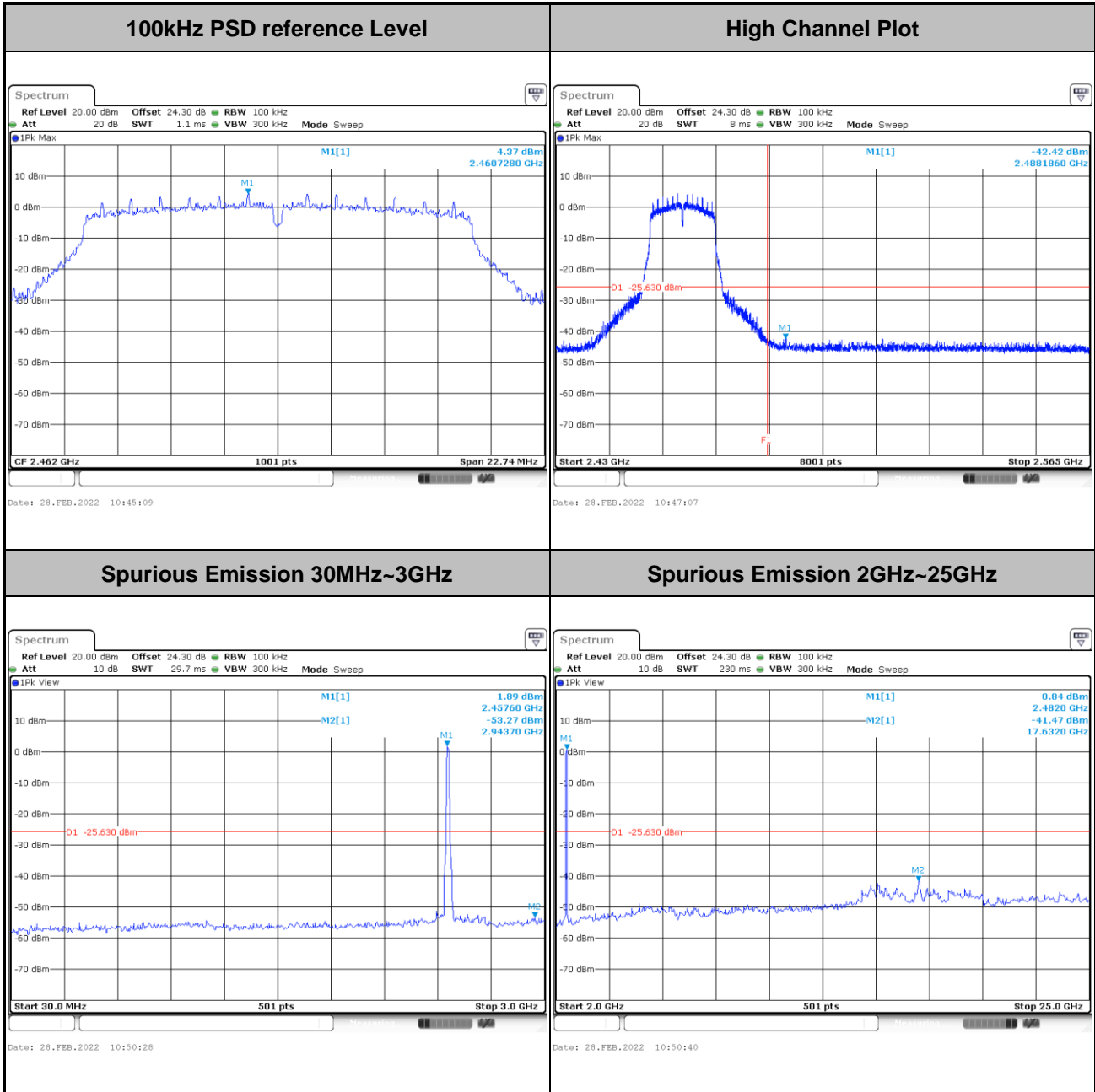


Test Mode :	802.11g	Test Channel :	06
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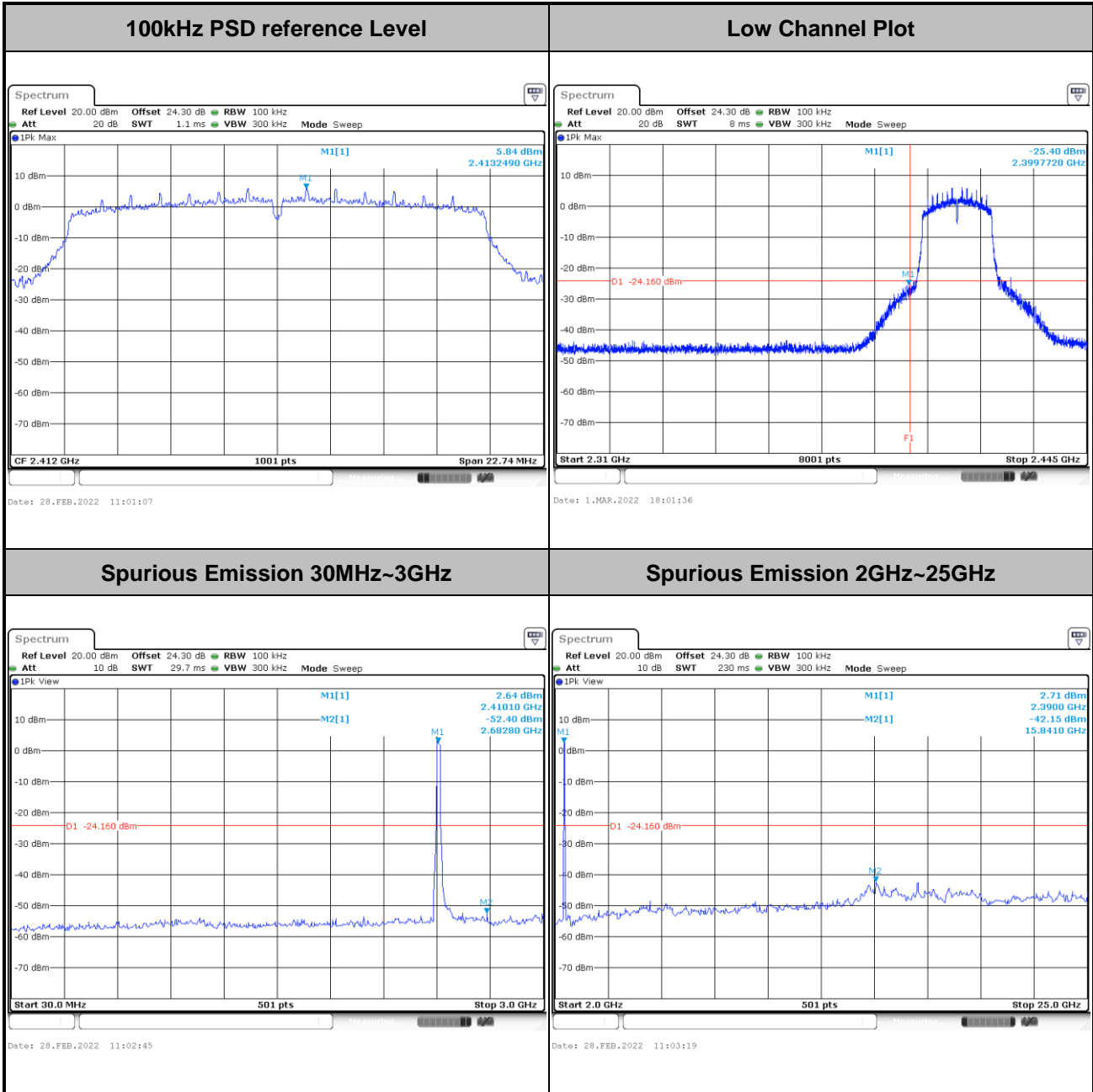


Test Mode :	802.11g	Test Channel :	11
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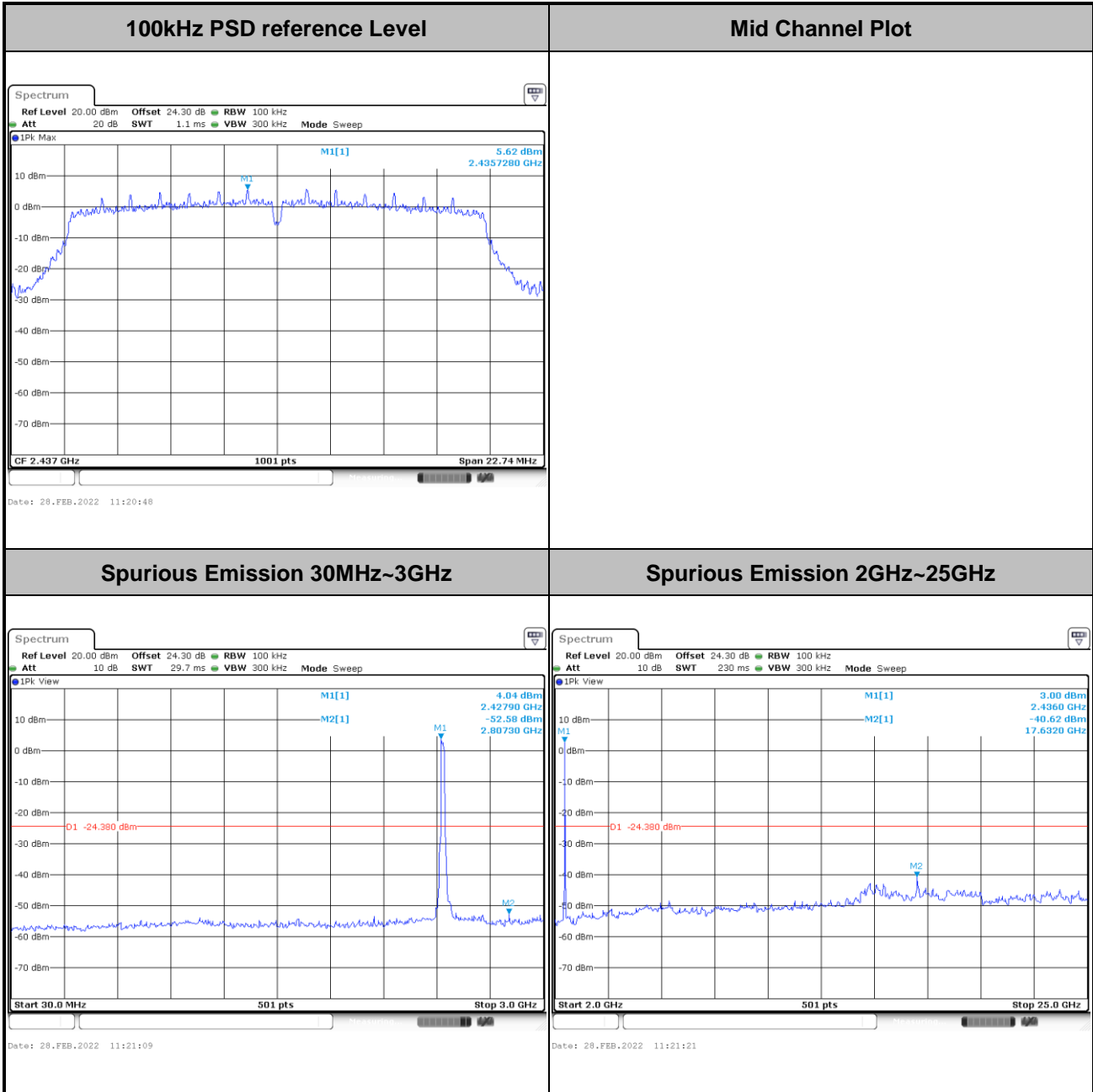
Test Mode :	802.11n HT20	Test Channel :	01
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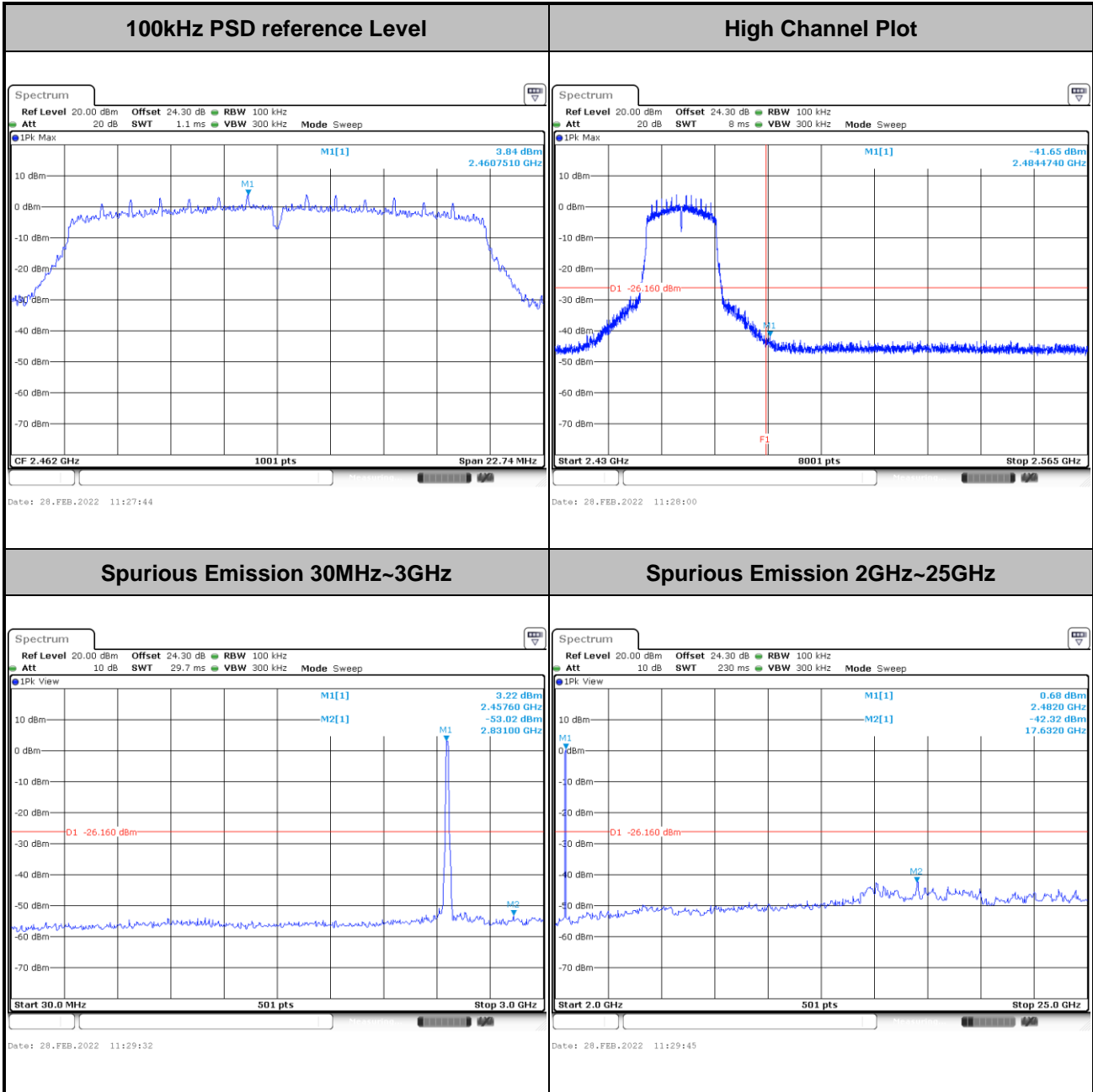


Test Mode :	802.11n HT20	Test Channel :	06
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Test Mode :	802.11n HT20	Test Channel :	11
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### 3.5 Radiated Band Edges and Spurious Emission Measurement

#### 3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

#### 3.5.2 Measuring Instruments

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

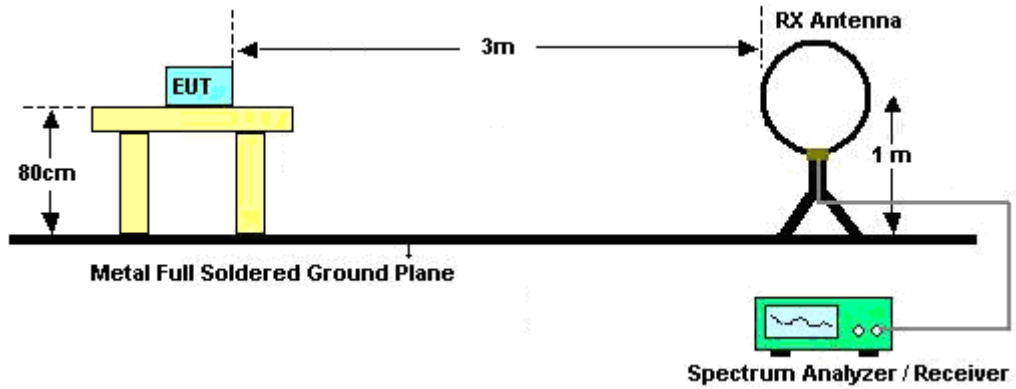


### 3.5.3 Test Procedures

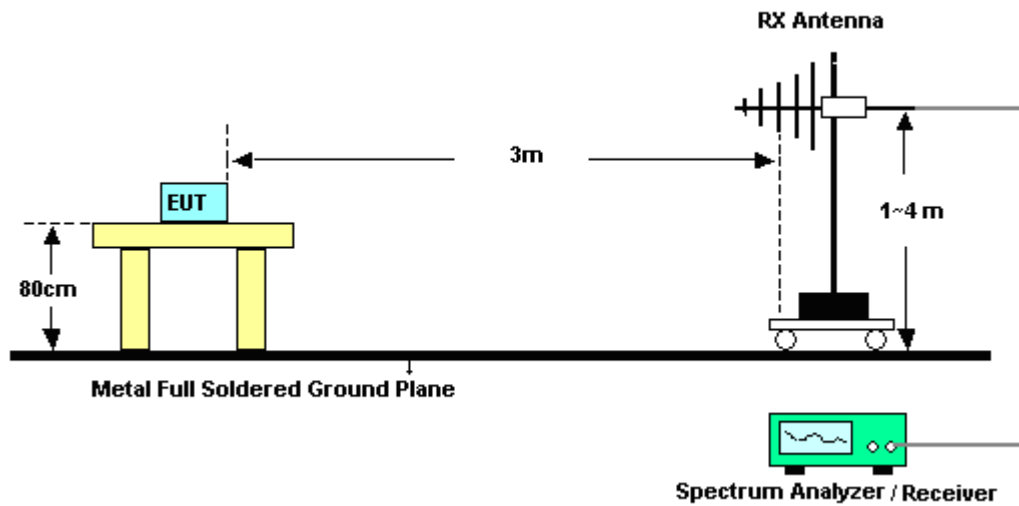
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
4. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-“.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“.
8. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW = 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3 MHz for  $f \geq 1$  GHz for peak measurement.  
For average measurement:
    - VBW = 10 Hz, when duty cycle is no less than 98 percent.
    - VBW  $\geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

### 3.5.4 Test Setup

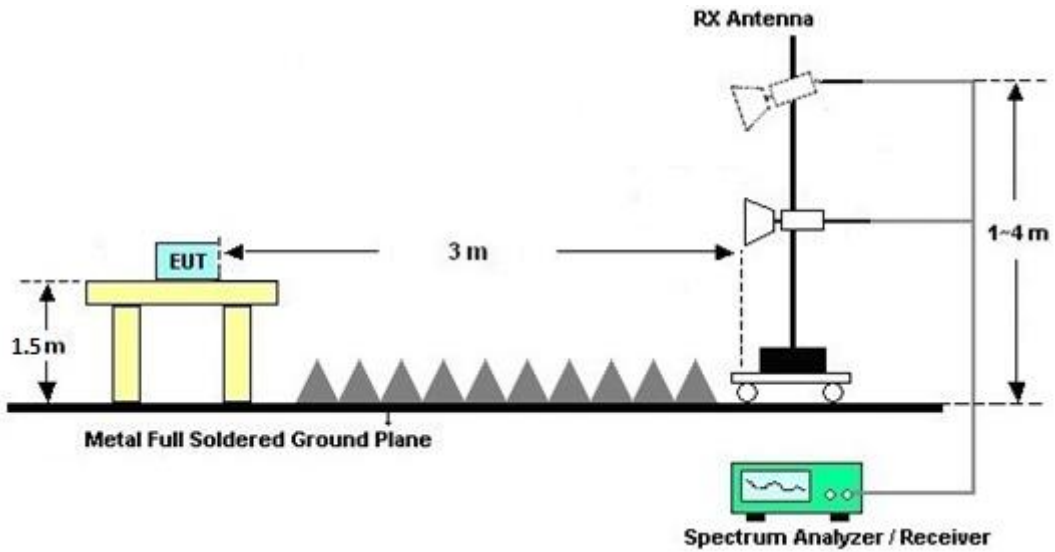
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated test above 1GHz



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

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

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

### 3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

### 3.5.7 Duty Cycle

Please refer to Appendix E.

### 3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Please refer to Appendix C and D.

### 3.6 AC Conducted Emission Measurement

#### 3.6.1 Limit of AC Conducted Emission

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

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

\*Decreases with the logarithm of the frequency.

#### 3.6.2 Measuring Instruments

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

#### 3.6.3 Test Procedures

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

### 3.6.4 Test Setup



### 3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.





## **3.7 Antenna Requirements**

### **3.7.1 Standard Applicable**

If directional gain of transmitting Antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. 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	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Feb. 19, 2022~ Mar. 01, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	DARE	RPR3006W	15I00041SNO 10 (NO:248)	10MHz~6GHz	Dec. 29, 2021	Feb. 19, 2022~ Mar. 01, 2022	Dec. 28, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Feb. 19, 2022~ Mar. 01, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Feb. 19, 2022~ Mar. 01, 2022	Aug. 11, 2022	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Feb. 19, 2022~ Mar. 02, 2022	Sep. 06, 2022	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N -06	47020 & 06	30MHz to 1GHz	Oct. 09, 2021	Feb. 19, 2022~ Mar. 02, 2022	Oct. 08, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1G~18GHz	Aug. 04, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 03, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Oct. 12, 2021	Feb. 19, 2022~ Mar. 02, 2022	Oct. 11, 2022	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz ~40GHz	Nov. 30, 2021	Feb. 19, 2022~ Mar. 02, 2022	Nov. 29, 2022	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Jul. 05, 2021	Feb. 19, 2022~ Mar. 02, 2022	Jul. 04, 2022	Radiation (03CH16-HY)
Amplifier	EMCI	EMC051845S E	980729	1-18GHz	Jul. 09, 2021	Feb. 19, 2022~ Mar. 02, 2022	Jul. 08, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Feb. 19, 2022~ Mar. 02, 2022	Jun. 21, 2022	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 09, 2021	Feb. 19, 2022~ Mar. 02, 2022	Dec. 08, 2022	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A	MY59053012	3Hz~26.5GHz	Nov. 18, 2021	Feb. 19, 2022~ Mar. 02, 2022	Nov. 17, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4P E	NA	Aug. 28, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4P E	NA	Aug. 28, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5 757	NA	Aug. 28, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Feb. 19, 2022~ Mar. 02, 2022	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Feb. 19, 2022~ Mar. 02, 2022	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Feb. 19, 2022~ Mar. 02, 2022	N/A	Radiation (03CH16-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Mar. 08, 2022	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Mar. 08, 2022	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	9561-FN00373	9kHz-200MHz	Oct. 29, 2021	Mar. 08, 2022	Oct. 28, 2022	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	N/A	Mar. 08, 2022	N/A	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Feb. 16, 2022	Mar. 08, 2022	Feb. 15, 2023	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Oct. 21, 2021	Mar. 08, 2022	Oct. 20, 2022	Conduction (CO07-HY)



## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.3 dB
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.8 dB
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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 dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.8 dB
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**Appendix A. Test Result of Conducted Test Items**

Test Engineer:	Jacob Yu / Ching Chen	Temperature:	21~25	°C
Test Date:	2022/2/19-2022/3/1	Relative Humidity:	51~54	%

**TEST RESULTS DATA**  
**6dB and 99% Occupied Bandwidth**

2.4GHz Band Single Antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant7	Ant2	Ant7	Ant2		
11b	1Mbps	1	1	2412	12.84	-	8.08	-	0.50	Pass
11b	1Mbps	1	6	2437	13.04	-	7.62	-	0.50	Pass
11b	1Mbps	1	11	2462	13.29	-	8.58	-	0.50	Pass
11g	6Mbps	1	1	2412	18.23	-	15.16	-	0.50	Pass
11g	6Mbps	1	6	2437	17.93	-	15.16	-	0.50	Pass
11g	6Mbps	1	11	2462	17.98	-	15.16	-	0.50	Pass
HT20	MCS0	1	1	2412	18.93	-	15.16	-	0.50	Pass
HT20	MCS0	1	6	2437	18.73	-	15.16	-	0.50	Pass
HT20	MCS0	1	11	2462	18.48	-	15.16	-	0.50	Pass

**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
					Ant7	Ant2	SUM	Ant7	Ant2	Ant7	Ant2	Ant7	Ant2	Ant7	Ant2	
11b	1Mbps	1	1	2412	16.30	-	-	30.00	-	-1.85	-	14.45	-	36.00	-	Pass
11b	1Mbps	1	6	2437	14.80	-		30.00	-	-1.85	-	12.95	-	36.00	-	Pass
11b	1Mbps	1	11	2462	18.90	-		30.00	-	-1.85	-	17.05	-	36.00	-	Pass
11g	6Mbps	1	1	2412	18.10	-		30.00	-	-1.85	-	16.25	-	36.00	-	Pass
11g	6Mbps	1	6	2437	17.90	-		30.00	-	-1.85	-	16.05	-	36.00	-	Pass
11g	6Mbps	1	11	2462	15.50	-		30.00	-	-1.85	-	13.65	-	36.00	-	Pass
HT20	MCS0	1	1	2412	17.00	-		30.00	-	-1.85	-	15.15	-	36.00	-	Pass
HT20	MCS0	1	6	2437	16.80	-		30.00	-	-1.85	-	14.95	-	36.00	-	Pass
HT20	MCS0	1	11	2462	14.80	-		30.00	-	-1.85	-	12.95	-	36.00	-	Pass

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

**TEST RESULTS DATA**  
**Peak Power Spectral Density**

2.4GHz Band Single Antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant7	Ant2	Worse + 3.01	Ant7	Ant2	Ant7	Ant2	
11b	1Mbps	1	1	2412	-5.52	-	-	-1.85	-	8.00	-	Pass
11b	1Mbps	1	6	2437	-7.33	-		-1.85	-	8.00	-	Pass
11b	1Mbps	1	11	2462	-3.15	-		-1.85	-	8.00	-	Pass
11g	6Mbps	1	1	2412	-5.99	-		-1.85	-	8.00	-	Pass
11g	6Mbps	1	6	2437	-5.67	-		-1.85	-	8.00	-	Pass
11g	6Mbps	1	11	2462	-9.20	-		-1.85	-	8.00	-	Pass
HT20	MCS0	1	1	2412	-7.50	-		-1.85	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-8.19	-		-1.85	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-9.79	-		-1.85	-	8.00	-	Pass

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





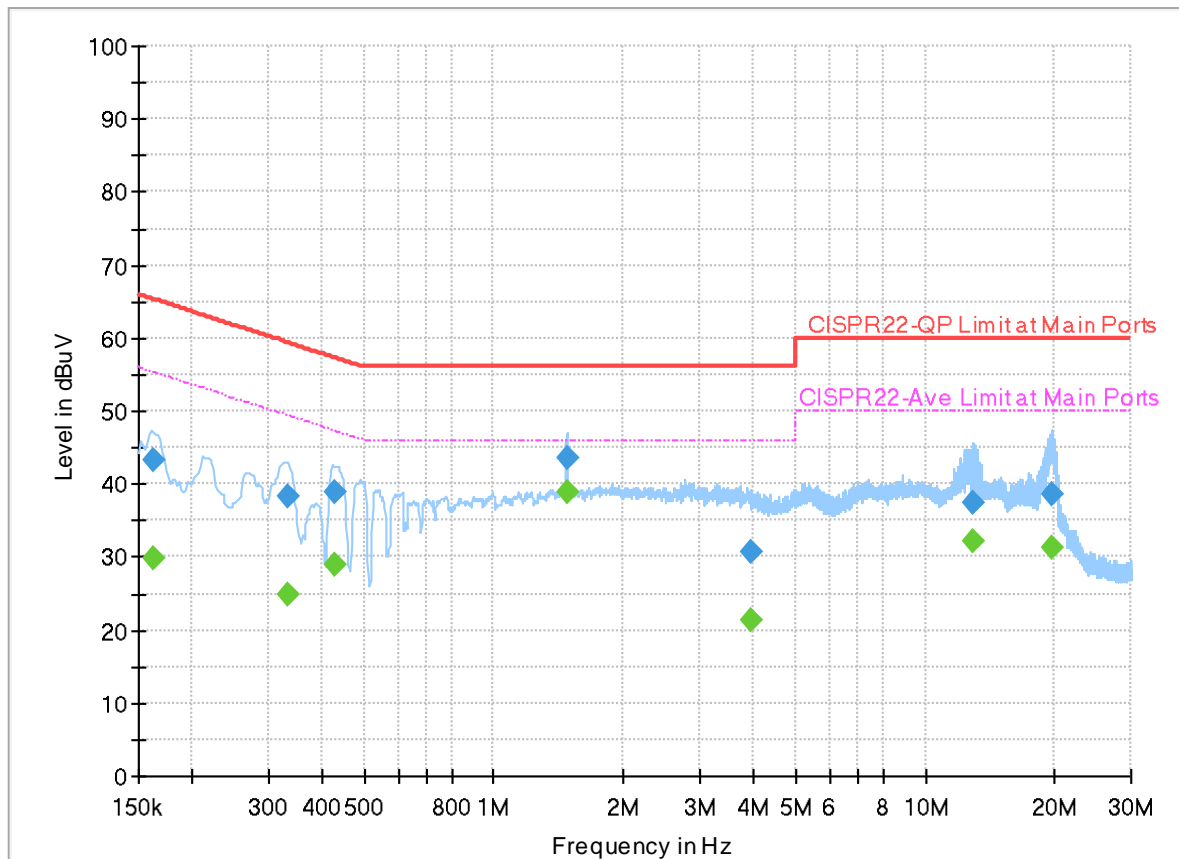
## Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	Temperature :	23.3~24.8°C
		Relative Humidity :	45.2~48.9%

## EUT Information

Report NO : 212127  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Line

Full Spectrum



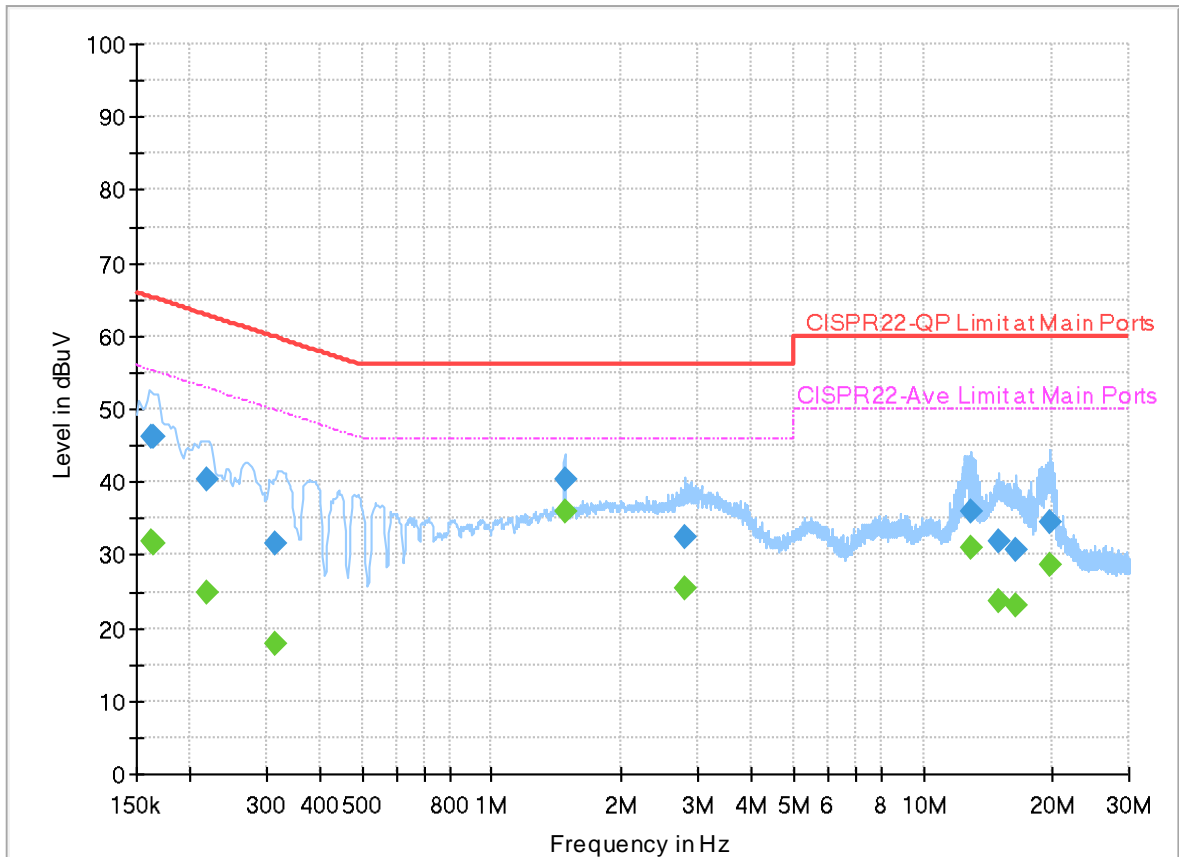
## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162690	---	29.77	55.33	25.56	L1	OFF	19.7
0.162690	43.20	---	65.33	22.13	L1	OFF	19.7
0.334590	---	24.88	49.34	24.46	L1	OFF	19.7
0.334590	38.27	---	59.34	21.07	L1	OFF	19.7
0.429000	---	28.97	47.27	18.30	L1	OFF	19.7
0.429000	38.86	---	57.27	18.41	L1	OFF	19.7
1.474530	---	38.97	46.00	7.03	L1	OFF	19.7
1.474530	43.56	---	56.00	12.44	L1	OFF	19.7
3.927210	---	21.36	46.00	24.64	L1	OFF	19.8
3.927210	30.75	---	56.00	25.25	L1	OFF	19.8
12.964380	---	32.10	50.00	17.90	L1	OFF	19.9
12.964380	37.33	---	60.00	22.67	L1	OFF	19.9
19.587750	---	31.16	50.00	18.84	L1	OFF	20.0
19.587750	38.53	---	60.00	21.47	L1	OFF	20.0

# EUT Information

Report NO : 212127  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Neutral

Full Spectrum



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.163140	---	31.77	55.30	23.53	N	OFF	19.7
0.163140	46.30	---	65.30	19.00	N	OFF	19.7
0.163500	---	31.55	55.28	23.73	N	OFF	19.7
0.163500	46.18	---	65.28	19.10	N	OFF	19.7
0.219120	---	24.83	52.85	28.02	N	OFF	19.7
0.219120	40.41	---	62.85	22.44	N	OFF	19.7
0.314970	---	17.89	49.84	31.95	N	OFF	19.7
0.314970	31.72	---	59.84	28.12	N	OFF	19.7
1.475520	---	35.91	46.00	10.09	N	OFF	19.7
1.475520	40.42	---	56.00	15.58	N	OFF	19.7
2.810670	---	25.50	46.00	20.50	N	OFF	19.7
2.810670	32.35	---	56.00	23.65	N	OFF	19.7
12.965190	---	30.93	50.00	19.07	N	OFF	19.9
12.965190	36.04	---	60.00	23.96	N	OFF	19.9
14.916660	---	23.56	50.00	26.44	N	OFF	19.9
14.916660	31.91	---	60.00	28.09	N	OFF	19.9
16.332000	---	23.19	50.00	26.81	N	OFF	19.9
16.332000	30.61	---	60.00	29.39	N	OFF	19.9
19.677750	---	28.79	50.00	21.21	N	OFF	19.9

19.677750	34.38	---	60.00	25.62	N	OFF	19.9
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### Appendix C. Radiated Spurious Emission

Test Engineer :	Andy Yang, Karl Hou and Wilson Wu	Temperature :	20~25°C
		Relative Humidity :	50~60%

**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.	
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
7		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
802.11b CH 01 2412MHz		2321.025	55.62	-18.38	74	40.49	27.14	18.08	30.09	147	99	P	H	
		2390	43.97	-10.03	54	28.46	27.36	18.22	30.07	147	99	A	H	
	*	2412	106.22	-	-	90.58	27.45	18.26	30.07	147	99	P	H	
	*	2412	103.3	-	-	87.66	27.45	18.26	30.07	147	99	A	H	
													H	
														H
			2341.5	56.11	-17.89	74	40.9	27.18	18.12	30.09	379	54	P	V
			2388.33	43.93	-10.07	54	28.43	27.35	18.22	30.07	379	54	A	V
	*		2412	105.32	-	-	89.68	27.45	18.26	30.07	379	54	P	V
	*		2412	102.36	-	-	86.72	27.45	18.26	30.07	379	54	A	V
														V
														V
802.11b CH 06 2437MHz		2360.4	56.29	-17.71	74	40.97	27.24	18.16	30.08	115	94	P	H	
		2389.66	43.86	-10.14	54	28.35	27.36	18.22	30.07	115	94	A	H	
	*	2437	106.3	-	-	90.5	27.55	18.31	30.06	115	94	P	H	
	*	2437	103.15	-	-	87.35	27.55	18.31	30.06	115	94	A	H	
			2486	56.48	-17.52	74	40.31	27.82	18.39	30.04	115	94	P	H
			2486.56	45.14	-8.86	54	28.96	27.82	18.4	30.04	115	94	A	H
			2388.68	55.76	-18.24	74	40.26	27.35	18.22	30.07	296	66	P	V
			2389.8	43.77	-10.23	54	28.26	27.36	18.22	30.07	296	66	A	V
	*		2437	104.41	-	-	88.61	27.55	18.31	30.06	296	66	P	V
	*		2437	101.19	-	-	85.39	27.55	18.31	30.06	296	66	A	V
			2499.51	56.75	-17.25	74	40.47	27.9	18.42	30.04	296	66	P	V
			2486.07	44.87	-9.13	54	28.7	27.82	18.39	30.04	296	66	A	V



<b>802.11b</b> <b>CH 11</b> <b>2462MHz</b>	*	2462	111.33	-	-	95.36	27.67	18.35	30.05	148	97	P	H
	*	2462	108.2	-	-	92.23	27.67	18.35	30.05	148	97	A	H
		2489	58.18	-15.82	74	41.99	27.83	18.4	30.04	148	97	P	H
		2487.68	48.01	-5.99	54	31.82	27.83	18.4	30.04	148	97	A	H
													H
													H
	*	2462	108.87	-	-	92.9	27.67	18.35	30.05	364	53	P	V
	*	2462	105.81	-	-	89.84	27.67	18.35	30.05	364	53	A	V
		2488.6	58.49	-15.51	74	42.3	27.83	18.4	30.04	364	53	P	V
		2487.84	47.03	-6.97	54	30.84	27.83	18.4	30.04	364	53	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 7	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	52.58	-21.42	74	63.06	32.45	12.34	55.27	100	307	P	H	
		4824	50.45	-3.55	54	60.93	32.45	12.34	55.27	100	307	A	H	
													H	
													H	
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													H	
													H	
			4824	45.86	-28.14	74	56.34	32.45	12.34	55.27	-	-	P	V
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WIFI Ant. 7	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 11 2462MHz		4924	52.64	-21.36	74	62.89	32.84	12.3	55.39	100	308	P	H	
		4924	50.83	-3.17	54	61.08	32.84	12.3	55.39	100	308	A	H	
		7386	45.57	-28.43	74	48.57	36.41	16.25	55.66	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4924	51.45	-22.55	74	61.7	32.84	12.3	55.39	398	5	P	V
			4924	49.33	-4.67	54	59.58	32.84	12.3	55.39	398	5	A	V
			7386	44.79	-29.21	74	47.79	36.41	16.25	55.66	-	-	P	V
														V
														V
														V
														V
														V
														V
													V	
<b>Remark</b>	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> <li>The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.</li> </ol>													



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

WIFI Ant. 7	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 )	
802.11g CH 01 2412MHz		2390	61.55	-12.45	74	46.04	27.36	18.22	30.07	100	106	P	H	
		2390	48.87	-5.13	54	33.36	27.36	18.22	30.07	100	106	A	H	
	*	2412	110.32	-	-	94.68	27.45	18.26	30.07	100	106	P	H	
	*	2412	103.03	-	-	87.39	27.45	18.26	30.07	100	106	A	H	
													H	
														H
			2389.8	60.36	-13.64	74	44.85	27.36	18.22	30.07	301	67	P	V
			2389.905	47.94	-6.06	54	32.43	27.36	18.22	30.07	301	67	A	V
	*		2412	108.6	-	-	92.96	27.45	18.26	30.07	301	67	P	V
	*		2412	101.06	-	-	85.42	27.45	18.26	30.07	301	67	A	V
														V
														V
802.11g CH 06 2437MHz		2360.68	56.7	-17.3	74	41.38	27.24	18.16	30.08	114	103	P	H	
		2389.24	45.33	-8.67	54	29.82	27.36	18.22	30.07	114	103	A	H	
	*	2437	110.68	-	-	94.88	27.55	18.31	30.06	114	103	P	H	
	*	2437	103.33	-	-	87.53	27.55	18.31	30.06	114	103	A	H	
			2485.37	61.85	-12.15	74	45.69	27.81	18.39	30.04	114	103	P	H
			2485.79	49	-5	54	32.84	27.81	18.39	30.04	114	103	A	H
			2365.72	57.08	-16.92	74	41.73	27.26	18.17	30.08	333	65	P	V
			2386.3	45.1	-8.9	54	29.61	27.35	18.21	30.07	333	65	A	V
	*		2437	109.54	-	-	93.74	27.55	18.31	30.06	333	65	P	V
	*		2437	102.17	-	-	86.37	27.55	18.31	30.06	333	65	A	V
			2484.32	61.94	-12.06	74	45.78	27.81	18.39	30.04	333	65	P	V
			2485.09	47.82	-6.18	54	31.66	27.81	18.39	30.04	333	65	A	V



<b>802.11g CH 11 2462MHz</b>	*	2462	110.06	-	-	94.09	27.67	18.35	30.05	149	97	P	H
	*	2462	102.36	-	-	86.39	27.67	18.35	30.05	149	97	A	H
		2483.6	65.51	-8.49	74	49.36	27.8	18.39	30.04	149	97	P	H
		2483.6	50.02	-3.98	54	33.87	27.8	18.39	30.04	149	97	A	H
													H
													H
	*	2462	103.63	-	-	87.66	27.67	18.35	30.05	364	53	P	V
	*	2462	96.12	-	-	80.15	27.67	18.35	30.05	364	53	A	V
		2483.68	62.46	-11.54	74	46.31	27.8	18.39	30.04	364	53	P	V
		2484.68	47.49	-6.51	54	31.33	27.81	18.39	30.04	364	53	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 7	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 )
802.11g CH 01 2412MHz		4824	56.73	-17.27	74	67.21	32.45	12.34	55.27	100	311	P	H
		4824	43.97	-10.03	54	54.45	32.45	12.34	55.27	100	311	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4824	46.77	-27.23	74	57.25	32.45	12.34	55.27	-	-	P
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



WIFI Ant. 7	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)	
802.11g CH 06 2437MHz		4874	55.07	-18.93	74	65.48	32.6	12.32	55.33	100	308	P	H	
		4874	43.99	-10.01	54	54.4	32.6	12.32	55.33	100	308	A	H	
		7311	46.02	-27.98	74	49.06	36.78	15.83	55.65	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4874	47.82	-26.18	74	58.23	32.6	12.32	55.33	-	-	P	V
			7311	46.59	-27.41	74	49.63	36.78	15.83	55.65	-	-	P	V
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	
													V	



WIFI Ant. 7	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 )	
802.11g CH 11 2462MHz		4924	41.29	-32.71	74	51.54	32.84	12.3	55.39	-	-	P	H	
		7386	46.77	-27.23	74	49.77	36.41	16.25	55.66	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4924	40.99	-33.01	74	51.24	32.84	12.3	55.39	-	-	P	V
			7386	46.59	-27.41	74	49.59	36.41	16.25	55.66	-	-	P	V
														V
														V
														V
														V
														V
														V
														V
<b>Remark</b>	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> <li>The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.</li> </ol>													



**2.4GHz 2400~2483.5MHz  
WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI Ant. 7	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 )	
802.11n HT20 CH 01 2412MHz		2388.645	62.4	-11.6	74	46.9	27.35	18.22	30.07	100	110	P	H	
		2390	49.14	-4.86	54	33.63	27.36	18.22	30.07	100	110	A	H	
	*	2412	109.9	-	-	94.26	27.45	18.26	30.07	100	110	P	H	
	*	2412	102.35	-	-	86.71	27.45	18.26	30.07	100	110	A	H	
													H	
													H	
			2389.59	57.78	-16.22	74	42.27	27.36	18.22	30.07	388	54	P	V
			2390	45.91	-8.09	54	30.4	27.36	18.22	30.07	388	54	A	V
		*	2412	103.5	-	-	87.86	27.45	18.26	30.07	388	54	P	V
		*	2412	95.52	-	-	79.88	27.45	18.26	30.07	388	54	A	V
													V	
													V	
802.11n HT20 CH 06 2437MHz		2380.42	56.59	-17.41	74	41.15	27.32	18.2	30.08	112	104	P	H	
		2387.7	45.14	-8.86	54	29.64	27.35	18.22	30.07	112	104	A	H	
	*	2437	110.03	-	-	94.23	27.55	18.31	30.06	112	104	P	H	
	*	2437	102.21	-	-	86.41	27.55	18.31	30.06	112	104	A	H	
			2483.5	62.91	-11.09	74	46.76	27.8	18.39	30.04	112	104	P	H
			2483.5	48.01	-5.99	54	31.86	27.8	18.39	30.04	112	104	A	H
			2375.94	56	-18	74	40.59	27.3	18.19	30.08	333	65	P	V
			2389.66	45.08	-8.92	54	29.57	27.36	18.22	30.07	333	65	A	V
		*	2437	108.3	-	-	92.5	27.55	18.31	30.06	333	65	P	V
		*	2437	100.7	-	-	84.9	27.55	18.31	30.06	333	65	A	V
		2483.62	59.48	-14.52	74	43.33	27.8	18.39	30.04	333	65	P	V	
		2487.19	47.07	-6.93	54	30.89	27.82	18.4	30.04	333	65	A	V	



<b>802.11n</b> <b>HT20</b> <b>CH 11</b> <b>2462MHz</b>	*	2462	108.94	-	-	92.97	27.67	18.35	30.05	148	97	P	H
	*	2462	101.54	-	-	85.57	27.67	18.35	30.05	148	97	A	H
		2484.2	66.67	-7.33	74	50.51	27.81	18.39	30.04	148	97	P	H
		2483.56	50.22	-3.78	54	34.07	27.8	18.39	30.04	148	97	A	H
													H
													H
	*	2462	103.61	-	-	87.64	27.67	18.35	30.05	364	53	P	V
	*	2462	95.38	-	-	79.41	27.67	18.35	30.05	364	53	A	V
		2484.32	61.94	-12.06	74	45.78	27.81	18.39	30.04	364	53	P	V
		2483.96	47.59	-6.41	54	31.44	27.8	18.39	30.04	364	53	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												





2.4GHz 2400~2483.5MHz  
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 7	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 )	
802.11n HT20 CH 01 2412MHz		4824	54.22	-19.78	74	64.7	32.45	12.34	55.27	100	309	P	H	
		4824	41.33	-12.67	54	51.81	32.45	12.34	55.27	100	309	A	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4824	45.68	-28.32	74	56.16	32.45	12.34	55.27	-	-	P	V
														V
														V
														V
														V
													V	
													V	
													V	
													V	
													V	





WIFI Ant. 7	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 )
802.11n HT20 CH 11 2462MHz		4924	42.7	-31.3	74	52.95	32.84	12.3	55.39	-	-	P	H
		7386	47.18	-26.82	74	50.18	36.41	16.25	55.66	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.											





**Note symbol**

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



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.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11b		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 D. Radiated Spurious Emission Plots

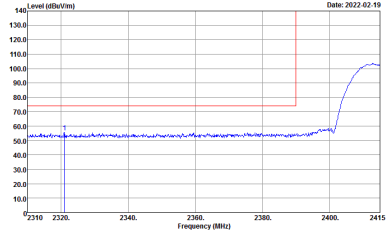
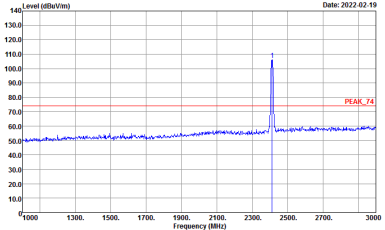
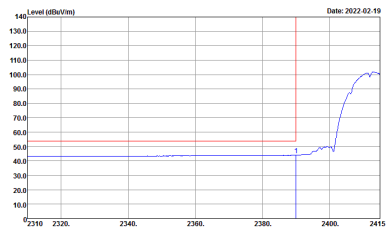
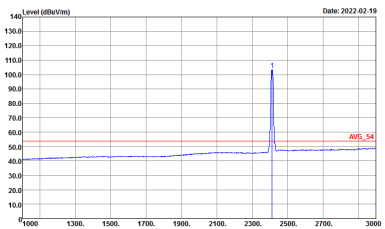
Test Engineer :	Andy Yang, Karl Hou and Wilson Wu	Temperature :	20~25°C
		Relative Humidity :	50~60%

### Note symbol

-L	Low channel location
-R	High channel location

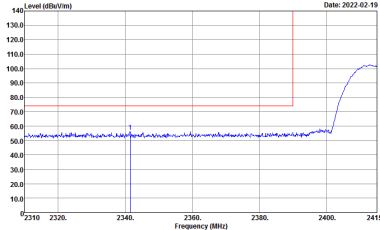
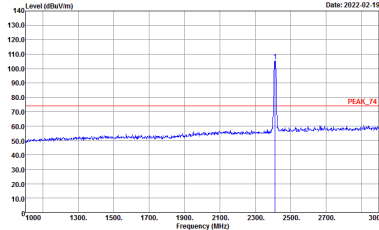
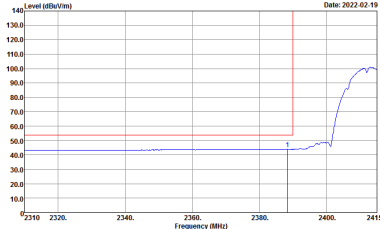
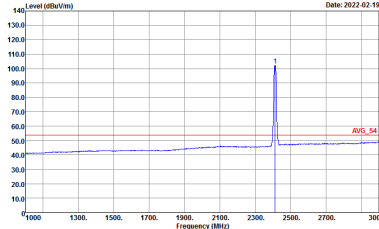


**2.4GHz 2400~2483.5MHz**  
**WIFI 802.11b (Band Edge @ 3m)**

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
7	Horizontal	Fundamental
<b>Peak</b>	 <p>Site : 03CH16-HY            Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY            Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
<b>Avg.</b>	 <p>Site : 03CH16-HY            Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH16-HY            Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



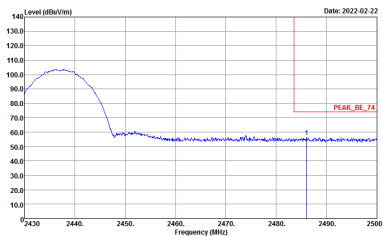
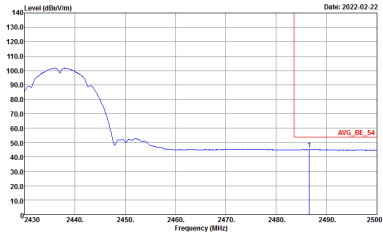


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
7	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
7	Horizontal	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto</p>	Left blank
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWF:Auto</p>	Left blank

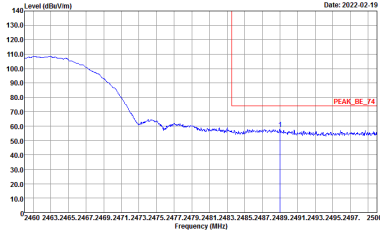
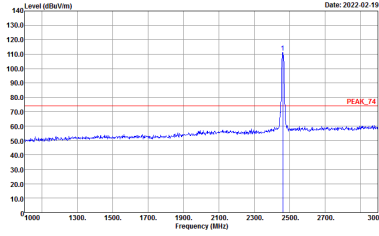
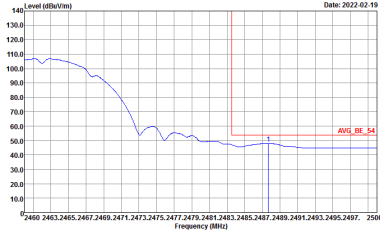
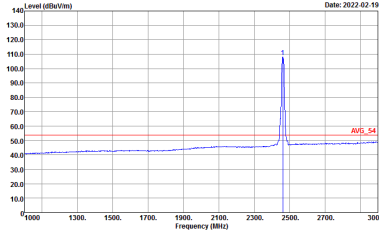


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
7	Vertical	Fundamental
Peak	<p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : PEAK_74 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	<p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : AVG_54 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

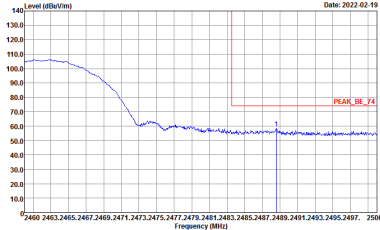
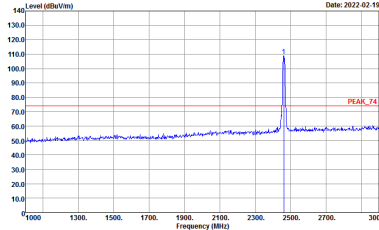
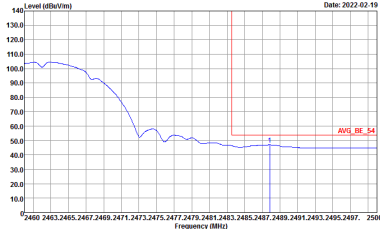
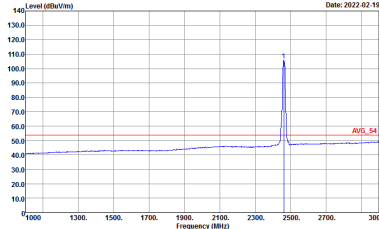


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
7	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto</p>	Left blank
Avg.	<p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWF:Auto</p>	Left blank



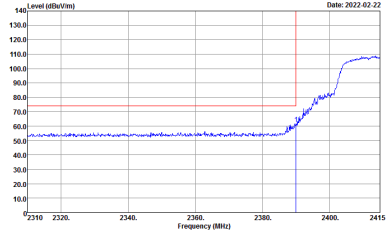
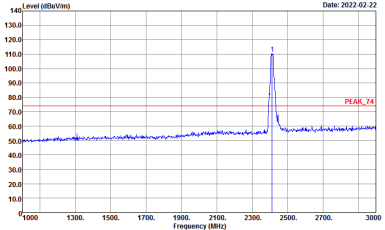
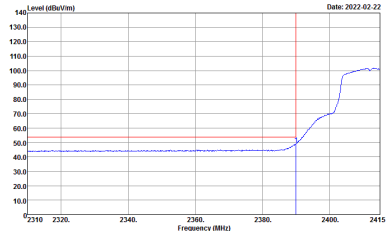
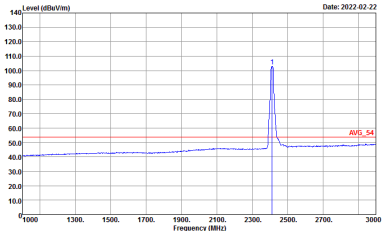
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
7	Vertical	Fundamental
Peak	 <p>Date: 2022-02-19</p> <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2022-02-19</p> <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Date: 2022-02-19</p> <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Date: 2022-02-19</p> <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

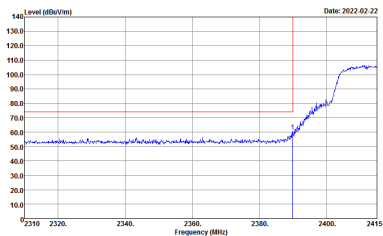
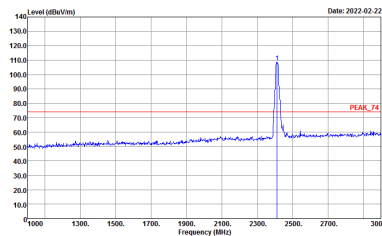
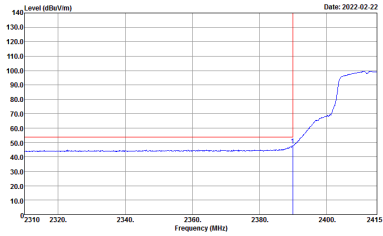
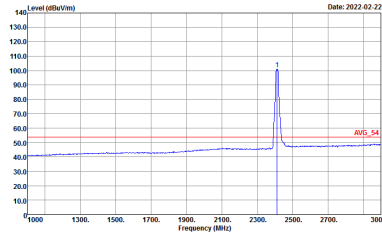


2.4GHz 2400~2483.5MHz  
WIFI 802.11g (Band Edge @ 3m)

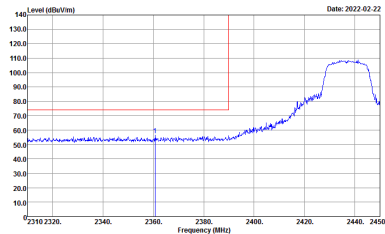
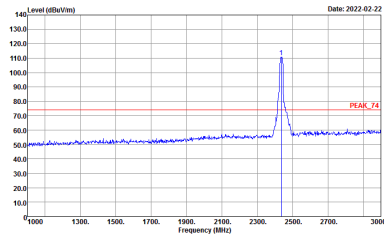
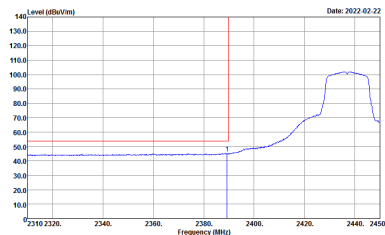
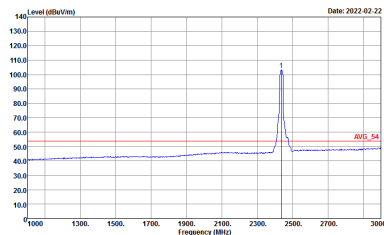
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>



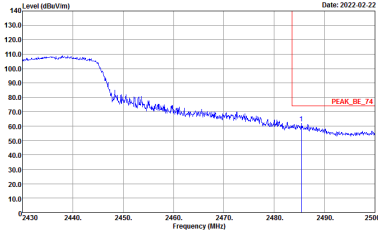
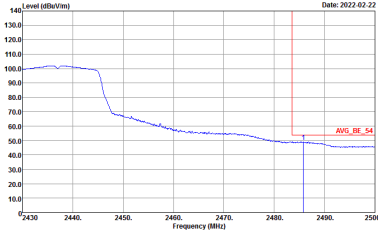


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
7	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>

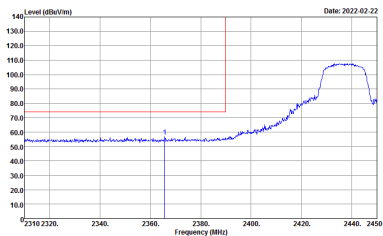
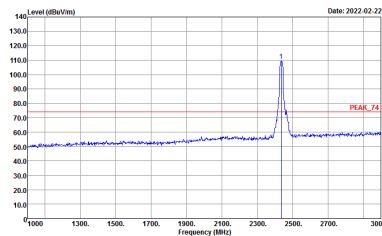
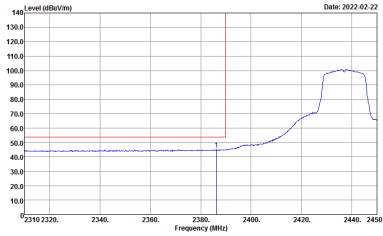
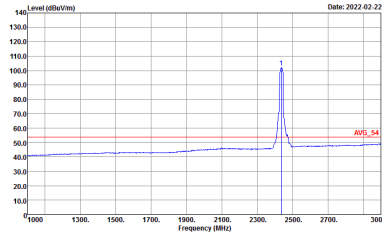


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	Left blank

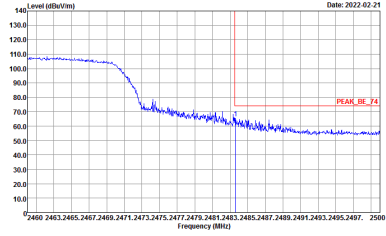
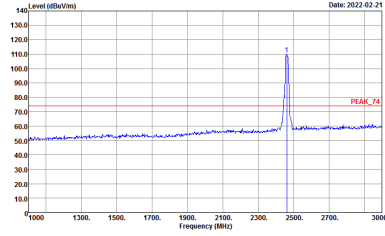
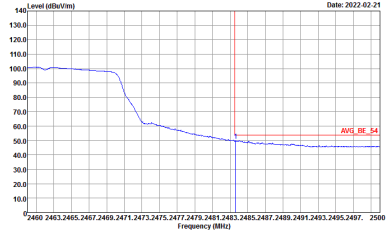
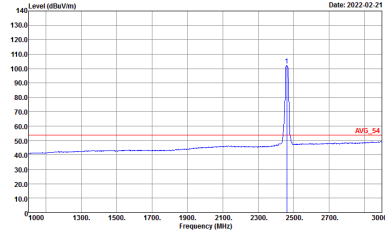


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
7	Vertical	Fundamental
Peak	 <p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : PEAK_74 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>	 <p>Date: 2022-02-22</p> <p>Site : 03CH16-HY            Condition : AVG_54 3m 91200_02114_210804 VERTICAL            : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>

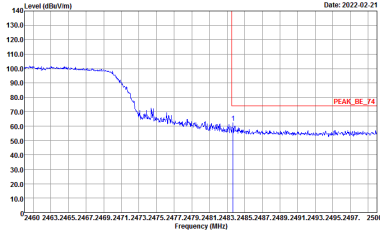
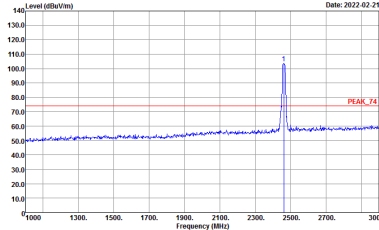
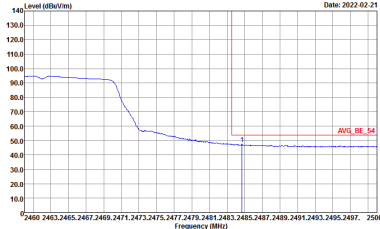
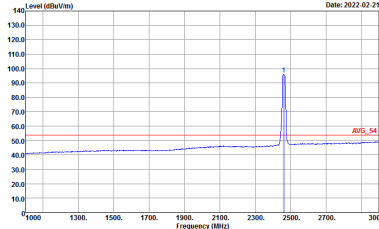


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
7	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left Blank
Avg.	<p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	Left Blank



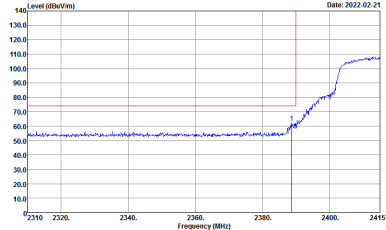
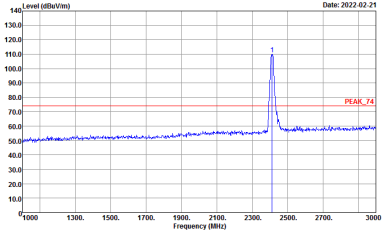
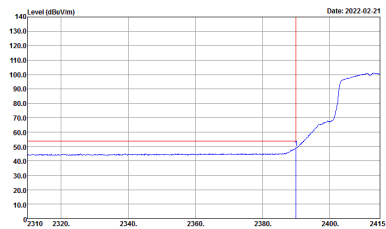
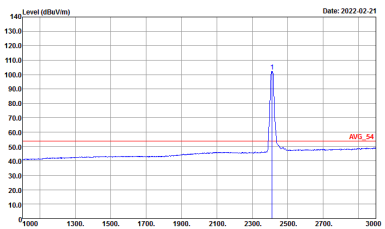
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
7	Vertical	Fundamental
Peak	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>

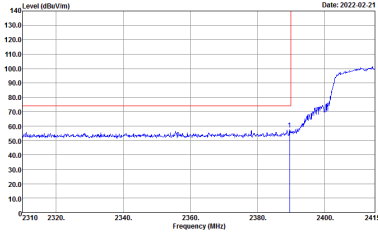
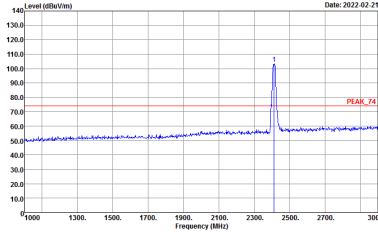
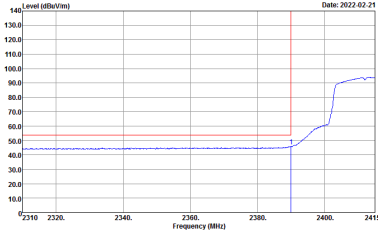
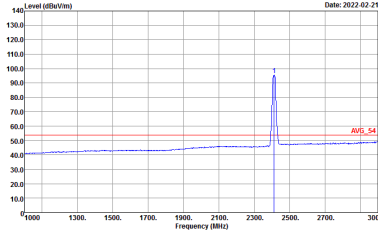


**2.4GHz 2400~2483.5MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
7	Horizontal	Fundamental
<b>Peak</b>	 <p>Site : 03CH16-HY            Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY            Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
<b>Avg.</b>	 <p>Site : 03CH16-HY            Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY            Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL            : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>



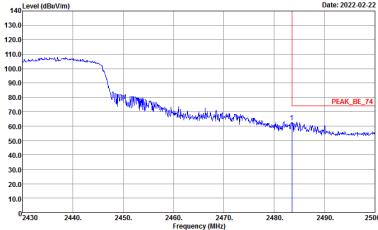
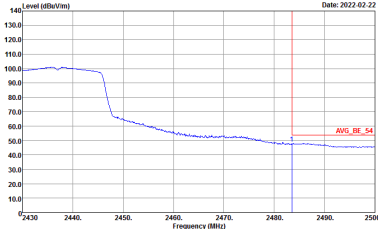


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
7	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto</p>

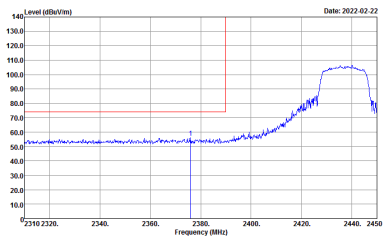
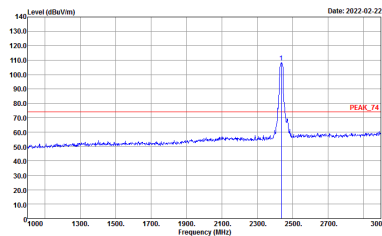
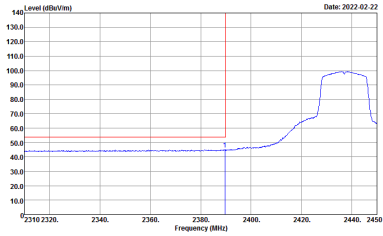
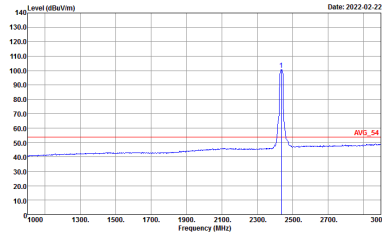


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
7	Horizontal	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWF:Auto</p>	Left blank
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL : RBW:1000.000kHz VBW:1000kHz SWF:Auto</p>	Left blank

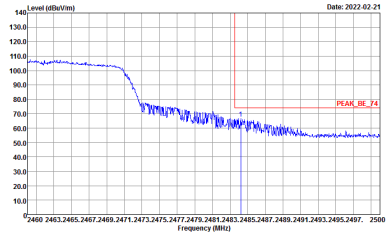
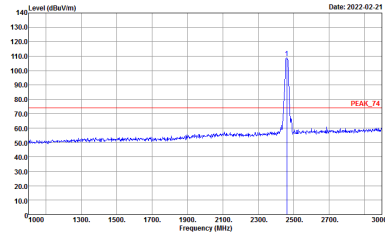
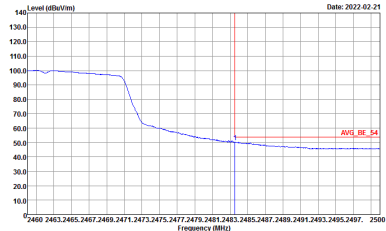
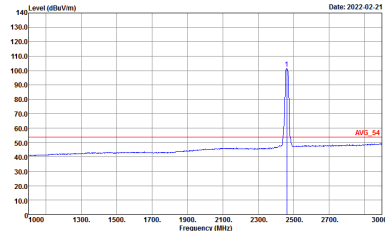


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
7	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>

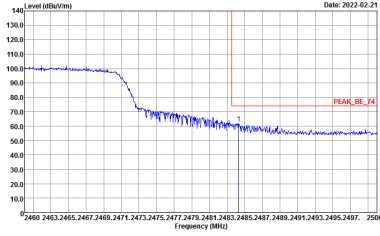
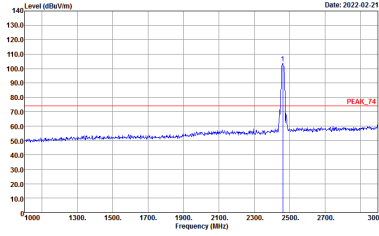
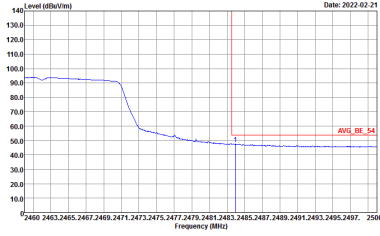
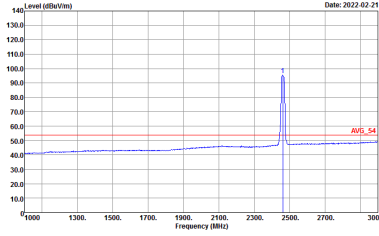


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
7	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left Blank
Avg.	<p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	Left Blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
7	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>



WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
7	Vertical	Fundamental
Peak	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>	 <p>Date: 2022-02-21</p> <p>Site : 03CH16-HY Condition : AVG_54 3m 91200_02114_210804 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto</p>

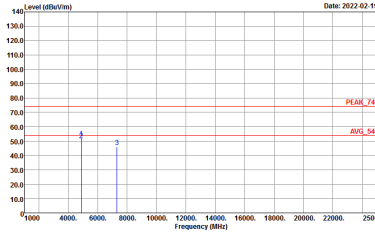
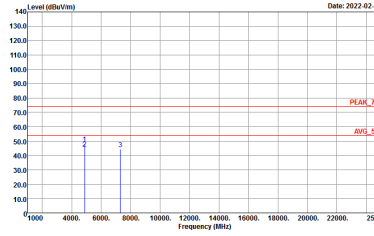


2.4GHz 2400~2483.5MHz
WIFI 802.11b (Harmonic @ 3m)

Table with 2 columns: Horizontal and Vertical. Each column contains a graph of Level (dBuV/m) vs Frequency (MHz) for Peak and Avg values. Includes site and condition details for each graph.





<b>WIFI</b>	<b>2.4GHz 2400~2483.5MHz Harmonic @ 3m</b>	
<b>ANT</b>	<b>802.11b CH06 2437MHz</b>	
<b>7</b>	<b>Horizontal</b>	<b>Vertical</b>
<p><b>Peak</b></p> <p><b>Avg.</b></p>	 <p>Site : 03CHI6-IY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	 <p>Site : 03CHI6-IY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>



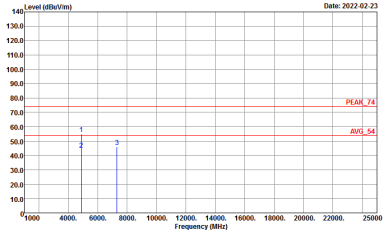
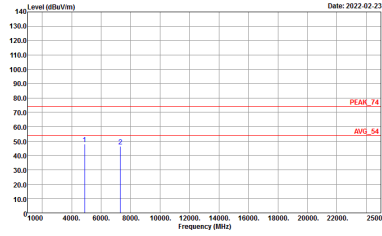
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
7	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>



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

<b>WIFI</b>	<b>2.4GHz 2400~2483.5MHz Harmonic @ 3m</b>	
<b>ANT</b>	<b>802.11g CH01 2412MHz</b>	
<b>7</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Peak Avg.</b>	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
7	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>



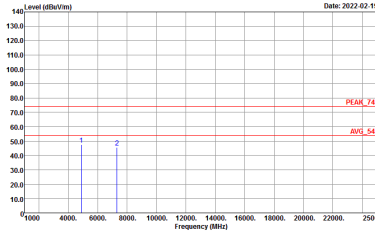
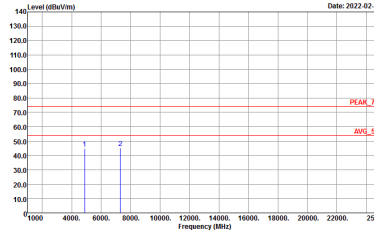
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
7	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>



2.4GHz 2400~2483.5MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

Table with 2 columns: Horizontal and Vertical. Each column contains a graph of Level (dBuV/m) vs Frequency (MHz) with Peak and Avg markers. Includes site and condition details for both orientations.



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
7	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	 <p>Site : 03CH16-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>



<b>WIFI</b>	<b>2.4GHz 2400~2483.5MHz Harmonic @ 3m</b>	
<b>ANT</b>	<b>802.11n HT20 CH11 2462MHz</b>	
<b>7</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Peak</b> <b>Avg.</b>	<p>Site : 03CHI6-HY Condition : PEAK_74 3m 91200_02114_210804 HORIZONTAL</p>	<p>Site : 03CHI6-HY Condition : PEAK_74 3m 91200_02114_210804 VERTICAL</p>





Emission below 1GHz  
2.4GHz WIFI 802.11b (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11b LF	
7	Horizontal	Vertical
QP / Peak	<p>Site : 03CH16-HY Condition : QP 3m B1LOG_47020_211009 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : QP 3m B1LOG_47020_211009 VERTICAL</p>



## Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11b	99.64	-	-	10Hz
802.11g	97.20	1390	0.72	1kHz
2.4GHz 802.11n HT20	97.38	1300	0.77	1kHz

