

PARTIAL TEST REPORT (SPOT CHECK) CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Report No.: RFBDIS-WTW-P20080137B-1

FCC ID: TVE-2317069

Product: Secured Wireless Access Point

Brand: Fortinet

Model No.: FAP-231FL

Series Model: FORTIAP-231FLxxxxxx, FortiAP 231FLxxxxxx, FAP-231FLxxxxxx
(where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)

Received Date: 2022/9/12

Test Date: 2022/9/19 ~ 2022/9/24

Issued Date: 2022/12/01

Applicant: Fortinet, Inc.

Address: 899 Kifer Road, Sunnyvale, CA 94086 USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

FCC Registration / 788550 / TW0003

Designation Number:

Approved by: _____

Jeremy Lin

Date: _____

2022/12/01

Jeremy Lin / Project Engineer

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Prepared by : Polly Chien / Specialist



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Release Control Record

| Issue No. | Description | Date Issued |
|-------------------------|-------------------|-------------|
| RFBDIS-WTW-P20080137B-1 | Original release. | 2022/12/01 |

1 Certificate

Product: Secured Wireless Access Point

Brand: Fortinet

Test Model: FAP-231FL

Series Model: FORTIAP-231FLxxxxxx, FortiAP 231FLxxxxxx, FAP-231FLxxxxxx
(where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)

Sample Status: Engineering sample

Applicant: Fortinet, Inc.

Test Date: 2022/9/19 ~ 2022/9/24

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Measurement procedure: ANSI C63.10-2013
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart E (Section 15.407) | | | |
|--|--------------------------------|--------|---|
| Clause | Test Item | Result | Remark |
| 15.407(a)(1/2/3) | RF Output Power | Pass | Meet the requirement of limit. |
| 15.407(a)(1/2/3) | Power Spectral Density | Pass | Refer to note 1 |
| 15.407(e) | 6 dB Bandwidth | Pass | Refer to note 1 |
| --- | Occupied Bandwidth | - | Reference only. |
| 15.407(g) | Frequency Stability | Pass | Refer to note 1 |
| 15.407(b)(9) | AC Power Conducted Emissions | Pass | Minimum passing margin is -5.03 dB at 0.47000 MHz |
| 15.407(b)(9) | Unwanted Emissions below 1 GHz | Pass | Minimum passing margin is -5.1 dB at 53.28 MHz |
| 15.407(b)(1/2/3/4(i)/10) | Unwanted Emissions above 1 GHz | Pass | Minimum passing margin is -2.2 dB at 11510.00 MHz |
| 15.203 | Antenna Requirement | Pass | Antenna connector is i-pex(MHF) not a standard connector. |

Note:

1. This report is a partial report. Therefore, only Output Power, AC Power Conducted Emission and Radiated Emissions were verified and recorded in this report. Other testing data please refer to the original BV CPS report no.: RFBDIS-WTW-P20080137-1.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Specification | Expanded Uncertainty (k=2) (±) |
|--------------------------------|-----------------|-----------------------------------|
| AC Power Conducted Emissions | 9 kHz ~ 30 MHz | 2.99 dB |
| Unwanted Emissions below 1 GHz | 9 kHz ~ 30 MHz | 3.59 dB |
| | 30 MHz ~ 1 GHz | 3.6 dB |
| Unwanted Emissions above 1 GHz | 1 GHz ~ 18 GHz | 2.29 dB |
| | 18 GHz ~ 40 GHz | 2.29 dB |

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

| | |
|-----------------------|--|
| Product | Secured Wireless Access Point |
| Brand | Fortinet |
| Test Model | FAP-231FL |
| Series Model | FORTIAP-231FLxxxxxx, FortiAP 231FLxxxxxx, FAP-231FLxxxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) |
| Model Difference | Refer to note |
| Status of EUT | Engineering sample |
| Power Supply Rating | 12Vdc from Adapter 54Vdc from PoE |
| Modulation Type | 802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM |
| Modulation Technology | OFDM, OFDMA |
| Transfer Rate | 802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to MCS31 802.11ac (VHT20/40): up to MCS9 802.11ax: up to MCS11 |
| Operating Frequency | 5180 ~ 5240MHz, 5745 ~ 5825MHz |
| Number of Channel | <u>5GHz traffic radio:</u> 5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 4 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 5 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 <u>Scanning radio:</u> 5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 |
| Output Power | 5180 ~ 5240MHz: 5G traffic radio: CDD Mode: 373.084 mW (25.72 dBm) 5G traffic radio: Beamforming Mode: 180.811 mW (22.57 dBm) Scanning radio: CDD Mode: 140.605 mW (21.48 dBm) 5745 ~ 5825MHz: 5G traffic radio: CDD Mode: 279.854 mW (24.47 dBm) 5G traffic radio: Beamforming Mode: 136.000 mW (21.34 dBm) Scanning radio: CDD Mode: 142.889 mW (21.55 dBm) |
| EUT Category | Indoor Access Point |

Note:

1. This report is a supplementary report to the original BV CPS report no.: RFBBDYS-WTW-P20080137-1. The differences compared with the original design is as below. Exhibit prepared for FCC Spot Check Verification report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit. Therefore, only Output Power, AC Power Conducted Emission and Radiated Emissions were verified and recorded in this report. AC Power Conducted Emission and Radiated Emission tests according to original report radiated emission worst channel.

Difference:

- a) Removing BLE and Zigbee antenna & function

2. The following models are provided to this EUT. The model FAP-231FL was chosen for final test.

| Brand | Test Model | Series Model | Difference |
|----------|------------|---|---|
| Fortinet | FAP-231FL | FORTIAP-231FLxxxxxx, FortiAP 231FLxxxxxx, FAP-231FLxxxxxx | Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only. |

3. The EUT consumes power from the following power supply. (Support unit only)

| Adapter | |
|--------------|---|
| Brand | Asian Power Devices Inc. |
| Model | WA-30J12R |
| Input Power | 100-240Vac, 50-60Hz, 0.9A MAX |
| Output Power | 12Vdc, 2.5A |
| Power Line | 1.5m cable without core attached on adapter |

| POE | |
|--------------|---------------------------|
| Brand | EnGenius |
| Model | EPA5006GPR |
| Input Power | 100-240Vac, 50-60Hz, 0.8A |
| Output Power | 54Vdc, 0.6A |

4. The simultaneous operation mode was determined by client.

| No | Mode |
|----|---|
| 1 | 2G traffic radio (Radio 1) + 5GHz traffic radio (Radio 2) + 5G Scanning radio (Radio 3) |
| 3 | 5GHz traffic radio (Radio 2) + 2G Scanning radio (Radio 3) |

*5GHz traffic radio (Radio 2) and 5G Scanning radio (Radio 3) cannot transmit in the same band at same time.

2G traffic radio (Radio 1) and 2G Scanning radio (Radio 3) cannot transmit at same time.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

| Antenna Type | | PIFA | |
|-------------------|--------|---------------|----------------|
| Antenna Connector | | i-pex(MHF) | |
| Antenna No. | | Gain (dBi) | |
| | | 2.4~2.4835GHz | 5.180~5.825GHz |
| 1 | Chain0 | 4.9 | 5.2 |
| 2 | Chain1 | 3.8 | 5.5 |
| 3 | Scan | 4.0 | 5.1 |

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a MIMO function:

| Modulation Mode | CDD Mode | Beamforming Mode | TX Function | Radio |
|------------------|----------|------------------|-------------|-------------------------------|
| 802.11a | Support | Not Support | 2TX | 5G traffic radio (Radio 2) |
| 802.11n (HT20) | Support | Support | 2TX | |
| 802.11n (HT40) | Support | Support | 2TX | |
| 802.11ac (VHT20) | Support | Support | 2TX | |
| 802.11ac (VHT40) | Support | Support | 2TX | |
| 802.11ac (VHT80) | Support | Support | 2TX | |
| 802.11ax (HE20) | Support | Support | 2TX | |
| 802.11ax (HE40) | Support | Support | 2TX | |
| 802.11ax (HE80) | Support | Support | 2TX | |
| 802.11a | Support | Not Support | 1TX | Scanning radio (Radio 3) |
| 802.11n (HT20) | Support | Not Support | 1TX | |
| 802.11n (HT40) | Support | Not Support | 1TX | |
| 802.11ac (VHT20) | Support | Not Support | 1TX | |
| 802.11ac (VHT40) | Support | Not Support | 1TX | |
| 802.11ac (VHT80) | Support | Not Support | 1TX | |

Note: The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.

3.3 Channel List

FOR 5180 ~ 5240 MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) and 802.11ax (HE20):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 36 | 5180 MHz | 44 | 5220 MHz |
| 40 | 5200 MHz | 48 | 5240 MHz |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40) and 802.11ax (HE40):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 38 | 5190 MHz | 46 | 5230 MHz |

1 channel is provided for 802.11ac (VHT80) and 802.11ax (HE80):

| Channel | Frequency |
|---------|-----------|
| 42 | 5210 MHz |

FOR 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) and 802.11ax (HE20):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 149 | 5745 MHz | 161 | 5805 MHz |
| 153 | 5765 MHz | 165 | 5825 MHz |
| 157 | 5785 MHz | | |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40) and 802.11ax (HE40):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 151 | 5755 MHz | 159 | 5795 MHz |

1 channel is provided for 802.11ac (VHT80) and 802.11ax (HE80):

| Channel | Frequency |
|---------|-----------|
| 155 | 5775 MHz |

3.4 Test Mode Applicability and Tested Channel Detail

| | |
|-------------|--|
| Pre-Scan: | EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. |
| Worst Case: | 1. X-axis/ Y-axis/ Z-axis Worst Condition: Y-axis. 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). |

Following channel(s) was (were) selected for the final test as listed below:

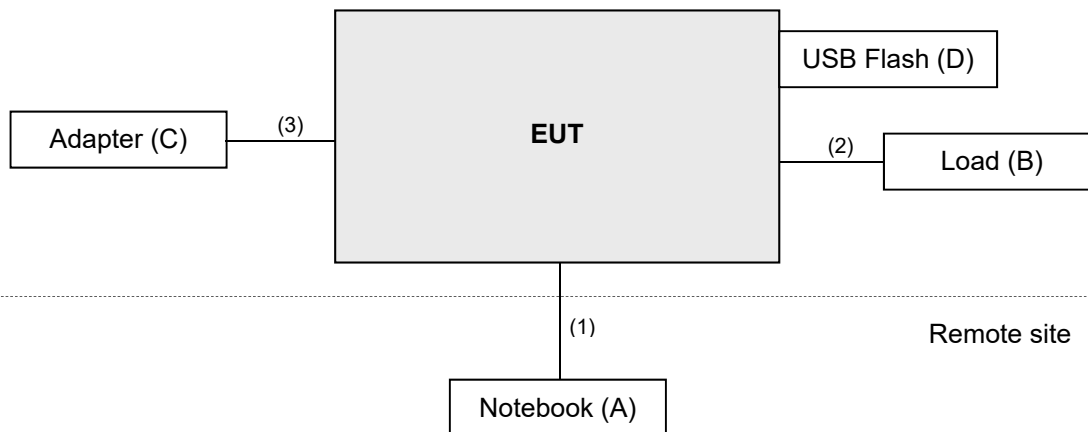
| Test Item | EUT Configure Mode | Remark | Mode | Signal Mode | Tested Channel | Modulation | Data Rate Parameter | | |
|--------------------------------|--------------------|--------------------------------|-------------------|-------------------|---------------------------|------------|---------------------|------|-------|
| RF Output Power | B | 5G traffic radio | 802.11a | CDD | 36, 40, 48, 149, 157, 165 | BPSK | 6Mb/s | | |
| | | | 802.11n (HT20) | CDD & Beamforming | 36, 40, 48, 149, 157, 165 | BPSK | 6.5Mb/s | | |
| | | | 802.11n (HT40) | CDD & Beamforming | 38, 46, 151, 159 | BPSK | 13.5Mb/s | | |
| | | | 802.11ac (VHT20) | CDD & Beamforming | 36, 40, 48, 149, 157, 165 | BPSK | 6.5Mb/s | | |
| | | | 802.11ac (VHT40) | CDD & Beamforming | 38, 46, 151, 159 | BPSK | 13.5Mb/s | | |
| | | | 802.11ac (VHT80) | CDD & Beamforming | 42, 155 | BPSK | 65Mb/s | | |
| | | | 802.11ax (HE20) | CDD & Beamforming | 36, 40, 48, 149, 157, 165 | BPSK | MCS0 | | |
| | | | 802.11ax (HE40) | CDD & Beamforming | 38, 46, 151, 159 | BPSK | MCS0 | | |
| | | 802.11ax (HE80) | CDD & Beamforming | 42, 155 | BPSK | MCS0 | | | |
| | | Scanning radio | 802.11a | CDD | 36, 40, 48, 149, 157, 165 | BPSK | 6Mb/s | | |
| | | | 802.11n (HT20) | CDD & Beamforming | 36, 40, 48, 149, 157, 165 | BPSK | 6.5Mb/s | | |
| | | | 802.11n (HT40) | CDD & Beamforming | 38, 46, 151, 159 | BPSK | 13.5Mb/s | | |
| | | | 802.11ac (VHT80) | CDD & Beamforming | 42, 155 | BPSK | 65Mb/s | | |
| | | AC Power Conducted Emissions | A, B | 5G traffic radio | 802.11a | CDD | 48 | BPSK | 6Mb/s |
| | | | A, B | Scanning radio | 802.11a | CDD | 157 | BPSK | 6Mb/s |
| | | Unwanted Emissions below 1 GHz | A, B | 5G traffic radio | 802.11a | CDD | 48 | BPSK | 6Mb/s |
| A, B | Scanning radio | | 802.11a | CDD | 157 | BPSK | 6Mb/s | | |
| Unwanted Emissions above 1 GHz | B | 5G traffic radio | 802.11a | CDD | 48 | BPSK | 6Mb/s | | |
| | | | 802.11ax (HE40) | CDD | 151 | BPSK | MCS0 | | |
| | B | Scanning radio | 802.11a | CDD | 48, 157 | BPSK | 6Mb/s | | |
| EUT Configure Mode: | A | Power from adapter | | | | | | | |
| | B | Power from PoE | | | | | | | |

3.5 Test Program Used and Operation Descriptions

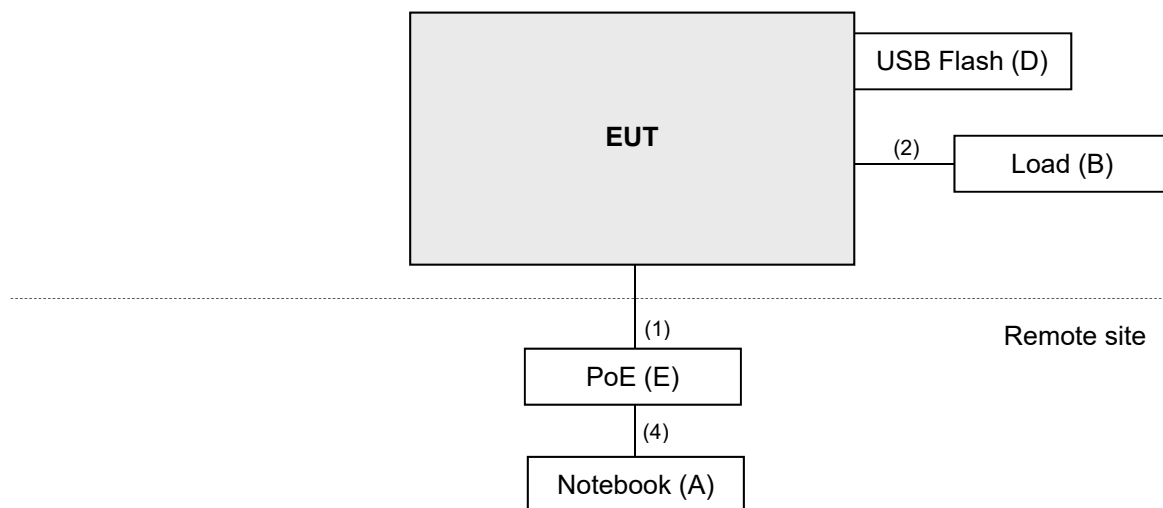
Controlling software QSPR has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.6 Connection Diagram of EUT and Peripheral Devices

Mode A



Mode B



3.7 Configuration of Peripheral Devices and Cable Connections

| ID | Product | Brand | Model No. | Serial No. | FCC ID | Remarks |
|----|-----------|--------------------------|----------------|------------|------------------|-----------------------|
| A. | Notebook | Lenovo | 20J4 MD A003TW | PF-11H9AK | FCC DoC Approved | Provided by Lab |
| B. | Load | NA | NA | NA | NA | Provided by Lab |
| C. | Adapter | Asian Power Devices Inc. | WA-30J12R | NA | NA | Supplied by applicant |
| D. | USB Flash | Sandisk | NA | 03 | NA | Provided by Lab |
| E. | POE | EnGenius | EPA5006GPR | NA | NA | Supplied by applicant |

| ID | Cable Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks |
|----|--------------------|------|------------|--------------------|--------------|-----------------------|
| 1. | RJ-45 Cable | 1 | 7.0 | N | 0 | Provided by Lab |
| 2. | RJ-45 Cable | 2 | 1.5 | N | 0 | Provided by Lab |
| 3. | Power cable | 1 | 1.5 | - | 0 | Supplied by applicant |
| 4. | RJ-45 Cable | 1 | 1.5 | N | 0 | Provided by Lab |

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power

| Description Manufacturer | Model No. | Serial No. | Calibrated Date | Calibrated Until |
|---|-----------|------------|--------------------|---------------------|
| Peak Power Analyzer KEYSIGHT | 8990B | MY51000485 | 2022/1/18 | 2023/1/17 |
| Power sensor Keysight | U2021XA | MY55380009 | 2022/3/23 | 2023/3/22 |
| Wideband Power Sensor(N1923A) KEYSIGHT | N1923A | MY58020002 | 2022/1/17 | 2023/1/16 |

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/9/24

4.2 AC Power Conducted Emissions

| Description Manufacturer | Model No. | Serial No. | Calibrated Date | Calibrated Until |
|---|-------------------------|----------------|--------------------|---------------------|
| DC-LISN SCHWARZBECK MESS- ELETRONIK | NNBM 8126G | 8126G-069 | 2021/11/10 | 2022/11/9 |
| LISN R&S | ESH3-Z5 | 100220 | 2021/11/25 | 2022/11/24 |
| LISN ROHDE & SCHWARZ | ENV216 | 101826 | 2022/3/14 | 2023/3/13 |
| RF Coaxial Cable WOKEN | 5D-FB | Cable-cond1-01 | 2022/1/15 | 2023/1/14 |
| Software BVADT | BVADT_Cond_ V7.3.7.4 | N/A | N/A | N/A |
| Test Receiver Rohde&Schwarz | ESCI | 100613 | 2021/12/3 | 2022/12/2 |
| V-LISN Schwarzbeck | NNBL 8226-2 | 8226-142 | 2022/8/31 | 2023/8/30 |

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2022/9/19 ~ 2022/9/21

4.3 Unwanted Emissions below 1 GHz

| Description Manufacturer | Model No. | Serial No. | Calibrated Date | Calibrated Until |
|---------------------------------|------------------------------|---------------|--------------------|---------------------|
| Antenna Tower & Turn BV ADT | AT100 | AT93021705 | N/A | N/A |
| Bi_Log Antenna Schwarbeck | VULB9168 | 9168-160 | 2021/10/28 | 2022/10/27 |
| Loop Antenna TESEQ | HLA 6121 | 45745 | 2022/7/27 | 2023/7/26 |
| Preamplifier Agilent | 8447D | 2944A10638 | 2022/5/14 | 2023/5/13 |
| RF Coaxial Cable EMCI | 5D-NM-BM | 140903+140902 | 2022/1/15 | 2023/1/14 |
| RF Coaxial Cable WOKEN | 8D-FB | Cable-CH9-01 | 2022/5/14 | 2023/5/13 |
| Software BV ADT | ADT_Radiated_ V7.6.15.9.5 | N/A | N/A | N/A |
| Spectrum Analyzer R&S | FSW43 | 101867 | 2022/1/7 | 2023/1/6 |
| Test Receiver Agilent | N9038A | MY51210203 | 2021/9/22 | 2022/9/21 |
| Turn Table BV ADT | TT100 | TT93021705 | N/A | N/A |
| Turn Table Controller BV ADT | SC100 | SC93021705 | N/A | N/A |

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2022/9/19 ~ 2022/9/21

4.4 Unwanted Emissions above 1 GHz

| Description Manufacturer | Model No. | Serial No. | Calibrated Date | Calibrated Until |
|---------------------------------------|-----------------------------------|---------------------------------|--------------------|---------------------|
| Antenna Tower & Turn BV ADT | AT100 | AT93021705 | N/A | N/A |
| Boresight antenna tower fixture BV | BAF-02 | 5 | N/A | N/A |
| Horn Antenna Schwarzbeck | 9120D | 9120D-1169 | 2021/11/14 | 2022/11/13 |
| | BBHA 9170 | BBHA9170241 | 2021/10/26 | 2022/10/25 |
| Pre-Amplifier EMCI | EMC 184045 | 980116 | 2021/10/5 | 2022/10/4 |
| Preamplifier Agilent | 8449B | 3008A02367 | 2022/2/16 | 2023/2/15 |
| RF Coaxial Cable HUBER+SUHNER | SUCOFLEX 104 | CABLE-CH9-(250795/4) | 2022/1/15 | 2023/1/14 |
| RF Coaxial Cable HUBER+SUHNER&EMCI | SUCOFLEX 104& EMC104-SM-SM8000 | CABLE-CH9-02 (248780+171006) | 2022/1/15 | 2023/1/14 |
| RF FLITER MICRO-TRONICS | BRM17690 | 004 | 2022/1/10 | 2023/1/9 |
| | BRM50716 | 060 | 2022/1/10 | 2023/1/9 |
| Software BV ADT | ADT_Radiated_ V7.6.15.9.5 | N/A | N/A | N/A |
| Spectrum Analyzer R&S | FSW43 | 101867 | 2022/1/7 | 2023/1/6 |
| Test Receiver Agilent | N9038A | MY51210203 | 2021/9/22 | 2022/9/21 |
| Turn Table BV ADT | TT100 | TT93021705 | N/A | N/A |
| Turn Table Controller BV ADT | SC100 | SC93021705 | N/A | N/A |

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2022/9/19

5 Limits of Test Items

5.1 RF Output Power

| Operation Band | EUT Category | Limit |
|----------------|-----------------------------------|---|
| U-NII-1 | Outdoor Access Point | 1 Watt (30 dBm) (Max. e.i.r.p \leq 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon) |
| | Fixed point-to-point Access Point | 1 Watt (30 dBm) |
| | Indoor Access Point | 1 Watt (30 dBm) |
| | Mobile and Portable client device | 250 mW (24 dBm) |

| Operation Band | Limit |
|----------------|-----------------|
| U-NII-3 | 1 Watt (30 dBm) |

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

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

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

5.2 AC Power Conducted Emissions

| Frequency (MHz) | Conducted Limit (dBuV) | |
|-----------------|------------------------|---------|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.3 Unwanted Emissions below 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

| Frequencies (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 |

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = $20 \log$ Emission level (uV/m).

5.4 Unwanted Emissions above 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

| Frequencies (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| Above 960 | 500 | 3 |

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

| Applicable To | | Limit | |
|---|-----------------|---|---|
| 789033 D02 General UNII Test Procedure New Rules v02r01 | | Field Strength at 3 m | |
| | | PK: 74 (dBµV/m) | AV: 54 (dBµV/m) |
| Frequency Band | Applicable To | EIRP Limit | Equivalent Field Strength at 3 m |
| 5150~5250 MHz | 15.407(b)(1) | PK: -27 (dBm/MHz) | PK: 68.2 (dBµV/m) |
| 5250~5350 MHz | 15.407(b)(2) | | |
| 5470~5725 MHz | 15.407(b)(3) | | |
| 5725~5850 MHz | 15.407(b)(4)(i) | PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4} | PK: 68.2 (dBµV/m) ^{*1} PK: 105.2 (dBµV/m) ^{*2} PK: 110.8 (dBµV/m) ^{*3} PK: 122.2 (dBµV/m) ^{*4} |
| *1 beyond 75 MHz or more above of the band edge. | | *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. | |
| *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. | | *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. | |

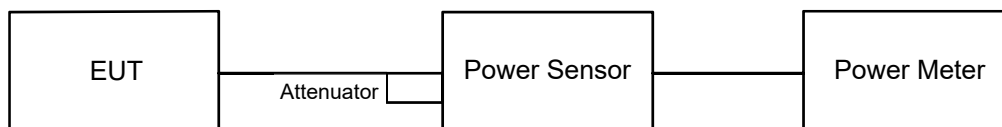
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

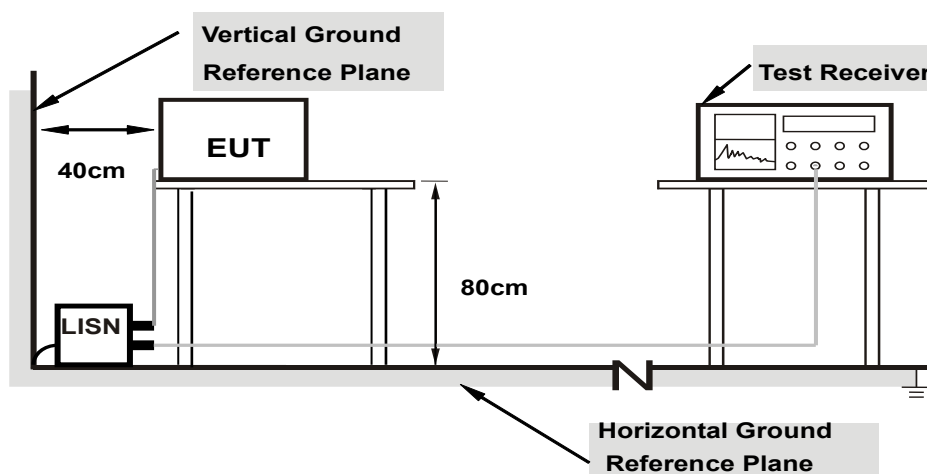


6.1.2 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

6.2 AC Power Conducted Emissions

6.2.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.2.2 Test Procedure

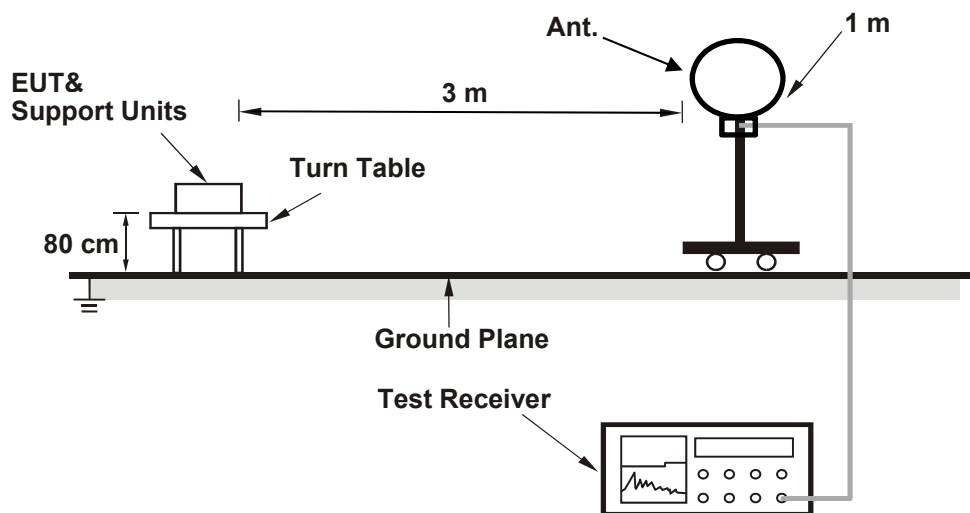
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

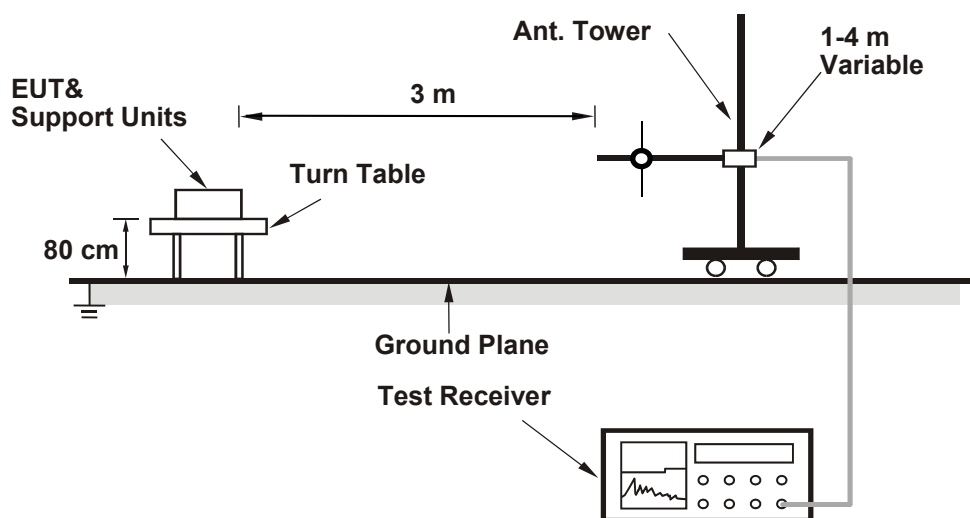
6.3 Unwanted Emissions below 1 GHz

6.3.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.3.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

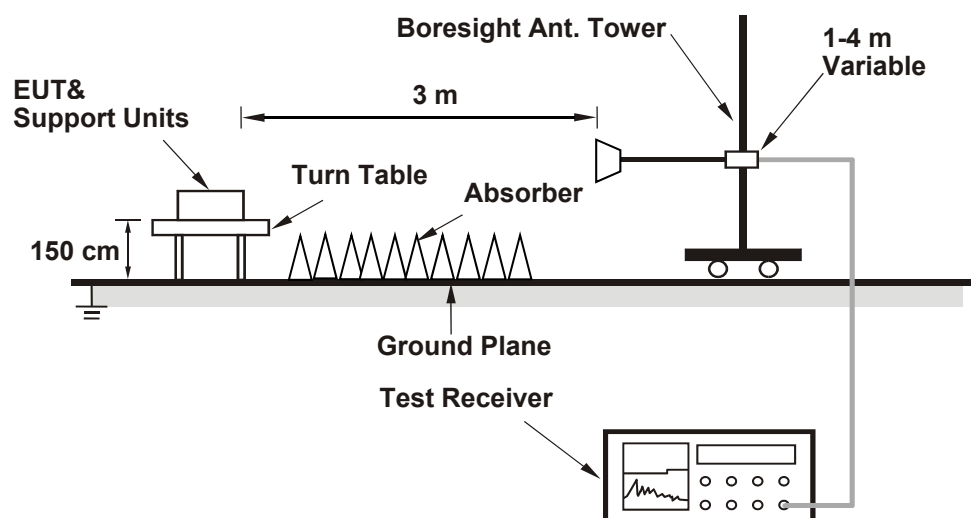
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.4 Unwanted Emissions above 1 GHz

6.4.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.4.2 Test Procedure

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

| | | | | | |
|--------------|----------------|---------------------------|--------------|------------|----------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 23°C, 63% RH | Tested By: | Tim Chen |
|--------------|----------------|---------------------------|--------------|------------|----------|

5G traffic radio:

802.11a CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 21.95 | 21.74 | 305.955 | 24.86 | 30 | Pass |
| 40 | 5200 | 22.79 | 22.41 | 364.289 | 25.61 | 30 | Pass |
| 48 | 5240 | 22.86 | 22.55 | 373.084 | 25.72 | 30 | Pass |
| 149 | 5745 | 20.63 | 20.25 | 221.537 | 23.45 | 30 | Pass |
| 157 | 5785 | 20.11 | 20.10 | 204.894 | 23.12 | 30 | Pass |
| 165 | 5825 | 19.83 | 19.61 | 187.573 | 22.73 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 21.59 | 21.31 | 279.419 | 24.46 | 30 | Pass |
| 40 | 5200 | 22.05 | 21.86 | 313.786 | 24.97 | 30 | Pass |
| 48 | 5240 | 22.09 | 21.83 | 314.213 | 24.97 | 30 | Pass |
| 149 | 5745 | 21.00 | 20.48 | 237.579 | 23.76 | 30 | Pass |
| 157 | 5785 | 20.56 | 20.15 | 217.277 | 23.37 | 30 | Pass |
| 165 | 5825 | 20.10 | 19.76 | 196.953 | 22.94 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 38 | 5190 | 21.40 | 21.23 | 270.778 | 24.33 | 30 | Pass |
| 46 | 5230 | 22.46 | 22.38 | 349.179 | 25.43 | 30 | Pass |
| 151 | 5755 | 21.62 | 21.13 | 274.929 | 24.39 | 30 | Pass |
| 159 | 5795 | 21.65 | 21.11 | 275.34 | 24.40 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT20) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 21.64 | 21.38 | 283.286 | 24.52 | 30 | Pass |
| 40 | 5200 | 22.07 | 21.88 | 315.235 | 24.99 | 30 | Pass |
| 48 | 5240 | 22.12 | 21.86 | 316.391 | 25.00 | 30 | Pass |
| 149 | 5745 | 21.05 | 20.50 | 239.552 | 23.79 | 30 | Pass |
| 157 | 5785 | 20.58 | 20.17 | 218.28 | 23.39 | 30 | Pass |
| 165 | 5825 | 20.13 | 19.78 | 198.099 | 22.97 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT40) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 38 | 5190 | 21.45 | 21.26 | 273.296 | 24.37 | 30 | Pass |
| 46 | 5230 | 22.62 | 22.42 | 357.392 | 25.53 | 30 | Pass |
| 151 | 5755 | 21.69 | 21.15 | 277.887 | 24.44 | 30 | Pass |
| 159 | 5795 | 21.67 | 21.14 | 276.91 | 24.42 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT80) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 42 | 5210 | 19.89 | 19.45 | 185.604 | 22.69 | 30 | Pass |
| 155 | 5775 | 20.57 | 20.29 | 220.93 | 23.44 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 21.66 | 21.41 | 284.911 | 24.55 | 30 | Pass |
| 40 | 5200 | 22.10 | 21.91 | 317.420 | 25.02 | 30 | Pass |
| 48 | 5240 | 22.15 | 21.92 | 319.656 | 25.05 | 30 | Pass |
| 149 | 5745 | 21.10 | 20.55 | 242.326 | 23.84 | 30 | Pass |
| 157 | 5785 | 20.64 | 20.22 | 221.074 | 23.45 | 30 | Pass |
| 165 | 5825 | 20.20 | 19.83 | 200.874 | 23.03 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 38 | 5190 | 21.48 | 21.30 | 275.501 | 24.40 | 30 | Pass |
| 46 | 5230 | 22.67 | 22.46 | 361.124 | 25.58 | 30 | Pass |
| 151 | 5755 | 21.73 | 21.17 | 279.854 | 24.47 | 30 | Pass |
| 159 | 5795 | 21.70 | 21.16 | 278.528 | 24.45 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE80) CDD

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 42 | 5210 | 19.98 | 19.47 | 188.052 | 22.74 | 30 | Pass |
| 155 | 5775 | 20.61 | 20.37 | 223.973 | 23.50 | 30 | Pass |

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 5.5 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 18.62 | 18.22 | 139.152 | 21.43 | 27.49 | Pass |
| 40 | 5200 | 19.13 | 18.66 | 155.298 | 21.91 | 27.49 | Pass |
| 48 | 5240 | 19.04 | 18.77 | 155.503 | 21.92 | 27.49 | Pass |
| 149 | 5745 | 18.01 | 17.53 | 119.865 | 20.79 | 27.49 | Pass |
| 157 | 5785 | 17.36 | 17.17 | 106.57 | 20.28 | 27.49 | Pass |
| 165 | 5825 | 17.12 | 16.63 | 97.549 | 19.89 | 27.49 | Pass |

Notes:

1. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (8.51 - 6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (8.51 - 6) = 27.49$ dBm.

802.11n (HT40) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 38 | 5190 | 18.50 | 18.13 | 135.808 | 21.33 | 27.49 | Pass |
| 46 | 5230 | 19.51 | 19.34 | 175.232 | 22.44 | 27.49 | Pass |
| 151 | 5755 | 18.51 | 17.99 | 133.908 | 21.27 | 27.49 | Pass |
| 159 | 5795 | 18.43 | 17.93 | 131.75 | 21.20 | 27.49 | Pass |

Notes:

1. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (8.51 - 6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (8.51 - 6) = 27.49$ dBm.

802.11ac (VHT20) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 18.65 | 18.25 | 140.117 | 21.46 | 27.49 | Pass |
| 40 | 5200 | 19.23 | 18.70 | 157.884 | 21.98 | 27.49 | Pass |
| 48 | 5240 | 19.07 | 18.81 | 156.756 | 21.95 | 27.49 | Pass |
| 149 | 5745 | 18.03 | 17.56 | 120.55 | 20.81 | 27.49 | Pass |
| 157 | 5785 | 17.40 | 17.21 | 107.556 | 20.32 | 27.49 | Pass |
| 165 | 5825 | 17.13 | 16.65 | 97.88 | 19.91 | 27.49 | Pass |

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.

802.11ac (VHT40) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 38 | 5190 | 18.53 | 18.17 | 136.9 | 21.36 | 27.49 | Pass |
| 46 | 5230 | 19.62 | 19.38 | 178.318 | 22.51 | 27.49 | Pass |
| 151 | 5755 | 18.53 | 18.01 | 134.526 | 21.29 | 27.49 | Pass |
| 159 | 5795 | 18.52 | 17.96 | 133.639 | 21.26 | 27.49 | Pass |

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.

802.11ac (VHT80) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 42 | 5210 | 16.73 | 16.57 | 92.492 | 19.66 | 27.49 | Pass |
| 155 | 5775 | 17.51 | 17.16 | 108.363 | 20.35 | 27.49 | Pass |

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.

802.11ax (HE20) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 36 | 5180 | 18.67 | 18.29 | 141.074 | 21.49 | 27.49 | Pass |
| 40 | 5200 | 19.28 | 18.73 | 159.368 | 22.02 | 27.49 | Pass |
| 48 | 5240 | 19.08 | 18.84 | 157.469 | 21.97 | 27.49 | Pass |
| 149 | 5745 | 18.06 | 17.67 | 122.452 | 20.88 | 27.49 | Pass |
| 157 | 5785 | 17.42 | 17.23 | 108.052 | 20.34 | 27.49 | Pass |
| 165 | 5825 | 17.18 | 16.75 | 99.555 | 19.98 | 27.49 | Pass |

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.

802.11ax (HE40) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 38 | 5190 | 18.58 | 18.27 | 139.254 | 21.44 | 27.49 | Pass |
| 46 | 5230 | 19.69 | 19.43 | 180.811 | 22.57 | 27.49 | Pass |
| 151 | 5755 | 18.56 | 18.03 | 135.313 | 21.31 | 27.49 | Pass |
| 159 | 5795 | 18.53 | 18.11 | 136.000 | 21.34 | 27.49 | Pass |

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.

802.11ax (HE80) Beamforming

| Chan. | Chan. Freq. (MHz) | Average Power (dBm) | | Total Power (mW) | Total Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|---------------------|---------|------------------|-------------------|-------------------|-------------|
| | | Chain 0 | Chain 1 | | | | |
| 42 | 5210 | 16.77 | 16.62 | 93.453 | 19.71 | 27.49 | Pass |
| 155 | 5775 | 17.53 | 17.26 | 109.835 | 20.41 | 27.49 | Pass |

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. For U-NII-1, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.
3. For U-NII-3, the directional gain is 8.51 dBi > 6 dBi, so the output power limit shall be reduced to $30-(8.51-6) = 27.49$ dBm.



| | | | | | |
|--------------|----------------|---------------------------|--------------|------------|----------|
| Input Power: | 120 Vac, 60 Hz | Environmental Conditions: | 23°C, 63% RH | Tested By: | Tim Chen |
|--------------|----------------|---------------------------|--------------|------------|----------|

Scanning radio:

802.11a

| Chan. | Chan. Freq. (MHz) | Average Power (mW) | Average Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|--------------------|---------------------|-------------------|-------------|
| 36 | 5180 | 90.365 | 19.56 | 30 | Pass |
| 40 | 5200 | 135.519 | 21.32 | 30 | Pass |
| 48 | 5240 | 140.605 | 21.48 | 30 | Pass |
| 149 | 5745 | 137.404 | 21.38 | 30 | Pass |
| 157 | 5785 | 142.889 | 21.55 | 30 | Pass |
| 165 | 5825 | 138.676 | 21.42 | 30 | Pass |

Notes:

1. For U-NII-1, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-3, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20)

| Chan. | Chan. Freq. (MHz) | Average Power (mW) | Average Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|--------------------|---------------------|-------------------|-------------|
| 36 | 5180 | 78.343 | 18.94 | 30 | Pass |
| 40 | 5200 | 131.522 | 21.19 | 30 | Pass |
| 48 | 5240 | 136.458 | 21.35 | 30 | Pass |
| 149 | 5745 | 137.404 | 21.38 | 30 | Pass |
| 157 | 5785 | 140.605 | 21.48 | 30 | Pass |
| 165 | 5825 | 142.889 | 21.55 | 30 | Pass |

Notes:

1. For U-NII-1, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-3, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40)

| Chan. | Chan. Freq. (MHz) | Average Power (mW) | Average Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|--------------------|---------------------|-------------------|-------------|
| 38 | 5190 | 70.146 | 18.46 | 30 | Pass |
| 46 | 5230 | 128.825 | 21.10 | 30 | Pass |
| 151 | 5755 | 131.22 | 21.18 | 30 | Pass |
| 159 | 5795 | 131.522 | 21.19 | 30 | Pass |

Notes:

1. For U-NII-1, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-3, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT80)

| Chan. | Chan. Freq. (MHz) | Average Power (mW) | Average Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|--------------------|---------------------|-------------------|-------------|
| 42 | 5210 | 26.182 | 14.18 | 30 | Pass |
| 155 | 5775 | 59.566 | 17.75 | 30 | Pass |

Notes:

1. For U-NII-1, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-3, the antenna gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

7.2 AC Power Conducted Emissions

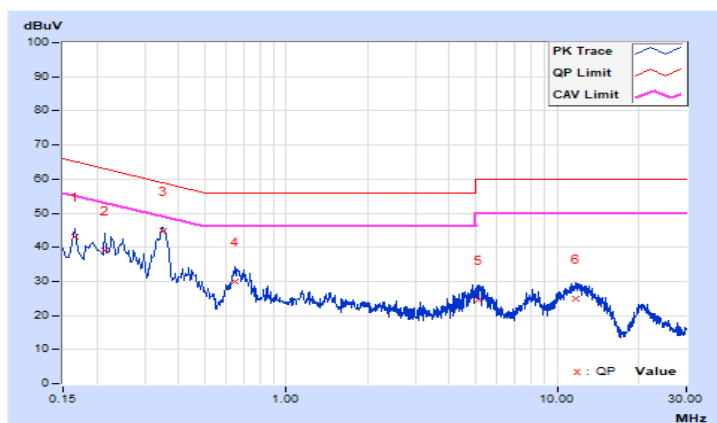
5G traffic radio:

| | | | |
|-----------------|------------------|--|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 25°C, 75% RH |
| Tested By | Rex Wang | Test Mode | A |

| Phase Of Power : Line (L) | | | | | | | | | | |
|---------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.16600 | 9.69 | 33.54 | 25.11 | 43.23 | 34.80 | 65.16 | 55.16 | -21.93 | -20.36 |
| 2 | 0.21400 | 9.73 | 29.31 | 21.51 | 39.04 | 31.24 | 63.05 | 53.05 | -24.01 | -21.81 |
| 3 | 0.34944 | 9.78 | 35.11 | 28.49 | 44.89 | 38.27 | 58.98 | 48.98 | -14.09 | -10.71 |
| 4 | 0.65000 | 9.82 | 20.02 | 14.64 | 29.84 | 24.46 | 56.00 | 46.00 | -26.16 | -21.54 |
| 5 | 5.12200 | 9.97 | 14.59 | 6.41 | 24.56 | 16.38 | 60.00 | 50.00 | -35.44 | -33.62 |
| 6 | 11.64600 | 10.08 | 14.70 | 8.92 | 24.78 | 19.00 | 60.00 | 50.00 | -35.22 | -31.00 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



| | | | |
|------------------------|------------------|---|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 25°C, 75% RH |
| Tested By | Rex Wang | | |

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|------------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.19000 | 9.71 | 31.72 | 23.85 | 41.43 | 33.56 | 64.04 | 54.04 | -22.61 | -20.48 |
| 2 | 0.35400 | 9.79 | 36.61 | 31.13 | 46.40 | 40.92 | 58.87 | 48.87 | -12.47 | -7.95 |
| 3 | 0.63000 | 9.83 | 19.97 | 14.60 | 29.80 | 24.43 | 56.00 | 46.00 | -26.20 | -21.57 |
| 4 | 4.97800 | 9.98 | 14.39 | 6.36 | 24.37 | 16.34 | 56.00 | 46.00 | -31.63 | -29.66 |
| 5 | 11.76600 | 10.09 | 15.10 | 9.72 | 25.19 | 19.81 | 60.00 | 50.00 | -34.81 | -30.19 |
| 6 | 20.89800 | 10.20 | 7.77 | 2.00 | 17.97 | 12.20 | 60.00 | 50.00 | -42.03 | -37.80 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

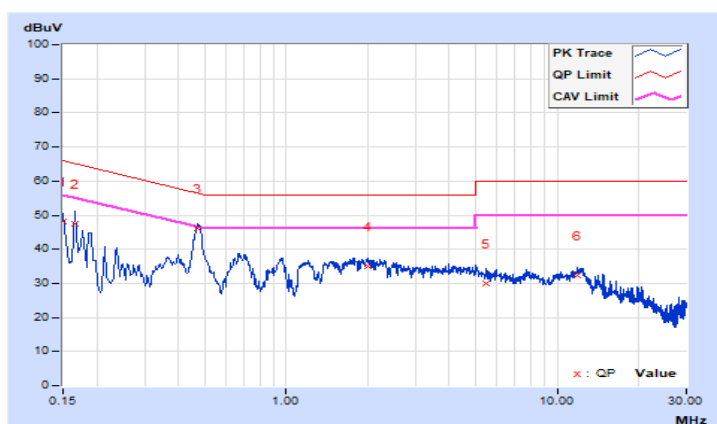


| | | | |
|-----------------|------------------|--|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 21.4°C, 68.1% RH |
| Tested By | Thomas Cheng | Test Mode | B |

| Phase Of Power : Line (L) | | | | | | | | | | |
|---------------------------|-----------------|------------------------|----------------------|--------------|-----------------------|--------------|--------------|--------------|---------------|--------------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15000 | 9.68 | 38.54 | 25.60 | 48.22 | 35.28 | 66.00 | 56.00 | -17.78 | -20.72 |
| 2 | 0.16600 | 9.69 | 37.63 | 22.51 | 47.32 | 32.20 | 65.16 | 55.16 | -17.84 | -22.96 |
| 3 | 0.47000 | 9.80 | 36.38 | 31.68 | 46.18 | 41.48 | 56.51 | 46.51 | -10.33 | -5.03 |
| 4 | 2.00969 | 9.90 | 25.23 | 21.12 | 35.13 | 31.02 | 56.00 | 46.00 | -20.87 | -14.98 |
| 5 | 5.47000 | 9.98 | 19.96 | 14.31 | 29.94 | 24.29 | 60.00 | 50.00 | -30.06 | -25.71 |
| 6 | 11.87800 | 10.08 | 22.34 | 15.41 | 32.42 | 25.49 | 60.00 | 50.00 | -27.58 | -24.51 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

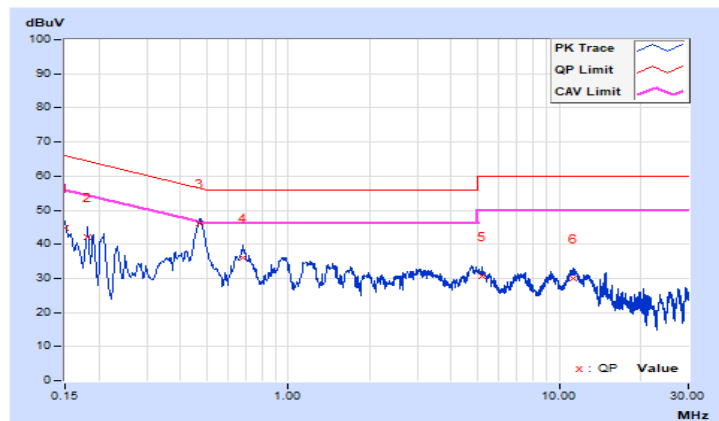


| | | | |
|------------------------|------------------|---|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 21.4°C, 68.1% RH |
| Tested By | Thomas Cheng | Test Mode | B |

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|------------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15000 | 9.68 | 35.08 | 25.16 | 44.76 | 34.84 | 66.00 | 56.00 | -21.24 | -21.16 |
| 2 | 0.18200 | 9.71 | 32.53 | 20.19 | 42.24 | 29.90 | 64.39 | 54.39 | -22.15 | -24.49 |
| 3 | 0.47310 | 9.82 | 36.31 | 31.34 | 46.13 | 41.16 | 56.46 | 46.46 | -10.33 | -5.30 |
| 4 | 0.67800 | 9.83 | 26.29 | 21.17 | 36.12 | 31.00 | 56.00 | 46.00 | -19.88 | -15.00 |
| 5 | 5.16600 | 9.99 | 20.74 | 12.41 | 30.73 | 22.40 | 60.00 | 50.00 | -29.27 | -27.60 |
| 6 | 11.31000 | 10.08 | 19.96 | 13.81 | 30.04 | 23.89 | 60.00 | 50.00 | -29.96 | -26.11 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



Scanning radio:

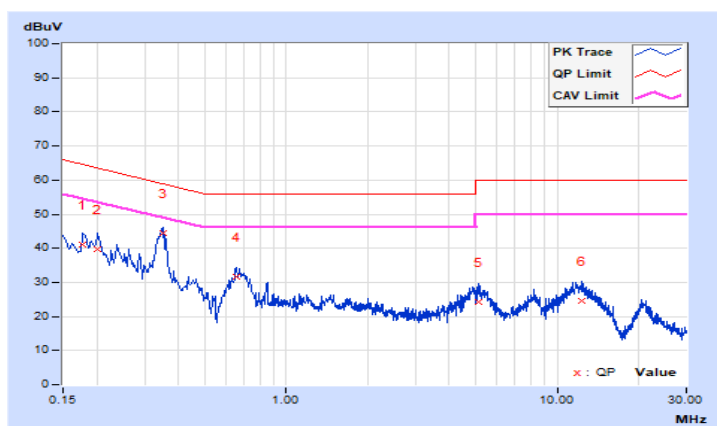
| | | | |
|-----------------|------------------|--|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 25°C, 75% RH |
| Tested By | Rex Wang | Test Mode | A |

Phase Of Power : Line (L)

| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
|----|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.17800 | 9.70 | 31.51 | 20.77 | 41.21 | 30.47 | 64.58 | 54.58 | -23.37 | -24.11 |
| 2 | 0.20200 | 9.72 | 30.01 | 20.44 | 39.73 | 30.16 | 63.53 | 53.53 | -23.80 | -23.37 |
| 3 | 0.34944 | 9.78 | 34.73 | 28.01 | 44.51 | 37.79 | 58.98 | 48.98 | -14.47 | -11.19 |
| 4 | 0.65800 | 9.82 | 21.84 | 16.36 | 31.66 | 26.18 | 56.00 | 46.00 | -24.34 | -19.82 |
| 5 | 5.11400 | 9.97 | 14.11 | 6.06 | 24.08 | 16.03 | 60.00 | 50.00 | -35.92 | -33.97 |
| 6 | 12.35400 | 10.09 | 14.46 | 8.65 | 24.55 | 18.74 | 60.00 | 50.00 | -35.45 | -31.26 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

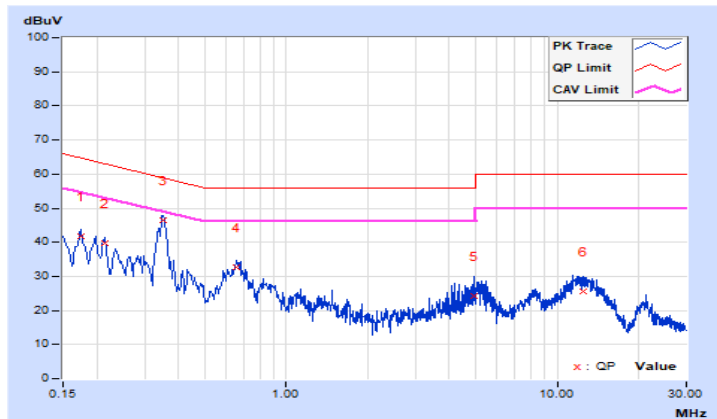


| | | | |
|-----------------|------------------|--|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 25°C, 75% RH |
| Tested By | Rex Wang | Test Mode | A |

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|------------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.17400 | 9.70 | 32.05 | 21.85 | 41.75 | 31.55 | 64.77 | 54.77 | -23.02 | -23.22 |
| 2 | 0.21400 | 9.73 | 30.09 | 22.11 | 39.82 | 31.84 | 63.05 | 53.05 | -23.23 | -21.21 |
| 3 | 0.34944 | 9.79 | 36.77 | 30.33 | 46.56 | 40.12 | 58.98 | 48.98 | -12.42 | -8.86 |
| 4 | 0.65400 | 9.83 | 22.98 | 16.82 | 32.81 | 26.65 | 56.00 | 46.00 | -23.19 | -19.35 |
| 5 | 4.92600 | 9.98 | 14.14 | 6.16 | 24.12 | 16.14 | 56.00 | 46.00 | -31.88 | -29.86 |
| 6 | 12.49400 | 10.10 | 15.51 | 10.01 | 25.61 | 20.11 | 60.00 | 50.00 | -34.39 | -29.89 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

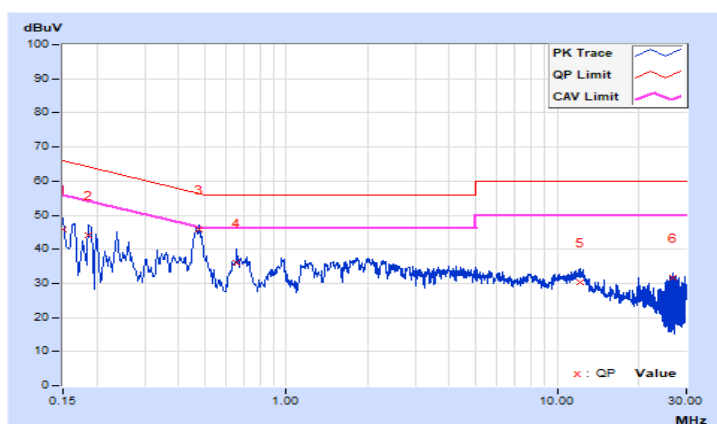


| | | | |
|-----------------|------------------|--|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 25°C, 75% RH |
| Tested By | Rex Wang | Test Mode | B |

| Phase Of Power : Line (L) | | | | | | | | | | |
|---------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15000 | 9.62 | 36.32 | 26.61 | 45.94 | 36.23 | 66.00 | 56.00 | -20.06 | -19.77 |
| 2 | 0.18600 | 9.63 | 34.35 | 20.30 | 43.98 | 29.93 | 64.21 | 54.21 | -20.23 | -24.28 |
| 3 | 0.47800 | 9.69 | 36.15 | 29.91 | 45.84 | 39.60 | 56.37 | 46.37 | -10.53 | -6.77 |
| 4 | 0.65800 | 9.69 | 26.17 | 21.30 | 35.86 | 30.99 | 56.00 | 46.00 | -20.14 | -15.01 |
| 5 | 12.13800 | 9.82 | 20.61 | 15.68 | 30.43 | 25.50 | 60.00 | 50.00 | -29.57 | -24.50 |
| 6 | 26.77000 | 9.87 | 21.88 | 20.75 | 31.75 | 30.62 | 60.00 | 50.00 | -28.25 | -19.38 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

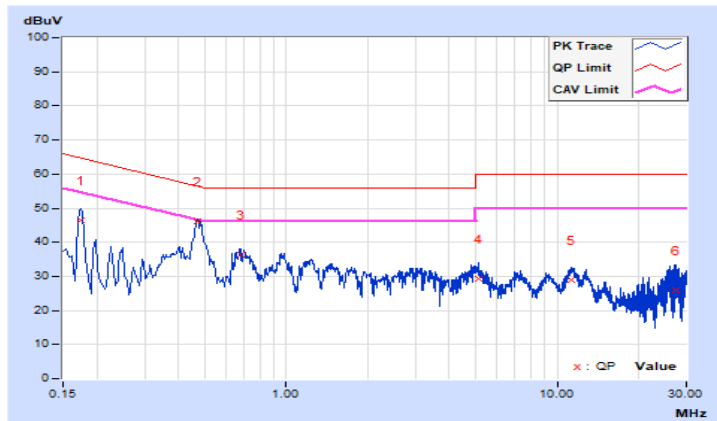


| | | | |
|------------------------|------------------|---|---------------------------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 25°C, 75% RH |
| Tested By | Rex Wang | Test Mode | B |

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|------------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.17384 | 9.63 | 36.94 | 22.30 | 46.57 | 31.93 | 64.77 | 54.77 | -18.20 | -22.84 |
| 2 | 0.46938 | 9.69 | 36.36 | 31.22 | 46.05 | 40.91 | 56.52 | 46.52 | -10.47 | -5.61 |
| 3 | 0.67800 | 9.69 | 26.55 | 21.57 | 36.24 | 31.26 | 56.00 | 46.00 | -19.76 | -14.74 |
| 4 | 5.10600 | 9.76 | 19.54 | 13.30 | 29.30 | 23.06 | 60.00 | 50.00 | -30.70 | -26.94 |
| 5 | 11.23400 | 9.82 | 19.08 | 13.89 | 28.90 | 23.71 | 60.00 | 50.00 | -31.10 | -26.29 |
| 6 | 27.52600 | 9.87 | 16.16 | 10.96 | 26.03 | 20.83 | 60.00 | 50.00 | -33.97 | -29.17 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



7.3 Unwanted Emissions below 1 GHz

5G traffic radio:

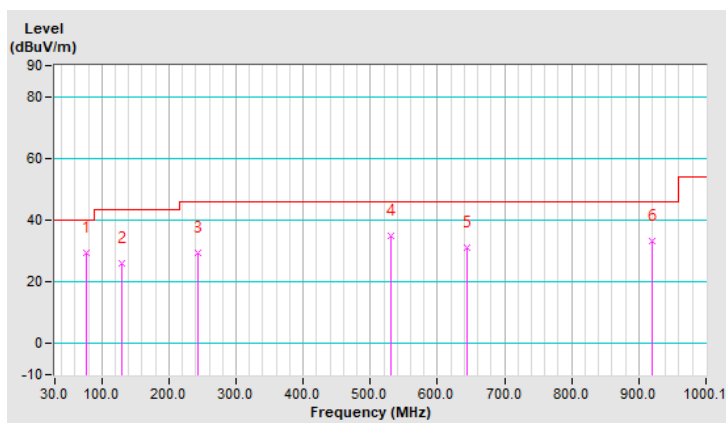
| | | | |
|------------------------|----------------|--|------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 21°C, 68% RH |
| Tested By | Thomas Cheng | Test Mode | A |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 76.56 | 29.3 QP | 40.0 | -10.7 | 2.63 H | 230 | 46.1 | -16.8 |
| 2 | 128.95 | 26.1 QP | 43.5 | -17.4 | 2.51 H | 7 | 39.6 | -13.5 |
| 3 | 243.42 | 29.2 QP | 46.0 | -16.8 | 3.20 H | 330 | 43.8 | -14.6 |
| 4 | 531.54 | 35.1 QP | 46.0 | -10.9 | 1.83 H | 85 | 40.6 | -5.5 |
| 5 | 644.07 | 30.9 QP | 46.0 | -15.1 | 3.90 H | 295 | 33.4 | -2.5 |
| 6 | 919.58 | 33.4 QP | 46.0 | -12.6 | 2.74 H | 235 | 31.3 | 2.1 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

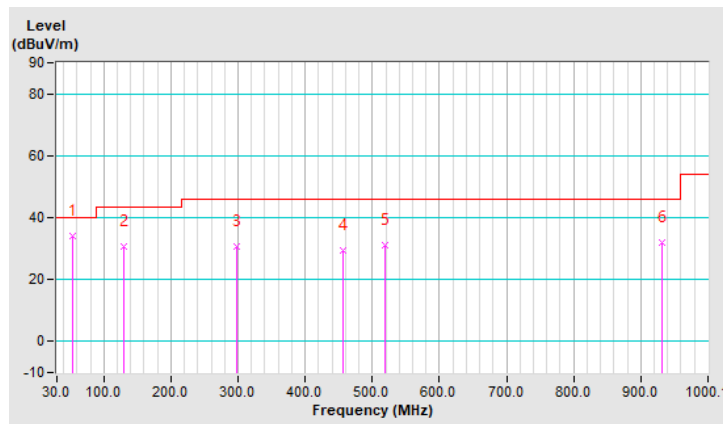


| | | | |
|------------------------|----------------|--|------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 21°C, 68% RH |
| Tested By | Thomas Cheng | Test Mode | A |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 53.28 | 34.2 QP | 40.0 | -5.8 | 2.24 V | 93 | 46.9 | -12.7 |
| 2 | 128.95 | 30.6 QP | 43.5 | -12.9 | 1.33 V | 172 | 44.1 | -13.5 |
| 3 | 298.72 | 30.7 QP | 46.0 | -15.3 | 3.95 V | 6 | 42.9 | -12.2 |
| 4 | 455.87 | 29.4 QP | 46.0 | -16.6 | 1.69 V | 235 | 36.6 | -7.2 |
| 5 | 518.93 | 31.1 QP | 46.0 | -14.9 | 2.51 V | 229 | 36.8 | -5.7 |
| 6 | 931.22 | 31.9 QP | 46.0 | -14.1 | 1.85 V | 351 | 29.6 | 2.3 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

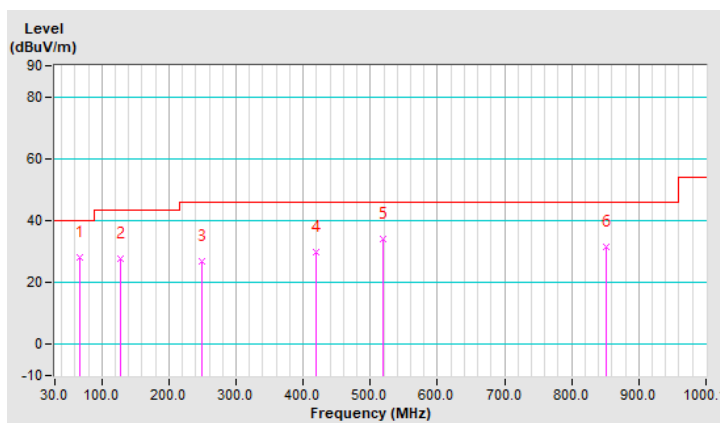


| | | | |
|------------------------|----------------|--|------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 21°C, 68% RH |
| Tested By | Thomas Cheng | Test Mode | B |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 67.83 | 28.3 QP | 40.0 | -11.7 | 1.94 H | 152 | 42.9 | -14.6 |
| 2 | 127.98 | 27.6 QP | 43.5 | -15.9 | 1.90 H | 355 | 41.2 | -13.6 |
| 3 | 249.24 | 26.7 QP | 46.0 | -19.3 | 3.95 H | 162 | 41.2 | -14.5 |
| 4 | 419.01 | 29.8 QP | 46.0 | -16.2 | 2.74 H | 314 | 38.5 | -8.7 |
| 5 | 518.93 | 34.2 QP | 46.0 | -11.8 | 1.48 H | 340 | 39.9 | -5.7 |
| 6 | 851.67 | 31.5 QP | 46.0 | -14.5 | 1.12 H | 127 | 30.4 | 1.1 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

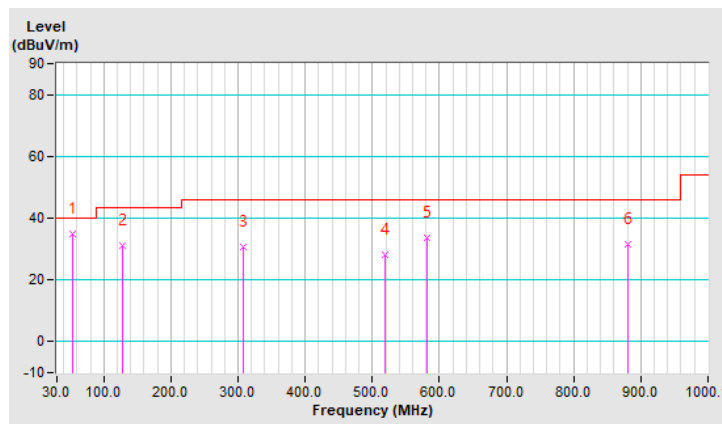


| | | | |
|------------------------|----------------|--|------------------|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 21°C, 68% RH |
| Tested By | Thomas Cheng | Test Mode | B |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBUV) | Correction Factor (dB/m) |
| 1 | 53.28 | 34.9 QP | 40.0 | -5.1 | 2.68 V | 348 | 47.6 | -12.7 |
| 2 | 127.01 | 31.2 QP | 43.5 | -12.3 | 1.57 V | 89 | 45.0 | -13.8 |
| 3 | 307.45 | 30.7 QP | 46.0 | -15.3 | 2.34 V | 255 | 42.4 | -11.7 |
| 4 | 518.93 | 28.3 QP | 46.0 | -17.7 | 1.10 V | 232 | 34.0 | -5.7 |
| 5 | 581.02 | 33.7 QP | 46.0 | -12.3 | 2.48 V | 102 | 37.9 | -4.2 |
| 6 | 881.75 | 31.6 QP | 46.0 | -14.4 | 1.42 V | 262 | 30.1 | 1.5 |

Remarks:

1. Emission Level(dBUV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



Scanning radio:

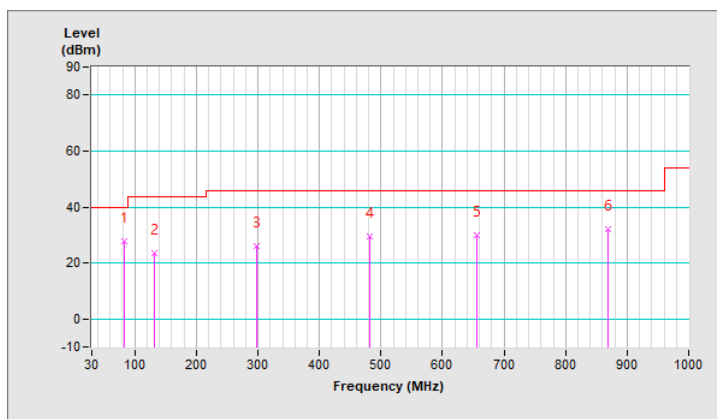
| | | | |
|------------------------|----------------|--|-------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Adair Peng | Test Mode | A |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 82.39 | 27.7 QP | 40.0 | -12.3 | 1.00 H | 21 | 41.6 | -13.9 |
| 2 | 131.86 | 23.6 QP | 43.5 | -19.9 | 1.50 H | 34 | 33.5 | -9.9 |
| 3 | 297.75 | 25.9 QP | 46.0 | -20.1 | 1.50 H | 342 | 32.7 | -6.8 |
| 4 | 481.10 | 29.3 QP | 46.0 | -16.7 | 2.00 H | 111 | 32.1 | -2.8 |
| 5 | 656.68 | 29.7 QP | 46.0 | -16.3 | 1.50 H | 239 | 29.2 | 0.5 |
| 6 | 869.14 | 31.9 QP | 46.0 | -14.1 | 1.50 H | 227 | 27.4 | 4.5 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

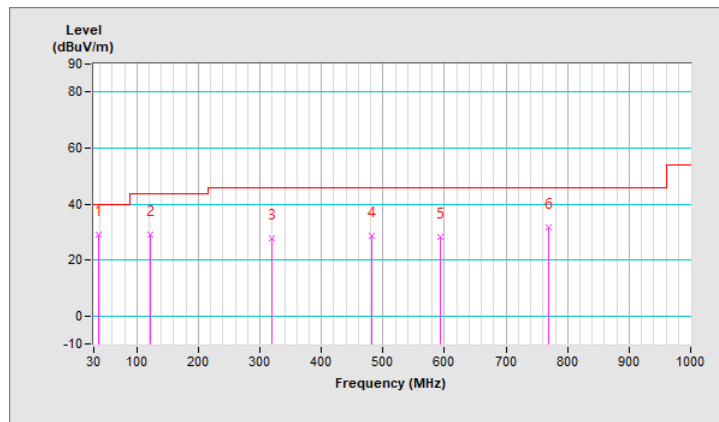


| | | | |
|------------------------|----------------|--|-------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Adair Peng | Test Mode | A |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 37.76 | 29.2 QP | 40.0 | -10.8 | 1.50 V | 143 | 38.7 | -9.5 |
| 2 | 122.16 | 29.2 QP | 43.5 | -14.3 | 1.50 V | 234 | 40.2 | -11.0 |
| 3 | 319.09 | 27.9 QP | 46.0 | -18.1 | 2.00 V | 42 | 34.2 | -6.3 |
| 4 | 481.10 | 28.5 QP | 46.0 | -17.5 | 2.00 V | 151 | 31.3 | -2.8 |
| 5 | 593.63 | 28.1 QP | 46.0 | -17.9 | 2.00 V | 23 | 28.5 | -0.4 |
| 6 | 769.22 | 31.6 QP | 46.0 | -14.4 | 1.50 V | 114 | 28.6 | 3.0 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

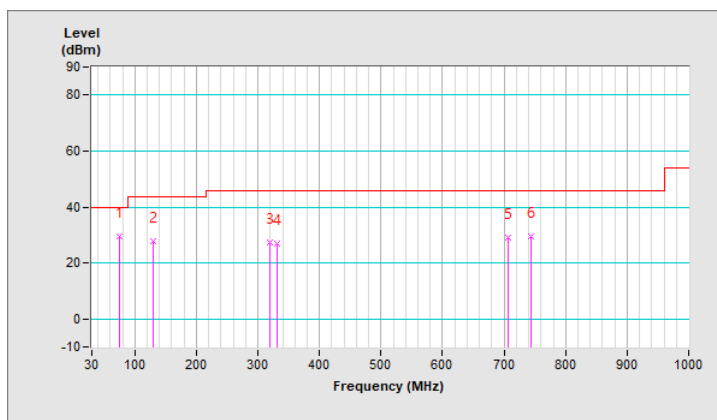


| | | | |
|------------------------|----------------|--|-------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Adair Peng | Test Mode | B |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 75.59 | 29.4 QP | 40.0 | -10.6 | 1.50 H | 338 | 41.7 | -12.3 |
| 2 | 129.92 | 27.6 QP | 43.5 | -15.9 | 1.50 H | 28 | 37.7 | -10.1 |
| 3 | 319.09 | 27.4 QP | 46.0 | -18.6 | 2.00 H | 79 | 33.7 | -6.3 |
| 4 | 331.70 | 26.7 QP | 46.0 | -19.3 | 1.00 H | 337 | 32.6 | -5.9 |
| 5 | 706.16 | 29.0 QP | 46.0 | -17.0 | 1.00 H | 297 | 27.9 | 1.1 |
| 6 | 743.99 | 29.4 QP | 46.0 | -16.6 | 1.00 H | 24 | 27.2 | 2.2 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

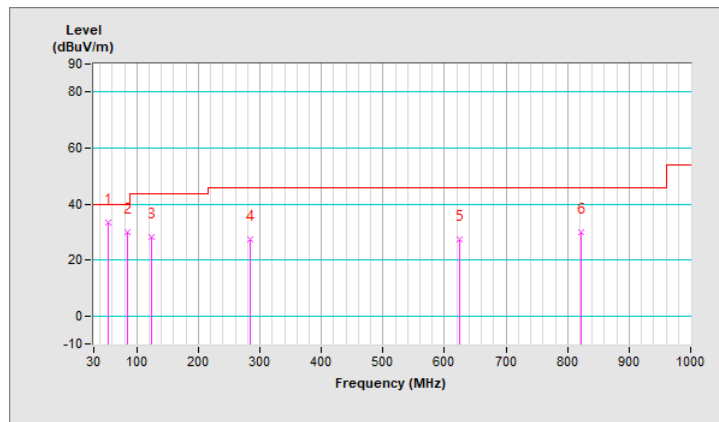


| | | | |
|------------------------|----------------|--|-------------------|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 9 kHz ~ 1 GHz | Detector Function & Bandwidth | (QP) RB = 120kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Adair Peng | Test Mode | B |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 53.28 | 33.3 QP | 40.0 | -6.7 | 1.00 V | 297 | 42.3 | -9.0 |
| 2 | 85.30 | 30.1 QP | 40.0 | -9.9 | 1.00 V | 338 | 44.4 | -14.3 |
| 3 | 123.13 | 28.3 QP | 43.5 | -15.2 | 1.50 V | 31 | 39.1 | -10.8 |
| 4 | 285.14 | 27.2 QP | 46.0 | -18.8 | 1.50 V | 229 | 34.3 | -7.1 |
| 5 | 623.70 | 27.3 QP | 46.0 | -18.7 | 1.50 V | 127 | 27.1 | 0.2 |
| 6 | 821.60 | 30.1 QP | 46.0 | -15.9 | 2.00 V | 77 | 26.4 | 3.7 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.4 Unwanted Emissions above 1 GHz

5G traffic radio:

| | | | |
|------------------------|----------------|--|--|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 1 GHz ~ 40 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Adair Peng | | |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *5240.00 | 119.1 PK | | | 2.96 H | 3 | 79.7 | 39.4 |
| 2 | *5240.00 | 109.0 AV | | | 2.96 H | 3 | 69.6 | 39.4 |
| 3 | 5350.00 | 55.5 PK | 74.0 | -18.5 | 2.80 H | 335 | 50.2 | 5.3 |
| 4 | 5350.00 | 43.4 AV | 54.0 | -10.6 | 2.80 H | 335 | 38.1 | 5.3 |
| 5 | #10480.00 | 60.2 PK | 68.2 | -8.0 | 2.38 H | 359 | 42.9 | 17.3 |

Antenna Polarity & Test Distance : Vertical at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *5240.00 | 113.9 PK | | | 1.59 V | 17 | 74.5 | 39.4 |
| 2 | *5240.00 | 104.2 AV | | | 1.59 V | 17 | 64.8 | 39.4 |
| 3 | 5350.00 | 54.9 PK | 74.0 | -19.1 | 1.73 V | 28 | 49.6 | 5.3 |
| 4 | 5350.00 | 42.7 AV | 54.0 | -11.3 | 1.73 V | 28 | 37.4 | 5.3 |
| 5 | #10480.00 | 59.8 PK | 68.2 | -8.4 | 1.99 V | 52 | 42.5 | 17.3 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.



| | | | |
|------------------------|--------------------|--|--|
| RF Mode | TX 802.11ax (HE40) | Channel | CH 151 : 5755 MHz |
| Frequency Range | 1 GHz ~ 40 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Adair Peng | | |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *5755.00 | 119.1 PK | | | 2.29 H | 295 | 78.6 | 40.5 |
| 2 | *5755.00 | 105.8 AV | | | 2.29 H | 295 | 65.3 | 40.5 |
| 3 | 11510.00 | 64.3 PK | 74.0 | -9.7 | 1.43 H | 31 | 46.3 | 18.0 |
| 4 | 11510.00 | 51.8 AV | 54.0 | -2.2 | 1.43 H | 31 | 33.8 | 18.0 |

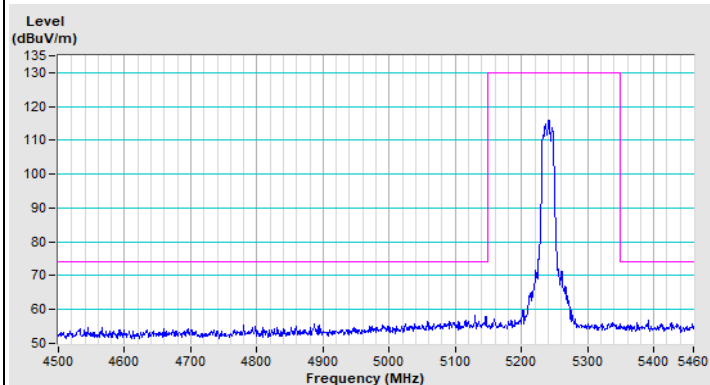
Antenna Polarity & Test Distance : Vertical at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *5755.00 | 113.3 PK | | | 1.69 V | 20 | 72.8 | 40.5 |
| 2 | *5755.00 | 99.8 AV | | | 1.69 V | 20 | 59.3 | 40.5 |
| 3 | 11510.00 | 65.0 PK | 74.0 | -9.0 | 1.98 V | 45 | 47.0 | 18.0 |
| 4 | 11510.00 | 51.1 AV | 54.0 | -2.9 | 1.98 V | 45 | 33.1 | 18.0 |

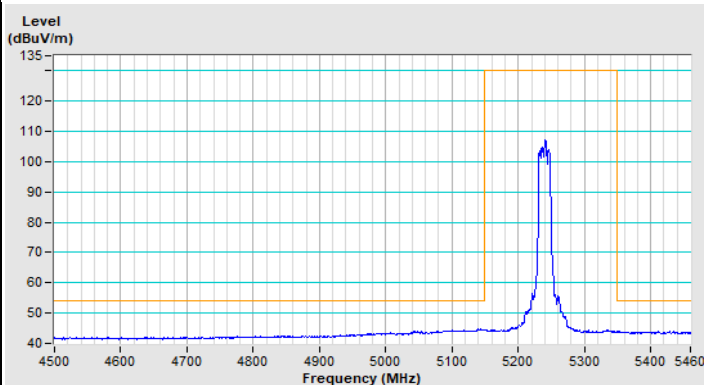
Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.

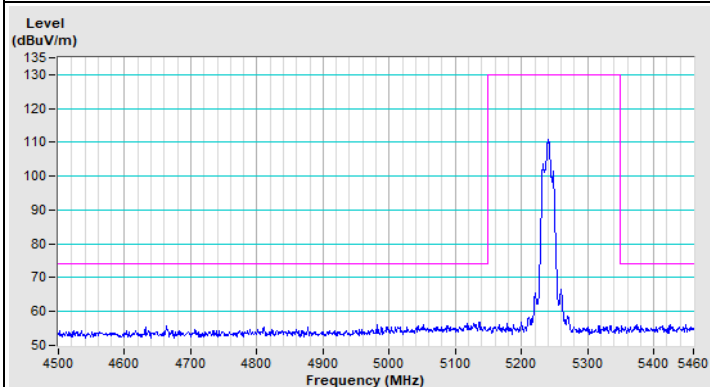
802.11a Channel 48



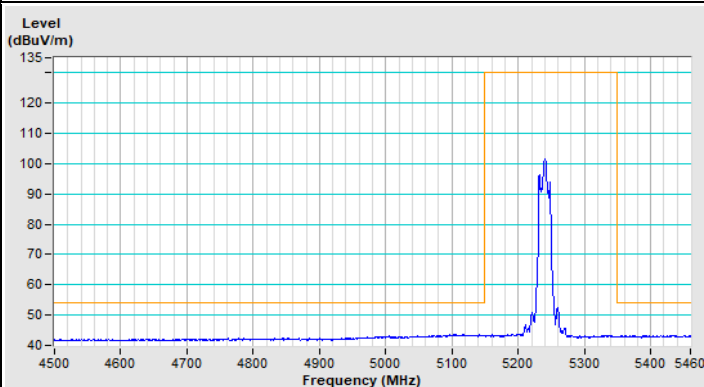
Horizontal (Peak)



Horizontal (Average)

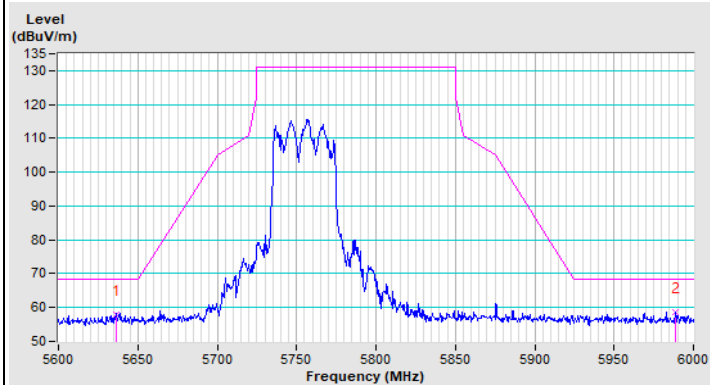


Vertical (Peak)

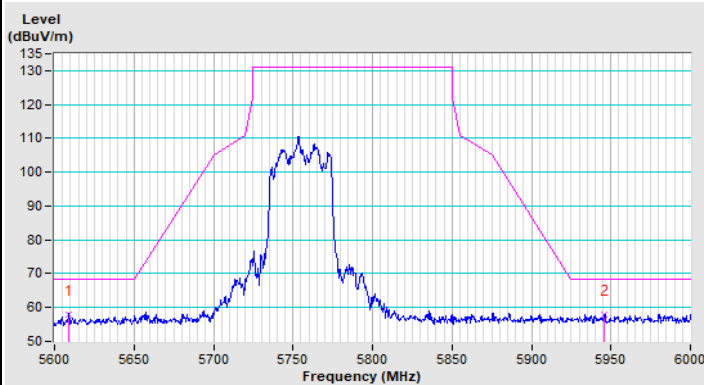


Vertical (Average)

802.11ax (HE40) Channel 151



Horizontal (Peak)



Vertical (Peak)

Scanning radio:

| | | | |
|------------------------|----------------|--|--|
| RF Mode | TX 802.11a | Channel | CH 48 : 5240 MHz |
| Frequency Range | 1 GHz ~ 40 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Rex Wang | | |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *5240.00 | 109.7 PK | | | 1.99 H | 51 | 70.3 | 39.4 |
| 2 | *5240.00 | 99.9 AV | | | 1.99 H | 51 | 60.5 | 39.4 |
| 3 | 5350.00 | 57.6 PK | 74.0 | -16.4 | 1.83 H | 22 | 52.3 | 5.3 |
| 4 | 5350.00 | 43.6 AV | 54.0 | -10.4 | 1.83 H | 22 | 38.3 | 5.3 |
| 5 | #10480.00 | 62.9 PK | 68.2 | -5.3 | 2.77 H | 269 | 45.6 | 17.3 |

Antenna Polarity & Test Distance : Vertical at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *5240.00 | 116.9 PK | | | 1.67 V | 352 | 77.5 | 39.4 |
| 2 | *5240.00 | 106.7 AV | | | 1.67 V | 352 | 67.3 | 39.4 |
| 3 | 5350.00 | 57.8 PK | 74.0 | -16.2 | 1.74 V | 345 | 52.5 | 5.3 |
| 4 | 5350.00 | 43.8 AV | 54.0 | -10.2 | 1.74 V | 345 | 38.5 | 5.3 |
| 5 | #10480.00 | 60.3 PK | 68.2 | -7.9 | 2.91 V | 185 | 43.0 | 17.3 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.



| | | | |
|------------------------|----------------|--|--|
| RF Mode | TX 802.11a | Channel | CH 157 : 5785 MHz |
| Frequency Range | 1 GHz ~ 40 GHz | Detector Function & Bandwidth | (PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz |
| Input Power | 120 Vac, 60 Hz | Environmental Conditions | 23°C, 67% RH |
| Tested By | Rex Wang | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *5785.00 | 112.6 PK | | | 1.52 H | 54 | 72.0 | 40.6 |
| 2 | *5785.00 | 102.8 AV | | | 1.52 H | 54 | 62.2 | 40.6 |
| 3 | 11570.00 | 59.9 PK | 74.0 | -14.1 | 2.61 H | 252 | 42.1 | 17.8 |
| 4 | 11570.00 | 46.4 AV | 54.0 | -7.6 | 2.61 H | 252 | 28.6 | 17.8 |

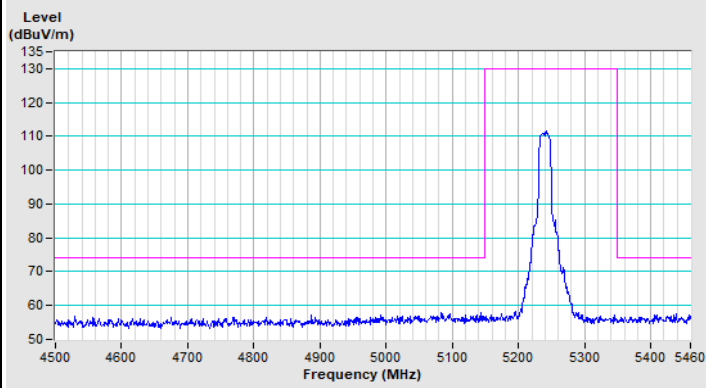
| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *5785.00 | 115.1 PK | | | 1.86 V | 347 | 74.5 | 40.6 |
| 2 | *5785.00 | 104.1 AV | | | 1.86 V | 347 | 63.5 | 40.6 |
| 3 | 11570.00 | 60.0 PK | 74.0 | -14.0 | 2.29 V | 153 | 42.2 | 17.8 |
| 4 | 11570.00 | 46.5 AV | 54.0 | -7.5 | 2.29 V | 153 | 28.7 | 17.8 |

Remarks:

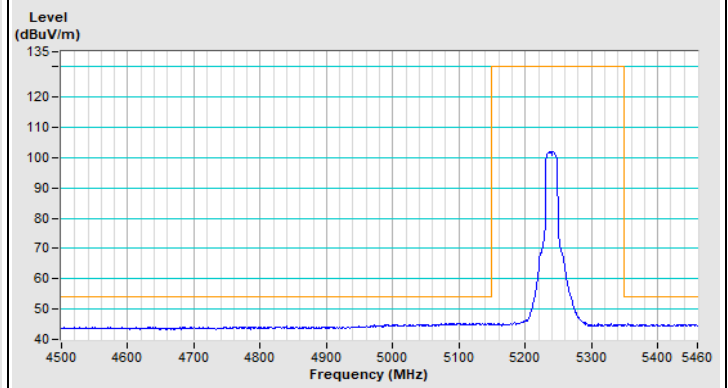
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.



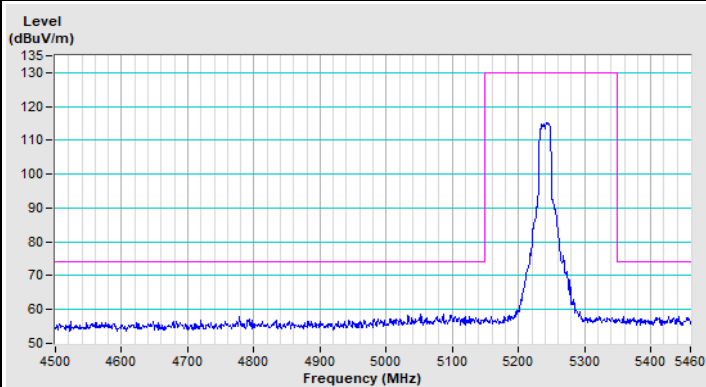
802.11a Channel 48



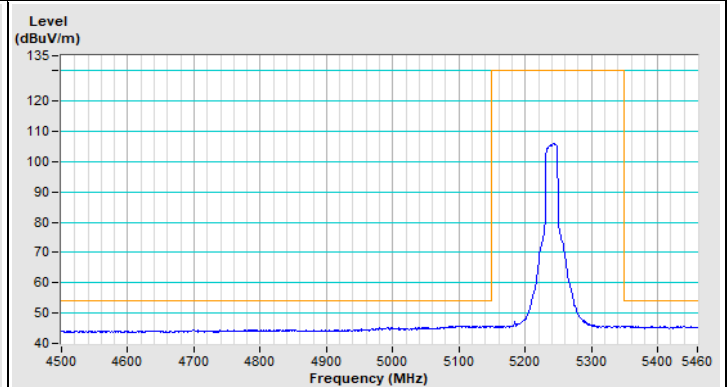
Horizontal (Peak)



Horizontal (Average)

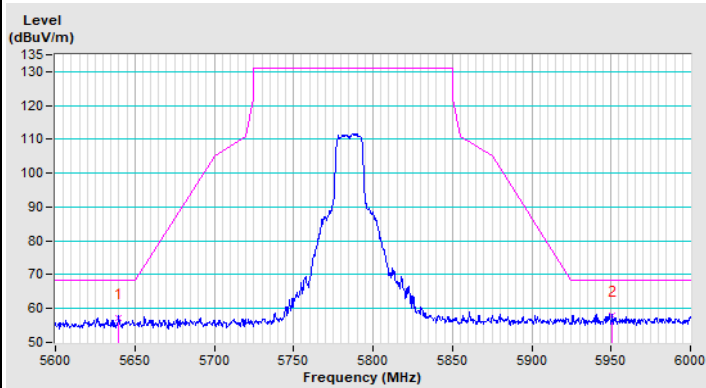


Vertical (Peak)

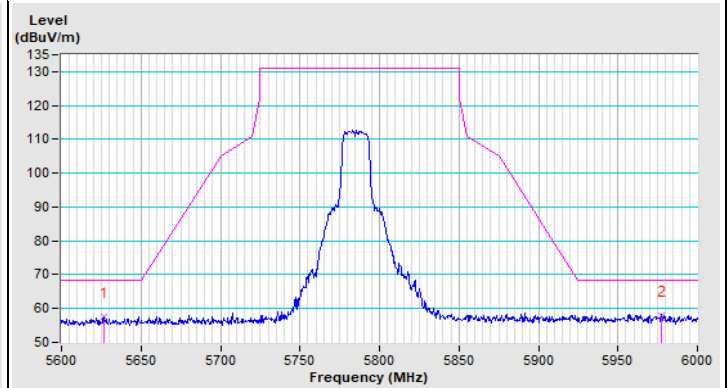


Vertical (Average)

802.11a Channel 157



Horizontal (Peak)



Vertical (Peak)

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)



9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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