

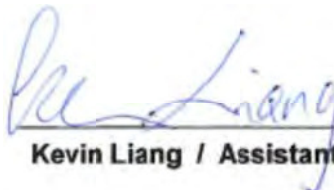
# FCC Test Report

**Equipment** : 802.11ac Wireless Router  
**Brand Name** : Synology  
**Model No.** : RT2600ac  
**Standard** : 47 CFR FCC Part 15.407  
**FCC ID** : YOR-RT2600AC  
**Frequency** : 5150 MHz – 5250 MHz  
5725 MHz – 5850 MHz  
**FCC Classification** : NII  
**Applicant** : Synology Incorporated  
3F-3, No.106, Chang An W. Rd., Taipei 103, Taiwan  
**Manufacturer** : ASKEY TECHNOLOY (JIANG SU) LTD.  
NO.1388, Jiao Tong Road, Wu Jiang  
Economic-Technological Development Area, Jiangsu  
Province215200, P.R.C

The product sample received on Jun. 03, 2016 and completely tested on Aug. 12, 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.

Reviewed by:

  
Kevin Liang / Assistant Manager





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**Appendix I. Test Result of AC Power-line Conducted Emissions**

**Appendix A. Test Result of Emission Bandwidth**

**Appendix B. Test Result of Maximum Conducted Output Power**

**Appendix C. Test Result of Power Spectral Density**

**Appendix D. Transmitter Bandedge Emissions**

**Appendix E. Transmitter Unwanted Emissions**

**Appendix F. Frequency Stability**

**Appendix G. Test Photos**

**Appendix H. Photographs of EUT**



### 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
3.7	15.407(g)	Frequency Stability	Complied



### Revision History

Report No.	Version	Description	Issued Date
FR662420AN	Rev. 01	Initial issue of report	Sep. 05, 2016



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

Band	Mode	BWch (MHz)	Channel Number	Nss-Min	Nant
5.2G	11a	20	36-48 [4]	1	4
5.2G	HT20	20	36-48 [4]	1,(M0-31)	4
5.2G	HT40	40	38-46 [2]	1,(M0-31)	4
5.2G	VHT20	20	36-48 [4]	1,(M0-8)	4
5.2G	VHT40	40	38-46 [2]	1,(M0-9)	4
5.2G	VHT80	80	42 [1]	1,(M0-9)	4
5.2G	VHT80+80	80	42 [1]	1,(M0-9)	2(1,2)
5.8G	11a	20	149-165 [5]	1	4
5.8G	HT20	20	149-165 [5]	1,(M0-31)	4
5.8G	HT40	40	151-159 [2]	1,(M0-31)	4
5.8G	VHT20	20	149-165 [5]	1,(M0-8)	4
5.8G	VHT40	40	151-159 [2]	1,(M0-9)	4
5.8G	VHT80	80	155 [1]	1,(M0-9)	4
5.8G	VHT80+80	80	155 [1]	1,(M0-9)	2(3,4)
5.2G	VHT20 (TxBF)	20	36-48 [4]	1,(M0-8)	4
5.2G	VHT40 (TxBF)	40	38-46 [2]	1,(M0-9)	4
5.2G	VHT80 (TxBF)	80	42 [1]	1,(M0-9)	4
5.2G	VHT80+80 (TxBF)	80	42 [1]	1,(M0)	2(1,2)
5.8G	VHT20 (TxBF)	20	149-165 [5]	1,(M0-8)	4
5.8G	VHT40 (TxBF)	40	151-159 [2]	1,(M0-9)	4
5.8G	VHT80 (TxBF)	80	155 [1]	1,(M0-9)	4
5.8G	VHT80+80 (TxBF)	80	155 [1]	1,(M0)	2(3,4)

Note:

- 5.2G/5.2G-I is the 5.2GHz Band (5.15-5.25GHz).
- 5.8G 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 and 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

Antenna Category	
<input type="checkbox"/>	Equipment placed on the market without antennas
<input type="checkbox"/>	Integral antenna (antenna permanently attached)
<input type="checkbox"/>	Temporary RF connector provided
<input type="checkbox"/>	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
<input checked="" type="checkbox"/>	External antenna (dedicated antennas)
<input checked="" type="checkbox"/>	Single power level with corresponding antenna(s).
<input type="checkbox"/>	Multiple power level and corresponding antenna(s).

No.	Ant. Cat.	Ant. Type	Gain (dBi)	
			U-NII-1	U-NII-3
1	External	Dipole	2.3	3.6
2	External	Dipole	2.3	3.6
3	External	Dipole	2.3	3.6
4	External	Dipole	2.3	3.6

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	<input type="checkbox"/> Production ; <input checked="" type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:

1.1.4 Mode Test Duty Cycle

Operated Mode for Worst Duty Cycle	
<input checked="" type="checkbox"/> Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
<input checked="" type="checkbox"/> 96.7% - IEEE 802.11a (11a)	0.15
<input checked="" type="checkbox"/> 98.7% - IEEE 802.11n (HT20)	0.06
<input checked="" type="checkbox"/> 97.4% - IEEE 802.11n (HT40)	0.11
<input checked="" type="checkbox"/> 98.8% - IEEE 802.11ac (VHT20)	0.05
<input checked="" type="checkbox"/> 97.3% - IEEE 802.11ac (VHT40)	0.12
<input checked="" type="checkbox"/> 94.7% - IEEE 802.11ac (VHT80)	0.24
<input checked="" type="checkbox"/> 96.8% - IEEE 802.11ac (VHT80+80)	0.14
<input checked="" type="checkbox"/> 91.9% - IEEE 802.11n (VHT20,BF)	0.37
<input checked="" type="checkbox"/> 92.5% - IEEE 802.11n (VHT40,BF)	0.34
<input checked="" type="checkbox"/> 89.3% - IEEE 802.11n (VHT80,BF)	0.49
<input checked="" type="checkbox"/> 82.0% - IEEE 802.11n (VHT80+80,BF)	0.86

1.1.5 EUT Operational Condition

Supply Voltage	<input checked="" type="checkbox"/> AC mains	<input type="checkbox"/> DC	
Type of DC Source	<input checked="" type="checkbox"/> External AC adapter	<input type="checkbox"/> From Host System	<input type="checkbox"/> Battery
Test Voltage	<input checked="" type="checkbox"/> Vnom (110 V)	<input checked="" type="checkbox"/> Vmax (126.5 V)	<input checked="" type="checkbox"/> Vmin (93.5 V)
Test Climatic	<input checked="" type="checkbox"/> Tnom (20°C)	<input checked="" type="checkbox"/> Tmax (50°C)	<input checked="" type="checkbox"/> Tmin (-20°C)

1.1.6 EUT Operate Information

Items	Description	
Communication Mode	<input checked="" type="checkbox"/> IP Based (Load Based)	<input type="checkbox"/> Frame Based
TPC Function	<input checked="" type="checkbox"/> With TPC	<input type="checkbox"/> Without TPC
TDWR Band (5600~5650MHz)	<input type="checkbox"/> With 5600~5650MHz	<input checked="" type="checkbox"/> Without 5600~5650MHz
Beamforming Function	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming
Operate Condition	<input checked="" type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
	<input type="checkbox"/> Fixed P2P	<input checked="" type="checkbox"/> Point to MultiPoint
Operate Mode	<input checked="" type="checkbox"/> Master	



## 1.2 Accessories and Support Equipment

Accessories Information				
AC Adapter	Brand Name	CWT	Model Name	2ABN042F
	Power Rating	I/P:100 - 240Vac, 1.3A, O/P: 12Vdc, 3.5A		
	Power Cord	1.45 meter, non-shielded cable, w/o ferrite core		
RJ45 Cable	Power Cord	1.5 meter, non-shielded cable		

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

Support Equipment - RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E6400	DoC
2	AC Adapter for Notebook	DELL	HA65NM130	DoC

Support Equipment –AC Conduction and Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	-	-	-	-

## 1.3 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013
- ◆ KDB 789033 D02 v01r03
- ◆ FCC-16-24-UNII
- ◆ KDB 662911 D01 v02r01
- ◆ KDB 644545 D03 v01

## 1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.	
		TEL :	886-3-327-3456	FAX : 886-3-327-0973
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Ryan	22.2°C / 54%	05/08/2016
RF Conducted	TH01-HY	Ryan	22.8°C / 65%	12/08/2016
Radiated	03CH09-HY	Thor	22.2°C / 51.8%	11/08/2016



## 1.5 Measurement Uncertainty

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

Measurement Uncertainty		
Test Item		Uncertainty
AC power-line conducted emissions		±2.26 dB
Emission bandwidth, 26dB bandwidth		±1.42 %
RF output power, conducted		±0.63 dB
Power density, conducted		±0.81 dB
Unwanted emissions, conducted	9 – 150 kHz	±0.38 dB
	0.15 – 30 MHz	±0.42 dB
	30 – 1000 MHz	±0.51 dB
	1 – 18 GHz	±0.67 dB
	18 – 40 GHz	±0.83 dB
	40 – 200 GHz	N/A
All emissions, radiated	9 – 150 kHz	±2.49 dB
	0.15 – 30 MHz	±2.28 dB
	30 – 1000 MHz	±2.56 dB
	1 – 18 GHz	±3.59 dB
	18 – 40 GHz	±3.82 dB
	40 – 200 GHz	N/A
Temperature		±0.8 °C
Humidity		±3 %
DC and low frequency voltages		±3 %
Time		±1.42 %
Duty Cycle		±1.42 %



## 2 Test Configuration of EUT

### 2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing			
Modulation Mode	Transmit Chains (N <sub>TX</sub> )	Data Rate / MCS	Worst Data Rate / MCS
11a	4	6-54Mbps	6 Mbps
HT20	4	MCS 0-31	MCS 0
HT40	4	MCS 0-31	MCS 0
VHT20	4	MCS 0-8	MCS 0
VHT40	4	MCS 0-9	MCS 0
VHT80	4	MCS 0-9	MCS 0
VHT80+80	4	MCS 0-9	MCS 0
VHT20 (TxBF)	4	MCS 0-8	MCS 0
VHT40 (TxBF)	4	MCS 0-9	MCS 0
VHT80 (TxBF)	4	MCS 0-9	MCS 0
VHT80+80 (TxBF)	4	MCS 0-9	MCS 0

### 2.2 Test Channel Mode

< Non-Beamforming >

Test Software Version	QRCT VV3.0.156.0
-----------------------	------------------

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.2G	11a	20	1	4	5180	L	17.5
5.2G	11a	20	1	4	5200	M	19
5.2G	11a	20	1	4	5240	H	18.5
5.2G	HT20	20	1,(M0-31)	4	5180	L	17
5.2G	HT20	20	1,(M0-31)	4	5200	M	19
5.2G	HT20	20	1,(M0-31)	4	5240	H	19
5.2G	VHT20	20	1,(M0-8)	4	5180	L	15
5.2G	VHT20	20	1,(M0-8)	4	5200	M	20.5
5.2G	VHT20	20	1,(M0-8)	4	5240	H	17
5.2G	HT40	40	1,(M0-31)	4	5190	L	19
5.2G	HT40	40	1,(M0-31)	4	5230	H	19
5.2G	VHT40	40	1,(M0-9)	4	5190	L	15
5.2G	VHT40	40	1,(M0-9)	4	5230	H	20.5
5.2G	VHT80	80	1,(M0-9)	4	5210	S	12
5.2G	VHT80+80	80	1,(M0-9)	4	5210	S	15



Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.8G	11a	20	1	4	5745	L	22
5.8G	11a	20	1	4	5785	M	22
5.8G	11a	20	1	4	5825	H	22
5.8G	HT20	20	1,(M0-31)	4	5745	L	22
5.8G	HT20	20	1,(M0-31)	4	5785	M	22
5.8G	HT20	20	1,(M0-31)	4	5825	H	22
5.8G	VHT20	20	1,(M0-8)	4	5745	L	22
5.8G	VHT20	20	1,(M0-8)	4	5785	M	22
5.8G	VHT20	20	1,(M0-8)	4	5825	H	22
5.8G	HT40	40	1,(M0-31)	4	5755	L	22
5.8G	HT40	40	1,(M0-31)	4	5795	H	22
5.8G	VHT40	40	1,(M0-9)	4	5755	L	22
5.8G	VHT40	40	1,(M0-9)	4	5795	H	22
5.8G	VHT80	80	1,(M0-9)	4	5775	S	20.5
5.8G	VHT80+80	80	1,(M0-9)	4	5775	S	15

< Beamforming >

Test Software	Putty
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Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.2G	VHT20,BF	20	1,(M0-8)	4	5180	L	46
5.2G	VHT20,BF	20	1,(M0-8)	4	5200	M	49
5.2G	VHT20,BF	20	1,(M0-8)	4	5240	H	50
5.2G	VHT40,BF	40	1,(M0-9)	4	5190	L	35
5.2G	VHT40,BF	40	1,(M0-9)	4	5230	H	50
5.2G	VHT80,BF	80	1,(M0-9)	4	5210	S	27
5.2G	VHT80+80,BF	80	1,(M0)	2(1,2)	5210	S	36
5.8G	VHT20,BF	20	1,(M0-8)	4	5745	L	47
5.8G	VHT20,BF	20	1,(M0-8)	4	5785	M	47
5.8G	VHT20,BF	20	1,(M0-8)	4	5825	H	47
5.8G	VHT40,BF	40	1,(M0-9)	4	5755	L	49
5.8G	VHT40,BF	40	1,(M0-9)	4	5795	H	49
5.8G	VHT80,BF	80	1,(M0-9)	4	5775	S	43
5.8G	VHT80+80,BF	80	1,(M0)	2(3,4)	5775	S	36

Abbreviation Explanation



Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Test Cond.	Abbreviation
5.2G	VHT40	40	1,(M0-9)	2	5190	L	TN,VN	5.2G;VHT40;40;1,(M0-9);2;5190;L;TN,VN
5.2G	VHT80	80	1,(M0-9)	2	5210	S	TN,VN	5.2G;VHT80;80;1,(M0-9);2;5210;S;TN,VN

Note:  
 ♦ Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch. or Intra- band Ch.) and C (Inter-band Ch.).

### 2.3 The Worst Case Measurement Configuration

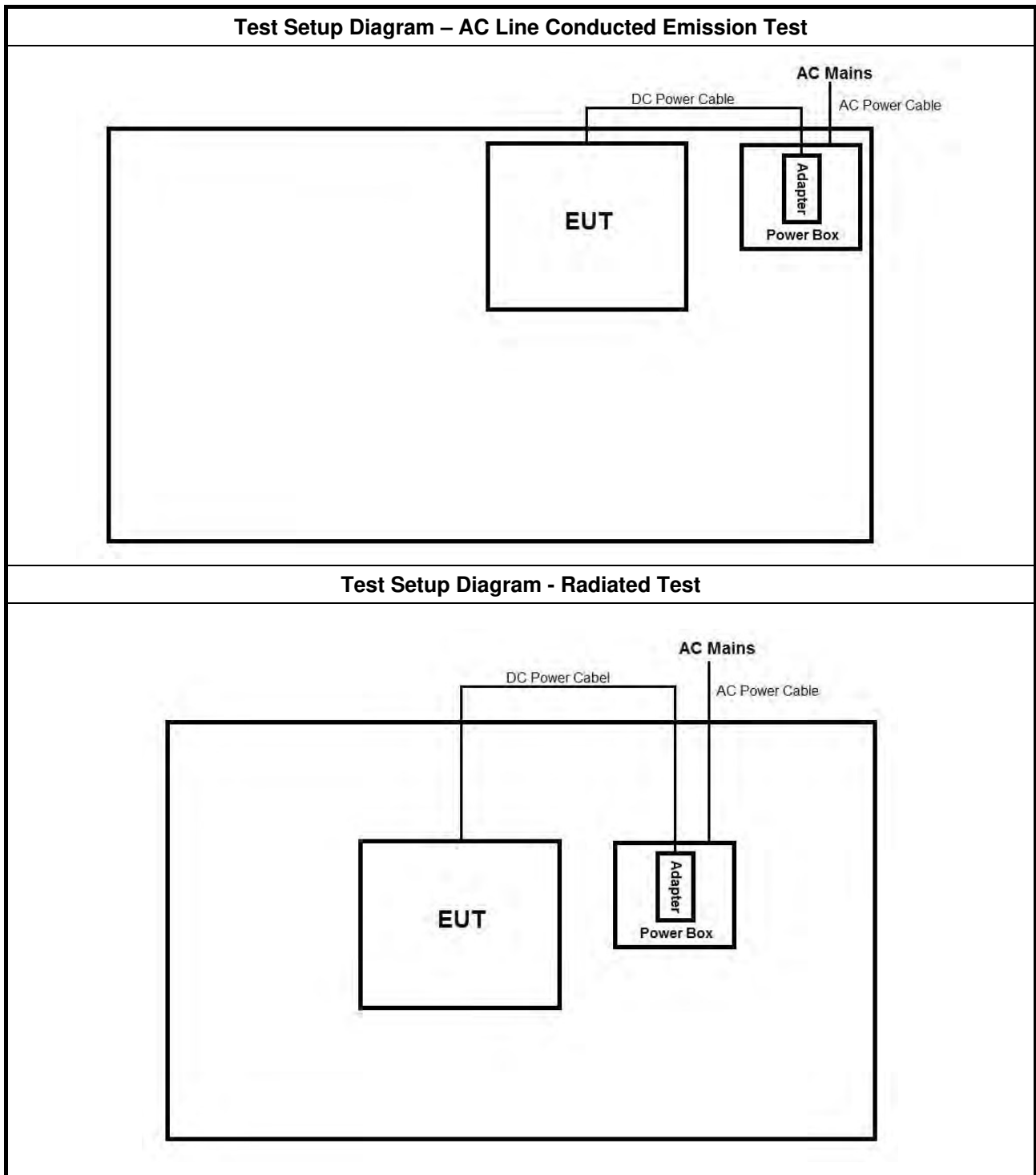
The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
<b>Operating Mode</b>	Operating Mode Description
1	Adapter Mode

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

The Worst Case Mode for Following Conformance Tests			
<b>Tests Item</b>		Transmitter Bandedge Emissions , Transmitter Unwanted Emissions	
<b>Test Condition</b>		Radiated measurement 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>User Position</b>		<input type="checkbox"/> EUT will be placed in fixed position.	
		<input checked="" type="checkbox"/> EUT will be placed in mobile position and operating multiple positions.	
		<input type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.	
<b>Operating Mode &lt; 1GHz</b>		<input checked="" type="checkbox"/> 1. Adapter Mode	
<b>Orthogonal Planes of EUT</b>		<b>X Plane</b>	<b>Y Plane</b>
			
<b>Worst Planes of EUT</b>	WiFi	V	
	Beamforming		V
<b>Worst Planes of Ant.</b>	WiFi		V
	Beamforming		V



## 2.4 Test Setup Diagram



### 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.

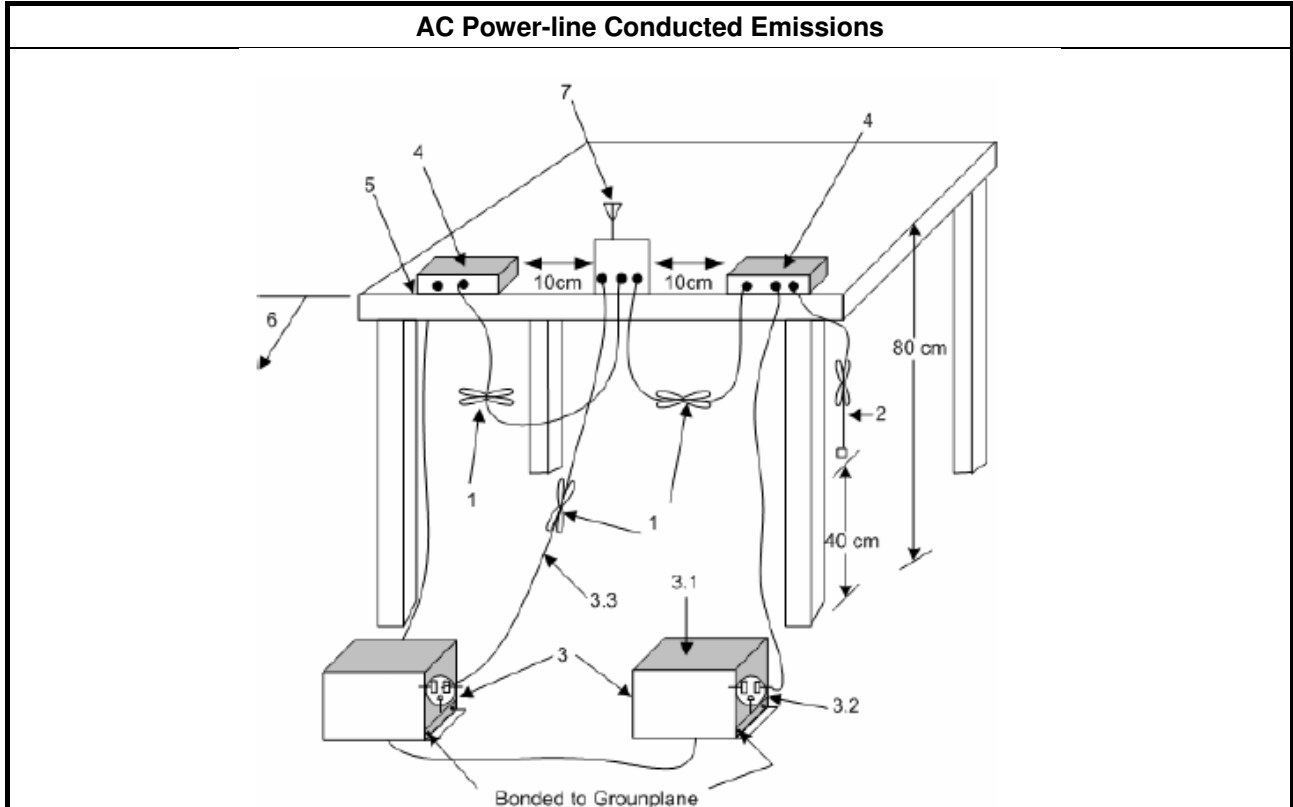
##### 3.1.2 Measuring Instruments

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 I

### 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.

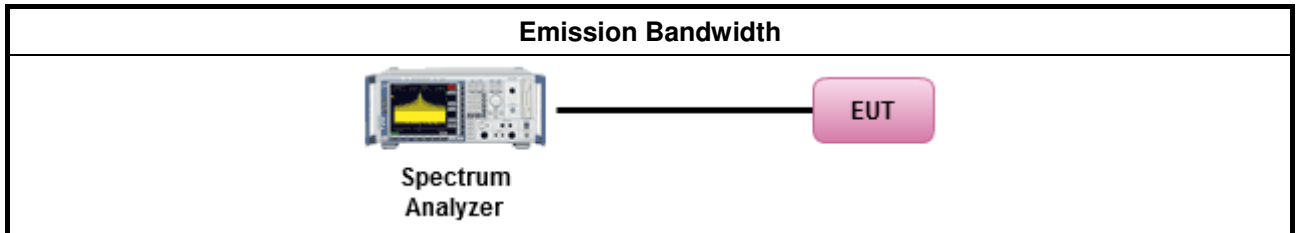
#### 3.2.2 Measuring Instruments

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 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 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 A

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit					
<b>UNII Devices</b>					
<ul style="list-style-type: none"> <li>▪ For the 5.15-5.25 GHz band:           <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td> <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> </td> </tr> </table> </li> <li>▪ For the 5.25-5.35 GHz band, the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 250 mW or <math>11 \text{ dBm} + 10 \log B</math>, where B is the 26 dB emission bandwidth in MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 24 - (G_{TX} - 6)</math>.</li> <li>▪ For the 5.47-5.725 GHz band, the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 250 mW or <math>11 \text{ dBm} + 10 \log B</math>, where B is the 26 dB emission bandwidth in MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 24 - (G_{TX} - 6)</math>.</li> <li>▪ For the 5.725-5.85 GHz band:           <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td> <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> </td> </tr> </table> </li> </ul>			<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>		<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>
	<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>				
	<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, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi.					

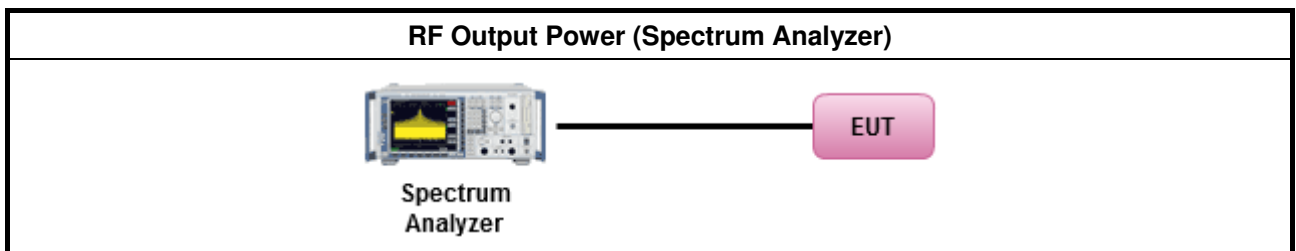
### 3.3.2 Measuring Instruments

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>	
[duty cycle ≥ 98% or external video / power trigger]	
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 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 KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as 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 type="checkbox"/>	Refer as KDB 789033, clause E Method PM (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: 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:  <math>P_{total} = P_1 + P_2 + \dots + P_n</math>                      (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>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 B

### 3.4 Peak Power Spectral Density

#### 3.4.1 Peak Power Spectral Density Limit

Peak Power Spectral Density Limit													
<b>UNII Devices</b>													
<ul style="list-style-type: none"> <li>▪ For the 5.15-5.25 GHz band:               <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">▪</td> <td>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>.</td> </tr> <tr> <td>▪</td> <td>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>.</td> </tr> <tr> <td>▪</td> <td>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>.</td> </tr> <tr> <td>▪</td> <td>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>.</td> </tr> </table> </li> <li>▪ For the 5.25-5.35 GHz band, 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> <li>▪ For the 5.47-5.725 GHz band, 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> <li>▪ For the 5.725-5.85 GHz band:               <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">▪</td> <td>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>.</td> </tr> <tr> <td>▪</td> <td>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</td> </tr> </table> </li> </ul>		▪	Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$ .	▪	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$ .	▪	Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$ .	▪	Mobile or Portable Client: the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .	▪	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) $\leq 30$ dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$ .	▪	Point-to-point systems (P2P): the peak power spectral density (PPSD) $\leq 30$ dBm/500kHz.
▪	Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$ .												
▪	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$ .												
▪	Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$ .												
▪	Mobile or Portable Client: the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .												
▪	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) $\leq 30$ dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$ .												
▪	Point-to-point systems (P2P): the peak power spectral density (PPSD) $\leq 30$ dBm/500kHz.												
<p><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  <b><math>G_{TX}</math></b> = the maximum transmitting antenna directional gain in dBi.</p>													

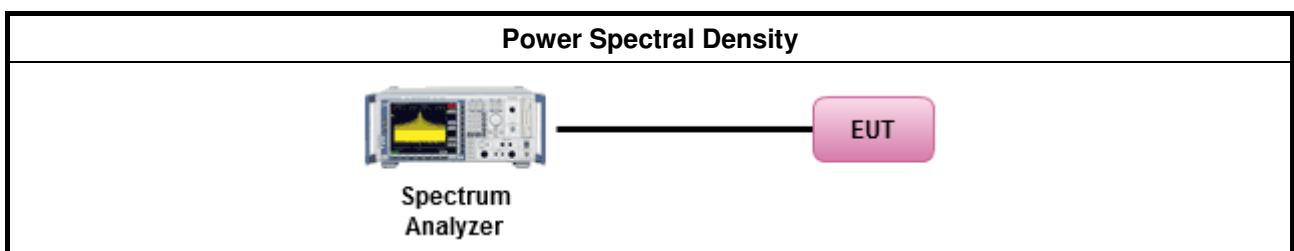
#### 3.4.2 Measuring Instruments

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 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 KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as KDB 789033, clause E Method SA-2 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 KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as 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 N <sub>TX</sub> 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:  <math>PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n</math>                      (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>EIRP_{total} = PPSD_{total} + DG</math></li> </ul>	

### 3.4.4 Test Setup





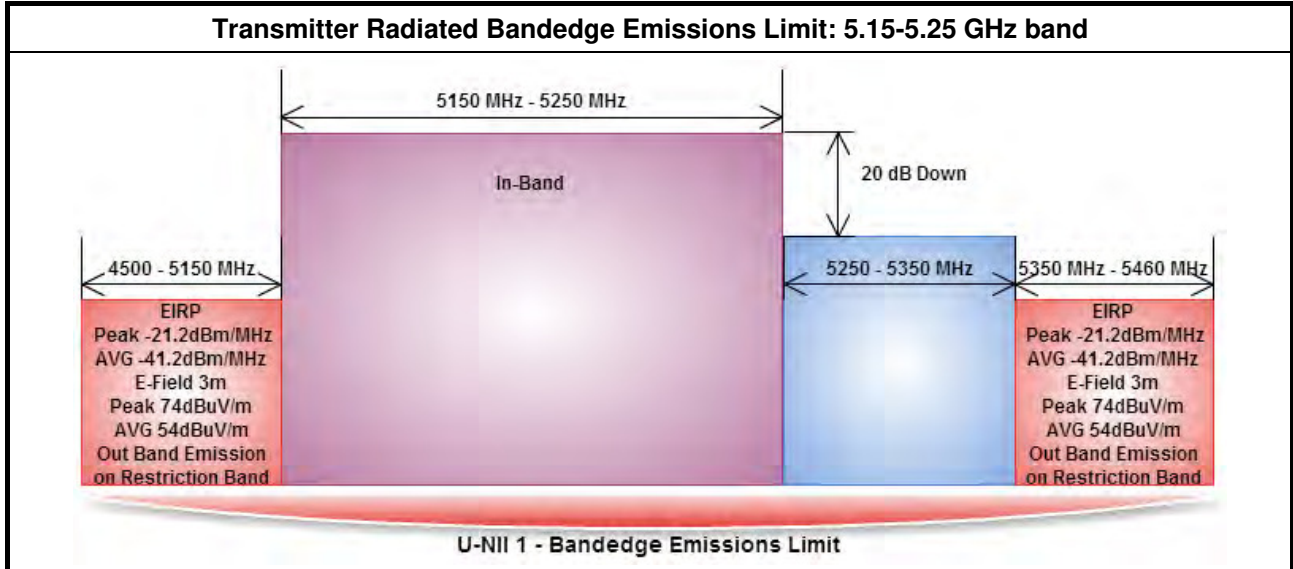
### **3.4.5 Test Result of Peak Power Spectral Density**

Refer as Appendix C

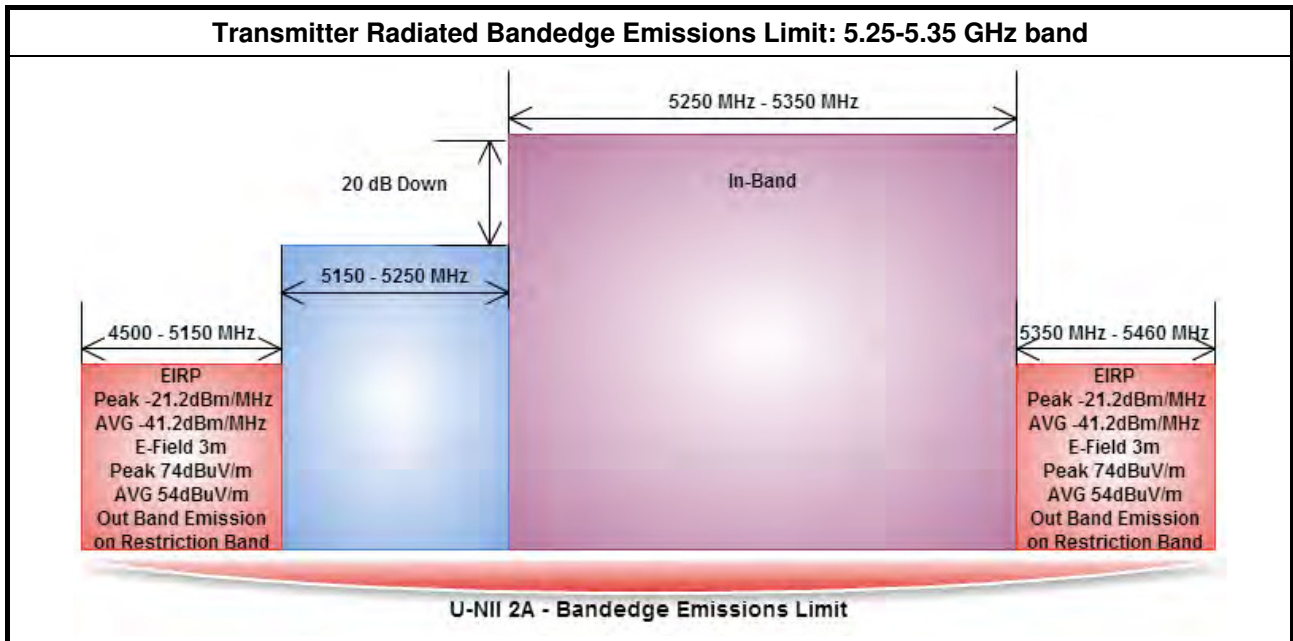


### 3.5 Transmitter Bandedge Emissions

#### 3.5.1 Transmitter Radiated Bandedge Emissions Limit

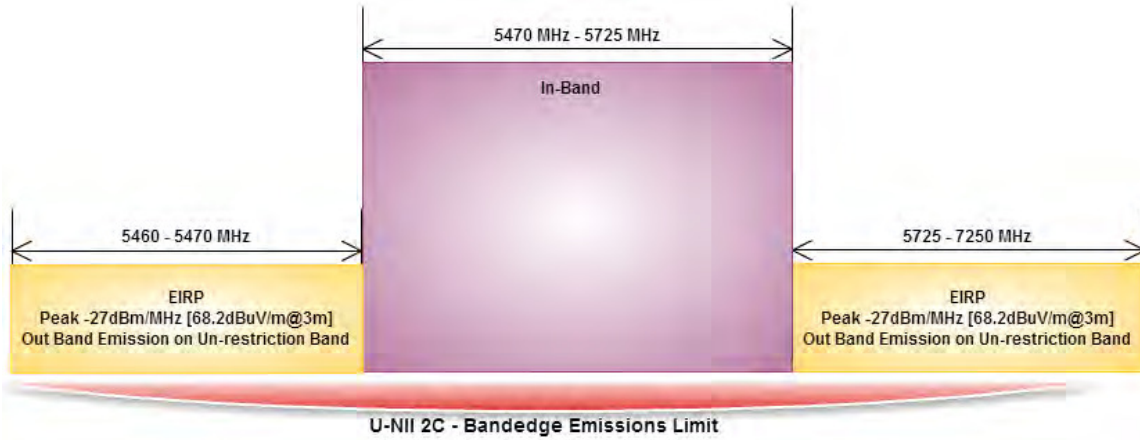


Refer as KDB 789033, G)2)c) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands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



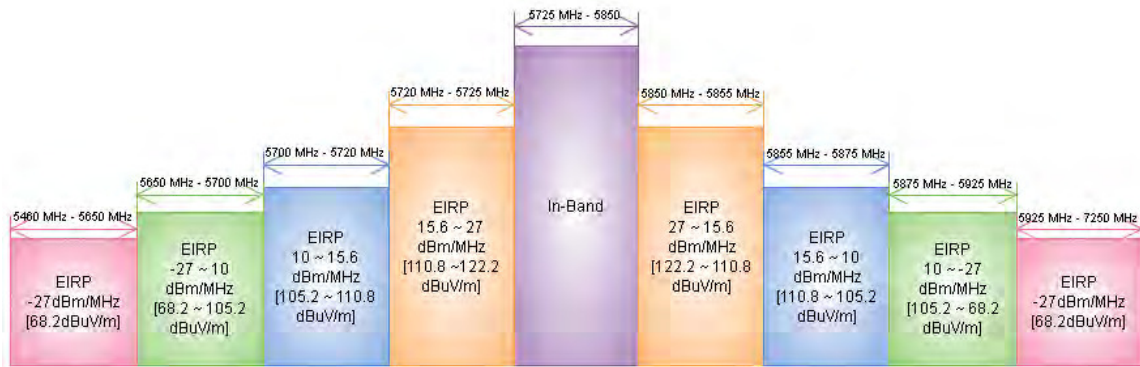
Refer as KDB 789033, G)2)c) specifying that if a non-restricted-band out-of-band emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm or -17 dBm peak emission limit. Reason for change: to ensure that emission requirements in the non-restricted bands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

**Transmitter Radiated Bandedge Emissions Limit: 5.47-5.725 GHz band**



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

**Transmitter Radiated Bandedge Emissions Limit for 5.8GHz band: 5.725-5.85 GHz band**



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

**3.5.2 Measuring Instruments**

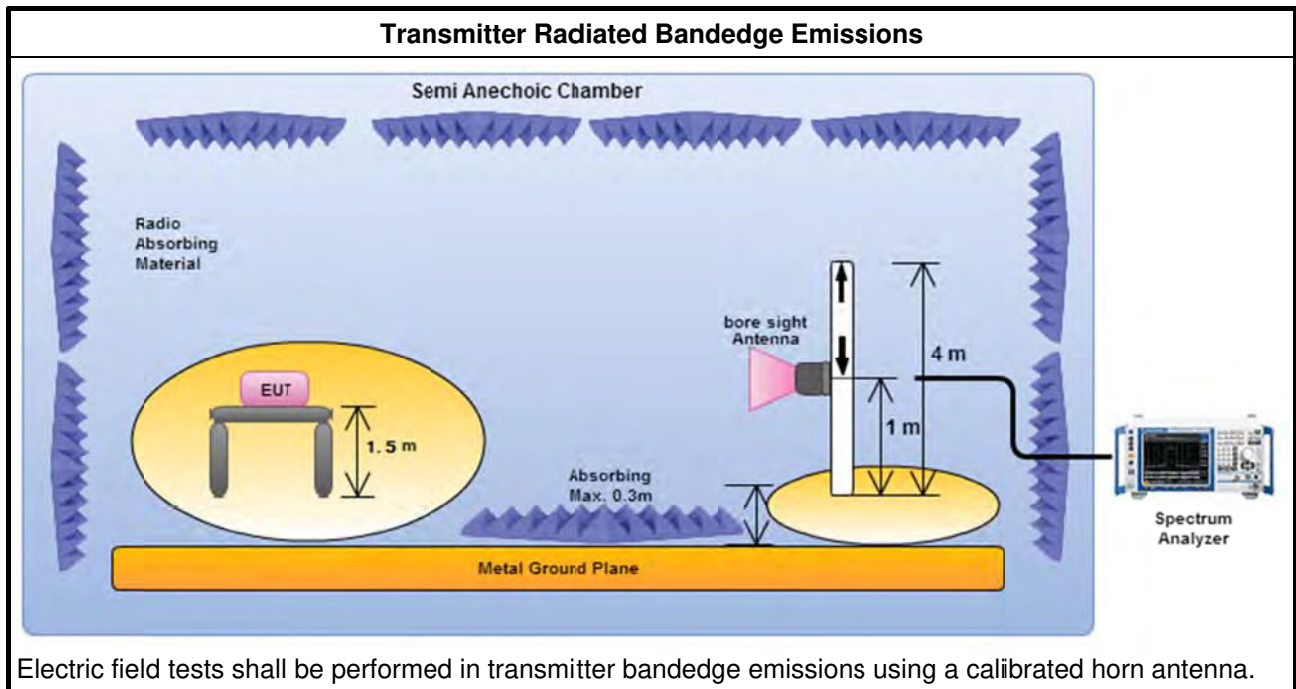
Refer a test equipment and calibration data table in this test report.



3.5.3 Test Procedures

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

### 3.5.4 Test Setup



### 3.5.5 Transmitter Radiated Bandedge Emissions

Refer as Appendix D

### 3.6 Transmitter Unwanted Emissions

#### 3.6.1 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	5.650-5700 GHz: e.i.r.p. -27 ~ 10 dBm [68.2 ~ 105.2 dBuV/m@3m] 5.700-5720 GHz: e.i.r.p. 10 ~ 15.6 dBm [105.2 ~ 110.8 dBuV/m@3m] 5.720-5725 GHz: e.i.r.p. 15.6 ~ 27 dBm [110.8 ~ 122.2 dBuV/m@3m] 5.850-5.855 GHz: e.i.r.p. 27 ~ 15.6 dBm [122.2 ~ 110.8 dBuV/m@3m] 5.855-5.875 GHz: e.i.r.p. 15.6 ~ 10 dBm [110.8 ~ 105.2 dBuV/m@3m] 5.875-5.925 GHz: e.i.r.p. 10 ~ -27 dBm [105.2 ~ 68.2dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

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).

#### 3.6.2 Measuring Instruments

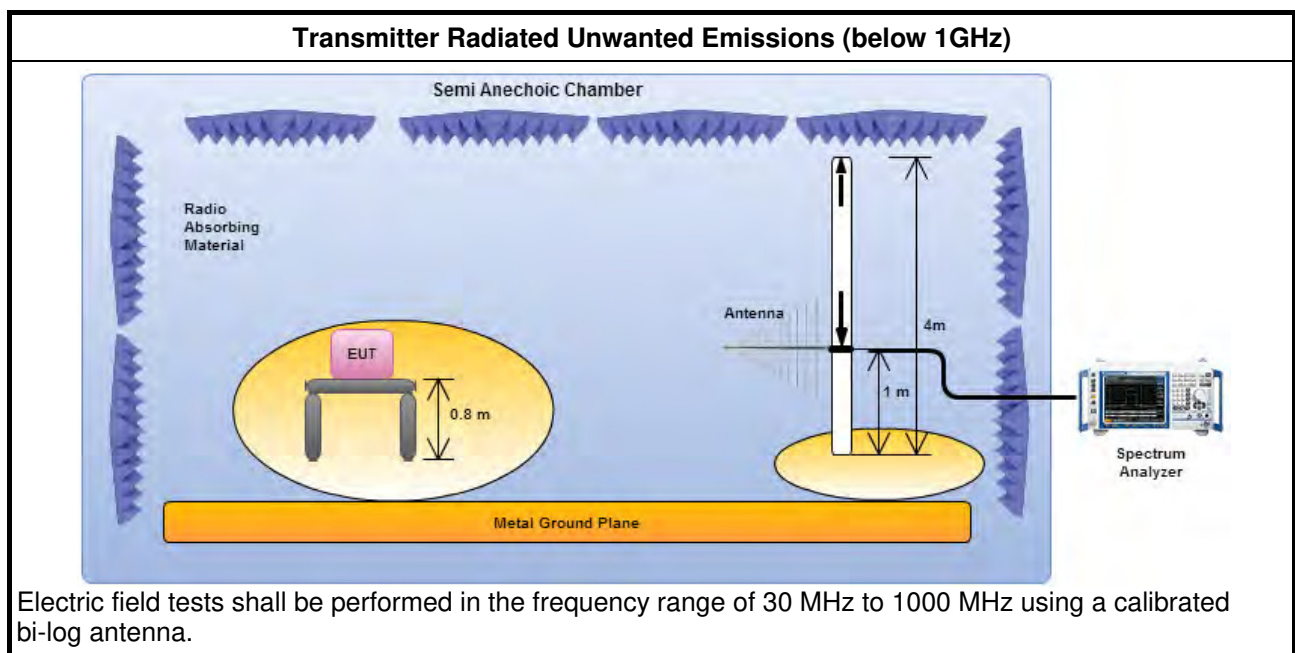
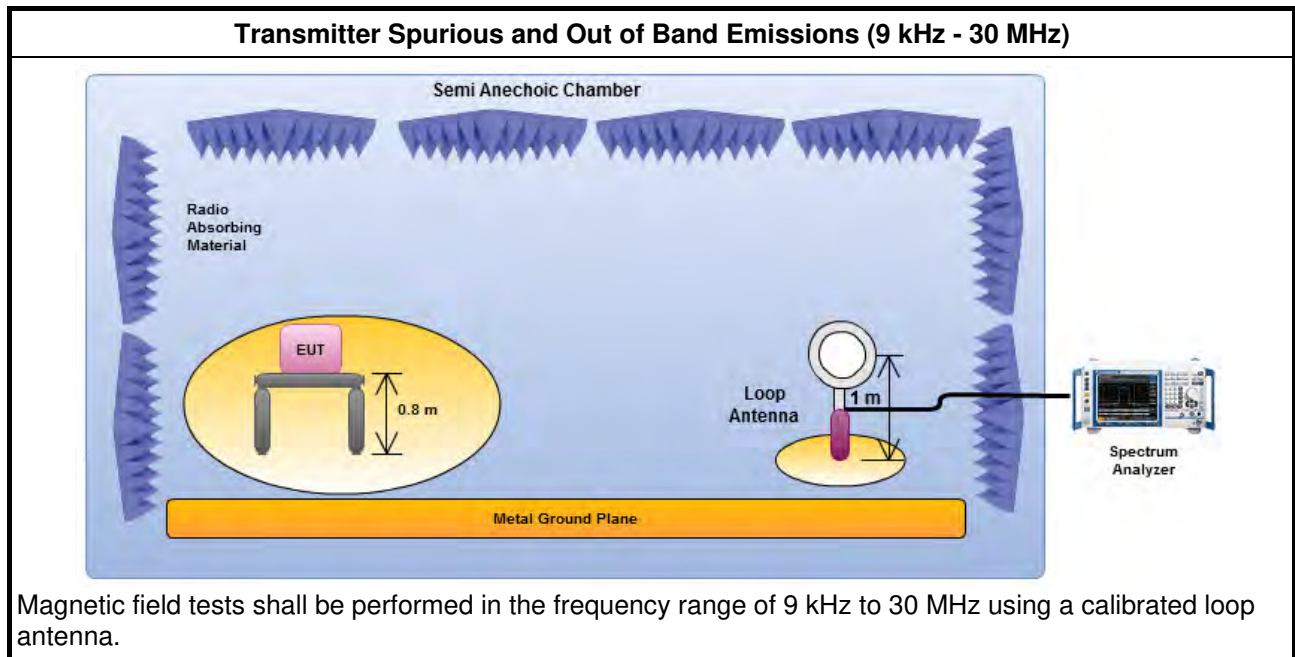
Refer a test equipment and calibration data table in this test report.



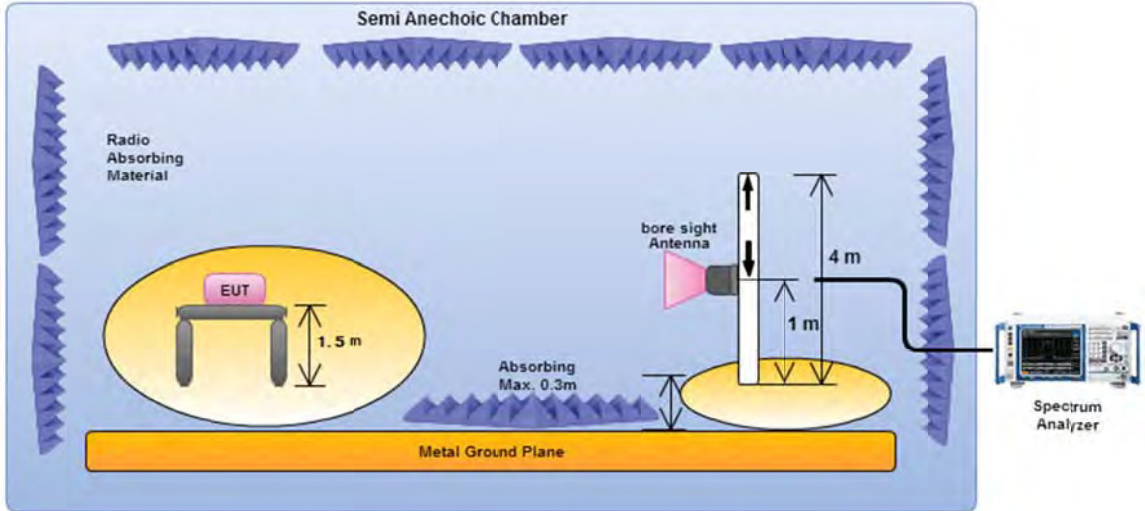
3.6.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	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).
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as KDB 789033, G)6) Method AD (Trace Averaging).
<input type="checkbox"/>	Refer as KDB 789033, G)6) Method VB (Reduced VBW).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW). $VBW \geq 1/T$ , where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as KDB 789033, clause G)5) measurement procedure peak limit.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For radiated measurement.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. For 1 GHz to 5 GHz, test distance is 3m; For 5 GHz to 40 GHz, test distance is 3m.
<input checked="" type="checkbox"/>	The any unwanted emissions level shall not exceed the fundamental emission level.
<input checked="" type="checkbox"/>	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

### 3.6.4 Test Setup



**Transmitter Radiated Unwanted Emissions (above 1GHz)**



Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

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

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported. Any spurious which has more than 20 dB of margin compared to the applicable limit is not necessarily reported.

**3.6.6 Test Result of Transmitter Radiated Unwanted Emissions**

Refer as Appendix E



### 3.7 Frequency Stability

#### 3.7.1 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>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.</li> </ul>	

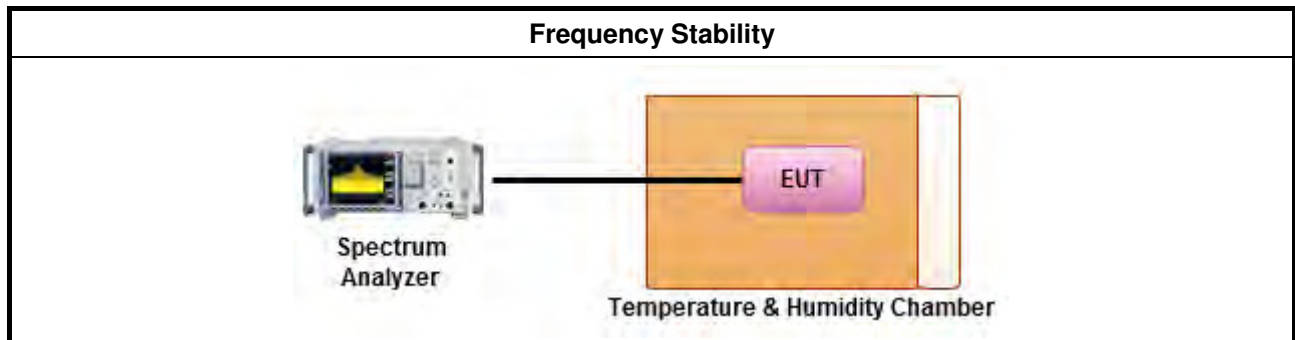
#### 3.7.2 Measuring Instruments

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

#### 3.7.3 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>

#### 3.7.4 Test Setup



#### 3.7.5 Test Result of Frequency Stability

Refer as Appendix F



## 4 Test Equipment and Calibration Data

### Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
EMC Receiver	KEYSIGHT	N9038A	MY54130031	20Hz ~ 8.4GHz	14/04/2016	13/04/2017
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	26/01/2016	25/01/2017
LISN (Support Unit)	R&S	ENV216	101295	9kHz ~ 30MHz	04/11/2015	03/11/2016
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	NCR	NCR

NCR: Non-Calibration required.

### Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	9KHz~40GHz	12/05/2016	11/05/2017
Power Sensor	Anritsu	MA2411B	917017	300MHz ~ 40GHz	04/02/2016	03/02/2017
Power Meter	Anritsu	ML2495A	949003	300MHz ~ 40GHz	04/02/2016	03/02/2017
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	28/07/2015	27/07/2016
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	26/07/2016	25/07/2017

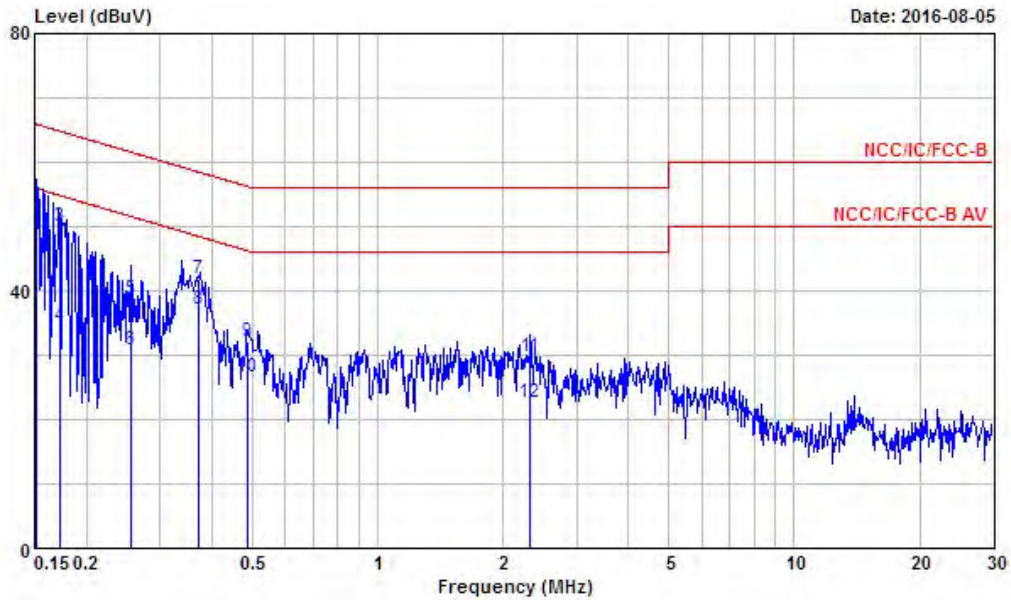
### Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz 3m	25/04/2016	24/04/2017
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz 3m	30/06/2016	29/06/2017
Amplifier	EMC	EMC9135	980232	9kHz ~ 1.0GHz	29/01/2016	28/01/2017
Amplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	11/04/2016	10/04/2017
Spectrum	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	04/07/2016	03/07/2017
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL 6111D & MTJ6102	35418	30MHz ~ 1GHz	31/03/2016	30/03/2017
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA 9120D 1534	1GHz ~ 18GHz	22/04/2016	21/04/2017
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170614	18GHz ~ 40GHz	04/01/2016	03/01/2017
Amplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	02/06/2015	01/06/2017
Loop Antenna	ROHDE&SCHWARZ	HFH2-Z2	100330	9 kHz~30 MHz	10/11/2014	09/11/2016



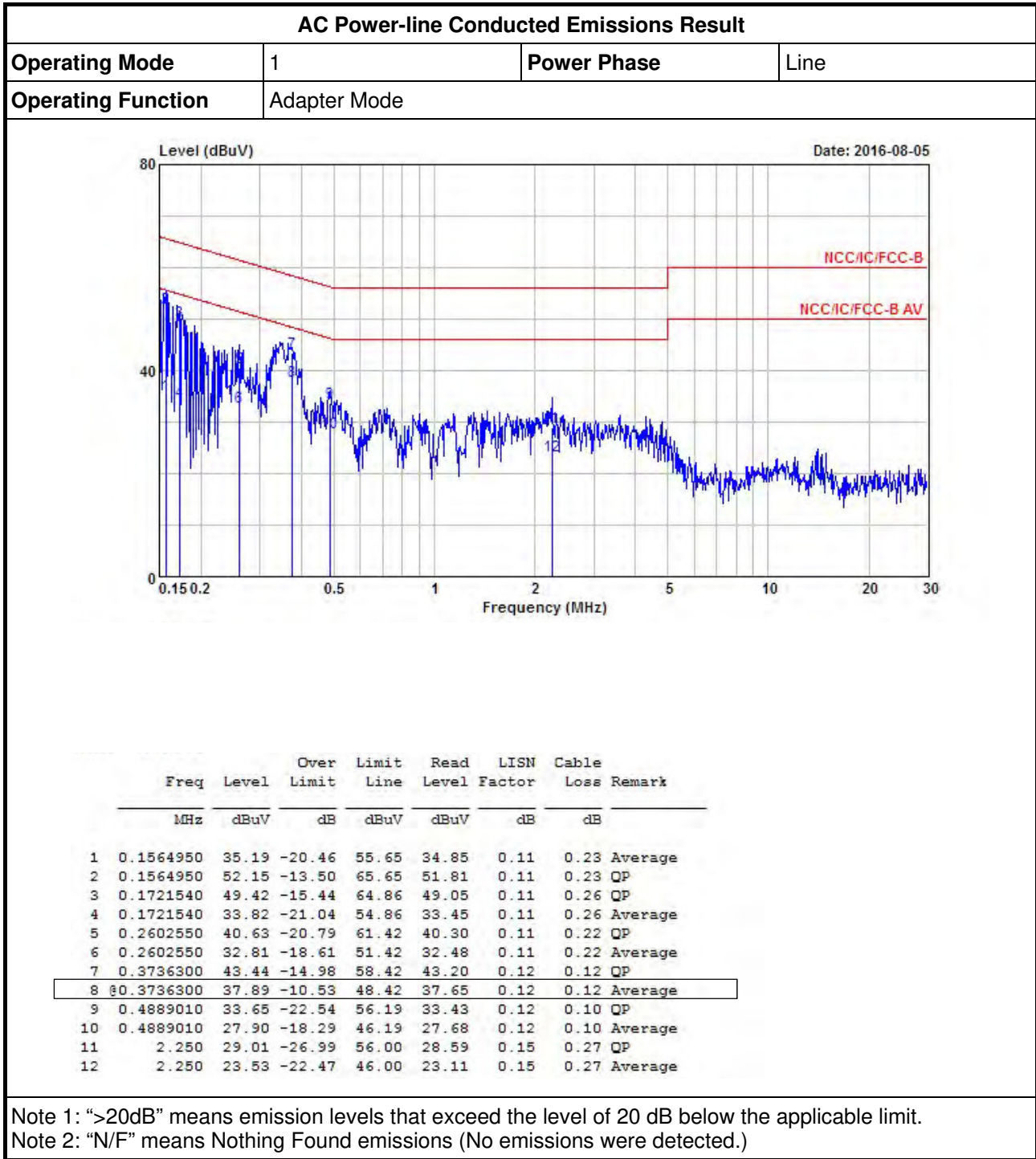
AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	36.50	-19.41	55.91	36.18	0.10	0.22	Average
2	0.1515980	52.43	-13.48	65.91	52.11	0.10	0.22	QP
3	0.1717680	49.97	-14.90	64.87	49.61	0.10	0.26	QP
4	0.1717680	34.36	-20.51	54.87	34.00	0.10	0.26	Average
5	0.2547970	38.57	-23.03	61.60	38.23	0.11	0.23	QP
6	0.2547970	30.88	-20.72	51.60	30.54	0.11	0.23	Average
7	0.3721190	41.87	-16.58	58.45	41.63	0.12	0.12	QP
8	0.3721190	37.16	-11.29	48.45	36.92	0.12	0.12	Average
9	0.4883180	32.02	-24.18	56.20	31.80	0.12	0.10	QP
10	0.4883180	26.64	-19.56	46.20	26.42	0.12	0.10	Average
11	2.320	29.73	-26.27	56.00	29.31	0.16	0.26	QP
12	2.320	22.55	-23.45	46.00	22.13	0.16	0.26	Average

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.)





< For Non-Beamforming >  
Summary

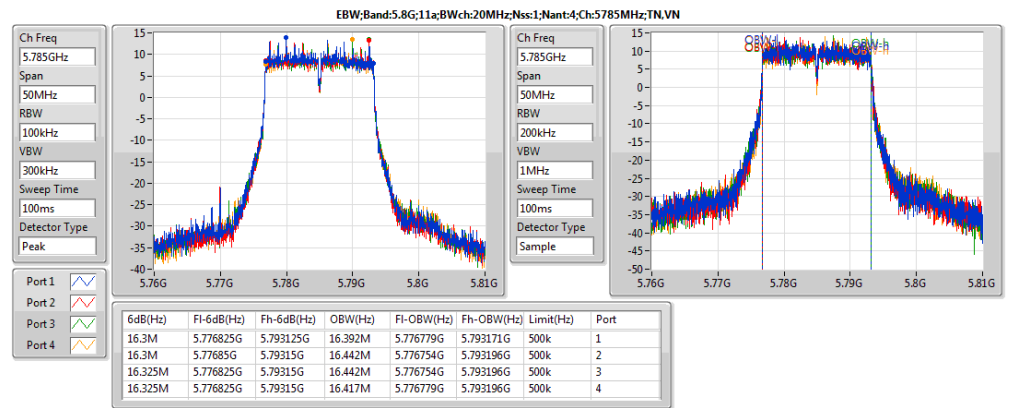
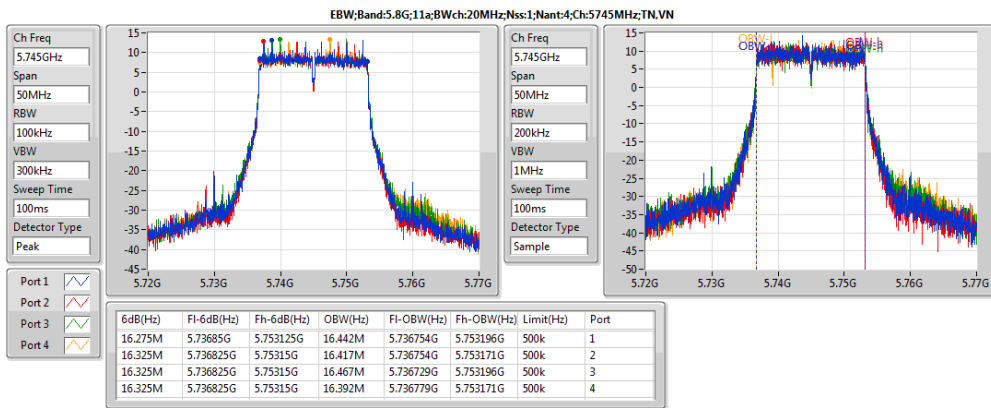
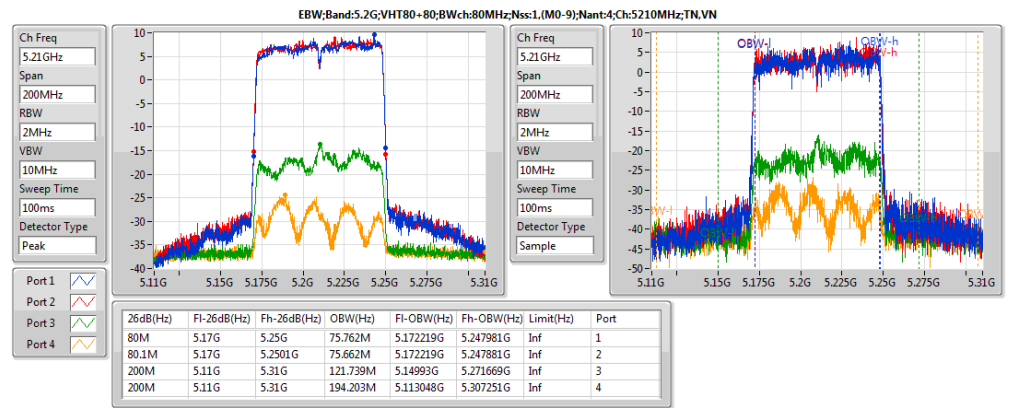
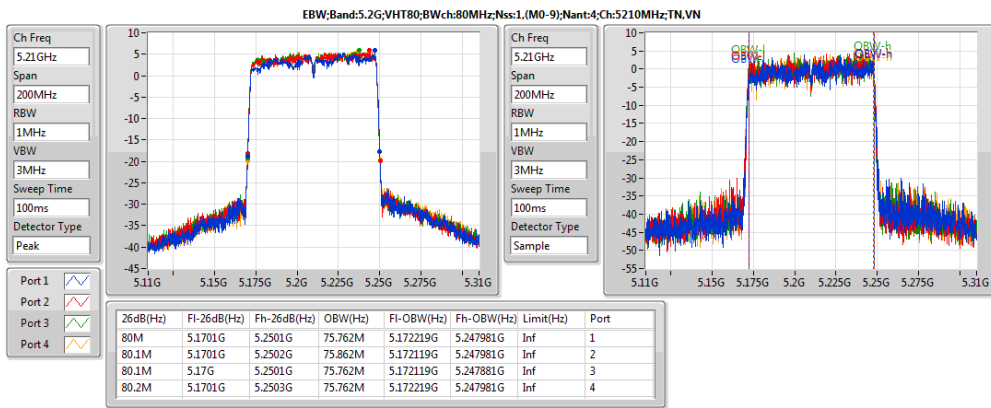
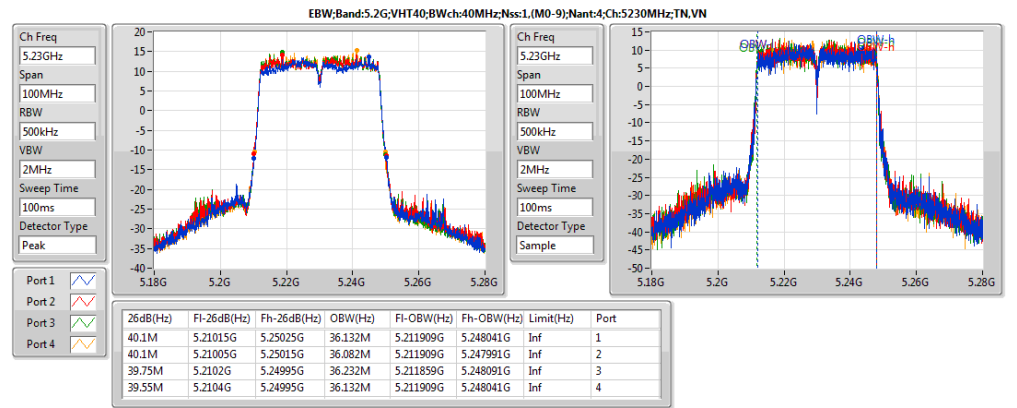
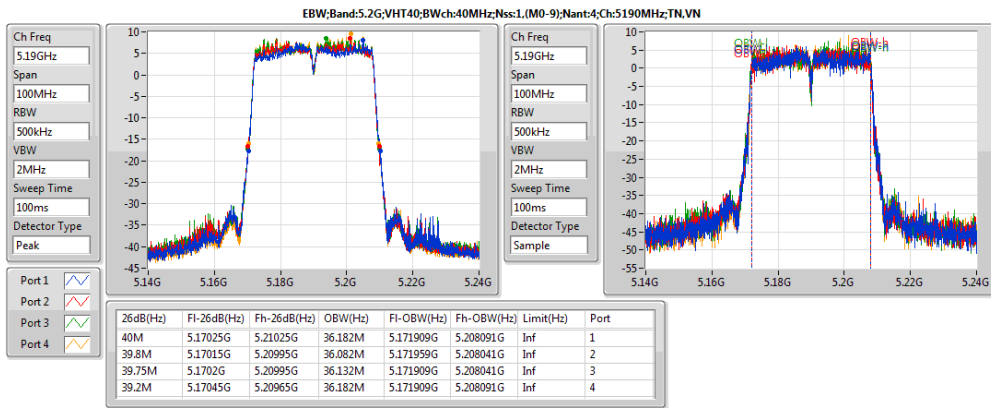
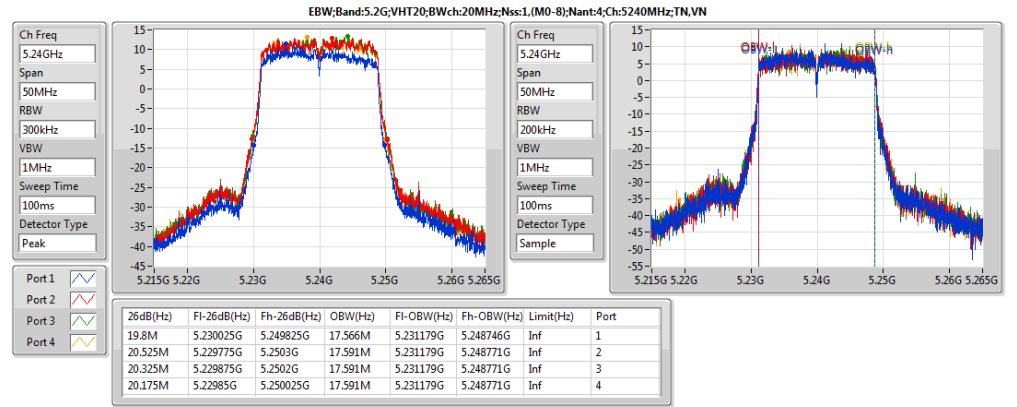
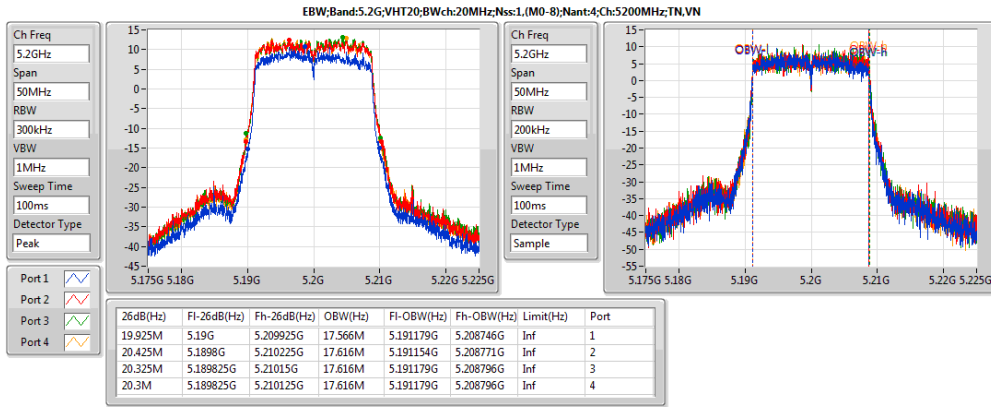
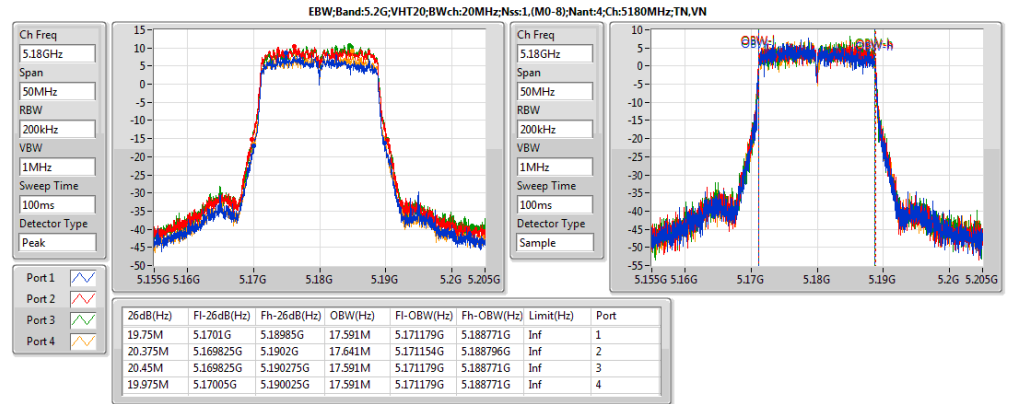
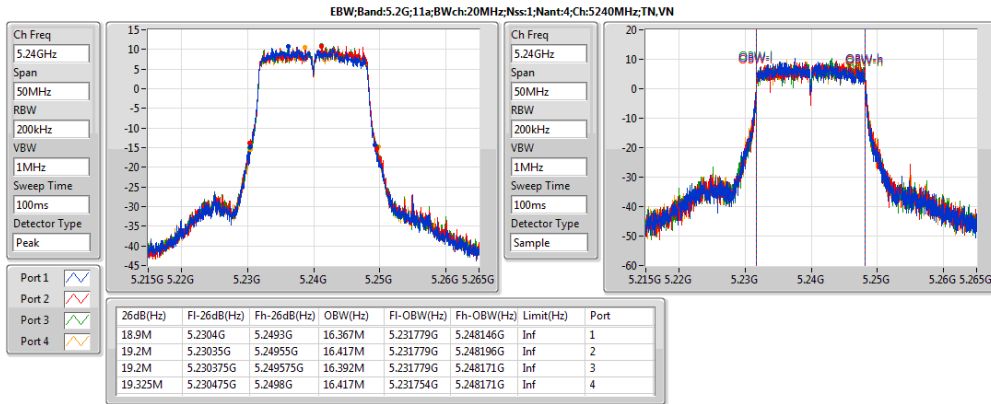
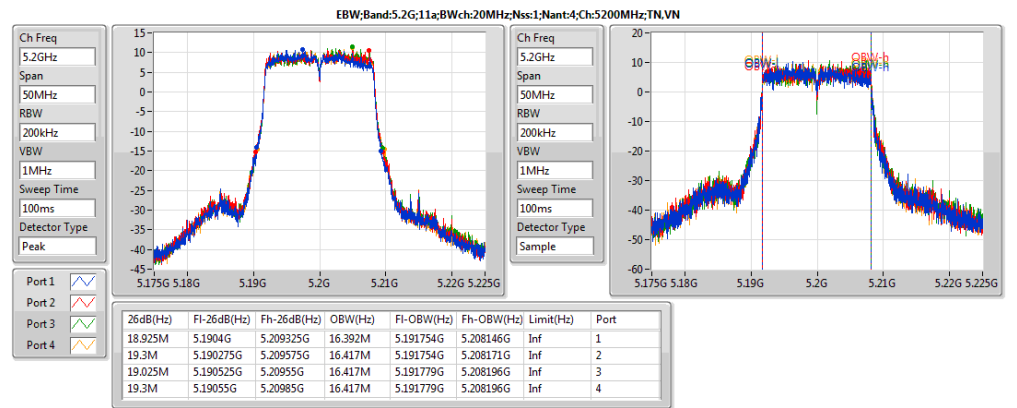
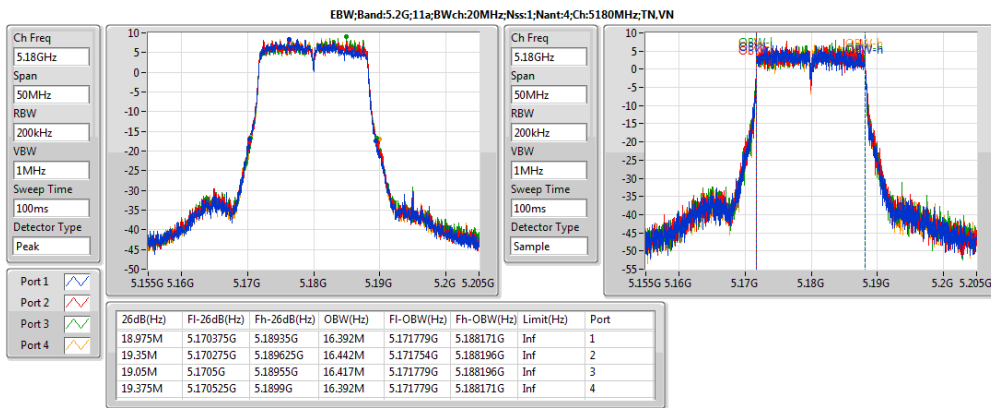
Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.2G;11a;20;1;4	19.375M	16.442M	16M4D1D	18.9M	16.367M
5.2G;HT20;20;1,(M0-31);4	20.4M	17.641M	17M6D1D	19.95M	17.566M
5.2G;HT40;40;1,(M0-31);4	39.95M	36.182M	36M2D1D	39.25M	36.032M
5.2G;VHT20;20;1,(M0-8);4	20.525M	17.641M	17M6D1D	19.75M	17.566M
5.2G;VHT40;40;1,(M0-9);4	40.1M	36.232M	36M2D1D	39.2M	36.082M
5.2G;VHT80;80;1,(M0-9);4	80.2M	75.862M	75M9D1D	80M	75.762M
5.2G;VHT80+80;80;1,(M0-9);4	200M	194.203M	194MD1D	80M	75.662M
5.8G;11a;20;1;4	16.325M	16.467M	16M5D1D	16.275M	16.392M
5.8G;VHT20;20;1,(M0-8);4	17.575M	17.666M	17M7D1D	16.525M	17.591M
5.8G;VHT40;40;1,(M0-9);4	36.35M	36.182M	36M2D1D	35M	36.082M
5.8G;VHT80;80;1,(M0-9);4	76.4M	75.862M	75M9D1D	75.1M	75.662M
5.8G;VHT80+80;80;1,(M0-9);4	75.9M	196.002M	196MD1D	70.1M	75.662M

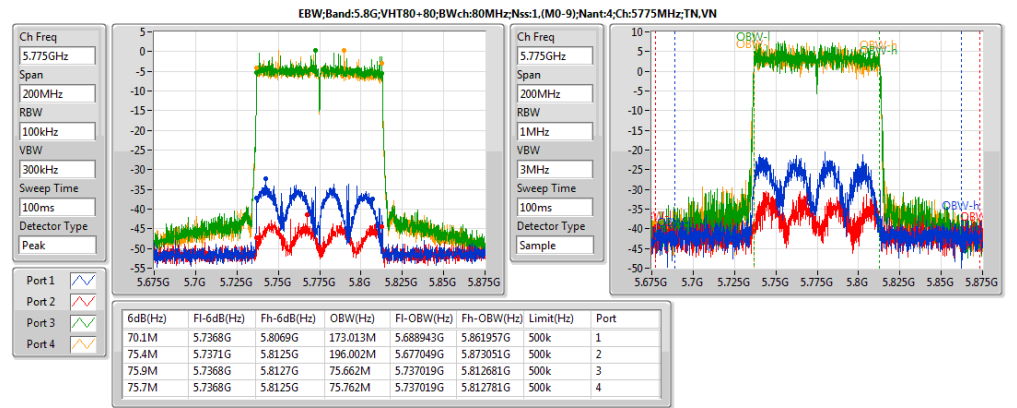
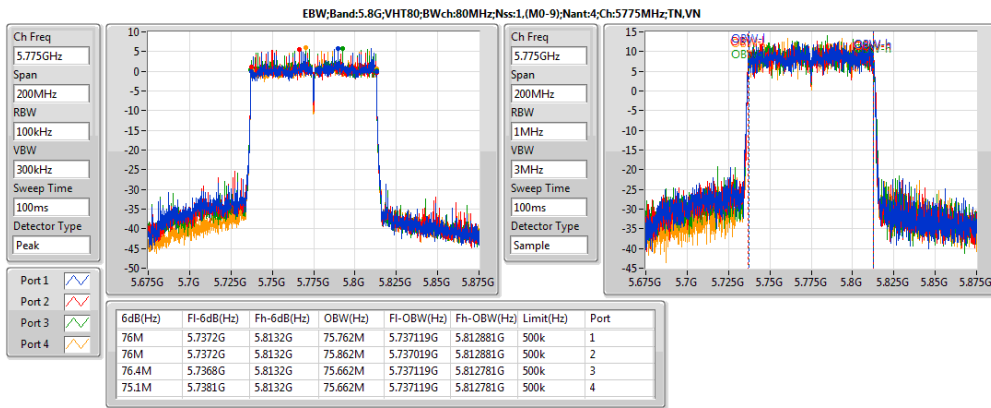
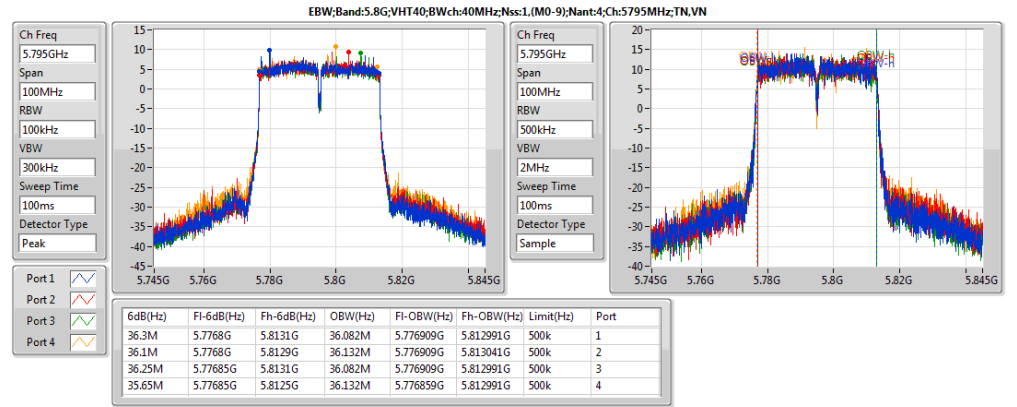
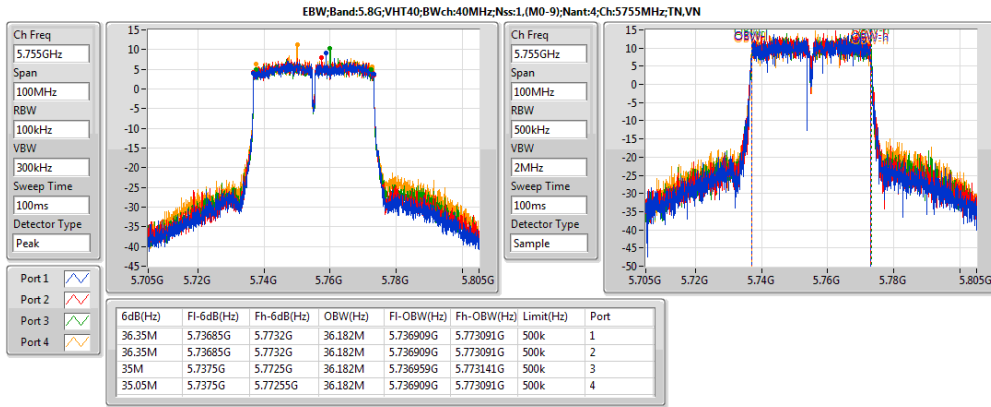
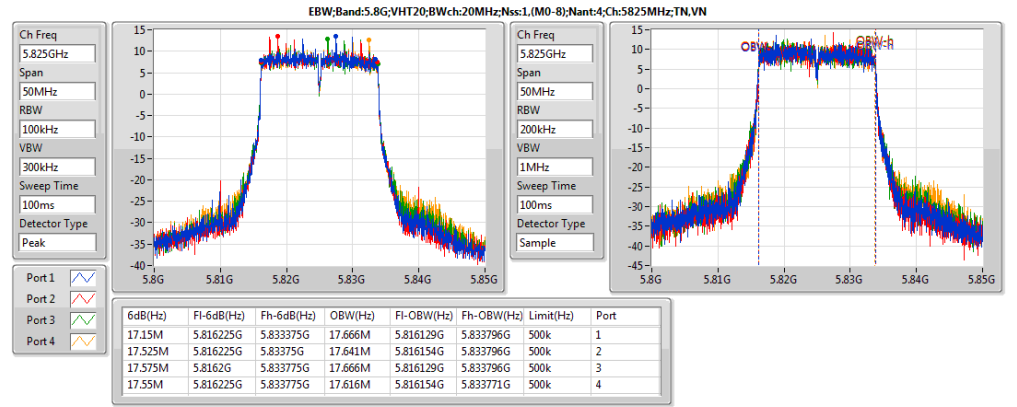
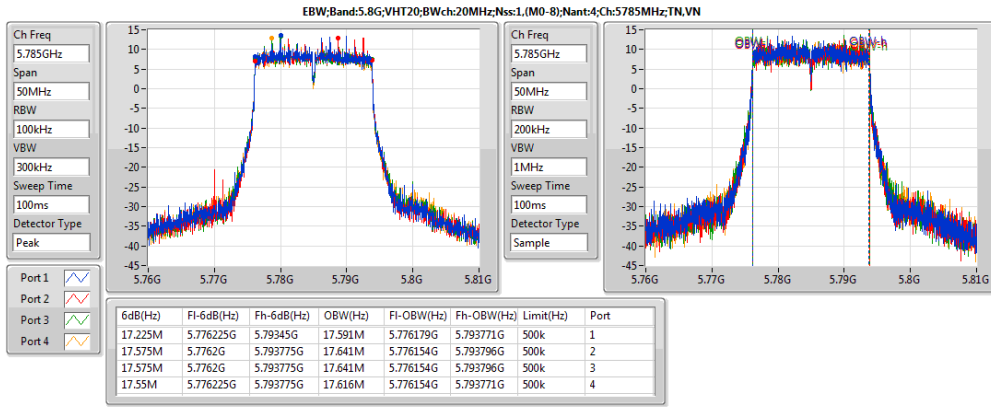
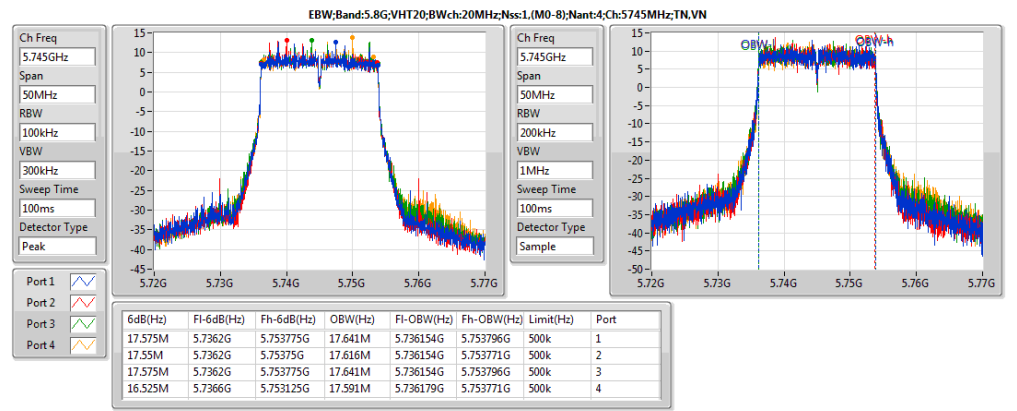
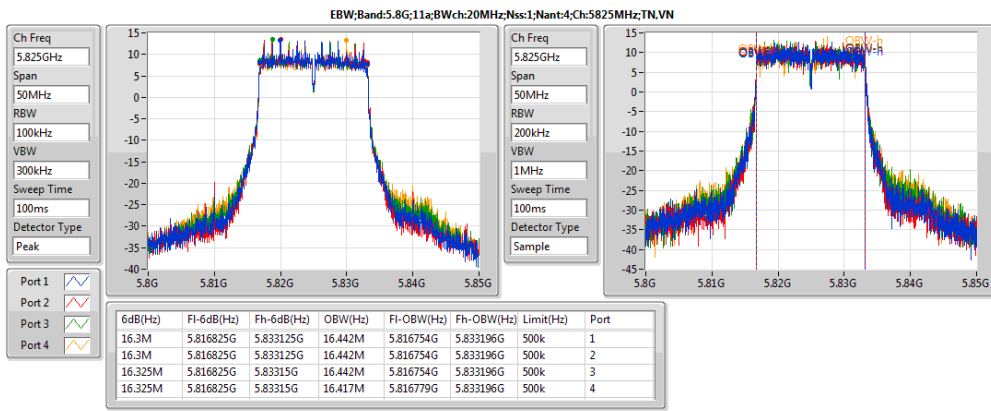


Result

Mode	Result	Limit	P1-N dB (Hz)	P1-OBW (Hz)	P2-N dB (Hz)	P2-OBW (Hz)	P3-N dB (Hz)	P3-OBW (Hz)	P4-N dB (Hz)	P4-OBW (Hz)
5.2G;11a;20;1;4;5180;L;TN,VN	Pass	Inf	18.975M	16.392M	19.35M	16.442M	19.05M	16.417M	19.375M	16.392M
5.2G;11a;20;1;4;5200;M;TN,VN	Pass	Inf	18.925M	16.392M	19.3M	16.417M	19.025M	16.417M	19.3M	16.417M
5.2G;11a;20;1;4;5240;H;TN,VN	Pass	Inf	18.9M	16.367M	19.2M	16.417M	19.2M	16.392M	19.325M	16.417M
5.2G;VHT20;20;1;(M0-8);4;5180;L;TN,VN	Pass	Inf	19.75M	17.591M	20.375M	17.641M	20.45M	17.591M	19.975M	17.591M
5.2G;VHT20;20;1;(M0-8);4;5200;M;TN,VN	Pass	Inf	19.925M	17.566M	20.425M	17.616M	20.325M	17.616M	20.3M	17.616M
5.2G;VHT20;20;1;(M0-8);4;5240;H;TN,VN	Pass	Inf	19.8M	17.566M	20.525M	17.591M	20.325M	17.591M	20.175M	17.591M
5.2G;VHT40;40;1;(M0-9);4;5190;L;TN,VN	Pass	Inf	40M	36.182M	39.8M	36.082M	39.75M	36.132M	39.2M	36.182M
5.2G;VHT40;40;1;(M0-9);4;5230;H;TN,VN	Pass	Inf	40.1M	36.132M	40.1M	36.082M	39.75M	36.232M	39.55M	36.132M
5.2G;VHT80;80;1;(M0-9);4;5210;S;TN,VN	Pass	Inf	80M	75.762M	80.1M	75.862M	80.1M	75.762M	80.2M	75.762M
5.2G;VHT80+80;80;1;(M0-9);4;5210;S;TN,VN	Pass	Inf	80M	75.762M	80.1M	75.662M	200M	121.739M	200M	194.203M
5.8G;11a;20;1;4;5745;L;TN,VN	Pass	500k	16.275M	16.442M	16.325M	16.417M	16.325M	16.467M	16.325M	16.392M
5.8G;11a;20;1;4;5785;M;TN,VN	Pass	500k	16.3M	16.392M	16.3M	16.442M	16.325M	16.442M	16.325M	16.417M
5.8G;11a;20;1;4;5825;H;TN,VN	Pass	500k	16.3M	16.442M	16.3M	16.442M	16.325M	16.442M	16.325M	16.417M
5.8G;VHT20;20;1;(M0-8);4;5745;L;TN,VN	Pass	500k	17.575M	17.641M	17.55M	17.616M	17.575M	17.641M	16.525M	17.591M
5.8G;VHT20;20;1;(M0-8);4;5785;M;TN,VN	Pass	500k	17.225M	17.591M	17.575M	17.641M	17.575M	17.641M	17.55M	17.616M
5.8G;VHT20;20;1;(M0-8);4;5825;H;TN,VN	Pass	500k	17.15M	17.666M	17.525M	17.641M	17.575M	17.666M	17.55M	17.616M
5.8G;VHT40;40;1;(M0-9);4;5755;L;TN,VN	Pass	500k	36.35M	36.182M	36.35M	36.182M	35M	36.182M	35.05M	36.182M
5.8G;VHT40;40;1;(M0-9);4;5795;H;TN,VN	Pass	500k	36.3M	36.082M	36.1M	36.132M	36.25M	36.082M	35.65M	36.132M
5.8G;VHT80;80;1;(M0-9);4;5775;S;TN,VN	Pass	500k	76M	75.762M	76M	75.862M	76.4M	75.662M	75.1M	75.662M
5.8G;VHT80+80;80;1;(M0-9);4;5775;S;TN,VN	Pass	500k	70.1M	173.013M	75.4M	196.002M	75.9M	75.662M	75.7M	75.762M









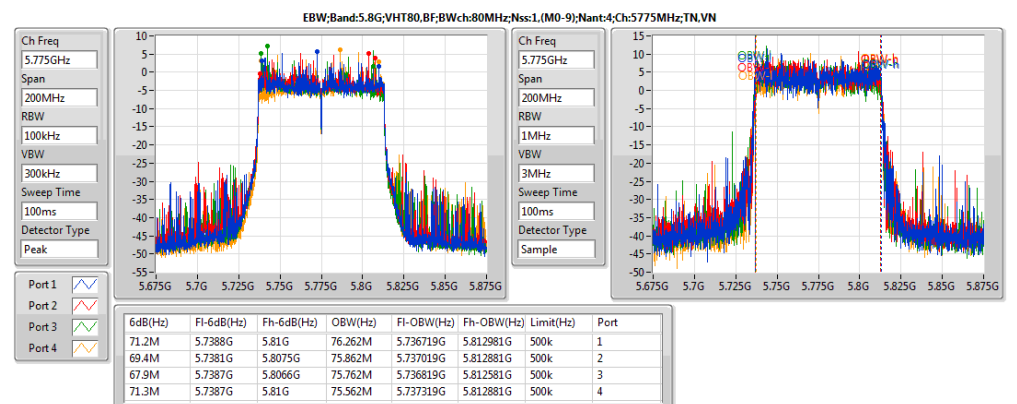
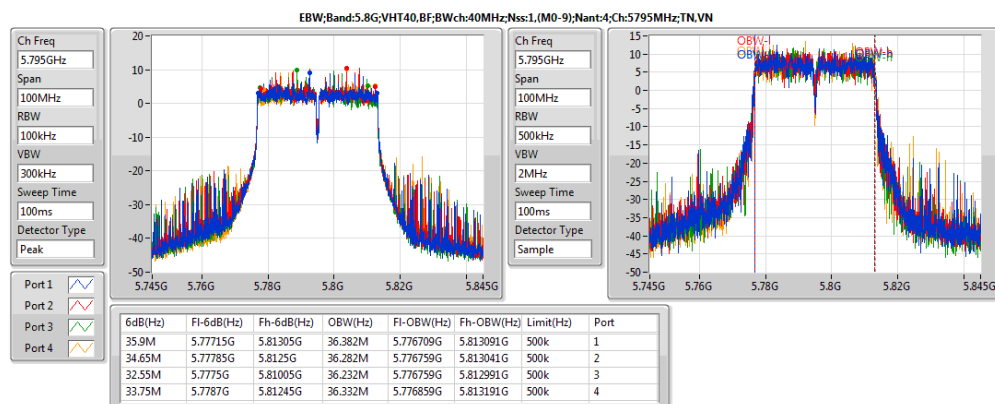
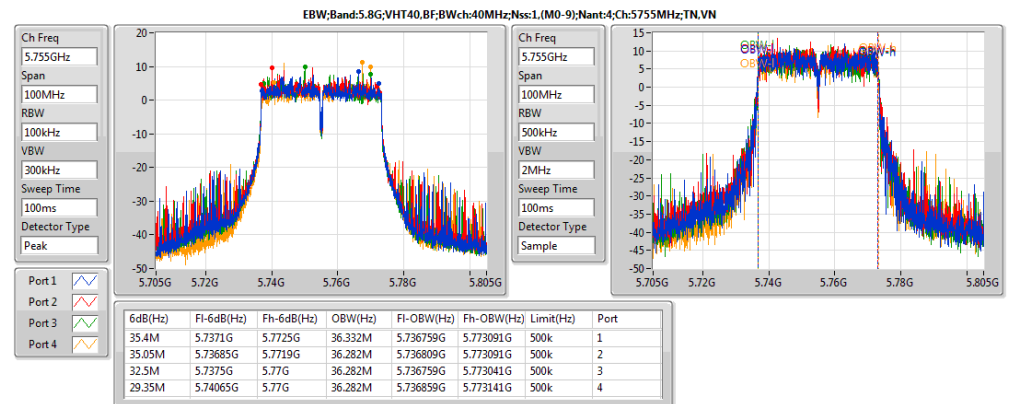
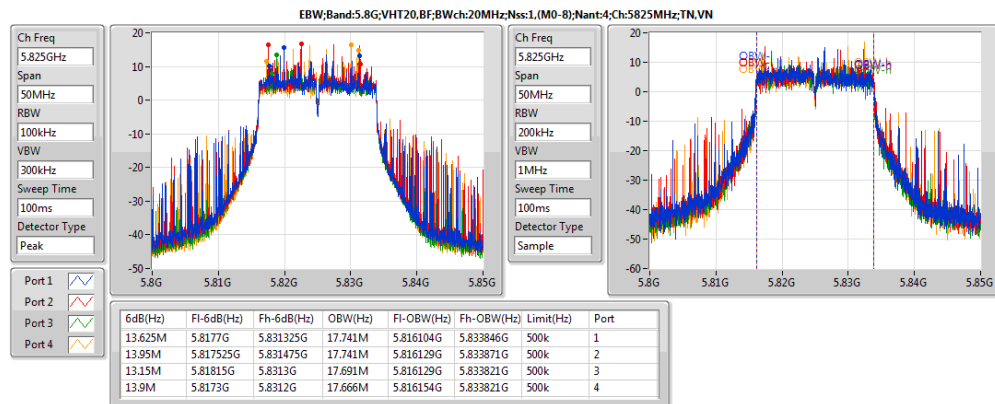
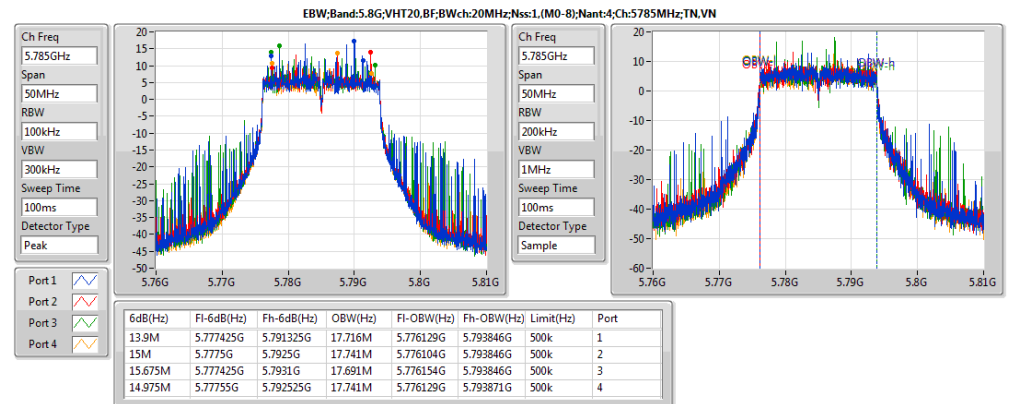
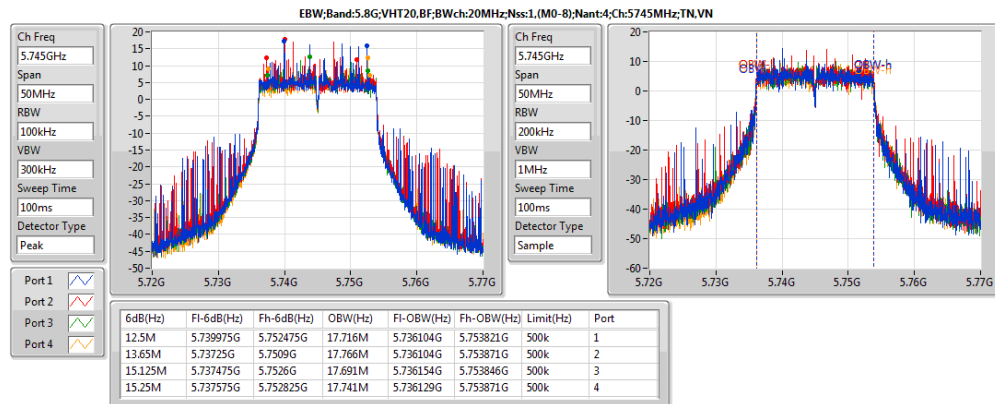
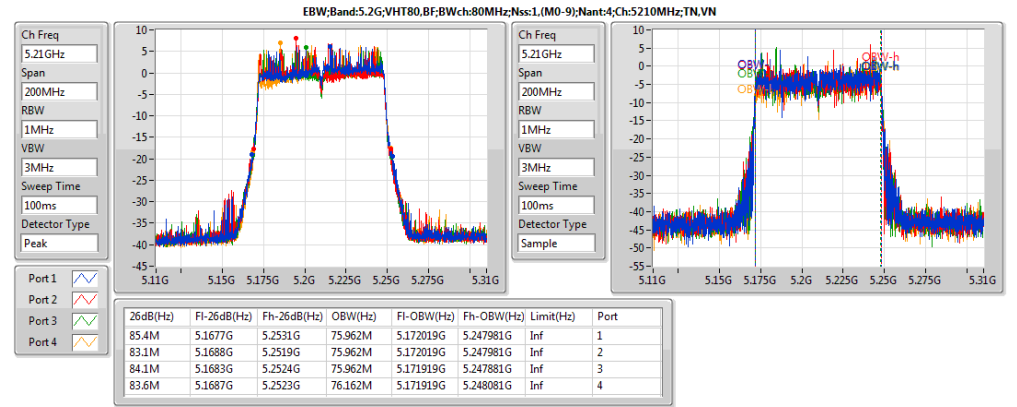
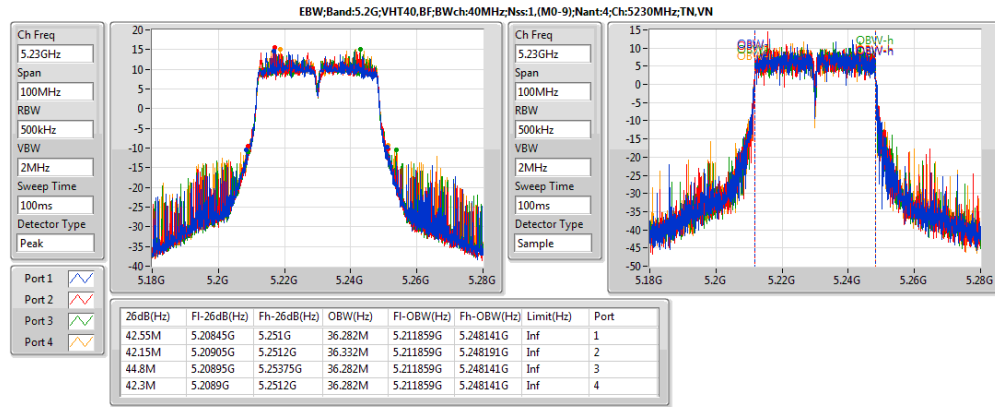
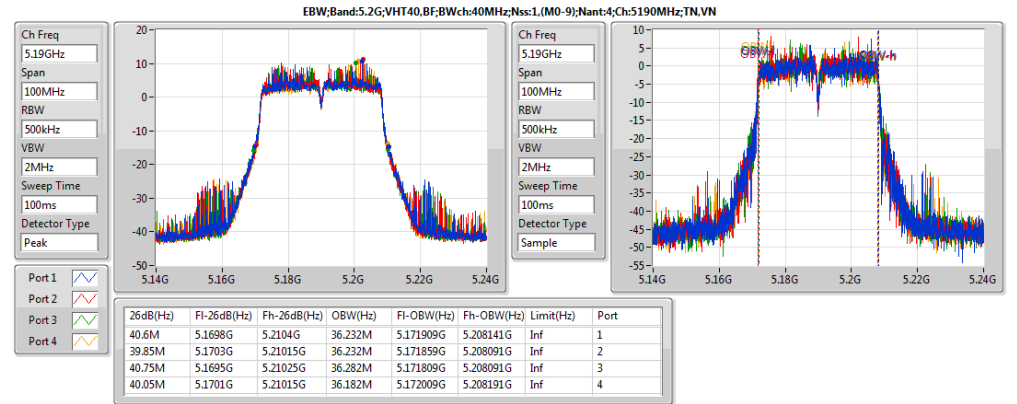
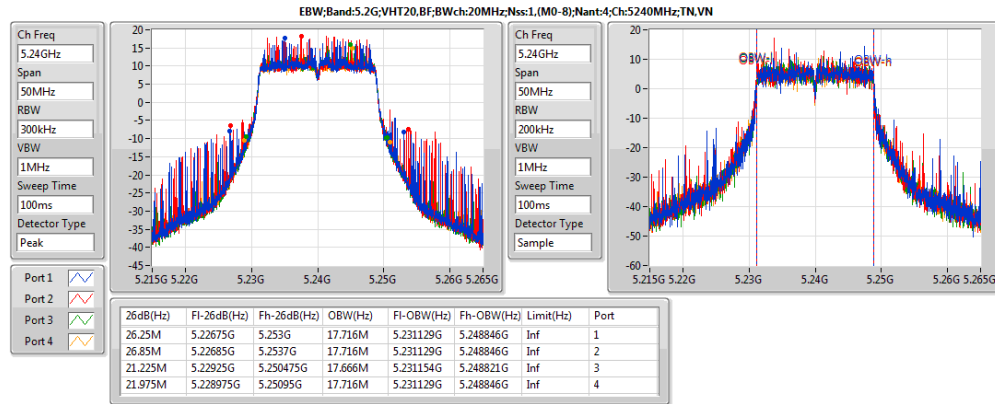
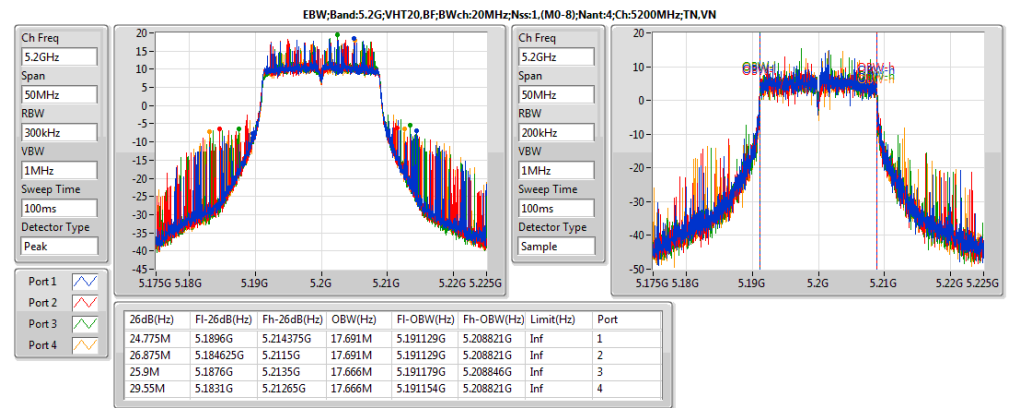
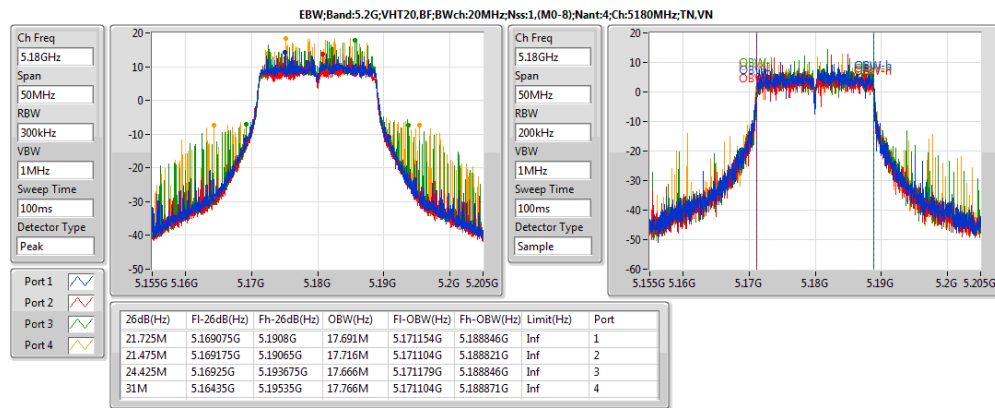
**< For Beamforming >  
Summary**

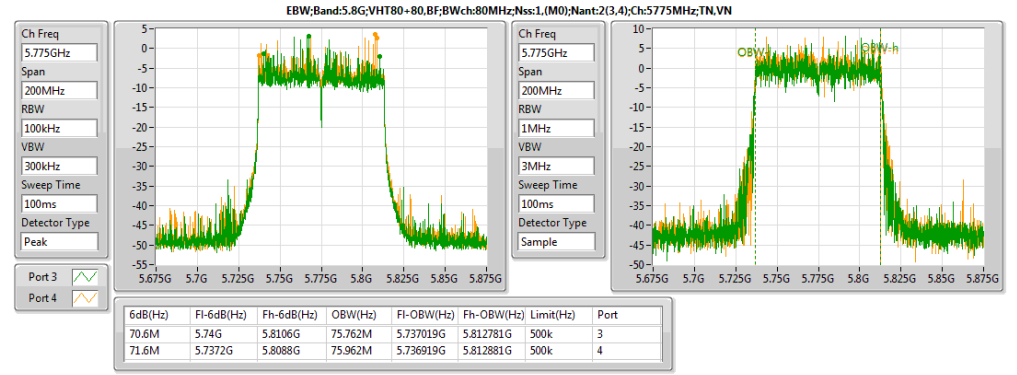
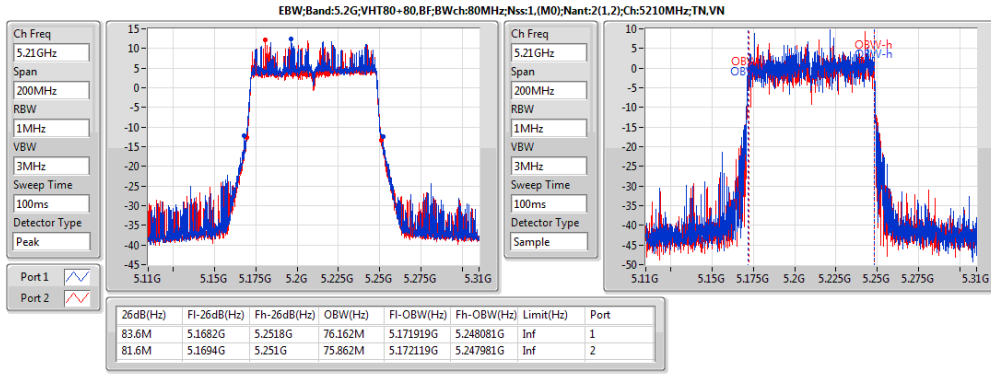
Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.2G;VHT20,BF;20;1,(M0-8);4	31M	17.766M	17M8D1D	21.225M	17.666M
5.2G;VHT40,BF;40;1,(M0-9);4	44.8M	36.332M	36M3D1D	39.85M	36.182M
5.2G;VHT80,BF;80;1,(M0-9);4	85.4M	76.162M	76M2D1D	83.1M	75.962M
5.8G;VHT20,BF;20;1,(M0-8);4	15.675M	17.766M	17M8D1D	12.5M	17.666M
5.8G;VHT40,BF;40;1,(M0-9);4	35.9M	36.382M	36M4D1D	29.35M	36.232M
5.8G;VHT80,BF;80;1,(M0-9);4	71.3M	76.262M	76M3D1D	67.9M	75.562M
5.2G;VHT80+80,BF;80;1,(M0);2(1,2)	83.6M	76.162M	76M2D1D	81.6M	75.862M
5.8G;VHT80+80,BF;80;1,(M0);2(3,4)	71.6M	75.962M	76M0D1D	70.6M	75.762M



Result

Mode	Result	Limit	P1-N dB (Hz)	P1-OBW (Hz)	P2-N dB (Hz)	P2-OBW (Hz)	P3-N dB (Hz)	P3-OBW (Hz)	P4-N dB (Hz)	P4-OBW (Hz)
5.2G;VHT20,BF;20;1,(M0-8);4;5180;L;TN,VN	Pass	Inf	21.725M	17.691M	21.475M	17.716M	24.425M	17.666M	31M	17.766M
5.2G;VHT20,BF;20;1,(M0-8);4;5200;M;TN,VN	Pass	Inf	24.775M	17.691M	26.875M	17.691M	25.9M	17.666M	29.55M	17.666M
5.2G;VHT20,BF;20;1,(M0-8);4;5240;H;TN,VN	Pass	Inf	26.25M	17.716M	26.85M	17.716M	21.225M	17.666M	21.975M	17.716M
5.2G;VHT40,BF;40;1,(M0-9);4;5190;L;TN,VN	Pass	Inf	40.6M	36.232M	39.85M	36.232M	40.75M	36.282M	40.05M	36.182M
5.2G;VHT40,BF;40;1,(M0-9);4;5230;H;TN,VN	Pass	Inf	42.55M	36.282M	42.15M	36.332M	44.8M	36.282M	42.3M	36.282M
5.2G;VHT80,BF;80;1,(M0-9);4;5210;S;TN,VN	Pass	Inf	85.4M	75.962M	83.1M	75.962M	84.1M	75.962M	83.6M	76.162M
5.8G;VHT20,BF;20;1,(M0-8);4;5745;L;TN,VN	Pass	500k	12.5M	17.716M	13.65M	17.766M	15.125M	17.691M	15.25M	17.741M
5.8G;VHT20,BF;20;1,(M0-8);4;5785;M;TN,VN	Pass	500k	13.9M	17.716M	15M	17.741M	15.675M	17.691M	14.975M	17.741M
5.8G;VHT20,BF;20;1,(M0-8);4;5825;H;TN,VN	Pass	500k	13.625M	17.741M	13.95M	17.741M	13.15M	17.691M	13.9M	17.666M
5.8G;VHT40,BF;40;1,(M0-9);4;5755;L;TN,VN	Pass	500k	35.4M	36.332M	35.05M	36.282M	32.5M	36.282M	29.35M	36.282M
5.8G;VHT40,BF;40;1,(M0-9);4;5795;H;TN,VN	Pass	500k	35.9M	36.382M	34.65M	36.282M	32.55M	36.232M	33.75M	36.332M
5.8G;VHT80,BF;80;1,(M0-9);4;5775;S;TN,VN	Pass	500k	71.2M	76.262M	69.4M	75.862M	67.9M	75.762M	71.3M	75.562M
5.2G;VHT80+80,BF;80;1,(M0);2(1,2);5210;S;TN,VN	Pass	Inf	83.6M	76.162M	81.6M	75.862M				
5.8G;VHT80+80,BF;80;1,(M0);2(3,4);5775;S;TN,VN	Pass	500k					70.6M	75.762M	71.6M	75.962M







< For Non-Beamforming >  
Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
5.2G;11a;20;1;4	26.93	0.49317	29.23	0.83753
5.2G;HT20;20;1,(M0-31);4	26.95	0.49545	29.25	0.8414
5.2G;HT40;40;1,(M0-31);4	28.45	0.69984	30.75	1.1885
5.2G;VHT20;20;1,(M0-8);4	26.98	0.49888	29.28	0.84723
5.2G;VHT40;40;1,(M0-9);4	28.51	0.70958	30.81	1.20504
5.2G;VHT80;80;1,(M0-9);4	19.66	0.09247	21.96	0.15704
5.2G;VHT80+80;80;1,(M0-9);4	22.61	0.18239	24.91	0.30974
5.8G;11a;20;1;4	29.77	0.94842	33.37	2.1727
5.8G;HT20;20;1,(M0-31);4	29.58	0.90782	33.18	2.0797
5.8G;HT40;40;1,(M0-31);4	29.60	0.91201	33.20	2.0893
5.8G;VHT20;20;1,(M0-8);4	29.61	0.91411	33.21	2.09411
5.8G;VHT40;40;1,(M0-9);4	29.64	0.92045	33.24	2.10863
5.8G;VHT80;80;1,(M0-9);4	27.79	0.60117	31.39	1.37721
5.8G;VHT80+80;80;1,(M0-9);4	22.63	0.18323	26.23	0.41976



Result

Mode	Result	DG (dBi)	EIRP (dBm)	EIRP Lim. (dBm)	Sum (dBm)	Sum Lim. (dBm)	P1 (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)
5.2G;11a;20;1;4;5180;L;TN,VN	Pass	2.30	27.40	36.00	25.10	30.00	18.79	19.13	19.17	19.23
5.2G;11a;20;1;4;5200;M;TN,VN	Pass	2.30	29.23	36.00	26.93	30.00	20.53	20.92	21.11	21.05
5.2G;11a;20;1;4;5240;H;TN,VN	Pass	2.30	28.93	36.00	26.63	30.00	20.47	20.78	20.73	20.46
5.2G;HT20;20;1;(M0-31);4;5180;L;TN,VN	Pass	2.30	26.94	36.00	24.64	30.00	18.26	18.67	18.69	18.83
5.2G;HT20;20;1;(M0-31);4;5200;M;TN,VN	Pass	2.30	29.03	36.00	26.73	30.00	20.31	20.80	21.07	20.60
5.2G;HT20;20;1;(M0-31);4;5240;H;TN,VN	Pass	2.30	29.25	36.00	26.95	30.00	20.78	21.12	21.05	20.77
5.2G;HT40;40;1;(M0-31);4;5190;L;TN,VN	Pass	2.30	24.98	36.00	22.68	30.00	16.43	16.75	16.79	16.66
5.2G;HT40;40;1;(M0-31);4;5230;H;TN,VN	Pass	2.30	30.75	36.00	28.45	30.00	22.10	22.67	22.64	22.29
5.2G;VHT20;20;1;(M0-8);4;5180;L;TN,VN	Pass	2.30	26.96	36.00	24.66	30.00	18.39	18.62	18.84	18.71
5.2G;VHT20;20;1;(M0-8);4;5200;M;TN,VN	Pass	2.30	29.07	36.00	26.77	30.00	20.36	20.79	21.01	20.82
5.2G;VHT20;20;1;(M0-8);4;5240;H;TN,VN	Pass	2.30	29.28	36.00	26.98	30.00	20.80	21.09	21.16	20.80
5.2G;VHT40;40;1;(M0-9);4;5190;L;TN,VN	Pass	2.30	25.06	36.00	22.76	30.00	16.47	16.82	16.91	16.74
5.2G;VHT40;40;1;(M0-9);4;5230;H;TN,VN	Pass	2.30	30.81	36.00	28.51	30.00	22.07	22.71	22.63	22.50
5.2G;VHT80;80;1;(M0-9);4;5210;S;TN,VN	Pass	2.30	21.96	36.00	19.66	30.00	13.25	13.75	13.86	13.67
5.2G;VHT80+80;80;1;(M0-9);4;5210;S;TN,VN	Pass	2.30	24.91	36.00	22.61	30.00	16.55	16.84	16.71	16.22
5.8G;11a;20;1;4;5745;L;TN,VN	Pass	3.60	33.30	36.00	29.70	30.00	23.57	23.65	23.73	23.75
5.8G;11a;20;1;4;5785;M;TN,VN	Pass	3.60	33.37	36.00	29.77	30.00	23.94	23.76	23.66	23.63
5.8G;11a;20;1;4;5825;H;TN,VN	Pass	3.60	33.32	36.00	29.72	30.00	23.73	23.69	23.75	23.61
5.8G;HT20;20;1;(M0-31);4;5745;L;TN,VN	Pass	3.60	33.13	36.00	29.53	30.00	23.15	23.55	23.64	23.68
5.8G;HT20;20;1;(M0-31);4;5785;M;TN,VN	Pass	3.60	33.17	36.00	29.57	30.00	23.69	23.36	23.54	23.61
5.8G;HT20;20;1;(M0-31);4;5825;H;TN,VN	Pass	3.60	33.18	36.00	29.58	30.00	23.60	23.55	23.55	23.54
5.8G;HT40;40;1;(M0-31);4;5755;L;TN,VN	Pass	3.60	33.20	36.00	29.60	30.00	23.45	23.66	23.52	23.68
5.8G;HT40;40;1;(M0-31);4;5795;H;TN,VN	Pass	3.60	33.15	36.00	29.55	30.00	23.57	23.62	23.36	23.57
5.8G;VHT20;20;1;(M0-8);4;5745;L;TN,VN	Pass	3.60	33.16	36.00	29.56	30.00	23.36	23.49	23.67	23.63
5.8G;VHT20;20;1;(M0-8);4;5785;M;TN,VN	Pass	3.60	33.21	36.00	29.61	30.00	23.69	23.65	23.56	23.47
5.8G;VHT20;20;1;(M0-8);4;5825;H;TN,VN	Pass	3.60	33.20	36.00	29.60	30.00	23.55	23.54	23.69	23.53
5.8G;VHT40;40;1;(M0-9);4;5755;L;TN,VN	Pass	3.60	33.24	36.00	29.64	30.00	23.42	23.71	23.54	23.80
5.8G;VHT40;40;1;(M0-9);4;5795;H;TN,VN	Pass	3.60	33.16	36.00	29.56	30.00	23.62	23.58	23.40	23.55
5.8G;VHT80;80;1;(M0-9);4;5775;S;TN,VN	Pass	3.60	31.39	36.00	27.79	30.00	21.76	21.70	21.90	21.72
5.8G;VHT80+80;80;1;(M0-9);4;5775;S;TN,VN	Pass	3.60	26.23	36.00	22.63	30.00	16.52	16.84	16.68	16.39



< For Beamforming >  
Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
5.2G;VHT20,BF;20;1,(M0-8);4	26.82	0.48084	35.14	3.26588
5.2G;VHT40,BF;40;1,(M0-9);4	25.92	0.39084	34.24	2.65461
5.2G;VHT80,BF;80;1,(M0-9);4	15.95	0.03936	24.27	0.2673
5.8G;VHT20,BF;20;1,(M0-8);4	26.28	0.42462	35.90	3.89045
5.8G;VHT40,BF;40;1,(M0-9);4	26.30	0.42658	35.92	3.90841
5.8G;VHT80,BF;80;1,(M0-9);4	24.16	0.26062	33.78	2.38781
5.2G;VHT80+80,BF;80;1,(M0);2(1,2)	18.68	0.07379	23.99	0.25061
5.8G;VHT80+80,BF;80;1,(M0);2(3,4)	18.47	0.07031	25.08	0.32211



Result

Mode	Result	DG (dBi)	EIRP (dBm)	EIRP Lim. (dBm)	Sum (dBm)	Sum Lim. (dBm)	P1 (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)
5.2G;VHT20,BF;20;1,(M0-8);4;5180;L;TN,VN	Pass	8.32	34.23	Inf	25.91	27.68	19.74	18.62	20.71	20.23
5.2G;VHT20,BF;20;1,(M0-8);4;5200;M;TN,VN	Pass	8.32	35.14	Inf	26.82	27.68	21.38	21.45	20.41	19.74
5.2G;VHT20,BF;20;1,(M0-8);4;5240;H;TN,VN	Pass	8.32	35.01	Inf	26.69	27.68	21.62	21.56	19.72	19.30
5.2G;VHT40,BF;40;1,(M0-9);4;5190;L;TN,VN	Pass	8.32	28.77	Inf	20.45	27.68	14.64	14.16	14.22	14.65
5.2G;VHT40,BF;40;1,(M0-9);4;5230;H;TN,VN	Pass	8.32	34.24	Inf	25.92	27.68	19.98	19.87	19.65	20.09
5.2G;VHT80,BF;80;1,(M0-9);4;5210;S;TN,VN	Pass	8.32	24.27	Inf	15.95	27.68	10.89	9.27	9.40	9.95
5.8G;VHT20,BF;20;1,(M0-8);4;5745;L;TN,VN	Pass	9.62	35.76	Inf	26.14	26.38	20.78	20.29	19.63	19.69
5.8G;VHT20,BF;20;1,(M0-8);4;5785;M;TN,VN	Pass	9.62	35.90	Inf	26.28	26.38	19.85	19.59	21.24	20.17
5.8G;VHT20,BF;20;1,(M0-8);4;5825;H;TN,VN	Pass	9.62	35.75	Inf	26.13	26.38	20.88	20.97	19.29	18.91
5.8G;VHT40,BF;40;1,(M0-9);4;5755;L;TN,VN	Pass	9.62	35.90	Inf	26.28	26.38	20.58	20.82	19.72	19.82
5.8G;VHT40,BF;40;1,(M0-9);4;5795;H;TN,VN	Pass	9.62	35.92	Inf	26.30	26.38	20.12	20.66	20.29	20.03
5.8G;VHT80,BF;80;1,(M0-9);4;5775;S;TN,VN	Pass	9.62	33.78	Inf	24.16	26.38	18.51	18.62	17.84	17.46
5.2G;VHT80+80,BF;80;1,(M0);2(1,2);5210;S;TN,VN	Pass	5.31	23.99	Inf	18.68	30.00	16.06	15.23		
5.8G;VHT80+80,BF;80;1,(M0);2(3,4);5775;S;TN,VN	Pass	6.61	25.08	Inf	18.47	29.39			15.67	15.23



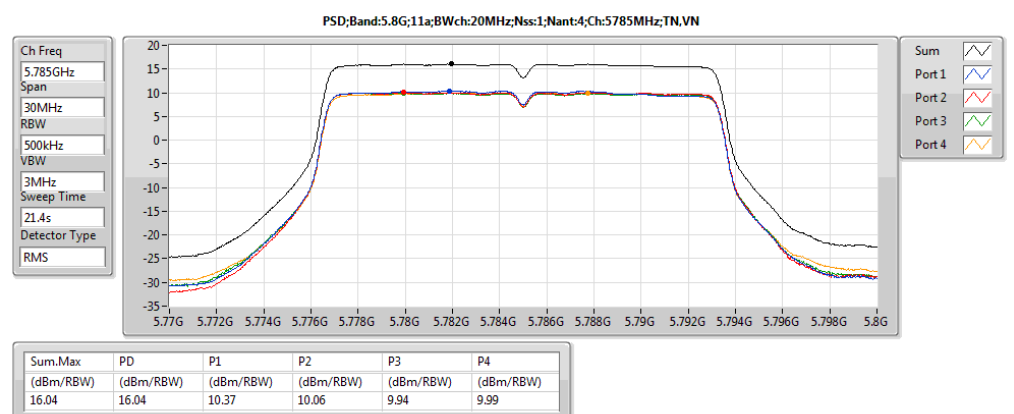
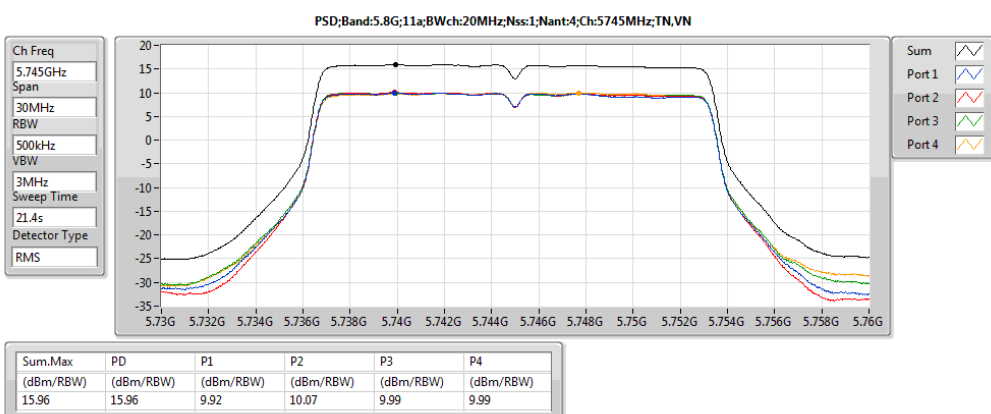
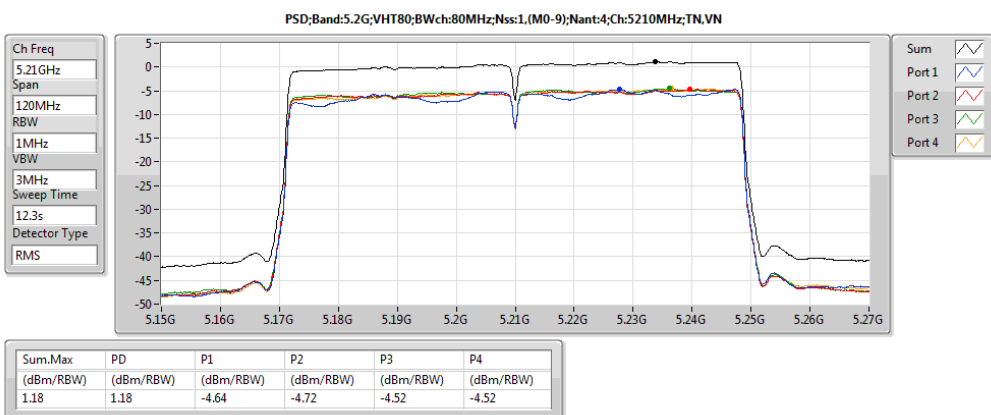
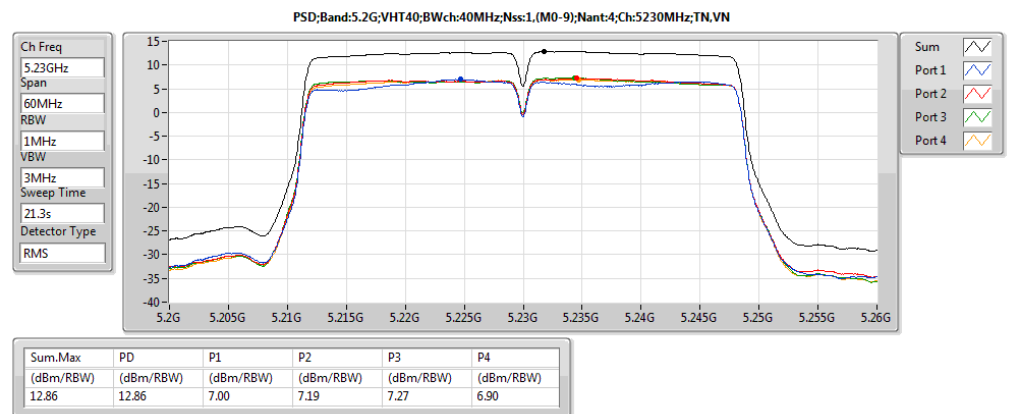
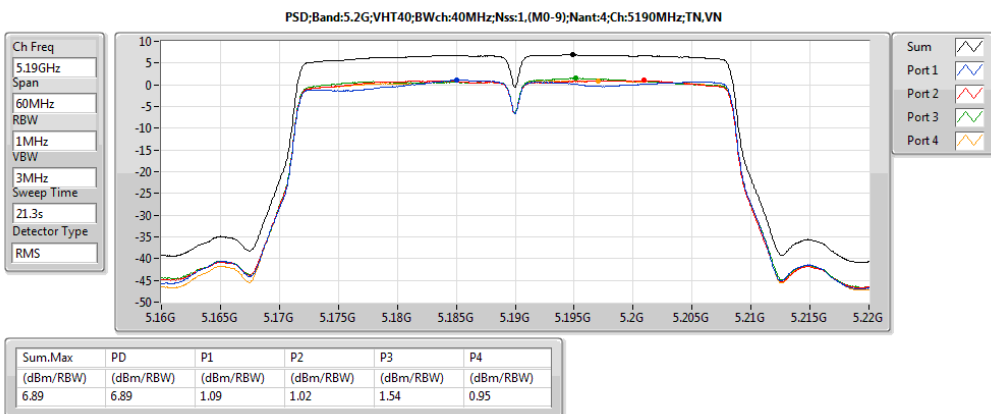
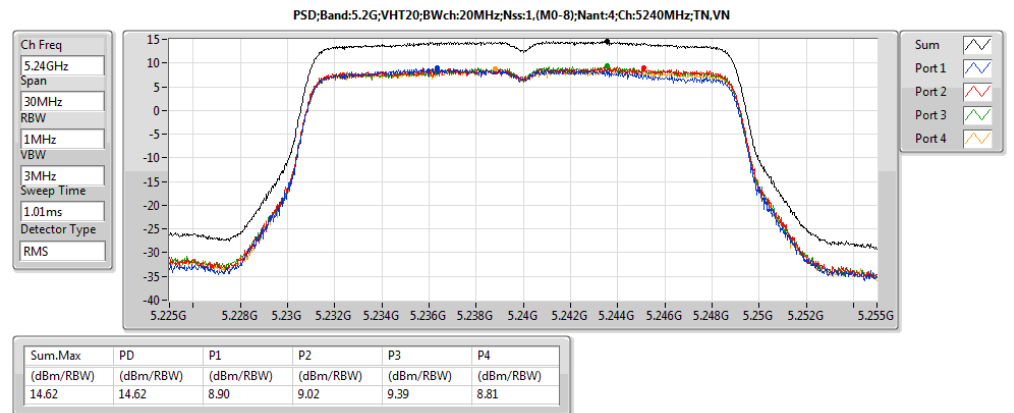
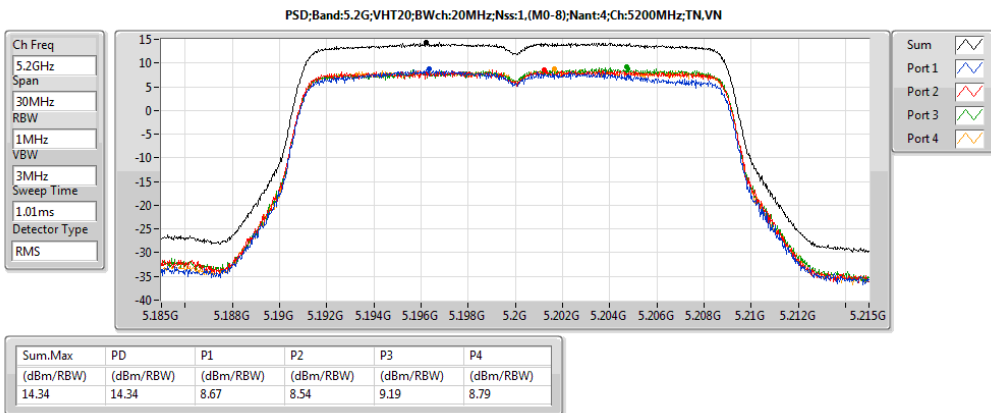
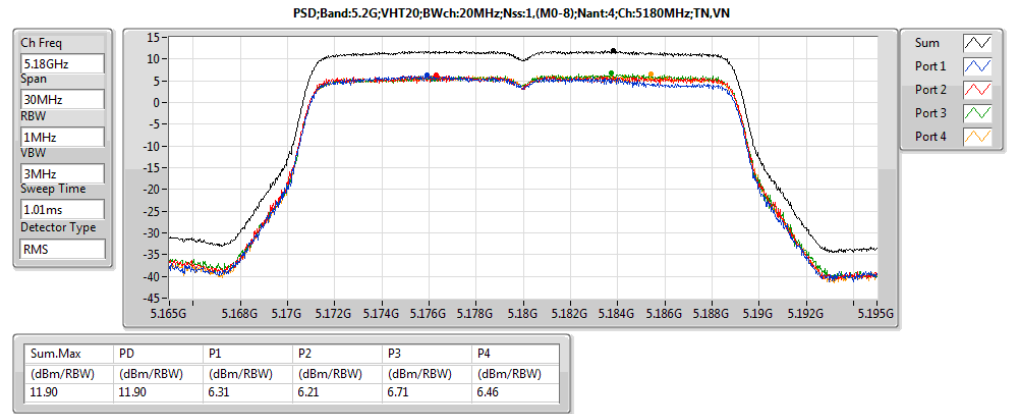
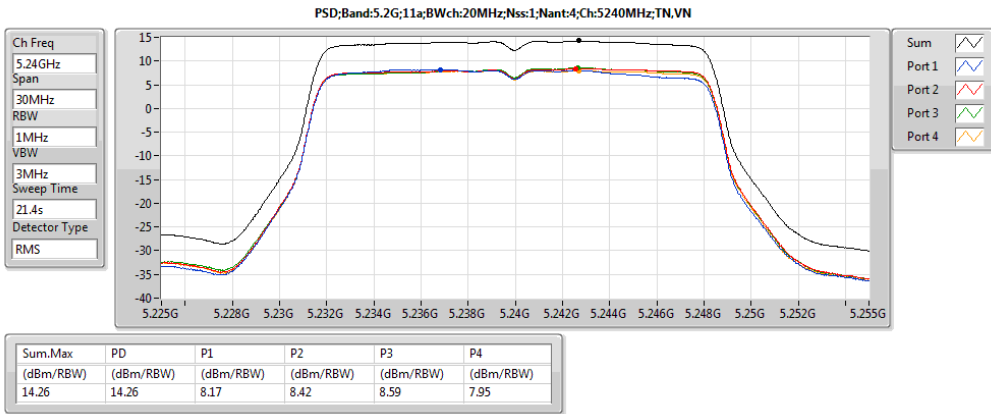
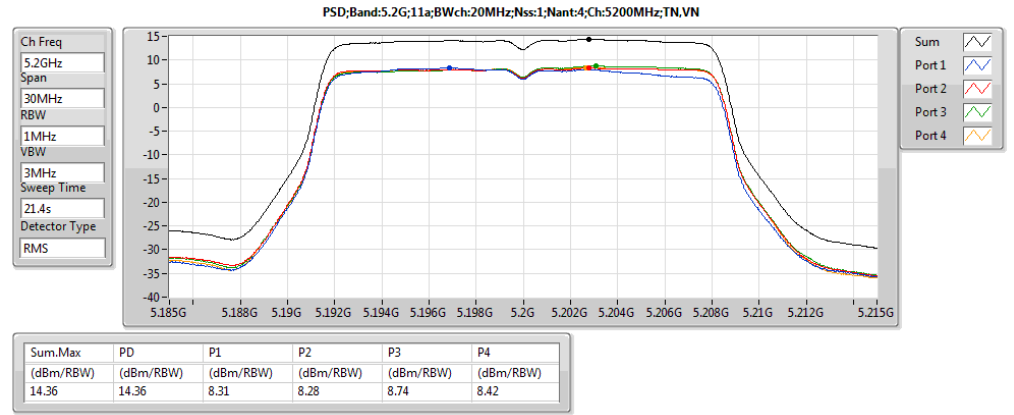
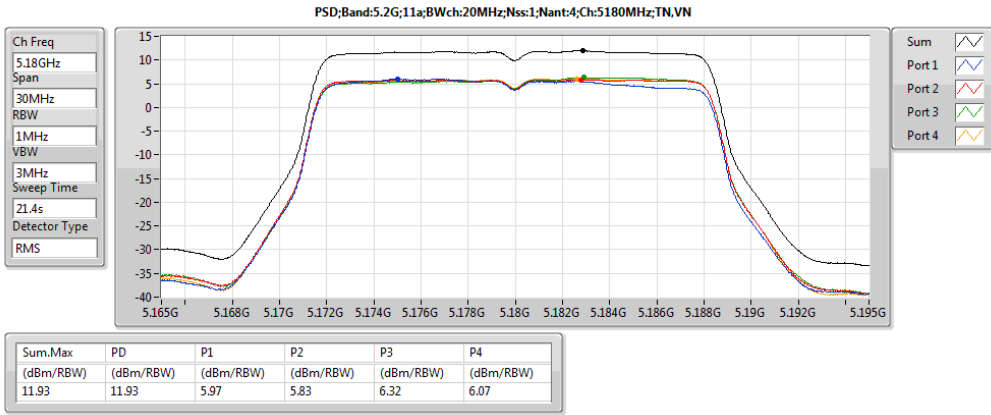


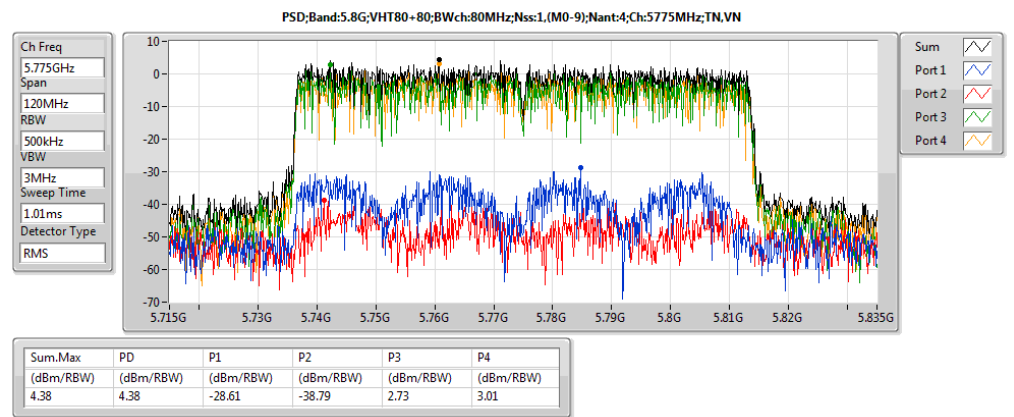
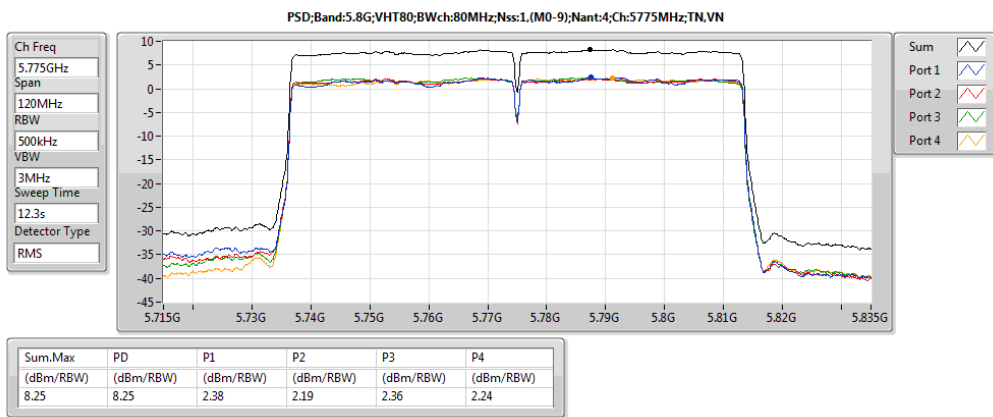
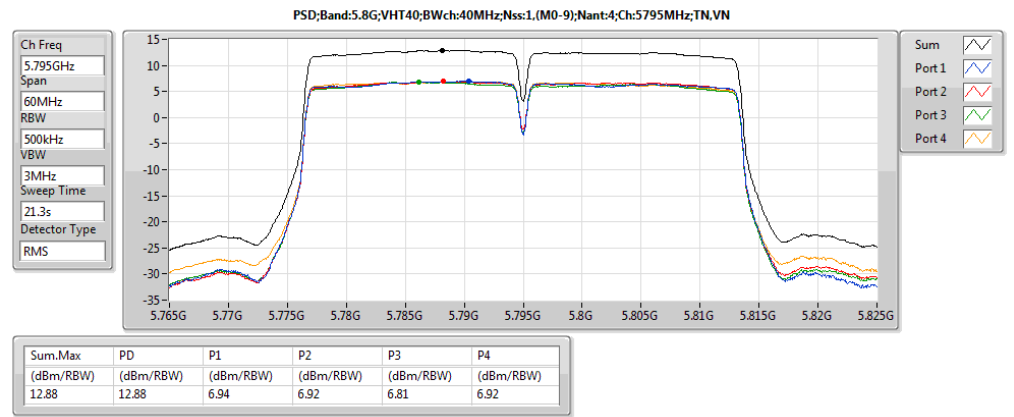
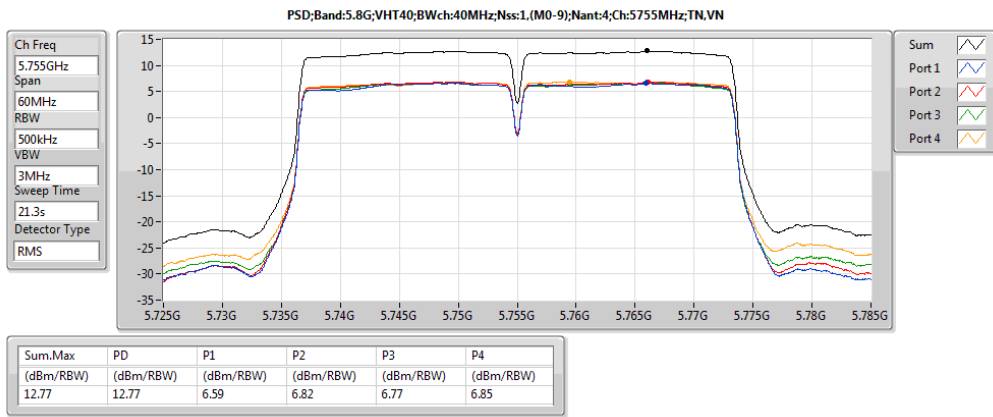
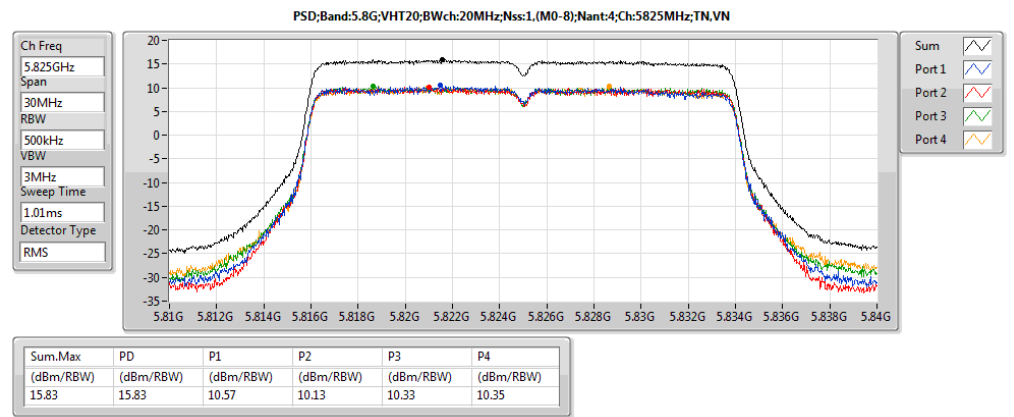
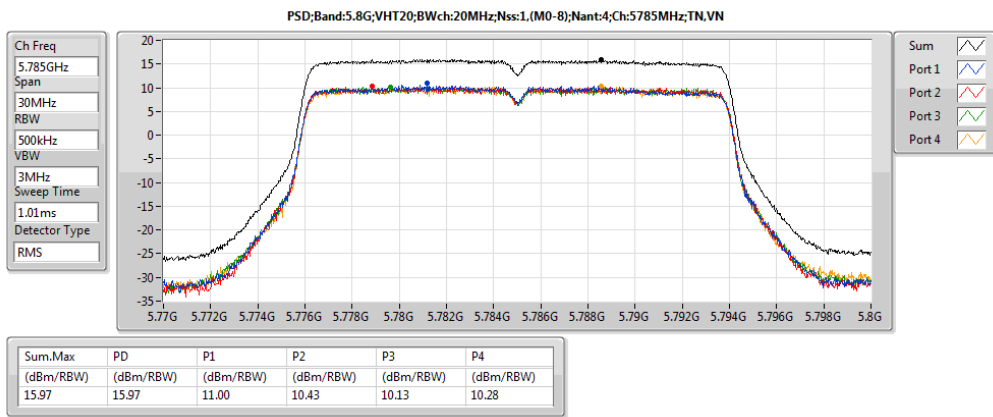
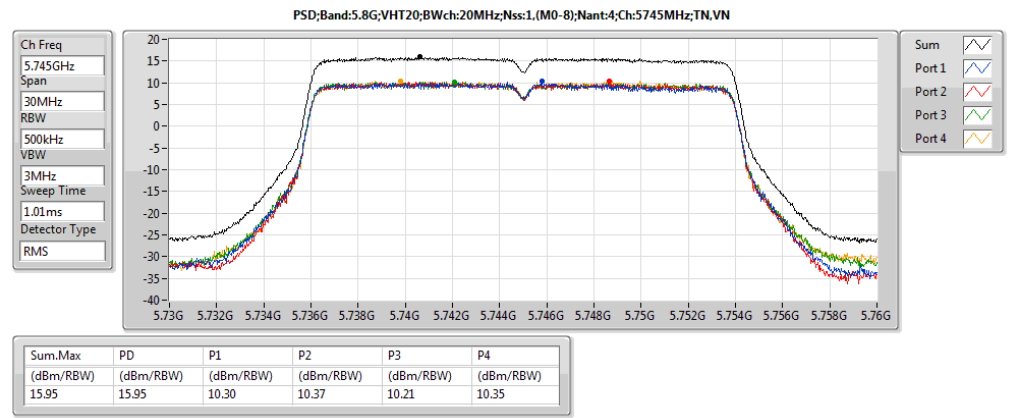
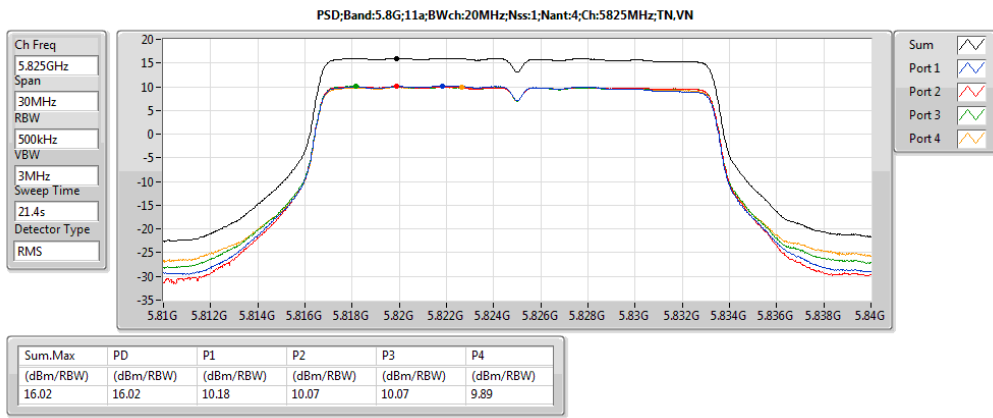
< For Non-Beamforming >  
Summary

Mode	PD (dBm/RBW)	EIRP.PD (dBm/RBW)
5.2G;11a;20;1;4	14.36	22.68
5.2G;HT20;20;1,(M0-31);4	14.60	22.92
5.2G;HT40;40;1,(M0-31);4	6.86	15.18
5.2G;VHT20;20;1,(M0-8);4	14.62	22.94
5.2G;VHT40;40;1,(M0-9);4	12.86	21.18
5.2G;VHT80;80;1,(M0-9);4	1.18	9.50
5.2G;VHT80+80;80;1,(M0-9);4	6.13	14.45
5.8G;11a;20;1;4	16.04	25.66
5.8G;VHT20;20;1,(M0-8);4	15.97	25.59
5.8G;VHT40;40;1,(M0-9);4	12.88	22.50
5.8G;VHT80;80;1,(M0-9);4	8.25	17.87
5.8G;VHT80+80;80;1,(M0-9);4	4.38	14.00

Result

Mode	Result	Meas.RBW (Hz)	Lim.RBW (Hz)	BWCF (dB)	DG (dBi)	Sum.Max (dBm/RBW)	PD (dBm/RBW)	PD.Limit (dBm/RBW)	EIRP.PD (dBm/RBW)	EIRP.PD.Li m (dBm/RBW)	P1 (dBm/RBW)	P2 (dBm/RBW)	P3 (dBm/RBW)	P4 (dBm/RBW)
5.2G;11a;20;1;4;5180;L;TN,VN	Pass	1M	1M	0.00	8.32	11.93	11.93	14.68	20.25	Inf	5.97	5.83	6.32	6.07
5.2G;11a;20;1;4;5200;M;TN,VN	Pass	1M	1M	0.00	8.32	14.36	14.36	14.68	22.68	Inf	8.31	8.28	8.74	8.42
5.2G;11a;20;1;4;5240;H;TN,VN	Pass	1M	1M	0.00	8.32	14.26	14.26	14.68	22.58	Inf	8.17	8.42	8.59	7.95
5.2G;VHT20;20;1;(M0-8);4;5180;L;TN,VN	Pass	1M	1M	0.00	8.32	11.90	11.90	14.68	20.22	Inf	6.31	6.21	6.71	6.46
5.2G;VHT20;20;1;(M0-8);4;5200;M;TN,VN	Pass	1M	1M	0.00	8.32	14.34	14.34	14.68	22.66	Inf	8.67	8.54	9.19	8.79
5.2G;VHT20;20;1;(M0-8);4;5240;H;TN,VN	Pass	1M	1M	0.00	8.32	14.62	14.62	14.68	22.94	Inf	8.90	9.02	9.39	8.81
5.2G;VHT40;40;1;(M0-9);4;5190;L;TN,VN	Pass	1M	1M	0.00	8.32	6.89	6.89	14.68	15.21	Inf	1.09	1.02	1.54	0.95
5.2G;VHT40;40;1;(M0-9);4;5230;H;TN,VN	Pass	1M	1M	0.00	8.32	12.86	12.86	14.68	21.18	Inf	7.00	7.19	7.27	6.90
5.2G;VHT80;80;1;(M0-9);4;5210;S;TN,VN	Pass	1M	1M	0.00	8.32	1.18	1.18	14.68	9.50	Inf	-4.64	-4.72	-4.52	-4.52
5.2G;VHT80+80;80;1;(M0-9);4;5210;S;TN,VN	Pass	1M	1M	0.00	8.32	6.13	6.13	14.68	14.45	Inf	4.18	4.31	-19.65	-34.32
5.8G;11a;20;1;4;5745;L;TN,VN	Pass	500k	500k	0.00	9.62	15.96	15.96	26.38	25.58	32.38	9.92	10.07	9.99	9.99
5.8G;11a;20;1;4;5785;M;TN,VN	Pass	500k	500k	0.00	9.62	16.04	16.04	26.38	25.66	32.38	10.37	10.06	9.94	9.99
5.8G;11a;20;1;4;5825;H;TN,VN	Pass	500k	500k	0.00	9.62	16.02	16.02	26.38	25.64	32.38	10.18	10.07	10.07	9.89
5.8G;VHT20;20;1;(M0-8);4;5745;L;TN,VN	Pass	500k	500k	0.00	9.62	15.95	15.95	26.38	25.57	32.38	10.30	10.37	10.21	10.35
5.8G;VHT20;20;1;(M0-8);4;5785;M;TN,VN	Pass	500k	500k	0.00	9.62	15.97	15.97	26.38	25.59	32.38	11.00	10.43	10.13	10.28
5.8G;VHT20;20;1;(M0-8);4;5825;H;TN,VN	Pass	500k	500k	0.00	9.62	15.83	15.83	26.38	25.45	32.38	10.57	10.13	10.33	10.35
5.8G;VHT40;40;1;(M0-9);4;5755;L;TN,VN	Pass	500k	500k	0.00	9.62	12.77	12.77	26.38	22.39	32.38	6.59	6.82	6.77	6.85
5.8G;VHT40;40;1;(M0-9);4;5795;H;TN,VN	Pass	500k	500k	0.00	9.62	12.88	12.88	26.38	22.50	32.38	6.94	6.92	6.81	6.92
5.8G;VHT80;80;1;(M0-9);4;5775;S;TN,VN	Pass	500k	500k	0.00	9.62	8.25	8.25	26.38	17.87	32.38	2.38	2.19	2.36	2.24
5.8G;VHT80+80;80;1;(M0-9);4;5775;S;TN,VN	Pass	500k	500k	0.00	9.62	4.38	4.38	26.38	14.00	32.38	-28.61	-38.79	2.73	3.01





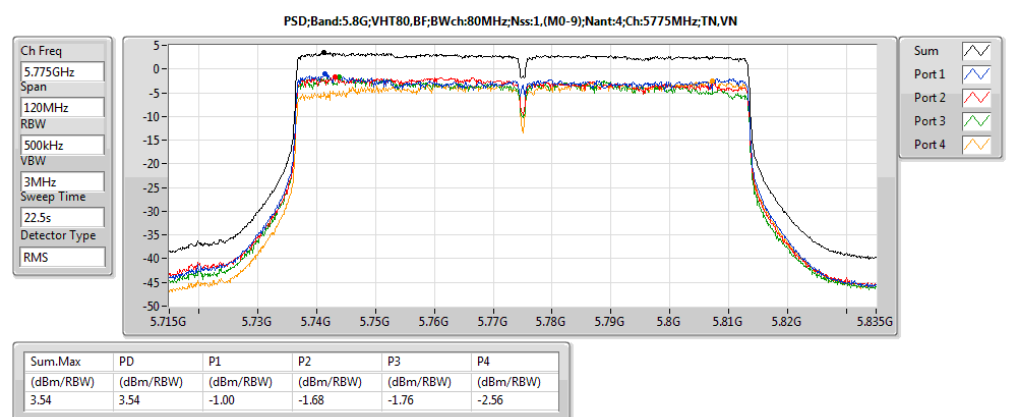
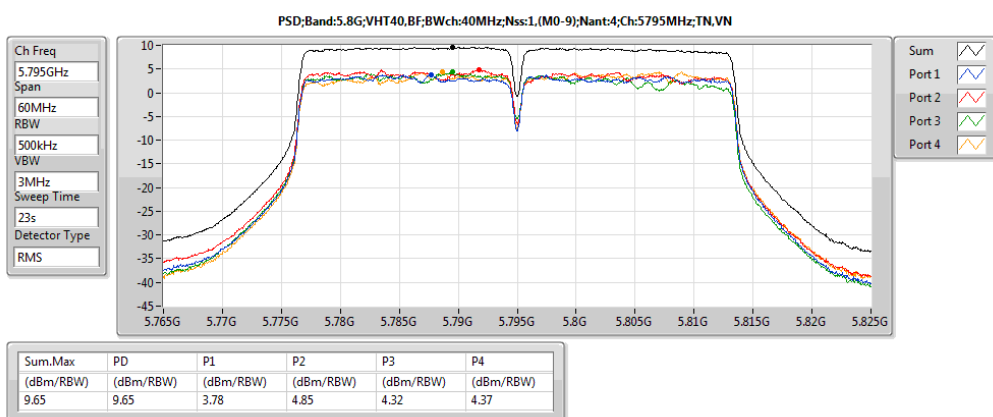
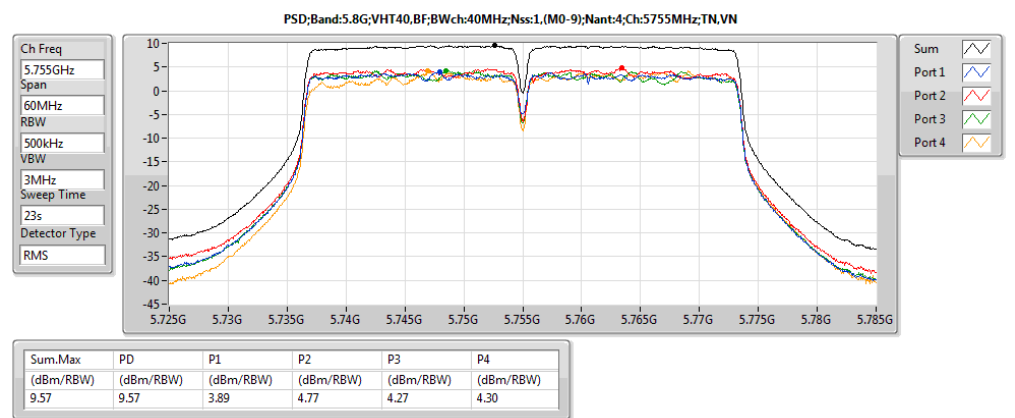
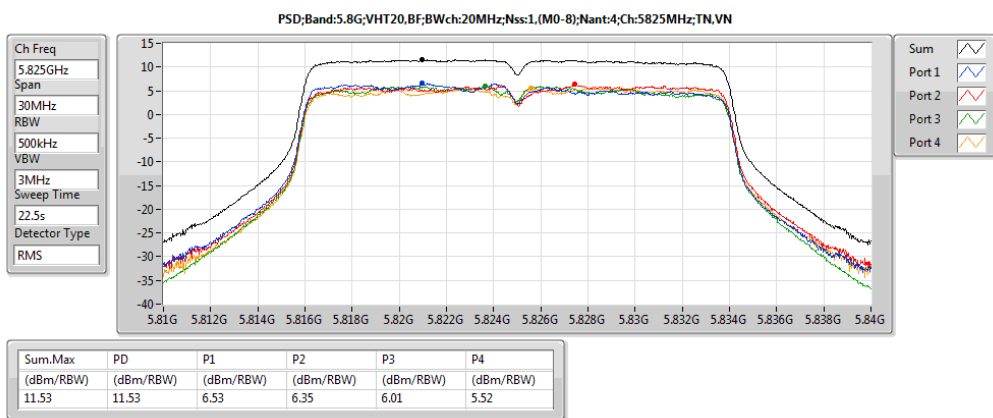
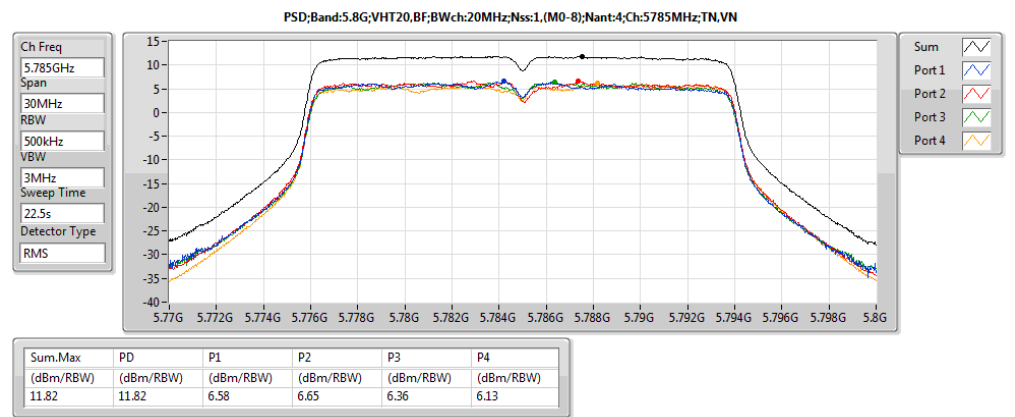
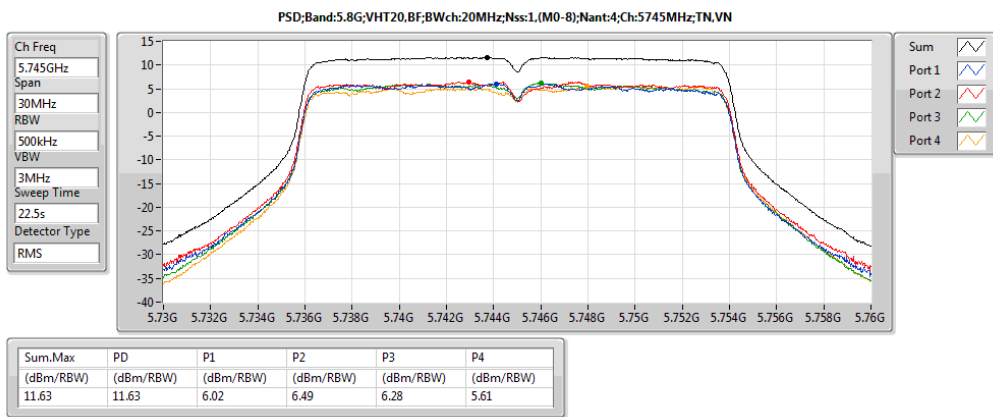
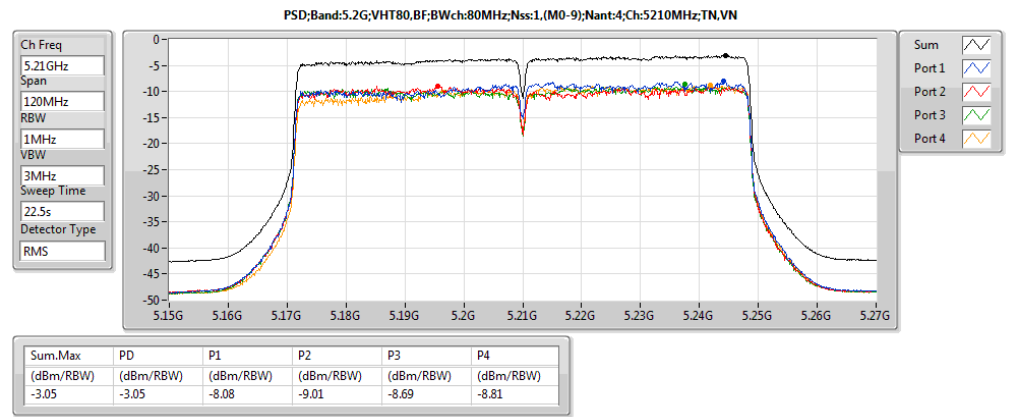
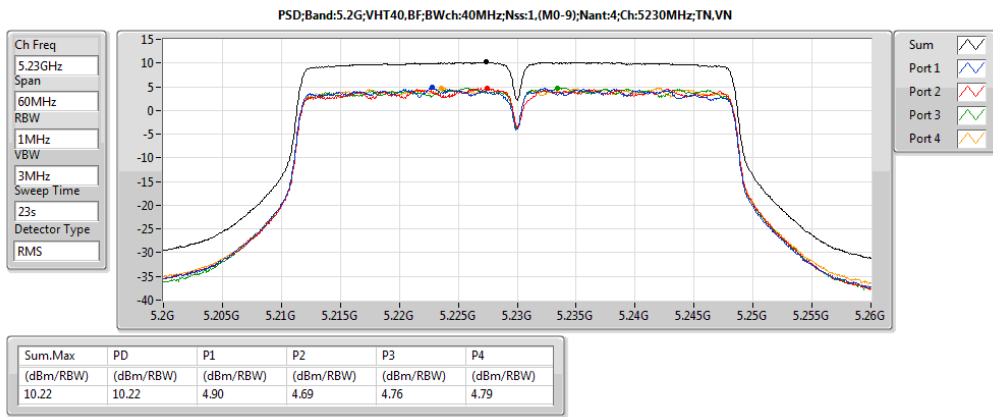
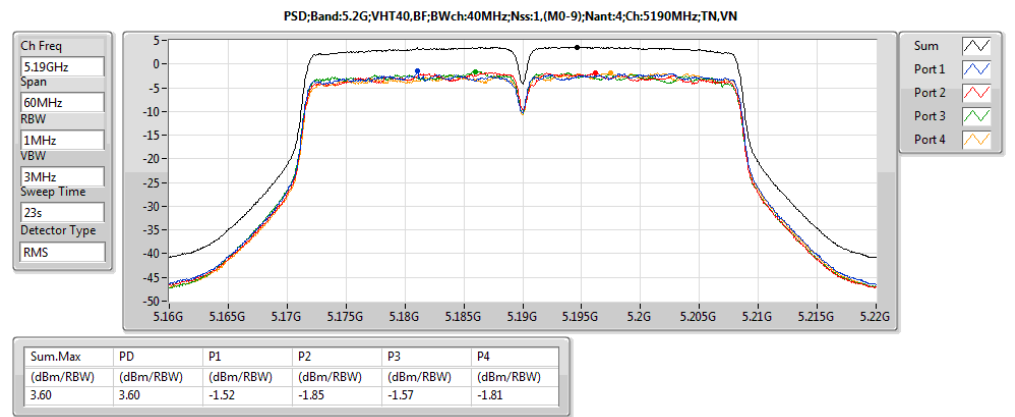
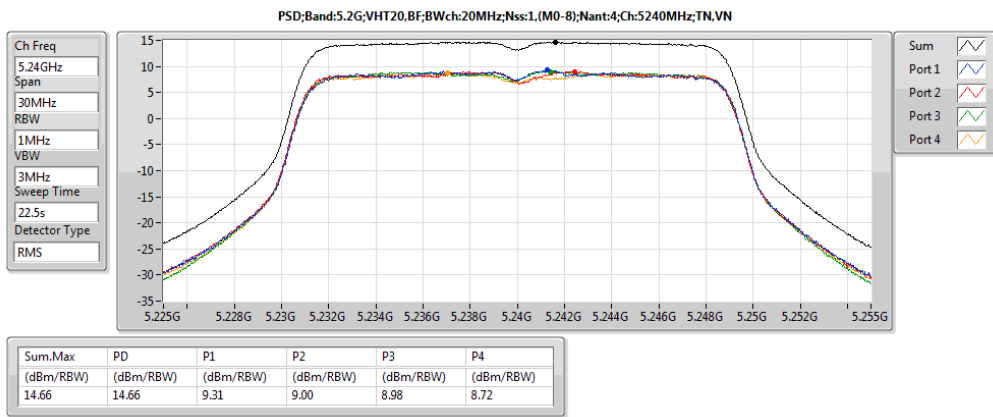
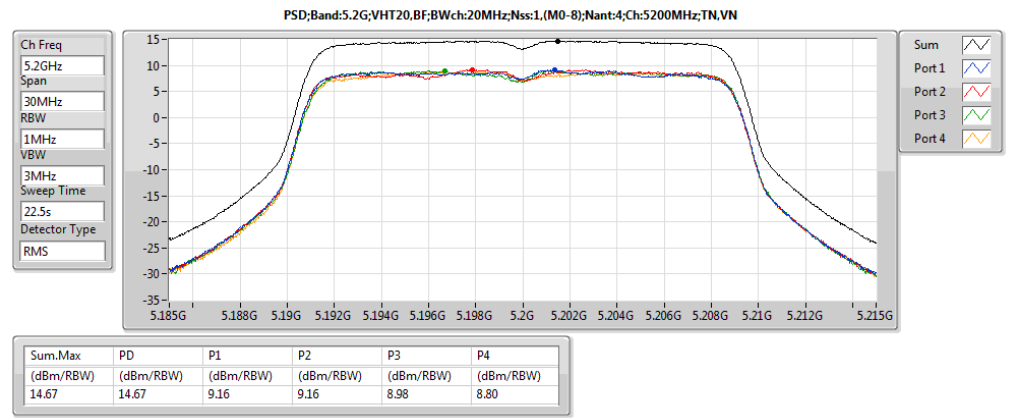
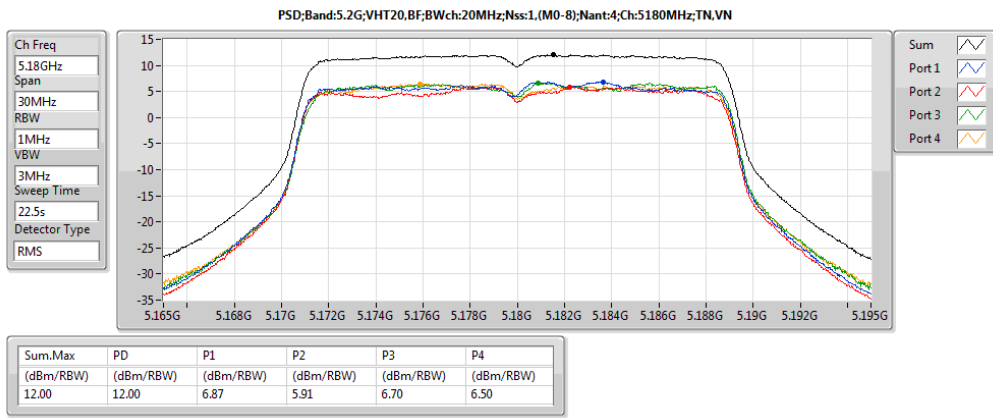


< For Beamforming >  
Summary

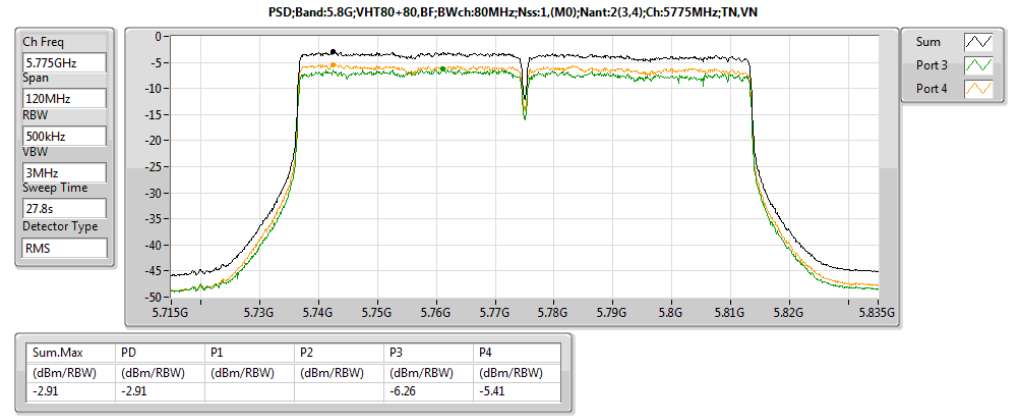
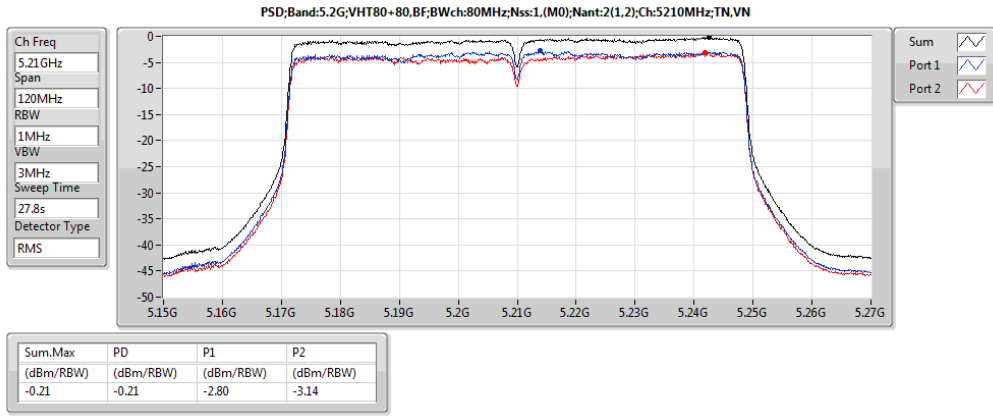
Mode	PD (dBm/RBW)	EIRP.PD (dBm/RBW)
5.2G;VHT20,BF;20;1,(M0-8);4	14.67	22.99
5.2G;VHT40,BF;40;1,(M0-9);4	10.22	18.54
5.2G;VHT80,BF;80;1,(M0-9);4	-3.05	5.27
5.8G;VHT20,BF;20;1,(M0-8);4	11.82	21.44
5.8G;VHT40,BF;40;1,(M0-9);4	9.65	19.28
5.8G;VHT80,BF;80;1,(M0-9);4	3.54	13.16
5.2G;VHT80+80,BF;80;1,(M0);2(1,2)	-0.21	5.10
5.8G;VHT80+80,BF;80;1,(M0);2(3,4)	-2.91	3.70

Result

Mode	Result	Meas.RBW (Hz)	Lim.RBW (Hz)	BWCF (dB)	DG (dBi)	Sum.Max (dBm/RBW)	PD (dBm/RBW)	PD.Limit (dBm/RBW)	EIRP.PD (dBm/RBW)	EIRP.PD.Li m (dBm/RBW)	P1 (dBm/RBW)	P2 (dBm/RBW)	P3 (dBm/RBW)	P4 (dBm/RBW)
5.2G;VHT20,BF;20;1,(M0-8);4;5180;L;TN,VN	Pass	1M	1M	0.00	8.32	12.00	12.00	14.68	20.32	Inf	6.87	5.91	6.70	6.50
5.2G;VHT20,BF;20;1,(M0-8);4;5200;M;TN,VN	Pass	1M	1M	0.00	8.32	14.67	14.67	14.68	22.99	Inf	9.16	9.16	8.98	8.80
5.2G;VHT20,BF;20;1,(M0-8);4;5240;H;TN,VN	Pass	1M	1M	0.00	8.32	14.66	14.66	14.68	22.98	Inf	9.31	9.00	8.98	8.72
5.2G;VHT40,BF;40;1,(M0-9);4;5190;L;TN,VN	Pass	1M	1M	0.00	8.32	3.60	3.60	14.68	11.92	Inf	-1.52	-1.85	-1.57	-1.81
5.2G;VHT40,BF;40;1,(M0-9);4;5230;H;TN,VN	Pass	1M	1M	0.00	8.32	10.22	10.22	14.68	18.54	Inf	4.90	4.69	4.76	4.79
5.2G;VHT80,BF;80;1,(M0-9);4;5210;S;TN,VN	Pass	1M	1M	0.00	8.32	-3.05	-3.05	14.68	5.27	Inf	-8.08	-9.01	-8.69	-8.81
5.8G;VHT20,BF;20;1,(M0-8);4;5745;L;TN,VN	Pass	500k	500k	0.00	9.62	11.63	11.63	26.38	21.25	32.38	6.02	6.49	6.28	5.61
5.8G;VHT20,BF;20;1,(M0-8);4;5785;M;TN,VN	Pass	500k	500k	0.00	9.62	11.82	11.82	26.38	21.44	32.38	6.58	6.65	6.36	6.13
5.8G;VHT20,BF;20;1,(M0-8);4;5825;H;TN,VN	Pass	500k	500k	0.00	9.62	11.53	11.53	26.38	21.15	32.38	6.53	6.35	6.01	5.52
5.8G;VHT40,BF;40;1,(M0-9);4;5755;L;TN,VN	Pass	500k	500k	0.00	9.62	9.57	9.57	26.38	19.19	32.38	3.89	4.77	4.27	4.30
5.8G;VHT40,BF;40;1,(M0-9);4;5795;H;TN,VN	Pass	500k	500k	0.00	9.62	9.65	9.65	26.38	19.28	32.38	3.78	4.85	4.32	4.37
5.8G;VHT80,BF;80;1,(M0-9);4;5775;S;TN,VN	Pass	500k	500k	0.00	9.62	3.54	3.54	26.38	13.16	32.38	-1.00	-1.68	-1.76	-2.56
5.2G;VHT80+80,BF;80;1,(M0);2(1,2);5210;S;TN,VN	Pass	1M	1M	0.00	5.31	-0.21	-0.21	17.00	5.10	Inf	-2.80	-3.14		
5.8G;VHT80+80,BF;80;1,(M0);2(3,4);5775;S;TN,VN	Pass	500k	500k	0.00	6.61	-2.91	-2.91	29.39	3.70	35.39			-6.26	-5.41











**Transmitter Radiated Bandedge Emissions (with Antenna)**

U-NII 5150-5250MHz Transmitter Radiated Bandedge (with Antenna) for Non-Beamforming										
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
11a	4	5180	3	5147.000	65.66	74	5147.000	53.59	54	V
11a	4	5240	3	5134.800	61.79	74	5140.800	50.77	54	V
VHT20	4	5180	3	5146.000	65.90	74	5146.600	53.61	54	V
VHT20	4	5240	3	5137.800	63.13	74	5149.800	51.93	54	V
VHT40	4	5190	3	5145.100	63.93	74	5146.640	52.96	54	V
VHT40	4	5230	3	5149.800	62.64	74	5149.800	53.35	54	V
VHT80	4	5210	3	5146.800	58.14	74	5146.800	53.18	54	V
VHT80+80	4	5210	3	5148.600	65.36	74	5148.600	53.41	54	V

Note 1: Measurement worst emissions of receive antenna polarization.

U-NII 5725-5850MHz Transmitter Radiated Bandedge (with Antenna) for Non-Beamforming							
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Pol.
11a	4	5745	3	5645.540	59.94	68.2	V
11a	4	5825	3	5945.140	58.95	68.2	V
VHT20	4	5745	3	5640.080	64.18	68.2	V
VHT20	4	5825	3	5929.480	64.52	68.2	V
VHT40	4	5755	3	5642.980	67.87	68.2	V
VHT40	4	5795	3	5933.080	67.34	68.2	V
VHT80	4	5775	3	5643.850	66.52	68.2	V
VHT80+80	4	5775	3	5948.050	57.91	68.2	V

Note 1: Measurement worst emissions of receive antenna polarization.

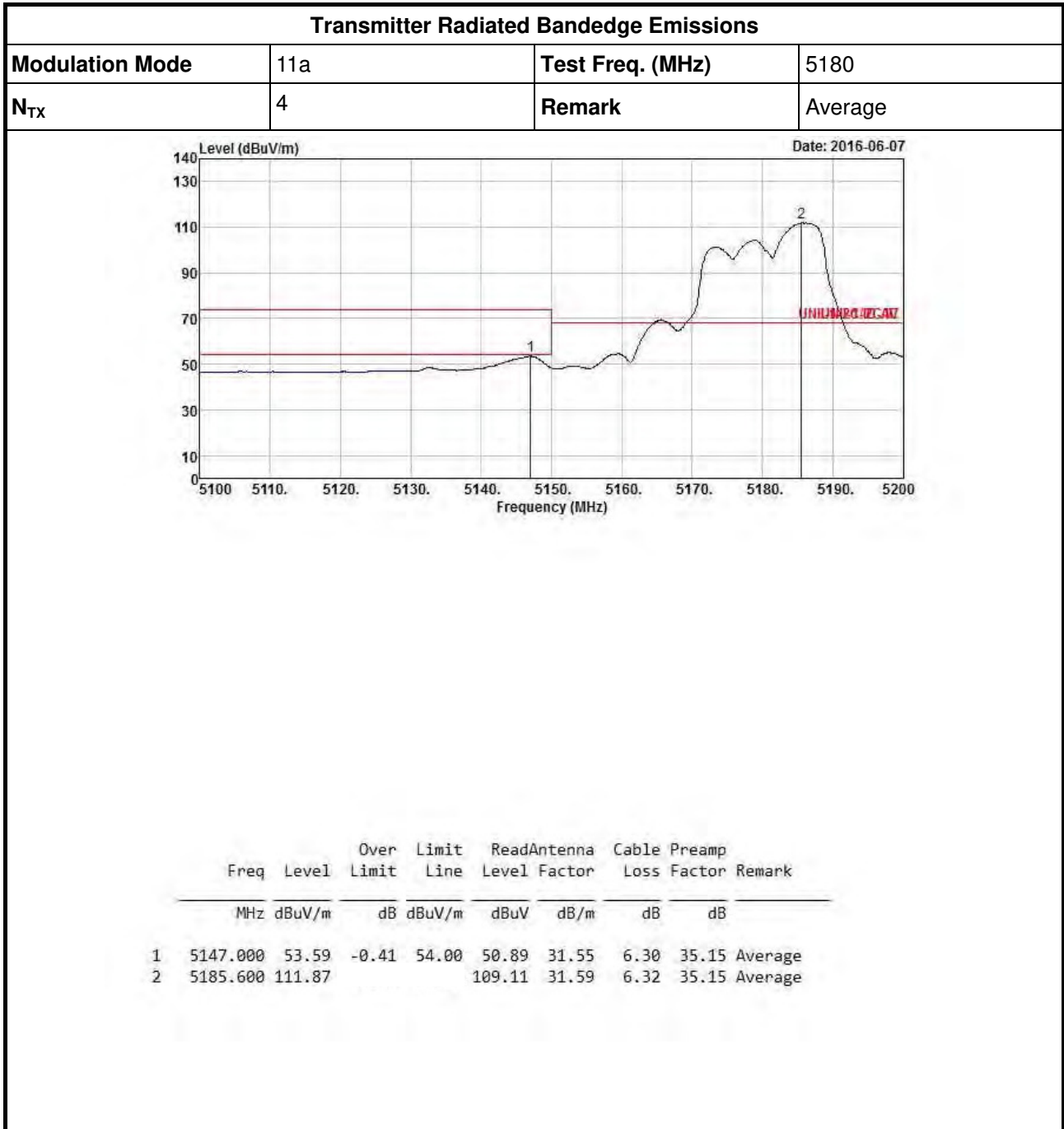


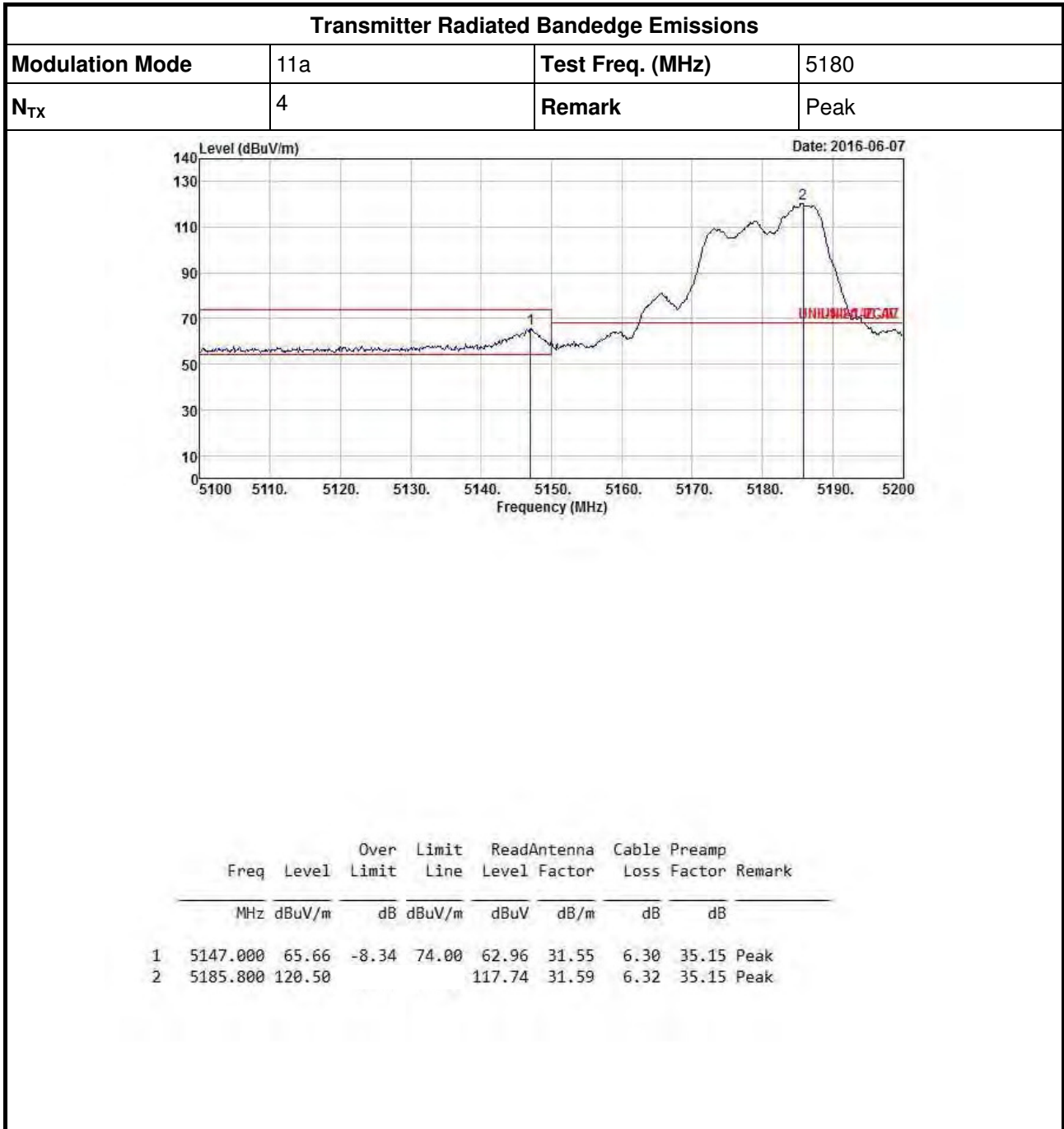
U-NII 5150-5250MHz Transmitter Radiated Bandedge (with Antenna) for Beamforming										
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
VHT20	4	5180	3	5146.800	68.27	74	5145.600	53.35	54	V
VHT20	4	5240	3	5371.200	58.66	74	5148.600	47.85	54	V
VHT40	4	5190	3	5145.540	73.83	74	5146.200	53.12	54	V
VHT40	4	5230	3	5140.800	67.58	74	5148.000	49.72	54	V
VHT80	4	5210	3	5145.600	65.58	74	5145.000	53.11	54	V
VHT80+80	4	5210	3	5147.400	70.16	74	5146.200	53.38	54	V

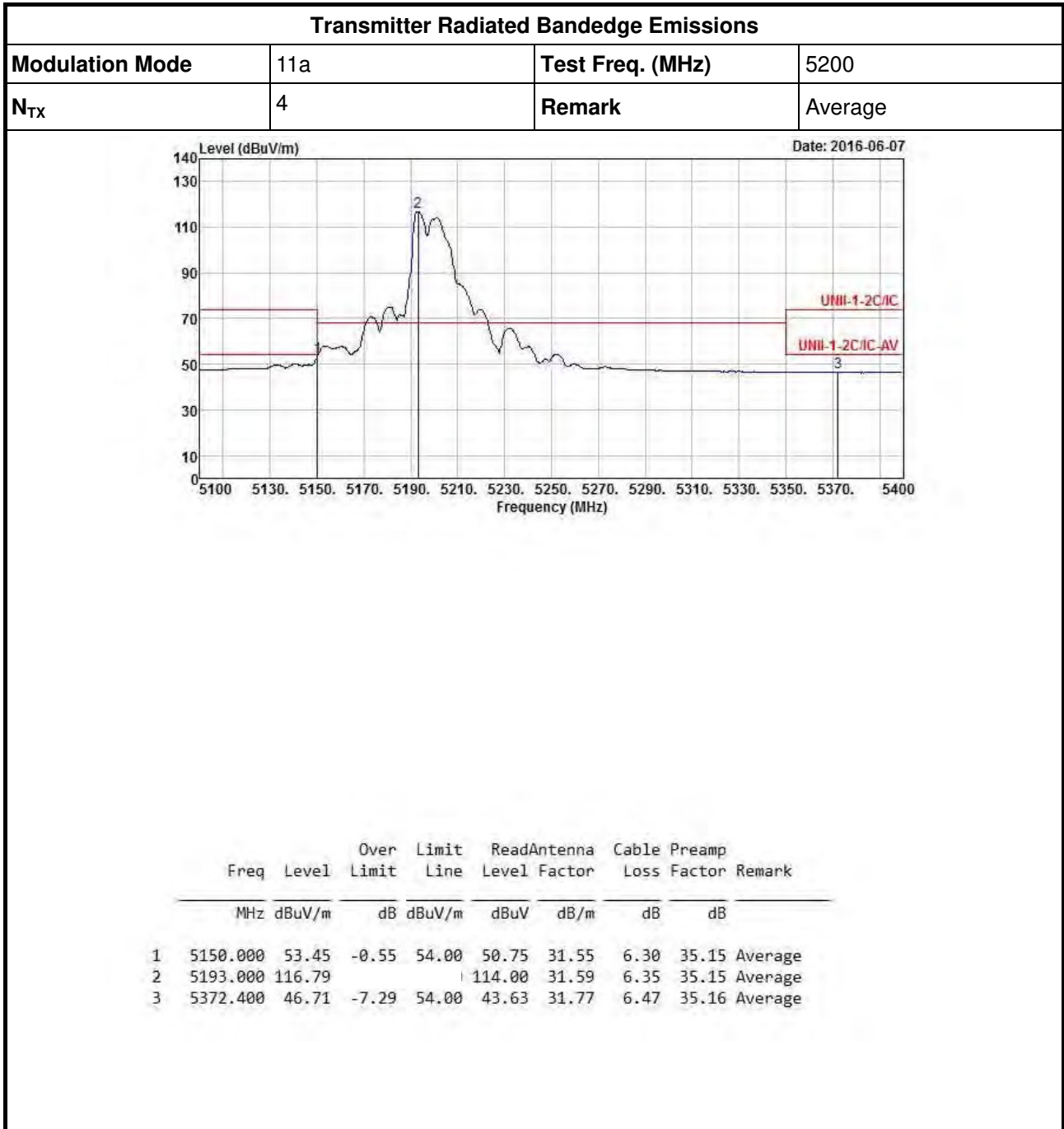
Note 1: Measurement worst emissions of receive antenna polarization.

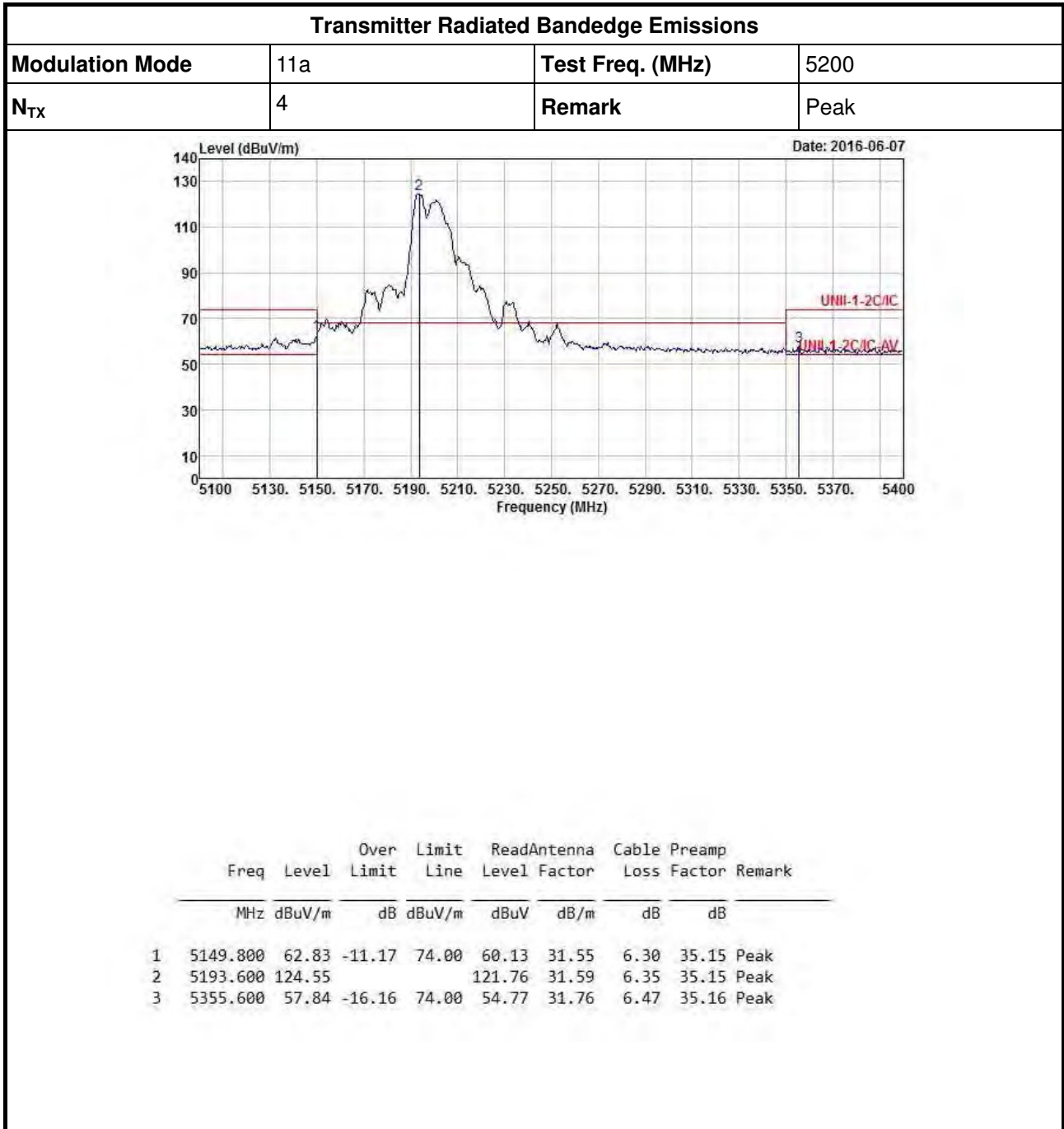
U-NII 5725-5850MHz Transmitter Radiated Bandedge (with Antenna) for Beamforming							
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Pol.
VHT20	4	5745	3	5644.500	59.60	68.2	V
VHT20	4	5825	3	5925.430	59.23	68.2	V
VHT40	4	5755	3	5647.320	61.39	68.2	V
VHT40	4	5795	3	5941.000	58.77	68.2	V
VHT80	4	5775	3	5636.700	68.05	68.2	V
VHT80+80	4	5775	3	5641.250	59.18	68.2	V

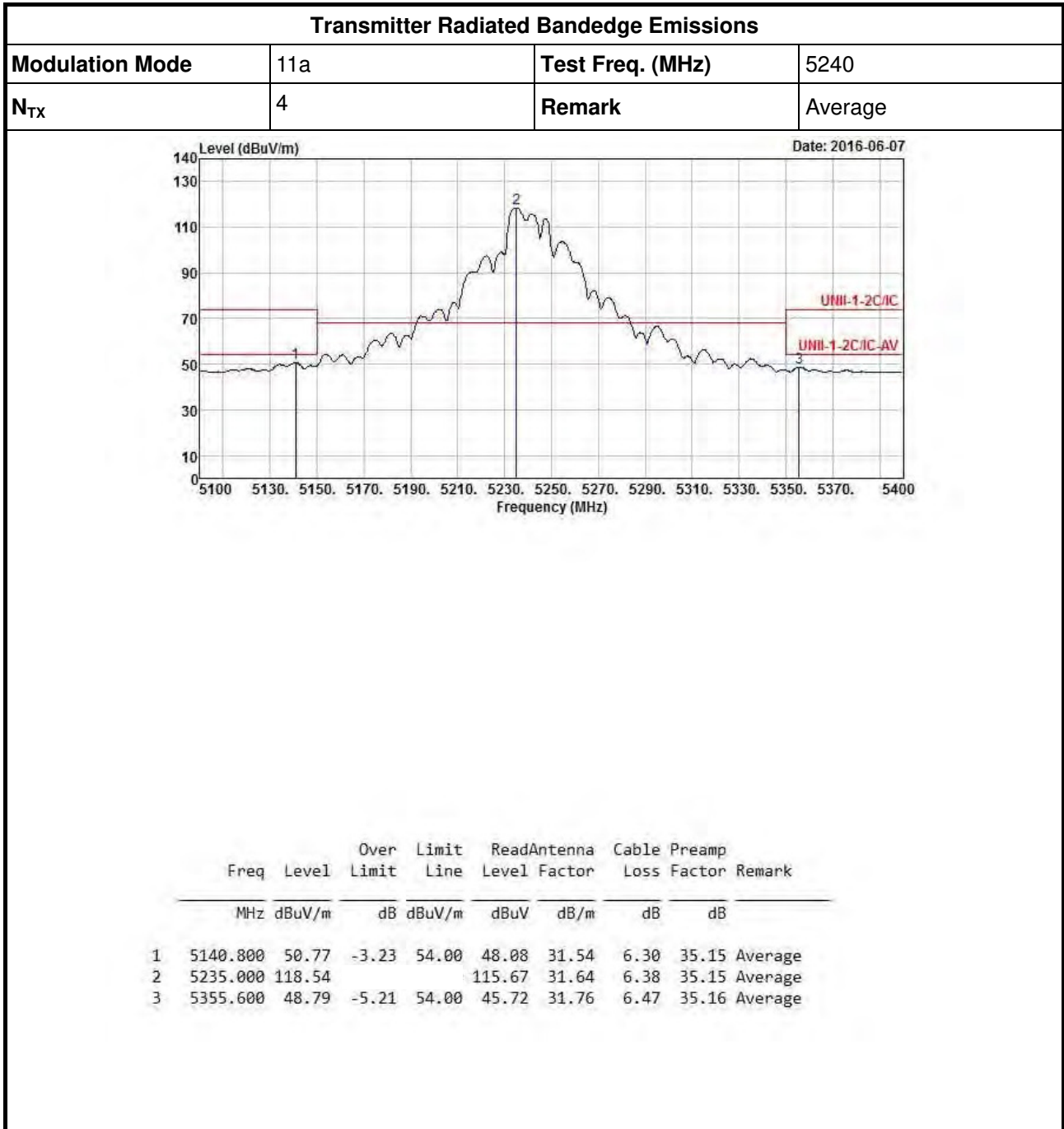
Note 1: Measurement worst emissions of receive antenna polarization.

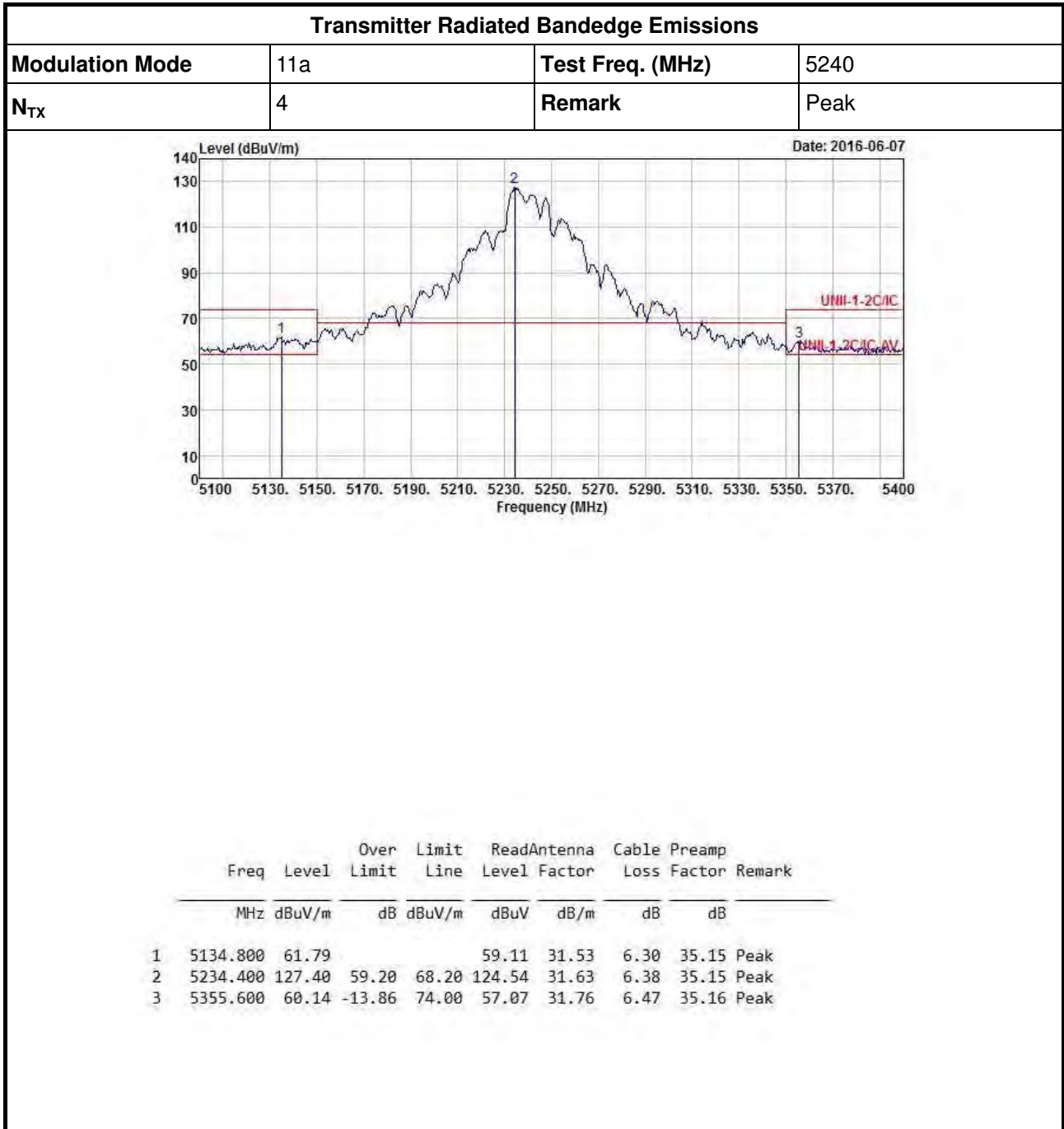




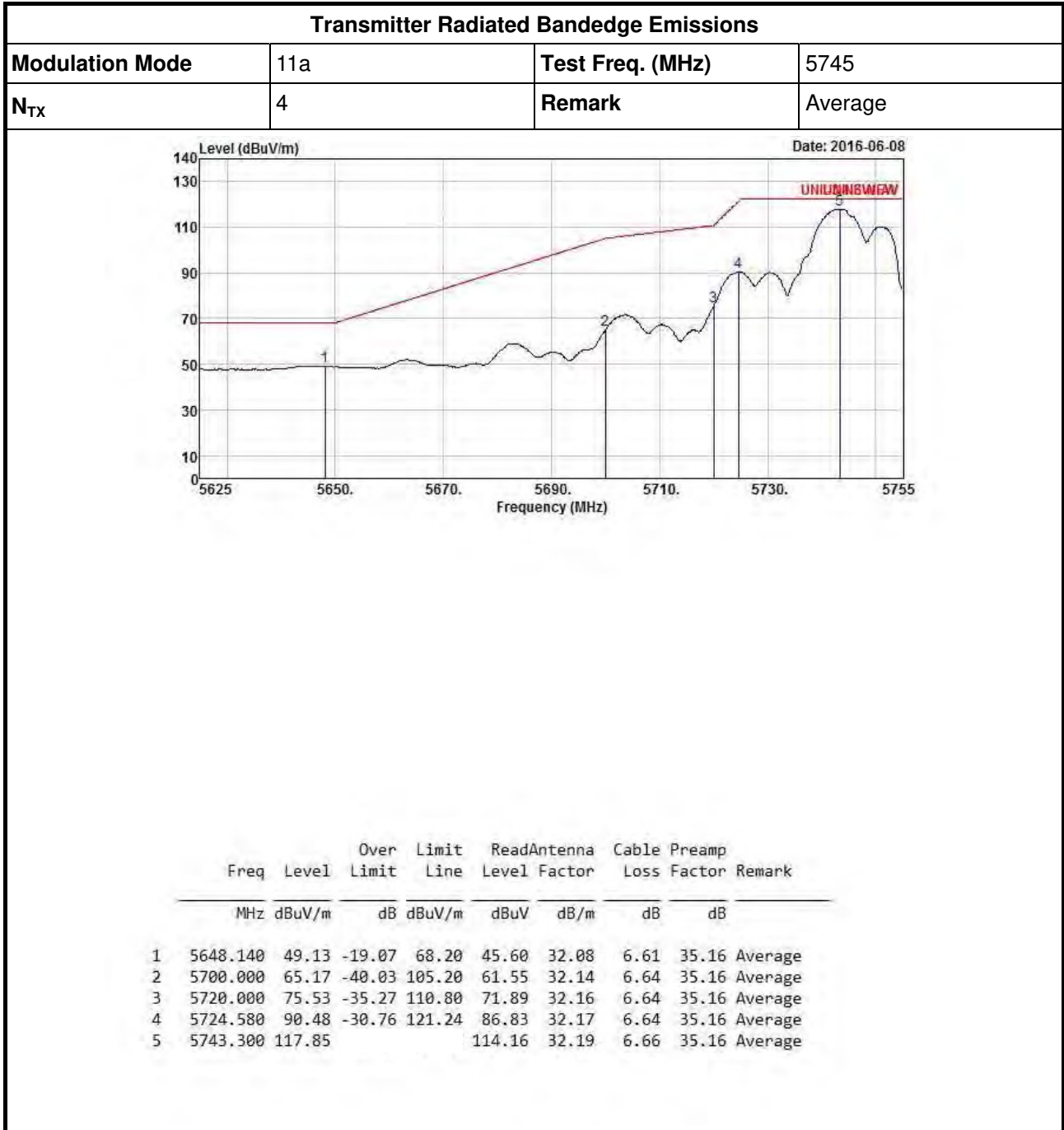


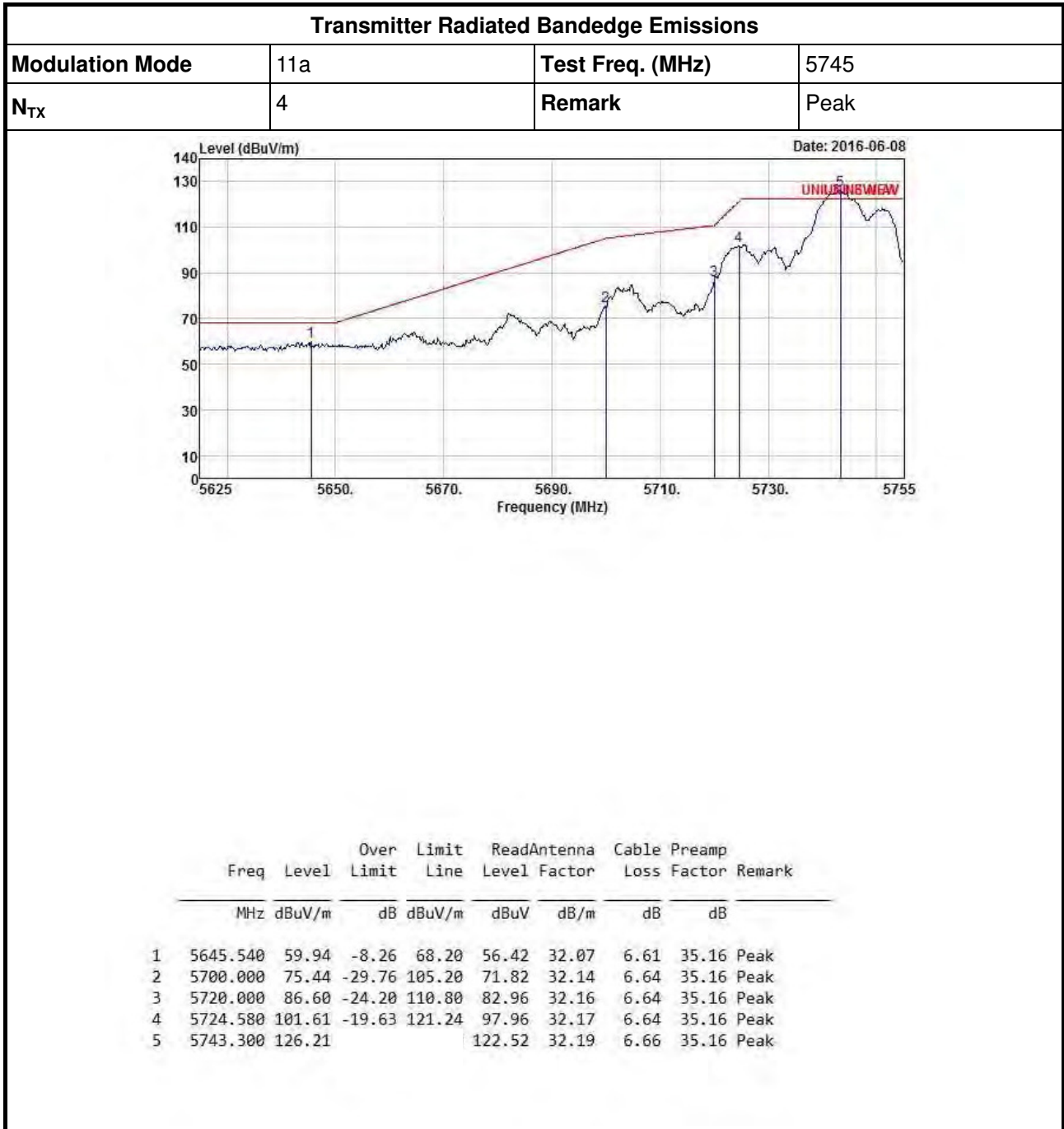


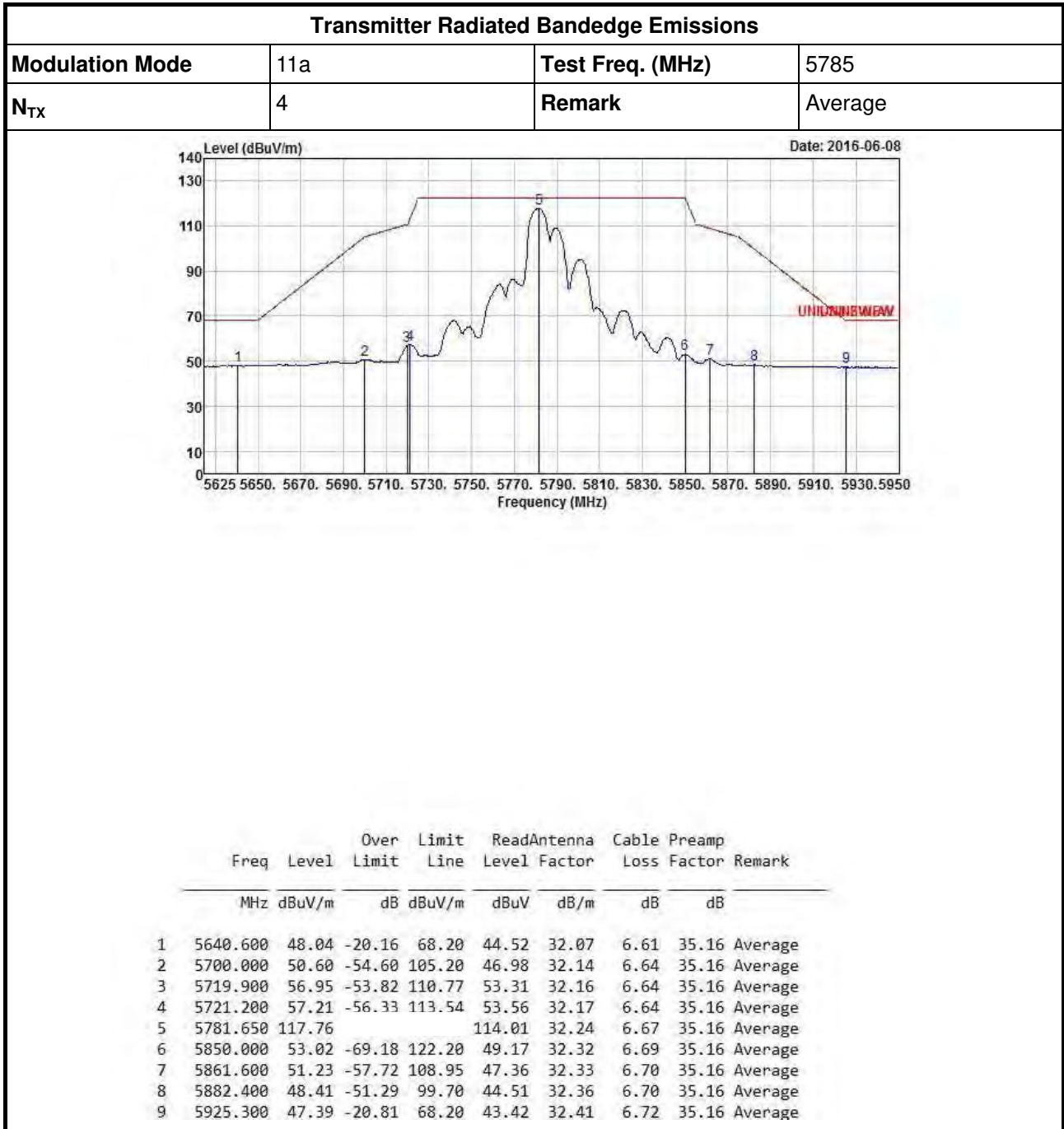


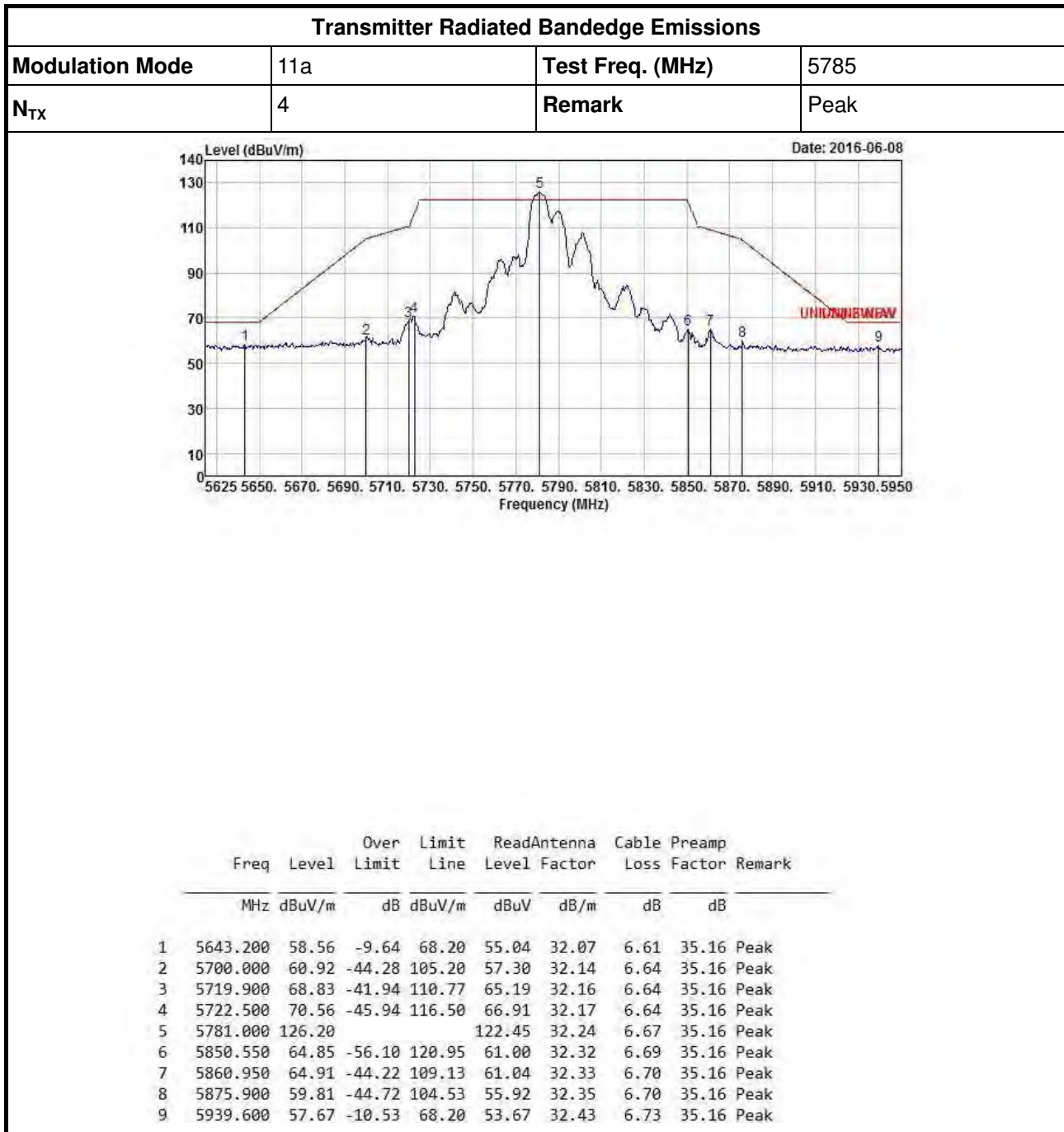


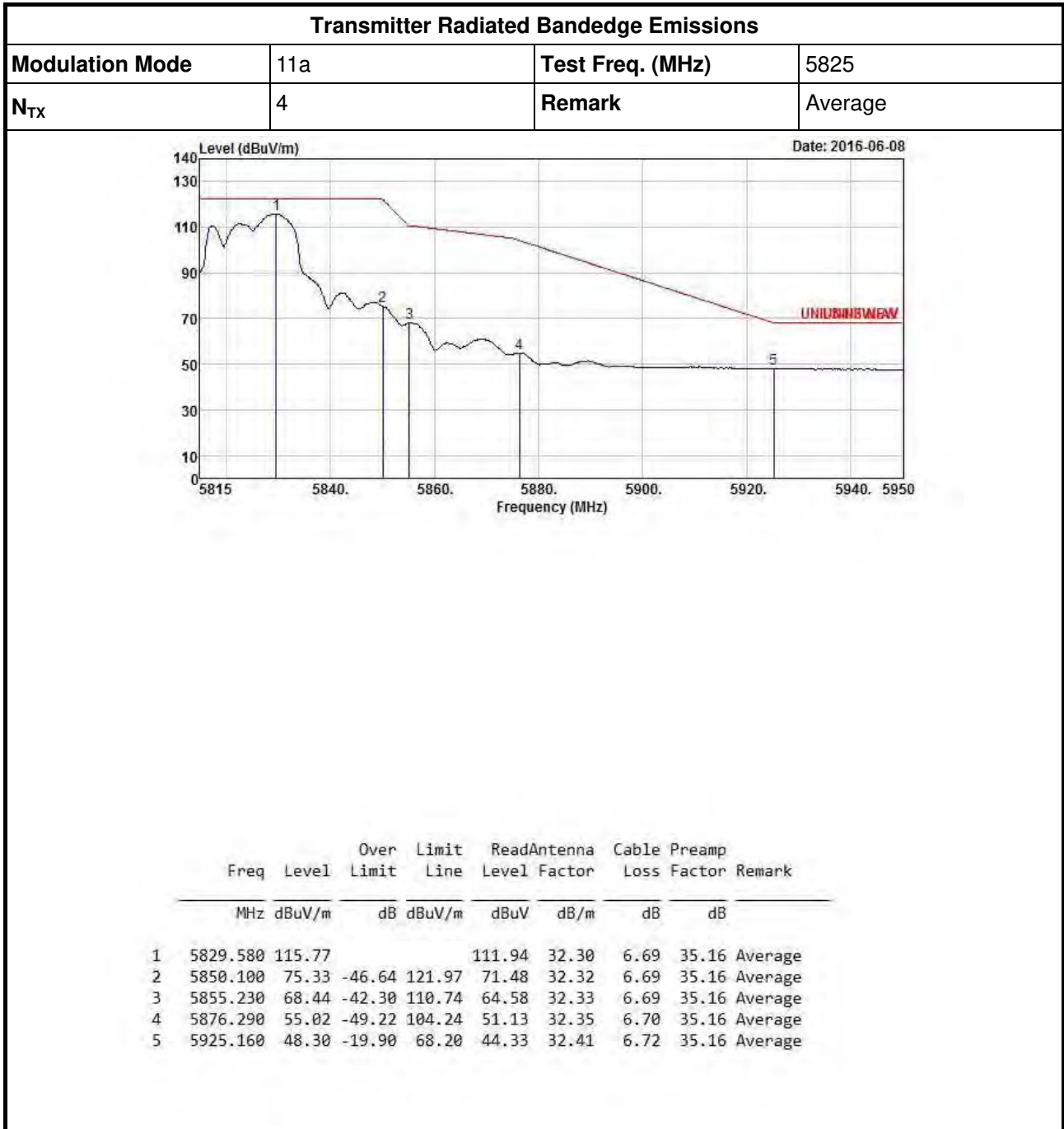


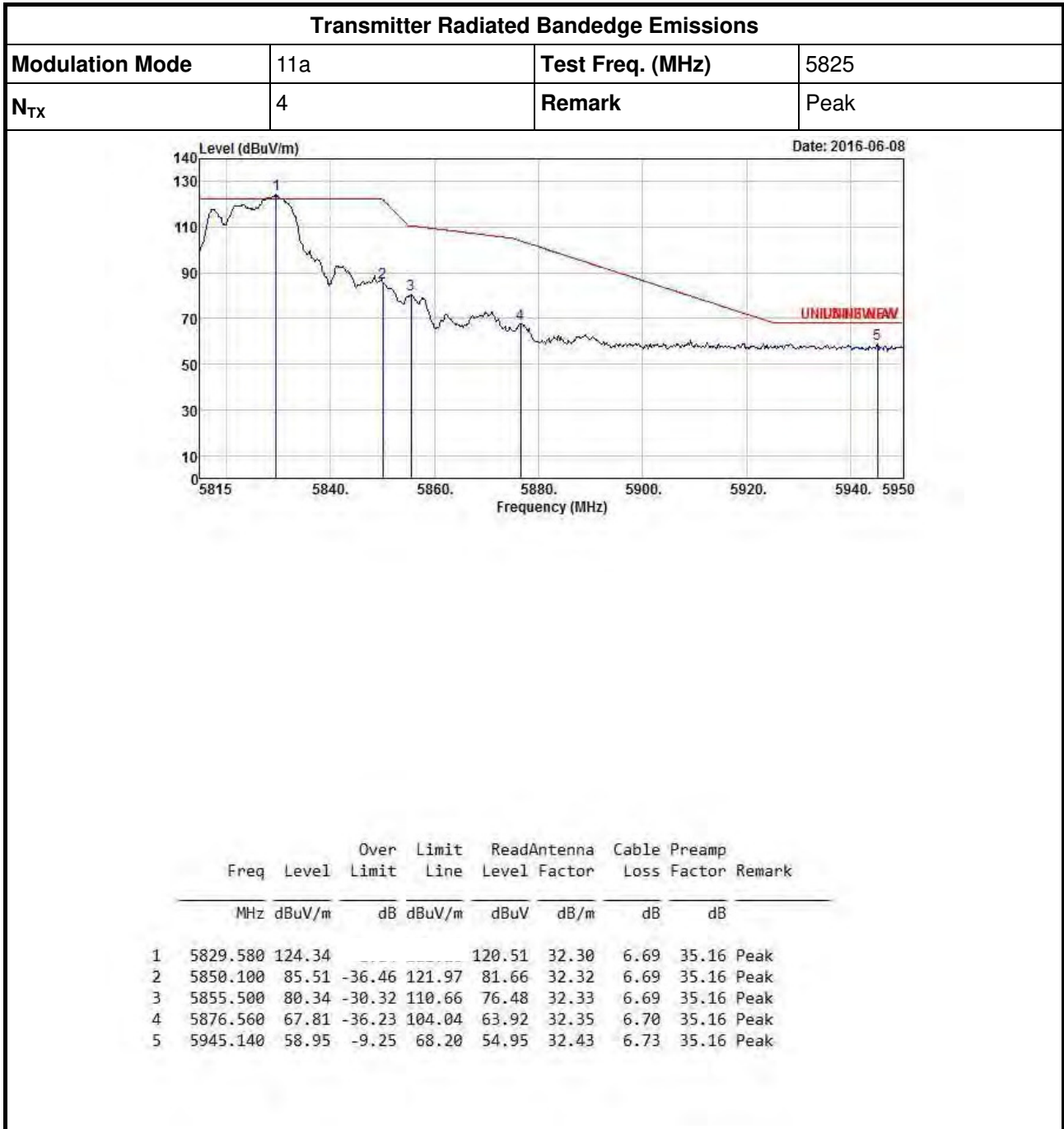




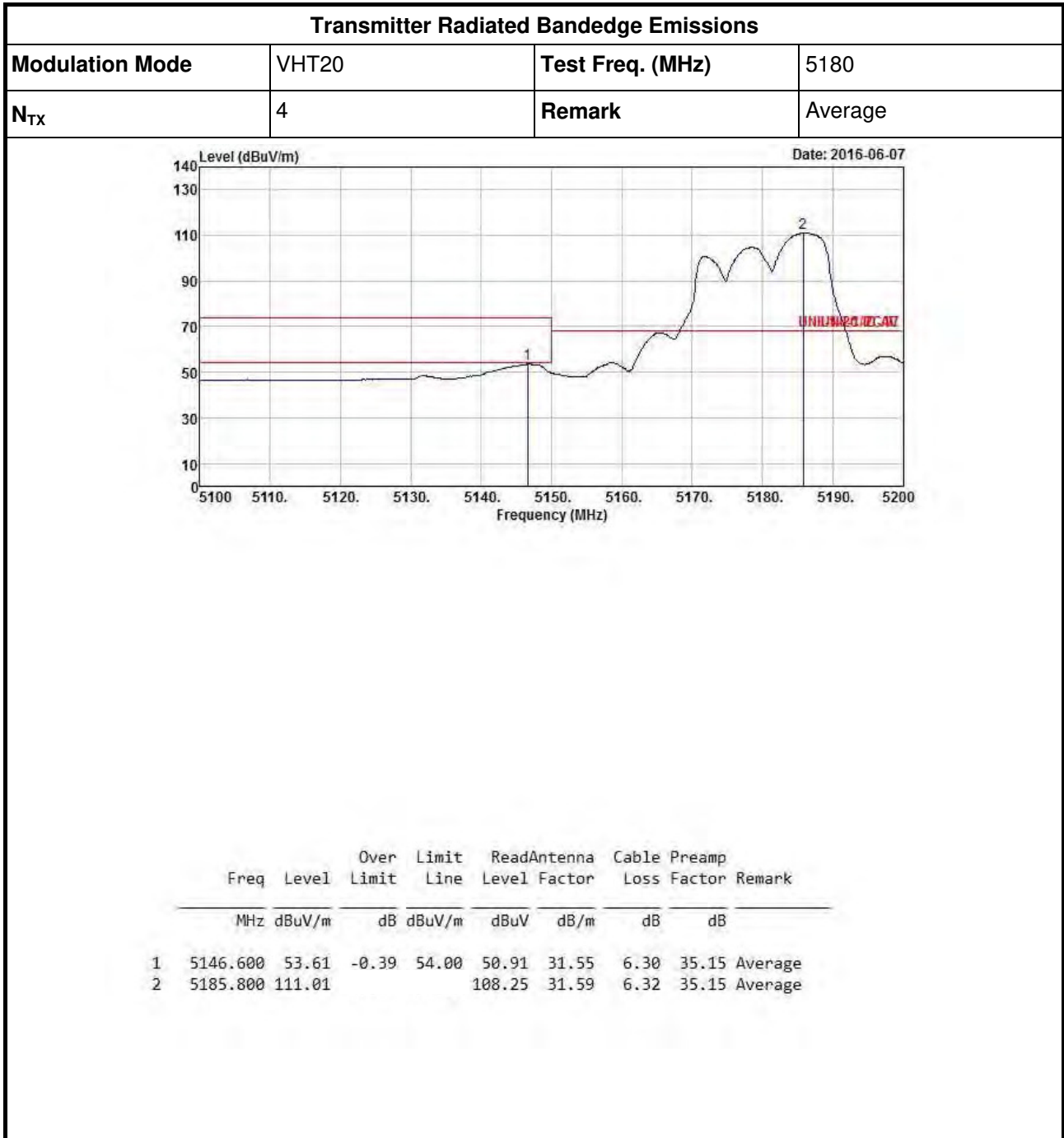




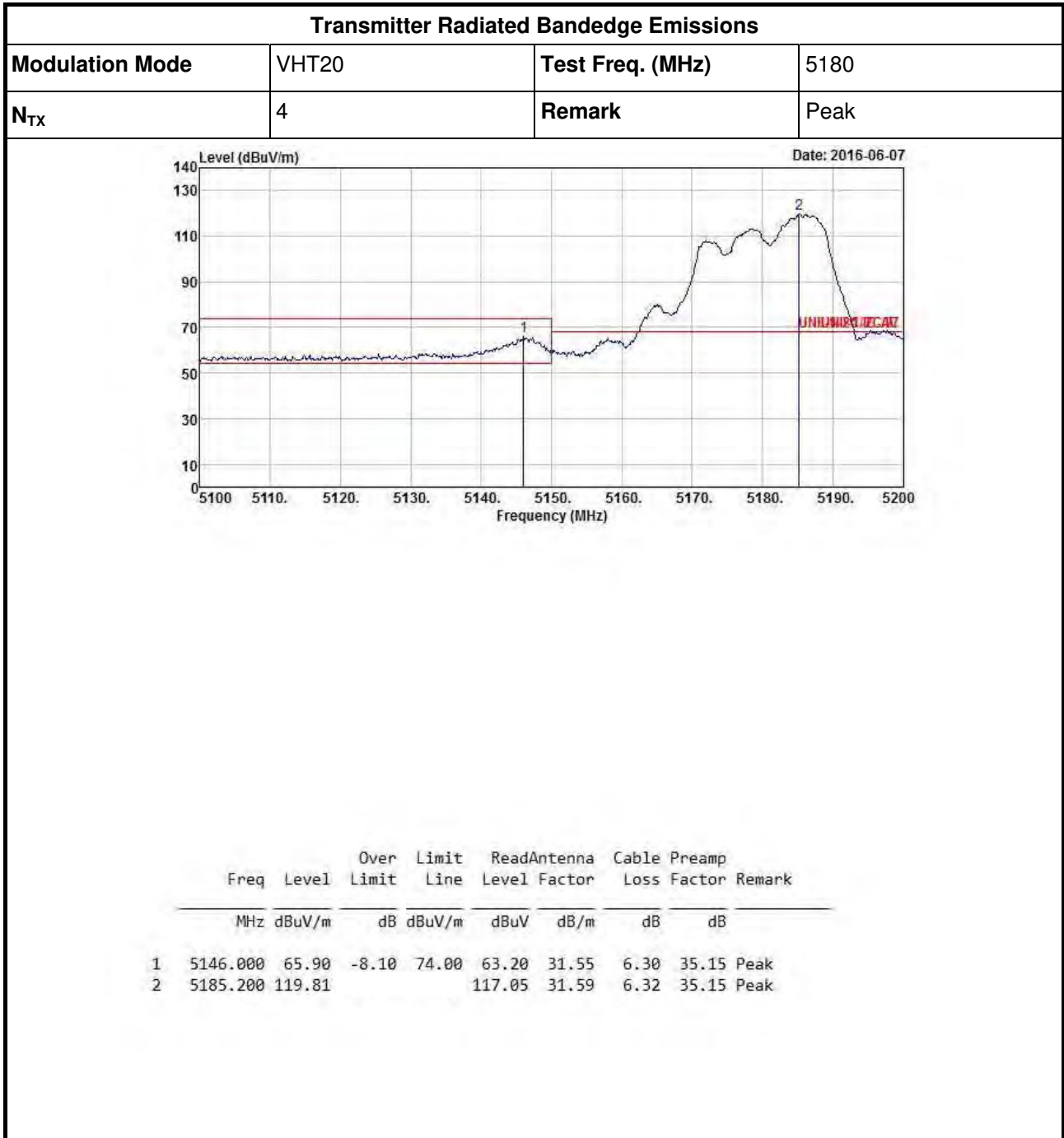


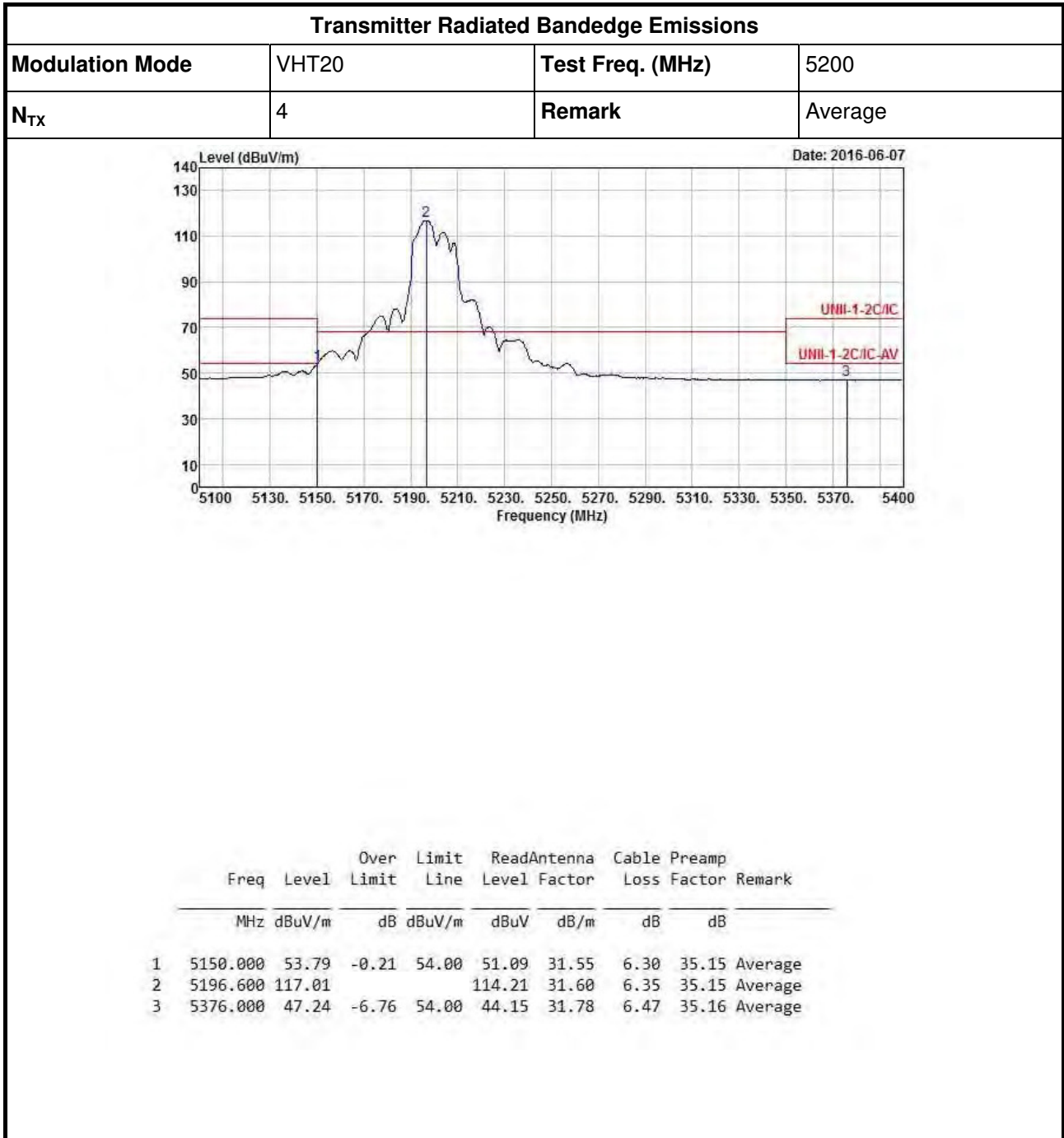


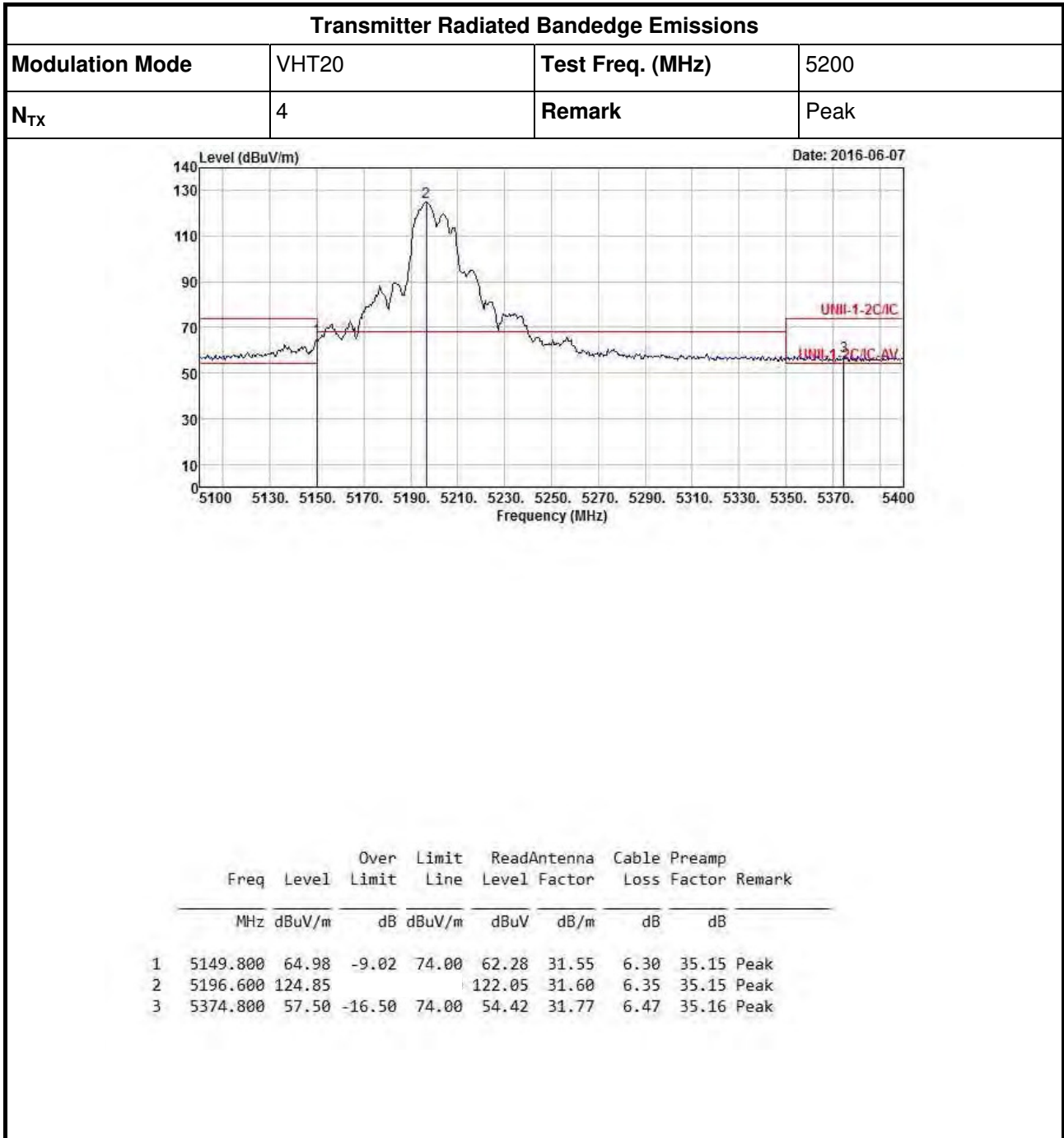


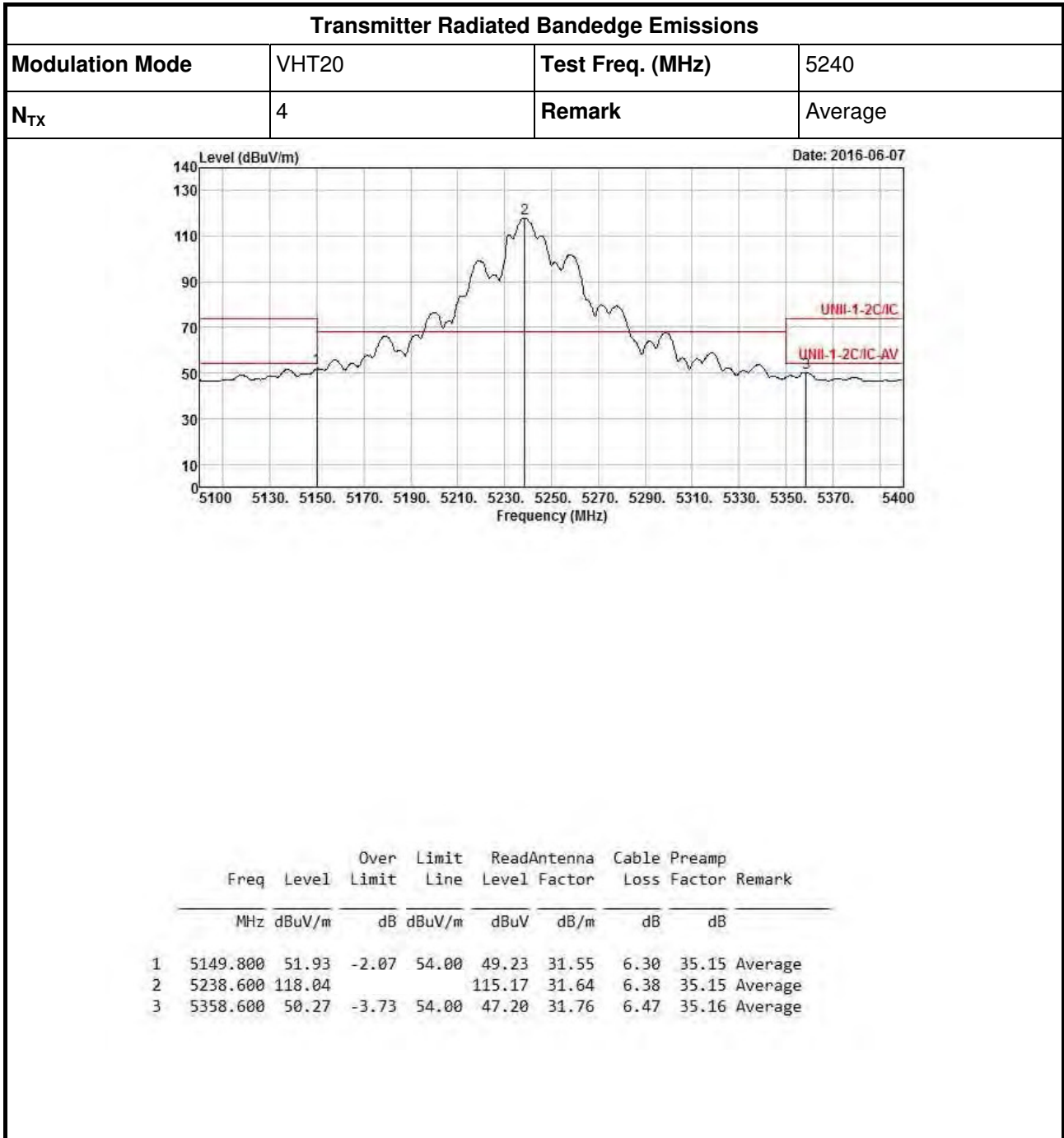


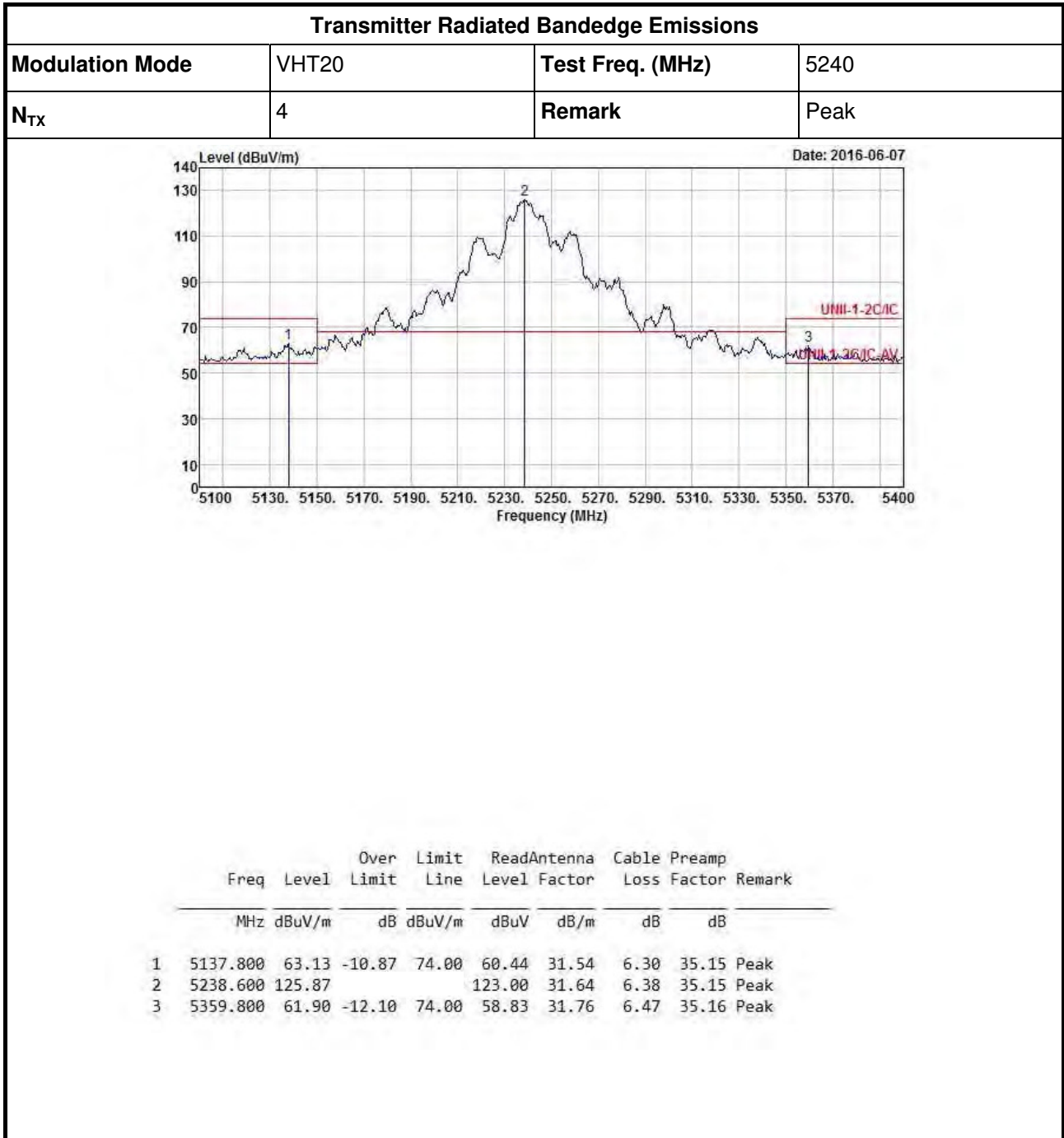


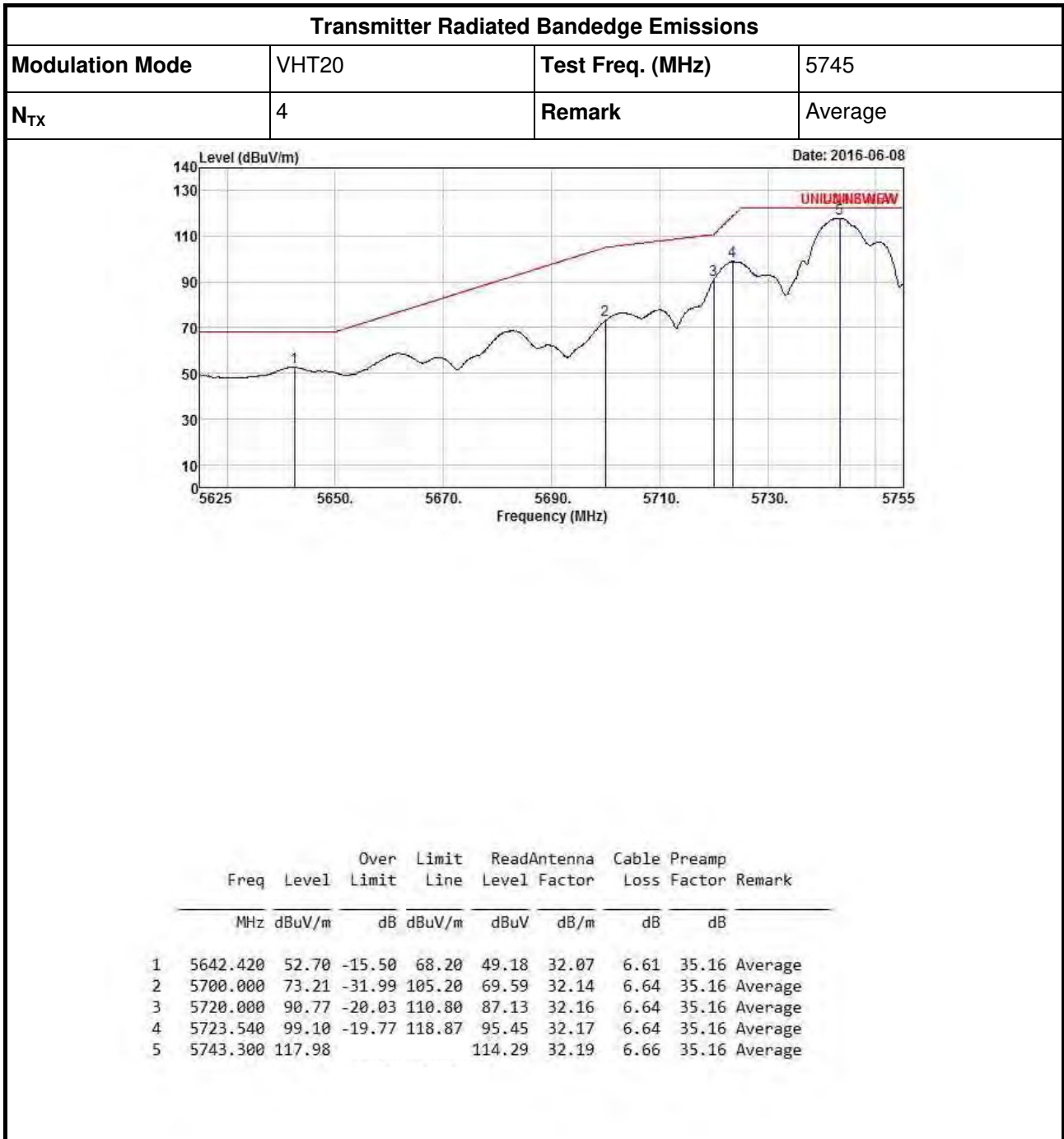


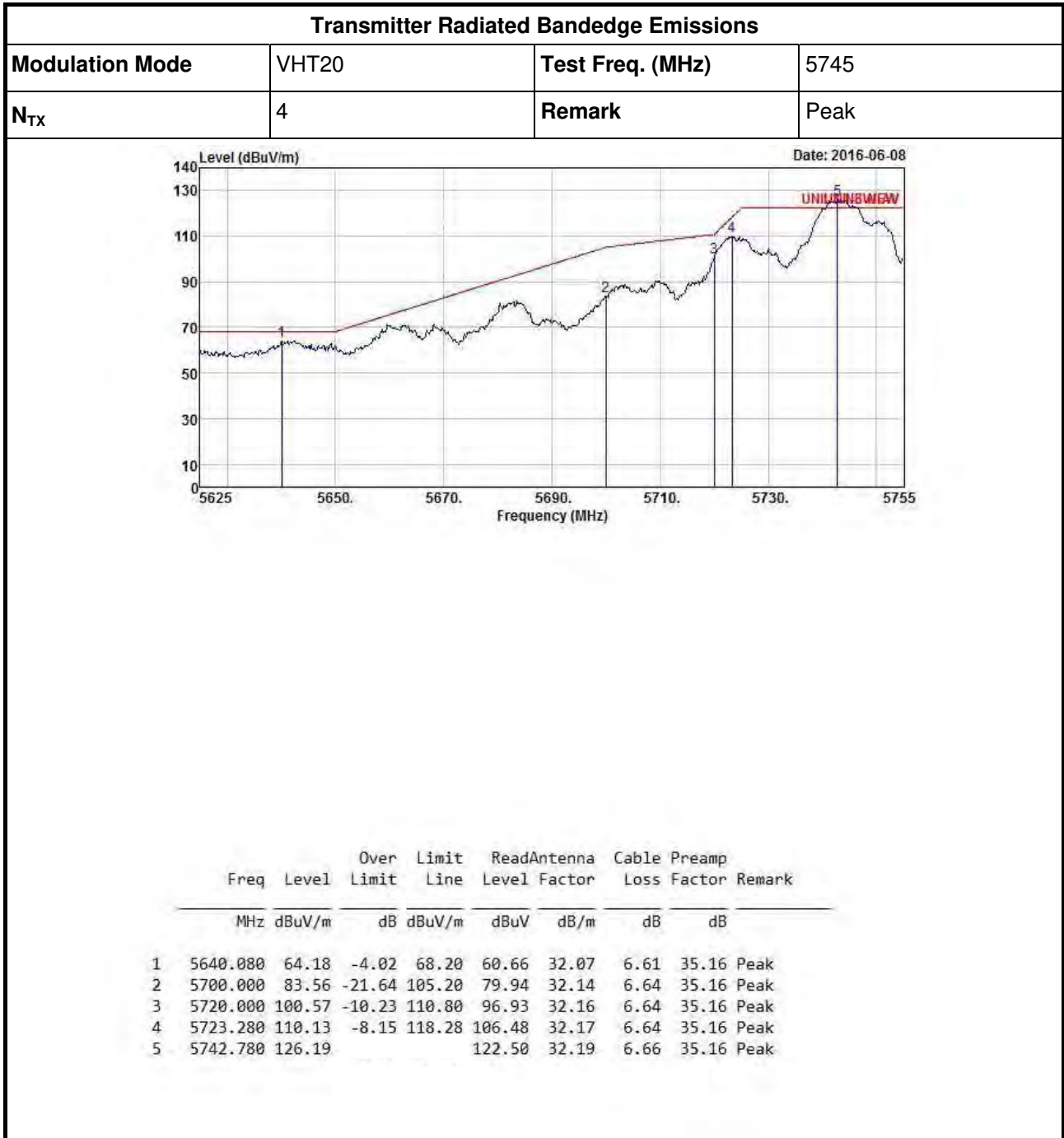




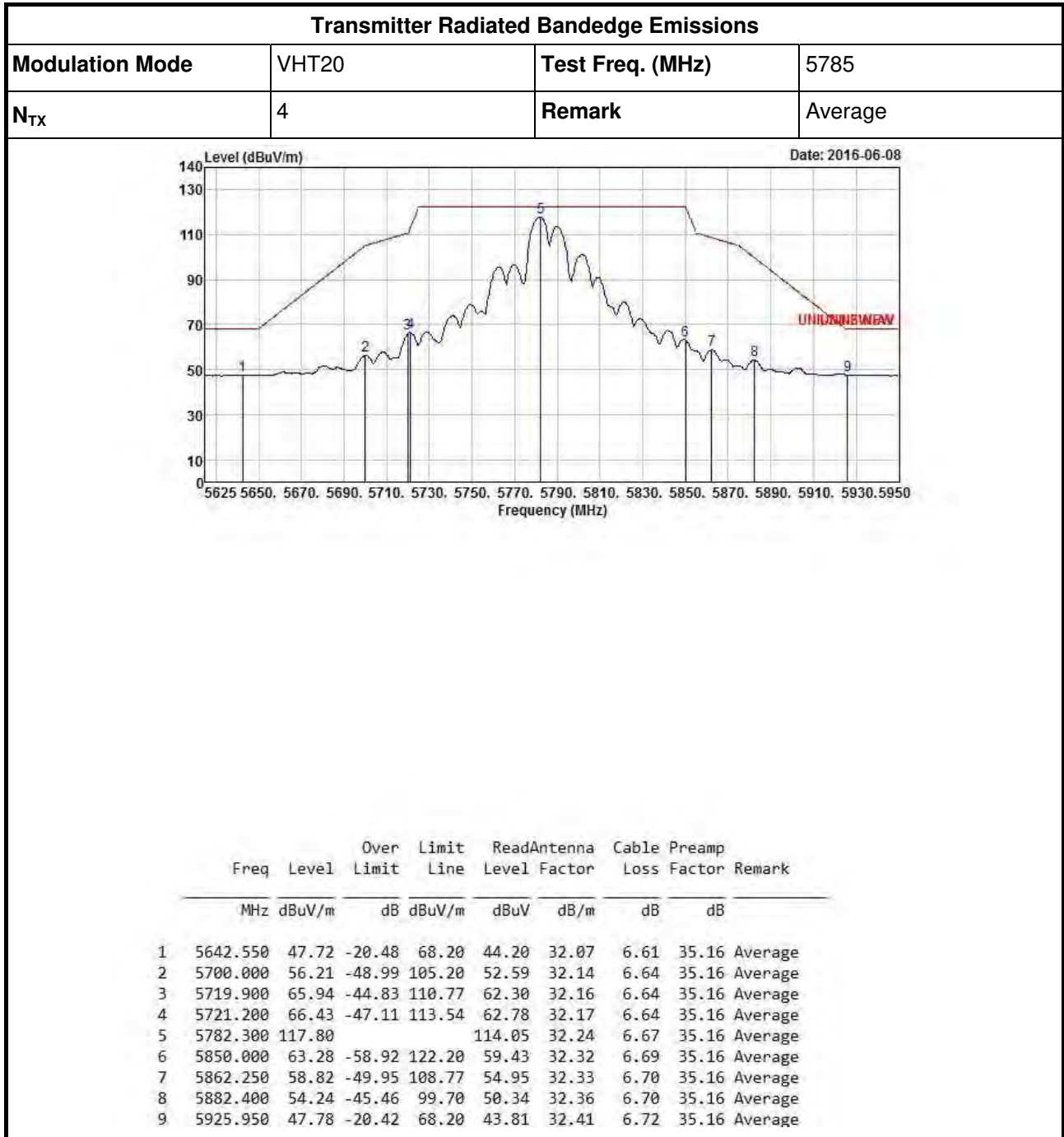


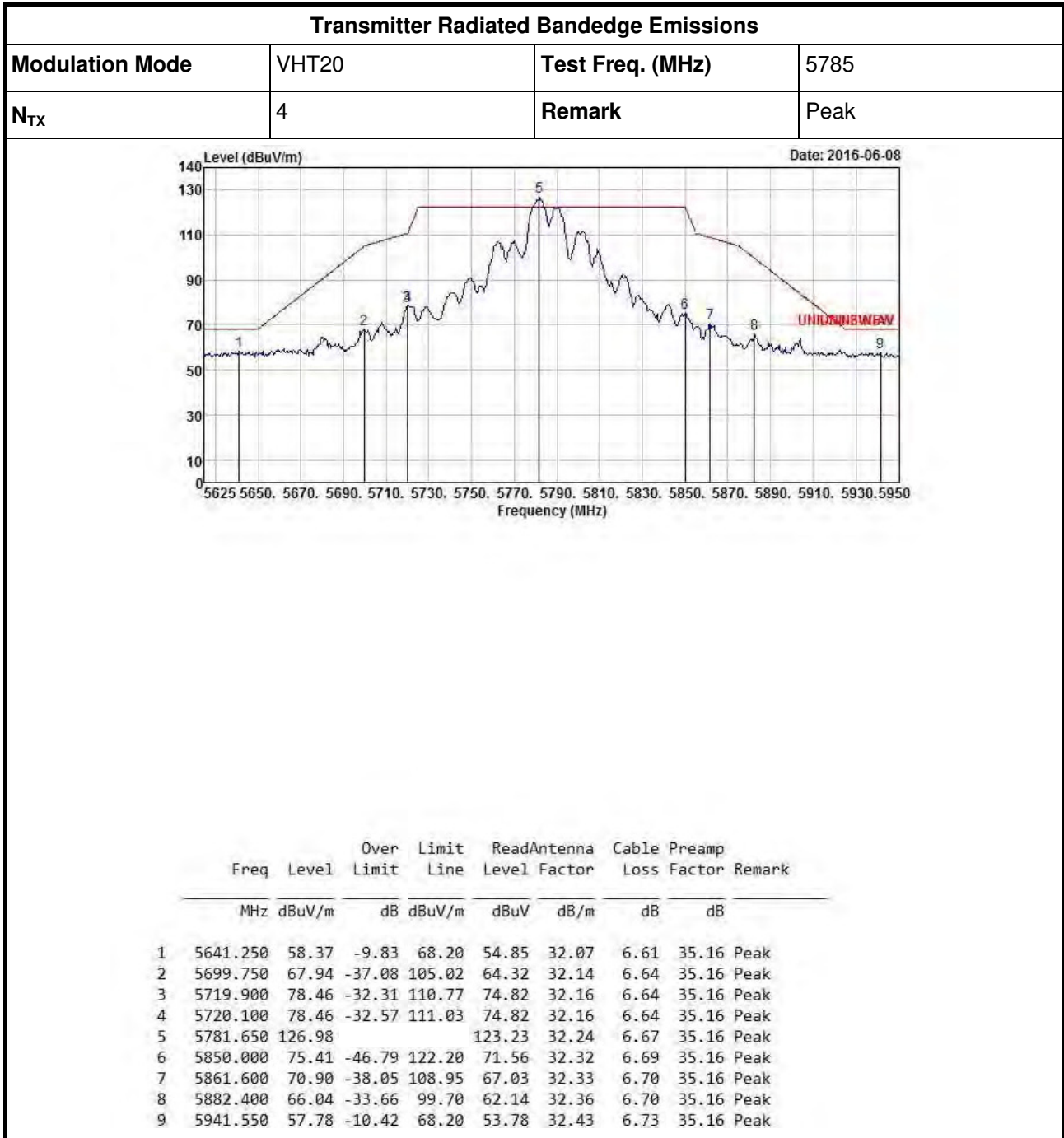


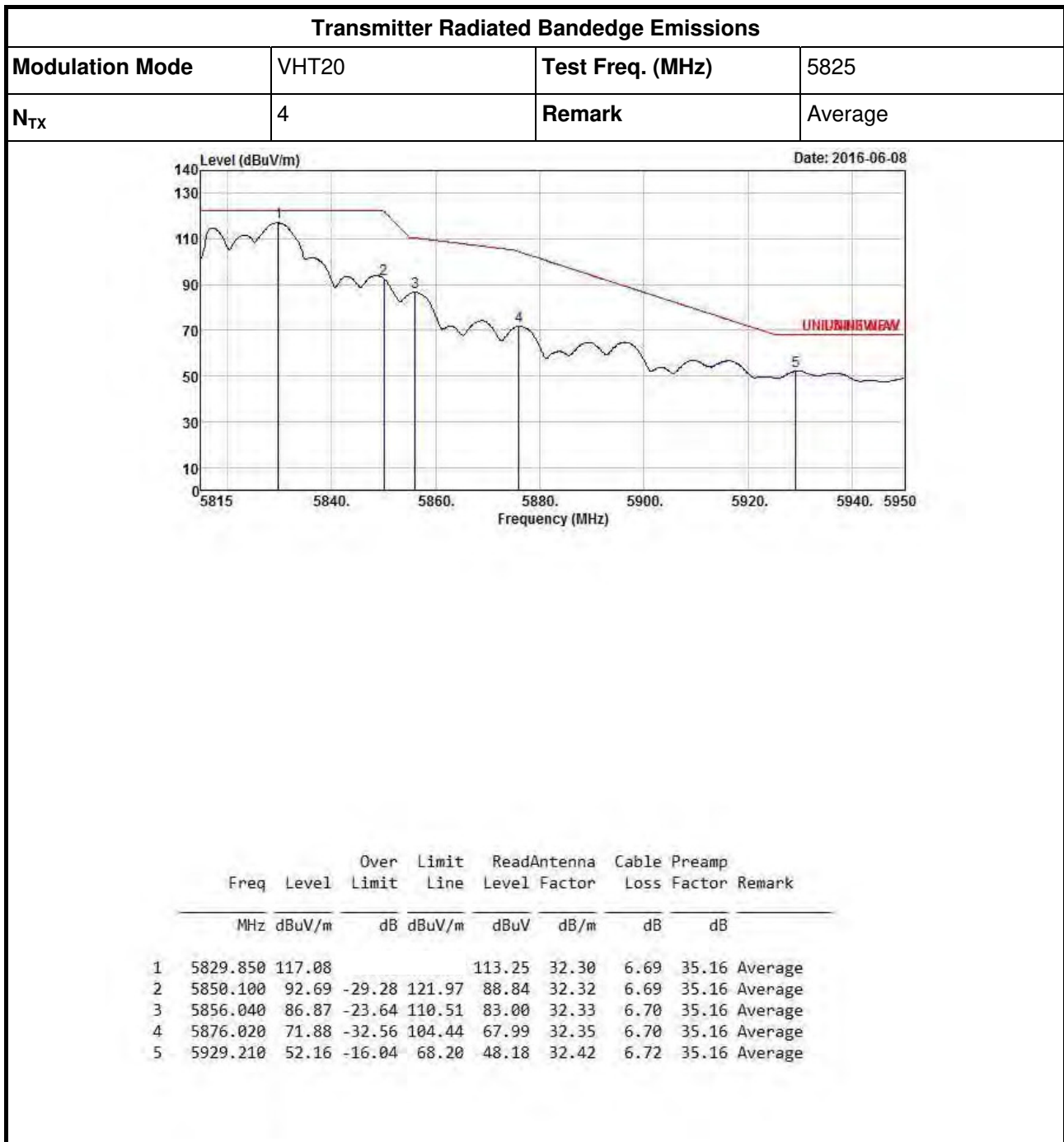


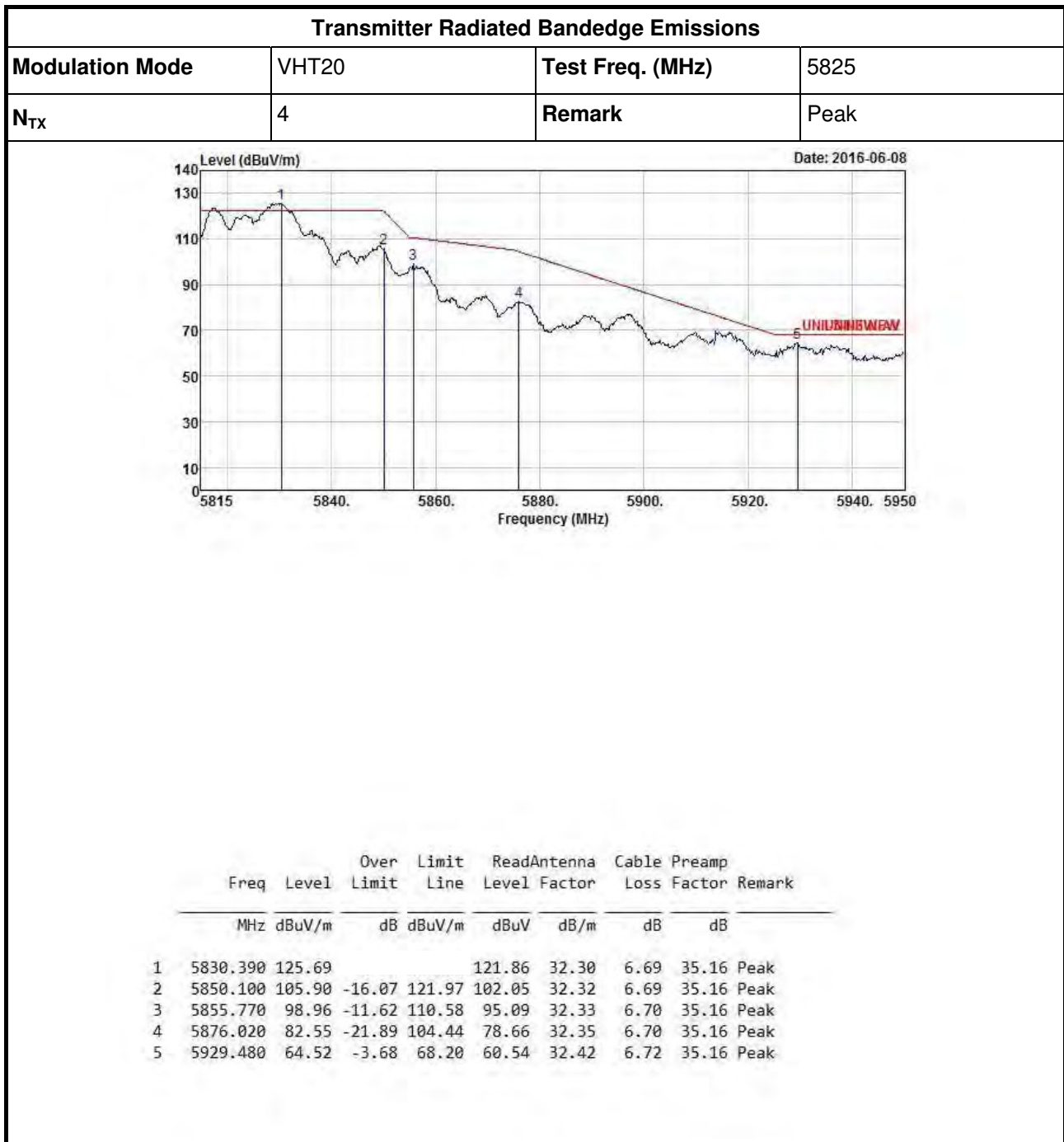


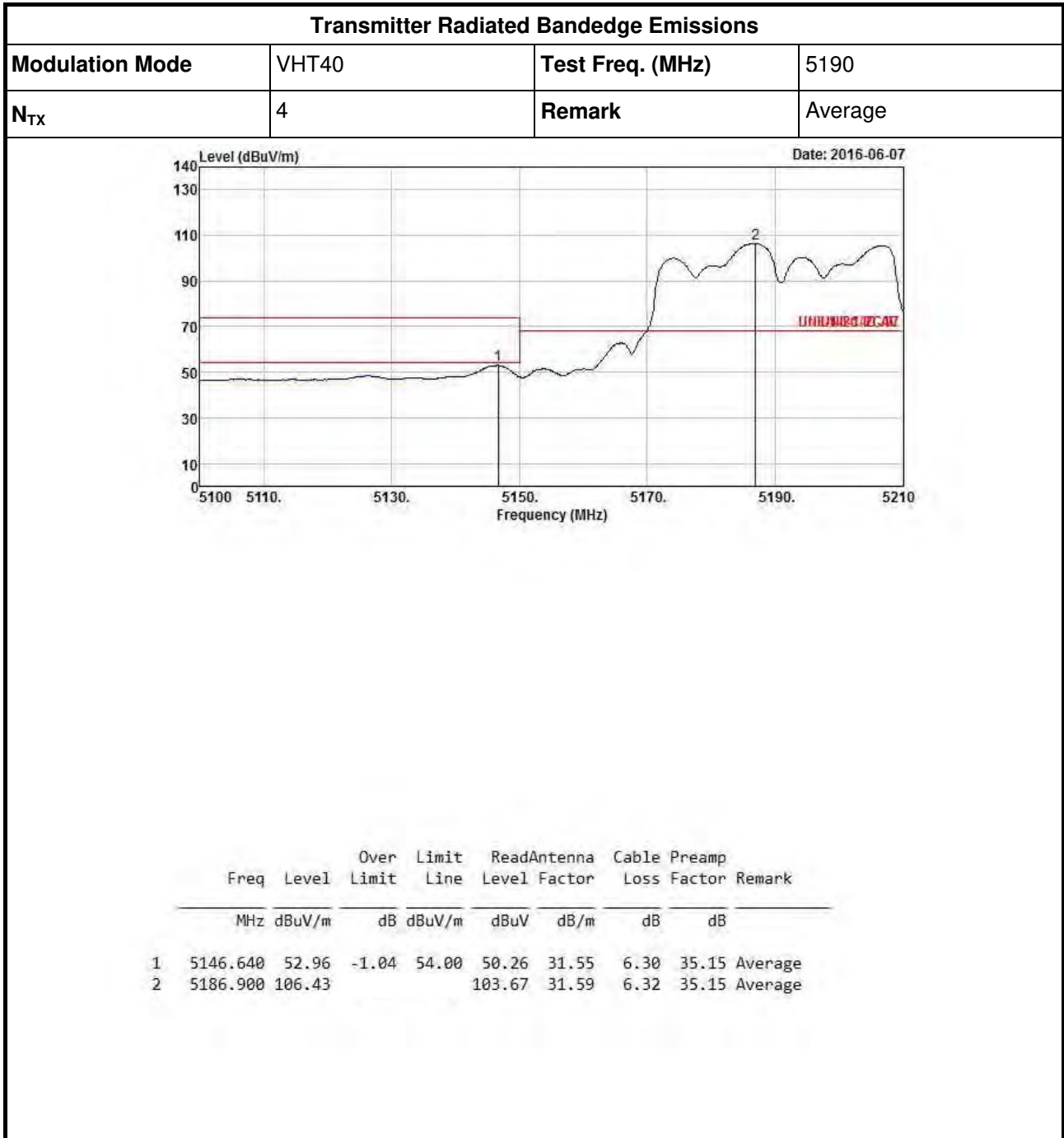


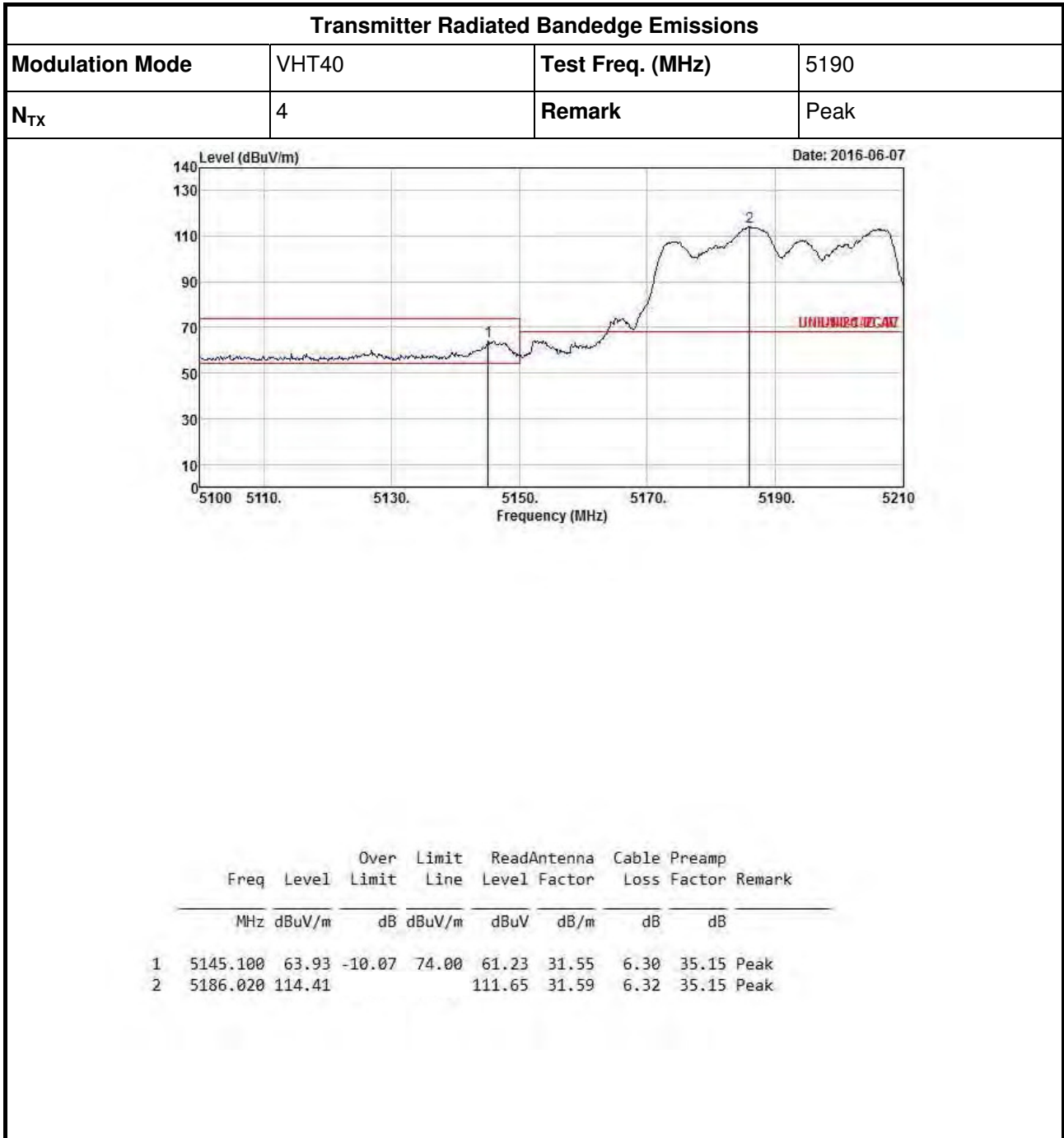




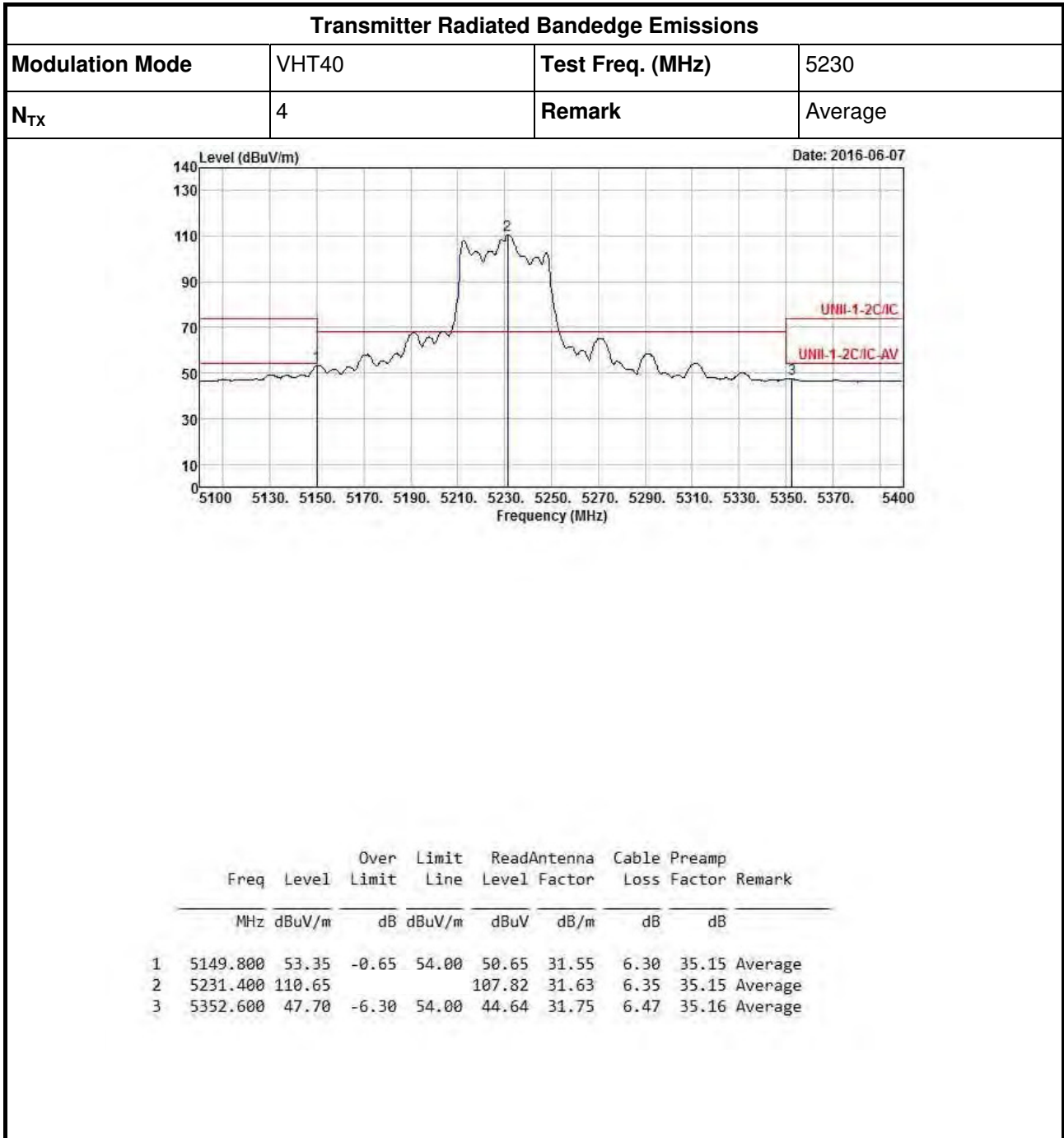




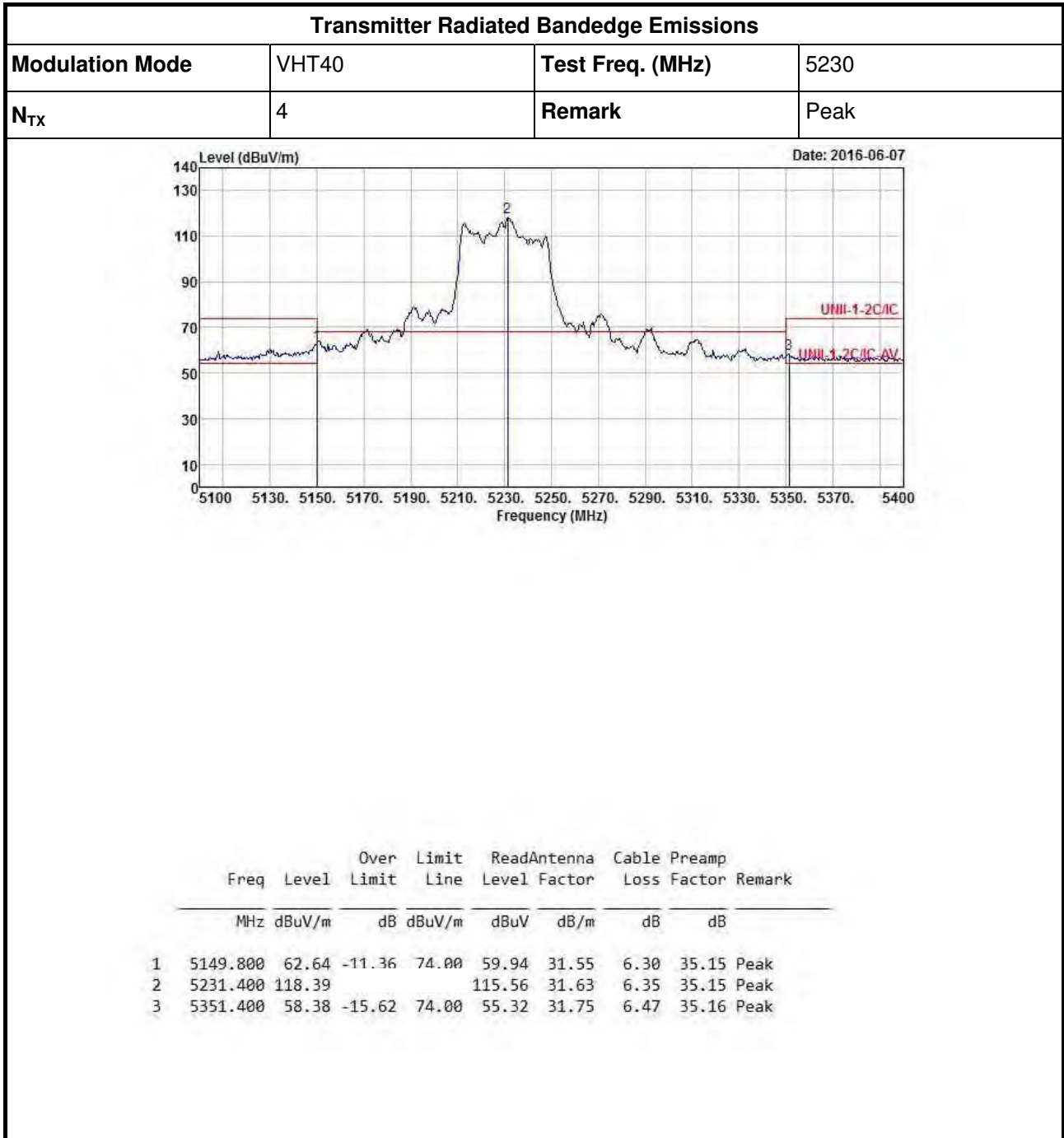


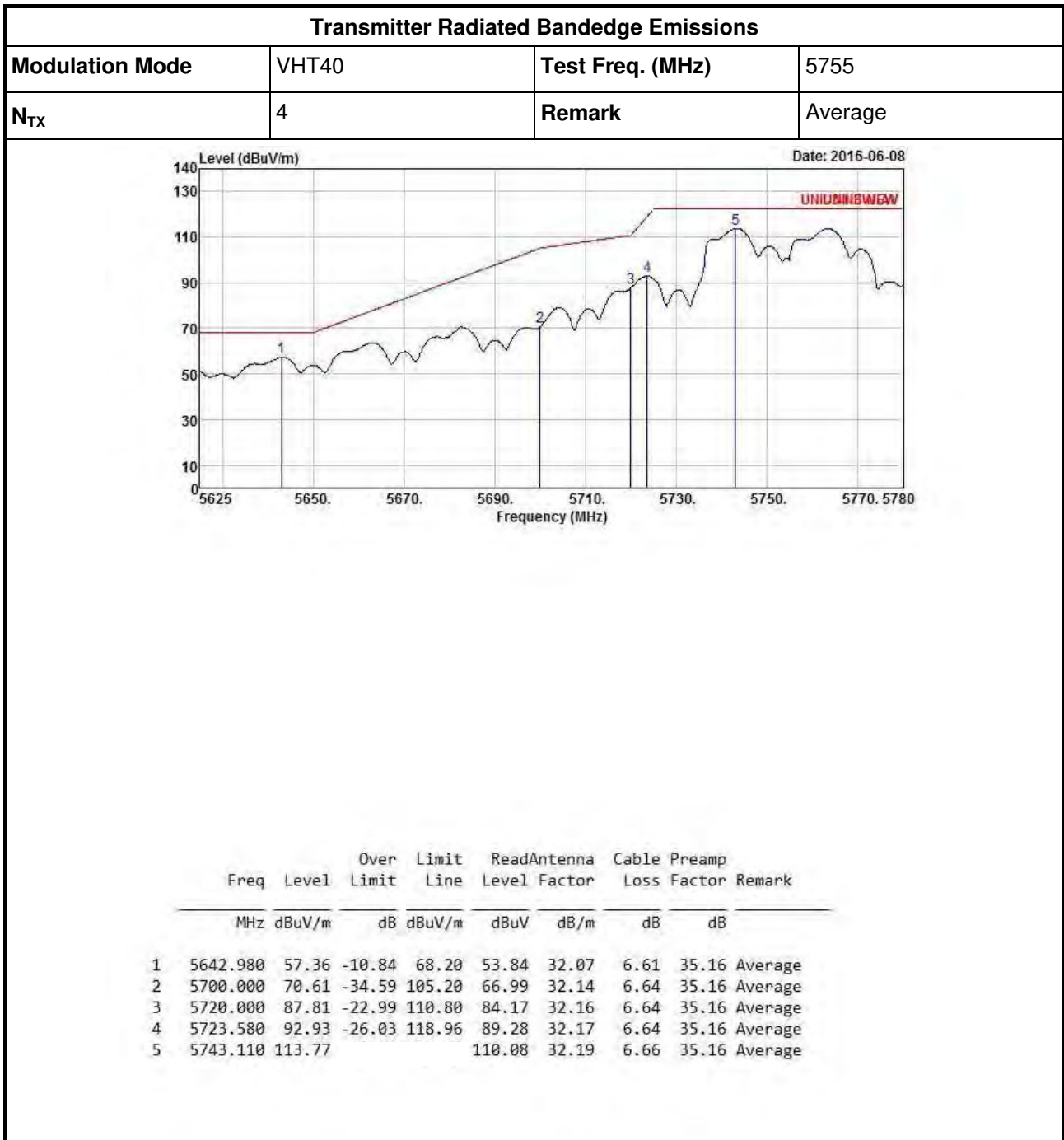


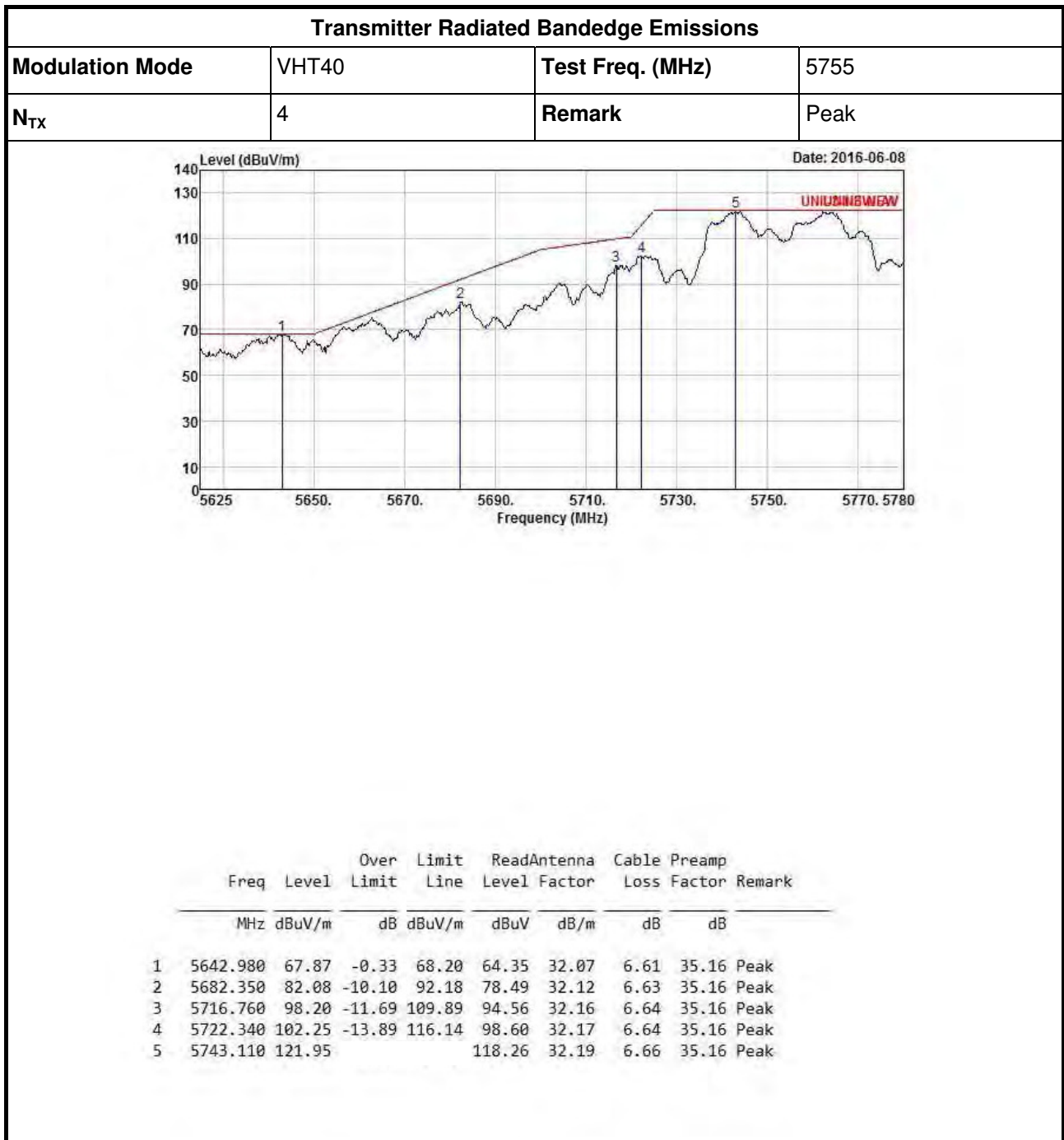


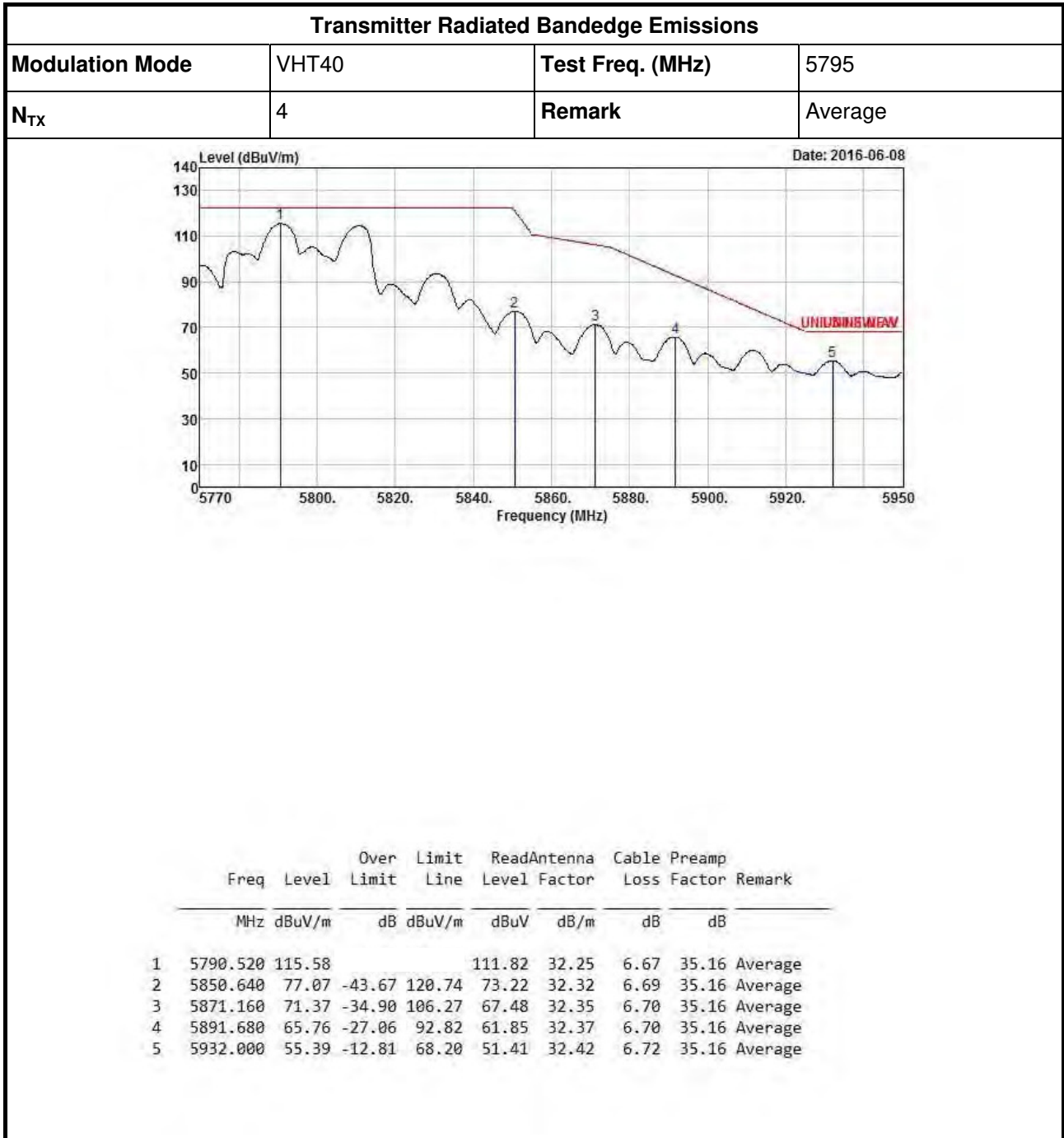


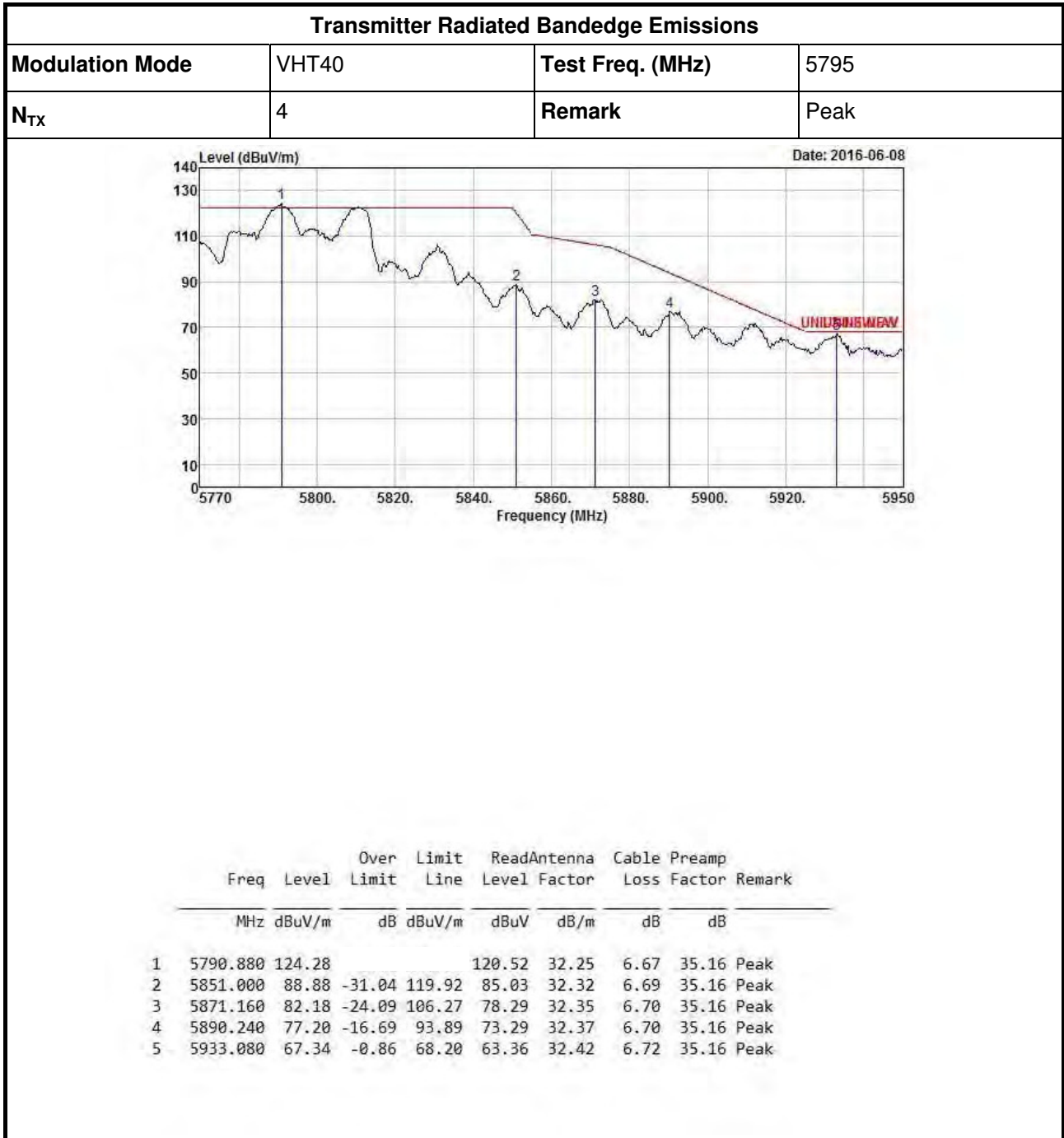


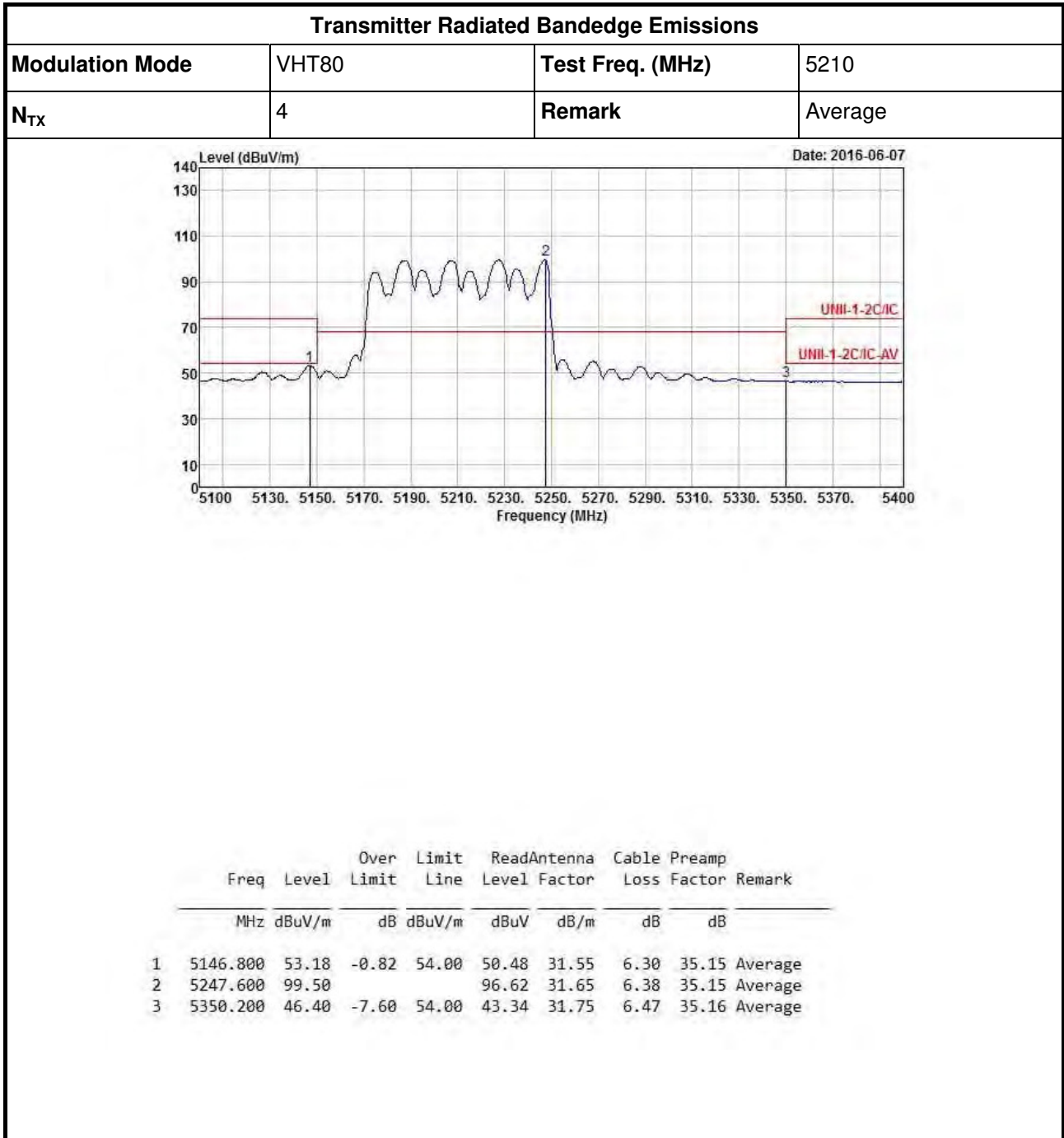




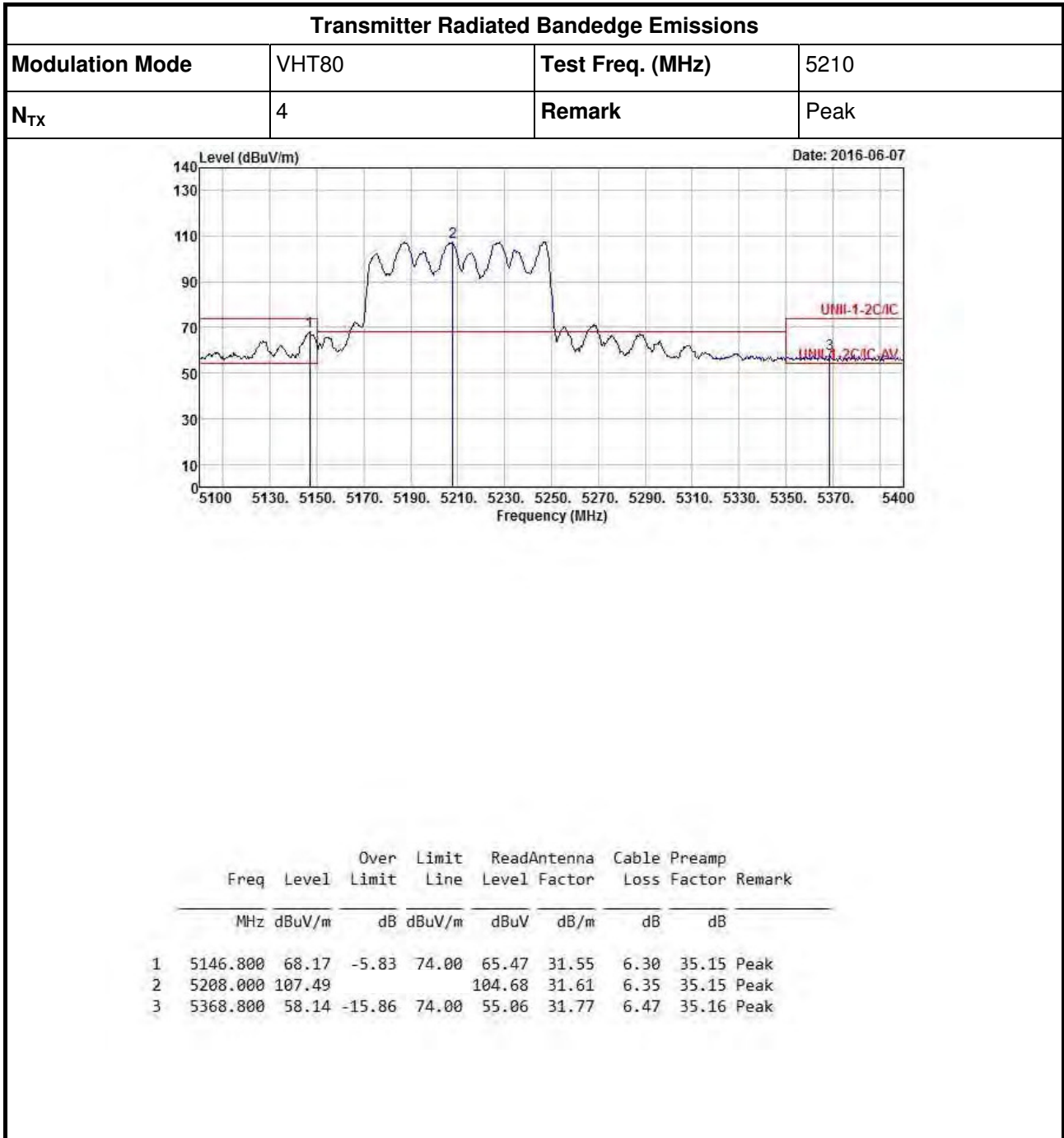




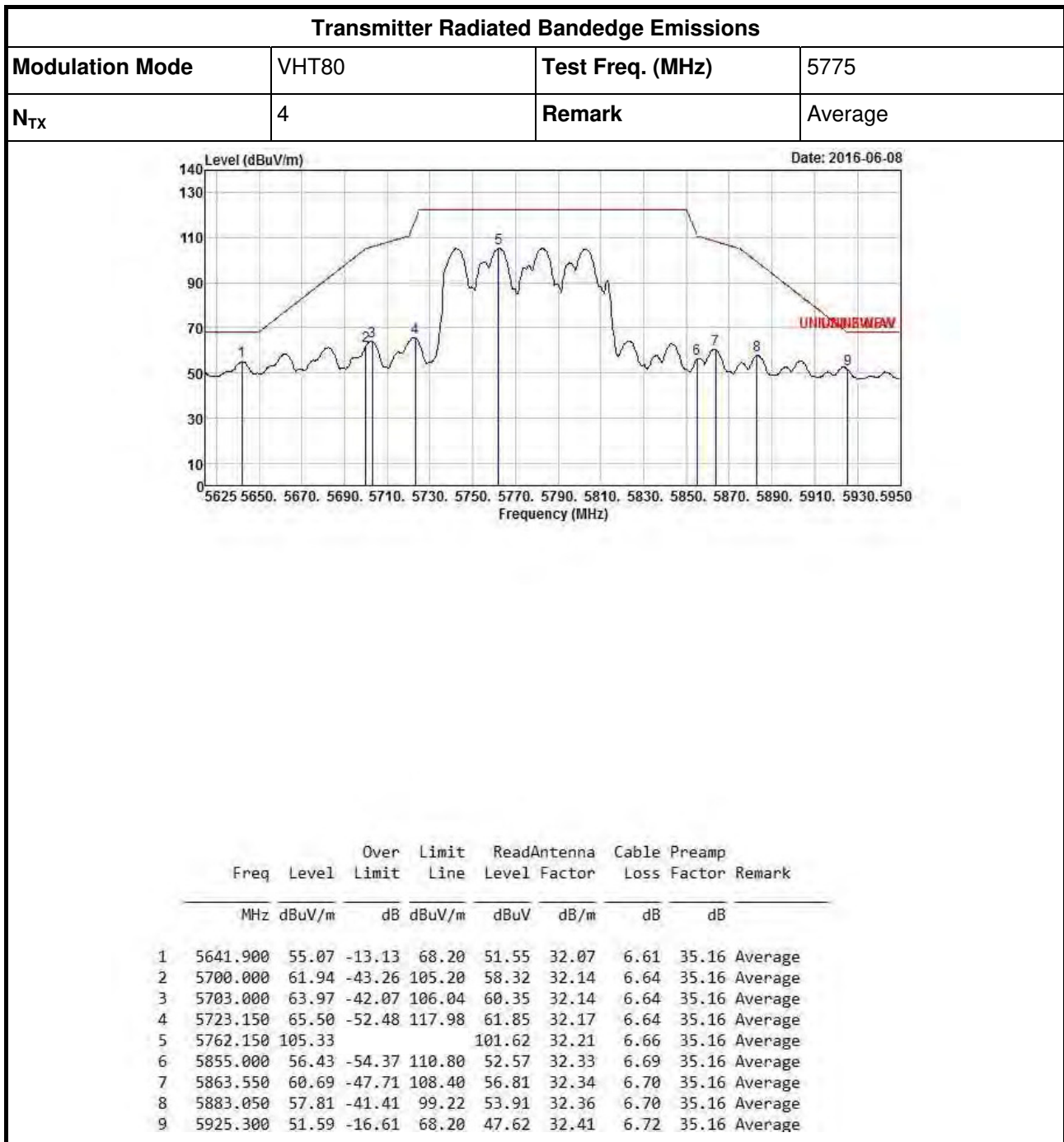


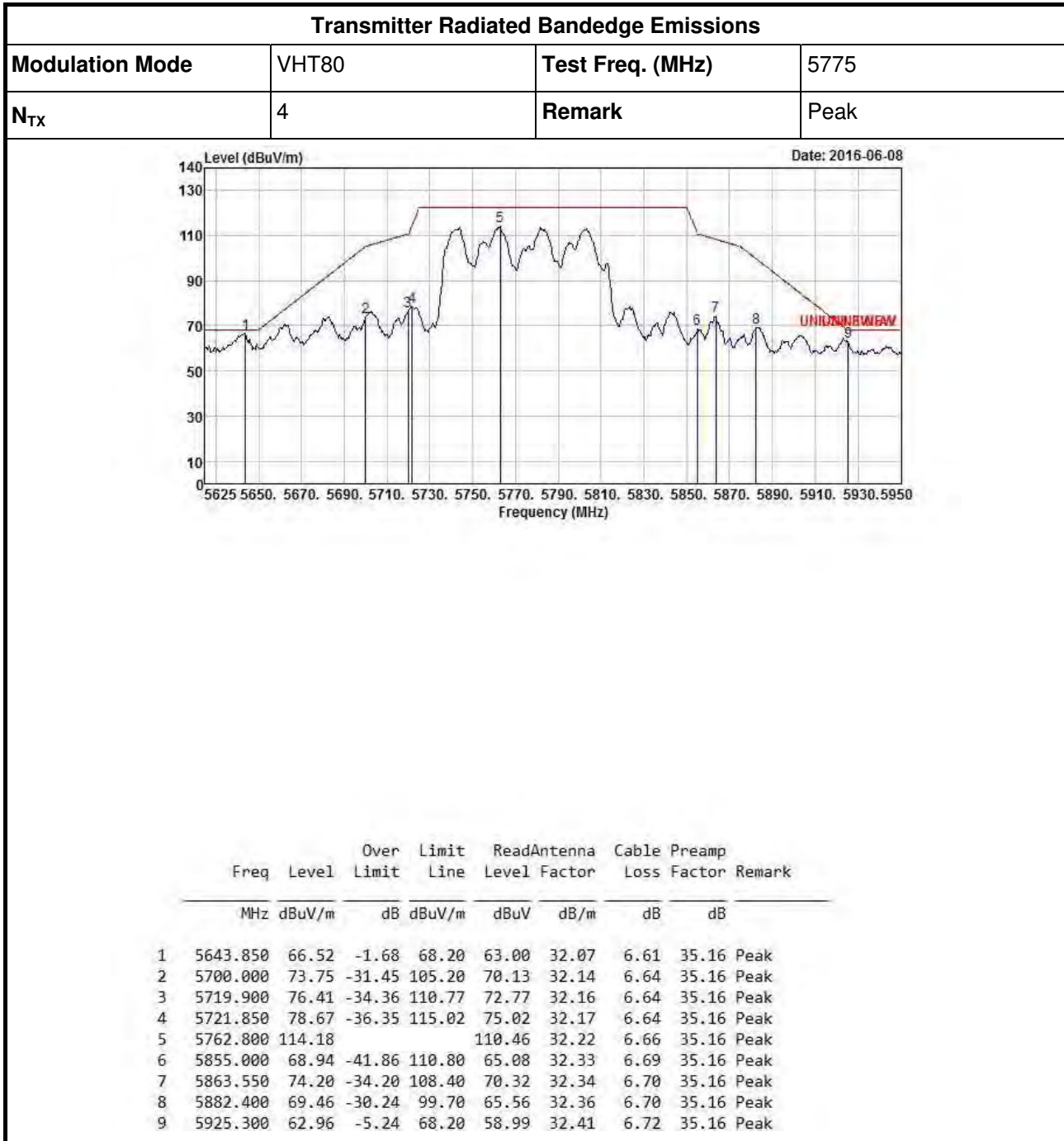


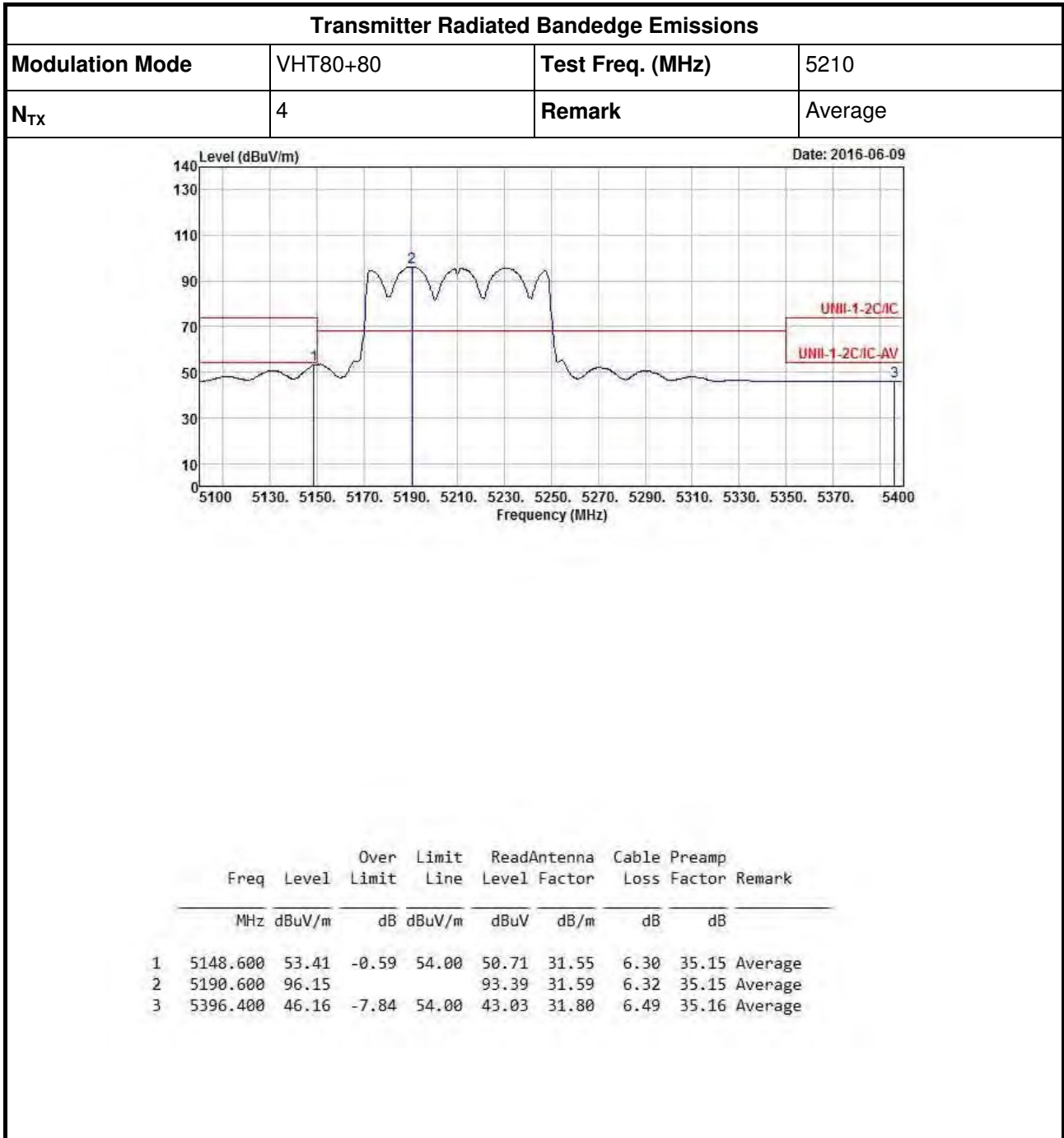


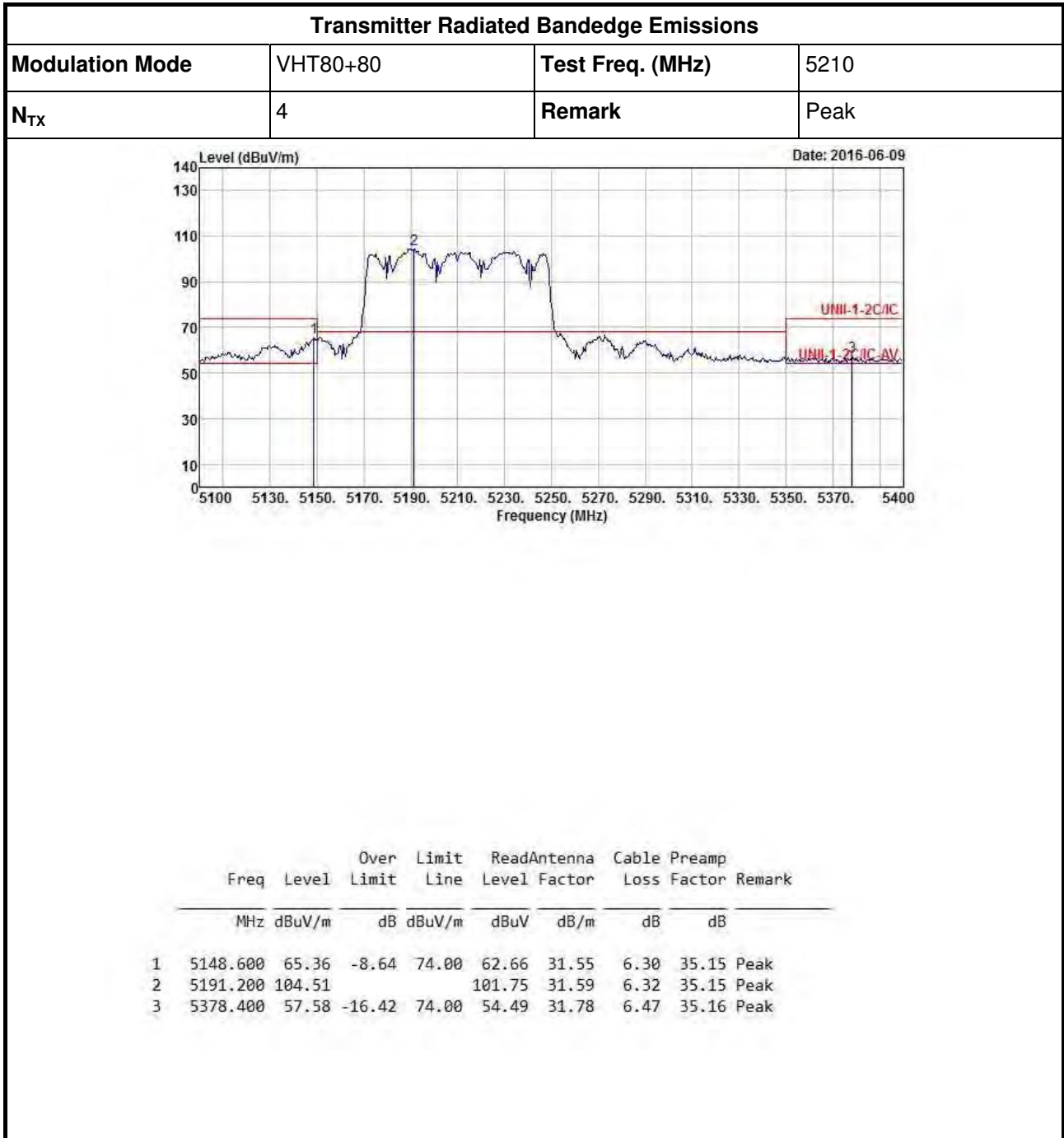


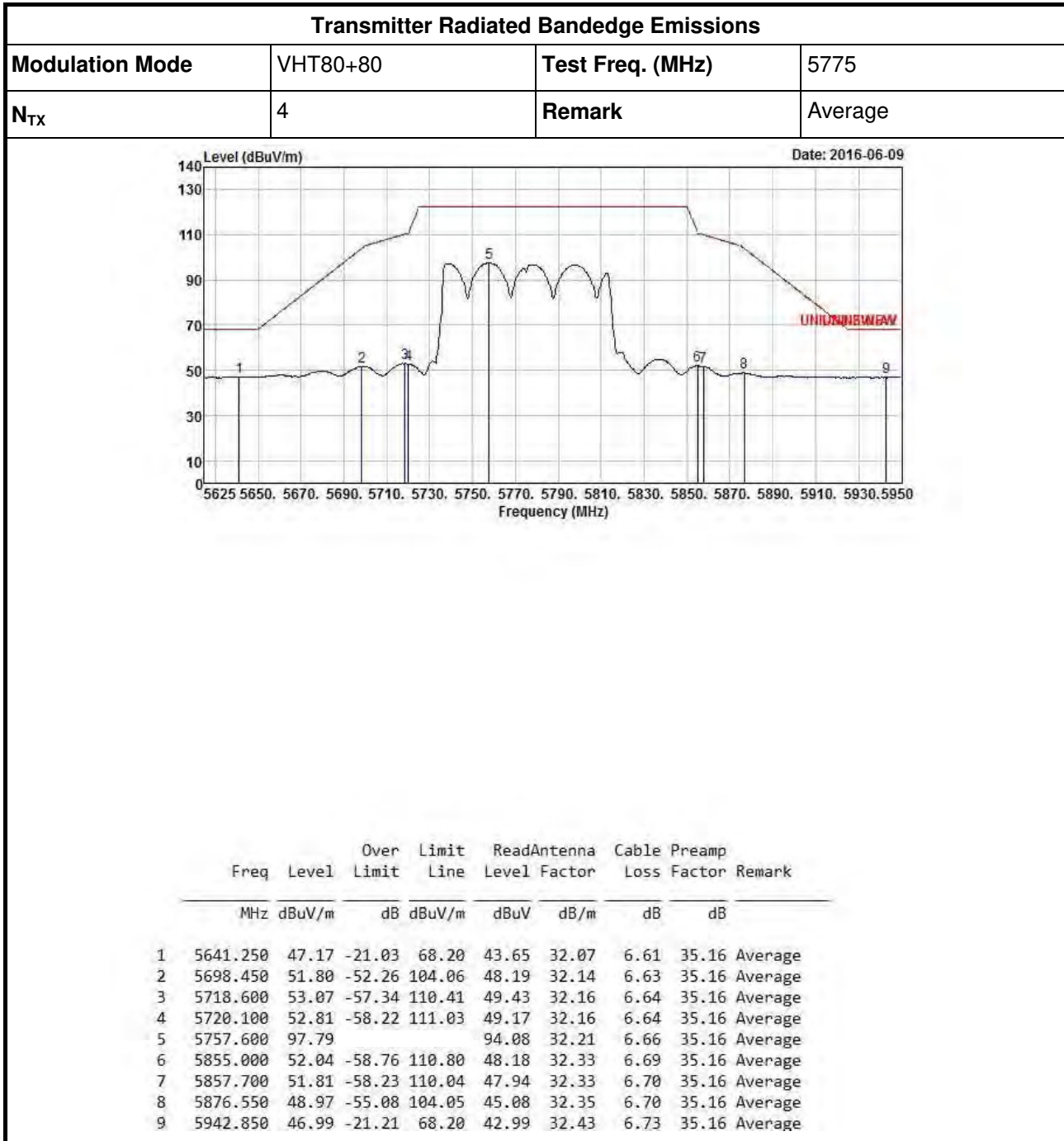




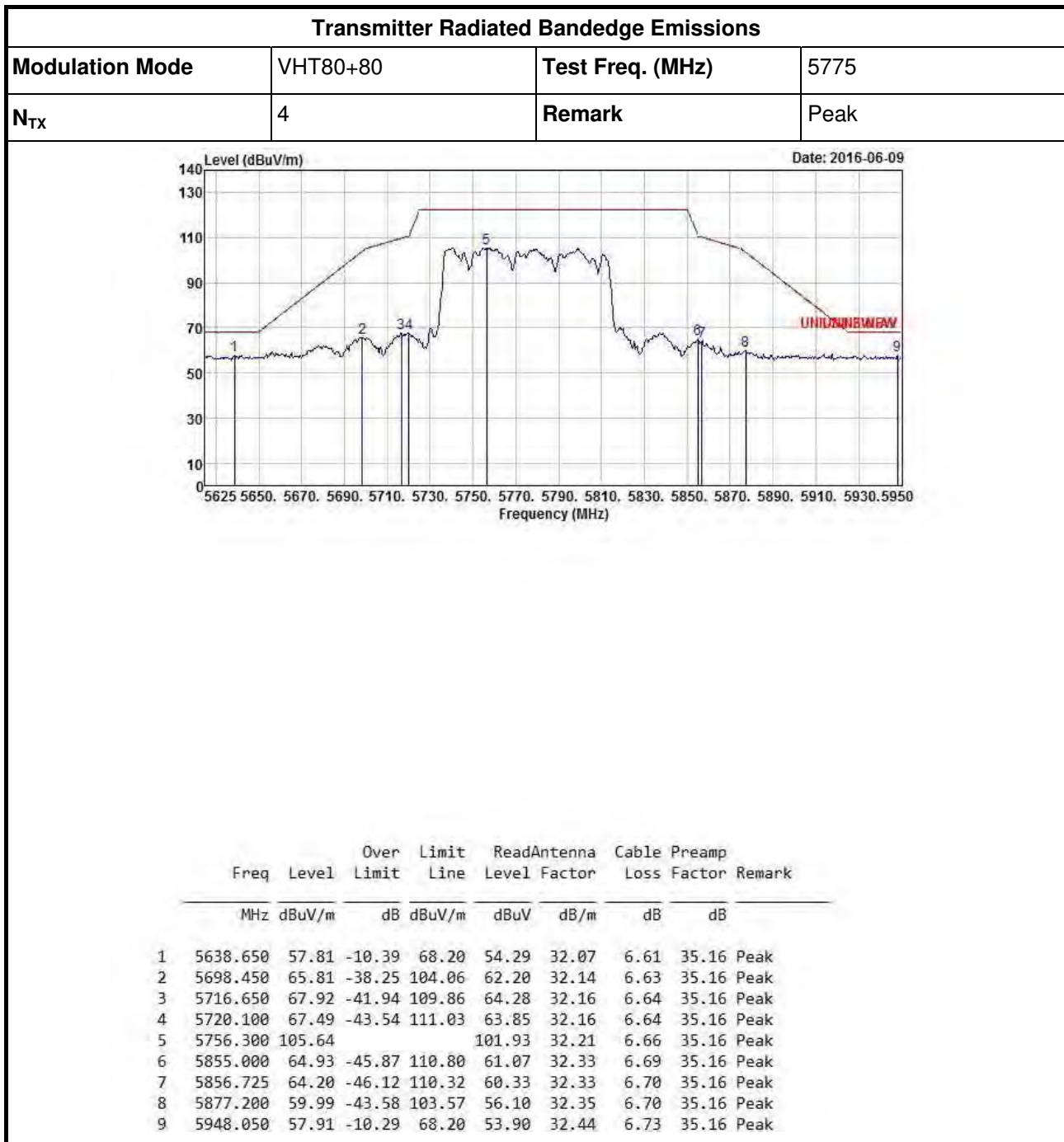


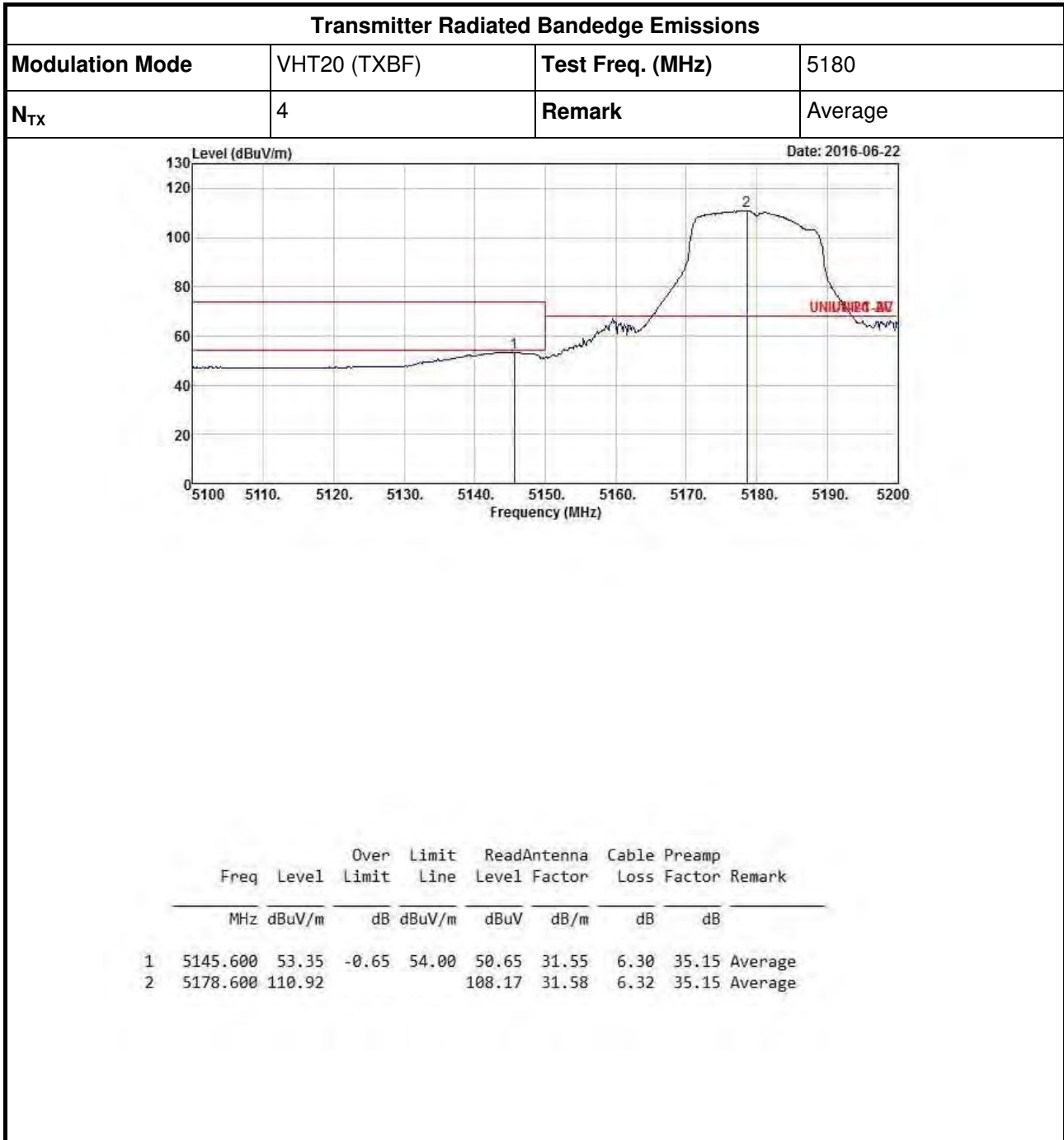




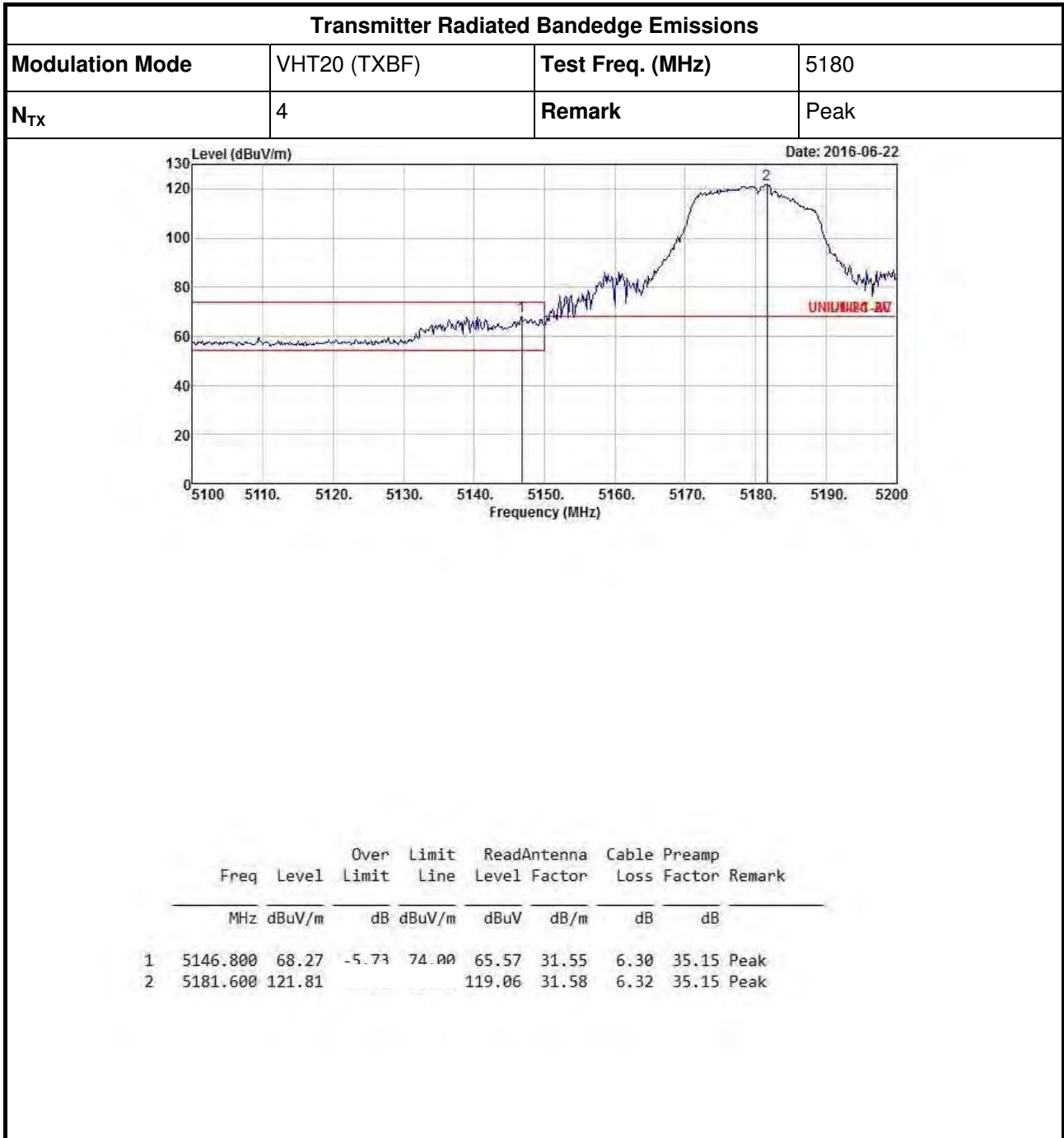


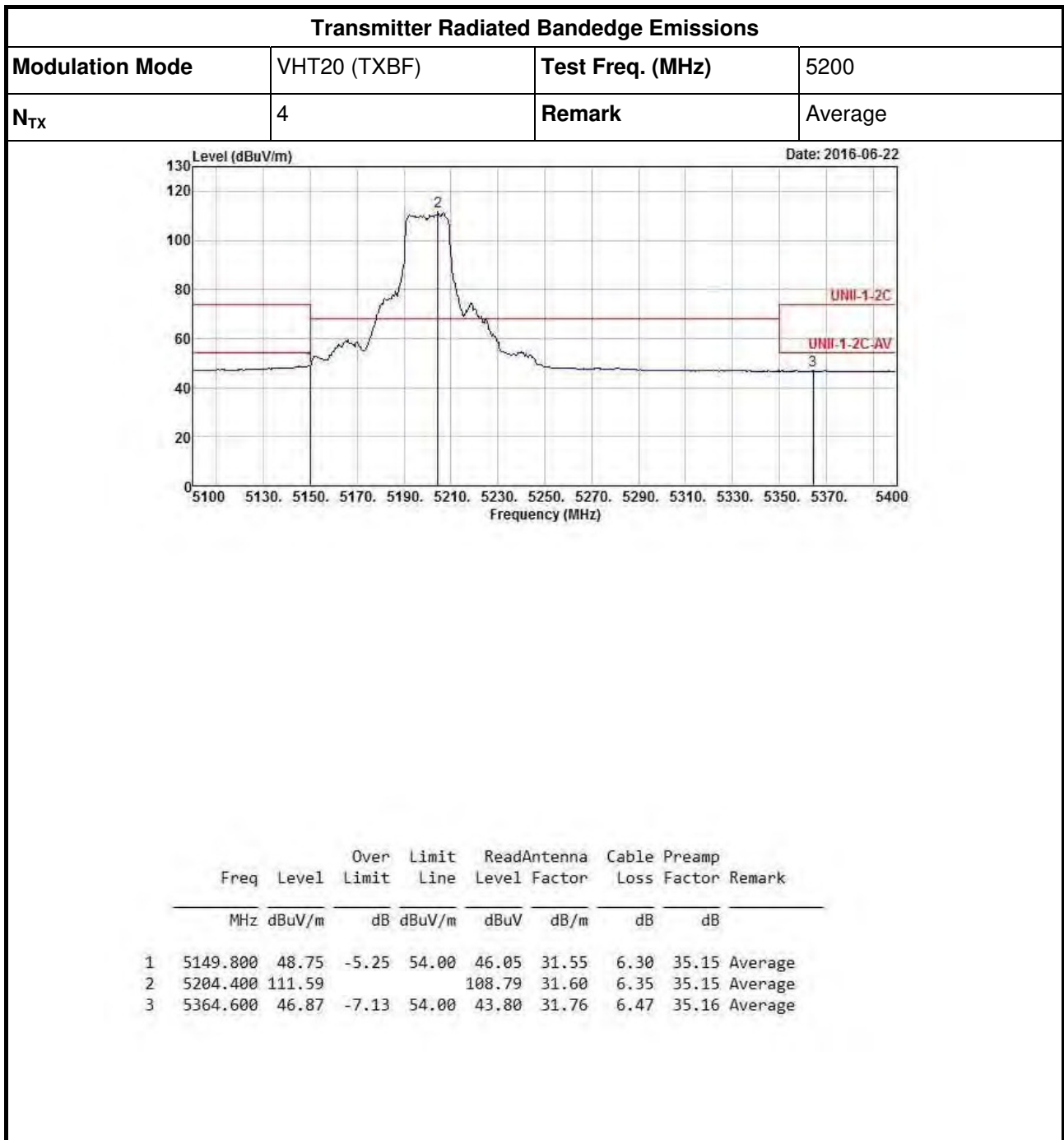


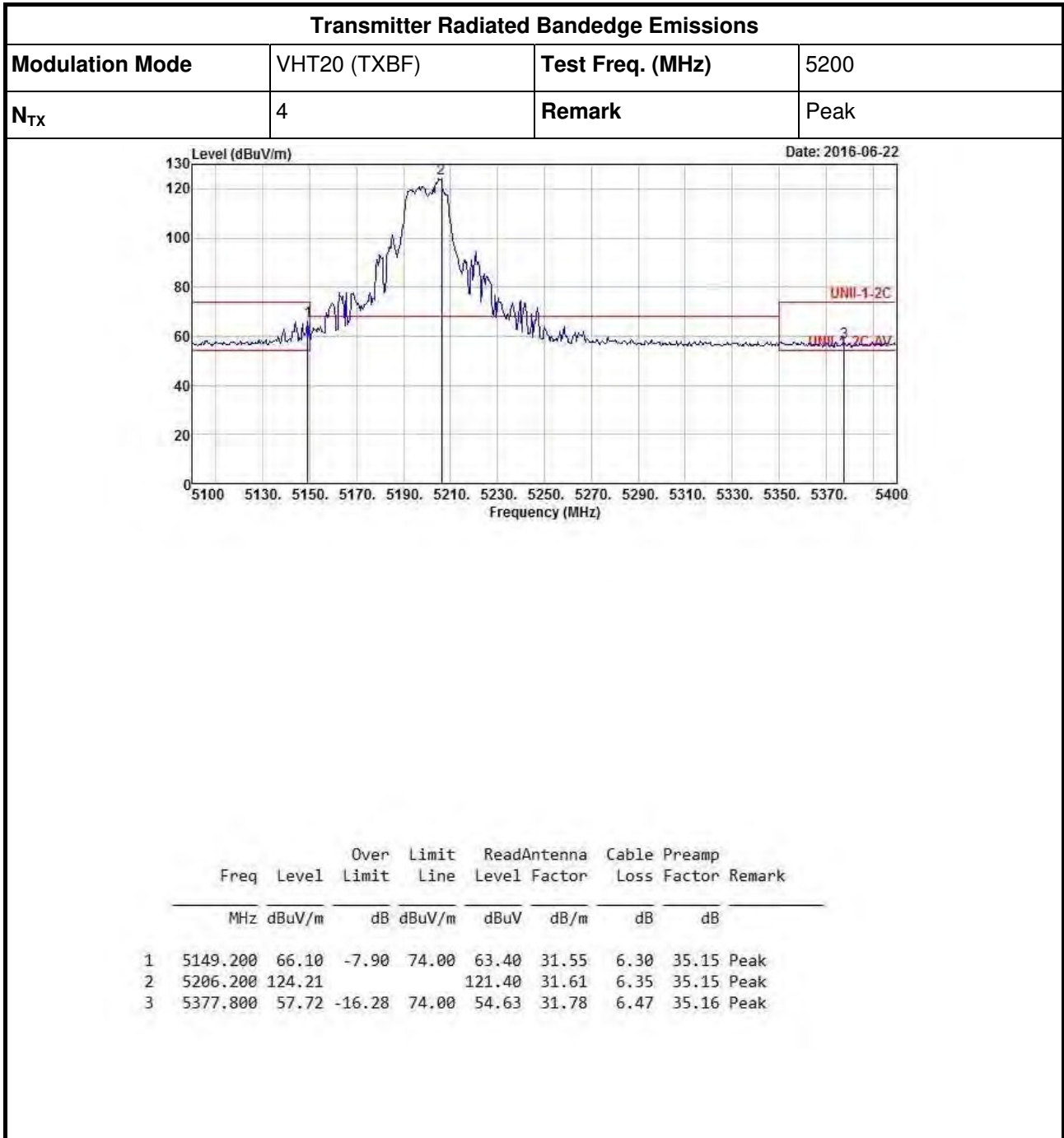


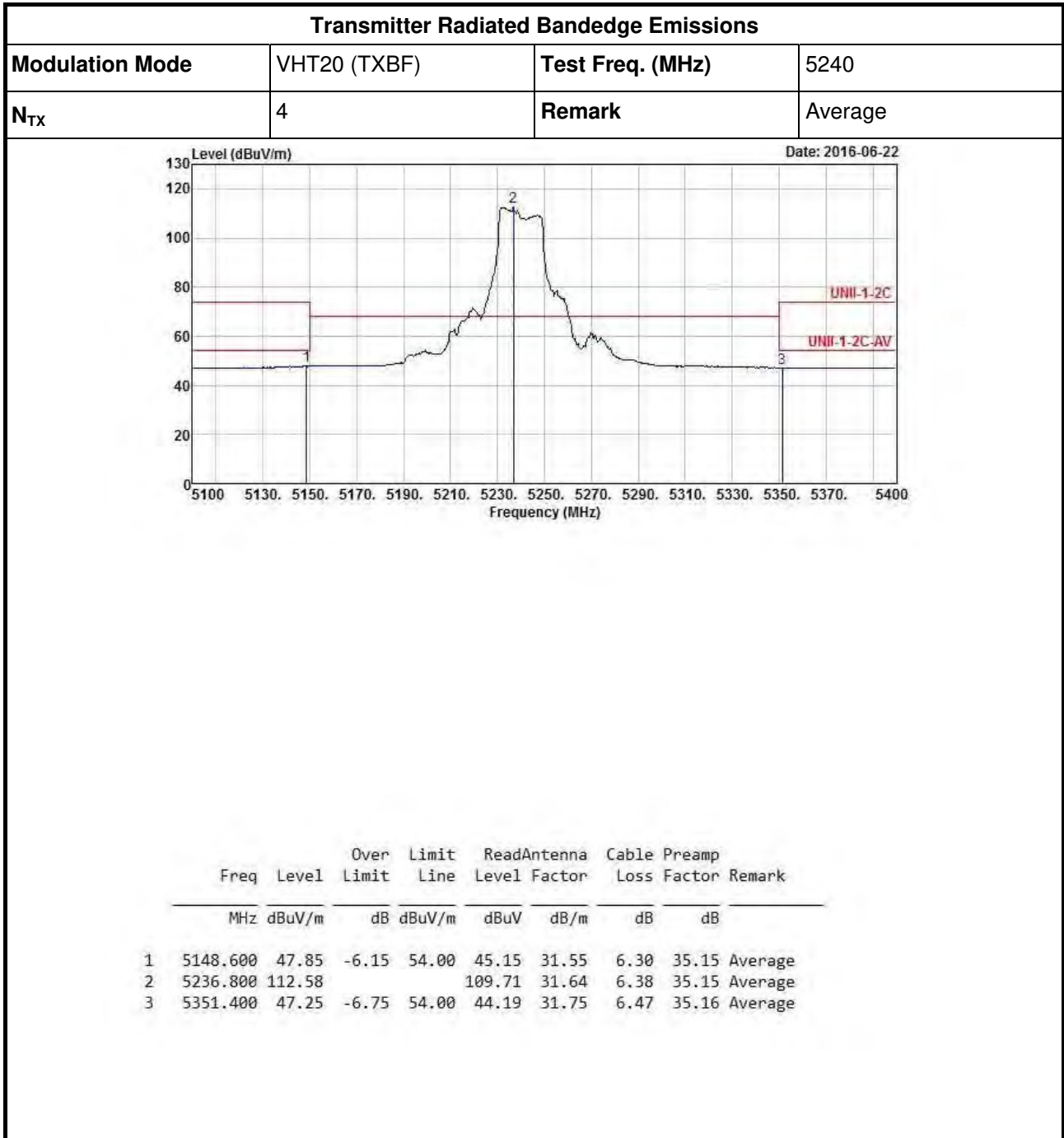


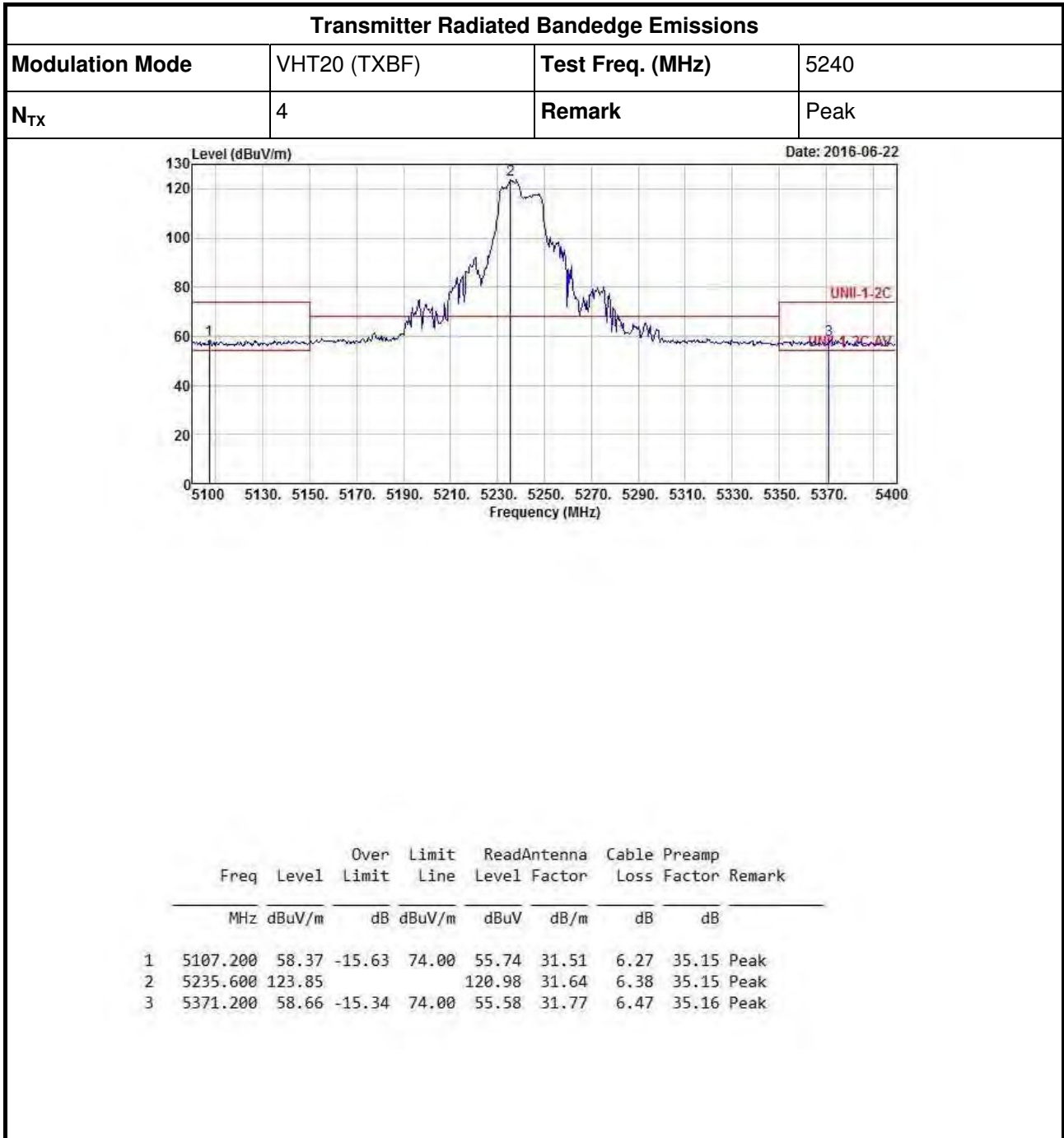


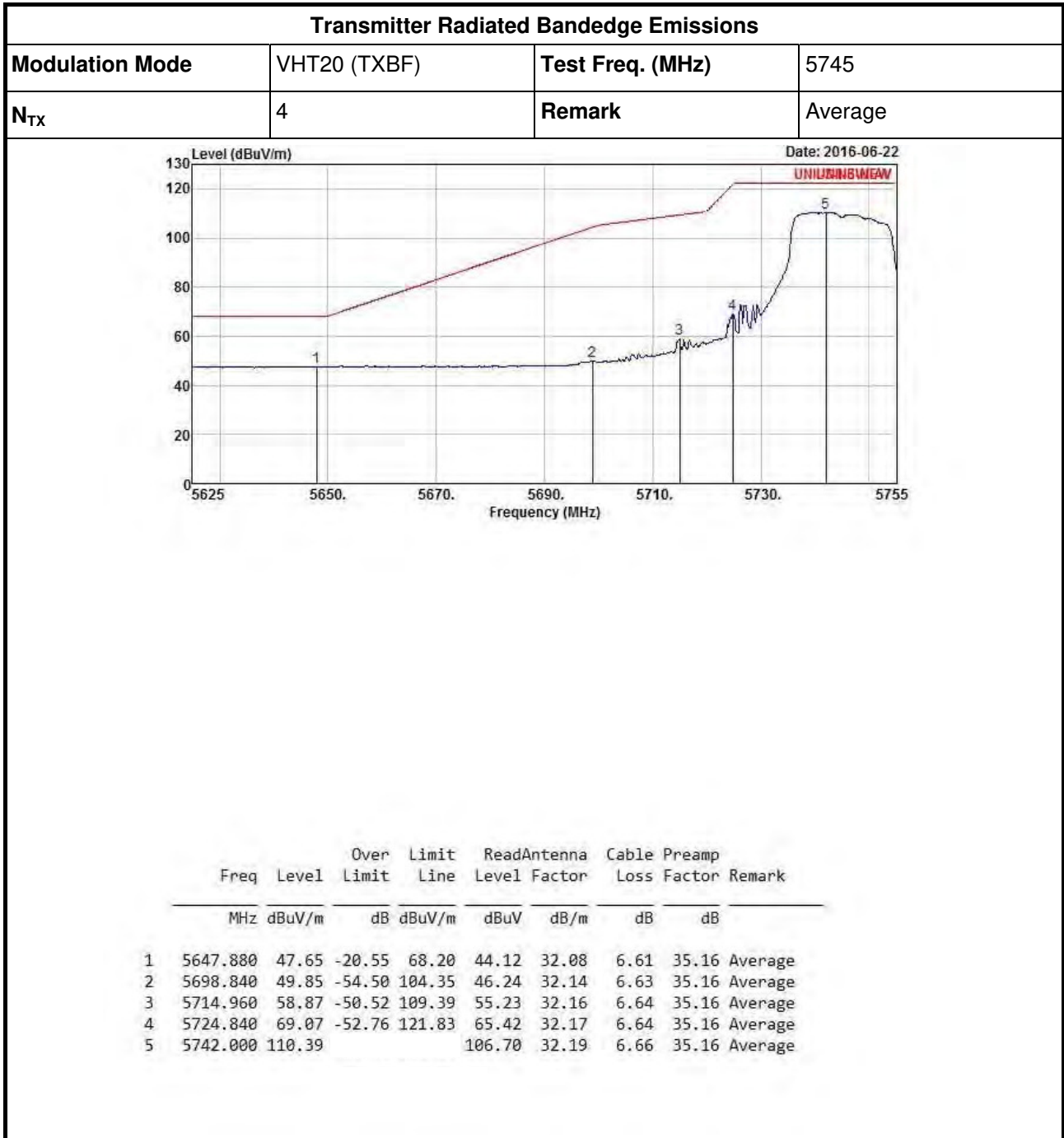


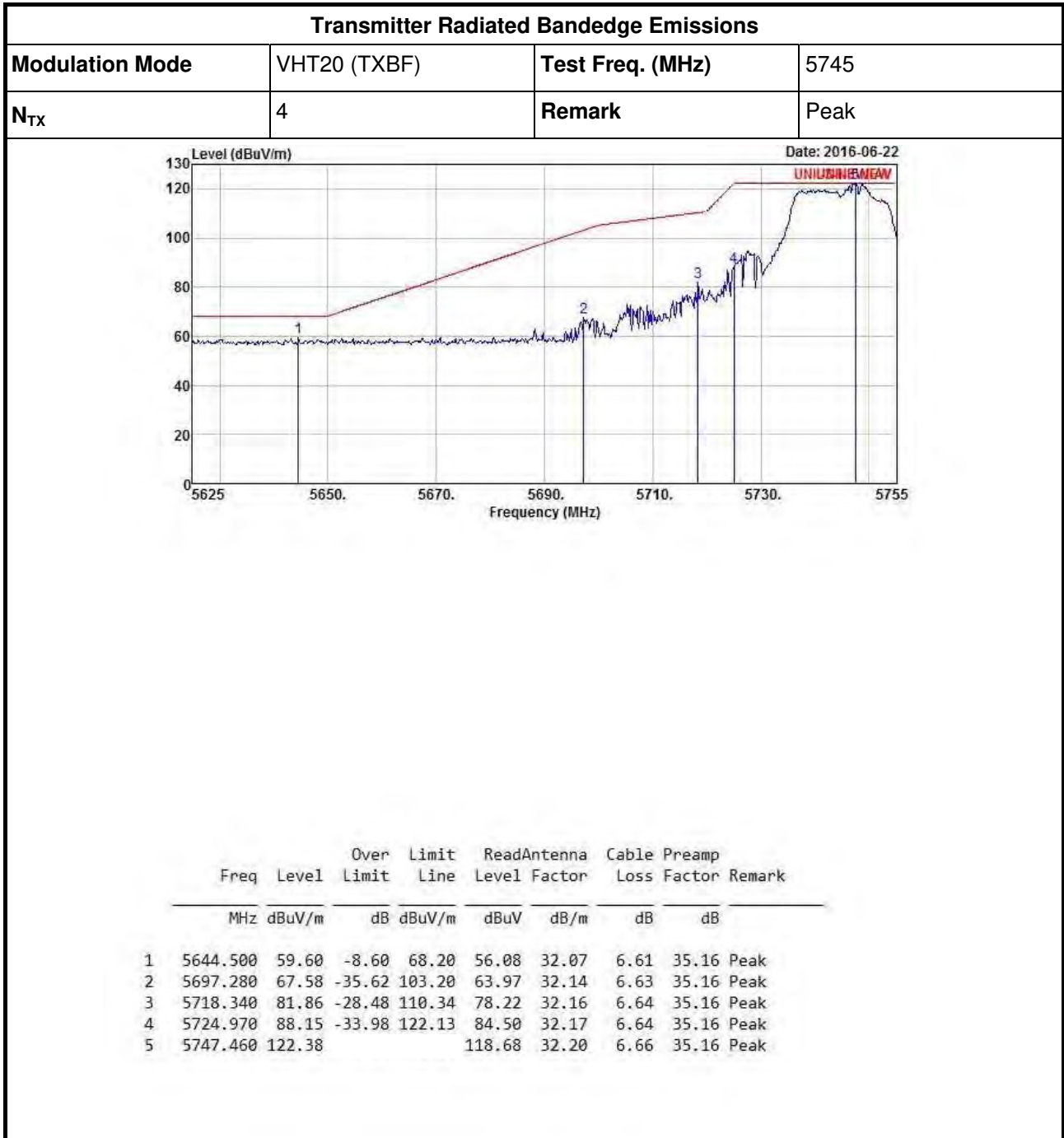




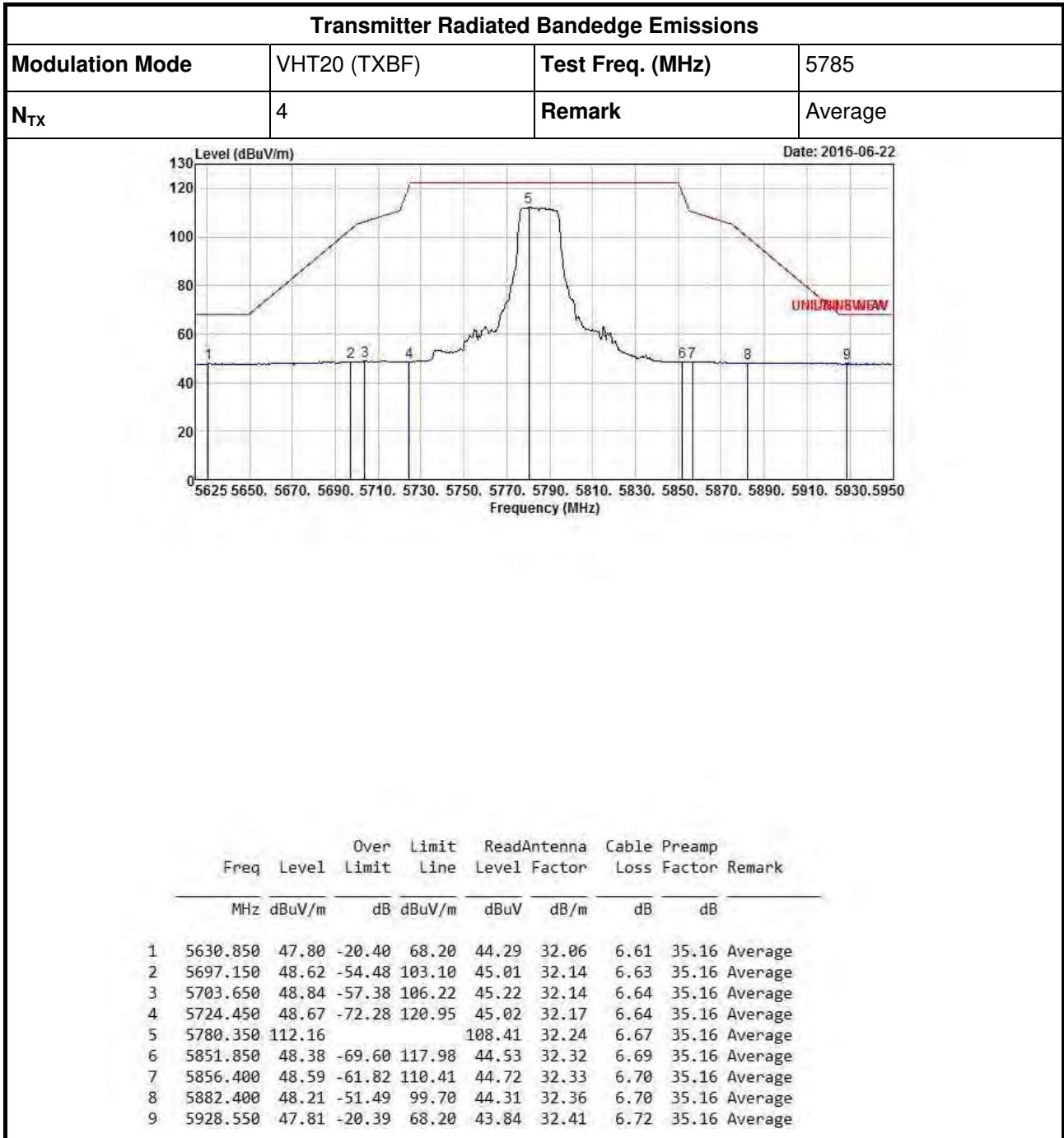


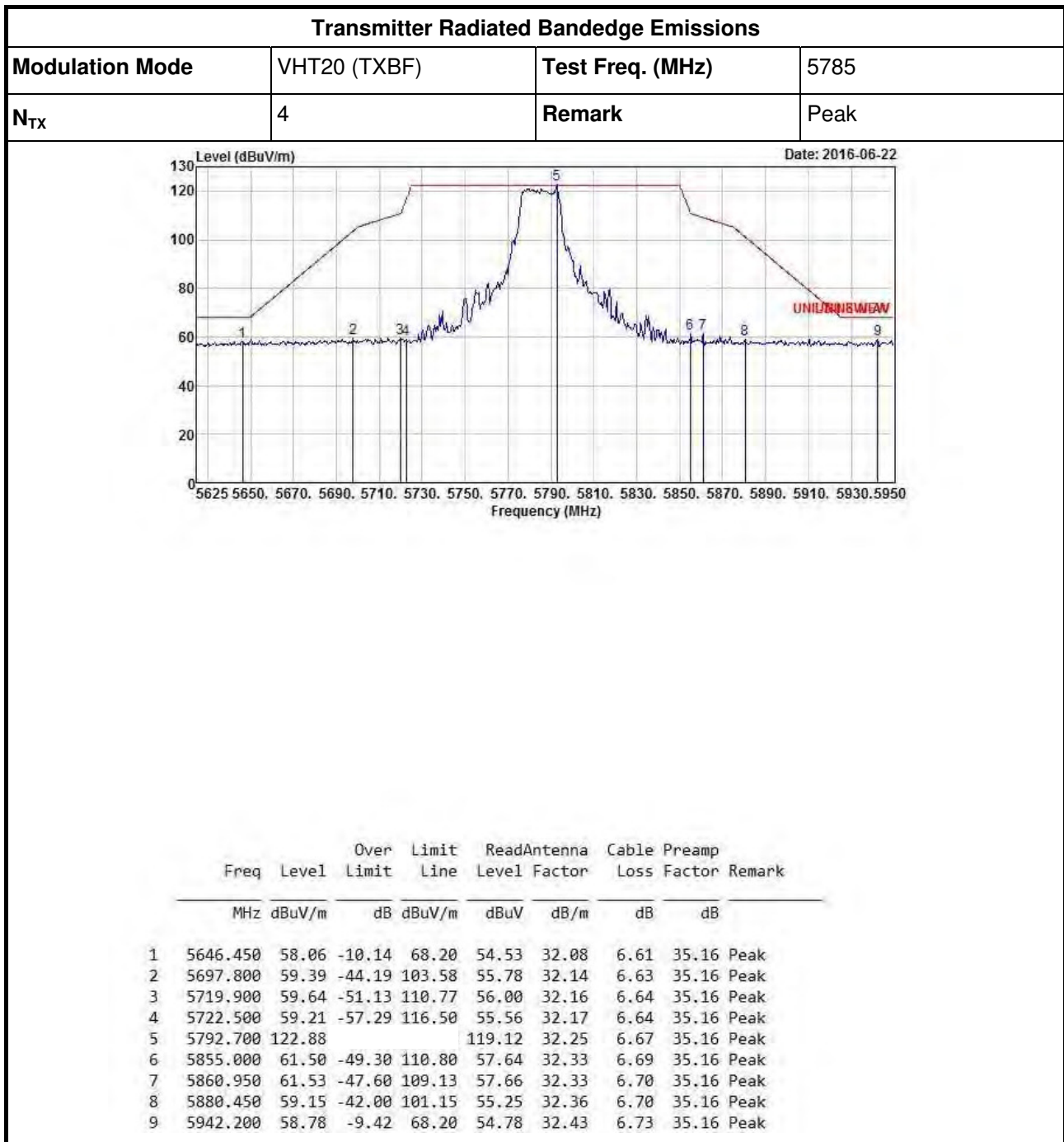


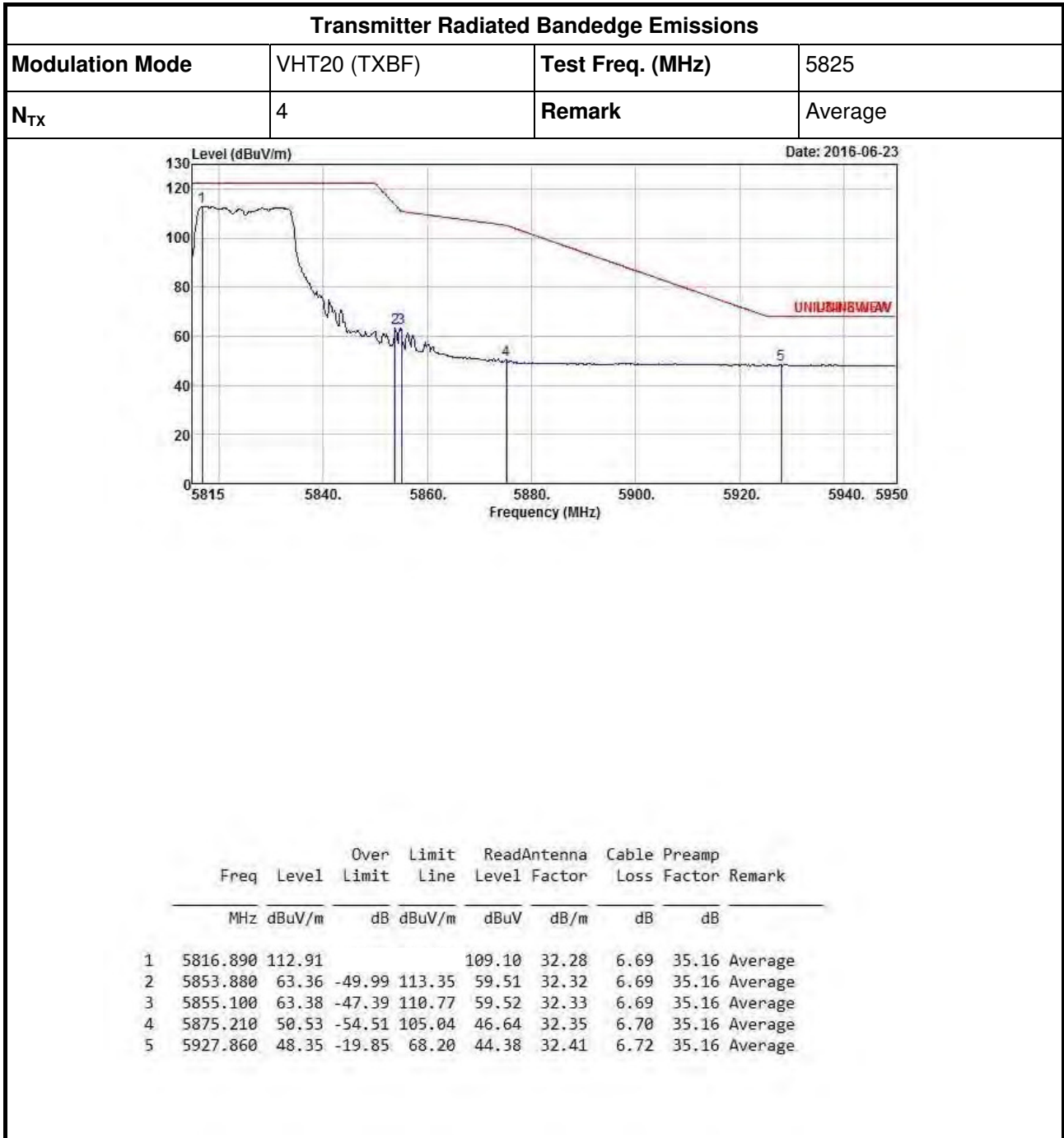


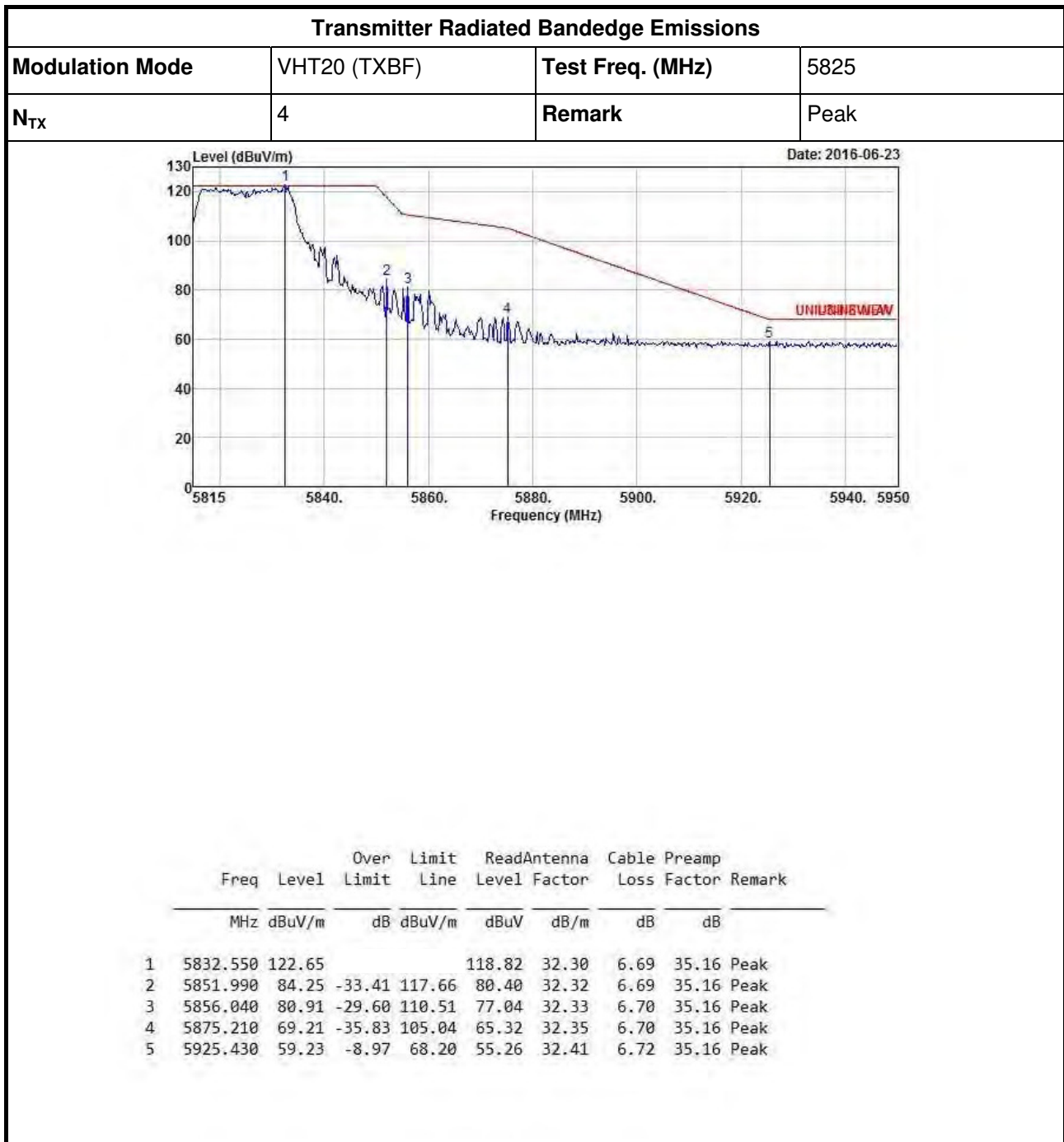


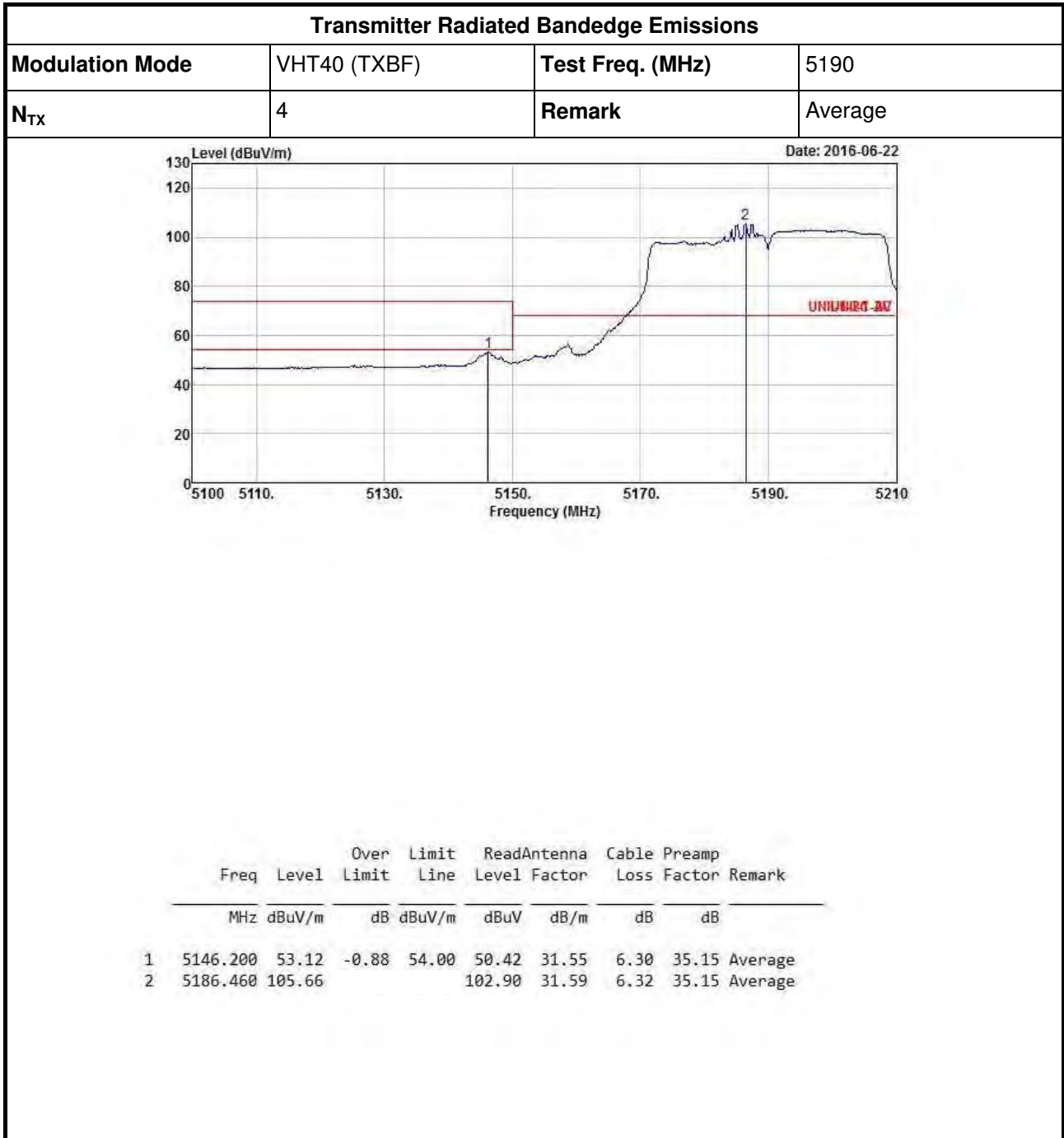






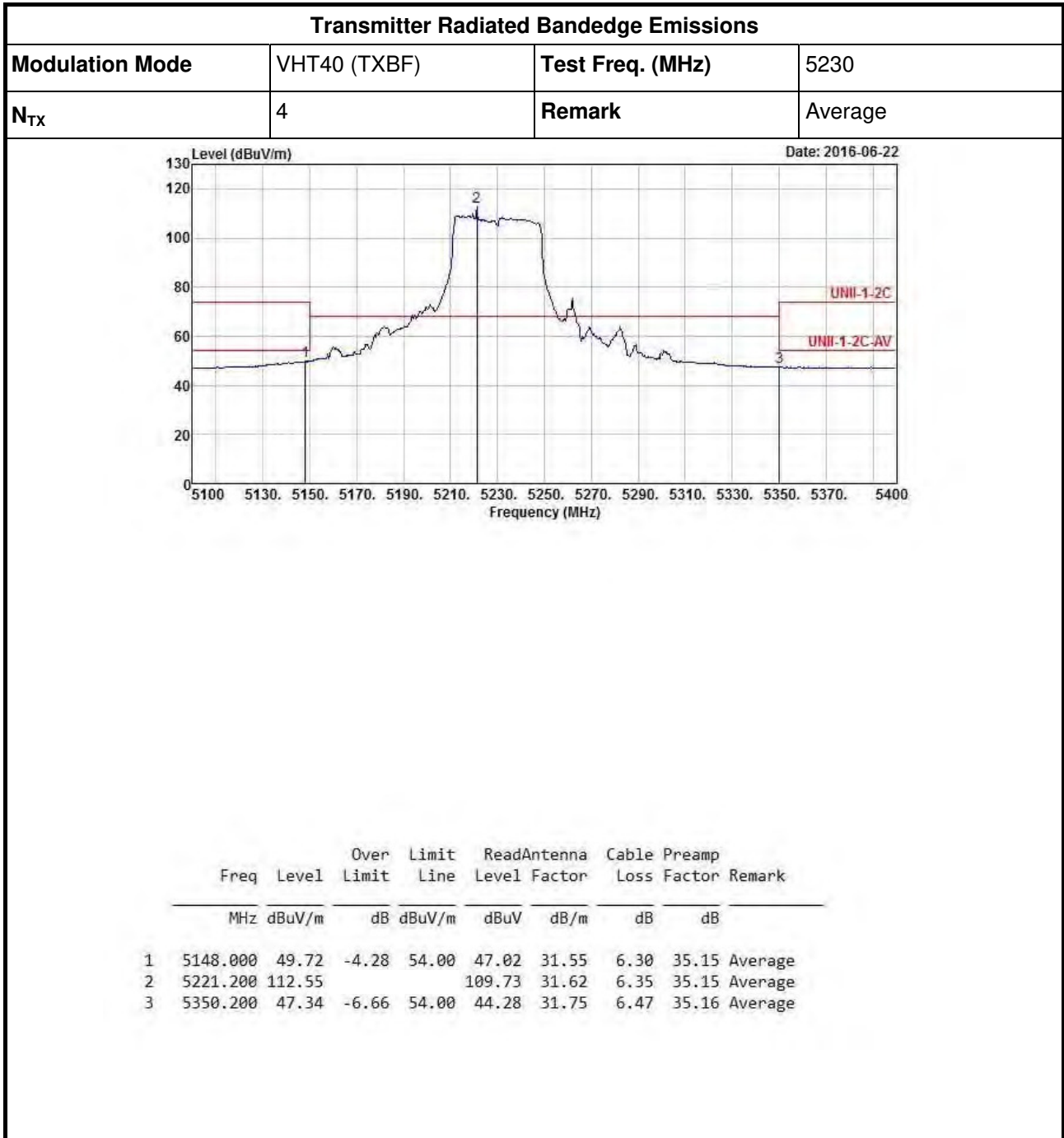




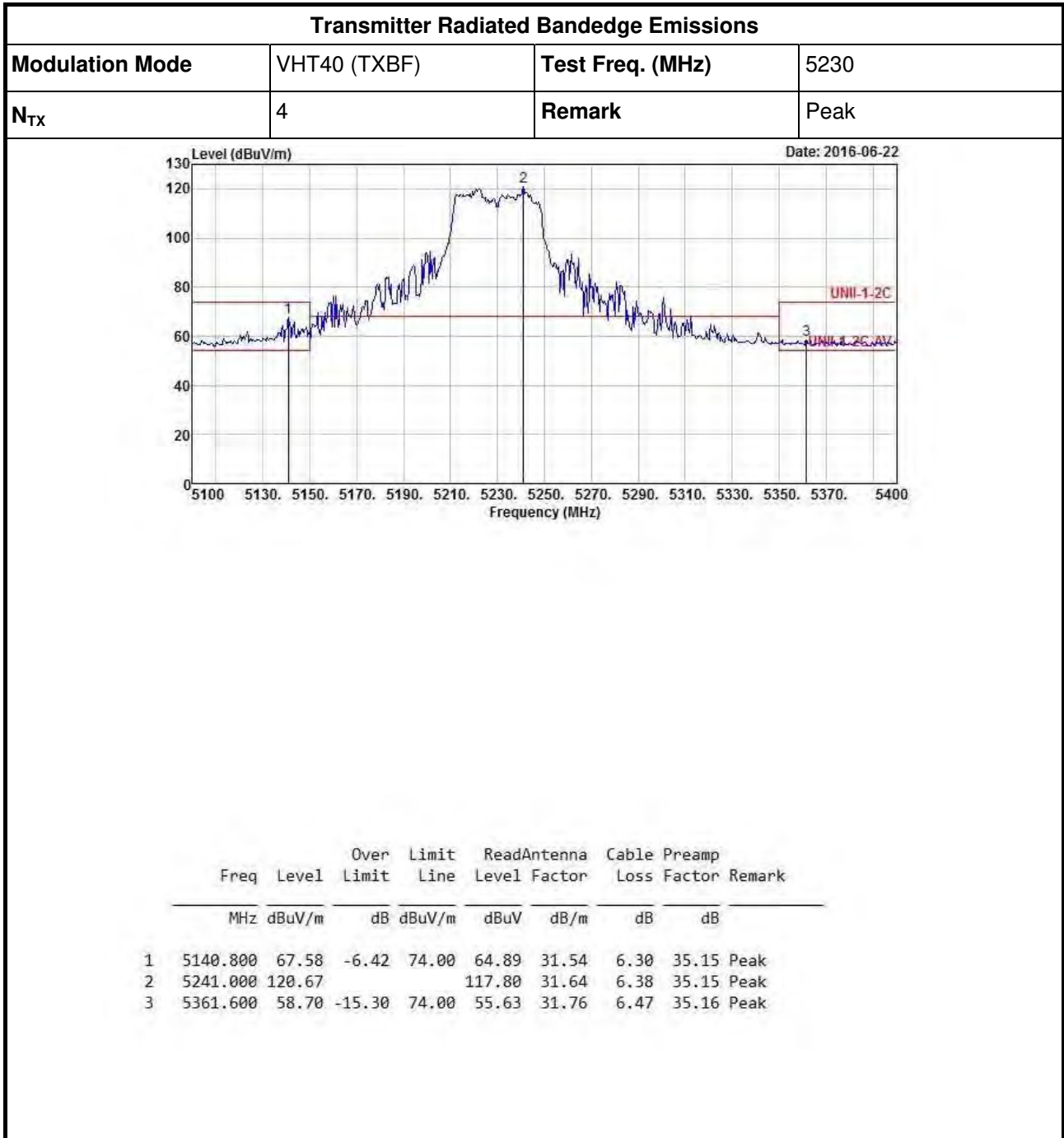


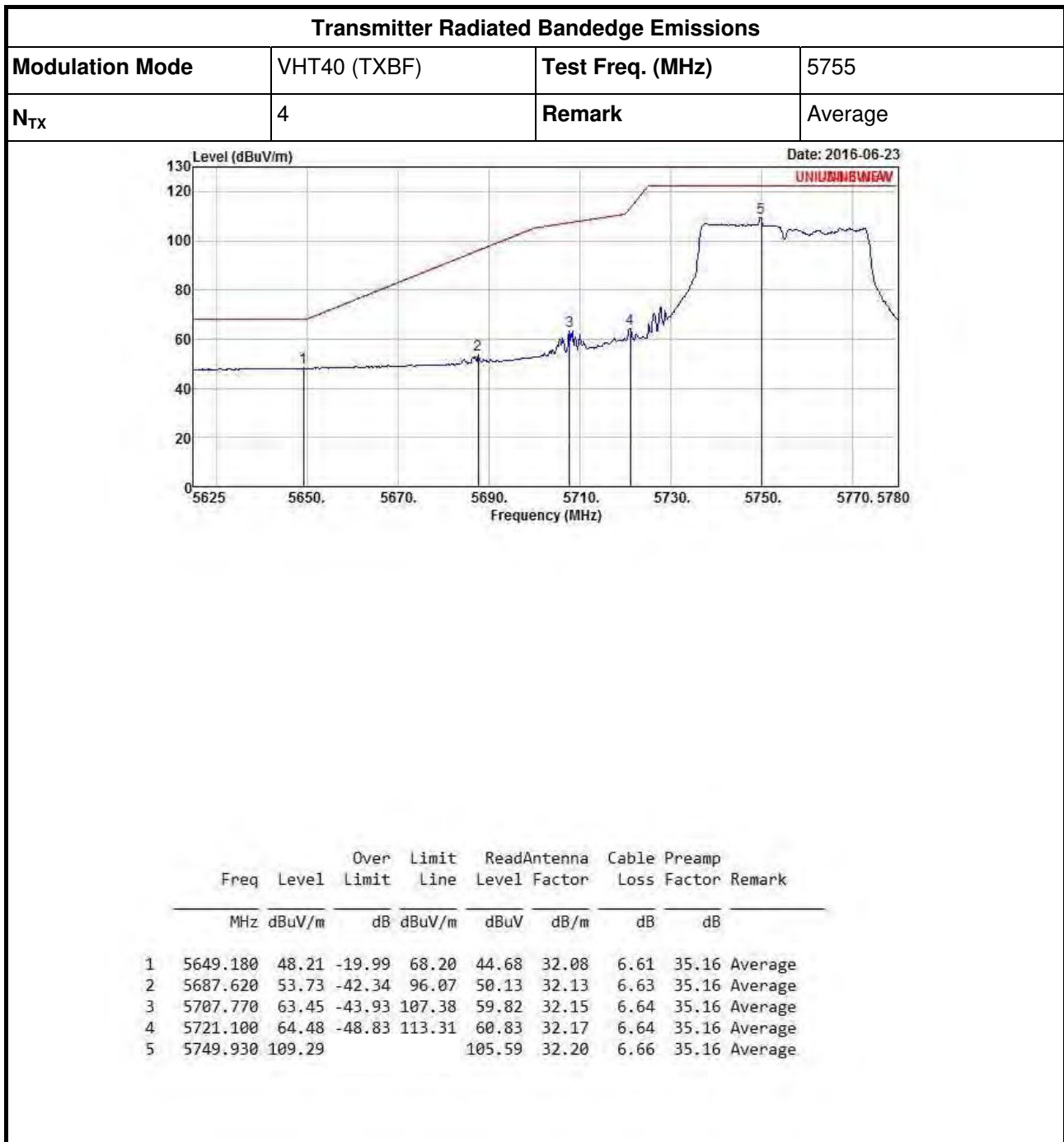


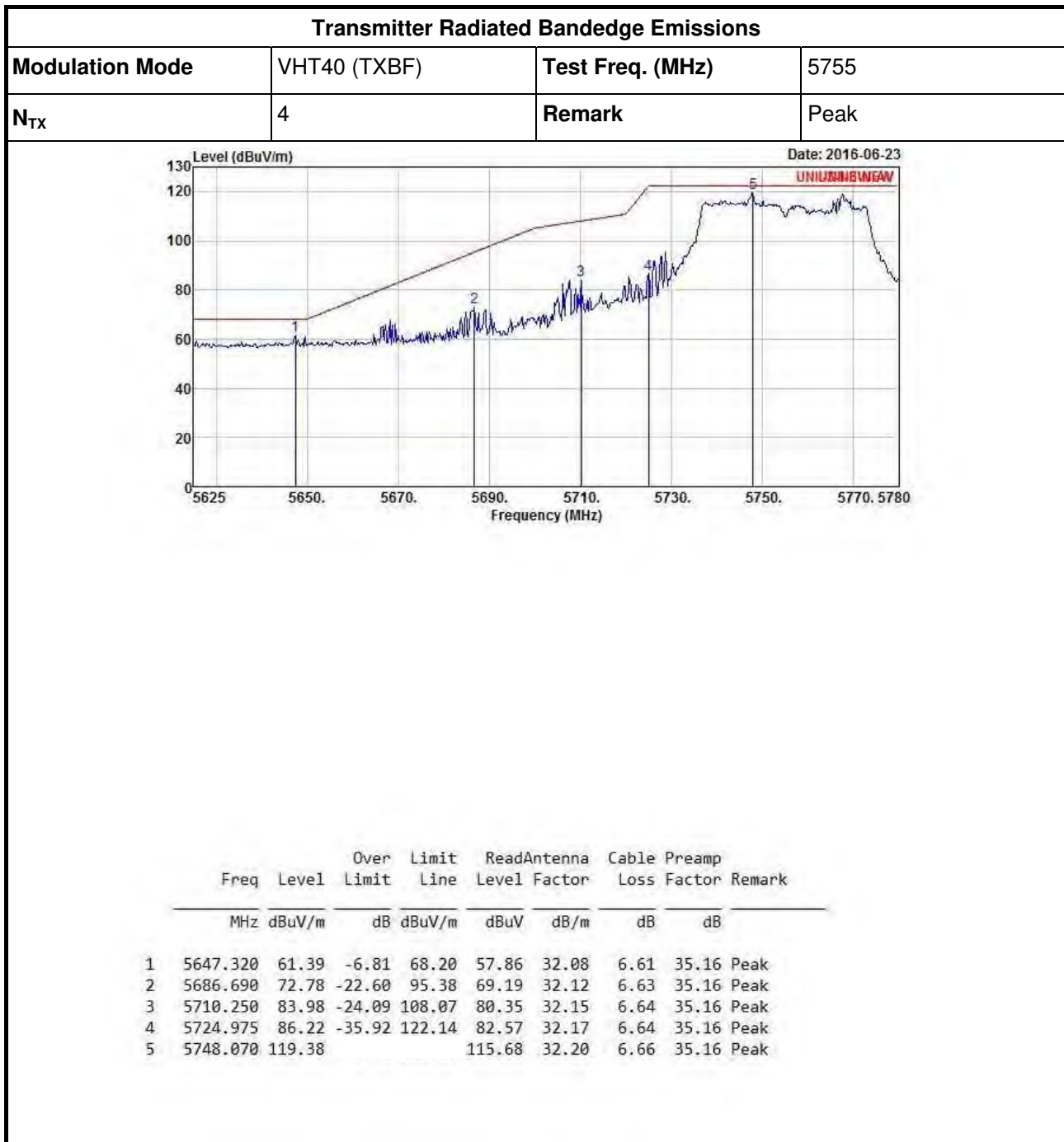


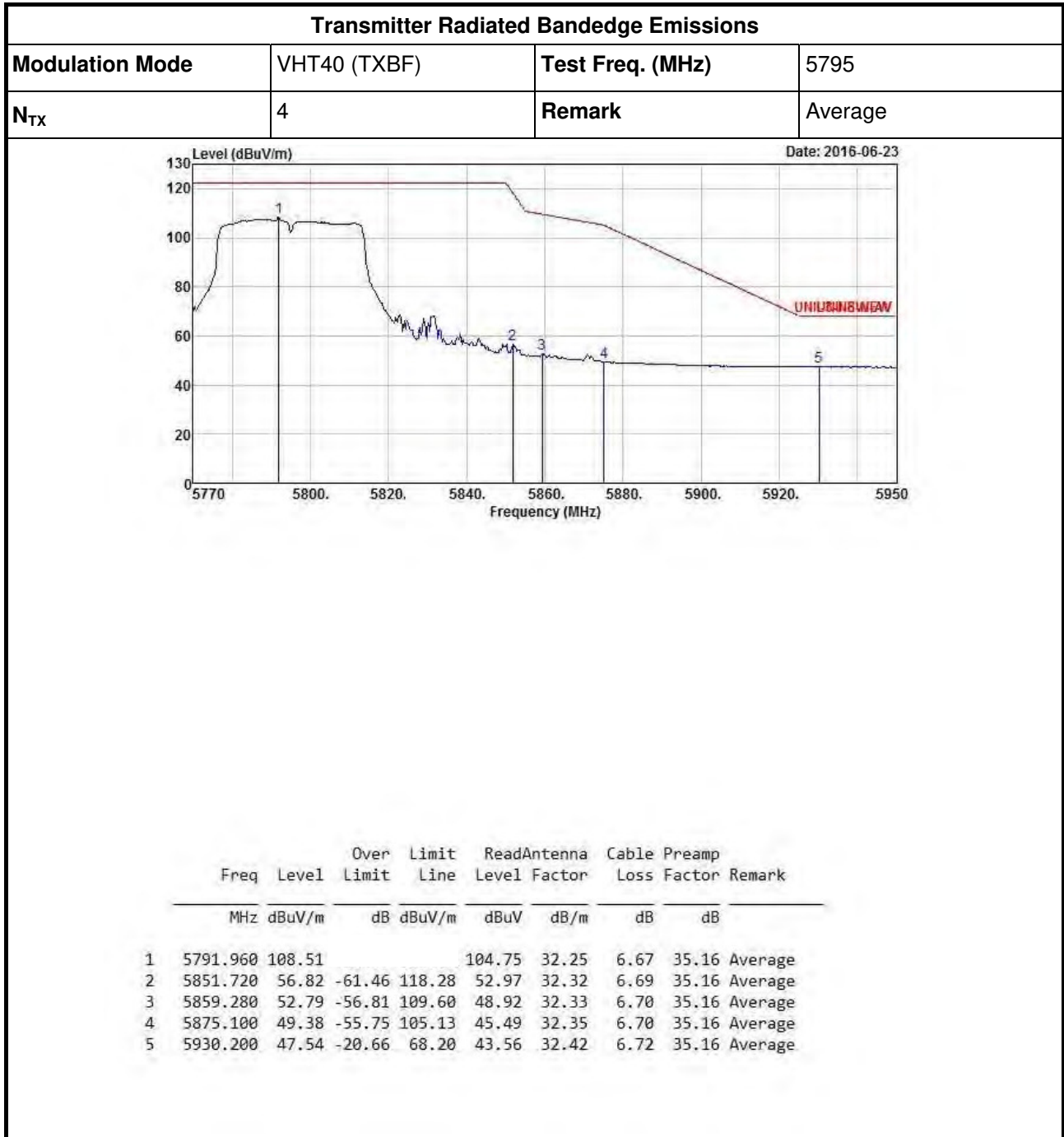


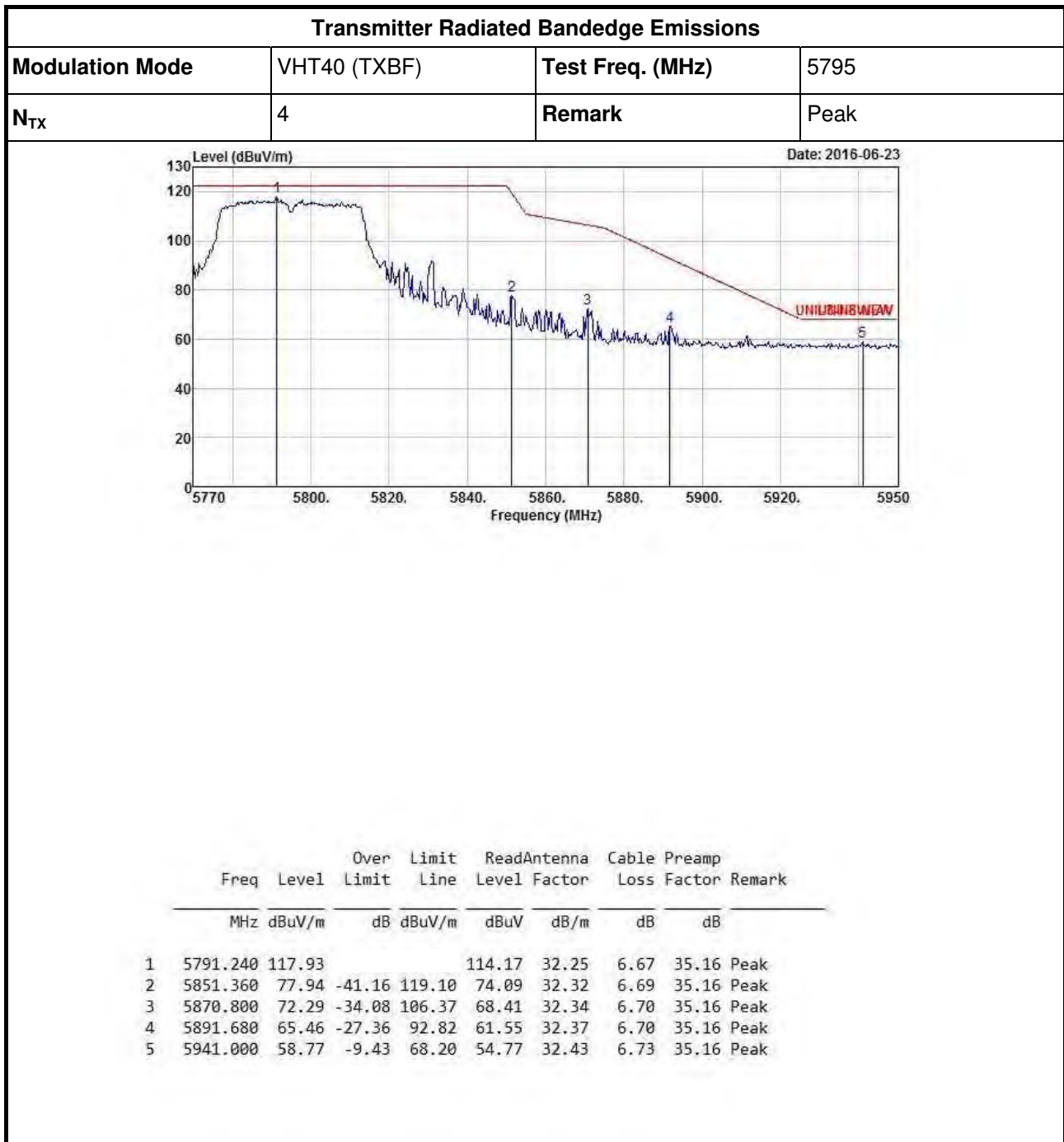






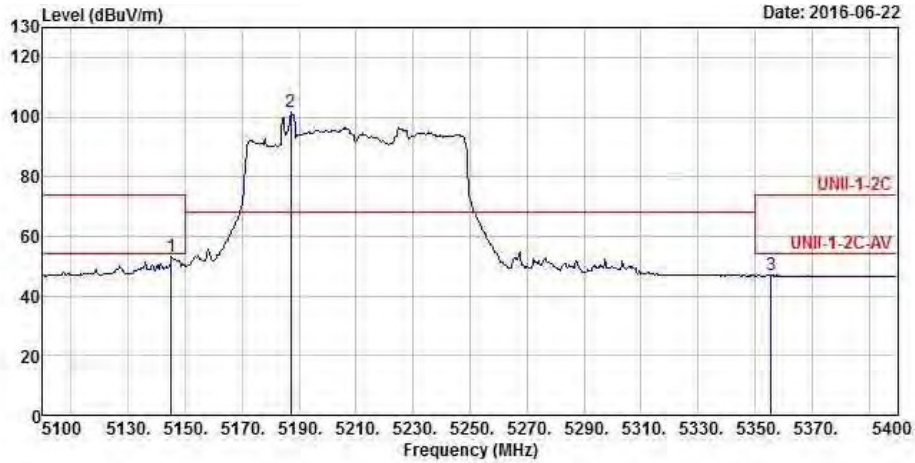








Modulation Mode	VHT80 (TxBF)	Test Freq. (MHz)	5210
N <sub>TX</sub>	4	Remark	Average



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	5145.000	53.11	-0.89	54.00	50.41	31.55	6.30	35.15 Average
2	5187.000	101.88			99.12	31.59	6.32	35.15 Average
3	5355.600	46.93	-7.07	54.00	43.86	31.76	6.47	35.16 Average



