



FCC Test Report

Equipment : 802.11ac Wireless Router
Brand Name : Synology
Model No. : RT2600ac
FCC ID : YOR-RT2600AC
Standard : 47 CFR FCC Part 15.407
Frequency : 5250 MHz – 5350 MHz
5470 MHz – 5725 MHz
FCC Classification : NII
Applicant / Manufacturer : Synology Incorporated
3F-3, No.106, Chang An W. Rd., Taipei 103, Taiwan

The product sample received on Jun. 28, 2016 and completely tested on Aug. 09, 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

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Summary of Test Result

Conformance Test Specifications			
Report Clause	Ref. Std. Clause	Description	Result
1.1.2	15.203	Antenna Requirement	Complied
3.1	15.207	AC Power-line Conducted Emissions	Complied
3.2	15.407(a)	Emission Bandwidth	Complied
3.3	15.407(a)	Maximum Conducted Output Power	Complied
3.4	15.407(a)	Peak Power Spectral Density	Complied
3.5	15.407(b)	Unwanted Emissions	Complied
3.7	15.407(g)	Frequency Stability	Complied



Revision History



1 General Description

1.1 Information

1.1.1 RF General Information

Band	Mode	BWch (MHz)	Channel Number	Nss-Min	Nant
5.3G	11a	20	52-64 [4]	1	4
5.3G	HT20	20	52-64 [4]	1,(M0-31)	4
5.3G	HT40	40	54-62 [2]	1,(M0-31)	4
5.3G	VHT20	20	52-64 [4]	1,(M0-8)	4
5.3G	VHT40	40	54-62 [2]	1,(M0-9)	4
5.3G	VHT80	80	58 [1]	1,(M0-9)	4
5.6G	11a	20	100-140 [8]	1	4
5.6G	HT20	20	100-140 [8]	1,(M0-31)	4
5.6G	HT40	40	102-134 [3]	1,(M0-31)	4
5.6G	VHT20	20	100-140 [8]	1,(M0-8)	4
5.6G	VHT40	40	102-134 [3]	1,(M0-9)	4
5.6G	VHT80	80	106 [1]	1,(M0-9)	4

Band	Mode	BWch (MHz)	Channel Number	Nss-Min	Nant
5.3G	VHT20 (TxBF)	20	52-64 [4]	1,(M0-8)	4
5.3G	VHT40 (TxBF)	40	54-62 [2]	1,(M0-9)	4
5.3G	VHT80 (TxBF)	80	58 [1]	1,(M0-9)	4
5.6G	VHT20 (TxBF)	20	100-140 [8]	1,(M0-8)	4
5.6G	VHT40 (TxBF)	40	102-134 [3]	1,(M0-9)	4
5.6G	VHT80 (TxBF)	80	106 [1]	1,(M0-9)	4

Note:

- 5.3G is the 5.3GHz Band (5.25-5.35GHz).
- 5.6G is the 5.6GHz Band (5.47-5.725GHz) w/o TDWR (5.47-5.6GHz and 5.65-5.725GHz).
- 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).

Antenna General Information					
No.	Ant. Cat.	Ant. Type	Model	G _{ANT} (dBi)	
				Band 2	Band 3
1	External	Diople (connector : Yes)	ARMEE-000000	2.9	3.6
2	External	Diople (connector : Yes)	ARMEE-000000	2.9	3.6
3	External	Diople (connector : Yes)	ARMEE-000000	2.9	3.6
4	External	Diople (connector : Yes)	ARMEE-000000	2.9	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 for Non-Beamforming	
<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"/> 97.3% - IEEE 802.11a (11a)	0.12
<input checked="" type="checkbox"/> 98.8% - IEEE 802.11n (HT20)	0.05
<input checked="" type="checkbox"/> 97.6% - IEEE 802.11n (HT40)	0.11
<input checked="" type="checkbox"/> 98.7% - IEEE 802.11ac (VHT20)	0.06
<input checked="" type="checkbox"/> 97.5% - IEEE 802.11ac (VHT40)	0.11
<input checked="" type="checkbox"/> 94.6% - IEEE 802.11ac (VHT80)	0.24

Operated Mode for Worst Duty Cycle for Beamforming	
<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"/> 89.3% - IEEE 802.11ac (VHT20)	0.49
<input checked="" type="checkbox"/> 90.4% - IEEE 802.11ac (VHT40)	0.44
<input checked="" type="checkbox"/> 85.6% - IEEE 802.11ac (VHT80)	0.68

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 type="checkbox"/> Portable Client
Operate Mode	<input checked="" type="checkbox"/>	Master	



1.2 Testing Applied Standards

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

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

1.3 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
AC Conduction		CO04-HY	Ryan	22°C / 54%
RF Conducted		TH01-HY	Ryan	24.5°C / 65%
Radiated		03CH03-HY	Thor	22.2°C / 51.8%
Test Date				
04/08/2016				
14/06/2016				
09/08/2016				

Test site registered number [553509] with FCC.



1.4 Measurement Uncertainty

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

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 for Non-Beamforming			
Modulation Mode	Transmit Chains (N_{TX})	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

Worst Modulation Used for Conformance Testing for Beamforming			
Modulation Mode	Transmit Chains (N_{TX})	Data Rate / MCS	Worst Data Rate / MCS
VHT20 (TxBF)	4	MCS 0-8	MCS 0
VHT40 (TxBF)	4	MCS 0-9	MCS 0
VHT80 (TxBF)	4	MCS 0-9	MCS 0



2.2 Test Channel Mode

Test Software		QRCT VV3.0.156.0					
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Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.3G	11a	20	1	4	5260	L	13
5.3G	11a	20	1	4	5300	M	12.5
5.3G	11a	20	1	4	5320	H	13
5.3G	HT20	20	1,(M0-31)	4	5260	L	13
5.3G	HT20	20	1,(M0-31)	4	5300	M	13
5.3G	HT20	20	1,(M0-31)	4	5320	H	13
5.3G	HT40	40	1,(M0-31)	4	5270	L	16
5.3G	HT40	40	1,(M0-31)	4	5310	H	14
5.3G	VHT20	20	1,(M0-8)	4	5260	L	13
5.3G	VHT20	20	1,(M0-8)	4	5300	M	13
5.3G	VHT20	20	1,(M0-8)	4	5320	H	13
5.3G	VHT40	40	1,(M0-9)	4	5270	L	16
5.3G	VHT40	40	1,(M0-9)	4	5310	H	14
5.3G	VHT80	80	1,(M0-9)	4	5290	S	8

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.6G	11a	20	1	4	5500	L	12.5
5.6G	11a	20	1	4	5580	M	12.5
5.6G	11a	20	1	4	5700	H	12.5
5.6G	HT20	20	1,(M0-31)	4	5500	L	12.5
5.6G	HT20	20	1,(M0-31)	4	5580	M	12.5
5.6G	HT20	20	1,(M0-31)	4	5700	H	12.5
5.6G	HT40	40	1,(M0-31)	4	5510	L	16
5.6G	HT40	40	1,(M0-31)	4	5550	M	16
5.6G	HT40	40	1,(M0-31)	4	5670	H	16
5.6G	VHT20	20	1,(M0-8)	4	5500	L	12.5
5.6G	VHT20	20	1,(M0-8)	4	5580	M	12.5
5.6G	VHT20	20	1,(M0-8)	4	5700	H	12.5
5.6G	VHT40	40	1,(M0-9)	4	5510	L	16
5.6G	VHT40	40	1,(M0-9)	4	5550	M	16
5.6G	VHT40	40	1,(M0-9)	4	5670	H	16
5.6G	VHT80	80	1,(M0-9)	4	5530	L	10



Test Software	Putty						
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Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.3G	VHT20 (TxBF)	20	1,(M0-8)	4	5260	L	35
5.3G	VHT20 (TxBF)	20	1,(M0-8)	4	5300	M	36
5.3G	VHT20 (TxBF)	20	1,(M0-8)	4	5320	H	36
5.3G	VHT40 (TxBF)	40	1,(M0-9)	4	5270	L	37
5.3G	VHT40 (TxBF)	40	1,(M0-9)	4	5310	H	34
5.3G	VHT80 (TxBF)	80	1,(M0-9)	4	5290	S	26

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.6G	VHT20 (TxBF)	20	1,(M0-8)	4	5500	L	36
5.6G	VHT20 (TxBF)	20	1,(M0-8)	4	5580	M	34
5.6G	VHT20 (TxBF)	20	1,(M0-8)	4	5700	H	34
5.6G	VHT40 (TxBF)	40	1,(M0-9)	4	5510	L	29
5.6G	VHT40 (TxBF)	40	1,(M0-9)	4	5550	M	36
5.6G	VHT40 (TxBF)	40	1,(M0-9)	4	5670	H	33
5.6G	VHT80 (TxBF)	80	1,(M0-9)	4	5530	L	28

Abbreviation Explanation

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Test Cond.	Abbreviation
5.2G	VHT40	40	1,(M0-9)	4	5190	L	TN,VN	5.2G;VHT40;40;4,(M0-9);2;5190;L;TN,VN
5.2G	VHT80	80	1,(M0-9)	4	5210	S	TN,VN	5.2G;VHT80;80;4,(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	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	Adapter Mode

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

The Worst Case Mode for Following Conformance Tests							
Tests Item	Transmitter Bandedge Emissions , Transmitter Unwanted Emissions						
Test Condition	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.						
User Position	<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.						
Operating Mode < 1GHz	<input checked="" type="checkbox"/> 1. Adapter Mode						
Orthogonal Planes of EUT	<table border="1"> <thead> <tr> <th>X Plane</th> <th>Y Plane</th> <th>Z Plane</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	X Plane	Y Plane	Z Plane			
X Plane	Y Plane	Z Plane					
Worst Planes of EUT (Non-Beamforming)	V						
Worst Planes of EUT (Beamforming)	V						
Worst Planes of Ant. (Non-Beamforming)	V						
Worst Planes of Ant. (Beamforming)	V						



2.4 Accessories and Support Equipment

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

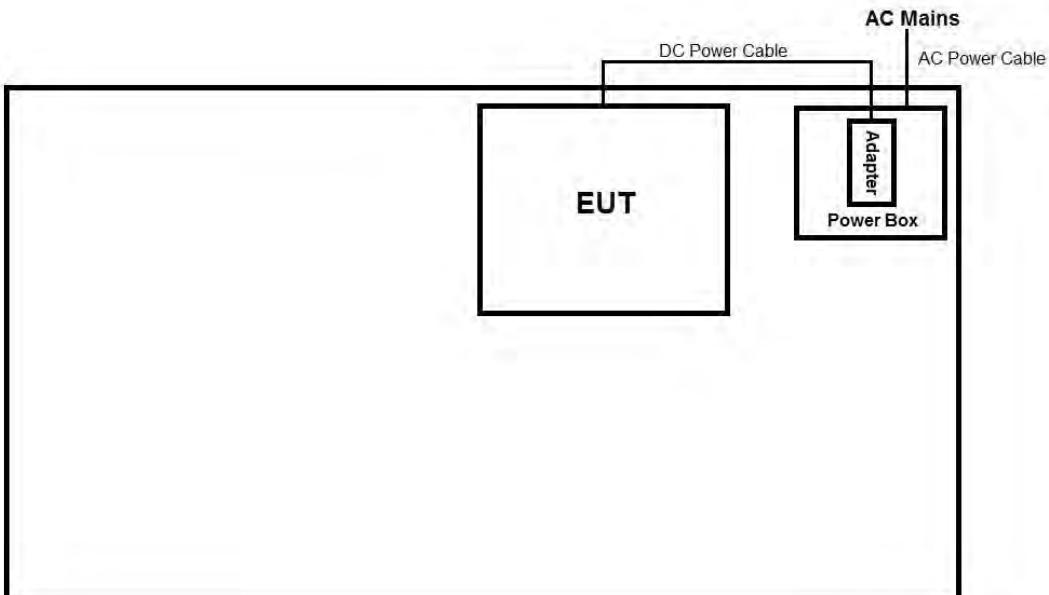
Reminder: Regarding to more detail and other information, please refer to user manual.

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

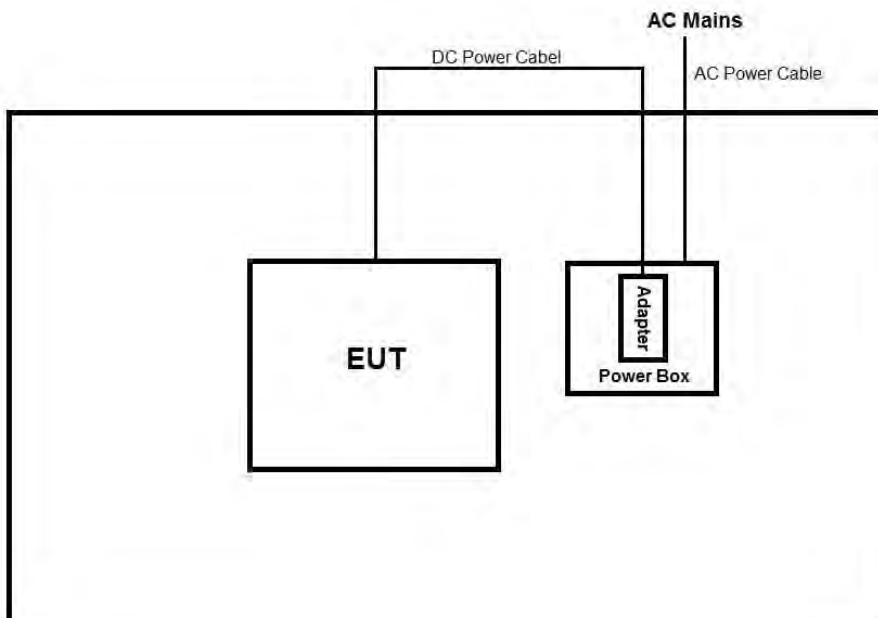
Support Equipment - AC Conduction and Radiated Emission			
No.	Equipment	Brand Name	Model Name
1	-	-	-

2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Test Setup Diagram – Radiated Emission Test



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.

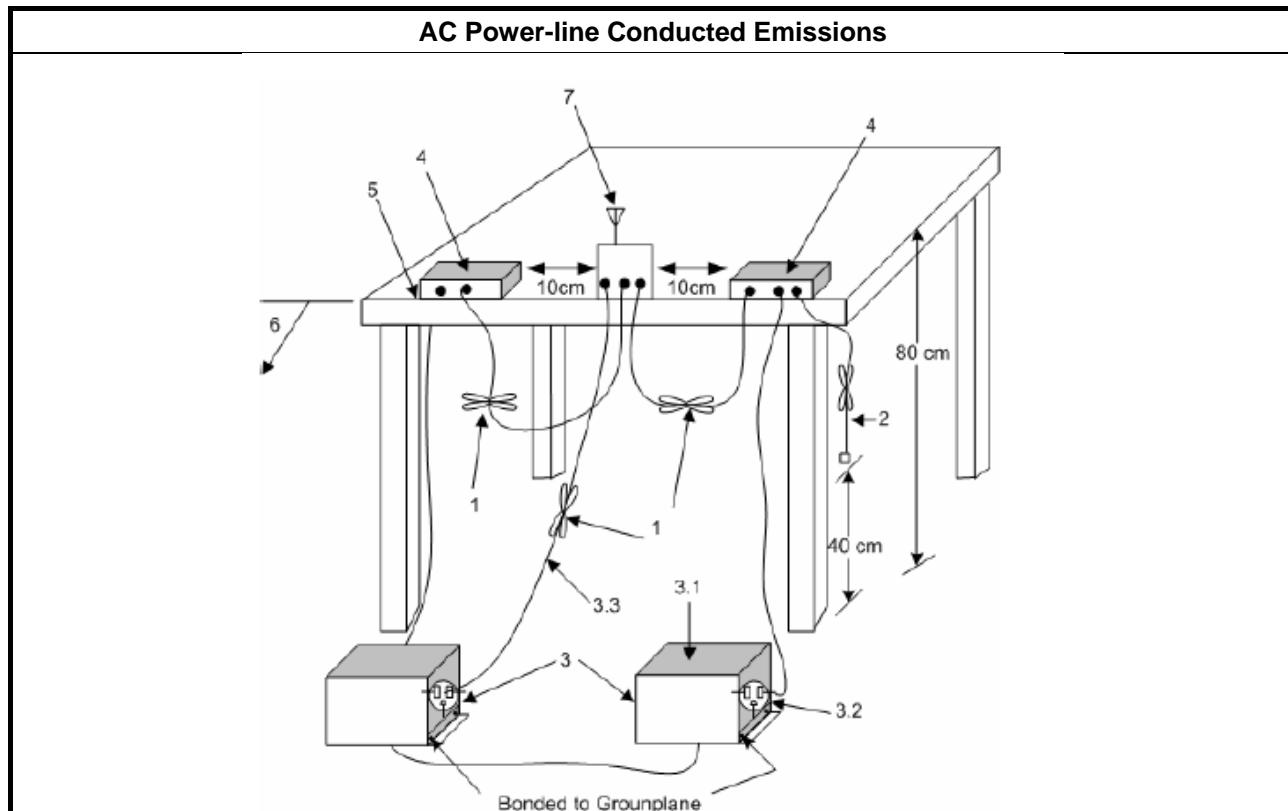
3.1.2 Measuring Instruments

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	
UNII Devices	
<input type="checkbox"/>	For the 5.15-5.25 GHz band, N/A
<input checked="" 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 checked="" 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 type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth \geq 500kHz.

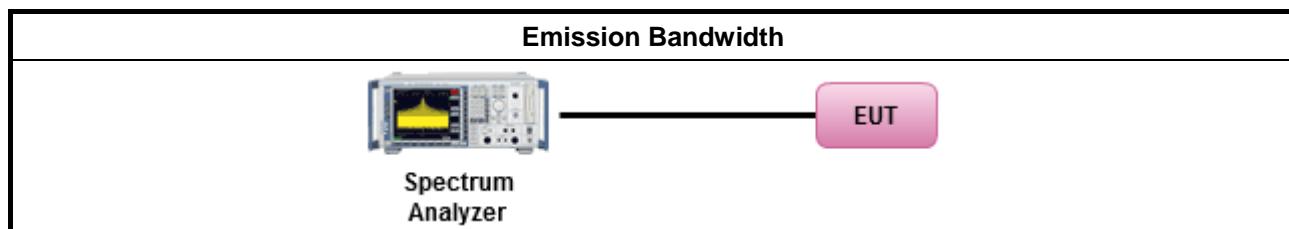
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input 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	
UNII Devices	
▪ For the 5.15-5.25 GHz band:	
	▪ Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125 mW [21dBm]
	▪ Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
	▪ Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$.
	▪ Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
▪ For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + $10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
▪ For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + $10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
▪ For the 5.725-5.85 GHz band:	
	▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.
	▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	



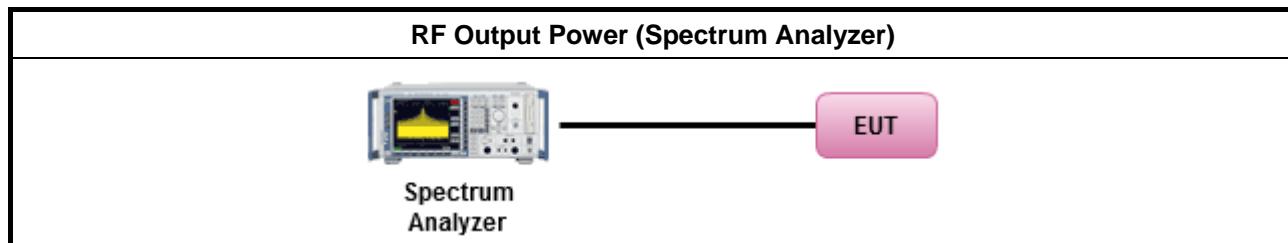
3.3.2 Measuring Instruments

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">▪ Maximum Conducted Output Power
[duty cycle ≥ 98% or external video / power trigger]
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
duty cycle < 98% and average over on/off periods with duty factor
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
Wideband RF power meter and average over on/off periods with duty factor
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method PM (using an RF average power meter).
<ul style="list-style-type: none">▪ For conducted measurement.
<ul style="list-style-type: none">▪ 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.▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup



3.3.5 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	
UNII Devices	
▪ For the 5.15-5.25 GHz band:	
	▪ 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) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.
▪ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.	
▪ For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.	
▪ For the 5.725-5.85 GHz band:	
	▪ Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 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) ≤ 30 dBm/500kHz.
PPSD = 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 G_{TX} = the maximum transmitting antenna directional gain in dBi.	

3.4.2 Measuring Instruments

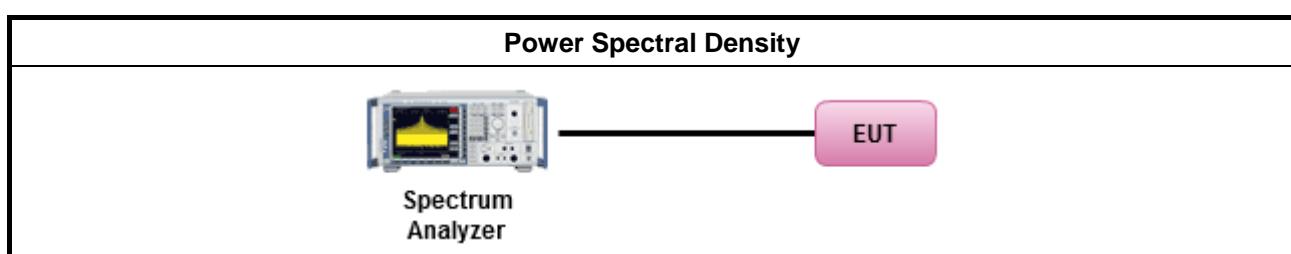
Refer a test equipment and calibration data table in this test report.



3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none">▪ 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:	
<p><input type="checkbox"/> Refer as FCC KDB 789033, F(5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth [duty cycle \geq 98% or external video / power trigger]</p>	
<p><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).</p>	
<p><input type="checkbox"/> Refer as FCC 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</p>	
<p><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).</p>	
<p><input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)</p>	
<ul style="list-style-type: none">▪ For conducted measurement.	
<ul style="list-style-type: none">▪ If the EUT supports multiple transmit chains using options given below:	<p><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_{TX} 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.</p>
	<p><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,</p>
<ul style="list-style-type: none">▪ If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$	<p><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.</p>

3.4.4 Test Setup





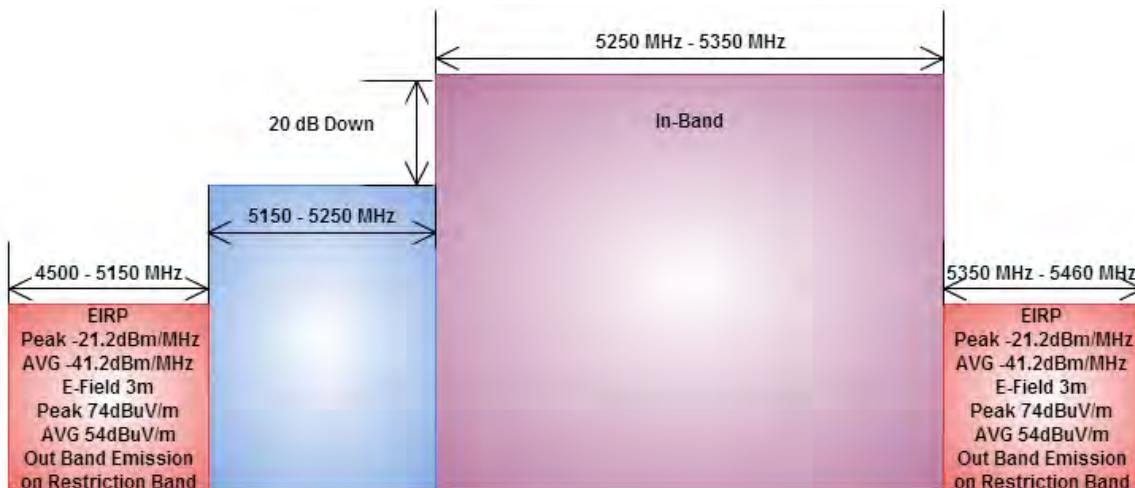
3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix C

3.5 Transmitter Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit

Transmitter Radiated Bandedge Emissions Limit: 5.25-5.35 GHz band



U-NII 2A - Bandedge Emissions Limit

Refer as FCC KDB 789033, G2)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



U-NII 2C - Bandedge Emissions Limit

Refer as FCC KDB 789033, G2)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.

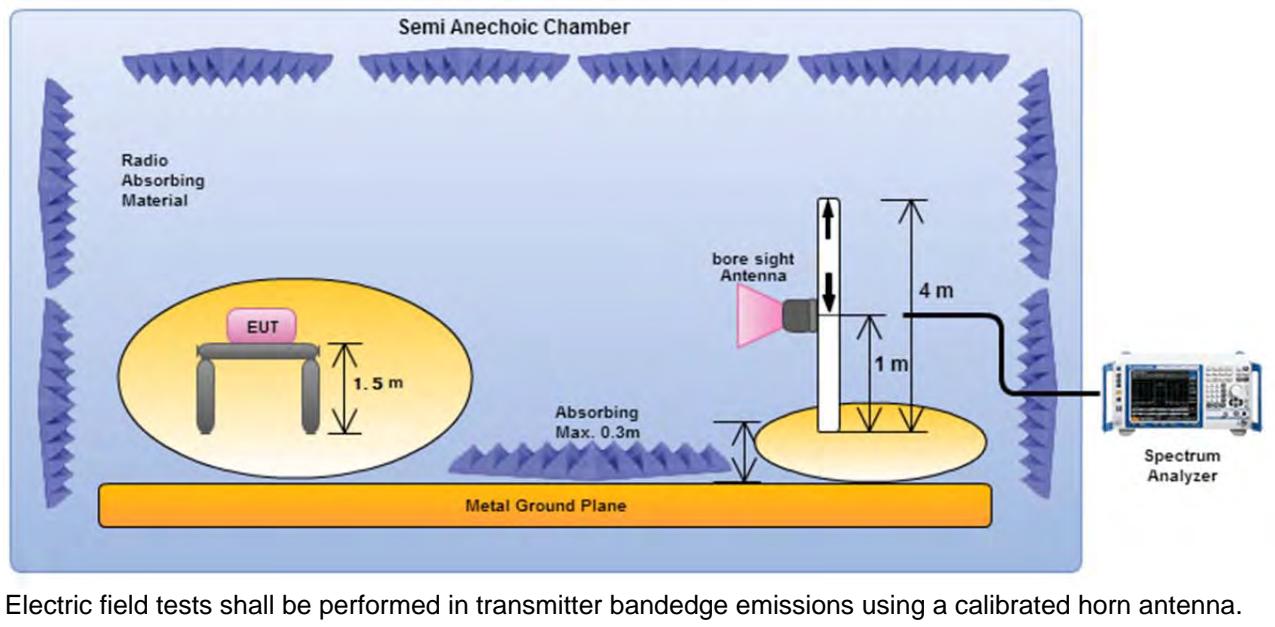


3.5.3 Test Procedures

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 FCC KDB 789033, clause G2) for unwanted emissions into non-restricted bands. <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause G1) for unwanted emissions into restricted bands. <input type="checkbox"/> Refer as FCC KDB 789033, G6) Method AD (Trace Averaging). <input type="checkbox"/> Refer as FCC KDB 789033, G6) 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 FCC KDB 789033, clause G5) 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 FCC KDB 789033, clause G3)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

Transmitter Radiated Bandedge Emissions



Electric field tests shall be performed in transmitter bandedge emissions using a calibrated horn antenna.

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
5.25 - 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]

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.

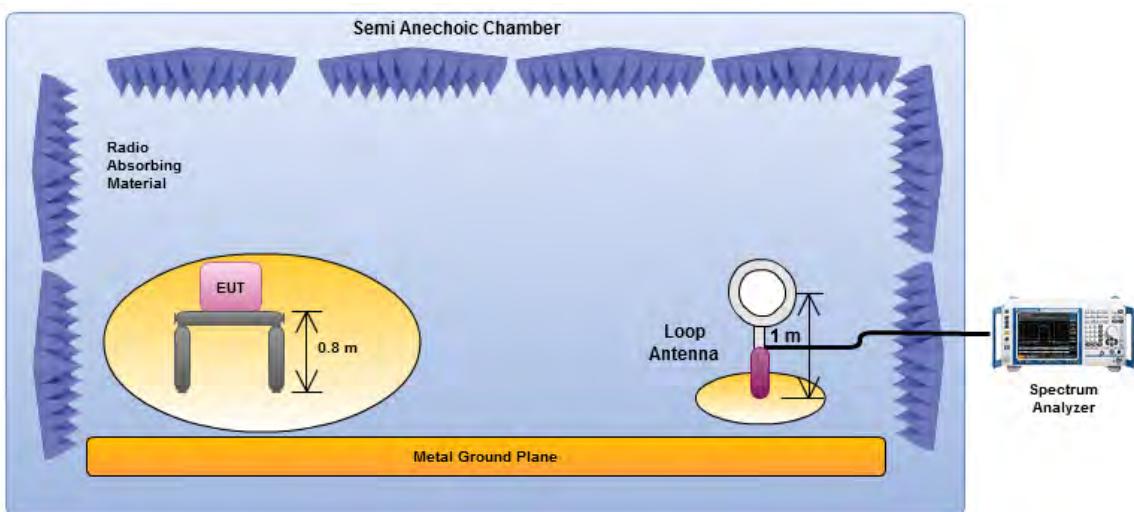


3.6.3 Test Procedures

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 FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
<input type="checkbox"/> Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
<input type="checkbox"/> Refer as FCC 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 FCC 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.

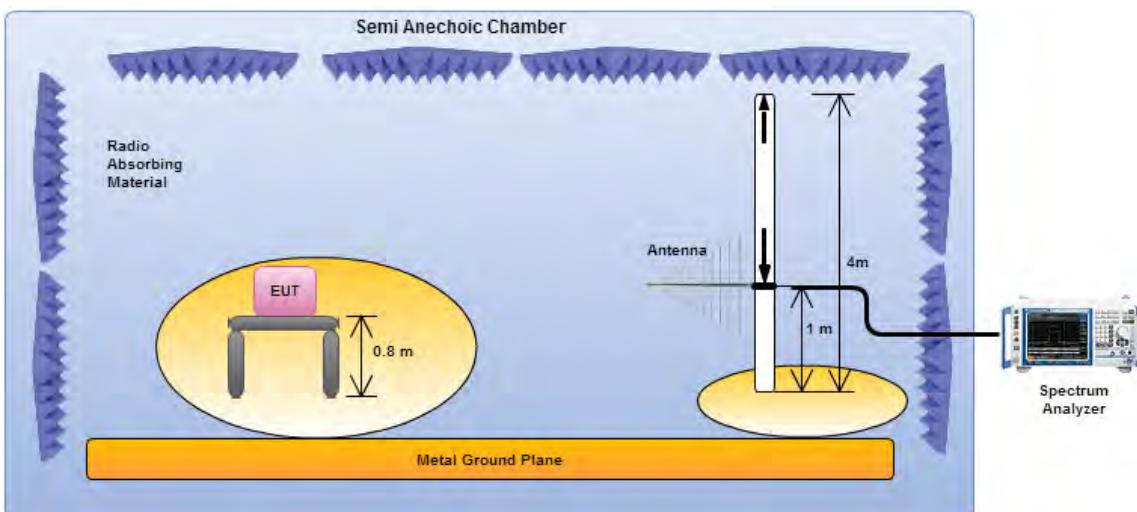
3.6.4 Test Setup

Transmitter Spurious and Out of Band Emissions (9 kHz - 30 MHz)

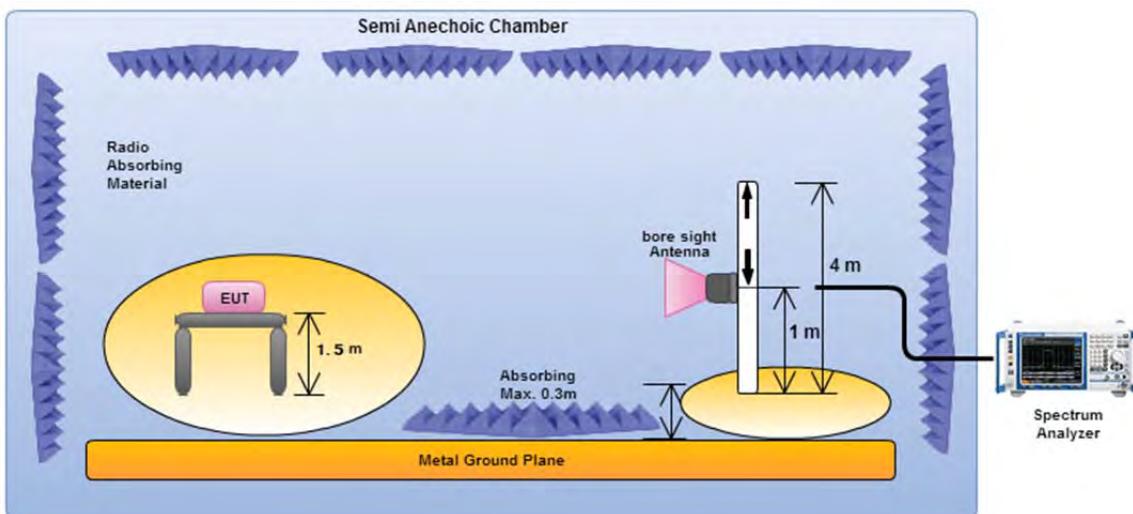


Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna.

Transmitter Radiated Unwanted Emissions (below 1GHz)



Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna.

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)

The amplitude of spurious emissions which are attenuated by more than 20dB 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	
UNII Devices	
<ul style="list-style-type: none">▪ In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.	
IEEE Std. 802.11	
<ul style="list-style-type: none">▪ The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz.	

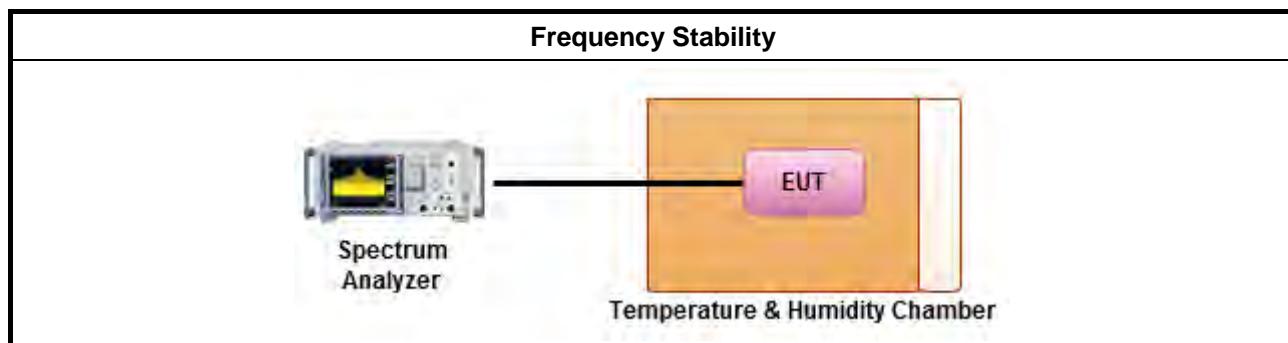
3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

Test Method	
▪ Refer as ANSI C63.10, clause 6.8 for frequency stability tests	
	▪ Frequency stability with respect to ambient temperature
	▪ Frequency stability when varying supply voltage

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	20 Hz ~ 8.4 GHz	14/04/2016	13/04/2017
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9 kHz ~ 30 MHz	26/01/2016	25/01/2017
LISN (Support Unit)	R&S	ENV216	101295	9 kHz ~ 30 MHz	04/11/2015	03/11/2016
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9 kHz ~ 30 MHz	30/10/2015	29/10/2016
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	NCR	NCR

NCR: No Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	9 KHz ~ 40 GHz	12/05/2016	11/05/ 2017
Power Sensor	Anritsu	MA2411B	917017	300 MHz ~ 40 GHz	04/02/2016	03/02/2017
Power Meter	Anritsu	ML2495A	949003	300 MHz ~ 40 GHz	04/02/2016	03/02/2017
Signal Generator	R&S	SMR40	100116	10 MHz ~ 40 GHz	28/07/2015	27/07/2016
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	04/06/2016	03/06/2017
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	-20 ~ 100°C	25/04/2016	24/06/2017



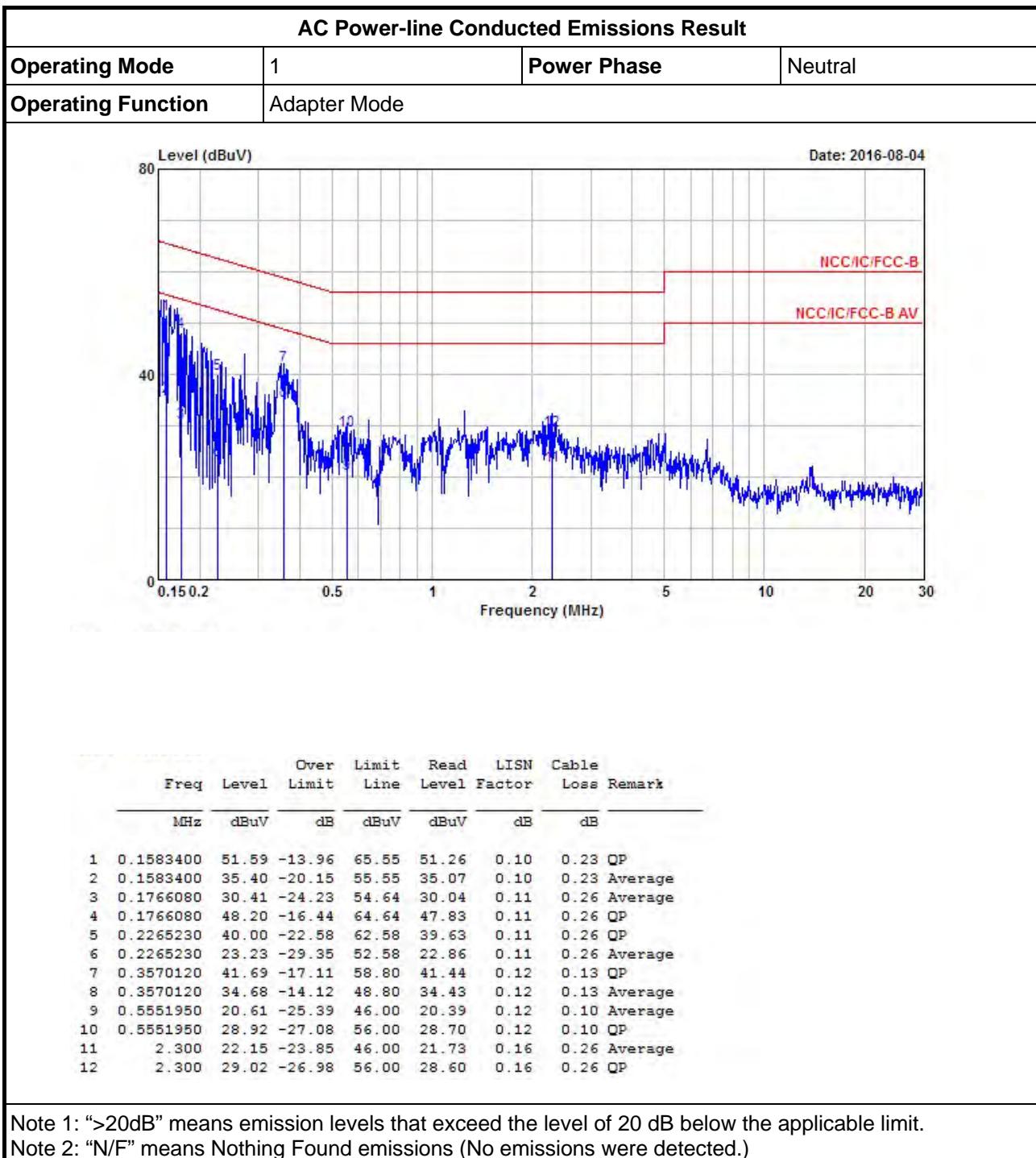
Instrument for Radiated Test

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
Amplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	02/06/2015	01/06/2017
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
Loop Antenna	ROHDE&SCHWARZ	HFH2-Z2	100330	9 kHz~30 MHz	10/11/2014	09/11/2016



AC Power-line Conducted Emissions

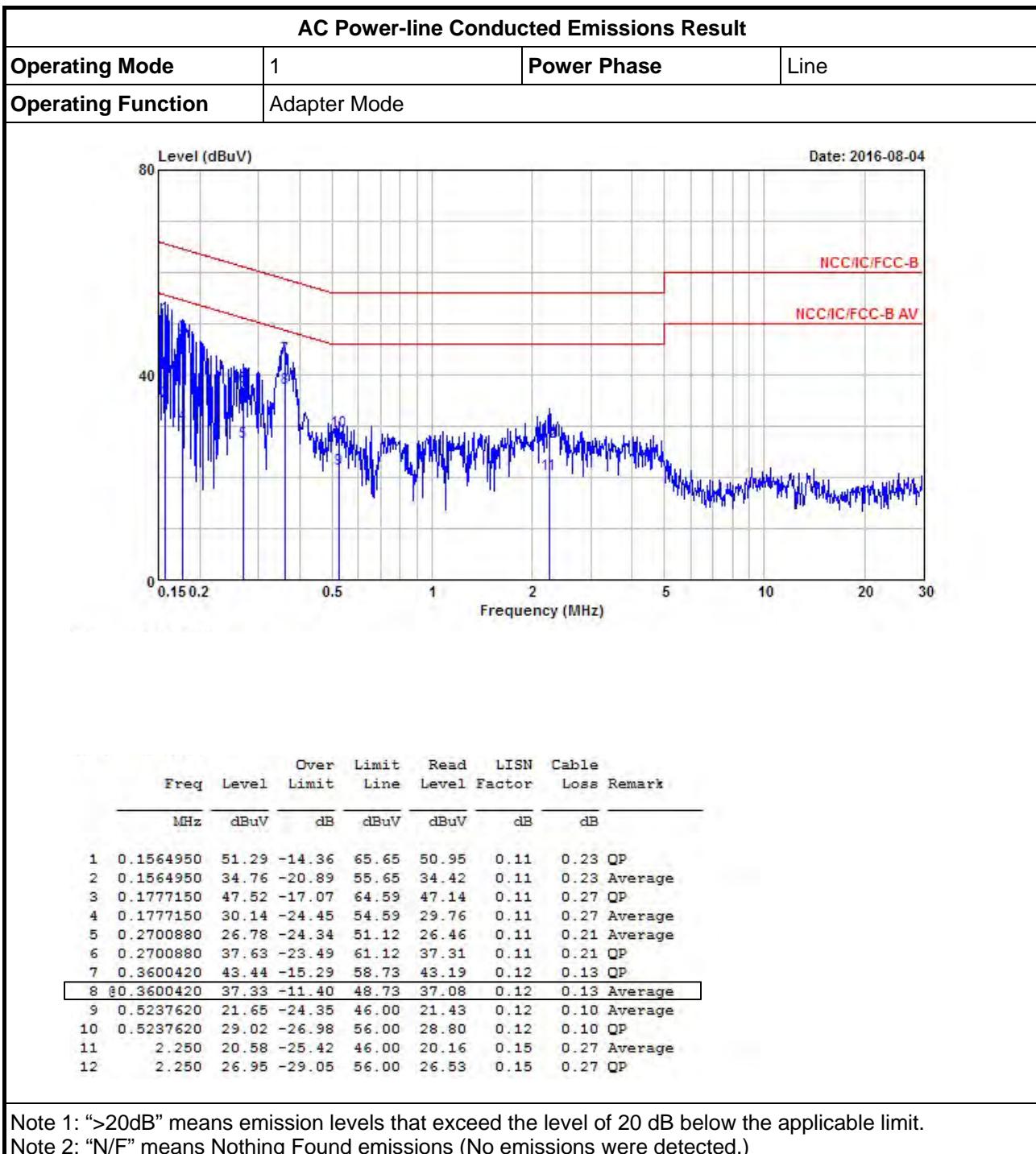
Appendix I





AC Power-line Conducted Emissions

Appendix I





Summary for Non-Beamforming

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.3G;11a;20;1;4	19.85M	16.417M	16M4D1D	19.075M	16.367M
5.3G;VHT20;20;1,(M0-8);4	20.5M	17.616M	17M6D1D	20.2M	17.566M
5.3G;VHT40;40;1,(M0-9);4	40.2M	36.182M	36M2D1D	39.4M	36.032M
5.3G;VHT80;80;1,(M0-9);4	80.5M	75.862M	75M9D1D	80M	75.762M
5.6G;11a;20;1;4	19.775M	16.417M	16M4D1D	19.05M	16.367M
5.6G;VHT20;20;1,(M0-8);4	20.7M	17.616M	17M6D1D	20.225M	17.566M
5.6G;VHT40;40;1,(M0-9);4	40.1M	36.182M	36M2D1D	39.3M	36.132M
5.6G;VHT80;80;1,(M0-9);4	80.5M	75.962M	76M0D1D	80.2M	75.662M



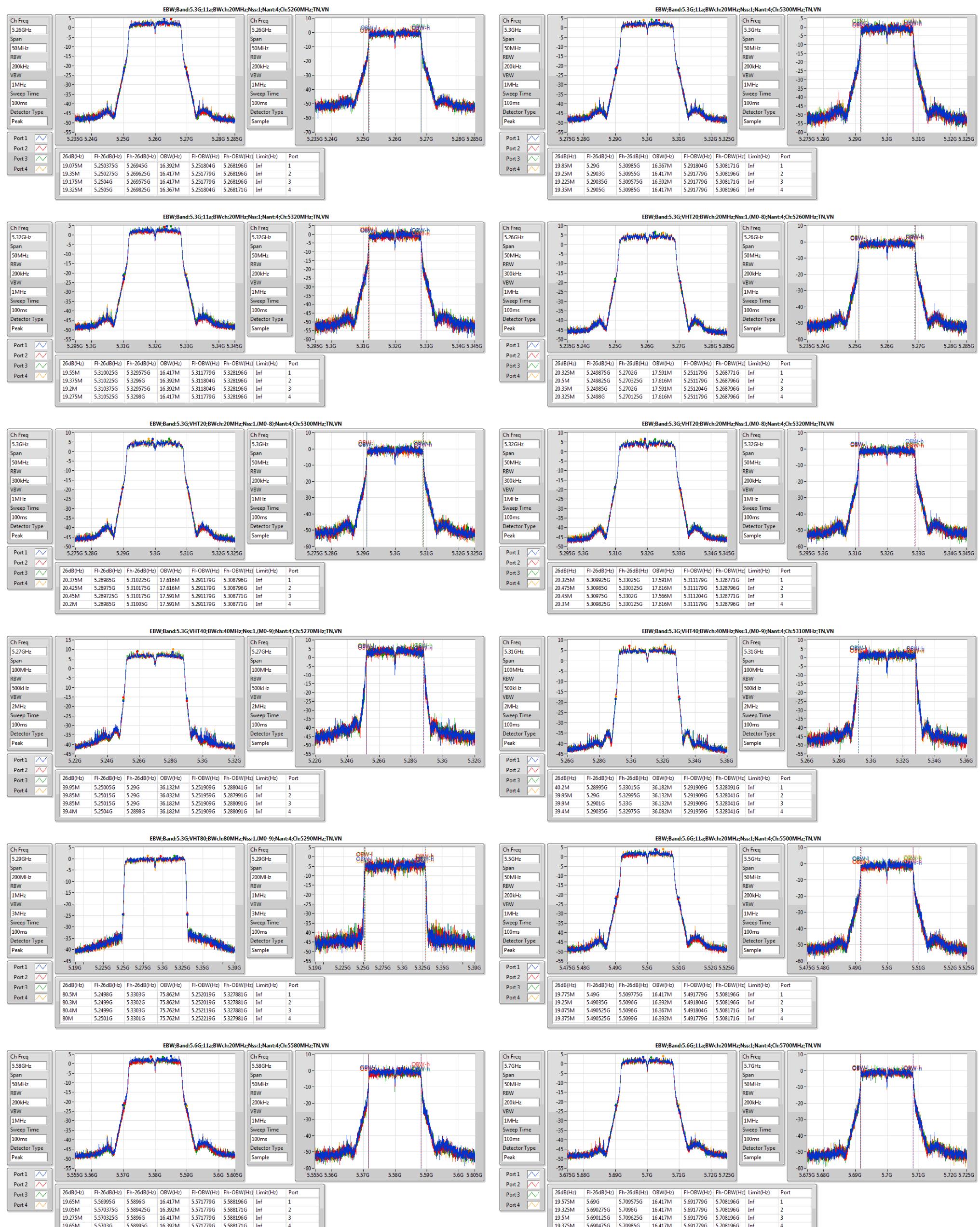
Result for Non-Beamforming

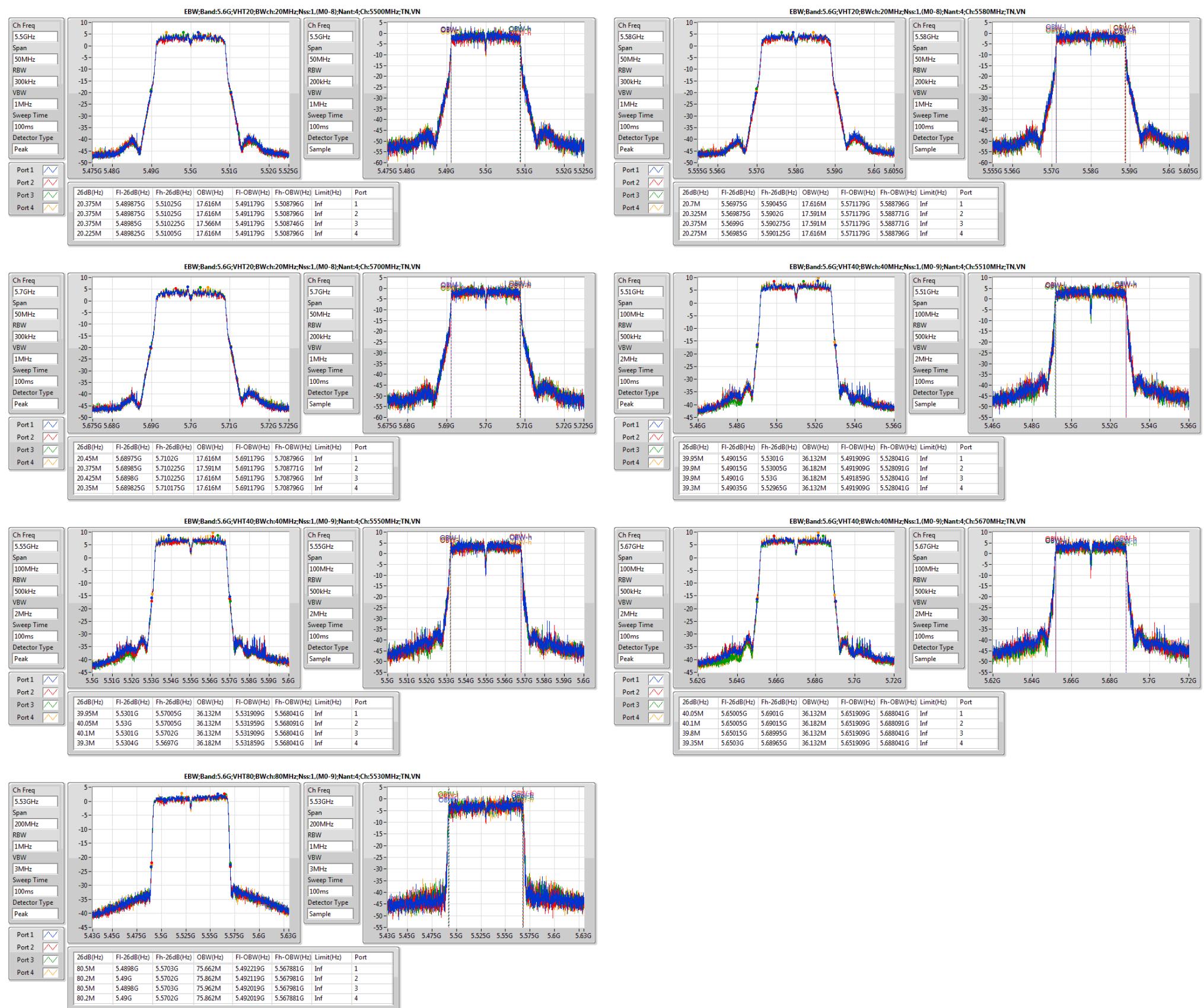
Mode	Result	Limit	P1-N dB (Hz)	P1-OBW (Hz)	P2-N dB (Hz)	P2-OBW (Hz)	P3-N dB (Hz)	P3-OBW (Hz)	P4-N dB (Hz)	P4-OBW (Hz)
5.3G;11a;20;1;4;5260;L;TN,VN	Pass	Inf	19.075M	16.392M	19.35M	16.417M	19.175M	16.417M	19.325M	16.367M
5.3G;11a;20;1;4;5300;M;TN,VN	Pass	Inf	19.85M	16.367M	19.25M	16.417M	19.225M	16.392M	19.35M	16.417M
5.3G;11a;20;1;4;5320;H;TN,VN	Pass	Inf	19.55M	16.417M	19.375M	16.392M	19.2M	16.392M	19.275M	16.417M
5.3G;VHT20;20;1,(M0-8);4;5260;L;TN,VN	Pass	Inf	20.325M	17.591M	20.5M	17.616M	20.35M	17.591M	20.325M	17.616M
5.3G;VHT20;20;1,(M0-8);4;5300;M;TN,VN	Pass	Inf	20.375M	17.616M	20.425M	17.616M	20.45M	17.591M	20.2M	17.591M
5.3G;VHT20;20;1,(M0-8);4;5320;H;TN,VN	Pass	Inf	20.325M	17.591M	20.475M	17.616M	20.45M	17.566M	20.3M	17.616M
5.3G;VHT40;40;1,(M0-9);4;5270;L;TN,VN	Pass	Inf	39.95M	36.132M	39.85M	36.032M	39.85M	36.182M	39.4M	36.182M
5.3G;VHT40;40;1,(M0-9);4;5310;H;TN,VN	Pass	Inf	40.2M	36.182M	39.95M	36.132M	39.9M	36.132M	39.4M	36.082M
5.3G;VHT80;80;1,(M0-9);4;5290;S;TN,VN	Pass	Inf	80.5M	75.862M	80.3M	75.862M	80.4M	75.762M	80M	75.762M
5.6G;11a;20;1;4;5500;L;TN,VN	Pass	Inf	19.775M	16.417M	19.25M	16.392M	19.075M	16.367M	19.375M	16.392M
5.6G;11a;20;1;4;5580;M;TN,VN	Pass	Inf	19.65M	16.417M	19.05M	16.392M	19.275M	16.417M	19.65M	16.392M
5.6G;11a;20;1;4;5700;H;TN,VN	Pass	Inf	19.575M	16.417M	19.325M	16.417M	19.5M	16.417M	19.375M	16.417M
5.6G;VHT20;20;1,(M0-8);4;5500;L;TN,VN	Pass	Inf	20.375M	17.616M	20.375M	17.616M	20.375M	17.566M	20.225M	17.616M
5.6G;VHT20;20;1,(M0-8);4;5580;M;TN,VN	Pass	Inf	20.7M	17.616M	20.325M	17.591M	20.375M	17.591M	20.275M	17.616M
5.6G;VHT20;20;1,(M0-8);4;5700;H;TN,VN	Pass	Inf	20.45M	17.616M	20.375M	17.591M	20.425M	17.616M	20.35M	17.616M
5.6G;VHT40;40;1,(M0-9);4;5510;L;TN,VN	Pass	Inf	39.95M	36.132M	39.9M	36.182M	39.9M	36.182M	39.3M	36.132M
5.6G;VHT40;40;1,(M0-9);4;5550;M;TN,VN	Pass	Inf	39.95M	36.132M	40.05M	36.132M	40.1M	36.132M	39.3M	36.182M
5.6G;VHT40;40;1,(M0-9);4;5670;H;TN,VN	Pass	Inf	40.05M	36.132M	40.1M	36.182M	39.8M	36.132M	39.35M	36.132M
5.6G;VHT80;80;1,(M0-9);4;5530;L;TN,VN	Pass	Inf	80.5M	75.662M	80.2M	75.862M	80.5M	75.962M	80.2M	75.862M



EBW Result

Appendix A







Summary for Beamforming

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.3G;VHT20,BF;20;1,(M0);4	21.525M	17.741M	17M7D1D	18.875M	17.616M
5.3G;VHT40,BF;40;1,(M0);4	41.2M	36.382M	36M4D1D	40.55M	36.232M
5.3G;VHT80,BF;80;1,(M0);4	83.5M	75.962M	76M0D1D	82.6M	75.762M
5.6G;VHT20,BF;20;1,(M0);4	21.45M	17.716M	17M7D1D	18.725M	17.616M
5.6G;VHT40,BF;40;1,(M0);4	41.95M	36.332M	36M3D1D	40.25M	36.232M
5.6G;VHT80,BF;80;1,(M0);4	83.7M	76.062M	76M1D1D	82.5M	75.662M



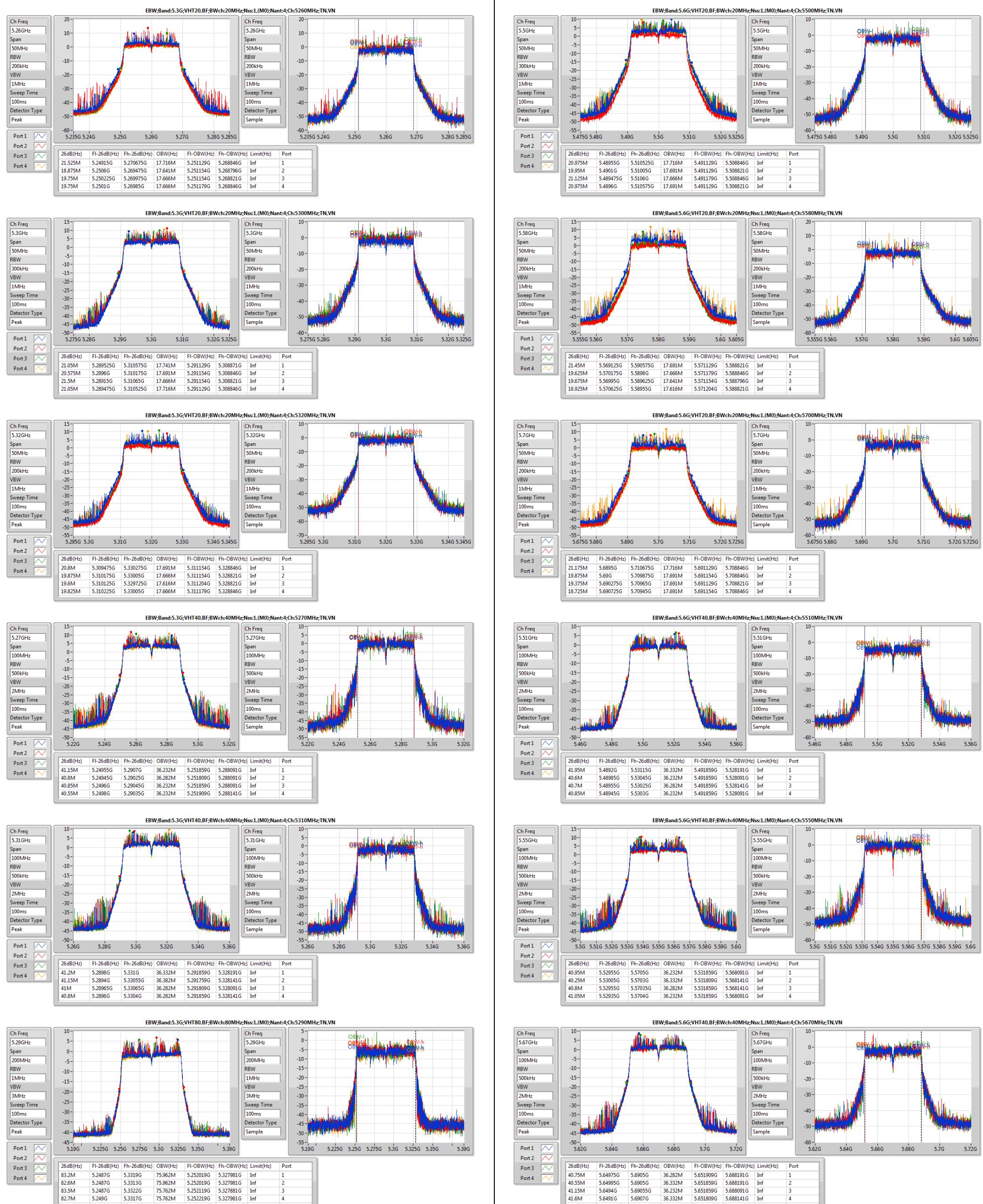
Result for Beamforming

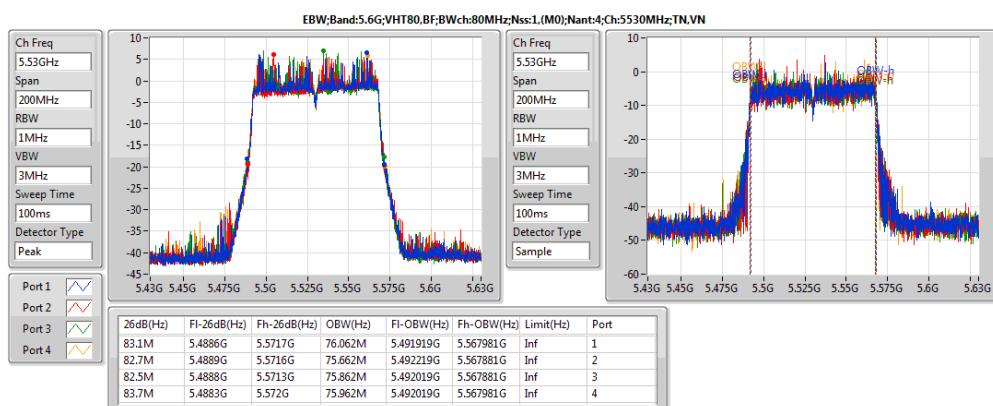
Mode	Result	Limit	P1-N dB (Hz)	P1-OBW (Hz)	P2-N dB (Hz)	P2-OBW (Hz)	P3-N dB (Hz)	P3-OBW (Hz)	P4-N dB (Hz)	P4-OBW (Hz)
5.3G;VHT20,BF;20;1,(M0);4;5260;L;TN,VN	Pass	Inf	21.525M	17.716M	18.875M	17.641M	19.75M	17.666M	19.75M	17.666M
5.3G;VHT20,BF;20;1,(M0);4;5300;M;TN,VN	Pass	Inf	21.05M	17.741M	20.575M	17.691M	21.5M	17.666M	21.05M	17.716M
5.3G;VHT20,BF;20;1,(M0);4;5320;H;TN,VN	Pass	Inf	20.8M	17.691M	19.875M	17.666M	19.6M	17.616M	19.825M	17.666M
5.3G;VHT40,BF;40;1,(M0);4;5270;L;TN,VN	Pass	Inf	41.15M	36.232M	40.8M	36.282M	40.85M	36.232M	40.55M	36.232M
5.3G;VHT40,BF;40;1,(M0);4;5310;H;TN,VN	Pass	Inf	41.2M	36.332M	41.15M	36.382M	41M	36.282M	40.8M	36.282M
5.3G;VHT80,BF;80;1,(M0);4;5290;S;TN,VN	Pass	Inf	83.2M	75.962M	82.6M	75.962M	83.5M	75.762M	82.7M	75.762M
5.6G;VHT20,BF;20;1,(M0);4;5500;L;TN,VN	Pass	Inf	20.975M	17.716M	19.95M	17.691M	21.125M	17.666M	20.975M	17.691M
5.6G;VHT20,BF;20;1,(M0);4;5580;M;TN,VN	Pass	Inf	21.45M	17.691M	19.625M	17.666M	19.675M	17.641M	18.925M	17.616M
5.6G;VHT20,BF;20;1,(M0);4;5700;H;TN,VN	Pass	Inf	21.175M	17.716M	19.875M	17.691M	19.375M	17.691M	18.725M	17.691M
5.6G;VHT40,BF;40;1,(M0);4;5510;L;TN,VN	Pass	Inf	41.95M	36.332M	40.6M	36.232M	40.7M	36.282M	40.85M	36.232M
5.6G;VHT40,BF;40;1,(M0);4;5550;M;TN,VN	Pass	Inf	40.95M	36.232M	40.25M	36.332M	40.8M	36.282M	41.05M	36.232M
5.6G;VHT40,BF;40;1,(M0);4;5670;H;TN,VN	Pass	Inf	40.75M	36.282M	40.55M	36.332M	41.15M	36.232M	41.6M	36.332M
5.6G;VHT80,BF;80;1,(M0);4;5530;L;TN,VN	Pass	Inf	83.1M	76.062M	82.7M	75.662M	82.5M	75.862M	83.7M	75.962M



EBW Result

Appendix A





**Summary for Non-Beamforming**

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
5.3G;11a;20;1;4	20.73	0.1183	23.63	0.23067
5.3G;HT20;20;1,(M0-31);4	20.73	0.1183	23.63	0.23067
5.3G;HT40;40;1,(M0-31);4	23.60	0.22909	26.50	0.44668
5.3G;VHT20;20;1,(M0-8);4	20.76	0.11912	23.66	0.23227
5.3G;VHT40;40;1,(M0-9);4	23.62	0.23014	26.52	0.44875
5.3G;VHT80;80;1,(M0-9);4	15.66	0.03681	18.56	0.07178
5.6G;11a;20;1;4	20.22	0.1052	23.82	0.24099
5.6G;HT20;20;1,(M0-31);4	20.01	0.10023	23.61	0.22961
5.6G;HT40;40;1,(M0-31);4	23.41	0.21928	27.01	0.50234
5.6G;VHT20;20;1,(M0-8);4	20.09	0.10209	23.69	0.23388
5.6G;VHT40;40;1,(M0-9);4	23.48	0.22284	27.08	0.5105
5.6G;VHT80;80;1,(M0-9);4	17.08	0.05105	20.68	0.11695



Result for Non-Beamforming

Mode	Result	DG (dBi)	EIRP (dBm)	EIRP Lim. (dBm)	Sum (dBm)	Sum Lim. (dBm)	P1 (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)
5.3G;11a;20;1;4;5260;L;TN,VN	Pass	2.90	23.61	29.80	20.71	23.80	14.70	14.54	14.70	14.83
5.3G;11a;20;1;4;5300;M;TN,VN	Pass	2.90	23.26	29.84	20.36	23.84	14.37	14.38	14.63	13.93
5.3G;11a;20;1;4;5320;H;TN,VN	Pass	2.90	23.63	29.83	20.73	23.83	14.85	14.49	14.81	14.69
5.3G;HT20;20;1,(M0-31);4;5260;L;TN,VN	Pass	2.90	23.50	30.00	20.60	24.00	14.56	14.47	14.66	14.62
5.3G;HT20;20;1,(M0-31);4;5300;M;TN,VN	Pass	2.90	23.63	30.00	20.73	24.00	14.91	14.53	14.81	14.57
5.3G;HT20;20;1,(M0-31);4;5320;H;TN,VN	Pass	2.90	23.46	30.00	20.56	24.00	14.66	14.22	14.63	14.62
5.3G;HT40;40;1,(M0-31);4;5270;L;TN,VN	Pass	2.90	26.50	30.00	23.60	24.00	17.56	17.49	17.74	17.51
5.3G;HT40;40;1,(M0-31);4;5310;H;TN,VN	Pass	2.90	24.52	30.00	21.62	24.00	15.82	15.55	15.55	15.47
5.3G;VHT20;20;1,(M0-8);4;5260;L;TN,VN	Pass	2.90	23.57	30.00	20.67	24.00	14.64	14.48	14.75	14.73
5.3G;VHT20;20;1,(M0-8);4;5300;M;TN,VN	Pass	2.90	23.66	30.00	20.76	24.00	14.84	14.53	14.90	14.66
5.3G;VHT20;20;1,(M0-8);4;5320;H;TN,VN	Pass	2.90	23.48	30.00	20.58	24.00	14.68	14.27	14.77	14.50
5.3G;VHT40;40;1,(M0-9);4;5270;L;TN,VN	Pass	2.90	26.52	30.00	23.62	24.00	17.56	17.57	17.79	17.47
5.3G;VHT40;40;1,(M0-9);4;5310;H;TN,VN	Pass	2.90	24.54	30.00	21.64	24.00	15.82	15.66	15.59	15.41
5.3G;VHT80;80;1,(M0-9);4;5290;S;TN,VN	Pass	2.90	18.56	30.00	15.66	24.00	9.86	9.68	9.75	9.25
5.6G;11a;20;1;4;5500;L;TN,VN	Pass	3.60	23.60	29.80	20.00	23.80	14.10	13.77	14.09	13.96
5.6G;11a;20;1;4;5580;M;TN,VN	Pass	3.60	23.82	29.80	20.22	23.80	14.60	14.02	14.14	14.02
5.6G;11a;20;1;4;5700;H;TN,VN	Pass	3.60	23.70	29.86	20.10	23.86	14.20	13.92	14.07	14.12
5.6G;HT20;20;1,(M0-31);4;5500;L;TN,VN	Pass	3.60	23.44	30.00	19.84	24.00	13.95	13.56	13.87	13.90
5.6G;HT20;20;1,(M0-31);4;5580;M;TN,VN	Pass	3.60	23.61	30.00	20.01	24.00	14.42	13.74	13.91	13.85
5.6G;HT20;20;1,(M0-31);4;5700;H;TN,VN	Pass	3.60	23.47	30.00	19.87	24.00	13.94	13.72	13.83	13.89
5.6G;HT40;40;1,(M0-31);4;5510;L;TN,VN	Pass	3.60	26.91	30.00	23.31	24.00	17.44	17.16	17.36	17.17
5.6G;HT40;40;1,(M0-31);4;5550;M;TN,VN	Pass	3.60	27.01	30.00	23.41	24.00	17.61	17.28	17.37	17.29
5.6G;HT40;40;1,(M0-31);4;5670;H;TN,VN	Pass	3.60	26.96	30.00	23.36	24.00	17.62	17.30	17.18	17.24
5.6G;VHT20;20;1,(M0-8);4;5500;L;TN,VN	Pass	3.60	23.53	30.00	19.93	24.00	14.08	13.73	13.97	13.86
5.6G;VHT20;20;1,(M0-8);4;5580;M;TN,VN	Pass	3.60	23.69	30.00	20.09	24.00	14.48	13.72	14.02	14.02
5.6G;VHT20;20;1,(M0-8);4;5700;H;TN,VN	Pass	3.60	23.51	30.00	19.91	24.00	14.08	13.76	13.82	13.89
5.6G;VHT40;40;1,(M0-9);4;5510;L;TN,VN	Pass	3.60	26.94	30.00	23.34	24.00	17.62	17.25	17.24	17.13
5.6G;VHT40;40;1,(M0-9);4;5550;M;TN,VN	Pass	3.60	27.07	30.00	23.47	24.00	17.82	17.29	17.36	17.29
5.6G;VHT40;40;1,(M0-9);4;5670;H;TN,VN	Pass	3.60	27.08	30.00	23.48	24.00	17.82	17.44	17.11	17.43
5.6G;VHT80;80;1,(M0-9);4;5530;L;TN,VN	Pass	3.60	20.68	30.00	17.08	24.00	11.29	11.04	11.00	10.89

**Summary for Beamforming**

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
5.3G;VHT20,BF;20;1,(M0);4	20.80	0.12023	29.72	0.93756
5.3G;VHT40,BF;40;1,(M0);4	20.83	0.12106	29.76	0.94624
5.3G;VHT80,BF;80;1,(M0);4	15.17	0.03289	24.09	0.25645
5.6G;VHT20,BF;20;1,(M0);4	20.33	0.10789	29.95	0.98855
5.6G;VHT40,BF;40;1,(M0);4	20.16	0.10375	29.78	0.9506
5.6G;VHT80,BF;80;1,(M0);4	15.94	0.03926	25.56	0.35975



Result for Beamforming

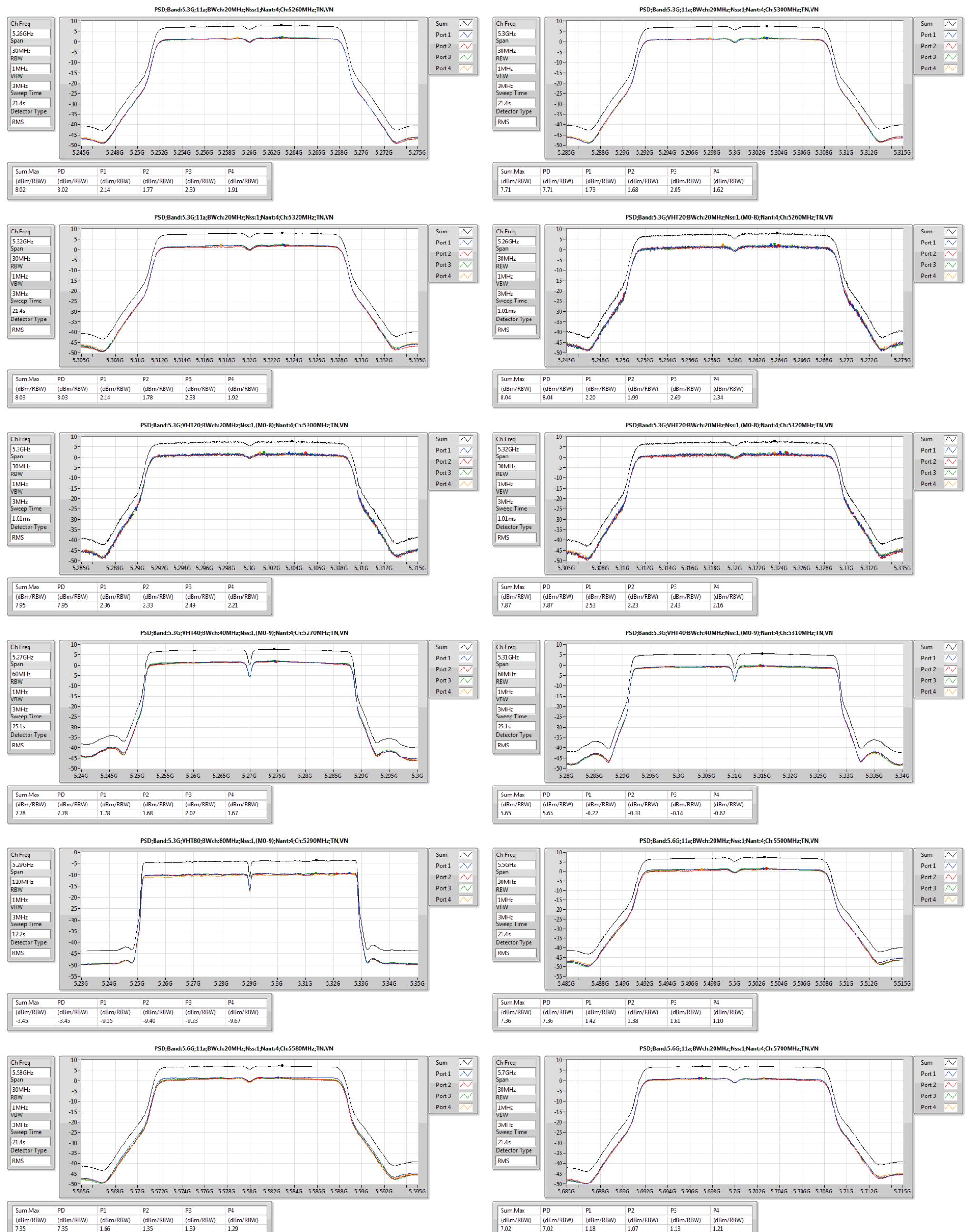
Mode	Result	DG (dBi)	EIRP (dBm)	EIRP Lim. (dBm)	Sum (dBm)	Sum Lim. (dBm)	P1 (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)
5.3G;VHT20,BF;20;1,(M0);4;5260;L;TN,VN	Pass	8.92	29.48	29.76	20.56	20.84	13.96	15.24	14.86	13.96
5.3G;VHT20,BF;20;1,(M0);4;5300;M;TN,VN	Pass	8.92	29.72	30.00	20.80	21.08	13.93	15.06	15.20	14.83
5.3G;VHT20,BF;20;1,(M0);4;5320;H;TN,VN	Pass	8.92	29.51	29.92	20.59	21.00	14.93	14.36	14.33	14.62
5.3G;VHT40,BF;40;1,(M0);4;5270;L;TN,VN	Pass	8.92	29.76	30.00	20.83	21.08	14.37	14.51	15.35	14.96
5.3G;VHT40,BF;40;1,(M0);4;5310;H;TN,VN	Pass	8.92	28.29	30.00	19.37	21.08	13.76	13.50	13.13	12.94
5.3G;VHT80,BF;80;1,(M0);4;5290;S;TN,VN	Pass	8.92	24.09	30.00	15.17	21.08	9.19	8.89	9.42	9.09
5.6G;VHT20,BF;20;1,(M0);4;5500;L;TN,VN	Pass	9.62	29.95	30.00	20.33	20.38	14.29	13.98	14.58	14.37
5.6G;VHT20,BF;20;1,(M0);4;5580;M;TN,VN	Pass	9.62	29.30	29.77	19.68	20.15	13.93	13.63	13.60	13.47
5.6G;VHT20,BF;20;1,(M0);4;5700;H;TN,VN	Pass	9.62	28.63	29.72	19.01	20.10	13.06	12.24	12.94	13.59
5.6G;VHT40,BF;40;1,(M0);4;5510;L;TN,VN	Pass	9.62	25.85	30.00	16.23	20.38	10.53	9.10	10.39	10.63
5.6G;VHT40,BF;40;1,(M0);4;5550;M;TN,VN	Pass	9.62	29.78	30.00	20.16	20.38	14.89	13.20	14.56	13.70
5.6G;VHT40,BF;40;1,(M0);4;5670;H;TN,VN	Pass	9.62	27.95	30.00	18.33	20.38	12.58	11.98	12.40	12.24
5.6G;VHT80,BF;80;1,(M0);4;5530;L;TN,VN	Pass	9.62	25.56	30.00	15.94	20.38	10.42	9.71	9.63	9.88

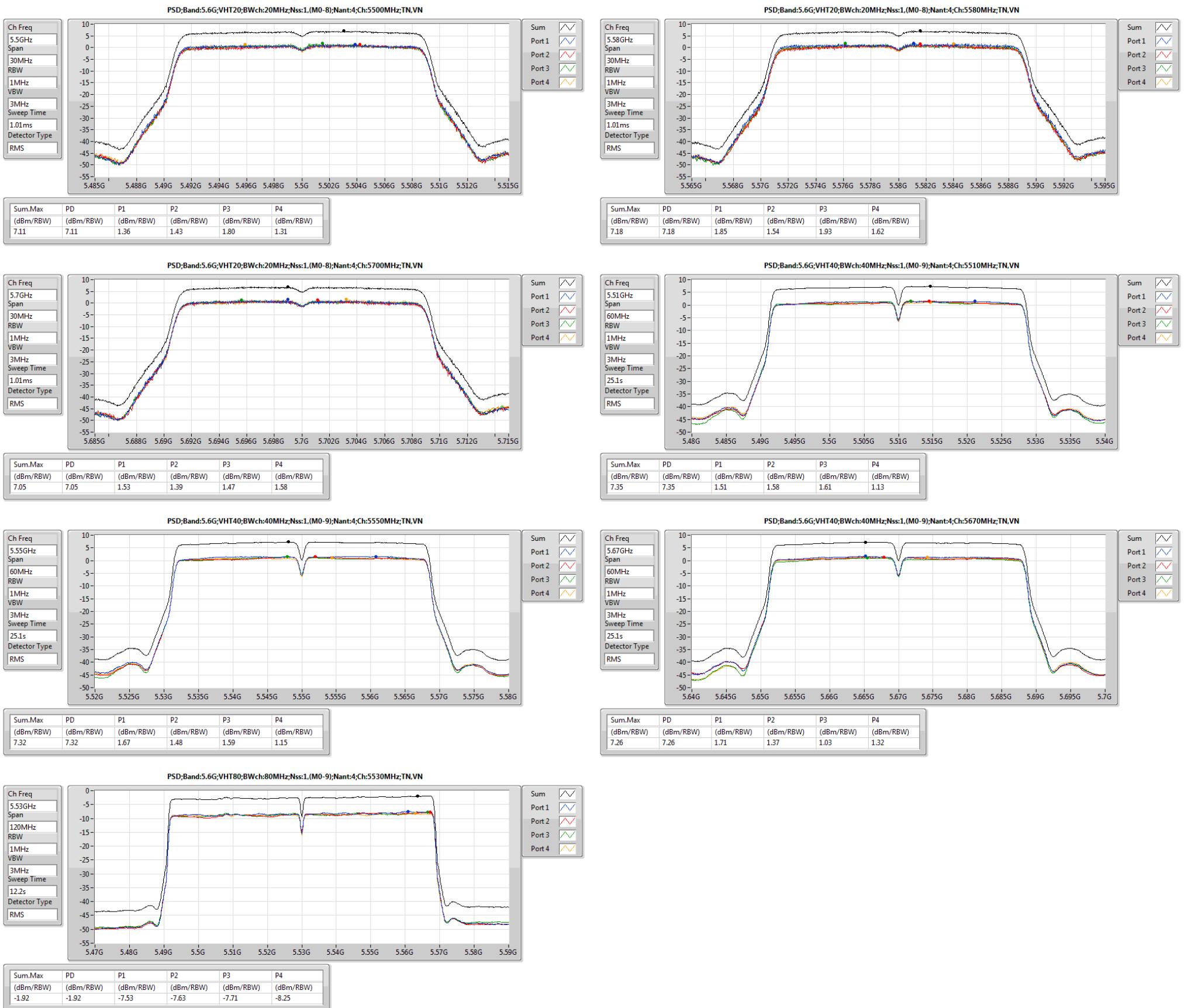
**Summary for Non-Beamforming**

Mode	PD (dBm/RBW)	EIRP.PD (dBm/RBW)
5.3G;11a;20;1;4	8.03	16.95
5.3G;VHT20;20;1,(M0-8);4	8.04	16.96
5.3G;VHT40;40;1,(M0-9);4	7.78	16.70
5.3G;VHT80;80;1,(M0-9);4	-3.45	5.47
5.6G;11a;20;1;4	7.36	16.98
5.6G;VHT20;20;1,(M0-8);4	7.18	16.80
5.6G;VHT40;40;1,(M0-9);4	7.35	16.97
5.6G;VHT80;80;1,(M0-9);4	-1.92	7.70

Result for Non-Beamforming

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)
5.3G;11a;20;1;4;5260;L;TN,VN	Pass	1M	1M	0.00	8.92	8.02	8.02	8.08	16.94	Inf	2.14	1.77	2.30	1.91
5.3G;11a;20;1;4;5300;M;TN,VN	Pass	1M	1M	0.00	8.92	7.71	7.71	8.08	16.63	Inf	1.73	1.68	2.05	1.62
5.3G;11a;20;1;4;5320;H;TN,VN	Pass	1M	1M	0.00	8.92	8.03	8.03	8.08	16.95	Inf	2.14	1.78	2.38	1.92
5.3G;VHT20;20;1,(M0-8);4;5260;L;TN,VN	Pass	1M	1M	0.00	8.92	8.04	8.04	8.08	16.96	Inf	2.20	1.99	2.69	2.34
5.3G;VHT20;20;1,(M0-8);4;5300;M;TN,VN	Pass	1M	1M	0.00	8.92	7.95	7.95	8.08	16.87	Inf	2.36	2.33	2.49	2.21
5.3G;VHT20;20;1,(M0-8);4;5320;H;TN,VN	Pass	1M	1M	0.00	8.92	7.87	7.87	8.08	16.79	Inf	2.53	2.23	2.43	2.16
5.3G;VHT40;40;1,(M0-9);4;5270;L;TN,VN	Pass	1M	1M	0.00	8.92	7.78	7.78	8.08	16.70	Inf	1.78	1.68	2.02	1.67
5.3G;VHT40;40;1,(M0-9);4;5310;H;TN,VN	Pass	1M	1M	0.00	8.92	5.65	5.65	8.08	14.57	Inf	-0.22	-0.33	-0.14	-0.62
5.3G;VHT80;80;1,(M0-9);4;5290;S;TN,VN	Pass	1M	1M	0.00	8.92	-3.45	-3.45	8.08	5.47	Inf	-9.15	-9.40	-9.23	-9.67
5.6G;11a;20;1;4;5500;L;TN,VN	Pass	1M	1M	0.00	9.62	7.36	7.36	7.38	16.98	Inf	1.42	1.38	1.61	1.10
5.6G;11a;20;1;4;5580;M;TN,VN	Pass	1M	1M	0.00	9.62	7.35	7.35	7.38	16.97	Inf	1.66	1.35	1.39	1.29
5.6G;11a;20;1;4;5700;H;TN,VN	Pass	1M	1M	0.00	9.62	7.02	7.02	7.38	16.64	Inf	1.18	1.07	1.13	1.21
5.6G;VHT20;20;1,(M0-8);4;5500;L;TN,VN	Pass	1M	1M	0.00	9.62	7.11	7.11	7.38	16.73	Inf	1.36	1.43	1.80	1.31
5.6G;VHT20;20;1,(M0-8);4;5580;M;TN,VN	Pass	1M	1M	0.00	9.62	7.18	7.18	7.38	16.80	Inf	1.85	1.54	1.93	1.62
5.6G;VHT20;20;1,(M0-8);4;5700;H;TN,VN	Pass	1M	1M	0.00	9.62	7.05	7.05	7.38	16.67	Inf	1.53	1.39	1.47	1.58
5.6G;VHT40;40;1,(M0-9);4;5510;L;TN,VN	Pass	1M	1M	0.00	9.62	7.35	7.35	7.38	16.97	Inf	1.51	1.58	1.61	1.13
5.6G;VHT40;40;1,(M0-9);4;5550;M;TN,VN	Pass	1M	1M	0.00	9.62	7.32	7.32	7.38	16.94	Inf	1.67	1.48	1.59	1.15
5.6G;VHT40;40;1,(M0-9);4;5670;H;TN,VN	Pass	1M	1M	0.00	9.62	7.26	7.26	7.38	16.89	Inf	1.71	1.37	1.03	1.32
5.6G;VHT80;80;1,(M0-9);4;5530;L;TN,VN	Pass	1M	1M	0.00	9.62	-1.92	-1.92	7.38	7.70	Inf	-7.53	-7.63	-7.71	-8.25

PSD Result
Appendix C




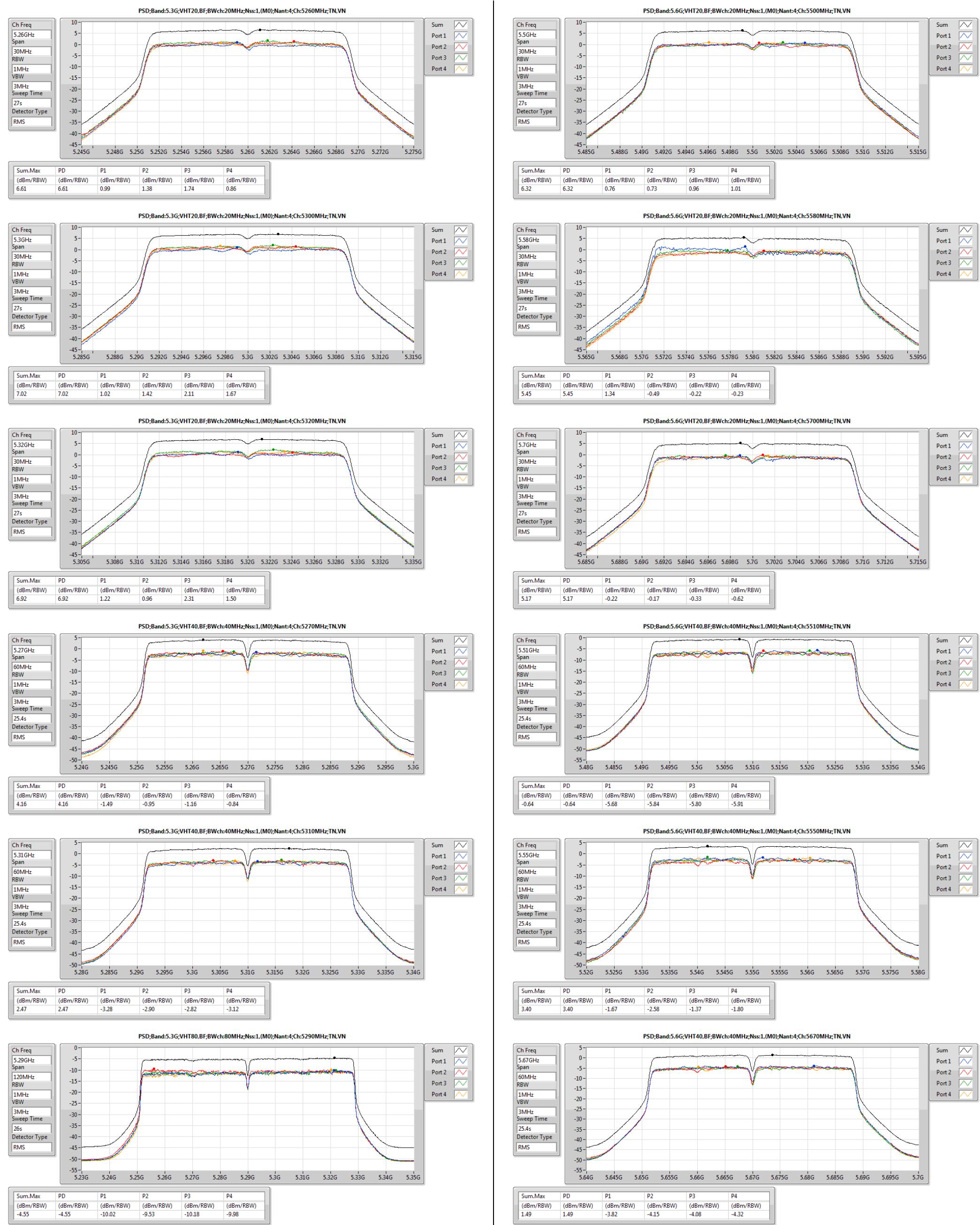
**Summary for Beamforming**

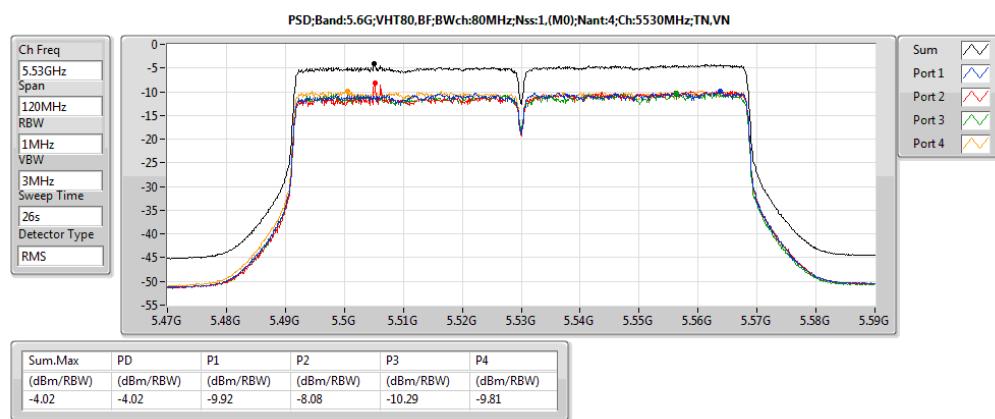
Mode	PD (dBm/RBW)	EIRP.PD (dBm/RBW)
5.3G;VHT20,BF;20;1,(M0);4	7.02	15.94
5.3G;VHT40,BF;40;1,(M0);4	4.16	13.08
5.3G;VHT80,BF;80;1,(M0);4	-4.55	4.37
5.6G;VHT20,BF;20;1,(M0);4	6.32	15.94
5.6G;VHT40,BF;40;1,(M0);4	3.40	13.02
5.6G;VHT80,BF;80;1,(M0);4	-4.02	5.60



Result for Beamforming

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)
5.3G;VHT20,BF;20;1,(M0);4;5260;L;TN,VN	Pass	1M	1M	0.00	8.92	6.61	6.61	8.08	15.53	Inf	0.99	1.38	1.74	0.86
5.3G;VHT20,BF;20;1,(M0);4;5300;M;TN,VN	Pass	1M	1M	0.00	8.92	7.02	7.02	8.08	15.94	Inf	1.02	1.42	2.11	1.67
5.3G;VHT20,BF;20;1,(M0);4;5320;H;TN,VN	Pass	1M	1M	0.00	8.92	6.92	6.92	8.08	15.84	Inf	1.22	0.96	2.31	1.50
5.3G;VHT40,BF;40;1,(M0);4;5270;L;TN,VN	Pass	1M	1M	0.00	8.92	4.16	4.16	8.08	13.08	Inf	-1.49	-0.95	-1.16	-0.84
5.3G;VHT40,BF;40;1,(M0);4;5310;H;TN,VN	Pass	1M	1M	0.00	8.92	2.47	2.47	8.08	11.39	Inf	-3.28	-2.90	-2.82	-3.12
5.3G;VHT80,BF;80;1,(M0);4;5290;S;TN,VN	Pass	1M	1M	0.00	8.92	-4.55	-4.55	8.08	4.37	Inf	-10.02	-9.53	-10.18	-9.98
5.6G;VHT20,BF;20;1,(M0);4;5500;L;TN,VN	Pass	1M	1M	0.00	9.62	6.32	6.32	7.38	15.94	Inf	0.76	0.73	0.96	1.01
5.6G;VHT20,BF;20;1,(M0);4;5580;M;TN,VN	Pass	1M	1M	0.00	9.62	5.45	5.45	7.38	15.07	Inf	1.34	-0.49	-0.22	-0.23
5.6G;VHT20,BF;20;1,(M0);4;5700;H;TN,VN	Pass	1M	1M	0.00	9.62	5.17	5.17	7.38	14.79	Inf	-0.22	-0.17	-0.33	-0.62
5.6G;VHT40,BF;40;1,(M0);4;5510;L;TN,VN	Pass	1M	1M	0.00	9.62	-0.64	-0.64	7.38	8.98	Inf	-5.68	-5.84	-5.80	-5.91
5.6G;VHT40,BF;40;1,(M0);4;5550;M;TN,VN	Pass	1M	1M	0.00	9.62	3.40	3.40	7.38	13.02	Inf	-1.67	-2.58	-1.37	-1.80
5.6G;VHT40,BF;40;1,(M0);4;5670;H;TN,VN	Pass	1M	1M	0.00	9.62	1.49	1.49	7.38	11.11	Inf	-3.82	-4.15	-4.08	-4.32
5.6G;VHT80,BF;80;1,(M0);4;5530;L;TN,VN	Pass	1M	1M	0.00	9.62	-4.02	-4.02	7.38	5.60	Inf	-9.92	-8.08	-10.29	-9.81







Transmitter Radiated Bandedge Emissions

Appendix D

Transmitter Radiated Bandedge Emissions (with Antenna)

U-NII 5250-5350MHz Transmitter Radiated Bandedge (with Antenna) for Non-Beamforming										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
11a	4	5260	3	5359.800	64.20	74	5353.800	53.20	54	V
11a	4	5320	3	5350.740	65.61	74	5350.320	53.69	54	V
VHT20	4	5260	3	5351.400	65.26	74	5351.400	53.90	54	V
VHT20	4	5320	3	5350.040	66.04	74	5350.040	53.54	54	V
VHT40	4	5270	3	5350.200	63.75	74	5350.800	53.11	54	V
VHT40	4	5310	3	5350.300	64.41	74	5350.000	53.42	54	V
VHT80	4	5290	3	5360.400	67.08	74	5360.400	53.10	54	V

Note 1: Measurement worst emissions of receive antenna polarization.

U-NII 5470-5725MHz Transmitter Radiated Bandedge (with Antenna) for Non-Beamforming										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
11a	4	5500	3	5467.440	66.87	68.2	5459.280	52.87	54	V
11a	4	5700	3	5725.040	66.84	68.2	5725.040	57.13	68.2	V
VHT20	4	5500	3	5467.440	67.27	68.2	5460.000	49.35	54	V
VHT20	4	5700	3	5725.040	67.16	68.2	5725.040	55.32	68.2	V
VHT40	4	5510	3	5469.400	67.19	68.2	5448.000	49.97	54	V
VHT40	4	5670	3	5725.400	67.88	68.2	5725.000	57.14	68.2	V
VHT80	4	5530	3	5470.000	67.89	68.2	5450.480	51.41	54	V

Note 1: Measurement worst emissions of receive antenna polarization.

U-NII 5250-5350MHz Transmitter Radiated Bandedge (with Antenna) for Beamforming										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
VHT20	4	5260	3	5359.800	58.44	74	5351.400	47.83	54	V
VHT20	4	5320	3	5351.860	69.82	74	5350.040	53.28	54	V
VHT40	4	5270	3	5350.800	72.25	74	5350.200	53.19	54	V
VHT40	4	5310	3	5350.120	71.81	74	5350.480	53.44	54	V
VHT80	4	5290	3	5361.600	66.12	74	5361.000	53.47	54	V

Note 1: Measurement worst emissions of receive antenna polarization.

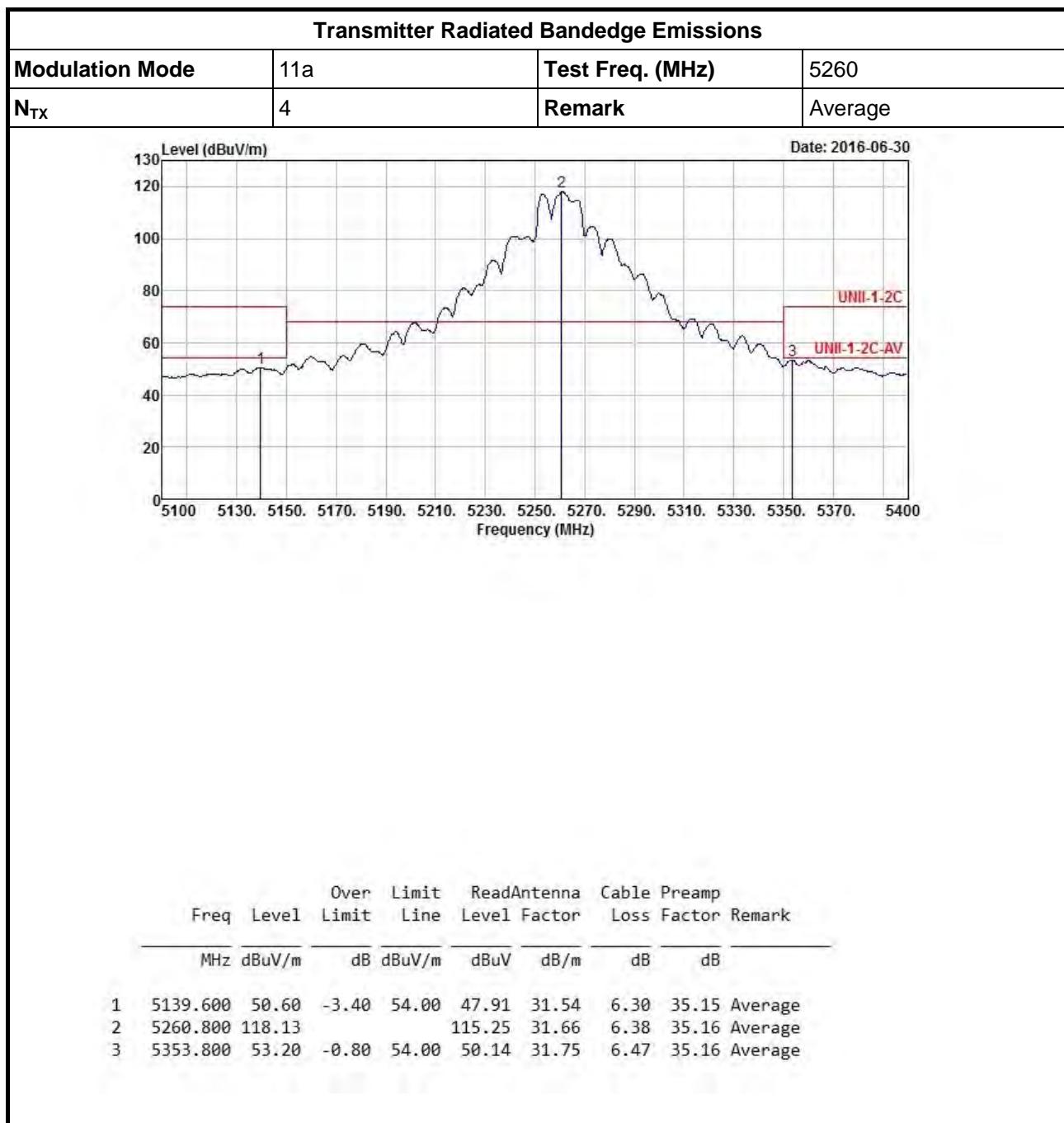
U-NII 5470-5725MHz Transmitter Radiated Bandedge (with Antenna) for Beamforming										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
VHT20	4	5500	3	5466.960	65.70	68.2	5459.120	49.17	54	V
VHT20	4	5700	3	5725.880	67.36	68.2	5725.760	50.85	68.2	V
VHT40	4	5510	3	5469.800	67.71	68.2	5459.000	46.98	54	V
VHT40	4	5670	3	5726.200	67.78	68.2	5725.000	49.41	68.2	V
VHT80	4	5530	3	5465.840	67.44	68.2	5455.600	53.59	54	V

Note 1: Measurement worst emissions of receive antenna polarization.



Transmitter Radiated Bandedge Emissions

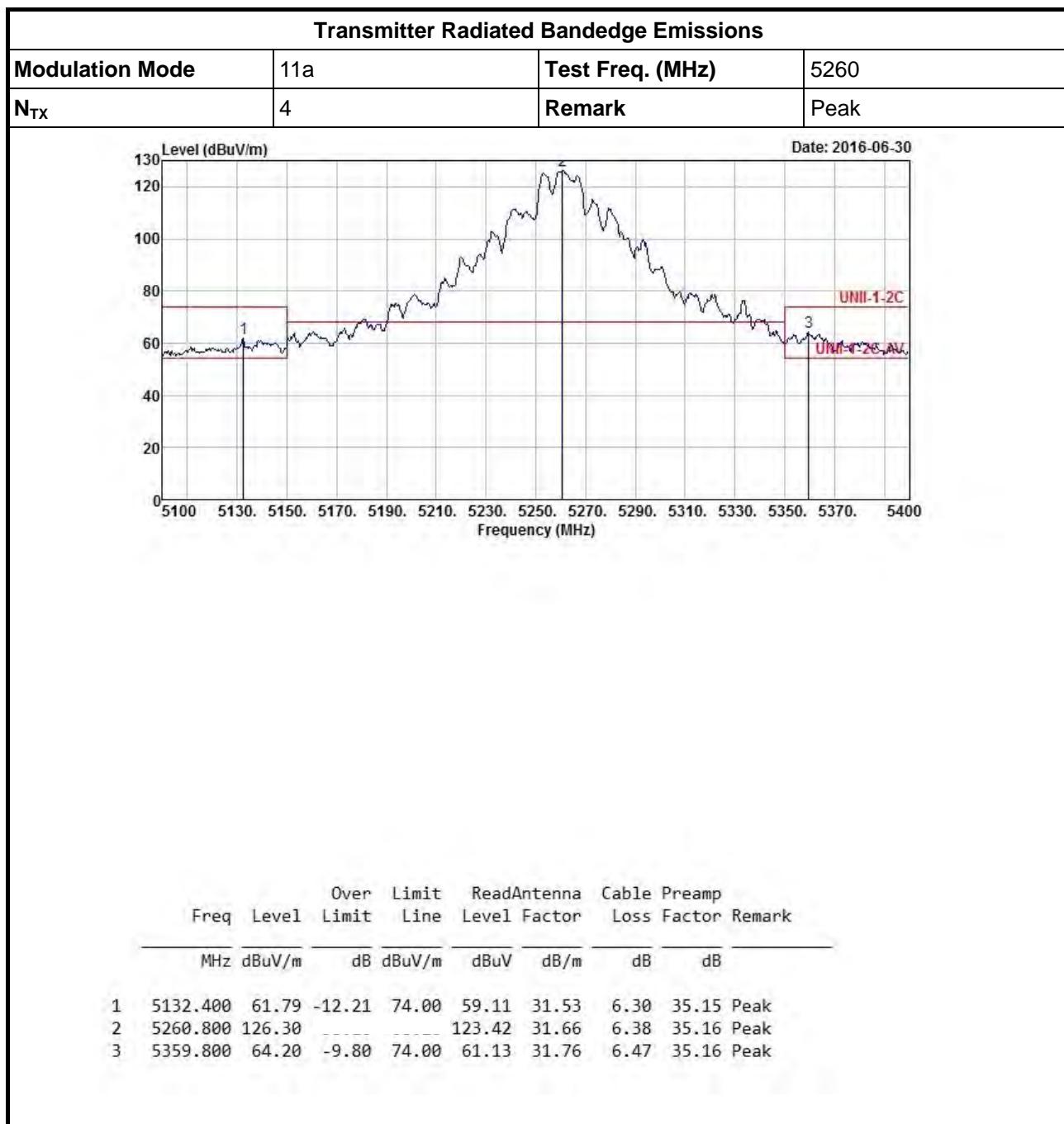
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Transmitter Radiated Bandedge Emissions

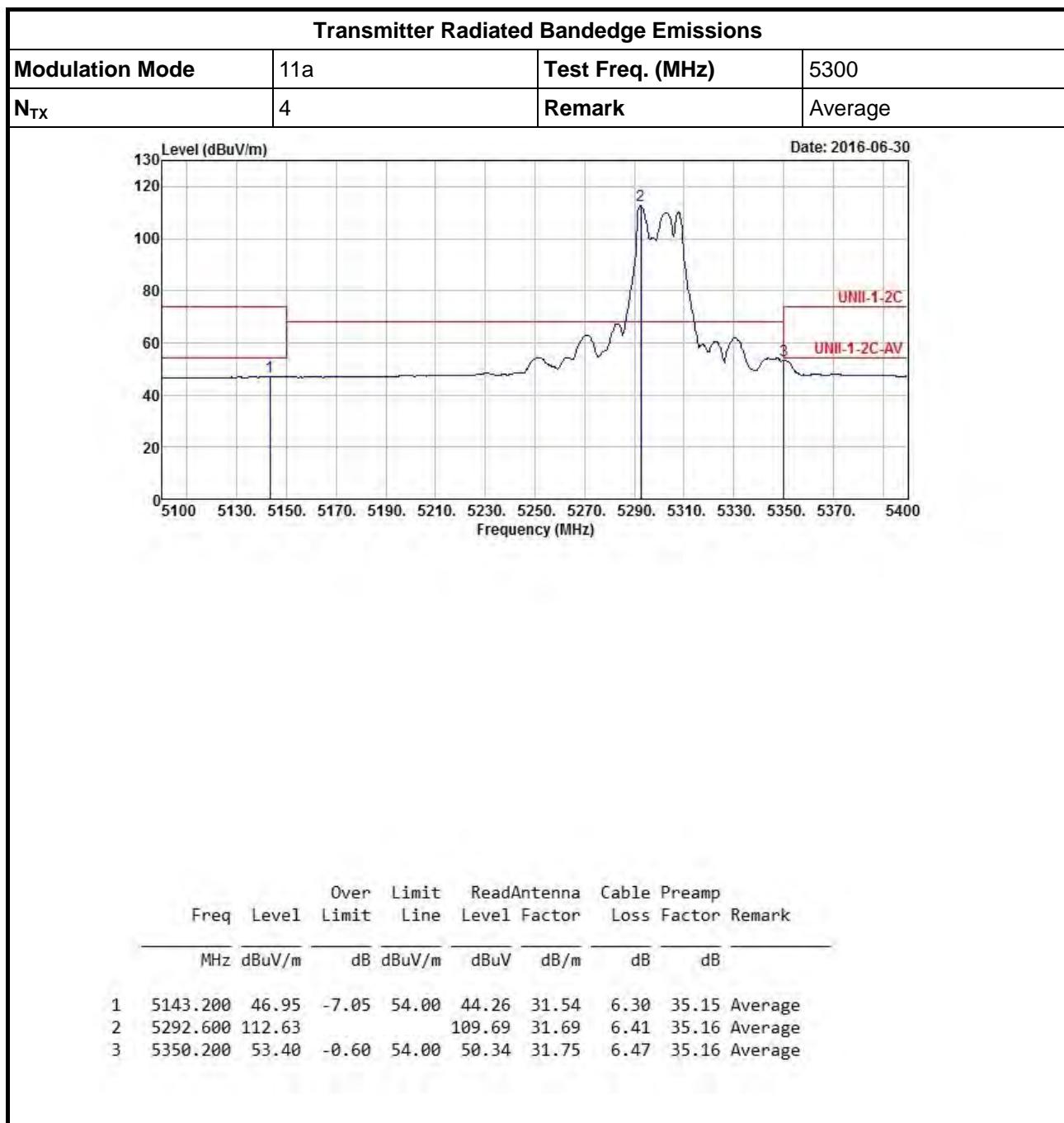
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Transmitter Radiated Bandedge Emissions

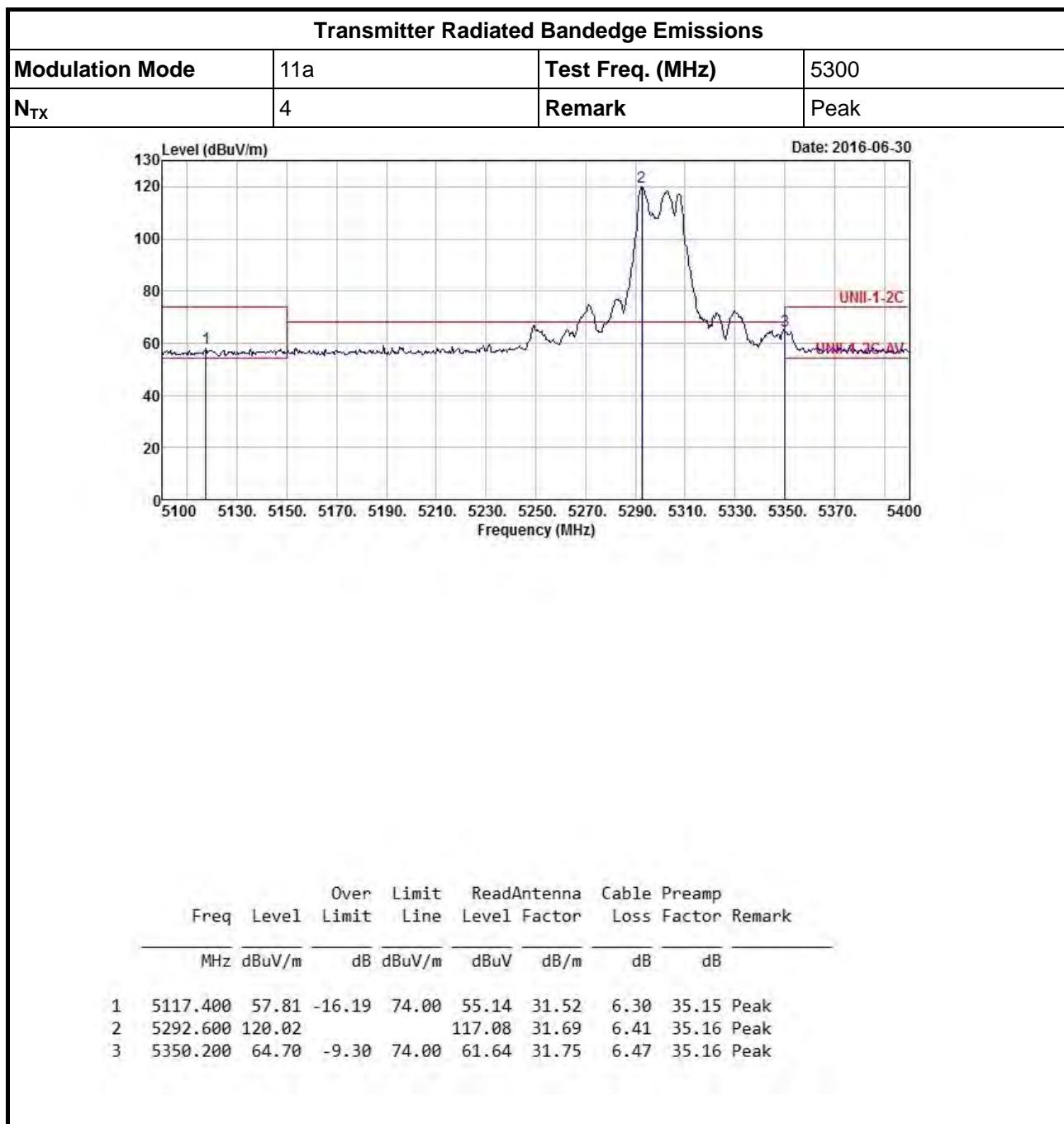
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Transmitter Radiated Bandedge Emissions

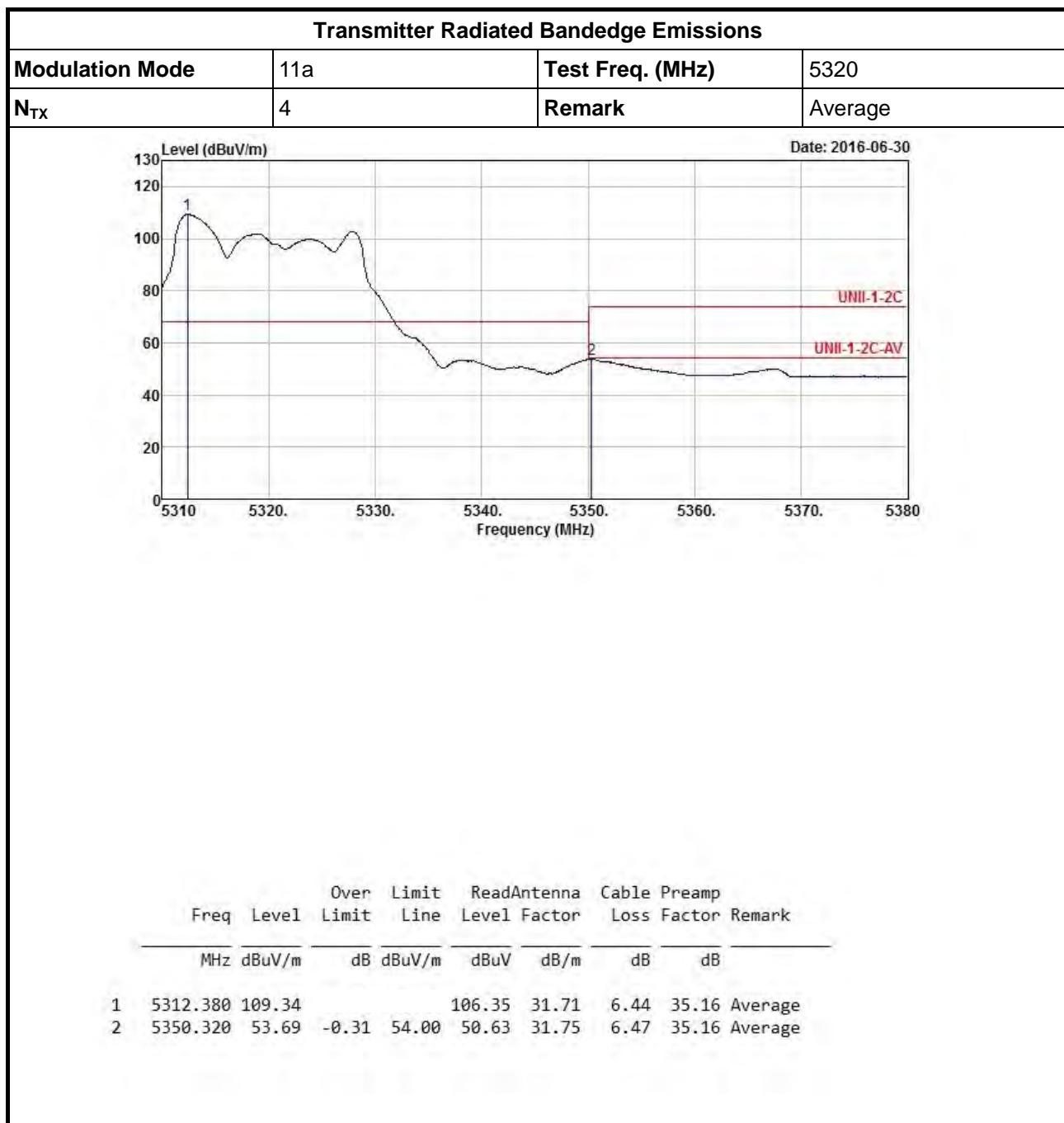
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Transmitter Radiated Bandedge Emissions

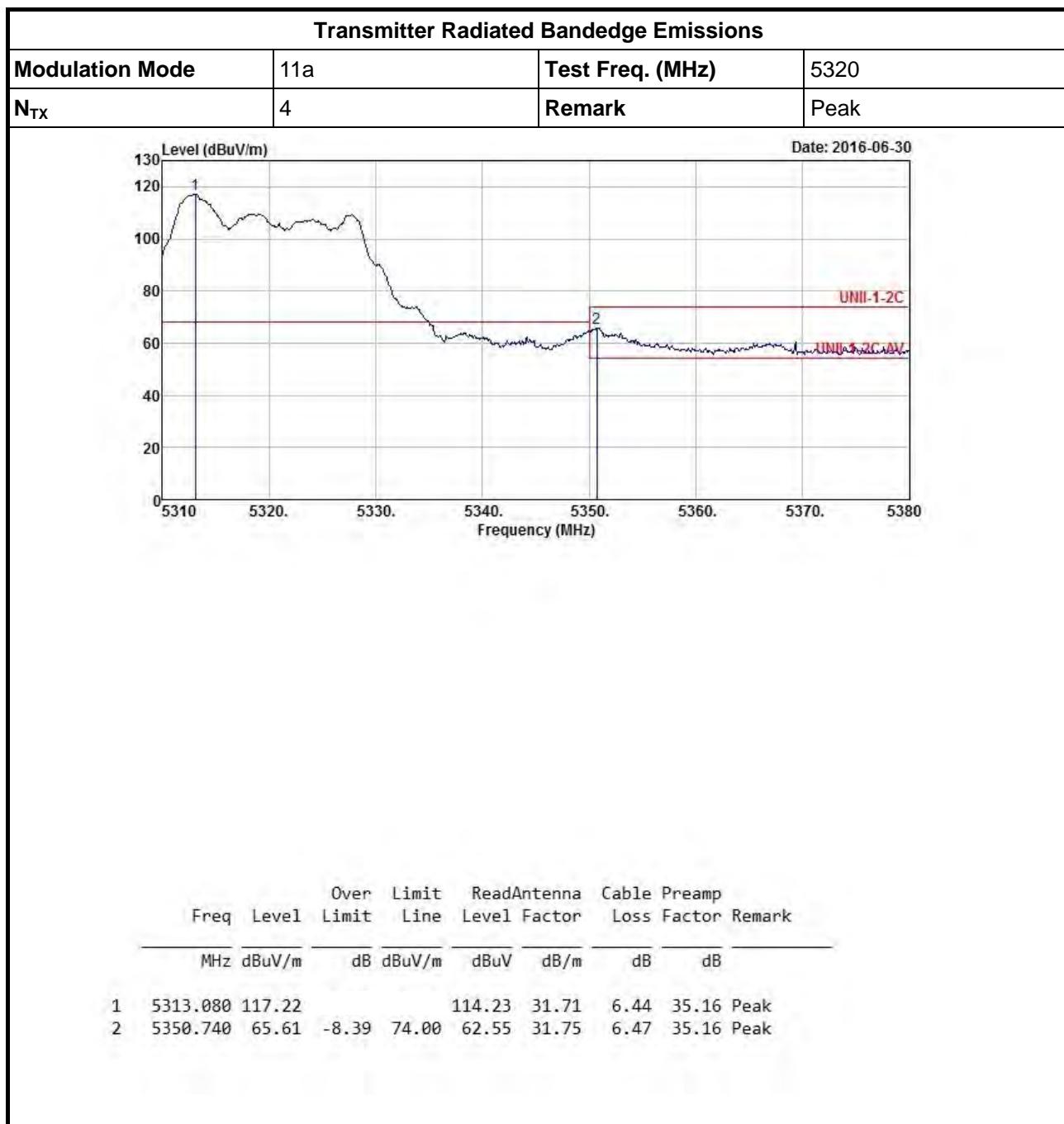
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Transmitter Radiated Bandedge Emissions

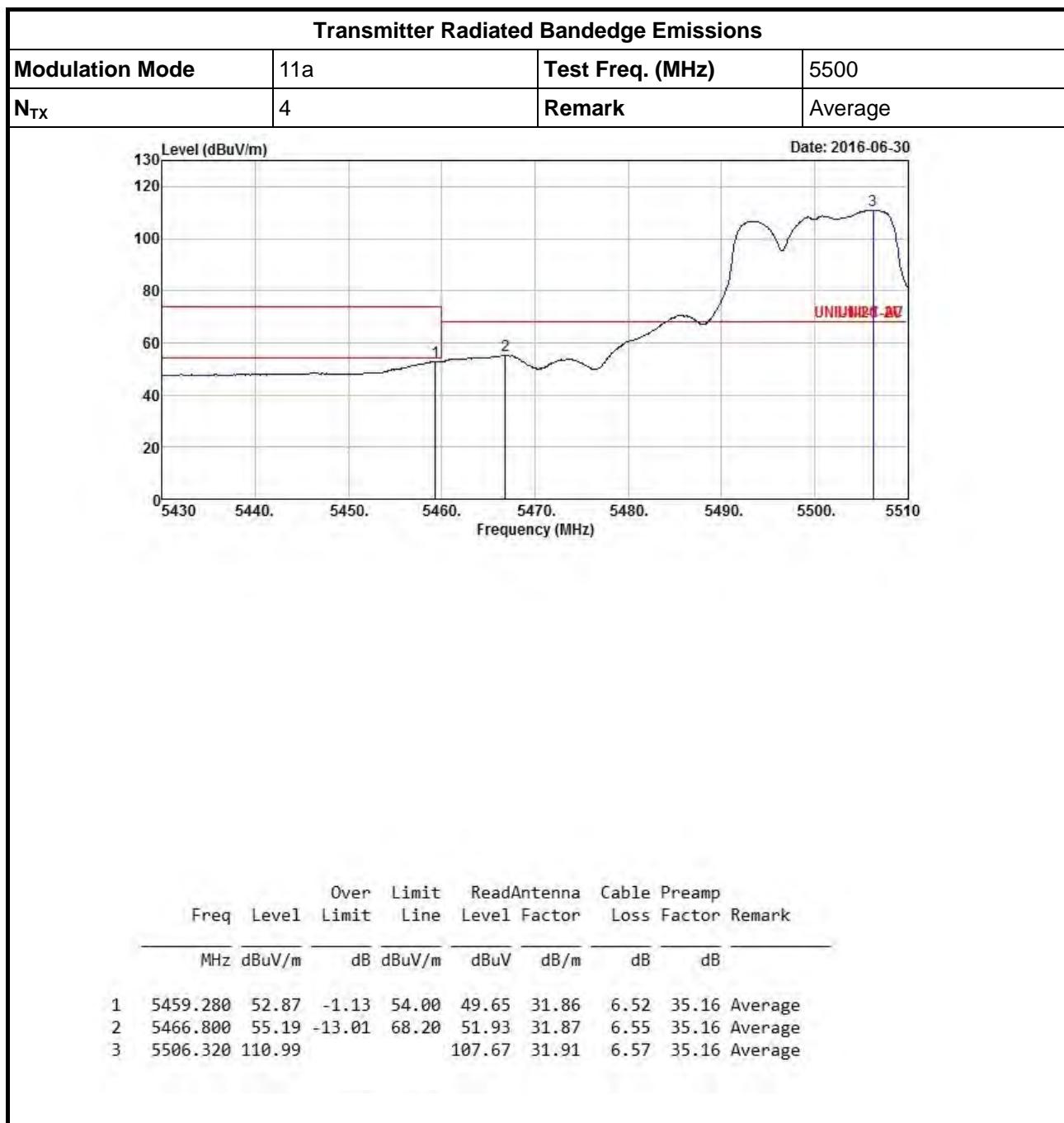
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Transmitter Radiated Bandedge Emissions

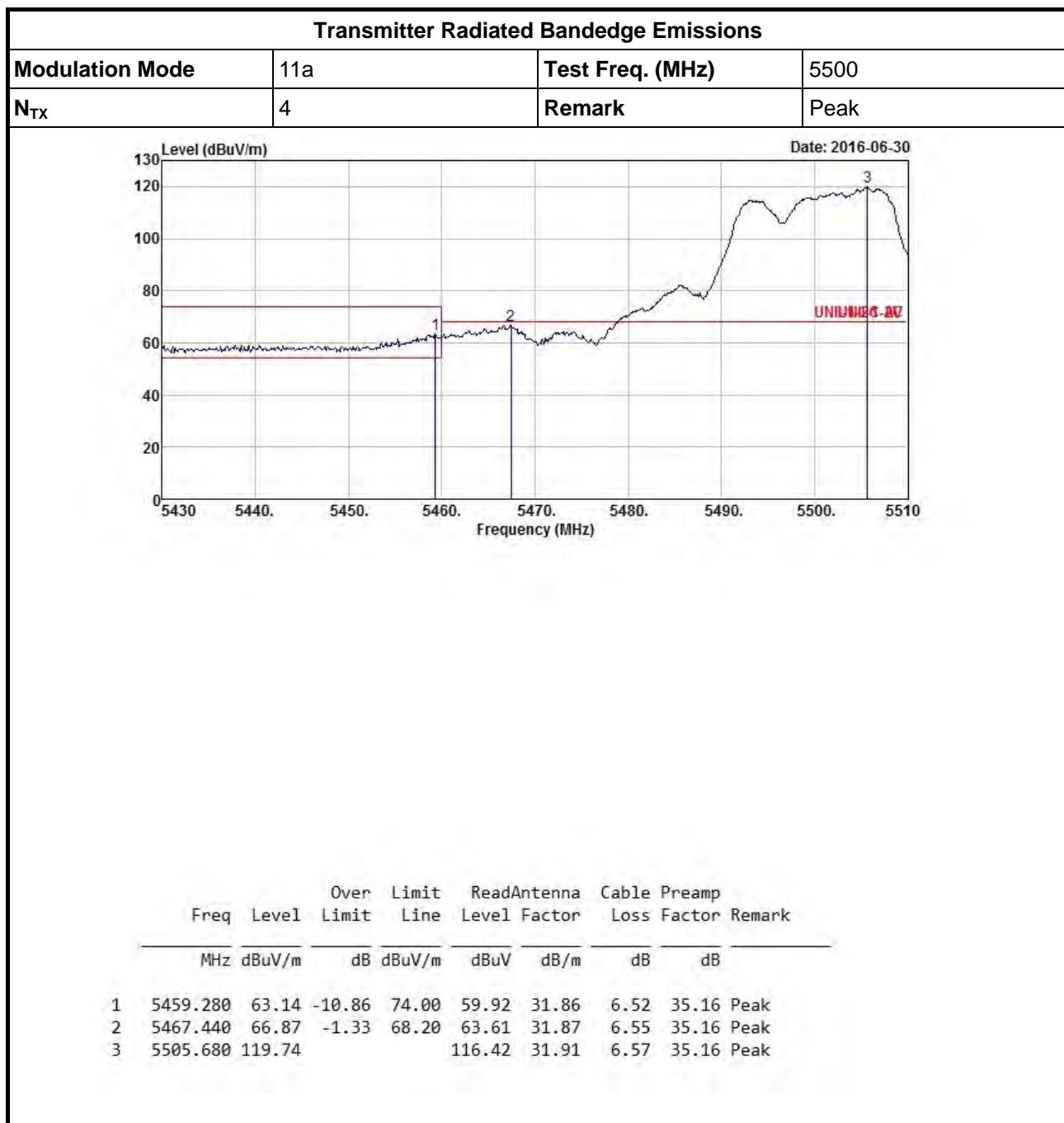
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Transmitter Radiated Bandedge Emissions

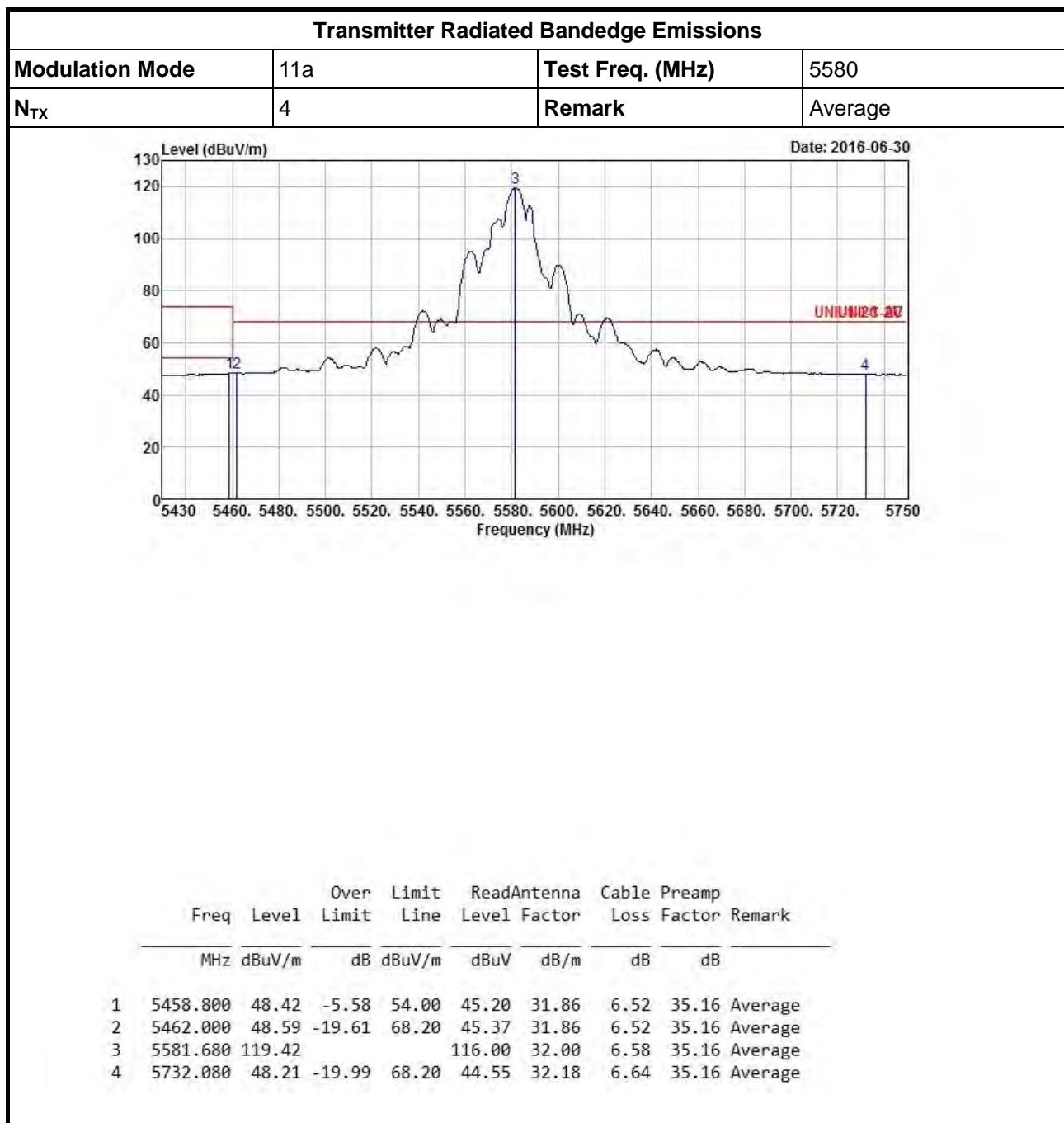
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Transmitter Radiated Bandedge Emissions

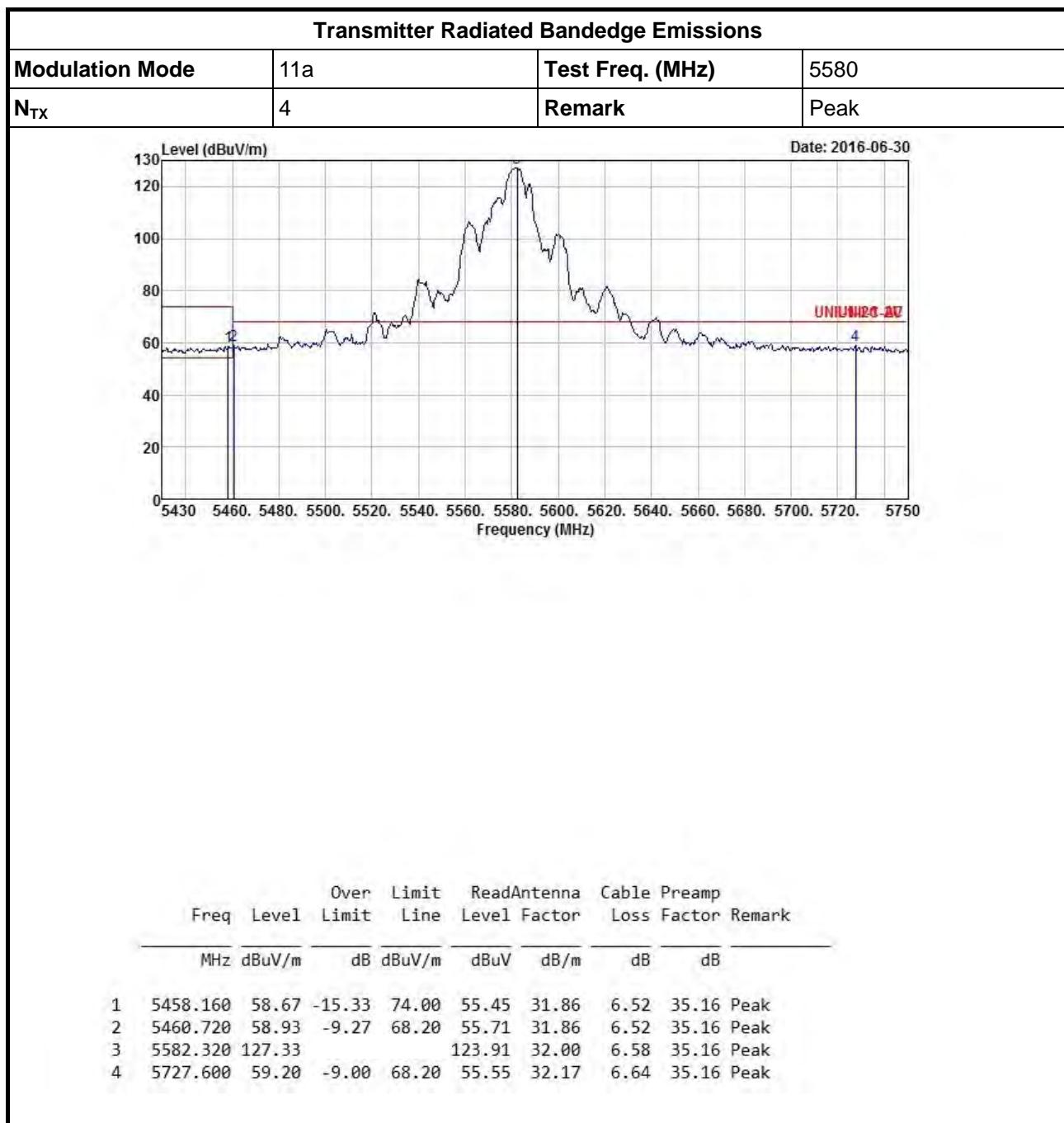
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Transmitter Radiated Bandedge Emissions

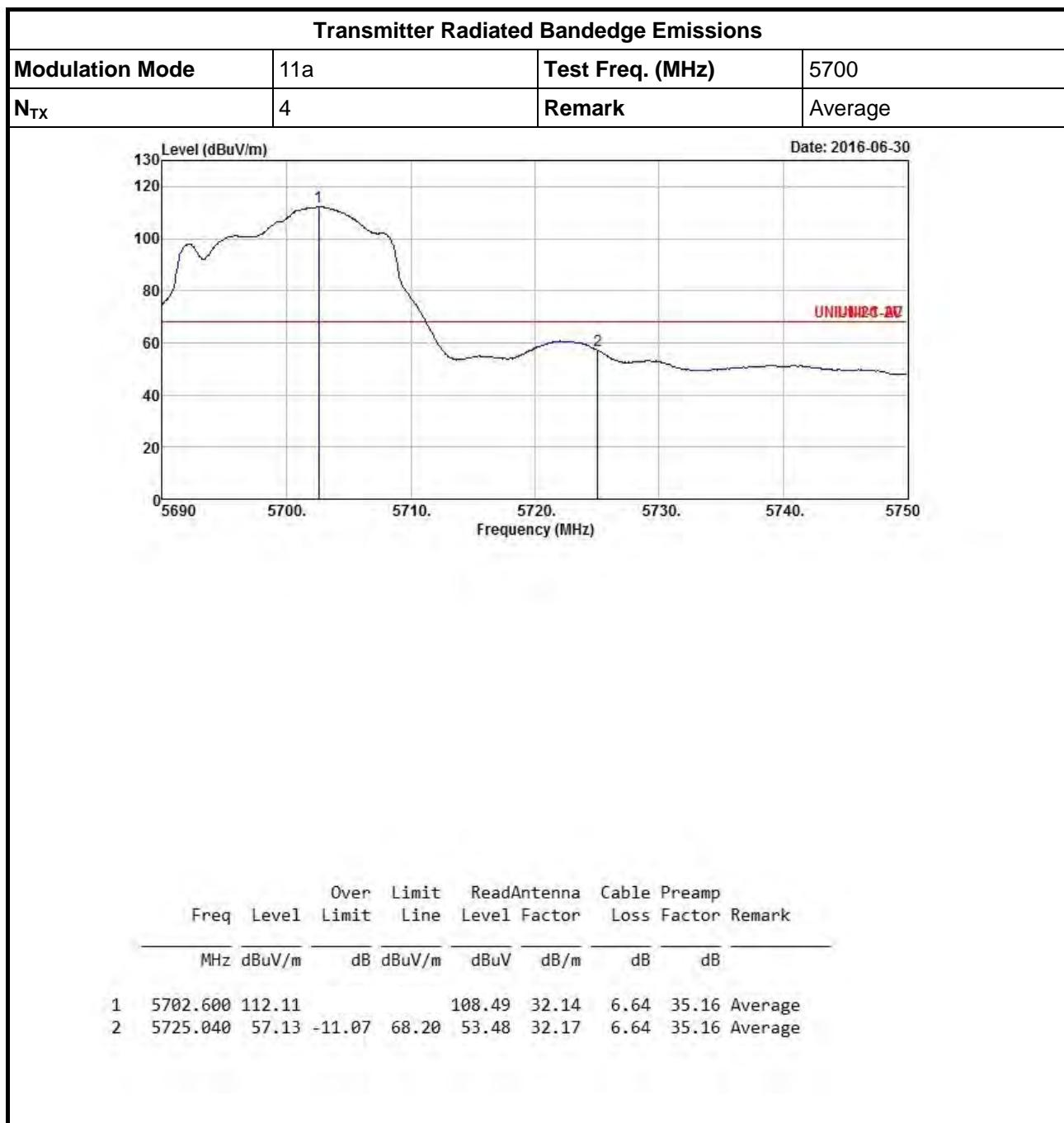
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Transmitter Radiated Bandedge Emissions

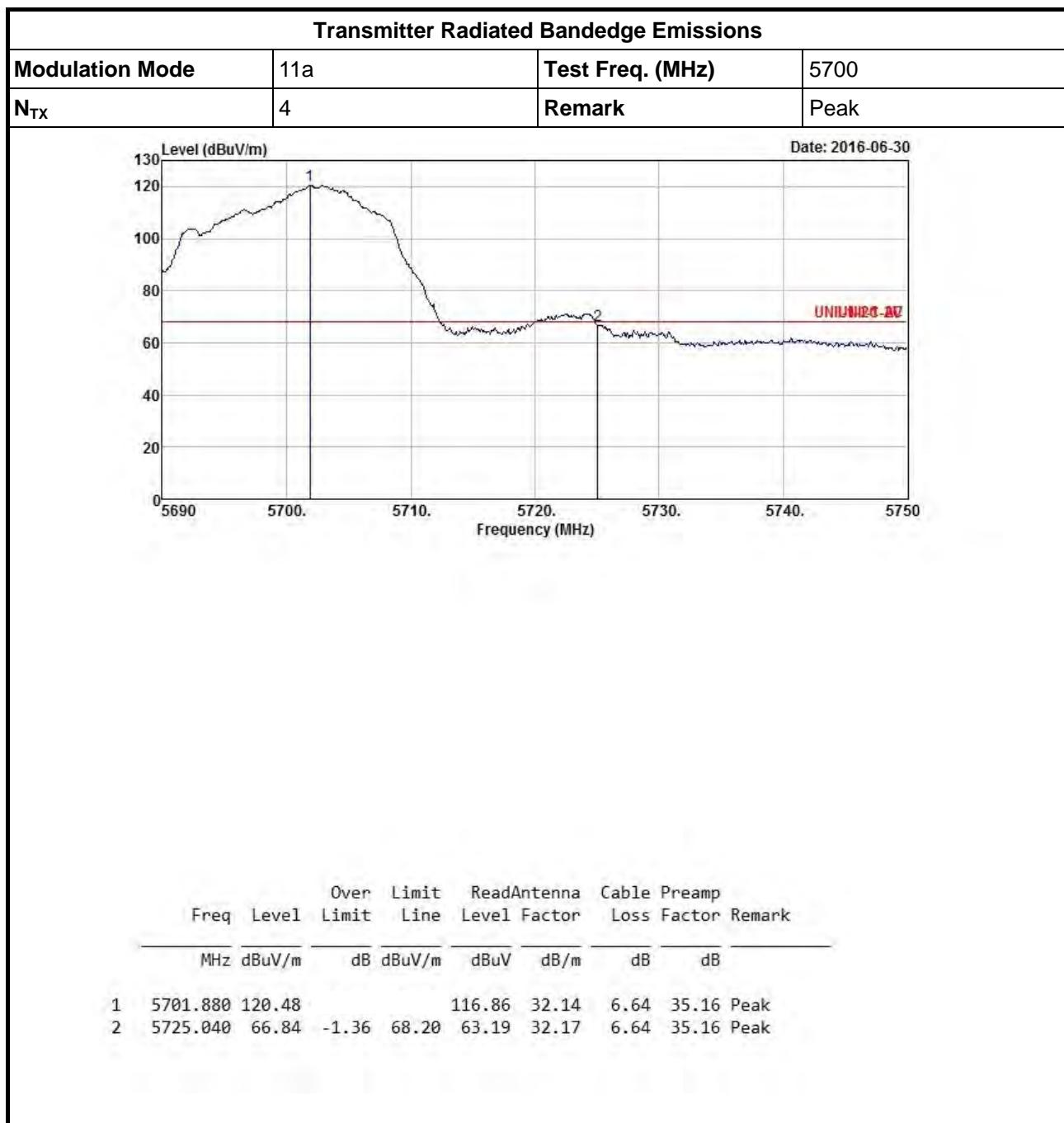
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Transmitter Radiated Bandedge Emissions

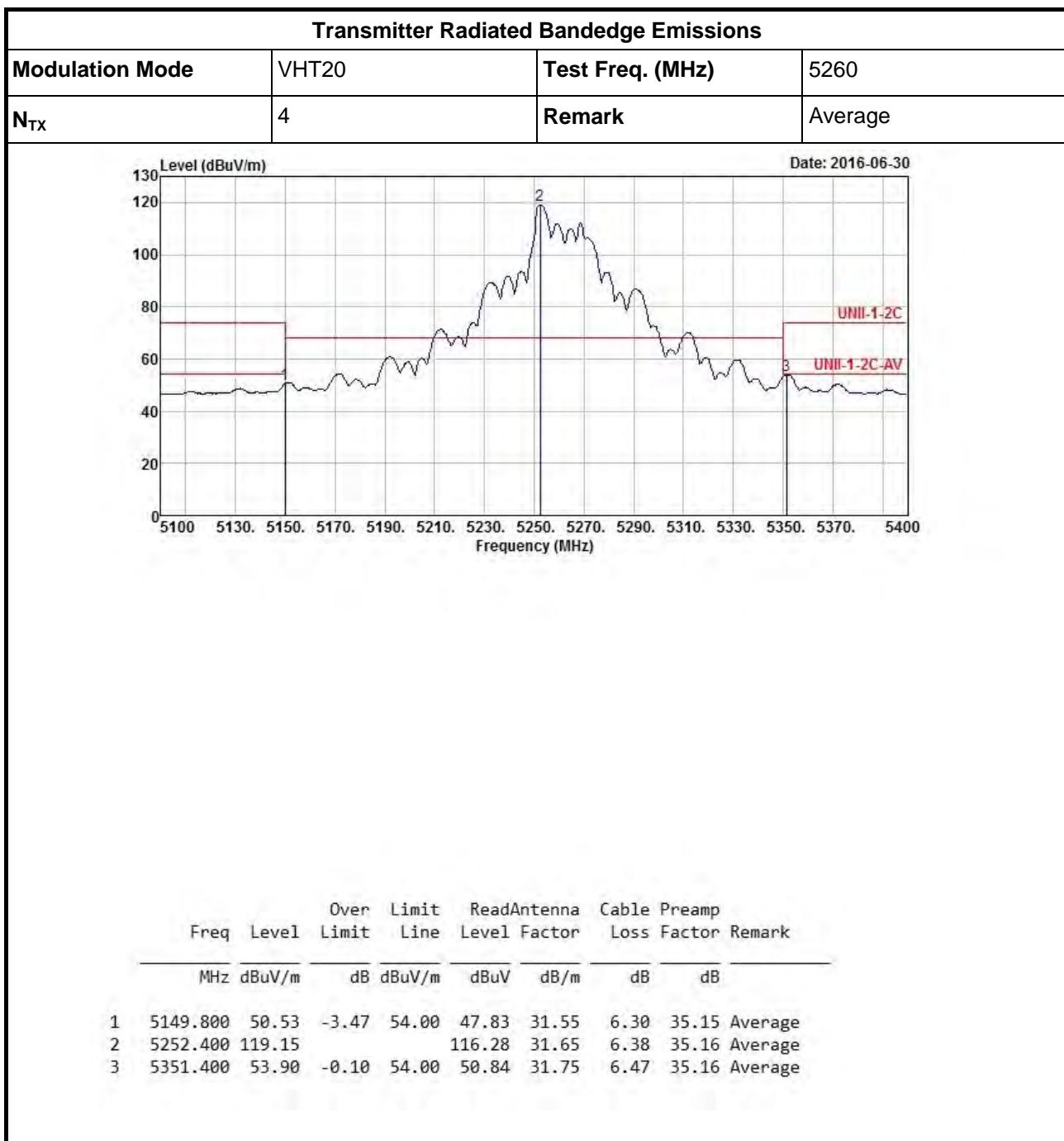
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Transmitter Radiated Bandedge Emissions

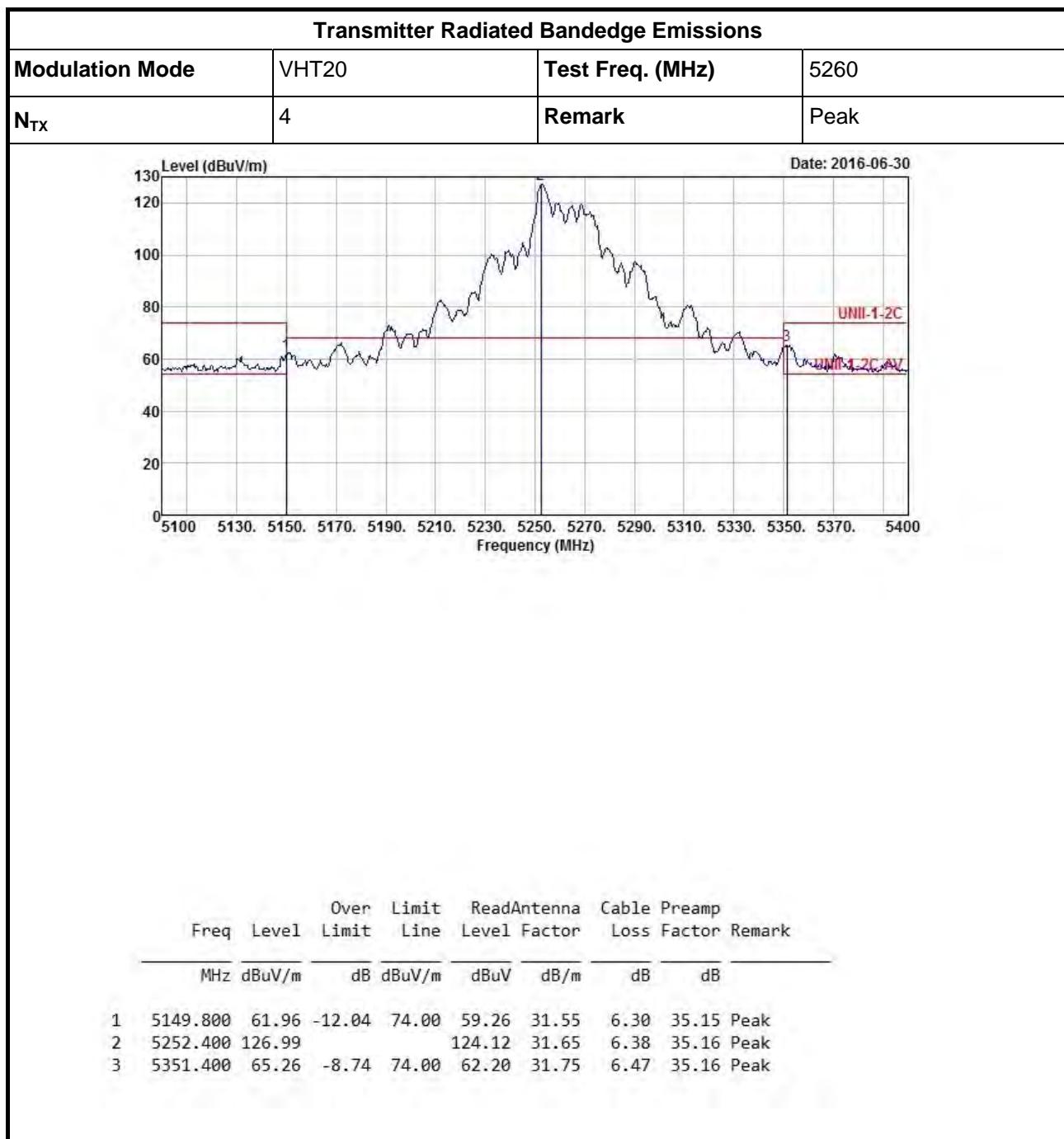
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Transmitter Radiated Bandedge Emissions

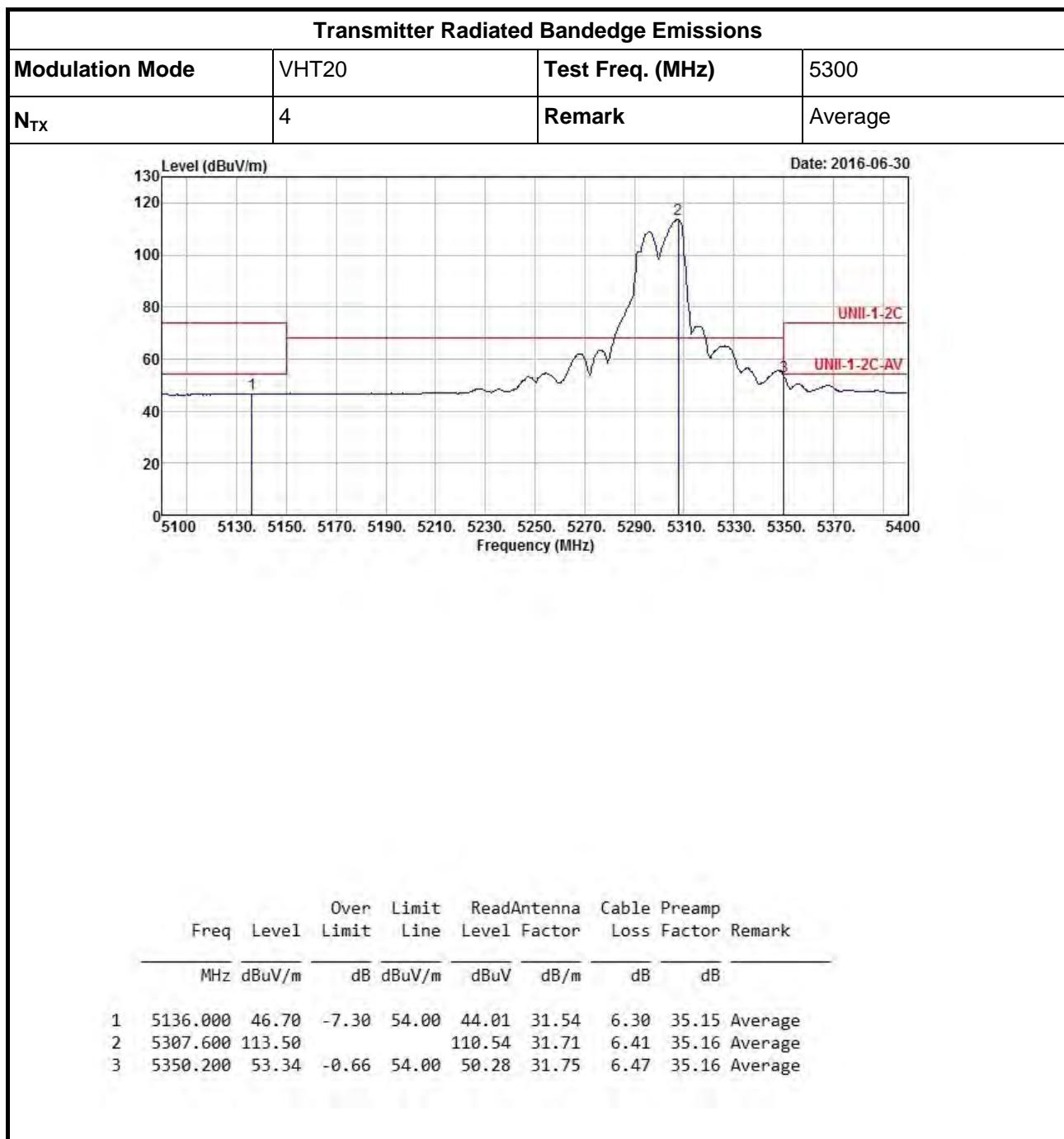
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Transmitter Radiated Bandedge Emissions

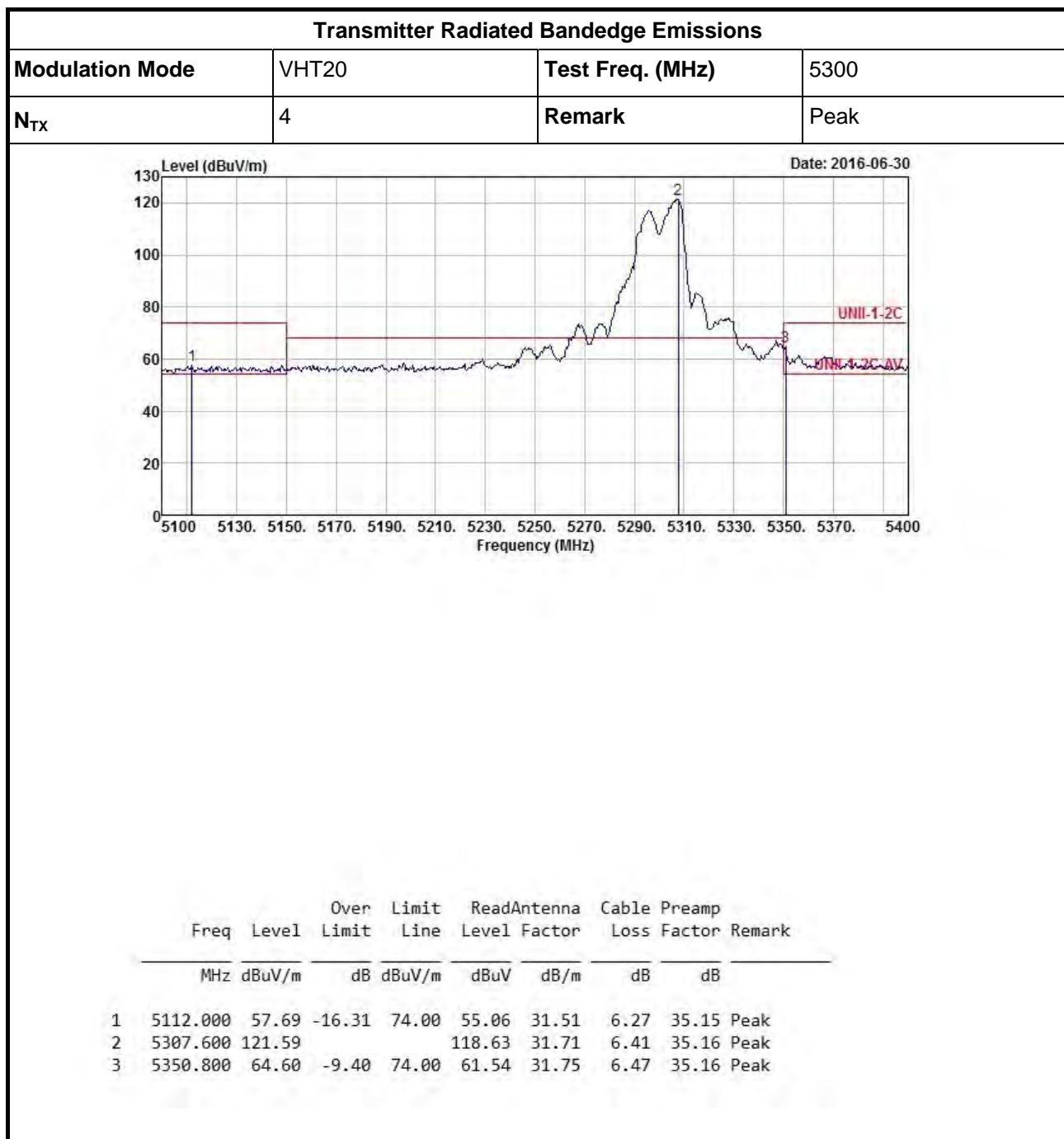
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Transmitter Radiated Bandedge Emissions

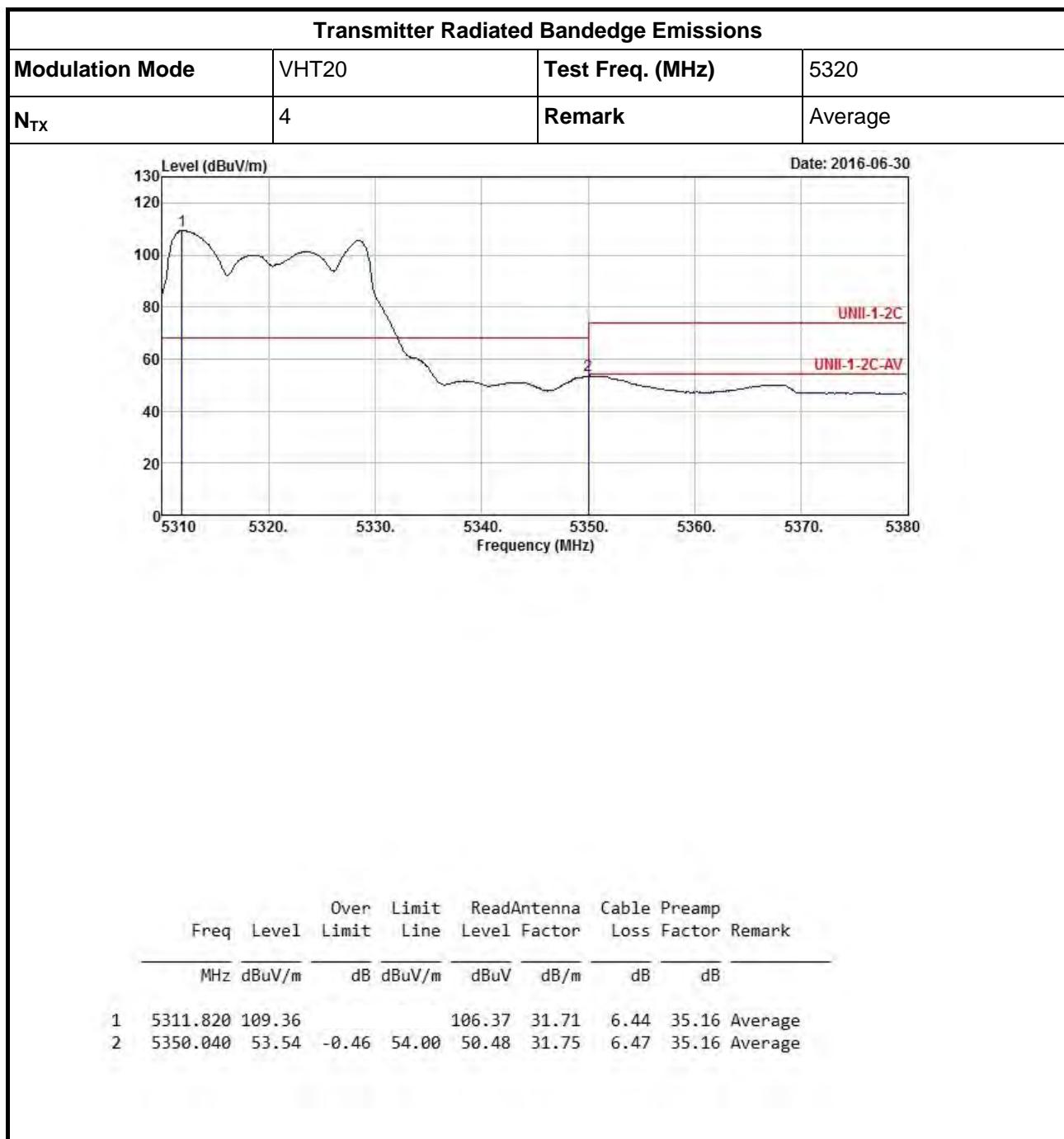
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Transmitter Radiated Bandedge Emissions

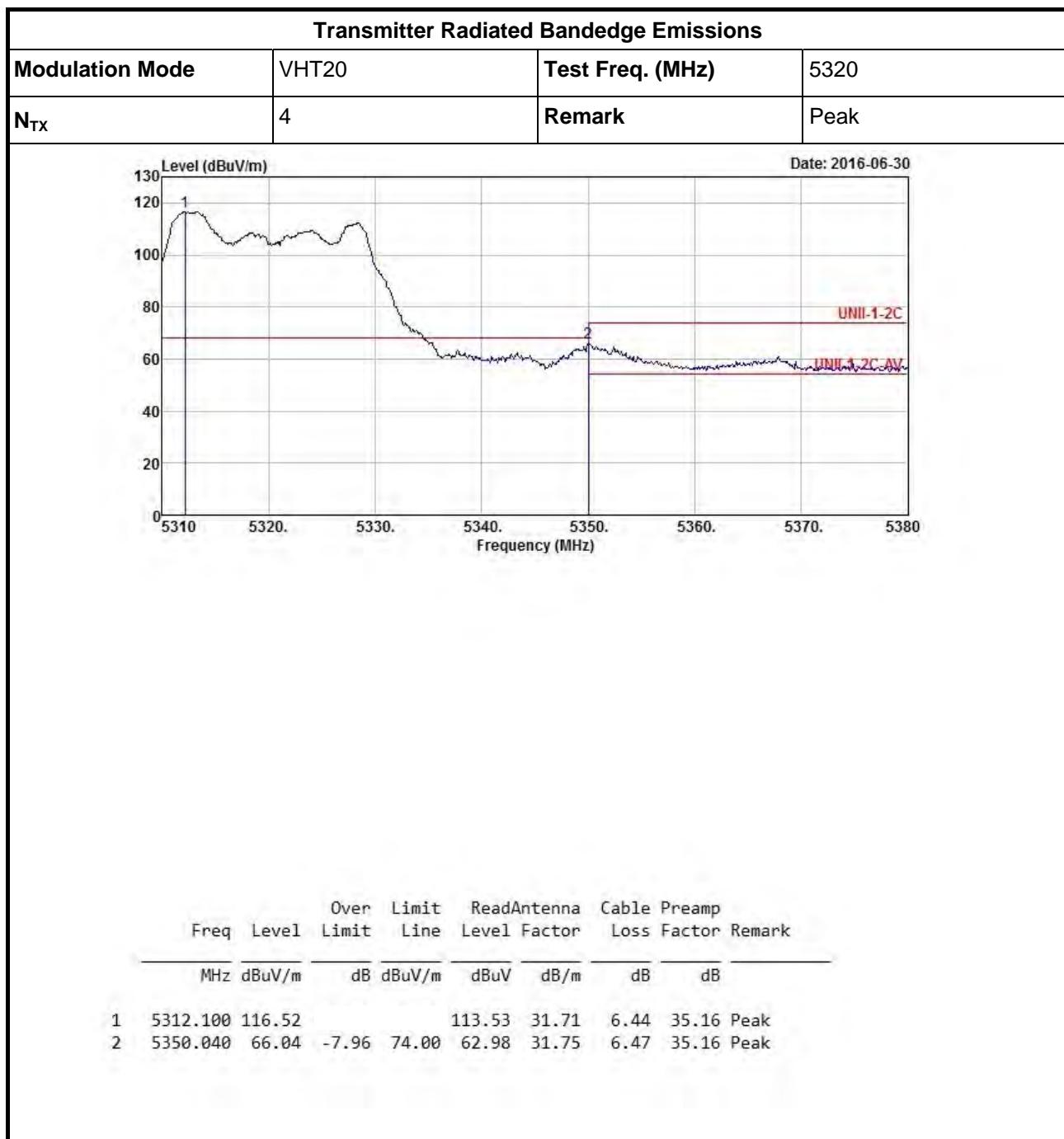
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Transmitter Radiated Bandedge Emissions

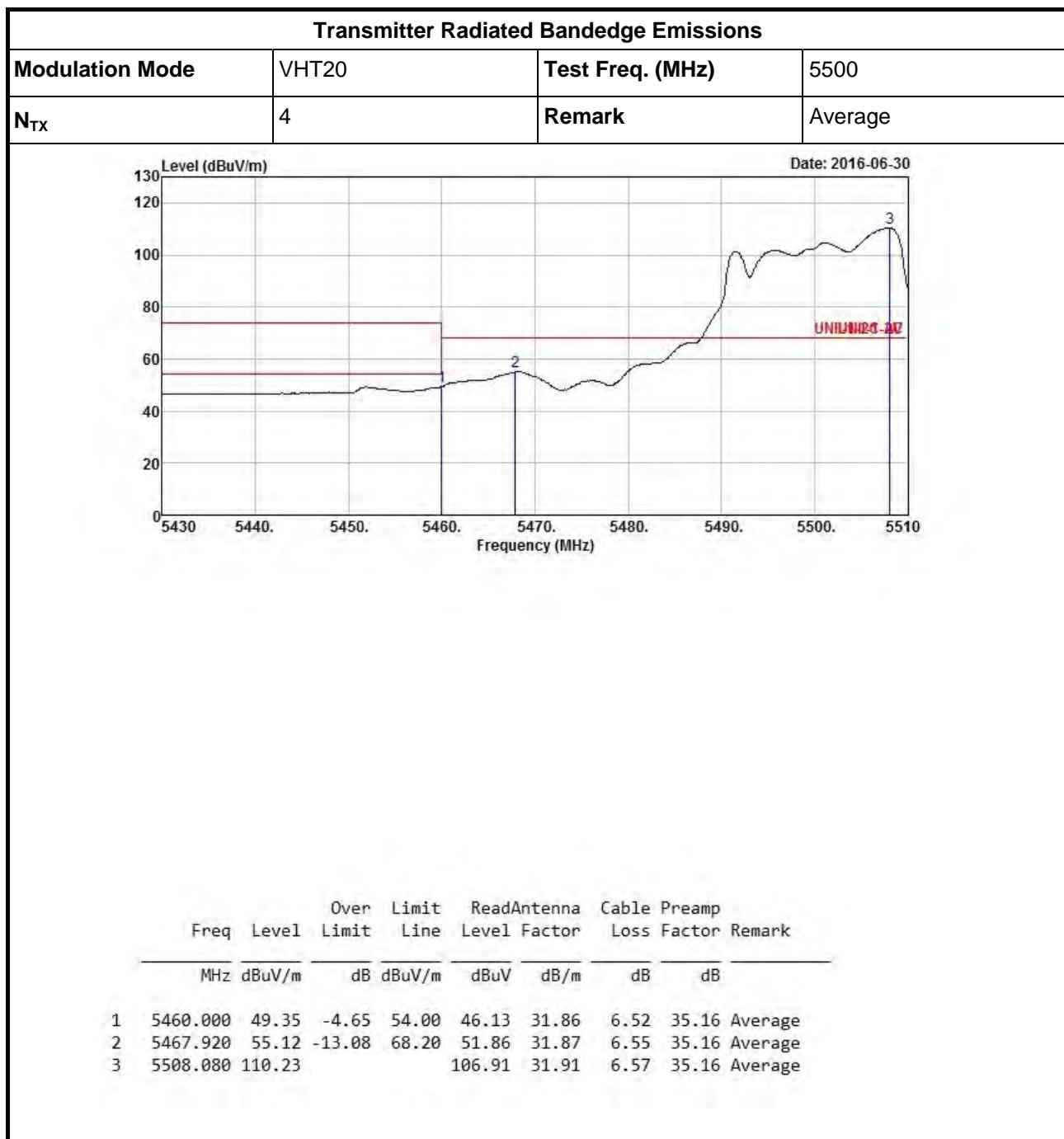
Appendix D





Transmitter Radiated Bandedge Emissions

Appendix D





Transmitter Radiated Bandedge Emissions

Appendix D

Transmitter Radiated Bandedge Emissions

Modulation Mode	VHT20	Test Freq. (MHz)	5500
N_{TX}	4	Remark	Peak

Date: 2016-06-30

Level (dBuV/m)

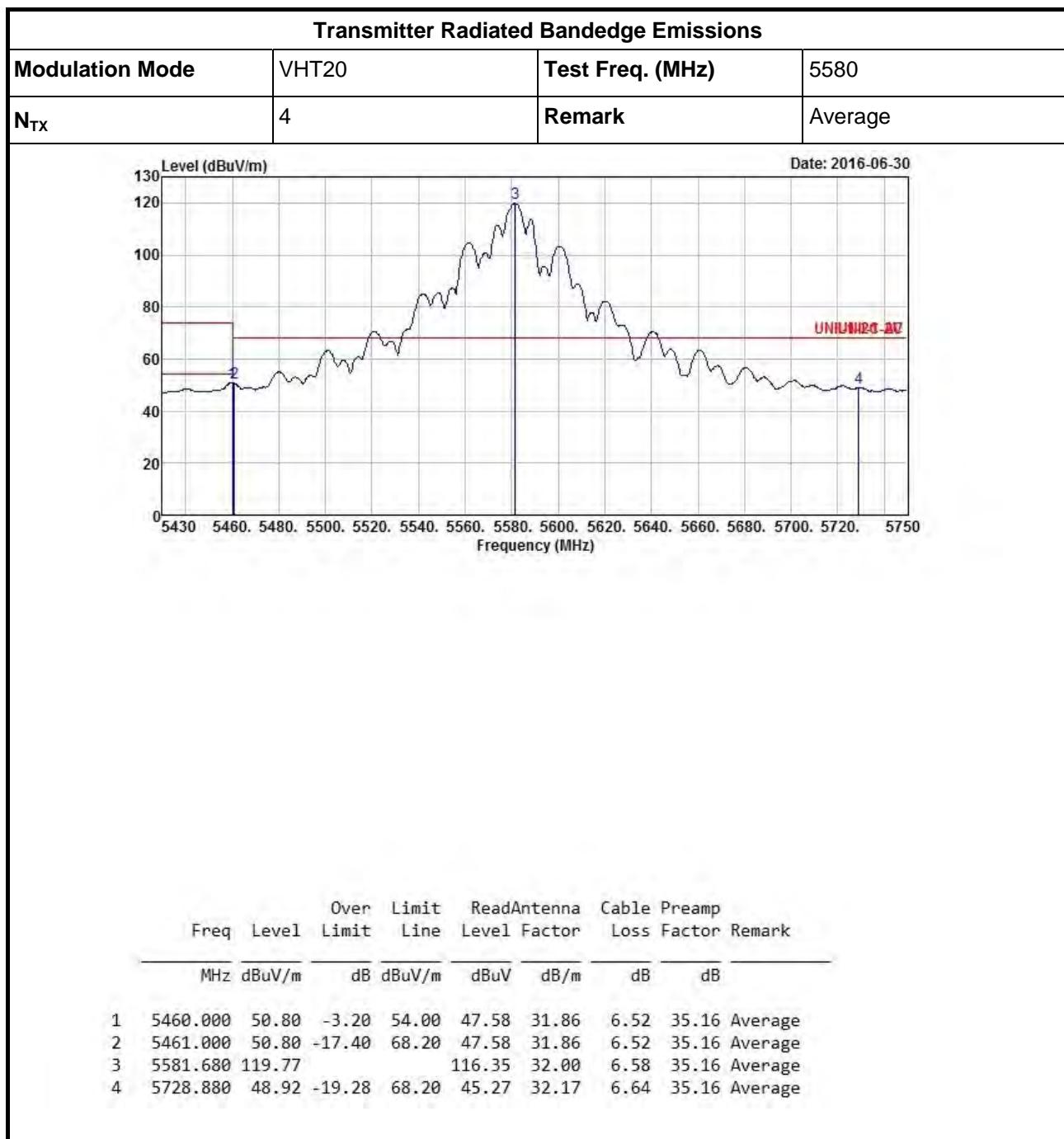
Frequency (MHz)

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	
		Line	Line	Level	Factor	Loss	Factor	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	5451.920	59.80	-14.20	74.00	56.59	31.85	6.52	35.16 Peak
2	5467.440	67.27	-0.93	68.20	64.01	31.87	6.55	35.16 Peak
3	5507.280	118.45			115.13	31.91	6.57	35.16 Peak



Transmitter Radiated Bandedge Emissions

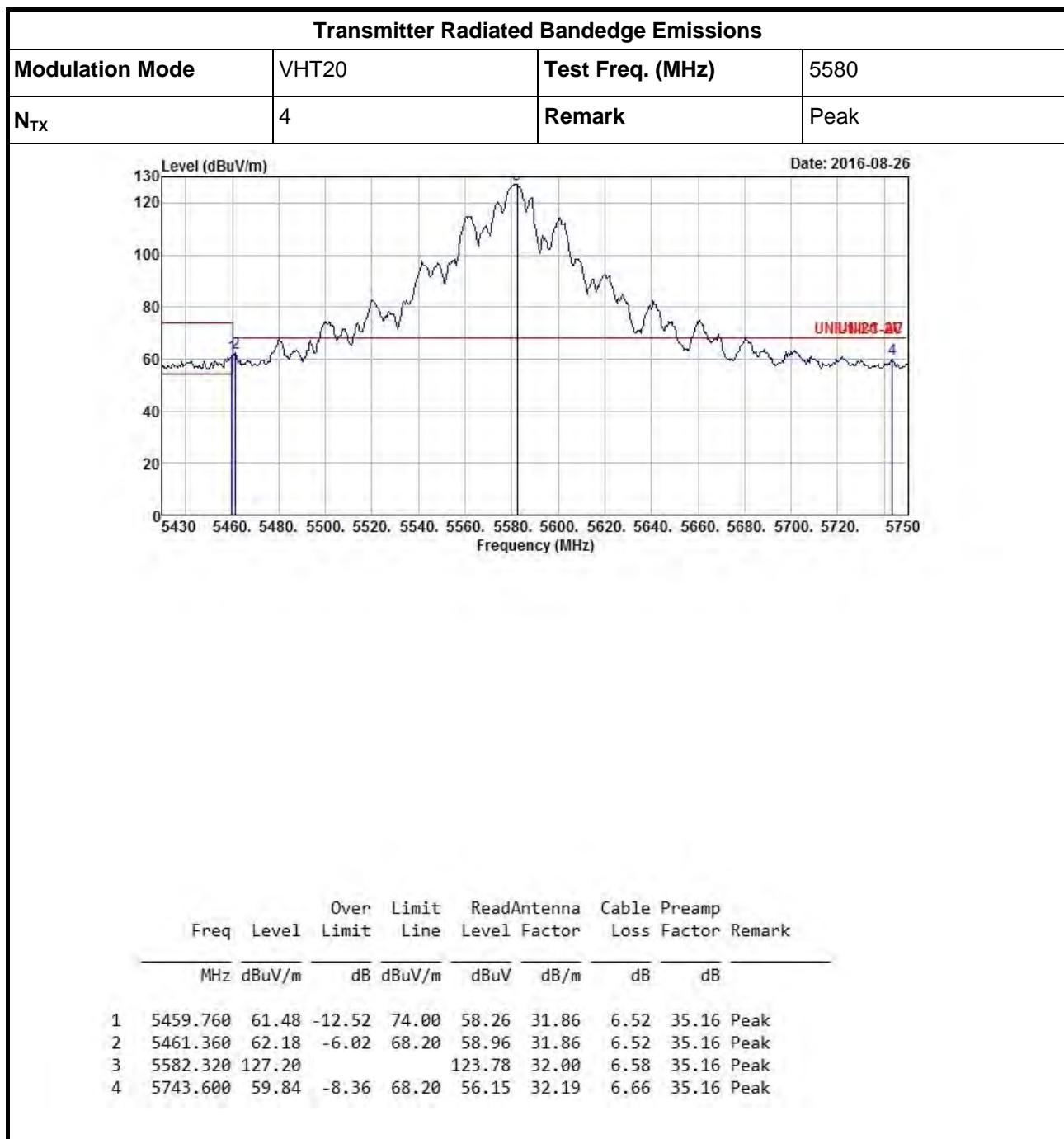
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Transmitter Radiated Bandedge Emissions

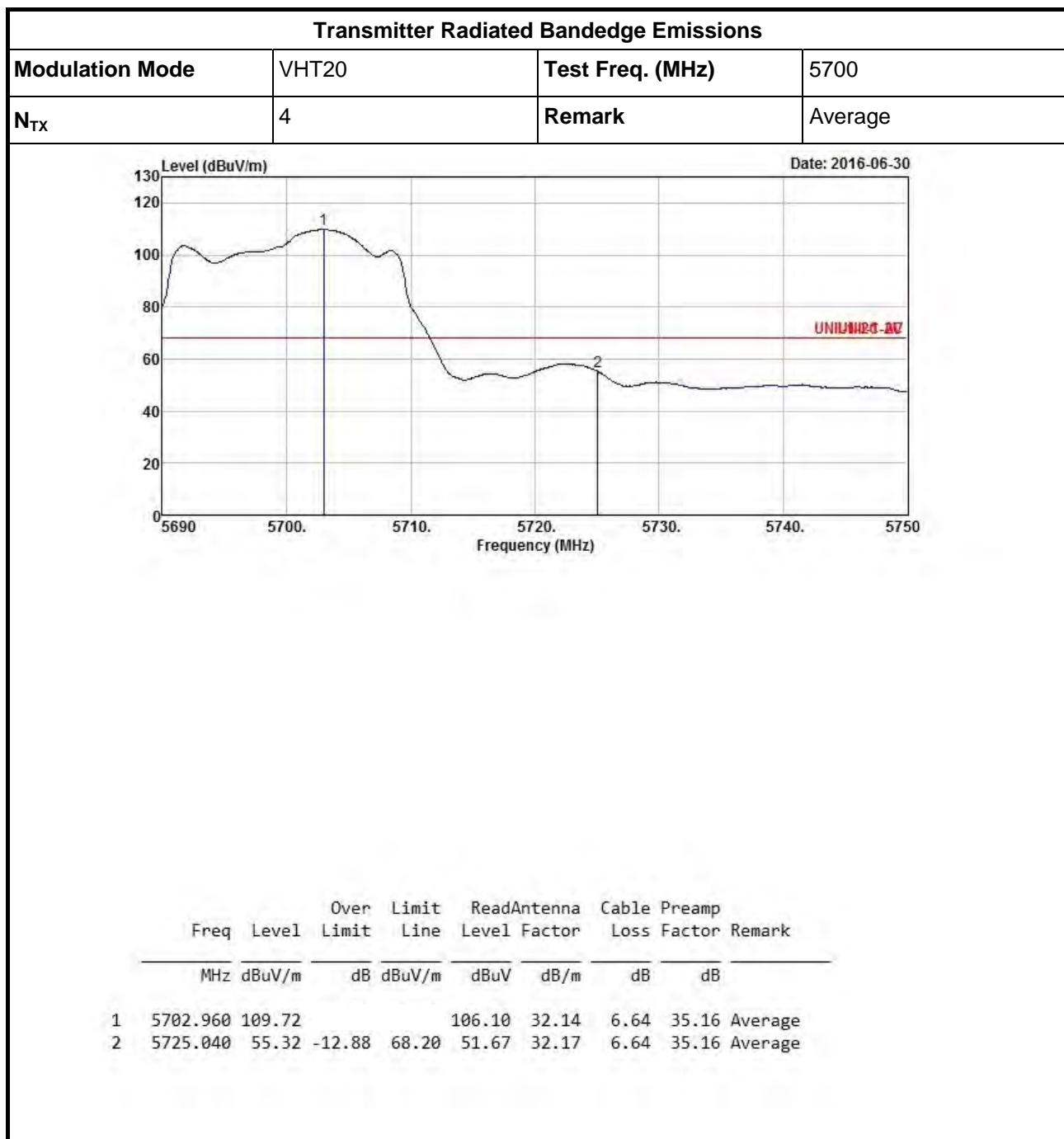
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Transmitter Radiated Bandedge Emissions

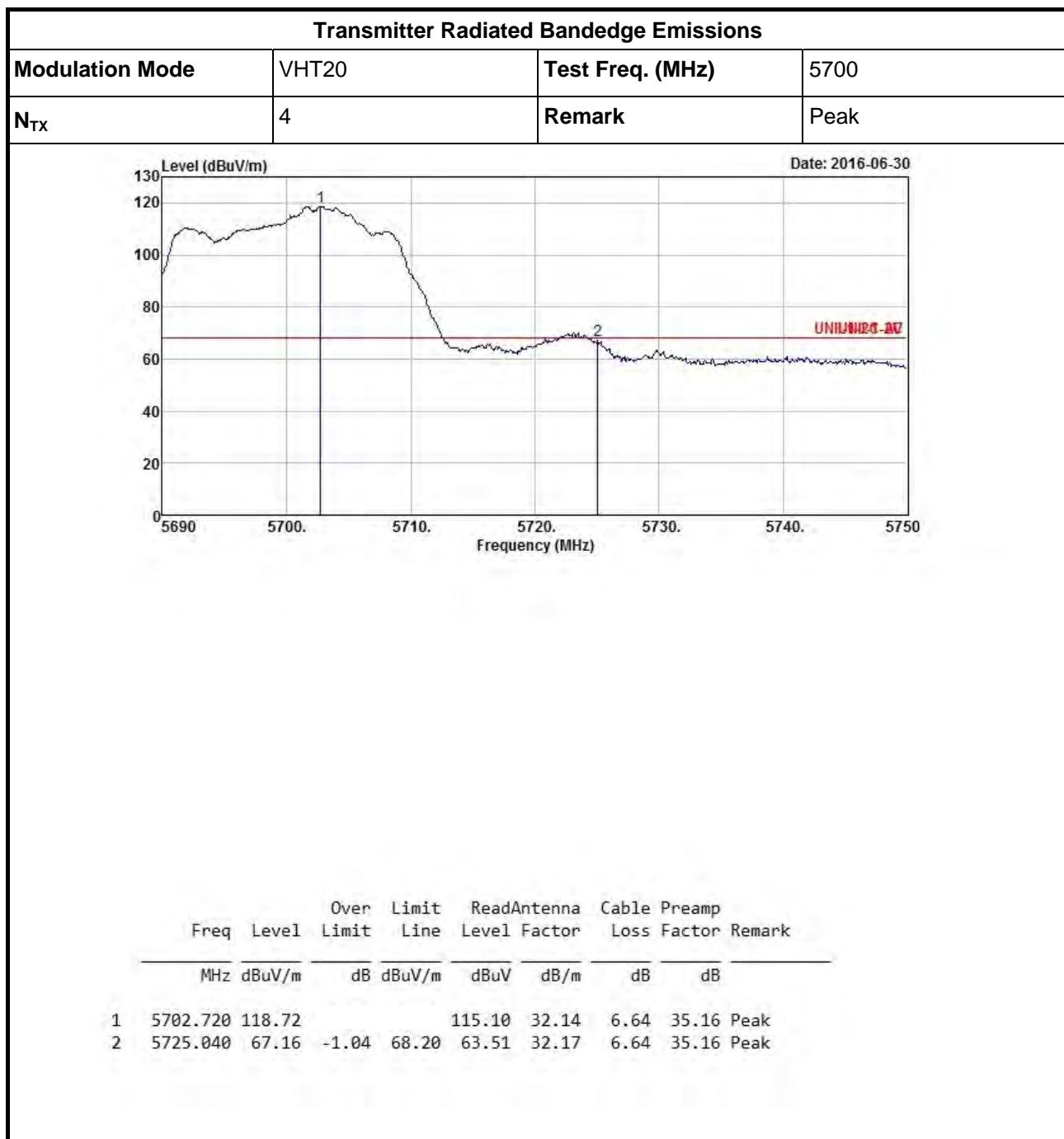
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Transmitter Radiated Bandedge Emissions

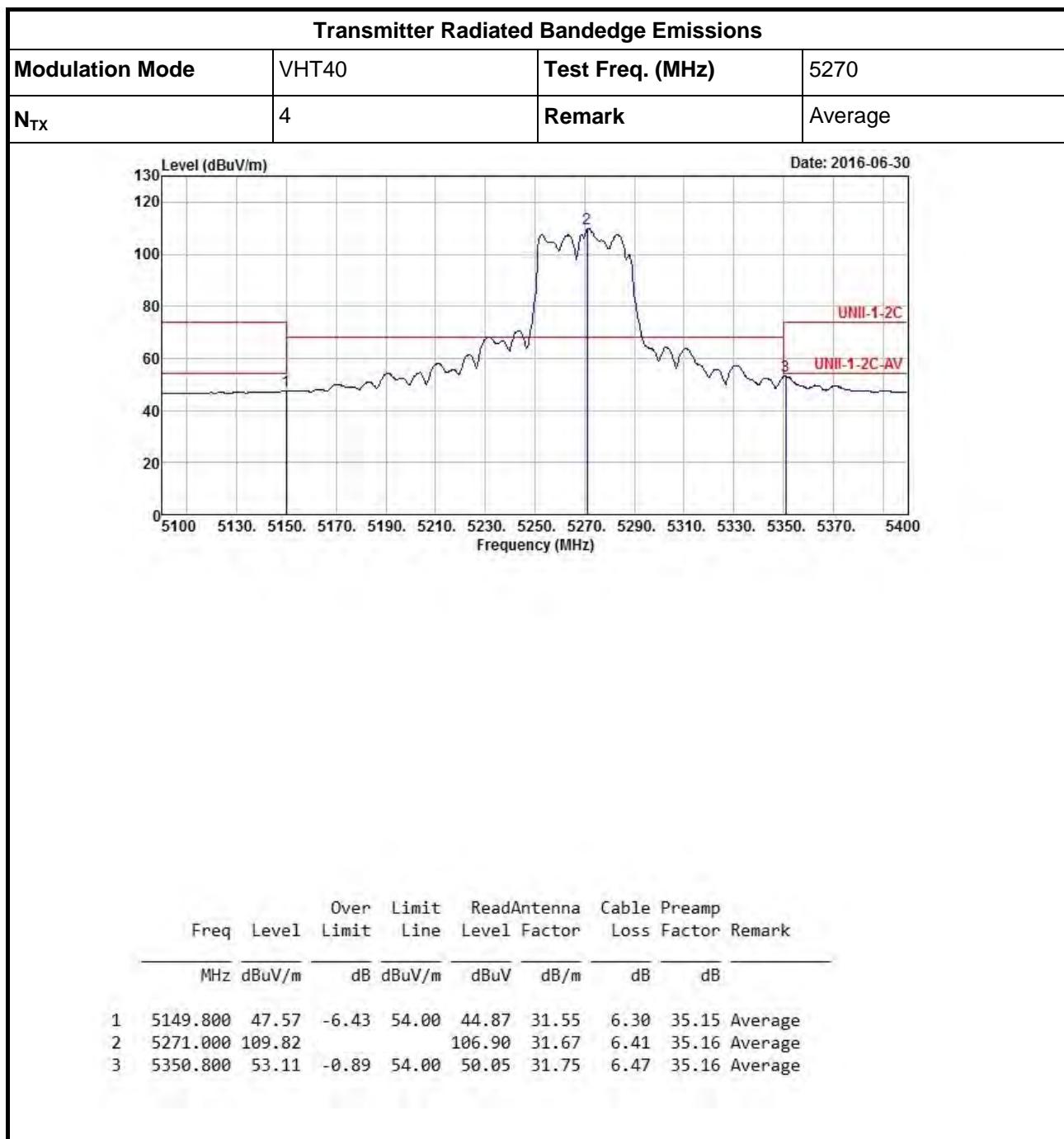
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Transmitter Radiated Bandedge Emissions

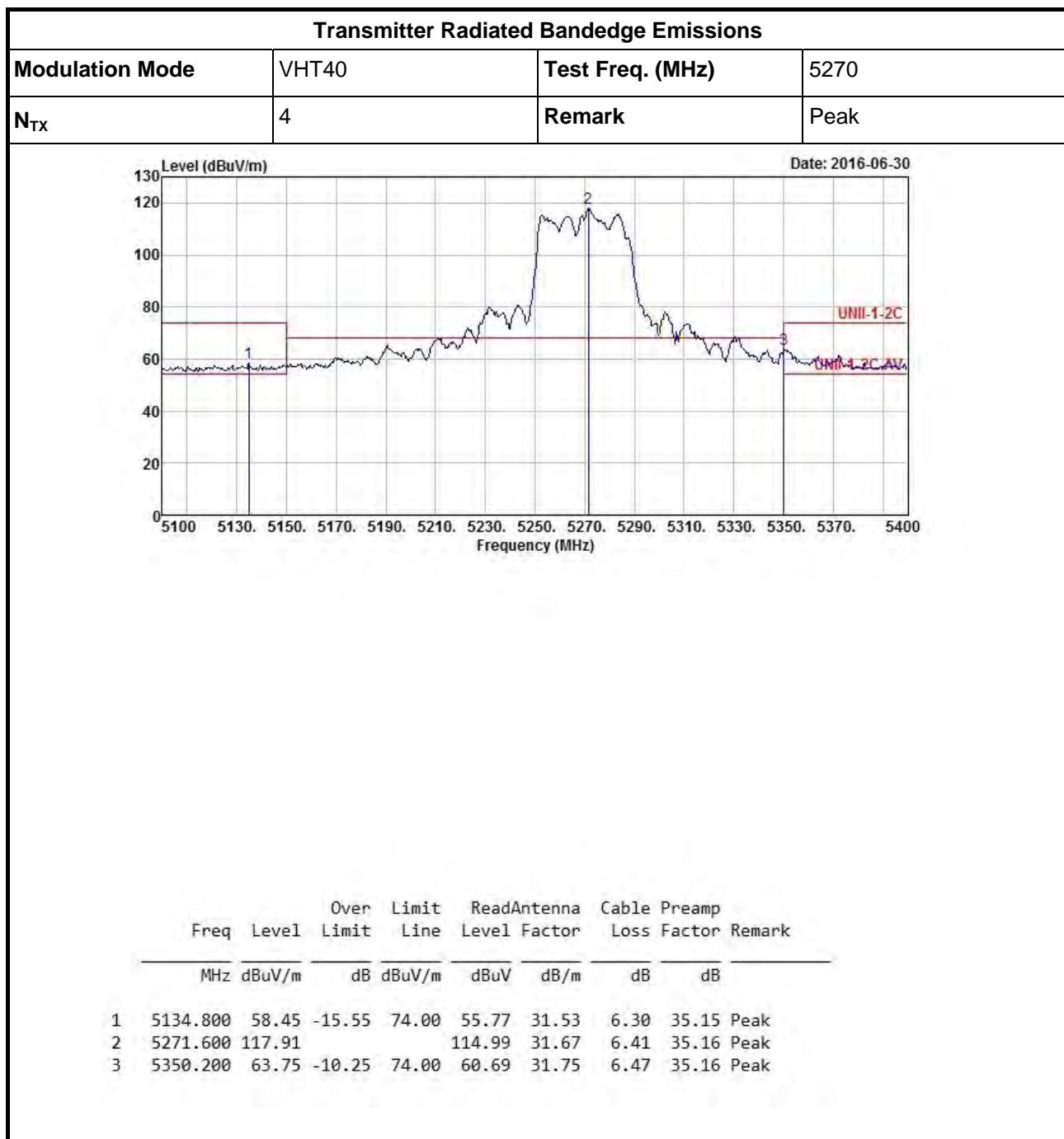
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Transmitter Radiated Bandedge Emissions

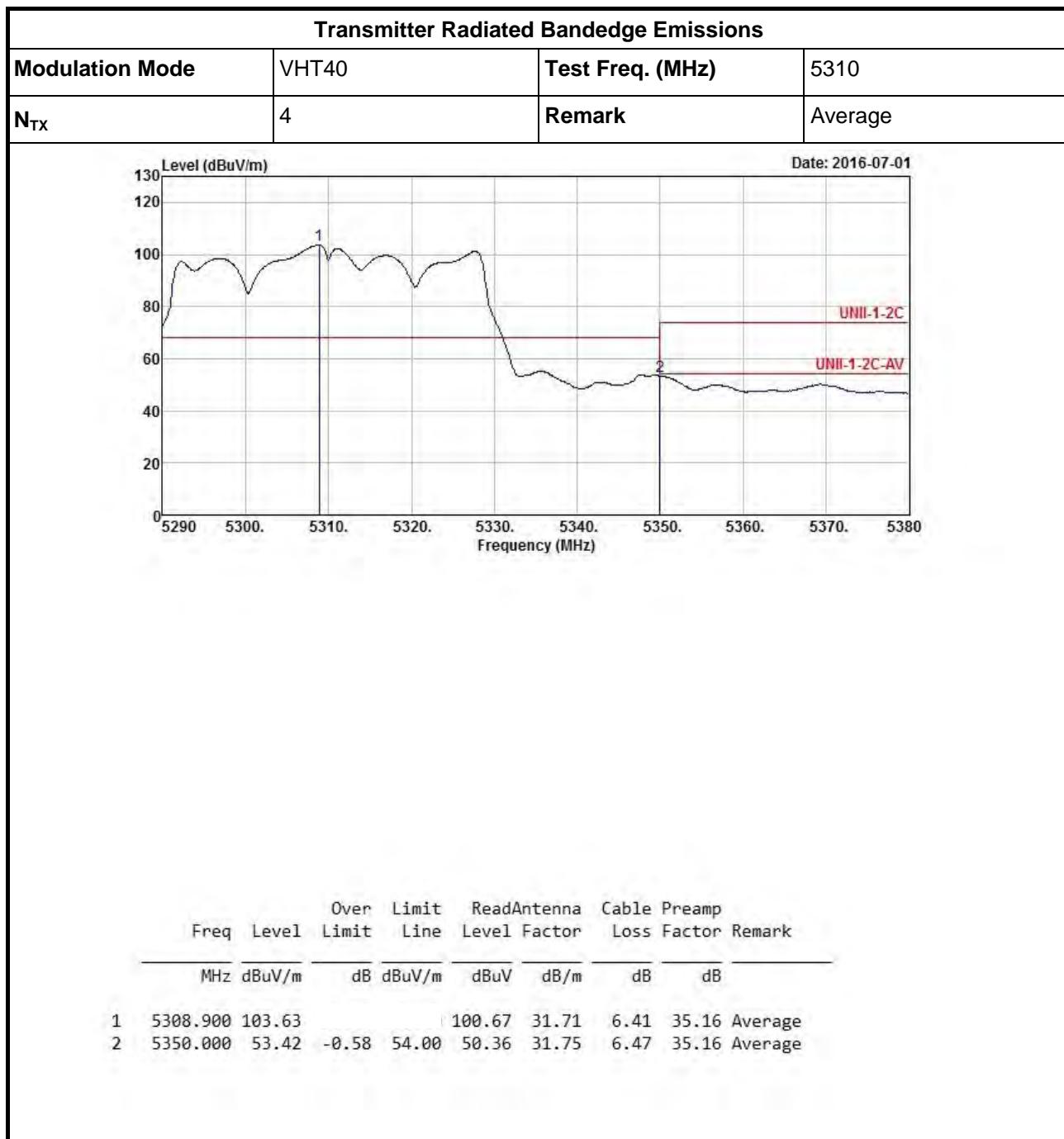
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Transmitter Radiated Bandedge Emissions

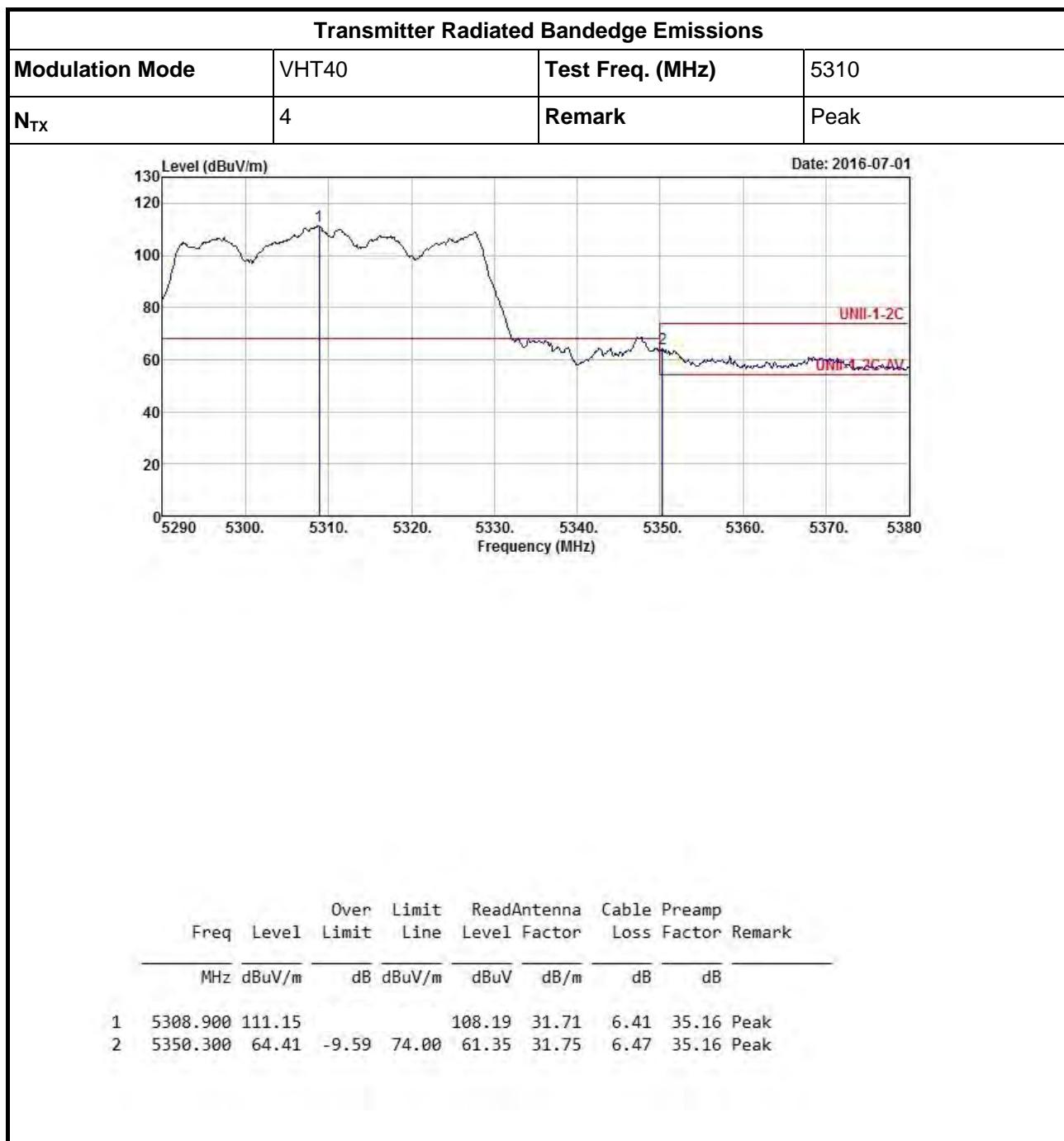
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Transmitter Radiated Bandedge Emissions

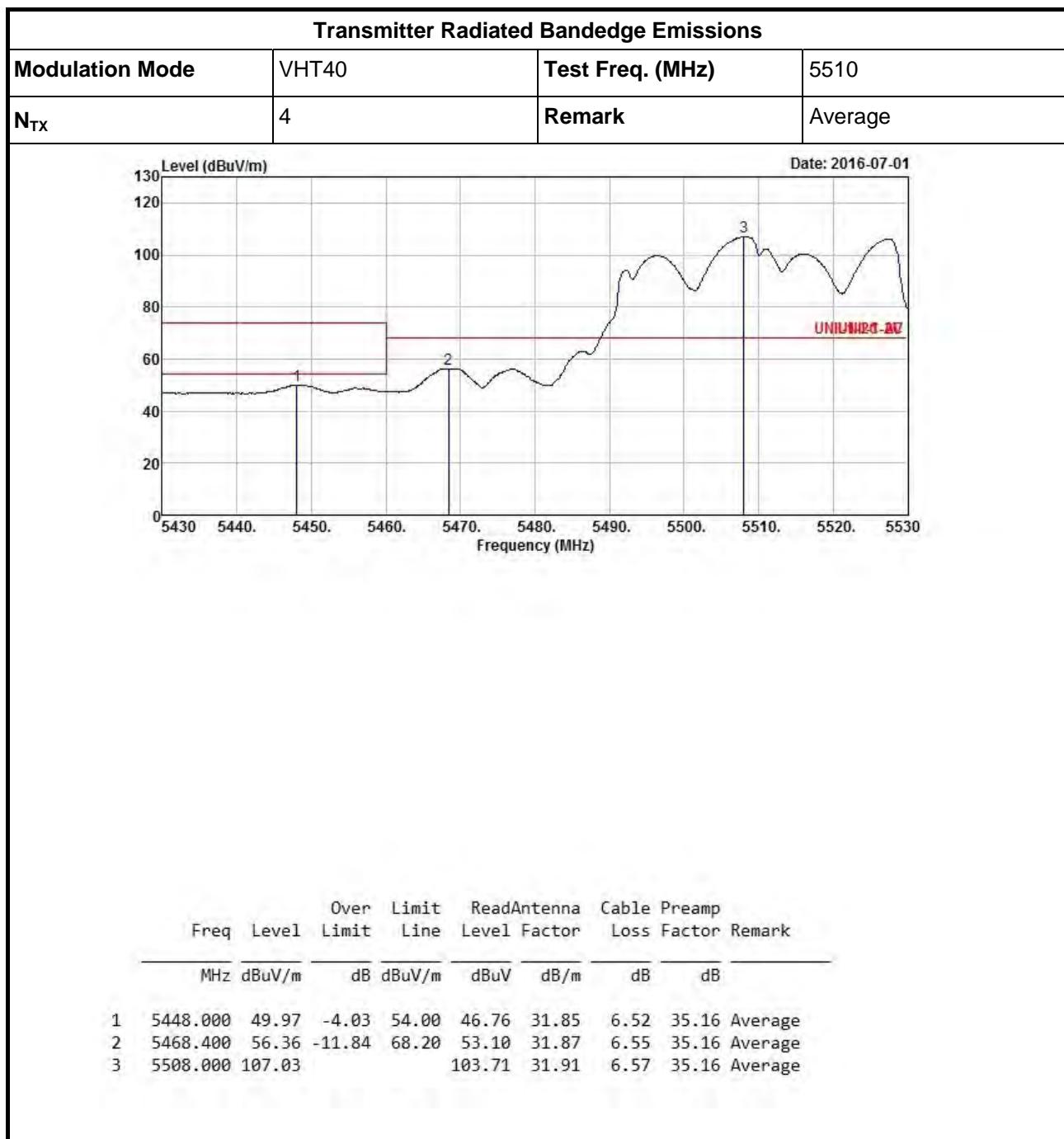
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Transmitter Radiated Bandedge Emissions

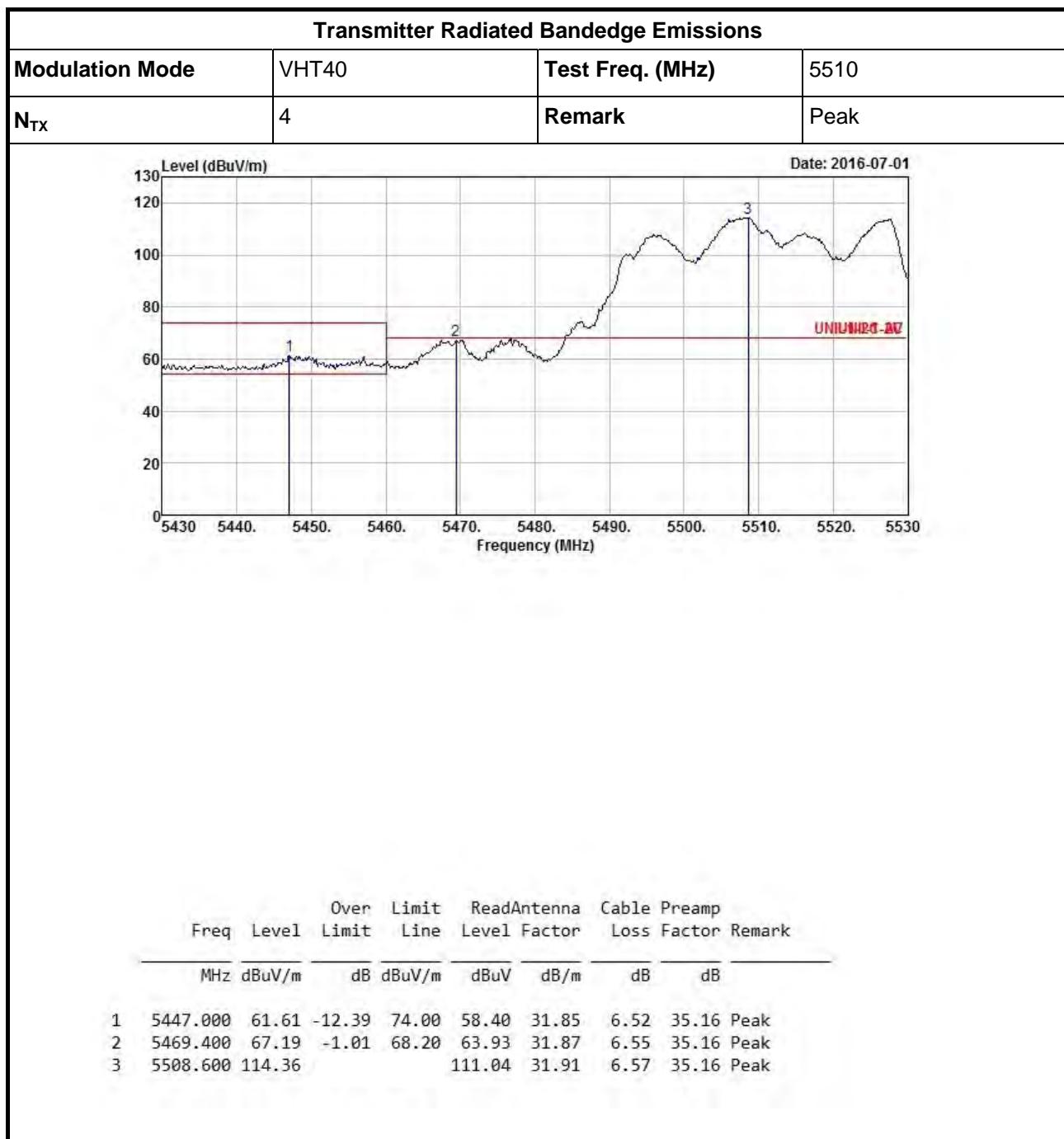
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Transmitter Radiated Bandedge Emissions

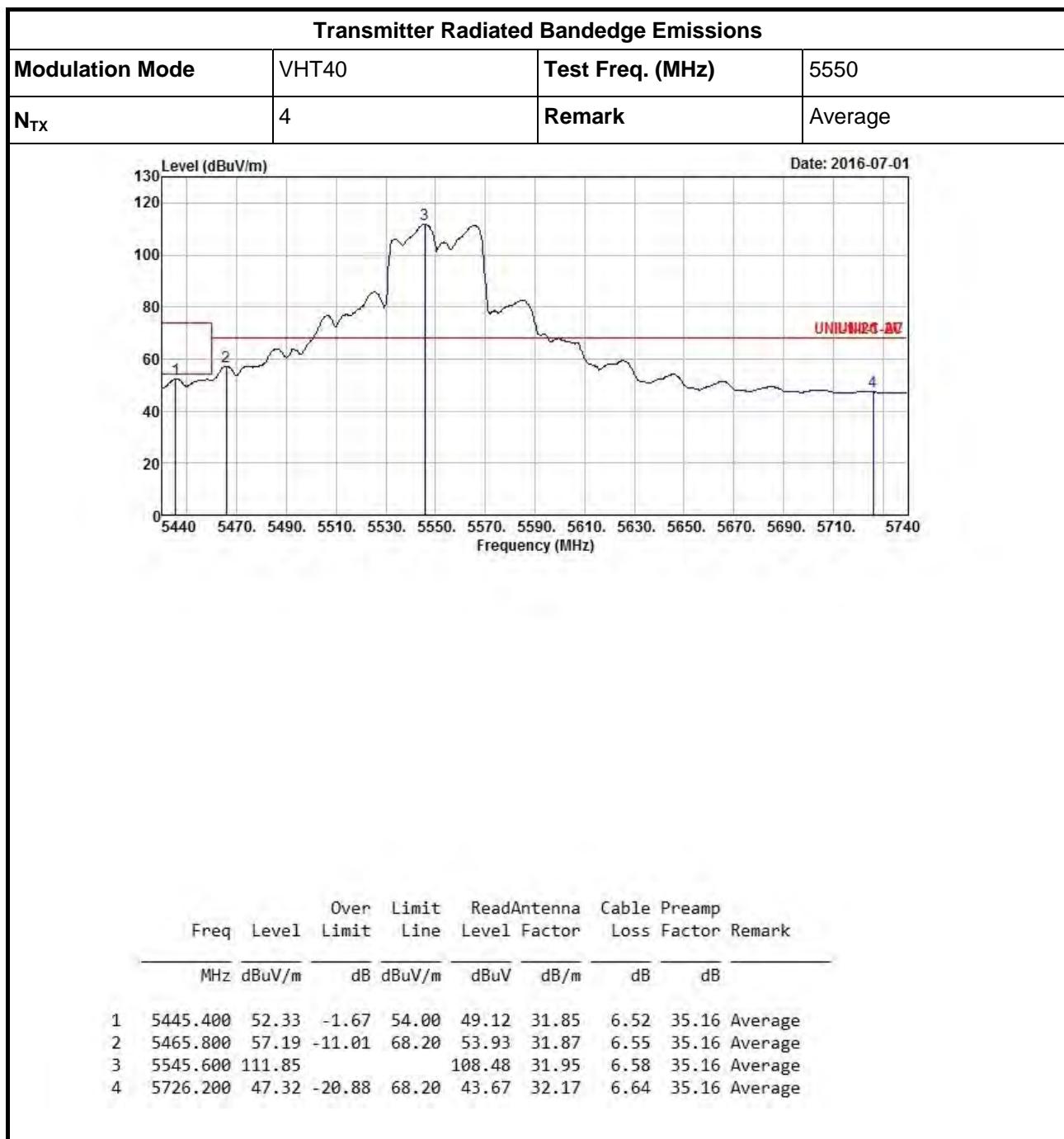
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Transmitter Radiated Bandedge Emissions

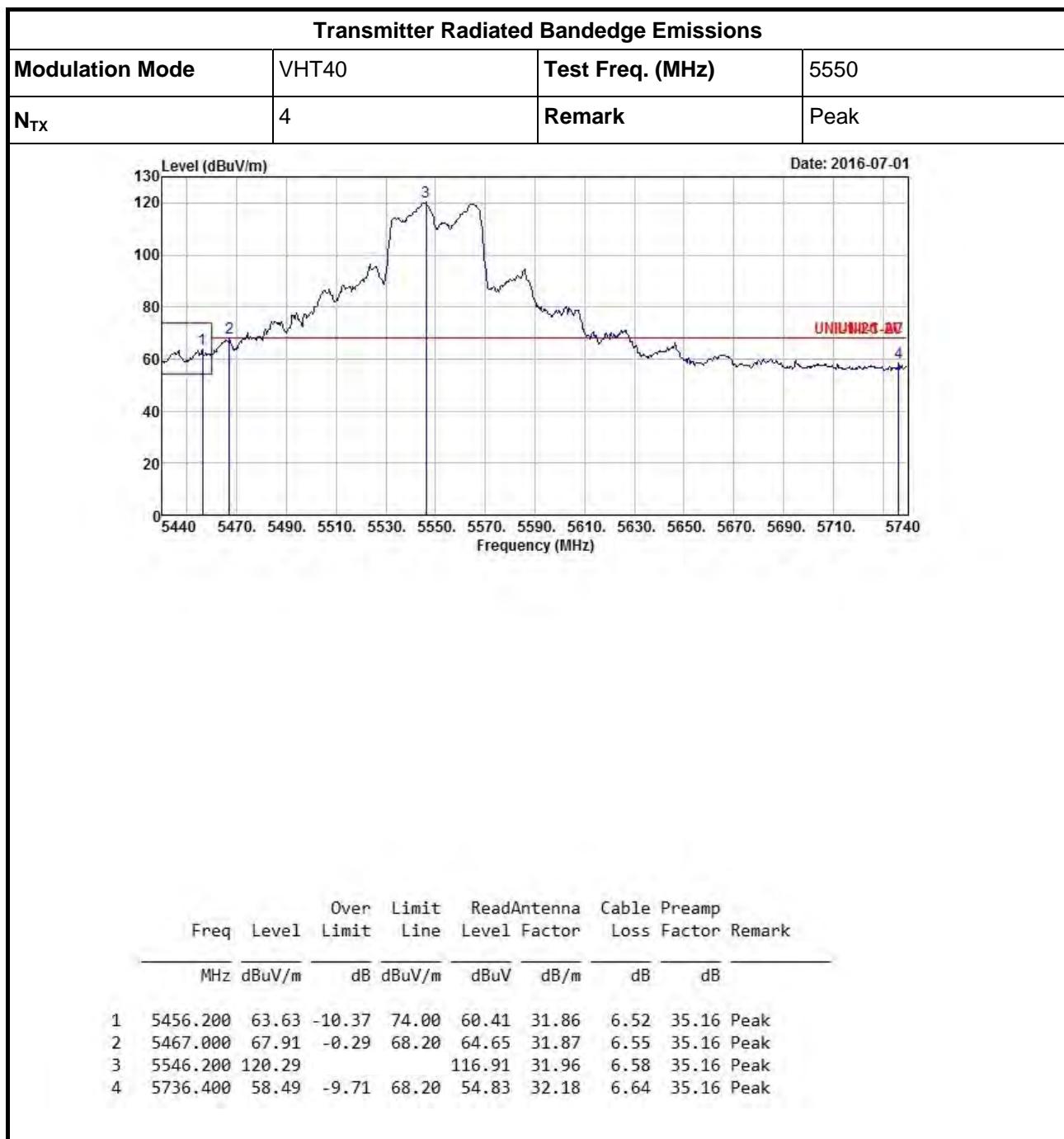
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Transmitter Radiated Bandedge Emissions

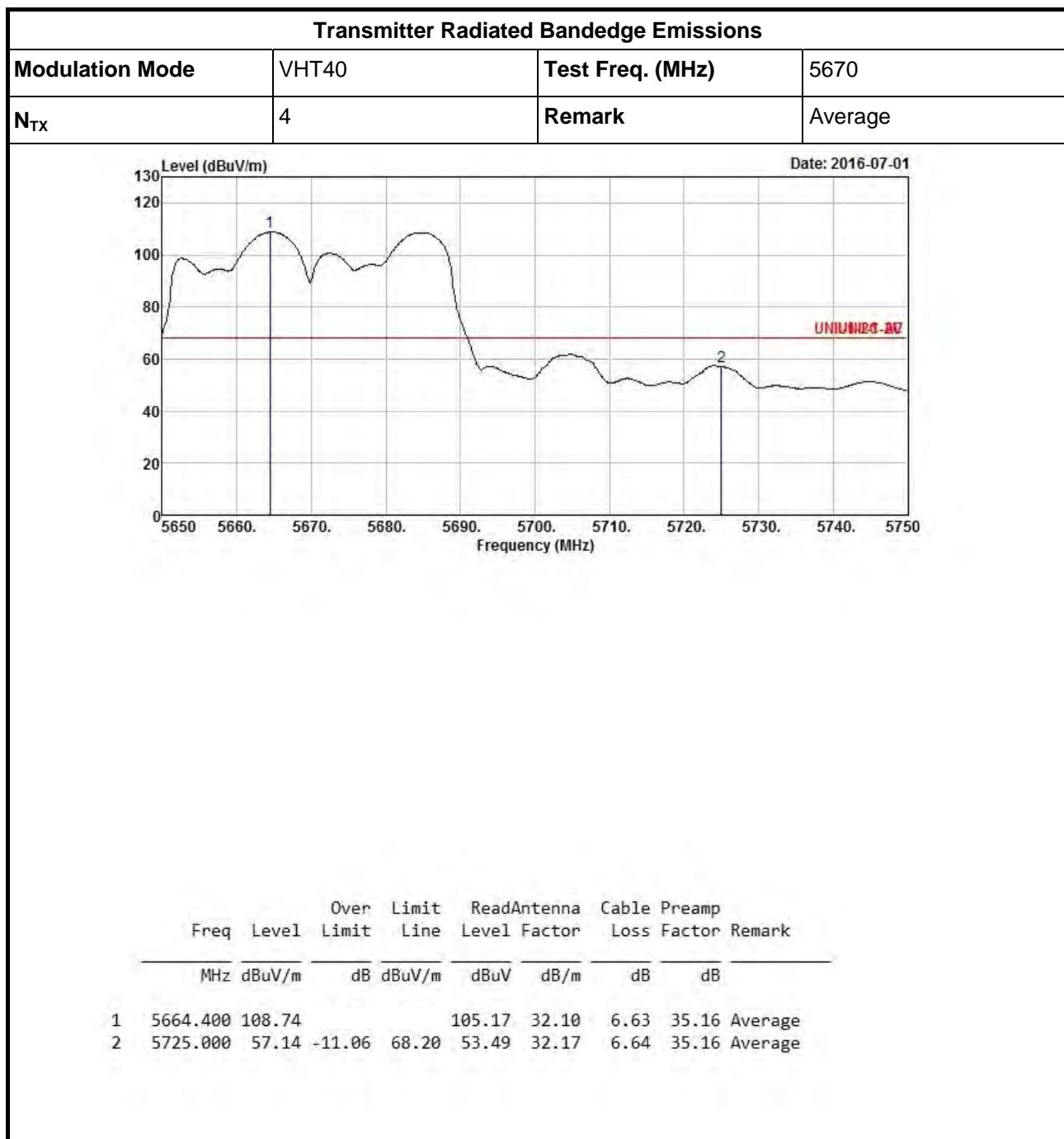
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Transmitter Radiated Bandedge Emissions

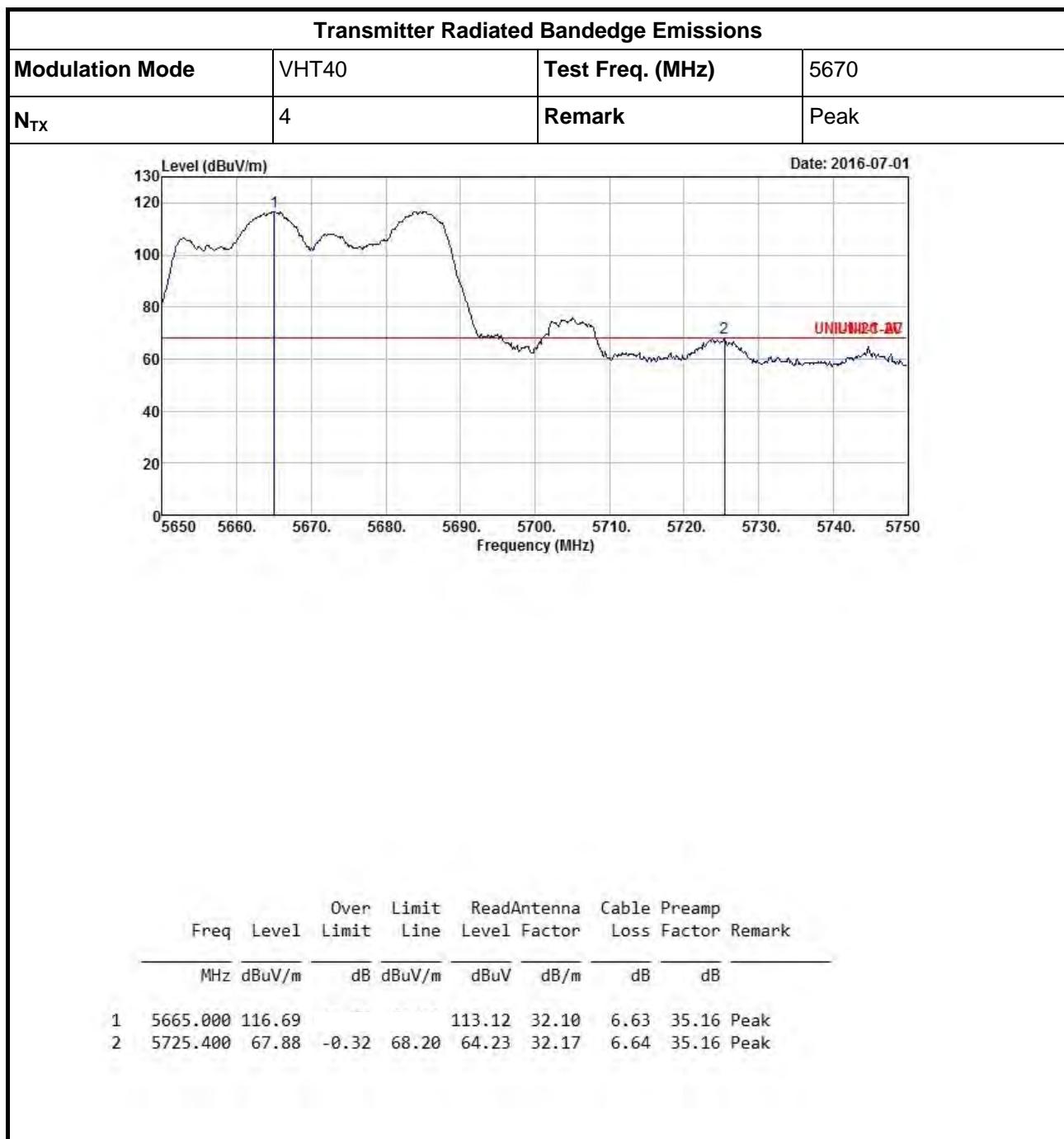
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Transmitter Radiated Bandedge Emissions

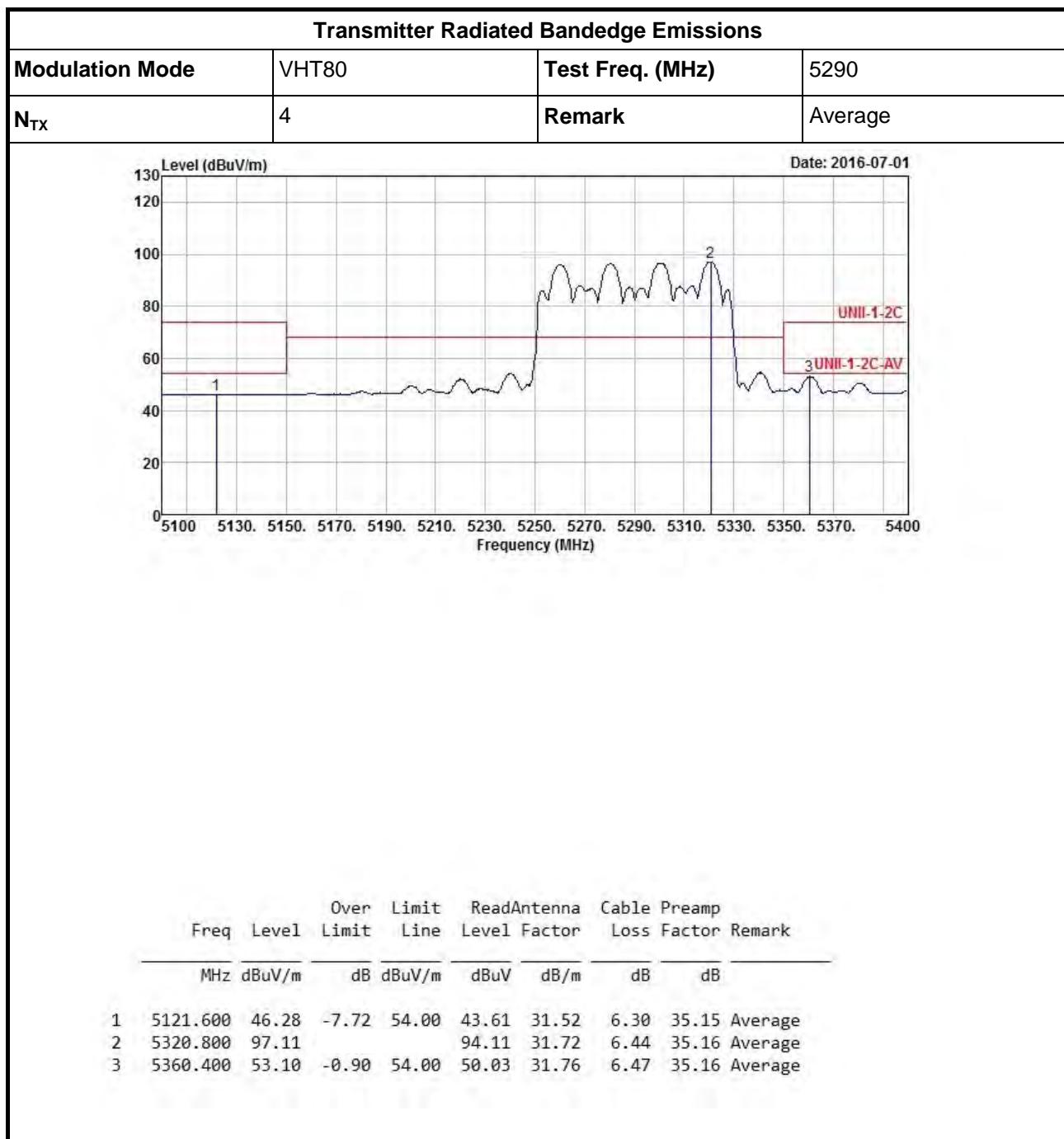
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Transmitter Radiated Bandedge Emissions

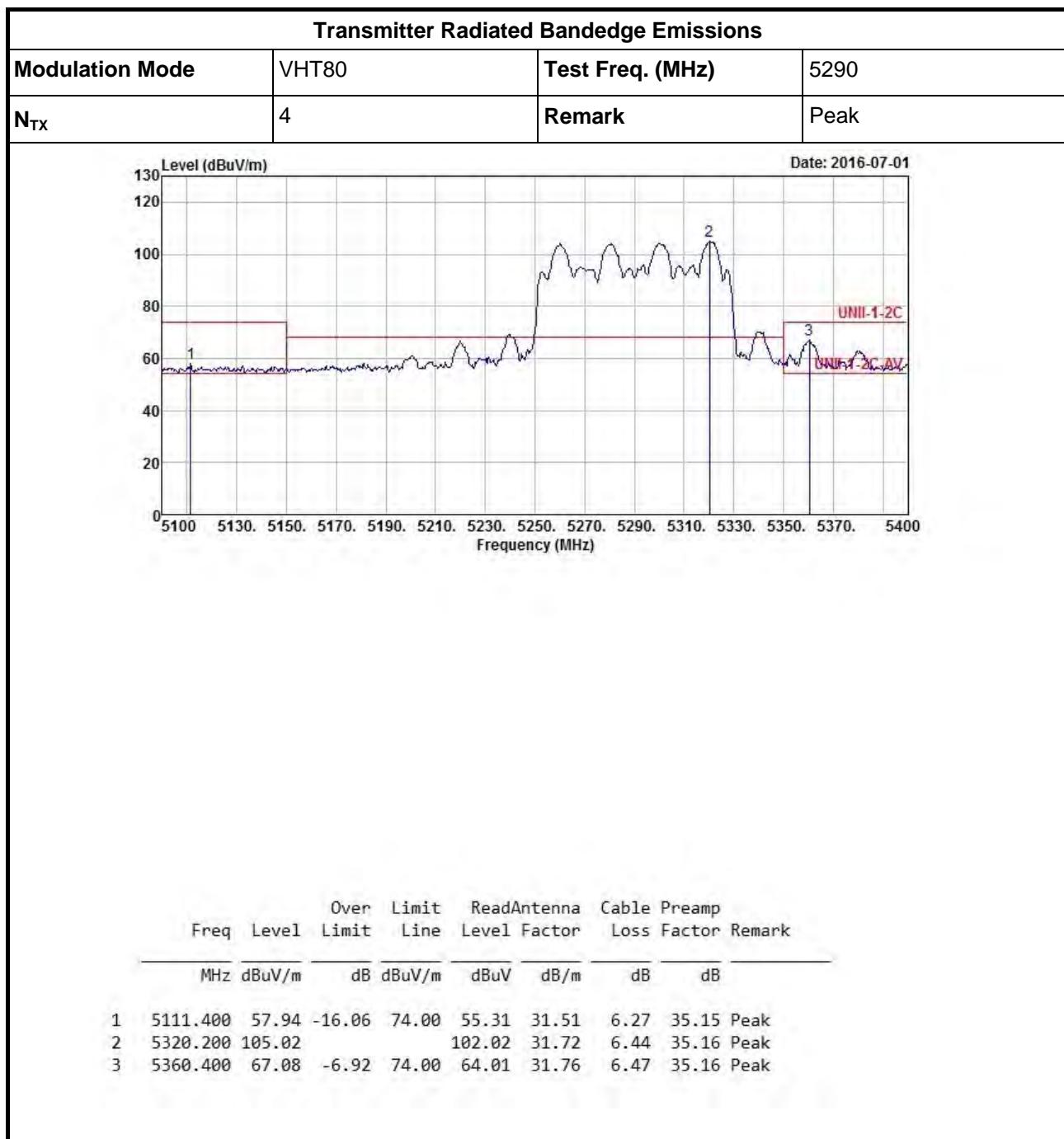
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Transmitter Radiated Bandedge Emissions

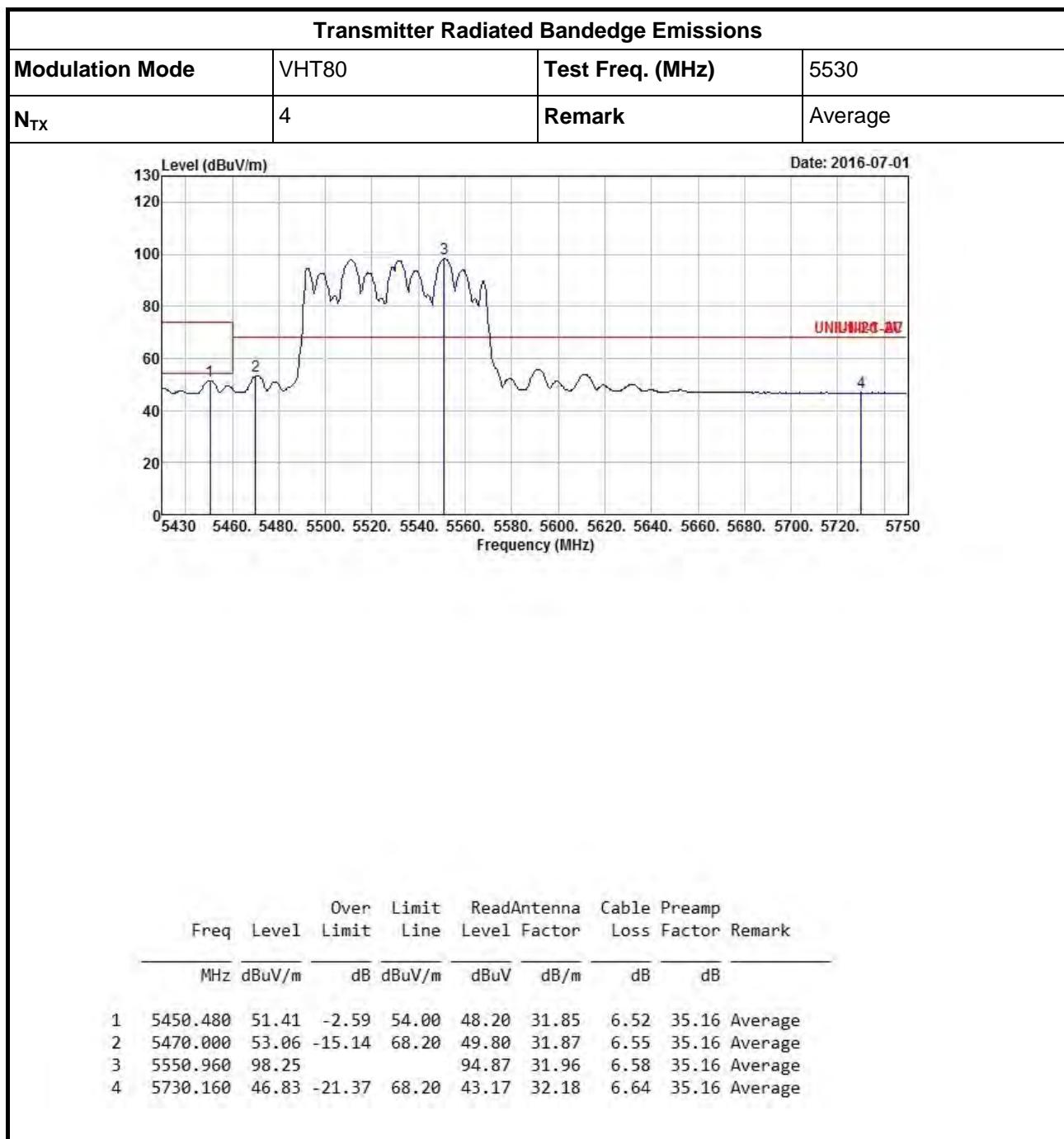
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Transmitter Radiated Bandedge Emissions

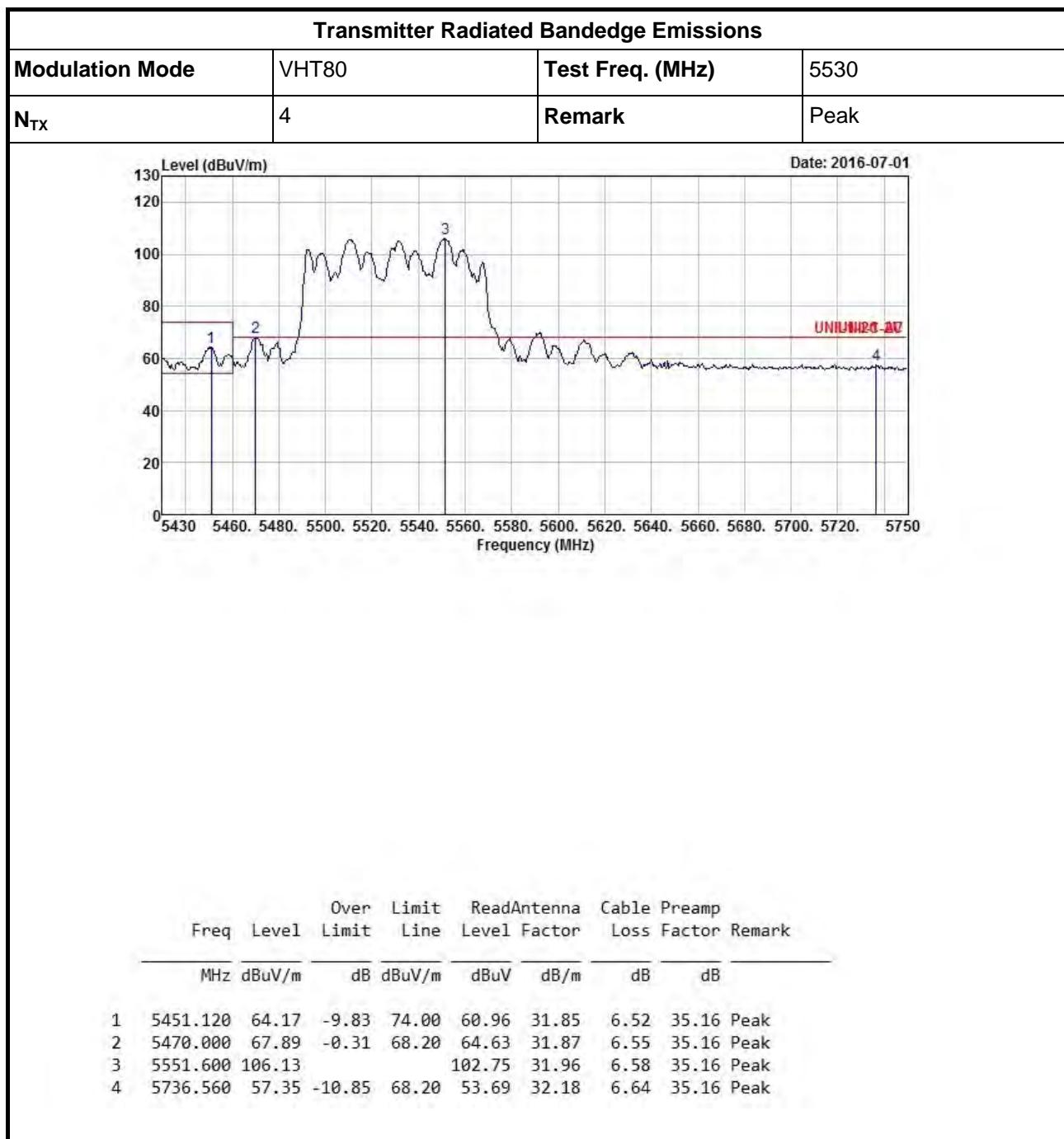
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Transmitter Radiated Bandedge Emissions

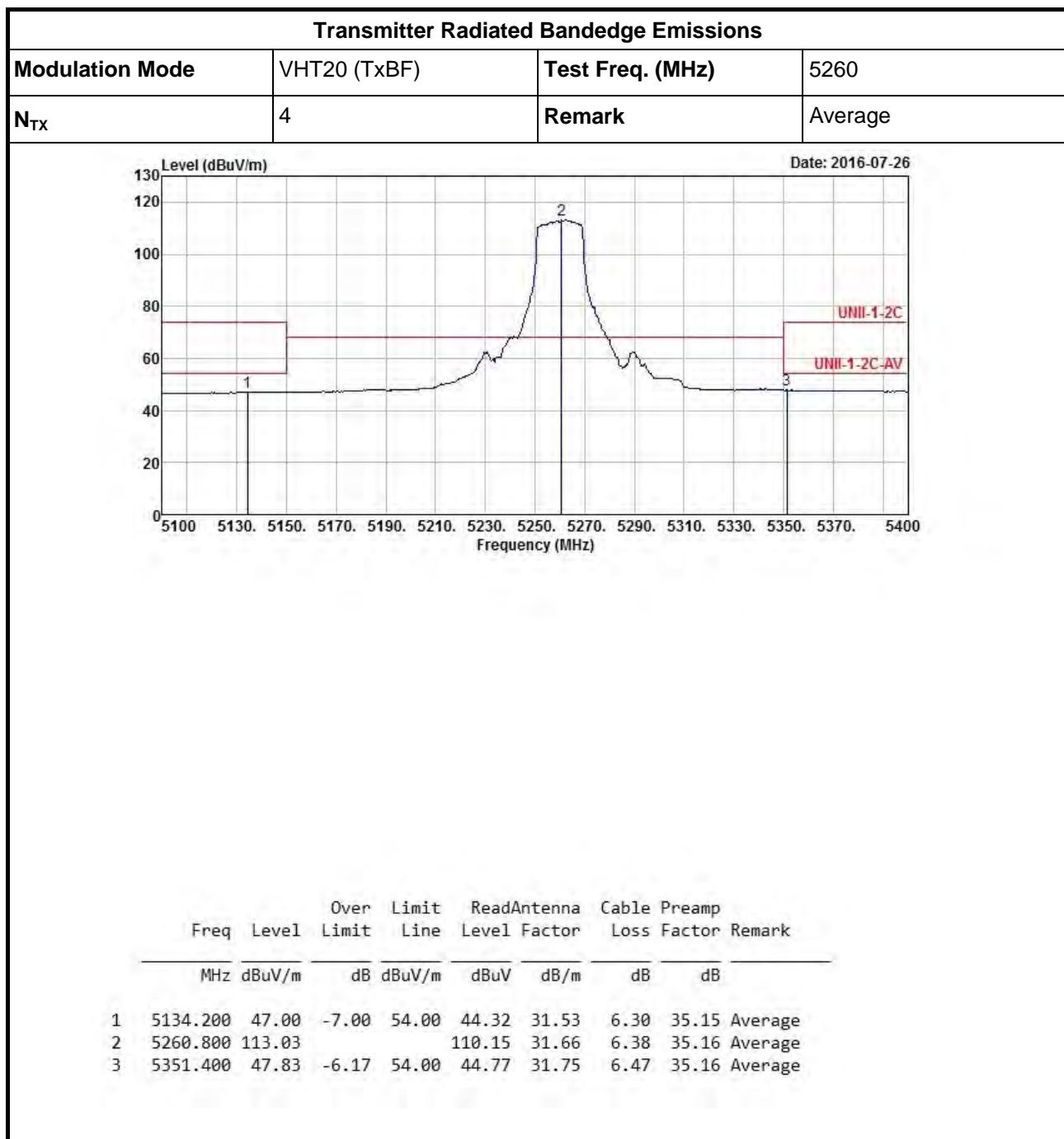
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Transmitter Radiated Bandedge Emissions

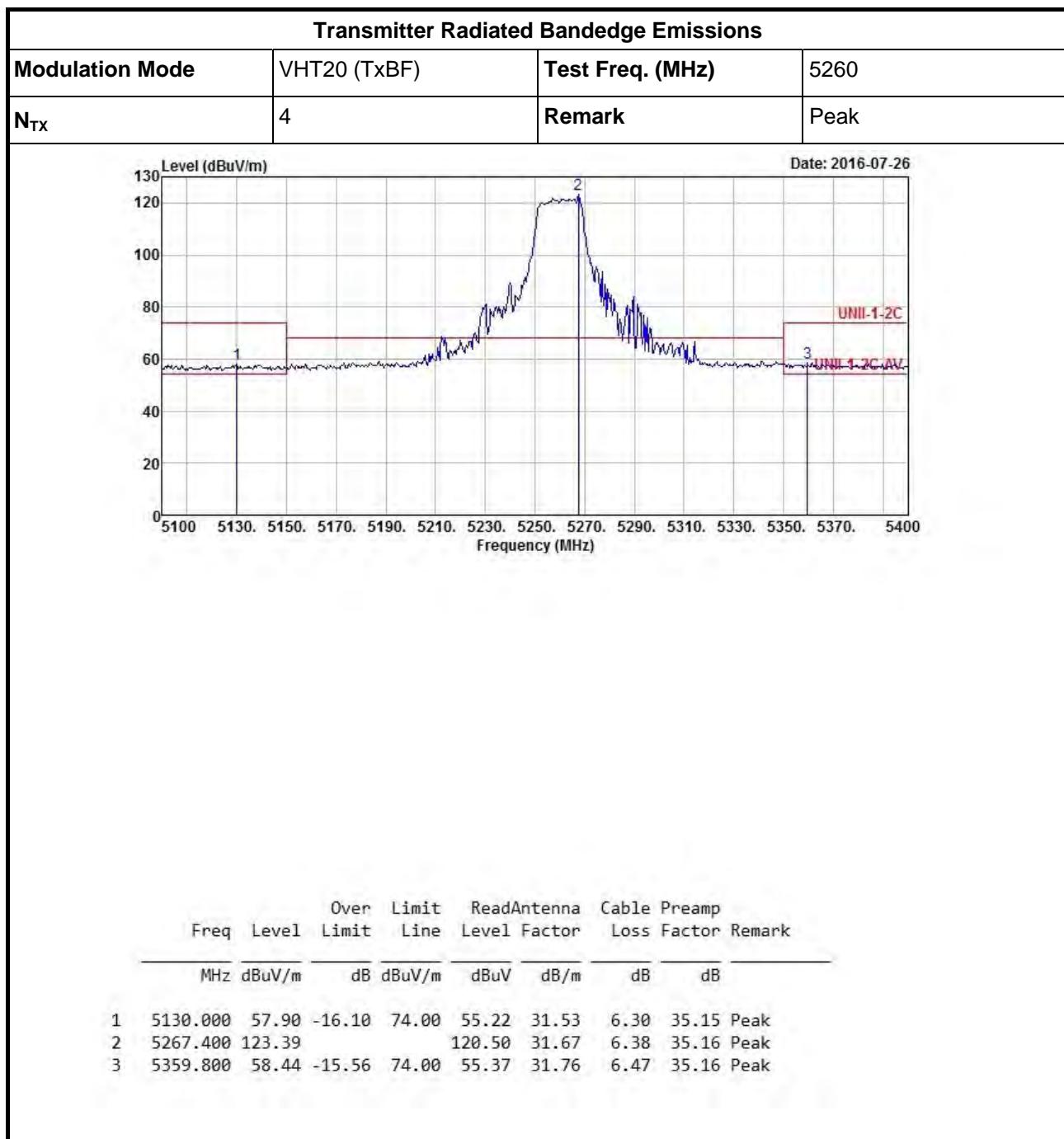
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Transmitter Radiated Bandedge Emissions

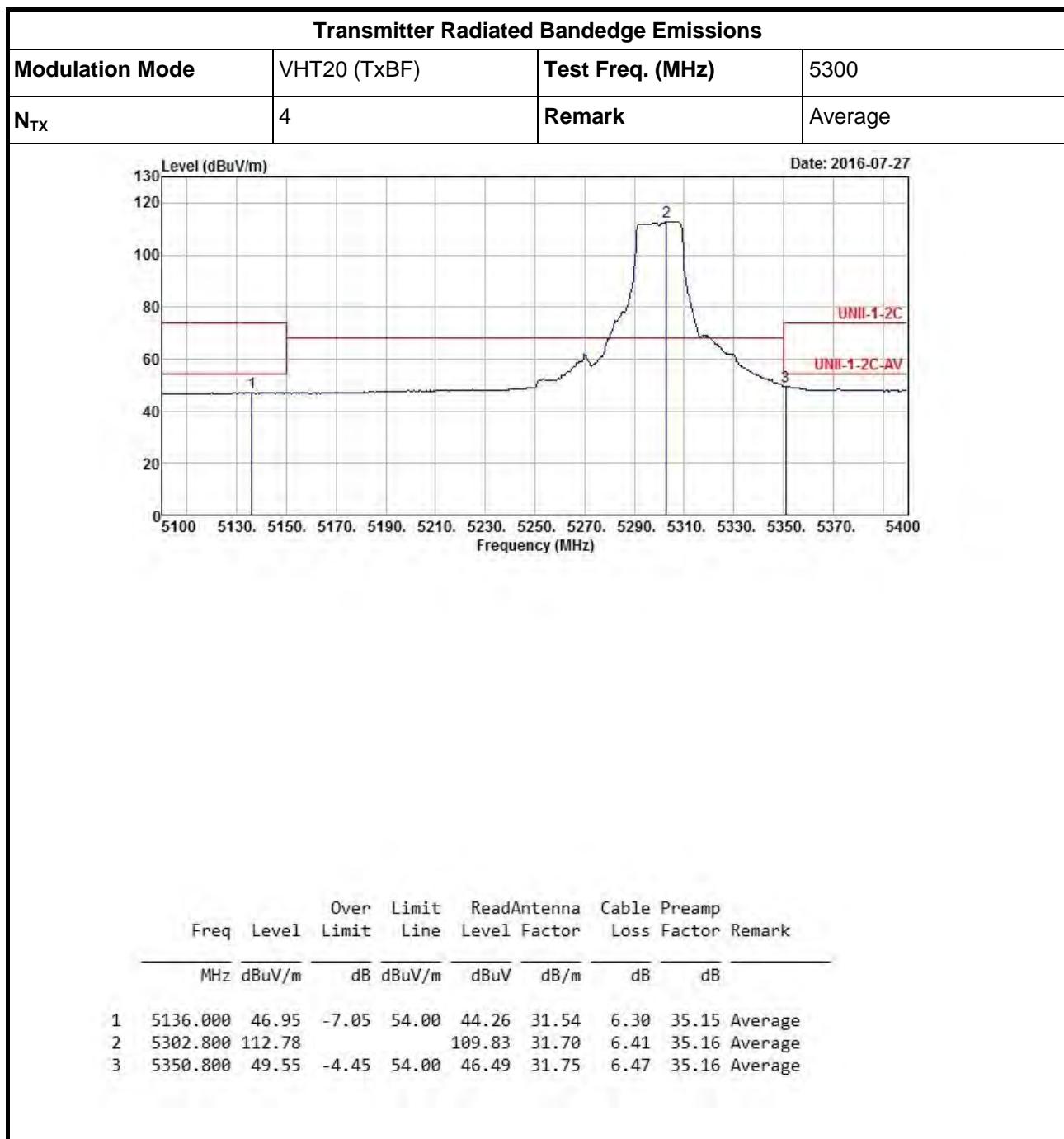
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Transmitter Radiated Bandedge Emissions

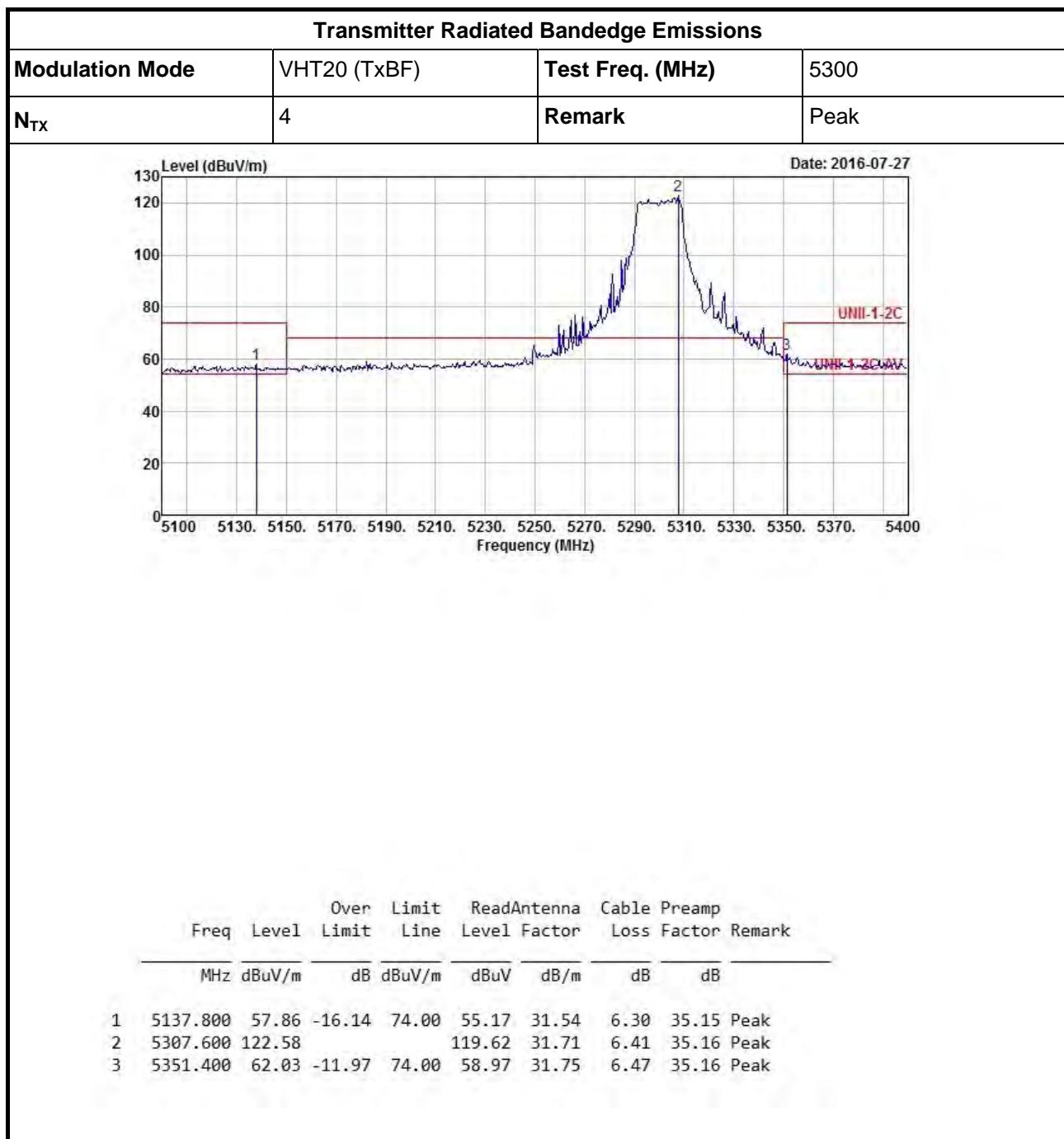
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Transmitter Radiated Bandedge Emissions

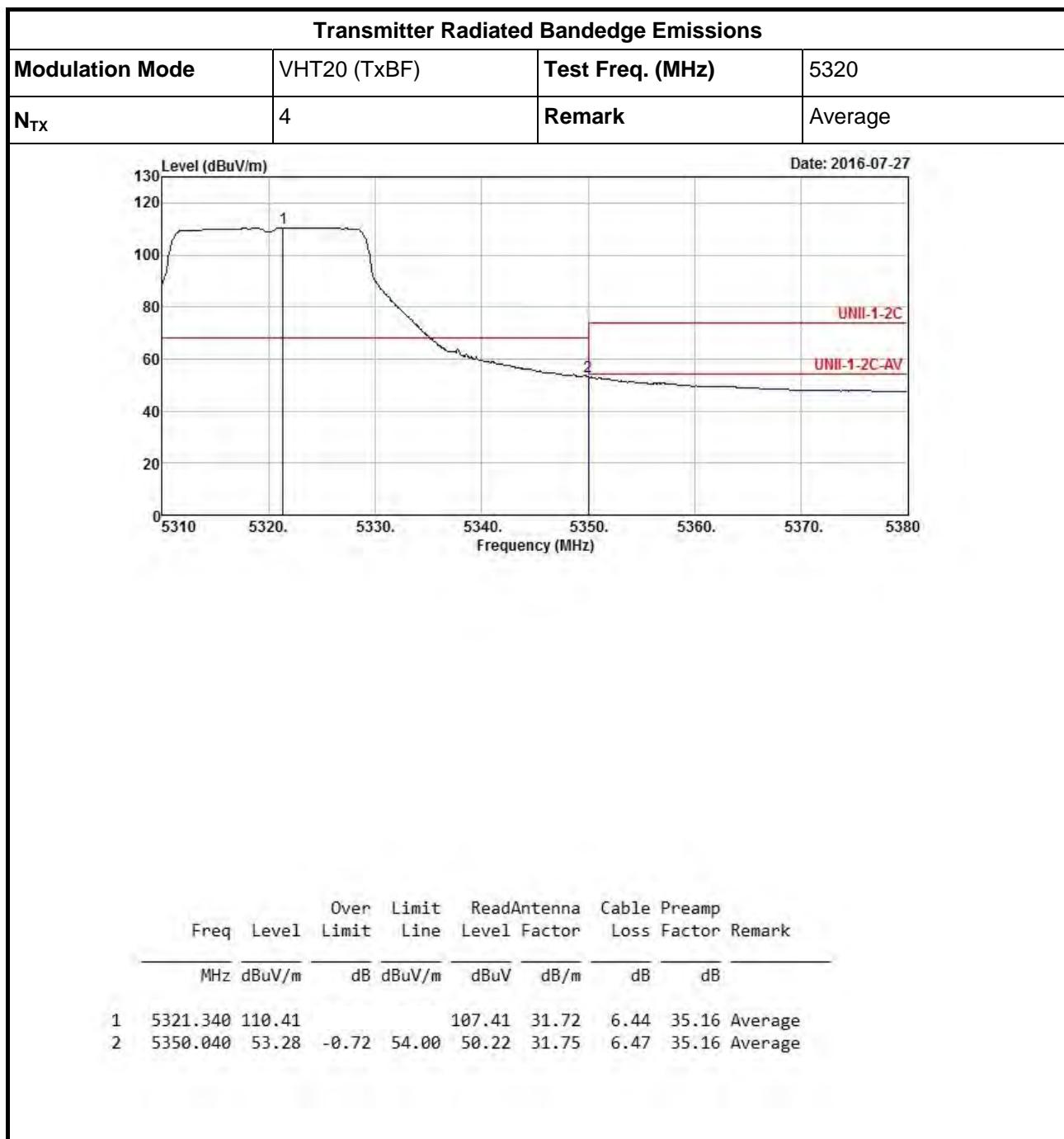
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Transmitter Radiated Bandedge Emissions

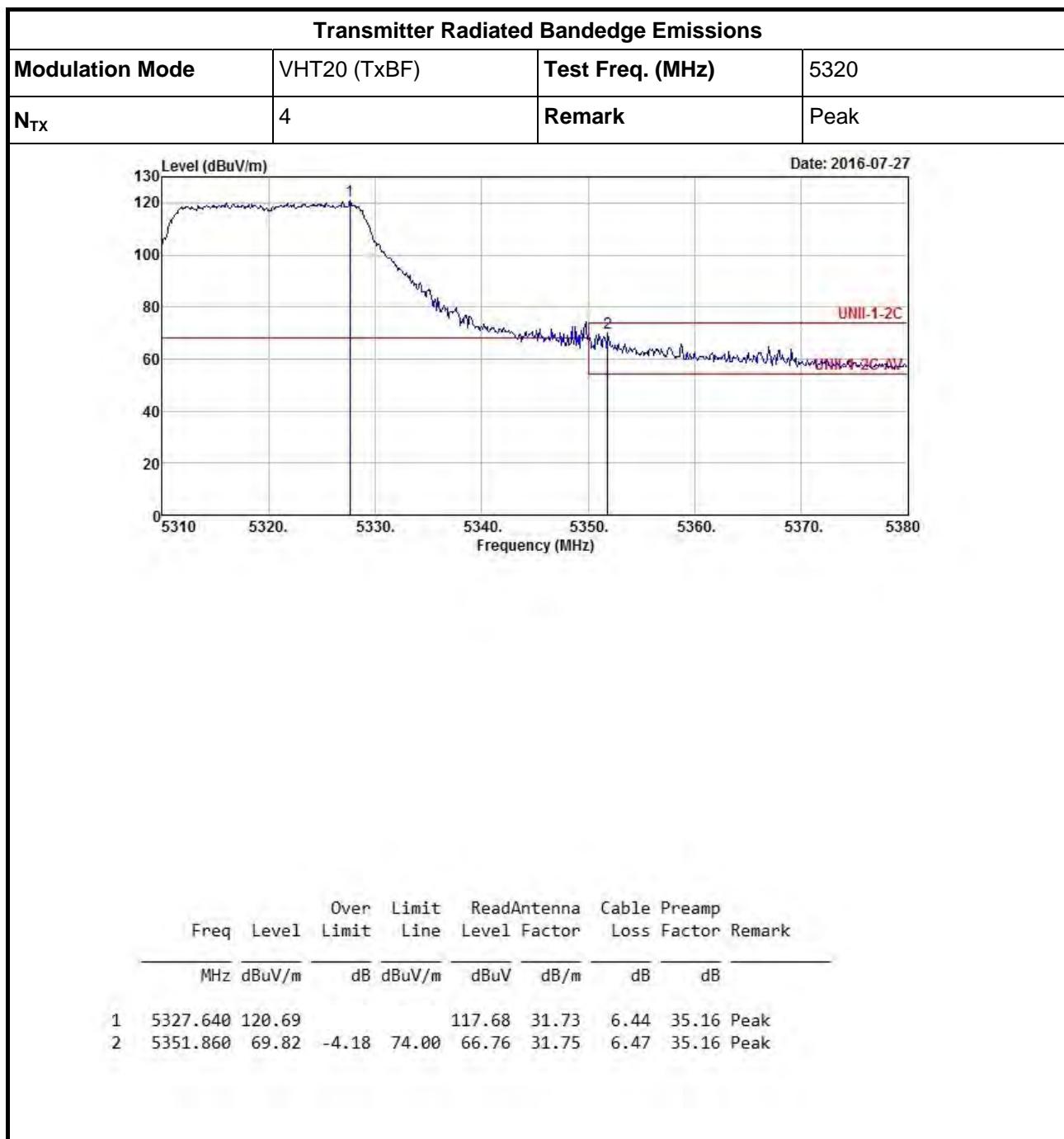
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Transmitter Radiated Bandedge Emissions

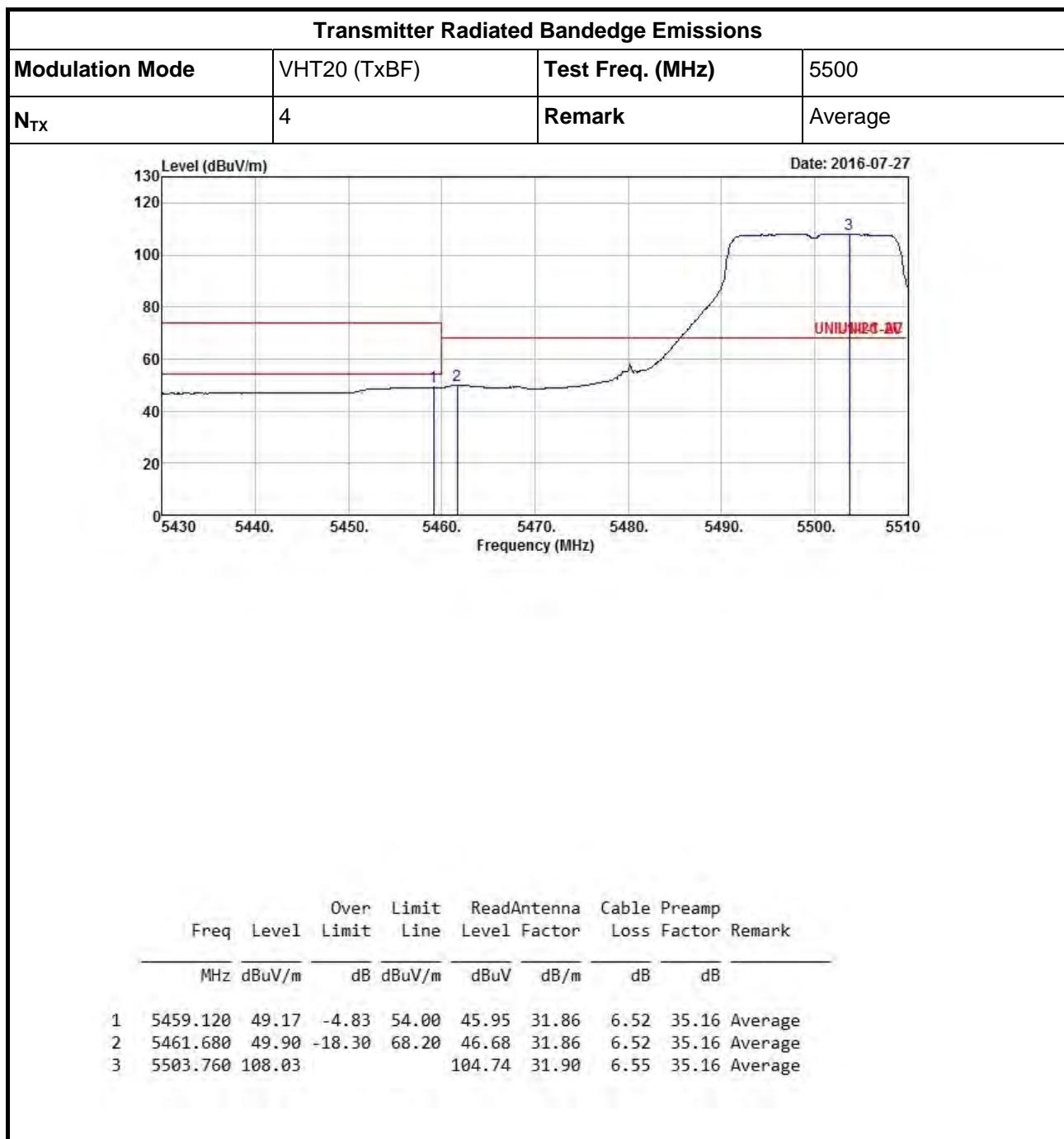
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Transmitter Radiated Bandedge Emissions

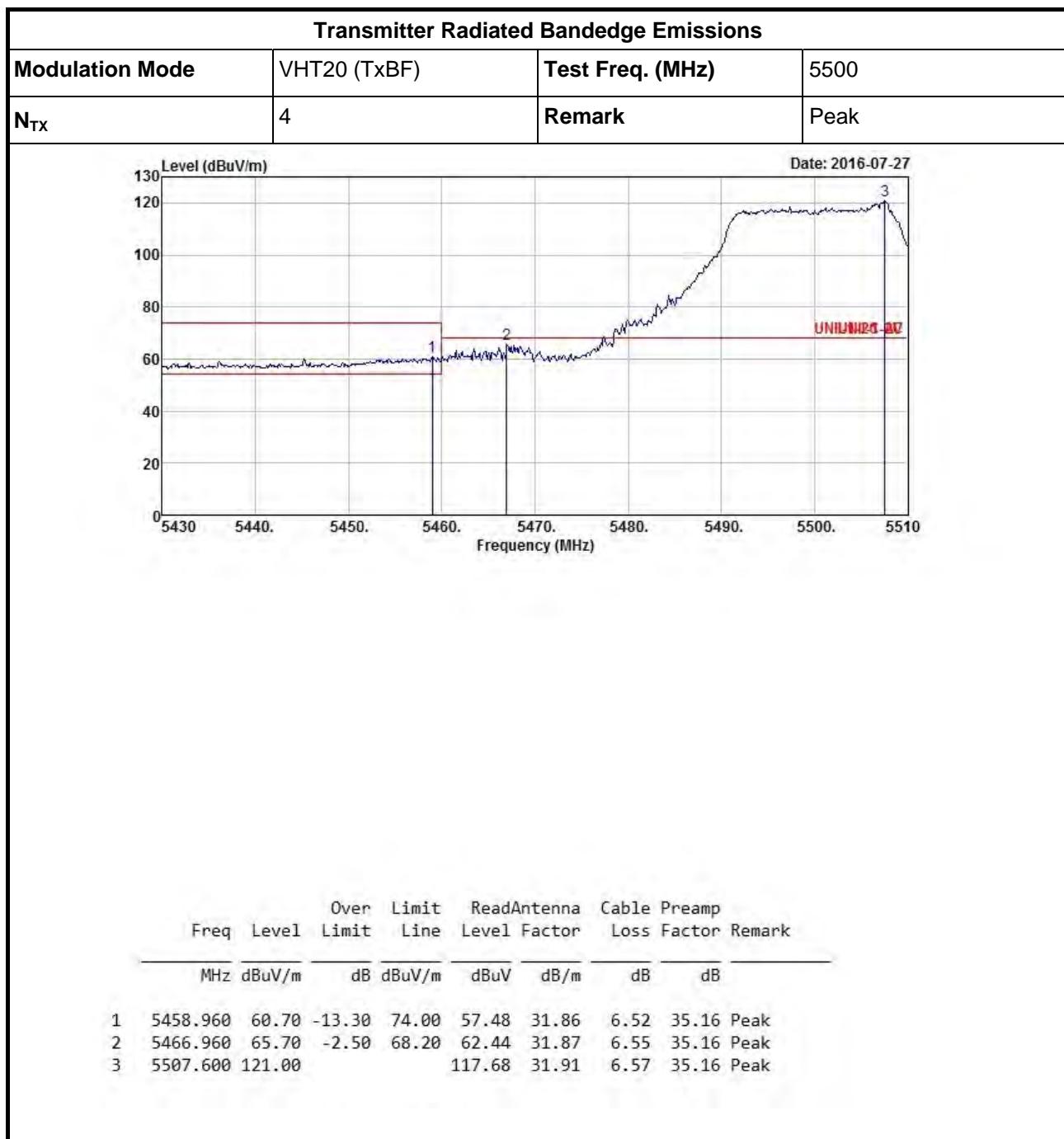
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Transmitter Radiated Bandedge Emissions

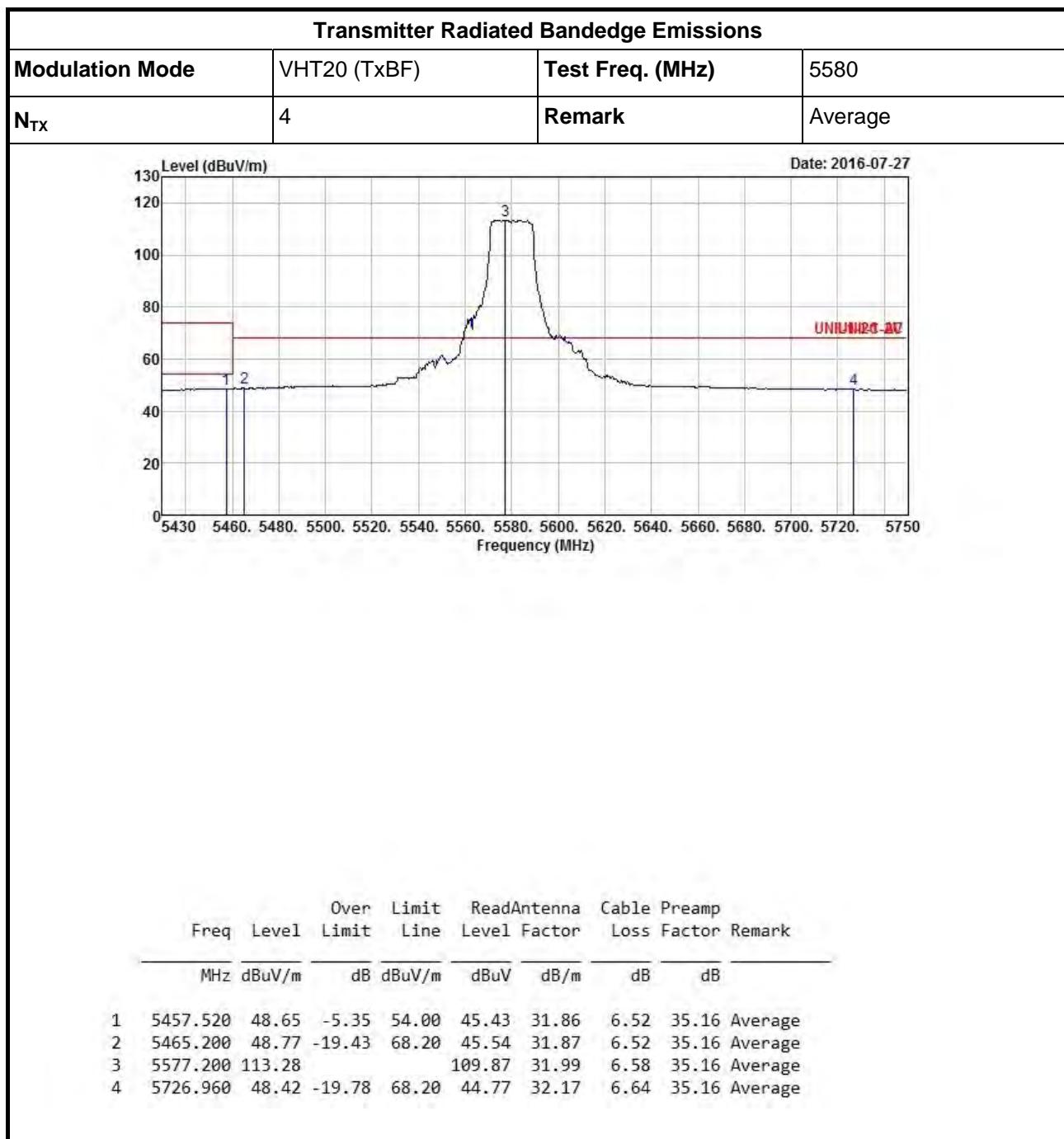
Appendix D





Transmitter Radiated Bandedge Emissions

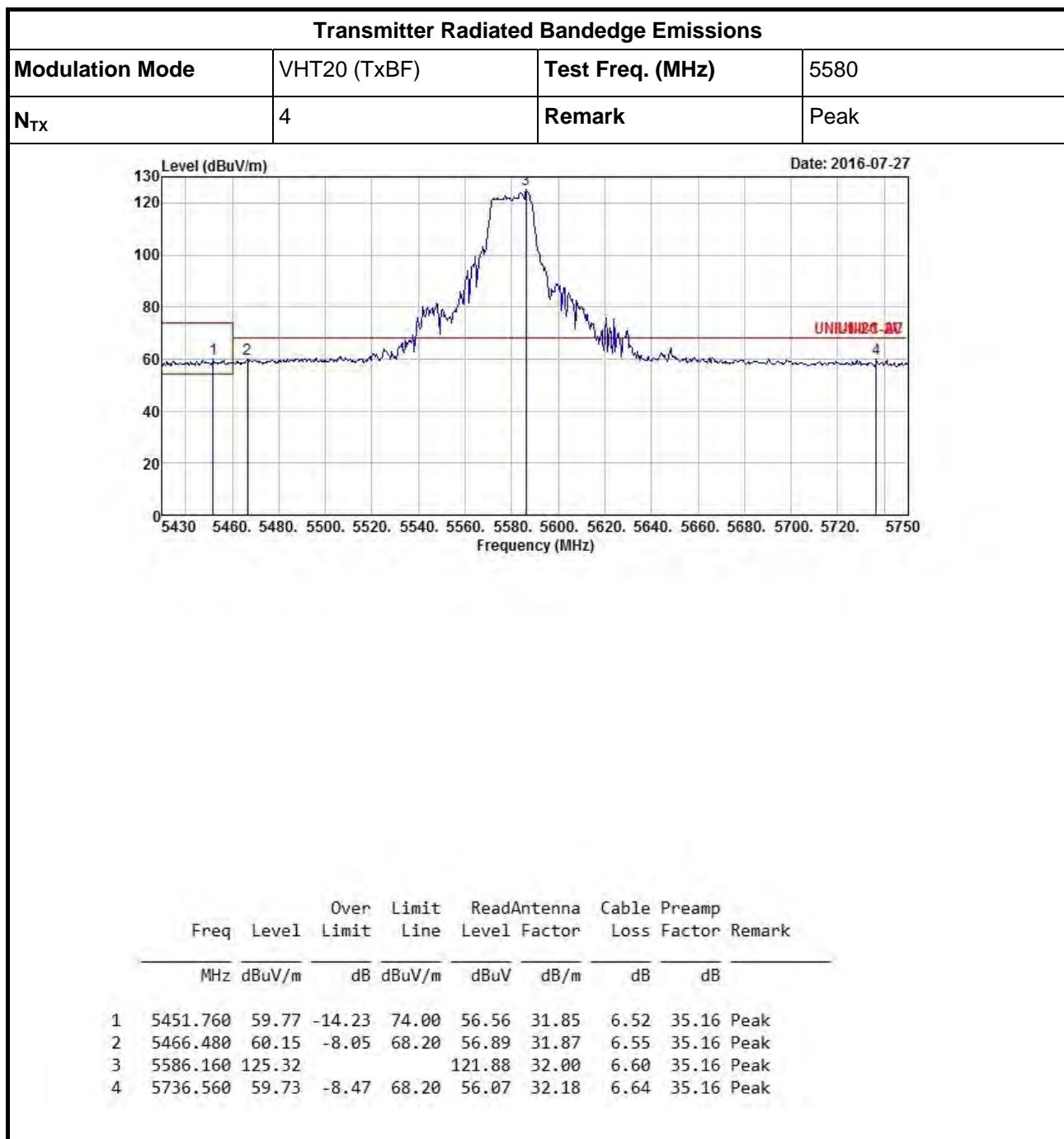
Appendix D





Transmitter Radiated Bandedge Emissions

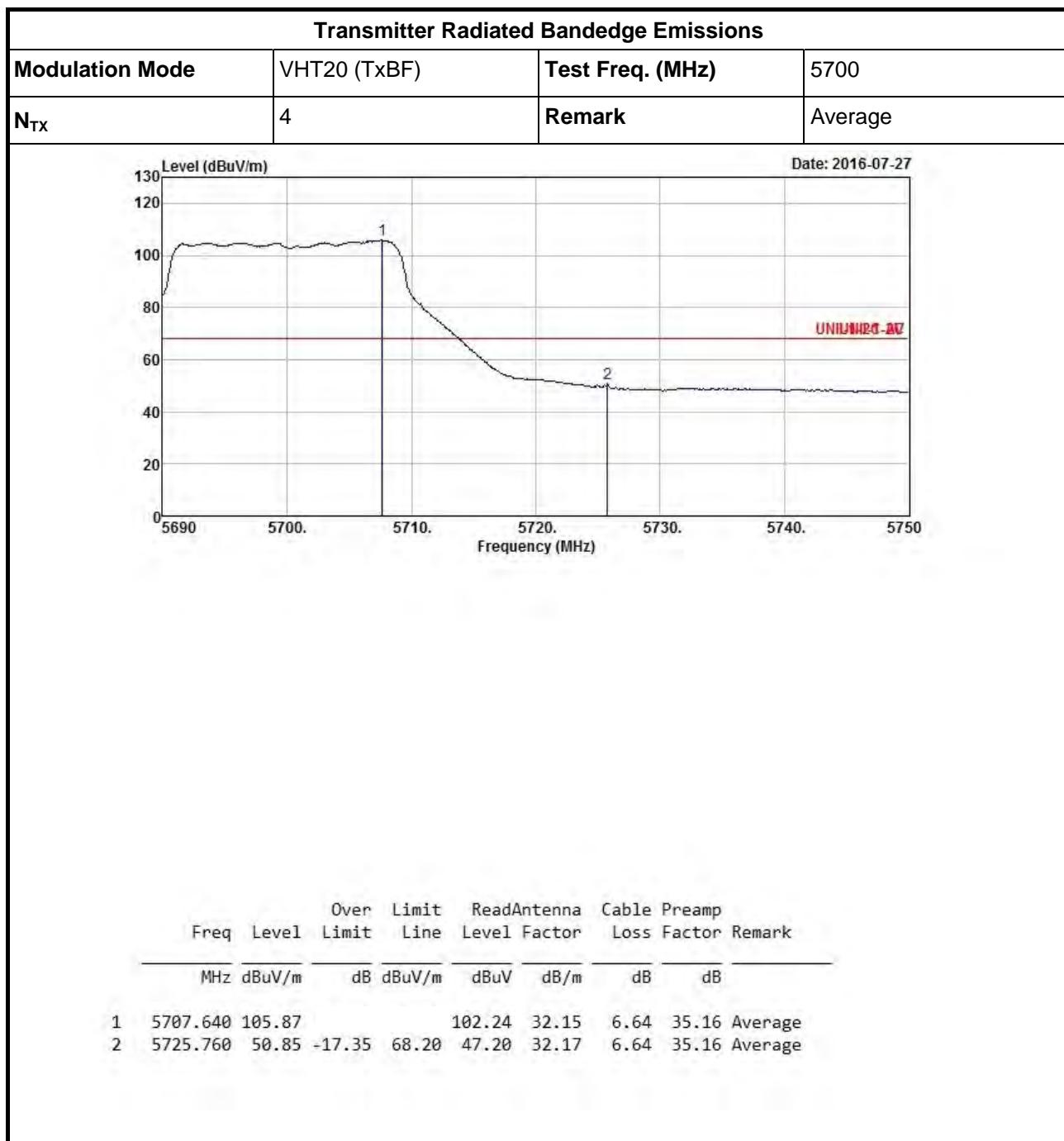
Appendix D





Transmitter Radiated Bandedge Emissions

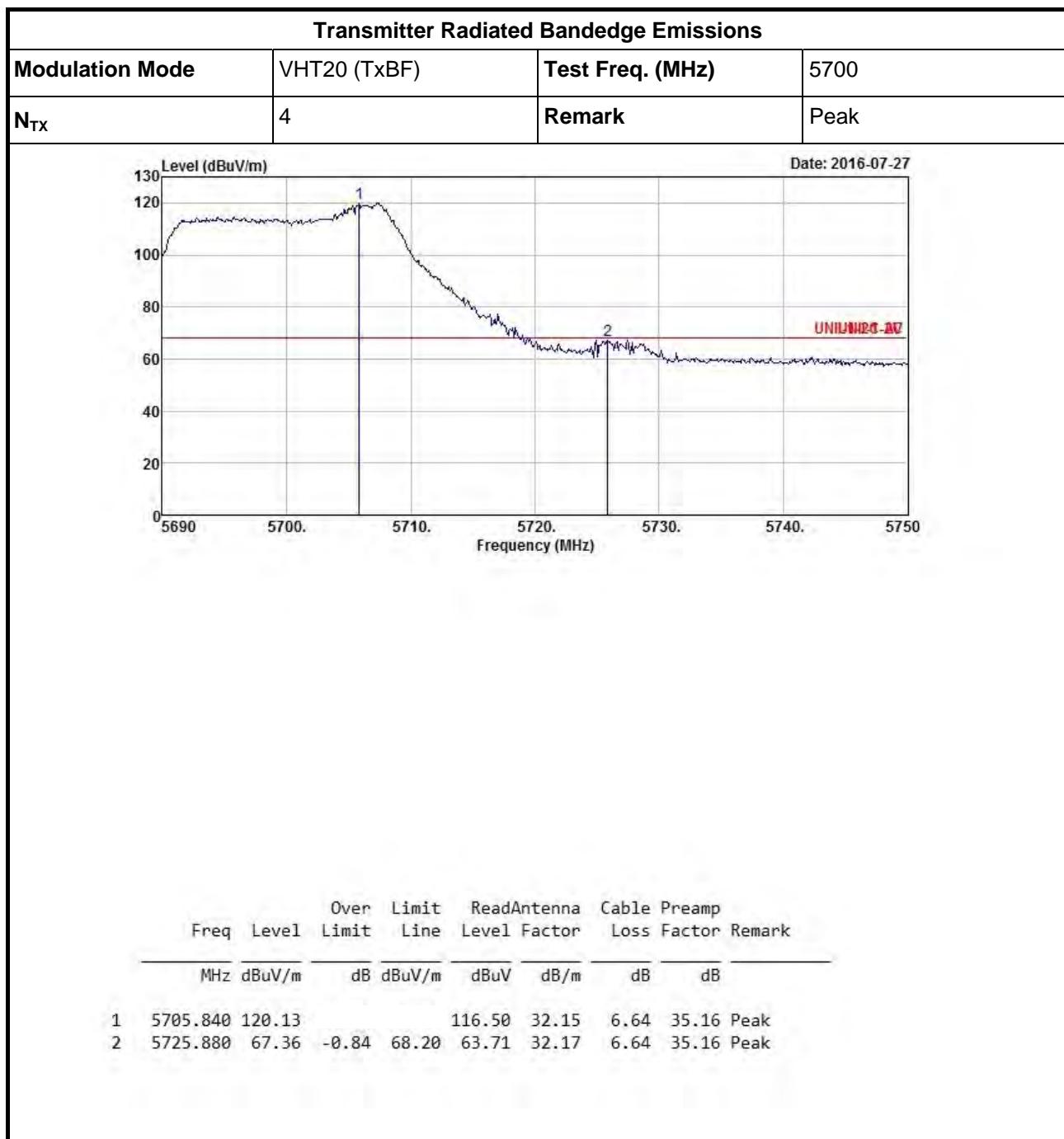
Appendix D





Transmitter Radiated Bandedge Emissions

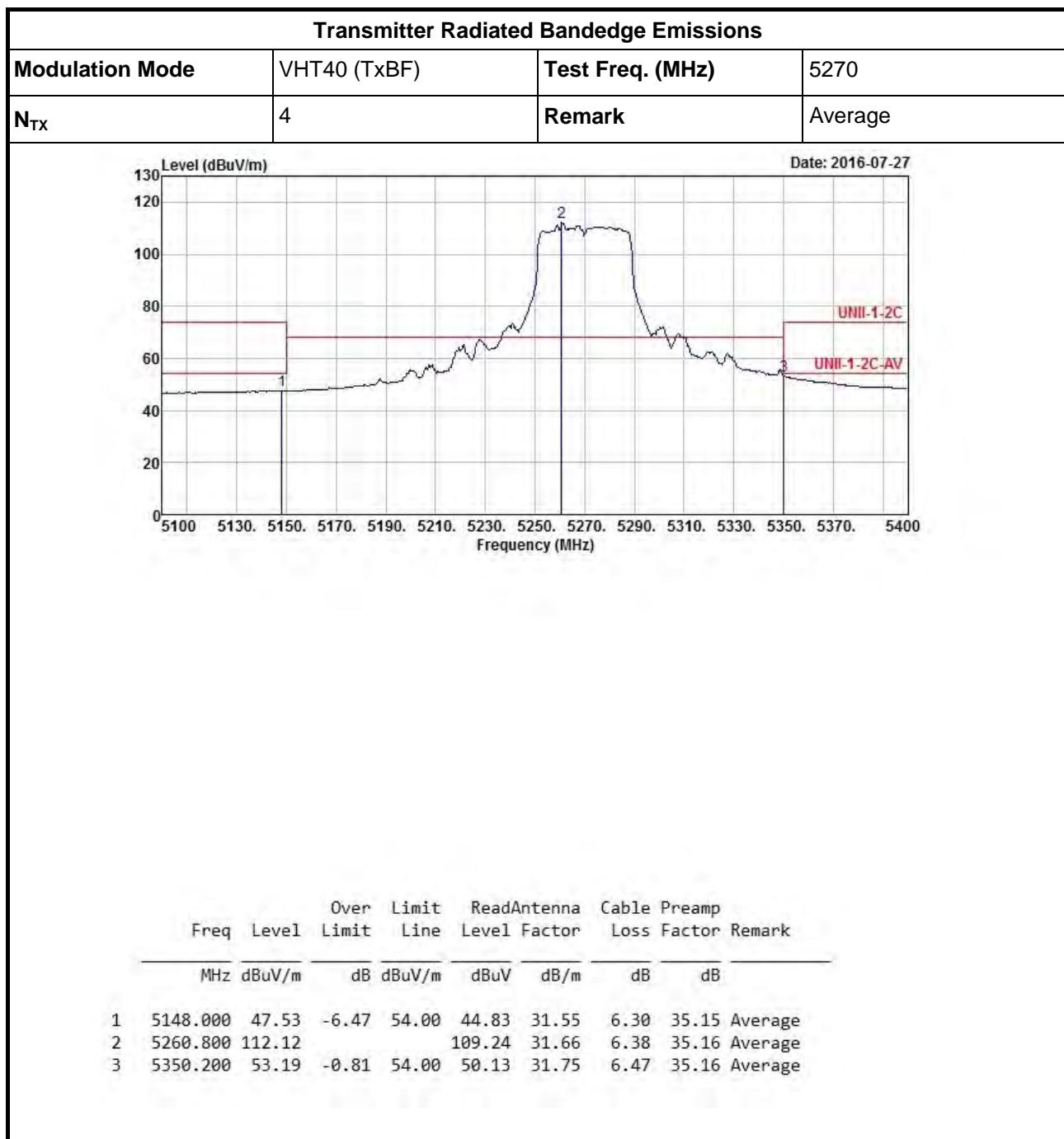
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Transmitter Radiated Bandedge Emissions

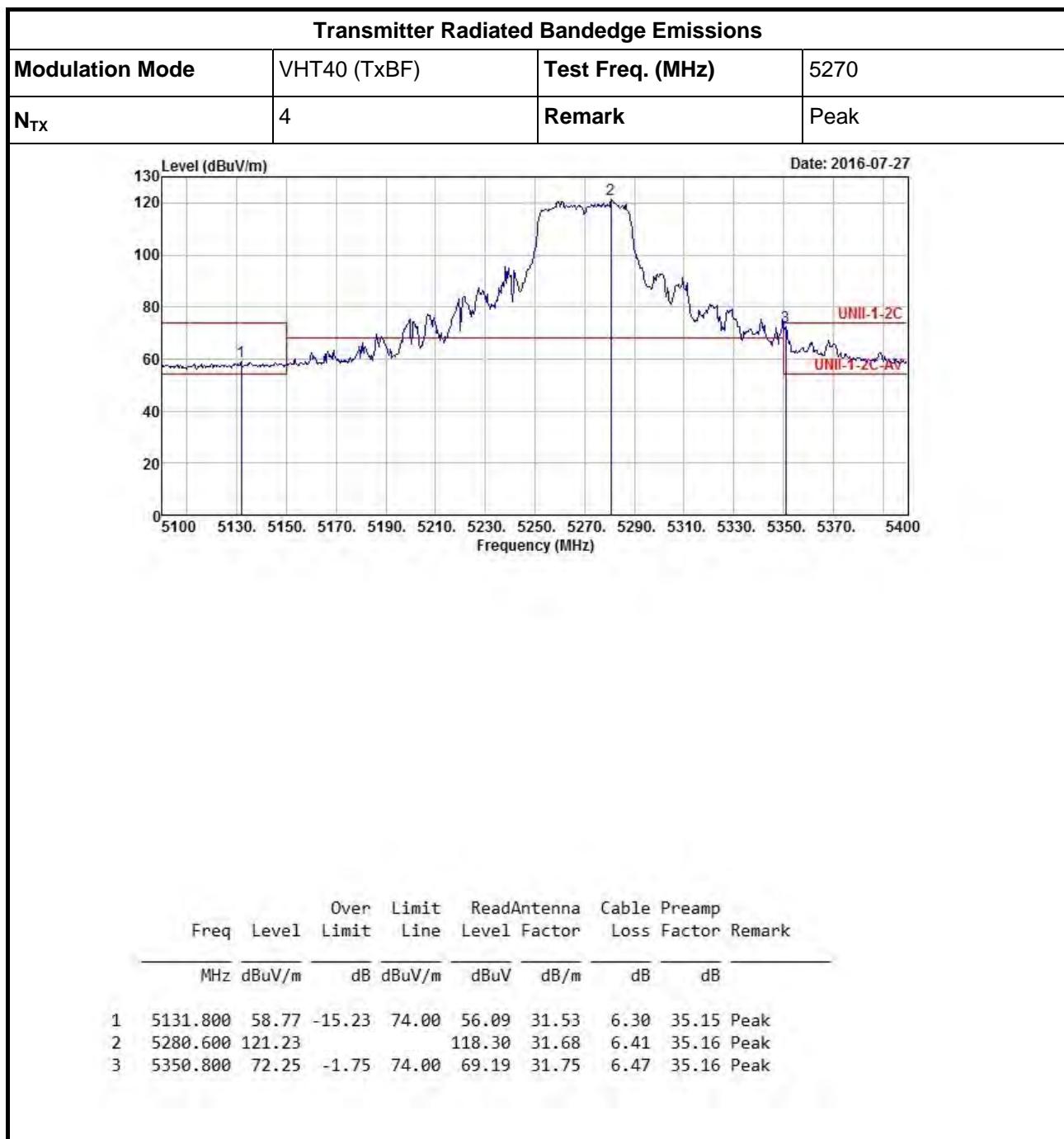
Appendix D





Transmitter Radiated Bandedge Emissions

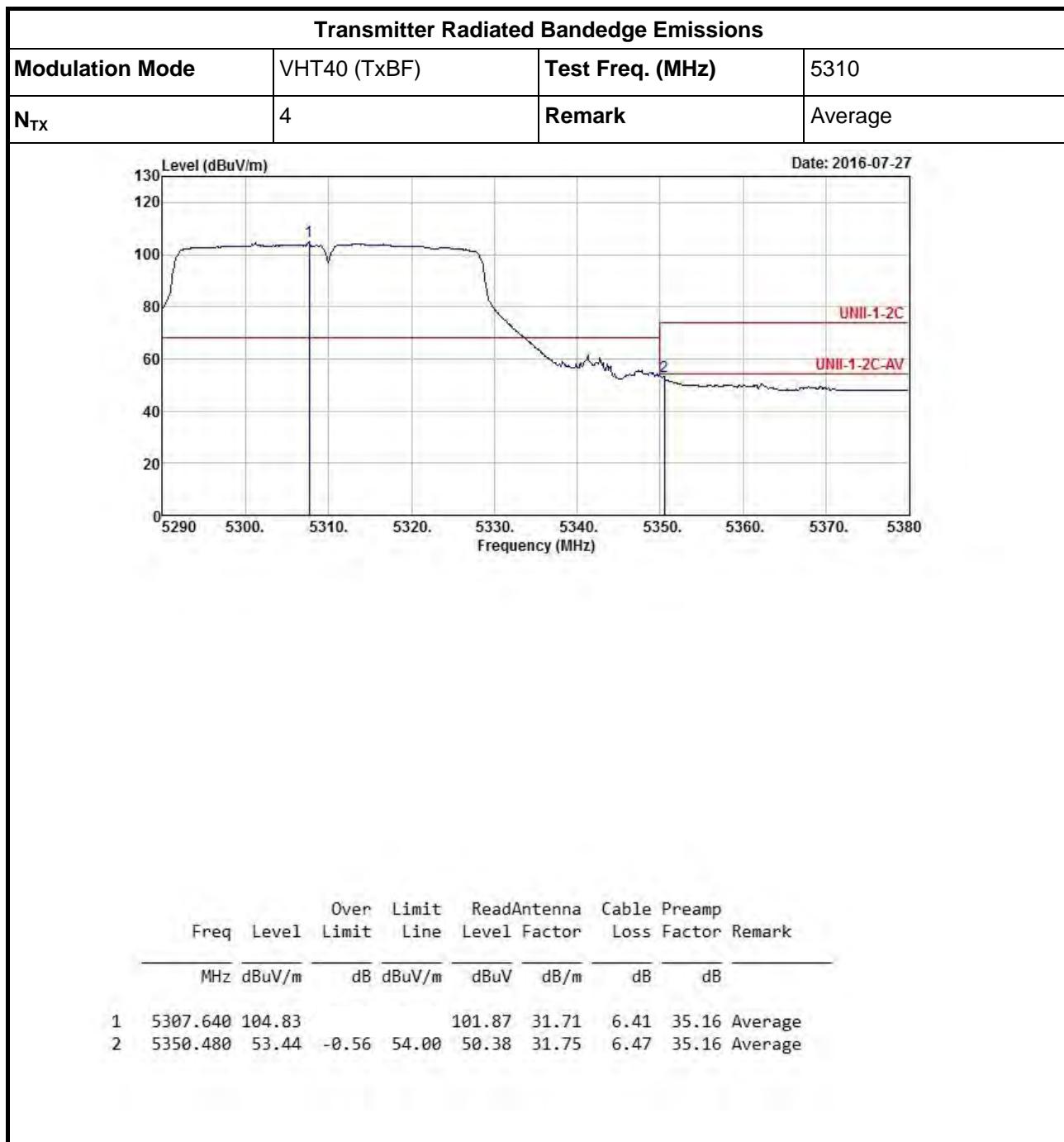
Appendix D





Transmitter Radiated Bandedge Emissions

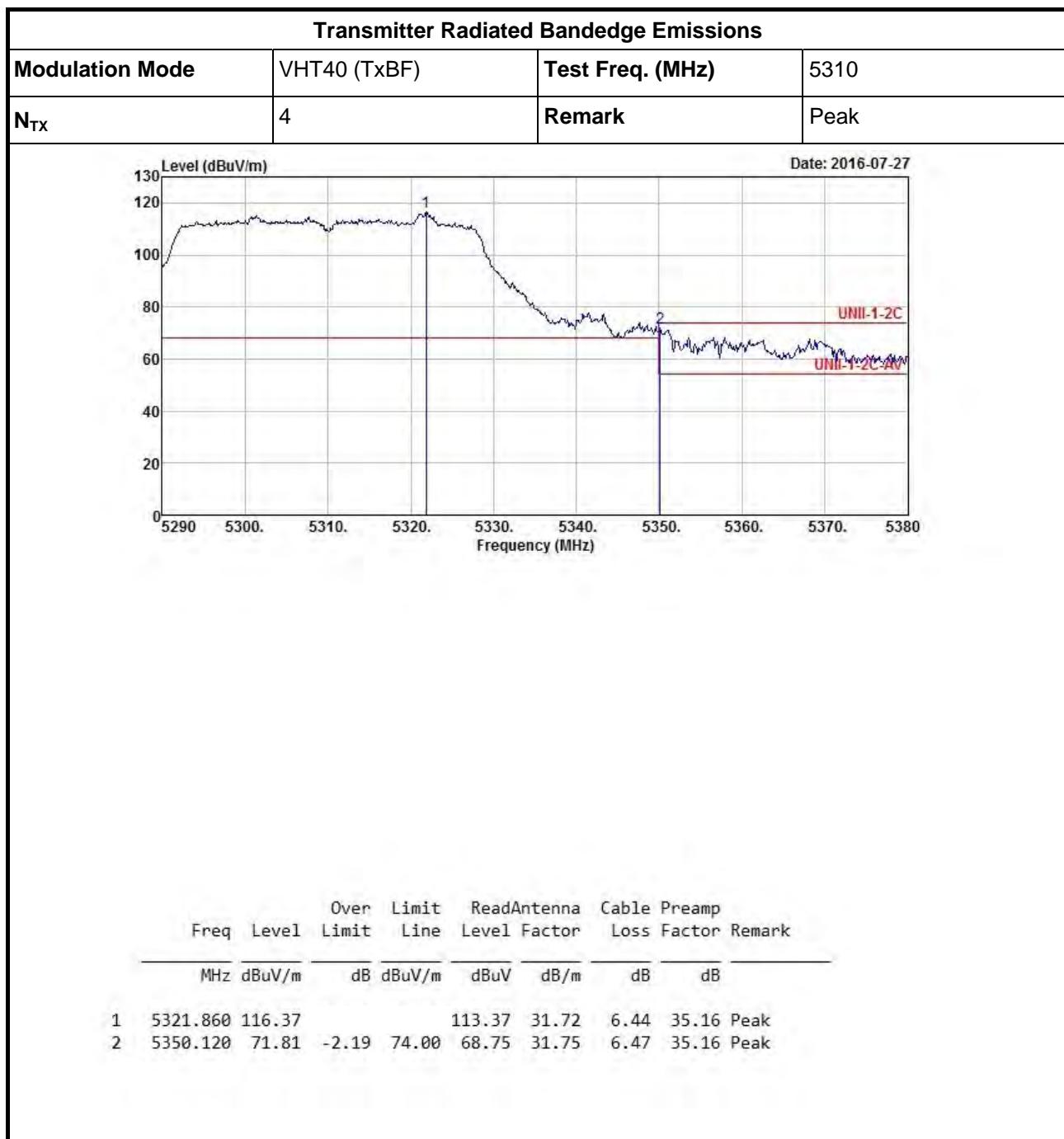
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Transmitter Radiated Bandedge Emissions

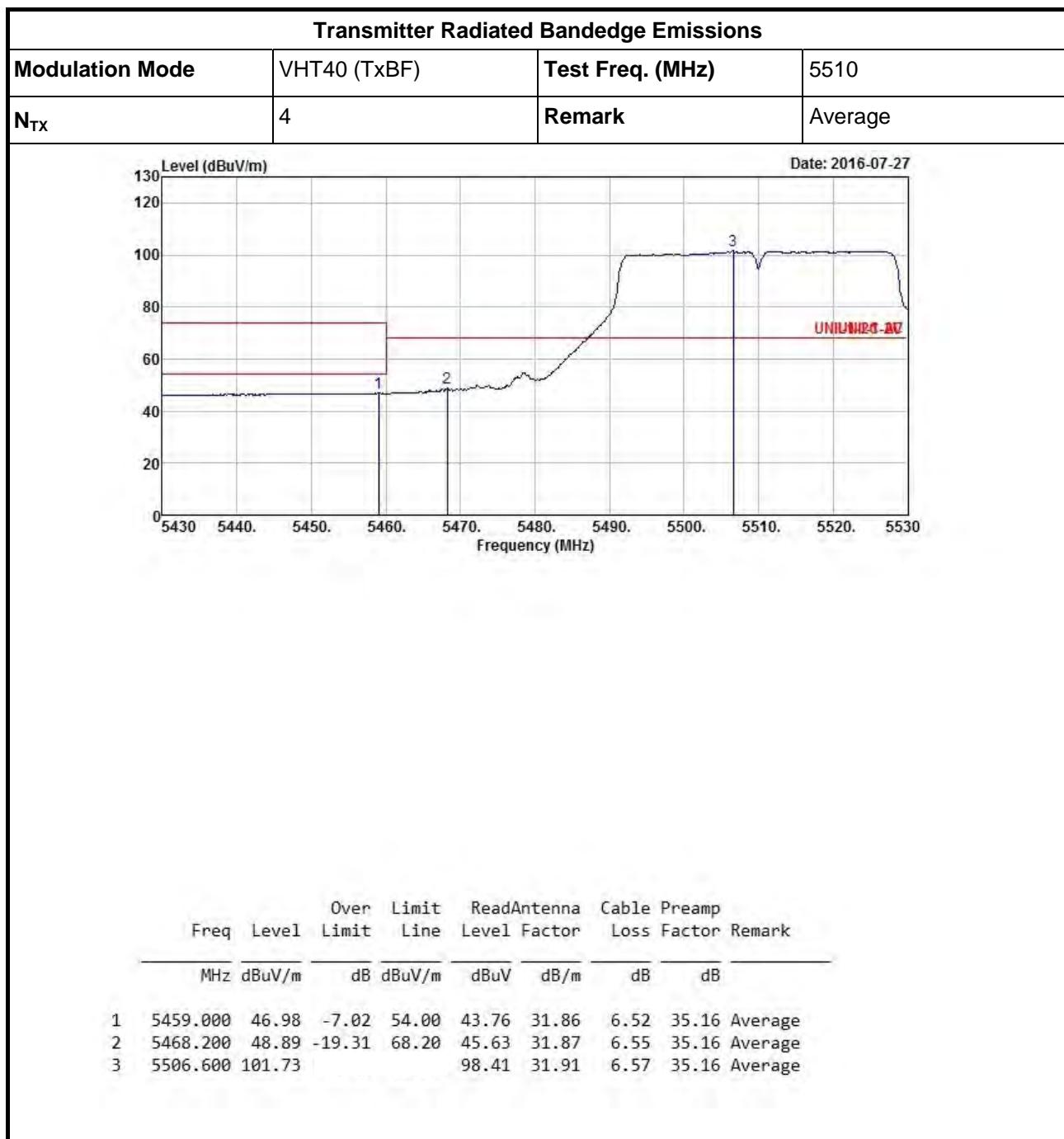
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Transmitter Radiated Bandedge Emissions

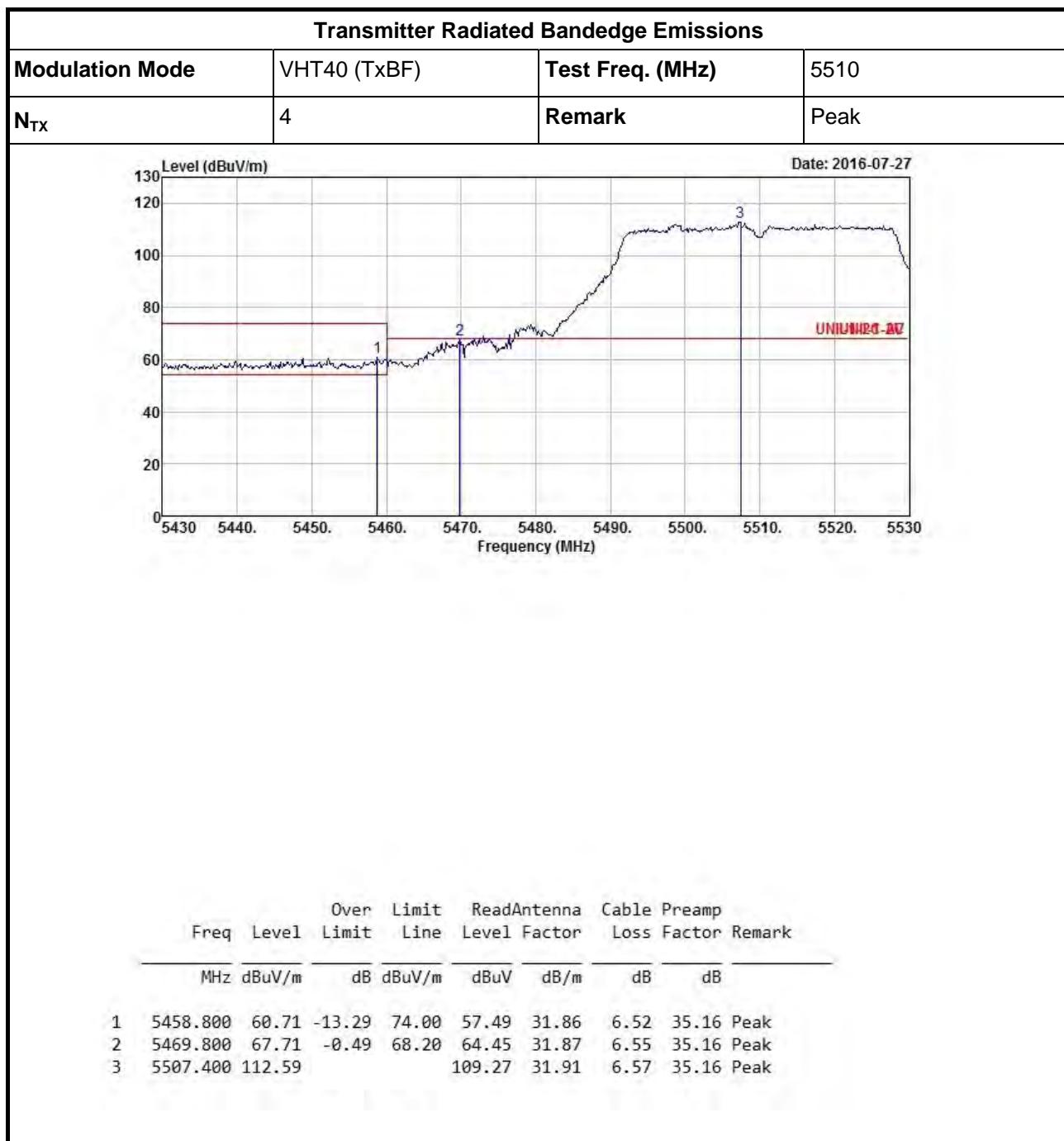
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Transmitter Radiated Bandedge Emissions

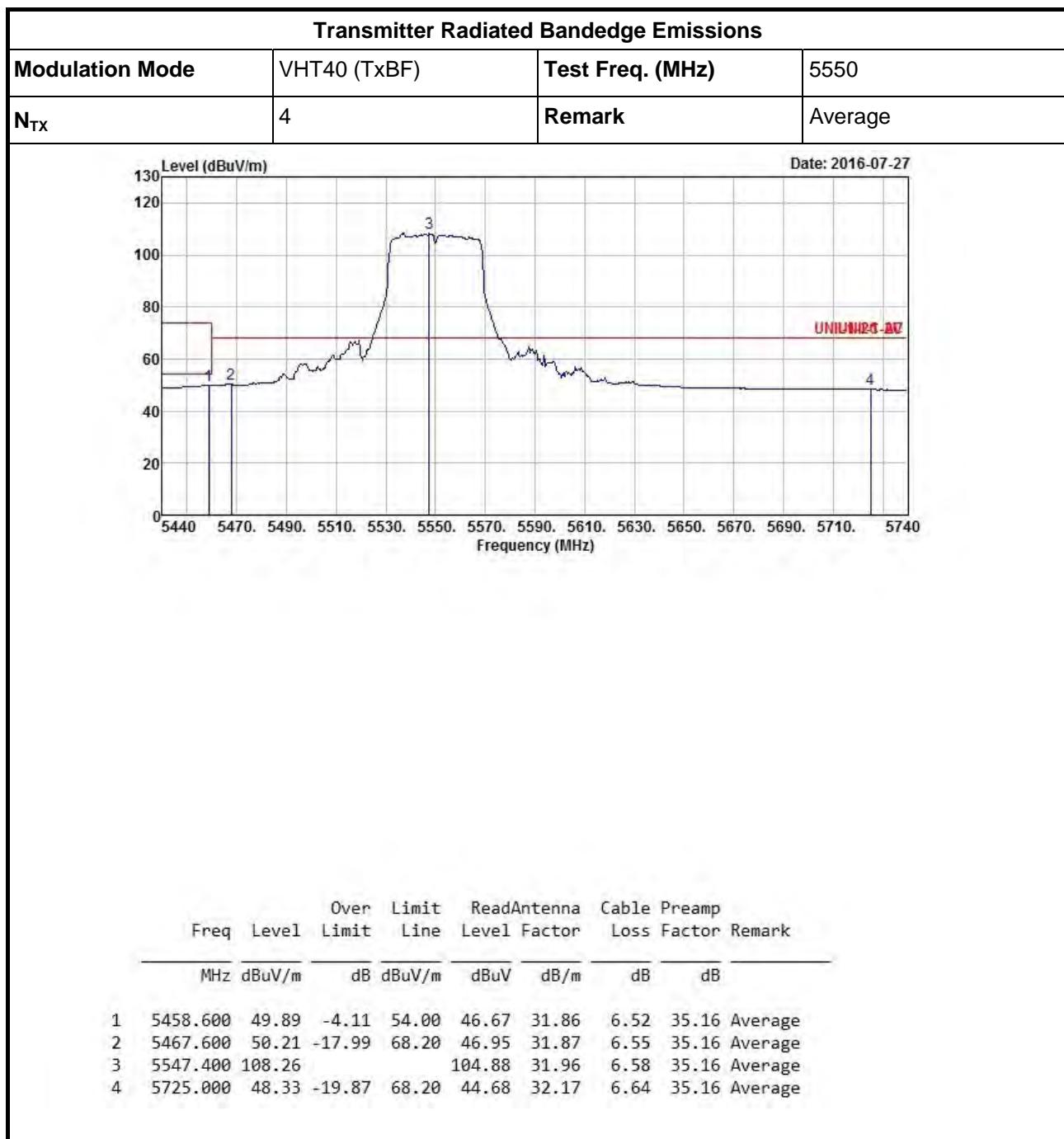
Appendix D





Transmitter Radiated Bandedge Emissions

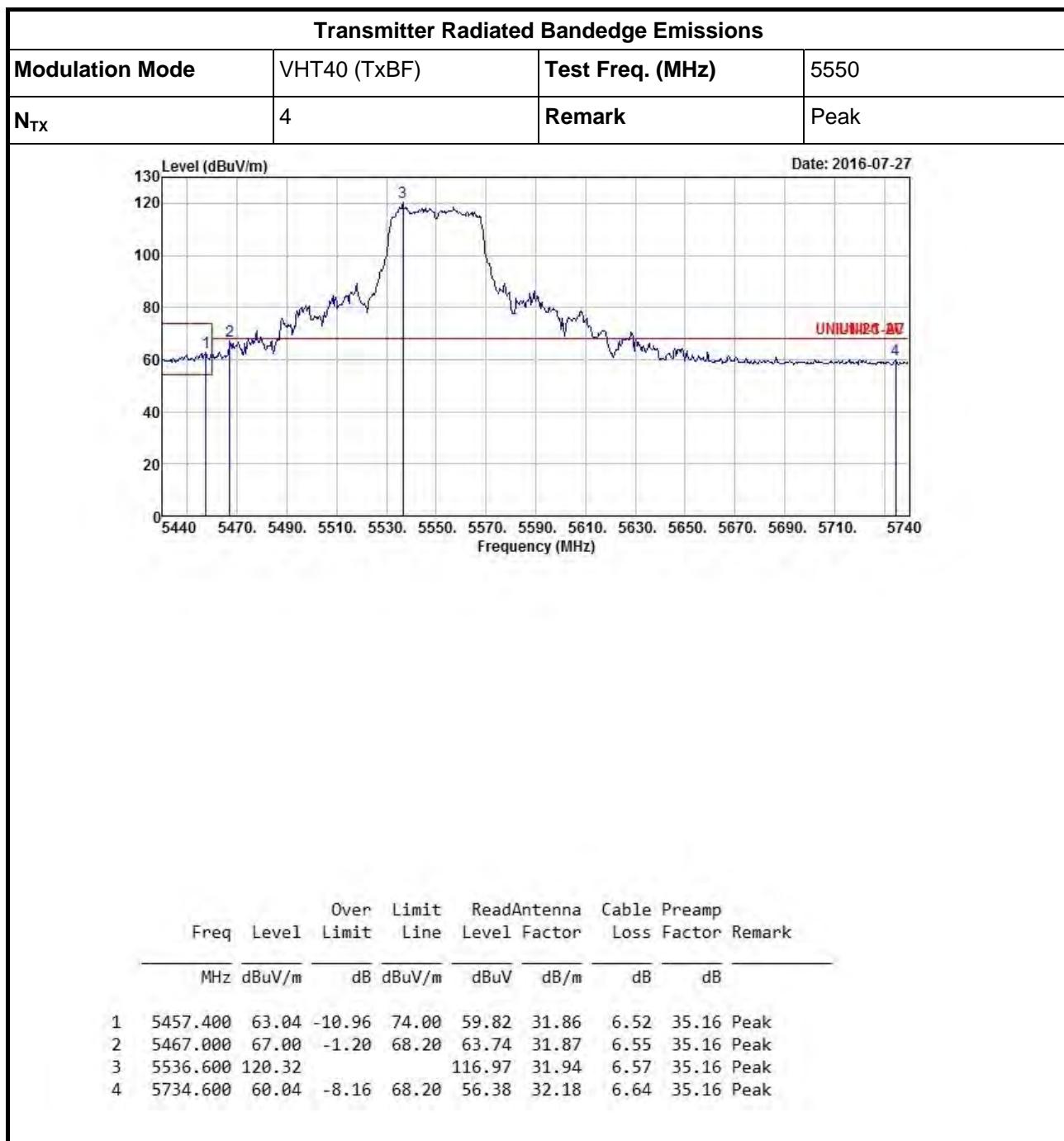
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Transmitter Radiated Bandedge Emissions

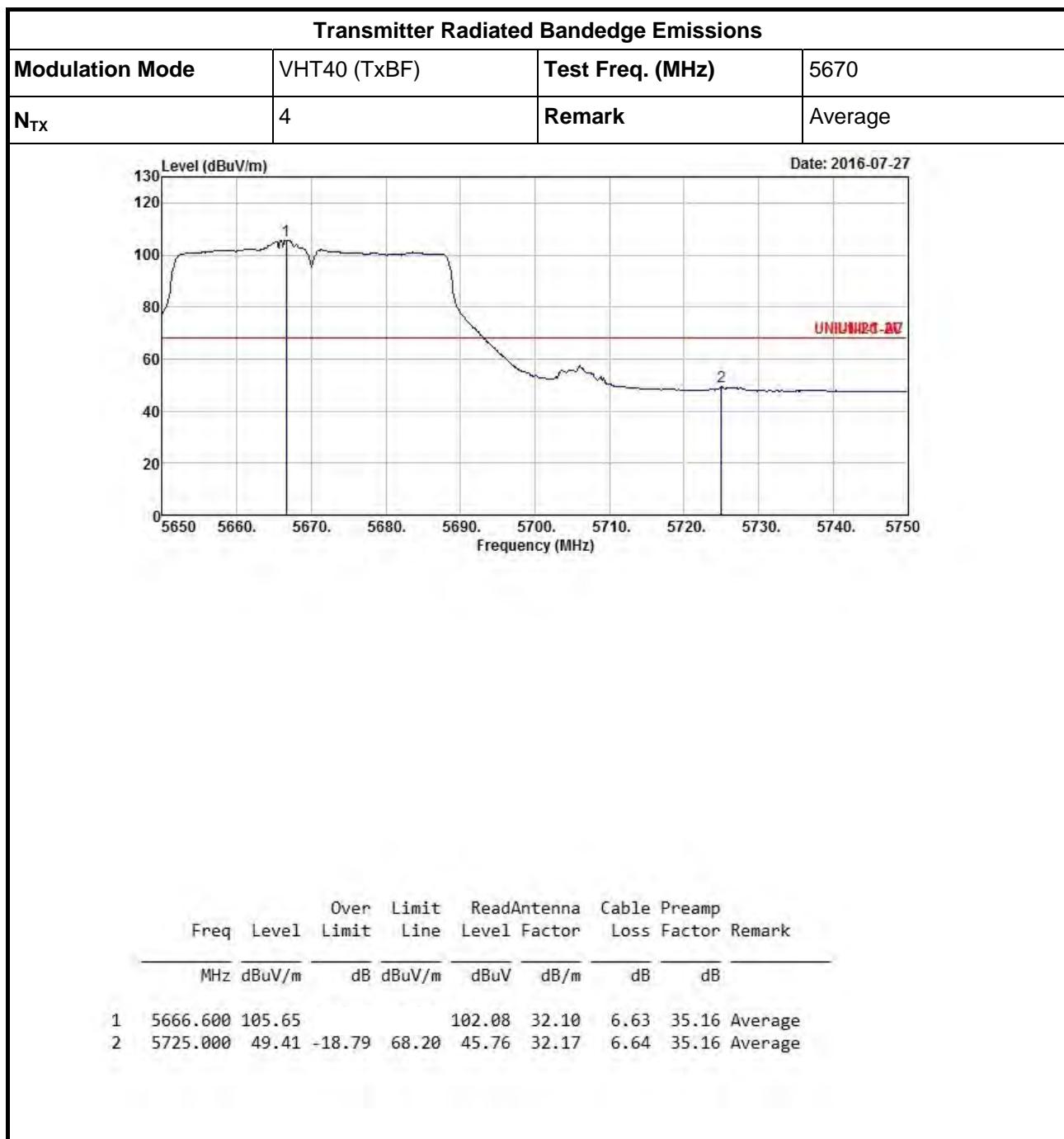
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Transmitter Radiated Bandedge Emissions

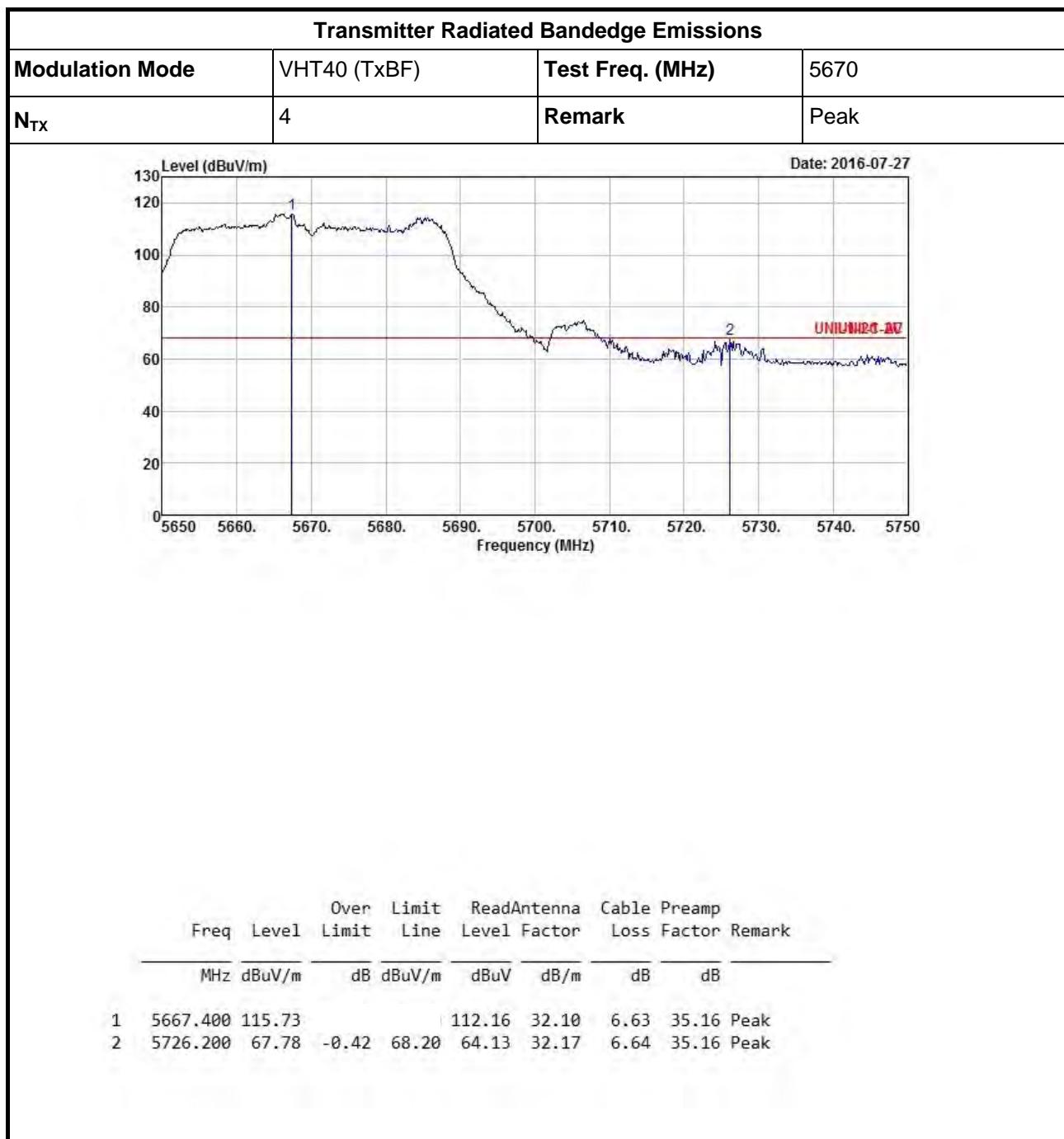
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Transmitter Radiated Bandedge Emissions

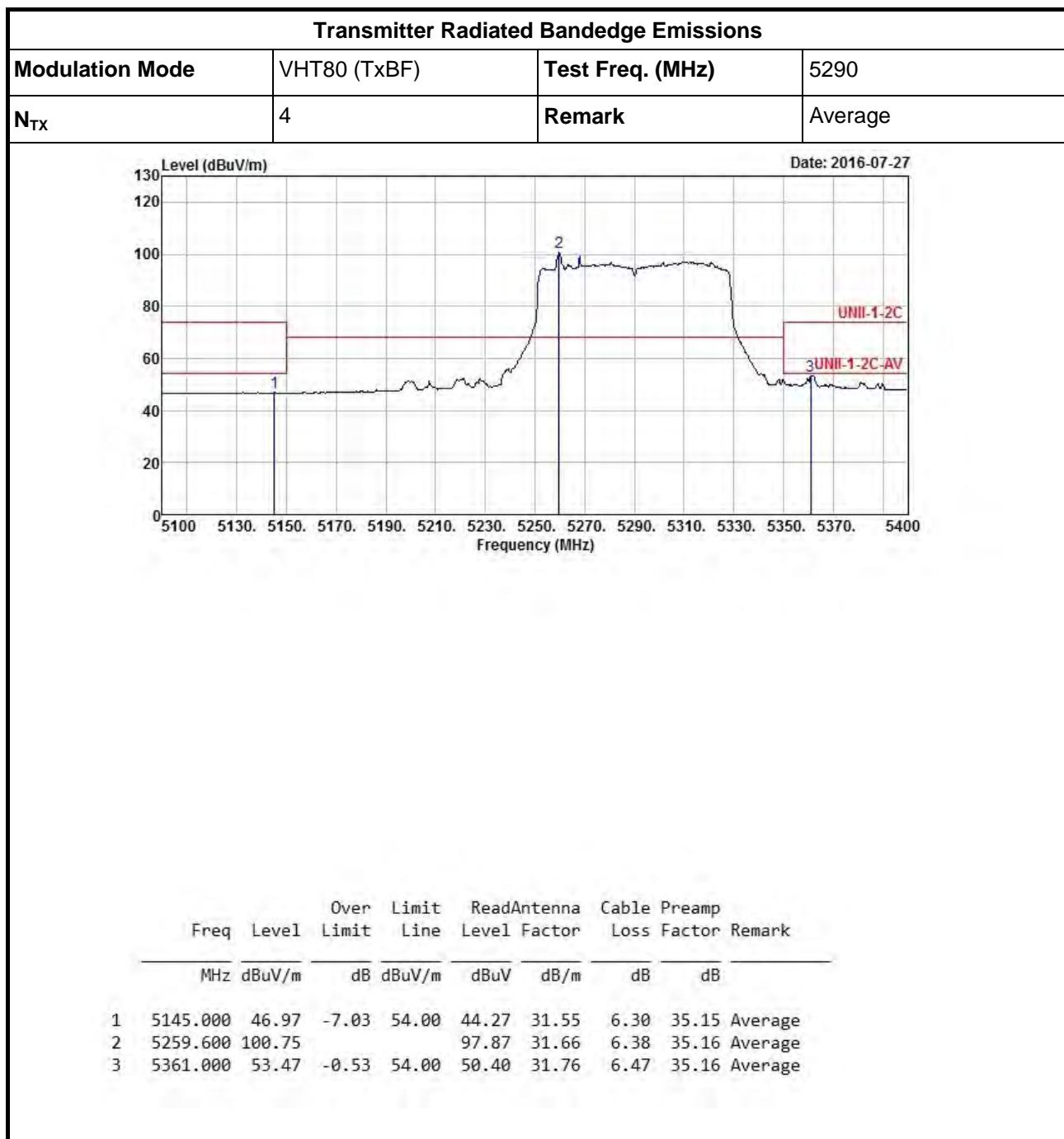
Appendix D





Transmitter Radiated Bandedge Emissions

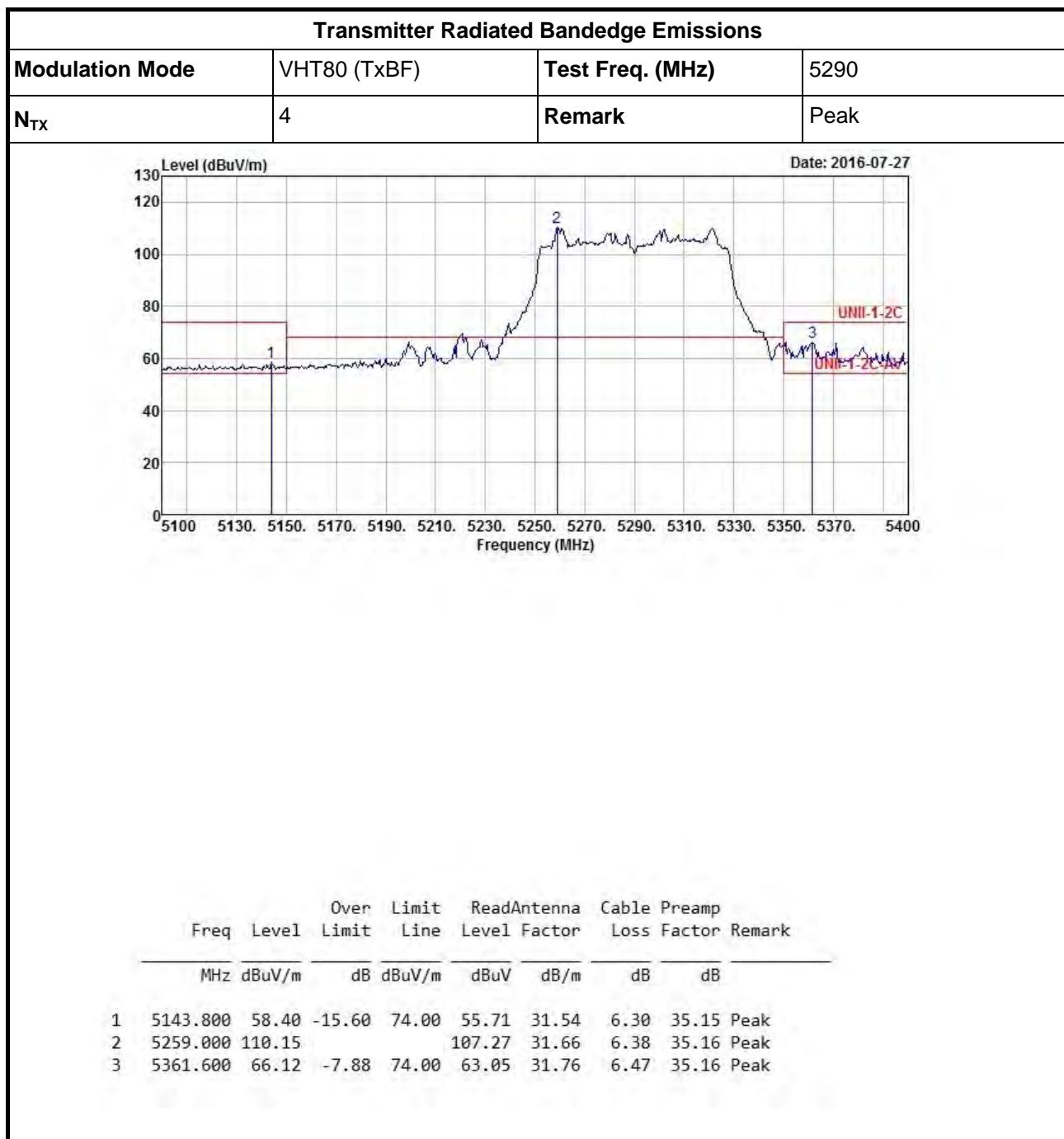
Appendix D





Transmitter Radiated Bandedge Emissions

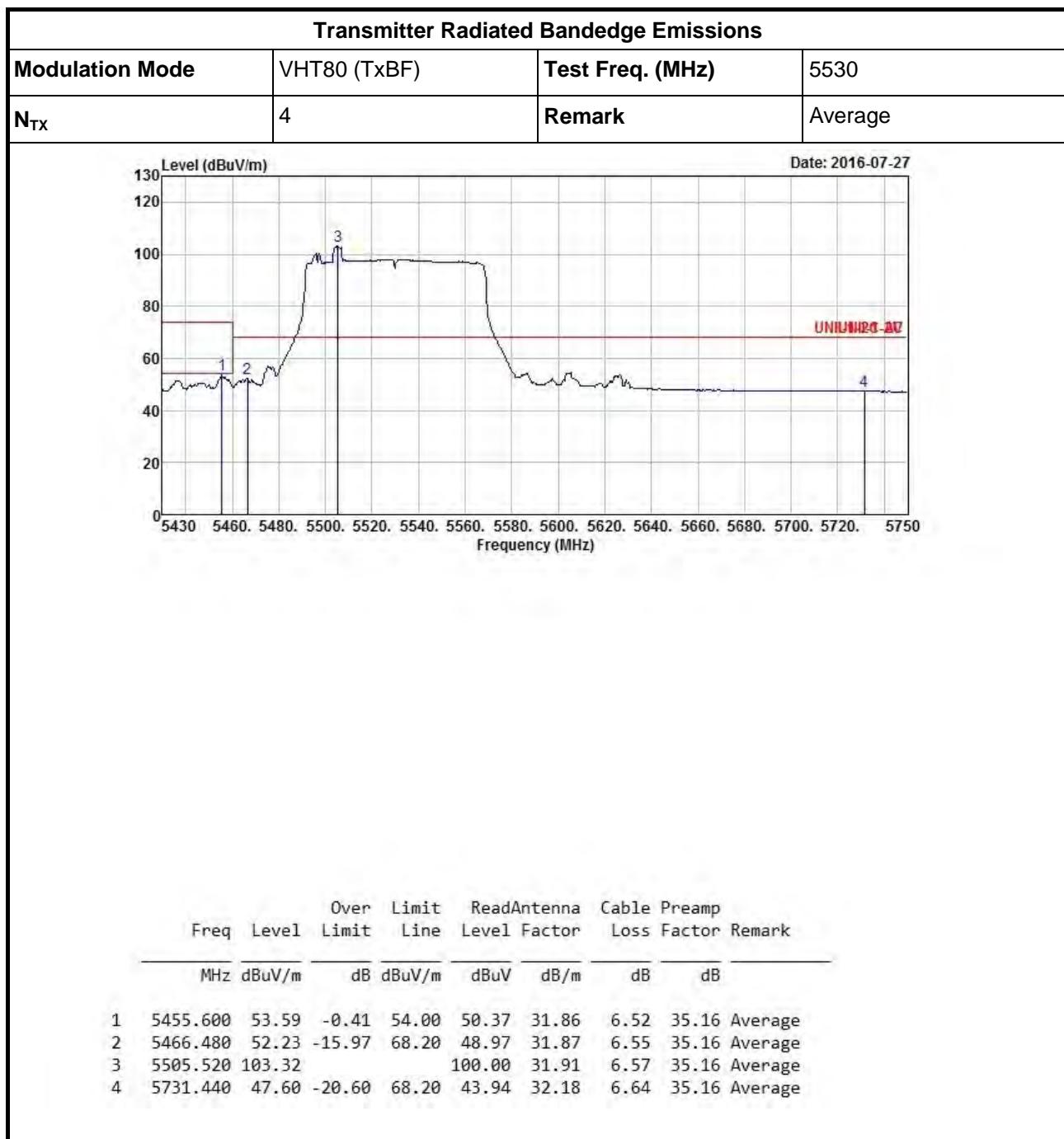
Appendix D





Transmitter Radiated Bandedge Emissions

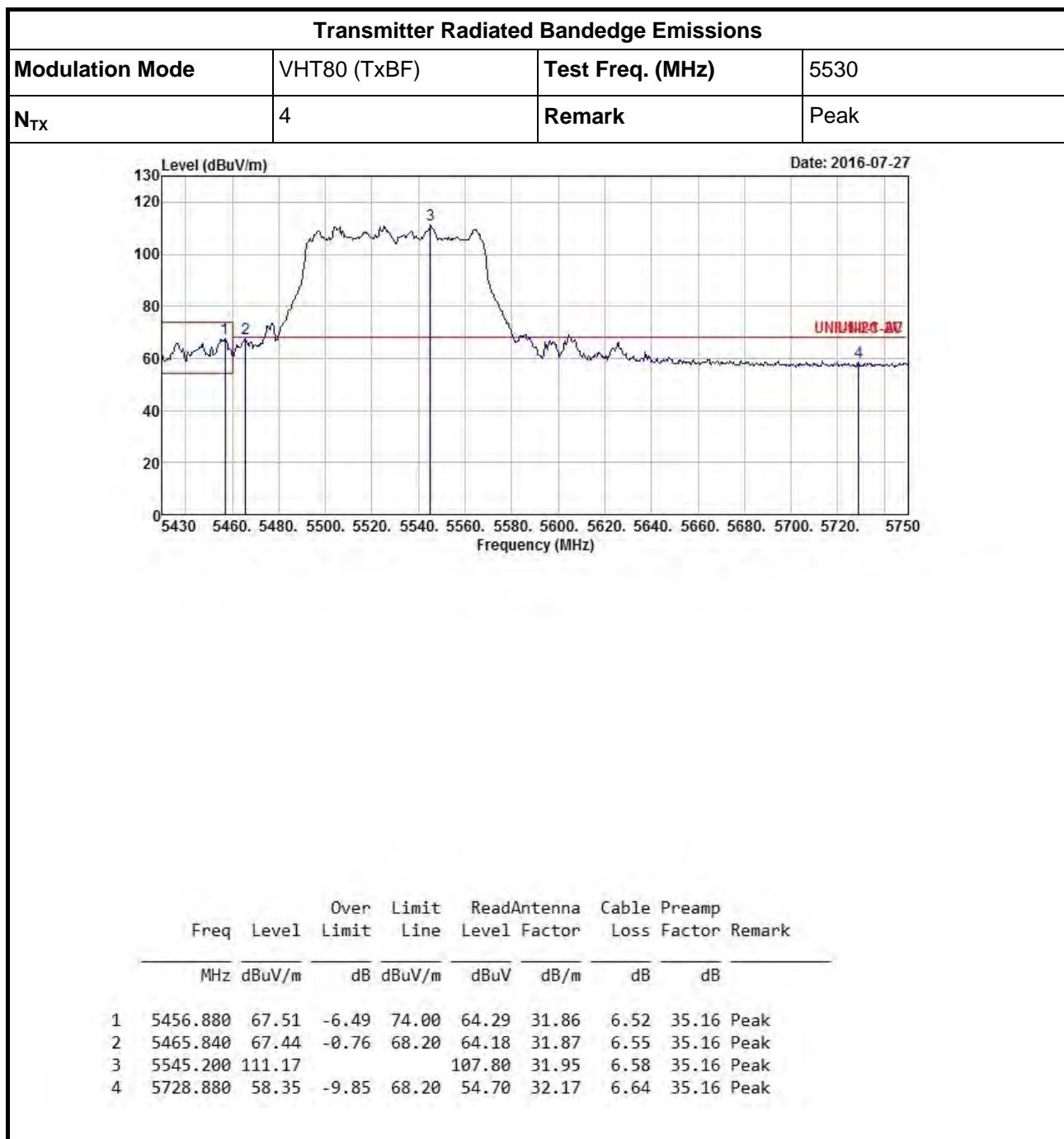
Appendix D





Transmitter Radiated Bandedge Emissions

Appendix D





Transmitter Radiated Unwanted Emissions (Below 1GHz)

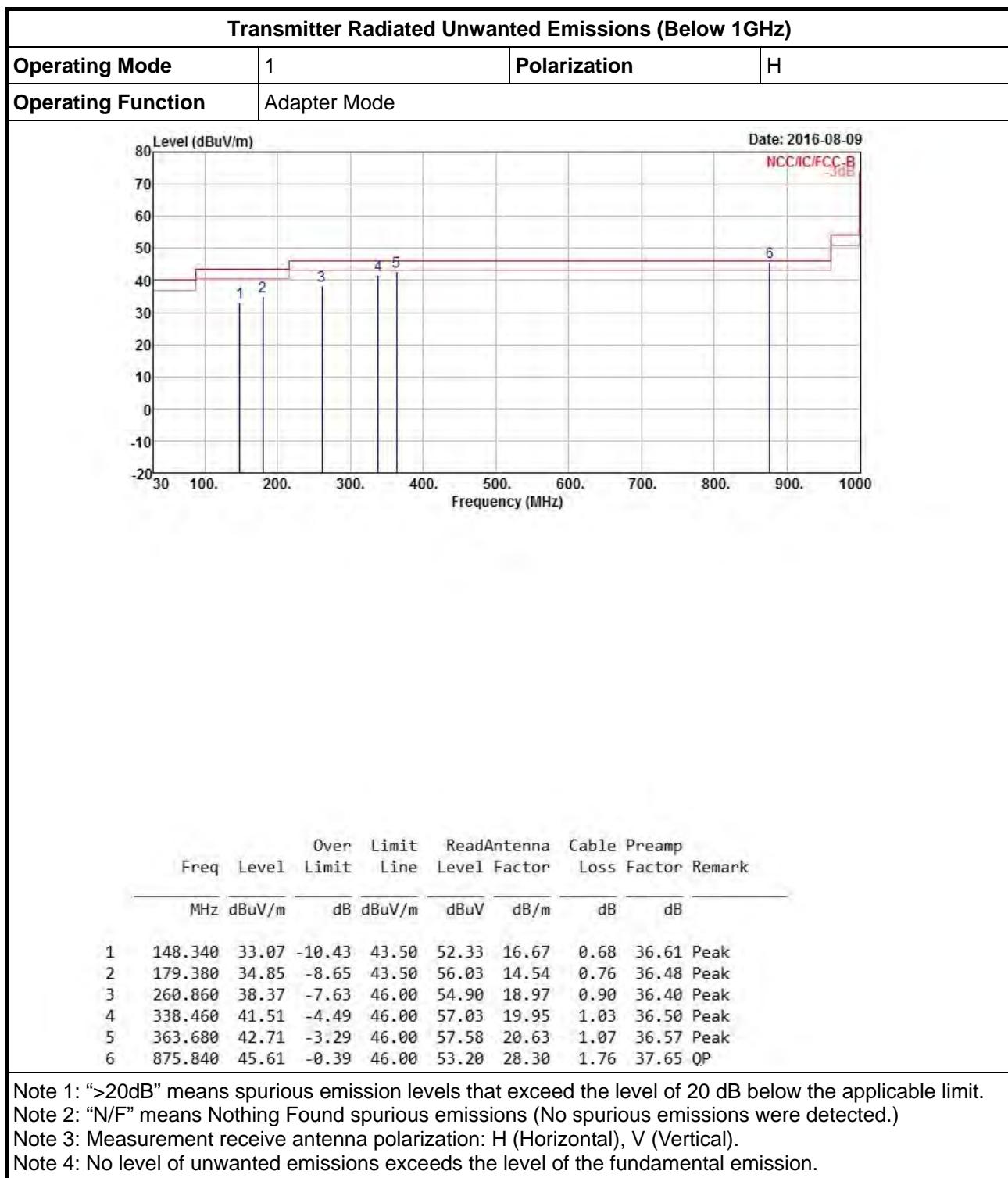
Transmitter Radiated Unwanted Emissions (Below 1GHz)								
Operating Mode	1		Polarization	V				
Operating Function	Adapter Mode							
Level (dBuV/m)								Date: 2016-08-09
								NCC//IC//FCC-B -3dB
Over Limit Line ReadAntenna Cable Preamp								
Freq	Level	Limit	Line	Level Factor	Factor	dB/m	dB	dB
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	33.880	32.04	-7.96	40.00	46.27	22.80	0.34	37.37 Peak
2	57.160	33.81	-6.19	40.00	58.61	11.88	0.46	37.14 Peak
3	258.920	35.41	-10.59	46.00	52.02	18.89	0.90	36.40 Peak
4	377.260	38.38	-7.62	46.00	52.94	20.95	1.09	36.60 Peak
5	625.580	36.00	-10.00	46.00	46.88	25.01	1.44	37.33 Peak
6	875.840	45.14	-0.86	46.00	52.73	28.30	1.76	37.65 QP

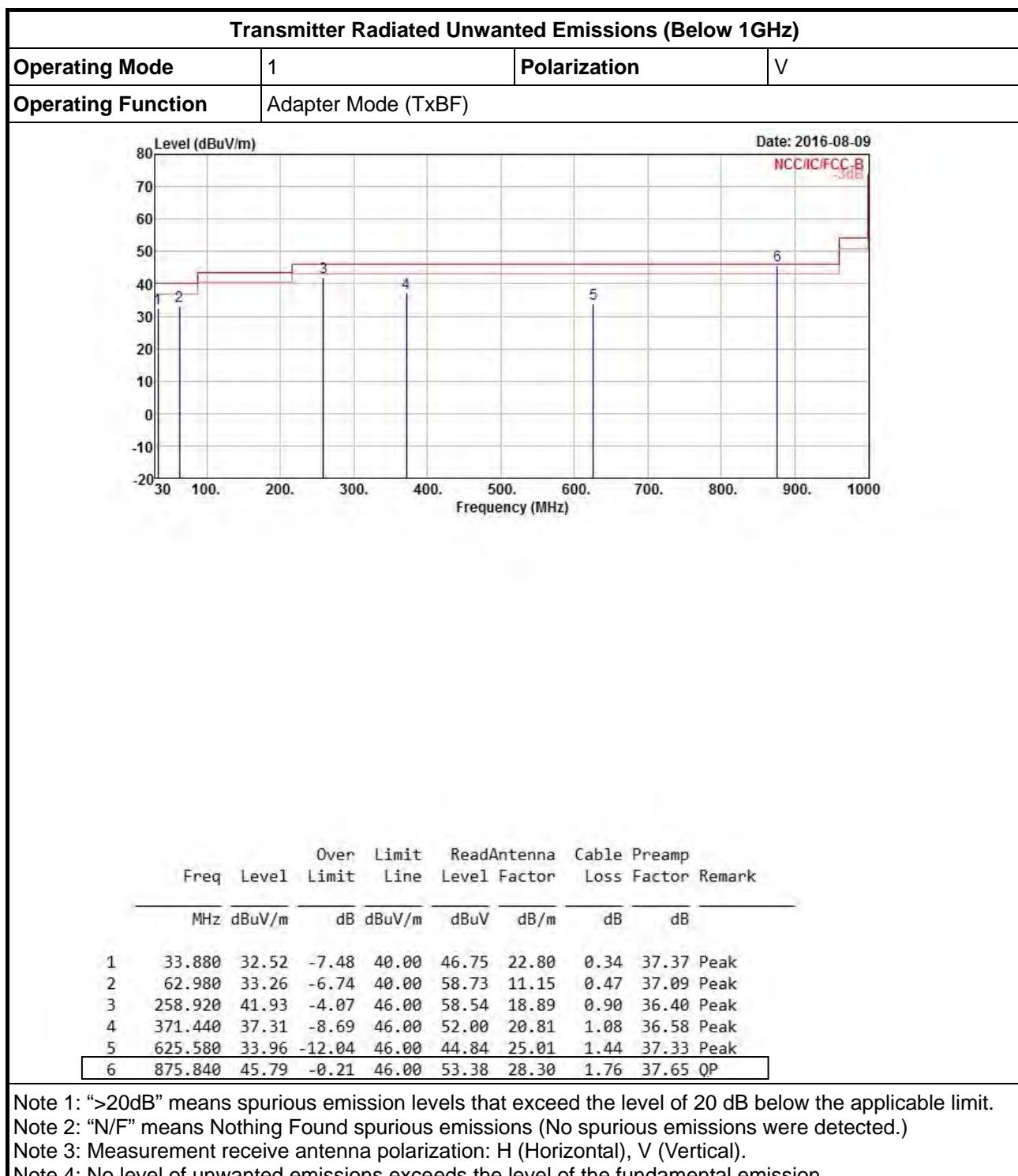
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

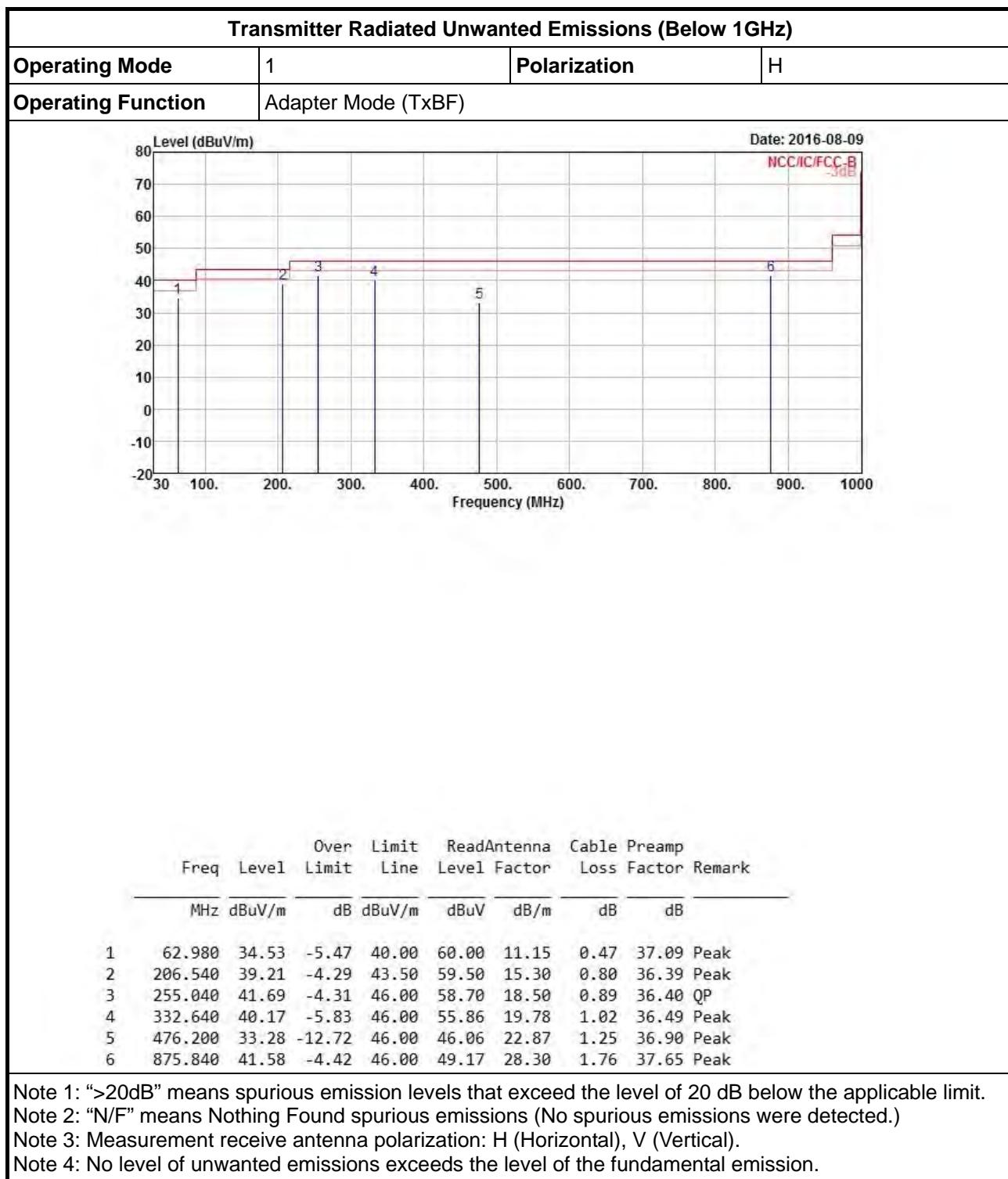
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).

Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

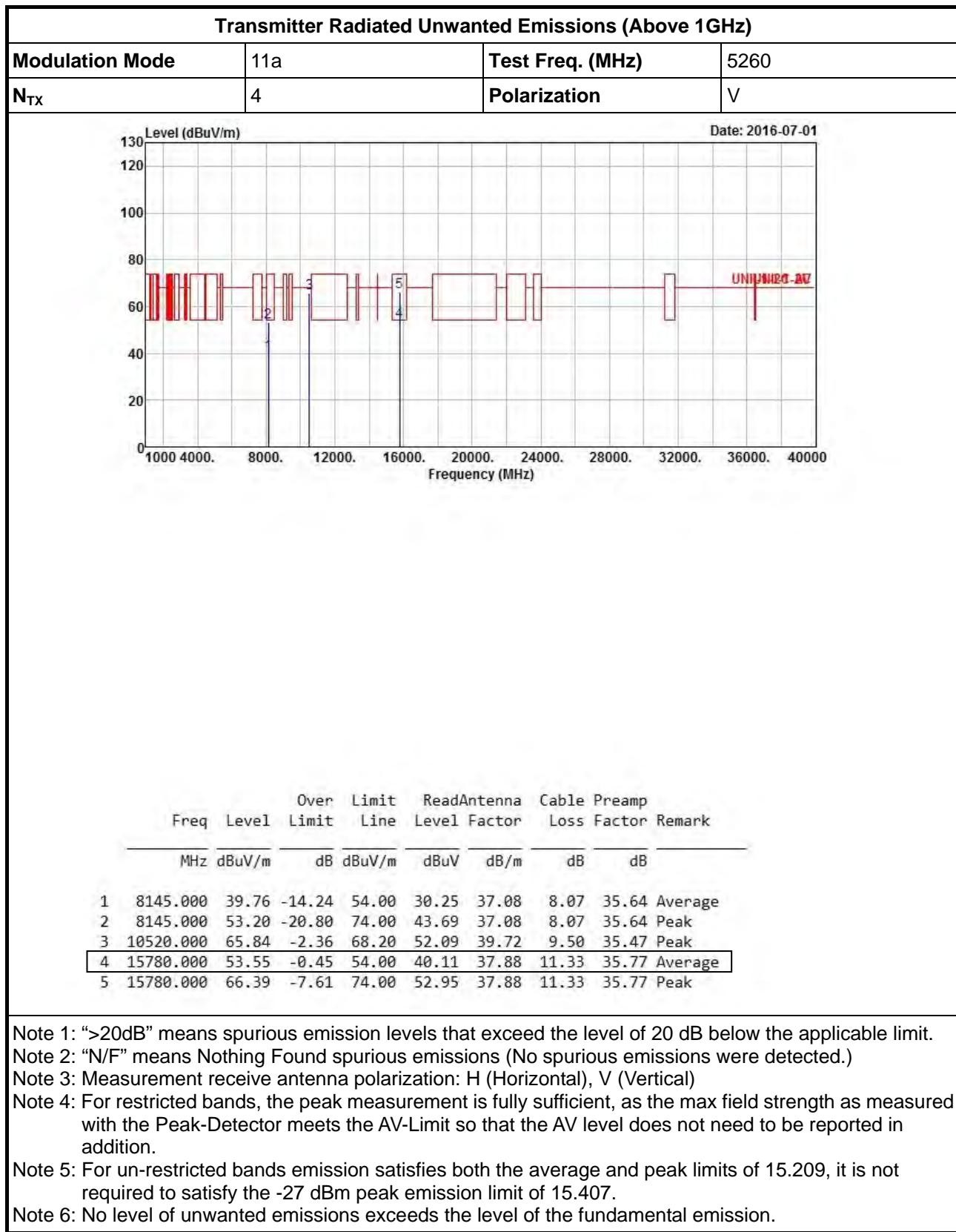








Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5250-5350MHz



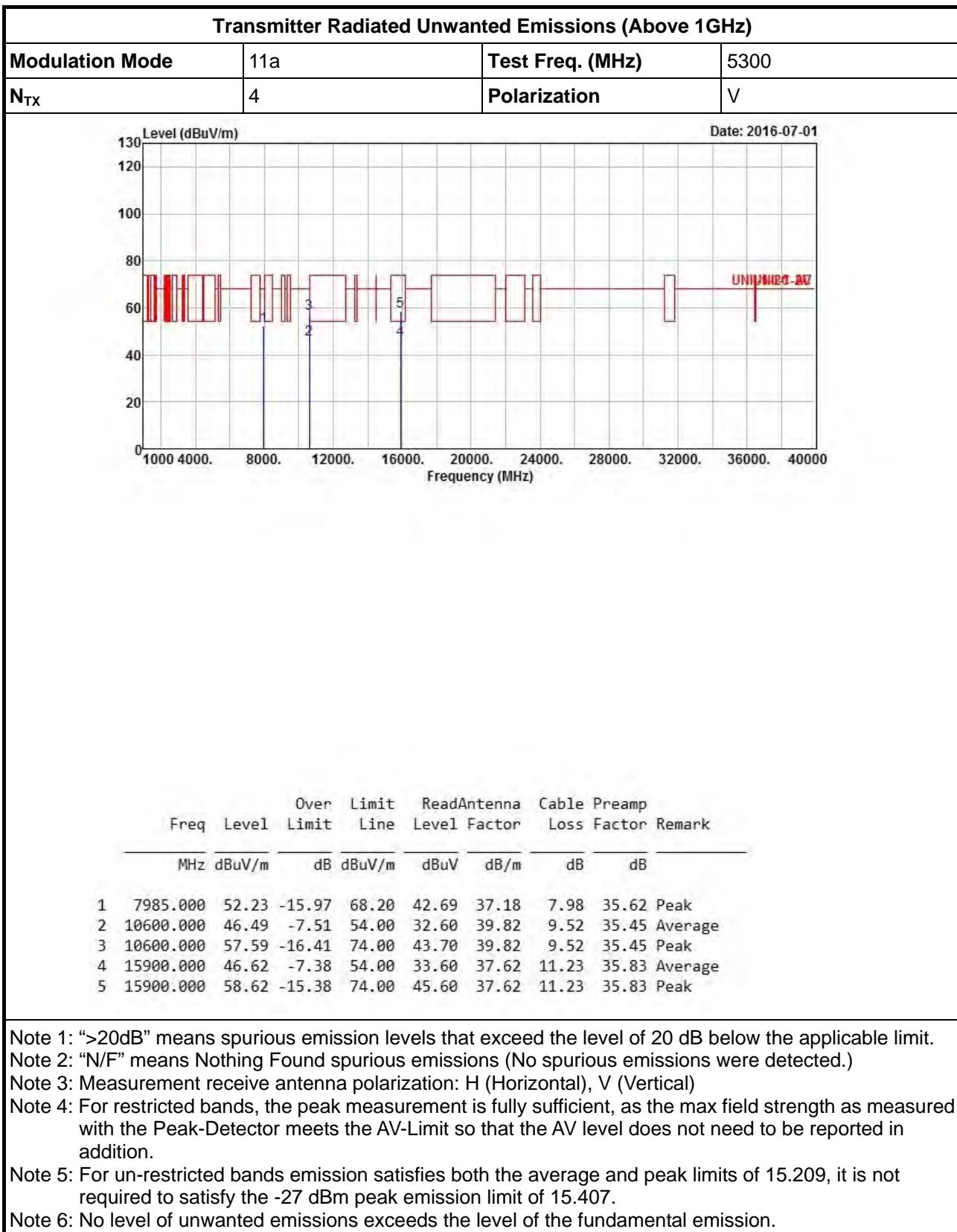


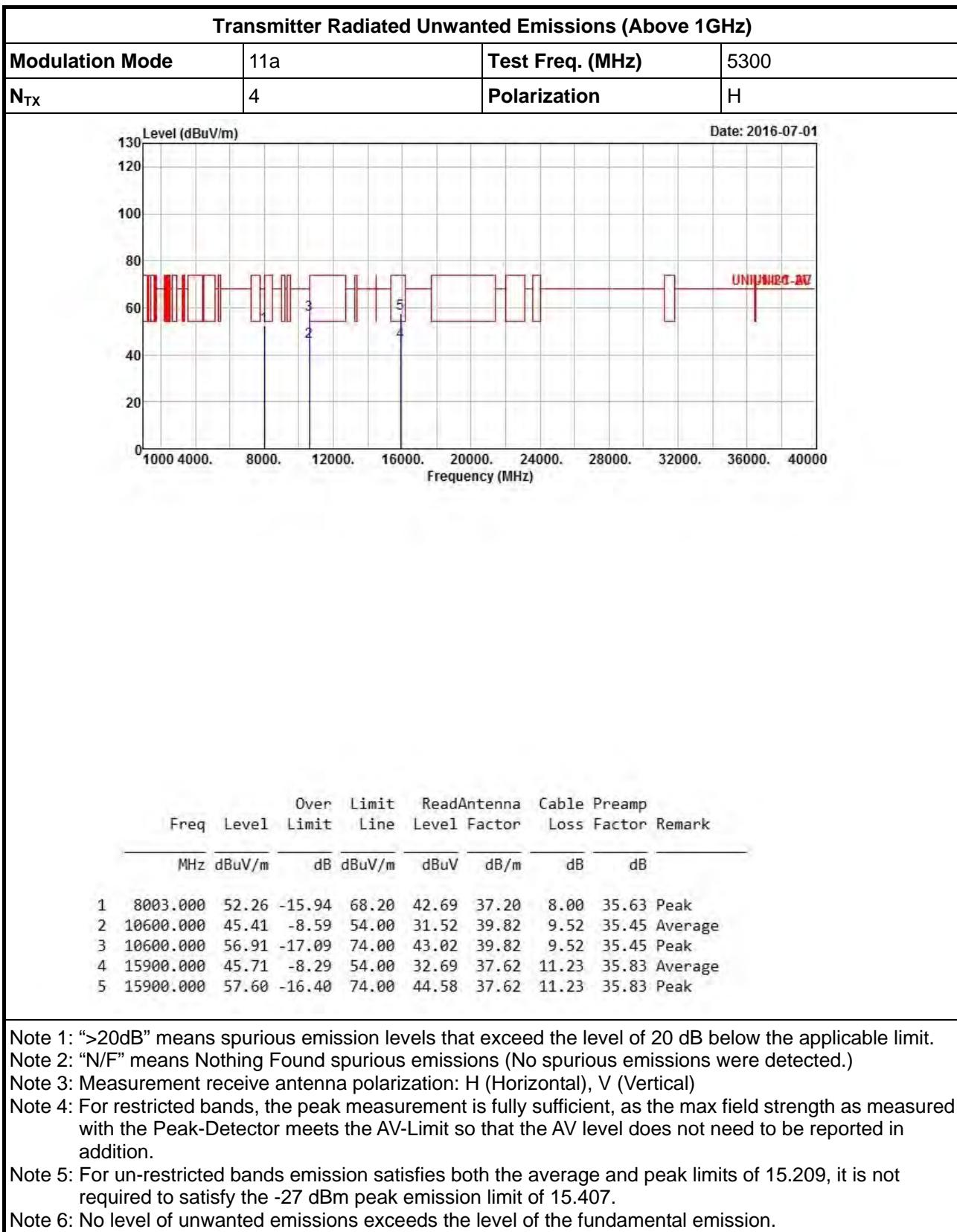
Transmitter Radiated Unwanted Emissions

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Transmitter Radiated Unwanted Emissions (Above 1GHz)									
Modulation Mode	11a		Test Freq. (MHz)		5260				
N _{TX}	4		Polarization		H				
Level (dB _{UV} /m)									Date: 2016-07-01
1000	4000.	8000.	12000.	16000.	20000.	24000.	28000.	32000.	36000. 40000
Freq	Level	Over Limit	Limit	Read	Antenna	Cable	Preamplifier		
MHz	dB _{UV} /m	dB	dB _{UV} /m	Line	Level Factor	dB _V	dB/m	dB	dB
1	8001.000	52.26	-15.94	68.20	42.69	37.20	8.00	35.63	Peak
2	10520.000	61.40	-6.80	68.20	47.65	39.72	9.50	35.47	Peak
3	15780.000	50.03	-3.97	54.00	36.59	37.88	11.33	35.77	Average
4	15780.000	60.70	-13.30	74.00	47.26	37.88	11.33	35.77	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.
Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.





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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

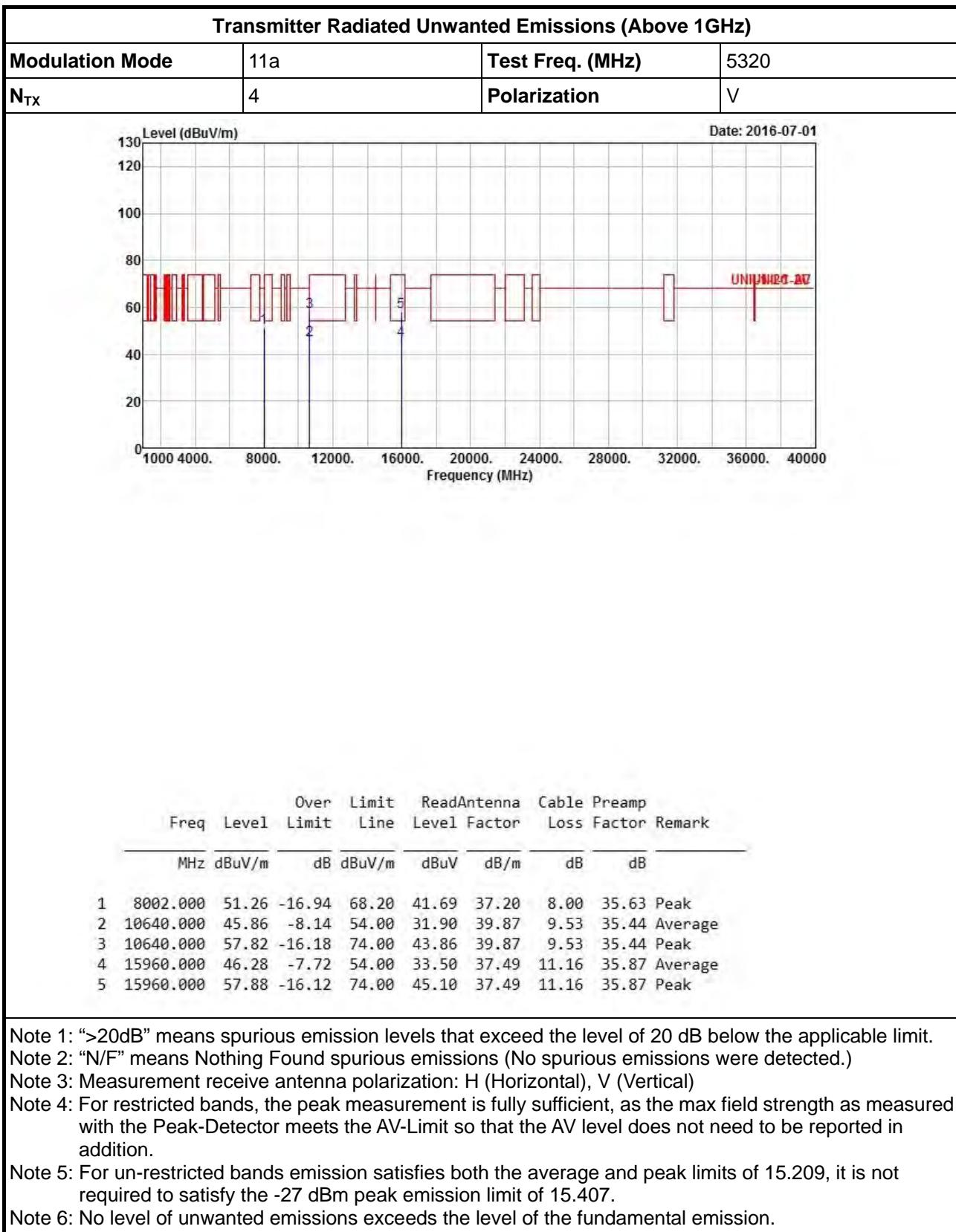
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

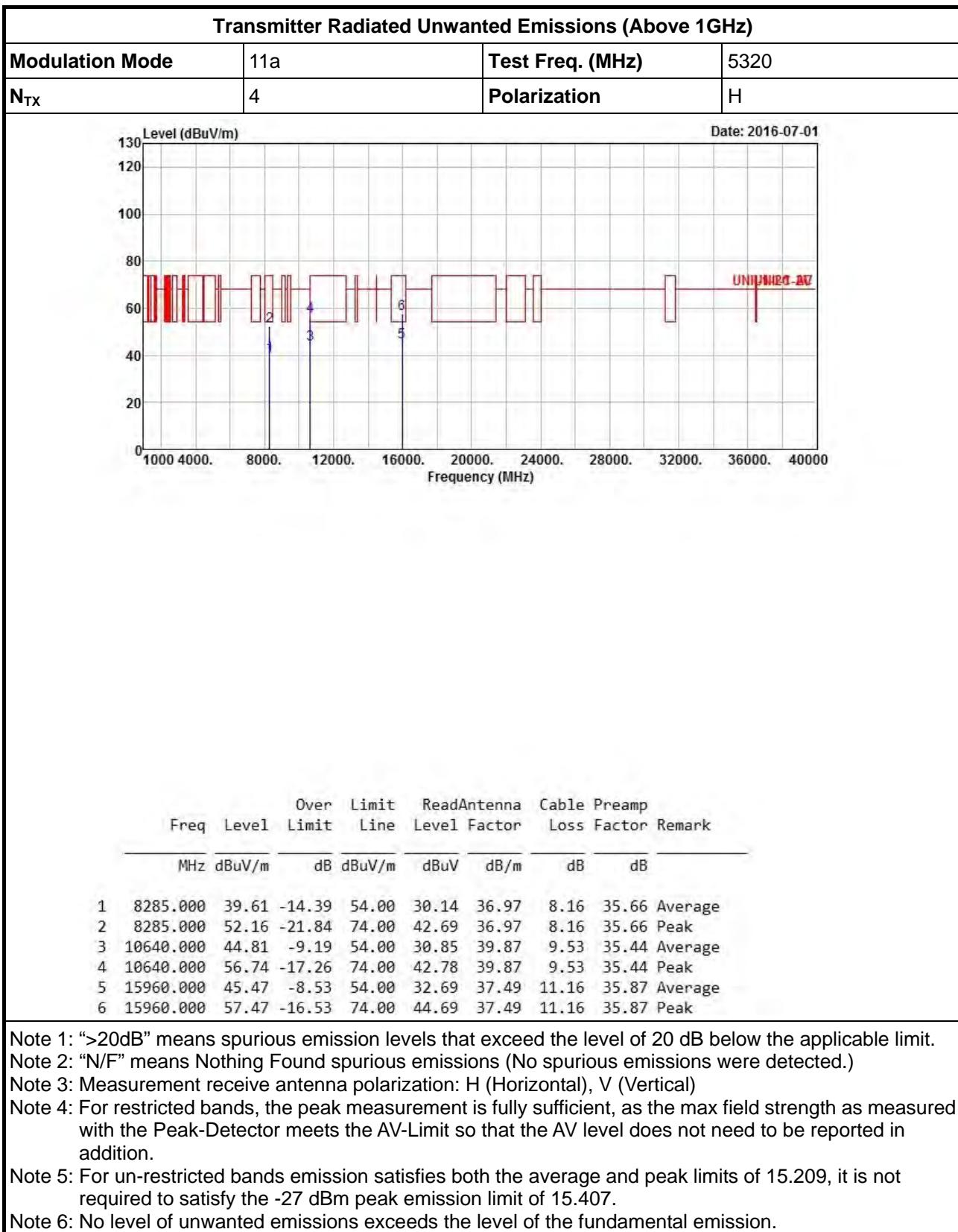
Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.



Transmitter Radiated Unwanted Emissions

Appendix E

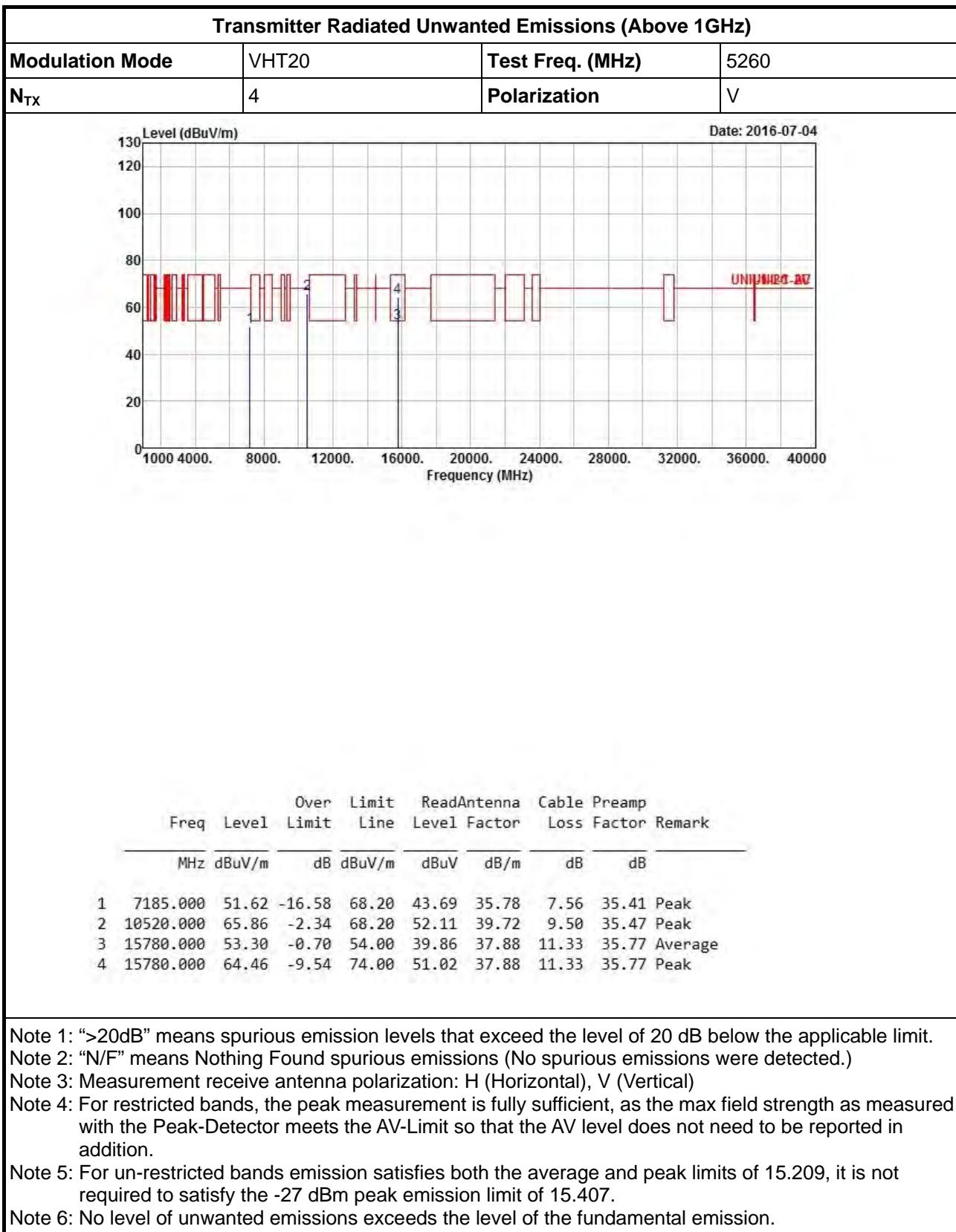


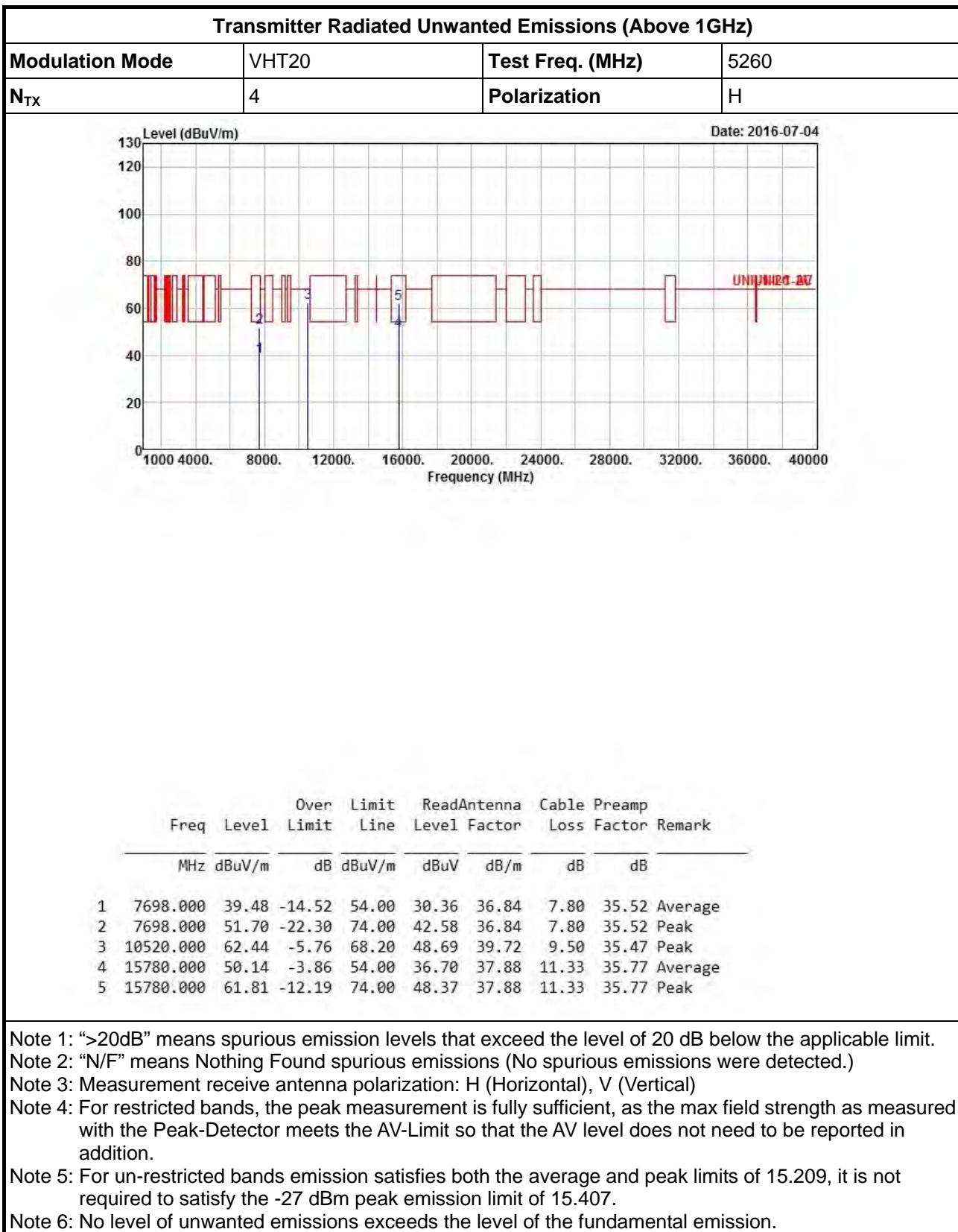


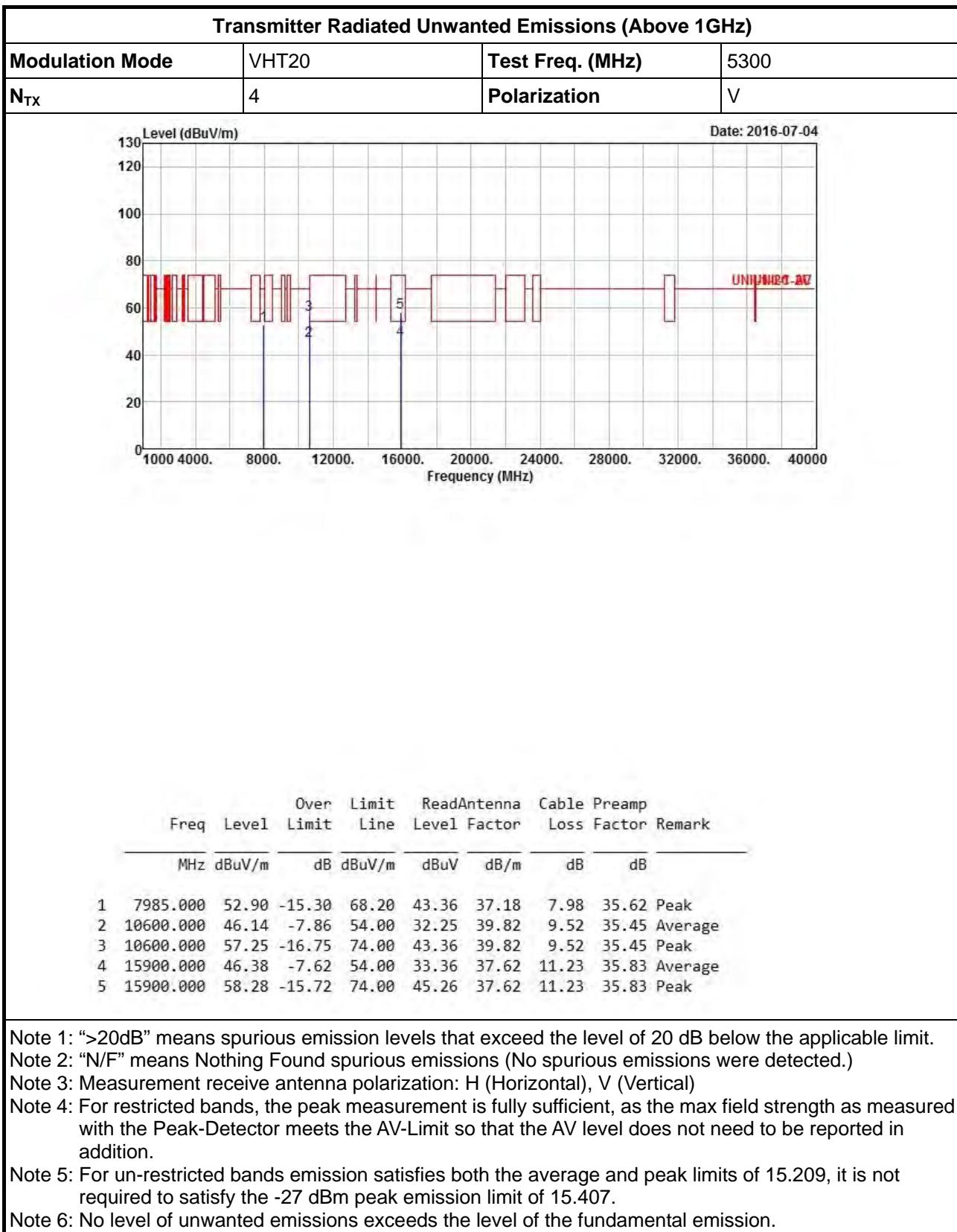


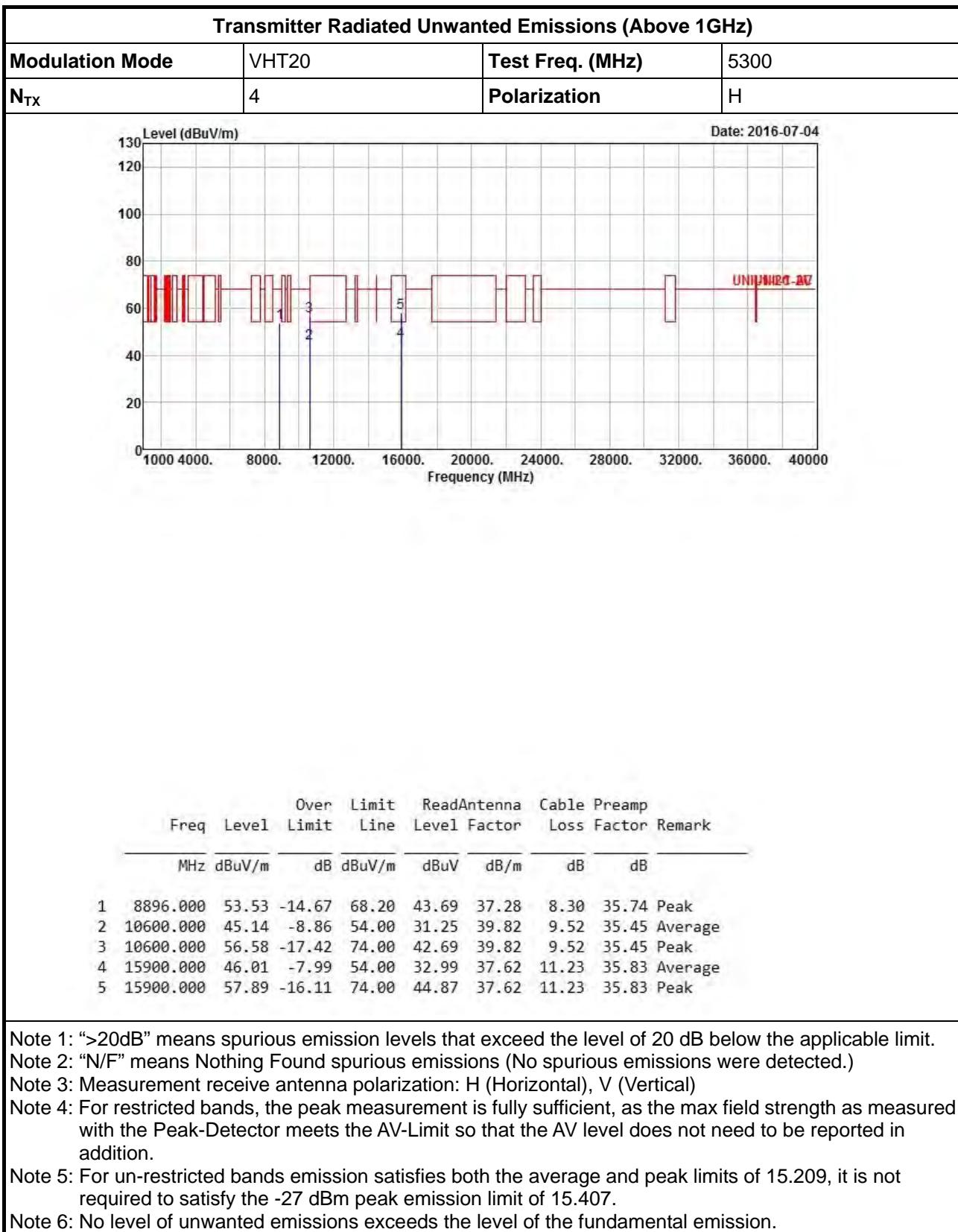
Transmitter Radiated Unwanted Emissions

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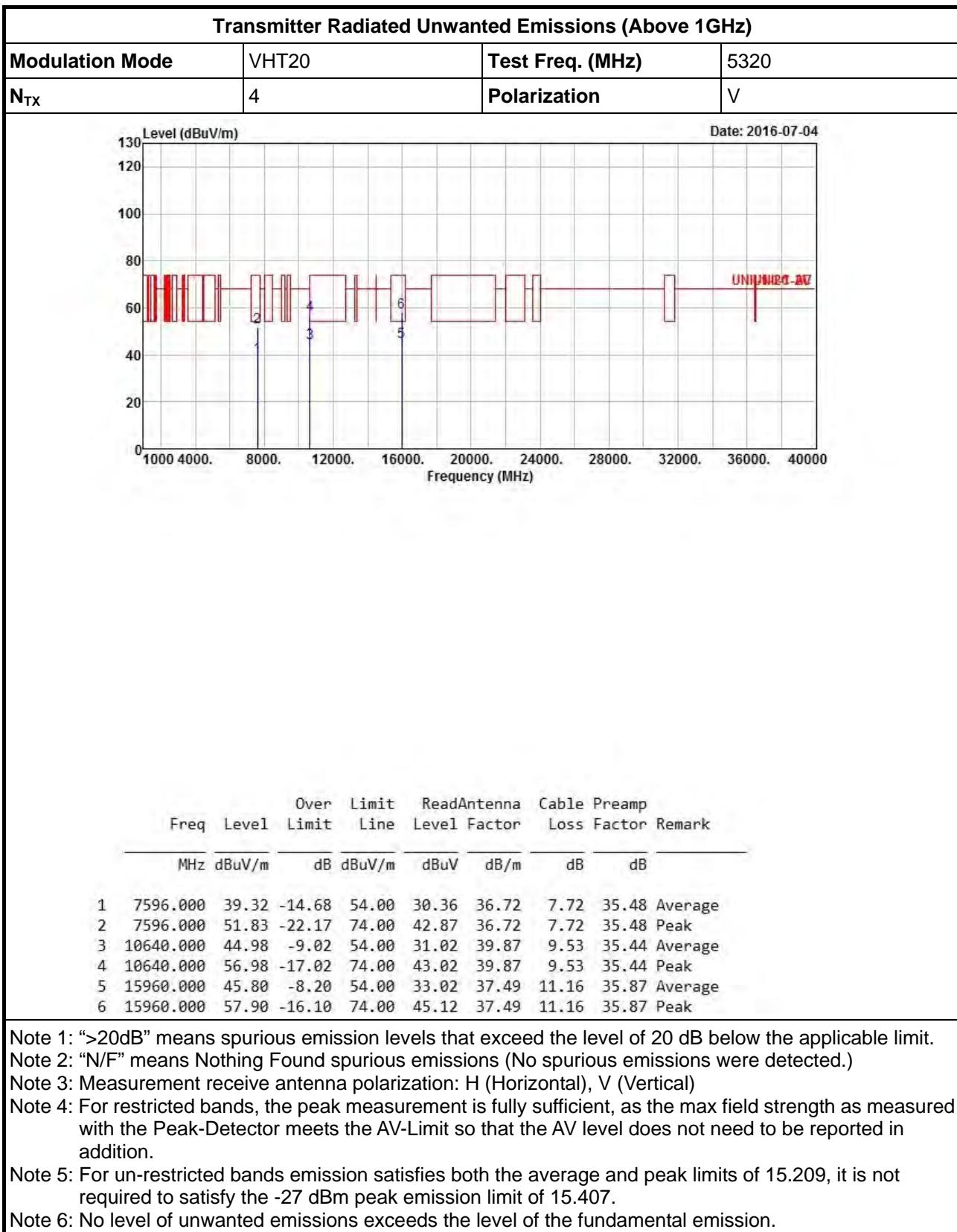






Transmitter Radiated Unwanted Emissions

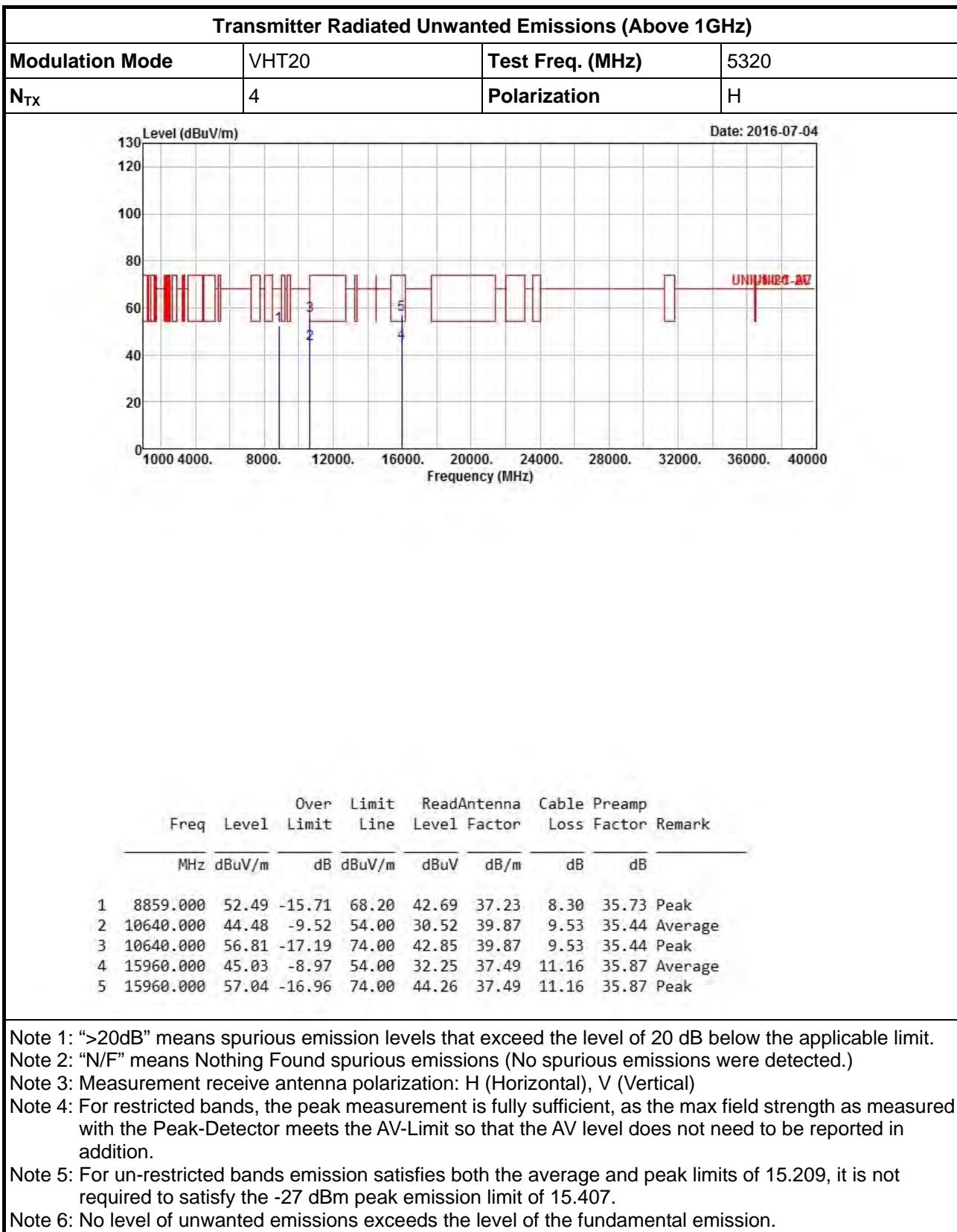
Appendix E





Transmitter Radiated Unwanted Emissions

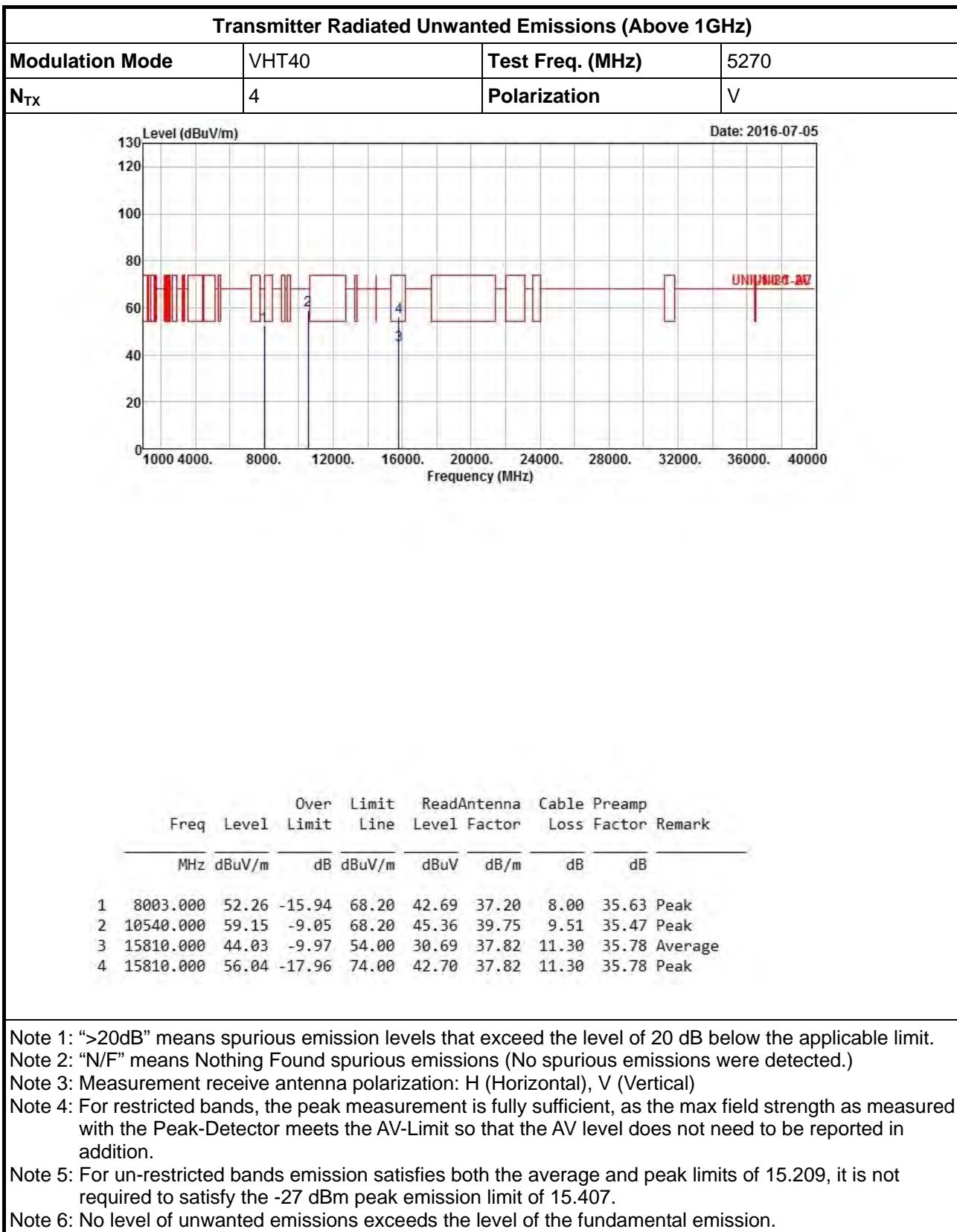
Appendix E





Transmitter Radiated Unwanted Emissions

Appendix E



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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT40	Test Freq. (MHz)	5270
N_{TX}	4	Polarization	H

Date: 2016-07-05

Frequency (MHz)

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	
		Line	Line	Level	Factor	Loss	Factor	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7196.000	50.54	-17.66	68.20	42.58	35.81	7.56	35.41 Peak
2	10540.000	57.04	-11.16	68.20	43.25	39.75	9.51	35.47 Peak
3	15810.000	43.34	-10.66	54.00	30.00	37.82	11.30	35.78 Average
4	15810.000	55.47	-18.53	74.00	42.13	37.82	11.30	35.78 Peak

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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

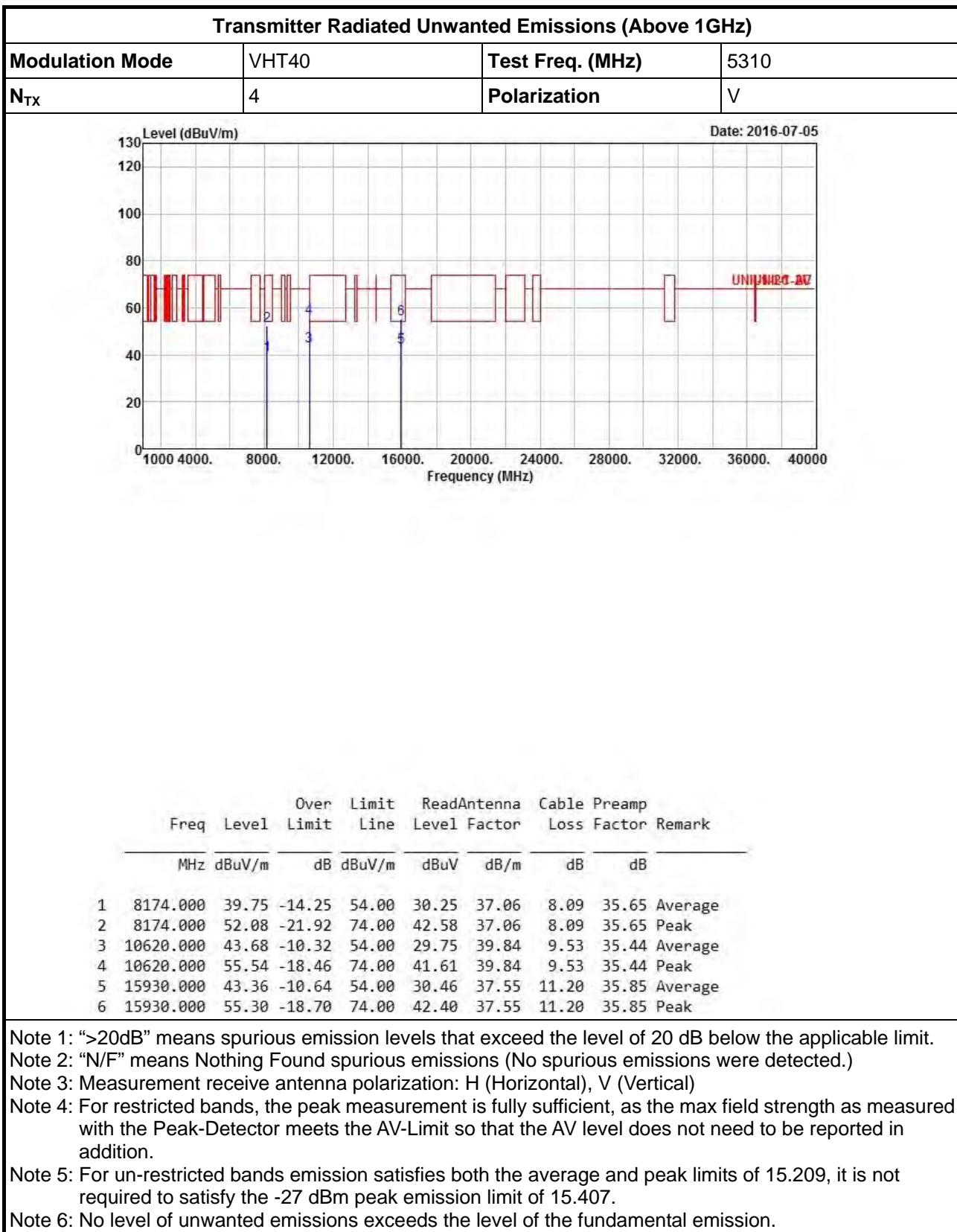
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

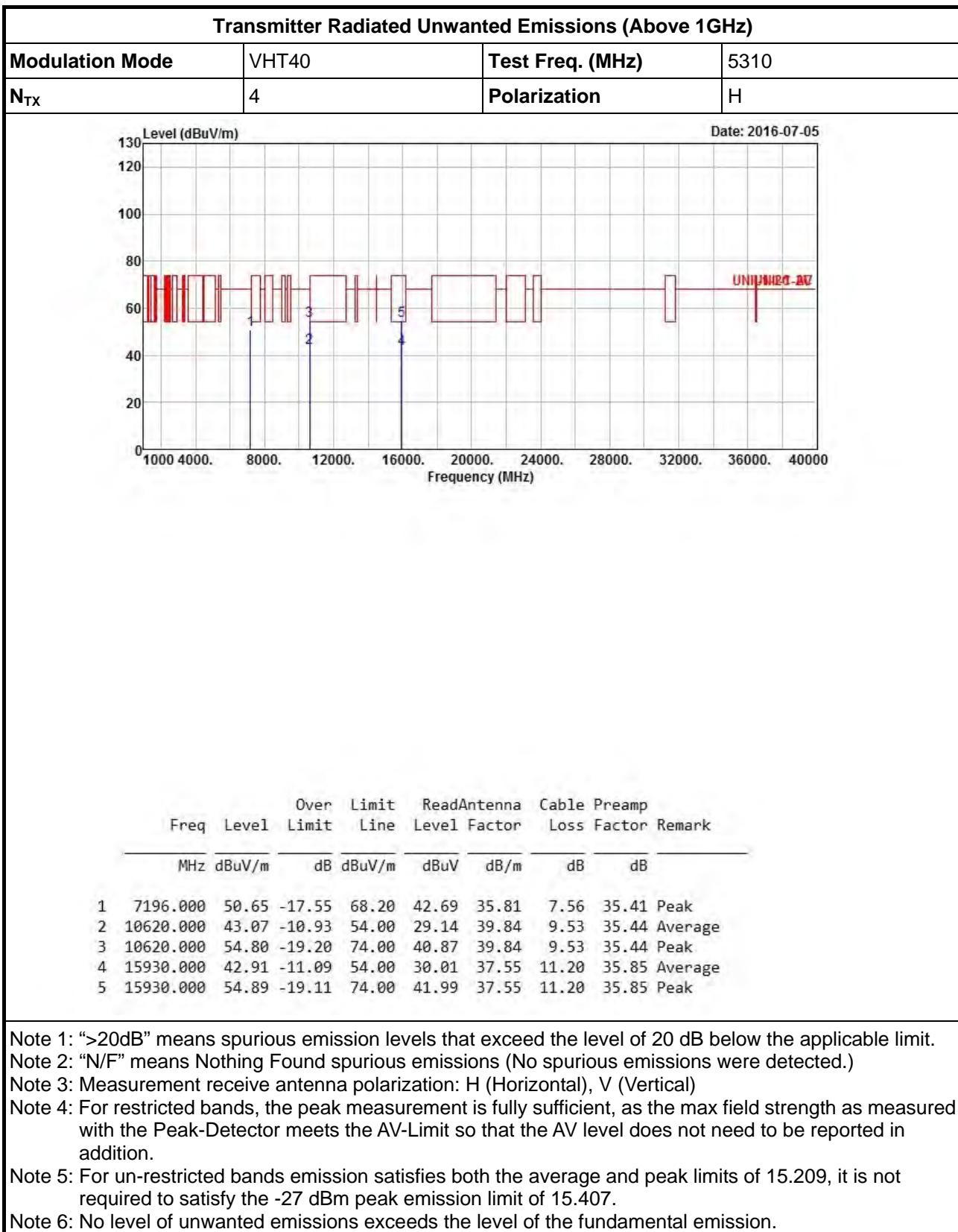
Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.



Transmitter Radiated Unwanted Emissions

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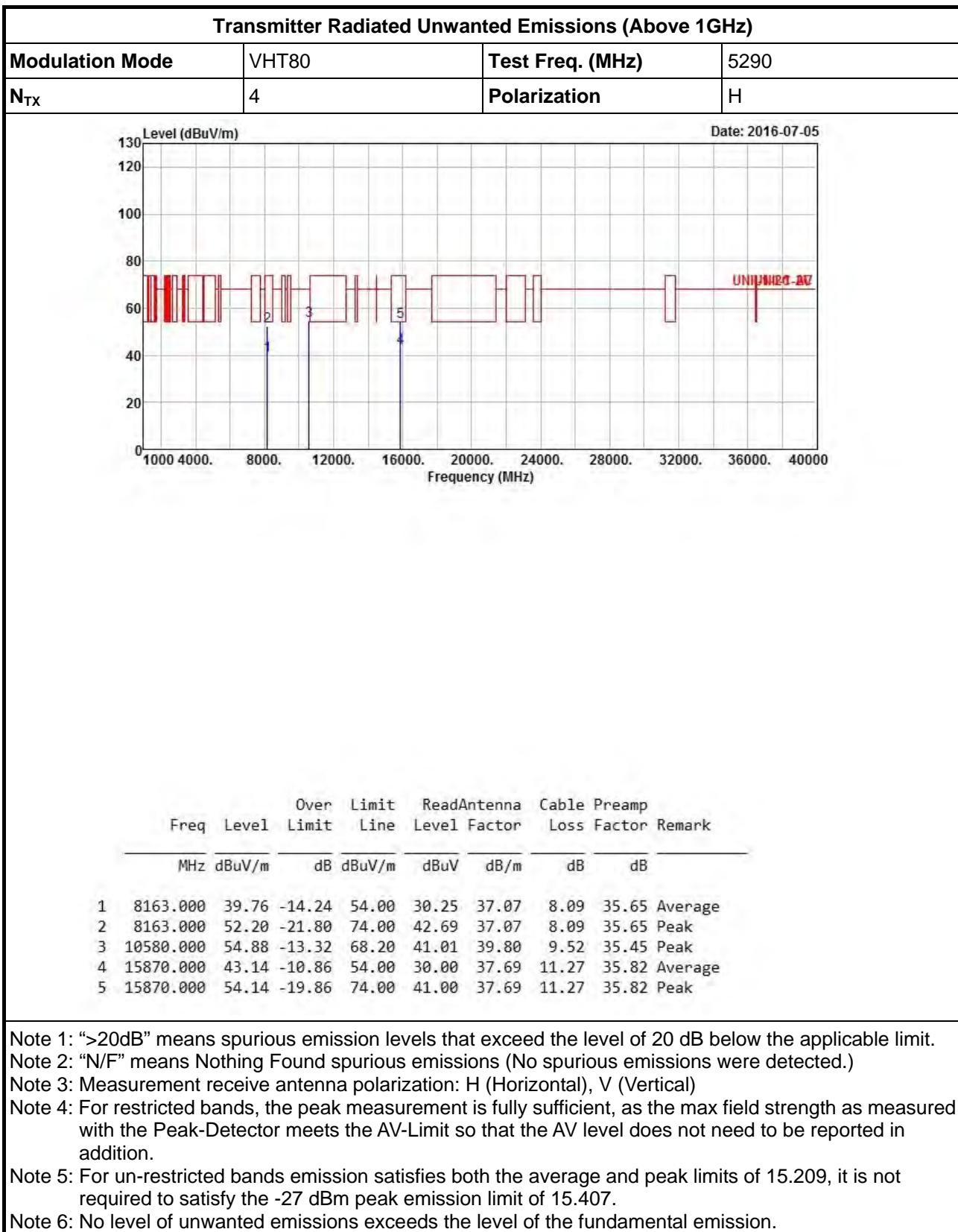


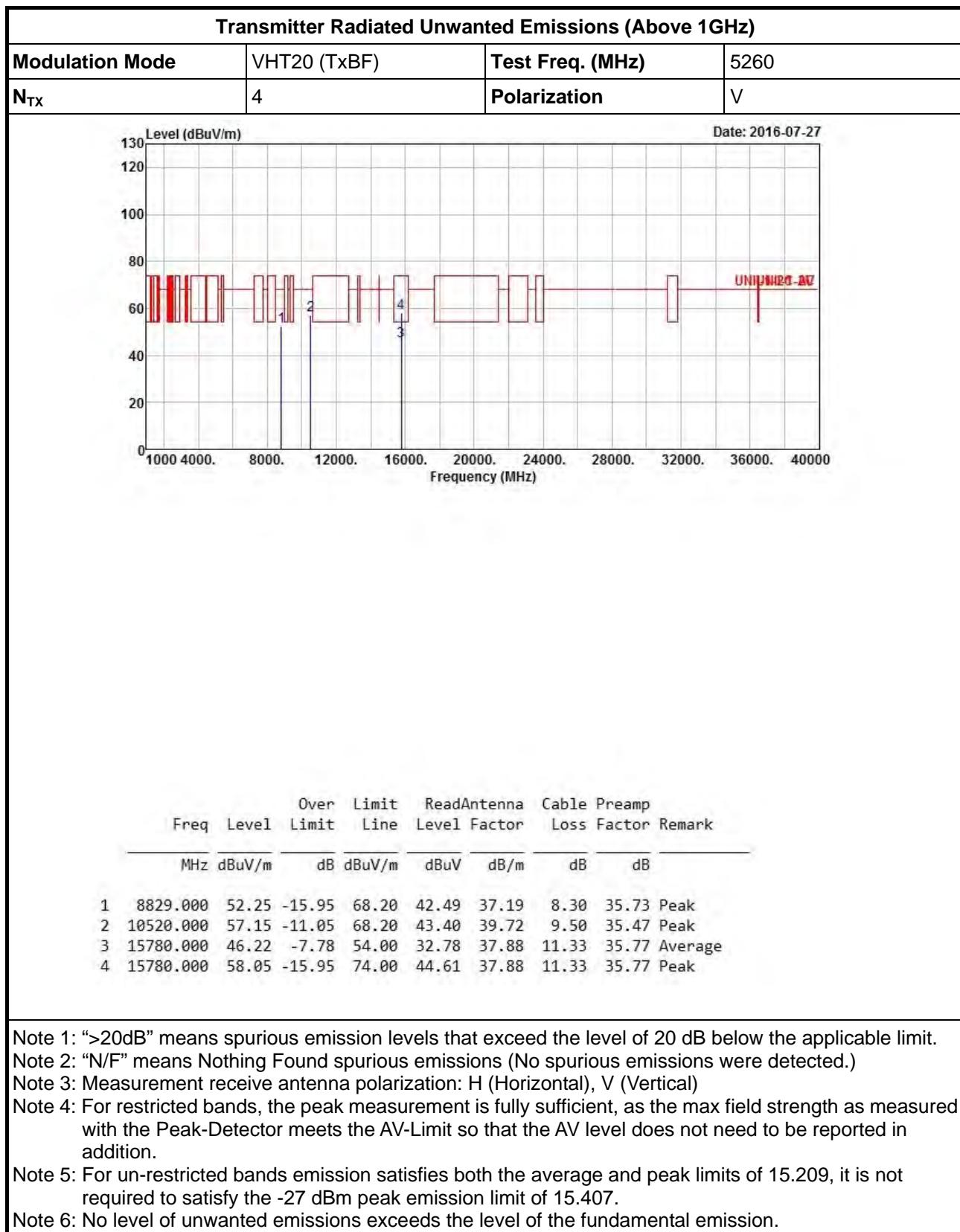


Transmitter Radiated Unwanted Emissions

Appendix E

Transmitter Radiated Unwanted Emissions (Above 1GHz)																																																																					
Modulation Mode		VHT80		Test Freq. (MHz)		5290																																																															
N _{TX}	4			Polarization		V																																																															
Level (dBuV/m)									Date: 2016-07-05																																																												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Freq</th> <th style="text-align: center;">Level</th> <th style="text-align: center;">Over Limit</th> <th style="text-align: center;">Limit Line</th> <th style="text-align: center;">ReadAntenna</th> <th style="text-align: center;">Cable Factor</th> <th style="text-align: center;">Preamp</th> <th style="text-align: center;">Loss</th> <th style="text-align: center;">Factor</th> <th style="text-align: center;">Remark</th> </tr> <tr> <th style="text-align: center;">MHz</th> <th style="text-align: center;">dBuV/m</th> <th style="text-align: center;">dB</th> <th style="text-align: center;">dBuV/m</th> <th style="text-align: center;">dBuV</th> <th style="text-align: center;">dB/m</th> <th style="text-align: center;">dB</th> <th style="text-align: center;">dB</th> <th style="text-align: center;"></th> <th style="text-align: center;"></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">8796.000</td> <td style="text-align: center;">52.31</td> <td style="text-align: center;">-15.89</td> <td style="text-align: center;">68.20</td> <td style="text-align: center;">42.58</td> <td style="text-align: center;">37.16</td> <td style="text-align: center;">8.29</td> <td style="text-align: center;">35.72</td> <td>Peak</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">10580.000</td> <td style="text-align: center;">55.47</td> <td style="text-align: center;">-12.73</td> <td style="text-align: center;">68.20</td> <td style="text-align: center;">41.60</td> <td style="text-align: center;">39.80</td> <td style="text-align: center;">9.52</td> <td style="text-align: center;">35.45</td> <td>Peak</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">15870.000</td> <td style="text-align: center;">43.43</td> <td style="text-align: center;">-10.57</td> <td style="text-align: center;">54.00</td> <td style="text-align: center;">30.29</td> <td style="text-align: center;">37.69</td> <td style="text-align: center;">11.27</td> <td style="text-align: center;">35.82</td> <td>Average</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">15870.000</td> <td style="text-align: center;">54.75</td> <td style="text-align: center;">-19.25</td> <td style="text-align: center;">74.00</td> <td style="text-align: center;">41.61</td> <td style="text-align: center;">37.69</td> <td style="text-align: center;">11.27</td> <td style="text-align: center;">35.82</td> <td>Peak</td> </tr> </tbody> </table>										Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable Factor	Preamp	Loss	Factor	Remark	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			1	8796.000	52.31	-15.89	68.20	42.58	37.16	8.29	35.72	Peak	2	10580.000	55.47	-12.73	68.20	41.60	39.80	9.52	35.45	Peak	3	15870.000	43.43	-10.57	54.00	30.29	37.69	11.27	35.82	Average	4	15870.000	54.75	-19.25	74.00	41.61	37.69	11.27	35.82	Peak
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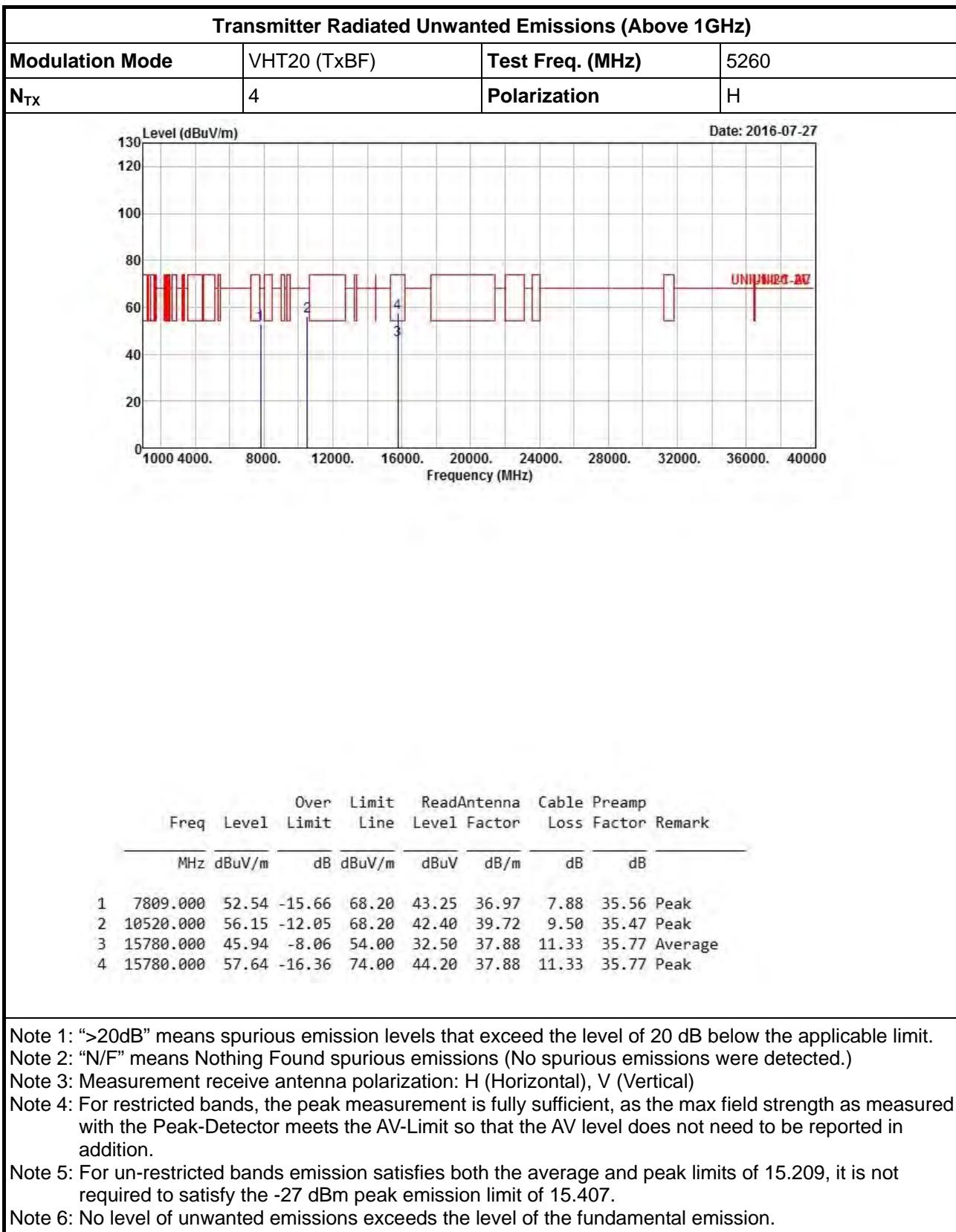






Transmitter Radiated Unwanted Emissions

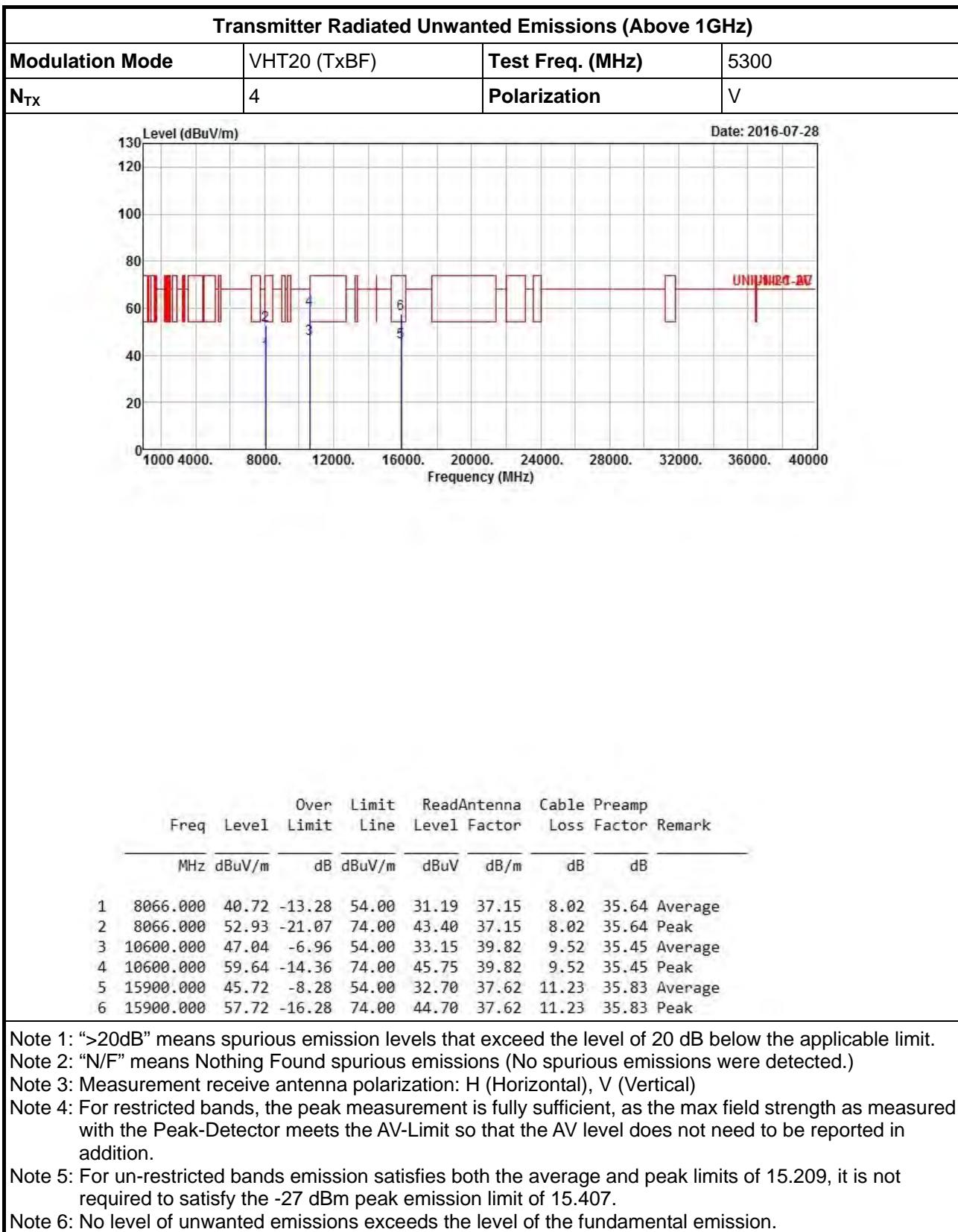
Appendix E





Transmitter Radiated Unwanted Emissions

Appendix E



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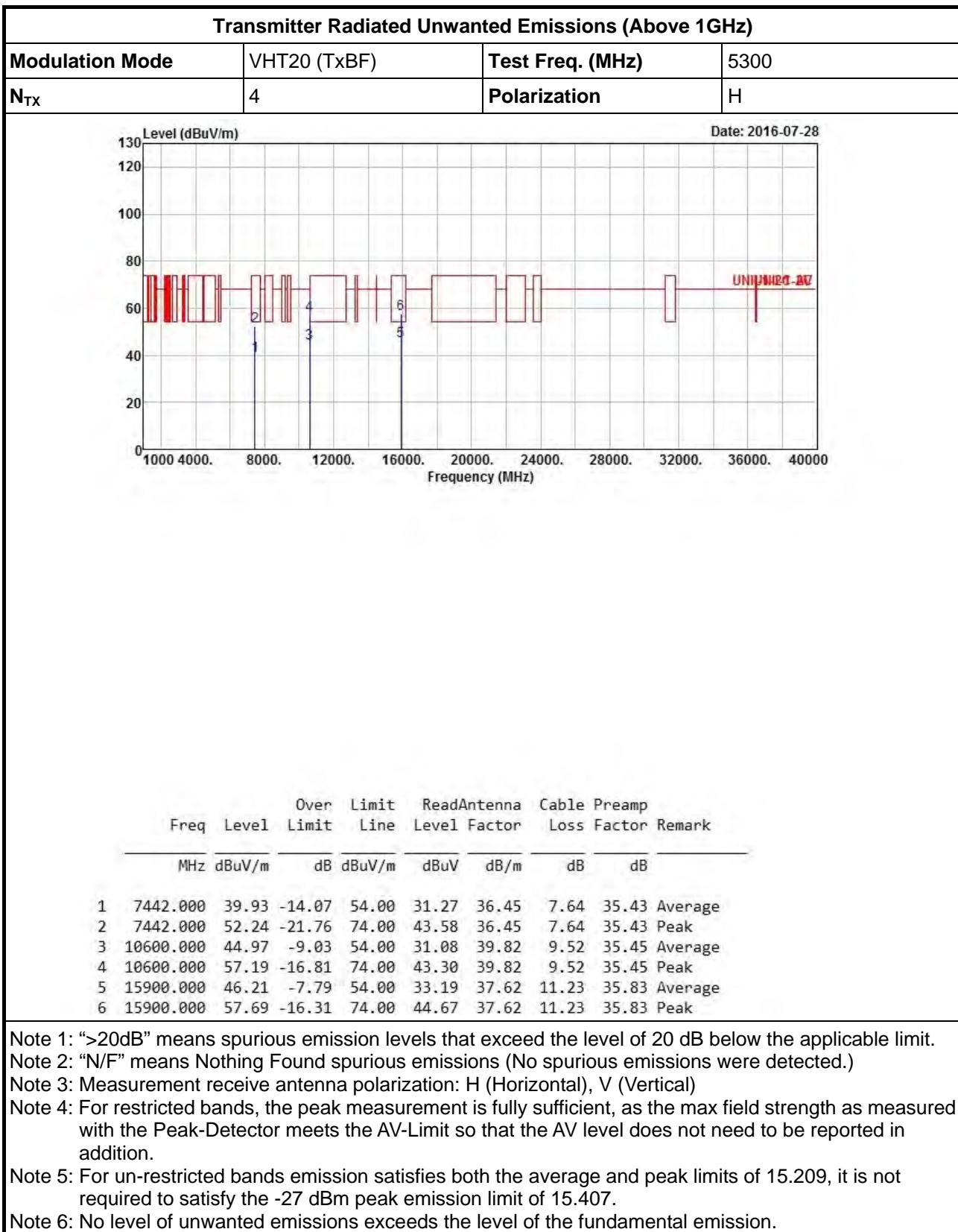
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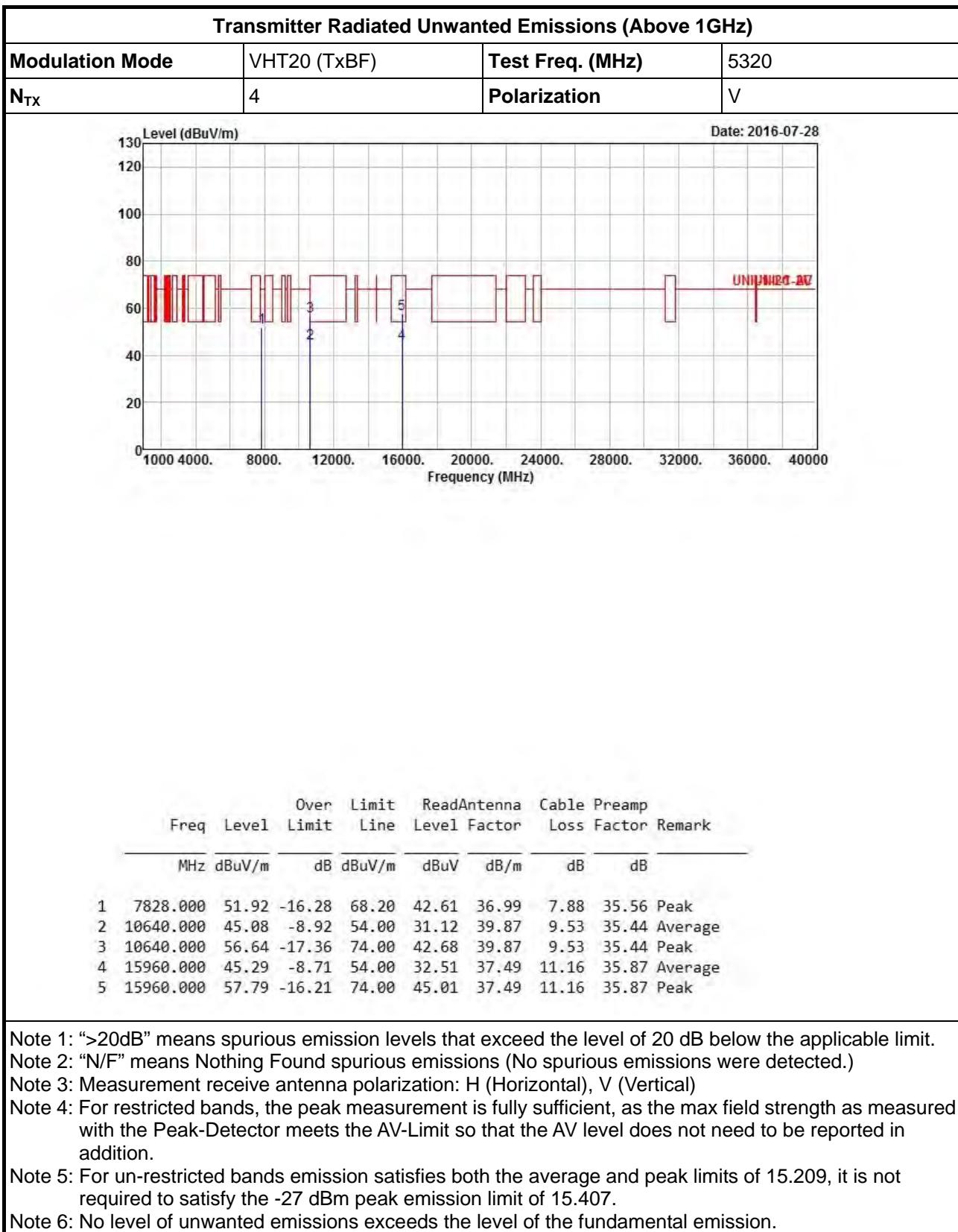
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Transmitter Radiated Unwanted Emissions

Appendix E





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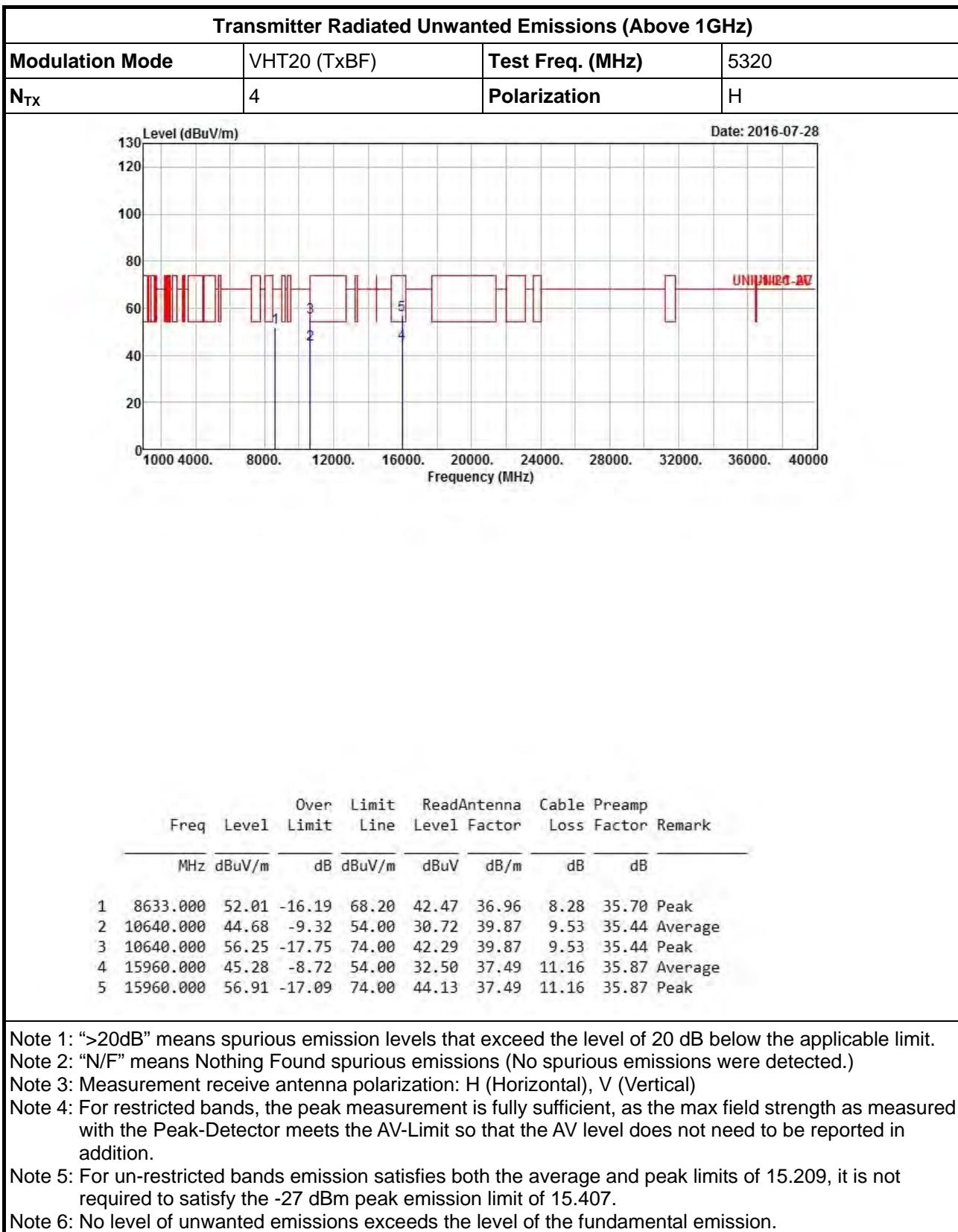
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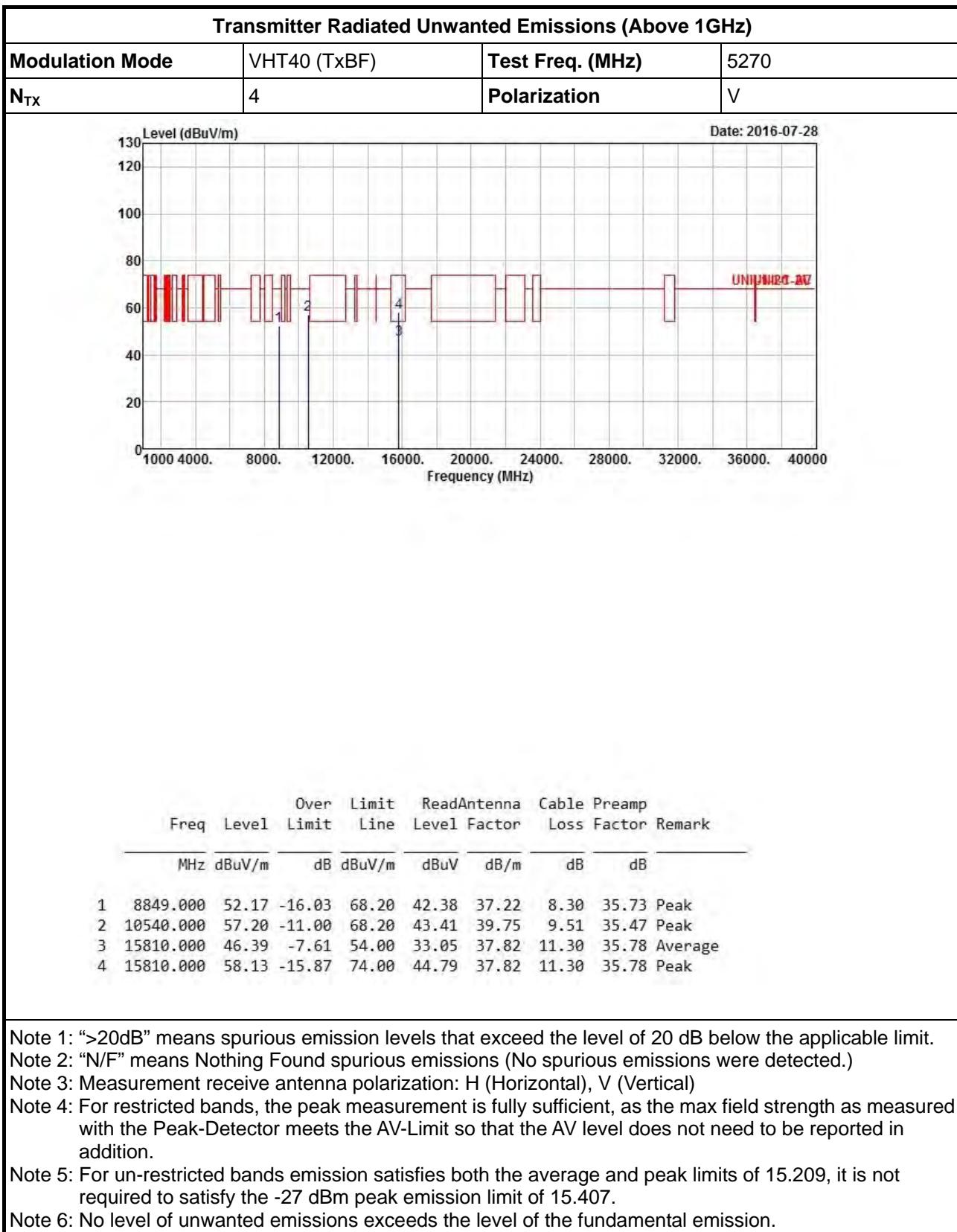
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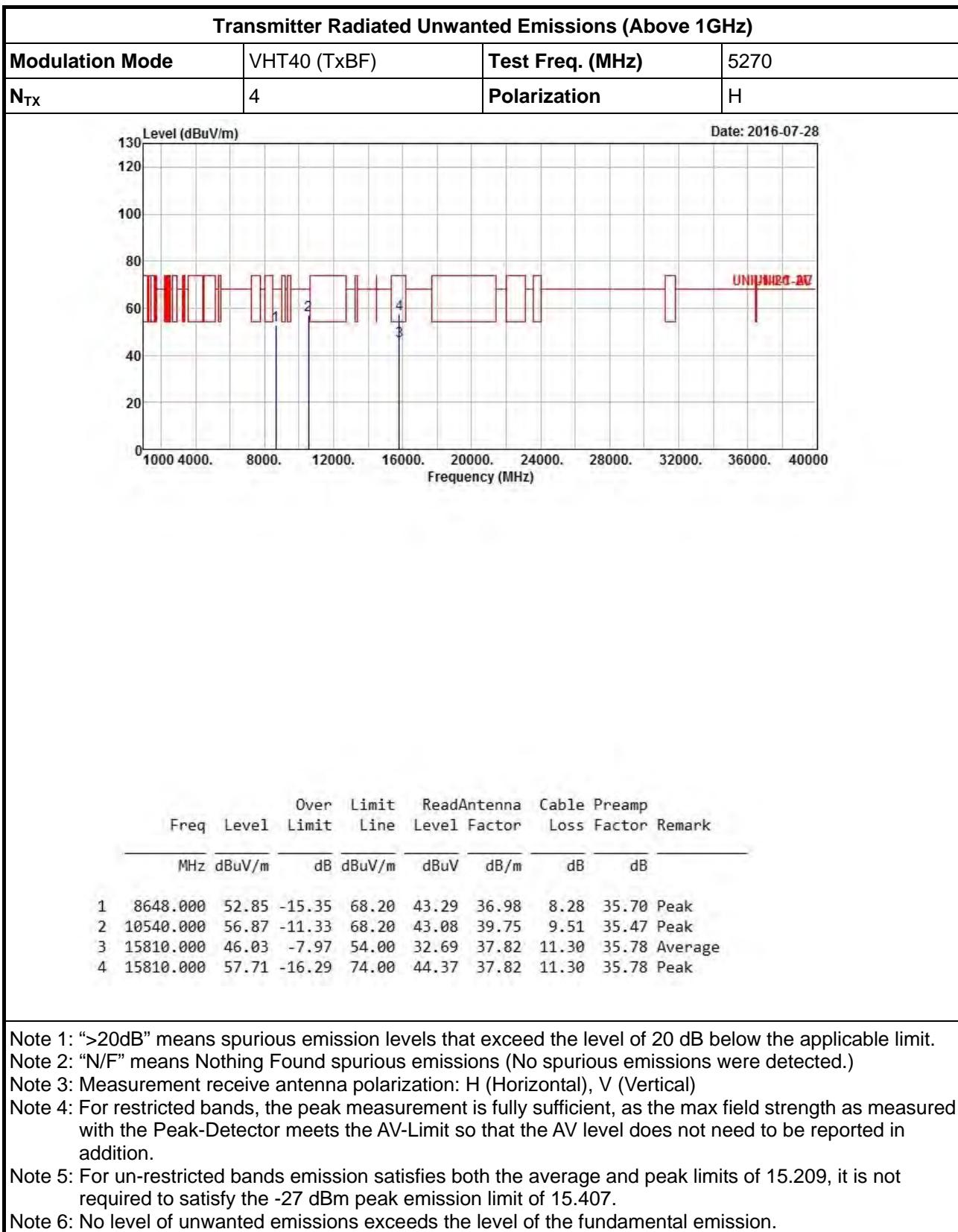


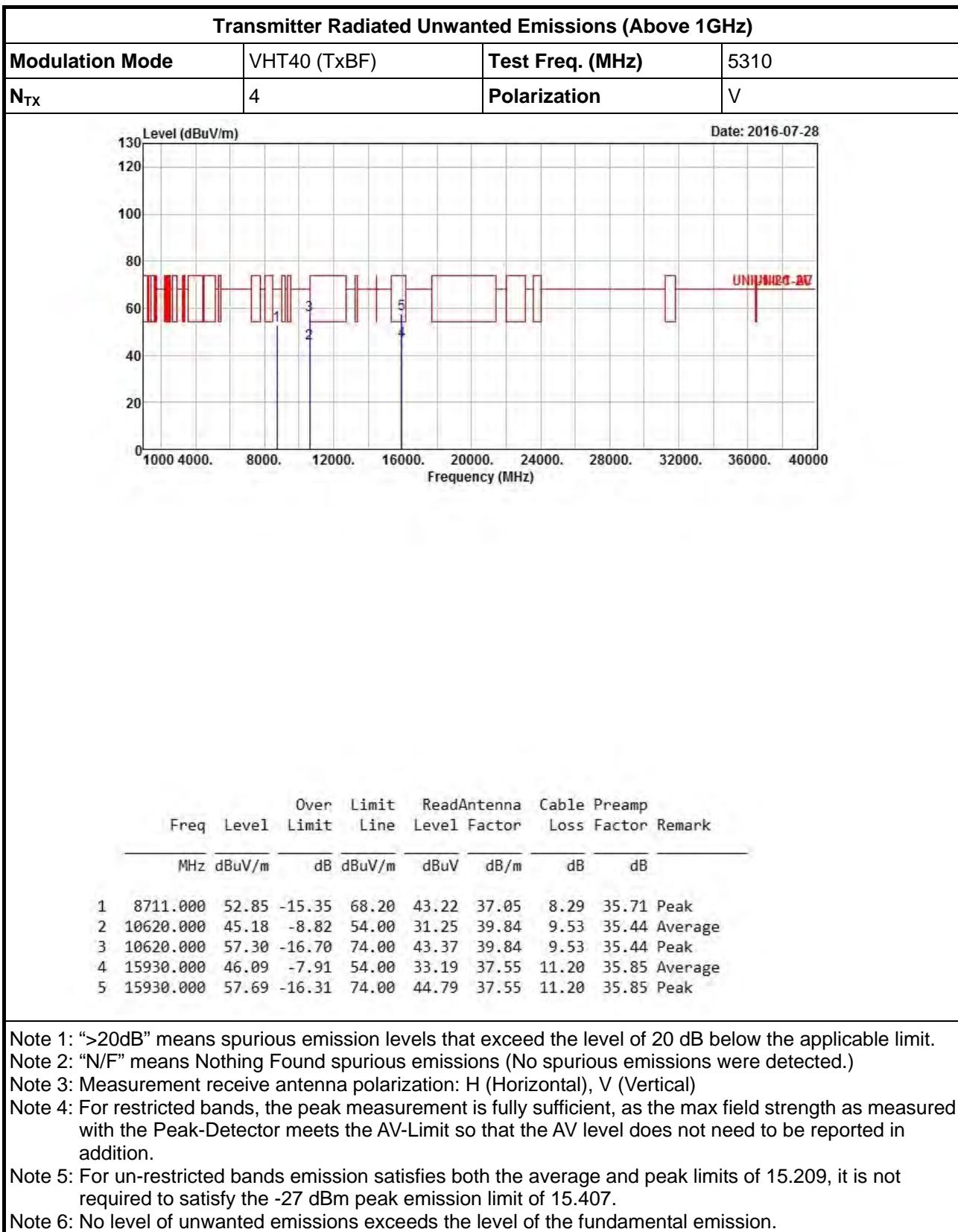


Transmitter Radiated Unwanted Emissions

Appendix E



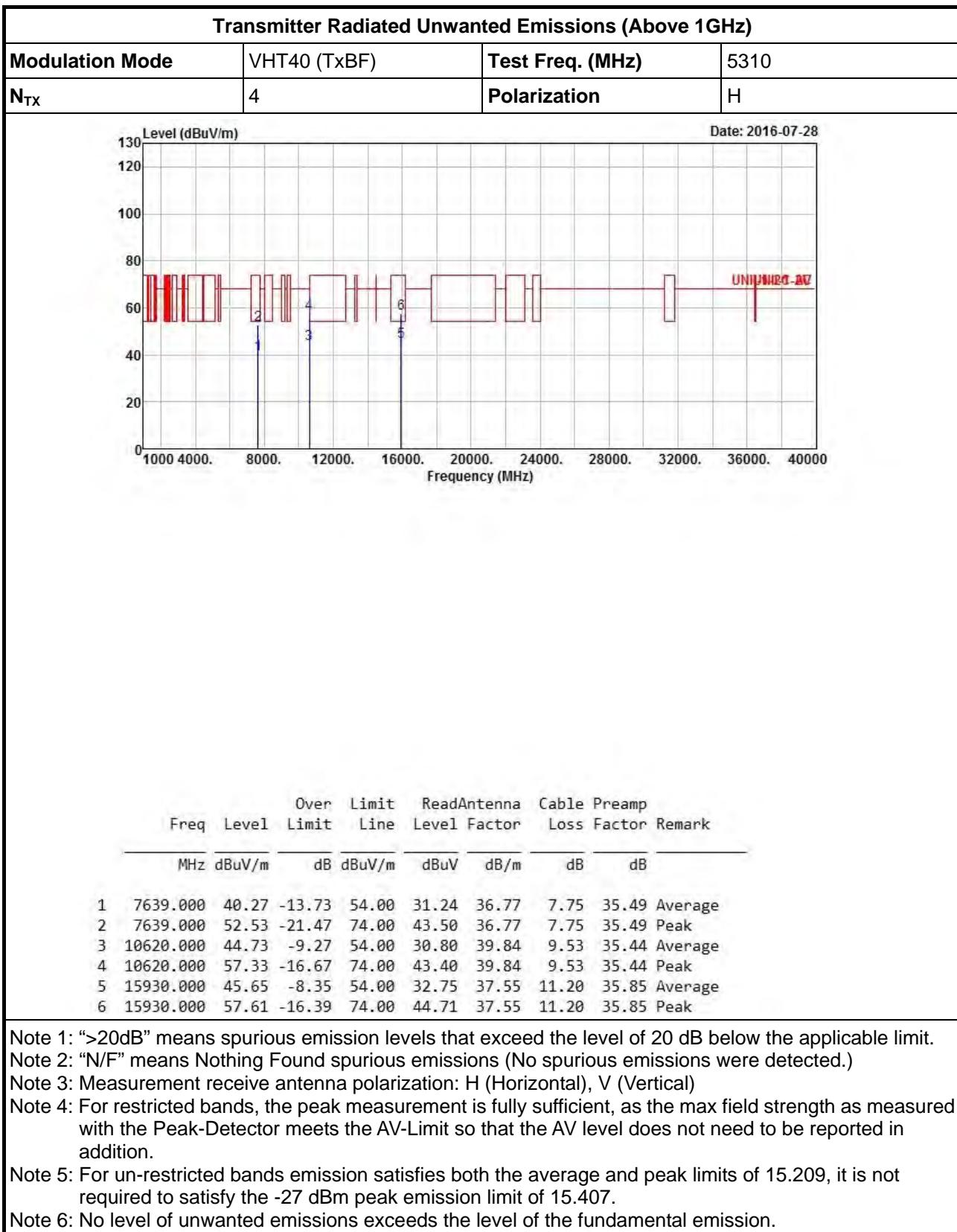






Transmitter Radiated Unwanted Emissions

Appendix E





Transmitter Radiated Unwanted Emissions

Appendix E

Transmitter Radiated Unwanted Emissions (Above 1GHz)									
Modulation Mode	VHT80 (TxBF)			Test Freq. (MHz)		5290			
N _{TX}	4			Polarization		V			
Level (dBuV/m)									Date: 2016-07-28
1000	4000.	8000.	12000.	16000.	20000.	24000.	28000.	32000.	36000. 40000
Frequency (MHz)									
1	7837.000	52.57	-15.63	68.20	43.26	37.00	7.88	35.57	Peak
2	10580.000	57.11	-11.09	68.20	43.24	39.80	9.52	35.45	Peak
3	15870.000	46.19	-7.81	54.00	33.05	37.69	11.27	35.82	Average
4	15870.000	57.93	-16.07	74.00	44.79	37.69	11.27	35.82	Peak

Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		
1	7837.000	52.57	-15.63	68.20	43.26	37.00	7.88	35.57	Peak
2	10580.000	57.11	-11.09	68.20	43.24	39.80	9.52	35.45	Peak
3	15870.000	46.19	-7.81	54.00	33.05	37.69	11.27	35.82	Average
4	15870.000	57.93	-16.07	74.00	44.79	37.69	11.27	35.82	Peak

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

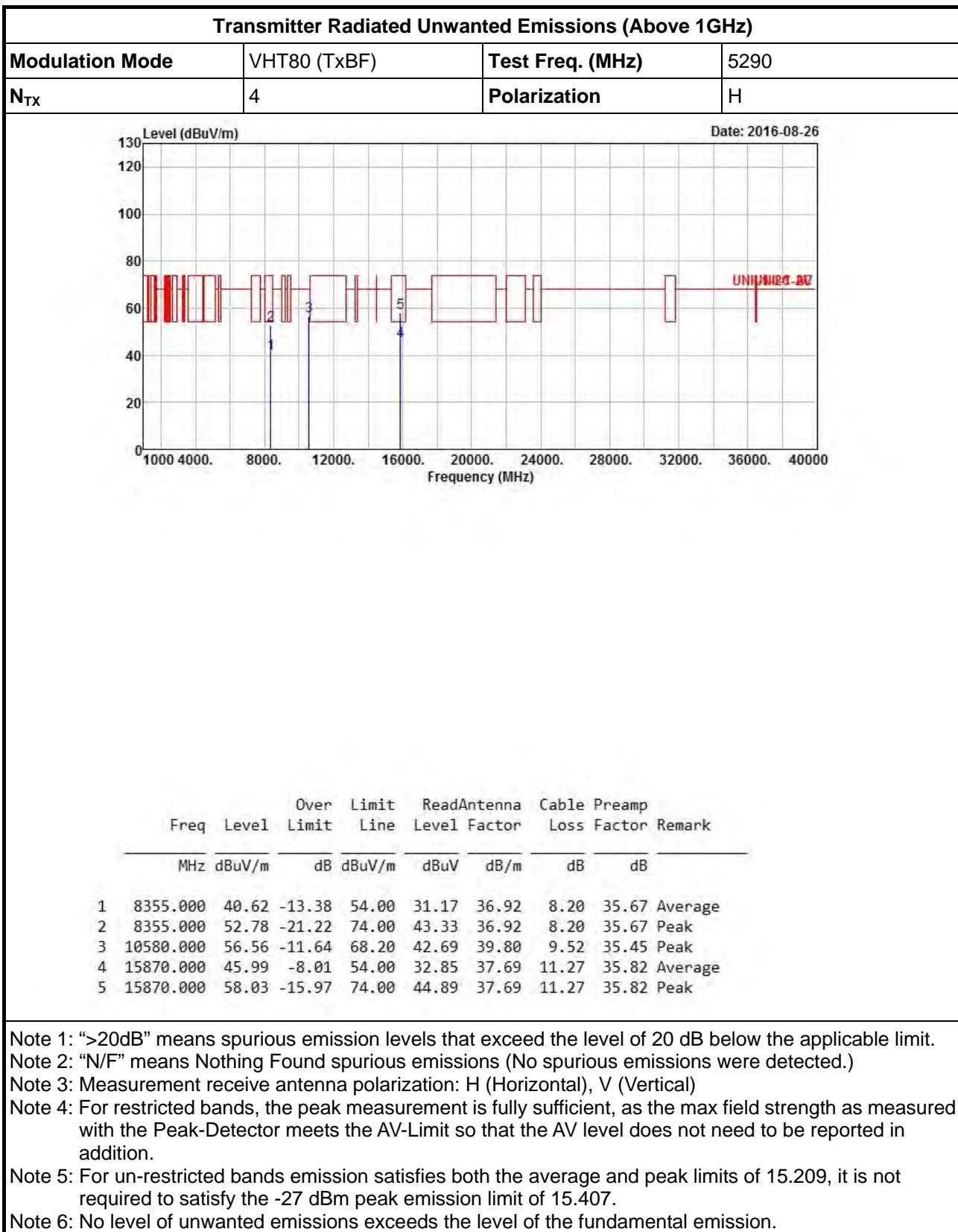
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

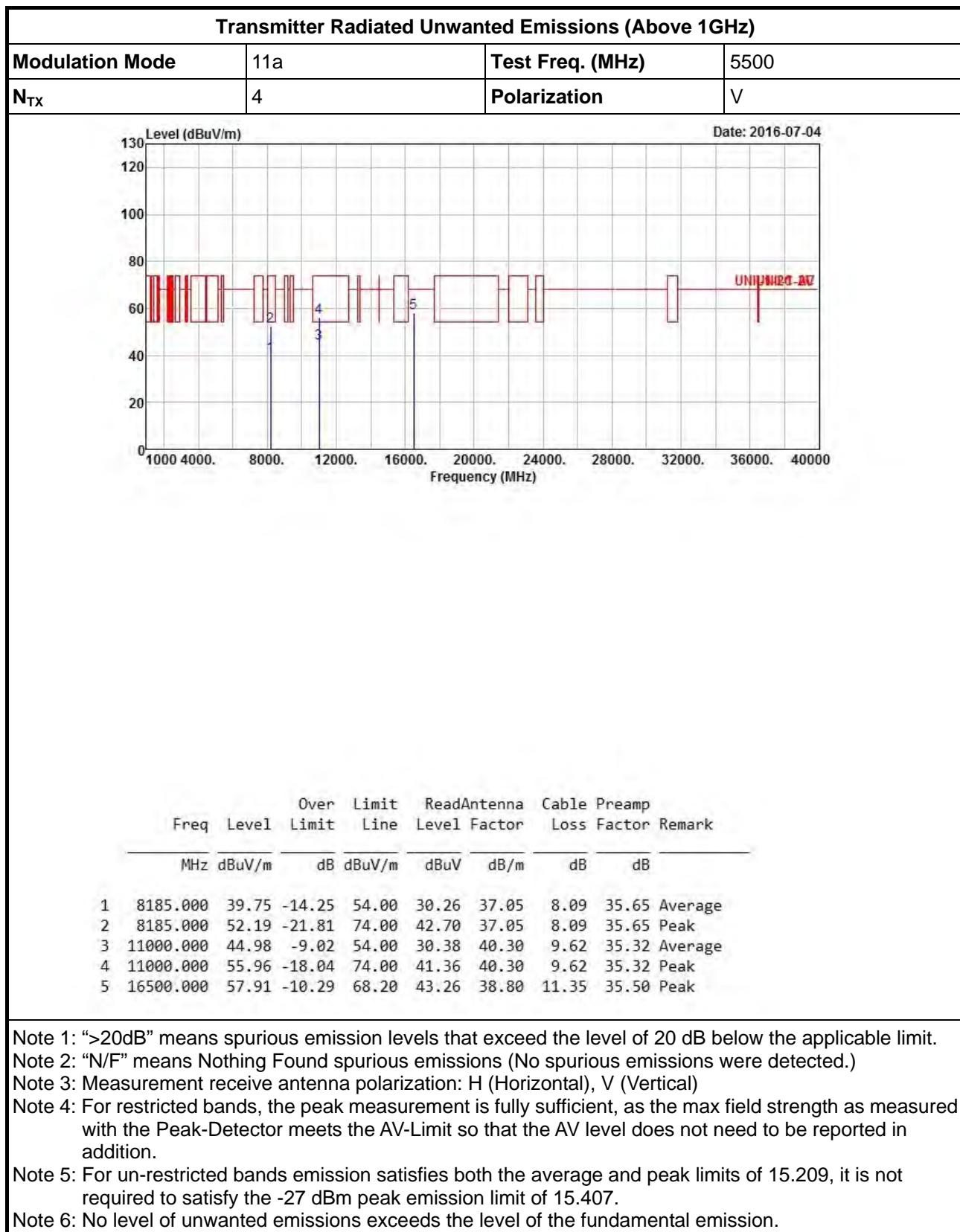
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.





Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5470-5725MHz





Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (MHz)	5500
N_{TX}	4	Polarization	H

Level (dBuV/m)

Date: 2016-07-04

Frequency (MHz)

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	
		Line	Limit	Level	Factor	Loss	Factor	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8002.000	52.26	-15.94	68.20	42.69	37.20	8.00	35.63 Peak
2	11000.000	44.56	-9.44	54.00	29.96	40.30	9.62	35.32 Average
3	11000.000	55.38	-18.62	74.00	40.78	40.30	9.62	35.32 Peak
4	16500.000	57.66	-10.54	68.20	43.01	38.80	11.35	35.50 Peak

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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

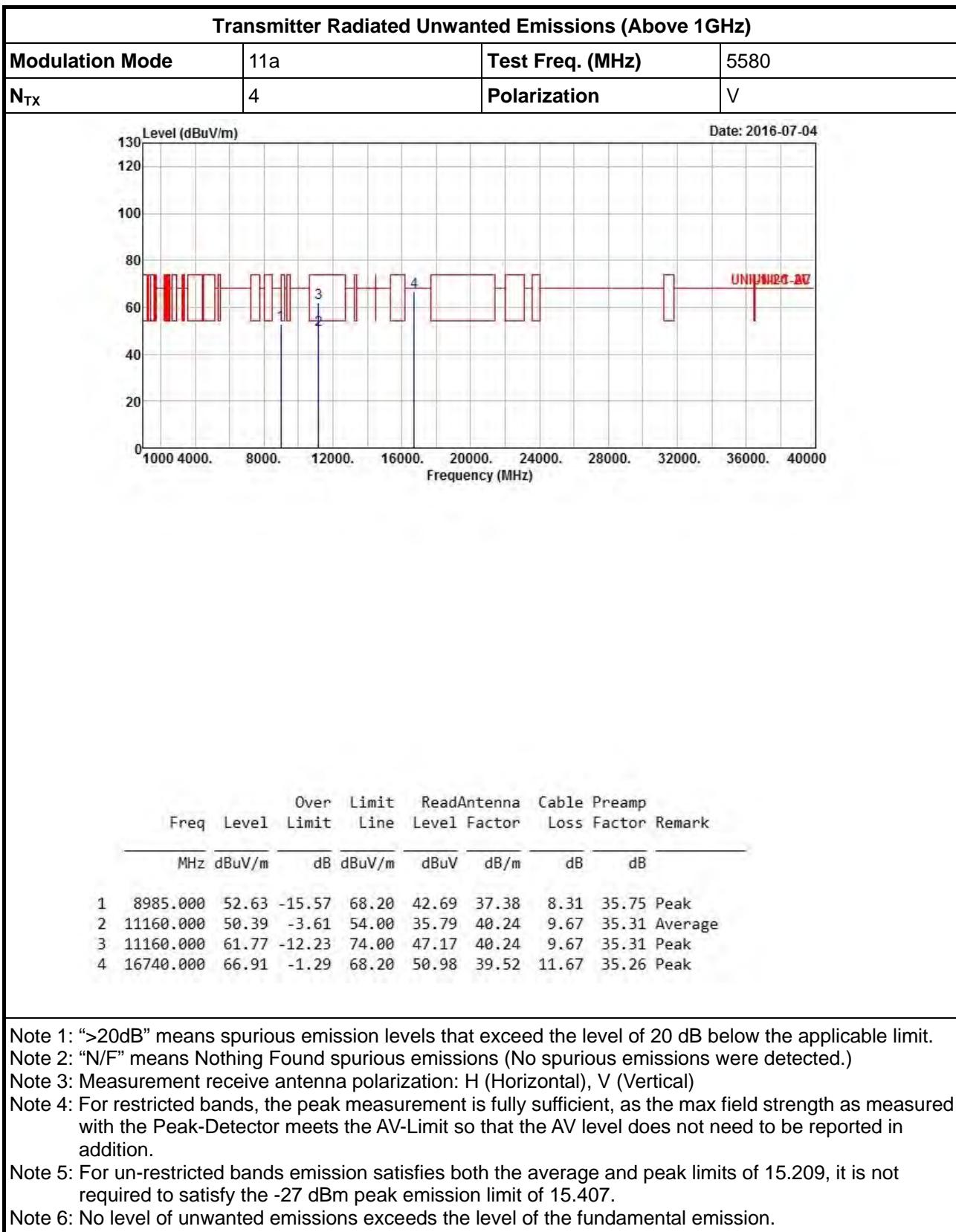
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

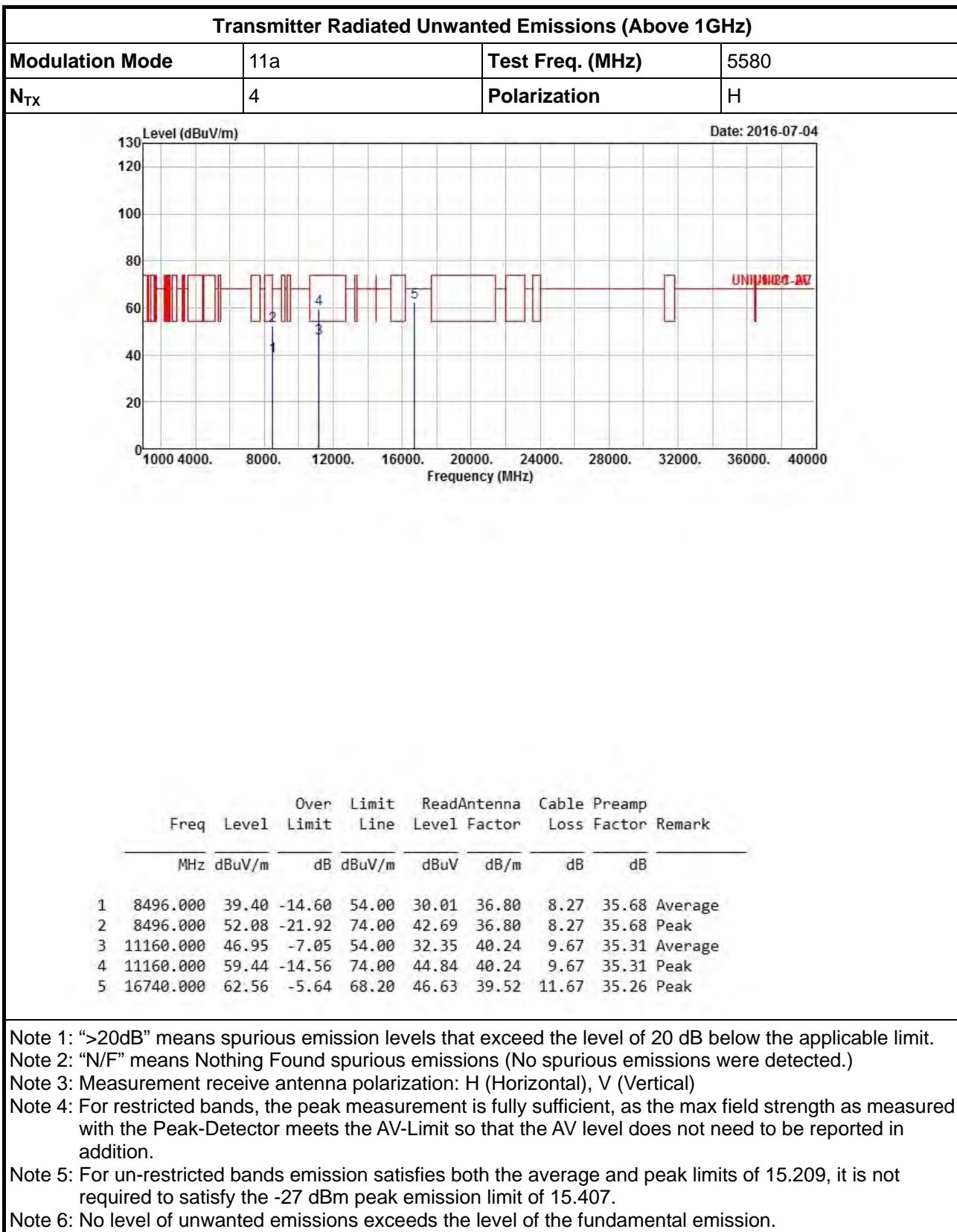
Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

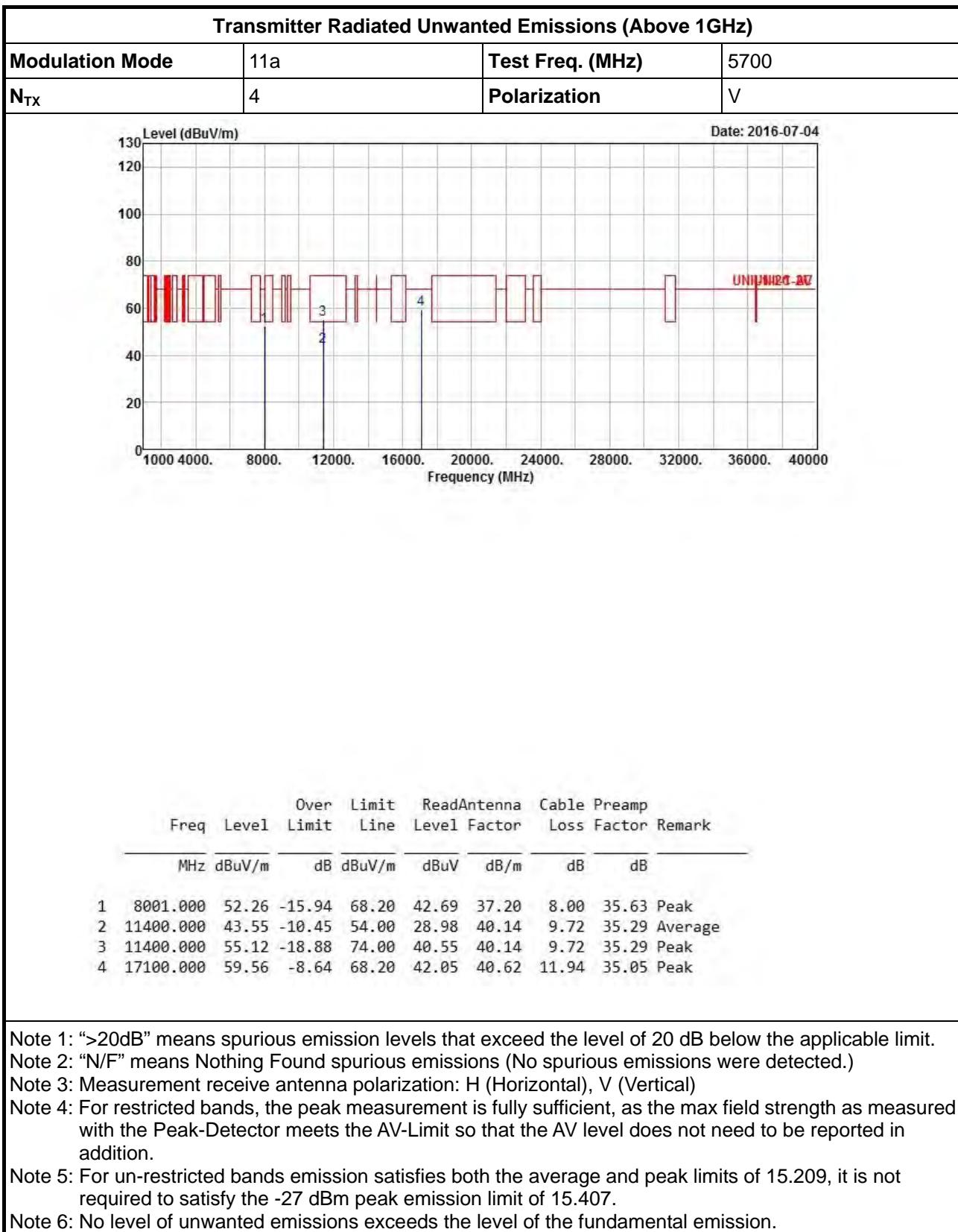


Transmitter Radiated Unwanted Emissions

Appendix E



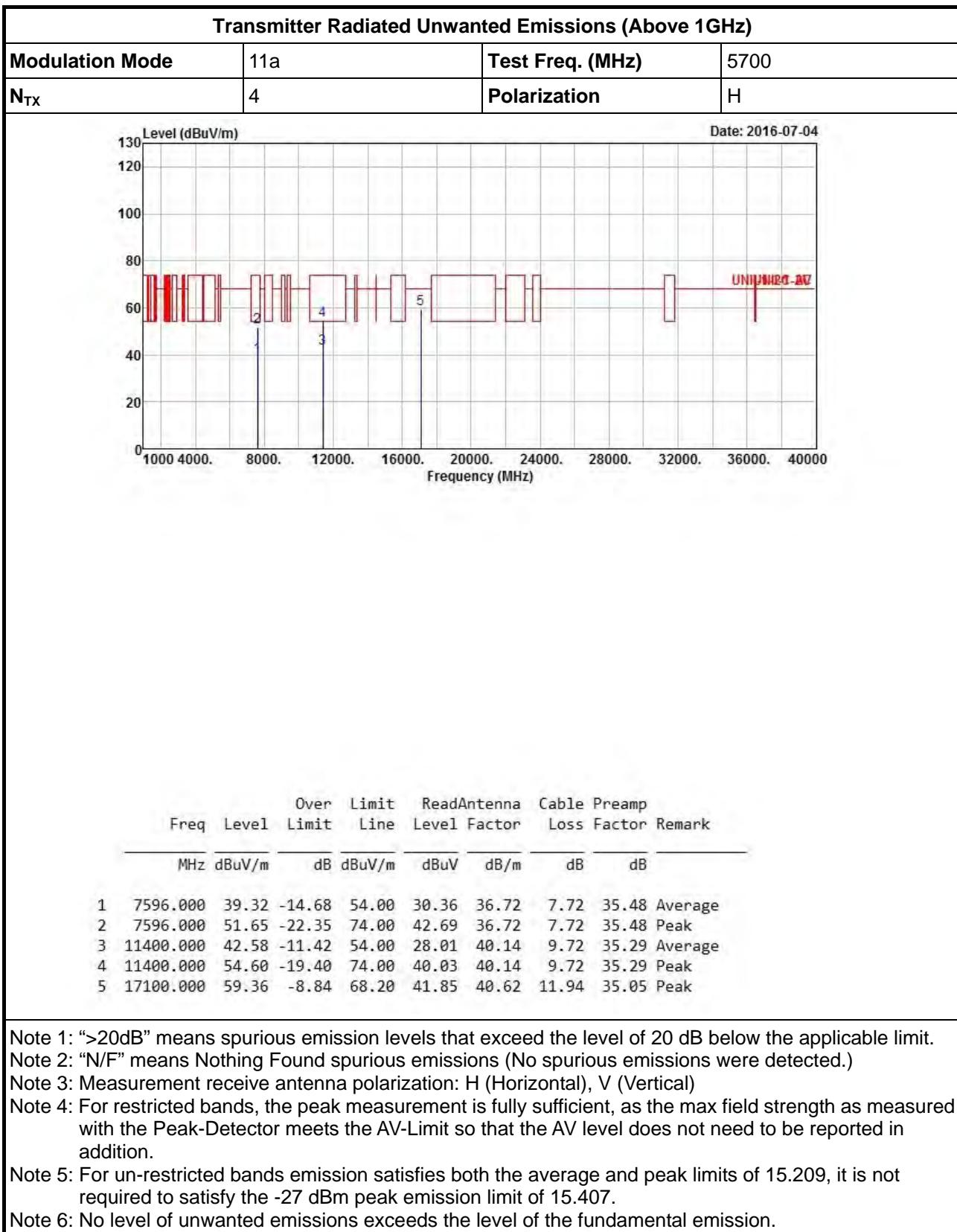






Transmitter Radiated Unwanted Emissions

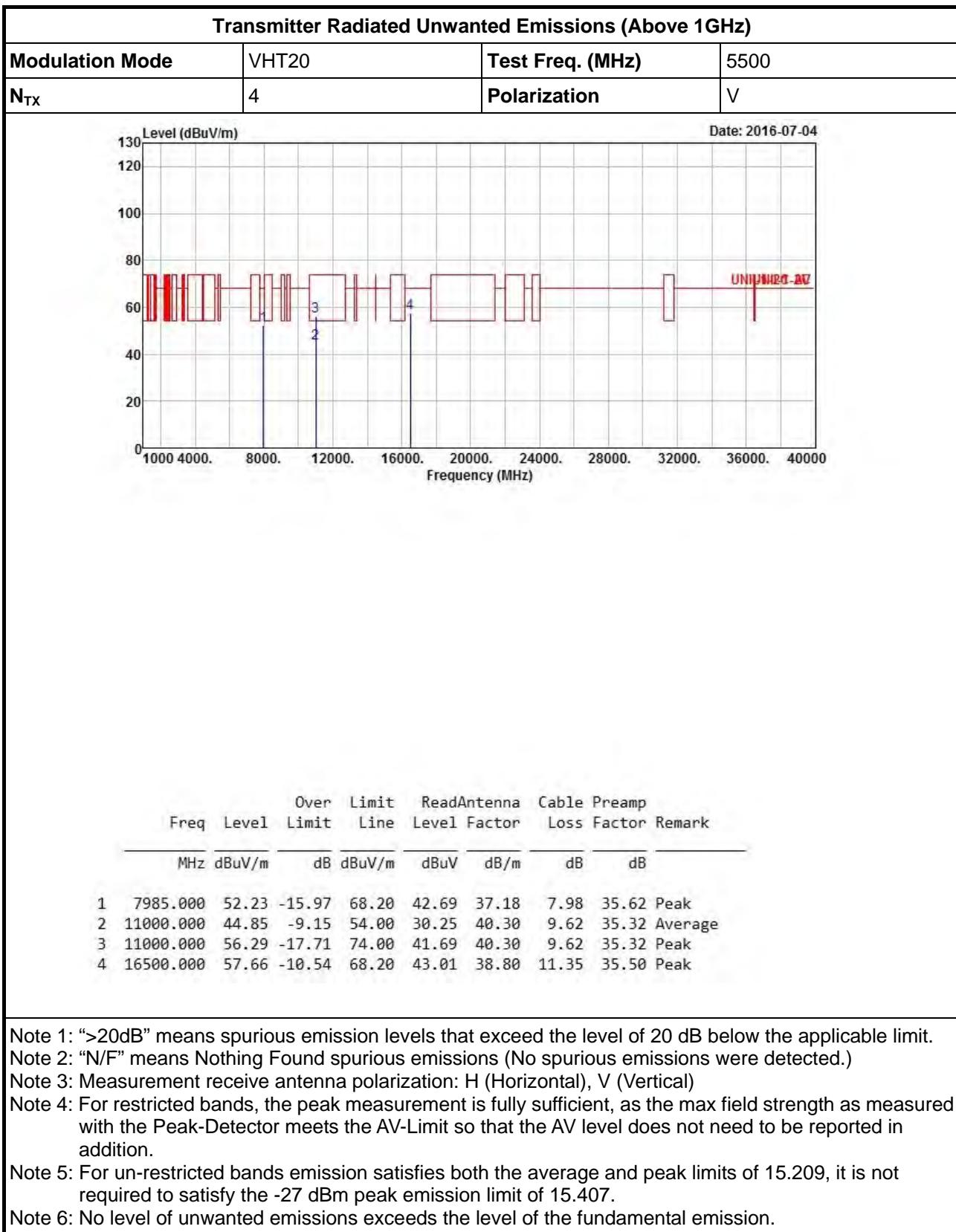
Appendix E





Transmitter Radiated Unwanted Emissions

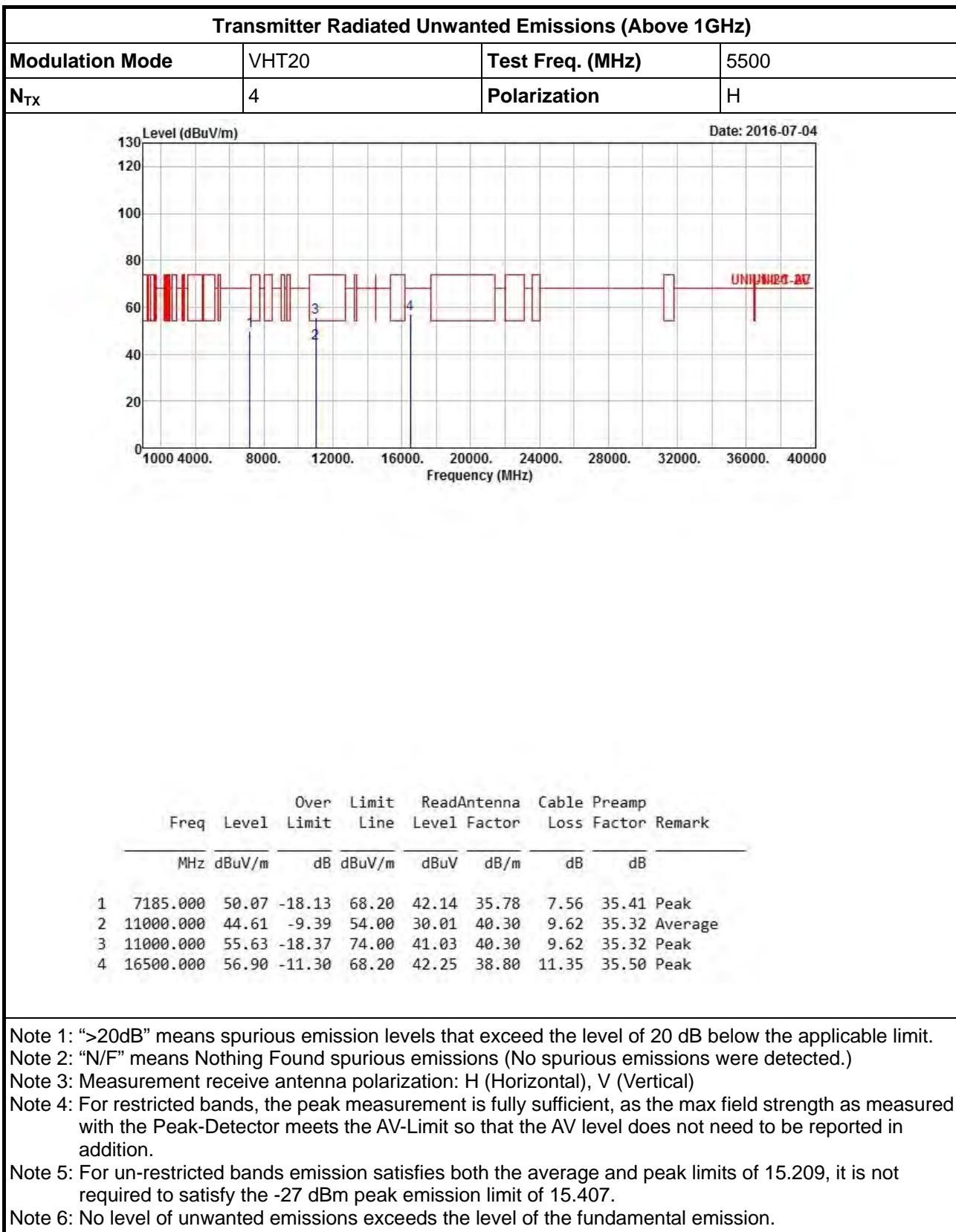
Appendix E





Transmitter Radiated Unwanted Emissions

Appendix E



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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

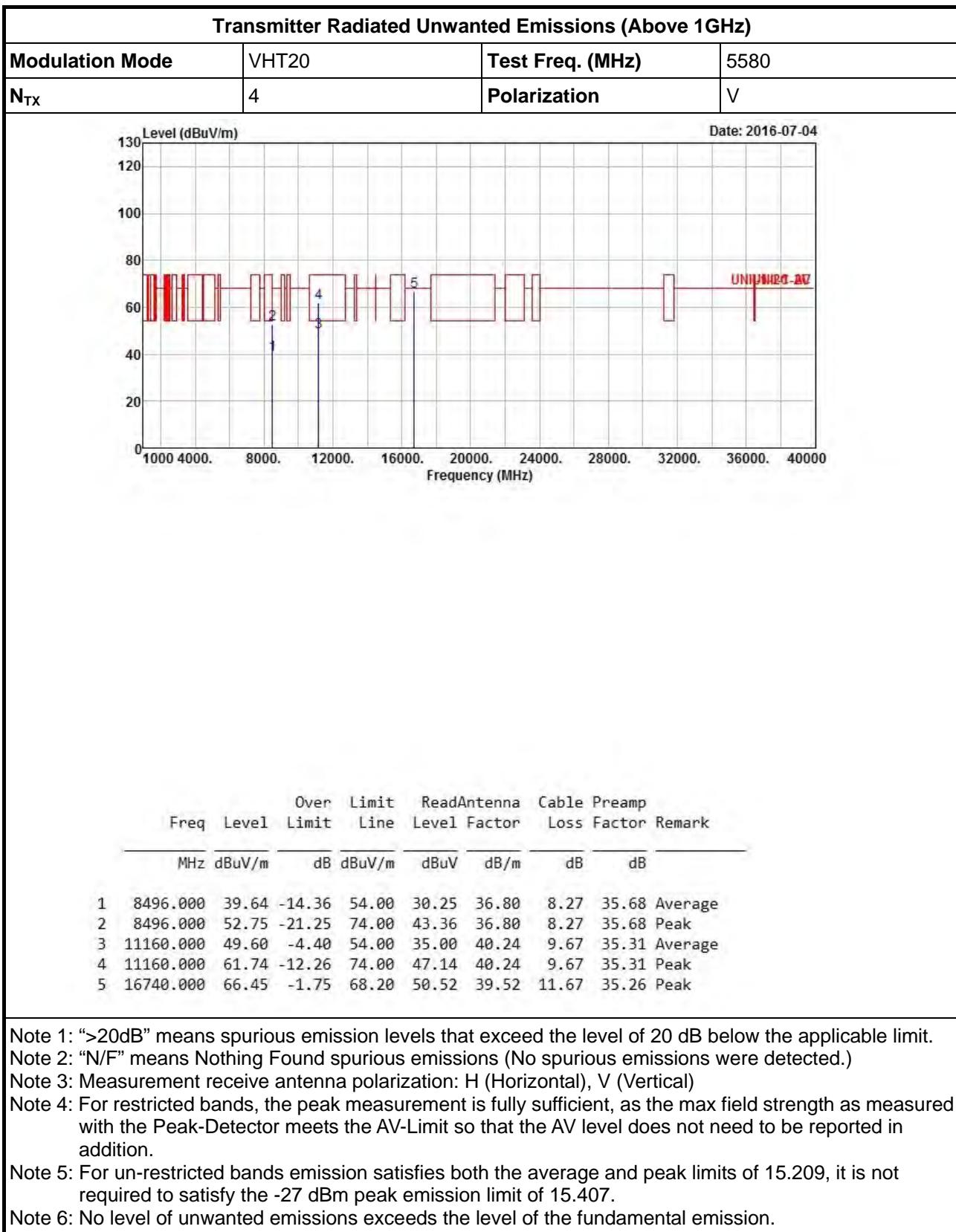
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.



Transmitter Radiated Unwanted Emissions

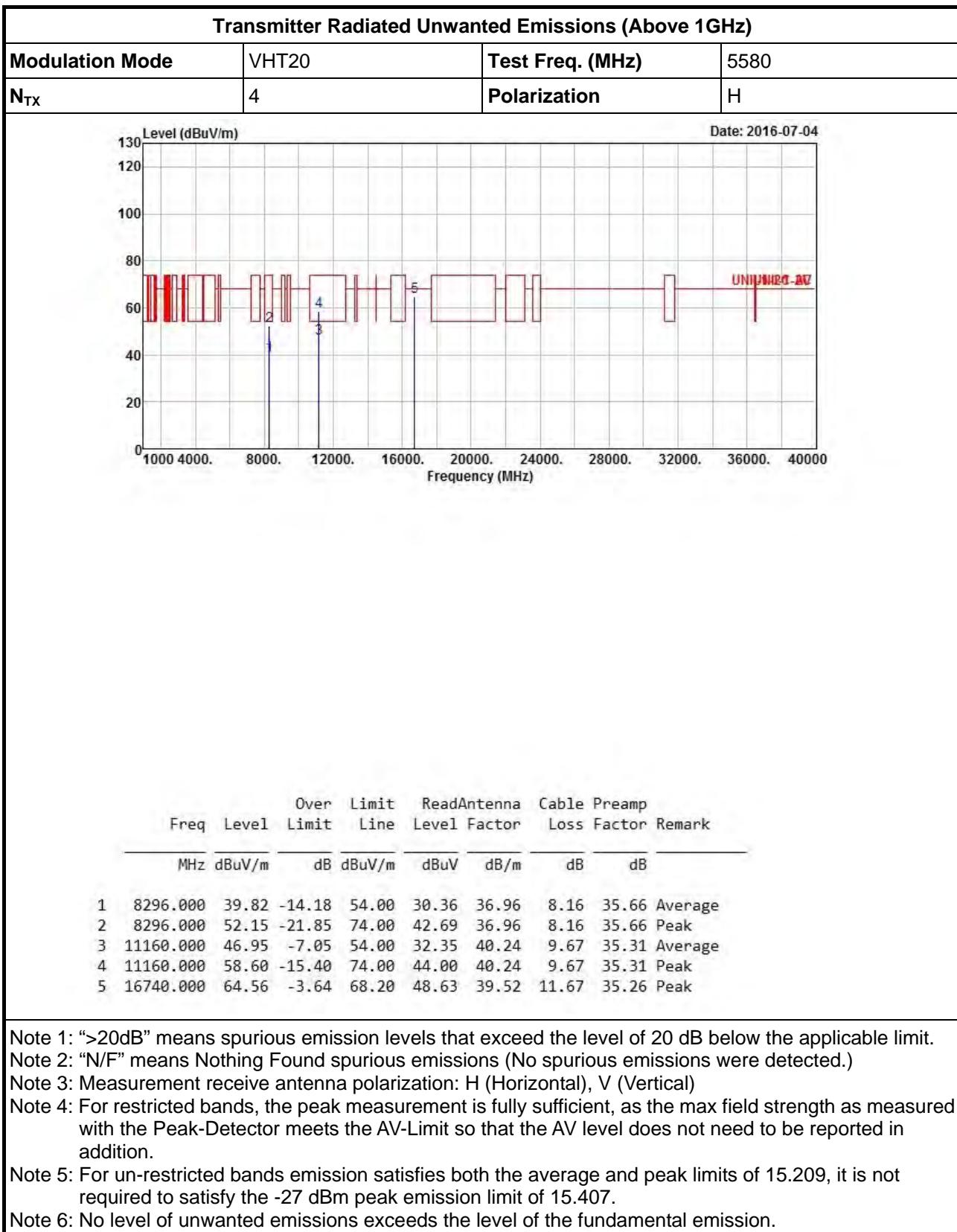
Appendix E





Transmitter Radiated Unwanted Emissions

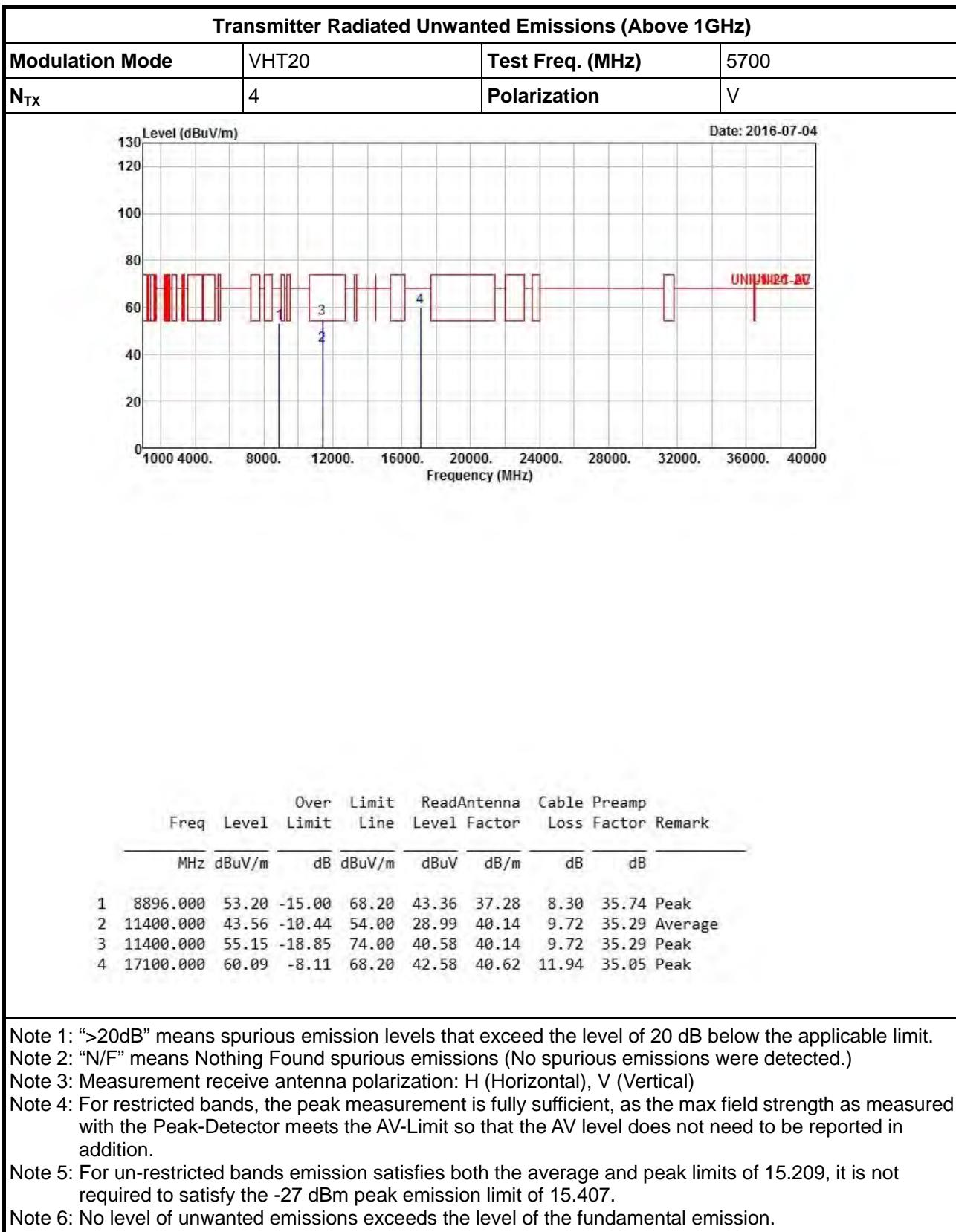
Appendix E





Transmitter Radiated Unwanted Emissions

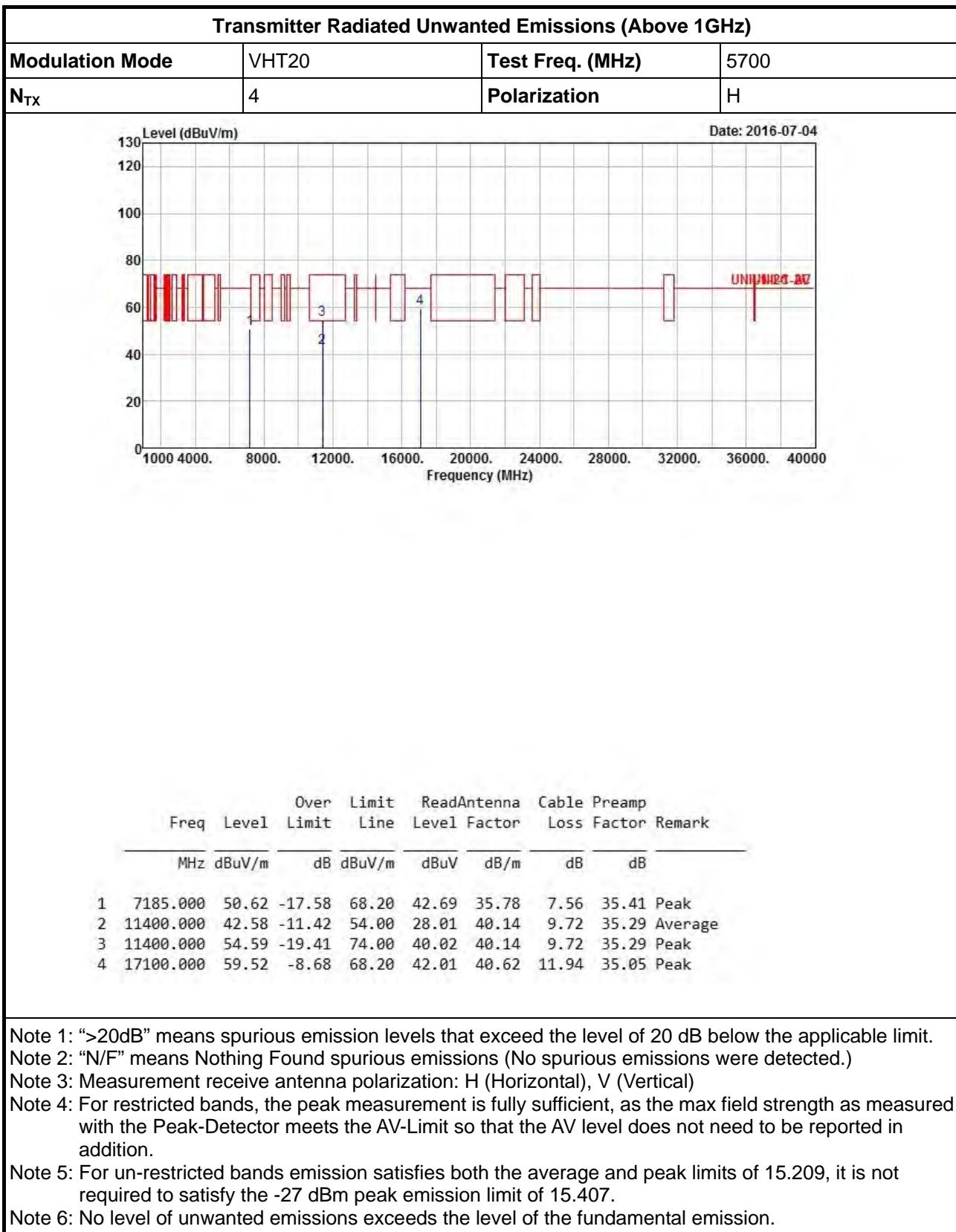
Appendix E





Transmitter Radiated Unwanted Emissions

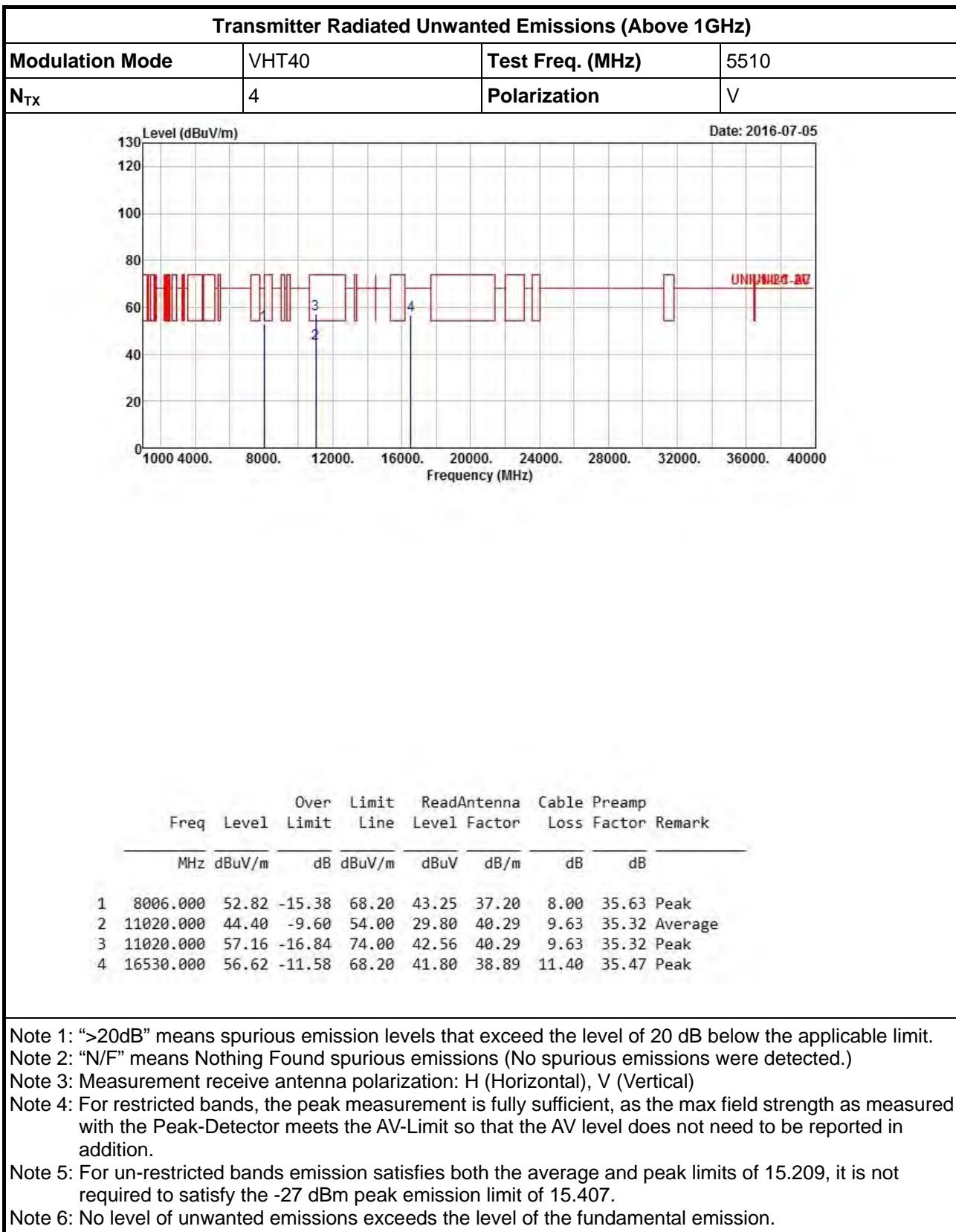
Appendix E





Transmitter Radiated Unwanted Emissions

Appendix E



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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

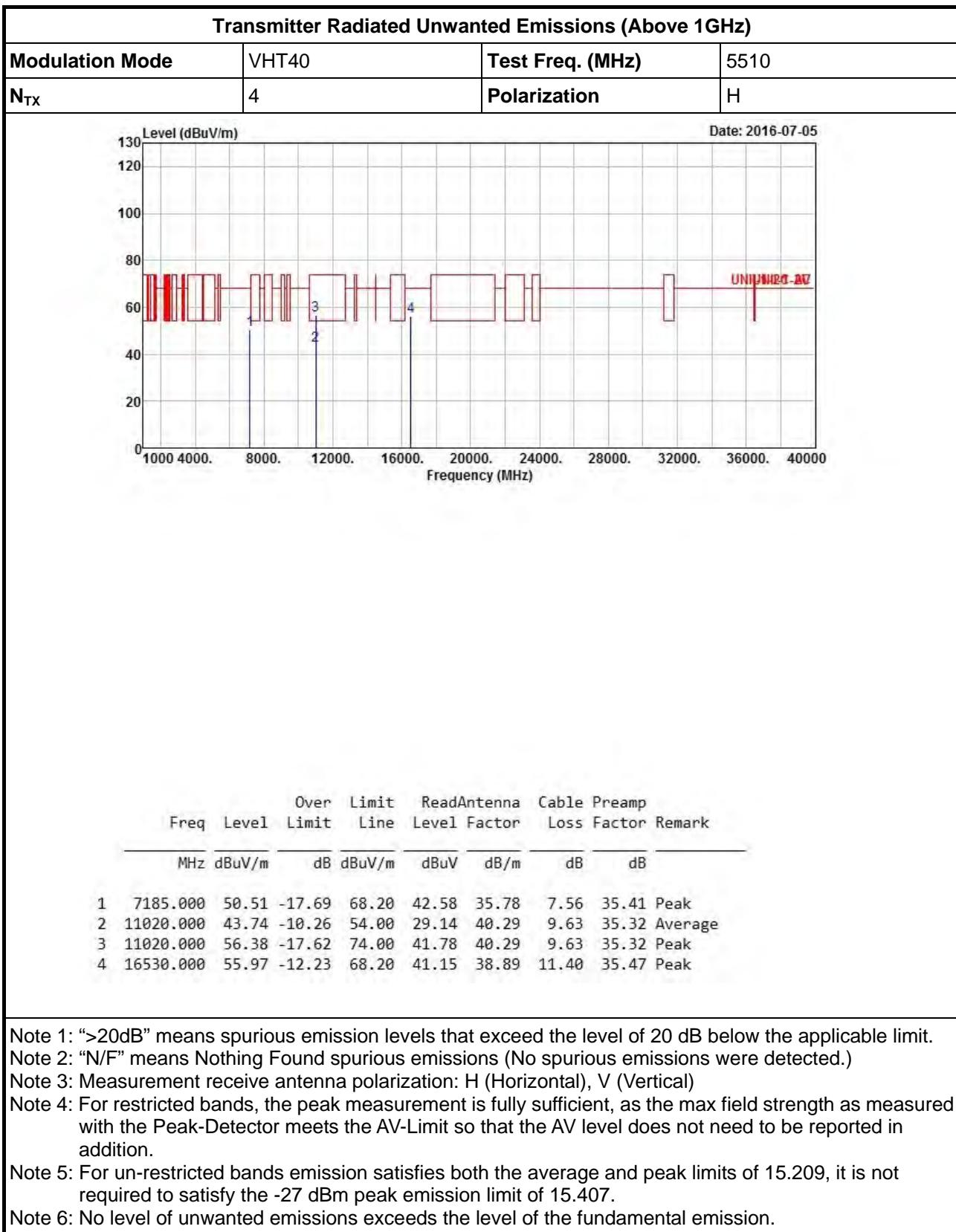
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.



Transmitter Radiated Unwanted Emissions

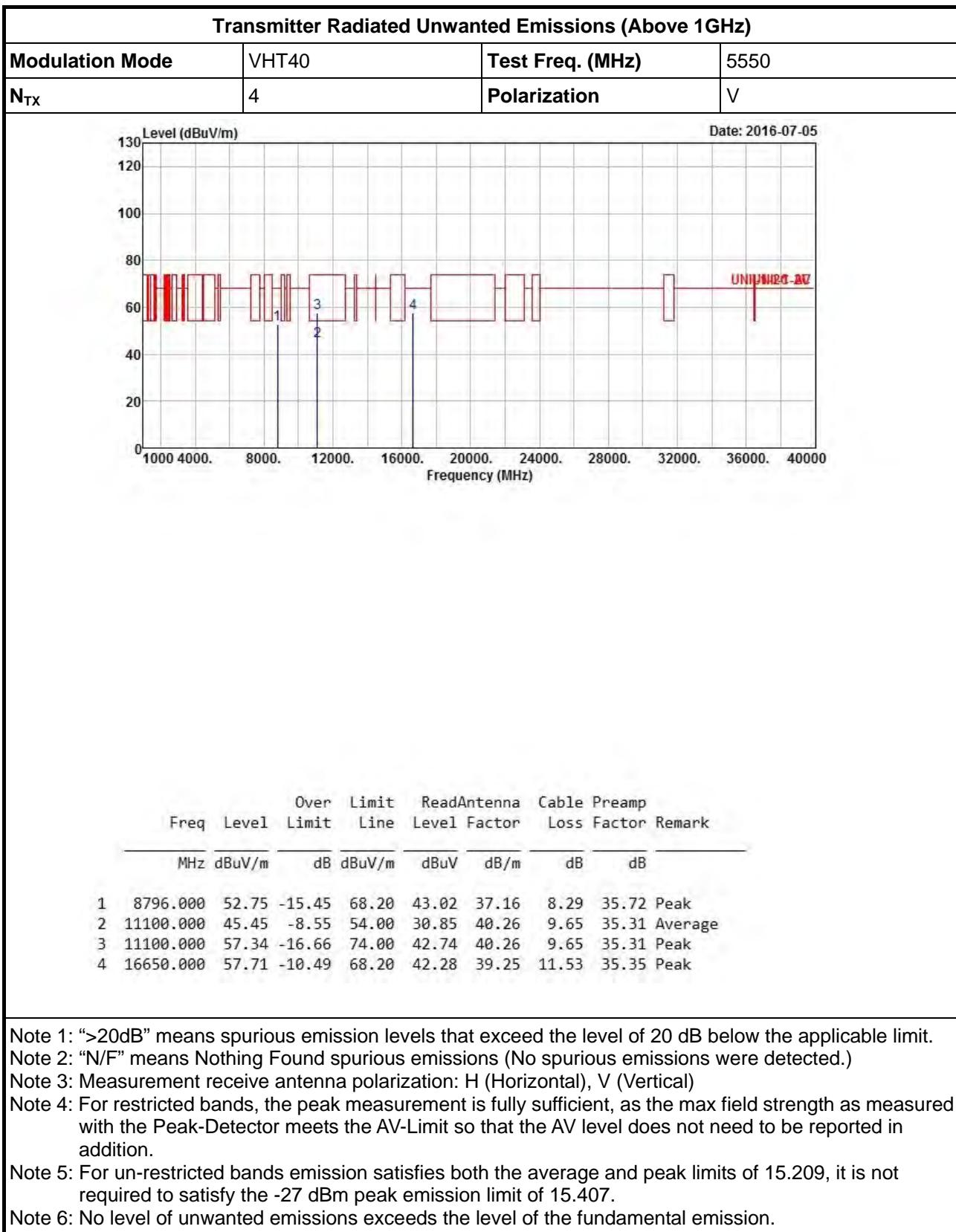
Appendix E





Transmitter Radiated Unwanted Emissions

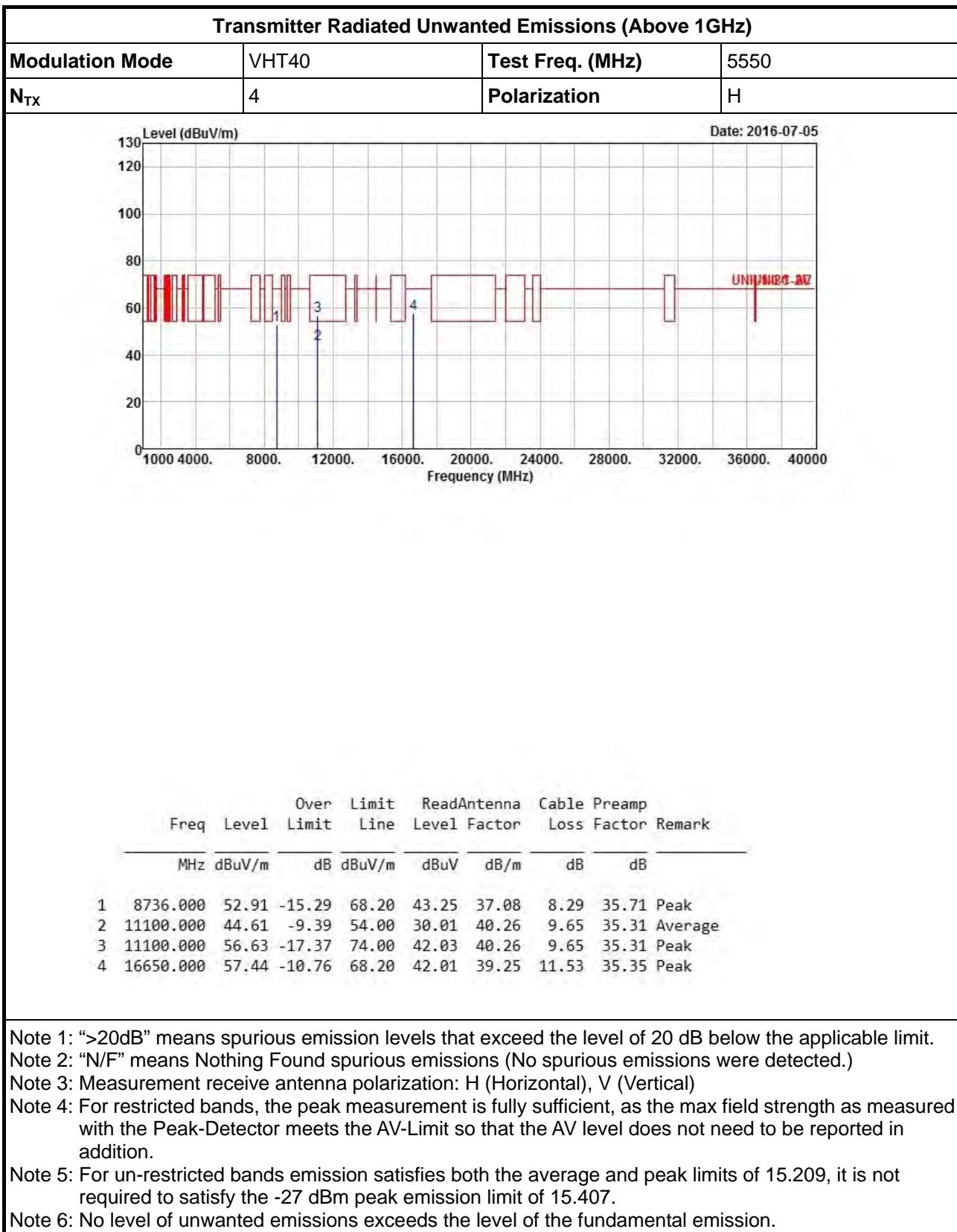
Appendix E





Transmitter Radiated Unwanted Emissions

Appendix E



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

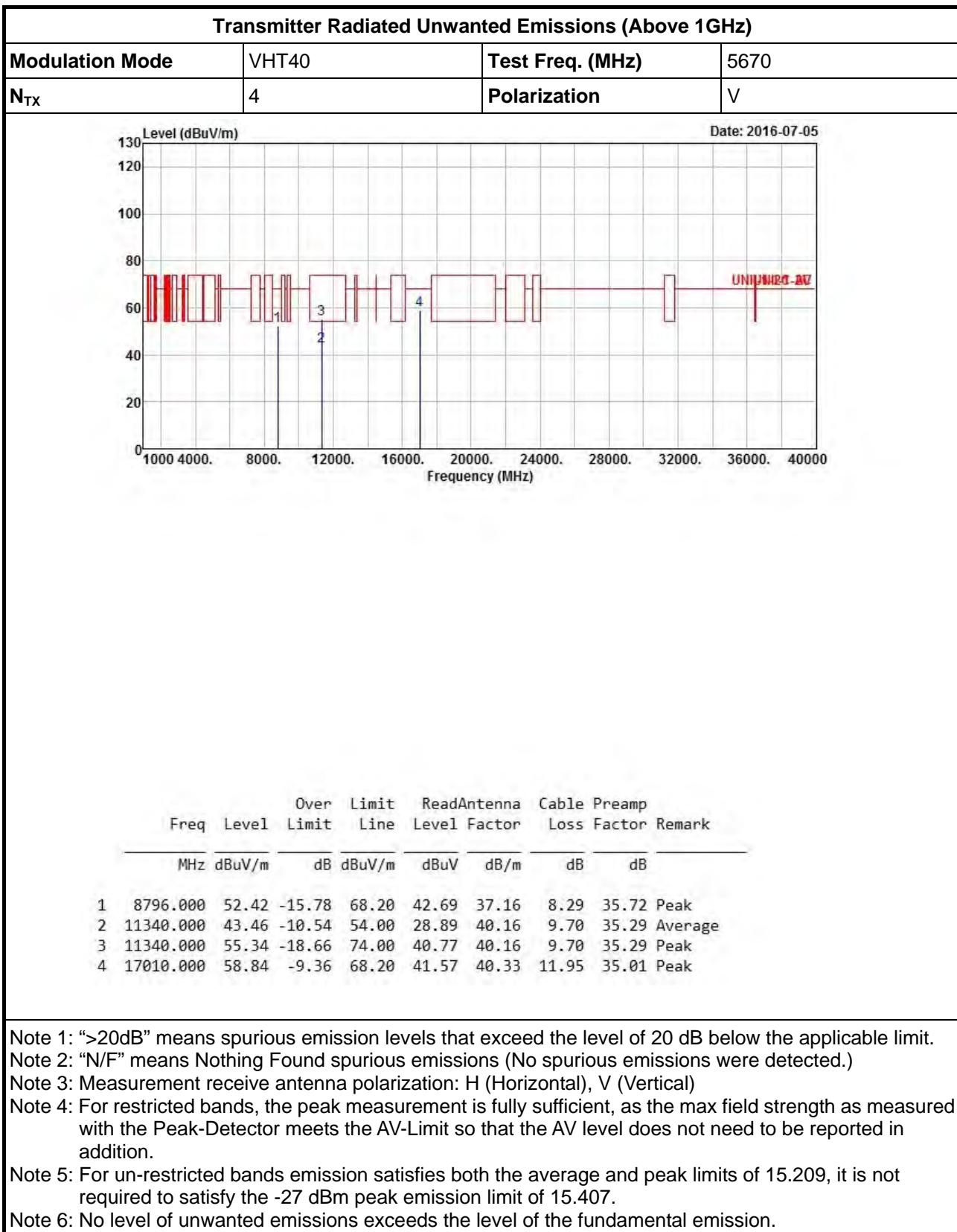
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

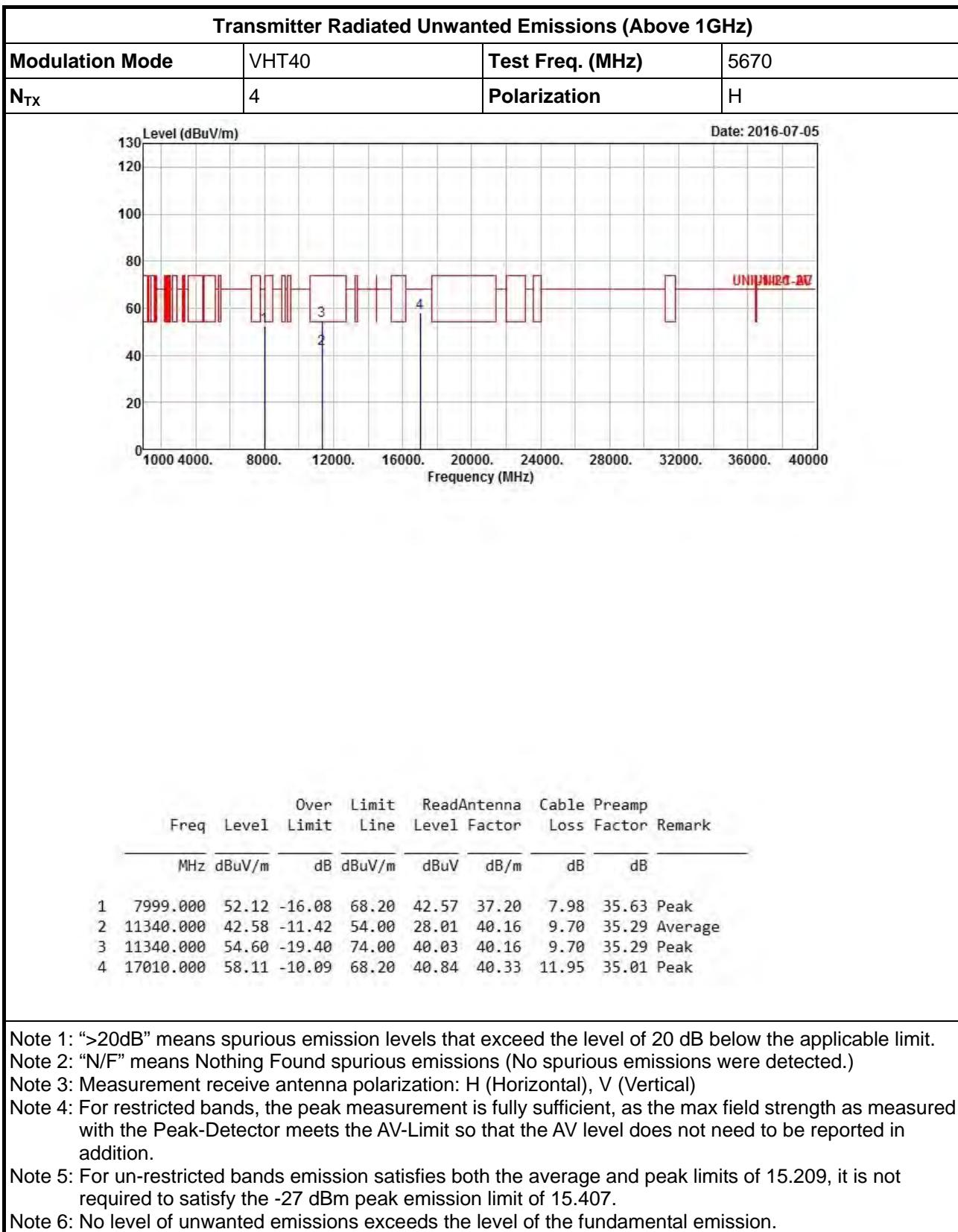
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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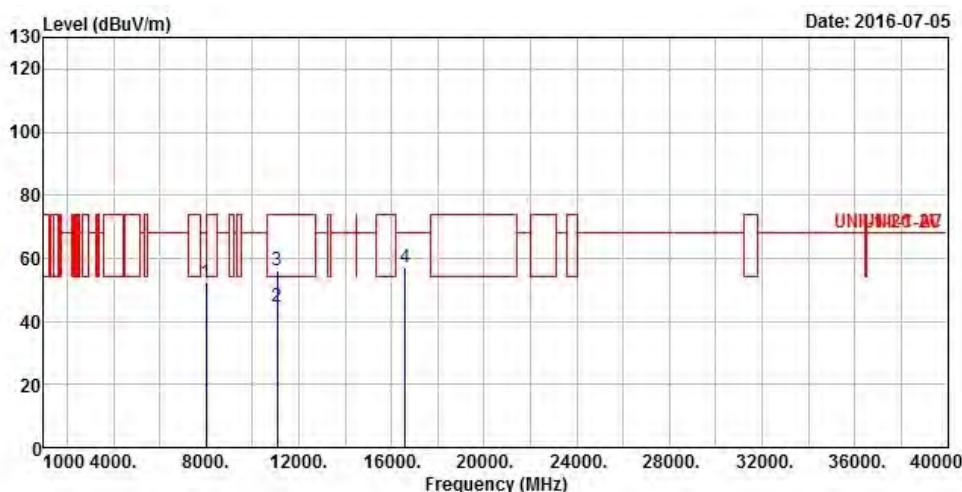






Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80	Test Freq. (MHz)	5530
N_{TX}	4	Polarization	V



Freq	Over Limit		ReadAntenna Level	Cable Factor	Preamp	Remark	
	Level	Limit					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1 8002.000	52.15	-16.05	68.20	42.58	37.20	8.00	35.63 Peak
2 11060.000	44.50	-9.50	54.00	29.90	40.28	9.64	35.32 Average
3 11060.000	56.12	-17.88	74.00	41.52	40.28	9.64	35.32 Peak
4 16590.000	56.91	-11.29	68.20	41.76	39.07	11.49	35.41 Peak

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

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

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

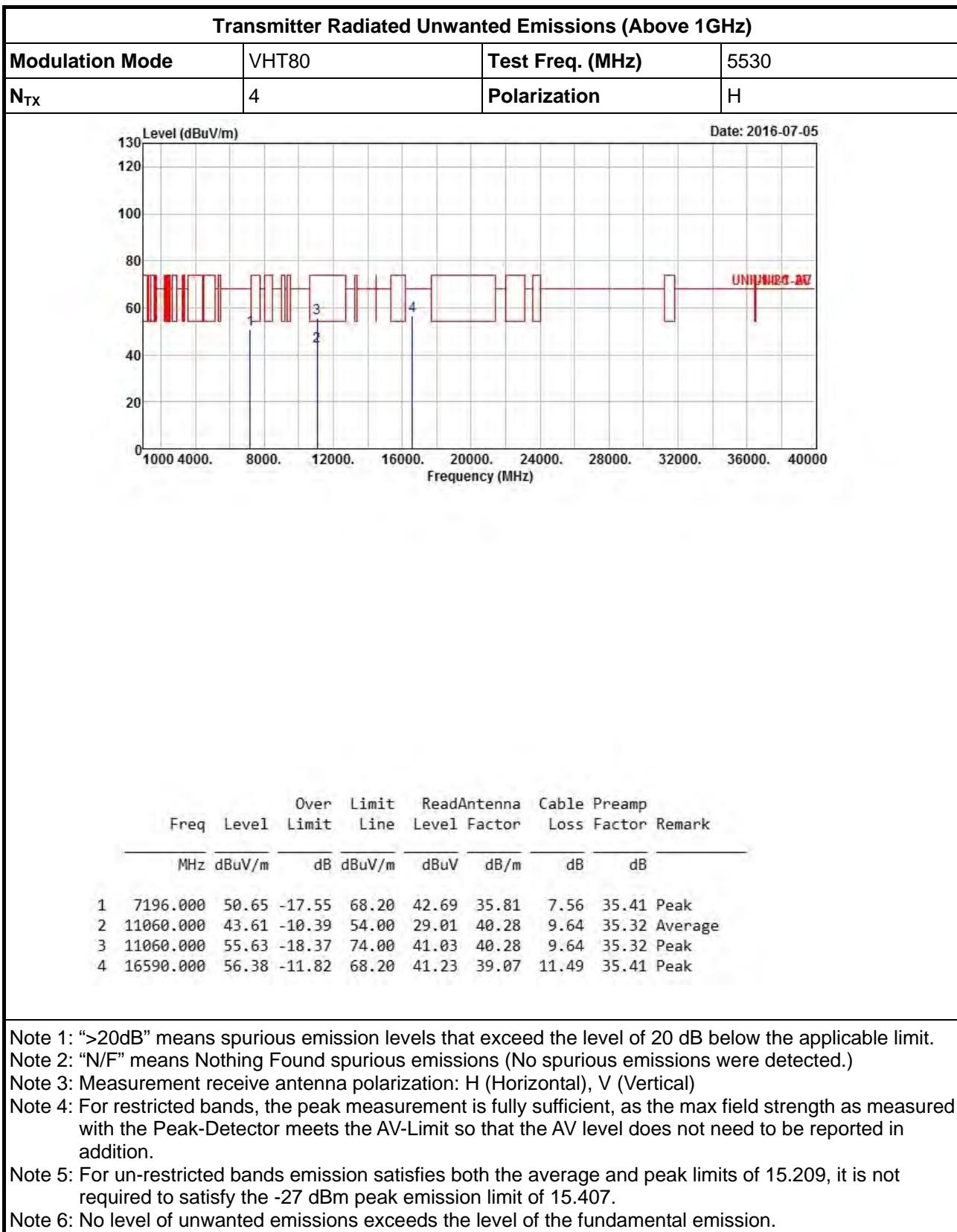
Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

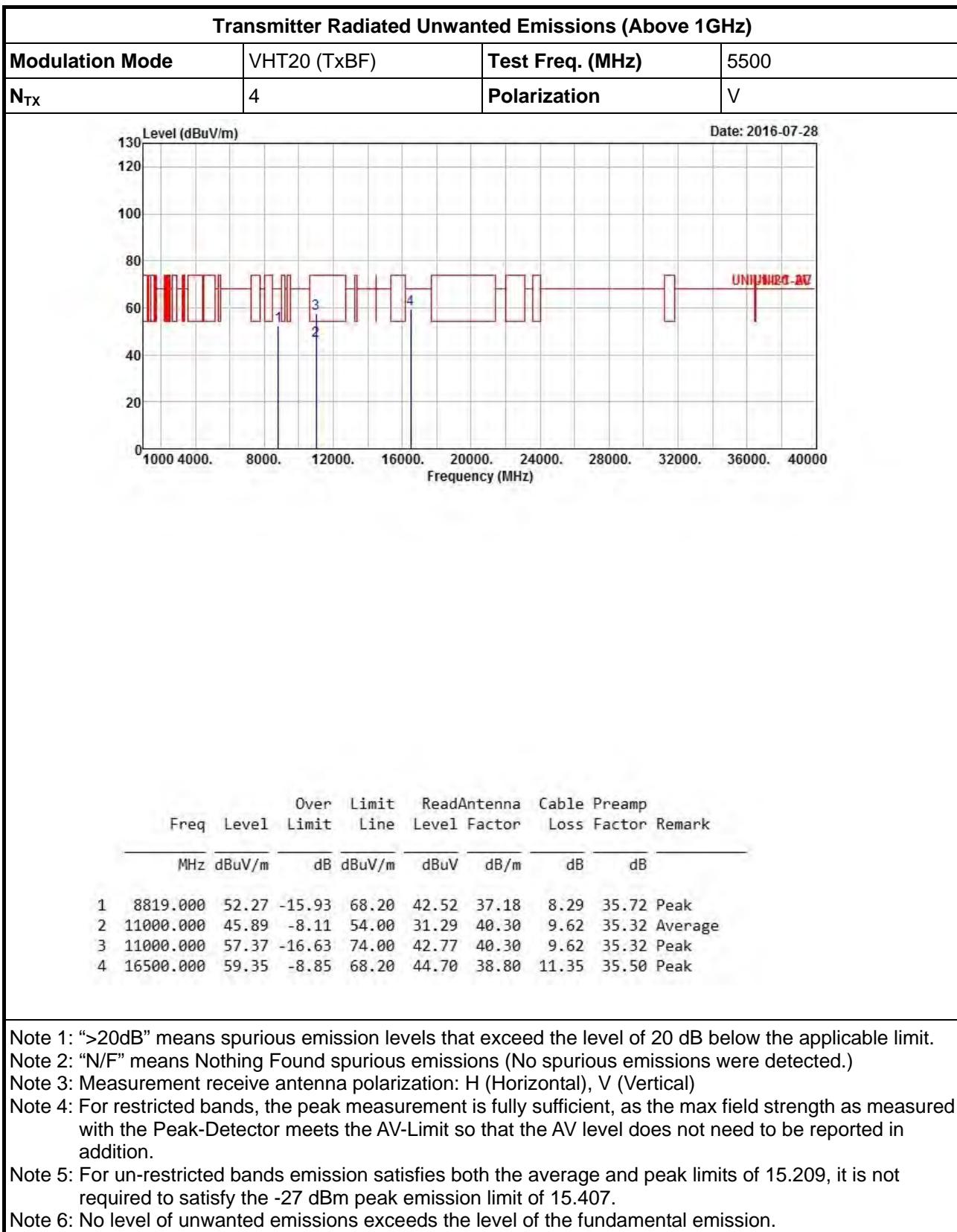
Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

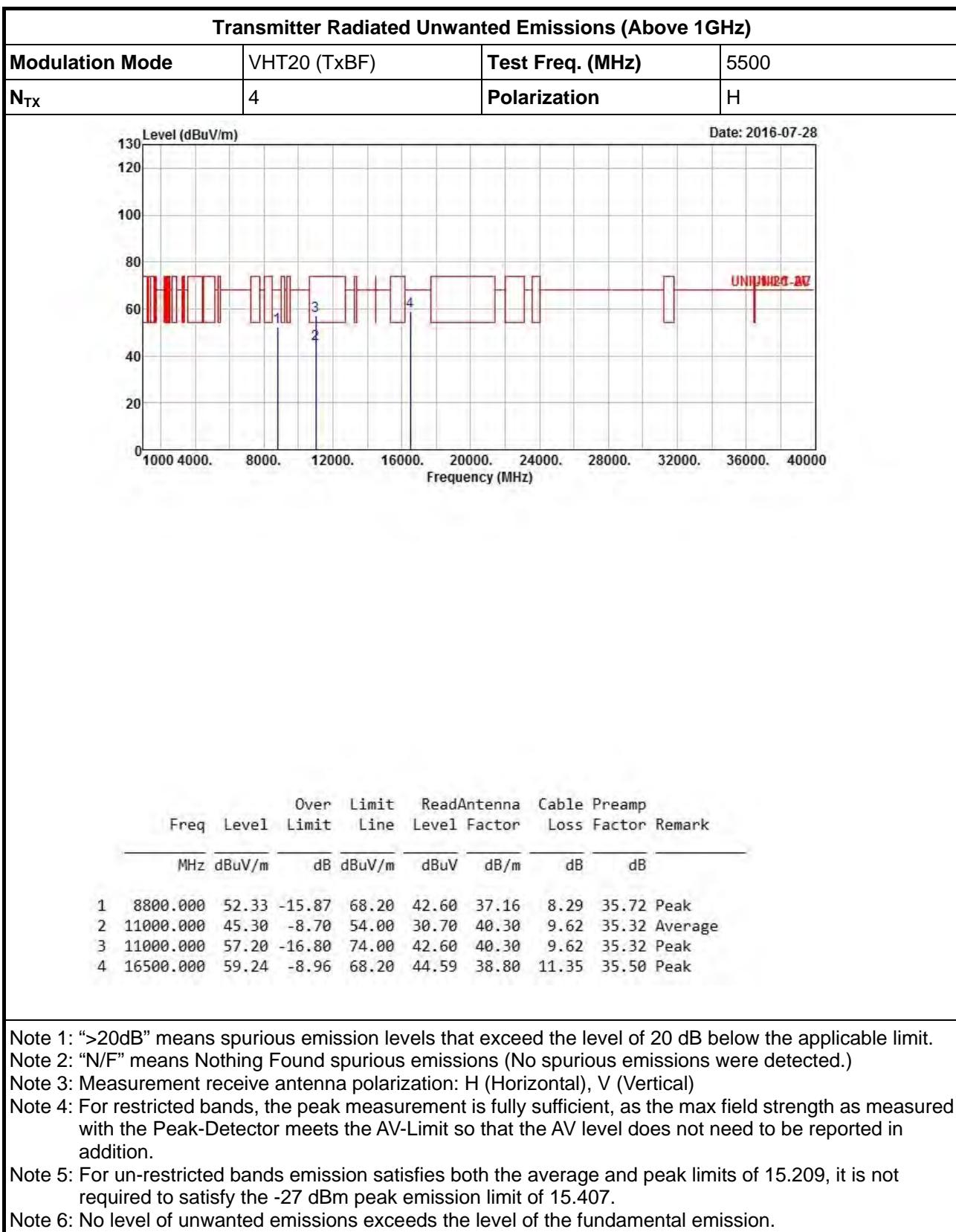


Transmitter Radiated Unwanted Emissions

Appendix E



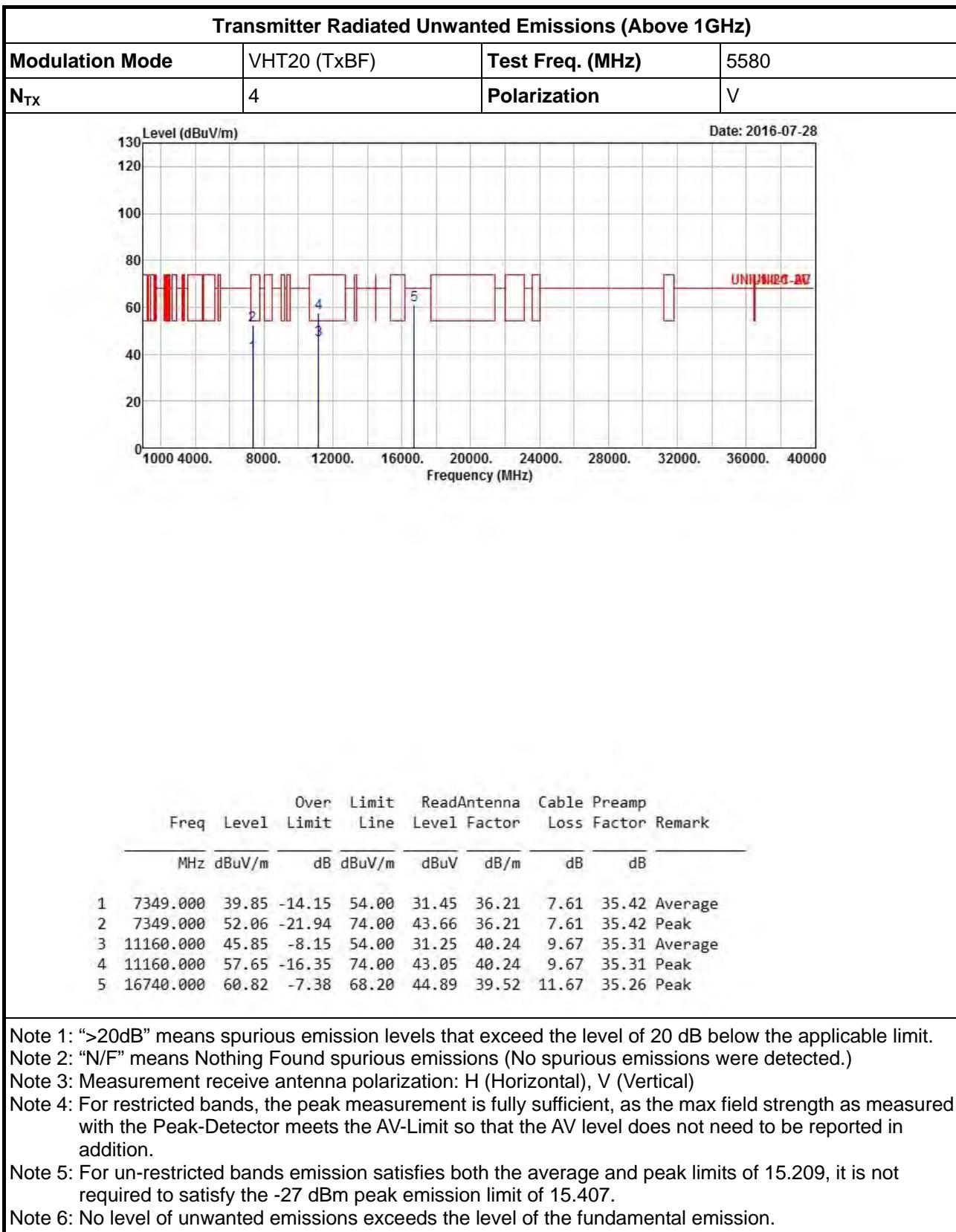






Transmitter Radiated Unwanted Emissions

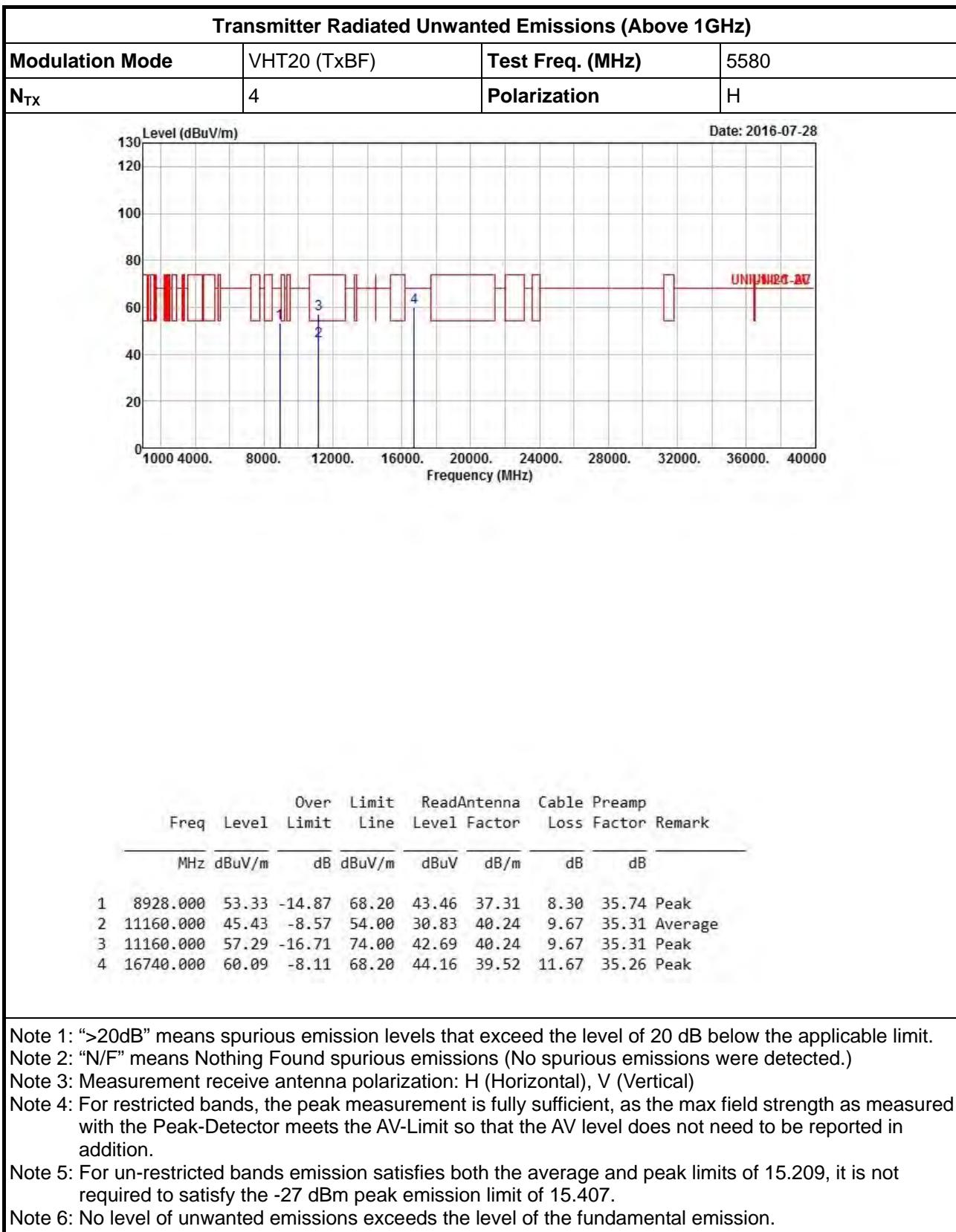
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Transmitter Radiated Unwanted Emissions

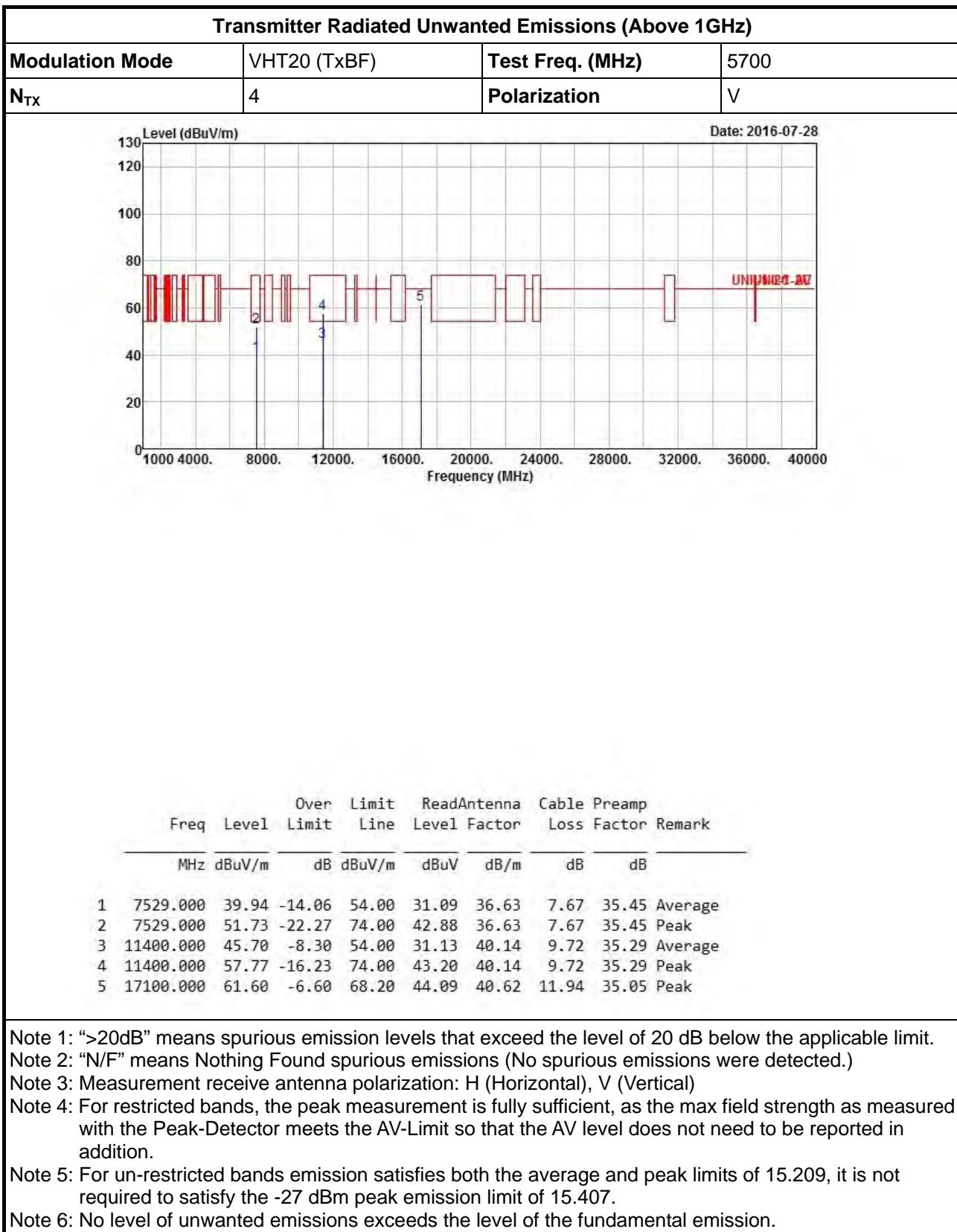
Appendix E

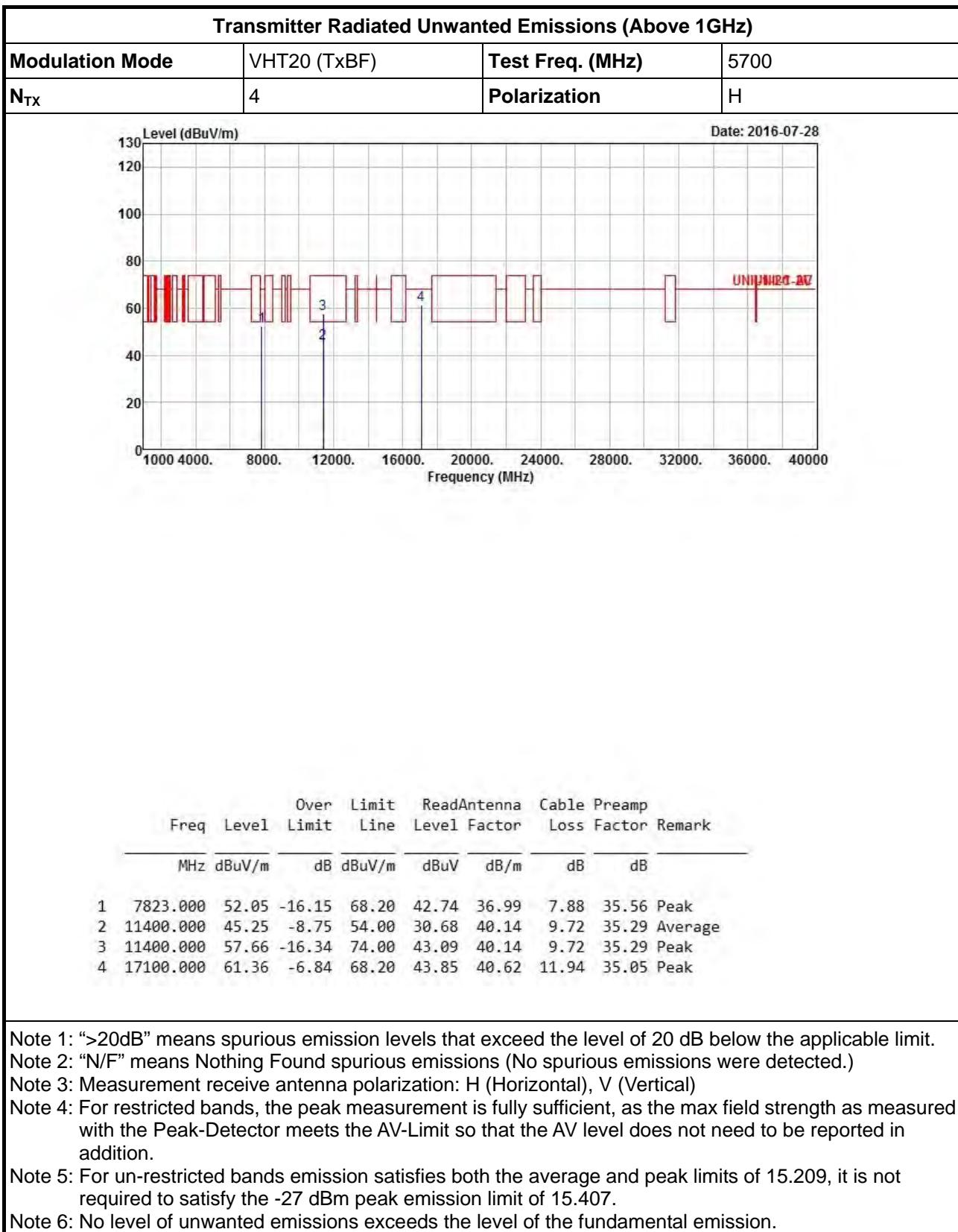




Transmitter Radiated Unwanted Emissions

Appendix E





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

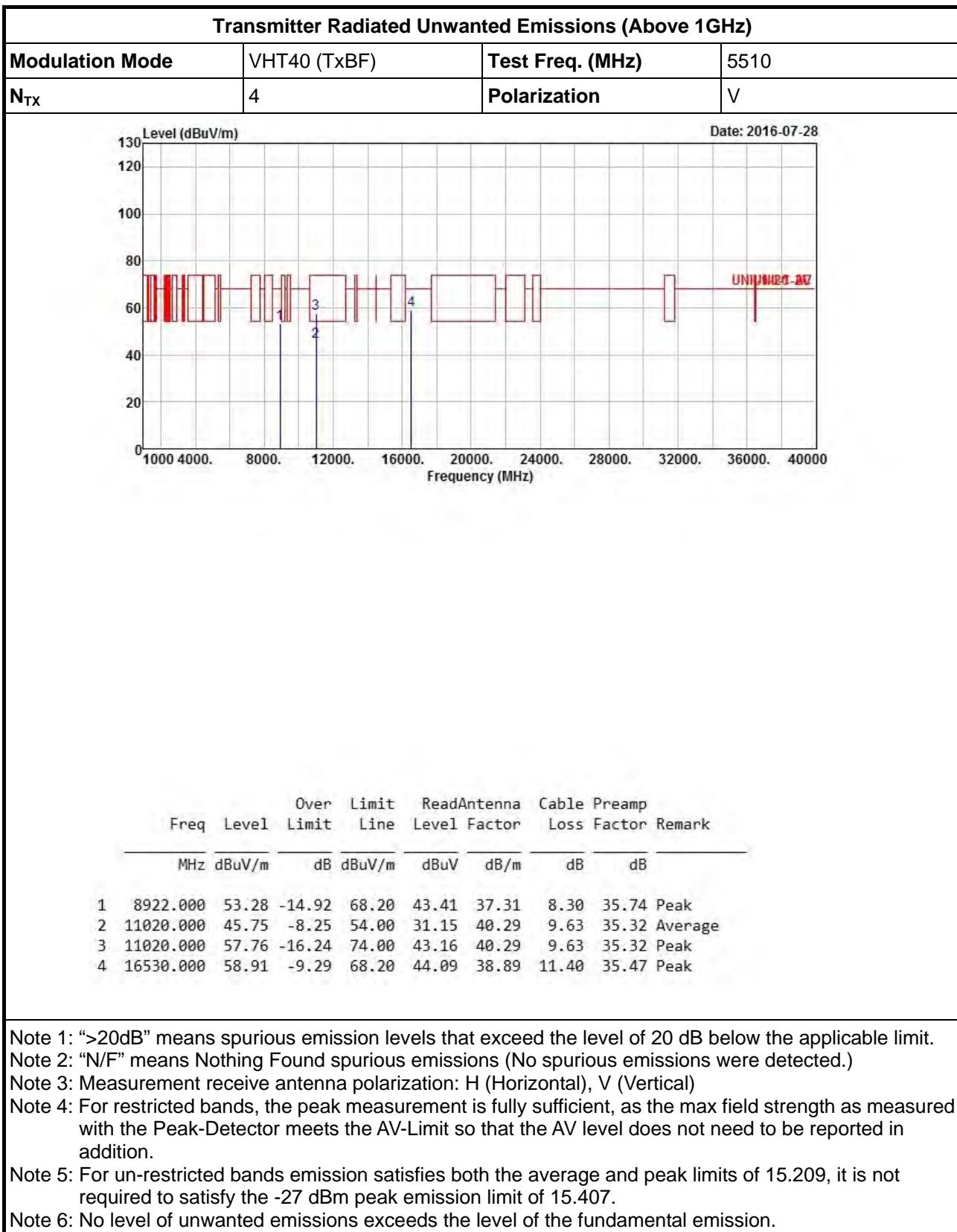
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

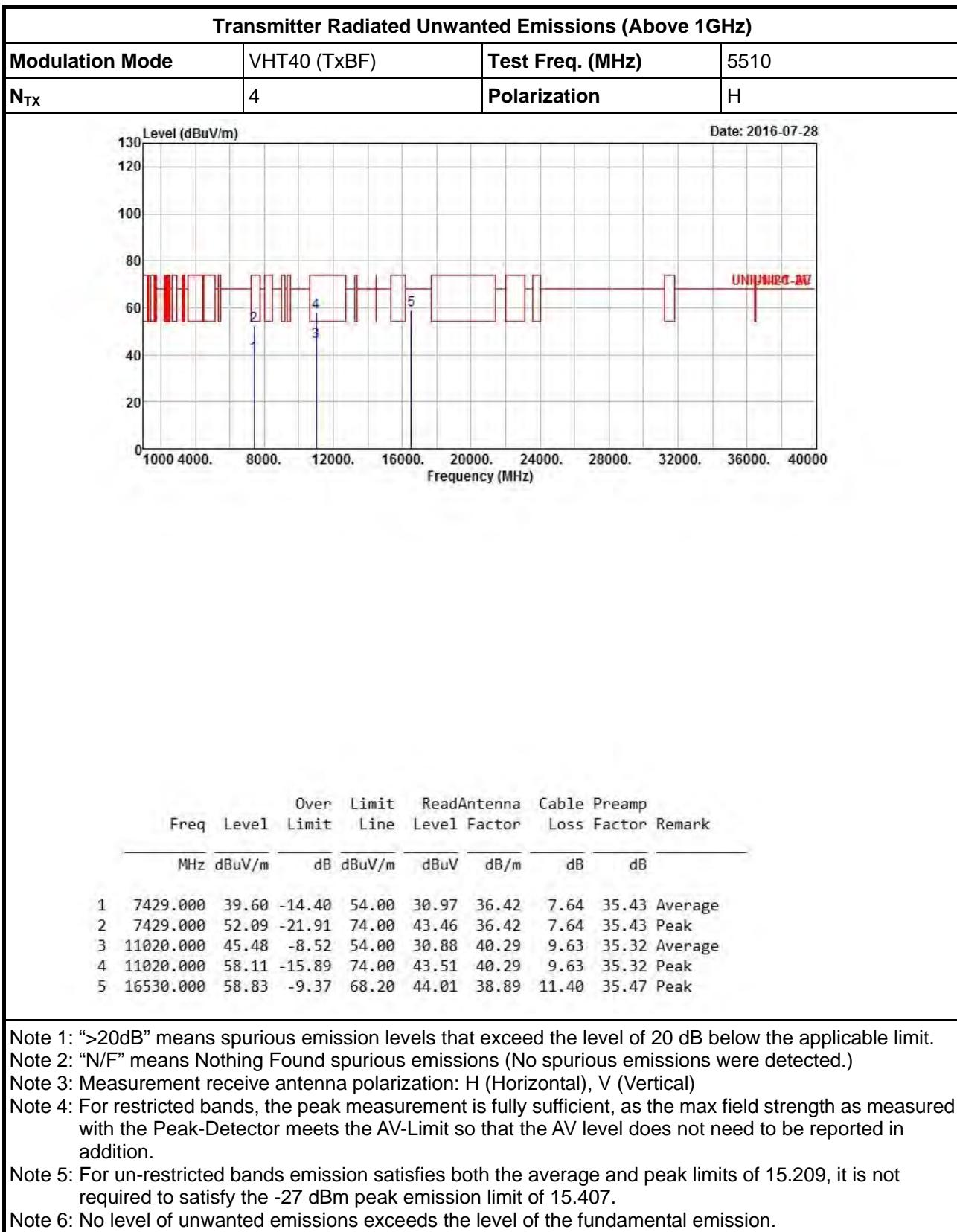
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

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Transmitter Radiated Unwanted Emissions

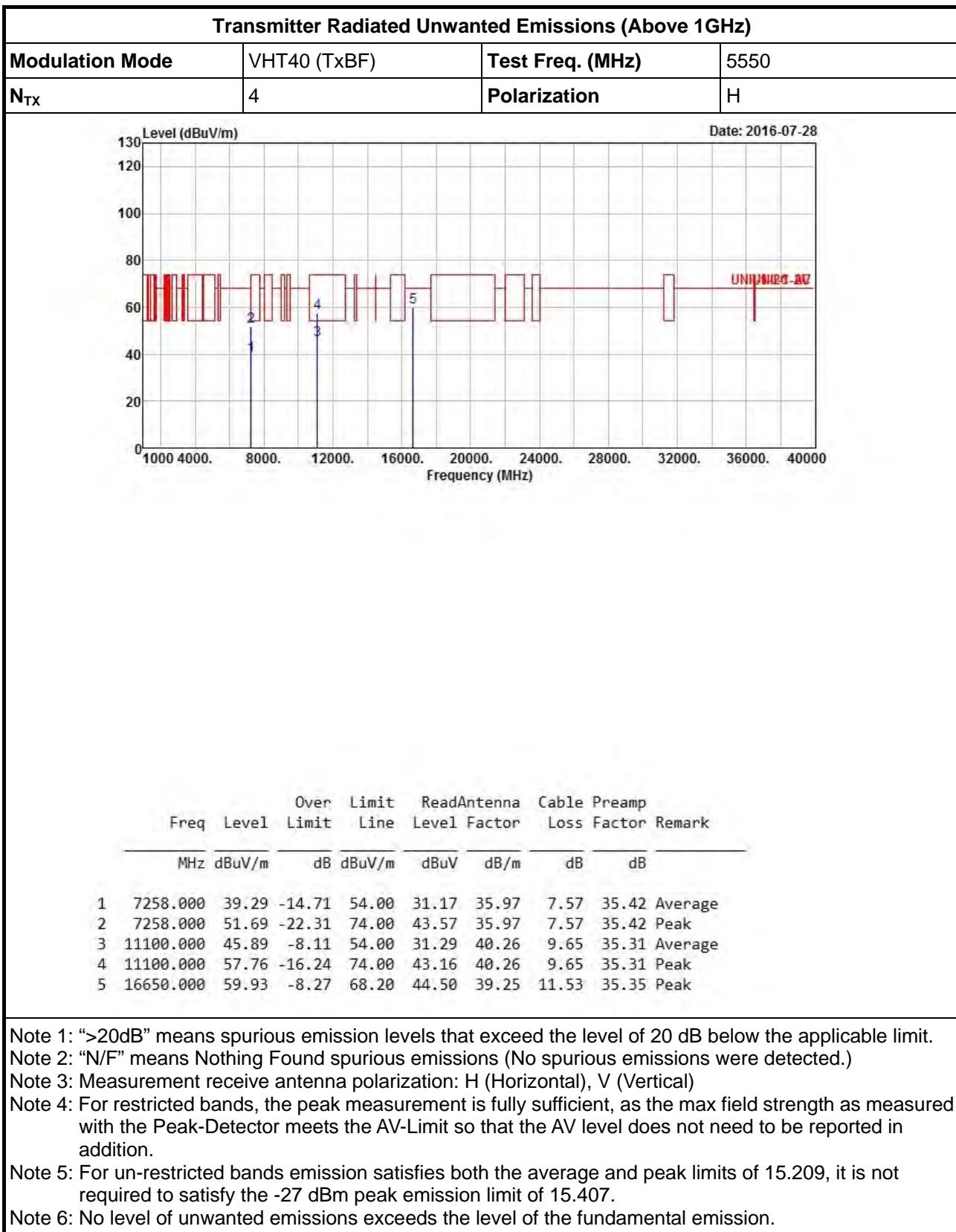
Appendix E

Transmitter Radiated Unwanted Emissions (Above 1GHz)																																																																															
Modulation Mode	VHT40 (TxBF)			Test Freq. (MHz)		5550																																																																									
N _{TX}	4			Polarization		V																																																																									
Level (dBuV/m)									Date: 2016-07-28																																																																						
									UNI/UNII-2A																																																																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Freq</th> <th style="text-align: center;">Over Limit</th> <th style="text-align: center;">Limit</th> <th style="text-align: center;">Read</th> <th style="text-align: center;">Antenna</th> <th style="text-align: center;">Cable</th> <th style="text-align: center;">Preamp</th> <th colspan="3" style="text-align: center;">Remark</th> </tr> <tr> <th style="text-align: center;">MHz</th> <th style="text-align: center;">Level</th> <th style="text-align: center;">Limit</th> <th style="text-align: center;">Line</th> <th style="text-align: center;">Level</th> <th style="text-align: center;">Factor</th> <th style="text-align: center;">Loss</th> <th style="text-align: center;">Factor</th> <th style="text-align: center;"> </th> <th style="text-align: center;"> </th> </tr> <tr> <th style="text-align: center;"> </th> <th style="text-align: center;">dBuV/m</th> <th style="text-align: center;"> </th> <th style="text-align: center;">dB</th> <th style="text-align: center;">dBuV/m</th> <th style="text-align: center;"> </th> <th style="text-align: center;">dBuV</th> <th style="text-align: center;">dB/m</th> <th style="text-align: center;"> </th> <th style="text-align: center;"> </th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">7821.000</td> <td style="text-align: center;">52.56</td> <td style="text-align: center;">-15.64</td> <td style="text-align: center;">68.20</td> <td style="text-align: center;">43.25</td> <td style="text-align: center;">36.99</td> <td style="text-align: center;">7.88</td> <td style="text-align: center;">35.56</td> <td style="text-align: center;">Peak</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">11100.000</td> <td style="text-align: center;">45.98</td> <td style="text-align: center;">-8.02</td> <td style="text-align: center;">54.00</td> <td style="text-align: center;">31.38</td> <td style="text-align: center;">40.26</td> <td style="text-align: center;">9.65</td> <td style="text-align: center;">35.31</td> <td style="text-align: center;">Average</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">11100.000</td> <td style="text-align: center;">58.00</td> <td style="text-align: center;">-16.00</td> <td style="text-align: center;">74.00</td> <td style="text-align: center;">43.40</td> <td style="text-align: center;">40.26</td> <td style="text-align: center;">9.65</td> <td style="text-align: center;">35.31</td> <td style="text-align: center;">Peak</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">16650.000</td> <td style="text-align: center;">59.52</td> <td style="text-align: center;">-8.68</td> <td style="text-align: center;">68.20</td> <td style="text-align: center;">44.09</td> <td style="text-align: center;">39.25</td> <td style="text-align: center;">11.53</td> <td style="text-align: center;">35.35</td> <td style="text-align: center;">Peak</td> </tr> </tbody> </table>										Freq	Over Limit	Limit	Read	Antenna	Cable	Preamp	Remark			MHz	Level	Limit	Line	Level	Factor	Loss	Factor				dBuV/m		dB	dBuV/m		dBuV	dB/m			1	7821.000	52.56	-15.64	68.20	43.25	36.99	7.88	35.56	Peak	2	11100.000	45.98	-8.02	54.00	31.38	40.26	9.65	35.31	Average	3	11100.000	58.00	-16.00	74.00	43.40	40.26	9.65	35.31	Peak	4	16650.000	59.52	-8.68	68.20	44.09	39.25	11.53	35.35	Peak
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Transmitter Radiated Unwanted Emissions

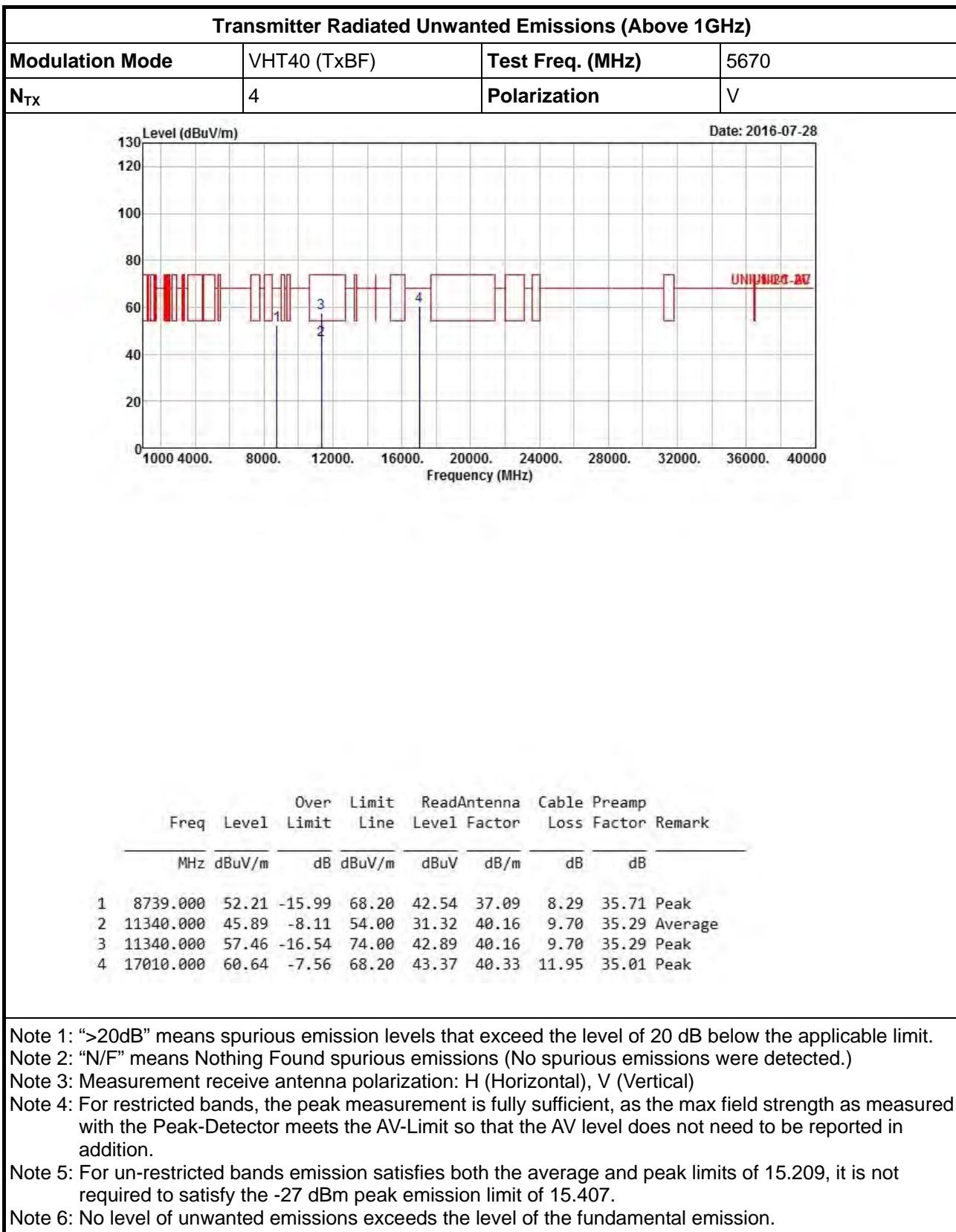
Appendix E

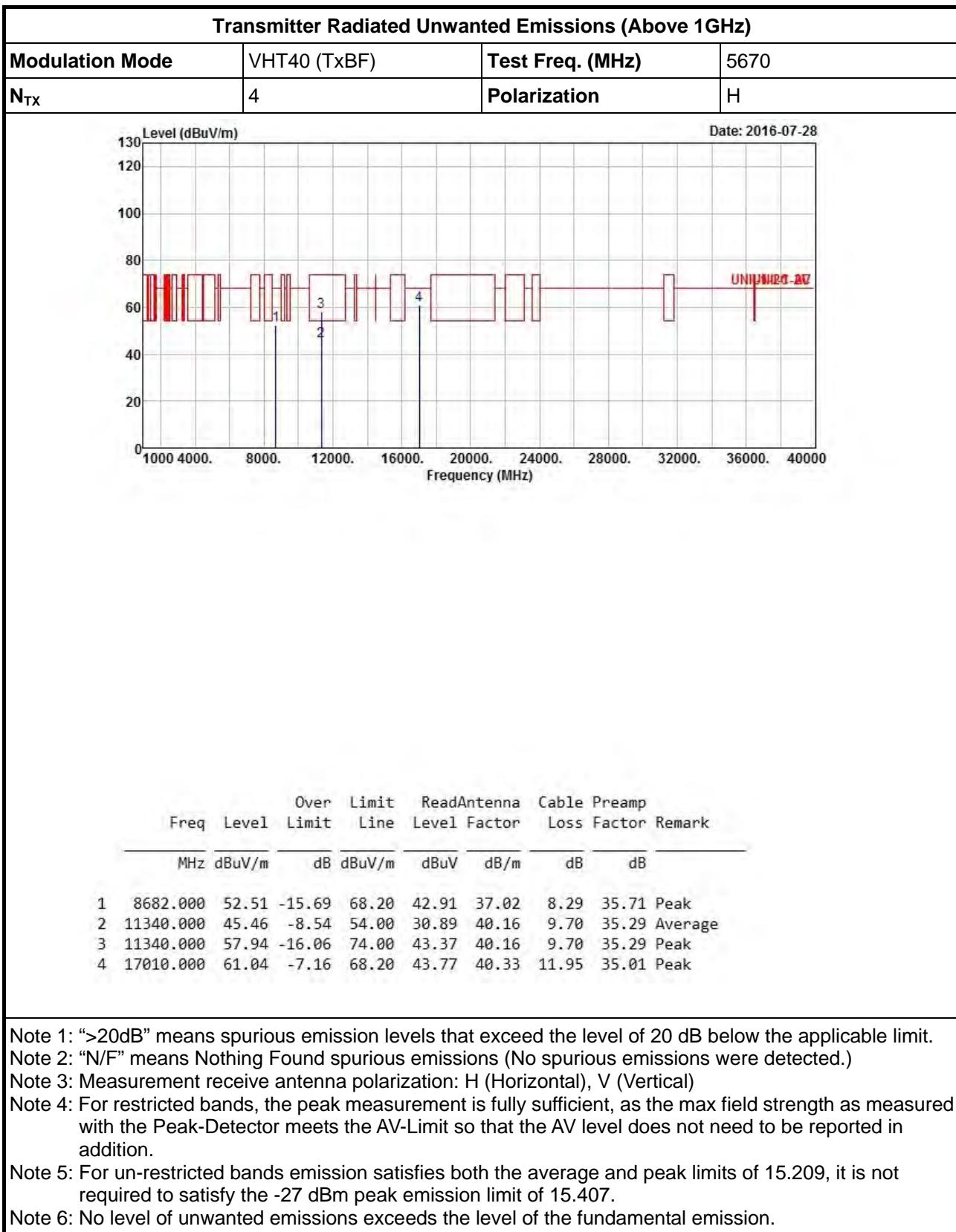




Transmitter Radiated Unwanted Emissions

Appendix E

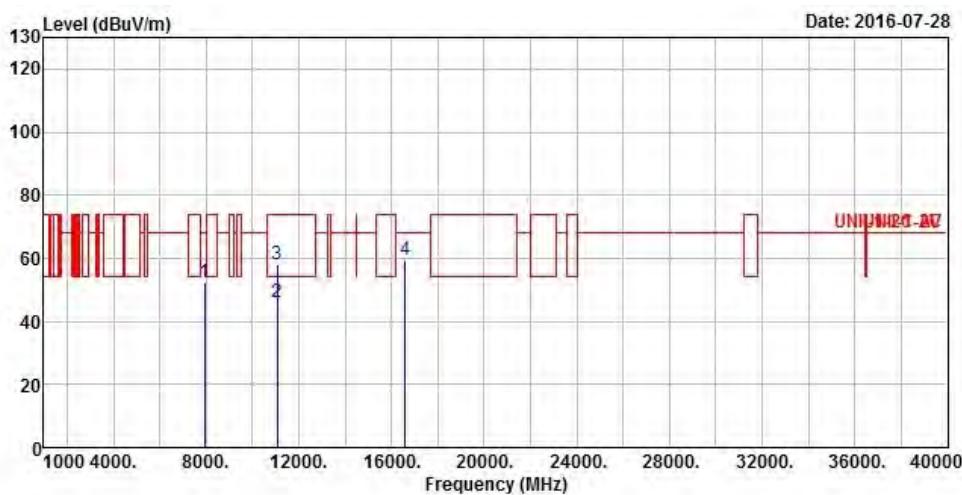






Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80 (TxBF)	Test Freq. (MHz)	5530
N_{TX}	4	Polarization	V



Freq	Over Limit		ReadAntenna Level	Cable Factor	Preamp	Remark	
	Level	Limit					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1 7952.000	52.36	-15.84	68.20	42.88	37.14	7.95	35.61 Peak
2 11060.000	46.05	-7.95	54.00	31.45	40.28	9.64	35.32 Average
3 11060.000	57.85	-16.15	74.00	43.25	40.28	9.64	35.32 Peak
4 16590.000	59.40	-8.80	68.20	44.25	39.07	11.49	35.41 Peak

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

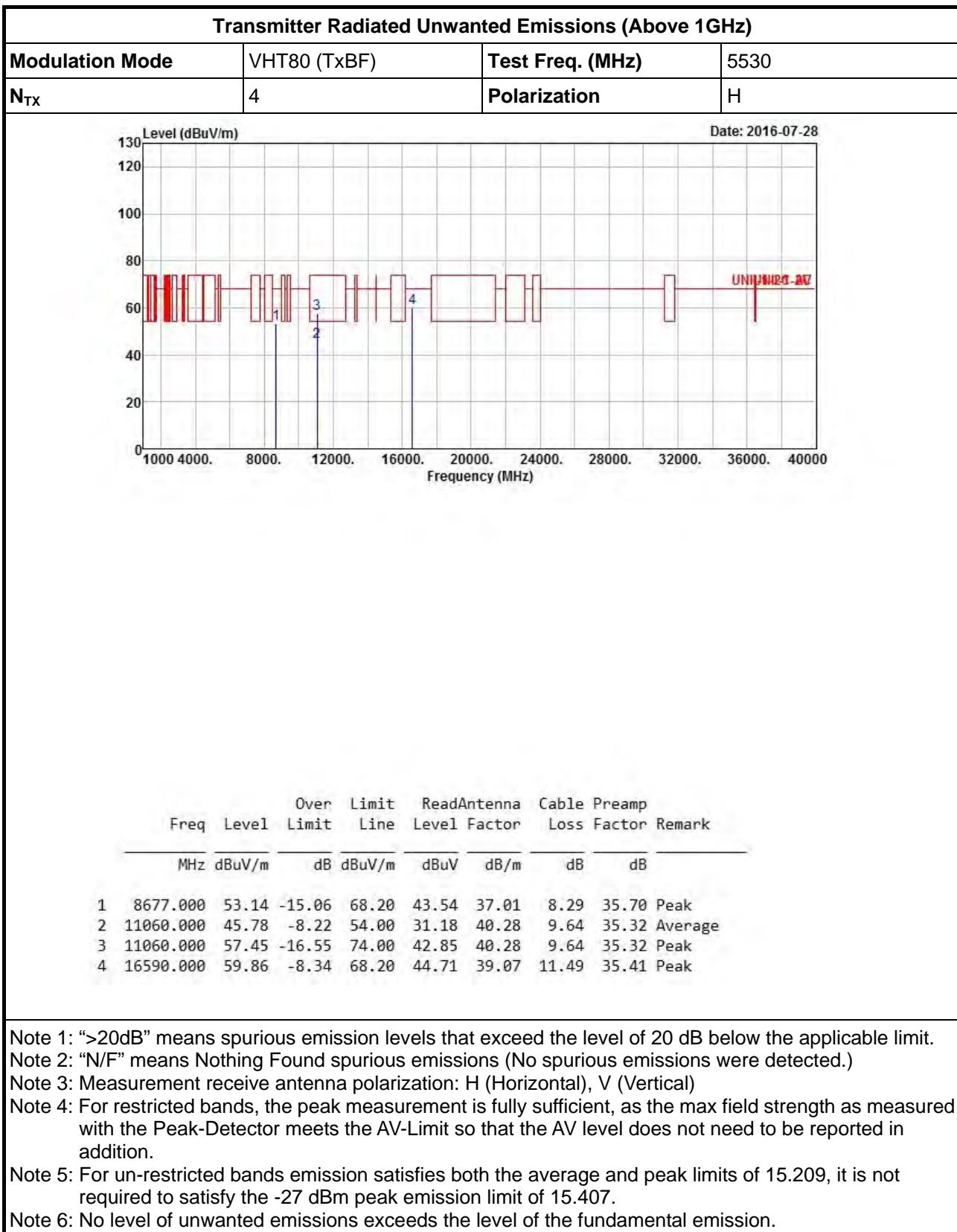
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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Note 5: For un-restricted bands emission satisfies both the average and peak limits of 15.209, it is not required to satisfy the -27 dBm peak emission limit of 15.407.

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.



Summary

Mode	Result	Ch (Hz)	Center (Hz)	Fl (Hz)	Fh (Hz)	ppm	Limit (ppm)	Port	Remark
5.3G;11a;20;1;4;5300;M;T0;VN	Pass	5.3G	5.30003444G	NaN	NaN	6.499	20	1	10 min



Result

Mode	Result	Ch (Hz)	Center (Hz)	Fl (Hz)	Fh (Hz)	ppm	Limit (ppm)	Port	Remark
5.3G;11a;20;1;4;5300;M;TN,VL	Pass	5.3G	5.30001596G	NaN	NaN	3.011	20	1	0 min
5.3G;11a;20;1;4;5300;M;TN,VL	Pass	5.3G	5.30001594G	NaN	NaN	3.007	20	1	2 min
5.3G;11a;20;1;4;5300;M;TN,VL	Pass	5.3G	5.30001592G	NaN	NaN	3.003	20	1	5 min
5.3G;11a;20;1;4;5300;M;TN,VL	Pass	5.3G	5.30001591G	NaN	NaN	3.002	20	1	10 min
5.3G;11a;20;1;4;5300;M;TN,VH	Pass	5.3G	5.30000807G	NaN	NaN	1.524	20	1	0 min
5.3G;11a;20;1;4;5300;M;TN,VH	Pass	5.3G	5.30000805G	NaN	NaN	1.518	20	1	2 min
5.3G;11a;20;1;4;5300;M;TN,VH	Pass	5.3G	5.30000803G	NaN	NaN	1.515	20	1	5 min
5.3G;11a;20;1;4;5300;M;TN,VH	Pass	5.3G	5.30000804G	NaN	NaN	1.517	20	1	10 min
5.3G;11a;20;1;4;5300;M;T40,VN	Pass	5.3G	5.29999504G	NaN	NaN	0.936	20	1	0 min
5.3G;11a;20;1;4;5300;M;T40,VN	Pass	5.3G	5.29999503G	NaN	NaN	0.938	20	1	2 min
5.3G;11a;20;1;4;5300;M;T40,VN	Pass	5.3G	5.29999505G	NaN	NaN	0.934	20	1	5 min
5.3G;11a;20;1;4;5300;M;T40,VN	Pass	5.3G	5.29999503G	NaN	NaN	0.937	20	1	10 min
5.3G;11a;20;1;4;5300;M;T30,VN	Pass	5.3G	5.29999819G	NaN	NaN	0.342	20	1	0 min
5.3G;11a;20;1;4;5300;M;T30,VN	Pass	5.3G	5.29999818G	NaN	NaN	0.344	20	1	2 min
5.3G;11a;20;1;4;5300;M;T30,VN	Pass	5.3G	5.2999982G	NaN	NaN	0.34	20	1	5 min
5.3G;11a;20;1;4;5300;M;T30,VN	Pass	5.3G	5.29999819G	NaN	NaN	0.342	20	1	10 min
5.3G;11a;20;1;4;5300;M;T20,VN	Pass	5.3G	5.30000979G	NaN	NaN	1.847	20	1	0 min
5.3G;11a;20;1;4;5300;M;T20,VN	Pass	5.3G	5.30000975G	NaN	NaN	1.84	20	1	2 min
5.3G;11a;20;1;4;5300;M;T20,VN	Pass	5.3G	5.30000974G	NaN	NaN	1.837	20	1	5 min
5.3G;11a;20;1;4;5300;M;T20,VN	Pass	5.3G	5.30000975G	NaN	NaN	1.839	20	1	10 min
5.3G;11a;20;1;4;5300;M;T10,VN	Pass	5.3G	5.30002608G	NaN	NaN	4.921	20	1	0 min
5.3G;11a;20;1;4;5300;M;T10,VN	Pass	5.3G	5.3000261G	NaN	NaN	4.925	20	1	2 min
5.3G;11a;20;1;4;5300;M;T10,VN	Pass	5.3G	5.30002612G	NaN	NaN	4.928	20	1	5 min
5.3G;11a;20;1;4;5300;M;T10,VN	Pass	5.3G	5.30002608G	NaN	NaN	4.92	20	1	10 min
5.3G;11a;20;1;4;5300;M;T0,VN	Pass	5.3G	5.30003437G	NaN	NaN	6.485	20	1	0 min
5.3G;11a;20;1;4;5300;M;T0,VN	Pass	5.3G	5.30003436G	NaN	NaN	6.484	20	1	2 min
5.3G;11a;20;1;4;5300;M;T0,VN	Pass	5.3G	5.30003444G	NaN	NaN	6.498	20	1	5 min
5.3G;11a;20;1;4;5300;M;T0,VN	Pass	5.3G	5.30003444G	NaN	NaN	6.499	20	1	10 min