

FCC Test Report

| Equipment | : | 11ac Dual Band concurrent Wireless Router |
|---------------------------|---|--|
| Brand Name | : | EDIMAX |
| Model No. | : | BR-6208ACD / EW-7208APC |
| FCC ID | : | NDD9562081312 |
| Standard | : | 47 CFR FCC Part 15.407 |
| Operating Band | : | 5150 MHz – 5250 MHz 5725 MHz – 5850 MHz |
| FCC Classification | : | UNII |
| Applicant Manufacturer | : | EDIMAX TECHNOLOGY CO., LTD. No.3,Wu-Chuan 3rd Road,Wu-Ku Industrial Park, New Taipei City, Taiwan |

The product sample received on Nov. 13, 2013 and completely tested on Mar. 27, 2016. The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Kevin Liang / Assistant Manager





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APPENDIX A. TEST PHOTOS

APPENDIX B. PHOTOGRAPHS OF EUT



Summary of Test Result

| Conformance Test Specifications | | | | | |
|----------------------------------|-----------|--|----------|--|--|
| ReportRef. Std.ClauseDescription | | | | | |
| 1.1.2 | 15.203 | Antenna Requirement | Complied | | |
| 3.1 | 15.207 | AC Power-line Conducted Emissions | Complied | | |
| 3.2 | 15.407(a) | Emission Bandwidth | Complied | | |
| 3.3 | 15.407(a) | RF Output Power (Maximum Conducted Output Power) | Complied | | |
| 3.4 | 15.407(a) | Peak Power Spectral Density | Complied | | |
| 3.5 | 15.407(b) | Transmitter Bandedge Emissions | Complied | | |
| 3.6 | 15.407(b) | Transmitter Unwanted Emissions | Complied | | |
| 3.7 | 15.407(g) | Frequency Stability | Complied | | |



| Report No. | Version | Description | Issued Date |
|---------------|---------|---|---------------|
| FR3N1247AN | Rev. 01 | Initial issue of report | Jan. 02, 2014 |
| FR3N1247-01AN | Rev. 01 | Update information as below: 1.Add an adapter 2.Revised AC conduction and radiated emissions (Below 1GHz) tested. | Jun. 04, 2014 |
| FR3N1247-05AN | Rev. 01 | Update information as below: 1.Change an adapter. 2.Change the model name. 3.Change the antenna. | Jan. 11, 2015 |
| FR3N1247-12AN | Rev. 01 | Update information as below:1. Add level VI adapter.2. Update AC conduction and radiated emissions (Below 1GHz) tested. | Dec. 01, 2015 |
| FR3N1247-15AN | Rev. 01 | UNII-band3, update standard version to 15.407 | Apr. 26, 2016 |
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1 General Description

1.1 Information

1.1.1 Product Details

The equipment is 11ac Dual Band concurrent Wireless Router. There are two types of this product. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

| RF General Information (5150-5250MHz band) | | | | | | |
|--|--|---|---|--|--|--|
| IEEE Std. 802.11 | Ch. Freq. (MHz) | Channel Number | Transmit Chains (Ν _{TX}) | RF Output Power (dBm) | Co-location | |
| а | 5180-5240 | 36-48 [4] | 1 | 14.35 | Yes | |
| n (HT20) | 5180-5240 | 36-48 [4] | 1 | 14.82 | Yes | |
| n (HT40) | 5190-5230 | 38-46 [2] | 1 | 16.06 | Yes | |
| ac (VHT20) | 5180-5240 | 36-48 [4] | 1 | 14.65 | Yes | |
| ac (VHT40) | 5190-5230 | 38-46 [2] | 1 | 15.85 | Yes | |
| ac (VHT80) | 5210 | 48 [1] | 1 | 15.33 | Yes | |
| | IEEE Std. 802.11 a n (HT20) n (HT40) ac (VHT20) ac (VHT40) | IEEE Std. 802.11Ch. Freq. (MHz)a5180-5240n (HT20)5180-5240n (HT40)5190-5230ac (VHT20)5180-5240ac (VHT40)5190-5230 | IEEE Std. 802.11Ch. Freq. (MHz)Channel Numbera5180-524036-48 [4]n (HT20)5180-524036-48 [4]n (HT40)5190-523038-46 [2]ac (VHT20)5180-524036-48 [4]ac (VHT40)5190-523038-46 [2] | IEEE Std. 802.11Ch. Freq. (MHz)Channel NumberTransmit Chains (NTx)a5180-524036-48 [4]1n (HT20)5180-524036-48 [4]1n (HT40)5190-523038-46 [2]1ac (VHT20)5180-524036-48 [4]1ac (VHT40)5190-523038-46 [2]1 | IEEE Std. 802.11Ch. Freq. (MHz)Channel NumberTransmit Chains (N _{TX})RF Output Power (dBm)a5180-524036-48 [4]114.35n (HT20)5180-524036-48 [4]114.82n (HT40)5190-523038-46 [2]116.06ac (VHT20)5180-524036-48 [4]114.65ac (VHT40)5190-523038-46 [2]115.85 | |

1.1.2 RF General Information

Note 1: RF output power specifies that Maximum Conducted Output Power.

Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

Note 3: 802.11ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation. Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

| RF General Information (5725-5850MHz band) | | | | | | |
|--|---------------------|--------------------|-------------------|---------------------------------------|--------------------------|-------------|
| Frequency Range (MHz) | IEEE Std. 802.11 | Ch. Freq. (MHz) | Channel Number | Transmit Chains (Ν _{TX}) | RF Output Power (dBm) | Co-location |
| 5725-5850 | а | 5745-5825 | 149-165 [5] | 1 | 21.52 | Yes |
| 5725-5850 | n (HT20) | 5745-5825 | 149-165 [5] | 1 | 21.01 | Yes |
| 5725-5850 | n (HT40) | 5755-5795 | 151-159 [2] | 1 | 20.62 | Yes |
| 5725-5850 | ac (VHT20) | 5745-5825 | 149-165 [5] | 1 | 20.88 | Yes |
| 5725-5850 | ac (VHT40) | 5755-5795 | 151-159 [2] | 1 | 20.69 | Yes |
| 5725-5850 | ac (VHT80) | 5775 | 155 [1] | 1 | 16.24 | Yes |

Note 1: RF output power specifies that Maximum Conducted Output Power.

Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

Note 3: 802.11ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.

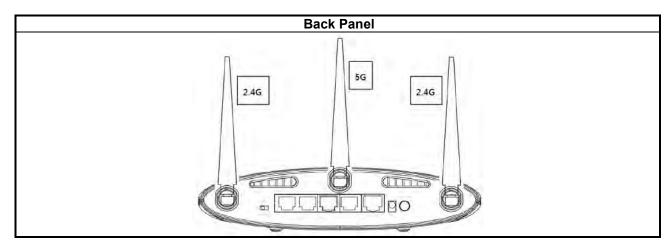
Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)



1.1.3 Antenna Information

| | Antenna Category | | | | |
|-----------|--|--|--|--|--|
| \square | External antenna (dedicated antennas) | | | | |
| | Single power level with corresponding antenna(s). | | | | |
| | Multiple power level and corresponding antenna(s). | | | | |

| Antenna General Information | | | | | |
|--|----------|--------|------|--|--|
| Ant. Port Ant. Cat. Ant. Type Gain (dBi) | | | | | |
| 2 | External | Dipole | 4.70 | | |



1.1.4 Type of EUT

| | Identify EUT | | | | |
|-------------|---|---|--|--|--|
| EU | EUT Serial Number N/A | | | | |
| Pre | sentation of Equipment | Production ; Pre-Production ; Prototype | | | |
| | | Type of EUT | | | |
| \boxtimes | Stand-alone | | | | |
| | Combined (EUT where the radio part is fully integrated within another device) | | | | |
| | Combined Equipment - Brand Name / Model No.: | | | | |
| | Plug-in radio (EUT intended for a variety of host systems) | | | | |
| | Host System - Brand Name / Model No.: | | | | |
| | Other: | | | | |



1.1.5 Test Signal Duty Cycle

| | Operated Mode for Worst Duty Cycle | | | | |
|-------------|--|------|--|--|--|
| | Operated normally mode for worst duty cycle | | | | |
| \boxtimes | Operated test mode for worst duty cycle | | | | |
| | Test Signal Duty Cycle (x)Power Duty Factor [dB] – (10 log 1/x) | | | | |
| \square | 100.00% - IEEE 802.11a | 0.00 | | | |
| \boxtimes | 100.00% - IEEE 802.11n (HT20) | 0.00 | | | |
| \square | 100.00% - IEEE 802.11n (HT40) | 0.00 | | | |
| \square | 100.00% - IEEE 802.11ac (VHT20) | 0.00 | | | |
| \boxtimes | 100.00% - IEEE 802.11ac (VHT40) | 0.00 | | | |
| \boxtimes | 100.00% - IEEE 802.11ac (VHT80) | 0.00 | | | |

1.1.6 EUT Operational Condition

| Supply Voltage | AC mains | DC | System |
|-------------------|--------------------|---------------------|---------|
| Type of DC Source | Internal DC supply | External AC adapter | Battery |



1.2 Accessories and Support Equipment

| Accessories | | | | | | |
|--------------|---|---|------------|-------------------------|--|--|
| | Brand Name | DVE | Model Name | DSA-12PFA-09 FUS 120100 | | |
| AC Adapter 1 | Adapter 1 Power Rating I/P: 100-240V ~ 50/60Hz 0.5A ; O/P: 12V 1A | | | | | |
| | Remark | Level V | | | | |
| | Brand Name | DVE | Model Name | DSA-12PFT-12 FUS 120100 | | |
| AC Adapter 2 | Power Rating | ng I/P: 100-240V ~ 50/60Hz 0.5A; O/P: 12V1A | | | | |
| | Remark | Level VI | | | | |

Reminder: Regarding to more detail and other information, please refer to user manual.

| | Support Equipment- RF Conducted | | | | | | |
|-----|--|------|-------|--|--|--|--|
| No. | No. Equipment Brand Name Model Name | | | | | | |
| 1 | Notebook | DELL | E5540 | | | | |
| 2 | 2 AC Adapter for Notebook DELL HA65NM130 | | | | | | |

| | Support Equipment- AC Conduction | | | | | | |
|---|-------------------------------------|------|-------|--|--|--|--|
| No. | No. Equipment Brand Name Model Name | | | | | | |
| 1 | Notebook | DELL | E5530 | | | | |
| 2 AC Adapter for Notebook DELL LA65NS2-01 | | | | | | | |



1.3 Testing Applied Standards

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

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 789033 D02 v01r02
- FCC KDB 644545 D03 v01
- FCC-14-30A1-UNII
- FCC KDB 662911 D01 v02r01

1.4 Testing Location Information

| | Testing Location | | | | | | |
|--|--|---------|----------------------|-------------------|--------------|--|--|
| \boxtimes | HWA YA ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. | | | | | | |
| | | TEL : | 886-3-327-3456 FAX | : 886-3-327-0973 | | | |
| | | | Test Site Registrati | on Number: 553509 | | | |
| Test Condition Test Site No. Test Engineer Test Environmen | | | | Test Environment | | | |
| | AC Conduction CO | | CO04-HY | Zeus | 22.6°C / 56% | | |
| RF Conducted (For 5150-5250 MHz) | | TH01-HY | lan | 24.6°C / 66% | | | |
| RF Conducted (For 5725-5850 MHz) | | IH06-HY | | Jeremy | 22.3°C / 62% | | |
| | Radiated En | nission | 03CH09-HY | Joe | 24.1°C / 64% | | |



1.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

| Measurement Uncertainty | | | | | |
|------------------------------------|---------------|---------|--|--|--|
| Test Item | Uncertainty | | | | |
| AC power-line conducted emissions | | ±2.3 dB | | | |
| Emission bandwidth, 26dB bandwidth | | ±0.5% | | | |
| RF output power, conducted | | ±0.1 dB | | | |
| Power density, conducted | | ±0.5 dB | | | |
| Unwanted emissions, conducted | 9 – 150 kHz | ±0.4 dB | | | |
| | 0.15 – 30 MHz | ±0.4 dB | | | |
| | 30 – 1000 MHz | ±0.6 dB | | | |
| | 1 – 18 GHz | ±0.5 dB | | | |
| | 18 – 40 GHz | ±0.5 dB | | | |
| | 40 – 200 GHz | N/A | | | |
| All emissions, radiated | 9 – 150 kHz | ±2.5 dB | | | |
| | 0.15 – 30 MHz | ±2.3 dB | | | |
| | 30 – 1000 MHz | ±2.6 dB | | | |
| | 1 – 18 GHz | ±3.6 dB | | | |
| | 18 – 40 GHz | ±3.8 dB | | | |
| | 40 – 200 GHz | N/A | | | |
| Temperature | | ±0.8 °C | | | |
| Humidity | | ±5 % | | | |
| DC and low frequency voltages | | ±0.9% | | | |
| Time | | ±1.4 % | | | |
| Duty Cycle | | ±0.5 % | | | |



2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

| Worst Modulation Used for Conformance Testing | | | | | | |
|---|-----------------------|----------|--------|--|--|--|
| Modulation Mode | Worst Data Rate / MCS | | | | | |
| 11a | 1 | 6-54Mbps | 6 Mbps | | | |
| HT20 | 1 | MCS 0-7 | MCS 0 | | | |
| HT40 | 1 | MCS 0-7 | MCS 0 | | | |
| VHT20 | 1 | MCS 0-8 | MCS 0 | | | |
| VHT40 | 1 | MCS 0-9 | MCS 0 | | | |
| VHT80 | 1 | MCS 0-9 | MCS 0 | | | |

2.2 The Worst Case Power Setting Parameter

| The Worst Case Power Setting Parameter (5150-5250MHz band) | | | | | | | |
|--|-----|-------------------------------|------|-----------|------------|------|------|
| Test Software Version | | | | RTL81 | 9_2.3 | | |
| | | | | Test Free | quency (MH | z) | |
| Modulation Mode | Ντχ | NCB: 20MHz NCB: 40MHz NCB: 80 | | | NCB: 80MHz | | |
| | | 5180 | 5200 | 5240 | 5190 | 5230 | 5210 |
| 11a | 1 | 38 | 36 | 32 | - | - | - |
| HT20 | 1 | 39 | 38 | 33 | - | - | - |
| HT40 | 1 | - | - | - | 39 | 39 | - |
| VHT20 | 1 | 39 | 38 | 33 | - | - | - |
| VHT40 | 1 | - | - | - | 39 | 39 | - |
| VHT80 | 1 | - | - | - | - | - | 39 |

| The Worst Case Power Setting Parameter (5725-5850MHz band) | | | | | | | |
|--|-----|---------------------------|------|-----------|------------|------------|------|
| Test Software Version | | | | RTL81 | 9_2.3 | | |
| | | | | Test Free | quency (MH | z) | |
| Modulation Mode | Ντχ | NCB: 20MHz NCB: 40MHz NCB | | | | NCB: 80MHz | |
| | | 5745 | 5785 | 5825 | 5755 | 5795 | 5775 |
| 11a | 1 | 54 | 63 | 63 | - | - | - |
| HT20 | 1 | 49 | 63 | 63 | - | - | - |
| HT40 | 1 | - | - | - | 48 | 63 | - |
| VHT20 | 1 | 49 | 63 | 63 | - | - | - |
| VHT40 | 1 | - | - | - | | 48 | 63 |
| VHT80 | 1 | - | - | - | - | - | 41 |



2.3 The Worst Case Measurement Configuration

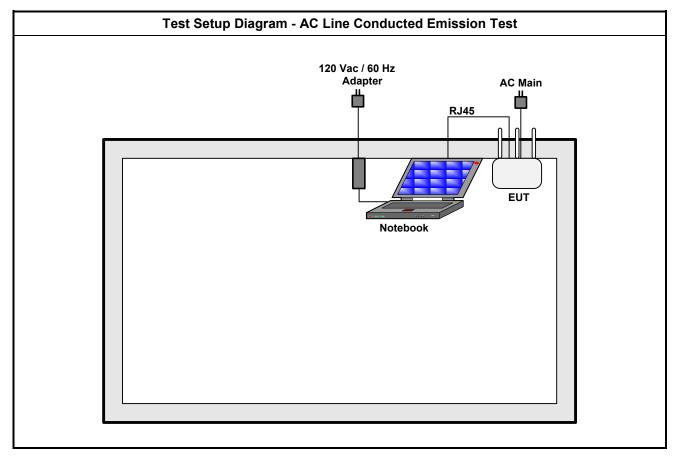
| Th | The Worst Case Mode for Following Conformance Tests | | | | |
|---|---|--|--|--|--|
| Tests Item | Tests Item AC power-line conducted emissions | | | | |
| Condition AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz | | | | | |
| Operating Mode Operating Mode Description | | | | | |
| 1 | 1 AC Power & Radio link + AC Adapter 1 | | | | |
| 2 AC Power & Radio link + AC Adapter 2 | | | | | |
| For operating mode 1 is th | e worst case and it was record in this test report. | | | | |

| Th | The Worst Case Mode for Following Conformance Tests | | | | |
|---|---|--|--|--|--|
| Tests Item | RF Output Power, Peak Power Spectral Density, Emission Bandwidth, Peak Excursion, Transmitter Conducted Unwanted Emissions Transmitter Conducted Bandedge Emissions | | | | |
| Test Condition Conducted measurement at transmit chains | | | | | |
| Modulation Mode | 11a, HT20, HT40, VHT20, VHT40, VHT80 | | | | |

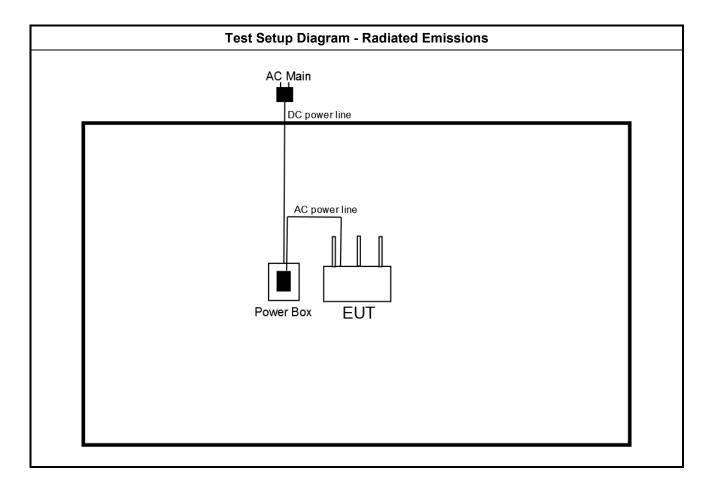
| Th | e Worst Case Mode for Fo | ollowing Conformance Te | sts | | |
|-----------------------------|---|--|-----------------------------|--|--|
| Tests Item | Transmitter Radiated Unwa Transmitter Radiated Band | | | | |
| Test Condition | regardless of spatial multi | antenna assembly (multiple plexing MIMO configuratior antenna gain of each anter |), the radiated test should | | |
| | EUT will be placed in | fixed position. | | | |
| User Position | EUT will be placed in shall be performed on | mobile position and operati le orthogonal plane. | ng multiple positions. EUT | | |
| | EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes. | | | | |
| | 1. AC Power & Radio link + AC Adapter 1 | | | | |
| Operating Mode < 1GHz | 2. AC Power & Radio link | x + AC Adapter 2 | | | |
| | For operating mode 2 is th | e worst case and it was rec | ord in this test report. | | |
| Modulation Mode | 11a, HT20, HT40, VHT20, | VHT40, VHT80 | | | |
| | X Plane | Y Plane | Z Plane | | |
| Orthogonal Planes of EUT | | | | | |
| Worst Planes of EUT | V | | | | |
| Worst Planes of Antenna | | | V | | |



2.4 Test Setup Diagram









Transmitter Test Result 3

3.1 **AC Power-line Conducted Emissions**

3.1.1 **AC Power-line Conducted Emissions Limit**

| AC Power-line Conducted Emissions Limit | | | | | |
|---|------------------|-----------|--|--|--|
| Frequency Emission (MHz) Quasi-Peak Average | | | | | |
| 0.15-0.5 | 66 - 56 * | 56 - 46 * | | | |
| 0.5-5 | 56 | 46 | | | |
| 5-30 60 50 | | | | | |
| Note 1: * Decreases with the logarithm c | of the frequency | | | | |

ecreases with the logarithm of the frequency

3.1.2 Measuring Instruments

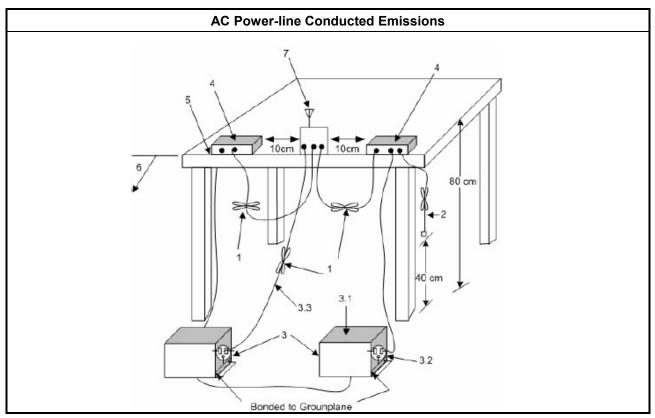
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method

Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



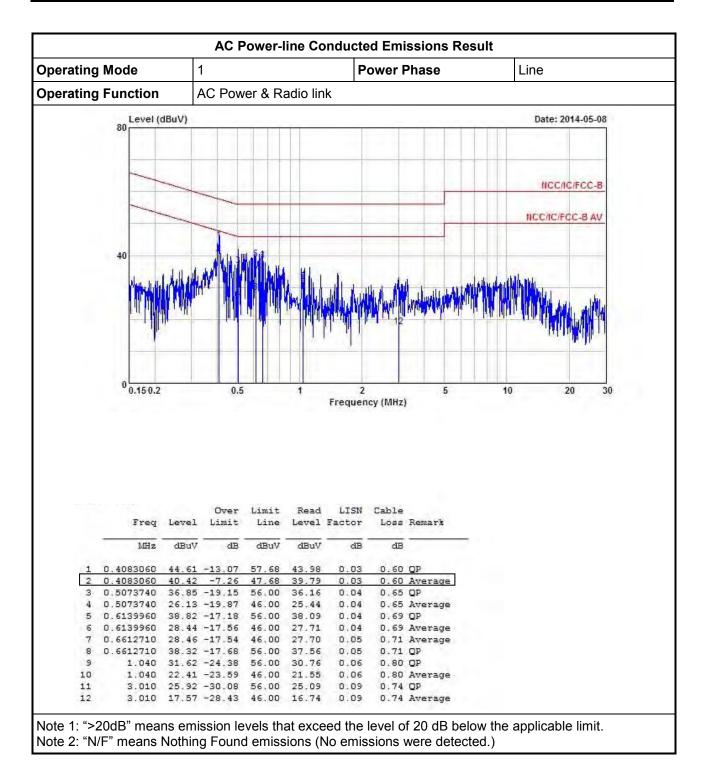


| perating Mode | | | 1 | | | P | Power Phase | | | Neutral | |
|--|---|--|---|---|--|--|---|---|---------------------------------------|---------------|--|
| erating | erating Function | | AC Power & Radio link | | | | | | | | |
| | Level (| dBuV) | Date: 2014-05-08 | | | | | | | | |
| | | | | | | | -510 | | | - | |
| | | | | | | | | | | | |
| | | | | | | | | | | NCC/IC/FCC-B | |
| | - | | | | ++ | | - | | | Contra Table | |
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| | in Li | | | | | | | | | | |
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| | | | | | | | | | | | |
| | 0 0.15 0.2 | | 0.5 | | 1 | 2 | | 5 | 10 | 20 30 | |
| | 0.15 0.2 | | 0.5 | | 1 | 2 Frequen | cy (MHz) | | 10 | 20 30 | |
| | 0 0.15 0.2 | | 0.5 | | 1 | | cy (MHz) | | 10 | 20 30 | |
| | 0 0.15 0.2 | | 0.5 | | 1 | | cy (MHz) | | 10 | 20 30 | |
| | 0 0.15 0.2 | | 0.5 | | 1 | | cy (MHz) | | 10 | 20 30 | |
| | 0 0.15 0.2 | | 0.5 | di | 1 | | cy (MHz) | | 10 | 20 30 | |
| | 0 0.15 0.2 | | 0.5 | | | Frequen | | | 10 | 20 30 | |
| | 0 0.150.2 | Level | 0.5 Over Limit | Limit | Read | | Cable | | 10 | 20 30 | |
| | | | Over | Limit | Read | Frequen LISN Factor | Cable | | 10 | 20 30 | |
| | Freq | Level dBuV | Over Limit dB | Limit Line dBuV | Read Level dBuV | LISN Factor dB | Cable Loss dB | Remark | 10 | 20 30 | |
| | Freq | Level dBuV 35.95 | Over Limit dB -21.85 | Limit Line dBuV 57.80 | Read Level dBuV 35.32 | LISN Factor dB 0.03 | Cable Loss dB 0.60 | Remark | 10 | 20 30 | |
| 2 3 | Freq NHz 0.4024750 0.4024750 0.5100690 | Level dBuV 35.95 23.02 33.27 | Over Limit dB -21.85 -24.78 -22.73 | Limit Line dBuV 57.80 47.80 56.00 | Read Level dBuV 35.32 22.39 32.58 | LISN Factor dB 0.03 0.03 0.04 | Cable Loss dB 0.60 0.60 0.65 | Remark OP Average OP | 10 | 20 30 | |
| 2 3 4 | Freq MHz 0.4024750 0.4024750 0.5100690 0.5100690 | Level dBuV 35.95 23.02 33.27 19.96 | Over Limit dB -21.85 -24.78 -22.73 -26.04 | Limit Line dBuV 57.80 47.80 56.00 46.00 | Read Level dBuV 35.32 22.39 32.58 19.27 | LISN Factor dB 0.03 0.03 0.04 0.04 | Cable Loss dB 0.60 0.65 0.65 | Remark OP Average OP Average | 10 | 20 30 | |
| 2 3 4 5 | Freq MHz 0.4024750 0.4024750 0.5100690 0.5100690 0.7313060 | Level dBuV 35.95 23.02 33.27 19.96 29.14 | Over Limit dB -21.85 -24.78 -22.73 -26.04 -26.86 | Limit Line dBuV 57.80 47.80 56.00 46.00 56.00 | Read Level dBuV 35.32 22.39 32.58 19.27 28.37 | EISN Factor dB 0.03 0.04 0.04 0.04 | Cable Loss dB 0.60 0.65 0.65 0.65 0.73 | Remark QP Average QP Average QP | 10 | 20 30 | |
| 2 3 4 5 6 | Freq MHz 0.4024750 0.4024750 0.5100690 0.5100690 | Level dBuV 35.95 23.02 33.27 19.96 29.14 18.72 | Over Limit dB -21.85 -24.78 -22.73 -26.04 -26.86 -27.28 | Limit Line dBuV 57.80 47.80 56.00 46.00 56.00 46.00 | Read Level 35.32 22.39 32.58 19.27 28.37 17.95 | LISN Factor dB 0.03 0.03 0.04 0.04 0.04 0.04 | Cable Loss dB 0.60 0.65 0.65 0.65 0.73 | Remark OP Average OP Average OP Average | 10 | 20 30 | |
| 2 3 4 5 6 7 | Freq 0.4024750 0.4024750 0.5100690 0.5100690 0.7313060 0.7313060 | Level dBuV 35.95 23.02 33.27 19.96 29.14 18.72 33.67 | Over Limit dB -21.85 -24.78 -22.73 -26.04 -26.86 -27.28 -22.33 | Limit Line dBuV 57.80 47.80 56.00 46.00 56.00 56.00 | Read Level dBuV 35.32 22.39 32.58 19.27 28.37 17.95 32.83 | LISN Factor dB 0.03 0.03 0.04 0.04 0.04 0.04 0.04 0.05 | Cable Loss dB 0.60 0.65 0.65 0.73 0.73 0.73 | Remark OP Average OP Average OP Average | 10 | 20 30 | |
| 2 3 4 5 6 7 | Freq MHz 0.4024750 0.5100690 0.5100690 0.7313060 0.7313060 0.9531270 0.9531270 1.900 | Level dBuV 35.95 23.02 33.27 19.96 29.14 18.72 33.67 17.59 18.18 | Over Limit dB -21.85 -24.78 -22.73 -26.04 -26.86 -27.28 -22.33 -28.41 -27.82 | Limit Line dBuV 57.80 47.80 56.00 46.00 56.00 46.00 46.00 46.00 | Read Level dBuV 35,32 22.39 32.58 19.27 28.37 17.95 32.83 16.75 17.32 | LISN Factor dB 0.03 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 | Cable Loss dB 0.60 0.65 0.65 0.73 0.73 0.79 0.79 | Remark OP Average QP Average OP Average QP | 10 | 20 30 | |
| 2 3 4 5 6 7 8 9 10 | Freq MHz 0.4024750 0.4024750 0.5100690 0.7313060 0.7313060 0.9531270 0.9531270 1.900 1.900 | Level dBuV 35.95 23.02 33.27 19.96 29.14 18.72 33.67 17.59 18.18 28.56 | Over Limit dB -21.85 -24.78 -22.73 -26.04 -26.86 -27.28 -22.33 -28.41 -27.82 -27.44 | Limit Line dBuV 57.80 47.80 56.00 46.00 56.00 46.00 56.00 46.00 56.00 | Read Level dBuV 35.32 22.39 32.58 19.27 28.37 17.95 32.83 16.75 17.32 27.70 | LISN Factor dB 0.03 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.05 | Cable Loss dB 0.60 0.65 0.65 0.73 0.73 0.79 0.79 0.80 0.80 | Remark OP Average OP Average OP Average QP Average Average QP | 10 | 20 30 | |
| 2 3 4 5 6 7 8 9 | Freq NHz 0.4024750 0.4024750 0.5100690 0.7313060 0.9531270 0.9531270 0.9531270 1.900 1.900 3.140 | Level dBuV 35.95 23.02 33.27 19.96 29.14 18.72 33.67 17.59 18.18 28.56 16.48 | Over Limit dB -21.85 -24.78 -22.73 -26.04 -26.86 -27.28 -22.33 -28.41 -27.82 | Limit Line dBuV 57.80 47.80 56.00 46.00 56.00 46.00 56.00 46.00 56.00 46.00 | Read Level dBuV 35.32 22.39 32.58 19.27 28.37 17.95 32.83 16.75 17.32 27.70 15.67 | LISN Factor dB 0.03 0.04 0.04 0.04 0.04 0.04 0.05 0.05 0.05 | Cable Loss dB 0.60 0.65 0.65 0.73 0.73 0.79 0.79 0.80 0.80 | Remark OP Average OP Average OP Average Average OP Average OP | 10 | 20 30 | |

3.1.5 Test Result of AC Power-line Conducted Emissions









3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

| Emission Bandwidth Limit | | | | | | |
|---|--|--|--|--|--|--|
| UNII Devices | | | | | | |
| For the 5.15-5.25 GHz band, N/A | | | | | | |
| For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. | | | | | | |
| For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. | | | | | | |
| ⊠ For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz. | | | | | | |
| 2.2.2 Macauring Instruments | | | | | | |

3.2.2 Measuring Instruments

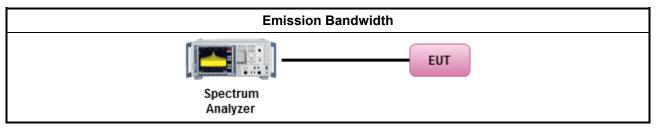
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

| | Test Method | | | | | | | | | |
|-------------|--|---|--|--|--|--|--|--|--|--|
| \boxtimes | For | or the emission bandwidth shall be measured using one of the options below: | | | | | | | | |
| | \boxtimes | Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement. | | | | | | | | |
| | | Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing. | | | | | | | | |
| | | Refer as IC RSS-Gen, clause 6.6 for bandwidth testing. | | | | | | | | |
| \boxtimes | For | conducted measurement. | | | | | | | | |
| | \boxtimes | The EUT supports single transmit chain and measurements performed on this transmit chain port 2. | | | | | | | | |
| | | The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. | | | | | | | | |
| | | The EUT supports multiple transmit chains using options given below: | | | | | | | | |
| | Option 1: Multiple transmit chains measurements need to be performed on one of the transmit chains (antenna outputs). All measurement had be performed on transmit chains (antenna outputs). | | | | | | | | | |
| | | Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains. | | | | | | | | |

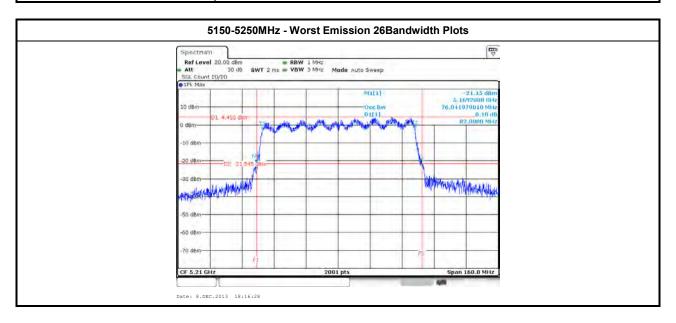


3.2.4 Test Setup



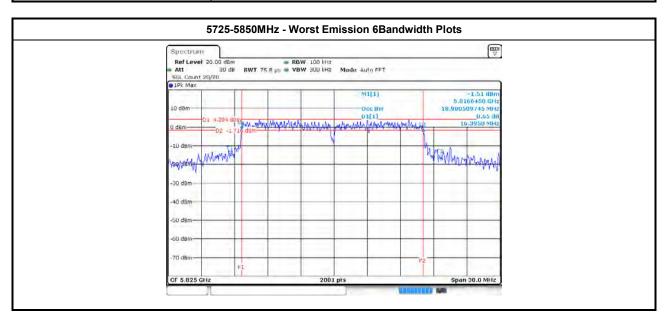
3.2.5 Test Result of Emission Bandwidth

| | UNII Emission Bandwidth Result (5150-5250MHz band) | | | | | | | |
|-----------------|--|-------|--------------------------|----------------|--|--|--|--|
| Condit | tion | | Emission Bandwidth (MHz) | | | | | |
| Madulatian Mada | | Freq. | 99% Bandwidth | 26dB Bandwidth | | | | |
| Modulation Mode | Ντχ | (MHz) | Chain Port 2 | Chain Port 2 | | | | |
| 11a | 1 | 5180 | 16.71 | 21.37 | | | | |
| 11a | 1 | 5200 | 16.61 | 20.42 | | | | |
| 11a | 1 | 5240 | 16.44 | 18.95 | | | | |
| HT20 | 1 | 5180 | 17.86 | 21.15 | | | | |
| HT20 | 1 | 5200 | 17.66 | 20.80 | | | | |
| HT20 | 1 | 5240 | 17.64 | 20.90 | | | | |
| HT40 | 1 | 5190 | 36.74 | 44.12 | | | | |
| HT40 | 1 | 5230 | 36.62 | 44.16 | | | | |
| VHT20 | 1 | 5180 | 17.91 | 21.52 | | | | |
| VHT20 | 1 | 5200 | 17.64 | 20.57 | | | | |
| VHT20 | 1 | 5240 | 17.69 | 20.15 | | | | |
| VHT40 | 1 | 5190 | 36.62 | 44.72 | | | | |
| VHT40 | 1 | 5230 | 36.66 | 43.80 | | | | |
| VHT80 | 1 | 5210 | 76.04 | 82.80 | | | | |
| Resu | ılt | | Corr | plied | | | | |





| | UNII Emission Bandwidth Result (5725-5850MHz band) | | | | | | | | |
|-----------------|--|-------|--------------------------|---------------|--|--|--|--|--|
| Condit | tion | | Emission Bandwidth (MHz) | | | | | | |
| | | Freq. | 99% Bandwidth | 6dB Bandwidth | | | | | |
| Modulation Mode | Ντχ | (MHz) | Chain Port 2 | Chain Port 2 | | | | | |
| 11a | 1 | 5745 | 16.80 | 16.51 | | | | | |
| 11a | 1 | 5785 | 20.40 | 16.50 | | | | | |
| 11a | 1 | 5825 | 18.98 | 16.39 | | | | | |
| HT20 | 1 | 5745 | 17.67 | 17.70 | | | | | |
| HT20 | 1 | 5785 | 19.32 | 17.62 | | | | | |
| HT20 | 1 | 5825 | 18.45 | 17.67 | | | | | |
| HT40 | 1 | 5755 | 36.18 | 36.40 | | | | | |
| HT40 | 1 | 5795 | 42.17 | 36.36 | | | | | |
| VHT20 | 1 | 5745 | 17.67 | 17.71 | | | | | |
| VHT20 | 1 | 5785 | 18.95 | 17.62 | | | | | |
| VHT20 | 1 | 5825 | 18.56 | 17.67 | | | | | |
| VHT40 | 1 | 5755 | 36.14 | 36.48 | | | | | |
| VHT40 | 1 | 5795 | 42.29 | 36.36 | | | | | |
| VHT80 | 1 | 5775 | 75.48 | 75.76 | | | | | |
| Resu | ılt | | Com | plied | | | | | |





3.3 **RF Output Power**

3.3.1 RF Output Power Limit

| | Maximum Conducted Output Power Limit | | | | | | | | | | |
|-------------|--|--|--|--|--|--|--|--|--|--|--|
| UNI | UNII Devices | | | | | | | | | | |
| \square | For the 5.15-5.25 GHz band: | | | | | | | | | | |
| | Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_T > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6). e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm] | | | | | | | | | | |
| | \boxtimes | Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6) | | | | | | | | | |
| | | Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W If G_{TX} > 23 dBi, then P_{Out} = 30 – (G_{TX} – 23). | | | | | | | | | |
| | | Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$. | | | | | | | | | |
| | 250 | the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then = 24 - (G_{TX} - 6). | | | | | | | | | |
| | of 2 | the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser 50 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then = 24 - ($G_{TX} - 6$). | | | | | | | | | |
| \boxtimes | For | the 5.725-5.85 GHz band: | | | | | | | | | |
| | \boxtimes | Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. | | | | | | | | | |
| | | Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. | | | | | | | | | |
| | | aximum conducted output power in dBm, e maximum transmitting antenna directional gain in dBi. | | | | | | | | | |

3.3.2 Measuring Instruments

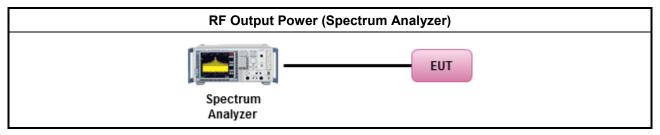
Refer a test equipment and calibration data table in this test report.



3.3.3 Test Procedures

| | | Test Method |
|-------------|-------------|--|
| \boxtimes | Мах | imum Conducted Output Power |
| | [dut | y cycle ≥ 98% or external video / power trigger] |
| | \square | Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging). |
| | | Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed) |
| | duty | cycle < 98% and average over on/off periods with duty factor |
| | | Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging). |
| | | Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed) |
| | Wid | eband RF power meter and average over on/off periods with duty factor |
| | | Refer as FCC KDB 789033, clause E Method PM (using an RF average power meter). |
| \square | For | conducted measurement. |
| | \boxtimes | The EUT supports single transmit chain and measurements performed on this transmit chain port 2. |
| | | The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. |
| | | The EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. |
| | | If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = P _{total} + DG |

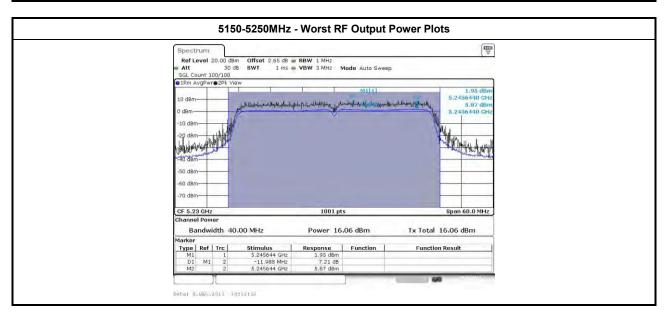
3.3.4 Test Setup





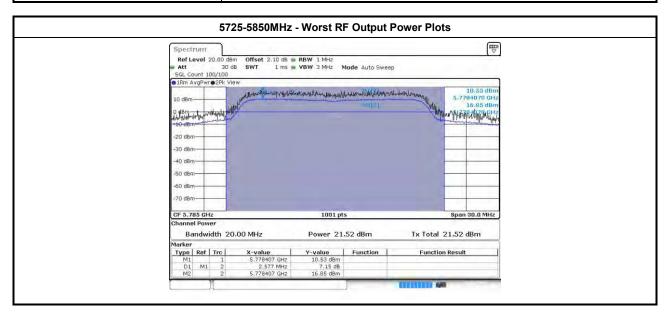
| 3.3.5 | 3.3.5 Test Result of Maximum Conducted Output Power | | | | | | |
|-------|---|--|--|--------------------|--|--|--|
| | Maximum Conducted Output Power (5150-5250MHz band) | | | | | | |
| | | | | Output Power (dBm) | | | |

| | | From | Output Power (dBm) | Antonno Coin | | |
|-----------------|-----|----------------|--------------------|-----------------------|-------------|--|
| Modulation Mode | Ντχ | Freq. (MHz) | Chain Port 2 | Antenna Gain (dBi) | Power Limit | |
| 11a | 1 | 5180 | 14.33 | 4.70 | 30.00 | |
| 11a | 1 | 5200 | 14.34 | 4.70 | 30.00 | |
| 11a | 1 | 5240 | 14.35 | 4.70 | 30.00 | |
| HT20 | 1 | 5180 | 14.76 | 4.70 | 30.00 | |
| HT20 | 1 | 5200 | 14.82 | 4.70 | 30.00 | |
| HT20 | 1 | 5240 | 14.06 | 4.70 | 30.00 | |
| HT40 | 1 | 5190 | 14.60 | 4.70 | 30.00 | |
| HT40 | 1 | 5230 | 16.06 | 4.70 | 30.00 | |
| VHT20 | 1 | 5180 | 14.44 | 4.70 | 30.00 | |
| VHT20 | 1 | 5200 | 14.65 | 4.70 | 30.00 | |
| VHT20 | 1 | 5240 | 13.95 | 4.70 | 30.00 | |
| VHT40 | 1 | 5190 | 14.57 | 4.70 | 30.00 | |
| VHT40 | 1 | 5230 | 15.85 | 4.70 | 30.00 | |
| VHT80 | 1 | 5210 | 15.33 | 4.70 | 30.00 | |
| Resu | ult | | Complie | d | | |





| | | Maxim | um Conducted Output Power (5725-5850MHz ba | and) | |
|-----------------|-----|----------------|--|-------------------------|-------------|
| | | F | Output Power (dBm) | Antonio Osia | |
| Modulation Mode | Ντχ | Freq. (MHz) | Chain Port 2 | — Antenna Gain (dBi) | Power Limit |
| 11a | 1 | 5745 | 20.24 | 4.70 | 30.00 |
| 11a | 1 | 5785 | 21.52 | 4.70 | 30.00 |
| 11a | 1 | 5825 | 20.56 | 4.70 | 30.00 |
| HT20 | 1 | 5745 | 17.78 | 4.70 | 30.00 |
| HT20 | 1 | 5785 | 21.01 | 4.70 | 30.00 |
| HT20 | 1 | 5825 | 20.39 | 4.70 | 30.00 |
| HT40 | 1 | 5755 | 16.93 | 4.70 | 30.00 |
| HT40 | 1 | 5795 | 20.62 | 4.70 | 30.00 |
| VHT20 | 1 | 5745 | 17.93 | 4.70 | 30.00 |
| VHT20 | 1 | 5785 | 20.88 | 4.70 | 30.00 |
| VHT20 | 1 | 5825 | 20.41 | 4.70 | 30.00 |
| VHT40 | 1 | 5755 | 17.37 | 4.70 | 30.00 |
| VHT40 | 1 | 5795 | 20.69 | 4.70 | 30.00 |
| VHT80 | 1 | 5775 | 16.24 | 4.70 | 30.00 |
| Resi | ult | | Complied | | |





3.4 Peak Power Spectral Density

3.4.1 Peak Power Spectral Density Limit

| | Peak Power Spectral Density Limit | | | | | | | | |
|-------------|--|------|--|--|--|--|--|--|--|
| UN | UNII Devices | | | | | | | | |
| \boxtimes | For the 5.15-5.25 GHz band: | | | | | | | | |
| | Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 17 - (G_{TX} - 6)$. | . If | | | | | | | |
| | Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$. | lf | | | | | | | |
| | Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$. | | | | | | | | |
| | | İ, | | | | | | | |
| | For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If G _{TX} > 6 dBi, then PPSD= 11 – (G _{TX} – 6). | | | | | | | | |
| | For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) \leq 11 dBm/MHz. If G _{TX} > 6 dBi, then PPSD= 11 – (G _{TX} – 6). | , | | | | | | | |
| \boxtimes | For the 5.725-5.85 GHz band: | | | | | | | | |
| | Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) \leq 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= 30 – ($G_{TX} - 6$). | f | | | | | | | |
| | Point-to-point systems (P2P): the peak power spectral density (PPSD) \leq 30 dBm/500kHz. | | | | | | | | |
| ром | SD = peak power spectral density that he same method as used to determine the conducted output ver shall be used to determine the power spectral density. And power spectral density in dBm/MHz = the maximum transmitting antenna directional gain in dBi. | | | | | | | | |

3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.



3.4.3 Test Procedures

| | | Test Method |
|-------------|--------------|---|
| \boxtimes | outp func | k power spectral density procedures that the same method as used to determine the conducted ut power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density be measured using below options: |
| | \boxtimes | Refer as FCC KDB 789033, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth |
| | [duty | / cycle ≥ 98% or external video / power trigger] |
| | \boxtimes | Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging). |
| | | Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed) |
| | duty | cycle < 98% and average over on/off periods with duty factor |
| | | Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging). |
| | | Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed) |
| \bowtie | For | conducted measurement. |
| | \boxtimes | The EUT supports single transmit chain and measurements performed on this transmit chain port 2. |
| | | The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. |
| | | The EUT supports multiple transmit chains using options given below: |
| | | Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. |
| | | Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit. |
| | | If multiple transmit chains, EIRP PPSD calculation could be following as methods: PPSD _{total} = PPSD ₁ + PPSD ₂ + + PPSD _n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = PPSD _{total} + DG |
| | | Each individually PPSD plots refer as test report clause 3.3.5 with each individually PPSD plots. |

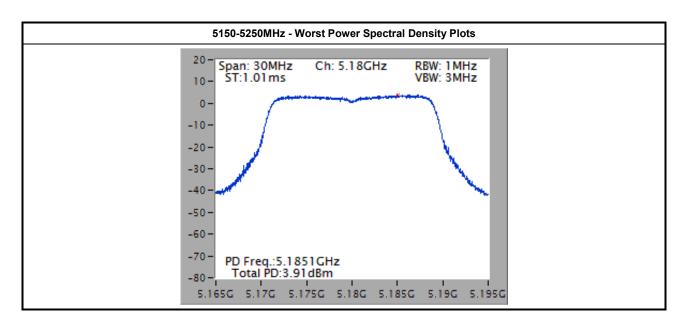
3.4.4 Test Setup

| Power Spectral Density | |
|------------------------|--|
| EUT | |
| Spectrum Analyzer | |



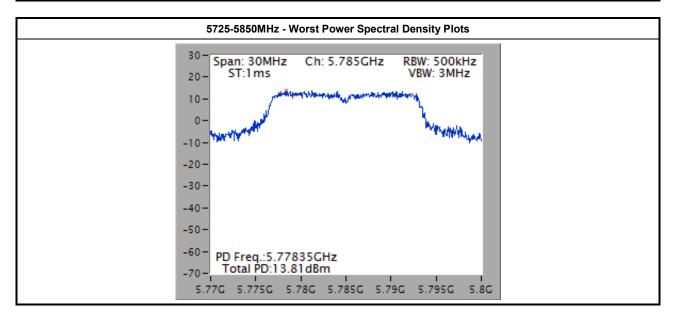
| | | Peak P | ower Spectral Density Result (| 5150-5250MHz band) | |
|-----------------|-----|----------------|--------------------------------------|--------------------|--------------------|
| Modulation Mode | Ντχ | Freq. (MHz) | Peak Power Spectral Density (dBm) | PSD Limit | Antenna Gain (dBi) |
| 11a | 1 | 5180 | 3.70 | 17.00 | 4.70 |
| 11a | 1 | 5200 | 3.71 | 17.00 | 4.70 |
| 11a | 1 | 5240 | 3.47 | 17.00 | 4.70 |
| HT20 | 1 | 5180 | 3.91 | 17.00 | 4.70 |
| HT20 | 1 | 5200 | 3.78 | 17.00 | 4.70 |
| HT20 | 1 | 5240 | 3.03 | 17.00 | 4.70 |
| HT40 | 1 | 5190 | 0.57 | 17.00 | 4.70 |
| HT40 | 1 | 5230 | 1.95 | 17.00 | 4.70 |
| VHT20 | 1 | 5180 | 3.45 | 17.00 | 4.70 |
| VHT20 | 1 | 5200 | 3.67 | 17.00 | 4.70 |
| VHT20 | 1 | 5240 | 3.11 | 17.00 | 4.70 |
| VHT40 | 1 | 5190 | 0.49 | 17.00 | 4.70 |
| VHT40 | 1 | 5230 | 1.93 | 17.00 | 4.70 |
| VHT80 | 1 | 5210 | -0.68 | 17.00 | 4.70 |
| Resu | ılt | | · | Complied | • |

3.4.5 Test Result of Peak Power Spectral Density





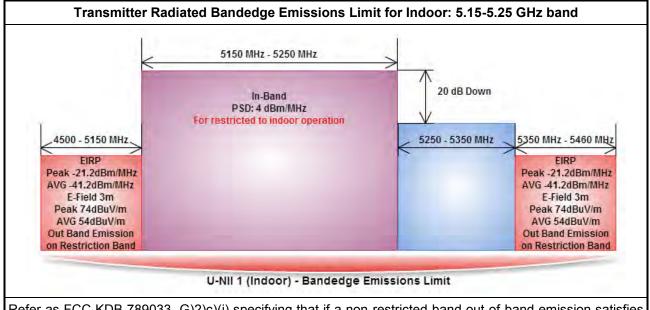
| | | Peak P | ower Spectral Density Result (| 5725-5850MHz band) | |
|-----------------|-----|----------------|--|--------------------|--------------------|
| Modulation Mode | Ντχ | Freq. (MHz) | Peak Power Spectral Density (dBm/500kHz) | PSD Limit | Antenna Gain (dBi) |
| 11a | 1 | 5745 | 11.87 | 30.00 | 4.70 |
| 11a | 1 | 5785 | 13.81 | 30.00 | 4.70 |
| 11a | 1 | 5825 | 13.50 | 30.00 | 4.70 |
| HT20 | 1 | 5745 | 10.18 | 30.00 | 4.70 |
| HT20 | 1 | 5785 | 13.46 | 30.00 | 4.70 |
| HT20 | 1 | 5825 | 13.12 | 30.00 | 4.70 |
| HT40 | 1 | 5755 | 5.85 | 30.00 | 4.70 |
| HT40 | 1 | 5795 | 10.14 | 30.00 | 4.70 |
| VHT20 | 1 | 5745 | 9.87 | 30.00 | 4.70 |
| VHT20 | 1 | 5785 | 13.61 | 30.00 | 4.70 |
| VHT20 | 1 | 5825 | 13.19 | 30.00 | 4.70 |
| VHT40 | 1 | 5755 | 6.71 | 30.00 | 4.70 |
| VHT40 | 1 | 5795 | 9.52 | 30.00 | 4.70 |
| VHT80 | 1 | 5775 | 2.69 | 30.00 | 4.70 |
| Resu | ult | | · | Complied | |



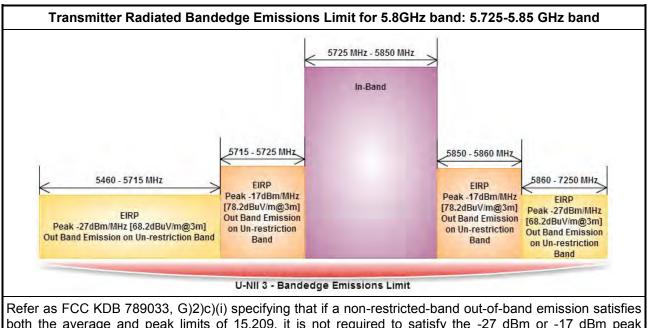


3.5 Transmitter Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit



Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands are not more stringent than those in the restricted bands.



Refer as FCC KDB 789033, G)2)c)(i) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands are not more stringent than those in the restricted bands.

3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

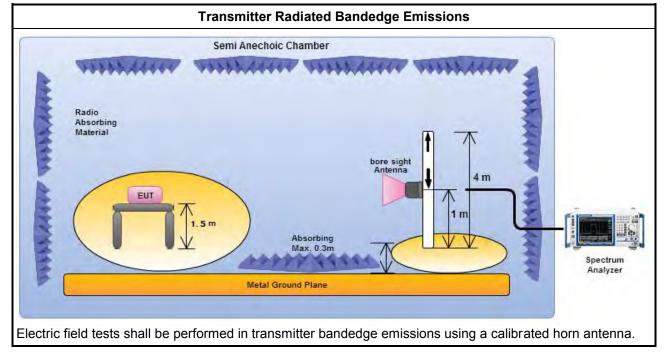


3.5.3 Test Procedures

| | Test Method |
|-------------|---|
| \boxtimes | The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor]. |
| | Refer as ANSI C63.10, clause 6.10 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. |
| | If EUT operate in adjacent contiguous bands, bandedge testing performed at the lowest frequency channel at lower-band and highest frequency channel at higher-band. Transmitter in-band emissions will consist of adjacent contiguous bands (e.g., IEEE 802.11ac VHT160 The lowest frequency channel at lower-band and highest frequency channel at higher-band in-band emissions will consist of two adjacent contiguous bands.) |
| | Operating in 5.15-5.25 GHz band (lower-band) and 5.25-5.35 GHz band (higher-band). |
| | Operating in 5.47-5.725 GHz band (lower-band) and 5.725-5.85 GHz band (higher-band). |
| | If EUT operate in individual non-contiguous bands, bandedge testing performed at the lowest frequency channel and highest frequency channel within lower-band and higher-band. (e.g., (e.g., IEEE 802.11ac VHT160) |
| | Operating in 5.25-5.35 GHz band (lower-band) and 5.47-5.725 GHz band (higher-band). |
| | Operating in 5.15-5.25 GHz band (lower-band) and 5.725-5.85 GHz band (higher-band). |
| \boxtimes | For the transmitter unwanted emissions shall be measured using following options below: |
| | Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands. |
| | Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands. |
| | Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging). |
| | Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW). |
| | ⊠ Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW). VBW \ge 1/T, where T is pulse time. |
| | Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. |
| | Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit. |
| | Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit. |
| \square | For the transmitter bandedge emissions shall be measured using following options below: |
| | Refer as FCC KDB 789033, clause G)3)d) for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz). |
| | Refer as ANSI C63.10, clause 6.10 for band-edge testing. |
| | Refer as ANSI C63.10, clause 6.10.6.2 for marker-delta method for band-edge measurements. |
| \square | For radiated measurement, refer as ANSI C63.10, clause 6.6. Test distance is 3m. |
| | Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). Measurements in the bandedge are typically made at a closer distance 3m, because the instrumentation noise floor is typically close to the radiated emission limit. |



3.5.4 Test Setup



3.5.5 Transmitter Radiated Bandedge Emissions (with Antenna)

| Modulation Mode | N _{TX} | Freq. (MHz) | Measure Distance (m) | Freq. (MHz) PK | Level (dBuV/m) PK | Limit (dBuV/m) PK | Freq. (MHz) AV | Level (dBuV/m) AV | Limit (dBuV/m) AV | Pol. |
|--------------------|-----------------|----------------|----------------------------|----------------------|-------------------------|-------------------------|----------------------|-------------------------|-------------------------|------|
| 11a | 1 | 5180 | 3 | 5146.20 | 59.32 | 74 | 5106.40 | 47.62 | 54 | V |
| 11a | 1 | 5240 | 3 | 5365.20 | 59.89 | 74 | 5393.40 | 49.99 | 54 | V |
| HT20 | 1 | 5180 | 3 | 5140.20 | 59.99 | 74 | 5105.20 | 47.37 | 54 | V |
| HT20 | 1 | 5240 | 3 | 5363.400 | 60.46 | 74 | 5365.80 | 49.57 | 54 | V |
| HT40 | 1 | 5190 | 3 | 5113.860 | 59.93 | 74 | 5149.94 | 47.29 | 54 | V |
| HT40 | 1 | 5230 | 3 | 5375.40 | 58.90 | 74 | 5364.00 | 48.34 | 54 | V |
| VHT20 | 1 | 5180 | 3 | 5120.80 | 59.63 | 74 | 5104.60 | 47.39 | 54 | V |
| VHT20 | 1 | 5240 | 3 | 5367.60 | 59.50 | 74 | 5365.20 | 49.45 | 54 | V |
| VHT40 | 1 | 5190 | 3 | 5111.88 | 58.42 | 74 | 5147.74 | 47.27 | 54 | V |
| VHT40 | 1 | 5230 | 3 | 5353.80 | 59.18 | 74 | 5376.00 | 48.35 | 54 | V |
| VHT80 | 1 | 5210 | 3 | 5399.40 | 59.42 | 74 | 5397.60 | 47.76 | 54 | V |



| Modulation Mode | Ντχ | Freq. (MHz) | Measure Distance (m) | Freq. (MHz) PK | Level (dBuV/m) PK | Limit (dBuV/m) PK | Pol. |
|--------------------|-----|----------------|----------------------------|-------------------|-------------------------|-------------------------|------|
| 11a | 1 | 5745 | 3 | 5713.84 | 66.13 | 68.2 | V |
| 11a | 1 | 5745 | 3 | 5724.97 | 76.55 | 78.2 | V |
| 11a | 1 | 5825 | 3 | 5860.10 | 64.89 | 68.2 | V |
| 11a | 1 | 5825 | 3 | 5850.70 | 73.24 | 78.2 | V |
| HT20 | 1 | 5745 | 3 | 5714.68 | 63.34 | 68.2 | V |
| HT20 | 1 | 5745 | 3 | 5724.34 | 74.99 | 78.2 | V |
| HT20 | 1 | 5825 | 3 | 5862.67 | 66.17 | 68.2 | V |
| HT20 | 1 | 5825 | 3 | 5850.00 | 75.64 | 78.2 | V |
| HT40 | 1 | 5755 | 3 | 5714.48 | 66.26 | 68.2 | V |
| HT40 | 1 | 5755 | 3 | 5723.58 | 70.78 | 78.2 | V |
| HT40 | 1 | 5795 | 3 | 5861.50 | 66.59 | 68.2 | V |
| HT40 | 1 | 5795 | 3 | 5850.10 | 68.56 | 78.2 | V |
| VHT20 | 1 | 5745 | 3 | 5713.00 | 62.37 | 68.2 | V |
| VHT20 | 1 | 5745 | 3 | 5724.34 | 74.10 | 78.2 | V |
| VHT20 | 1 | 5825 | 3 | 5860.99 | 67.03 | 68.2 | V |
| VHT20 | 1 | 5825 | 3 | 5850.00 | 7531 | 78.2 | V |
| VHT40 | 1 | 5755 | 3 | 5711.62 | 67.11 | 68.2 | V |
| VHT40 | 1 | 5755 | 3 | 5723.58 | 71.54 | 78.2 | V |
| VHT40 | 1 | 5795 | 3 | 5861.50 | 65.49 | 68.2 | V |
| VHT40 | 1 | 5795 | 3 | 5850.10 | 70.06 | 78.2 | V |
| VHT80 | 1 | 5775 | 3 | 5861.68 | 61.21 | 68.2 | V |
| VHT80 | 1 | 5775 | 3 | 5850.00 | 61.78 | 78.2 | V |



3.6 Transmitter Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

| Unwanted emiss | sions below 1 GHz and re | stricted band emissions a | bove 1GHz limit |
|-----------------------|--------------------------|---------------------------|----------------------|
| Frequency Range (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490 | 2400/F(kHz) | 48.5 - 13.8 | 300 |
| 0.490~1.705 | 24000/F(kHz) | 33.8 - 23 | 30 |
| 1.705~30.0 | 30 | 29 | 30 |
| 30~88 | 100 | 40 | 3 |
| 88~216 | 150 | 43.5 | 3 |
| 216~960 | 200 | 46 | 3 |
| Above 960 | 500 | 54 | 3 |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

| | Un-restricted band emissions above 1GHz Limit |
|-------------------------------------|--|
| Operating Band | Limit |
| 5.15 - 5.25 GHz | e.i.r.p27 dBm [68.2 dBuV/m@3m] |
| 5.25 - 5.35 GHz | e.i.r.p27 dBm [68.2 dBuV/m@3m] |
| 5.47 - 5.725 GHz | e.i.r.p27 dBm [68.2 dBuV/m@3m] |
| 5.725 - 5.85 GHz | 5.715 5.725 GHz: e.i.r.p17 dBm [78.2 dBuV/m@3m] 5.85 5.86 GHz: e.i.r.p17 dBm [78.2 dBuV/m@3m] Other un-restricted band: e.i.r.p27 dBm [68.2 dBuV/m@3m] |
| performed in the need in the needed | y be performed at a distance other than the limit distance provided they are not ear field and the emissions to be measured can be detected by the measuremen performing measurements at a distance other than that specified, the results sha the specified distance using an extrapolation factor of 20 dB/decade (inverse of |

linear distance for field-strength measurements, inverse of linear distance-squared for power-density

3.6.2 Measuring Instruments

measurements).

Refer a test equipment and calibration data table in this test report.

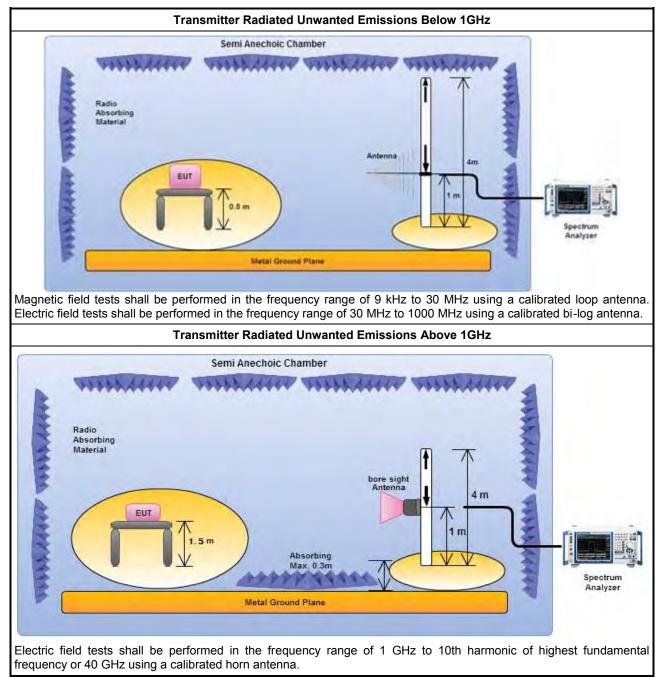


3.6.3 Test Procedures

| | | Test Method |
|-------------|---|--|
| | perfe equi abov are i be e dista | isurements may be performed at a distance other than the limit distance provided they are not ormed in the near field and the emissions to be measured can be detected by the measurement ipment. Measurements shall not be performed at a distance greater than 30 m for frequencies ve 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less impractical. When performing measurements at a distance other than that specified, the results shall extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear ance for field-strength measurements, inverse of linear distance-squared for power-density asurements). |
| \boxtimes | The | average emission levels shall be measured in [duty cycle \geq 98 or duty factor]. |
| \square | For | the transmitter unwanted emissions shall be measured using following options below: |
| | \boxtimes | Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands. |
| | \square | Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands. |
| | | Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging). |
| | | Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW). |
| | | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW \geq 1/T, where T is pulse time. |
| | | Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. |
| | | Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit. |
| | | Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit. |
| \boxtimes | For | radiated measurement. |
| | \boxtimes | Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m. |
| | \boxtimes | Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m. |
| | \boxtimes | Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. For 1 GHz to 5 GHz, test distance is 3m; For 5 GHz to 40 GHz, test distance is 3m. |
| \square | The | any unwanted emissions level shall not exceed the fundamental emission level. |
| \bowtie | | implitude of spurious emissions that are attenuated by more than 20 dB below the permissible value no need to be reported. |



3.6.4 Test Setup



3.6.5 Transmitter Radiated Unwanted Emissions-with Antenna (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

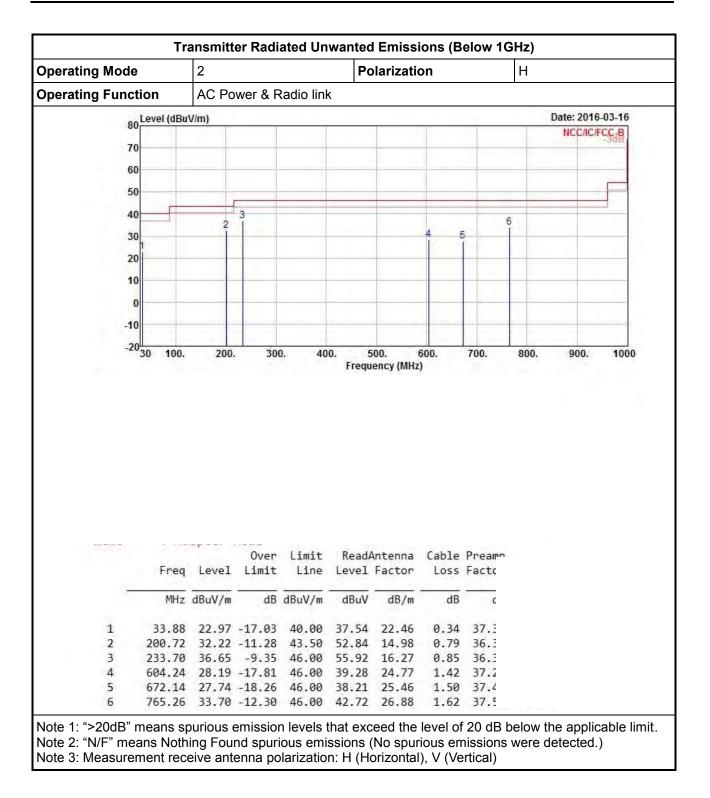


| Operating Mode |) | 2 | | | Po | olarizati | on | | V | | |
|-----------------|--|--|------------------------------|---|--|--|---|---|------|---------|------------|
| Operating Funct | tion | AC Po | wer & F | Radio link | ς | | | | | | |
| | OLEVEI (dBu | V/m) | | | | v | | | | Date: 2 | 2016-03-16 |
| | | | | | | | | | | NCC | C/IC/FCC B |
| 7 | 0 | | | | | | | | | | |
| 6 | 0 | | | | | | | | _ | | |
| 5 | 0 | | | | | | | | _ | | |
| | - | 1 | - | | | | | - | | | |
| 4 | 01 | | | | | 4 | 5 | 6 | | | |
| 3 | 0 | 3 | | | | Ĩ | 1 | - | | | |
| 2 | 0 2 | 2000 B | | | | | - | | | _ | |
| 1 | 0 | | | | | | | | | | |
| | 0 | | _ | | | | | | | | |
| 0 | 0 | | | | | | 1 | 1 | | | |
| | 0 | | | | - | | - | - | | | |
| -1 | ~ I | | | | | | | | | | |
| -1 -2 | | 200 | . 30 | 0. 40 | | 500. iency (MHz | 600. | 700. | 800. | 90 | 00. 100 |
| | 0 | 200 | . 30 | 0. 40 | | | | 700. | 800. | 90 | 0. 100 |
| | 030 100. | | Over Limit | Limit | Frequ Read/ | |) | Preamo | 800. | 90 | 10. 100 |
| | 0 <mark>30 100.</mark> Freq | | Over Limit | Limit | Frequ Read/ | iency (MHz Antenna |) Cable | Preamo | 800. | 90 | 10. 100 |
| -2 | 030 100. Freq MHz | Level dBuV/m | Over Limit dB | Limit Line dBuV/m | Frequ Read/ Level dBuV | Antenna Factor dB/m | Cable Loss dB | Preamo Fact | 800. | 90 | 10. 100 |
| -2 | 030 100. Freq MHz 33.88 | Level dBuV/m 36.66 | Over Limit dB -3.34 | Limit Line dBuV/m 40.00 | Frequ Read/ Level dBuV 51.23 | Antenna Factor dB/m 22.46 | Cable Loss dB 0.34 | Preamp Fact | 800. | 90 | 10. 100 |
| -2 | 030 100. Freq MHz 33.88 117.30 | Level dBuV/m 36.66 17.74 | Over Limit dB | Limit Line dBuV/m 40.00 43.50 | Read/ Level dBuV 51.23 37.27 | Antenna Factor dB/m | Cable Loss dB | Preamp Fact 37. | 800. | 90 | 10. 100 |
| -2 | 030 100. Freq MHz 33.88 117.30 200.72 | Level dBuV/m 36.66 17.74 24.58 | Over Limit | Limit Line dBuV/m 40.00 43.50 43.50 | Frequ Read/ Level dBuV 51.23 37.27 45.20 | Antenna Factor dB/m 22.46 16.63 | Cable Loss dB 0.34 0.59 | Preamo Fact 37. 36. 36. | 800. | 90 | 10. 100 |
| -2 | 030 100. Freq MHz 33.88 117.30 200.72 544.10 596.48 | Level dBuV/m 36.66 17.74 24.58 31.33 32.01 | Over Limit | Limit Line dBuV/m 40.00 43.50 43.50 43.50 | Frequ Read/ Level dBuV 51.23 37.27 45.20 43.36 43.20 | Antenna Factor dB/m 22.46 16.63 14.98 23.74 24.66 | Cable Loss dB 0.34 0.59 0.79 | Preamo Fact 37. 36. 36. 37. 37. | 800. | 90 | 10. 100 |

3.6.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

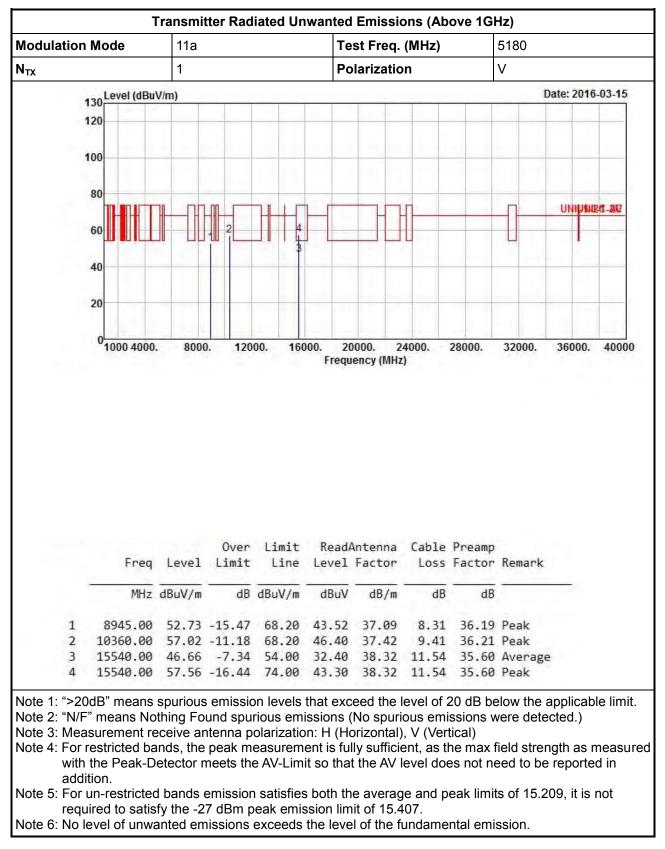






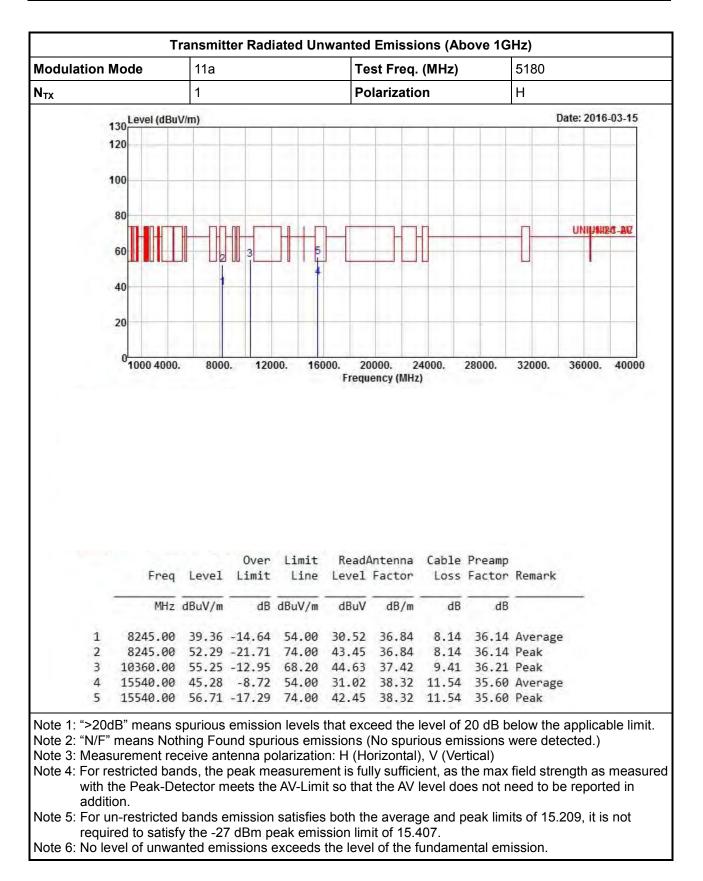


3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5150-5250MHz

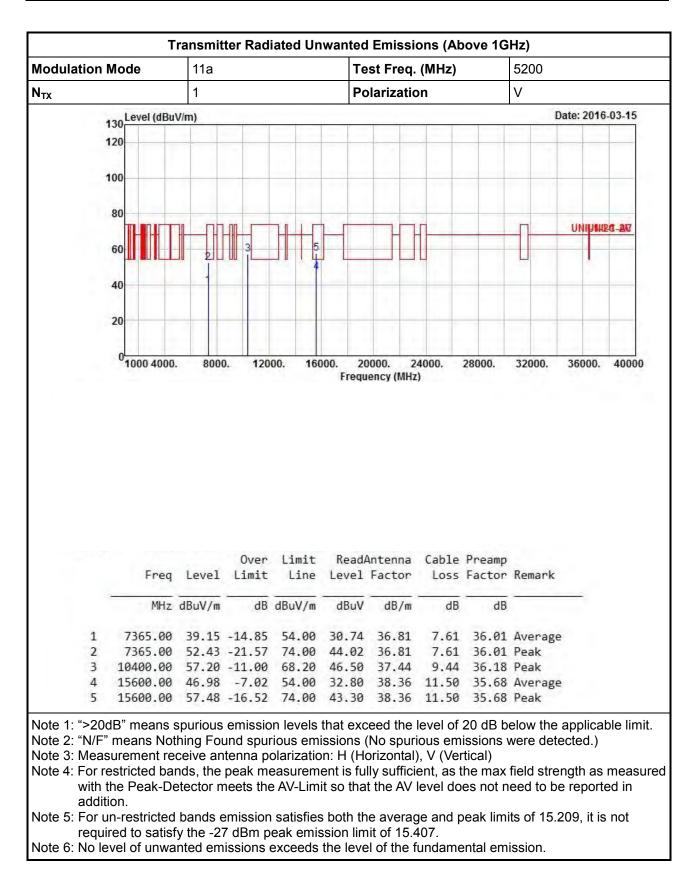




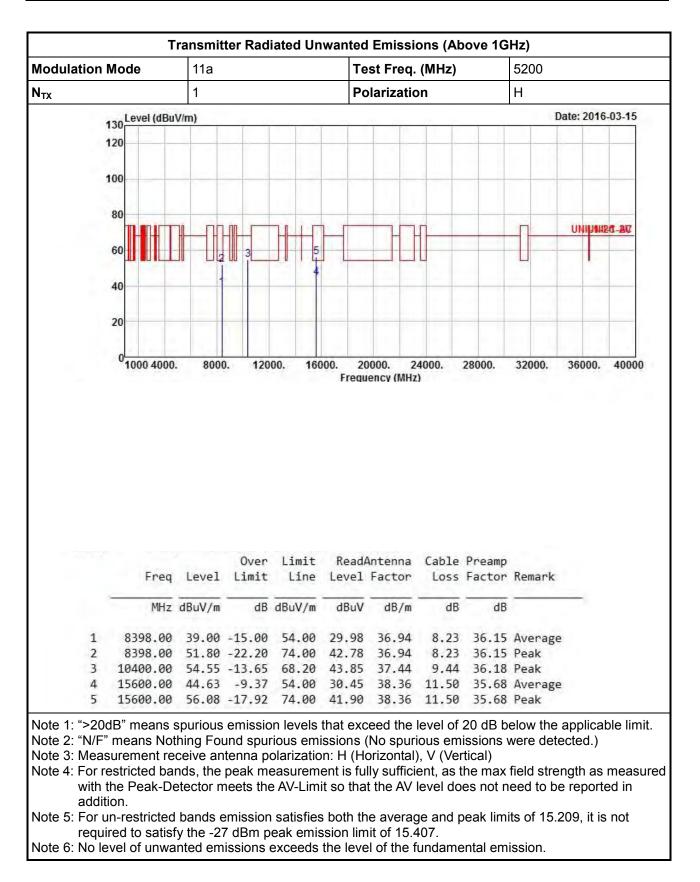






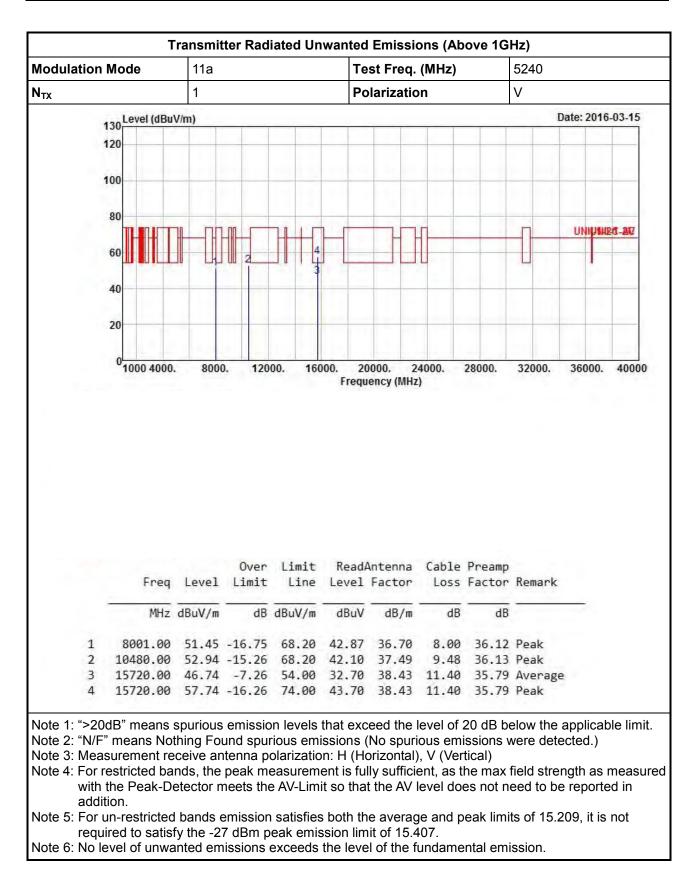




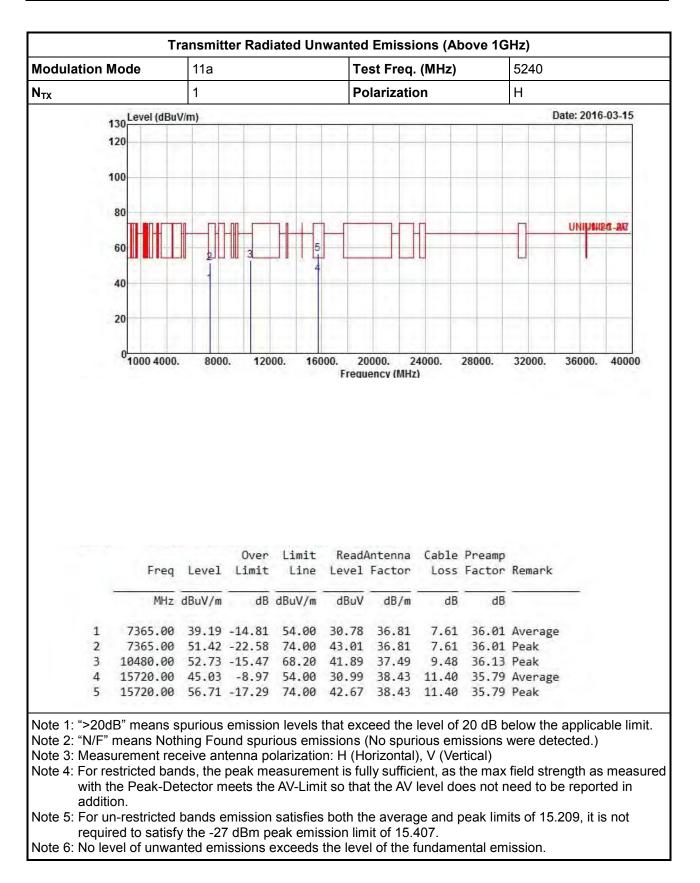




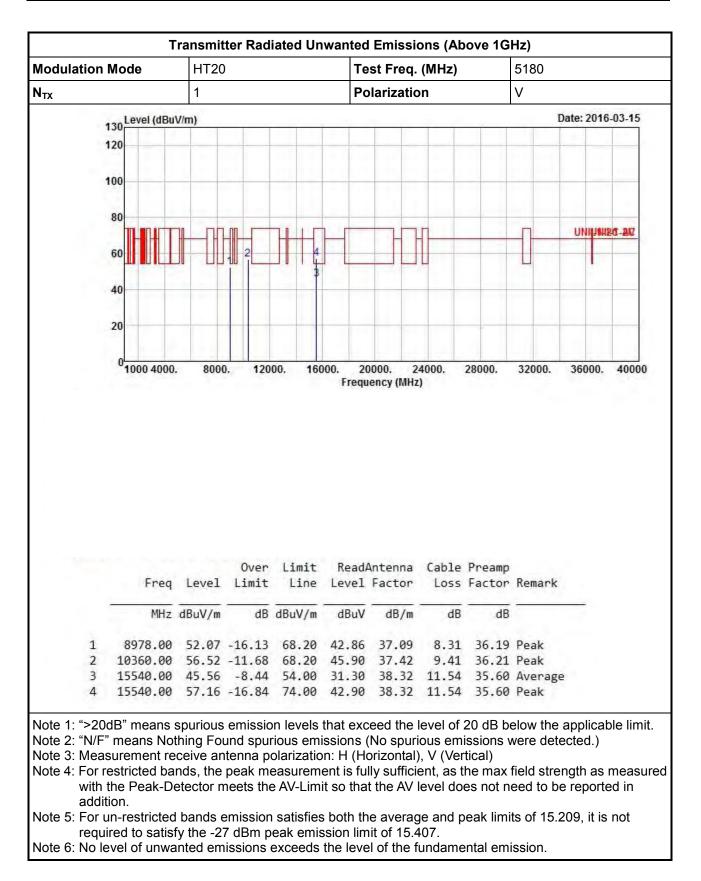






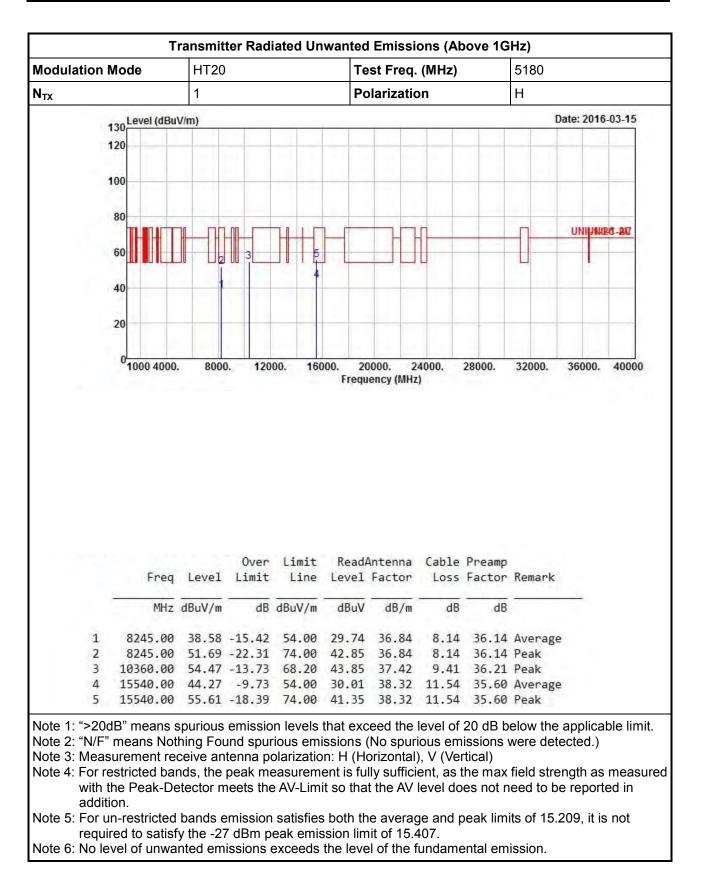




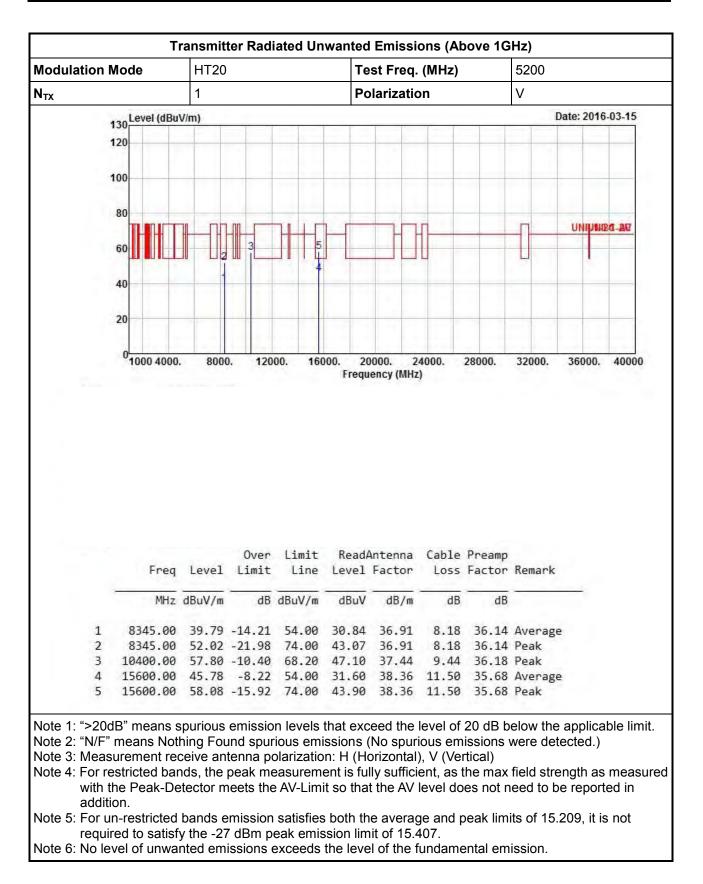




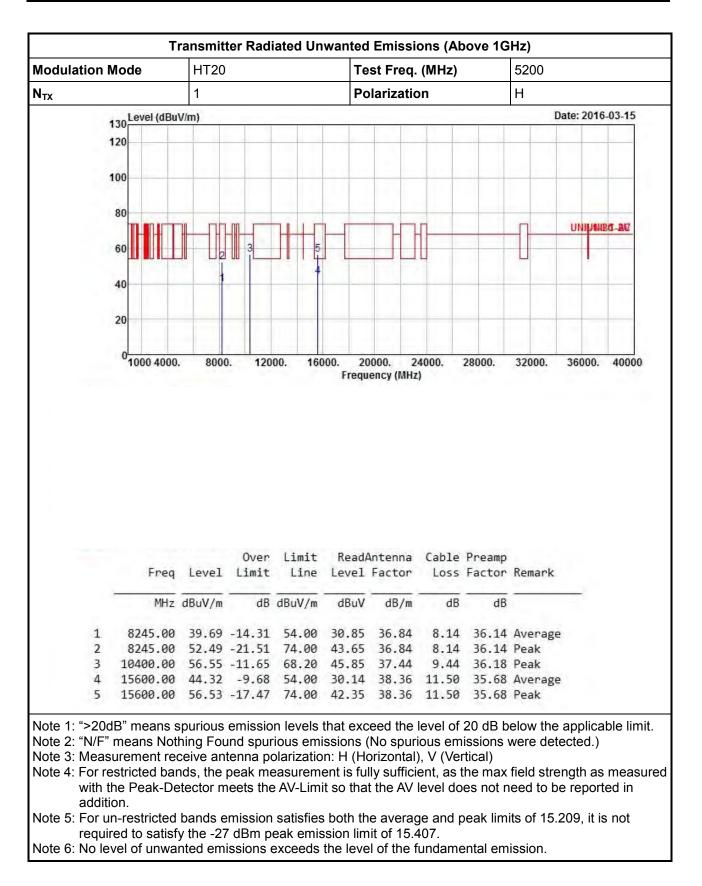




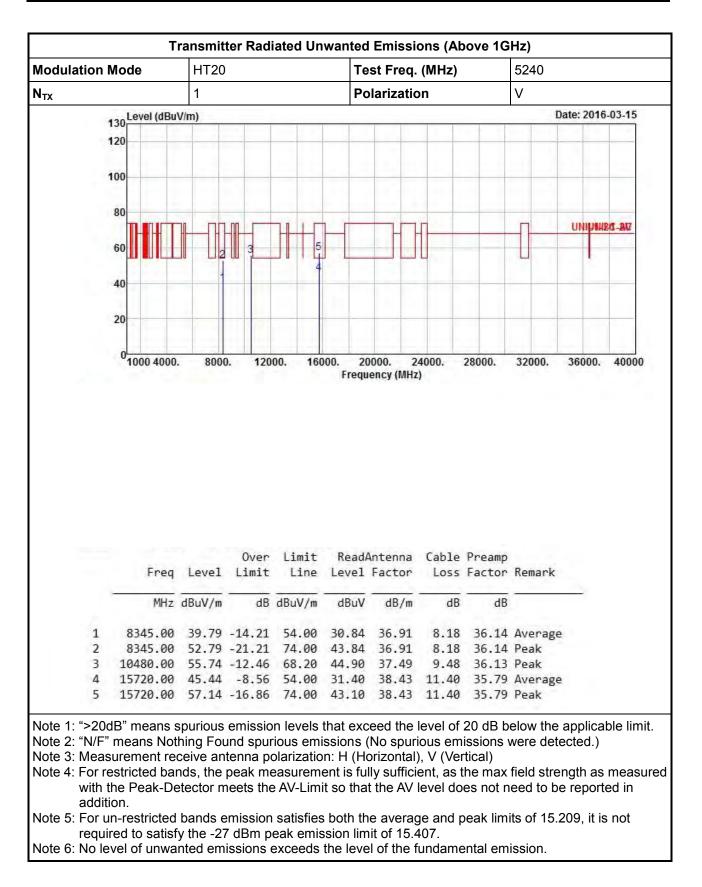




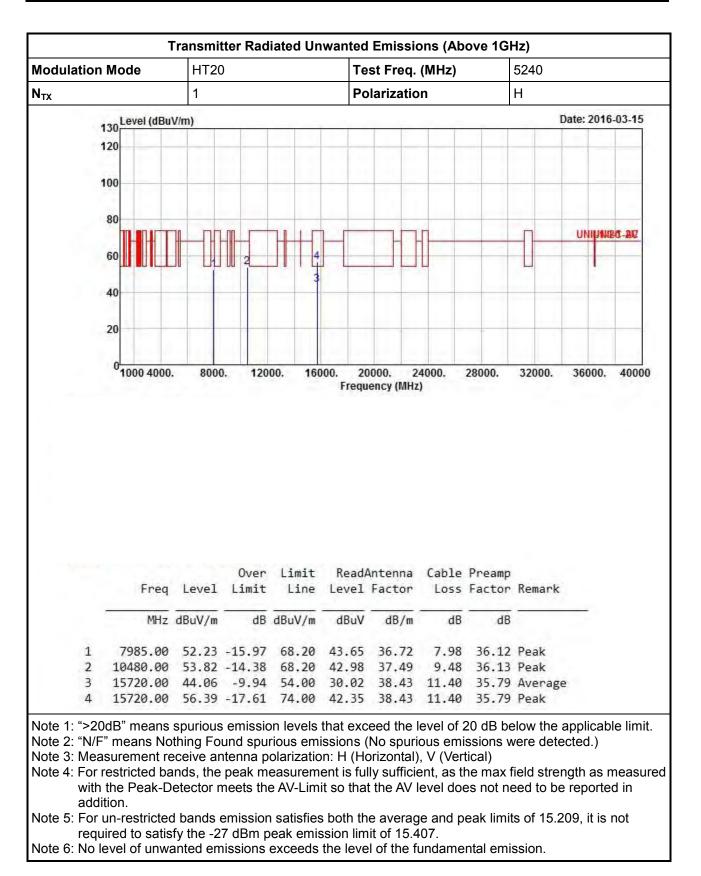






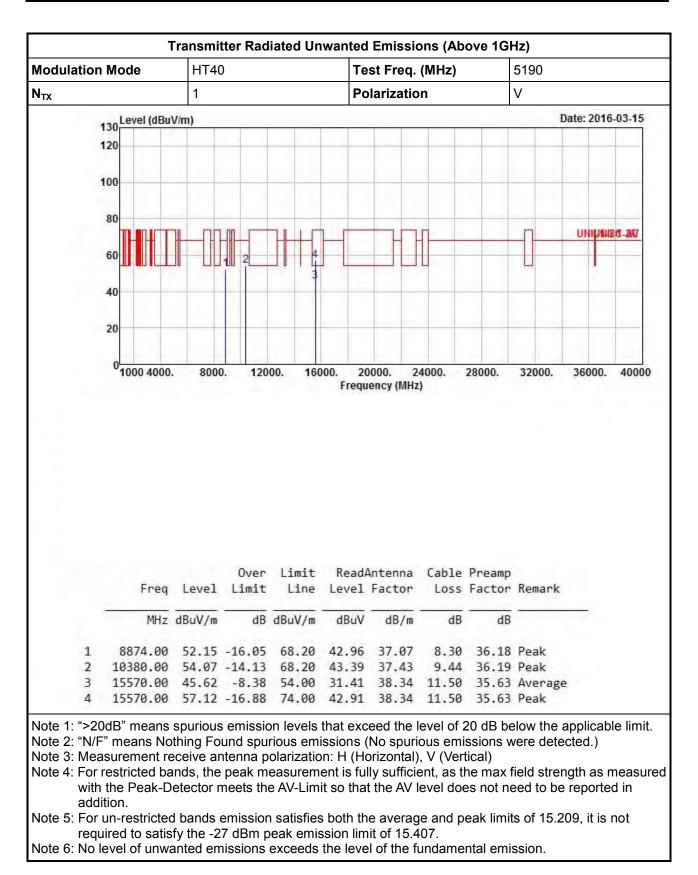






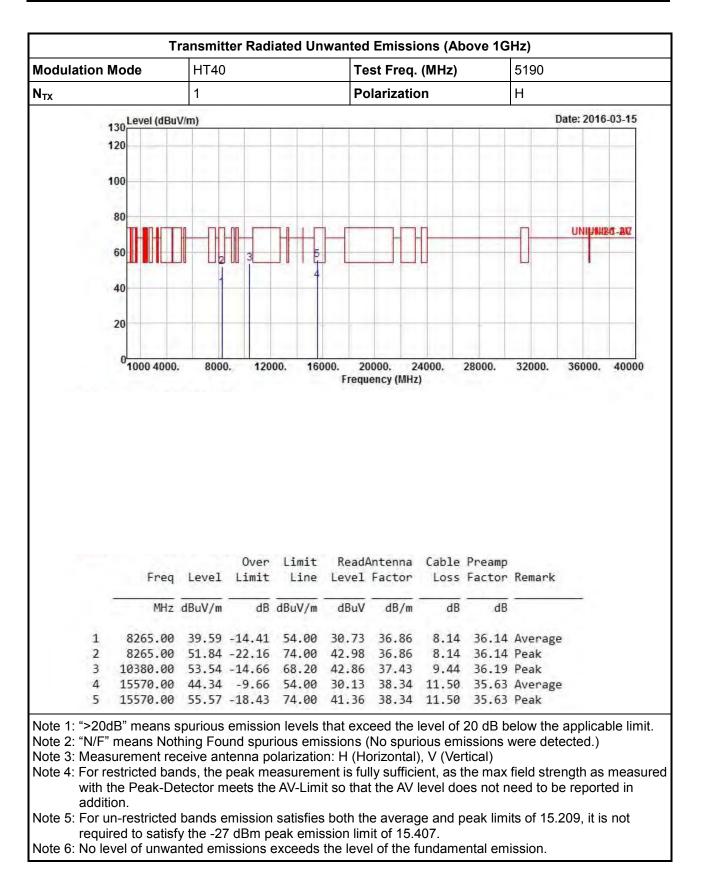




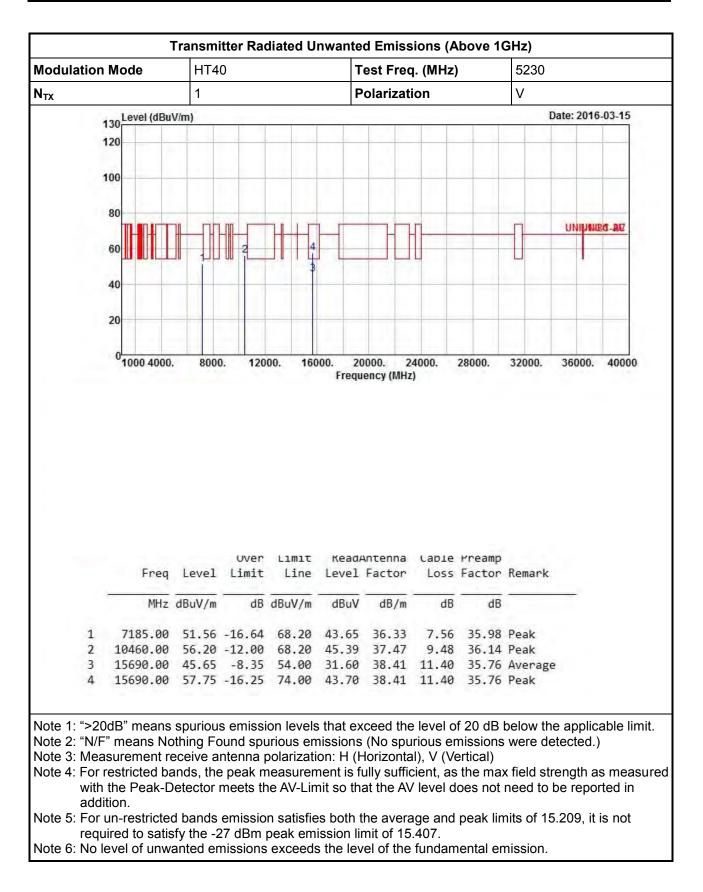






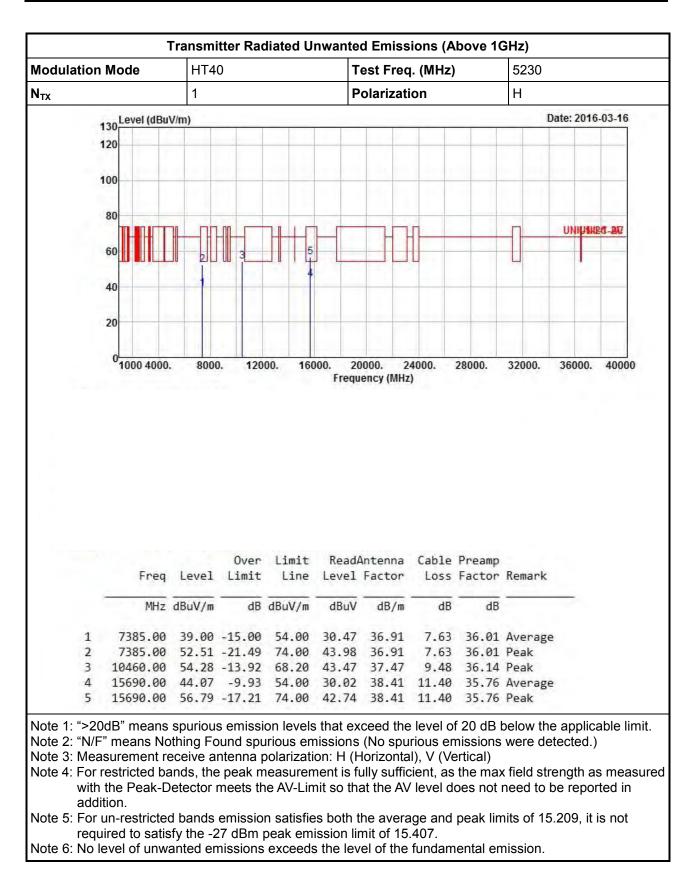




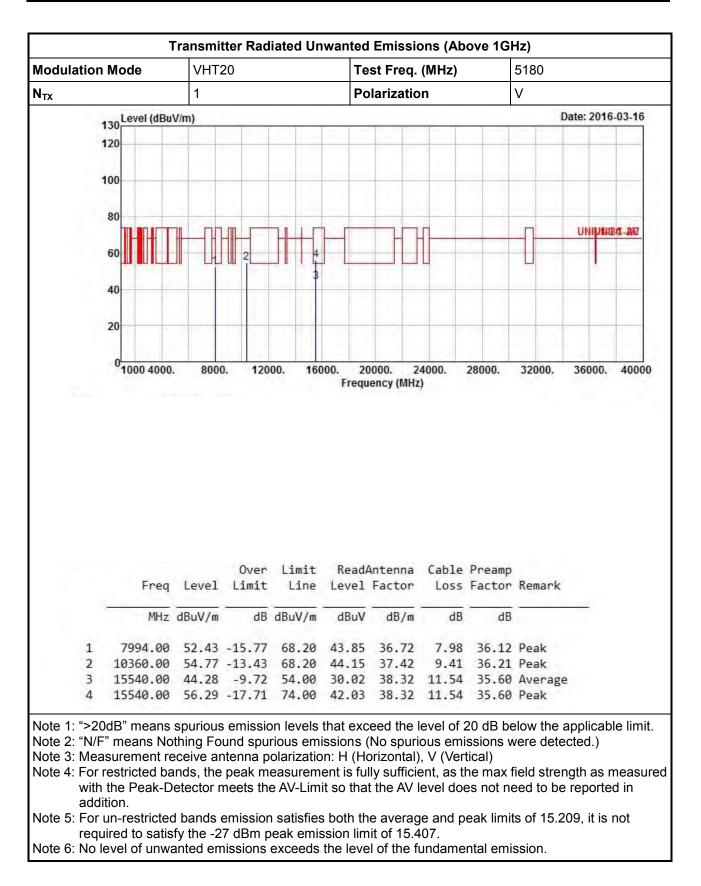




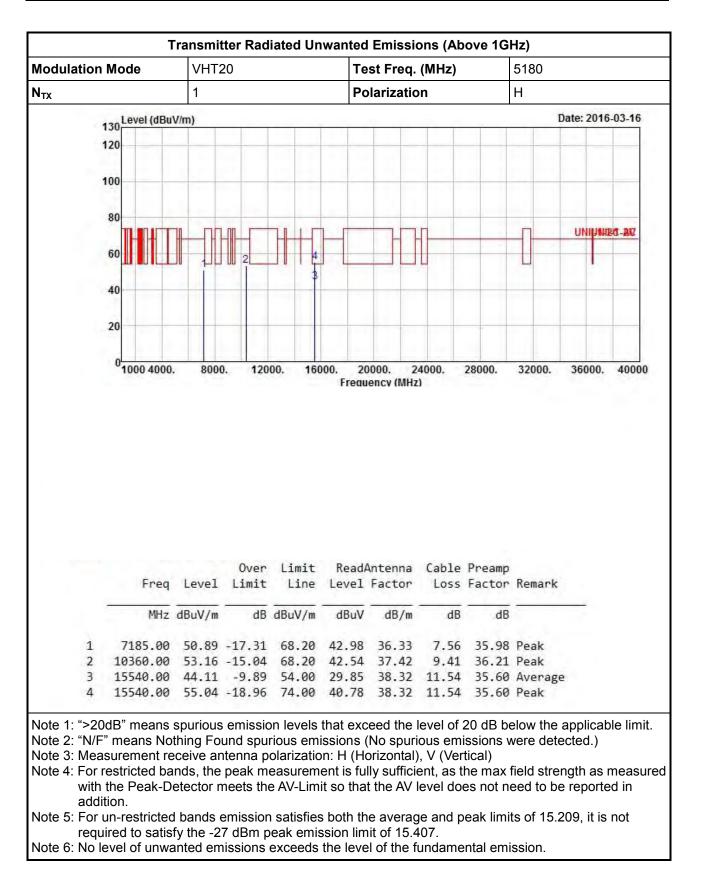






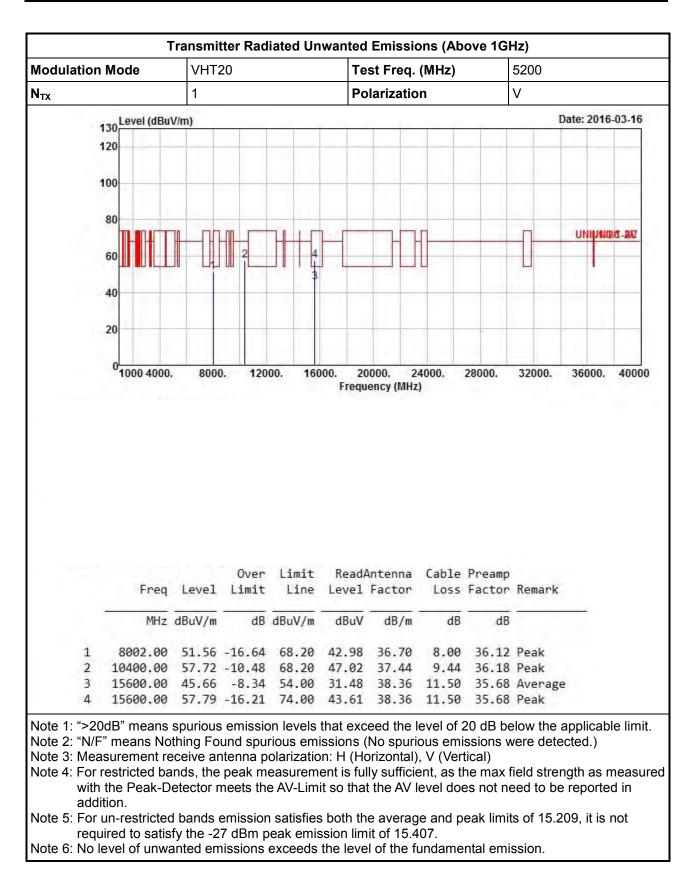




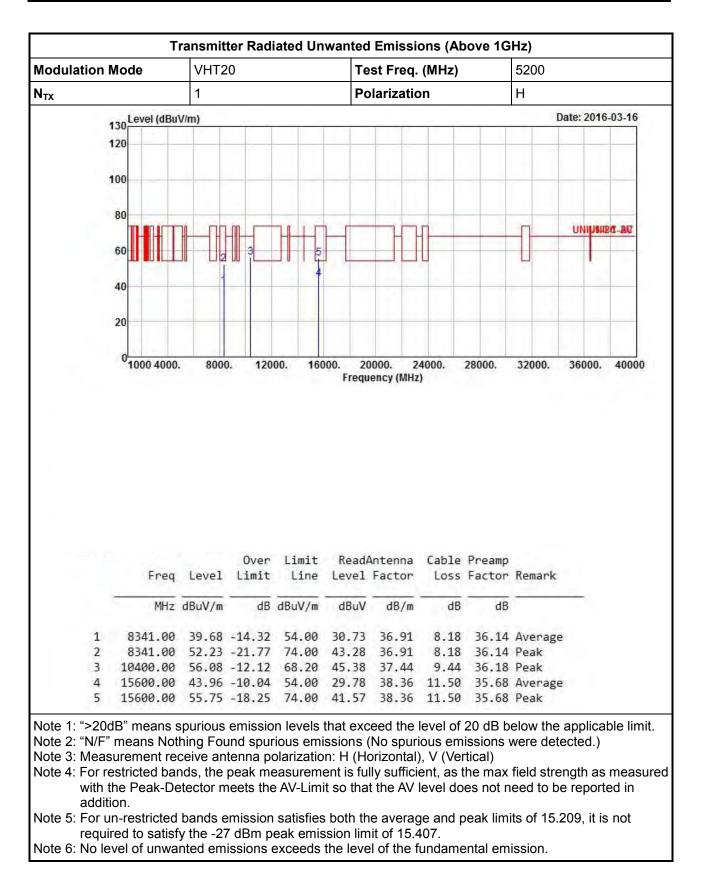




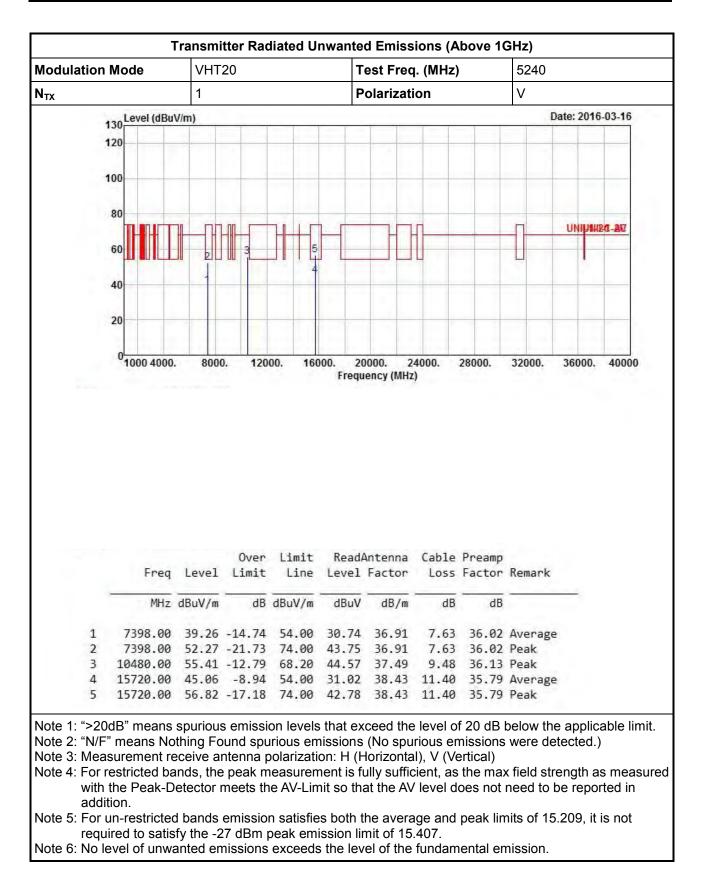




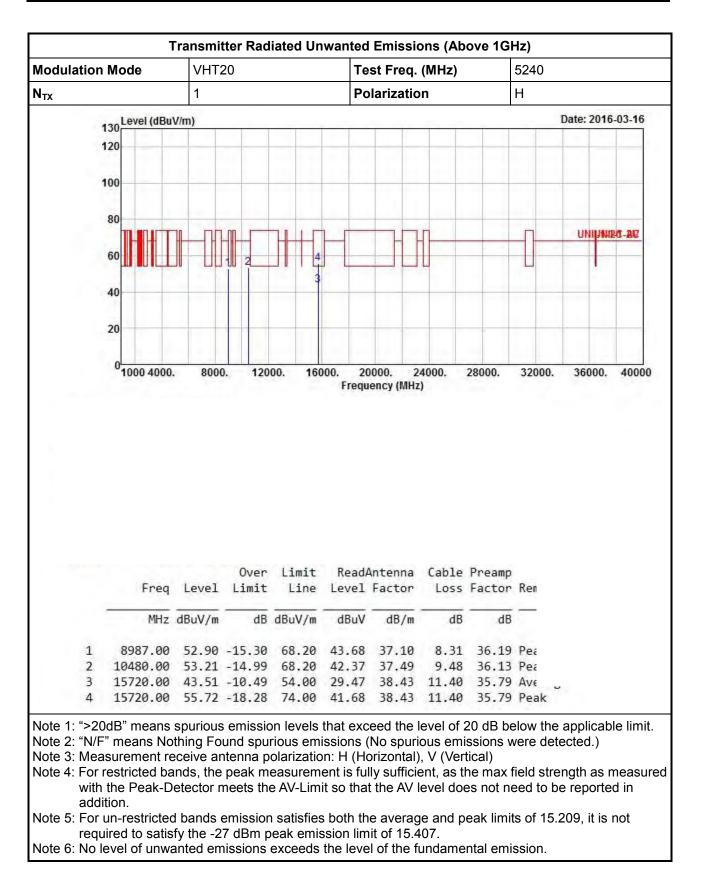




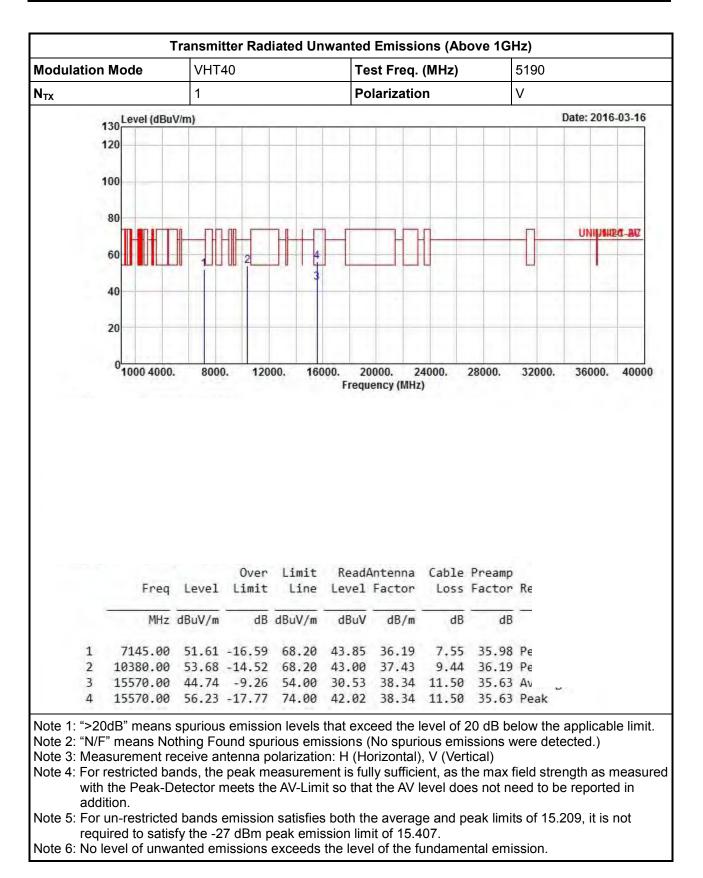




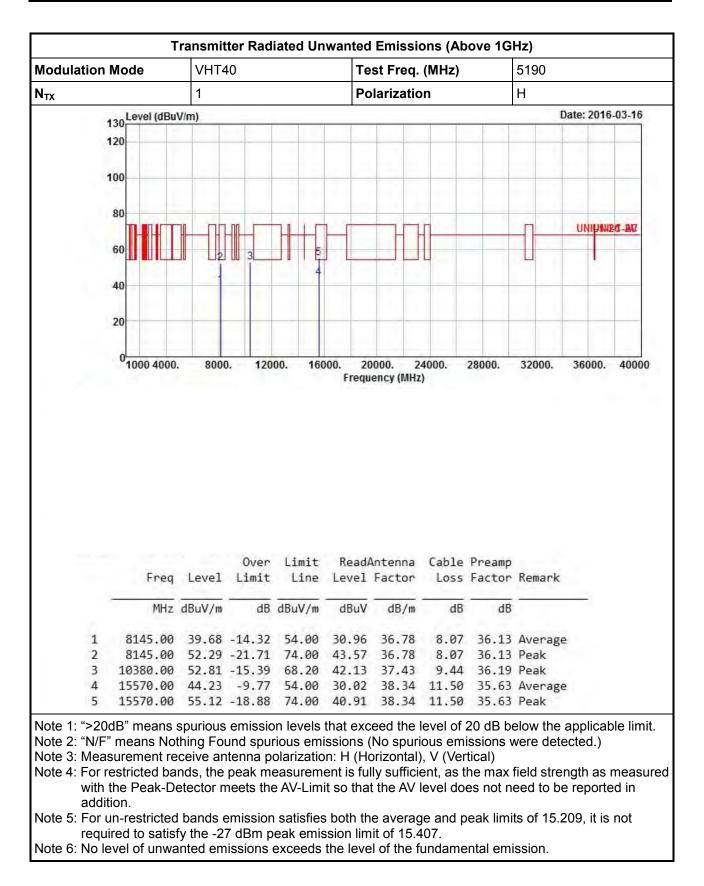




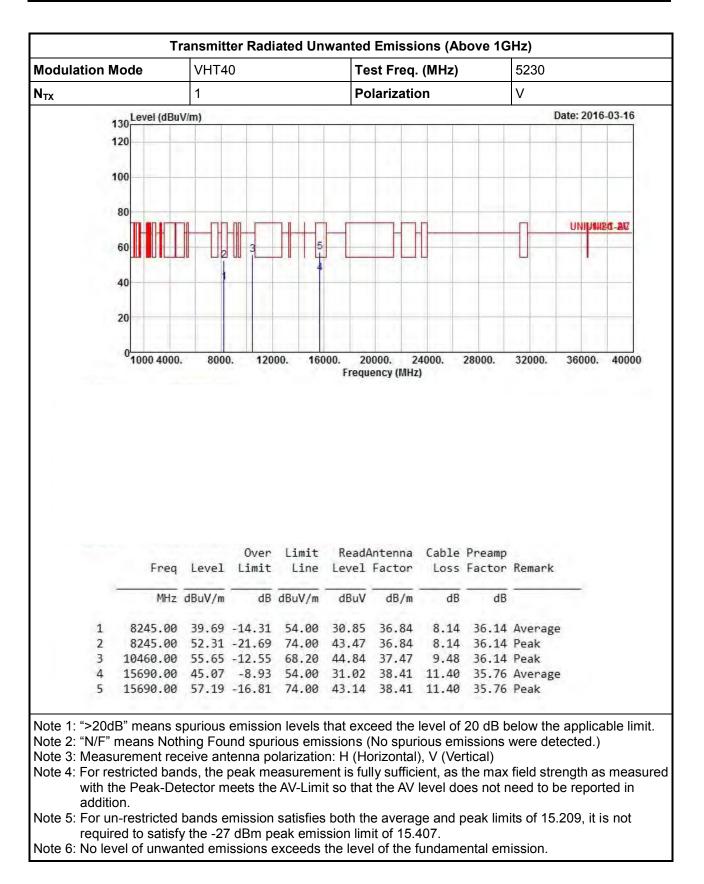




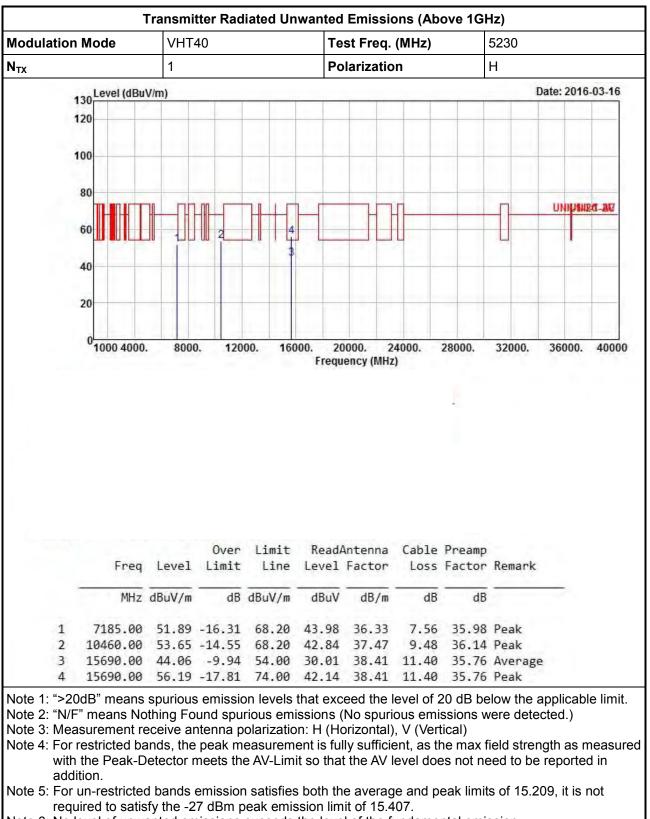






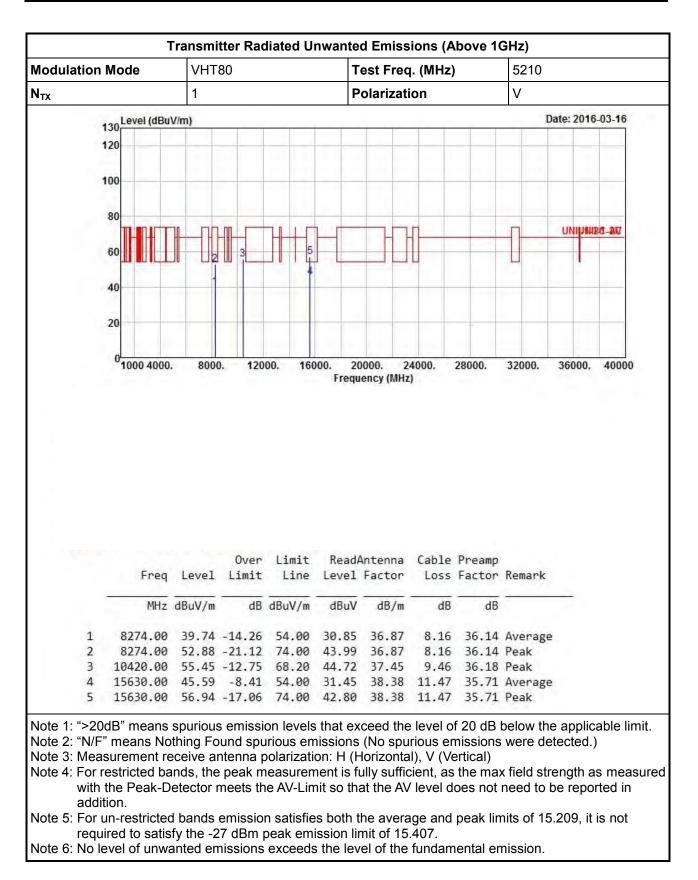




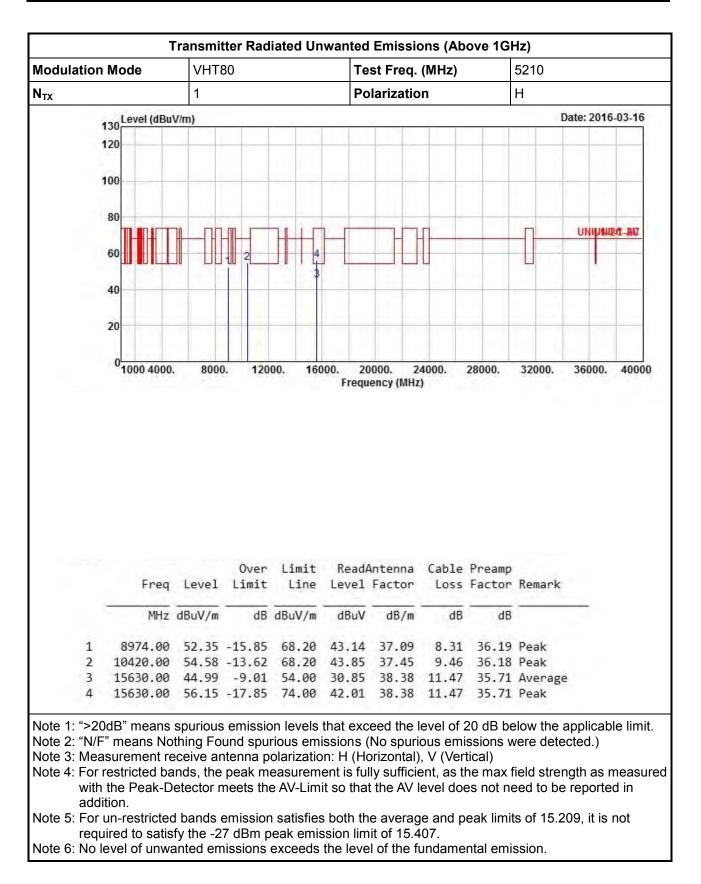






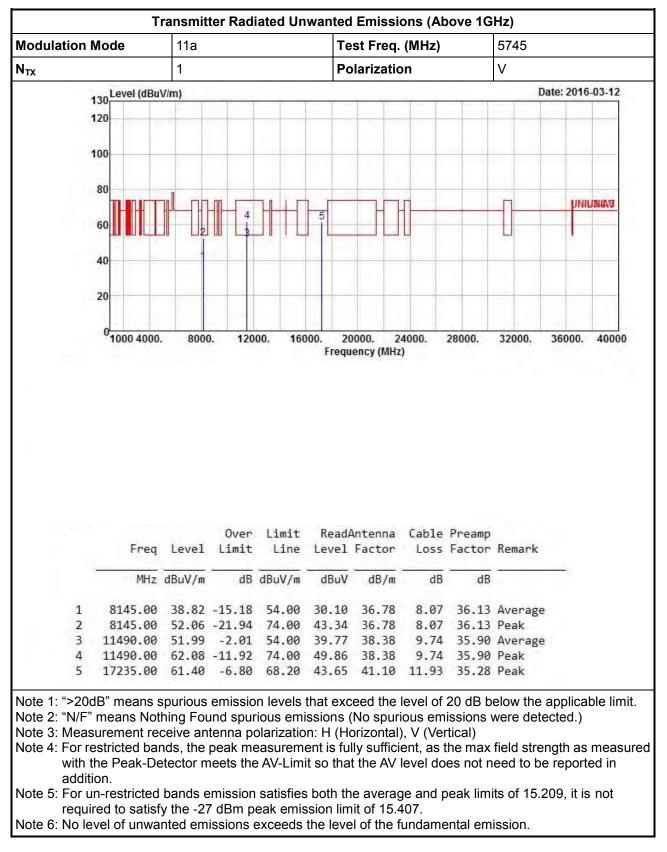






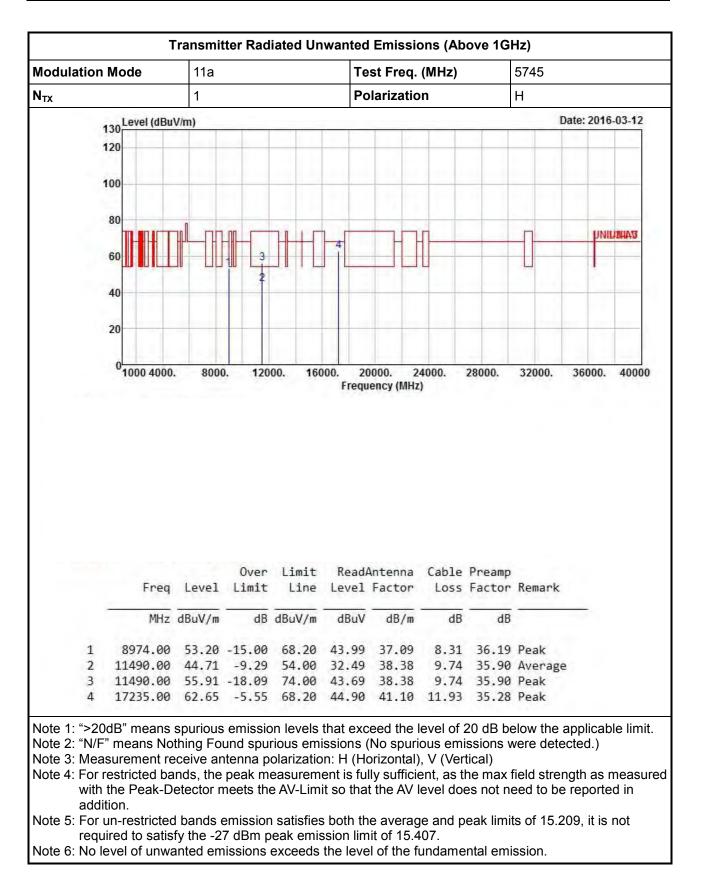


3.6.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5725-5850MHz



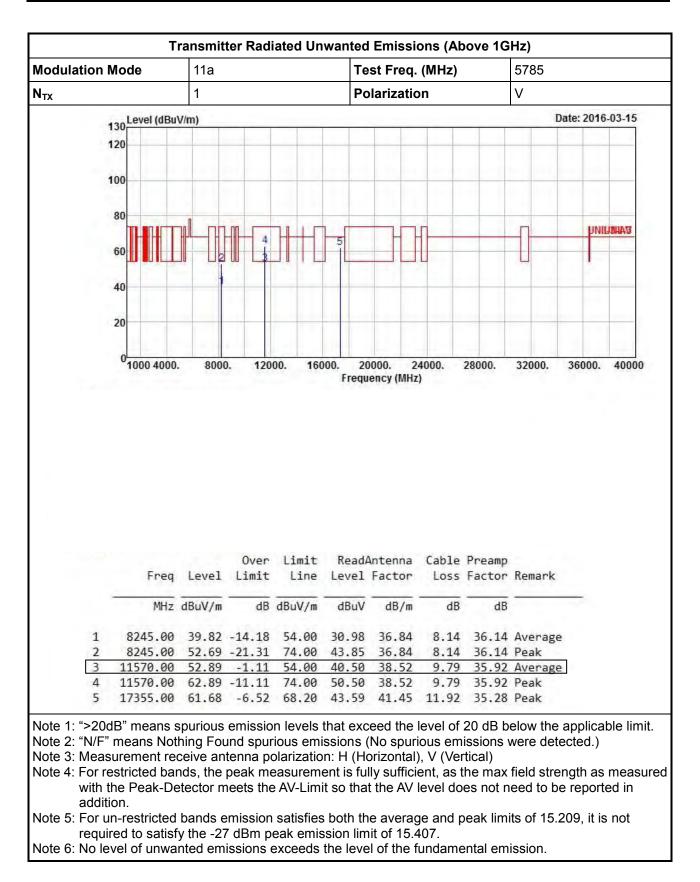






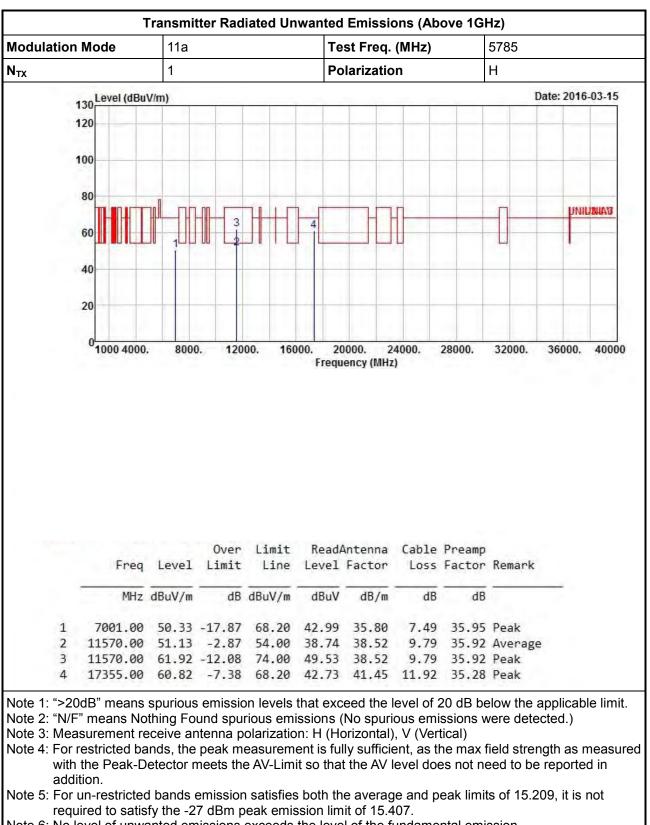






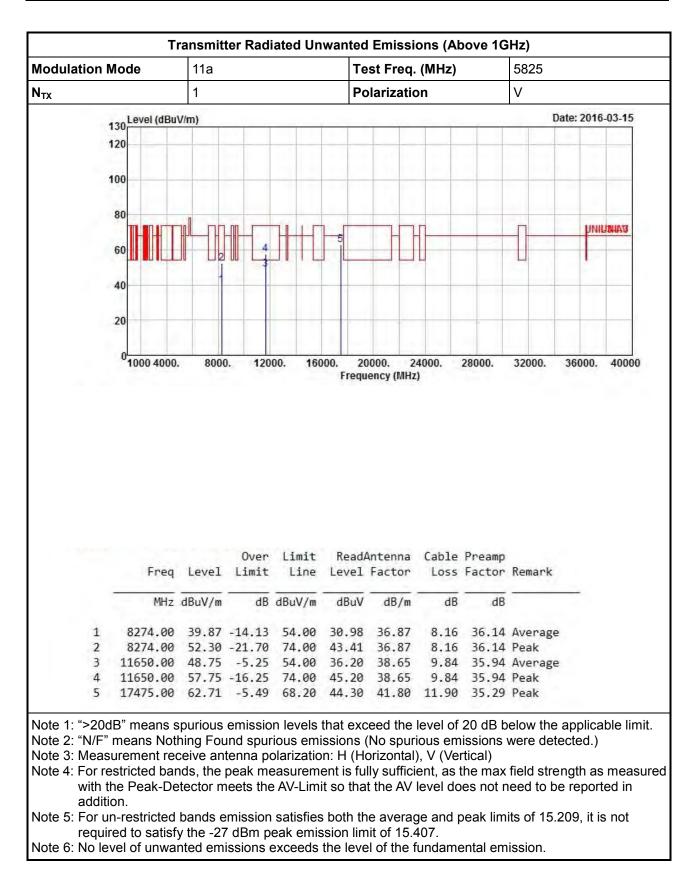




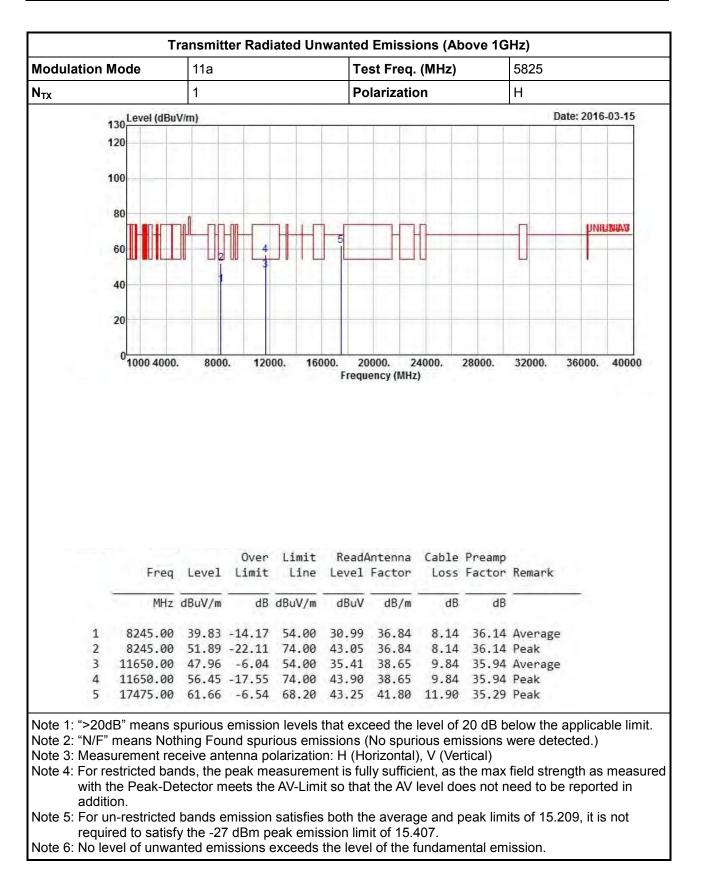






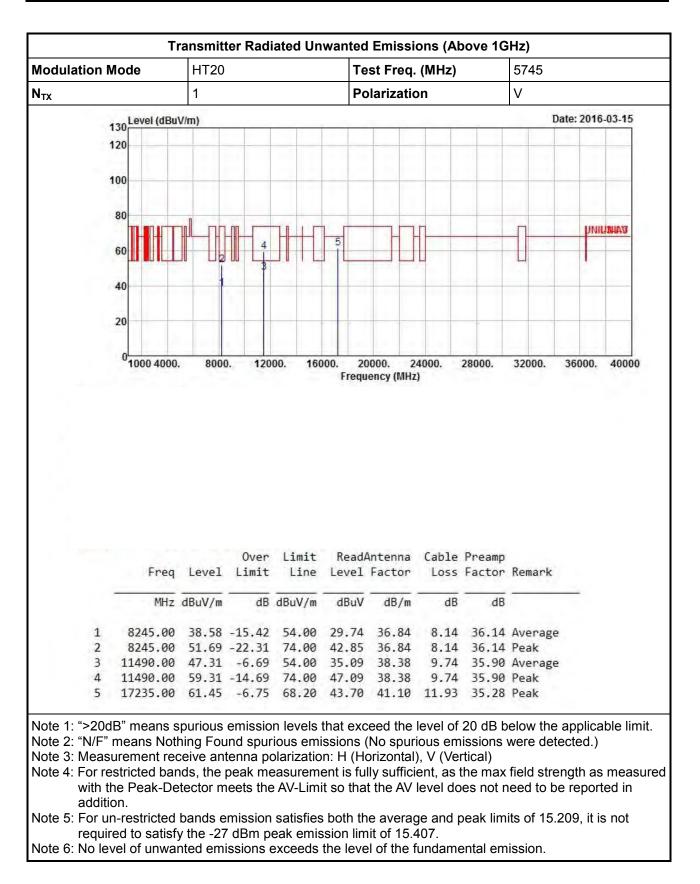




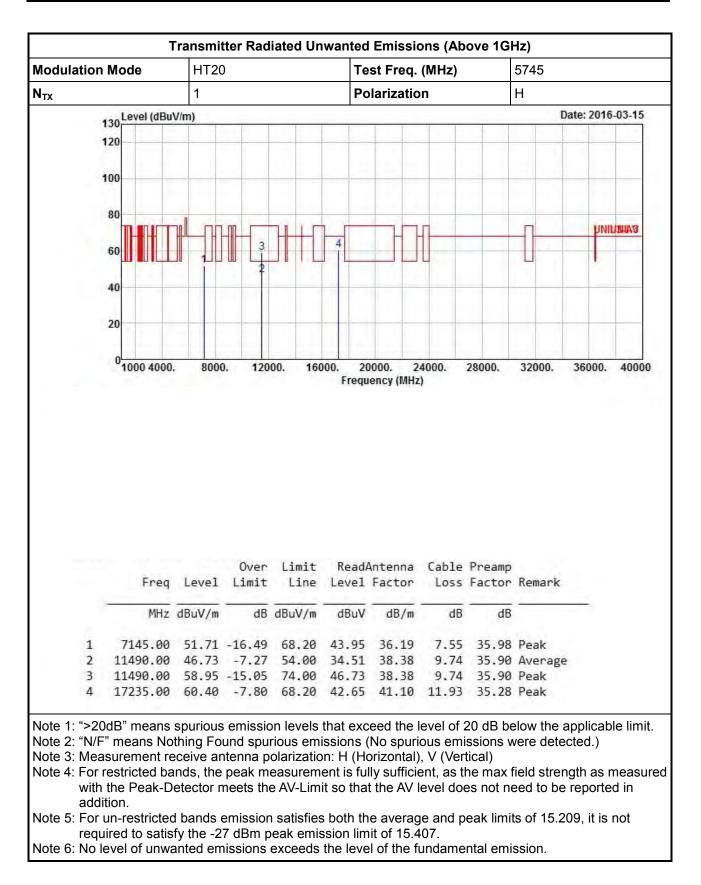






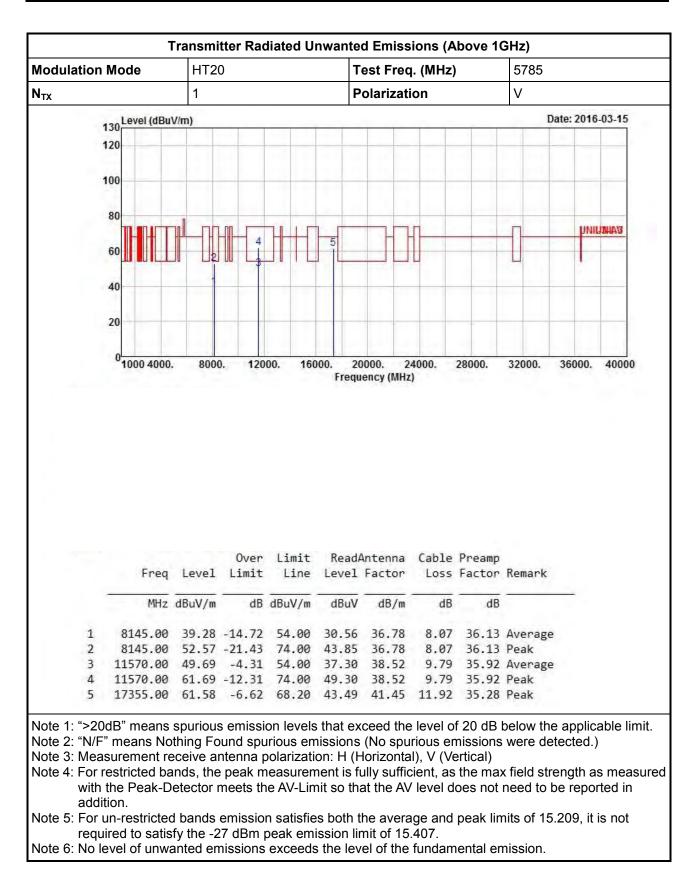






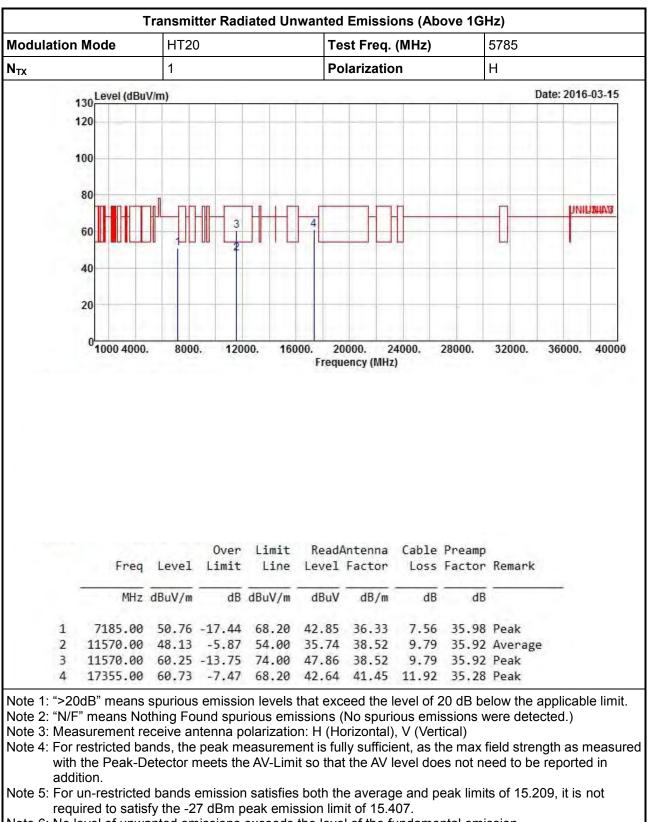






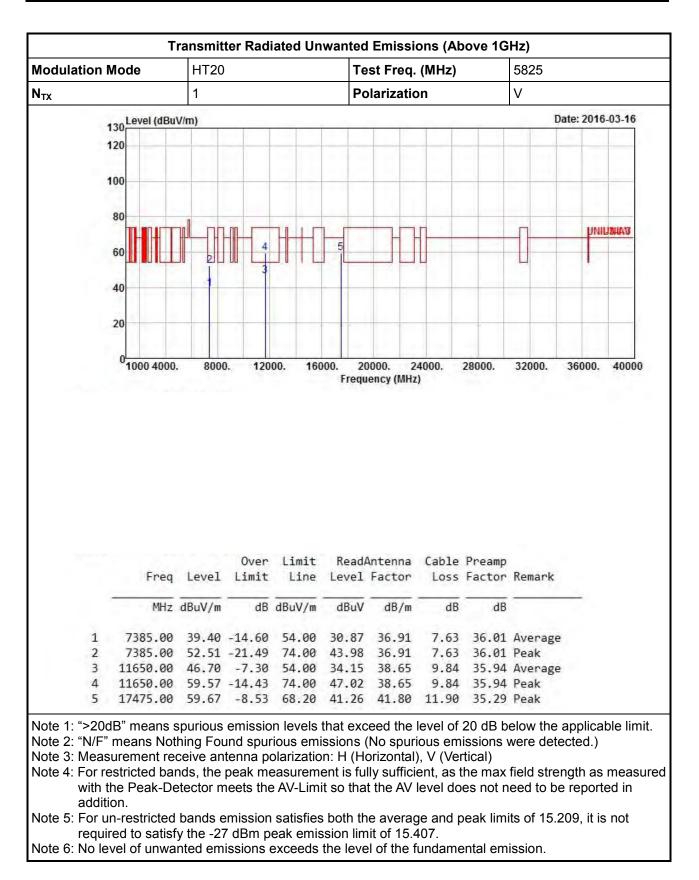




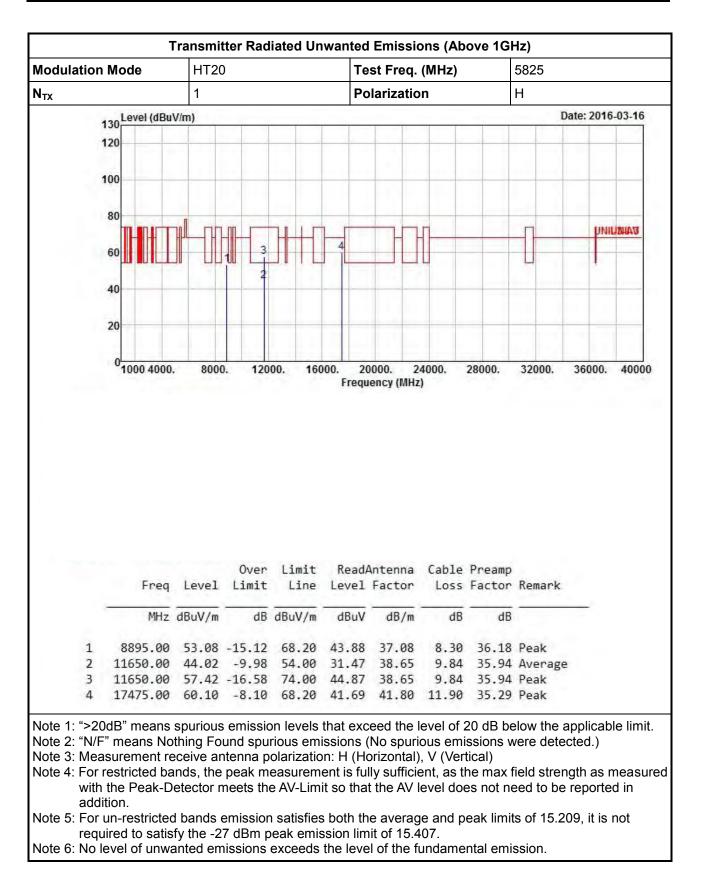




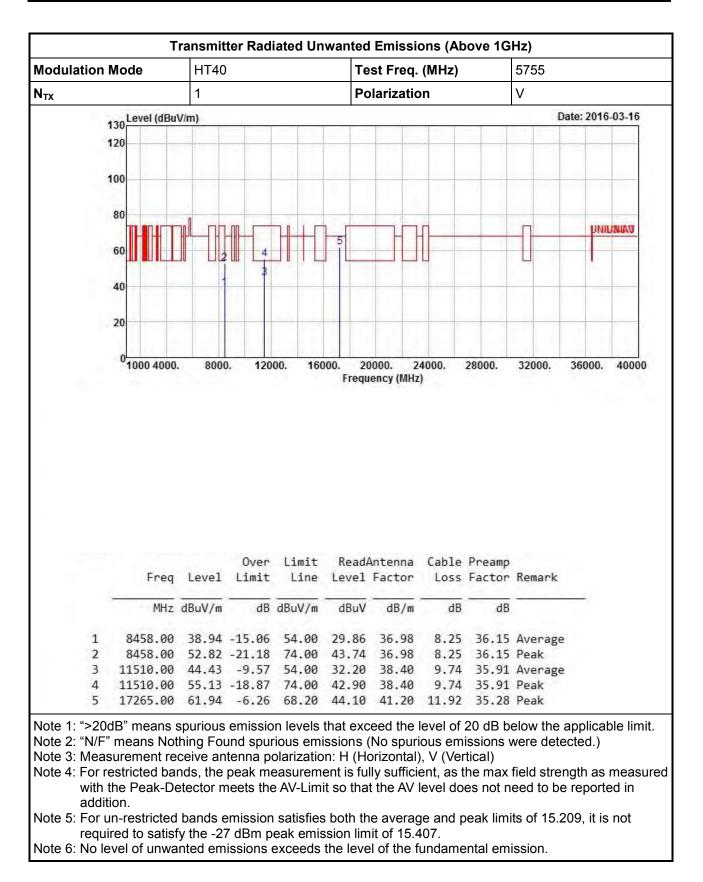




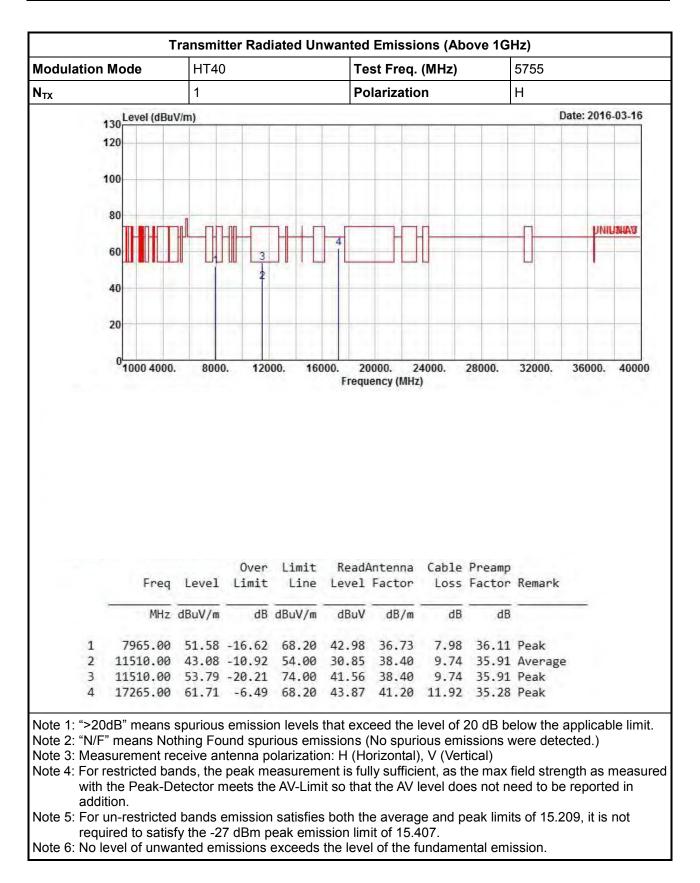




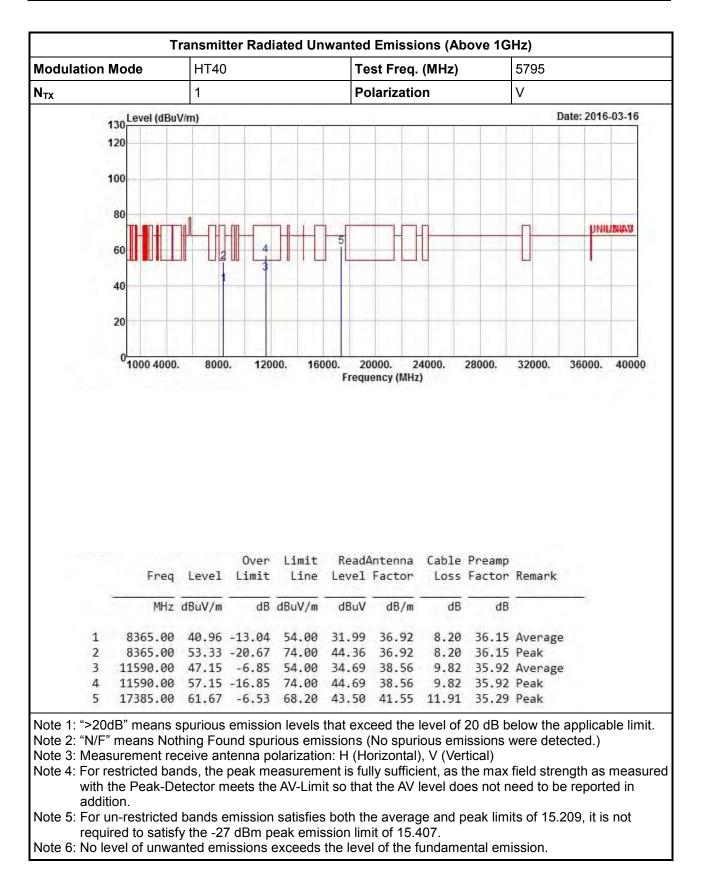






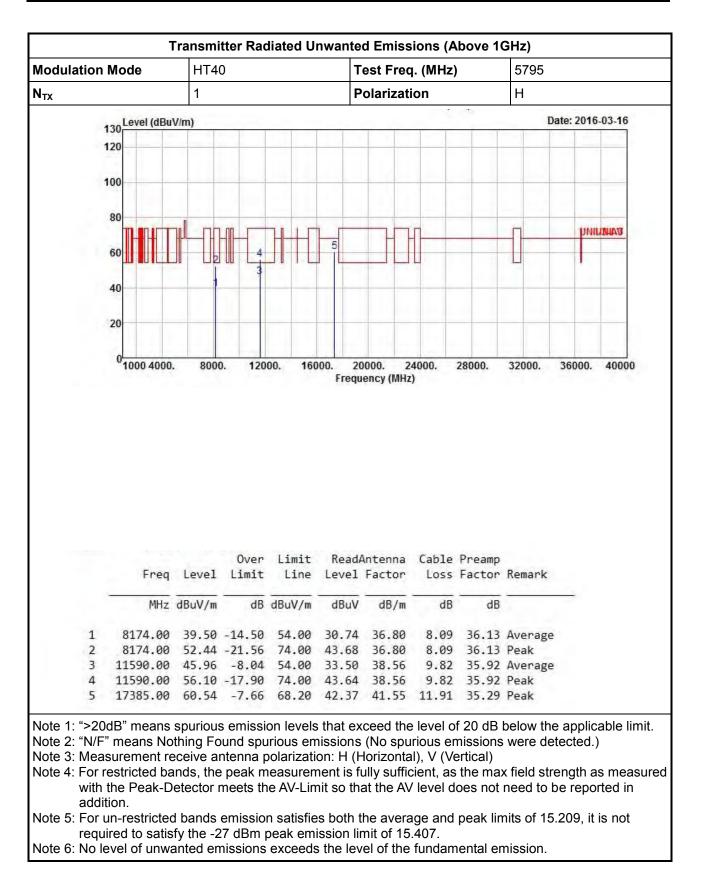




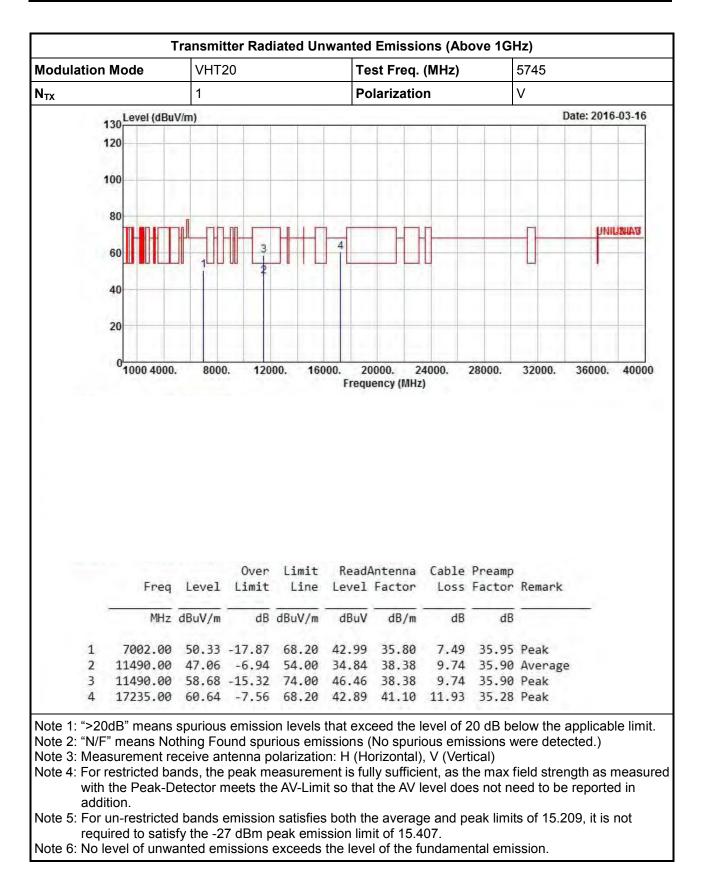




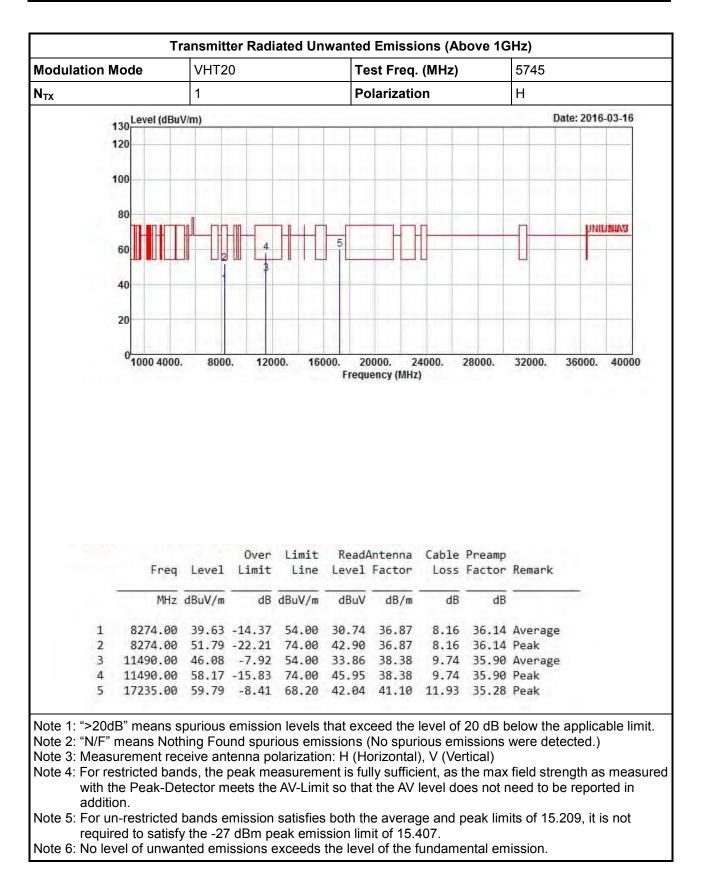




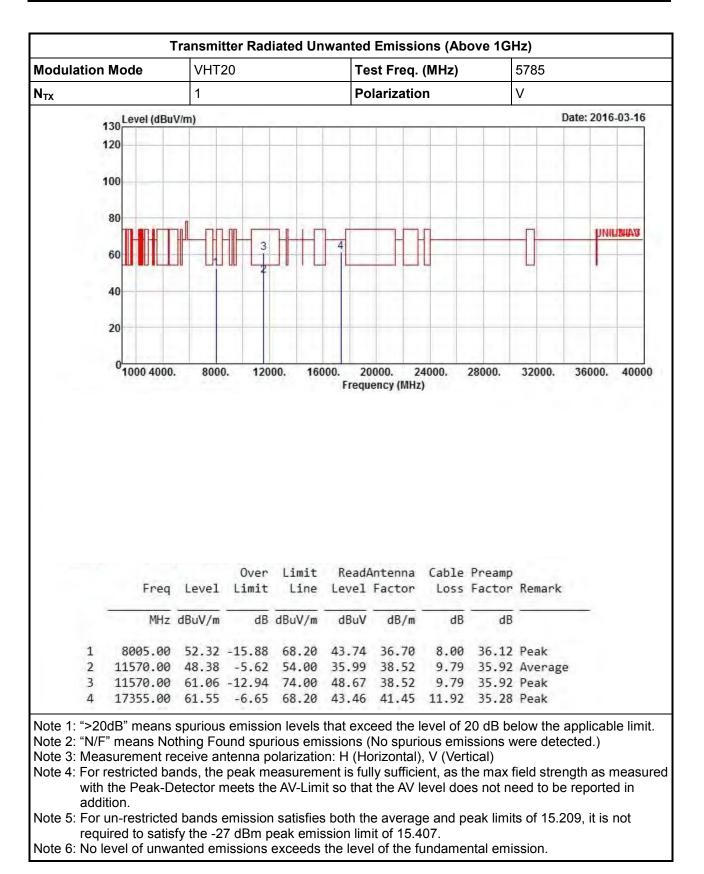




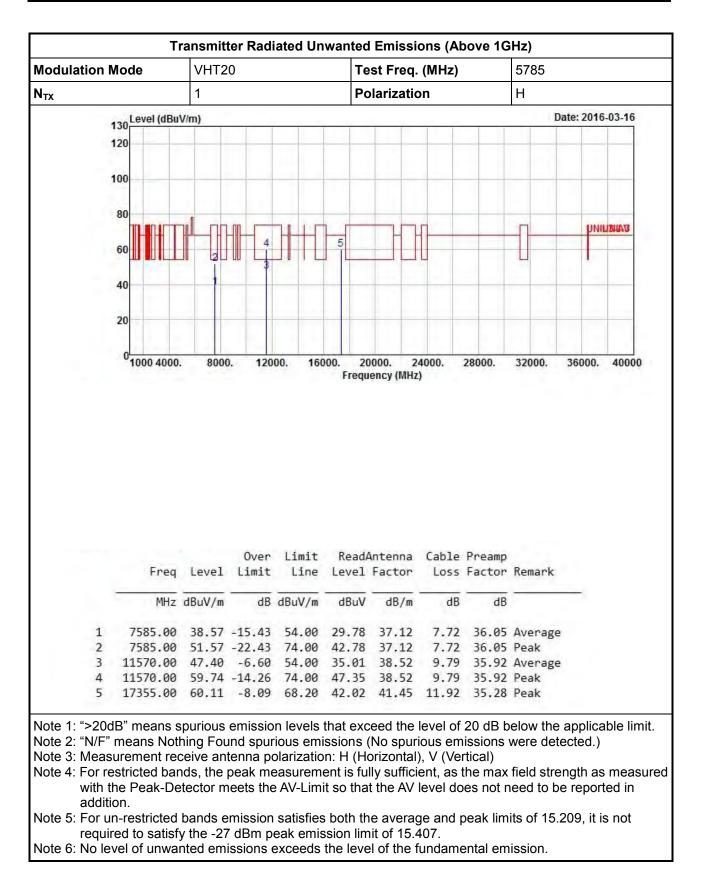






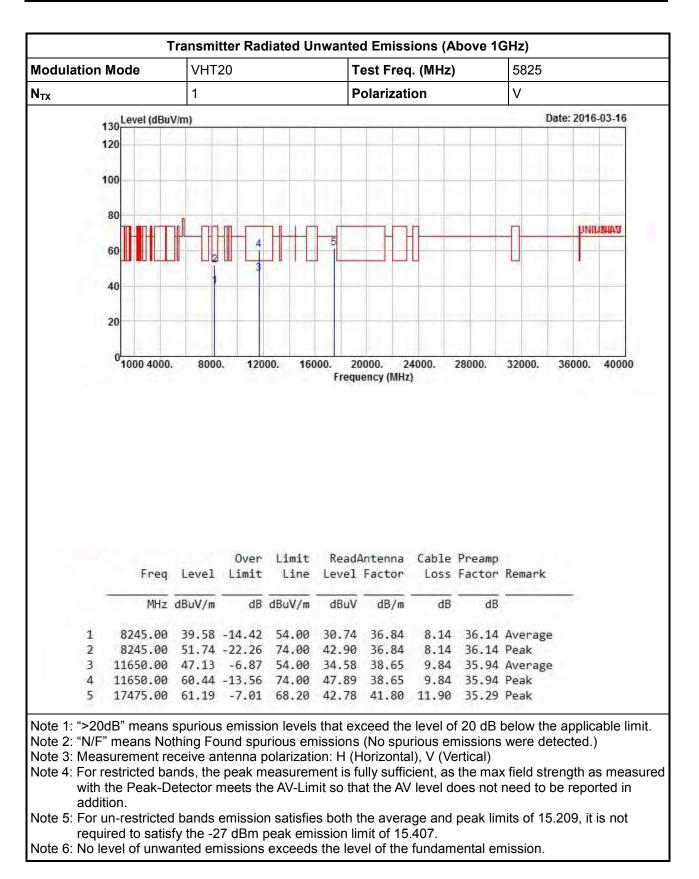




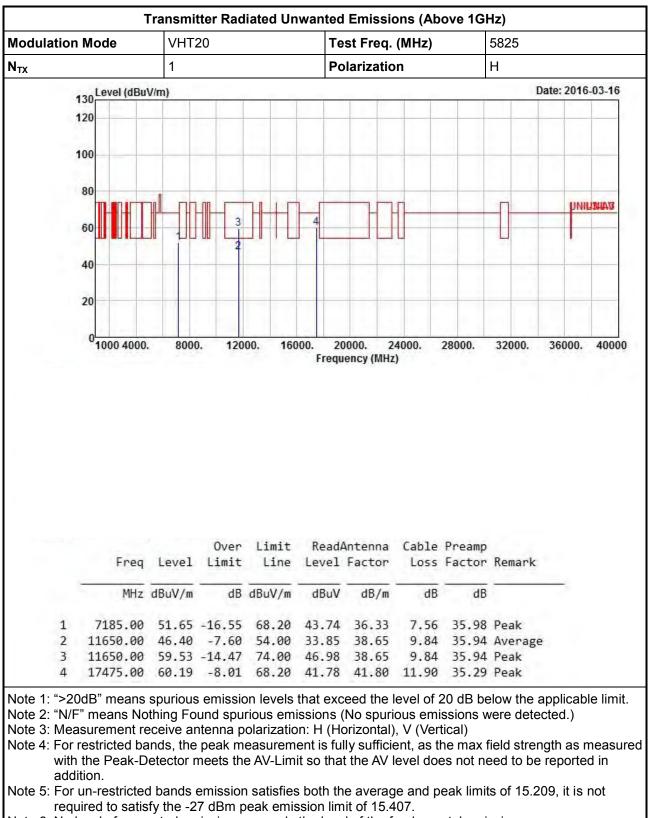




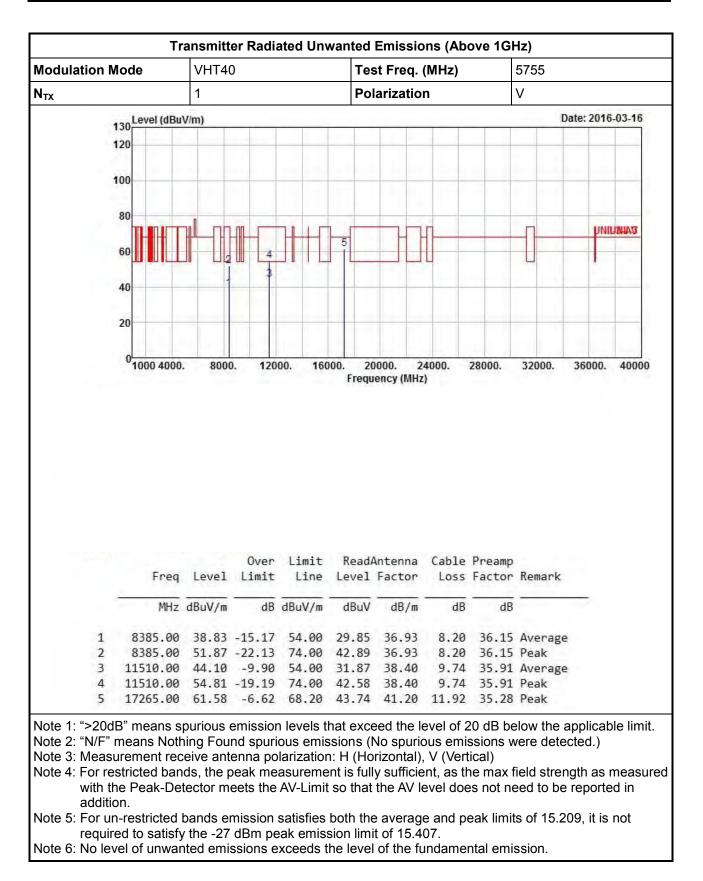






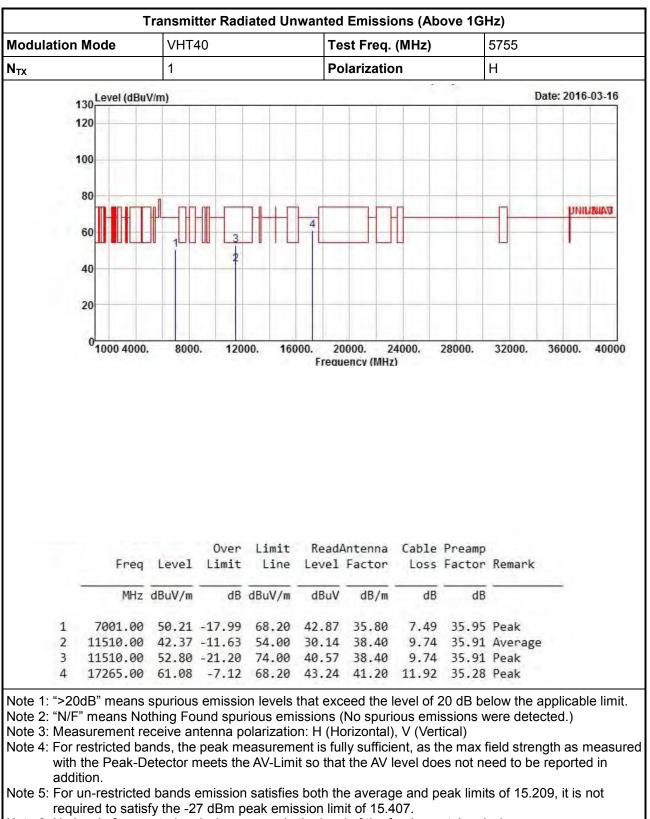




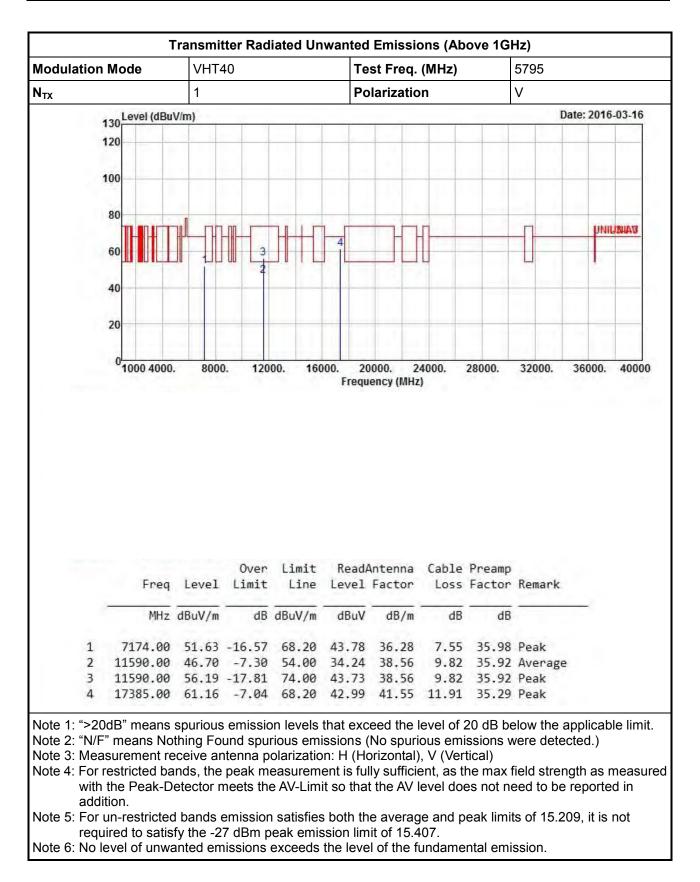




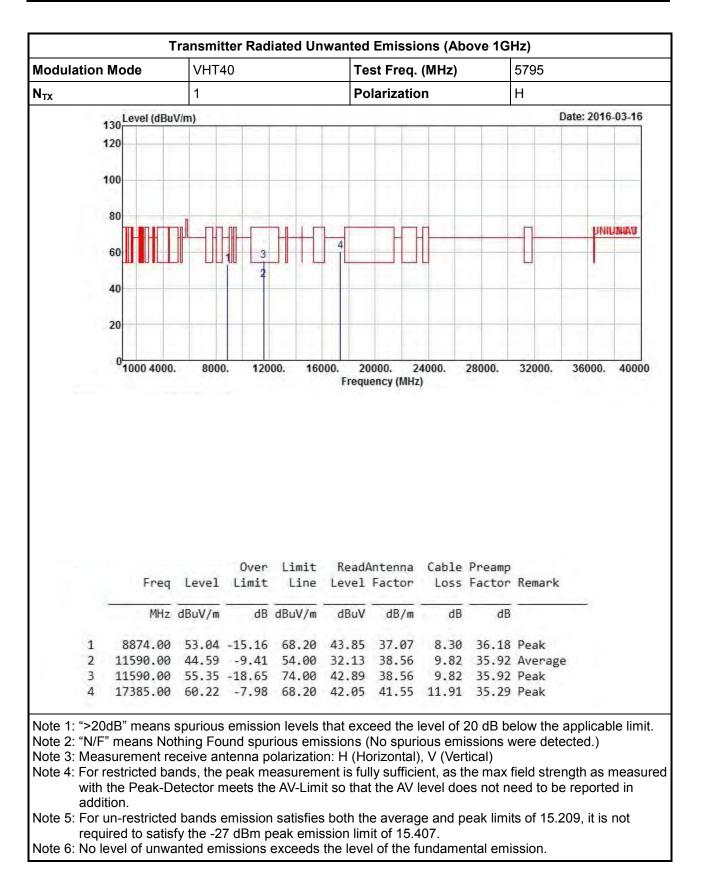




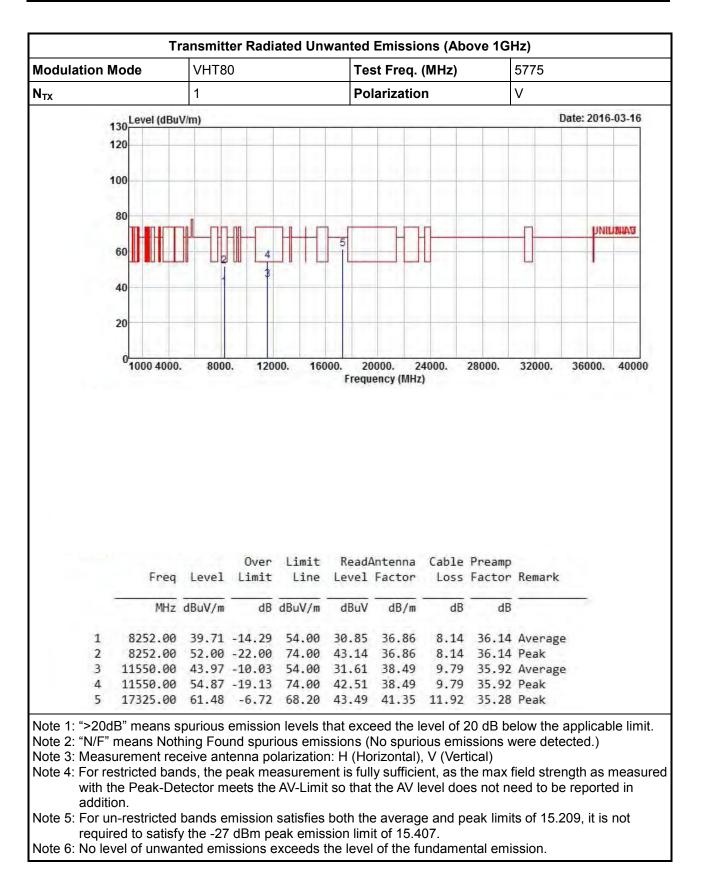




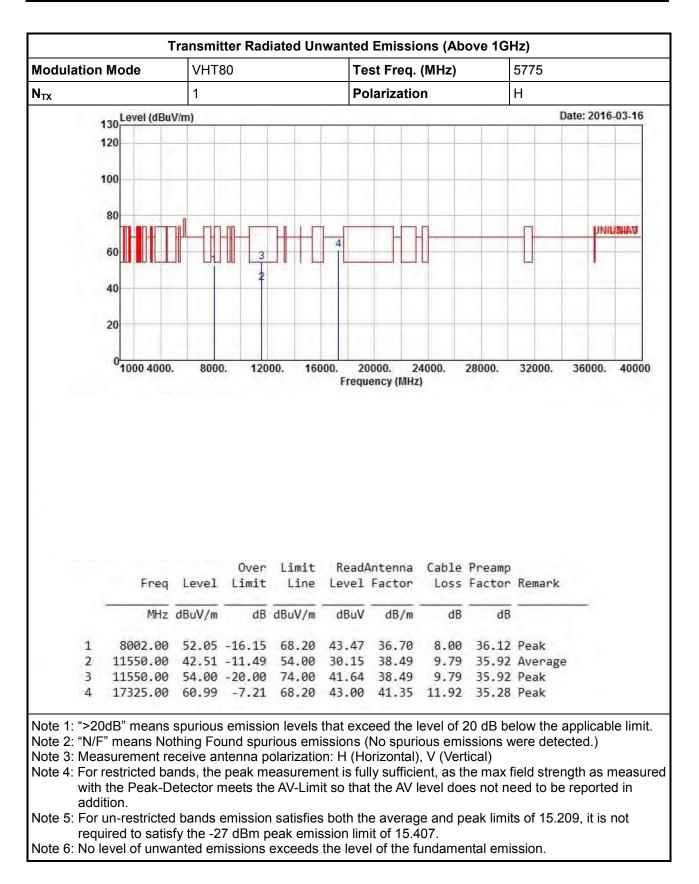














3.7 Frequency Stability

3.7.1 Frequency Stability Limit

| Frequency Stability Limit | | | | | | |
|---|--|--|--|--|--|--|
| UNII Devices | | | | | | |
| In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual. | | | | | | |
| IEEE Std. 802.11n-2009 | | | | | | |
| \Box The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band. | | | | | | |
| | | | | | | |

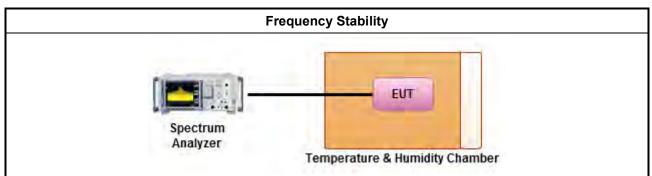
3.7.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

| | Test Method | | | | | | | |
|-------------|--|---|--|--|--|--|--|--|
| \boxtimes | Refer as ANSI C63.10, clause 6.8 for frequency stability tests | | | | | | | |
| | \square | Frequency stability with respect to ambient temperature | | | | | | |
| | \square | Frequency stability when varying supply voltage | | | | | | |
| \square | For | conducted measurement. | | | | | | |
| | \boxtimes | For conducted measurements on devices with multiple transmit chains: Measurements need only to be performed on one of the active transmit chains (antenna outputs) | | | | | | |
| | | radiated measurement. The equipment to be measured and the test antenna shall be oriented to ain the maximum emitted power level. | | | | | | |

3.7.4 Test Setup





3.7.5 Test Result of Frequency Stability

| Frequency Stability Result | | | | | | | | | | |
|----------------------------|---|----------------------|------------|------------|---------------------------|----------|----------|----------|----------|--|
| Mode | | | | | Frequency Stability (ppm) | | | | | |
| Condition | | Test Frequency (MHz) | | | Frequency Stability (ppm) | | | | | |
| Condition | Freq. (MHz) | 0 min | 2 min | 5 min | 10 min | 0 min | 2 min | 5 min | 10 min | |
| T20°CVmax | 5180 | 5744.96093 | 5744.96136 | 5744.96049 | 5744.96006 | -6.8007 | -6.7258 | -6.8773 | -6.9521 | |
| T20°CVmin | 5180 | 5744.96136 | 5744.96049 | 5744.96049 | 5744.95962 | -6.7258 | -6.8773 | -6.8773 | -7.0287 | |
| T50°CVnom | 5180 | 5744.94269 | 5744.94313 | 5744.94356 | 5744.94399 | -9.9756 | -9.8990 | -9.8242 | -9.7493 | |
| T40°CVnom | 5180 | 5744.94096 | 5744.94052 | 5744.94009 | 5744.94009 | -10.2768 | -10.3534 | -10.4282 | -10.4282 | |
| T30°CVnom | 5180 | 5744.94834 | 5744.94790 | 5744.94790 | 5744.94747 | -8.9922 | -9.0688 | -9.0688 | -9.1436 | |
| T20°CVnom | 5180 | 5744.96136 | 5744.96093 | 5744.96049 | 5744.96006 | -6.7258 | -6.8007 | -6.8773 | -6.9521 | |
| T10°CVnom | 5180 | 5744.97829 | 5744.97742 | 5744.97699 | 5744.97656 | -3.7789 | -3.9304 | -4.0052 | -4.0801 | |
| T0°CVnom | 5180 | 5744.99740 | 5744.99696 | 5744.99653 | 5744.99609 | -0.4526 | -0.5292 | -0.6040 | -0.6806 | |
| T-10°CVnom | 5180 | 5745.01520 | 5745.01476 | 5745.01389 | 5745.01259 | 2.6458 | 2.5692 | 2.4178 | 2.1915 | |
| T-20°CVnom | 5180 | 5745.01945 | 5745.01997 | 5745.02041 | 5745.02084 | 3.3856 | 3.4761 | 3.5527 | 3.6275 | |
| Limit (ppm) | | - ±20 | | | | | | | | |
| Result | | Complied | | | | | | | | |
| | Note 1: Measure at 85 % [Vmin] and 115 % [Vmax] of the nominal voltage [Vnom]. Note 2: The nominal voltage refer test report clause 1.1.6 for EUT operational condition. | | | | | | | | | |



4 Test Equipment and Calibration Data

AC Power-line Conducted Emissions

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Last Cal. | Calibration Due Date |
|--------------|--------------------------------|-----------|----------------|-----------------|--------------------------|-------------------------|
| EMC Receiver | R&S | ESCS 30 | 100174 | 9kHz ~ 2.75GHz | Mar. 26, 2014 | Mar. 25, 2015 |
| LISN | SCHWARZBECK MESS-ELEKTRONIK | NSLK 8127 | 8127-477 | 9kHz ~ 30MHz | Jan. 21, 2014 | Jan. 20, 2015 |
| LISN | EMCO | 3810/2NM | 9703-1839 | 9kHz ~ 30MHz | Apr. 21, 2014 | Apr. 20, 2015 |
| RF Cable-CON | HUBER+SUHNER | RG213/U | 07611832020001 | 9kHz ~ 30MHz | Oct. 30, 2013 | Oct. 29, 2014 |
| EMI Filter | LINDGREN | LRE-2030 | 2651 | < 450 Hz | N/A | N/A |

For 5150-5250 MHz <RF Conducted>

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Last Cal. | Calibration Due Date |
|----------------------------------|--------------|----------------------|-------------|--------------------|--------------------------|-------------------------|
| Spectrum Analyzer | R&S | FSV 40 | 101013 | 9KHz~40GHz | Jan. 29, 2013 | Jan. 28, 2014 |
| AC Power Source | G.W | APS-9102 | EL920581 | AC 0V ~ 300V | Jul. 16, 2013 | Jul. 15, 2014 |
| Temp. and Humidity Chamber | Giant Force | GTH-225-20-SP- SD | MAA1112-007 | -20 ~ 100 ℃ | Nov. 21, 2013 | Nov. 20, 2014 |
| Signal Generator | R&S | SMR40 | 100116 | 10MHz ~ 40GHz | Jun. 27, 2013 | Jun. 26, 2014 |
| RF Cable-1m | HUBER+SUHNER | SUCOFLEX_104 | SN 345669/4 | 30MHz ~ 26.5GHz | Dec. 02, 2013 | Dec. 01, 2014 |

For 5725~5850 MHz <RF Conducted>

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Last Cal. | Calibration Due Date |
|-------------------------------|--------------|------------------|-------------|--------------------|--------------------------|-------------------------|
| Spectrum Analyzer | R&S | FSV 40 | 101500 | 9KHz~40GHz | May 06, 2015 | May 05, 2016 |
| Temp. and Humidity Chamber | Giant Force | GTH-225-20-SP-SD | MAA1112-007 | -20 ~ 100 ℃ | Apr. 07, 2015 | Apr. 06, 2016 |
| Signal Generator | R&S | SMR40 | 100116 | 10MHz ~ 40GHz | Jul. 28, 2015 | Jul. 27, 2016 |



<Radiation Emissions >

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Last Cal. | Calibration Due Date |
|--------------------------------|--------------|----------------|-------------|--------------------|--------------------------|-------------------------|
| 3m Semi Anechoic Chamber | TDK | SAC-3M | 03CH09-HY | 30MHz ~ 1GHz 3m | Jul. 01, 2015 | Jun. 30, 2016 |
| 3m Semi Anechoic Chamber | TDK | SAC-3M | 03CH09-HY | 1GHz ~ 18GHz 3m | Jul. 01, 2015 | Jun. 30, 2016 |
| Amplifier | EMC | EMC9135 | 980232 | 9kHz ~ 1.0GHz | Jan. 29, 2016 | Jan. 28, 2017 |
| Amplifier | Agilent | 8449B | 3008A02096 | 1GHz ~ 26.5GHz | Apr. 09, 2015 | Apr. 08, 2016 |
| Spectrum | KEYSIGHT | N9010A | MY54200885 | 10Hz ~ 44GHz | Jul. 15, 2015 | Jul. 14, 2016 |
| Bilog Antenna | TESEQ | CBL 6112D | 35418 | 30MHz ~ 1GHz | Mar. 30, 2015 | Mar. 29, 2016 |
| Horn Antenna | AARONIA AG | POWERLOG 70180 | 05192 | 1GHz ~ 18GHz | Jan. 08, 2016 | Jan. 07, 2017 |
| Horn Antenna | SCHWARZBECK | BBHA9170 | BBHA9170614 | 18GHz ~ 40GHz | Jan. 04, 2016 | Jan. 03, 2017 |

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Last Cal. | Calibration Due Date |
|--------------|---------------|---------------------|------------|-----------------|--------------------------|-------------------------|
| Amplifier | MITEQ | JS44-18004000-33-8P | 1840917 | 18GHz ~ 40GHz | Jun. 02.2015 | Jun. 01.2017 |
| Loop Antenna | ROHDE&SCHWARZ | HFH2-Z2 | 100330 | 9 kHz~30 MHz | Nov. 10, 2014 | Nov. 09, 2016 |