

# FCC Test Report

**Equipment** : 1000 Mbps Powerline AC900 Wireless Extender  
**Brand Name** : ZYXEL  
**Model No.** : PLA5236  
**FCC ID** : I88PLA5236  
**Standard** : 47 CFR FCC Part 15.407  
**Operating Band** : 5150 MHz – 5250 MHz  
5725 MHz – 5850 MHz  
**Applicant** : Zyxel Communications Corporation  
No.2 Industry East Road IX, Science  
Park,Hsinchu,Taiwan  
**Manufacturer** : Zyxel Communications Corporation  
No.2 Industry East Road IX, Science  
Park,Hsinchu,Taiwan  
**Function** : ☐ Outdoor; ☒ Indoor; ☐ Fixed P2P  
☐ Client

The product sample received on Nov. 28, 2016 and completely tested on Dec. 16, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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.

  
Cliff Chang  
SPORTON INTERNATIONAL INC.





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## Summary of Test Result

| Conformance Test Specifications |                  |                                   |          |
|---------------------------------|------------------|-----------------------------------|----------|
| Report Clause                   | Ref. Std. Clause | Description                       | Result   |
| 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)        | Maximum Conducted Output Power    | Complied |
| 3.4                             | 15.407(a)        | Peak Power Spectral Density       | Complied |
| 3.5                             | 15.407(b)        | Unwanted Emissions                | Complied |
| 3.6                             | 15.407(g)        | Frequency Stability               | Complied |



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FCC ID: I88PLA5236

# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| Frequency Range (MHz) | IEEE Std. 802.11        | Ch. Frequency (MHz) | Channel Number |
|-----------------------|-------------------------|---------------------|----------------|
| 5150-5250             | a, n (HT20), ac (VHT20) | 5180-5240           | 36-48 [4]      |
| 5725-5850             |                         | 5745-5825           | 149-165 [5]    |
| 5150-5250             | n (HT40), ac (VHT40)    | 5190-5230           | 38-46 [2]      |
| 5250-5350             |                         | 5270-5310           | 54-62 [2]      |
| 5150-5250             | ac (VHT80)              | 5210                | 42 [1]         |
| 5250-5350             |                         | 5290                | 58 [1]         |

| Band | Mode  | BWch (MHz) | Nant |
|------|-------|------------|------|
| 5.2G | 11a   | 20         | 1    |
| 5.2G | HT20  | 20         | 2    |
| 5.2G | VHT20 | 20         | 2    |
| 5.2G | HT40  | 40         | 2    |
| 5.2G | VHT40 | 40         | 2    |
| 5.2G | VHT80 | 80         | 2    |
| 5.8G | 11a   | 20         | 1    |
| 5.8G | HT20  | 20         | 2    |
| 5.8G | VHT20 | 20         | 2    |
| 5.8G | HT40  | 40         | 2    |
| 5.8G | VHT40 | 40         | 2    |
| 5.8G | VHT80 | 80         | 2    |

**Note:**

- ♦ 5.2G/5.2G-I(IC) is the 5.2GHz Band (5.15-5.25GHz).
- ♦ 5.8G/5.8G-I(IC) is the 5.8GHz Band (5.725-5.850GHz).
- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

### 1.1.2 Antenna Information

| Ant. | Brand     | Model Name        | Antenna Type | Connector | Gain (dBi) |      |
|------|-----------|-------------------|--------------|-----------|------------|------|
|      |           |                   |              |           | 2.4G       | 5G   |
| 1    | ARISTOTLE | RFA-25-Z3-70-100T | Dipole Ant.  | I-PEX     | 1.61       | 2.78 |
| 2    | ARISTOTLE | RFA-25-Z3-70-100T | Dipole Ant.  | I-PEX     | 1.61       | 2.78 |

Note: The EUT has two antennas.

Chain 1 (Port 1) connect to Ant.1, Chain 2 (Port 2) connect to Ant.2.

#### <For 2.4GHz Band>

##### For IEEE 802.11b/g mode<1TX/1RX>:

Only Chain 1 (Port 1) can be used as transmitting antenna and receiving antenna.

##### For IEEE 802.11n mode<2TX/2RX>:

Chain 1 (Port 1) and Chain 2 (Port 2) will transmit/receive the same signal simultaneously.

Chain 1 (Port 1) and Chain 2 (Port 2) can be used as transmitting/receiving antennas.

#### <For 5GHz Band>

##### For IEEE 802.11a mode <1TX/1RX>:

Only Chain 2 (Port 2) can be used as transmitting antenna and receiving antenna.

##### For IEEE 802.11n/ac mode <2TX/2RX>:

Chain 1 (Port 1) and Chain 2 (Port 2) will transmit/receive the same signal simultaneously.

Chain 1 (Port 1) and Chain 2 (Port 2) can be used as transmitting/receiving antennas.

### 1.1.3 Mode Test Duty Cycle

| Mode  | DC    | T(s)                 | VBW(Hz) $\geq 1/T$   |
|-------|-------|----------------------|----------------------|
| 11a   | 0.997 | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |
| VHT20 | 0.998 | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |
| VHT40 | 0.963 | 947.115u             | 3k                   |
| VHT80 | 0.949 | 466.346u             | 3k                   |

### 1.1.4 EUT Operational Condition

|                             |                                           |                                                         |  |
|-----------------------------|-------------------------------------------|---------------------------------------------------------|--|
| <b>EUT Power Type</b>       | Internal power supply                     |                                                         |  |
| <b>Beamforming Function</b> | <input type="checkbox"/> With beamforming | <input checked="" type="checkbox"/> Without beamforming |  |

## 1.2 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 v01r03
- ♦ FCC KDB 644545 D03 v01
- ♦ FCC KDB 662911 D01 v02r01

### 1.3 Testing Location Information

| Testing Location                    |        |     |                                                                              |                      |
|-------------------------------------|--------|-----|------------------------------------------------------------------------------|----------------------|
| <input type="checkbox"/>            | HWA YA | ADD | : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.   |                      |
|                                     |        | TEL | : 886-3-327-3456                                                             | FAX : 886-3-318-0055 |
| <input checked="" type="checkbox"/> | JHUBEI | ADD | : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. |                      |
|                                     |        | TEL | : 886-3-656-9065                                                             | FAX : 886-3-656-9085 |

| Test Condition | Test Site No. | Test Engineer         | Test Environment | Test Date                       |
|----------------|---------------|-----------------------|------------------|---------------------------------|
| RF Conducted   | TH01-CB       | Ron Huang             | 25°C / 75%       | Dec. 05, 2016                   |
| Radiated       | 03CH01-CB     | Brian Sun / Stim Sung | 22°C / 54%       | Dec. 02, 2016~<br>Dec. 06, 2016 |
| AC Conduction  | CO01-CB       | Edison Lin            | 20°C / 58%       | Dec. 16, 2016                   |

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

### 1.4 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))

| Test Items                           | Uncertainty | Remark                   |
|--------------------------------------|-------------|--------------------------|
| Conducted Emission (150kHz ~ 30MHz)  | 3.2 dB      | Confidence levels of 95% |
| Radiated Emission (30MHz ~ 1,000MHz) | 3.6 dB      | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 3.7 dB      | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 3.5 dB      | Confidence levels of 95% |
| Conducted Emission                   | 1.7 dB      | Confidence levels of 95% |

## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

| Band | Mode  | BWch (MHz) | Nss-Min | Nant | Ch. (MHz) | Range | Power Setting |
|------|-------|------------|---------|------|-----------|-------|---------------|
| 5.2G | 11a   | 20         | 1       | 1(2) | 5180      | L     | 87            |
| 5.2G | 11a   | 20         | 1       | 1(2) | 5200      | M     | 98            |
| 5.2G | 11a   | 20         | 1       | 1(2) | 5240      | H     | 95            |
| 5.8G | 11a   | 20         | 1       | 1(2) | 5745      | L     | 105           |
| 5.8G | 11a   | 20         | 1       | 1(2) | 5785      | M     | 105           |
| 5.8G | 11a   | 20         | 1       | 1(2) | 5825      | H     | 105           |
| 5.2G | VHT20 | 20         | 1,(M0)  | 2    | 5180      | L     | 84            |
| 5.2G | VHT20 | 20         | 1,(M0)  | 2    | 5200      | M     | 95            |
| 5.2G | VHT20 | 20         | 1,(M0)  | 2    | 5240      | H     | 91            |
| 5.8G | VHT20 | 20         | 1,(M0)  | 2    | 5745      | L     | 105           |
| 5.8G | VHT20 | 20         | 1,(M0)  | 2    | 5785      | M     | 105           |
| 5.8G | VHT20 | 20         | 1,(M0)  | 2    | 5825      | H     | 105           |
| 5.2G | VHT40 | 40         | 1,(M0)  | 2    | 5190      | L     | 76            |
| 5.2G | VHT40 | 40         | 1,(M0)  | 2    | 5230      | H     | 89            |
| 5.8G | VHT40 | 40         | 1,(M0)  | 2    | 5755      | L     | 105           |
| 5.8G | VHT40 | 40         | 1,(M0)  | 2    | 5795      | H     | 105           |
| 5.2G | VHT80 | 80         | 1,(M0)  | 2    | 5210      | S     | 72            |
| 5.8G | VHT80 | 80         | 1,(M0)  | 2    | 5775      | S     | 89            |

**Note:**

- ♦ Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch.) and C (Straddle Band Ch.).
- ♦ VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

## 2.2 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests                           |                                                          |
|-------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>Tests Item</b>                                                             | AC power-line conducted emissions                        |
| <b>Condition</b>                                                              | AC power-line conducted measurement for line and neutral |
| <b>Operating Mode</b>                                                         | CTX                                                      |
| 1                                                                             | WLAN 2.4GHz                                              |
| 2                                                                             | WLAN 5GHz                                                |
| For operating mode 1 is the worst case and it was record in this test report. |                                                          |

| The Worst Case Mode for Following Conformance Tests |                                                                                                                                  |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                   | Emission Bandwidth<br>Maximum Conducted Output Power<br>Peak Power Spectral Density<br>Frequency Stability<br>Unwanted Emissions |
| <b>Test Condition</b>                               | Conducted measurement at transmit chains                                                                                         |

| The Worst Case Mode for Following Conformance Tests                                                                                                           |                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                                                                                                                             | Unwanted Emissions                                                                                                                                                                                                                                  |
| <b>Test Condition</b>                                                                                                                                         | Radiated measurement<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. |
| <b>Operating Mode &lt; 1GHz</b>                                                                                                                               | CTX                                                                                                                                                                                                                                                 |
| 1                                                                                                                                                             | 2.4G WLAN_EUT at Y-axis                                                                                                                                                                                                                             |
| 2                                                                                                                                                             | 2.4G WLAN_EUT at Z-axis                                                                                                                                                                                                                             |
| 3                                                                                                                                                             | 5G WLAN_EUT at Y-axis                                                                                                                                                                                                                               |
| 4                                                                                                                                                             | 5G WLAN_EUT at Z-axis                                                                                                                                                                                                                               |
| For operating mode 3 is the worst case and it was record in this test report.                                                                                 |                                                                                                                                                                                                                                                     |
| <b>Operating Mode &gt; 1GHz</b>                                                                                                                               | CTX                                                                                                                                                                                                                                                 |
| The EUT can be placed Z-axis and Y-axis. After evaluating, while EUT at Y-axis generated the worst case. Thus, the test below will follow this configuration. |                                                                                                                                                                                                                                                     |

| The Worst Case Mode for Following Conformance Tests                                                                                 |                                       |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| <b>Tests Item</b>                                                                                                                   | Simultaneous Transmission Analysis    |
| <b>Test Condition</b>                                                                                                               | Radiated measurement                  |
| <b>Operating Mode</b>                                                                                                               | Normal Link                           |
| 1                                                                                                                                   | WLAN 2.4GHz + WLAN 5GHz_EUT at Y-axis |
| 2                                                                                                                                   | WLAN 2.4GHz + WLAN 5GHz_EUT at Z-axis |
| For operating mode 1 is the worst case and it was record in this test report.                                                       |                                       |
| Refer to Sporton Test Report No.: FA6N2802 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location. |                                       |

## 2.3 EUT Operation during Test

During the test, "Mtool 2.0.0.7" under WIN XP was programmed to be in continuously transmitting mode.

## 2.4 Accessories

RJ-45 Cable\*1: Non-Shielded, 1.2m

## 2.5 Support Equipment

For Test Site No: CO01-CB

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB        | DELL       | E6430      | DoC    |

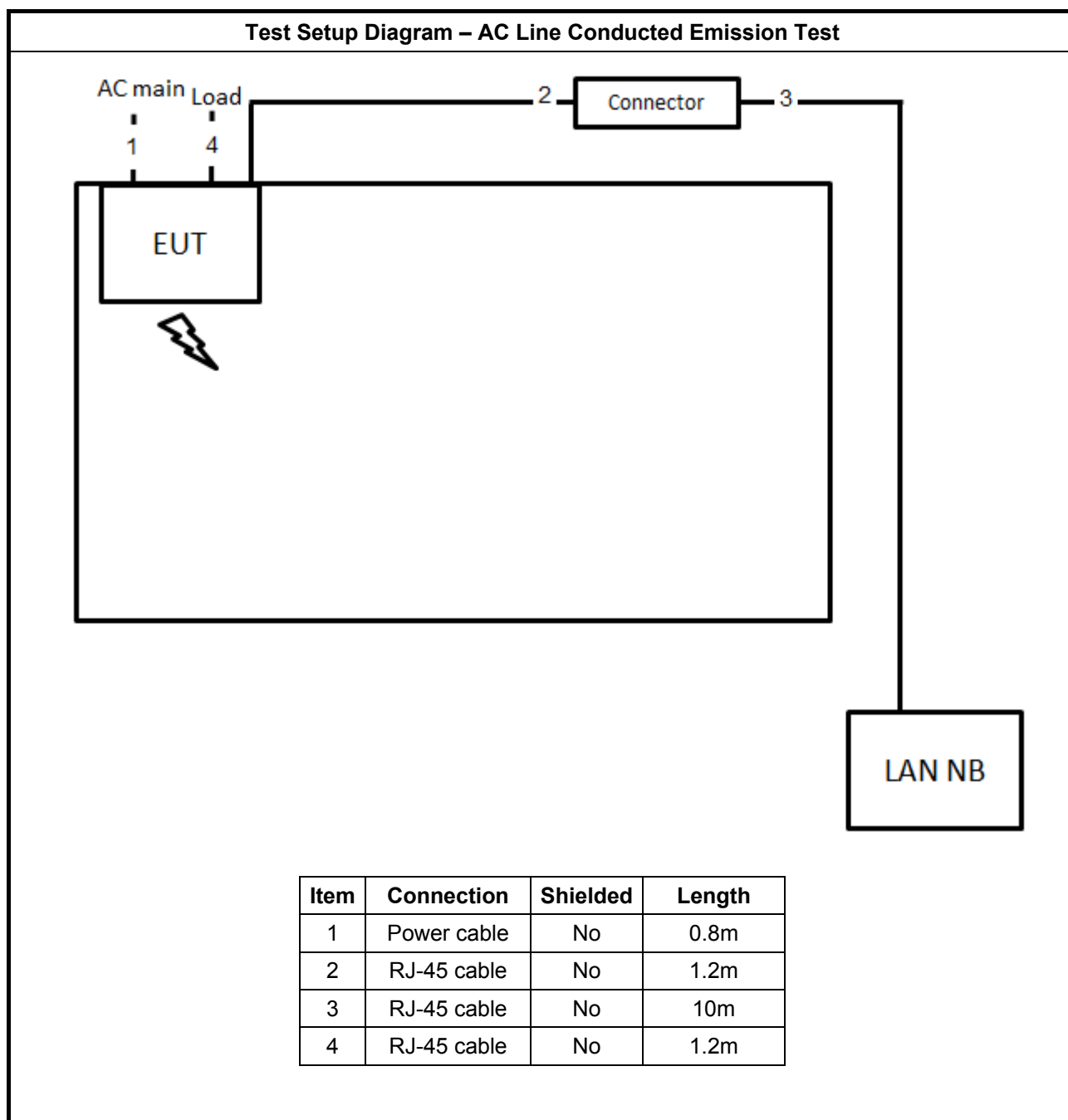
For Test Site No: 03CH01-CB

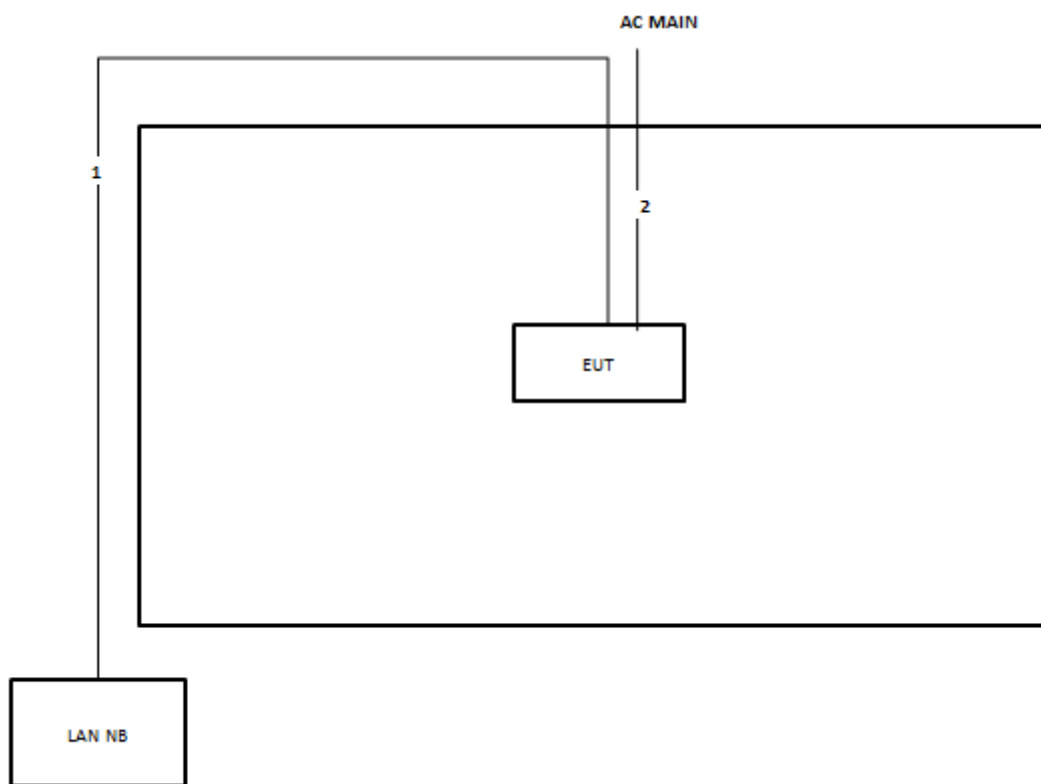
| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB        | DELL       | E4300      | DoC    |

For Test Site No: TH01-CB

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| 1                 | NB        | DELL       | E4300      | DoC    |

## 2.6 Test Setup Diagram



**Test Setup Diagram - Radiated Test**


| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | RJ-45 cable | No       | 10m    |
| 2    | Power cable | No       | 1.5m   |

### 3 Transmitter Test Result

#### 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 of the frequency.

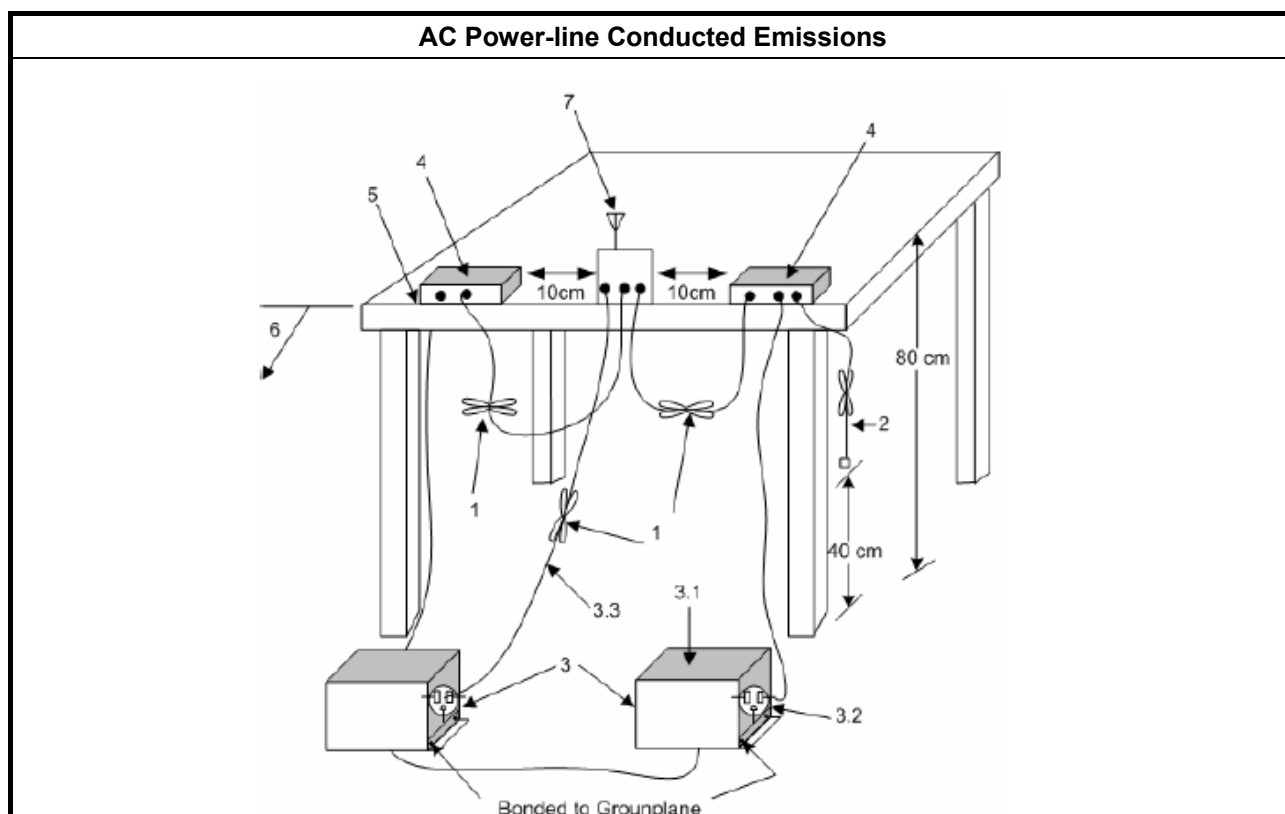
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

| Test Method                                                                                                      |
|------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions. |

##### 3.1.4 Test Setup





### **3.1.5 Test Result of AC Power-line Conducted Emissions**

Refer as Appendix A

## 3.2 Emission Bandwidth

### 3.2.1 Emission Bandwidth Limit

| Emission Bandwidth Limit            |                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNII Devices</b>                 |                                                                                                                                                                                       |
| <input checked="" type="checkbox"/> | For the 5.15-5.25 GHz band, N/A                                                                                                                                                       |
| <input type="checkbox"/>            | 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.            |
| <input type="checkbox"/>            | 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.           |
| <input checked="" type="checkbox"/> | For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq$ 500kHz.                                                                                                                   |
| <b>LE-LAN Devices</b>               |                                                                                                                                                                                       |
| <input type="checkbox"/>            | For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.                      |
| <input type="checkbox"/>            | For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz                        |
| <input type="checkbox"/>            | For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz |
| <input type="checkbox"/>            | For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq$ 500kHz.                                                                                                                   |

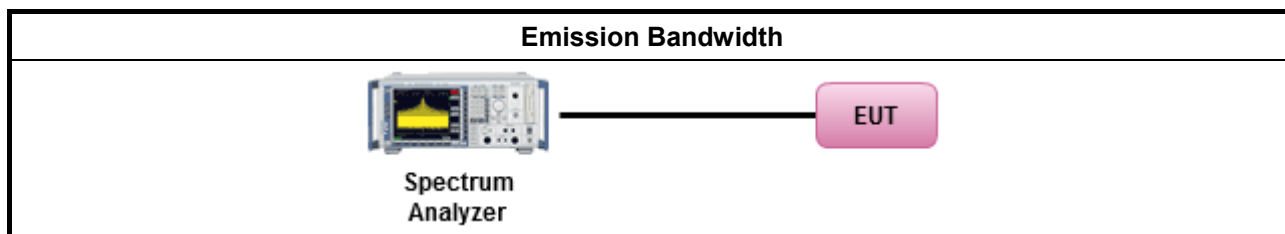
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

| Test Method                                                                                                                    |                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>For the emission bandwidth shall be measured using one of the options below:</li> </ul> |                                                                             |
| <input checked="" type="checkbox"/>                                                                                            | Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement. |
| <input type="checkbox"/>                                                                                                       | Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.          |
| <input checked="" type="checkbox"/>                                                                                            | Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.                      |

### 3.2.4 Test Setup



### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

| Maximum Conducted Output Power Limit                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNII Devices</b>                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>Outdoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>. e.i.r.p. at any elevation angle above 30 degrees <math>\leq 125</math>mW [21dBm]</li> <li>Indoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math></li> <li>Point-to-point AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 23)</math>.</li> <li>Mobile or Portable Client: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 250 mW. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 24 - (G_{TX} - 6)</math>.</li> </ul> |
| <input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input type="checkbox"/> For the 5.47-5.725 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ . |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li> <li>Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>LE-LAN Devices</b>                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input type="checkbox"/> For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <input type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li> <li>Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| $P_{Out}$ = maximum conducted output power in dBm,<br>$G_{TX}$ = the maximum transmitting antenna directional gain in dBi.                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

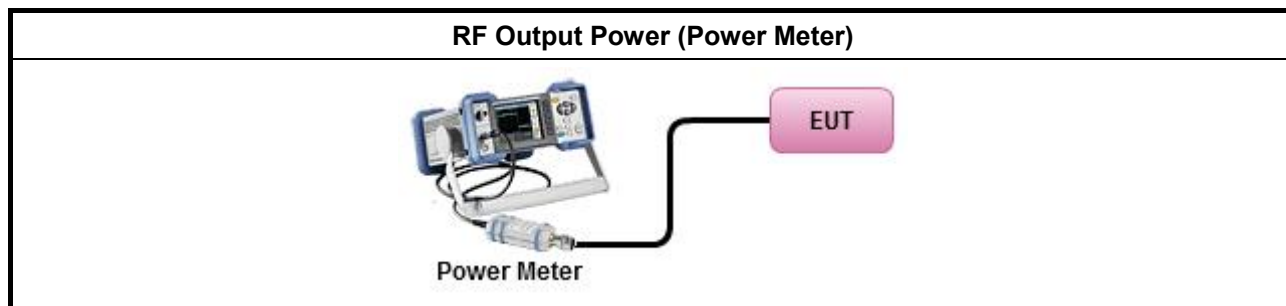
### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                            |                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Maximum Conducted Output Power</li> </ul>                                                                                                                                                                                                                                                                                       |                                                                                          |
| Average over on/off periods with duty factor                                                                                                                                                                                                                                                                                                                           |                                                                                          |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).                |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed) |
| Wideband RF power meter and average over on/off periods with duty factor                                                                                                                                                                                                                                                                                               |                                                                                          |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                    | Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).         |
| <ul style="list-style-type: none"> <li>For conducted measurement.</li> </ul>                                                                                                                                                                                                                                                                                           |                                                                                          |
| <ul style="list-style-type: none"> <li>If the EUT supports multiple transmit chains using options given below:<br/>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.</li> </ul> |                                                                                          |
| <ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP calculation could be following as methods:<br/> <math display="block">P_{total} = P_1 + P_2 + \dots + P_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm])<br/> <math display="block">EIRP_{total} = P_{total} + DG</math> </li> </ul>                                  |                                                                                          |

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

### 3.4 Peak Power Spectral Density

#### 3.4.1 Peak Power Spectral Density Limit

| Peak Power Spectral Density Limit                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNII Devices</b>                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li> <li>Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li> <li>Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 23)</math>.</li> <li>Mobile or Portable Client: the peak power spectral density (PPSD) <math>\leq 11</math> dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 11 - (G_{TX} - 6)</math>.</li> </ul> |
| <input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li> <li>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>LE-LAN Devices</b>                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) $\leq 4$ dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq 10$ dBm/MHz.                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq 17$ dBm/MHz.                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where <math>\theta</math> is the angle above the local horizontal plane (of the Earth) as shown below:<br/> <math>-13</math> dBW/MHz for <math>0^\circ \leq \theta &lt; 8^\circ</math> ; <math>-13 - 0.716(\theta - 8)</math> dBW/MHz for <math>8^\circ \leq \theta &lt; 40^\circ</math> ;<br/> <math>-35.9 - 1.22(\theta - 40)</math> dBW/MHz for <math>40^\circ \leq \theta \leq 45^\circ</math> ; <math>-42</math> dBW/MHz for <math>\theta &gt; 45^\circ</math></li> </ul>                                                                                                                                                                                             |
| <input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq 17$ dBm/MHz.                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li> <li>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>PPSD</b> = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz<br><b><math>G_{TX}</math></b> = the maximum transmitting antenna directional gain in dBi. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

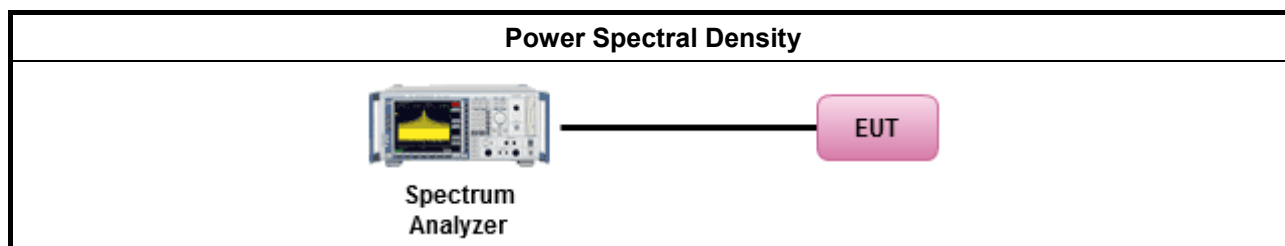
#### 3.4.2 Measuring Instruments

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

### 3.4.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:</li> </ul>                                                                                                                                                                                                                                                                                                                |  |
| <input type="checkbox"/> Refer as FCC KDB 789033, F5) 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]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <input type="checkbox"/> 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| <ul style="list-style-type: none"> <li>For conducted measurement.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <ul style="list-style-type: none"> <li>If the EUT supports multiple transmit chains using options given below:</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| <input checked="" type="checkbox"/> Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace. |  |
| <input type="checkbox"/> Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,                                                                                                                                                                                                                    |  |
| <input type="checkbox"/> Option 3: 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.                                                                                                                                                                                                                                                                                                                             |  |
| <ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP PPSD calculation could be following as methods:<br/> <math>PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n</math><br/>           (calculated in linear unit [mW] and transfer to log unit [dBm])<br/> <math>EIRP_{total} = PPSD_{total} + DG</math> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                       |  |

### 3.4.4 Test Setup





### **3.4.5 Test Result of Peak Power Spectral Density**

Refer as Appendix D

### 3.5 Unwanted Emissions

#### 3.5.1 Transmitter Radiated Unwanted Emissions Limit

| Unwanted emissions below 1 GHz and restricted band emissions above 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.p. -27 dBm [68.2 dBuV/m@3m]                                                                                                                                                                                                                                                                                                                                                                                               |
| 5.25 - 5.35 GHz                               | e.i.r.p. -27 dBm [68.2 dBuV/m@3m]                                                                                                                                                                                                                                                                                                                                                                                               |
| 5.47 - 5.725 GHz                              | e.i.r.p. -27 dBm [68.2 dBuV/m@3m]                                                                                                                                                                                                                                                                                                                                                                                               |
| 5.725 - 5.85 GHz                              | all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. |

Note 1: 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).

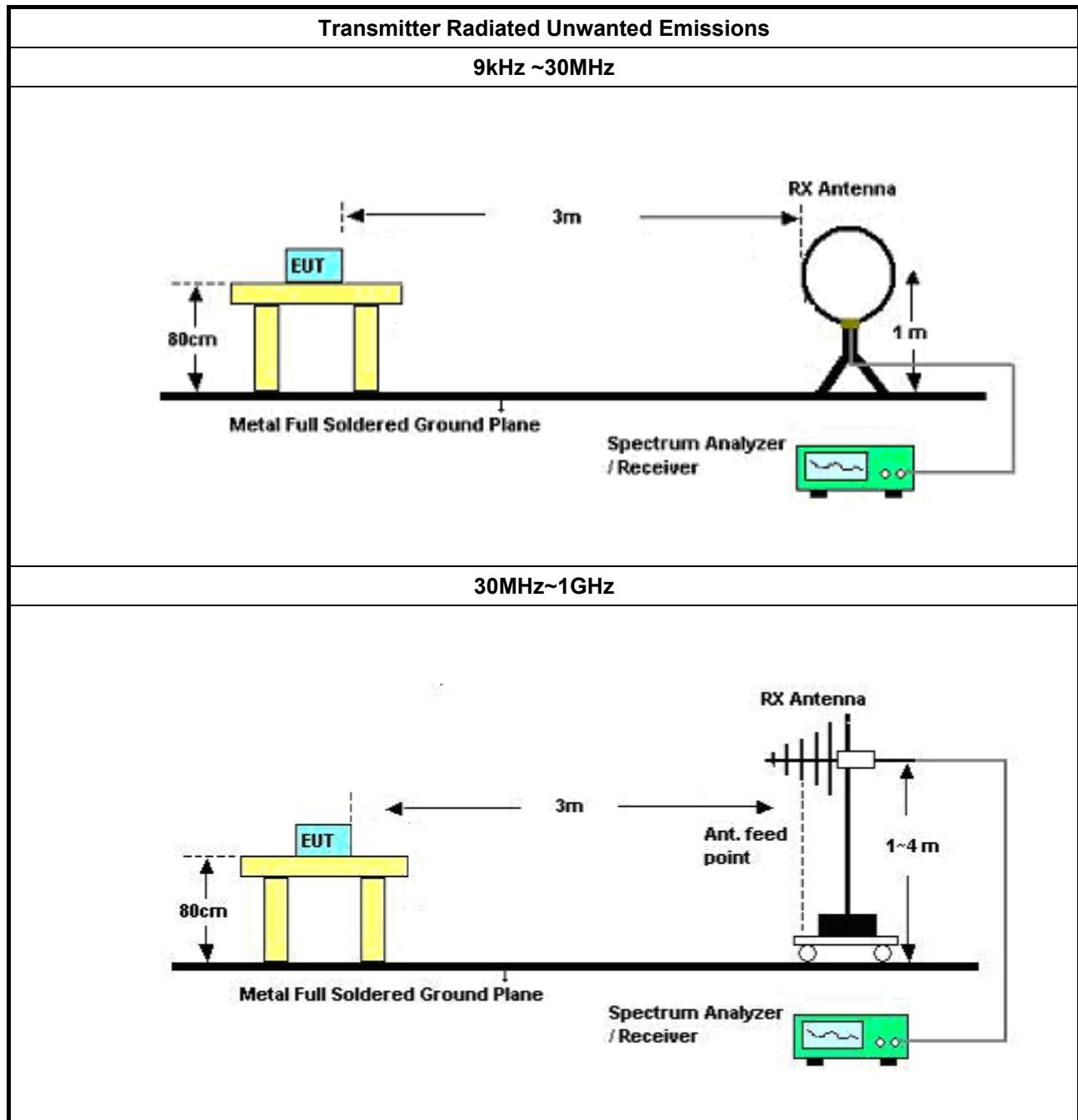
### 3.5.2 Measuring Instruments

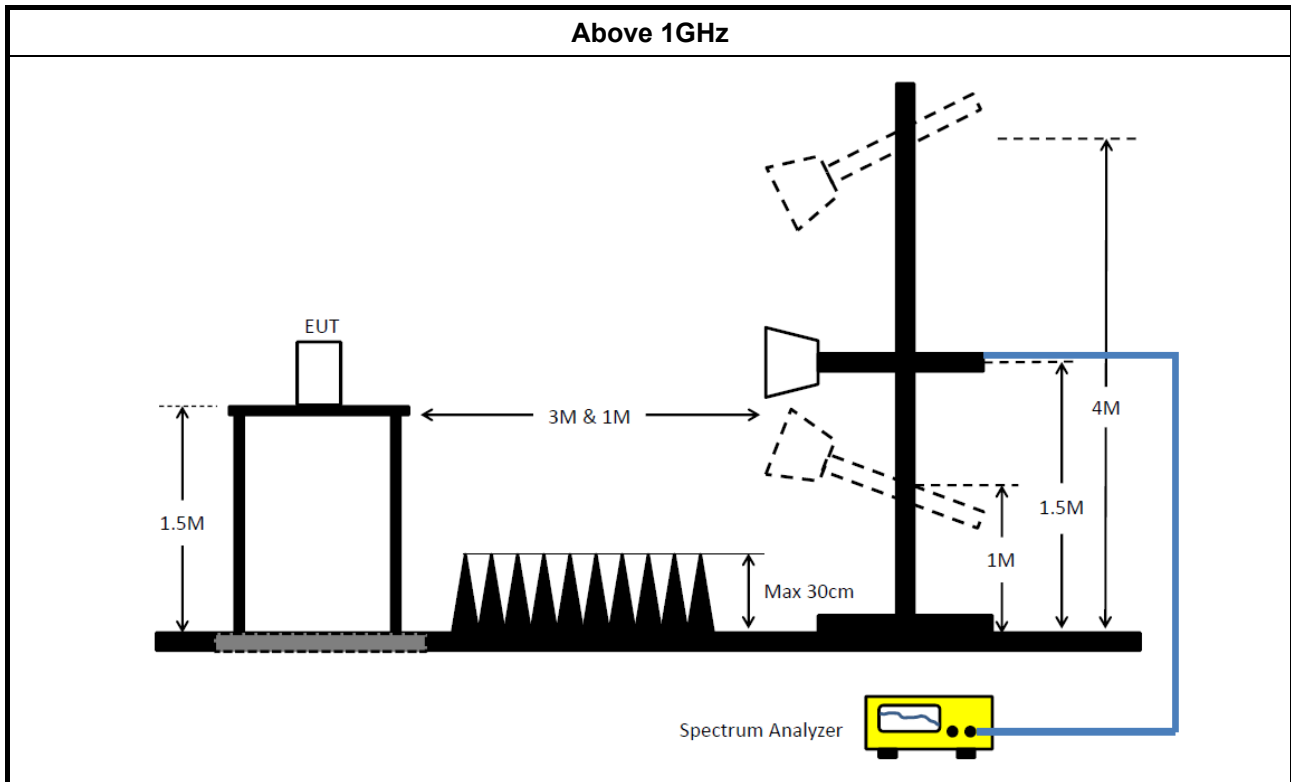
Refer a test equipment and calibration data table in this test report.

### 3.5.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>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. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. 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).</li> </ul> |                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>The average emission levels shall be measured in [duty cycle <math>\geq</math> 98 or duty factor].</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.</li> </ul>           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.</li> </ul>               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause H)5) measurement procedure peak limit.                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>For radiated measurement.</li> </ul>                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.</li> </ul>    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.</li> </ul>                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>The any unwanted emissions level shall not exceed the fundamental emission level.</li> </ul>                |
| <ul style="list-style-type: none"> <li>All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                    |

### 3.5.4 Test Setup





### 3.5.5 Transmitter Unwanted Emissions (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.

### 3.5.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

## 3.6 Frequency Stability

### 3.6.1 Frequency Stability Limit

| Frequency Stability Limit                                                                                                                                                                                          |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>UNII Devices</b>                                                                                                                                                                                                |  |
| <ul style="list-style-type: none"> <li>In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.</li> </ul>                          |  |
| <b>LE-LAN Devices</b>                                                                                                                                                                                              |  |
| <ul style="list-style-type: none"> <li>N/A</li> </ul>                                                                                                                                                              |  |
| <b>IEEE Std. 802.11</b>                                                                                                                                                                                            |  |
| <ul style="list-style-type: none"> <li>The transmitter center frequency tolerance shall be <math>\pm 20</math> ppm maximum for the 5 GHz band and <math>\pm 25</math> ppm maximum for the 2.4 GHz band.</li> </ul> |  |

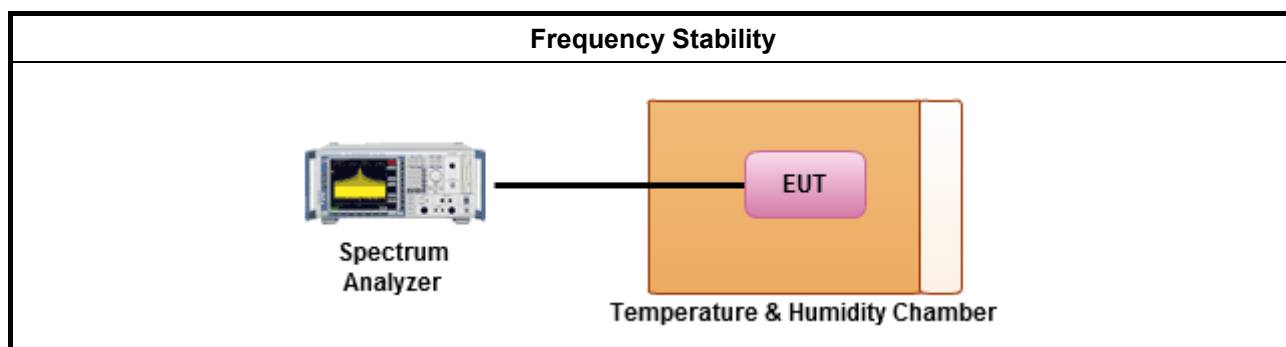
### 3.6.2 Measuring Instruments

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

### 3.6.3 Test Procedures

| Test Method                                                                                                      |                                                                                                           |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Refer as ANSI C63.10, clause 6.8 for frequency stability tests</li> </ul> |                                                                                                           |
|                                                                                                                  | <ul style="list-style-type: none"> <li>Frequency stability with respect to ambient temperature</li> </ul> |
|                                                                                                                  | <ul style="list-style-type: none"> <li>Frequency stability when varying supply voltage</li> </ul>         |
|                                                                                                                  | <ul style="list-style-type: none"> <li>Extreme temperature is 0°C~40°C.</li> </ul>                        |

### 3.6.4 Test Setup





### **3.6.5 Test Result of Frequency Stability**

Refer as Appendix F

## 4 Test Equipment and Calibration Data

| Instrument                        | Manufacturer | Model No.         | Serial No.       | Characteristics | Calibration Date | Remark                |
|-----------------------------------|--------------|-------------------|------------------|-----------------|------------------|-----------------------|
| EMI Receiver                      | Agilent      | N9038A            | My52260123       | 9kHz ~ 8.45GHz  | Jan. 27, 2016    | Conduction (CO01-CB)  |
| LISN                              | Schwarzbeck  | NSLK 8127         | 8127650          | 9kHz ~ 30MHz    | Nov. 23, 2016    | Conduction (CO01-CB)  |
| LISN                              | Schwarzbeck  | NSLK 8127         | 8127478          | 9kHz ~ 30MHz    | Nov. 15, 2016    | Conduction (CO01-CB)  |
| COND Cable                        | Woken        | Cable             | 01               | 150kHz ~ 30MHz  | May 24, 2016     | Conduction (CO01-CB)  |
| Software                          | Audix        | E3                | 6.120210n        | -               | N.C.R.           | Conduction (CO01-CB)  |
| BILOG ANTENNA with 6dB Attenuator | TESEQ & EMCI | CBL6112D & N-6-06 | 37880 & AT-N0609 | 20MHz ~ 2GHz    | Aug. 30, 2016    | Radiation (03CH01-CB) |
| Loop Antenna                      | Teseq        | HLA 6120          | 24155            | 9kHz - 30 MHz   | Mar. 16, 2016*   | Radiation (03CH01-CB) |
| Horn Antenna                      | EMCO         | 3115              | 00075790         | 750MHz ~ 18GHz  | Nov. 10, 2016    | Radiation (03CH01-CB) |
| Horn Antenna                      | Schwarzbeck  | BBHA 9170         | BBHA9170252      | 15GHz ~ 40GHz   | Jul. 25, 2016    | Radiation (03CH01-CB) |
| Pre-Amplifier                     | Agilent      | 8447D             | 2944A10991       | 0.1MHz ~ 1.3GHz | Mar. 15, 2016    | Radiation (03CH01-CB) |
| Pre-Amplifier                     | Agilent      | 8449B             | 3008A02310       | 1GHz ~ 26.5GHz  | Jan. 18, 2016    | Radiation (03CH01-CB) |
| Pre-Amplifier                     | MITEQ        | TTA1840-35-HG     | 1864479          | 18GHz ~ 40GHz   | Jun. 28, 2016    | Radiation (03CH01-CB) |
| Spectrum Analyzer                 | R&S          | FSP40             | 100056           | 9kHz ~ 40GHz    | Nov. 21, 2016    | Radiation (03CH01-CB) |
| EMI Test                          | R&S          | ESCS              | 100355           | 9kHz ~ 2.75GHz  | May 16, 2016     | Radiation (03CH01-CB) |
| RF Cable-low                      | Woken        | Low Cable-16+17   | N/A              | 30 MHz ~ 1 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-16     | N/A              | 1 GHz ~ 18 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-16+17  | N/A              | 1 GHz ~ 18 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-40G#1  | N/A              | 18GHz ~ 40 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-40G#2  | N/A              | 18GHz ~ 40 GHz  | Oct. 24, 2016    | Radiation (03CH01-CB) |



| Instrument                 | Manufacturer | Model No. | Serial No.    | Characteristics  | Calibration Date | Remark                   |
|----------------------------|--------------|-----------|---------------|------------------|------------------|--------------------------|
| Test Software              | Audix        | E3        | 6.2009-I0-7   | N/A              | N/A              | Radiation<br>(03CH01-CB) |
| Spectrum analyzer          | R&S          | FSV40     | 101027        | 9kHz~40GHz       | Jul. 26, 2016    | Conducted<br>(TH01-CB)   |
| Temp. and Humidity Chamber | Ten Billion  | TTH-D3SP  | TBN-931011    | -30~100 degree   | Jun. 03, 2016    | Conducted<br>(TH01-CB)   |
| RF Cable-high              | Woken        | RG402     | High Cable-6  | 1 GHz – 26.5 GHz | Oct. 24, 2016    | Conducted<br>(TH01-CB)   |
| RF Cable-high              | Woken        | RG402     | High Cable-7  | 1 GHz –26.5 GHz  | Oct. 24, 2016    | Conducted<br>(TH01-CB)   |
| RF Cable-high              | Woken        | RG402     | High Cable-8  | 1 GHz –26.5 GHz  | Oct. 24, 2016    | Conducted<br>(TH01-CB)   |
| RF Cable-high              | Woken        | RG402     | High Cable-9  | 1 GHz –26.5 GHz  | Oct. 24, 2016    | Conducted<br>(TH01-CB)   |
| RF Cable-high              | Woken        | RG402     | High Cable-10 | 1 GHz –26.5 GHz  | Oct. 24, 2016    | Conducted<br>(TH01-CB)   |
| Power Sensor               | Agilent      | U2021XA   | MY53410001    | 50MHz~18GHz      | Nov. 22, 2016    | Conducted<br>(TH01-CB)   |

Note: Calibration Interval of instruments listed above is one year.

“\*” Calibration Interval of instruments listed above is two years.

NCR means Non-Calibration required.



| AC Power-line Conducted Emissions Result                                                           |         |       |            |            |             |             |            |           |         |
|----------------------------------------------------------------------------------------------------|---------|-------|------------|------------|-------------|-------------|------------|-----------|---------|
| Operating Mode                                                                                     | 1       |       |            |            | Power Phase |             |            | Neutral   |         |
| Operating Function                                                                                 | CTX     |       |            |            |             |             |            |           |         |
| <div><div><div>Level (dBuV)</div><div>Date: 2016-12-16 Time: 20:35:01</div><div></div></div></div> |         |       |            |            |             |             |            |           |         |
|                                                                                                    | Freq    | Level | Over Limit | Limit Line | Read Level  | LISN Factor | Cable Loss | Pol/Phase | Remark  |
|                                                                                                    | MHz     | dBuV  | dB         | dBuV       | dBuV        | dB          | dB         |           |         |
| 1                                                                                                  | 0.2151  | 32.56 | -20.45     | 53.01      | 22.47       | 9.92        | 0.17       | NEUTRAL   | Average |
| 2                                                                                                  | 0.2151  | 39.82 | -23.19     | 63.01      | 29.73       | 9.92        | 0.17       | NEUTRAL   | QP      |
| 3                                                                                                  | 0.3035  | 33.82 | -16.33     | 50.15      | 23.82       | 9.92        | 0.08       | NEUTRAL   | Average |
| 4                                                                                                  | 0.3035  | 42.31 | -17.84     | 60.15      | 32.31       | 9.92        | 0.08       | NEUTRAL   | QP      |
| 5                                                                                                  | 0.3893  | 30.83 | -17.25     | 48.08      | 20.89       | 9.92        | 0.02       | NEUTRAL   | Average |
| 6                                                                                                  | 0.3893  | 38.06 | -20.02     | 58.08      | 28.12       | 9.92        | 0.02       | NEUTRAL   | QP      |
| 7                                                                                                  | 1.0997  | 26.74 | -19.26     | 46.00      | 16.15       | 9.94        | 0.65       | NEUTRAL   | Average |
| 8                                                                                                  | 1.0997  | 33.39 | -22.61     | 56.00      | 22.80       | 9.94        | 0.65       | NEUTRAL   | QP      |
| 9                                                                                                  | 2.0659  | 23.86 | -22.14     | 46.00      | 13.84       | 9.96        | 0.06       | NEUTRAL   | Average |
| 10                                                                                                 | 2.0659  | 30.59 | -25.41     | 56.00      | 20.57       | 9.96        | 0.06       | NEUTRAL   | QP      |
| 11                                                                                                 | 25.1876 | 22.39 | -27.61     | 50.00      | 11.67       | 10.45       | 0.27       | NEUTRAL   | Average |
| 12                                                                                                 | 25.1876 | 29.17 | -30.83     | 60.00      | 18.45       | 10.45       | 0.27       | NEUTRAL   | QP      |

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.  
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

| AC Power-line Conducted Emissions Result                                                           |         |       |            |            |             |             |            |           |         |
|----------------------------------------------------------------------------------------------------|---------|-------|------------|------------|-------------|-------------|------------|-----------|---------|
| Operating Mode                                                                                     | 1       |       |            |            | Power Phase |             |            | Line      |         |
| Operating Function                                                                                 | CTX     |       |            |            |             |             |            |           |         |
| <div><div><div>Level (dBuV)</div><div>Date: 2016-12-16 Time: 20:33:37</div><div></div></div></div> |         |       |            |            |             |             |            |           |         |
|                                                                                                    | Freq    | Level | Over Limit | Limit Line | Read Level  | LISN Factor | Cable Loss | Pol/Phase | Remark  |
|                                                                                                    | MHz     | dBuV  | dB         | dBuV       | dBuV        | dB          | dB         |           |         |
| 1                                                                                                  | 0.2151  | 32.51 | -20.50     | 53.01      | 22.42       | 9.92        | 0.17       | LINE      | Average |
| 2                                                                                                  | 0.2151  | 39.89 | -23.12     | 63.01      | 29.80       | 9.92        | 0.17       | LINE      | QP      |
| 3                                                                                                  | 0.3035  | 34.08 | -16.07     | 50.15      | 24.08       | 9.92        | 0.08       | LINE      | Average |
| 4                                                                                                  | 0.3035  | 43.05 | -17.10     | 60.15      | 33.05       | 9.92        | 0.08       | LINE      | QP      |
| 5                                                                                                  | 0.3914  | 30.34 | -17.69     | 48.03      | 20.40       | 9.92        | 0.02       | LINE      | Average |
| 6                                                                                                  | 0.3914  | 37.50 | -20.53     | 58.03      | 27.56       | 9.92        | 0.02       | LINE      | QP      |
| 7                                                                                                  | 1.0265  | 26.81 | -19.19     | 46.00      | 16.15       | 9.94        | 0.72       | LINE      | Average |
| 8                                                                                                  | 1.0265  | 33.64 | -22.36     | 56.00      | 22.98       | 9.94        | 0.72       | LINE      | QP      |
| 9                                                                                                  | 2.3213  | 23.87 | -22.13     | 46.00      | 13.84       | 9.96        | 0.07       | LINE      | Average |
| 10                                                                                                 | 2.3213  | 30.73 | -25.27     | 56.00      | 20.70       | 9.96        | 0.07       | LINE      | QP      |
| 11                                                                                                 | 25.3214 | 22.63 | -27.37     | 50.00      | 11.91       | 10.45       | 0.27       | LINE      | Average |
| 12                                                                                                 | 25.3214 | 29.31 | -30.69     | 60.00      | 18.59       | 10.45       | 0.27       | LINE      | QP      |

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.  
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)



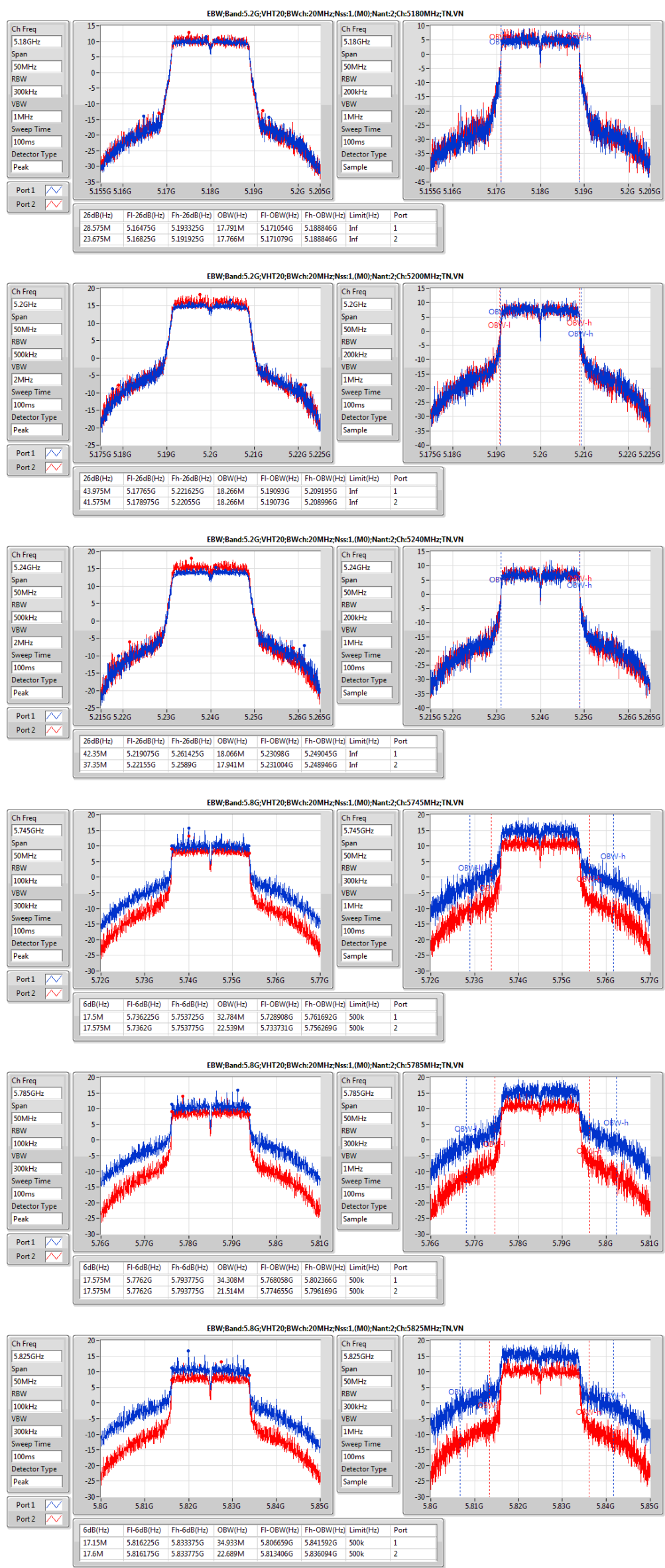
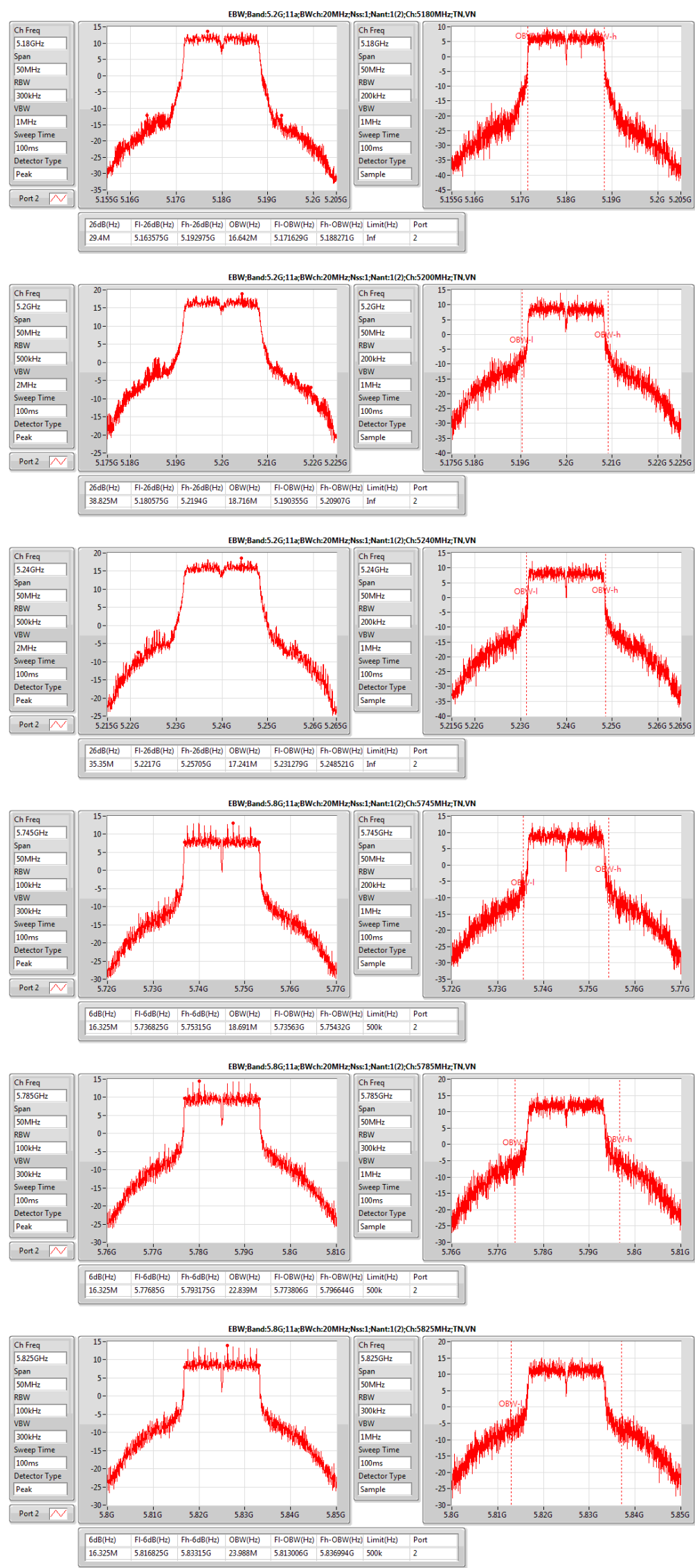
Summary

| Mode                      | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|---------------------------|------------------|-----------------|----------|------------------|-----------------|
| 5.2G;11a;Nss1;Ntx1(2)     | 38.825M          | 18.716M         | 18M7D1D  | 29.4M            | 16.642M         |
| 5.8G;11a;Nss1;Ntx1(2)     | 16.325M          | 23.988M         | 24M0D1D  | 16.325M          | 18.691M         |
| 5.2G;VHT20;Nss1,(M0);Ntx2 | 43.975M          | 18.266M         | 18M3D1D  | 23.675M          | 17.766M         |
| 5.8G;VHT20;Nss1,(M0);Ntx2 | 17.6M            | 34.933M         | 34M9D1D  | 17.15M           | 21.514M         |
| 5.2G;VHT40;Nss1,(M0);Ntx2 | 94.3M            | 36.532M         | 36M5D1D  | 39.6M            | 36.232M         |
| 5.8G;VHT40;Nss1,(M0);Ntx2 | 36.35M           | 51.224M         | 51M2D1D  | 35.75M           | 38.981M         |
| 5.2G;VHT80;Nss1,(M0);Ntx2 | 82M              | 75.862M         | 75M9D1D  | 81.8M            | 75.662M         |
| 5.8G;VHT80;Nss1,(M0);Ntx2 | 75.7M            | 75.862M         | 75M9D1D  | 75.4M            | 75.762M         |



Result

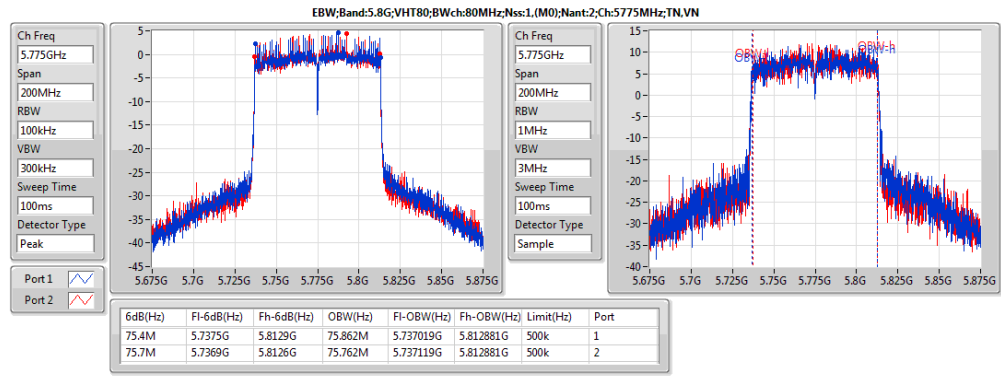
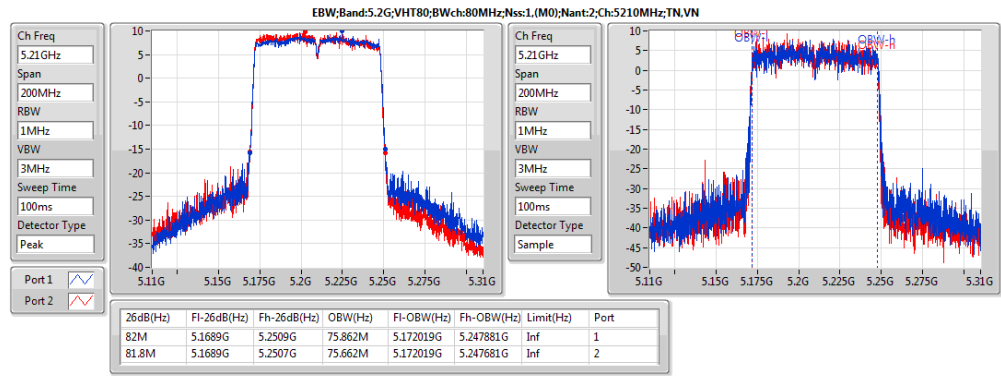
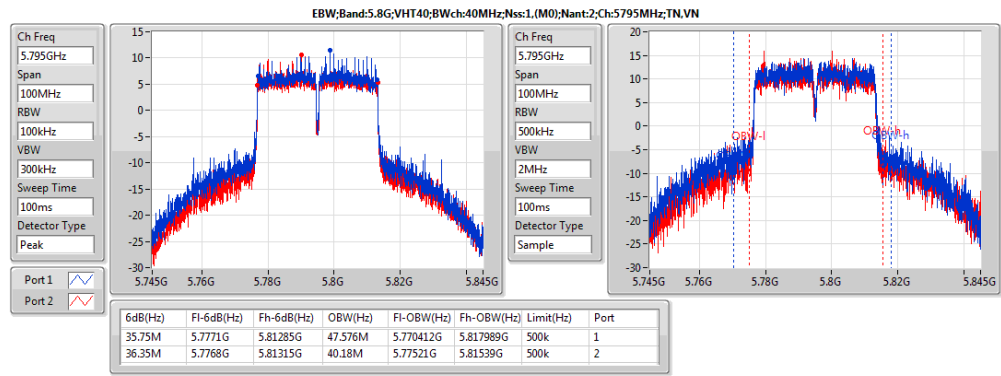
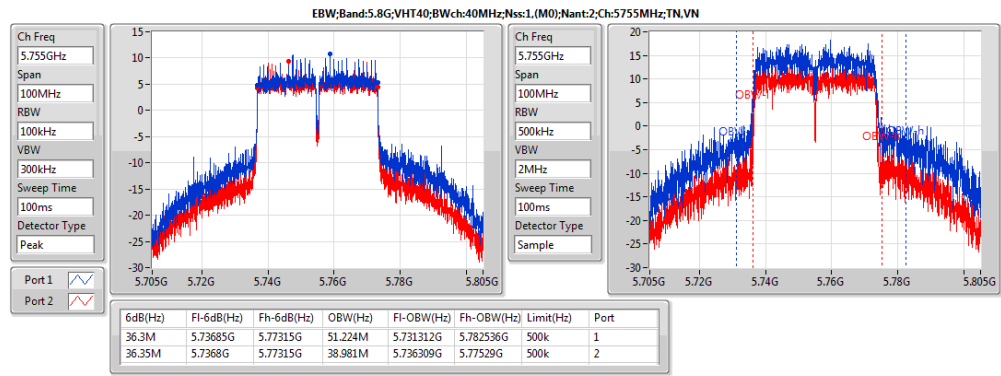
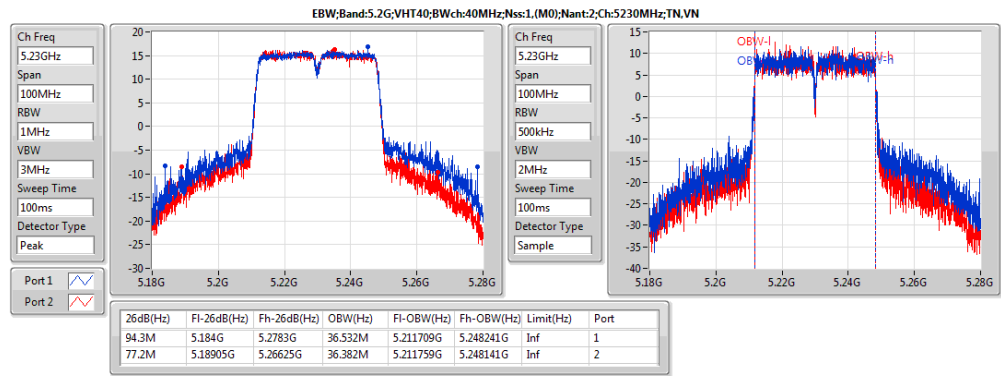
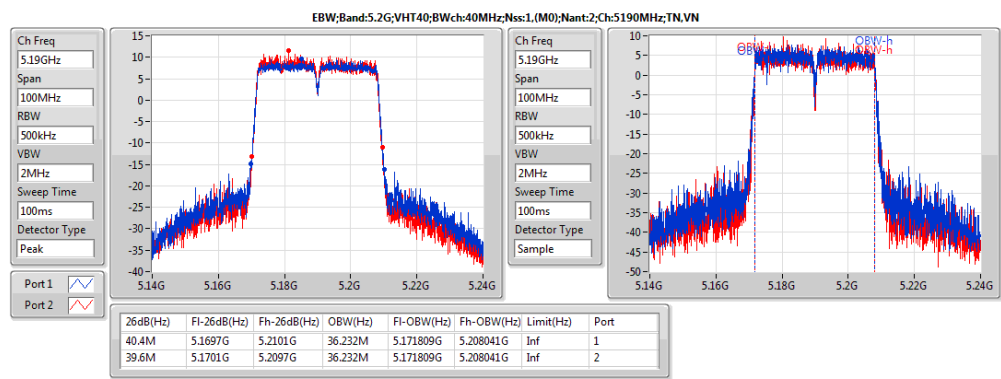
| Mode                           | Result | Limit<br>(Hz) | P1-N dB<br>(Hz) | P1-OBW<br>(Hz) | P2-N dB<br>(Hz) | P2-OBW<br>(Hz) |
|--------------------------------|--------|---------------|-----------------|----------------|-----------------|----------------|
| 5.2G;11a;Nss1;Ntx1(2);5180     | Pass   | Inf           |                 |                | 29.4M           | 16.642M        |
| 5.2G;11a;Nss1;Ntx1(2);5200     | Pass   | Inf           |                 |                | 38.825M         | 18.716M        |
| 5.2G;11a;Nss1;Ntx1(2);5240     | Pass   | Inf           |                 |                | 35.35M          | 17.241M        |
| 5.8G;11a;Nss1;Ntx1(2);5745     | Pass   | 500k          |                 |                | 16.325M         | 18.691M        |
| 5.8G;11a;Nss1;Ntx1(2);5785     | Pass   | 500k          |                 |                | 16.325M         | 22.839M        |
| 5.8G;11a;Nss1;Ntx1(2);5825     | Pass   | 500k          |                 |                | 16.325M         | 23.988M        |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5180 | Pass   | Inf           | 28.575M         | 17.791M        | 23.675M         | 17.766M        |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5200 | Pass   | Inf           | 43.975M         | 18.266M        | 41.575M         | 18.266M        |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5240 | Pass   | Inf           | 42.35M          | 18.066M        | 37.35M          | 17.941M        |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5745 | Pass   | 500k          | 17.5M           | 32.784M        | 17.575M         | 22.539M        |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5785 | Pass   | 500k          | 17.575M         | 34.308M        | 17.575M         | 21.514M        |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5825 | Pass   | 500k          | 17.15M          | 34.933M        | 17.6M           | 22.689M        |
| 5.2G;VHT40;Nss1,(M0);Ntx2;5190 | Pass   | Inf           | 40.4M           | 36.232M        | 39.6M           | 36.232M        |
| 5.2G;VHT40;Nss1,(M0);Ntx2;5230 | Pass   | Inf           | 94.3M           | 36.532M        | 77.2M           | 36.382M        |
| 5.8G;VHT40;Nss1,(M0);Ntx2;5755 | Pass   | 500k          | 36.3M           | 51.224M        | 36.35M          | 38.981M        |
| 5.8G;VHT40;Nss1,(M0);Ntx2;5795 | Pass   | 500k          | 35.75M          | 47.576M        | 36.35M          | 40.18M         |
| 5.2G;VHT80;Nss1,(M0);Ntx2;5210 | Pass   | Inf           | 82M             | 75.862M        | 81.8M           | 75.662M        |
| 5.8G;VHT80;Nss1,(M0);Ntx2;5775 | Pass   | 500k          | 75.4M           | 75.862M        | 75.7M           | 75.762M        |





EBW Result

Appendix B





Summary

| Mode                      | Sum<br>(dBm) | Sum<br>(W) | EIRP<br>(dBm) | EIRP<br>(W) |
|---------------------------|--------------|------------|---------------|-------------|
| 5.2G;11a;Nss1;Ntx1(2)     | 23.90        | 0.24547    | 26.68         | 0.46559     |
| 5.8G;11a;Nss1;Ntx1(2)     | 25.24        | 0.3342     | 28.02         | 0.63387     |
| 5.2G;VHT20;Nss1,(M0);Ntx2 | 26.14        | 0.41115    | 28.92         | 0.77983     |
| 5.8G;VHT20;Nss1,(M0);Ntx2 | 28.75        | 0.74989    | 31.53         | 1.42233     |
| 5.2G;VHT40;Nss1,(M0);Ntx2 | 24.47        | 0.2799     | 27.25         | 0.53088     |
| 5.8G;VHT40;Nss1,(M0);Ntx2 | 27.89        | 0.61518    | 30.67         | 1.16681     |
| 5.2G;VHT80;Nss1,(M0);Ntx2 | 20.31        | 0.1074     | 23.09         | 0.2037      |
| 5.8G;VHT80;Nss1,(M0);Ntx2 | 24.04        | 0.25351    | 26.82         | 0.48084     |



Result

| Mode                           | Result | DG<br>(dBi) | Sum<br>(dBm) | Sum Lim.<br>(dBm) | EIRP<br>(dBm) | EIRP Lim.<br>(dBm) | P1<br>(dBm) | P2<br>(dBm) |
|--------------------------------|--------|-------------|--------------|-------------------|---------------|--------------------|-------------|-------------|
| 5.2G;11a;Nss1;Ntx1(2);5180     | Pass   | 2.78        | 21.07        | 30.00             | 23.85         | 36.00              |             | 21.07       |
| 5.2G;11a;Nss1;Ntx1(2);5200     | Pass   | 2.78        | 23.90        | 30.00             | 26.68         | 36.00              |             | 23.90       |
| 5.2G;11a;Nss1;Ntx1(2);5240     | Pass   | 2.78        | 23.36        | 30.00             | 26.14         | 36.00              |             | 23.36       |
| 5.8G;11a;Nss1;Ntx1(2);5745     | Pass   | 2.78        | 25.24        | 30.00             | 28.02         | 36.00              |             | 25.24       |
| 5.8G;11a;Nss1;Ntx1(2);5785     | Pass   | 2.78        | 25.16        | 30.00             | 27.94         | 36.00              |             | 25.16       |
| 5.8G;11a;Nss1;Ntx1(2);5825     | Pass   | 2.78        | 24.94        | 30.00             | 27.72         | 36.00              |             | 24.94       |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5180 | Pass   | 2.78        | 23.41        | 30.00             | 26.19         | 36.00              | 20.36       | 20.43       |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5200 | Pass   | 2.78        | 26.14        | 30.00             | 28.92         | 36.00              | 23.04       | 23.21       |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5240 | Pass   | 2.78        | 25.43        | 30.00             | 28.21         | 36.00              | 22.33       | 22.51       |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5745 | Pass   | 2.78        | 28.75        | 30.00             | 31.53         | 36.00              | 26.46       | 24.87       |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5785 | Pass   | 2.78        | 28.60        | 30.00             | 31.38         | 36.00              | 26.40       | 24.60       |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5825 | Pass   | 2.78        | 28.62        | 30.00             | 31.40         | 36.00              | 26.48       | 24.51       |
| 5.2G;VHT40;Nss1,(M0);Ntx2;5190 | Pass   | 2.78        | 21.63        | 30.00             | 24.41         | 36.00              | 18.86       | 18.36       |
| 5.2G;VHT40;Nss1,(M0);Ntx2;5230 | Pass   | 2.78        | 24.47        | 30.00             | 27.25         | 36.00              | 21.84       | 21.05       |
| 5.8G;VHT40;Nss1,(M0);Ntx2;5755 | Pass   | 2.78        | 27.89        | 30.00             | 30.67         | 36.00              | 25.30       | 24.42       |
| 5.8G;VHT40;Nss1,(M0);Ntx2;5795 | Pass   | 2.78        | 27.86        | 30.00             | 30.64         | 36.00              | 25.29       | 24.35       |
| 5.2G;VHT80;Nss1,(M0);Ntx2;5210 | Pass   | 2.78        | 20.31        | 30.00             | 23.09         | 36.00              | 17.39       | 17.20       |
| 5.8G;VHT80;Nss1,(M0);Ntx2;5775 | Pass   | 2.78        | 24.04        | 30.00             | 26.82         | 36.00              | 21.23       | 20.83       |



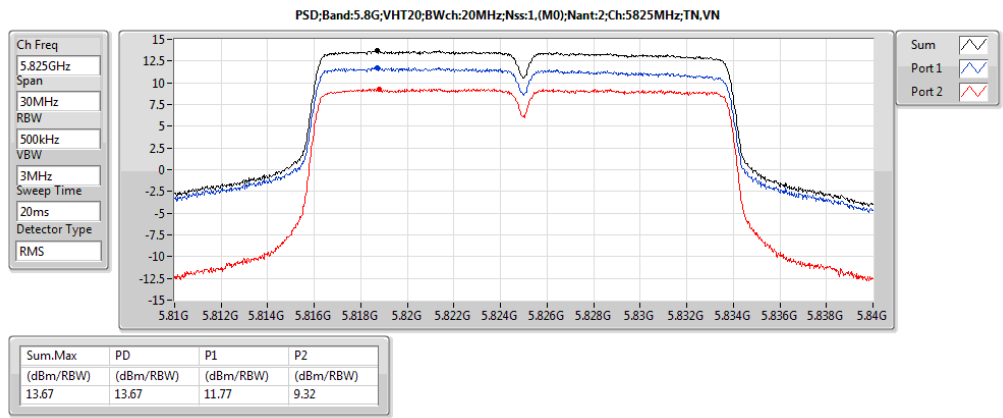
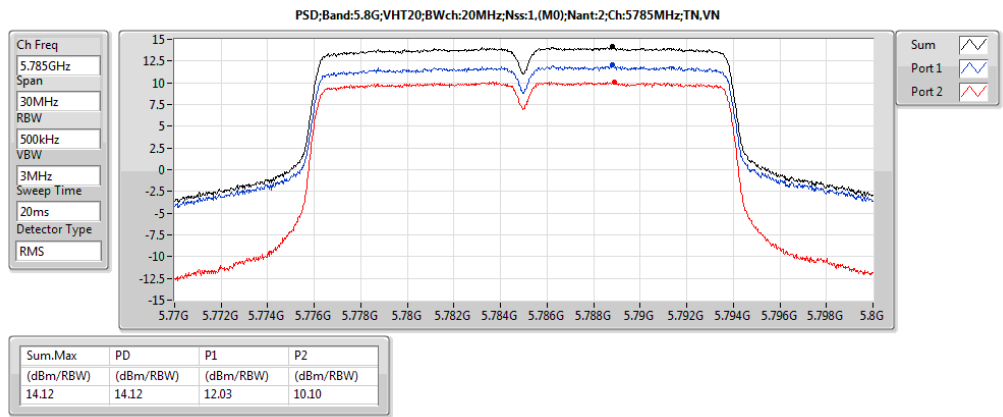
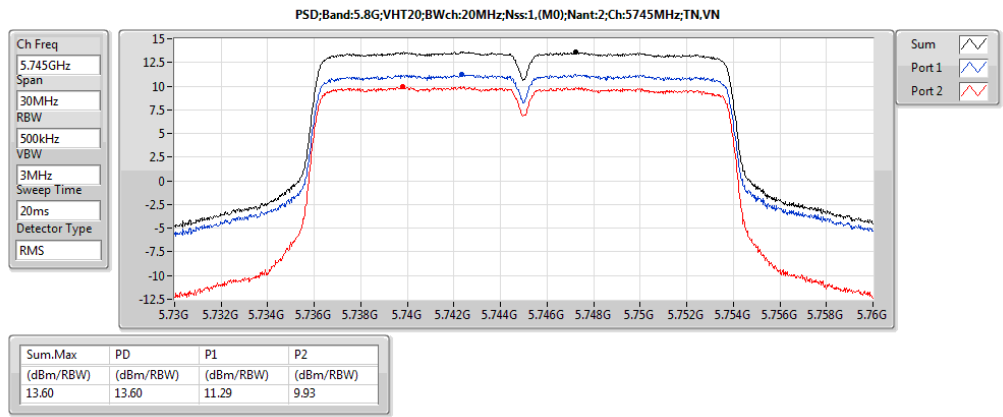
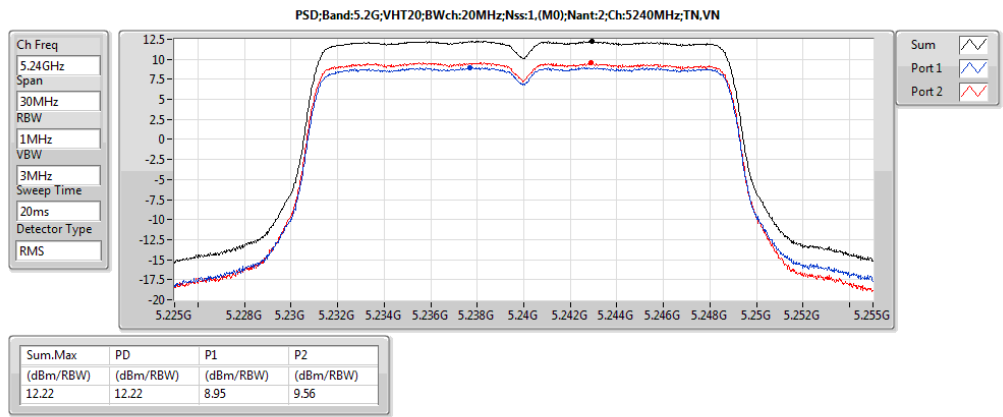
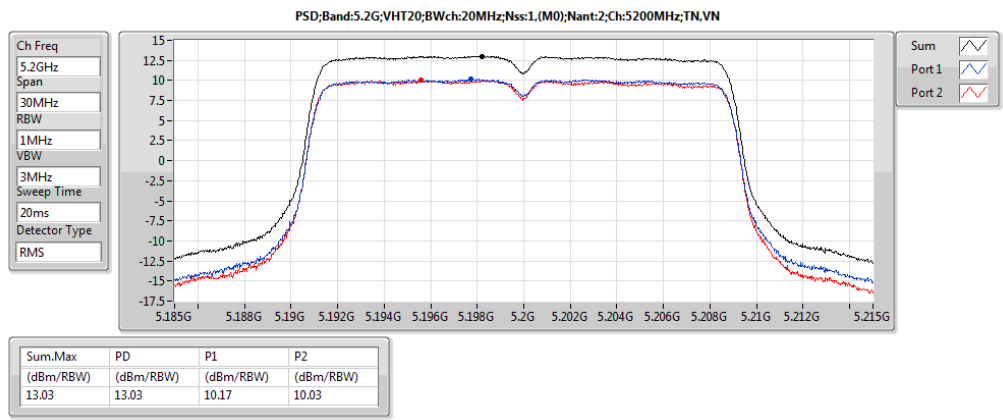
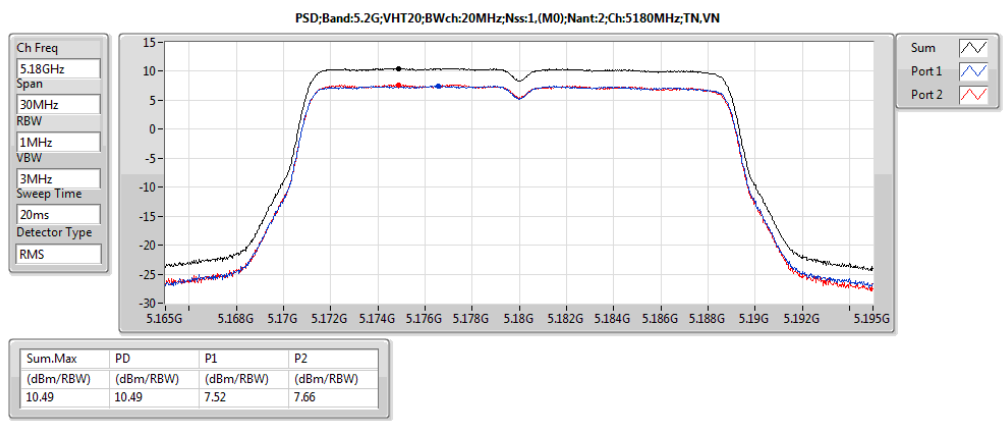
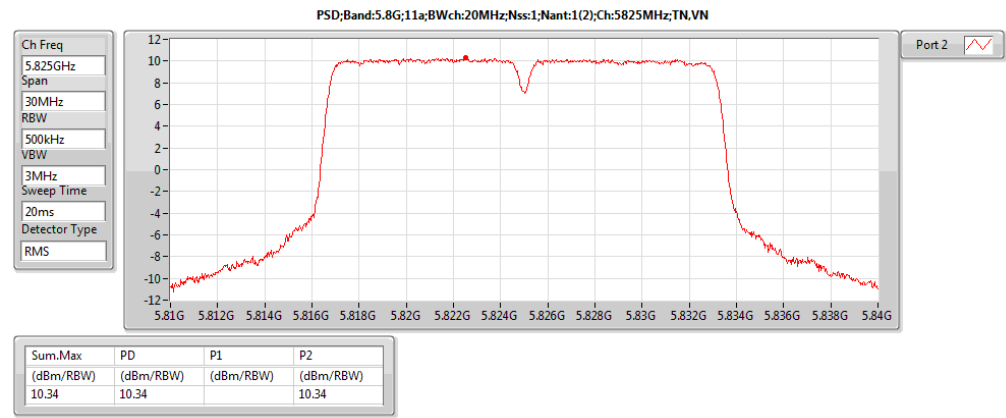
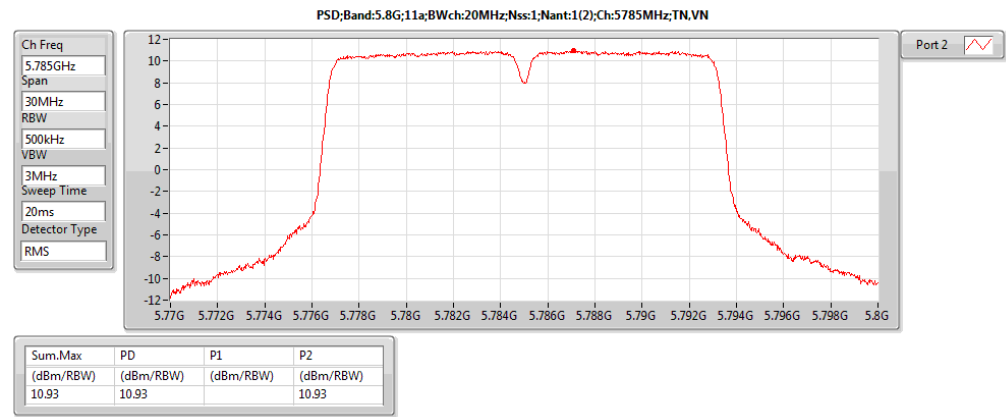
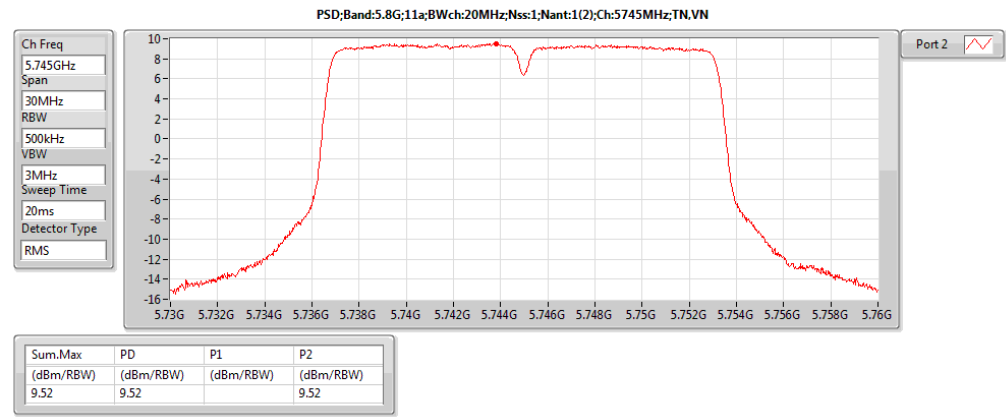
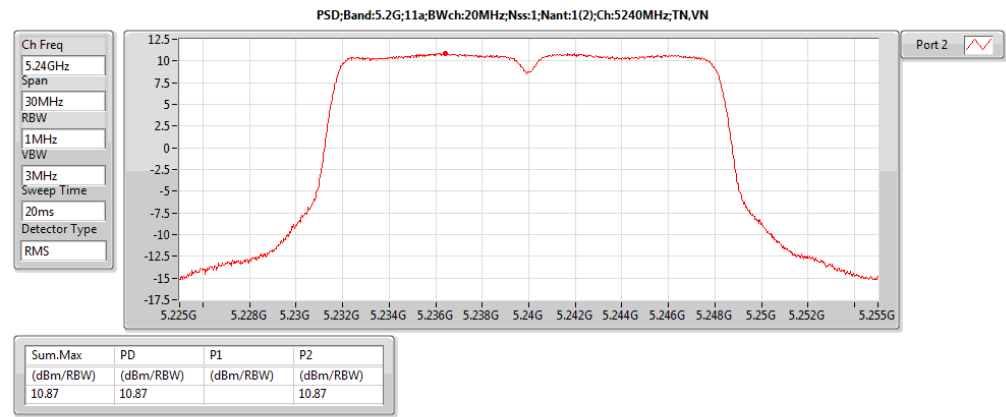
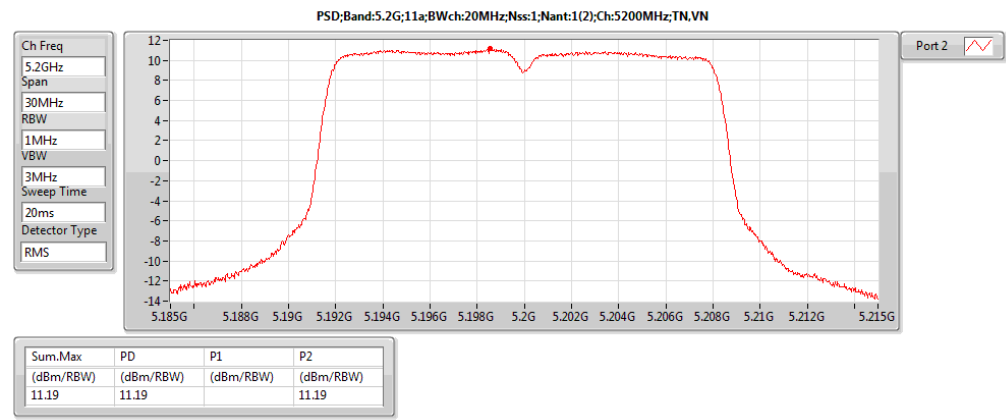
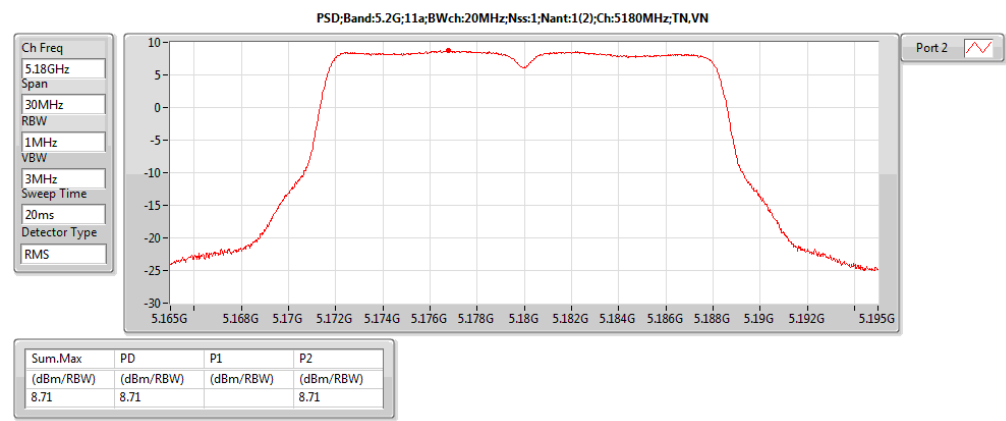
Summary

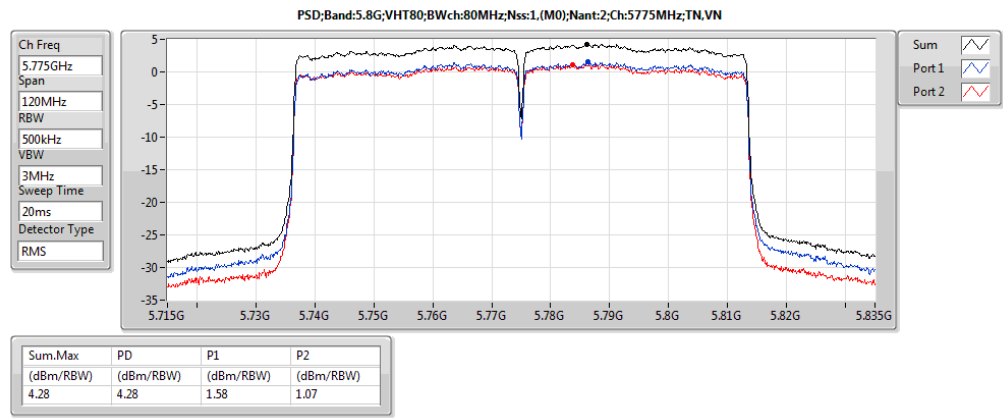
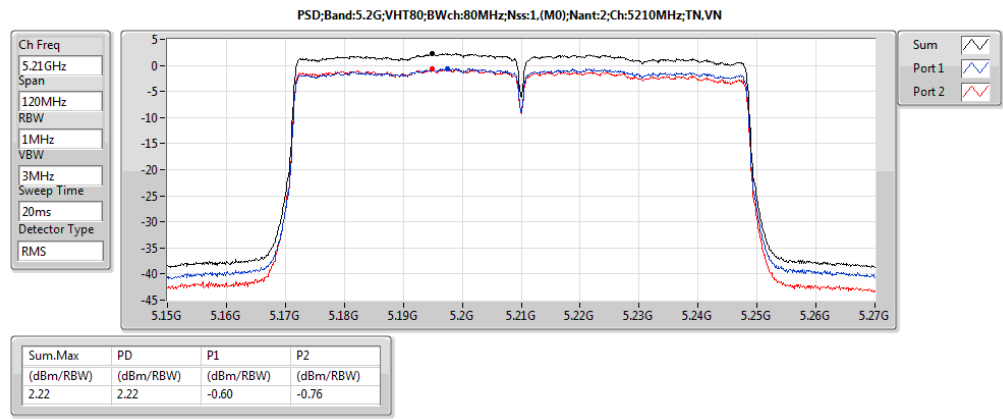
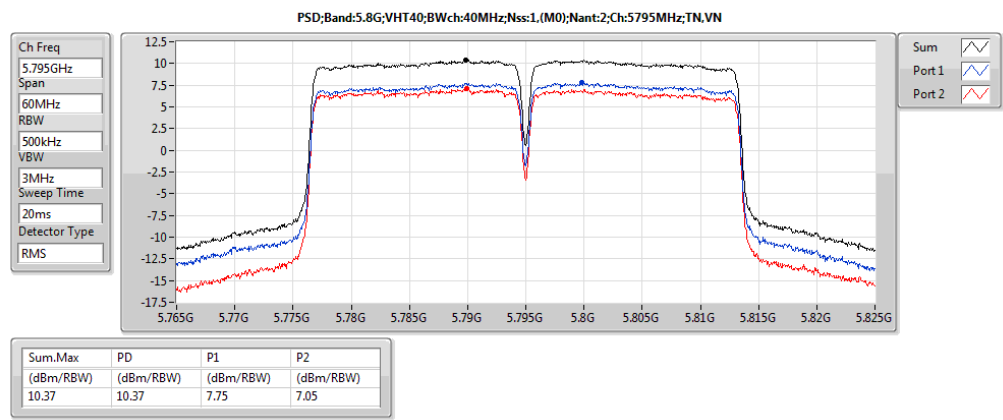
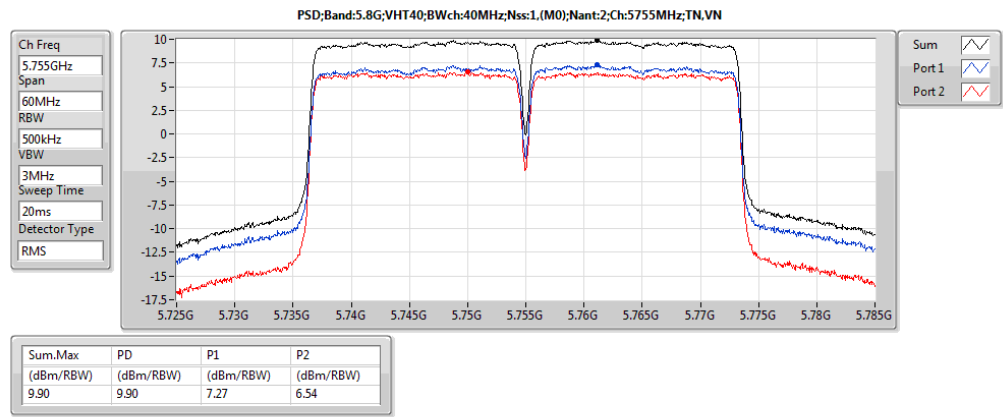
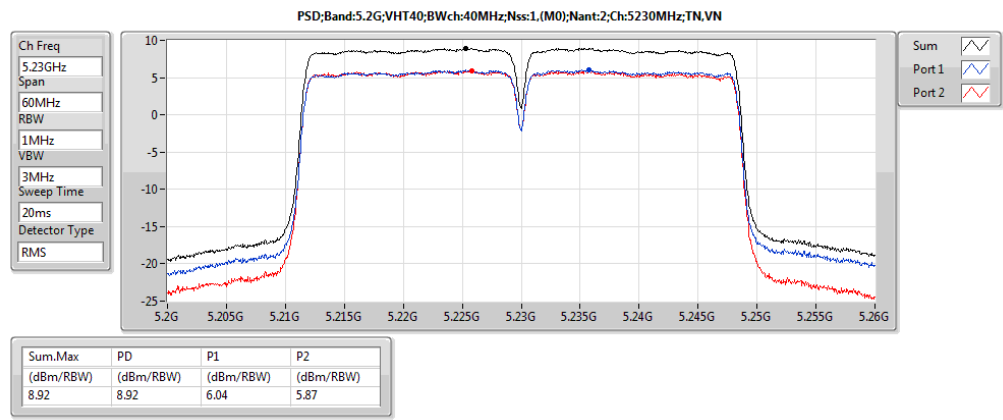
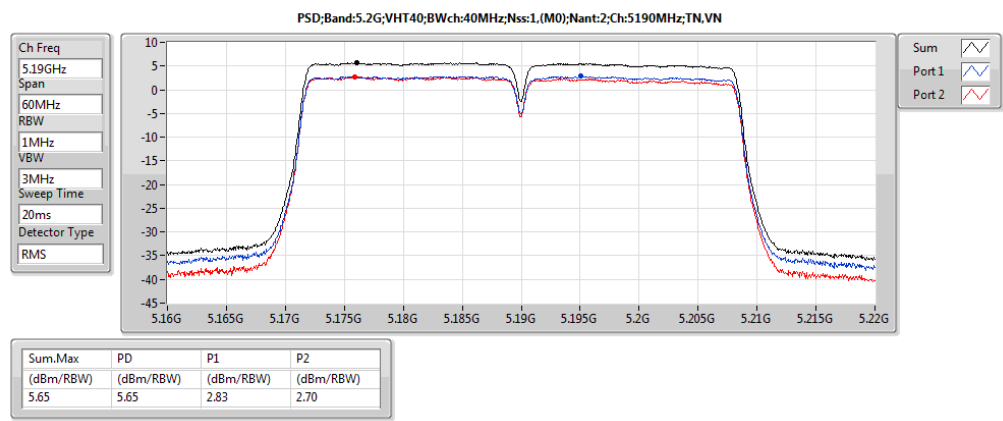
| Mode                      | PD<br>(dBm/RBW) | EIRP.PD<br>(dBm/RBW) |
|---------------------------|-----------------|----------------------|
| 5.2G;11a;Nss1;Ntx1(2)     | 11.19           | 13.97                |
| 5.8G;11a;Nss1;Ntx1(2)     | 10.93           | 13.71                |
| 5.2G;VHT20;Nss1,(M0);Ntx2 | 13.03           | 18.82                |
| 5.8G;VHT20;Nss1,(M0);Ntx2 | 14.12           | 19.91                |
| 5.2G;VHT40;Nss1,(M0);Ntx2 | 8.92            | 14.71                |
| 5.8G;VHT40;Nss1,(M0);Ntx2 | 10.37           | 16.16                |
| 5.2G;VHT80;Nss1,(M0);Ntx2 | 2.22            | 8.01                 |
| 5.8G;VHT80;Nss1,(M0);Ntx2 | 4.28            | 10.07                |



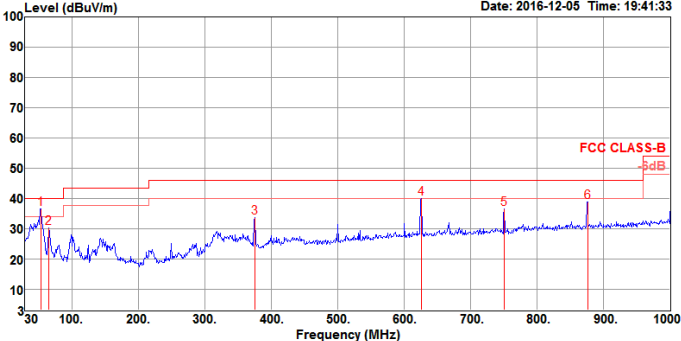
Result

| Mode                           | Result | DG<br>(dBi) | PD<br>(dBm/RBW) | PD.Limit<br>(dBm/RBW) | P1<br>(dBm/RBW) | P2<br>(dBm/RBW) |
|--------------------------------|--------|-------------|-----------------|-----------------------|-----------------|-----------------|
| 5.2G;11a;Nss1;Ntx1(2);5180     | Pass   | 2.78        | 8.71            | 17.00                 |                 | 8.71            |
| 5.2G;11a;Nss1;Ntx1(2);5200     | Pass   | 2.78        | 11.19           | 17.00                 |                 | 11.19           |
| 5.2G;11a;Nss1;Ntx1(2);5240     | Pass   | 2.78        | 10.87           | 17.00                 |                 | 10.87           |
| 5.8G;11a;Nss1;Ntx1(2);5745     | Pass   | 2.78        | 9.52            | 30.00                 |                 | 9.52            |
| 5.8G;11a;Nss1;Ntx1(2);5785     | Pass   | 2.78        | 10.93           | 30.00                 |                 | 10.93           |
| 5.8G;11a;Nss1;Ntx1(2);5825     | Pass   | 2.78        | 10.34           | 30.00                 |                 | 10.34           |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5180 | Pass   | 5.79        | 10.49           | 17.00                 | 7.52            | 7.66            |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5200 | Pass   | 5.79        | 13.03           | 17.00                 | 10.17           | 10.03           |
| 5.2G;VHT20;Nss1,(M0);Ntx2;5240 | Pass   | 5.79        | 12.22           | 17.00                 | 8.95            | 9.56            |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5745 | Pass   | 5.79        | 13.60           | 30.00                 | 11.29           | 9.93            |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5785 | Pass   | 5.79        | 14.12           | 30.00                 | 12.03           | 10.10           |
| 5.8G;VHT20;Nss1,(M0);Ntx2;5825 | Pass   | 5.79        | 13.67           | 30.00                 | 11.77           | 9.32            |
| 5.2G;VHT40;Nss1,(M0);Ntx2;5190 | Pass   | 5.79        | 5.65            | 17.00                 | 2.83            | 2.70            |
| 5.2G;VHT40;Nss1,(M0);Ntx2;5230 | Pass   | 5.79        | 8.92            | 17.00                 | 6.04            | 5.87            |
| 5.8G;VHT40;Nss1,(M0);Ntx2;5755 | Pass   | 5.79        | 9.90            | 30.00                 | 7.27            | 6.54            |
| 5.8G;VHT40;Nss1,(M0);Ntx2;5795 | Pass   | 5.79        | 10.37           | 30.00                 | 7.75            | 7.05            |
| 5.2G;VHT80;Nss1,(M0);Ntx2;5210 | Pass   | 5.79        | 2.22            | 17.00                 | -0.60           | -0.76           |
| 5.8G;VHT80;Nss1,(M0);Ntx2;5775 | Pass   | 5.79        | 4.28            | 30.00                 | 1.58            | 1.07            |

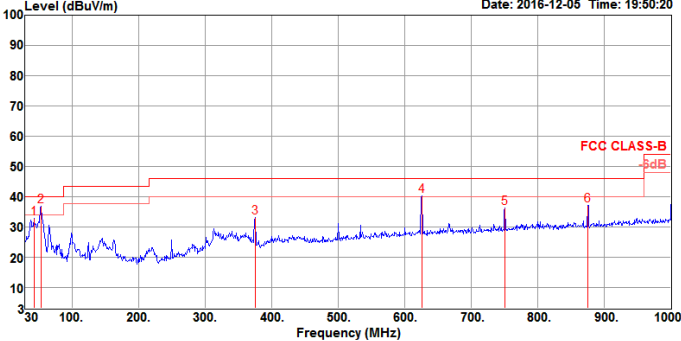






| RSE below 1GHz Result                                                                                                                                                      |        |        |        |        |              |              |        |       |            |          |            |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------------|--------------|--------|-------|------------|----------|------------|--|
| Operating Mode                                                                                                                                                             | 3      |        |        |        | Polarization |              |        |       | Horizontal |          |            |  |
| Operating Function                                                                                                                                                         | CTX    |        |        |        |              |              |        |       |            |          |            |  |
| <div><div>Level (dBuV/m)</div><div>Date: 2016-12-05 Time: 19:41:33</div><div></div></div> |        |        |        |        |              |              |        |       |            |          |            |  |
|                                                                                                                                                                            | Freq   | Level  | Limit  | Over   | Read         | CableAntenna | Preamp | A/Pos | T/Pos      | Remark   | Pol/Phase  |  |
|                                                                                                                                                                            | MHz    | dBuV/m | dBuV/m | dB     | dBuV         | dB           | dB/m   | dB    | cm         | deg      |            |  |
| 1                                                                                                                                                                          | 53.28  | 36.44  | 40.00  | -3.56  | 53.54        | 0.81         | 14.48  | 32.39 | 100        | 247 Peak | HORIZONTAL |  |
| 2                                                                                                                                                                          | 65.89  | 30.12  | 40.00  | -9.88  | 48.39        | 0.91         | 13.23  | 32.41 | 125        | 114 Peak | HORIZONTAL |  |
| 3                                                                                                                                                                          | 375.32 | 33.60  | 46.00  | -12.40 | 41.61        | 2.22         | 22.08  | 32.31 | 100        | 117 Peak | HORIZONTAL |  |
| 4                                                                                                                                                                          | 625.58 | 40.00  | 46.00  | -6.00  | 43.75        | 2.88         | 25.77  | 32.40 | 100        | 128 Peak | HORIZONTAL |  |
| 5                                                                                                                                                                          | 750.71 | 36.42  | 46.00  | -9.58  | 39.13        | 3.17         | 26.40  | 32.28 | 125        | 228 Peak | HORIZONTAL |  |
| 6                                                                                                                                                                          | 875.84 | 38.74  | 46.00  | -7.26  | 39.57        | 3.43         | 27.55  | 31.81 | 100        | 116 Peak | HORIZONTAL |  |

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.  
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

| RSE below 1GHz Result                                                                                                                                                        |        |        |        |        |       |              |        |       |          |          |           |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|-------|--------------|--------|-------|----------|----------|-----------|--|
| Operating Mode                                                                                                                                                               | 3      |        |        |        |       | Power Phase  |        |       | Vertical |          |           |  |
| Operating Function                                                                                                                                                           | CTX    |        |        |        |       |              |        |       |          |          |           |  |
| <div><div>Level (dBuV/m)</div><div>Date: 2016-12-05 Time: 19:50:20</div><div></div></div> |        |        |        |        |       |              |        |       |          |          |           |  |
|                                                                                                                                                                              | Freq   | Level  | Limit  | Over   | Read  | CableAntenna | Preamp | A/Pos | T/Pos    | Remark   | Pol/Phase |  |
|                                                                                                                                                                              | MHz    | dBuV/m | dBuV/m | dB     | dBuV  | dB           | dB/m   | dB    | cm       | deg      |           |  |
| 1                                                                                                                                                                            | 42.61  | 32.63  | 40.00  | -7.37  | 45.92 | 0.73         | 18.56  | 32.58 | 100      | 111 Peak | VERTICAL  |  |
| 2                                                                                                                                                                            | 53.28  | 36.90  | 40.00  | -3.10  | 54.00 | 0.81         | 14.48  | 32.39 | 125      | 126 Peak | VERTICAL  |  |
| 3                                                                                                                                                                            | 375.32 | 33.14  | 46.00  | -12.86 | 41.15 | 2.22         | 22.08  | 32.31 | 100      | 135 Peak | VERTICAL  |  |
| 4                                                                                                                                                                            | 625.58 | 40.11  | 46.00  | -5.89  | 43.86 | 2.88         | 25.77  | 32.40 | 100      | 135 Peak | VERTICAL  |  |
| 5                                                                                                                                                                            | 750.71 | 36.08  | 46.00  | -9.92  | 38.79 | 3.17         | 26.40  | 32.28 | 125      | 114 Peak | VERTICAL  |  |
| 6                                                                                                                                                                            | 874.87 | 37.07  | 46.00  | -8.93  | 37.90 | 3.43         | 27.55  | 31.81 | 100      | 149 Peak | VERTICAL  |  |

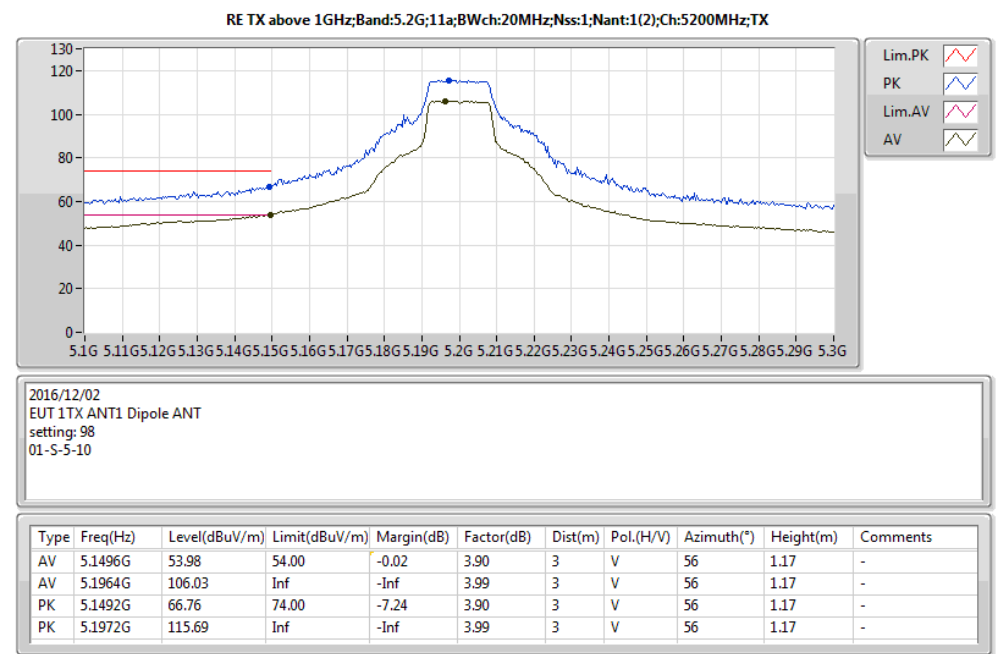
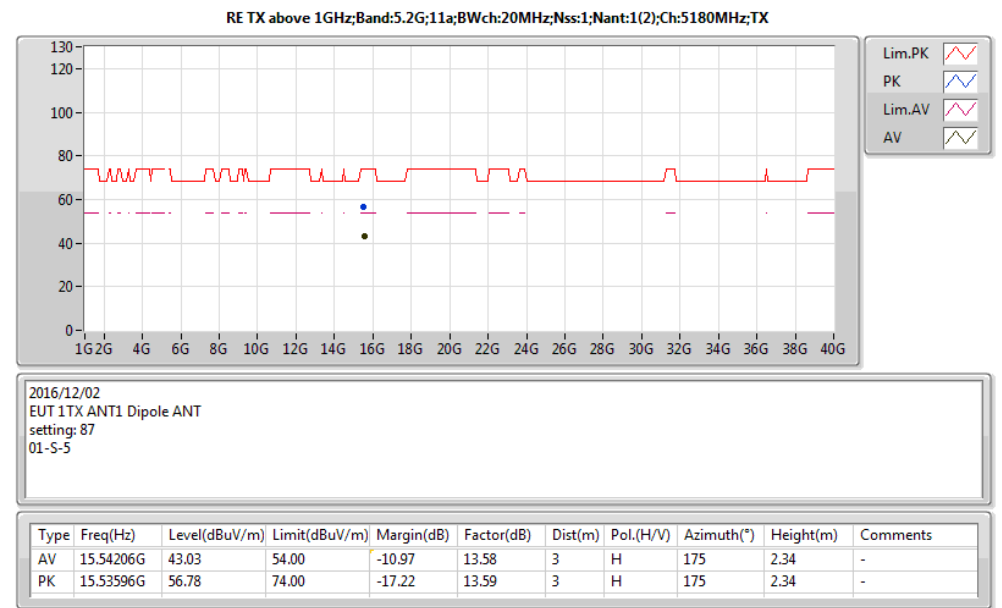
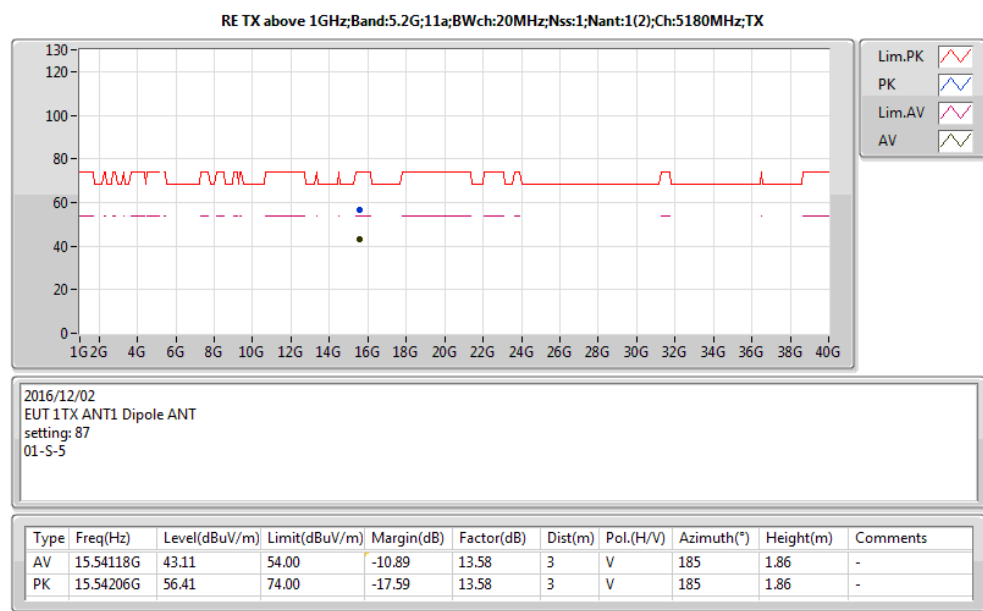
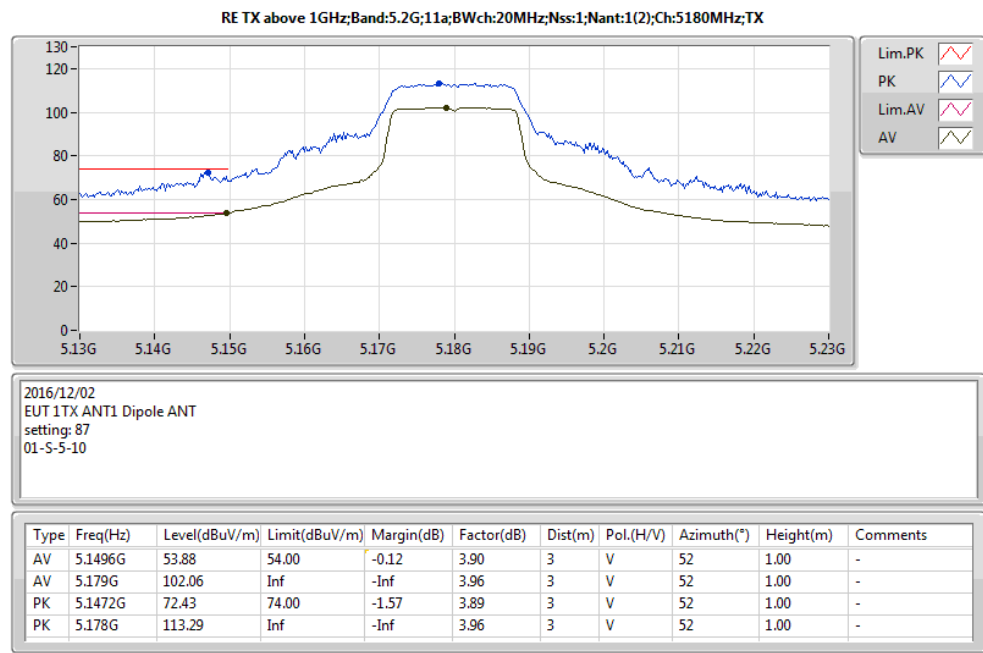
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

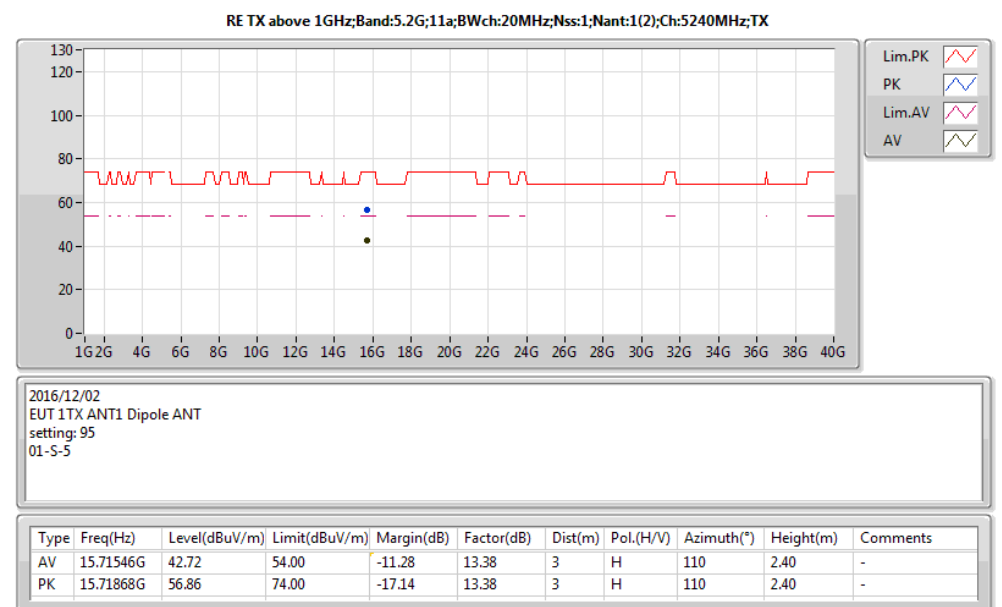
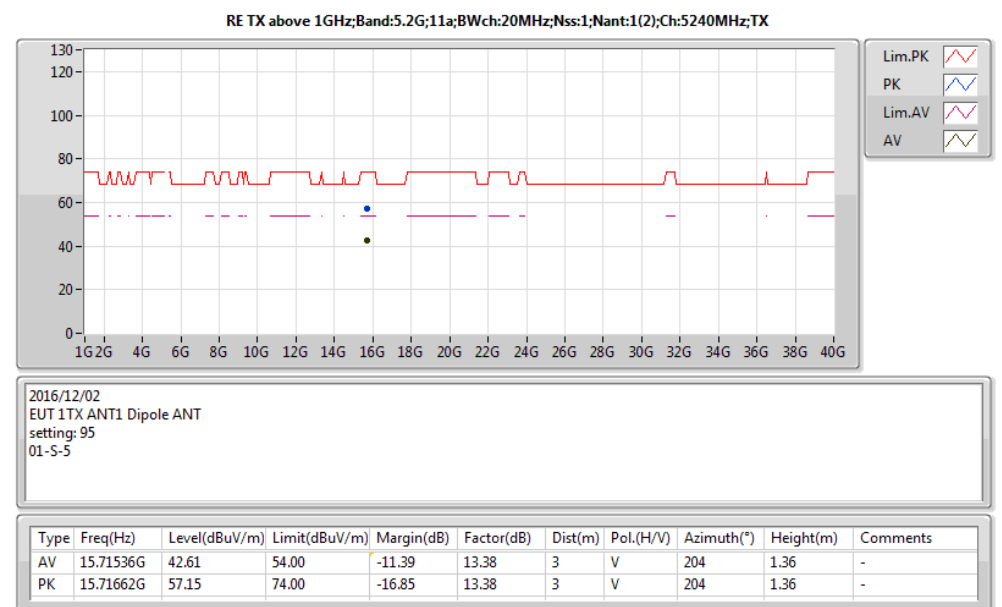
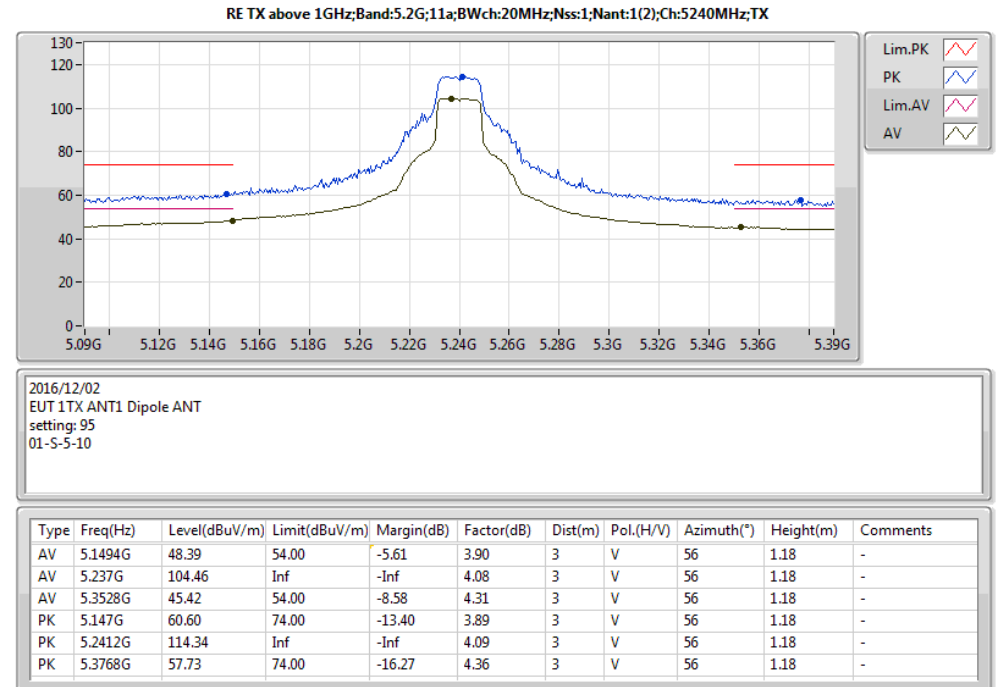
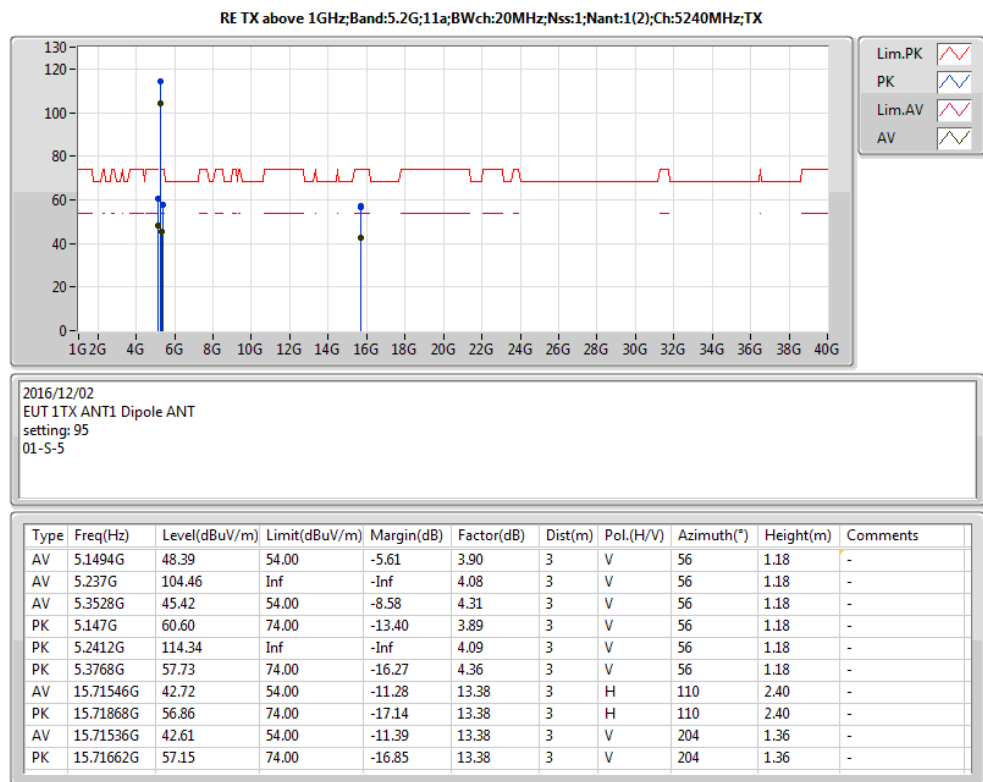
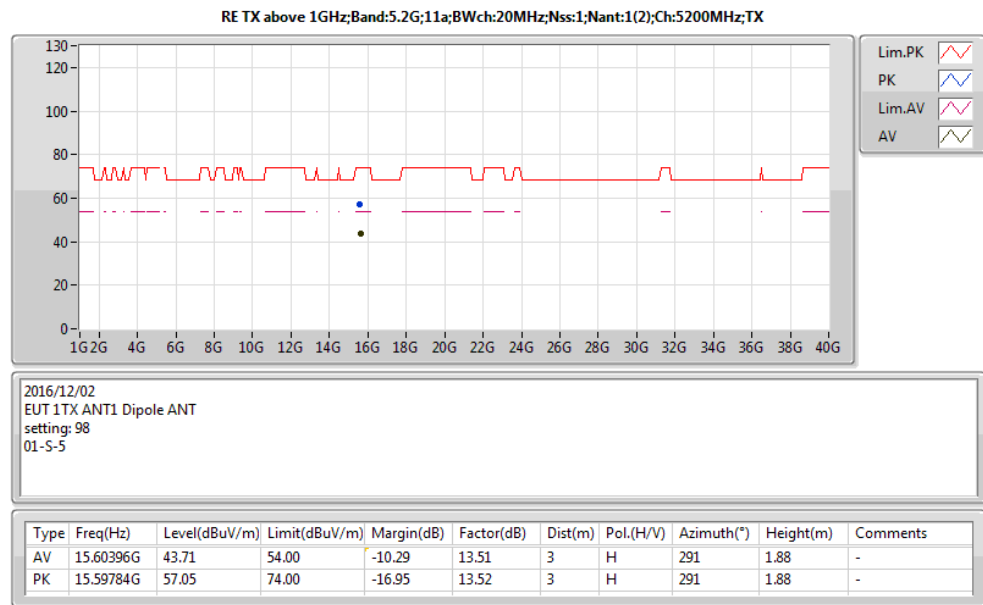
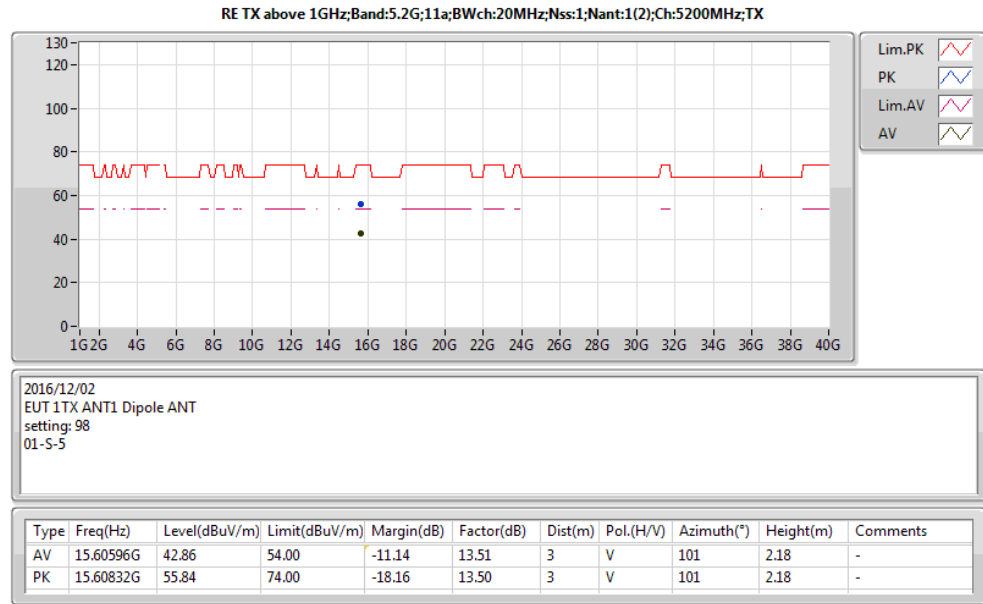
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

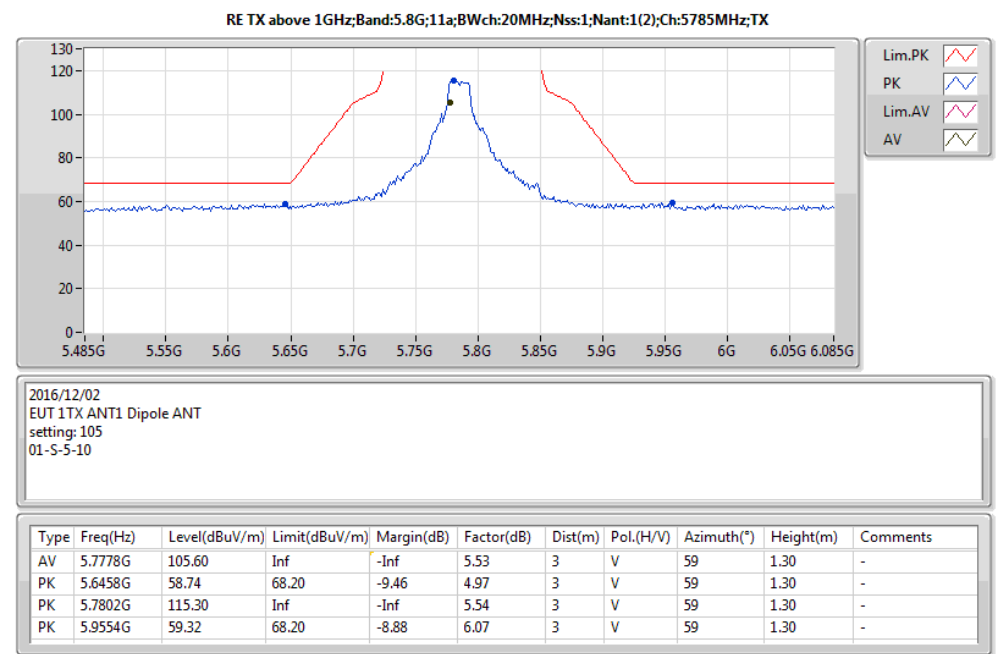
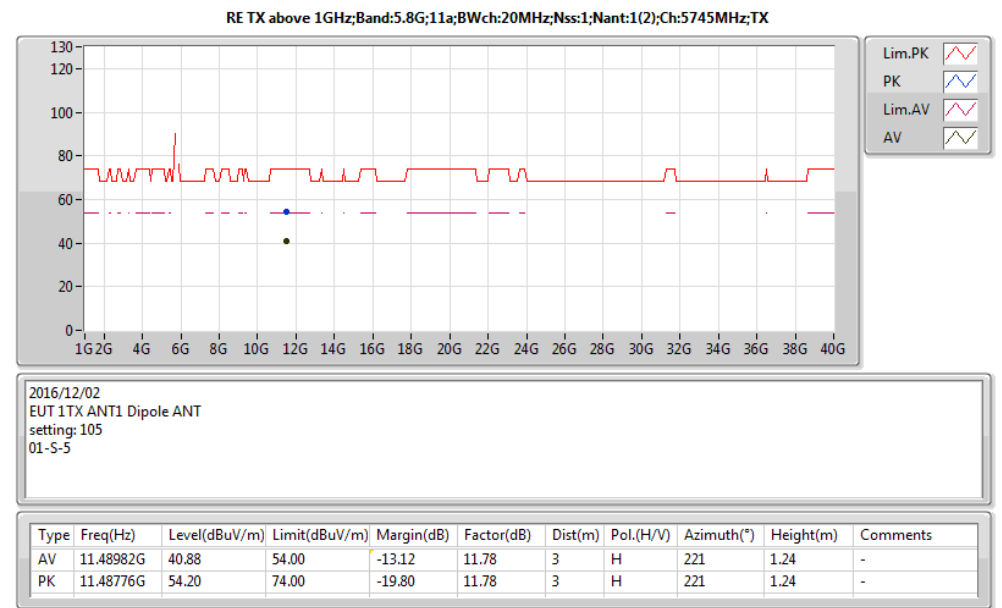
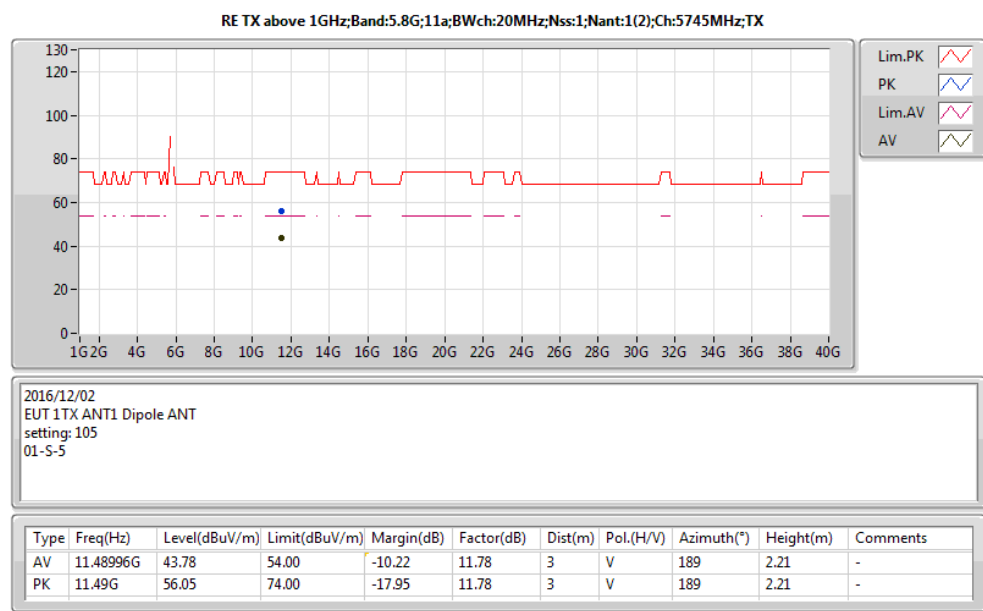
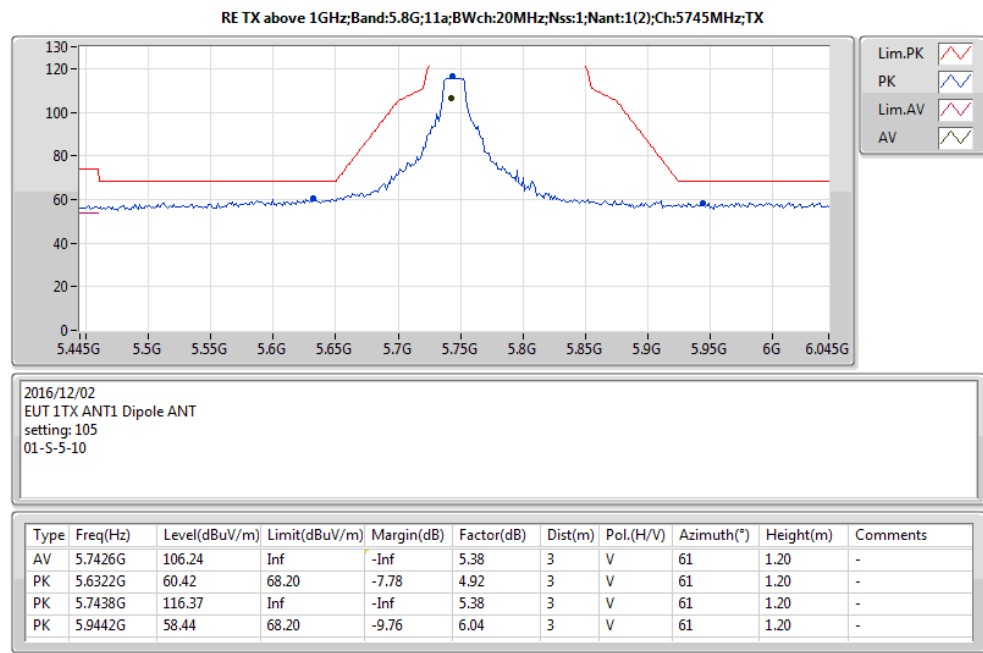


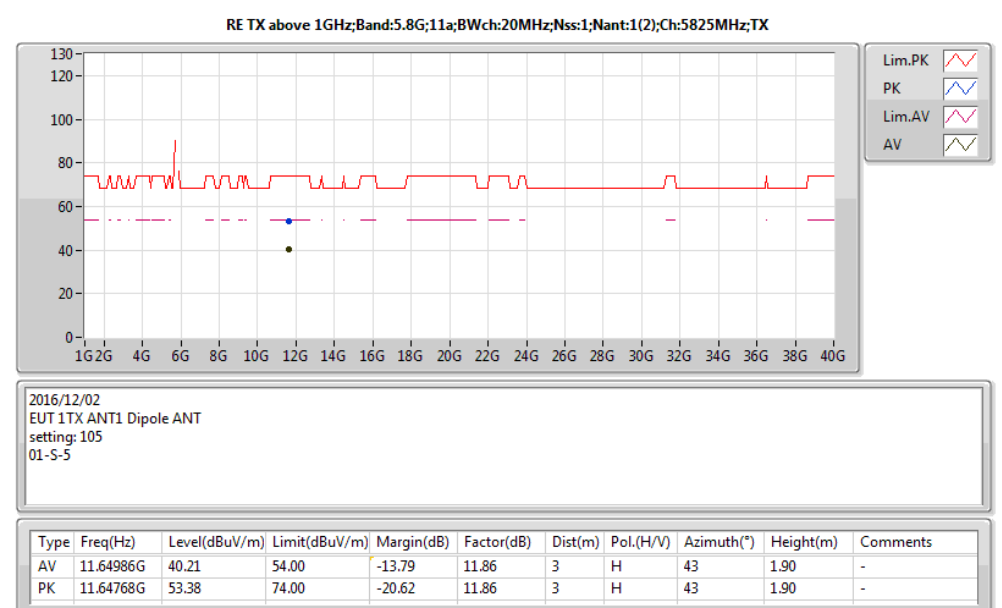
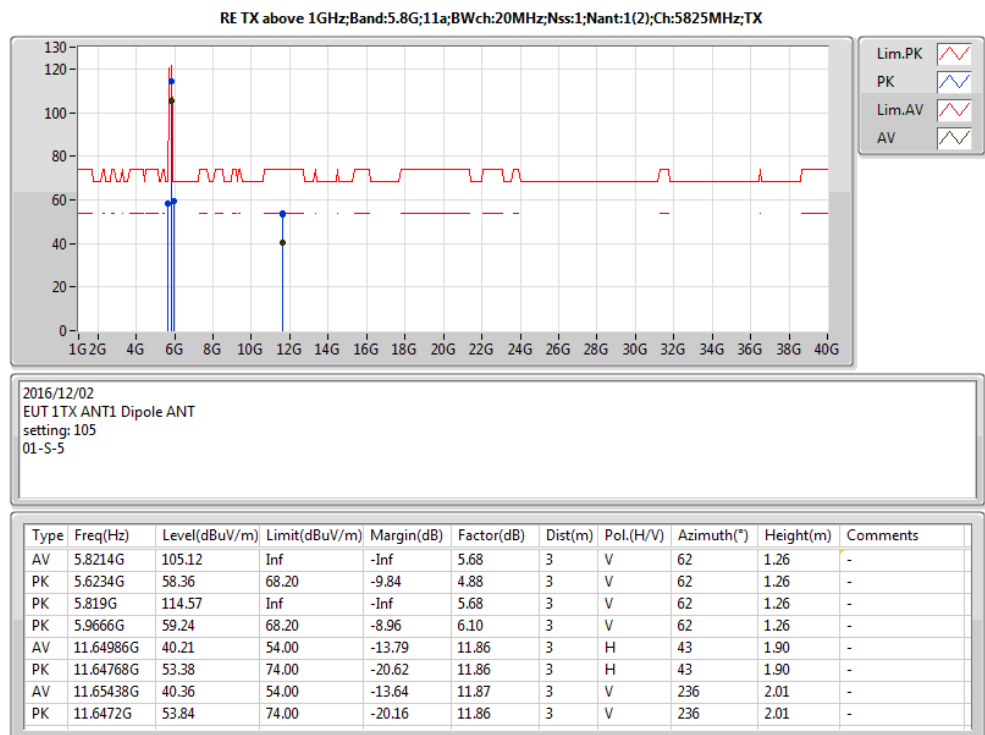
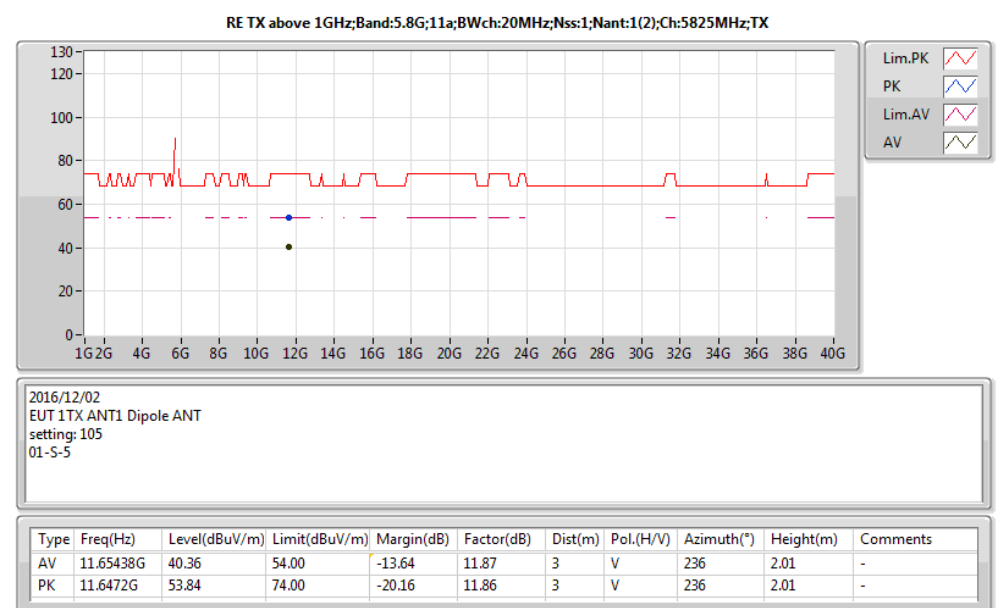
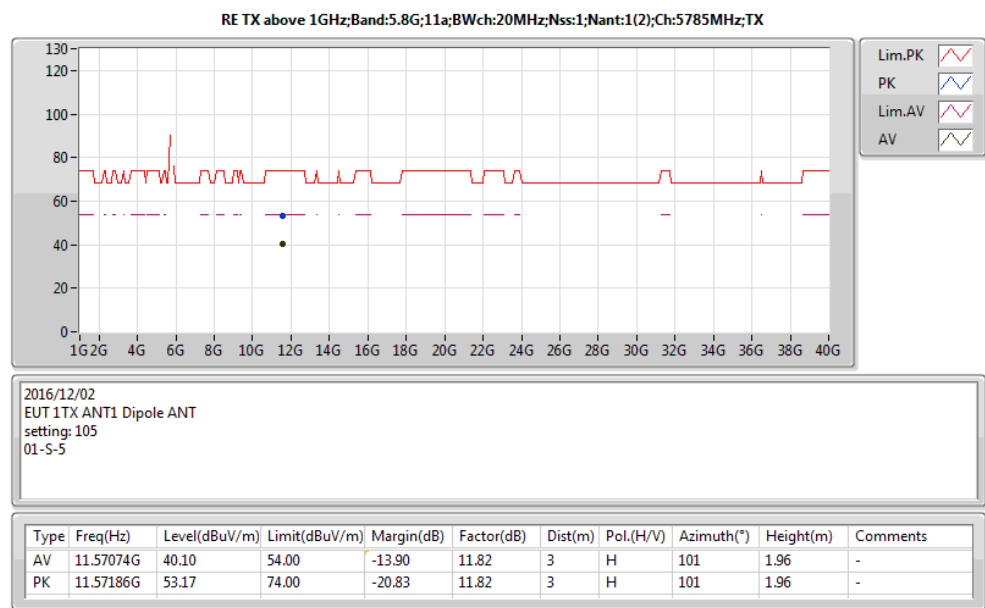
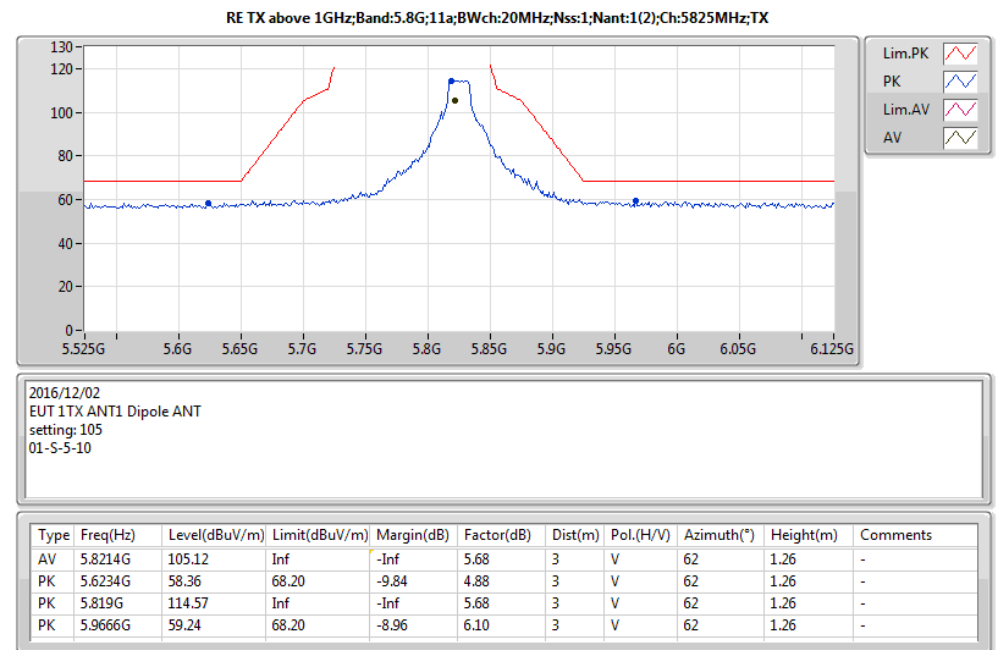
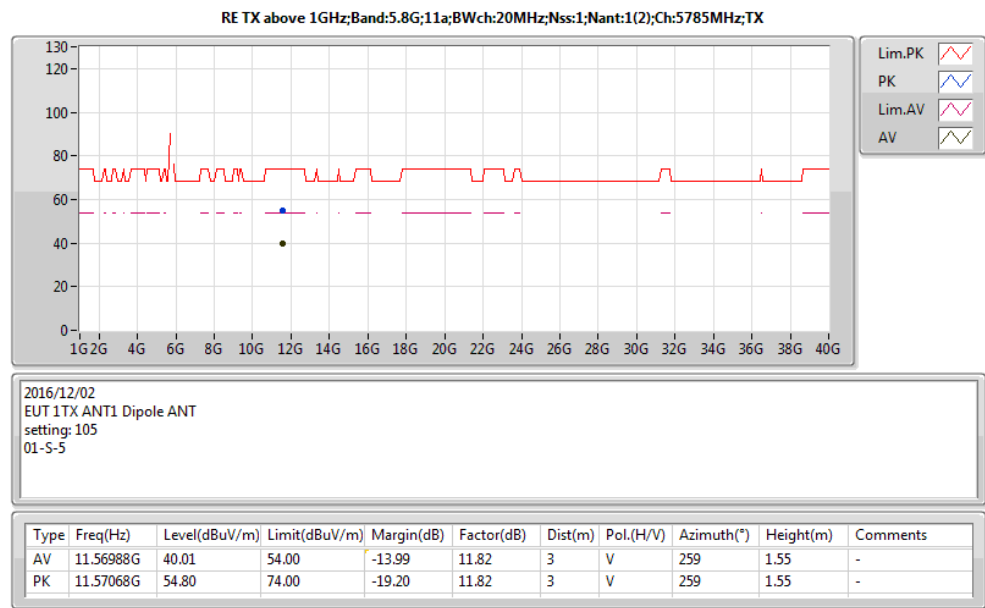
Summary

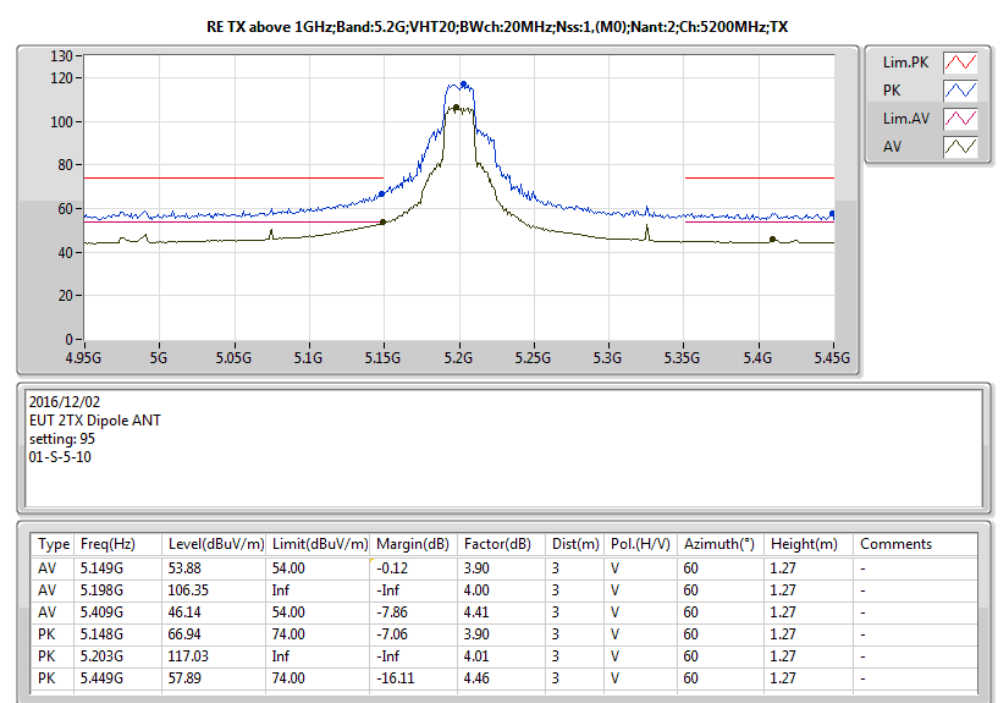
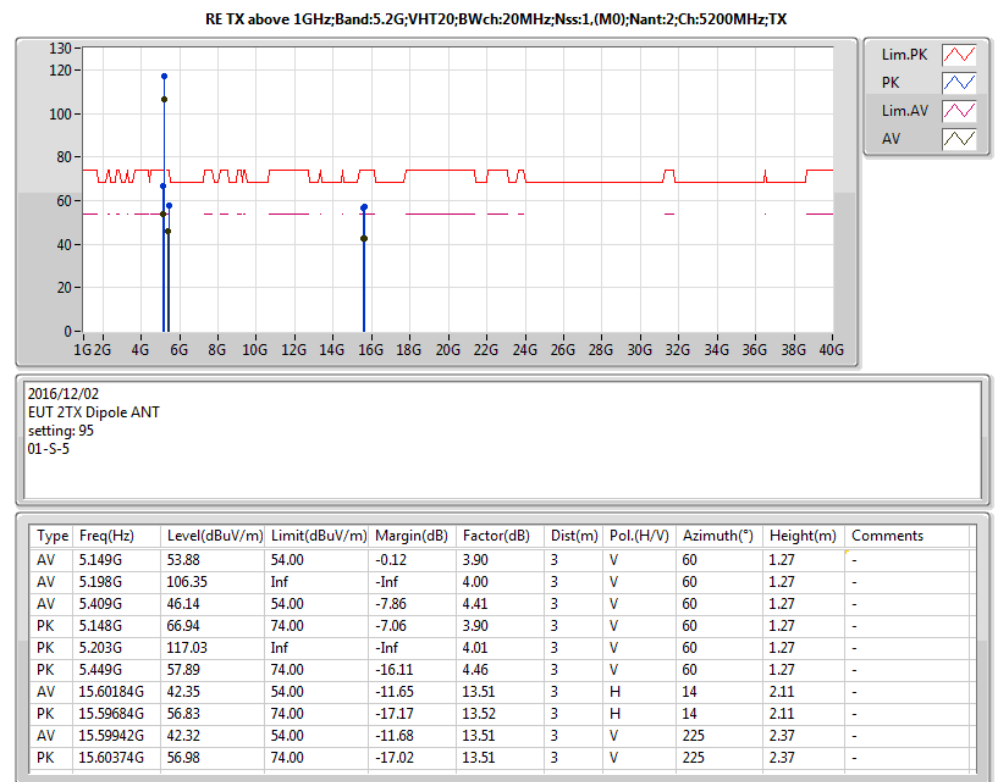
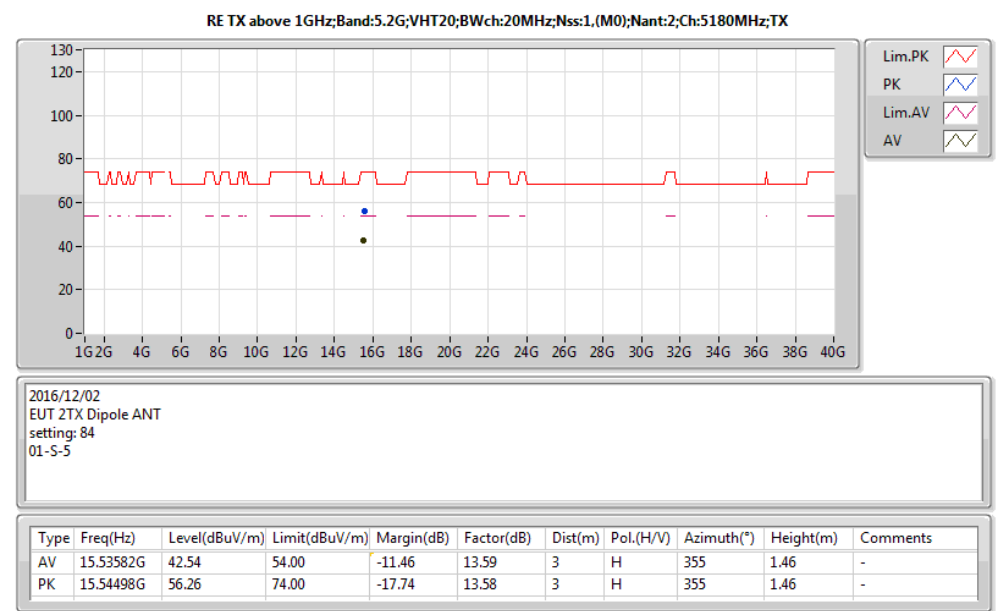
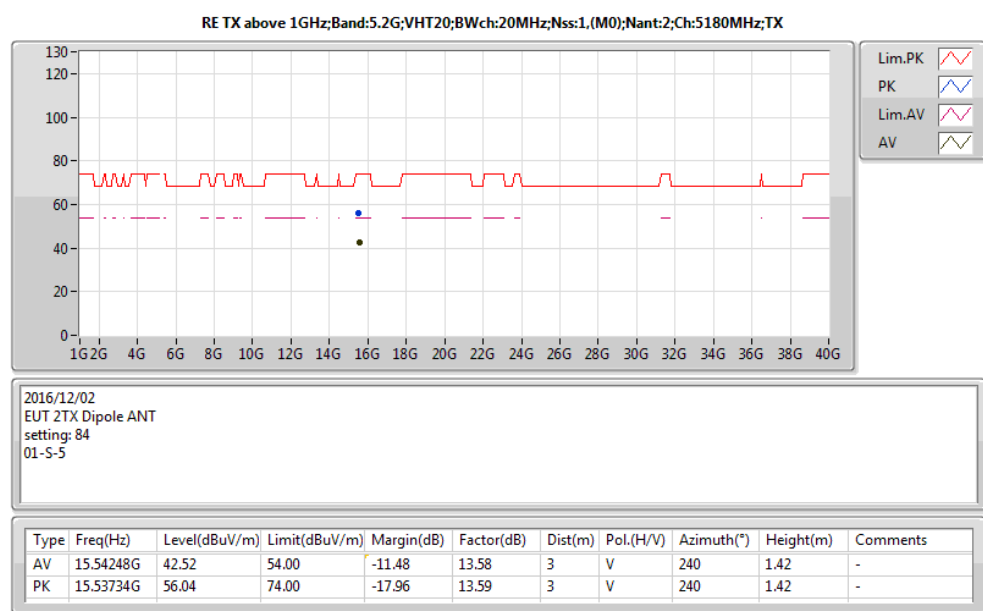
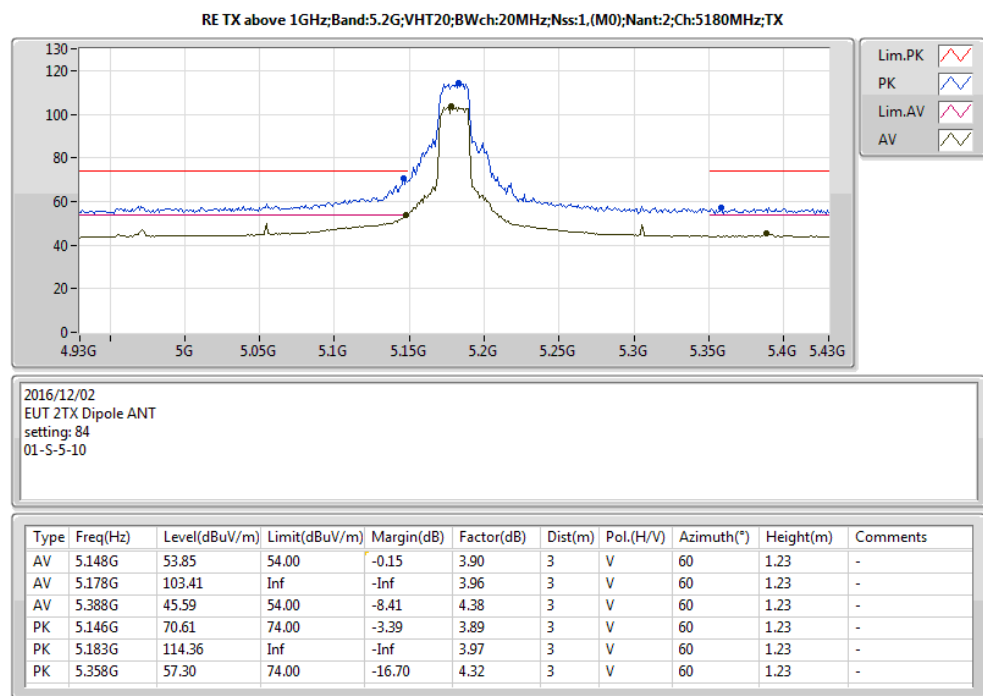
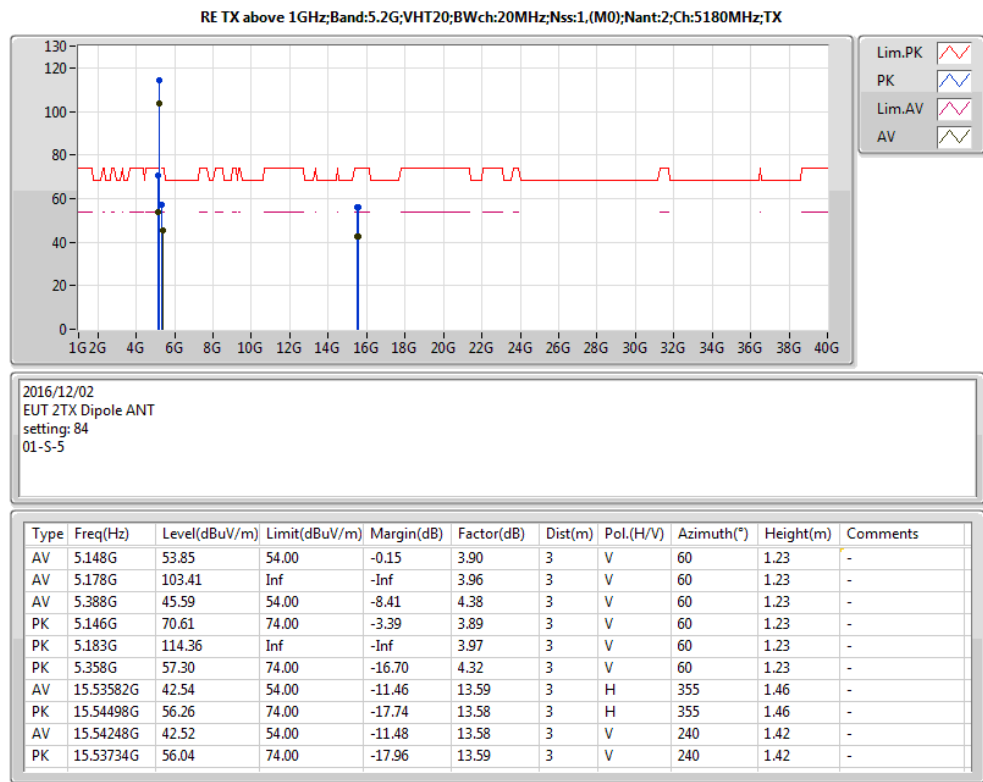
| Mode                          | Result | Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Pol.<br>(H/V) | Azimuth<br>(°) | Height<br>(m) | Comments |
|-------------------------------|--------|------|--------------|-------------------|-------------------|----------------|----------------|-------------|---------------|----------------|---------------|----------|
| 5.2G;11a;Nss1;Ntx1(2);5200;TX | Pass   | AV   | 5.1496G      | 53.98             | 54.00             | -0.02          | 3.90           | 3           | V             | 56             | 1.17          | -        |

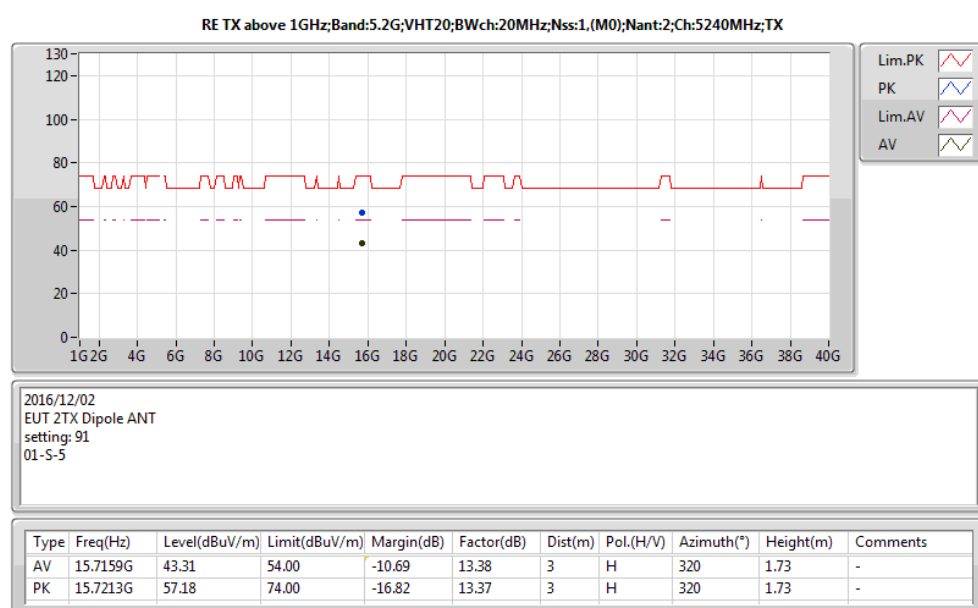
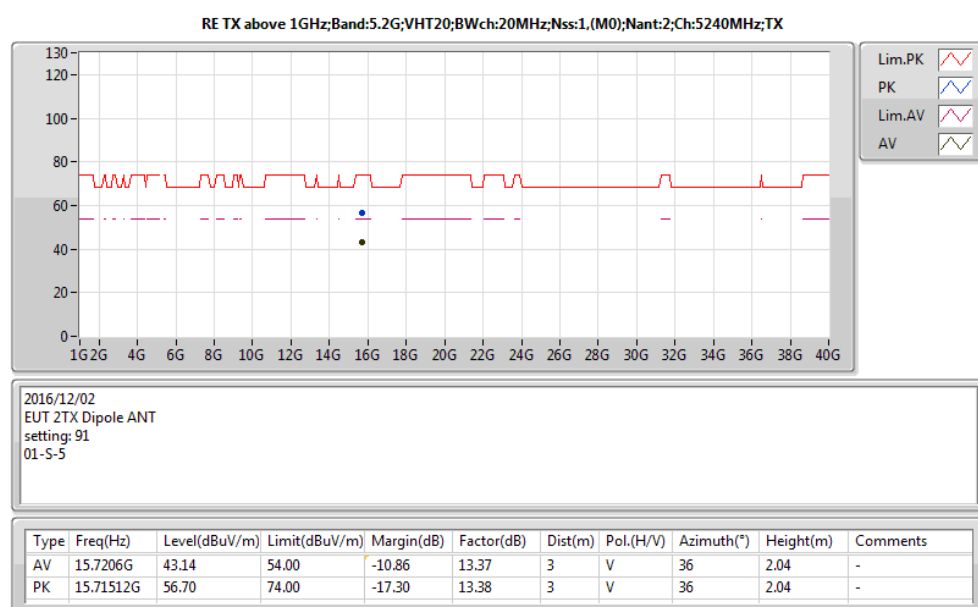
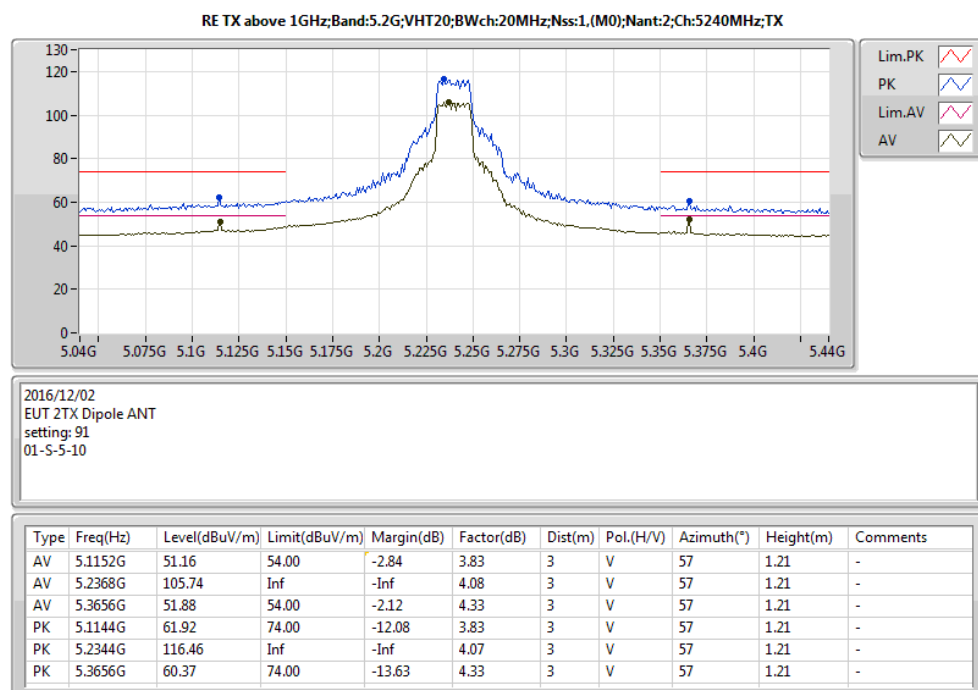
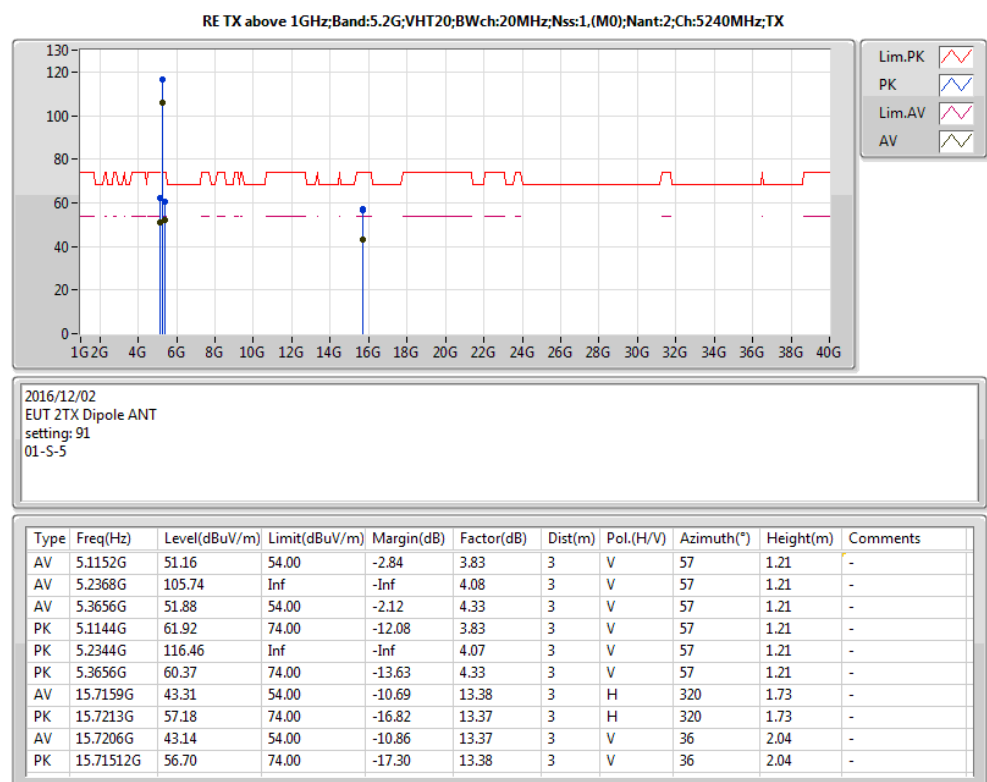
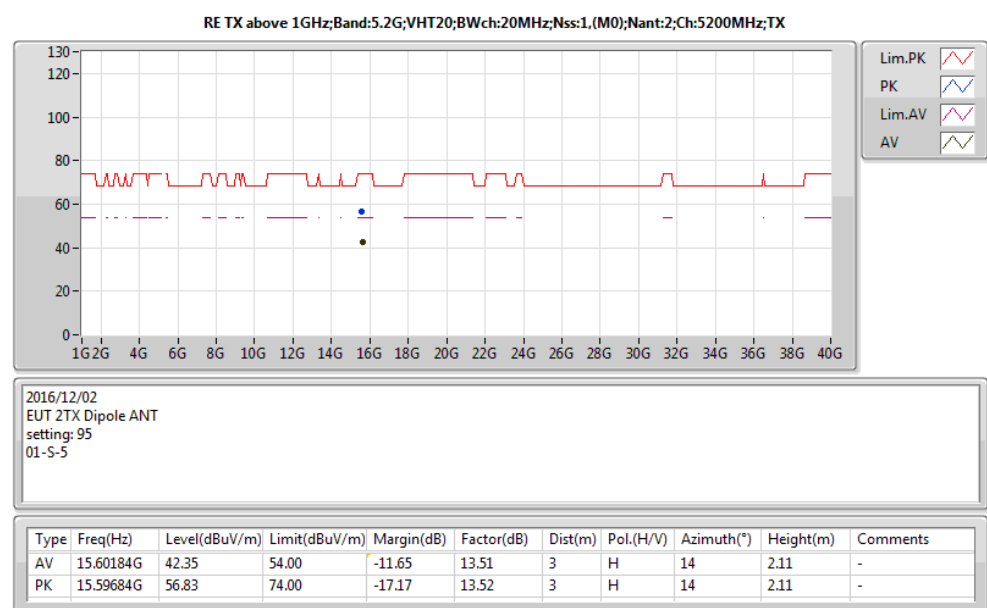
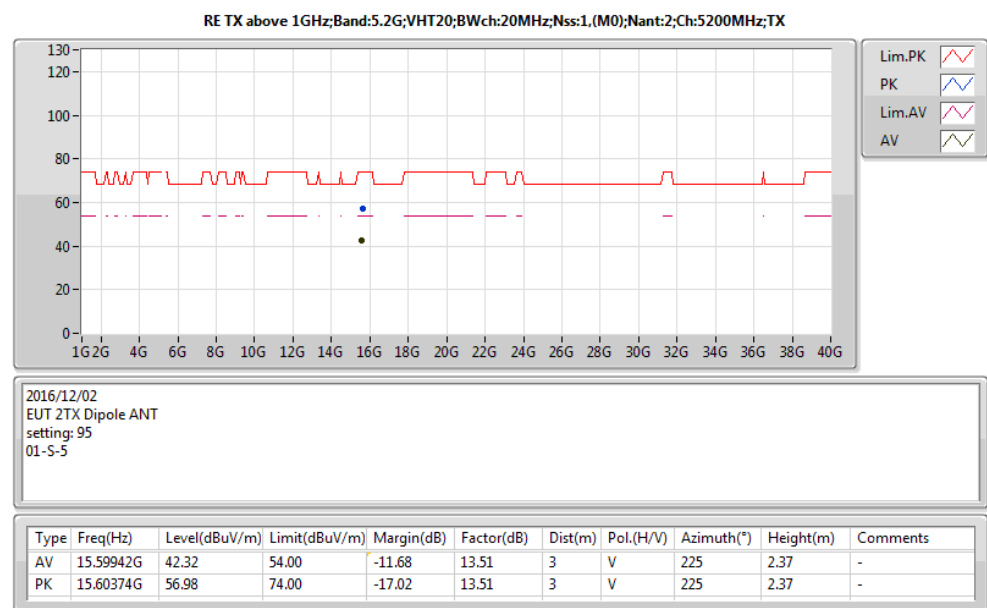


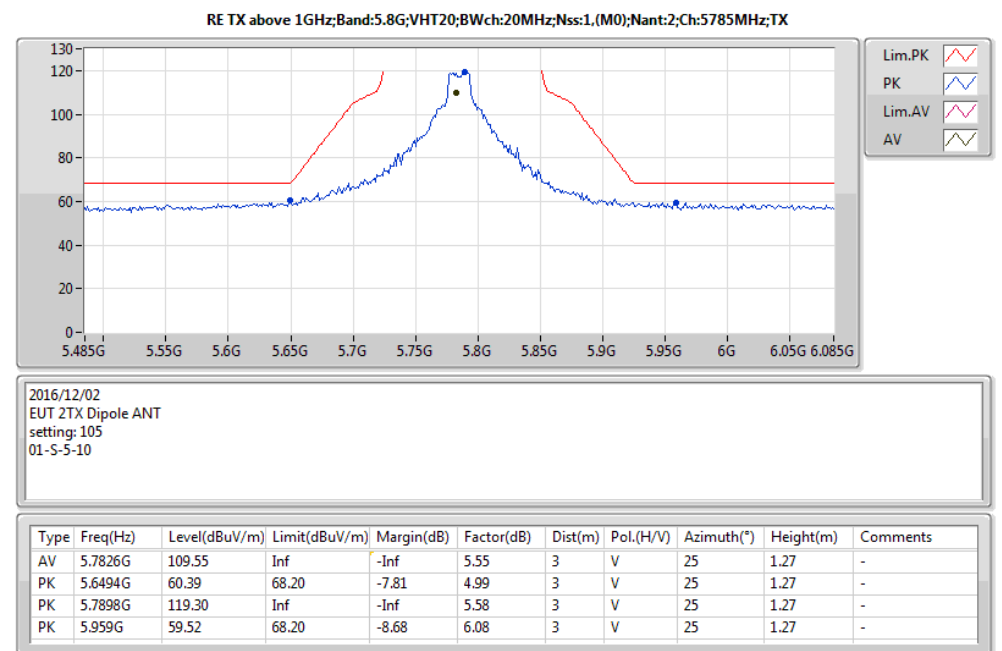
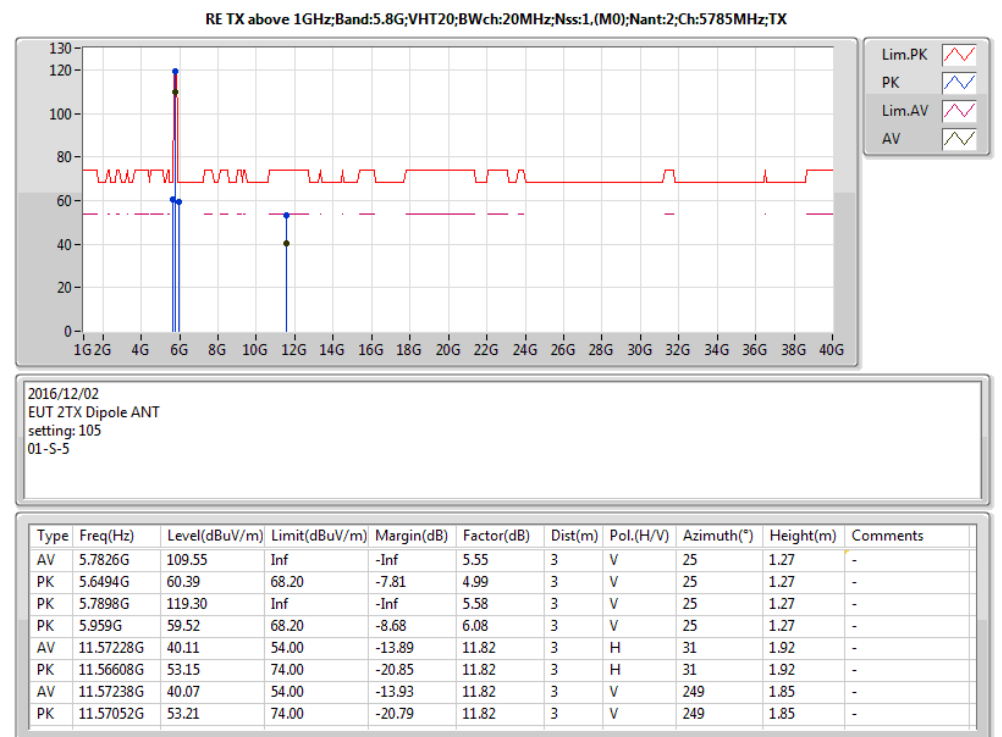
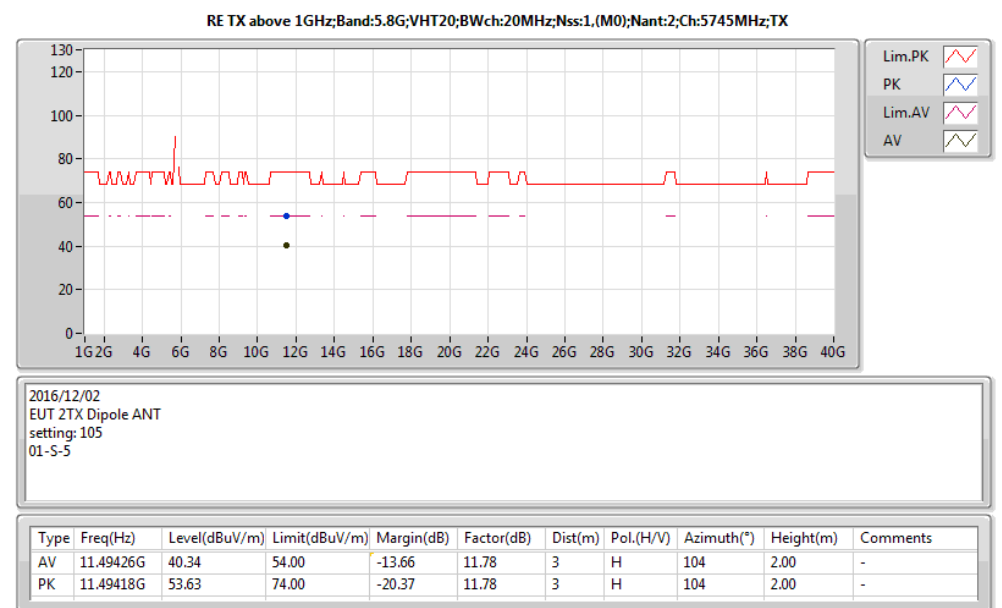
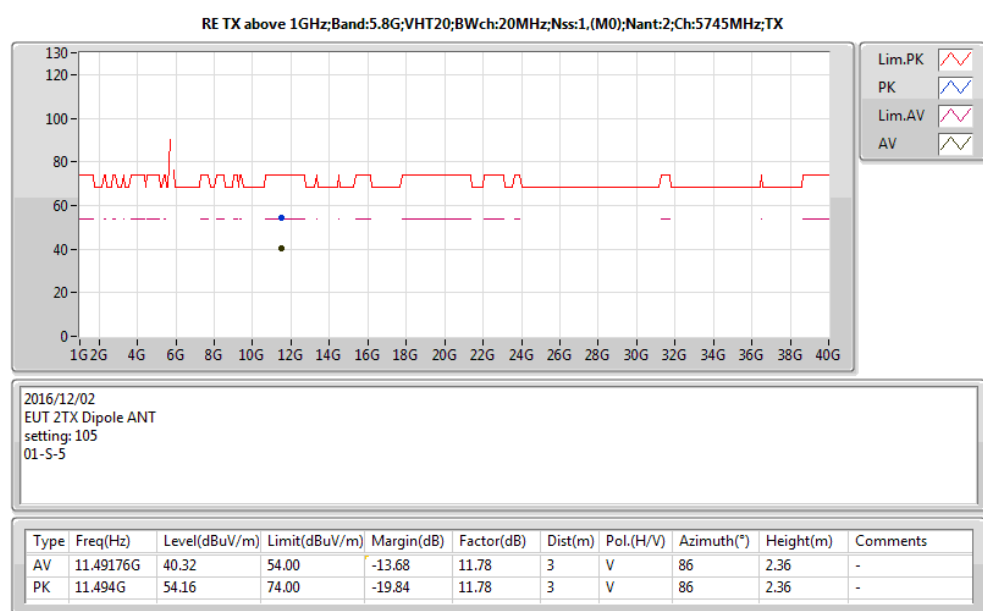
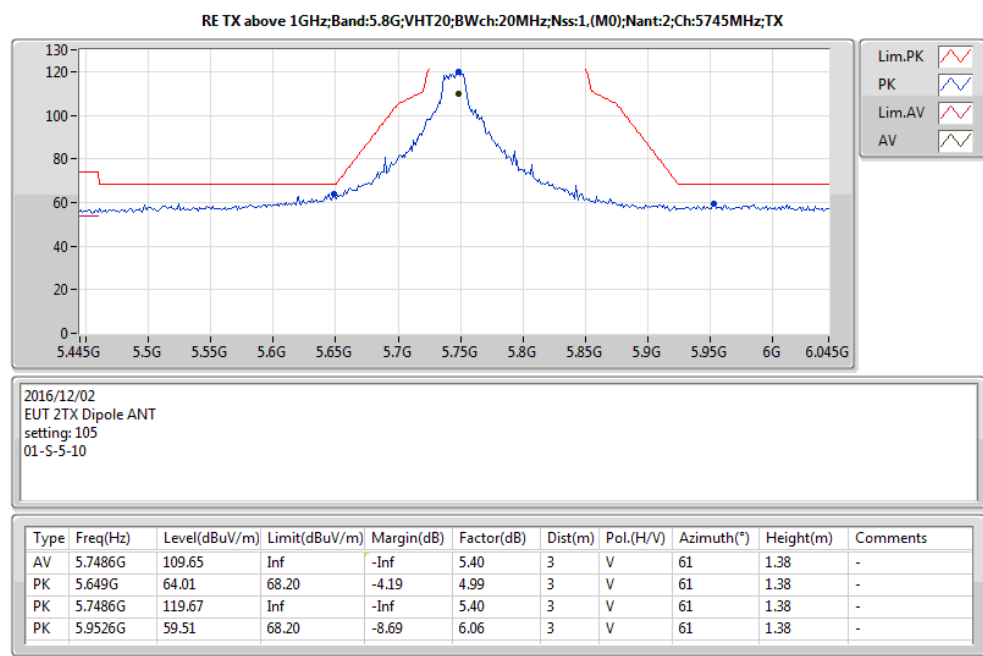
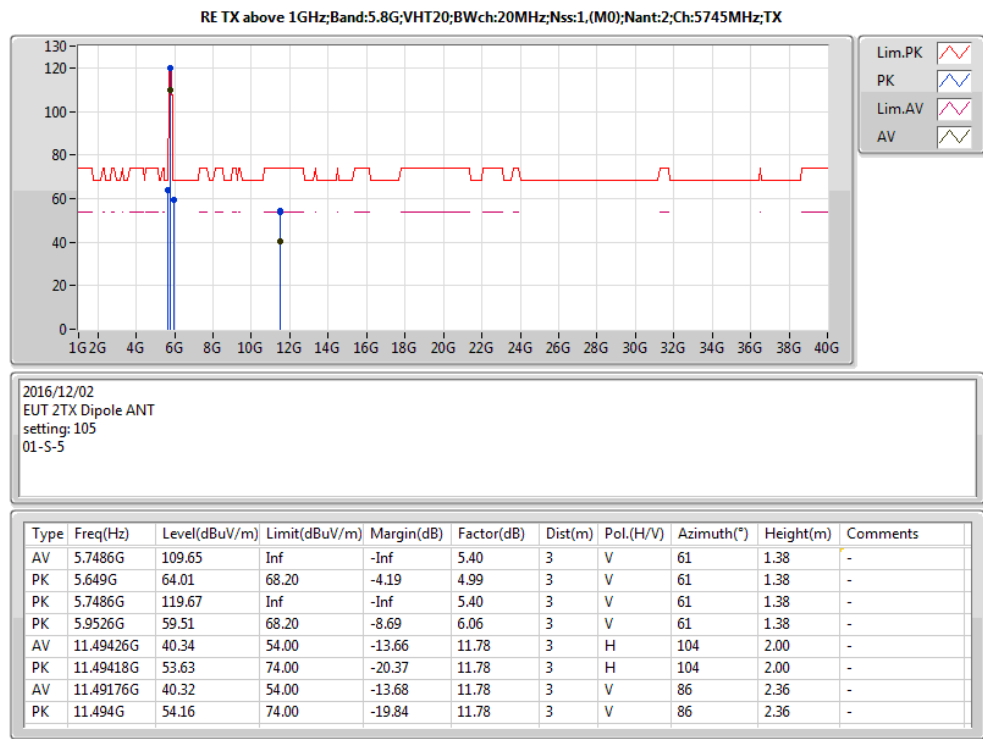


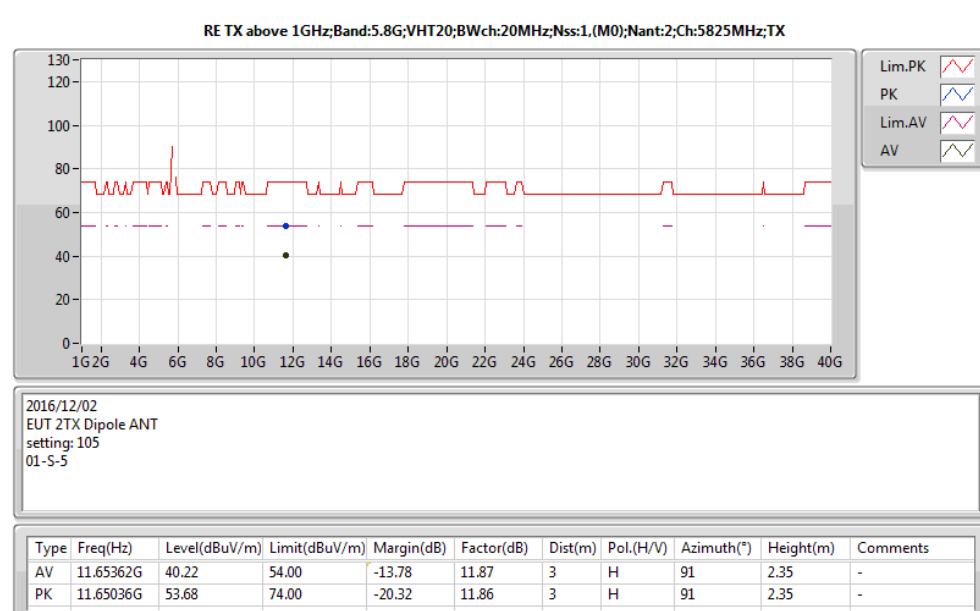
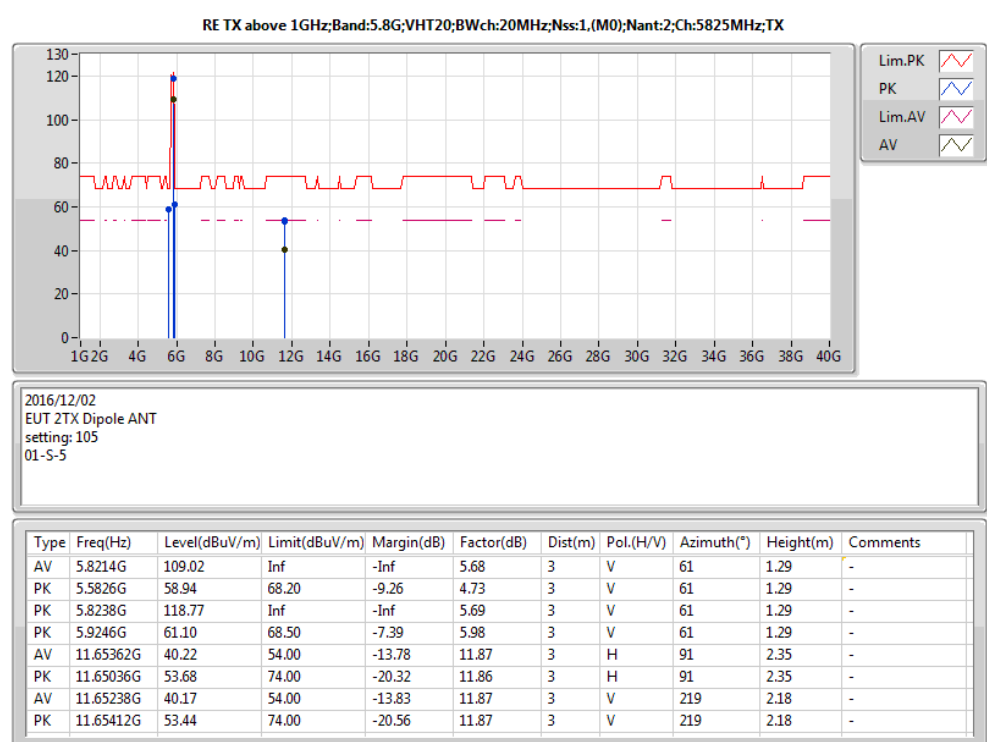
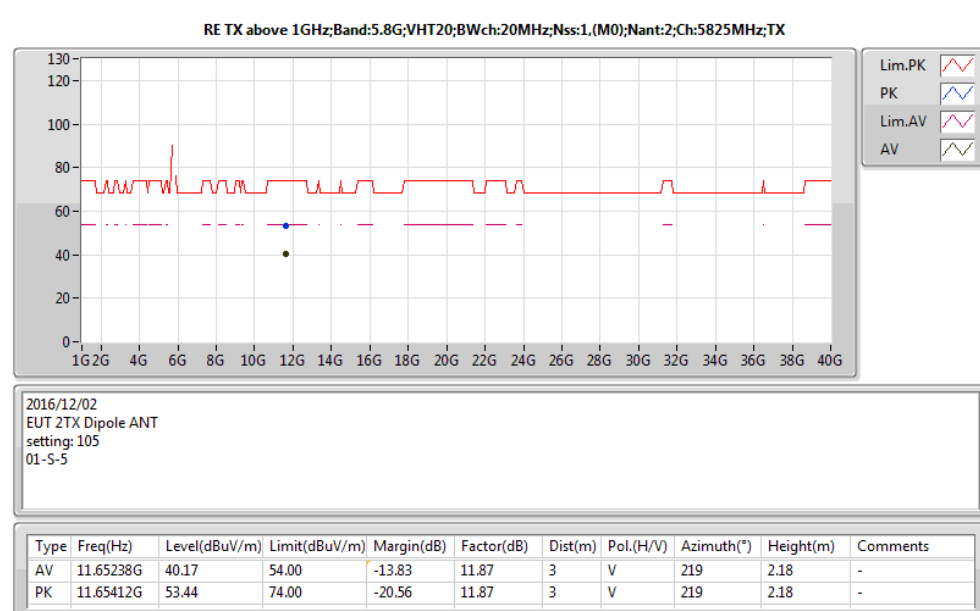
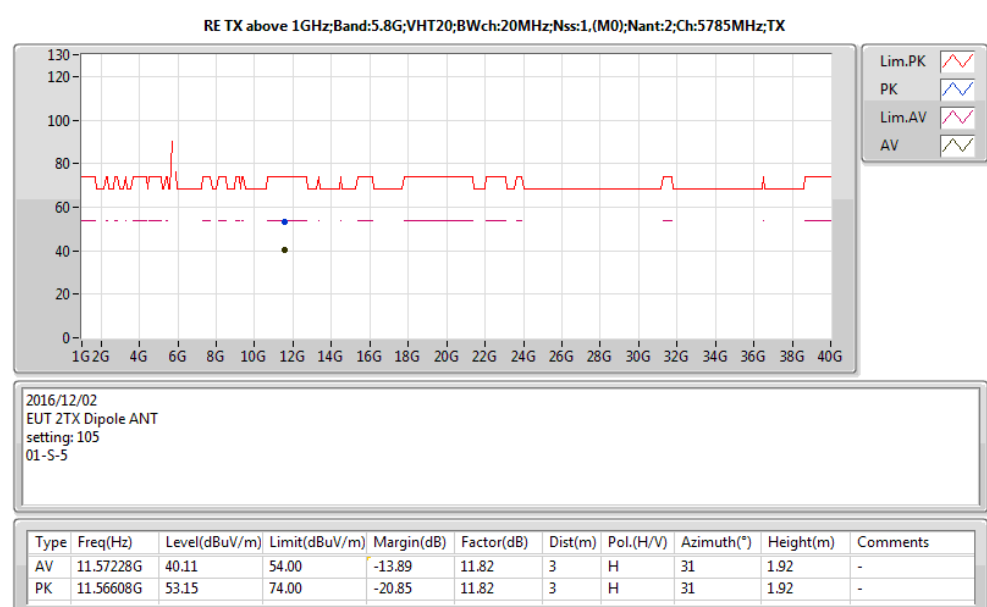
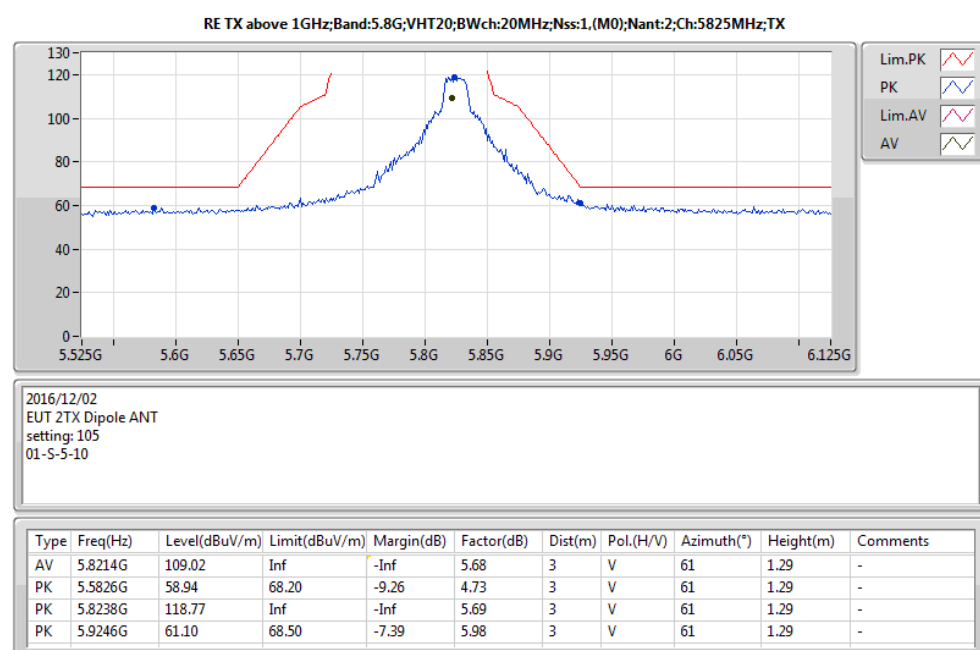
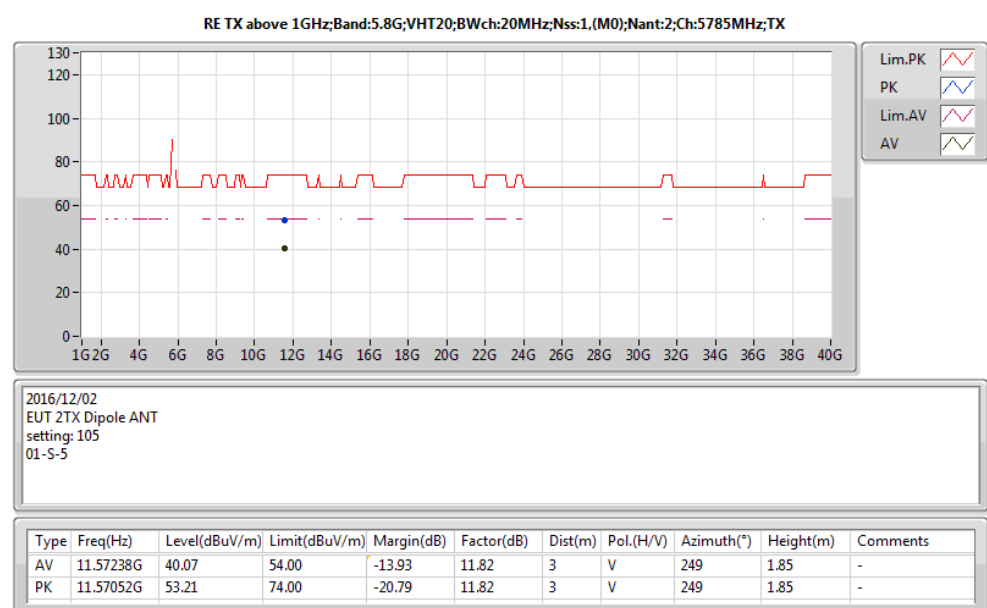


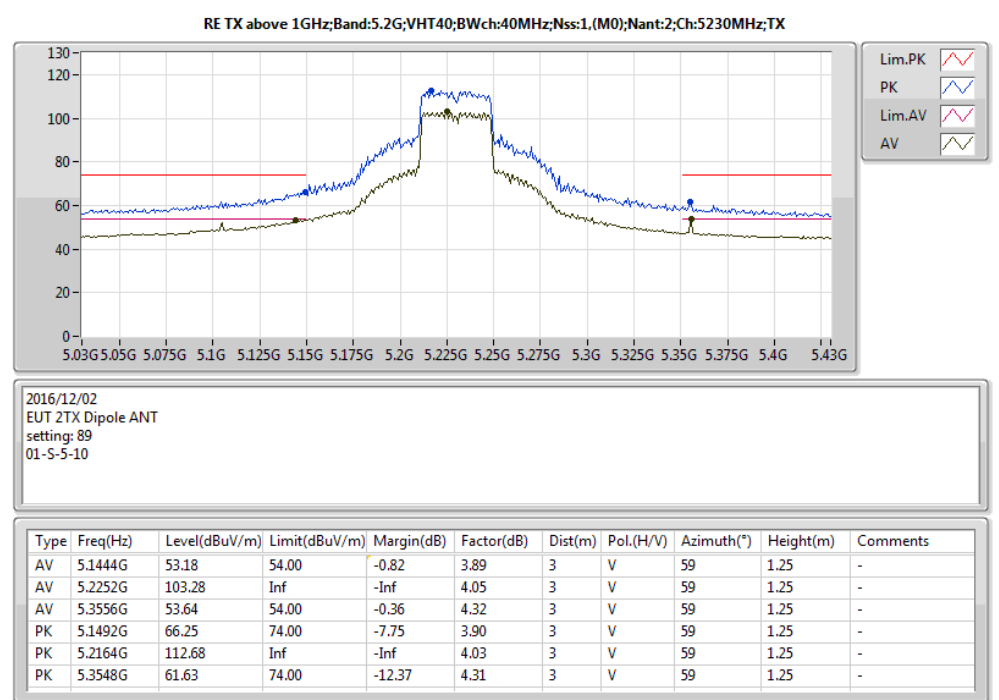
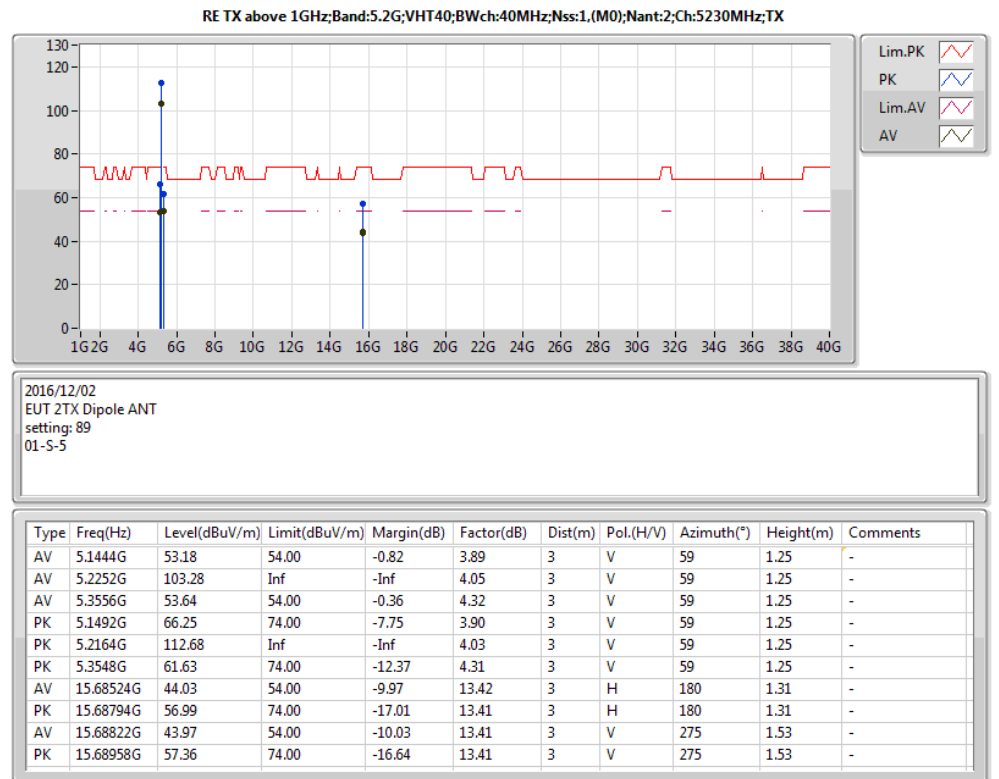
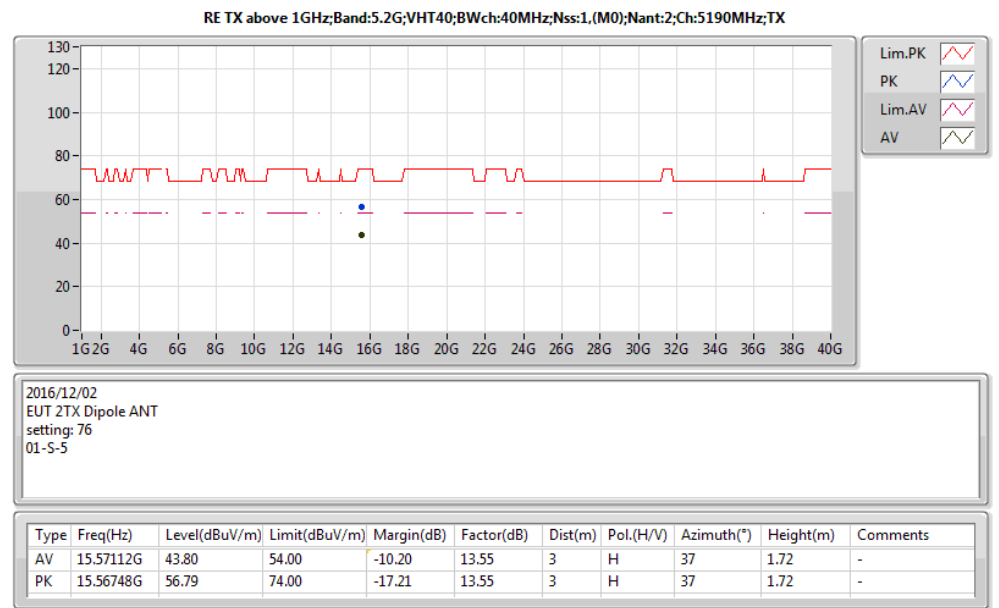
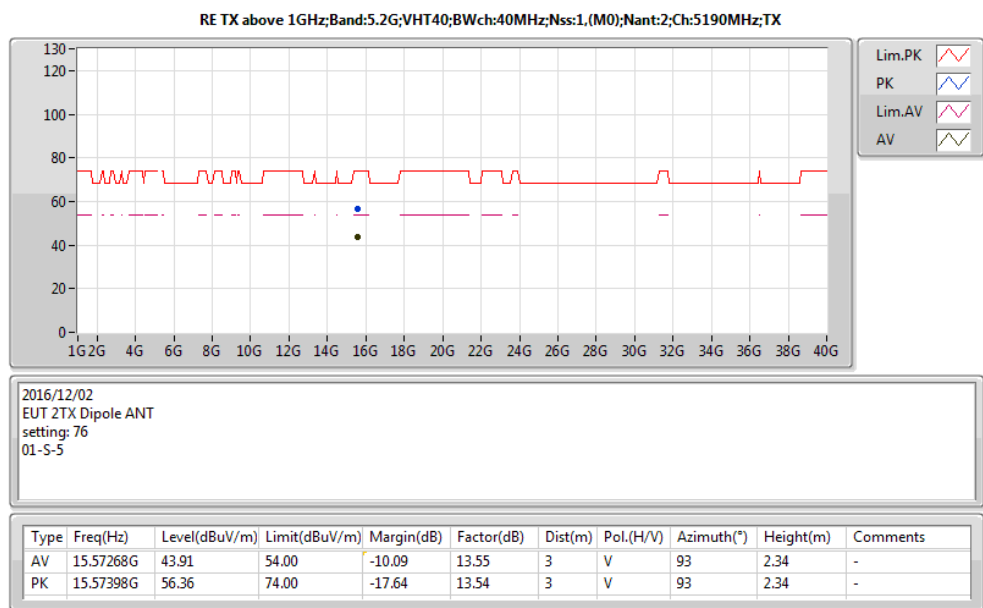
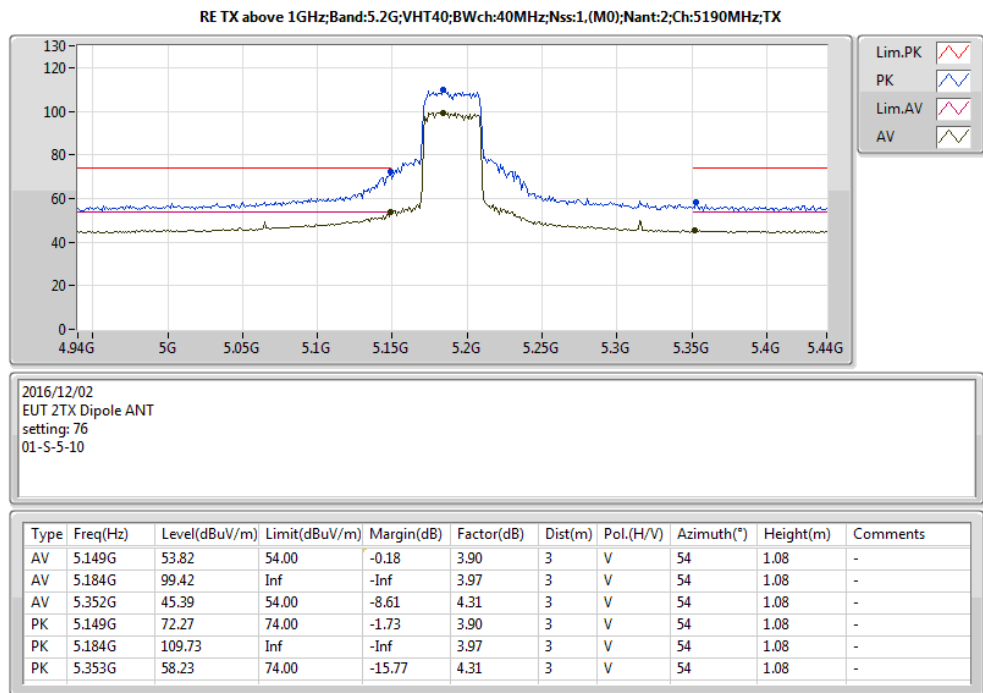
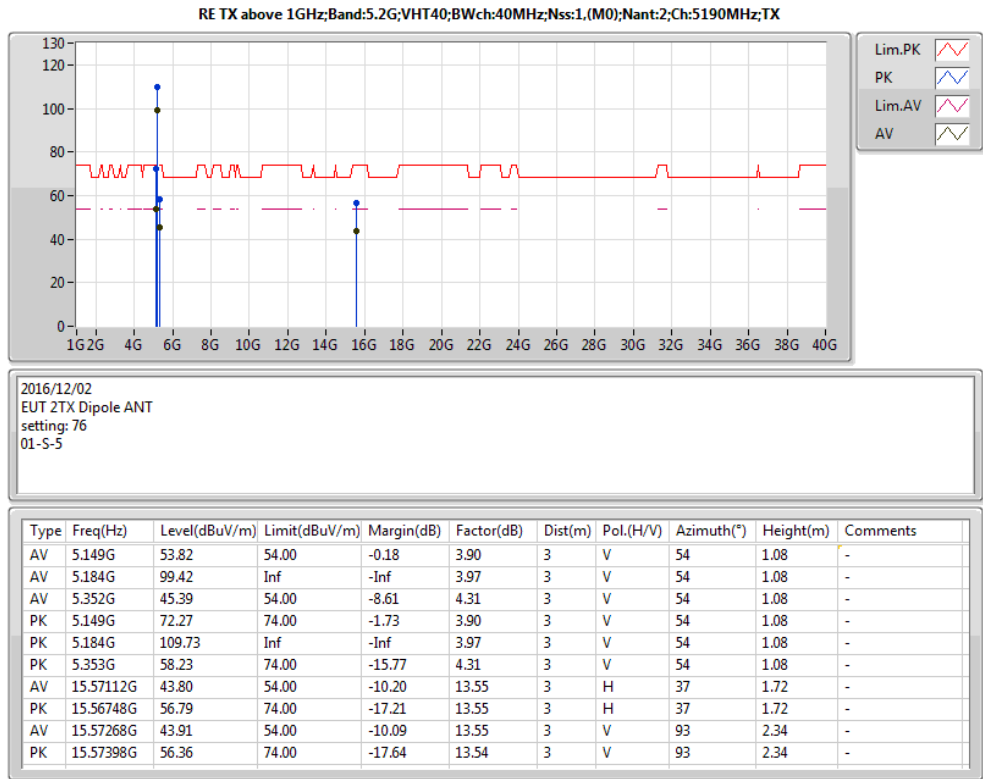


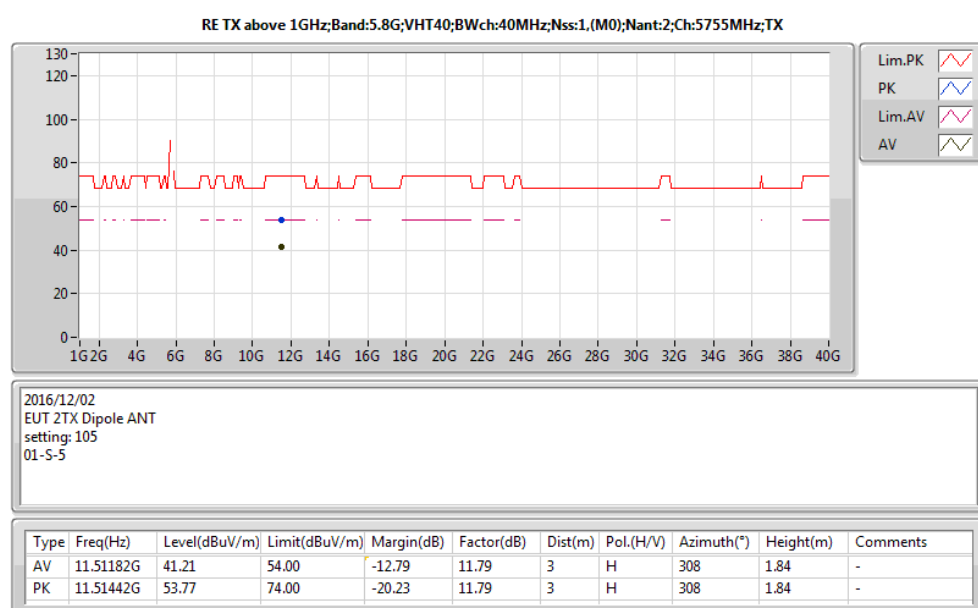
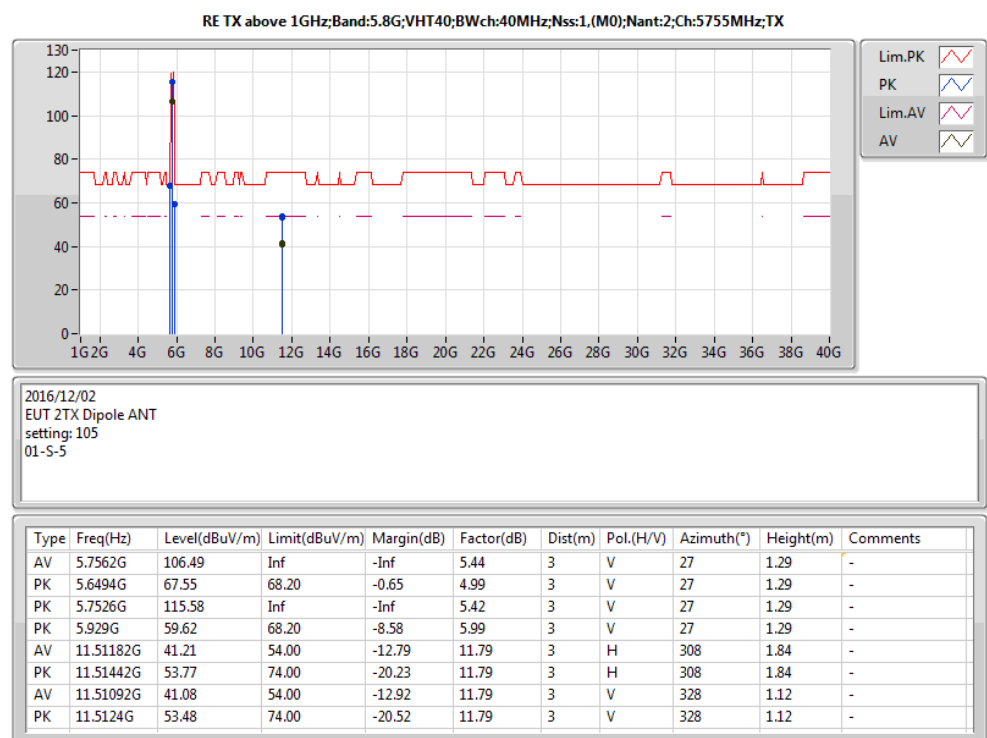
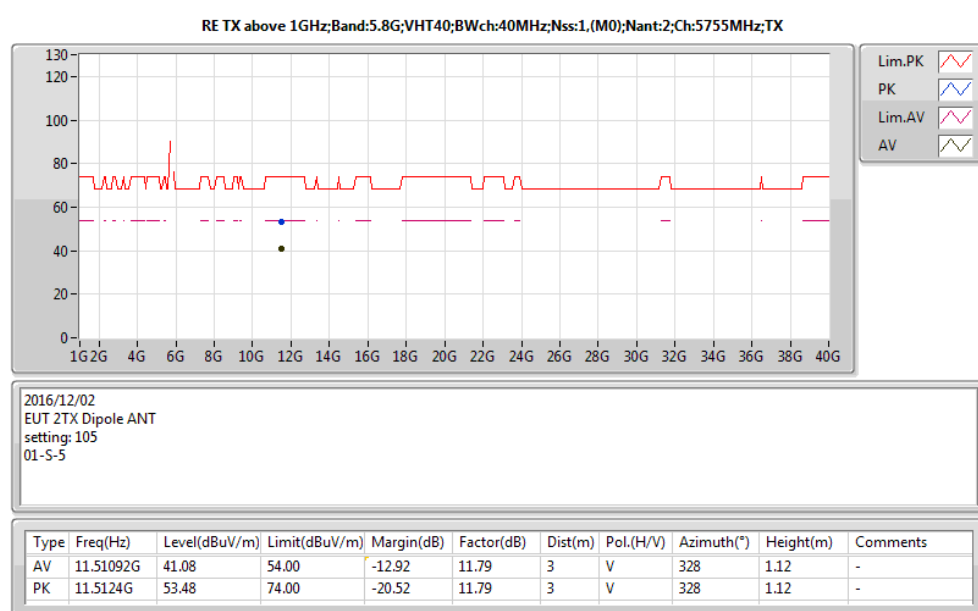
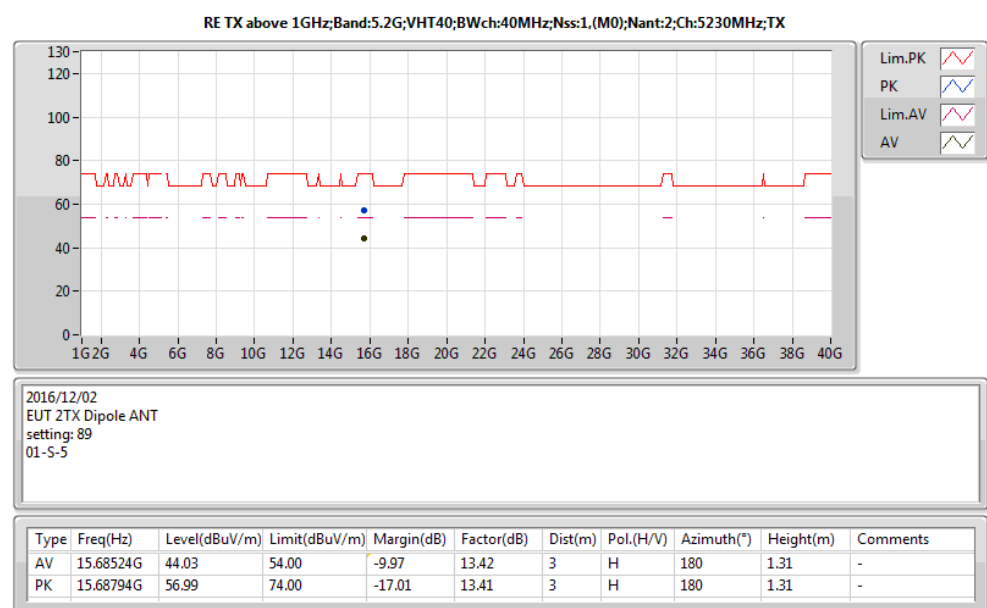
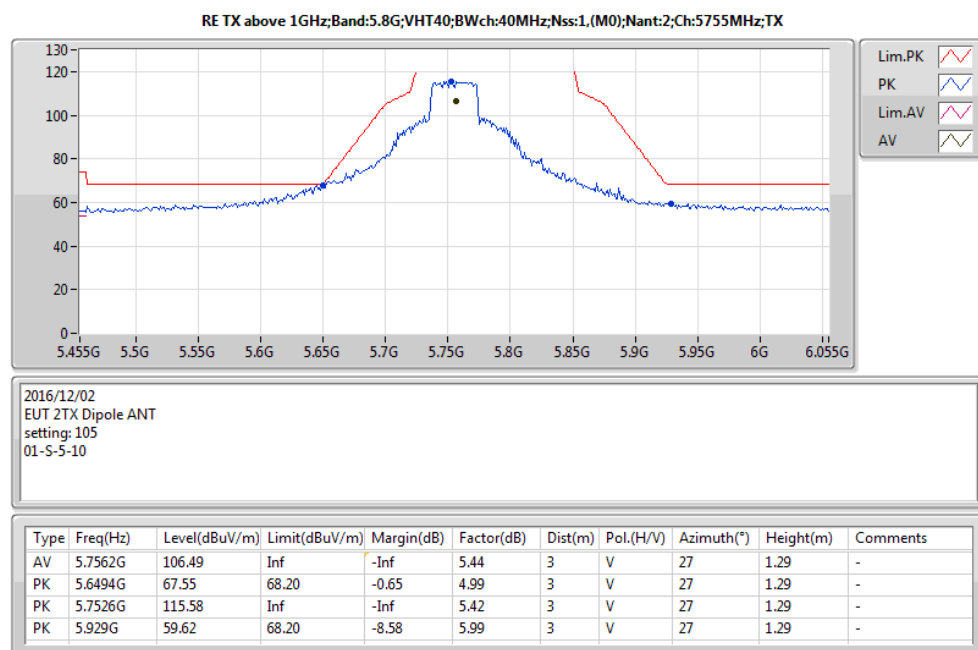
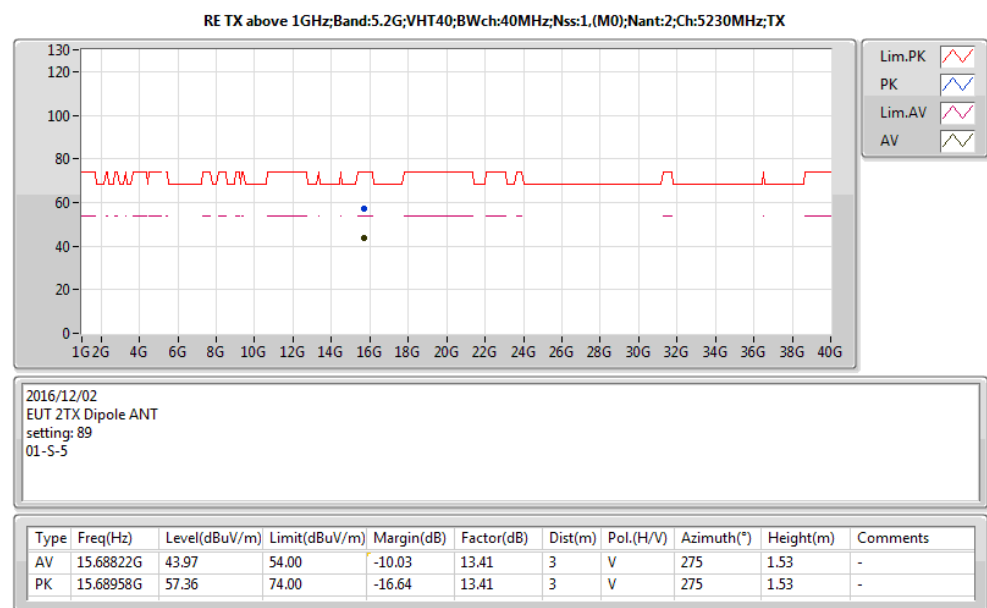


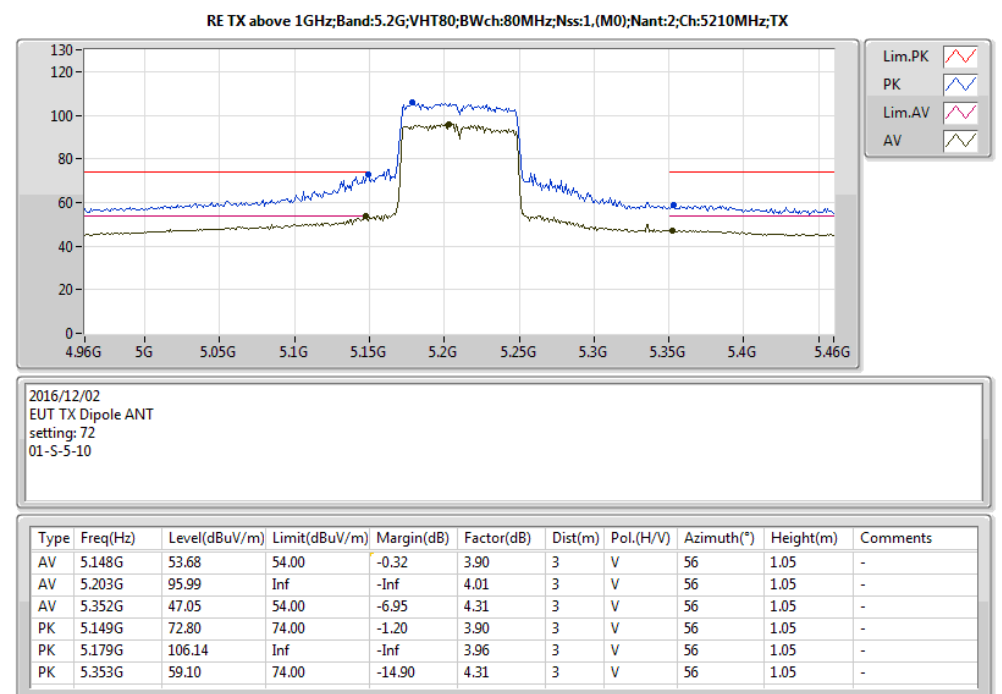
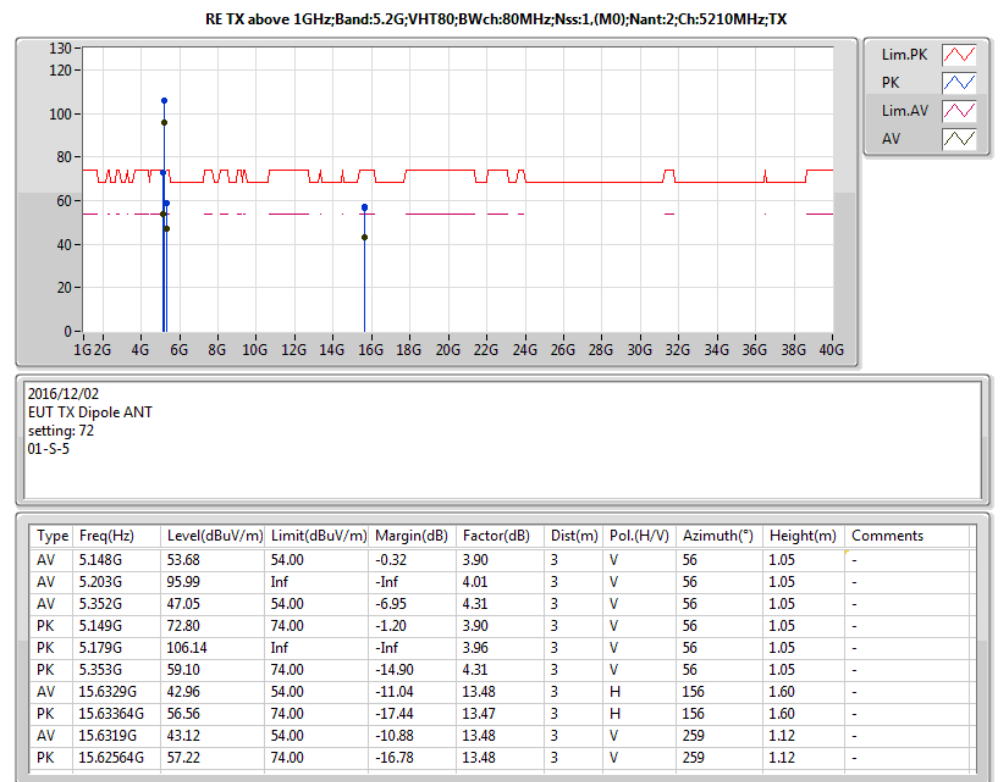
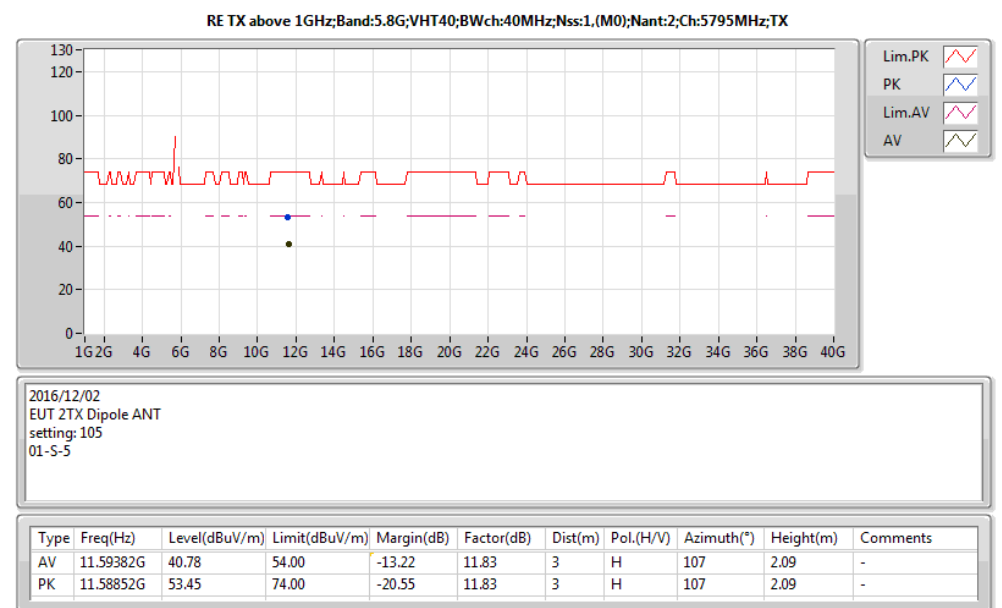
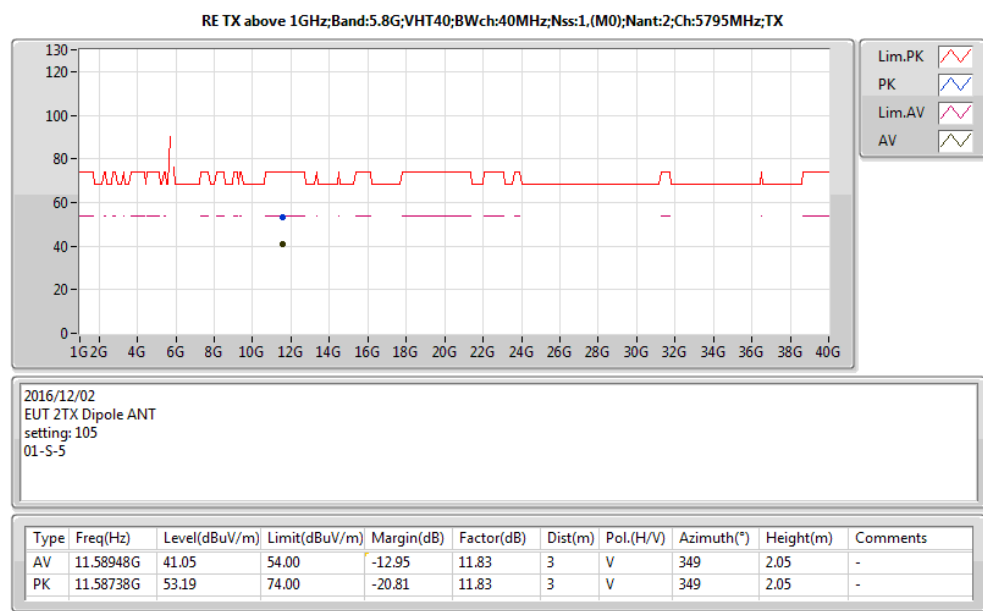
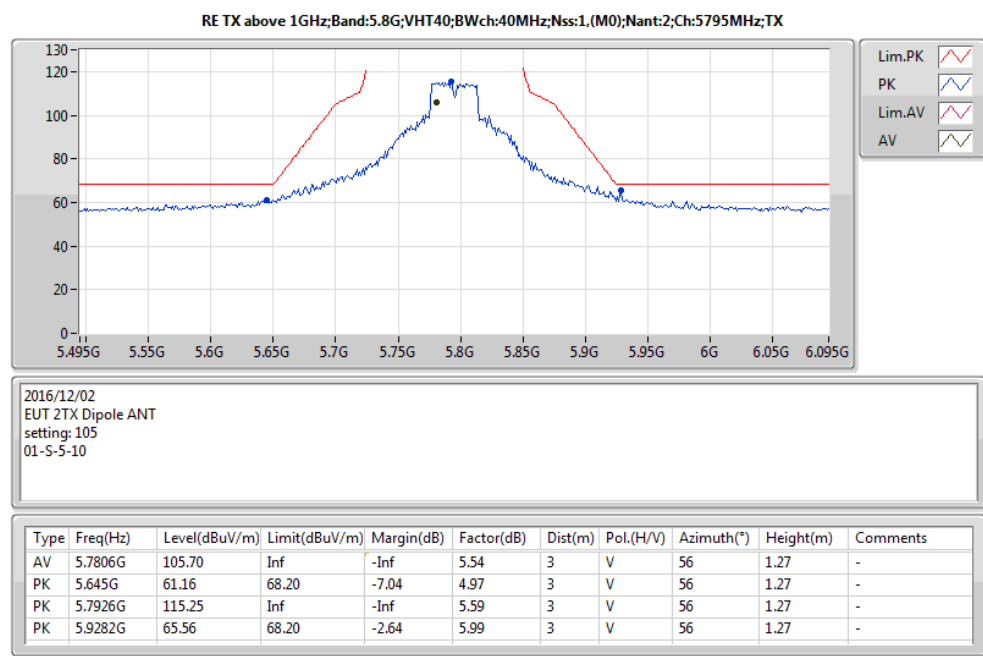
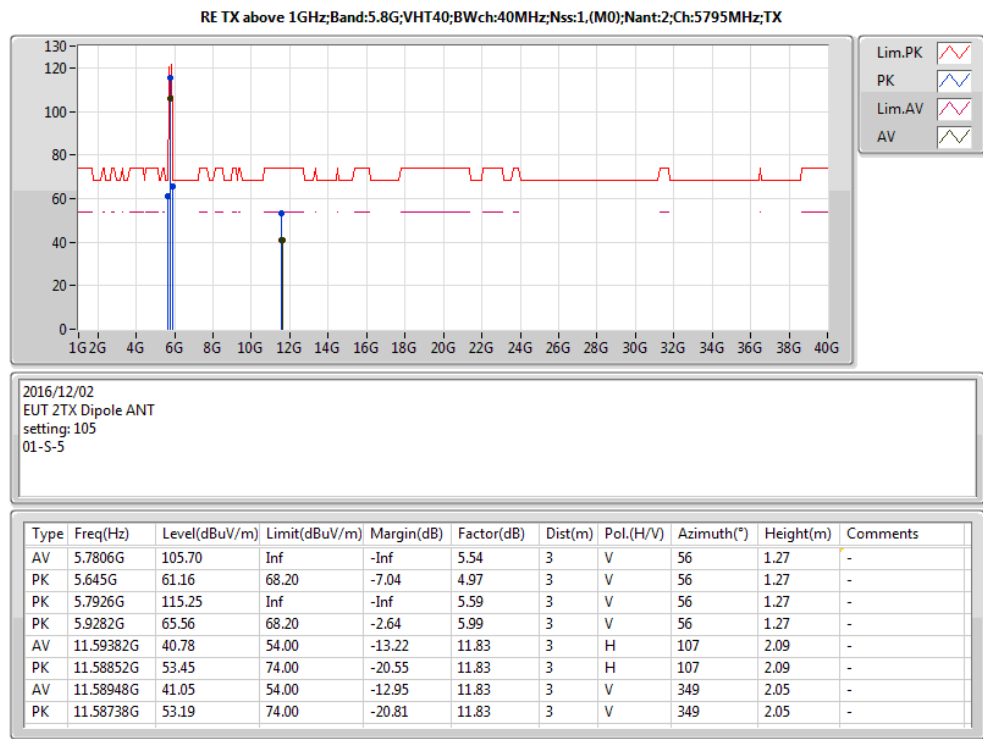


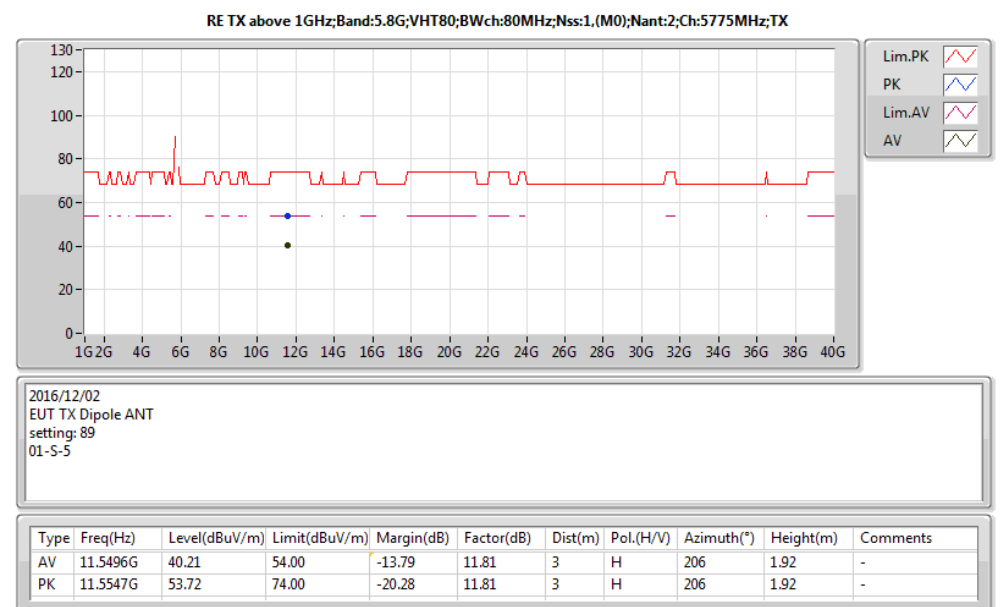
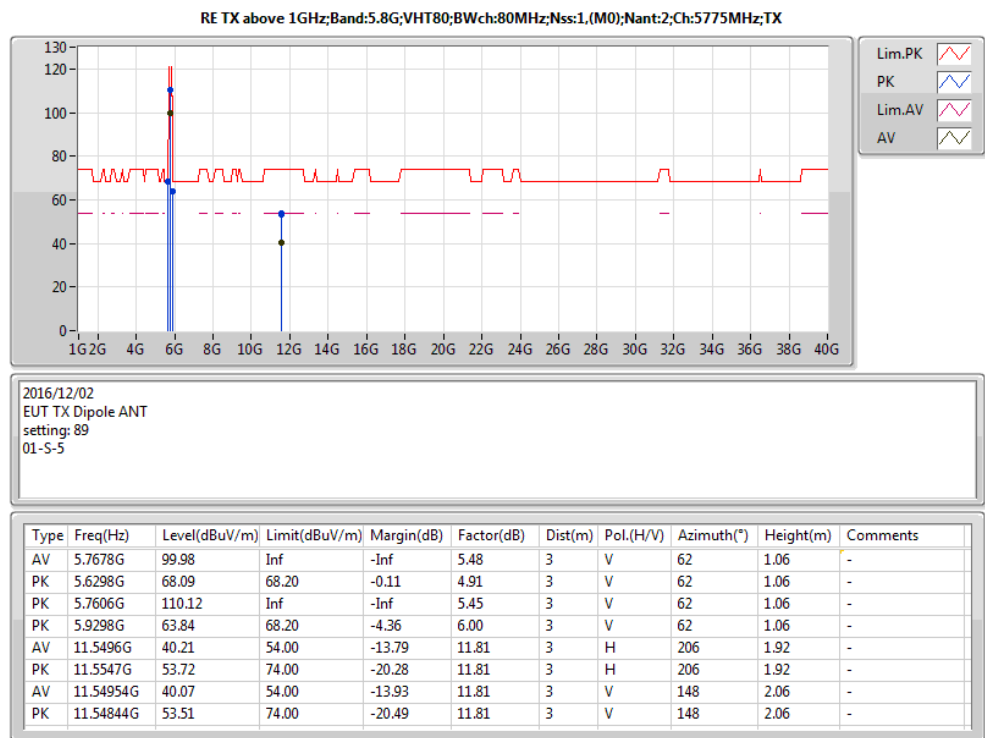
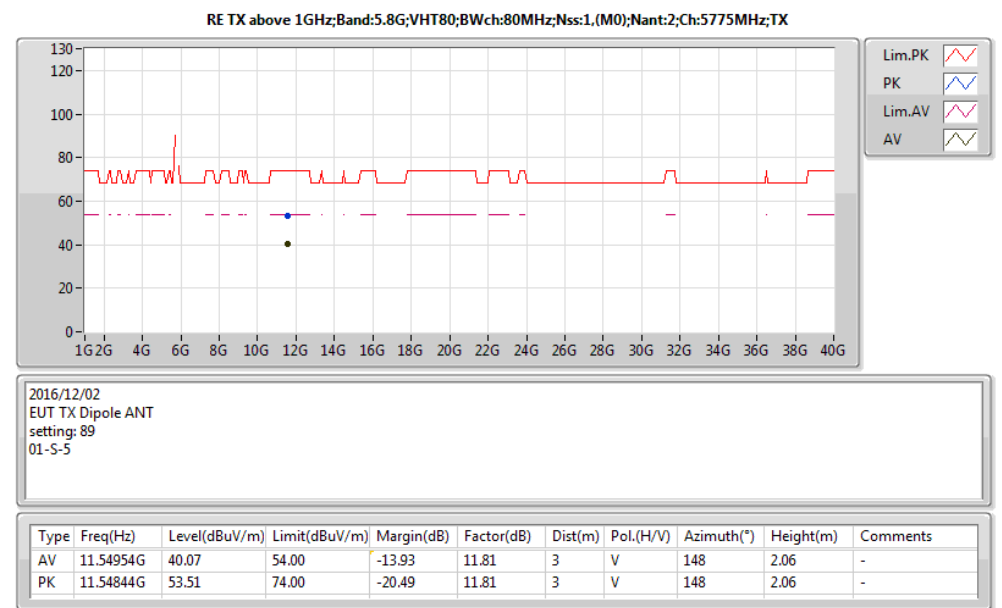
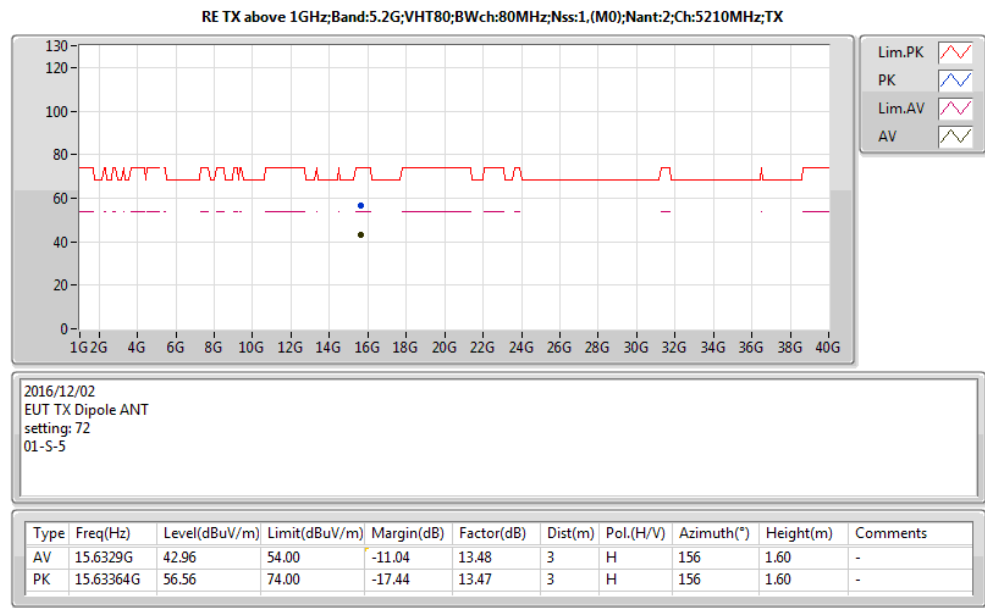
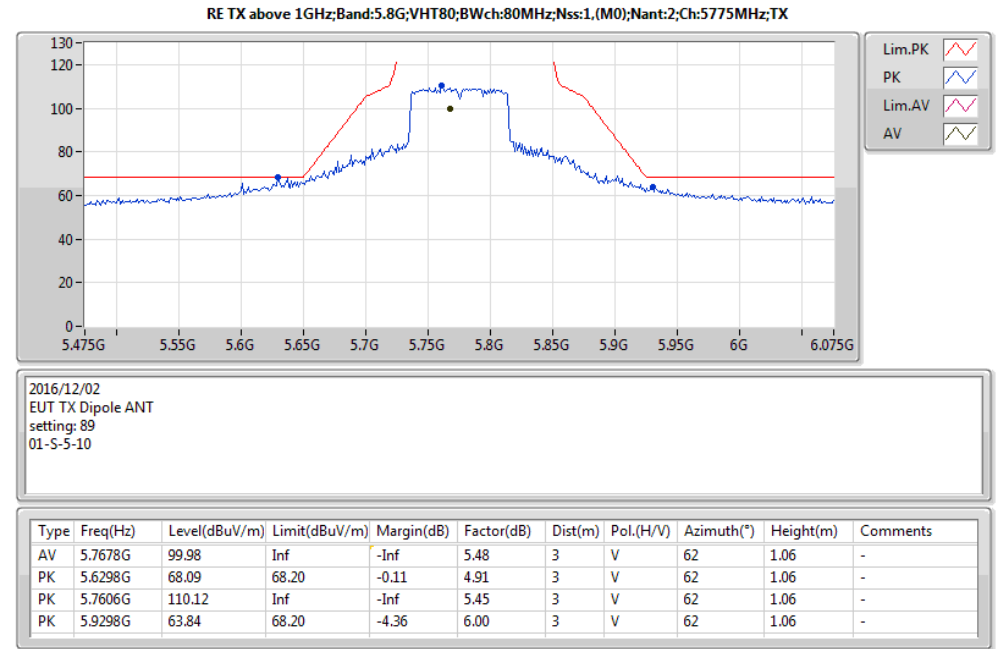
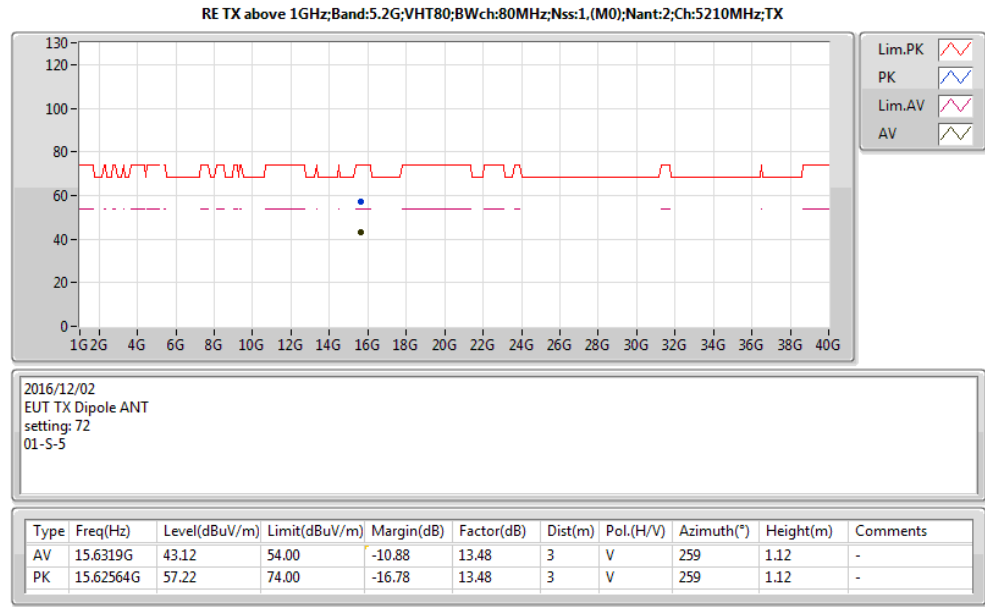














Mode: 20 MHz / Chain 2 (Port 2)

Voltage vs. Frequency Stability

| Voltage              | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (V)                  | 5200 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 126.50               | 5200.0152                   | 5200.0150 | 5200.0149 | 5200.0146 |
| 110.00               | 5200.0144                   | 5200.0138 | 5200.0129 | 5200.0120 |
| 93.50                | 5200.0135                   | 5200.0125 | 5200.0121 | 5200.0114 |
| Max. Deviation (MHz) | 0.0152                      | 0.0150    | 0.0149    | 0.0146    |
| Max. Deviation (ppm) | 2.92                        | 2.88      | 2.87      | 2.81      |
| Result               | Pass                        |           |           |           |

Temperature vs. Frequency Stability

| Temperature          | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (°C)                 | 5200 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 0                    | 5200.0160                   | 5200.0156 | 5200.0146 | 5200.0144 |
| 10                   | 5200.0145                   | 5200.0140 | 5200.0134 | 5200.0131 |
| 20                   | 5200.0144                   | 5200.0134 | 5200.0129 | 5200.0128 |
| 30                   | 5200.0060                   | 5200.0051 | 5200.0041 | 5200.0035 |
| 40                   | 5200.0044                   | 5200.0042 | 5200.0040 | 5200.0031 |
| Max. Deviation (MHz) | 0.0160                      | 0.0156    | 0.0146    | 0.0144    |
| Max. Deviation (ppm) | 3.08                        | 3.00      | 2.81      | 2.77      |
| Result               | Pass                        |           |           |           |

Voltage vs. Frequency Stability

| Voltage              | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (V)                  | 5785 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 126.50               | 5785.0149                   | 5785.0144 | 5785.0136 | 5785.0133 |
| 110.00               | 5785.0144                   | 5785.0142 | 5785.0133 | 5785.0128 |
| 93.50                | 5785.0135                   | 5785.0128 | 5785.0122 | 5785.0121 |
| Max. Deviation (MHz) | 0.0149                      | 0.0144    | 0.0136    | 0.0133    |
| Max. Deviation (ppm) | 2.58                        | 2.49      | 2.35      | 2.30      |
| Result               | Pass                        |           |           |           |

Temperature vs. Frequency Stability

| Temperature          | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (°C)                 | 5785 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 0                    | 5785.0164                   | 5785.0154 | 5785.0151 | 5785.0146 |
| 10                   | 5785.0154                   | 5785.0145 | 5785.0142 | 5785.0140 |
| 20                   | 5785.0144                   | 5785.0136 | 5785.0127 | 5785.0125 |
| 30                   | 5785.0060                   | 5785.0054 | 5785.0051 | 5785.0042 |
| 40                   | 5785.0053                   | 5785.0050 | 5785.0045 | 5785.0043 |
| Max. Deviation (MHz) | 0.0164                      | 0.0154    | 0.0151    | 0.0146    |
| Max. Deviation (ppm) | 2.83                        | 2.66      | 2.61      | 2.52      |
| Result               | Pass                        |           |           |           |

Mode: 40 MHz / Chain 2 (Port 2)

Voltage vs. Frequency Stability

| Voltage              | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (V)                  | 5190 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 126.50               | 5190.0150                   | 5190.0147 | 5190.0143 | 5190.0139 |
| 110.00               | 5190.0144                   | 5190.0134 | 5190.0130 | 5190.0127 |
| 93.50                | 5190.0141                   | 5190.0131 | 5190.0126 | 5190.0116 |
| Max. Deviation (MHz) | 0.0150                      | 0.0147    | 0.0143    | 0.0139    |
| Max. Deviation (ppm) | 2.89                        | 2.83      | 2.76      | 2.68      |
| Result               | Pass                        |           |           |           |

Temperature vs. Frequency Stability

| Temperature          | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (°C)                 | 5190 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 0                    | 5190.0158                   | 5190.0149 | 5190.0145 | 5190.0144 |
| 10                   | 5190.0151                   | 5190.0148 | 5190.0146 | 5190.0145 |
| 20                   | 5190.0144                   | 5190.0134 | 5190.0129 | 5190.0119 |
| 30                   | 5190.0060                   | 5190.0057 | 5190.0053 | 5190.0050 |
| 40                   | 5190.0052                   | 5190.0044 | 5190.0035 | 5190.0026 |
| Max. Deviation (MHz) | 0.0158                      | 0.0149    | 0.0146    | 0.0145    |
| Max. Deviation (ppm) | 3.04                        | 2.87      | 2.81      | 2.79      |
| Result               | Pass                        |           |           |           |

Voltage vs. Frequency Stability

| Voltage              | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (V)                  | 5755 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 126.50               | 5755.0152                   | 5755.0151 | 5755.0150 | 5755.0143 |
| 110.00               | 5755.0144                   | 5755.0142 | 5755.0141 | 5755.0131 |
| 93.50                | 5755.0139                   | 5755.0134 | 5755.0124 | 5755.0117 |
| Max. Deviation (MHz) | 0.0152                      | 0.0151    | 0.0150    | 0.0143    |
| Max. Deviation (ppm) | 2.64                        | 2.62      | 2.61      | 2.48      |
| Result               | Pass                        |           |           |           |

Temperature vs. Frequency Stability

| Temperature          | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (°C)                 | 5755 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 0                    | 5755.0157                   | 5755.0156 | 5755.0152 | 5755.0151 |
| 10                   | 5755.0156                   | 5755.0154 | 5755.0147 | 5755.0145 |
| 20                   | 5755.0144                   | 5755.0134 | 5755.0126 | 5755.0119 |
| 30                   | 5755.0060                   | 5755.0052 | 5755.0051 | 5755.0047 |
| 40                   | 5755.0050                   | 5755.0046 | 5755.0038 | 5755.0031 |
| Max. Deviation (MHz) | 0.0157                      | 0.0156    | 0.0152    | 0.0151    |
| Max. Deviation (ppm) | 2.73                        | 2.71      | 2.64      | 2.62      |
| Result               | Pass                        |           |           |           |



Mode: 80 MHz / Chain 2 (Port 2)

Voltage vs. Frequency Stability

| Voltage              | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (V)                  | 5210 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 126.50               | 5210.0151                   | 5210.0150 | 5210.0142 | 5210.0136 |
| 110.00               | 5210.0144                   | 5210.0136 | 5210.0133 | 5210.0125 |
| 93.50                | 5210.0138                   | 5210.0130 | 5210.0124 | 5210.0119 |
| Max. Deviation (MHz) | 0.0151                      | 0.0150    | 0.0142    | 0.0136    |
| Max. Deviation (ppm) | 2.90                        | 2.88      | 2.73      | 2.61      |
| Result               | Pass                        |           |           |           |

Temperature vs. Frequency Stability

| Temperature          | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (°C)                 | 5210 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 0                    | 5210.0174                   | 5210.0165 | 5210.0164 | 5210.0157 |
| 10                   | 5210.0158                   | 5210.0157 | 5210.0154 | 5210.0153 |
| 20                   | 5210.0144                   | 5210.0139 | 5210.0137 | 5210.0133 |
| 30                   | 5210.0060                   | 5210.0050 | 5210.0049 | 5210.0040 |
| 40                   | 5210.0045                   | 5210.0035 | 5210.0033 | 5210.0028 |
| Max. Deviation (MHz) | 0.0174                      | 0.0165    | 0.0164    | 0.0157    |
| Max. Deviation (ppm) | 3.34                        | 3.17      | 3.15      | 3.01      |
| Result               | Pass                        |           |           |           |

Voltage vs. Frequency Stability

| Voltage              | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (V)                  | 5775 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 126.50               | 5775.0152                   | 5775.0150 | 5775.0147 | 5775.0146 |
| 110.00               | 5775.0144                   | 5775.0139 | 5775.0130 | 5775.0128 |
| 93.50                | 5775.0142                   | 5775.0135 | 5775.0125 | 5775.0117 |
| Max. Deviation (MHz) | 0.0152                      | 0.0150    | 0.0147    | 0.0146    |
| Max. Deviation (ppm) | 2.63                        | 2.60      | 2.55      | 2.53      |
| Result               | Pass                        |           |           |           |

Temperature vs. Frequency Stability

| Temperature          | Measurement Frequency (MHz) |           |           |           |
|----------------------|-----------------------------|-----------|-----------|-----------|
| (°C)                 | 5775 MHz                    |           |           |           |
|                      | 0 Minute                    | 2 Minute  | 5 Minute  | 10 Minute |
| 0                    | 5775.0172                   | 5775.0165 | 5775.0161 | 5775.0151 |
| 10                   | 5775.0163                   | 5775.0153 | 5775.0146 | 5775.0144 |
| 20                   | 5775.0144                   | 5775.0141 | 5775.0137 | 5775.0131 |
| 30                   | 5775.0060                   | 5775.0058 | 5775.0052 | 5775.0048 |
| 40                   | 5775.0059                   | 5775.0058 | 5775.0057 | 5775.0048 |
| Max. Deviation (MHz) | 0.0172                      | 0.0165    | 0.0161    | 0.0151    |
| Max. Deviation (ppm) | 2.98                        | 2.86      | 2.79      | 2.61      |
| Result               | Pass                        |           |           |           |