



FCC RADIO TEST REPORT

FCC ID : HD5-CT30PL1N
Equipment : Mobile computer
Brand Name : Honeywell
Model Name : CT30PL1N
Applicant : Honeywell International Inc.
9680 Old Bailes Road, Fort Mill, SC
29707 USA
Manufacturer : Honeywell International Inc.
9680 Old Bailes Road, Fort Mill, SC
29707 USA
Standard : FCC Part 15 Subpart E §15.407

The product was received on Feb. 14, 2022 and testing was performed from Feb. 22, 2022 to Mar. 31, 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 (R.O.C.)



Table of Contents

History of this test report	3
Summary of Test Result	4
1 General Description	5
1.1 Product Feature of Equipment Under Test	5
1.2 Modification of EUT	5
1.3 Testing Location	6
1.4 Applicable Standards	6
2 Test Configuration of Equipment Under Test	7
2.1 Carrier Frequency and Channel	7
2.2 Test Mode	7
2.3 Connection Diagram of Test System	8
2.4 Support Unit used in test configuration and system	9
2.5 EUT Operation Test Setup	9
2.6 Measurement Results Explanation Example	9
3 Test Result.....	10
3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement	10
3.2 Maximum Conducted Output Power Measurement	15
3.3 Power Spectral Density Measurement	16
3.4 Unwanted Emissions Measurement	18
3.5 AC Conducted Emission Measurement	24
3.6 Antenna Requirements	26
4 List of Measuring Equipment	27
5 Uncertainty of Evaluation	29
Appendix A. Conducted Test Results	
Appendix B. AC Conducted Emission Test Result	
Appendix C. Radiated Spurious Emission	
Appendix D. Radiated Spurious Emission Plots	
Appendix E. Duty Cycle Plots	
Appendix F. Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FR1N0508F	01	Initial issue of report	Apr. 18, 2022
FR1N0508F	02	1. Revise antenna information 2. Revise appendix A 3. Revise description in 3.4.3	Apr. 28, 2022



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.403(i)	6dB & 26dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)	Maximum Conducted Output Power	Pass	-
3.3	15.407(a)	Power Spectral Density	Pass	-
3.4	15.407(b)	Unwanted Emissions	Pass	9.12 dB under the limit at 5926.400 MHz
3.5	15.207	AC Conducted Emission	Pass	15.88 dB under the limit at 0.692 MHz
3.6	15.203 15.407(a)	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: Wei Chen
Report Producer: Lucy Wu



1 General Description

1.1 Product Feature of Equipment Under Test

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

Product Feature		
HW Version	v1.0	
SW Version	OS.11.003-HON.11.003	
Sample	Scanner S0703	
Antenna Type	WWAN <Ant. 1>: Loop Antenna <Ant. 2>: PIFA Antenna <Ant. 3>: Monopole Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna GPS / Glonass / BDS / Galileo: PIFA Antenna NFC: Loop Antenna	
Antenna information		
5725 MHz ~ 5850 MHz	Peak Gain (dBi)	2.2

Remark:

1. The EUT's information above is declared by manufacturer. Please refer to Comments and Explanations in report summary.
2. Internal tracking board version is DVT1 and SW PN is 311.C0.00.0838-G-DEBUG.

1.2 Modification of EUT

No modifications made to the EUT during the testing.



1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. CO05-HY (TAF Code: 1190)
Remark	The Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. TH05-HY, 03CH13-HY

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

FCC designation No.: TW1190 and 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 E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ ANSI C63.10-2013

Remark:

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



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)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155 [#]	5775	165	5825

Note:

1. The above Frequency and Channel with "*" are 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel with "[#]" are 802.11ac VHT80.

2.2 Test Mode

The 802.11ac mode has no higher power and PSD than 802.11n mode, thus the 802.11n mode is chosen as main test configuration, and the 802.11ac mode is verified the power.

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

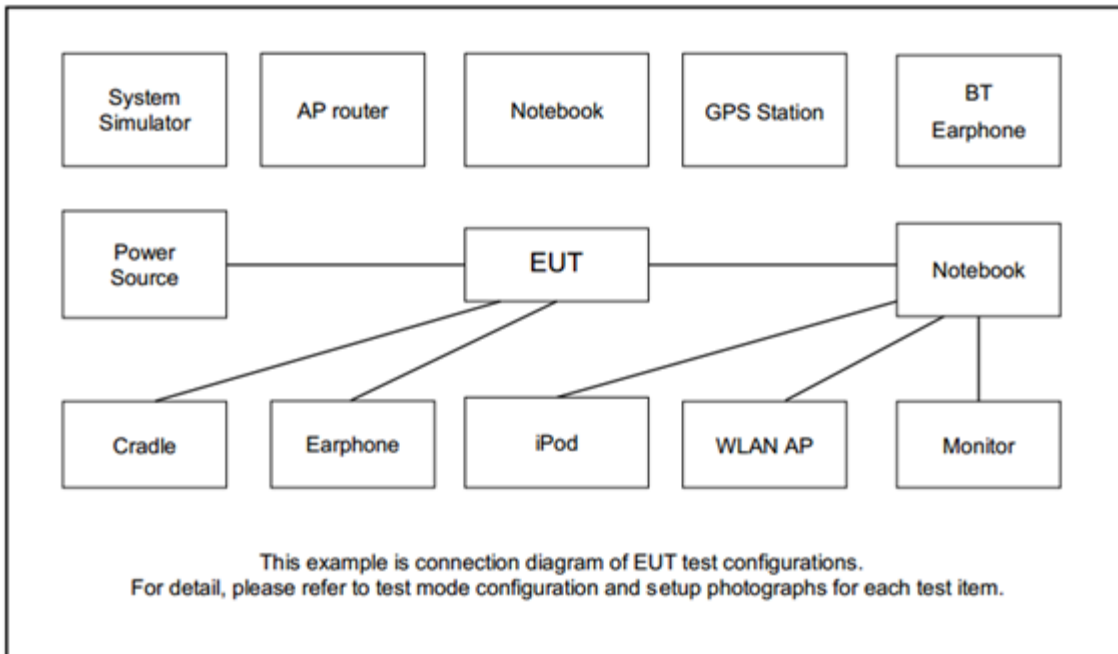
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20 (Covered by HT20)	MCS0
802.11ac VHT40 (Covered by HT40)	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN Link + USB Cable (Charging from AC Adapter)

Ch. #		Band IV : 5725-5850 MHz			
		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

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

2.3 Connection Diagram of Test System





2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	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.	Notebook	Acer	N18Q13	PD9AX201NG	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	USB Cable	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “QRCT 4.0.00193.0” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

3 Test Result

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

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

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

26dB and 99% Occupied bandwidth are reporting only.

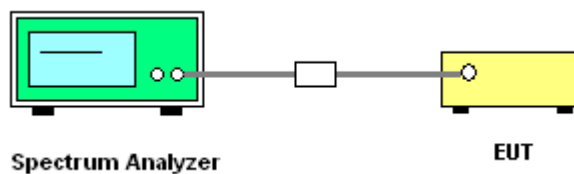
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup

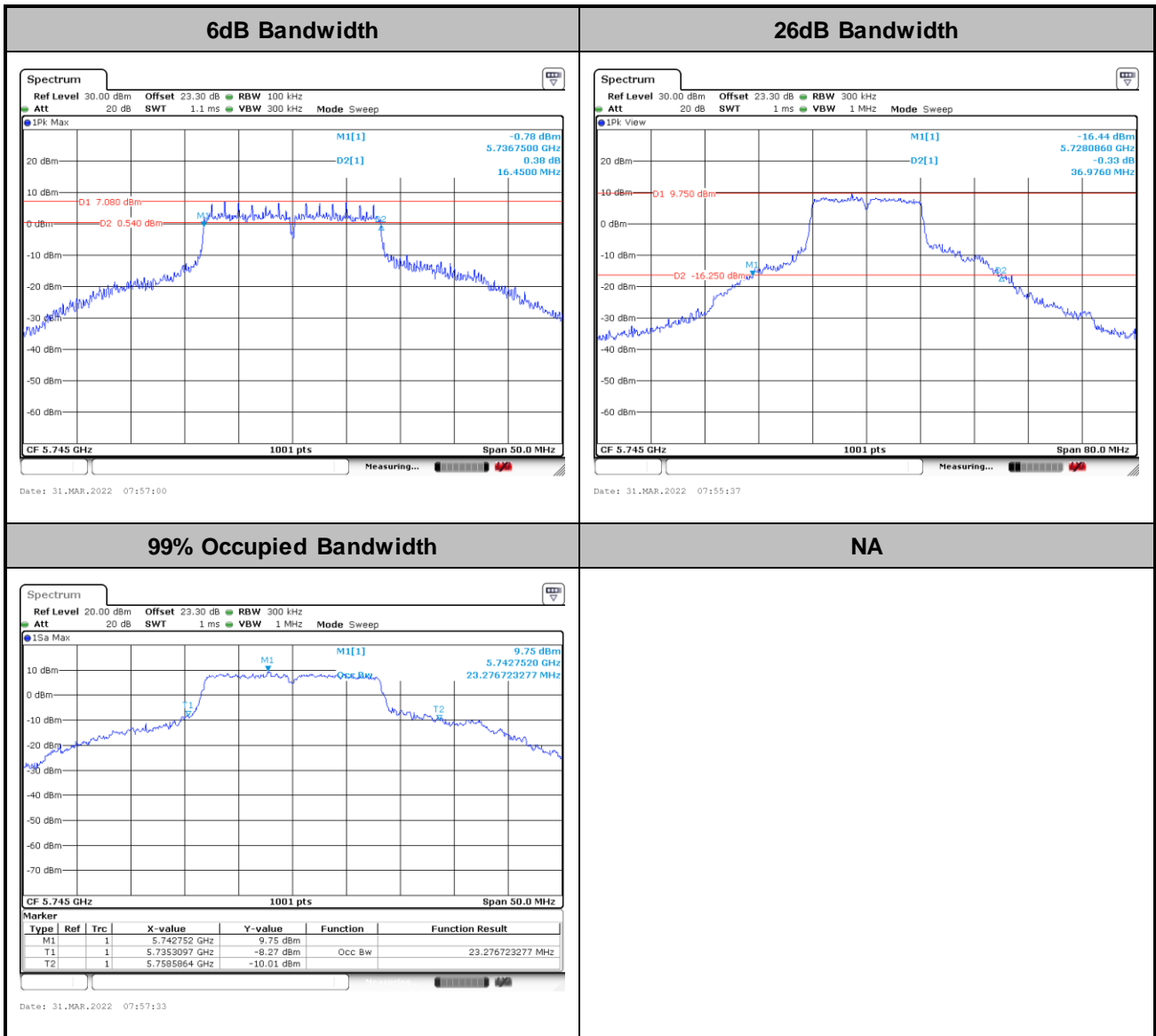


3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.



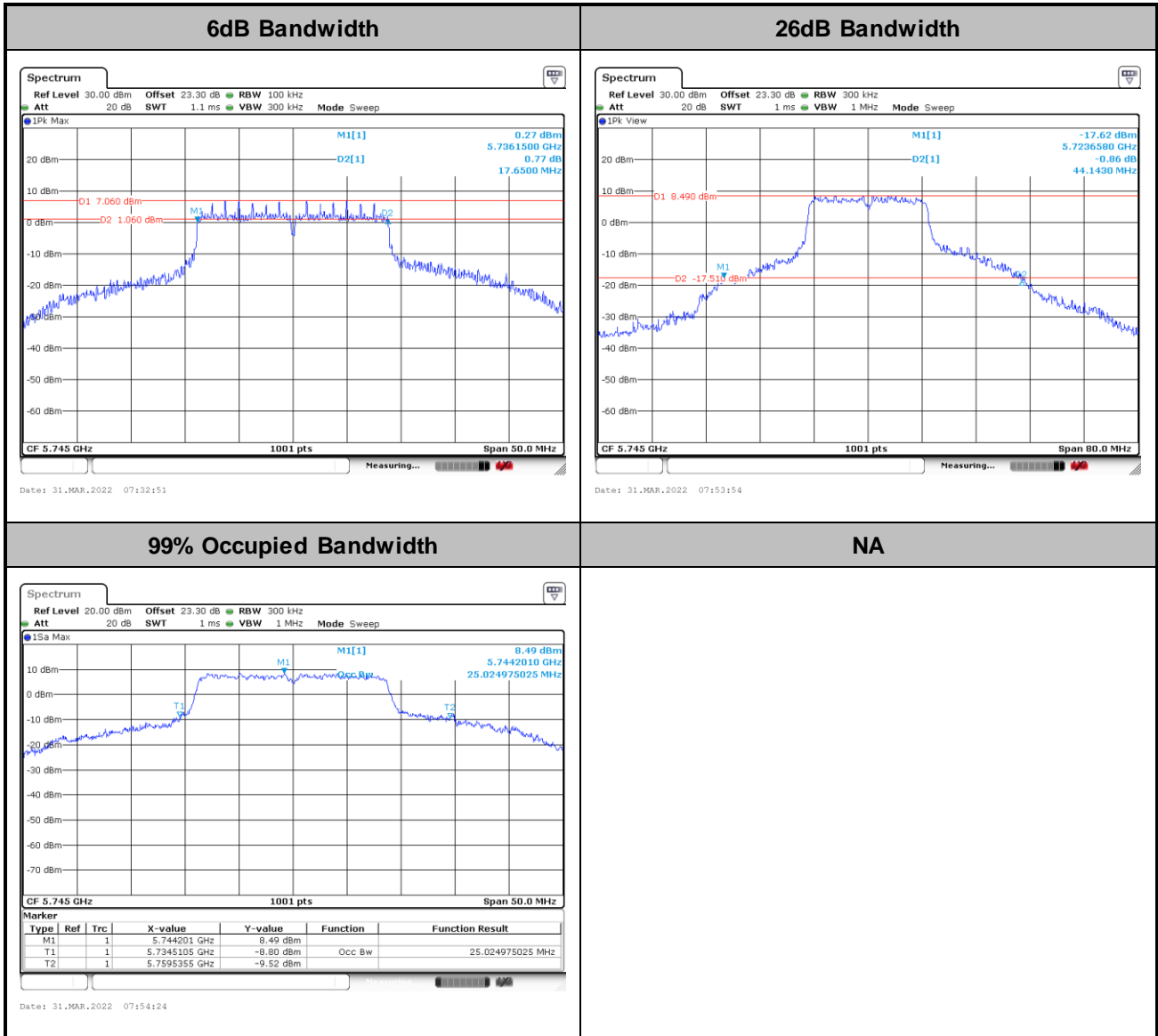
<802.11a>



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



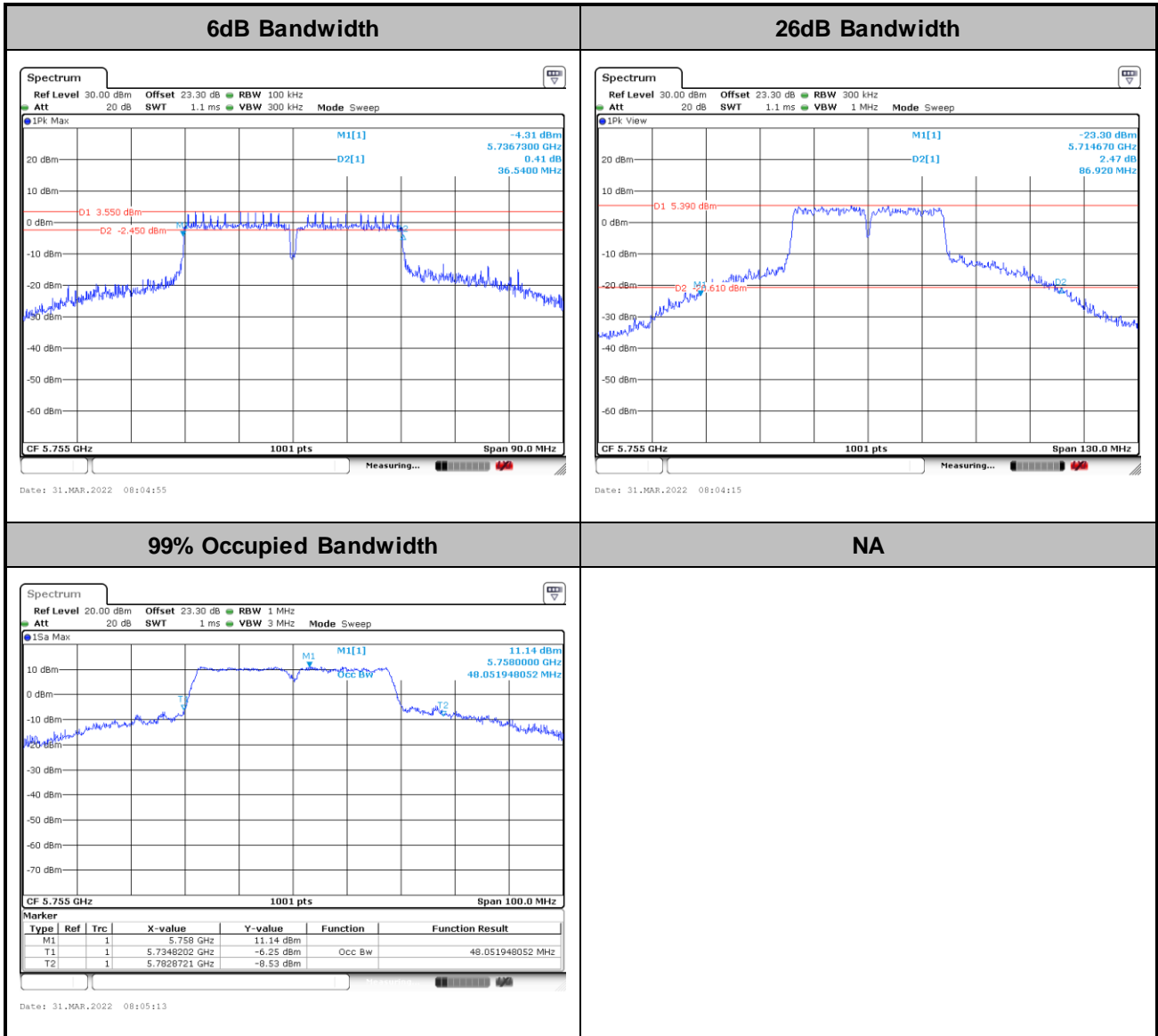
<802.11n HT20>



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



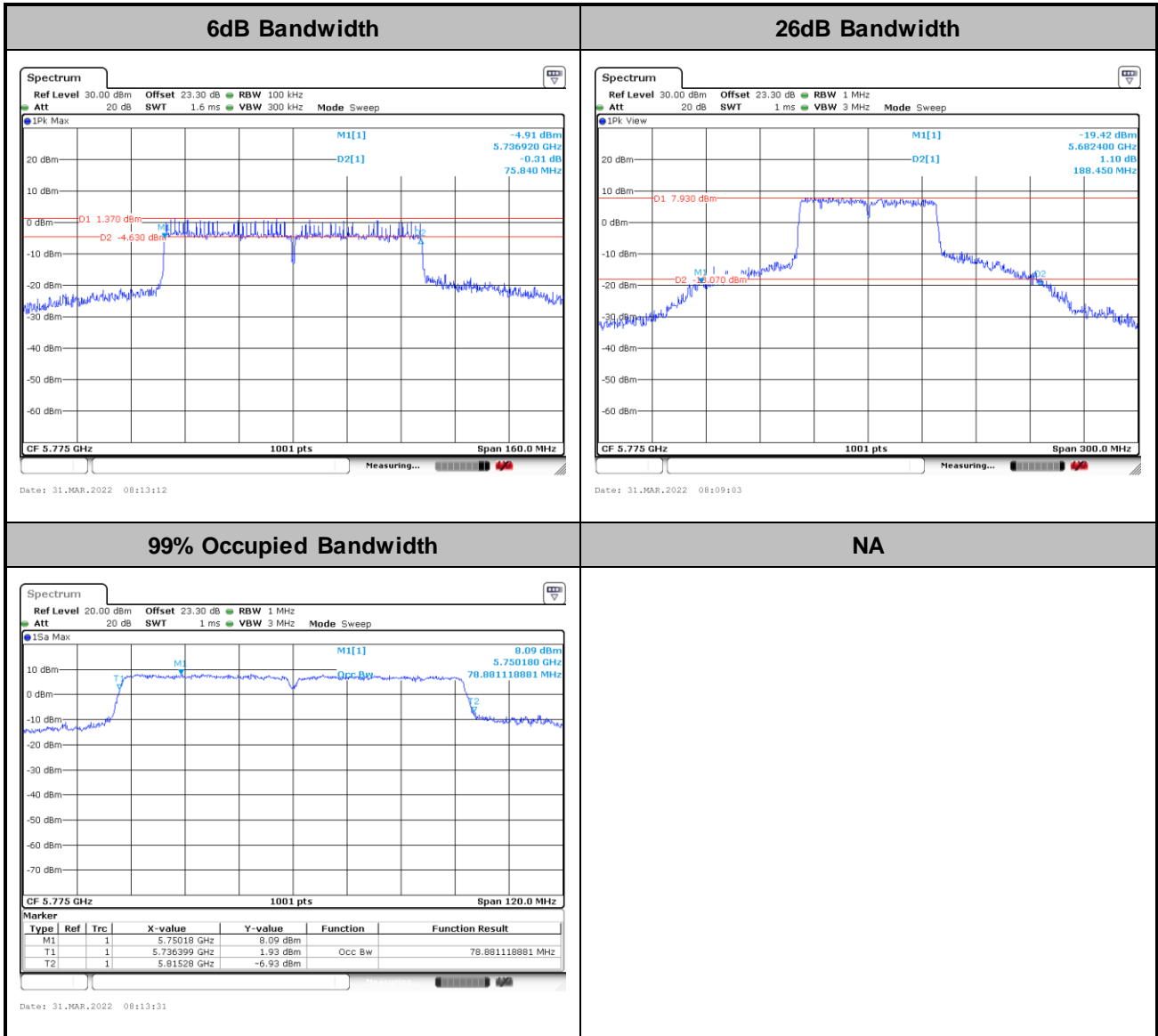
<802.11n HT40>



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



<802.11ac VHT80>



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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

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

3.2.2 Measuring Instruments

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

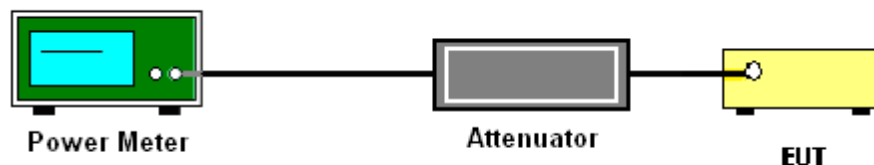
3.2.3 Test Procedures

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

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

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

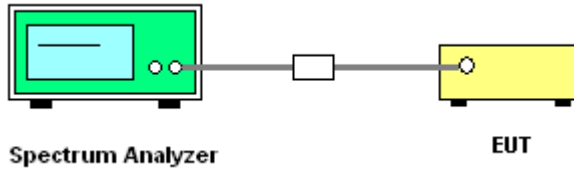
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section F) Maximum power spectral density.

Method SA-2

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

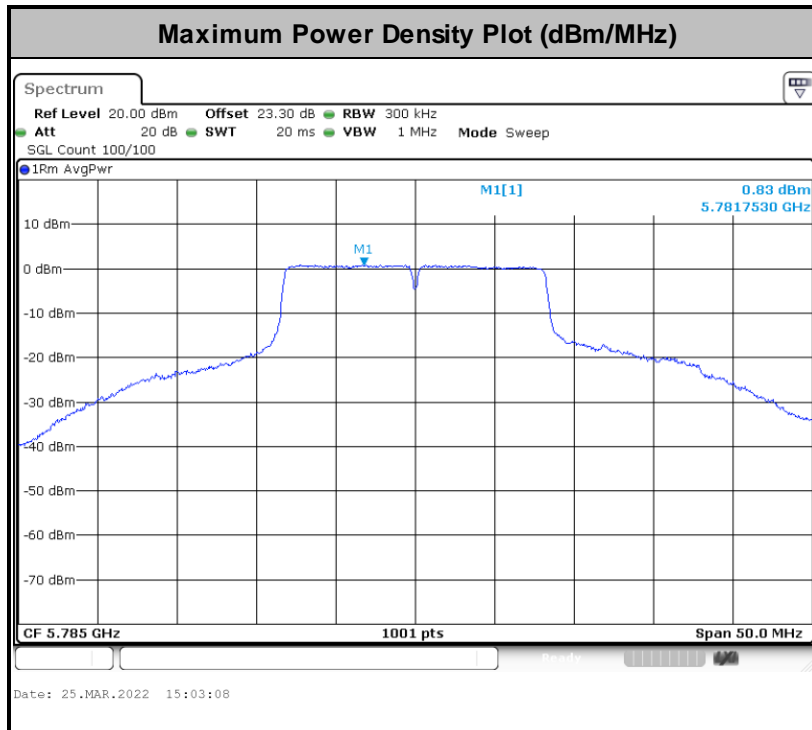
- Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300kHz.
 - Set VBW \geq 1 MHz.
 - Add $10 \log(500 \text{ kHz}/\text{RBW})$ to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement
 - Number of points in sweep $\geq 2 \text{ Span} / \text{RBW}$.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6 \text{ dB}$ if the duty cycle is 25 percent.
1. The RF output of EUT is connected to the spectrum analyzer by a low loss cable.
 2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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

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

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

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

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

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



3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

- (1) Procedure for Unwanted Emissions Measurements Below 1000 MHz

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

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

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

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

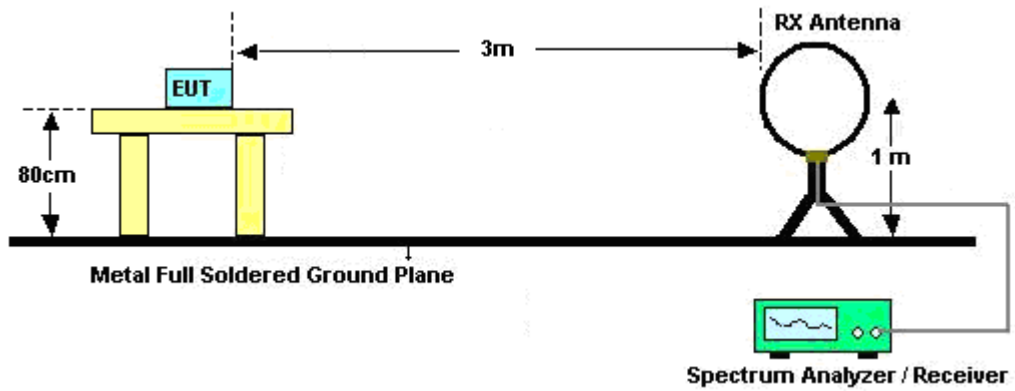
- a) RBW = 1 MHz.
- b) VBW \geq [3 \times RBW].
- c) Detector = RMS (power averaging), if [span / (# of points in sweep)] \leq RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
- d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
- e) Sweep time = auto.
- f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / *D*, where *D* is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)



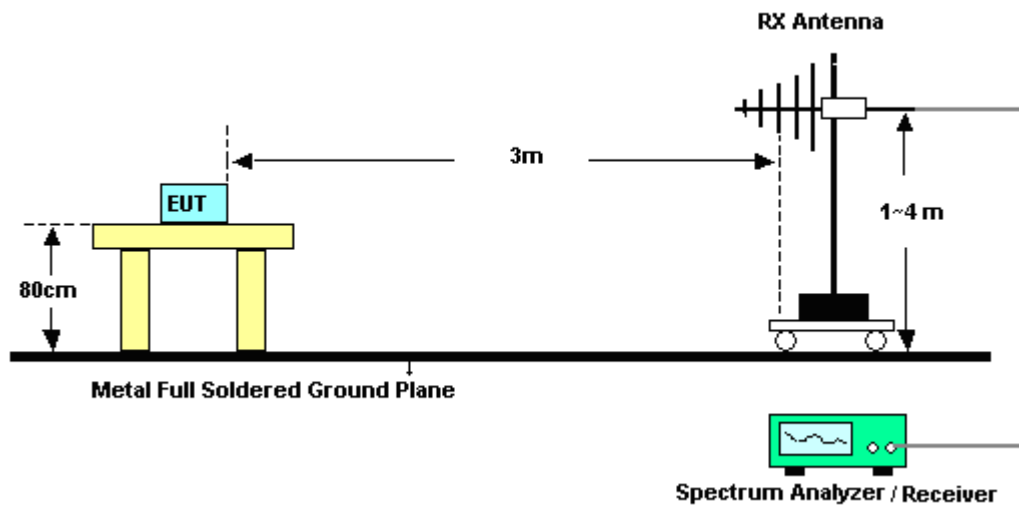
- g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
- i. If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.
 - ii. If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.
2. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
 3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
 4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
 5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
 6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-“.
 7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“.

3.4.4 Test Setup

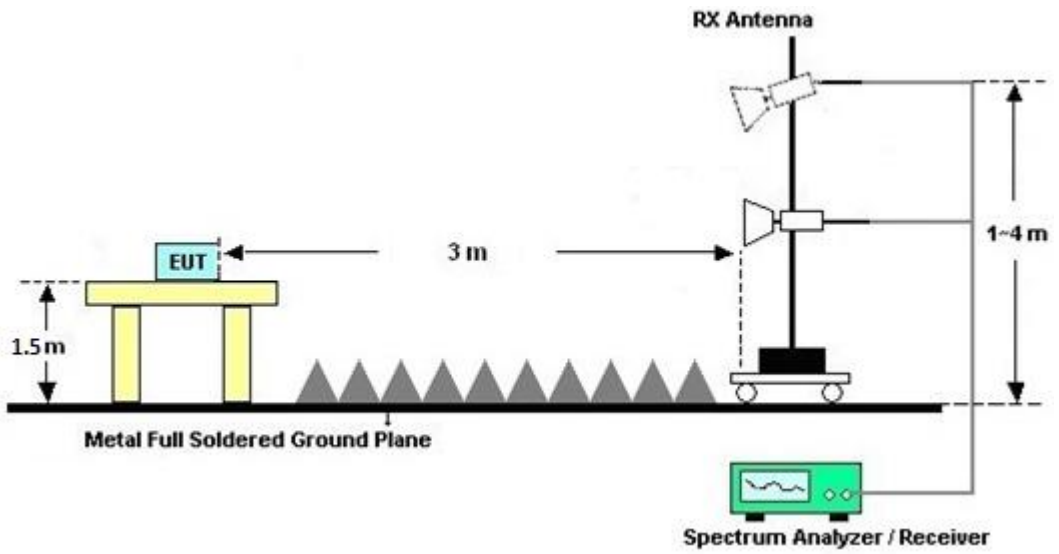
For radiated emissions below 30MHz



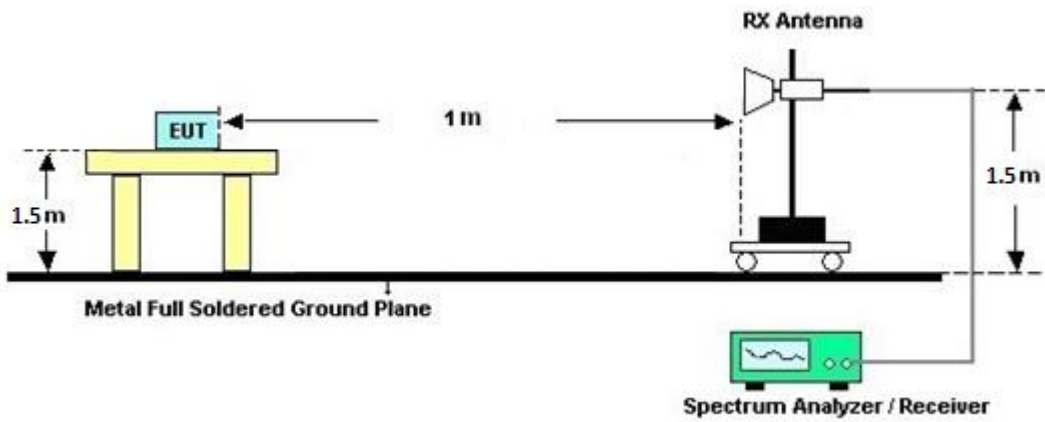
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz





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

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

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

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.



3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (dB μ 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.

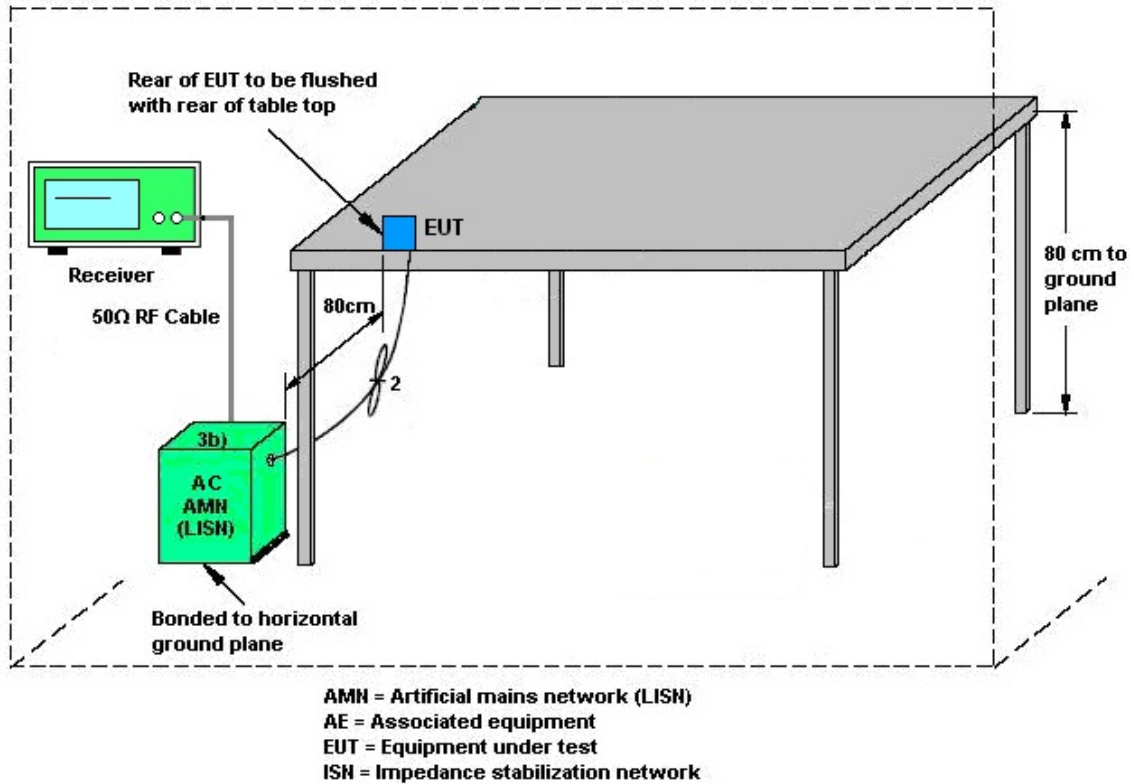
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.6 Antenna Requirements

3.6.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Mar. 05, 2022~ Mar. 29, 2022	Sep. 06, 2022	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	Mar. 05, 2022~ Mar. 29, 2022	Dec. 23, 2022	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz-40GHz	Nov. 30, 2021	Mar. 05, 2022~ Mar. 29, 2022	Nov. 29, 2022	Radiation (03CH13-HY)
Amplifier	SONOMA	310N	187282	9kHz~1GHz	Dec. 15, 2021	Mar. 05, 2022~ Mar. 29, 2022	Dec. 14, 2022	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 28, 2021	Mar. 05, 2022~ Mar. 29, 2022	Apr. 27, 2022	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz~18GHz	Jul. 13, 2021	Mar. 05, 2022~ Mar. 29, 2022	Jul. 12, 2022	Radiation (03CH13-HY)
Hygrometer	TECPEL	DTM-303B	TP200889	N/A	Sep. 30, 2021	Mar. 05, 2022~ Mar. 29, 2022	Sep. 29, 2022	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	May 18, 2021	Mar. 05, 2022~ Mar. 29, 2022	May 17, 2022	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Oct. 26, 2021	Mar. 05, 2022~ Mar. 29, 2022	Oct. 25, 2022	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 18, 2021	Mar. 05, 2022~ Mar. 16, 2022	Mar. 17, 2022	Radiation (03CH13-HY)
Signal Analyzer	Keysight	N9010B	MY60240520	N/A	Dec. 23, 2021	Mar. 17, 2022~ Mar. 29, 2022	Dec. 22, 2022	Radiation (03CH13-HY)
Filter	Wainwright	WLK4-1000-15 30-8000-40SS	SN12	1.53GHz Low Pass Filter	Sep. 14, 2021	Mar. 05, 2022~ Mar. 29, 2022	Sep. 13, 2022	Radiation (03CH13-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0SS	SN2	3GHz High Pass Filter	Jul. 12, 2021	Mar. 05, 2022~ Mar. 29, 2022	Jul. 11, 2022	Radiation (03CH13-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40ST	SN6	6.75GHz High Pass Filter	Jun. 30, 2021	Mar. 05, 2022~ Mar. 29, 2022	Jun. 29, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30MHz~18GHz	Feb. 09, 2022	Mar. 05, 2022~ Mar. 29, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	804793/4	30MHz~18GHz	Feb. 09, 2022	Mar. 05, 2022~ Mar. 29, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24961/4	30MHz~18GHz	Feb. 09, 2022	Mar. 05, 2022~ Mar. 29, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Mar. 05, 2022~ Mar. 09, 2022	Mar. 10, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Mar. 10, 2022~ Mar. 29, 2022	Mar. 09, 2023	Radiation (03CH13-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Mar. 05, 2022~ Mar. 29, 2022	N/A	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Mar. 05, 2022~ Mar. 29, 2022	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Mar. 05, 2022~ Mar. 29, 2022	N/A	Radiation (03CH13-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEP	DTM-303A	TP201996	N/A	Nov. 16, 2021	Feb. 22, 2022~ Mar. 31, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	DARE	RPR3006W	15100041SNO 10 (NO:248)	10MHz~6GHz	Dec. 29, 2021	Feb. 22, 2022~ Mar. 31, 2022	Dec. 28, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Feb. 22, 2022~ Mar. 31, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Feb. 22, 2022~ Mar. 31, 2022	Aug. 11, 2022	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Mar. 10, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	Mar. 10, 2022	Nov. 30, 2022	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2021	Mar. 10, 2022	Nov. 16, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	Mar. 10, 2022	Dec. 02, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Mar. 10, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 28, 2021	Mar. 10, 2022	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	Mar. 10, 2022	Dec. 29, 2022	Conduction (CO05-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.1 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.0 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% ($U = 2Uc(y)$)	5.9 dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Ching Chen	Temperature:	21~25	°C
Test Date:	2022/2/22-2022/3/31	Relative Humidity:	51~54	%

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

Band IV single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	149	5745	23.28	-	36.98	-	16.45	-	0.5	Pass
11a	6Mbps	1	157	5785	23.83	-	38.72	-	16.40	-	0.5	Pass
11a	6Mbps	1	165	5825	22.78	-	38.49	-	16.39	-	0.5	Pass
HT20	MCS0	1	149	5745	25.03	-	44.14	-	17.65	-	0.5	Pass
HT20	MCS0	1	157	5785	24.33	-	43.32	-	17.65	-	0.5	Pass
HT20	MCS0	1	165	5825	22.93	-	40.59	-	17.65	-	0.5	Pass
HT40	MCS0	1	151	5755	48.05	-	86.92	-	36.54	-	0.5	Pass
HT40	MCS0	1	159	5795	48.55	-	85.54	-	36.54	-	0.5	Pass
VHT80	MCS0	1	155	5775	78.88	-	188.45	-	75.84	-	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	18.50	-	-	30.00	-	2.20	-	Pass
11a	6Mbps	1	157	5785	18.50	-		30.00	-	2.20	-	Pass
11a	6Mbps	1	165	5825	18.40	-		30.00	-	2.20	-	Pass
HT20	MCS0	1	149	5745	18.50	-		30.00	-	2.20	-	Pass
HT20	MCS0	1	157	5785	18.30	-		30.00	-	2.20	-	Pass
HT20	MCS0	1	165	5825	18.30	-		30.00	-	2.20	-	Pass
HT40	MCS0	1	151	5755	18.40	-		30.00	-	2.20	-	Pass
HT40	MCS0	1	159	5795	18.40	-		30.00	-	2.20	-	Pass
VHT20	MCS0	1	149	5745	18.40	-		30.00	-	2.20	-	Pass
VHT20	MCS0	1	157	5785	18.20	-		30.00	-	2.20	-	Pass
VHT20	MCS0	1	165	5825	18.20	-		30.00	-	2.20	-	Pass
VHT40	MCS0	1	151	5755	18.30	-		30.00	-	2.20	-	Pass
VHT40	MCS0	1	159	5795	18.30	-		30.00	-	2.20	-	Pass
VHT80	MCS0	1	155	5775	18.30	-		30.00	-	2.20	-	Pass

TEST RESULTS DATA
Power Spectral Density

Band IV single antenna															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density with Duty Factor (dBm/500kHz)		Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	0.10	-	2.22	-	3.08	-	30.00	-	2.20	-	Pass
11a	6Mbps	1	157	5785	0.10	-	2.22	-	3.15	-	30.00	-	2.20	-	Pass
11a	6Mbps	1	165	5825	0.10	-	2.22	-	3.11	-	30.00	-	2.20	-	Pass
HT20	MCS0	1	149	5745	0.10	-	2.22	-	2.77	-	30.00	-	2.20	-	Pass
HT20	MCS0	1	157	5785	0.10	-	2.22	-	2.47	-	30.00	-	2.20	-	Pass
HT20	MCS0	1	165	5825	0.10	-	2.22	-	2.34	-	30.00	-	2.20	-	Pass
HT40	MCS0	1	151	5755	0.13	-	2.22	-	-0.49	-	30.00	-	2.20	-	Pass
HT40	MCS0	1	159	5795	0.13	-	2.22	-	-0.29	-	30.00	-	2.20	-	Pass
VHT80	MCS0	1	155	5775	0.36	-	2.22	-	-3.12	-	30.00	-	2.20	-	Pass

Note: PSD Sum = Max PSD(Ant. 1, Ant. 2) + 10 log (n)



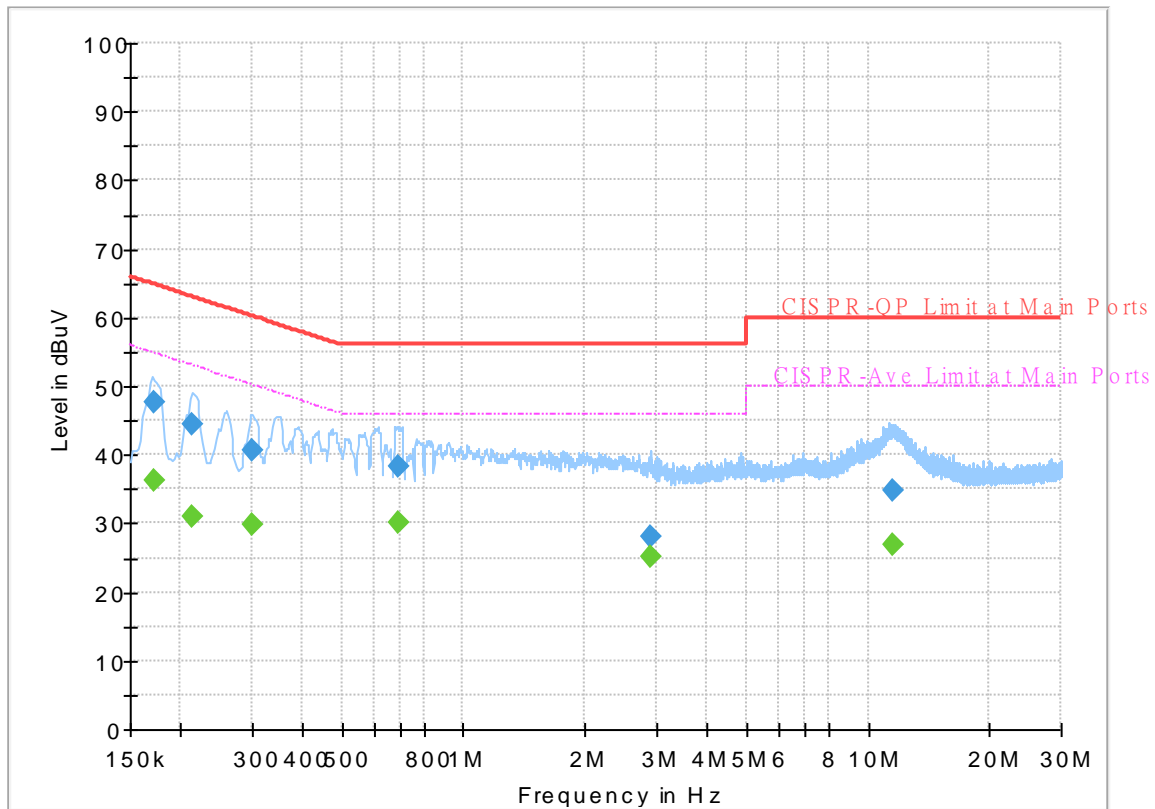
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Calvin Wang	Temperature :	23~26°C
		Relative Humidity :	45~55%

EUT Information

Report NO : 1N0508
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



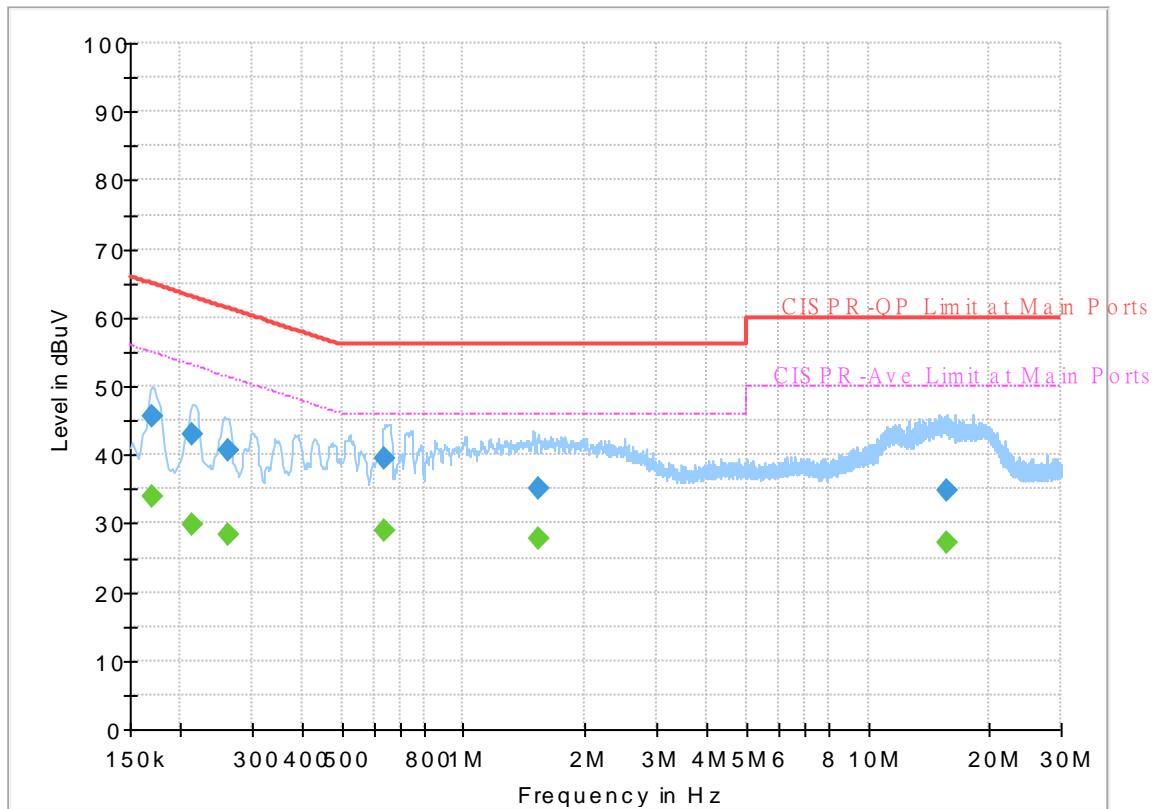
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.172500	---	36.32	54.84	18.52	L1	OFF	19.6
0.172500	47.66	---	64.84	17.18	L1	OFF	19.6
0.213000	---	31.04	53.09	22.05	L1	OFF	19.6
0.213000	44.49	---	63.09	18.60	L1	OFF	19.6
0.300750	---	29.84	50.22	20.38	L1	OFF	19.6
0.300750	40.74	---	60.22	19.48	L1	OFF	19.6
0.692250	---	30.12	46.00	15.88	L1	OFF	19.6
0.692250	38.33	---	56.00	17.67	L1	OFF	19.6
2.904000	---	25.02	46.00	20.98	L1	OFF	19.7
2.904000	27.97	---	56.00	28.03	L1	OFF	19.7
11.559750	---	26.98	50.00	23.02	L1	OFF	20.1
11.559750	34.72	---	60.00	25.28	L1	OFF	20.1

EUT Information

Report NO : 1N0508
 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)
0.170250	---	33.80	54.95	21.15	N	OFF	19.6
0.170250	45.74	---	64.95	19.21	N	OFF	19.6
0.213000	---	29.94	53.09	23.15	N	OFF	19.6
0.213000	43.05	---	63.09	20.04	N	OFF	19.6
0.262500	---	28.29	51.35	23.06	N	OFF	19.6
0.262500	40.51	---	61.35	20.84	N	OFF	19.6
0.640500	---	28.94	46.00	17.06	N	OFF	19.6
0.640500	39.49	---	56.00	16.51	N	OFF	19.6
1.524750	---	27.64	46.00	18.36	N	OFF	19.6
1.524750	35.11	---	56.00	20.89	N	OFF	19.6
15.679500	---	27.07	50.00	22.93	N	OFF	20.3
15.679500	34.83	---	60.00	25.17	N	OFF	20.3



Appendix C. Radiated Spurious Emission

Test Engineer :	Yuan Lee, Jacky Hong, Wilson Wu and Peter Liao	Temperature :	20~25°C
		Relative Humidity :	40~60%

Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	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)	
802.11a CH 149 5745MHz		5615	52.52	-15.68	68.2	40.71	31.97	6.45	26.61	100	232	P	H	
		5699	59.65	-44.81	104.46	47.58	32.19	6.52	26.64	100	232	P	H	
		5719.8	68.06	-42.68	110.74	55.89	32.28	6.54	26.65	100	232	P	H	
		5724.4	76.47	-44.36	120.83	64.27	32.3	6.55	26.65	100	232	P	H	
	*	5745	109.9	-	-	97.62	32.38	6.56	26.66	100	232	P	H	
	*	5745	101.9	-	-	89.62	32.38	6.56	26.66	100	232	A	H	
														H
														H
			5604.8	52.9	-15.3	68.2	41.07	31.99	6.44	26.6	399	349	P	V
			5698	54.47	-49.26	103.73	42.4	32.19	6.52	26.64	399	349	P	V
			5719	62.03	-48.49	110.52	49.86	32.28	6.54	26.65	399	349	P	V
			5724.6	73.49	-47.8	121.29	61.29	32.3	6.55	26.65	399	349	P	V
	*		5745	105.36	-	-	93.08	32.38	6.56	26.66	399	349	P	V
	*		5745	97.71	-	-	85.43	32.38	6.56	26.66	399	349	A	V
														V
														V



WIFI Ant. 1	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)
		5609.8	52.01	-16.19	68.2	40.18	31.98	6.45	26.6	100	233	P	H
		5698.4	52.92	-51.1	104.02	40.85	32.19	6.52	26.64	100	233	P	H
		5711	53.59	-54.69	108.28	41.46	32.24	6.53	26.64	100	233	P	H
		5724.2	54.79	-65.59	120.38	42.59	32.3	6.55	26.65	100	233	P	H
	*	5785	110.31	-	-	97.99	32.4	6.6	26.68	100	233	P	H
	*	5785	99.44	-	-	87.12	32.4	6.6	26.68	100	233	A	H
		5852.6	54.48	-61.79	116.27	42.03	32.51	6.64	26.7	100	233	P	H
		5861	53.81	-55.31	109.12	41.32	32.54	6.65	26.7	100	233	P	H
		5913.2	52.76	-24.14	76.9	40.08	32.73	6.68	26.73	100	233	P	H
		5938.6	52.48	-15.72	68.2	39.74	32.78	6.7	26.74	100	233	P	H
													H
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802.11a													
CH 157													
5785MHz		5648.2	52.49	-15.71	68.2	40.73	31.9	6.48	26.62	350	325	P	V
		5679	52.56	-37.14	89.7	40.61	32.07	6.51	26.63	350	325	P	V
		5703	53.08	-52.96	106.04	40.98	32.21	6.53	26.64	350	325	P	V
		5723.2	51.15	-66.95	118.1	38.97	32.29	6.54	26.65	350	325	P	V
	*	5785	105.81	-	-	93.49	32.4	6.6	26.68	350	325	P	V
	*	5785	94.96	-	-	82.64	32.4	6.6	26.68	350	325	A	V
		5850	51.28	-70.92	122.2	38.84	32.5	6.64	26.7	350	325	P	V
		5865	53.78	-54.22	108	41.28	32.56	6.65	26.71	350	325	P	V
		5920.4	52.42	-19.17	71.59	39.72	32.74	6.69	26.73	350	325	P	V
		5933	51.91	-16.29	68.2	39.17	32.77	6.7	26.73	350	325	P	V
													V
													V



WiFi Ant. 1	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)	
802.11a CH 165 5825MHz	*	5825	110.41	-	-	98.02	32.45	6.63	26.69	100	232	P	H	
	*	5825	99.75	-	-	87.36	32.45	6.63	26.69	100	232	A	H	
		5852.6	70.09	-46.18	116.27	57.64	32.51	6.64	26.7	100	232	P	H	
		5858.4	68.78	-41.07	109.85	56.3	32.53	6.65	26.7	100	232	P	H	
		5876	55.83	-48.63	104.46	43.28	32.6	6.66	26.71	100	232	P	H	
		5930.4	52.55	-15.65	68.2	39.83	32.76	6.69	26.73	100	232	P	H	
														H
														H
	*	5825	105.69	-	-	93.29	32.46	6.63	26.69	100	118	118	P	V
	*	5825	94.88	-	-	82.48	32.46	6.63	26.69	100	118	118	A	V
		5850.6	67.08	-53.75	120.83	54.64	32.5	6.64	26.7	100	118	118	P	V
		5855	64.57	-46.23	110.8	52.1	32.52	6.65	26.7	100	118	118	P	V
		5912.6	52.78	-24.57	77.35	40.1	32.73	6.68	26.73	100	118	118	P	V
		5941.2	51.83	-16.37	68.2	39.09	32.78	6.7	26.74	100	118	118	P	V
														V
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													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



**Band 4 5725~5850MHz
WIFI 802.11a (Harmonic @ 3m)**

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	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)
802.11a CH 149 5745MHz		11490	47.57	-26.43	74	52.8	40.17	10.38	55.78	-	-	P	H
		17235	47.52	-20.68	68.2	50.29	40.57	12.86	56.2	-	-	P	H
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			11490	48.98	-25.02	74	54.21	40.17	10.38	55.78	165	98	P
		11490	37.09	-16.91	54	42.32	40.17	10.38	55.78	165	98	A	V
		17235	46.96	-21.24	68.2	49.73	40.57	12.86	56.2	-	-	P	V
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WIFI Ant. 1	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)
802.11a CH 157 5785MHz		11570	47.53	-26.47	74	52.83	40.06	10.41	55.77	-	-	P	H
		17355	47.84	-20.36	68.2	50.24	41.03	12.99	56.42	-	-	P	H
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													H
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			11570	47.94	-26.06	74	53.24	40.06	10.41	55.77	-	-	P
		17355	49.19	-19.01	68.2	51.59	41.03	12.99	56.42	-	-	P	V
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WIFI Ant. 1	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)
802.11a CH 165 5825MHz		11650	47.68	-26.32	74	53.24	39.75	10.45	55.76	-	-	P	H
		17475	49.02	-19.18	68.2	51.02	41.52	13.12	56.64	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
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													H
													H
													H
													H
			11650	47.38	-26.62	74	52.94	39.75	10.45	55.76	-	-	P
		17475	48.9	-19.3	68.2	50.9	41.52	13.12	56.64	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
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													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	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 149 5745MHz		5613.2	52.46	-15.74	68.2	40.65	31.97	6.45	26.61	100	232	P	H	
		5697.2	58.39	-44.75	103.14	46.33	32.18	6.52	26.64	100	232	P	H	
		5715.8	69.39	-40.24	109.63	57.24	32.26	6.54	26.65	100	232	P	H	
		5725	80.33	-41.87	122.2	68.13	32.3	6.55	26.65	100	232	P	H	
	*	5745	109.61	-	-	97.35	32.36	6.56	26.66	100	232	P	H	
	*	5745	101.66	-	-	89.4	32.36	6.56	26.66	100	232	A	H	
														H
														H
			5613.8	51.86	-16.34	68.2	40.05	31.97	6.45	26.61	397	352	P	V
			5699.6	52.86	-52.05	104.91	40.78	32.2	6.52	26.64	397	352	P	V
			5719.8	64.66	-46.08	110.74	52.49	32.28	6.54	26.65	397	352	P	V
			5725	76.92	-45.28	122.2	64.72	32.3	6.55	26.65	397	352	P	V
	*		5745	105.04	-	-	92.78	32.36	6.56	26.66	397	352	P	V
	*		5745	97.3	-	-	85.04	32.36	6.56	26.66	397	352	A	V
													V	
													V	



WIFI Ant. 1	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)
		5632.6	52.42	-15.78	68.2	40.63	31.93	6.47	26.61	100	232	P	H
		5698.6	52.35	-51.82	104.17	40.28	32.19	6.52	26.64	100	232	P	H
		5719.8	52.84	-57.9	110.74	40.67	32.28	6.54	26.65	100	232	P	H
		5723.8	53.77	-65.69	119.46	41.57	32.3	6.55	26.65	100	232	P	H
	*	5785	109.48	-	-	97.16	32.4	6.59	26.67	100	232	P	H
	*	5785	98.58	-	-	86.26	32.4	6.59	26.67	100	232	A	H
		5852.2	53.28	-63.9	117.18	40.83	32.51	6.64	26.7	100	232	P	H
		5856	53.47	-57.05	110.52	41	32.52	6.65	26.7	100	232	P	H
		5891.2	52.66	-40.52	93.18	40.05	32.66	6.67	26.72	100	232	P	H
		5943.8	52.29	-15.91	68.2	39.54	32.79	6.7	26.74	100	232	P	H
802.11n													H
HT20													H
CH 157		5649.6	52.07	-16.13	68.2	40.31	31.9	6.48	26.62	374	357	P	V
5785MHz		5696	51.49	-50.76	102.25	39.43	32.18	6.52	26.64	374	357	P	V
		5716.6	51.65	-58.2	109.85	39.49	32.27	6.54	26.65	374	357	P	V
		5722.4	52.72	-63.55	116.27	40.54	32.29	6.54	26.65	374	357	P	V
	*	5785	104.82	-	-	92.5	32.4	6.6	26.68	374	357	P	V
	*	5785	97.54	-	-	85.22	32.4	6.6	26.68	374	357	A	V
		5852	51.96	-65.68	117.64	39.51	32.51	6.64	26.7	374	357	P	V
		5872	51.96	-54.08	106.04	39.42	32.59	6.66	26.71	374	357	P	V
		5879	52.69	-49.54	102.23	40.12	32.62	6.66	26.71	374	357	P	V
		5946	52.98	-15.22	68.2	40.23	32.79	6.7	26.74	374	357	P	V
													V
													V



WIFI Ant. 1	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 165 5825MHz	*	5825	109.76	-	-	97.36	32.46	6.63	26.69	100	233	P	H	
	*	5825	98.74	-	-	86.34	32.46	6.63	26.69	100	233	A	H	
		5850	76.73	-45.47	122.2	64.29	32.5	6.64	26.7	100	233	P	H	
		5859.6	69.89	-39.62	109.51	57.4	32.54	6.65	26.7	100	233	P	H	
		5875.2	54.48	-50.57	105.05	41.93	32.6	6.66	26.71	100	233	P	H	
		5936.6	52.16	-16.04	68.2	39.42	32.77	6.7	26.73	100	233	P	H	
														H
														H
	*	5825	104.82	-	-	92.43	32.45	6.63	26.69	100	120	P	V	
	*	5825	93.82	-	-	81.43	32.45	6.63	26.69	100	120	A	V	
		5850.4	71.6	-49.69	121.29	59.16	32.5	6.64	26.7	100	120	P	V	
		5855.6	63.69	-46.94	110.63	51.22	32.52	6.65	26.7	100	120	P	V	
		5878.8	52.78	-49.6	102.38	40.21	32.62	6.66	26.71	100	120	P	V	
		5935.2	53.2	-15	68.2	40.46	32.77	6.7	26.73	100	120	P	V	
														V
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	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 149 5745MHz		11490	47.64	-26.36	74	52.87	40.17	10.38	55.78	-	-	P	H	
		17235	47.19	-21.01	68.2	49.96	40.57	12.86	56.2	-	-	P	H	
													H	
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													H	
													H	
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													H	
													H	
													H	
													H	
			11490	47.83	-26.17	74	53.06	40.17	10.38	55.78	-	-	P	V
			17235	48.04	-20.16	68.2	50.81	40.57	12.86	56.2	-	-	P	V
														V
														V
														V
														V
													V	
													V	
													V	
													V	



WIFI Ant. 1	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 157 5785MHz		11570	47.21	-26.79	74	52.51	40.06	10.41	55.77	-	-	P	H
		17355	48.24	-19.96	68.2	50.64	41.03	12.99	56.42	-	-	P	H
													H
													H
													H
													H
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													H
													H
													H
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													H
													H
													H
													H
			11570	47.76	-26.24	74	53.06	40.06	10.41	55.77	-	-	P
		17355	47.54	-20.66	68.2	49.94	41.03	12.99	56.42	-	-	P	V
													V
													V
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WIFI Ant. 1	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 165 5825MHz		11650	47.51	-26.49	74	53.07	39.75	10.45	55.76	-	-	P	H
		17475	48.74	-19.46	68.2	50.74	41.52	13.12	56.64	-	-	P	H
													H
													H
													H
													H
													H
													H
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													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.											



Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	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)
		5631.2	54.25	-13.95	68.2	42.45	31.94	6.47	26.61	100	234	P	H
		5699.4	63.15	-41.61	104.76	51.07	32.2	6.52	26.64	100	234	P	H
		5719.4	76.91	-33.72	110.63	64.74	32.28	6.54	26.65	100	234	P	H
		5722.2	79.99	-35.83	115.82	67.81	32.29	6.54	26.65	100	234	P	H
	*	5755	106.76	-	-	94.45	32.4	6.57	26.66	100	234	P	H
	*	5755	97.88	-	-	85.57	32.4	6.58	26.67	100	234	A	H
		5852.8	55.64	-60.18	115.82	43.19	32.51	6.64	26.7	100	234	P	H
		5860.6	54.33	-54.9	109.23	41.84	32.54	6.65	26.7	100	234	P	H
		5889	53.76	-41.05	94.81	41.15	32.66	6.67	26.72	100	234	P	H
		5925.6	51.82	-16.38	68.2	39.11	32.75	6.69	26.73	100	234	P	H
802.11n													H
HT40													H
CH 151		5642.4	51.86	-16.34	68.2	40.08	31.92	6.48	26.62	394	329	P	V
5755MHz		5698.8	57.5	-46.82	104.32	45.43	32.19	6.52	26.64	394	329	P	V
		5719.2	71.54	-39.04	110.58	59.37	32.28	6.54	26.65	394	329	P	V
		5723.4	75.95	-42.6	118.55	63.77	32.29	6.54	26.65	394	329	P	V
	*	5755	103.15	-	-	90.84	32.4	6.57	26.66	394	329	P	V
	*	5755	93.76	-	-	81.45	32.4	6.57	26.66	394	329	A	V
		5854.4	52.25	-59.92	112.17	39.78	32.52	6.65	26.7	394	329	P	V
		5859.4	54.68	-54.89	109.57	42.19	32.54	6.65	26.7	394	329	P	V
		5895.6	52.81	-37.11	89.92	40.18	32.68	6.67	26.72	394	329	P	V
		5930.8	52.08	-16.12	68.2	39.35	32.76	6.7	26.73	394	329	P	V
													V
													V



WIFI Ant. 1	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)
		5640	51.99	-16.21	68.2	40.22	31.92	6.47	26.62	100	230	P	H
		5700	53.21	-51.99	105.2	41.12	32.2	6.53	26.64	100	230	P	H
		5719	55.82	-54.7	110.52	43.65	32.28	6.54	26.65	100	230	P	H
		5724.2	57.14	-63.24	120.38	44.94	32.3	6.55	26.65	100	230	P	H
	*	5795	107.33	-	-	95	32.4	6.61	26.68	100	230	P	H
	*	5795	97.95	-	-	85.62	32.4	6.61	26.68	100	230	A	H
		5850.6	70.71	-50.12	120.83	58.27	32.5	6.64	26.7	100	230	P	H
		5857.8	65.52	-44.49	110.01	53.04	32.53	6.65	26.7	100	230	P	H
		5877.8	57.11	-46.01	103.12	44.55	32.61	6.66	26.71	100	230	P	H
		5926.6	51.88	-16.32	68.2	39.17	32.75	6.69	26.73	100	230	P	H
802.11n													H
HT40													H
CH 159		5607.2	52.17	-16.03	68.2	40.33	31.99	6.45	26.6	370	330	P	V
5795MHz		5688.4	52.4	-44.24	96.64	40.39	32.13	6.52	26.64	370	330	P	V
		5718.4	52.99	-57.36	110.35	40.83	32.27	6.54	26.65	370	330	P	V
		5723	53.52	-64.12	117.64	41.34	32.29	6.54	26.65	370	330	P	V
	*	5795	102.96	-	-	90.64	32.4	6.59	26.67	370	330	P	V
	*	5795	93.81	-	-	81.49	32.4	6.59	26.67	370	330	A	V
		5851.2	60.4	-59.06	119.46	47.96	32.5	6.64	26.7	370	330	P	V
		5855	58.91	-51.89	110.8	46.44	32.52	6.65	26.7	370	330	P	V
		5880.4	53.21	-47.98	101.19	40.64	32.62	6.66	26.71	370	330	P	V
		5946.8	52.76	-15.44	68.2	40	32.79	6.71	26.74	370	330	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	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 HT40 CH 151 5755MHz		11510	47.79	-26.21	74	53.01	40.18	10.38	55.78	-	-	P	H	
		17265	47.23	-20.97	68.2	49.97	40.63	12.89	56.26	-	-	P	H	
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													H	
													H	
													H	
			11510	47.96	-26.04	74	53.18	40.18	10.38	55.78	-	-	P	V
			17265	47.49	-20.71	68.2	50.23	40.63	12.89	56.26	-	-	P	V
														V
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WIFI Ant. 1	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 HT40 CH 159 5795MHz		11590	47.6	-26.4	74	52.93	40.02	10.42	55.77	-	-	P	H	
		17385	49.11	-19.09	68.2	51.36	41.21	13.02	56.48	-	-	P	H	
													H	
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	5795MHz		11590	47.97	-26.03	74	53.3	40.02	10.42	55.77	-	-	P	V
			17385	48.74	-19.46	68.2	50.99	41.21	13.02	56.48	-	-	P	V
													V	
													V	
													V	
													V	
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													V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. 													



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

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	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)	
		5642	58.46	-9.74	68.2	46.68	31.92	6.48	26.62	100	231	P	H	
		5695.8	75.7	-26.4	102.1	63.65	32.17	6.52	26.64	100	231	P	H	
		5714	77.95	-31.17	109.12	65.8	32.26	6.54	26.65	100	231	P	H	
		5720.6	79.92	-32.25	112.17	67.75	32.28	6.54	26.65	100	231	P	H	
	*	5775	104.46	-	-	92.15	32.4	6.58	26.67	100	231	P	H	
	*	5775	94.45	-	-	82.14	32.4	6.58	26.67	100	231	A	H	
		5851.8	79.11	-38.99	118.1	66.66	32.51	6.64	26.7	100	231	P	H	
		5855.6	78.19	-32.44	110.63	65.72	32.52	6.65	26.7	100	231	P	H	
		5879	72.32	-29.91	102.23	59.75	32.62	6.66	26.71	100	231	P	H	
		5926.4	59.08	-9.12	68.2	46.37	32.75	6.69	26.73	100	231	P	H	
802.11ac VHT80 CH 155 5775MHz													H	
													H	
			5642.6	54.92	-13.28	68.2	43.15	31.91	6.48	26.62	399	355	P	V
			5699.2	66.14	-38.47	104.61	54.06	32.2	6.52	26.64	399	355	P	V
			5719	72.08	-38.44	110.52	59.91	32.28	6.54	26.65	399	355	P	V
			5724.2	73.83	-46.55	120.38	61.63	32.3	6.55	26.65	399	355	P	V
		*	5775	99.73	-	-	87.45	32.38	6.56	26.66	399	355	P	V
		*	5775	90.24	-	-	77.96	32.38	6.56	26.66	399	355	A	V
			5850	71.47	-50.73	122.2	59.03	32.5	6.64	26.7	399	355	P	V
			5856.4	71.62	-38.79	110.41	59.14	32.53	6.65	26.7	399	355	P	V
			5877.4	65.77	-37.65	103.42	53.21	32.61	6.66	26.71	399	355	P	V
			5936	53.98	-14.22	68.2	41.24	32.77	6.7	26.73	399	355	P	V
														V
														V
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	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)	
i802.11ac VHT80 CH 155 5775MHz		11550	46.44	-27.56	74	51.71	40.1	10.4	55.77	-	-	P	H	
		17325	48.24	-19.96	68.2	50.81	40.85	12.95	56.37	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			11550	47.97	-26.03	74	53.24	40.1	10.4	55.77	-	-	P	V
			17325	48.12	-20.08	68.2	50.69	40.85	12.95	56.37	-	-	P	V
														V
														V
														V
														V
														V
														V
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.													



Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF @ 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.		
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
5GHz 802.11ac VHT80 LF		30.97	21.94	-18.06	40	29.72	23.85	0.72	32.35	-	-	P	H	
		120.21	24.95	-18.55	43.5	38.62	17.5	1.13	32.3	-	-	P	H	
		186.17	26.39	-17.11	43.5	42.58	14.8	1.28	32.27	-	-	P	H	
		215.27	28.44	-15.06	43.5	44.42	14.88	1.39	32.25	-	-	P	H	
		775.93	29.28	-16.72	46	31.19	27.79	2.38	32.08	-	-	P	H	
		960	33.56	-12.44	46	31.18	30.83	2.58	31.03	-	-	P	H	
														H
														H
														H
														H
														H
														H
			30	22.2	-17.8	40	29.25	24.57	0.72	32.34	-	-	P	V
			106.63	26.41	-17.09	43.5	41.12	16.55	1.07	32.33	-	-	P	V
			120.21	30.09	-13.41	43.5	43.76	17.5	1.13	32.3	-	-	P	V
			157.07	25.92	-17.58	43.5	40.29	16.67	1.25	32.29	-	-	P	V
			645.95	26.73	-19.27	46	30.61	26.06	2.27	32.21	-	-	P	V
			959.26	32.57	-13.43	46	30.23	30.79	2.58	31.03	-	-	P	V
													V	
													V	
													V	
													V	
													V	
													V	

Remark

- No other spurious found.
- All results are PASS against limit line.
- The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.



Note symbol

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



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)
802.11a CH 149 5745MHz		5650	55.45	-12.75	68.2	54.51	32.22	4.58	35.86	103	308	P	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 @ 5650MHz:

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)

Peak measured complies with the limit line, so test result is “PASS”.



Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Yuan Lee, Jacky Hong, Wilson Wu and Peter Liao	Temperature :	20~25°C
		Relative Humidity :	40~60%

Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH12-HY Condition : PEAK_BE(84)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH12-HY Condition : PEAK(UNII) 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

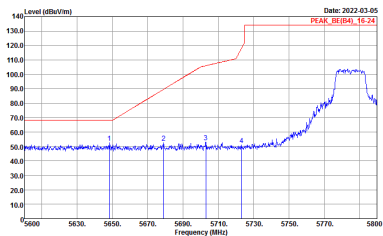
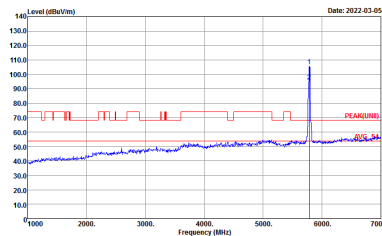
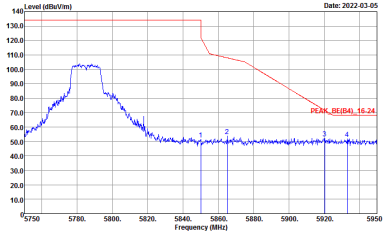


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak		



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
Peak	<p>Date: 2022-03-05 PEAK_BE(B4)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Date: 2022-03-05 PEAK(B4)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>
Peak	<p>Date: 2022-03-05 PEAK_BE(B4)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	Left blank

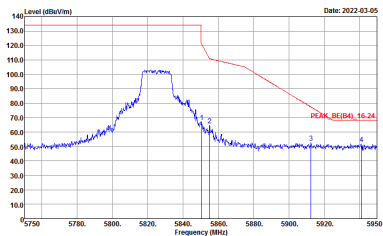
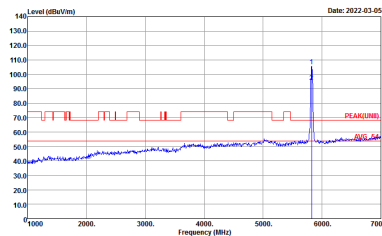


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



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



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	 <p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_91200_1241 VERTICAL :RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>



**Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Fundamental
Peak	<p>Date: 2022-03-05 PEAK_BE(05)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK_BE(04)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2022-03-05 PEAK(UNB) SIG-64</p> <p>Site : 03CH13-HY Condition : PEAK(UNB) 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE[84], 16-24 3m HORN, 91200_1241 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK[FUND], 3m HORN, 91200_1241 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	Left blank

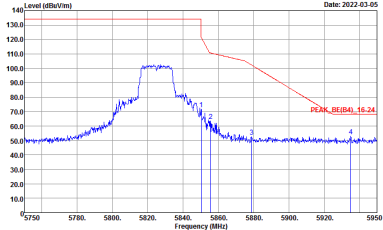
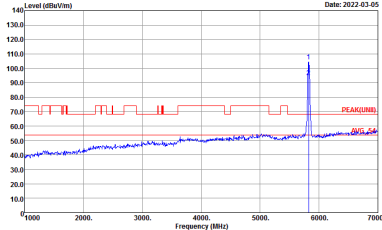


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(LIN) 3m HORN_91200_1241 VERTICAL :RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(FUN) 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>



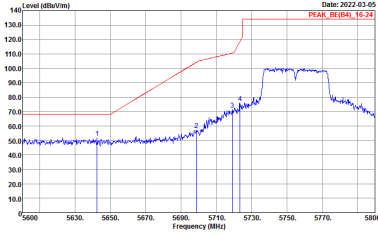
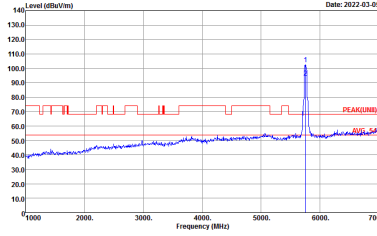

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE[84], 16-24 3m HORN, 91200_1241 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	 <p>Site : 03CH13-HY Condition : PEAK[LINE] 3m HORN, 91200_1241 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>



Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	 <p>Site : 03CH13-HY Condition : PEAK(LIN) 3m HORN_91200_1241 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



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

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(FUN) 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1241 VERTICAL :RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



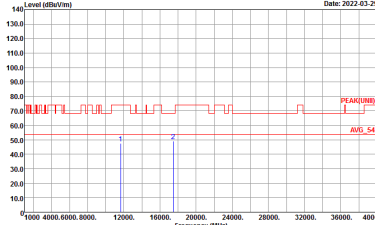
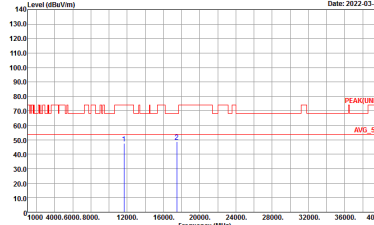
Band 4 - 5725~5850MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_91200_1241 HORIZONTAL</p>	<p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_91200_1241 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 HORIZONTAL</p>	<p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 HORIZONTAL</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 VERTICAL</p>



**Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-14Y Condition : -PEAK(LINE) 3m HORN_9120D_1241 HORIZONTAL</p>	<p>Site : 03CH15-14Y Condition : -PEAK(LINE) 3m HORN_9120D_1241 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_9120D_1241 HORIZONTAL</p>	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_9120D_1241 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 HORIZONTAL</p>	<p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 VERTICAL</p>



**Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)**

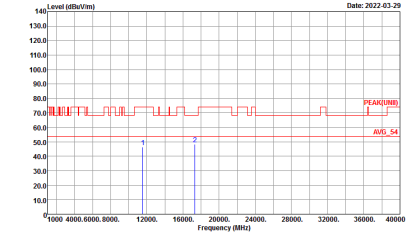
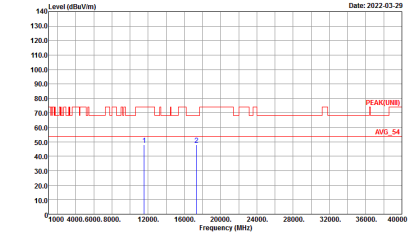
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-14Y Condition : -PEAK(LINE) 3m HORN_9120D_1241 HORIZONTAL</p>	<p>Site : 03CH15-14Y Condition : -PEAK(LINE) 3m HORN_9120D_1241 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_9120D_1241 HORIZONTAL</p>	<p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_9120D_1241 VERTICAL</p>



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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Vertical
<p>Peak Avg.</p>	 <p>Site : 03CH155-14Y Condition : -PEAK(LINE) 3m HORN_9120D_1241 HORIZONTAL</p>	 <p>Site : 03CH155-14Y Condition : -PEAK(LINE) 3m HORN_9120D_1241 VERTICAL</p>



Emission below 1GHz
 5GHz WIFI 802.11ac VHT80 (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT80 LF	
1	Horizontal	Vertical
QP / Peak	<p>Site : 03CH13-HY Condition : QP 3m BIL06_40103 HORIZONTAL</p>	<p>Site : 03CH13-HY Condition : QP 3m BIL06_40103 VERTICAL</p>



Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11a	98.38	-	-	10Hz
5GHz 802.11n HT20	98.21	-	-	10Hz
5GHz 802.11n HT40	96.34	948	1.05	3kHz
5GHz 802.11ac VHT80	92.80	464	2.16	3kHz

