

FCC Test Report

Equipment : Industrial 2.4G 802.11n/ 5G 802.11ac Wave1 mPCIe module

Brand Name : Korenix

Model No. : Industrial 2.4G 802.11n/ 5G 802.11ac Wave1 mPCIe module

FCC ID : SSA-JW1223

Standard : 47 CFR FCC Part 15.407

Frequency : 5150 MHz – 5250 MHz
5725 MHz – 5850 MHz

FCC Classification : UNII

Applicant : Korenix Technology Co., Ltd.
Manufacturer : 14F., No.213,Sec. 3,Beixin Rd., Xindian Dist., New Taipei City 23143, | Taiwan (R.O.C)

Function : Outdoor; Indoor; Fixed P2P
 Portable Client

Operate Mode : Client without radar detection; w/o TPC

The product sample received on Apr. 18, 2016 and completely tested on Jun. 16, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.


Kevin Liang / Assistant Manager





Table of Contents

1 GENERAL DESCRIPTION5

1.1 Information.....5

1.2 Testing Applied Standards8

1.3 Testing Location Information8

1.4 Measurement Uncertainty9

2 TEST CONFIGURATION OF EUT.....10

2.1 The Worst Case Modulation Configuration10

2.2 Test Channel Mode11

2.3 The Worst Case Measurement Configuration.....13

2.4 Support Equipment.....14

2.5 Test Setup Diagram14

3 TRANSMITTER TEST RESULT16

3.1 AC Power-line Conducted Emissions16

3.2 Emission Bandwidth18

3.3 Maximum Conducted Output Power19

3.4 Peak Power Spectral Density.....21

3.5 Transmitter Bandedge Emissions24

3.6 Transmitter Unwanted Emissions.....28

3.7 Frequency Stability.....31

4 TEST EQUIPMENT AND CALIBRATION DATA32

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

Appendix A. Test Result of Emission Bandwidth

Appendix B. Test Result of Maximum Conducted Output Power

Appendix C. Test Result of Power Spectral Density

Appendix D. Transmitter Bandedge Emissions

Appendix E. Transmitter Unwanted Emissions

Appendix F. Frequency Stability

Appendix G. Test Photos

Appendix H. Photographs of EUT



Summary of Test Result

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



1 General Description

1.1 Information

1.1.1 RF General Information

Band	Mode	BWch (MHz)	Nss-Min	Nant
5.2G	11a	20	1	3
5.2G	HT20	20	1,(M16-23)	3
5.2G	HT40	40	1,(M16-23)	3
5.2G	VHT20	20	1,(M0-8)	3
5.2G	VHT40	40	1,(M0-9)	3
5.2G	VHT80	80	1,(M0-9)	3
5.8G	11a	20	1	3
5.8G	HT20	20	1,(M16-23)	3
5.8G	HT40	40	1,(M16-23)	3
5.8G	VHT20	20	1,(M0-8)	3
5.8G	VHT40	40	1,(M0-9)	3
5.8G	VHT80	80	1,(M0-9)	3

Note:

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

1.1.2 Antenna Information

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

Antenna General Information			
No.	Ant. Cat.	Ant. Type	Gain (dBi)
1	External	dipole	3
2	External	dipole	3
3	External	dipole	3

1.1.3 Type of EUT

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



1.1.4 Mode Test Duty Cycle

Operated Mode for Worst Duty Cycle	
<input checked="" type="checkbox"/> Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
<input checked="" type="checkbox"/> 97.93% - IEEE 802.11a	0.09
<input checked="" type="checkbox"/> 97.78% - IEEE 802.11n (HT20)	0.10
<input checked="" type="checkbox"/> 97.10% - IEEE 802.11n (HT40)	0.13
<input checked="" type="checkbox"/> 98.53% - IEEE 802.11n (VHT20)	0.06
<input checked="" type="checkbox"/> 97.10% - IEEE 802.11n (VHT40)	0.13
<input checked="" type="checkbox"/> 94.59% - IEEE 802.11n (VHT80)	0.24

1.1.5 EUT Operational Condition

Supply Voltage	<input type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC	
Type of DC Source	<input type="checkbox"/> External AC adapter	<input checked="" type="checkbox"/> From Host System	<input type="checkbox"/> Battery
Test Voltage	<input checked="" type="checkbox"/> Vnom (3.3 V)	<input checked="" type="checkbox"/> Vmax (3.465 V)	<input checked="" type="checkbox"/> Vmin (3.145 V)
Test Climatic	<input checked="" type="checkbox"/> Tnom (20°C)	<input checked="" type="checkbox"/> Tmax (70°C)	<input checked="" type="checkbox"/> Tmin (-40°C)



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 v01r02
- ♦ FCC-16-24-UNII
- ♦ 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	Test Date
AC Conduction	CO04-HY	Ryan	24°C / 57%	2016/06/16
RF Conducted	TH01-HY	Ryan	23.5°C / 66%	2016/06/14
Radiated	03CH09-HY	Thor	24°C / 56%	2016/06/14

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		±2.3 dB
Emission bandwidth, 6dB bandwidth		±0.6 %
RF output power, conducted		±0.1 dB
Power density, conducted		±0.6 dB
Unwanted emissions, conducted	9 – 150 kHz	±0.4 dB
	0.15 – 30 MHz	±0.4 dB
	30 – 1000 MHz	±0.6 dB
	1 – 18 GHz	±0.5 dB
	18 – 40 GHz	±0.5 dB
	40 – 200 GHz	N/A
All emissions, radiated	9 – 150 kHz	±2.5 dB
	0.15 – 30 MHz	±2.3 dB
	30 – 1000 MHz	±2.6 dB
	1 – 18 GHz	±3.6 dB
	18 – 40 GHz	±3.8 dB
	40 – 200 GHz	N/A
Temperature		±0.8 °C
Humidity		±5 %
DC and low frequency voltages		±0.9%
Time		±1.4 %
Duty Cycle		±0.6 %



2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing			
Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS
11a	3	6-54Mbps	6 Mbps
HT20	3	MCS 16-23	MCS 16
HT40	3	MCS 16-23	MCS 16
VHT20	3	MCS 0-8	MCS 0
VHT40	3	MCS 0-9	MCS 0
VHT80	3	MCS 0-9	MCS 0



2.2 Test Channel Mode

Test Software Version	KorenixArt_V0.7
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Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.2G	11a	20	1	3	5180	L	16
5.2G	11a	20	1	3	5200	M	15.5
5.2G	11a	20	1	3	5240	H	15.5
5.2G	HT20	20	1,(M16-23)	3	5180	L	16
5.2G	HT20	20	1,(M16-23)	3	5200	M	16
5.2G	HT20	20	1,(M16-23)	3	5240	H	16
5.2G	VHT20	20	1,(M0-8)	3	5180	L	13.5
5.2G	VHT20	20	1,(M0-8)	3	5200	M	18
5.2G	VHT20	20	1,(M0-8)	3	5240	H	16
5.2G	HT40	40	1,(M16-23)	3	5190	L	16
5.2G	HT40	40	1,(M16-23)	3	5230	H	16
5.2G	VHT40	40	1,(M0-9)	3	5190	L	14
5.2G	VHT40	40	1,(M0-9)	3	5230	H	18.5
5.2G	VHT80	80	1,(M0-9)	3	5210	S	13.5



Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.8G	11a	20	1	3	5745	L	31.5
5.8G	11a	20	1	3	5785	M	31.5
5.8G	11a	20	1	3	5825	H	31.5
5.8G	HT20	20	1,(M16-23)	3	5745	L	31.5
5.8G	HT20	20	1,(M16-23)	3	5785	M	31.5
5.8G	HT20	20	1,(M16-23)	3	5825	H	31.5
5.8G	VHT20	20	1,(M0-8)	3	5745	L	31.5
5.8G	VHT20	20	1,(M0-8)	3	5785	M	31.5
5.8G	VHT20	20	1,(M0-8)	3	5825	H	31.5
5.8G	HT40	40	1,(M16-23)	3	5755	L	31.5
5.8G	HT40	40	1,(M16-23)	3	5795	H	31.5
5.8G	VHT40	40	1,(M0-9)	3	5755	L	31.5
5.8G	VHT40	40	1,(M0-9)	3	5795	H	31.5
5.8G	VHT80	80	1,(M0-9)	3	5775	S	26

Abbreviation Explanation

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




Note:

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

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
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	Transmit 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

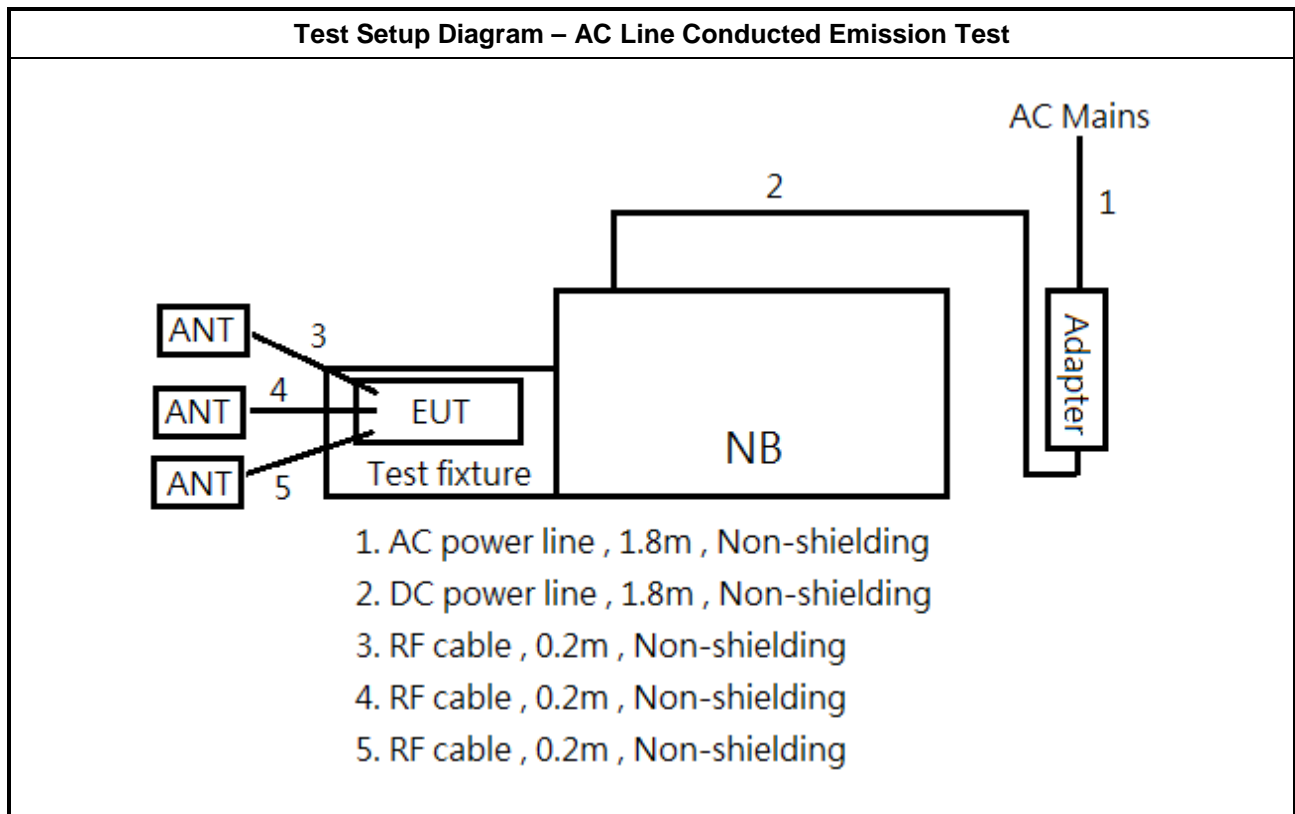
The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
User Position	<input checked="" type="checkbox"/> EUT will be placed in fixed position.		
	<input 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. Transmit Mode		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		
Worst Planes of Ant			V
Note 1: Based on 802.11ac EIRP power was the worst case. Therefore only 802.11ac was tested.			

2.4 Support Equipment

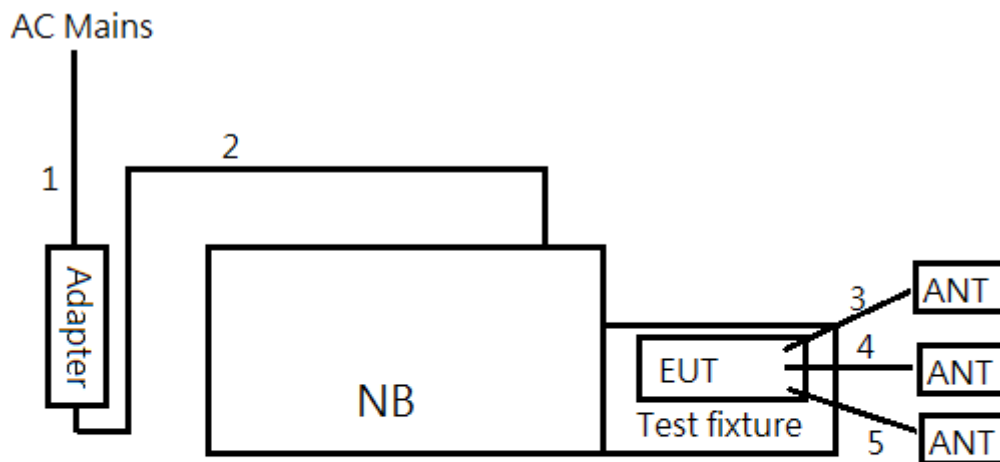
Support Equipment - AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5530	DoC
2	Adapter for NB	DELL	LA65NS2-0	DoC
3	Test fixture	-	-	-

Support Equipment - Conducted and Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E6400	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	Test fixture	-	-	-

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test



1. AC power line , 1.8m , Non-shielding
2. DC power line , 1.8m , Non-shielding
3. RF cable , 0.2m , Non-shielding
4. RF cable , 0.2m , Non-shielding
5. RF cable , 0.2m , Non-shielding

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.

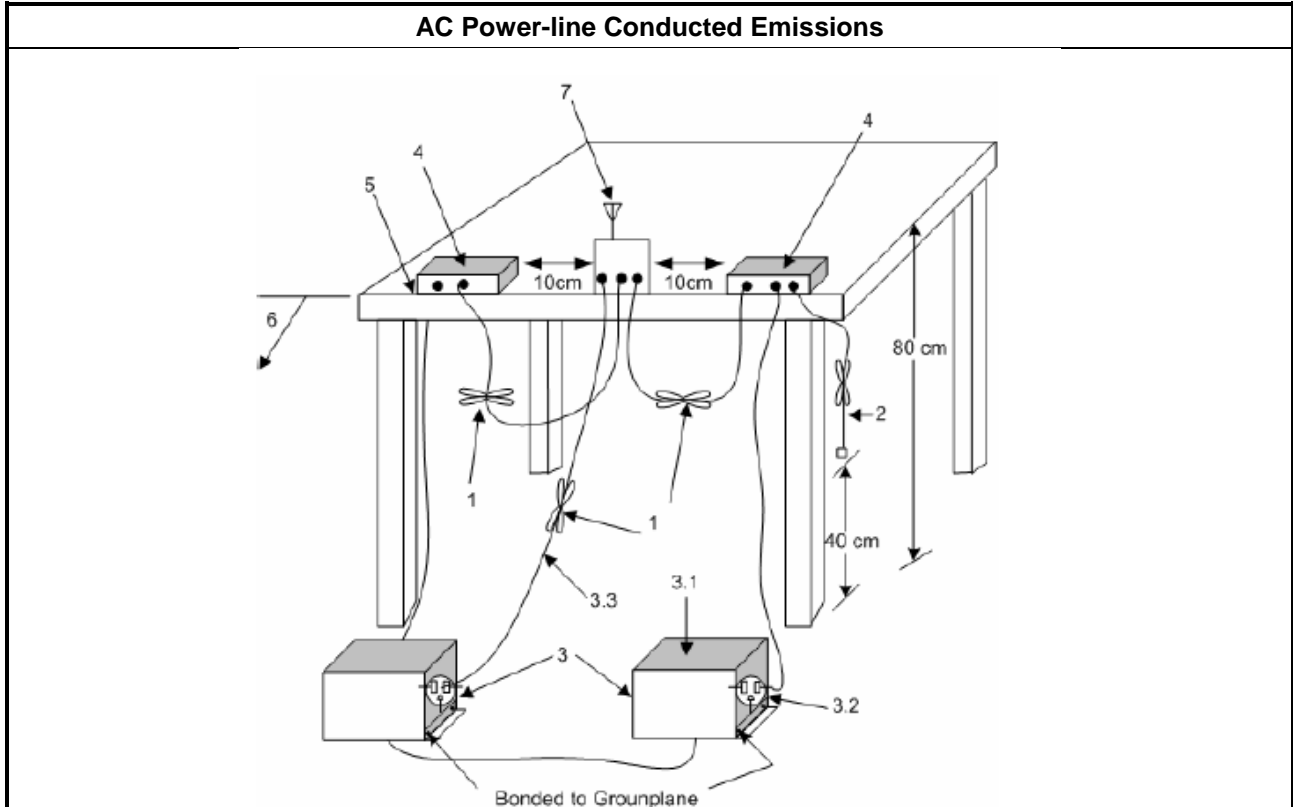
3.1.2 Measuring Instruments

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 checked="" type="checkbox"/>	For the 5.15-5.25 GHz band, N/A
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
<input checked="" type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth \geq 500kHz.

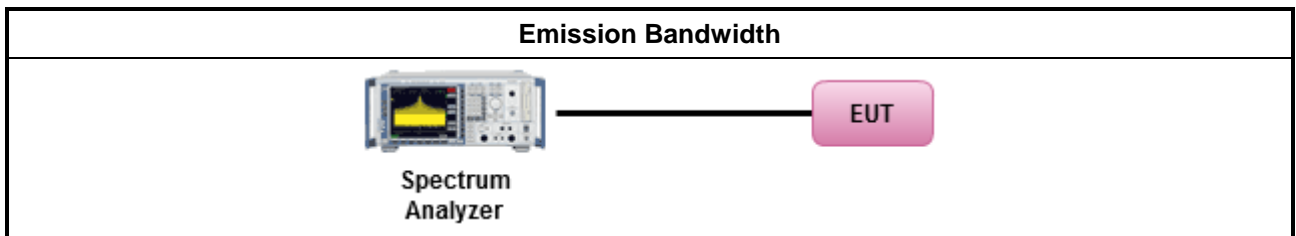
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> 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.

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			
<ul style="list-style-type: none"> ▪ For the 5.15-5.25 GHz band: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td> <ul style="list-style-type: none"> ▪ 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 ≤ 125mW [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 $P_{Out} = 24 - (G_{TX} - 6)$. </td> </tr> </table> 			<ul style="list-style-type: none"> ▪ 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 ≤ 125mW [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 $P_{Out} = 24 - (G_{TX} - 6)$.
	<ul style="list-style-type: none"> ▪ 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 ≤ 125mW [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 $P_{Out} = 24 - (G_{TX} - 6)$. 		
<ul style="list-style-type: none"> ▪ For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$. 			
<ul style="list-style-type: none"> ▪ For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$. 			
<ul style="list-style-type: none"> ▪ For the 5.725-5.85 GHz band: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td> <ul style="list-style-type: none"> ▪ 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. </td> </tr> </table> 			<ul style="list-style-type: none"> ▪ 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.
	<ul style="list-style-type: none"> ▪ 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>P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.</p>			

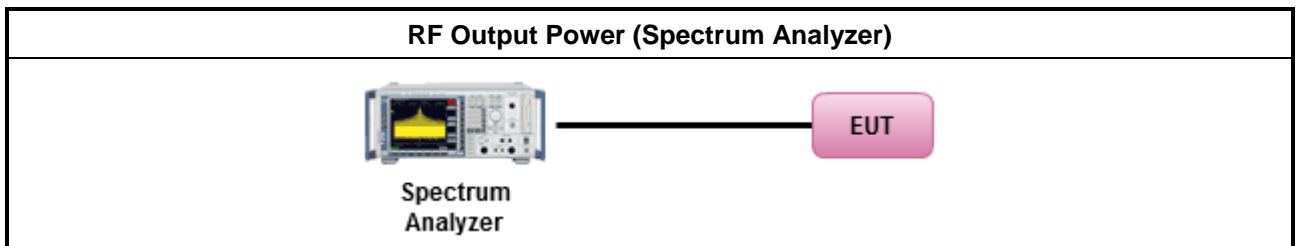
3.3.2 Measuring Instruments

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-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
duty cycle < 98% and average over on/off periods with duty factor	
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
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. 	
<ul style="list-style-type: none"> 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													
<ul style="list-style-type: none"> ▪ For the 5.15-5.25 GHz band: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">▪</td> <td>Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.</td> </tr> <tr> <td>▪</td> <td>Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.</td> </tr> <tr> <td>▪</td> <td>Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.</td> </tr> <tr> <td>▪</td> <td>Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.</td> </tr> </table> ▪ 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: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">▪</td> <td>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$.</td> </tr> <tr> <td>▪</td> <td>Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.</td> </tr> </table> 		▪	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 $PPSD = 11 - (G_{TX} - 6)$.	▪	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.
▪	Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.												
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▪	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 $PPSD = 11 - (G_{TX} - 6)$.												
▪	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.												
<p>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.</p>													

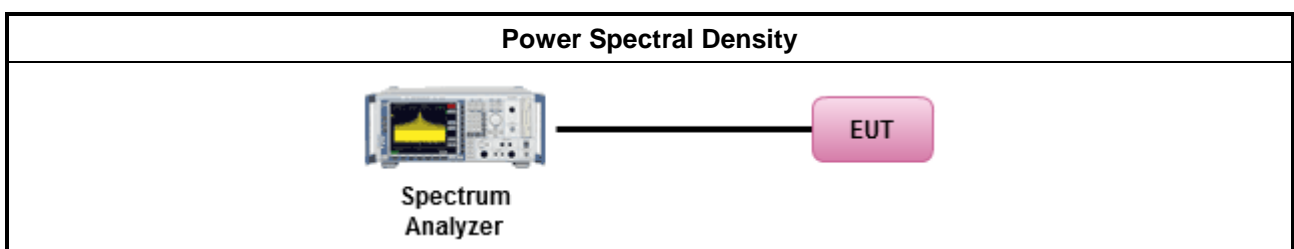
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ 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: 	
<input type="checkbox"/>	Refer as FCC KDB 789033, F5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth [duty cycle ≥ 98% or external video / power trigger]
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed) duty cycle < 98% and average over on/off periods with duty factor
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
<ul style="list-style-type: none"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ If the EUT supports multiple transmit chains using options given below: 	
<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.
<input type="checkbox"/>	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
<input type="checkbox"/>	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
<ul style="list-style-type: none"> ▪ 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]) $EIRP_{total} = PPSD_{total} + DG$ 	

3.4.4 Test Setup



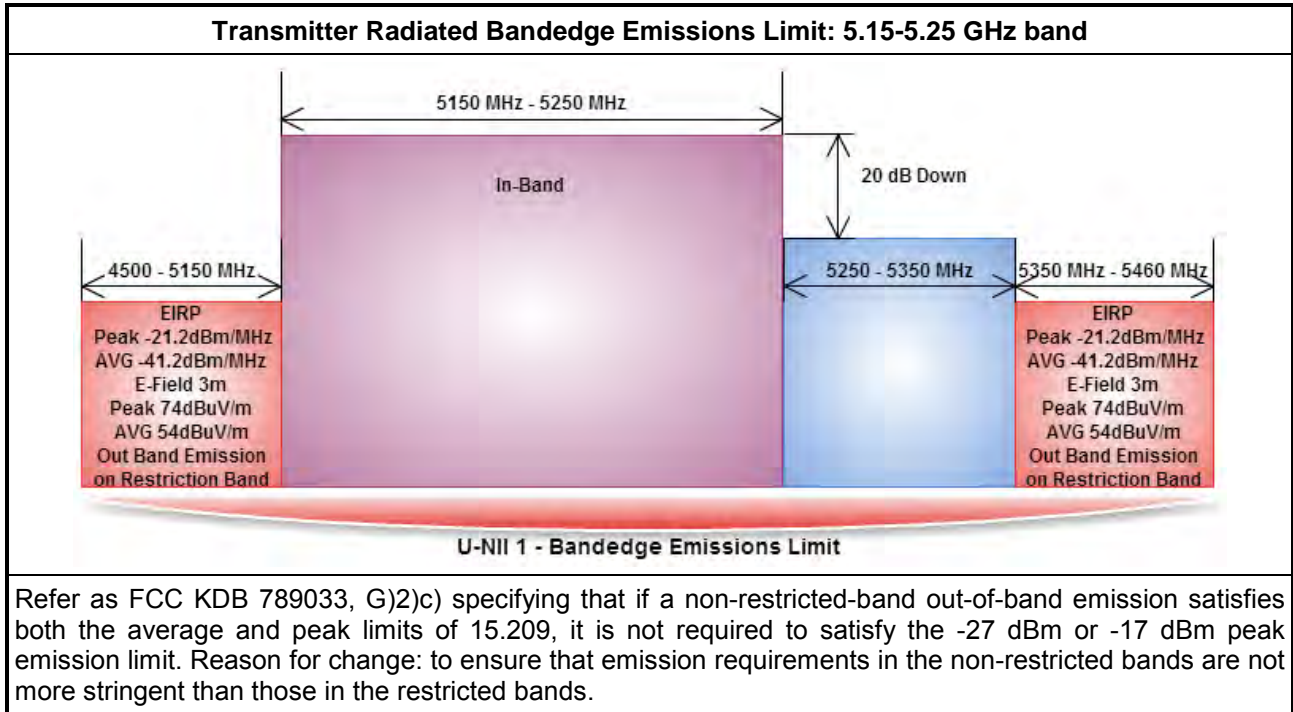


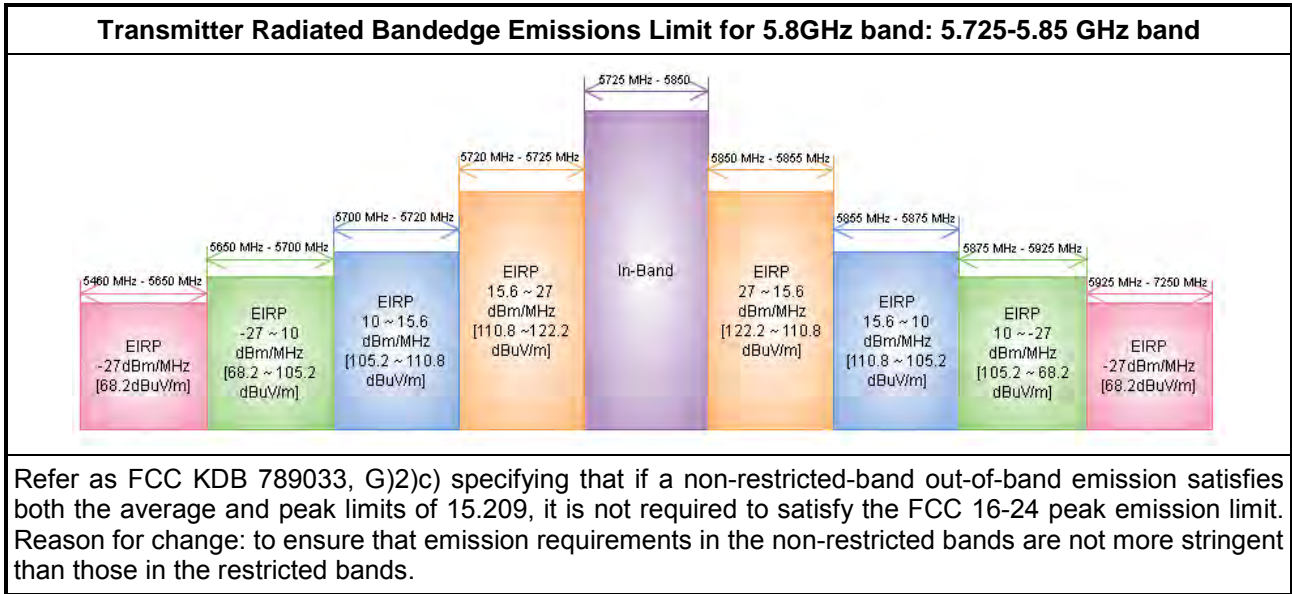
3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix C

3.5 Transmitter Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit





3.5.2 Measuring Instruments

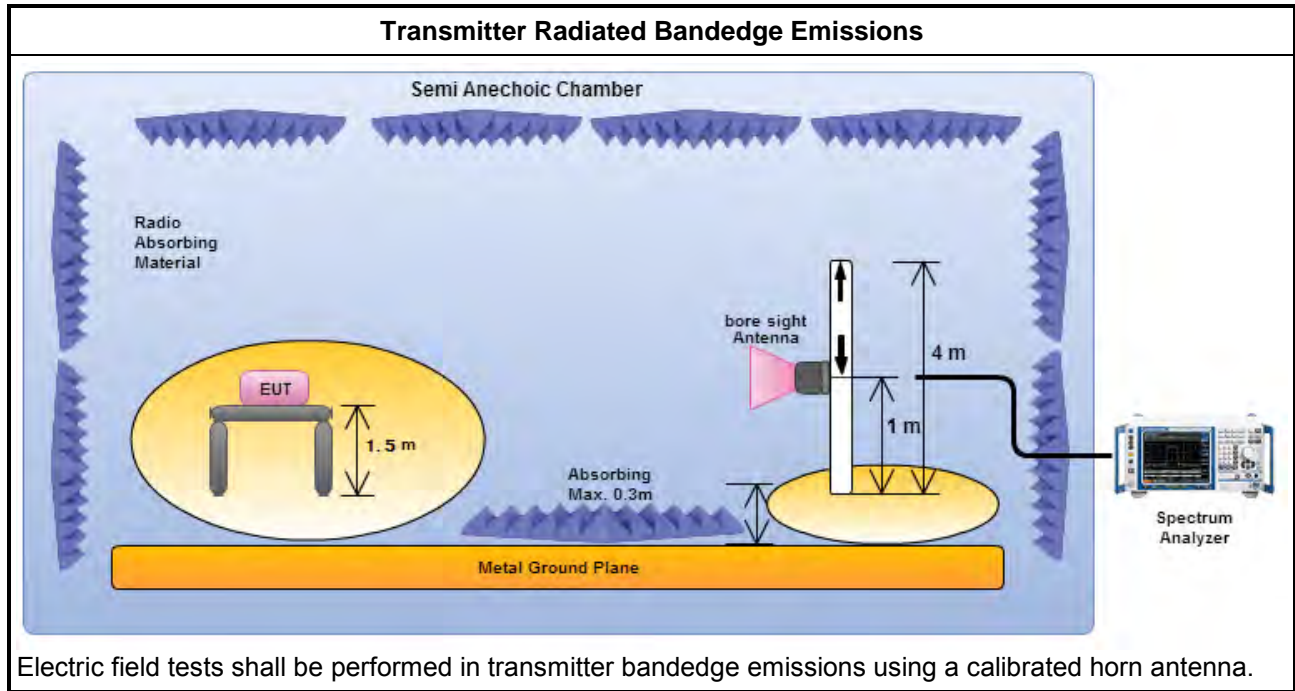
Refer a test equipment and calibration data table in this test report.



3.5.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle ≥ 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 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 ≥ 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 the transmitter bandedge emissions shall be measured using following options below:
<input type="checkbox"/>	Refer as FCC KDB 789033, clause G)3)d) for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.10 for band-edge testing.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.10.6.2 for marker-delta method for band-edge measurements.
<input checked="" type="checkbox"/>	For radiated measurement, refer as ANSI C63.10, clause 6.6. Test distance is 3m.
<input checked="" type="checkbox"/>	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). Measurements in the bandedge are typically made at a closer distance 3m, because the instrumentation noise floor is typically close to the radiated emission limit.

3.5.4 Test Setup



3.5.5 Transmitter Radiated Bandedge Emissions

Refer as Appendix D

3.6 Transmitter Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

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

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

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

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	5.650-5700 GHz: e.i.r.p. -27 ~ 10 dBm [68.2 ~ 105.2 dBuV/m@3m] 5.700-5720 GHz: e.i.r.p. 10 ~ 15.6 dBm [105.2 ~ 110.8 dBuV/m@3m] 5.720-5725 GHz: e.i.r.p. 15.6 ~ 27 dBm [110.8 ~ 122.2 dBuV/m@3m] 5.850-5.855 GHz: e.i.r.p. 27 ~ 15.6 dBm [122.2 ~ 110.8 dBuV/m@3m] 5.855-5.875 GHz: e.i.r.p. 15.6 ~ 10 dBm [110.8 ~ 105.2 dBuV/m@3m] 5.875-5.925 GHz: e.i.r.p. 10 ~ -27 dBm [105.2 ~ 68.2dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

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



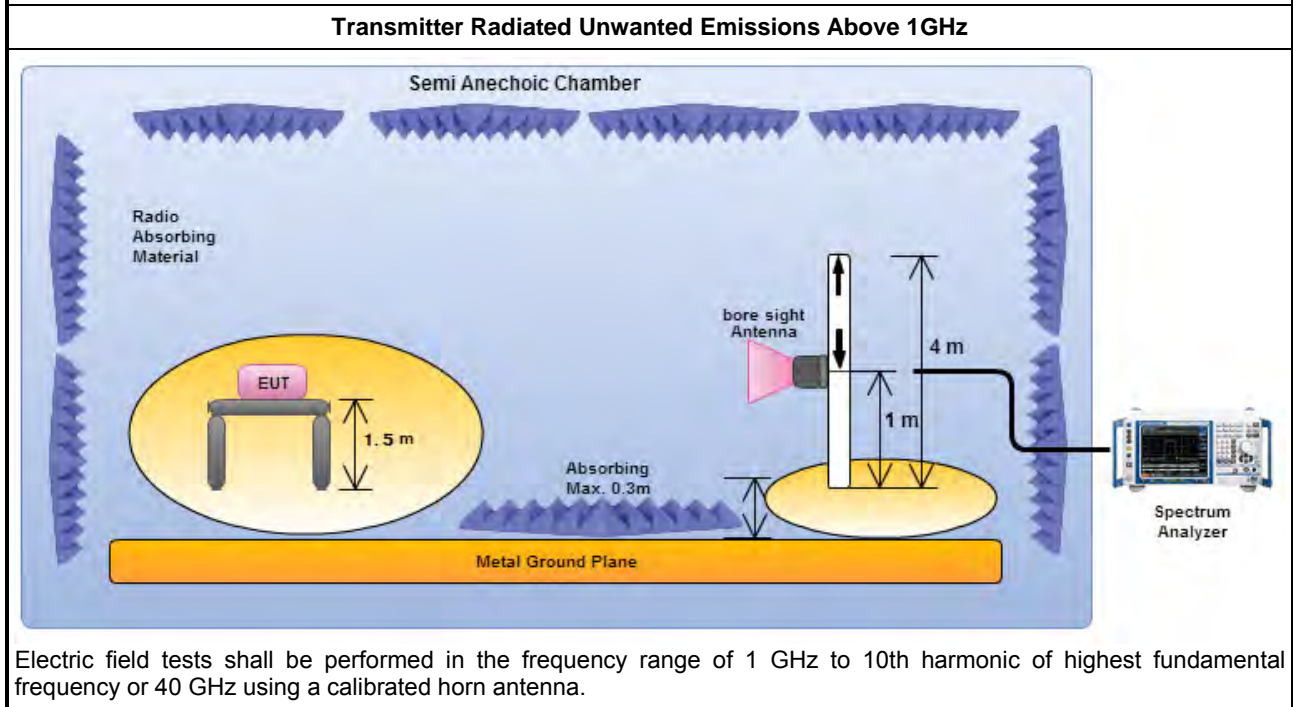
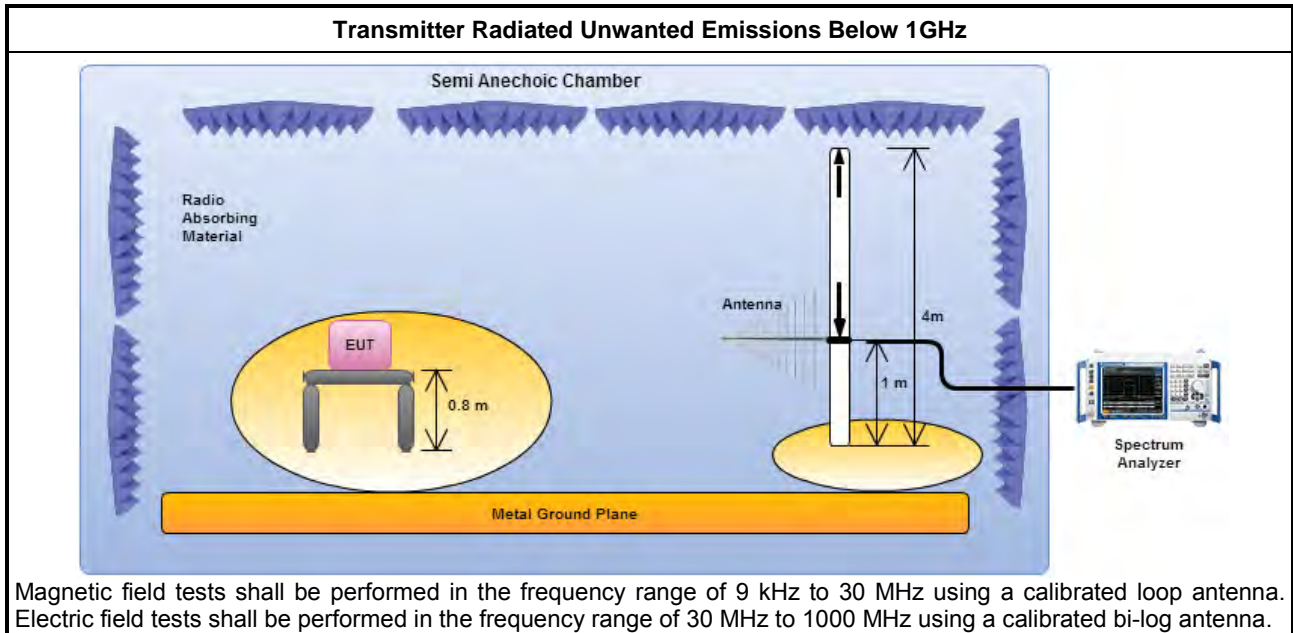
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as 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



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

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

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.

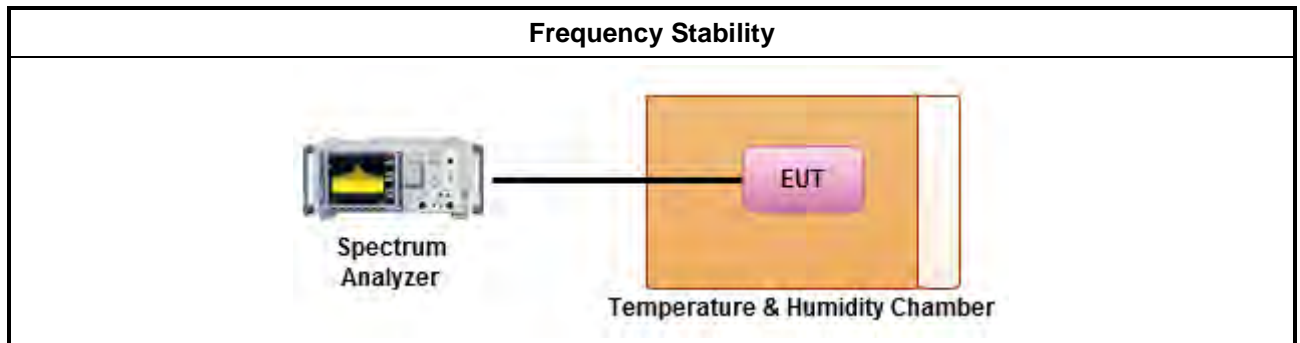
3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as ANSI C63.10, clause 6.8 for frequency stability tests
<ul style="list-style-type: none"> 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	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
EMC Receiver	KETSIGHT	N9038A	MY54130031	20Hz ~ 8.4GHz	Apr. 14, 2016	Apr. 13, 2017
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 26, 2016	Jan. 25, 2017
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	Oct. 30, 2015	Oct. 29, 2016
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	NCR	NCR

Instrument for Conducted Test

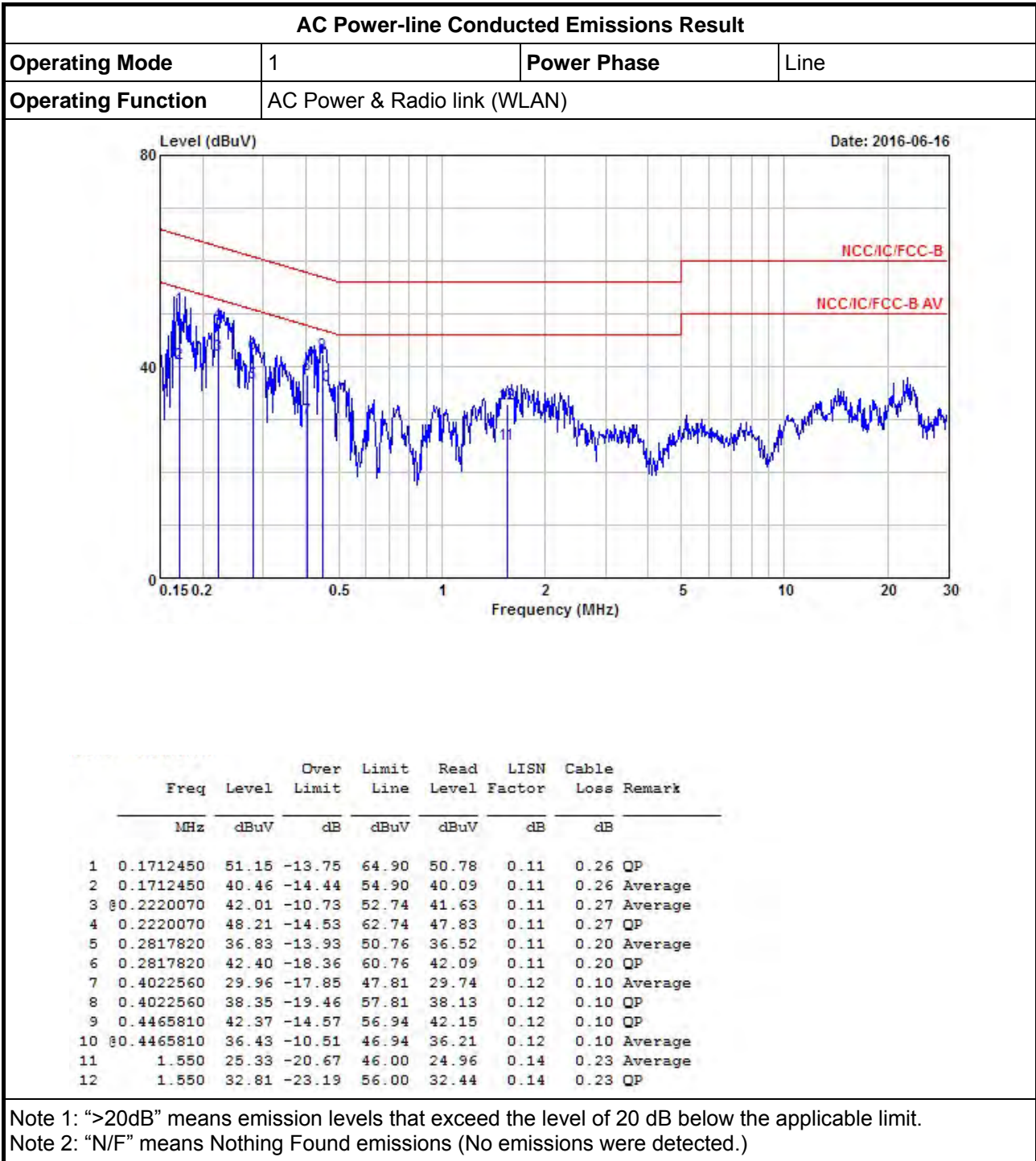
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9KHz~40GHz	Feb 16, 2016	Feb 15, 2017
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jul. 28, 2015	Jul. 27, 2016
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	Feb. 04 ,2016	Feb. 03 ,2017
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	Feb. 04, 2016	Feb. 03, 2017
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-00 7	-20 ~ 100°C	Apr. 25, 2016	Apr. 24, 2017
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jul. 22, 2015	Jul. 21, 2016

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz 3m	Apr. 25, 2016	Apr. 24, 2017
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz 3m	Jul. 01, 2015	Jun. 30, 2016
Amplifier	EMC	EMC9135	980232	9kHz ~ 1.0GHz	Jan. 29, 2016	Jan. 28, 2017
Amplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	Apr.11.2016	Apr.10.2017
Spectrum	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	Jul. 15, 2015	Jul. 14, 2016
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL 6111D & MTJ6102	35418	30MHz ~ 1GHz	Mar. 31, 2016	Mar. 30, 2017
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA 9120D 1534	1GHz ~ 18GHz	Apr. 22, 2016	Apr. 21, 2017
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170614	18GHz ~ 40GHz	Jan. 04, 2016	Jan. 03, 2017
Amplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 02.2015	Jun. 01.2017
Loop Antenna	ROHDE&SCHWARZ	HFH2-Z2	100330	9 kHz~30 MHz	Nov. 10, 2014	Nov. 09, 2016



AC Power-line Conducted Emissions Result																																																																																																																																	
Operating Mode	1	Power Phase	Neutral																																																																																																																														
Operating Function	AC Power & Radio link (WLAN)																																																																																																																																
<div style="text-align: right;">Date: 2016-06-16</div>																																																																																																																																	
<table border="1"> <thead> <tr> <th></th> <th>Freq</th> <th>Level</th> <th>Over Limit</th> <th>Limit Line</th> <th>Read Level</th> <th>LISN Factor</th> <th>Cable Loss</th> <th>Remark</th> </tr> <tr> <th></th> <th>MHz</th> <th>dBuV</th> <th>dB</th> <th>dBuV</th> <th>dBuV</th> <th>dB</th> <th>dB</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.1730690</td> <td>48.69</td> <td>-16.12</td> <td>64.81</td> <td>48.33</td> <td>0.10</td> <td>0.26</td> <td>QP</td> </tr> <tr> <td>2</td> <td>0.1730690</td> <td>39.08</td> <td>-15.73</td> <td>54.81</td> <td>38.72</td> <td>0.10</td> <td>0.26</td> <td>Average</td> </tr> <tr> <td>3</td> <td>0.2231870</td> <td>48.19</td> <td>-14.51</td> <td>62.70</td> <td>47.81</td> <td>0.11</td> <td>0.27</td> <td>QP</td> </tr> <tr> <td>4</td> <td>0.2231870</td> <td>42.60</td> <td>-10.10</td> <td>52.70</td> <td>42.22</td> <td>0.11</td> <td>0.27</td> <td>Average</td> </tr> <tr> <td>5</td> <td>0.2814930</td> <td>37.40</td> <td>-13.37</td> <td>50.77</td> <td>37.09</td> <td>0.11</td> <td>0.20</td> <td>Average</td> </tr> <tr> <td>6</td> <td>0.2814930</td> <td>43.90</td> <td>-16.87</td> <td>60.77</td> <td>43.59</td> <td>0.11</td> <td>0.20</td> <td>QP</td> </tr> <tr> <td>7</td> <td>0.4035060</td> <td>37.67</td> <td>-20.11</td> <td>57.78</td> <td>37.45</td> <td>0.12</td> <td>0.10</td> <td>QP</td> </tr> <tr> <td>8</td> <td>0.4035060</td> <td>27.00</td> <td>-20.78</td> <td>47.78</td> <td>26.78</td> <td>0.12</td> <td>0.10</td> <td>Average</td> </tr> <tr> <td>9</td> <td>0.4475500</td> <td>40.16</td> <td>-16.76</td> <td>56.92</td> <td>39.94</td> <td>0.12</td> <td>0.10</td> <td>QP</td> </tr> <tr> <td>10</td> <td>0.4475500</td> <td>34.14</td> <td>-12.78</td> <td>46.92</td> <td>33.92</td> <td>0.12</td> <td>0.10</td> <td>Average</td> </tr> <tr> <td>11</td> <td>1.590</td> <td>35.20</td> <td>-20.80</td> <td>56.00</td> <td>34.83</td> <td>0.14</td> <td>0.23</td> <td>QP</td> </tr> <tr> <td>12</td> <td>1.590</td> <td>27.91</td> <td>-18.09</td> <td>46.00</td> <td>27.54</td> <td>0.14</td> <td>0.23</td> <td>Average</td> </tr> </tbody> </table>					Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark		MHz	dBuV	dB	dBuV	dBuV	dB	dB		1	0.1730690	48.69	-16.12	64.81	48.33	0.10	0.26	QP	2	0.1730690	39.08	-15.73	54.81	38.72	0.10	0.26	Average	3	0.2231870	48.19	-14.51	62.70	47.81	0.11	0.27	QP	4	0.2231870	42.60	-10.10	52.70	42.22	0.11	0.27	Average	5	0.2814930	37.40	-13.37	50.77	37.09	0.11	0.20	Average	6	0.2814930	43.90	-16.87	60.77	43.59	0.11	0.20	QP	7	0.4035060	37.67	-20.11	57.78	37.45	0.12	0.10	QP	8	0.4035060	27.00	-20.78	47.78	26.78	0.12	0.10	Average	9	0.4475500	40.16	-16.76	56.92	39.94	0.12	0.10	QP	10	0.4475500	34.14	-12.78	46.92	33.92	0.12	0.10	Average	11	1.590	35.20	-20.80	56.00	34.83	0.14	0.23	QP	12	1.590	27.91	-18.09	46.00	27.54	0.14	0.23	Average
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark																																																																																																																									
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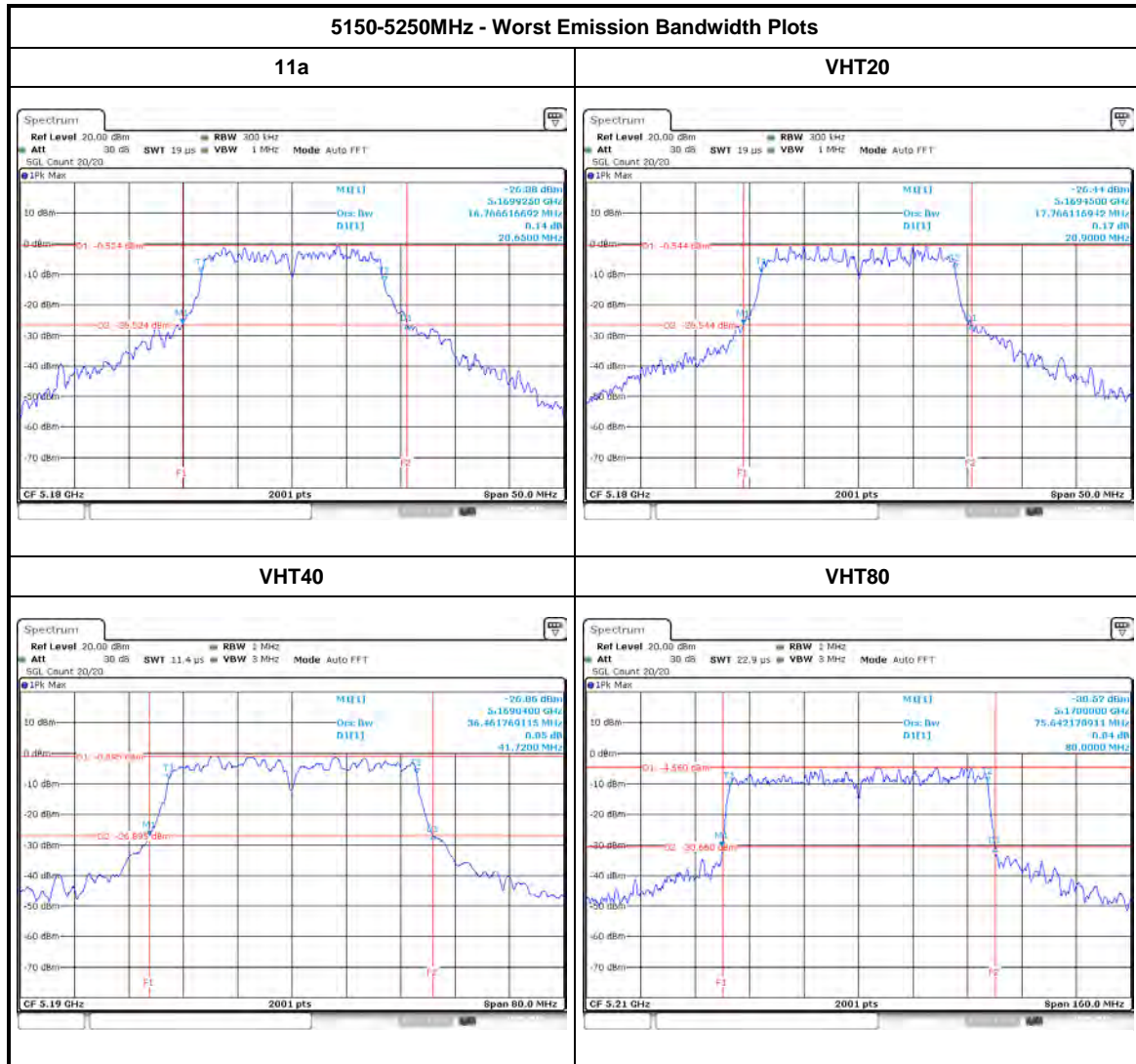


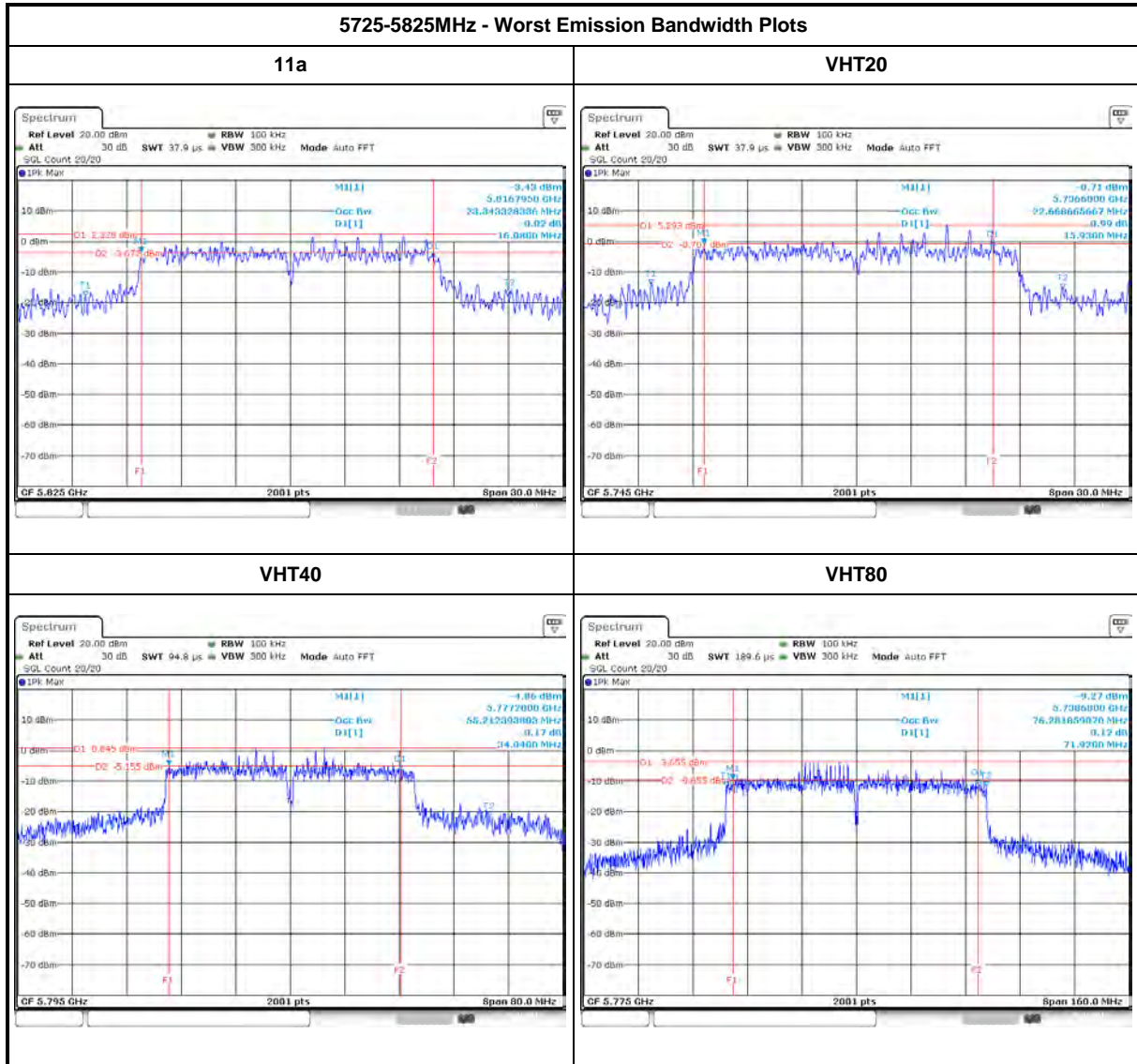
Emission Bandwidth

Appendix A

UNII Emission Bandwidth Result (5150-5250MHz band)								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth			26dB Bandwidth		
			Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 1	Chain- Port 2	Chain- Port 3
11a	3	5180	16.44	16.56	16.76	23.20	23.72	20.65
11a	3	5200	16.61	16.61	16.69	20.80	22.22	21.42
11a	3	5240	16.61	16.56	16.51	20.72	22.40	21.55
VHT20	3	5180	17.74	17.76	17.76	23.42	22.25	20.90
VHT20	3	5200	17.76	17.86	17.86	21.87	22.82	22.55
VHT20	3	5240	17.94	17.91	17.89	22.70	24.70	22.60
VHT40	3	5190	36.46	36.50	37.02	41.72	43.28	44.16
VHT40	3	5230	36.66	36.42	36.46	50.56	43.28	42.24
VHT80	3	5210	76.04	75.80	75.64	80.48	82.00	80.00
Result			Complied					

UNII Emission Bandwidth Result (5725-5825MHz band)								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth			6dB Bandwidth		
			Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 1	Chain- Port 2	Chain- Port 3
11a	3	5745	23.53	23.31	22.59	16.54	16.42	16.50
11a	3	5785	23.25	22.74	21.48	16.45	15.67	16.42
11a	3	5825	23.34	21.99	21.12	16.08	16.45	16.45
VHT20	3	5745	23.47	22.66	22.48	15.96	15.93	17.61
VHT20	3	5785	23.13	23.59	21.36	17.17	17.73	15.70
VHT20	3	5825	23.25	22.48	21.84	17.65	17.68	17.58
VHT40	3	5755	63.96	59.25	55.69	36.32	35.72	34.80
VHT40	3	5795	55.21	54.81	47.13	34.04	35.68	35.08
VHT80	3	5775	76.84	76.04	76.28	72.48	72.48	71.92
Limit			-			≥ 500kHz		
Result			Complied					







Maximum Conducted Output Power

Appendix B

Maximum Average Conducted Output Power (5150-5250MHz band)							
Condition			RF Output Power (dBm)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit
11a	3	5180	14.84	16.32	15.23	20.28	22.23
11a	3	5200	14.92	16.19	15.42	20.31	22.23
11a	3	5240	14.56	16.18	15.94	20.39	22.23
HT20,M16-23	3	5180	14.64	16.18	15.06	20.11	22.23
HT20,M16-23	3	5200	15.14	16.41	15.67	20.54	22.23
HT20,M16-23	3	5240	14.88	16.45	16.22	20.67	22.23
HT40,M16-23	3	5190	12.31	12.08	11.80	16.84	22.23
HT40,M16-23	3	5230	17.01	16.90	16.77	21.66	22.23
VHT20,M0-8	3	5180	14.73	16.14	15.09	20.14	22.23
VHT20,M0-8	3	5200	15.24	16.47	15.70	20.61	22.23
VHT20,M0-8	3	5240	14.90	16.50	16.19	20.69	22.23
VHT40,M0-9	3	5190	12.44	12.23	11.90	16.96	22.23
VHT40,M0-9	3	5230	17.03	16.91	16.78	21.68	22.23
VHT80,M0-9	3	5210	11.71	11.58	11.45	16.35	22.23
Result			Complied				

Maximum Average Conducted Output Power (5725-5850MHz band)							
Condition			RF Output Power (dBm)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit
11a	3	5745	20.00	19.90	19.62	24.61	28.23
11a	3	5785	20.37	20.05	19.95	24.90	28.23
11a	3	5825	19.67	19.93	19.71	24.54	28.23
HT20,M16-23	3	5745	19.97	19.84	19.64	24.59	28.23
HT20,M16-23	3	5785	20.20	19.95	19.91	24.79	28.23
HT20,M16-23	3	5825	19.36	19.66	19.43	24.25	28.23
HT40,M16-23	3	5755	19.85	19.51	19.40	24.36	28.23
HT40,M16-23	3	5795	19.60	19.61	19.53	24.35	28.23
VHT20,M0-8	3	5745	20.11	19.91	19.71	24.69	28.23
VHT20,M0-8	3	5785	20.59	20.04	20.11	25.03	28.23
VHT20,M0-8	3	5825	19.59	19.85	19.74	24.50	28.23
VHT40,M0-9	3	5755	20.34	19.81	19.66	24.72	28.23
VHT40,M0-9	3	5795	19.94	19.81	19.86	24.64	28.23
VHT80,M0-9	3	5775	17.92	16.94	17.48	22.24	28.23
Result			Complied				



Power Spectral Density

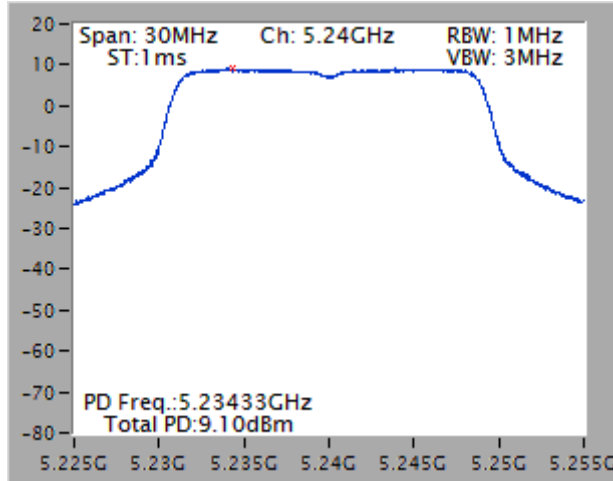
Appendix C

Power Spectral Density Result						
Condition			Power Spectral Density (dBm/3kHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain w/o Duty Factor	Duty Factor (dB)	Sum Chain	Power Limit
11a	3	5180	9.02	0.09	9.11	9.23
11a	3	5200	9.05	0.09	9.14	9.23
11a	3	5240	8.97	0.09	9.06	9.23
VHT20	3	5180	8.58	0.06	8.64	9.23
VHT20	3	5200	8.93	0.06	8.99	9.23
VHT20	3	5240	9.10	0.06	9.16	9.23
VHT40	3	5190	2.38	0.13	2.51	9.23
VHT40	3	5230	7.05	0.13	7.18	9.23
VHT80	3	5210	-1.41	0.24	-1.17	9.23
Result			Complied			
Note 1: PSD = sum each transmit chains by bin-to-bin PSD						
Note 1: PSD = each transmit chains PSD + 10logN _{TX}						

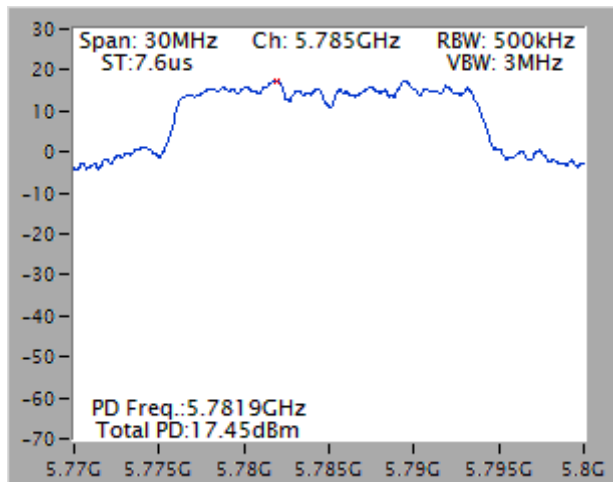
Power Spectral Density Result						
Condition			Power Spectral Density (dBm/3kHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain w/o Duty Factor	Duty Factor (dB)	Sum Chain	Power Limit
11a	3	5745	15.64	0.09	15.73	28.23
11a	3	5785	15.91	0.09	16.00	28.23
11a	3	5825	15.92	0.09	16.01	28.23
VHT20	3	5745	16.39	0.06	16.45	28.23
VHT20	3	5785	17.45	0.06	17.51	28.23
VHT20	3	5825	16.18	0.06	16.24	28.23
VHT40	3	5755	13.30	0.13	13.43	28.23
VHT40	3	5795	13.74	0.13	13.87	28.23
VHT80	3	5775	9.41	0.24	9.65	28.23
Result			Complied			
Note 1: PSD = sum each transmit chains by bin-to-bin PSD						
Note 1: PSD = each transmit chains PSD + 10logN _{TX}						



5150-5250MHz - Worst Power Spectral Density Plots



5725-5850MHz - Worst Power Spectral Density Plots





Transmitter Radiated Bandedge Emissions (with Antenna)

U-NII 5150-5250MHz Transmitter Radiated Bandedge (with Antenna)										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
11a	3	5180	3	5149.900	64.27	74	5149.600	52.44	54	V
11a	3	5240	3	5354.400	61.36	74	5119.800	49.94	54	V
VHT20	3	5180	3	5145.400	62.74	74	5149.800	52.33	54	V
VHT20	3	5240	3	5144.400	63.28	74	5149.800	50.55	54	V
VHT40	3	5190	3	5148.620	64.76	74	5149.940	52.09	54	V
VHT40	3	5230	3	5146.800	64.46	74	5149.800	52.68	54	V
VHT80	3	5210	3	5135.400	64.84	74	5149.800	52.06	54	V

Note 1: Measurement worst emissions of receive antenna polarization.

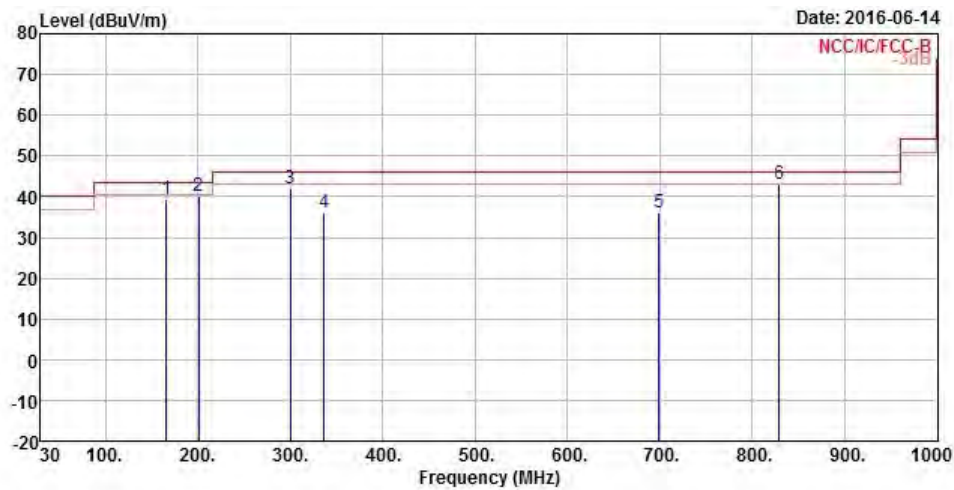
U-NII 5725-5850MHz Transmitter Radiated Bandedge (with Antenna)										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Pol.
11a	3	5745	3	5629.680	58.60	68.2	5626.560	47.76	68.2	V
11a	3	5825	3	5932.180	58.65	68.2	5927.590	47.56	68.2	V
VHT20	3	5745	3	5647.620	60.21	68.2	5642.420	48.37	68.2	V
VHT20	3	5825	3	5940.280	58.66	68.2	5943.250	47.78	68.2	V
VHT40	3	5755	3	5644.220	66.17	68.2	5646.080	52.02	68.2	V
VHT40	3	5795	3	5925.100	60.91	68.2	5932.720	49.46	68.2	V
VHT80	3	5775	3	5647.750	66.31	68.2	5649.700	53.58	68.2	V

Note 1: Measurement worst emissions of receive antenna polarization.



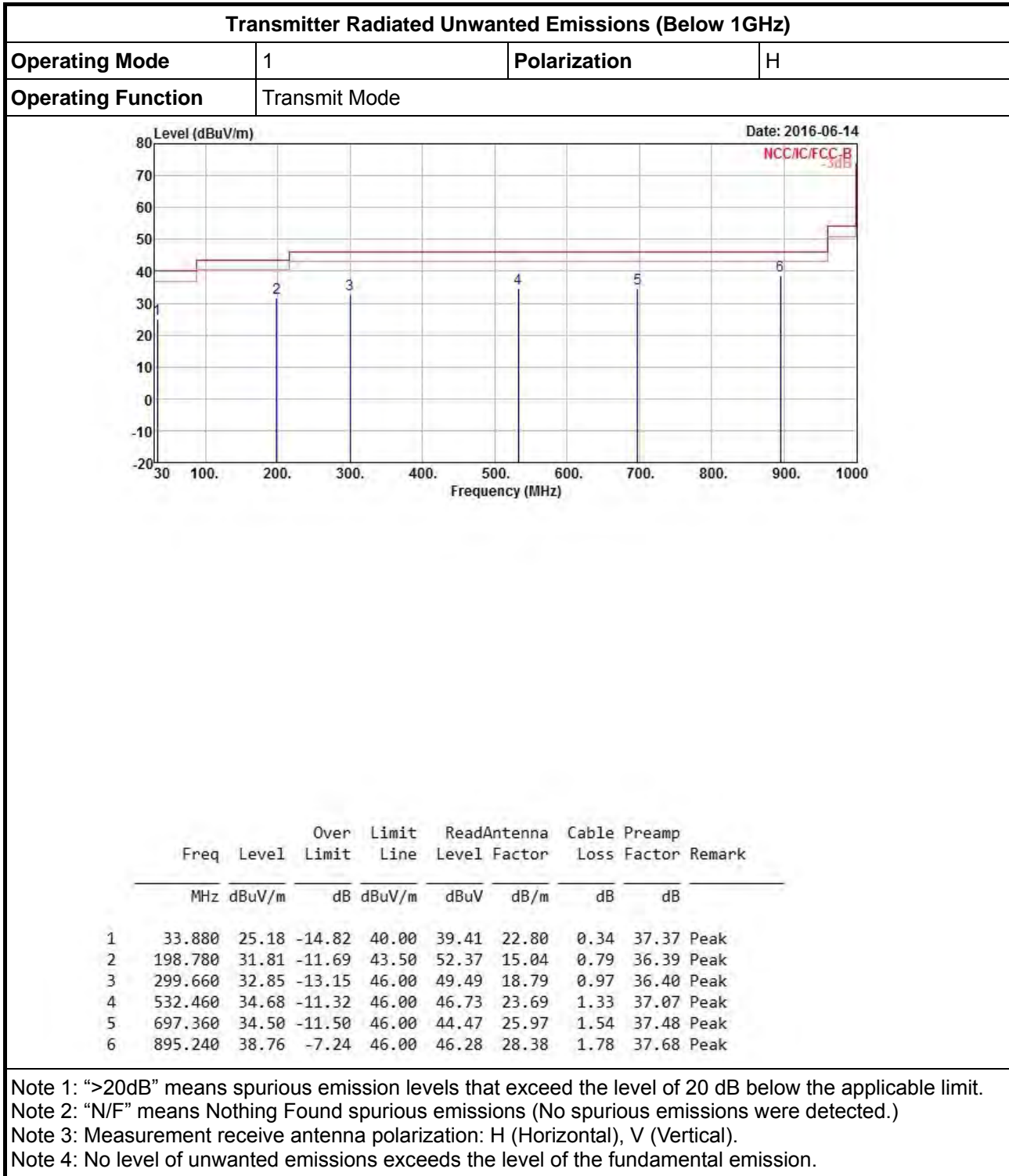
Transmitter Radiated Unwanted Emissions (Below 1GHz)

Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	1	Polarization	V
Operating Function	Transmit Mode		



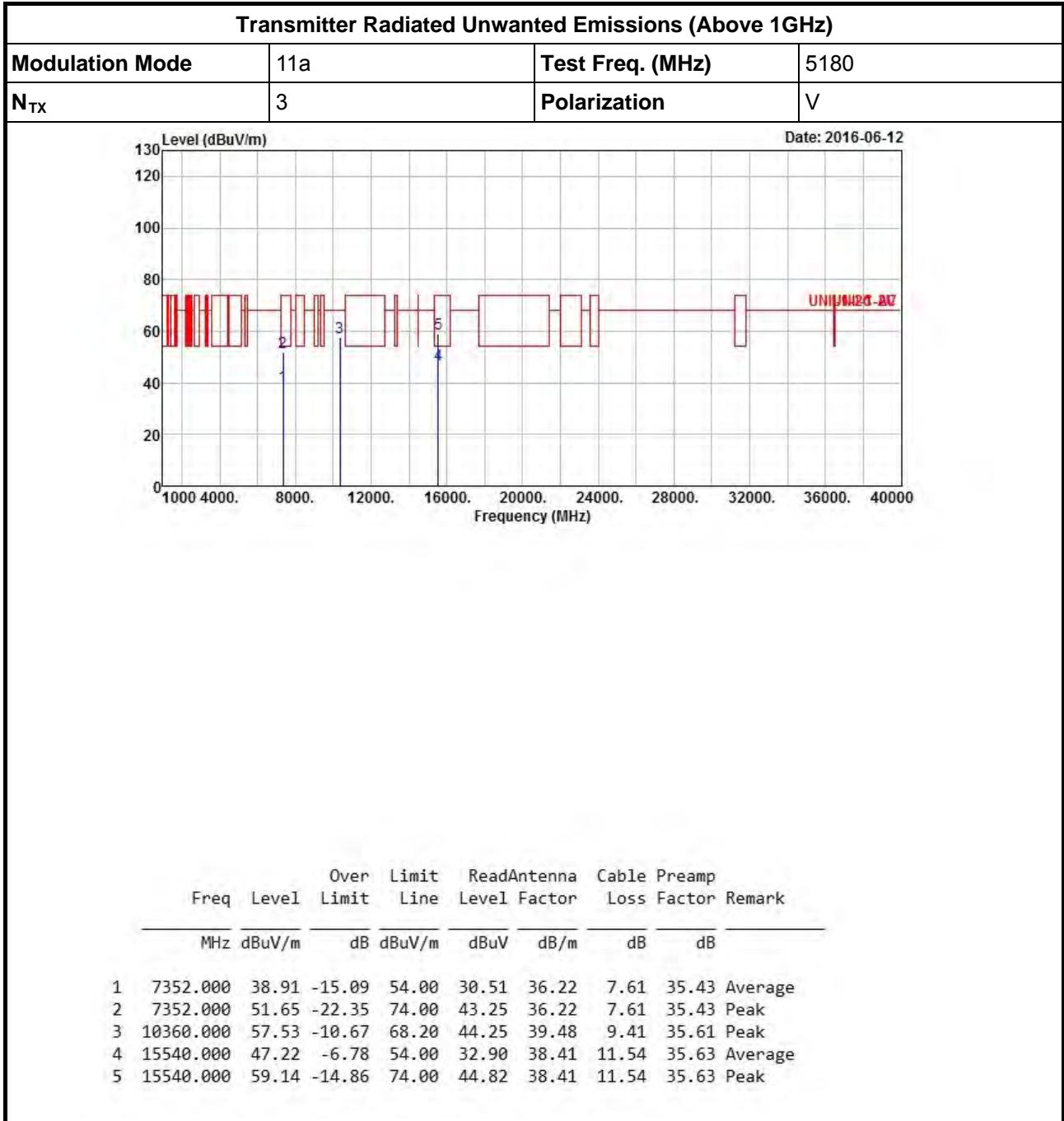
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	165.800	39.40	-4.10	43.50	59.70	15.52	0.72	36.54	Peak
2	200.720	40.02	-3.48	43.50	60.50	15.12	0.79	36.39	QP
3	299.660	41.88	-4.12	46.00	58.52	18.79	0.97	36.40	Peak
4	336.520	35.91	-10.09	46.00	51.48	19.90	1.02	36.49	Peak
5	699.300	36.10	-9.90	46.00	46.06	25.99	1.54	37.49	Peak
6	829.280	42.96	-3.04	46.00	50.96	27.87	1.71	37.58	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: No level of unwanted emissions exceeds the level of the fundamental emission.

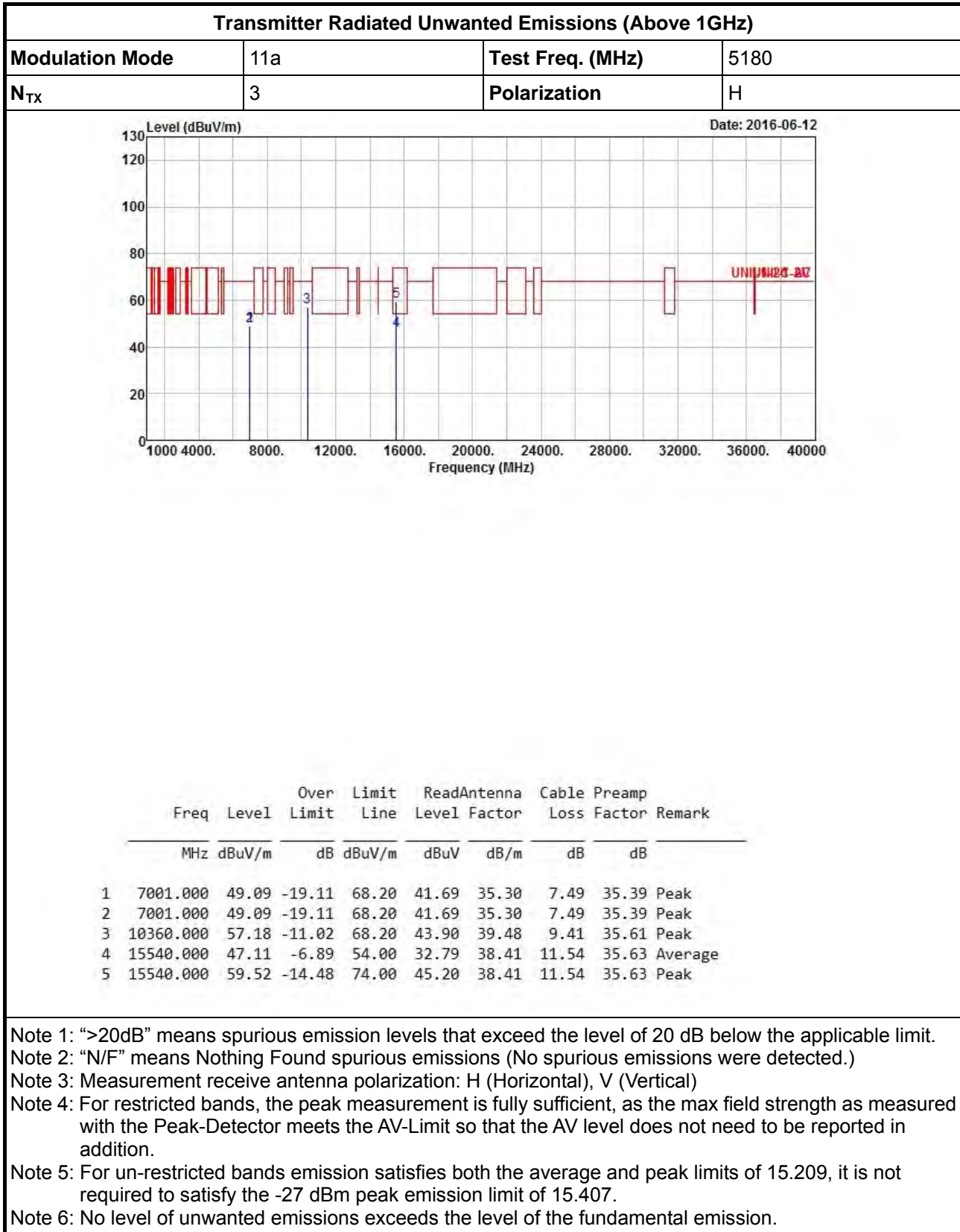


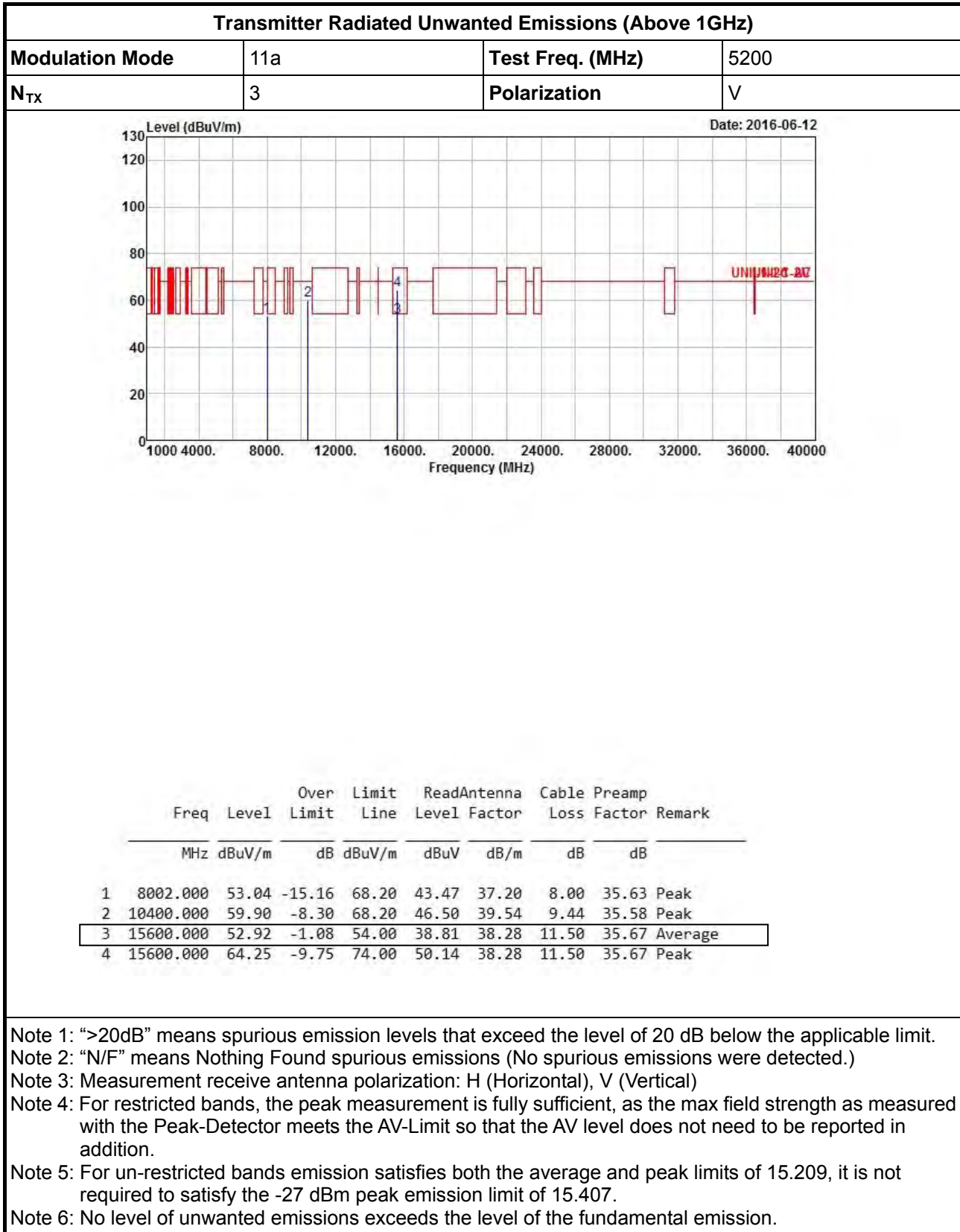


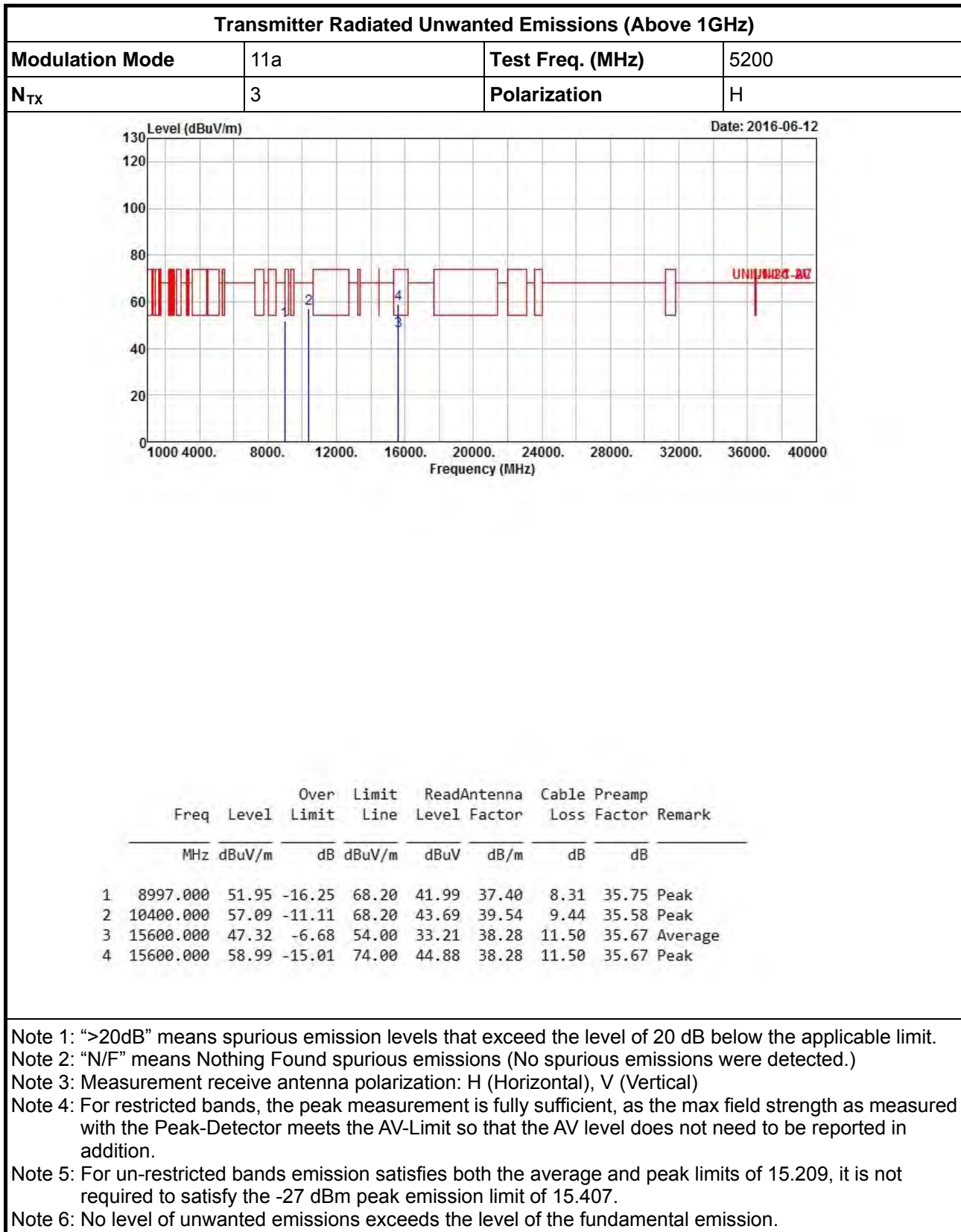
Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5150-5250MHz

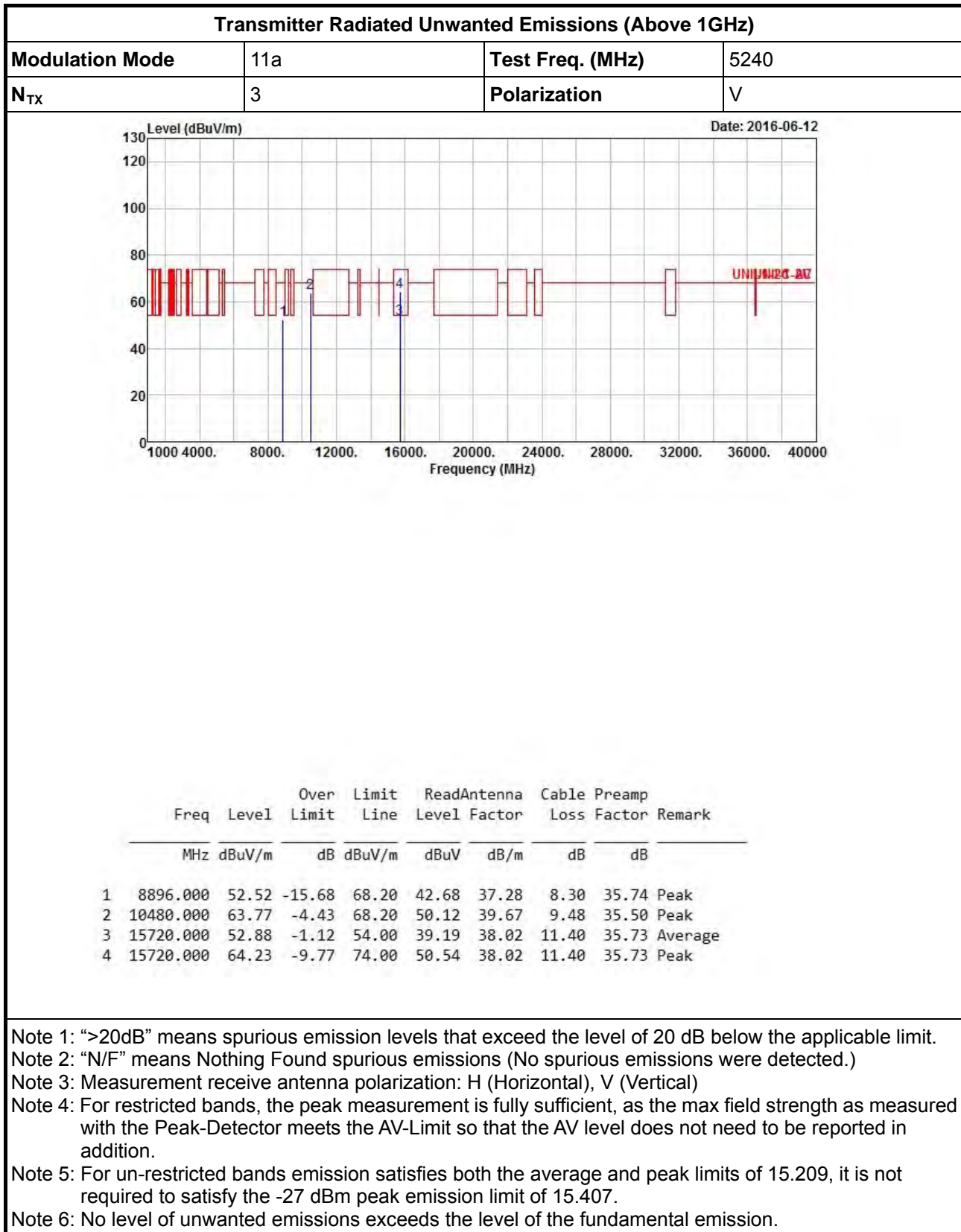


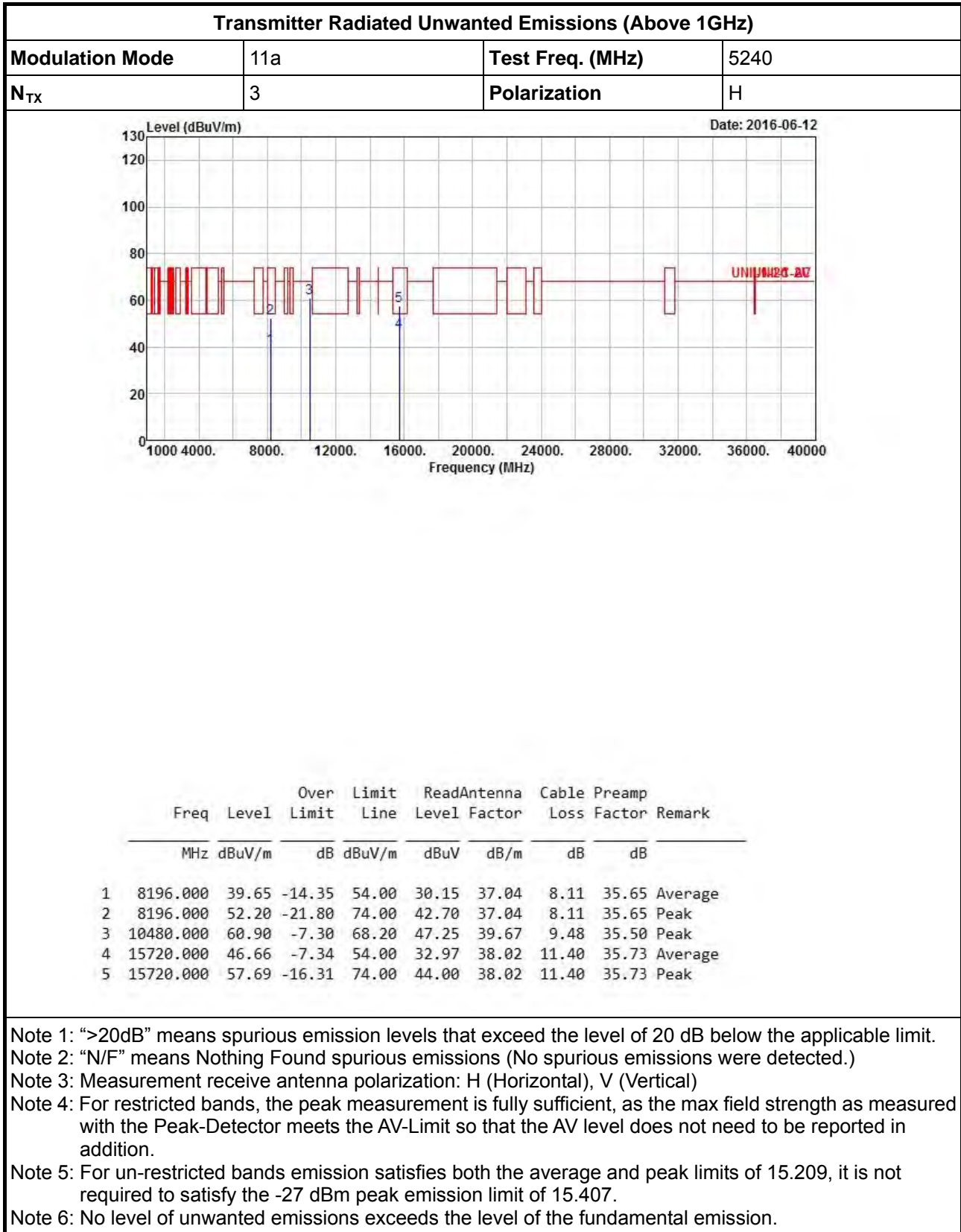
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted 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.

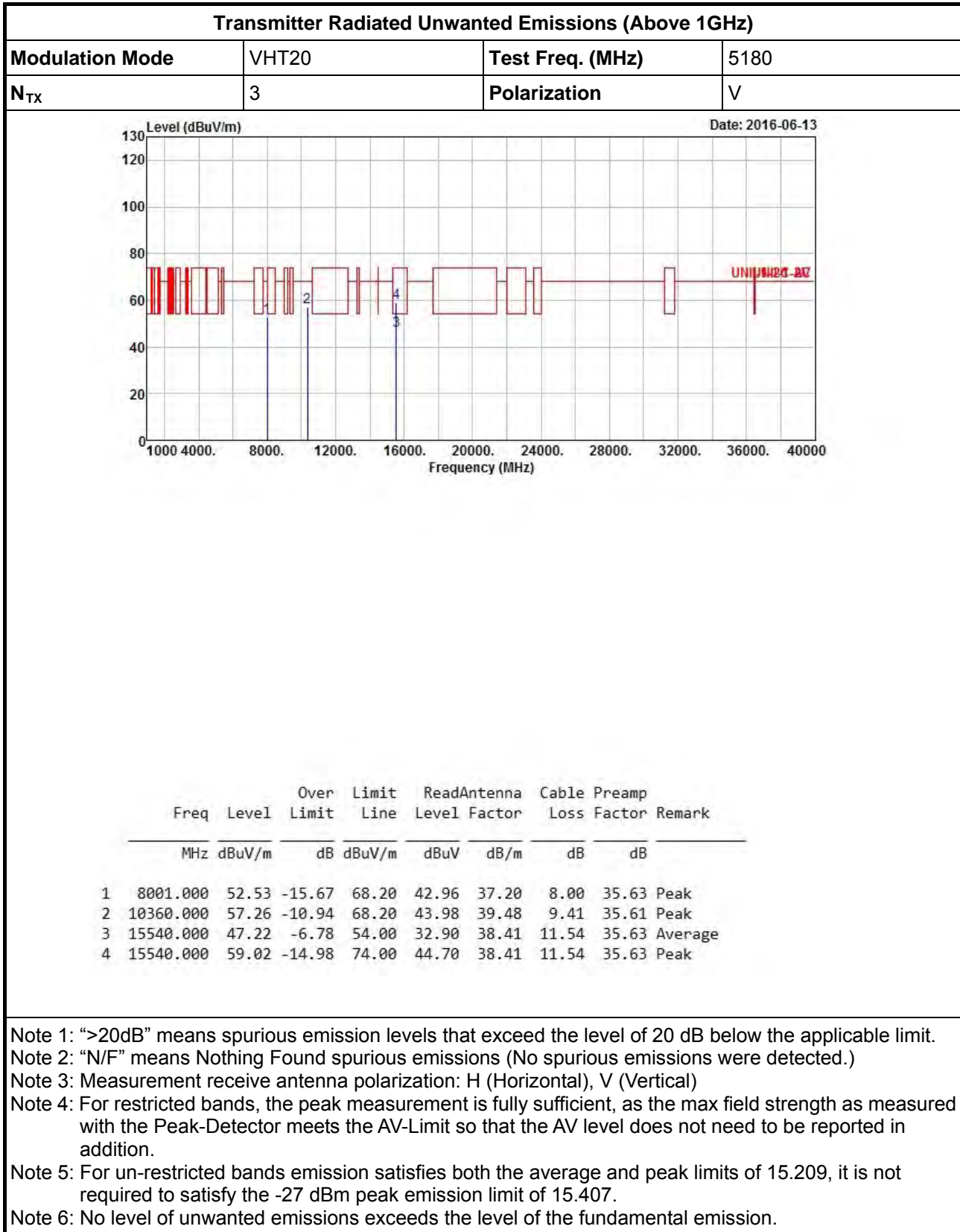


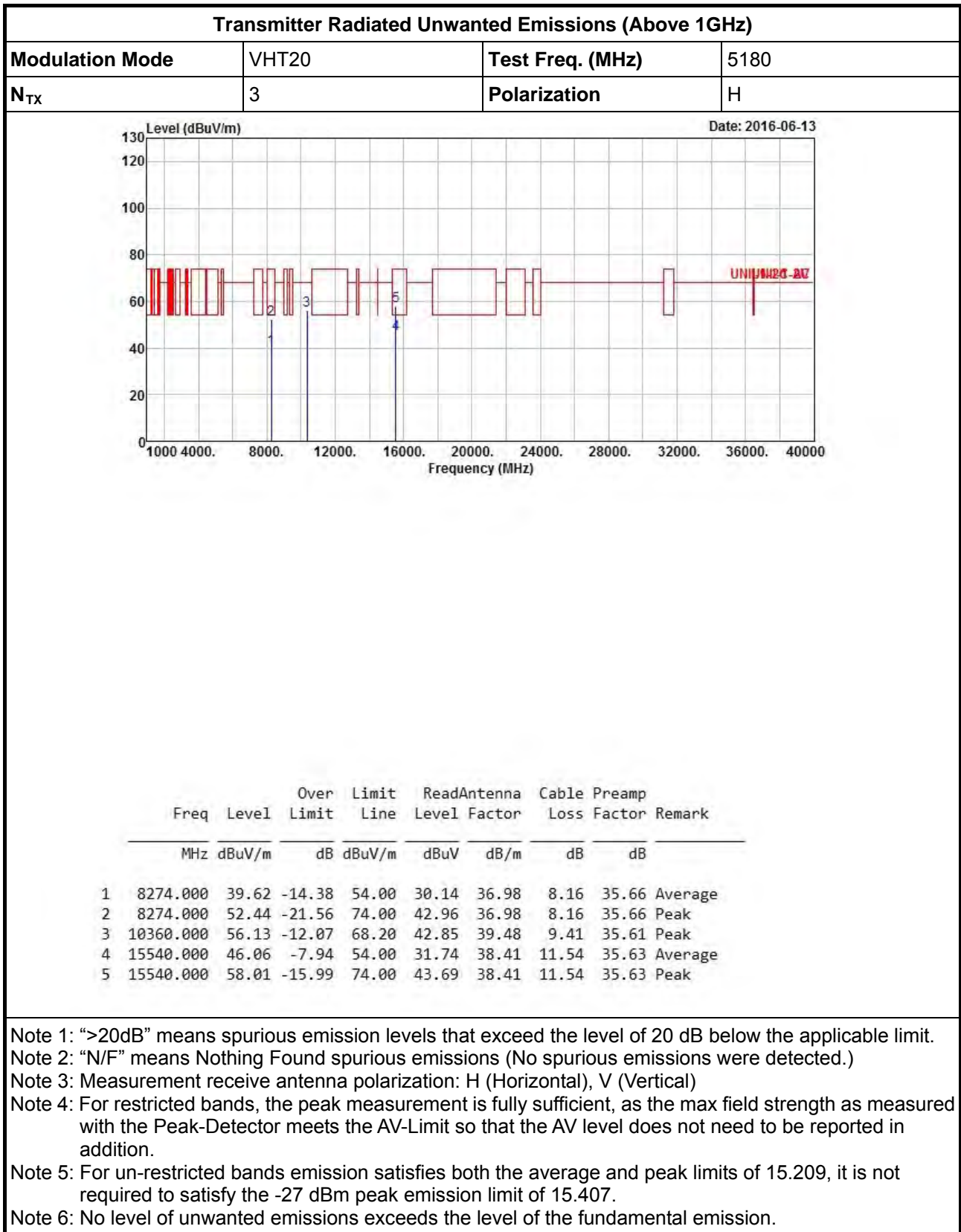


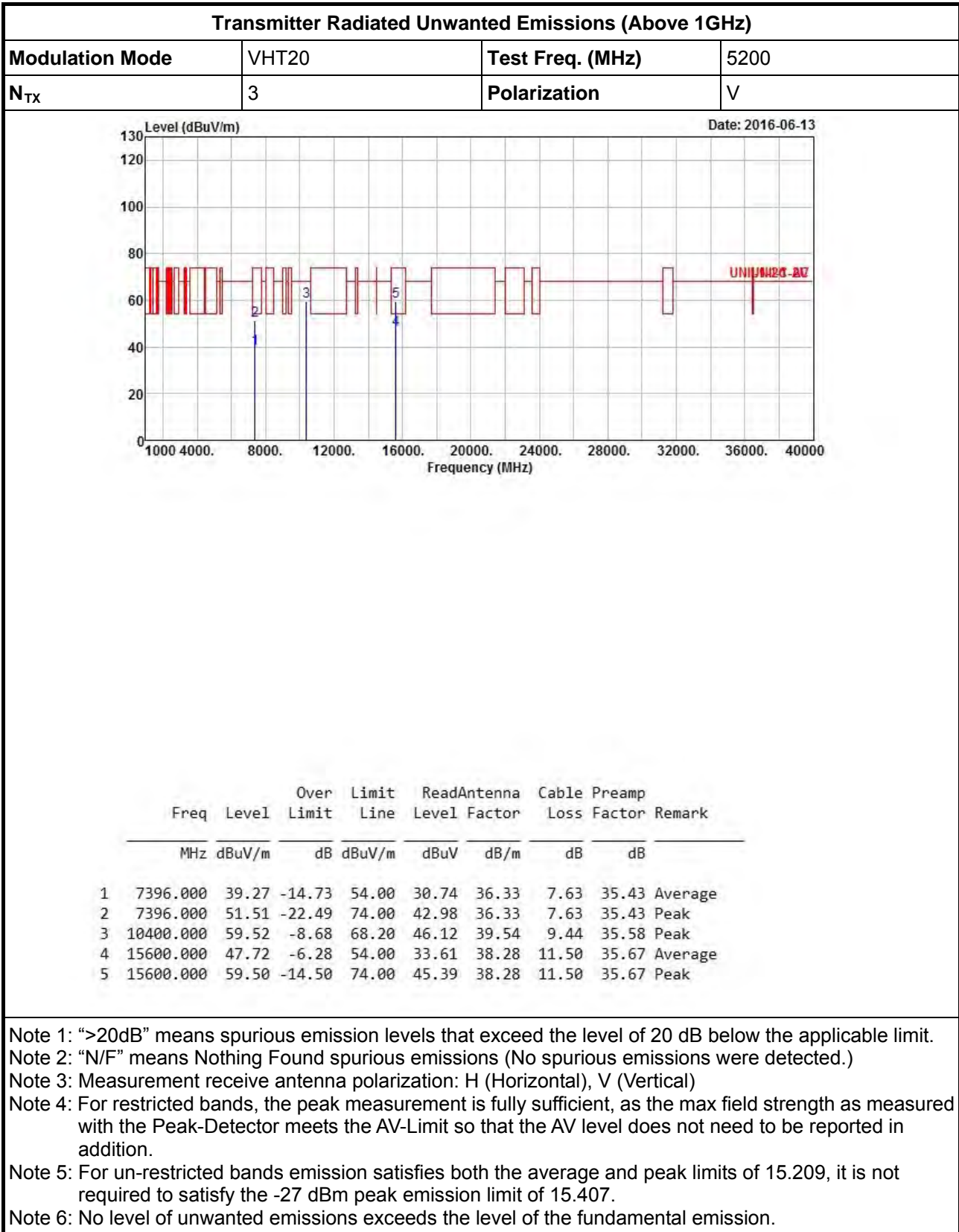


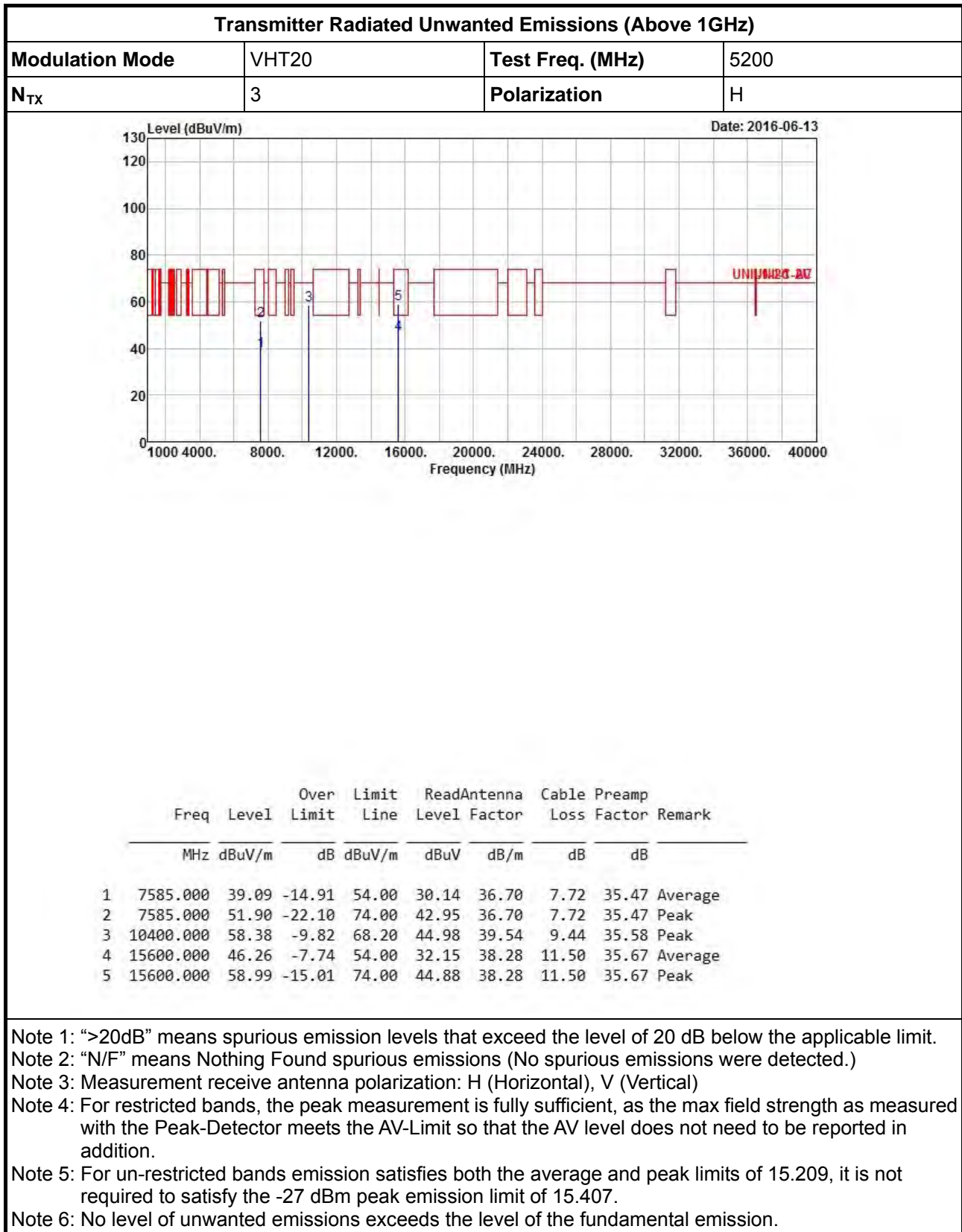


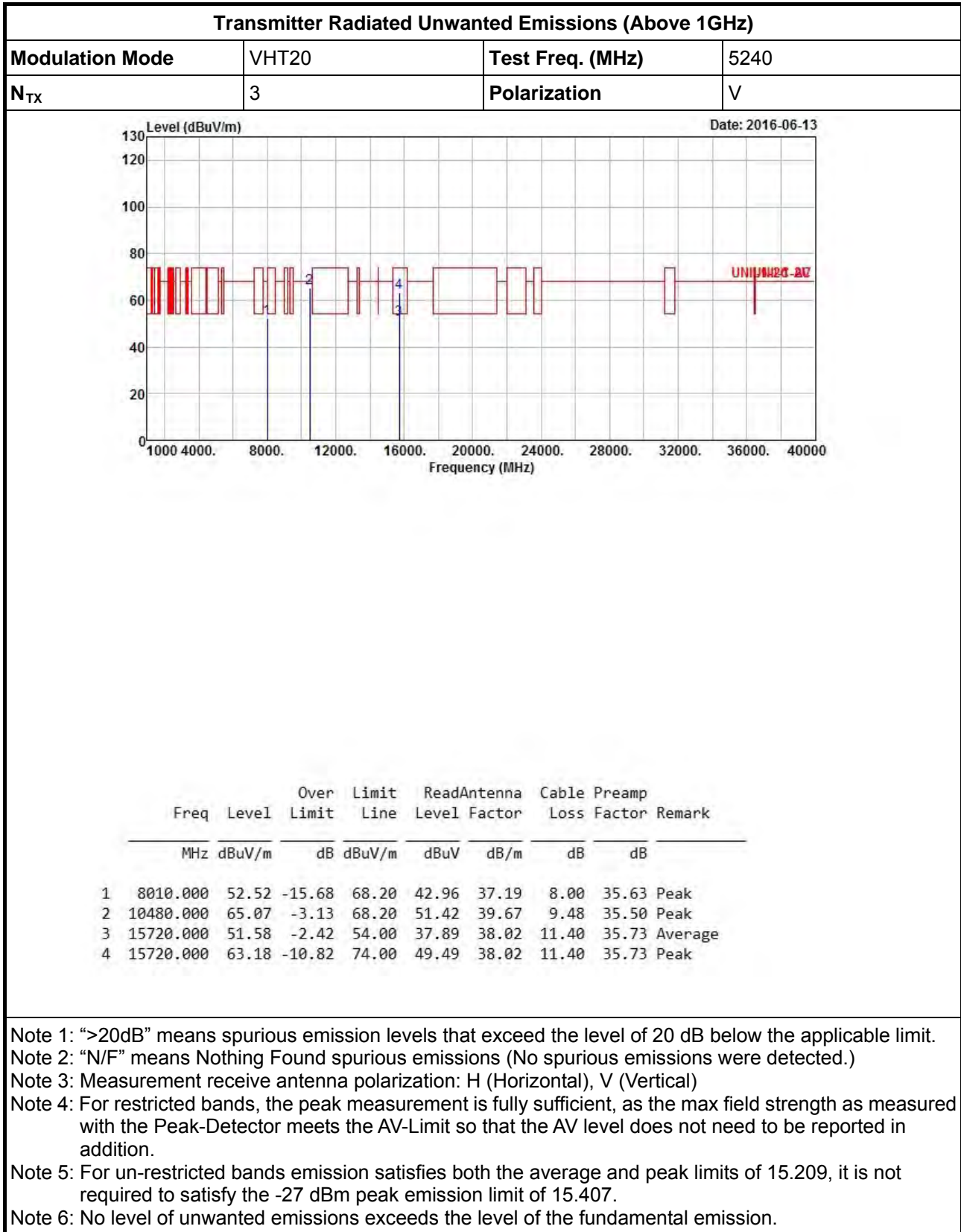


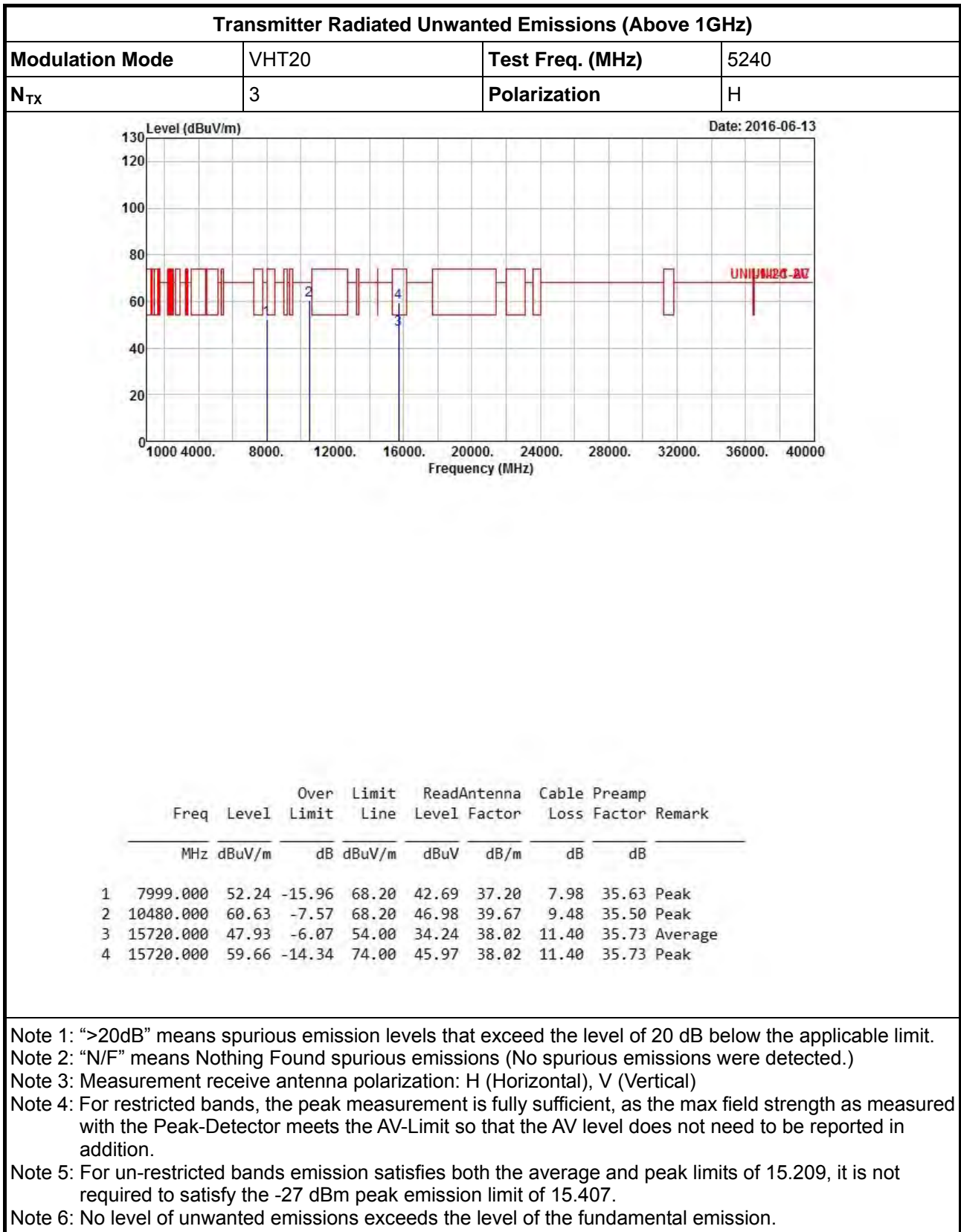








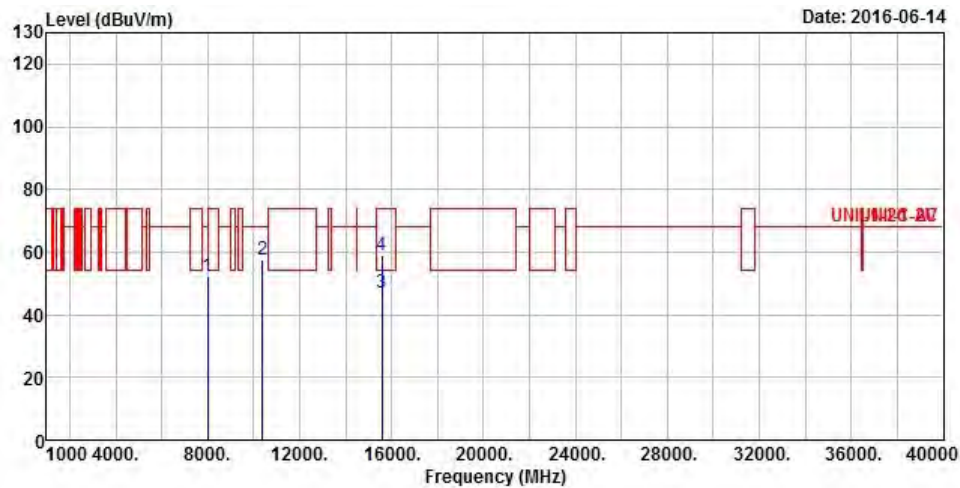






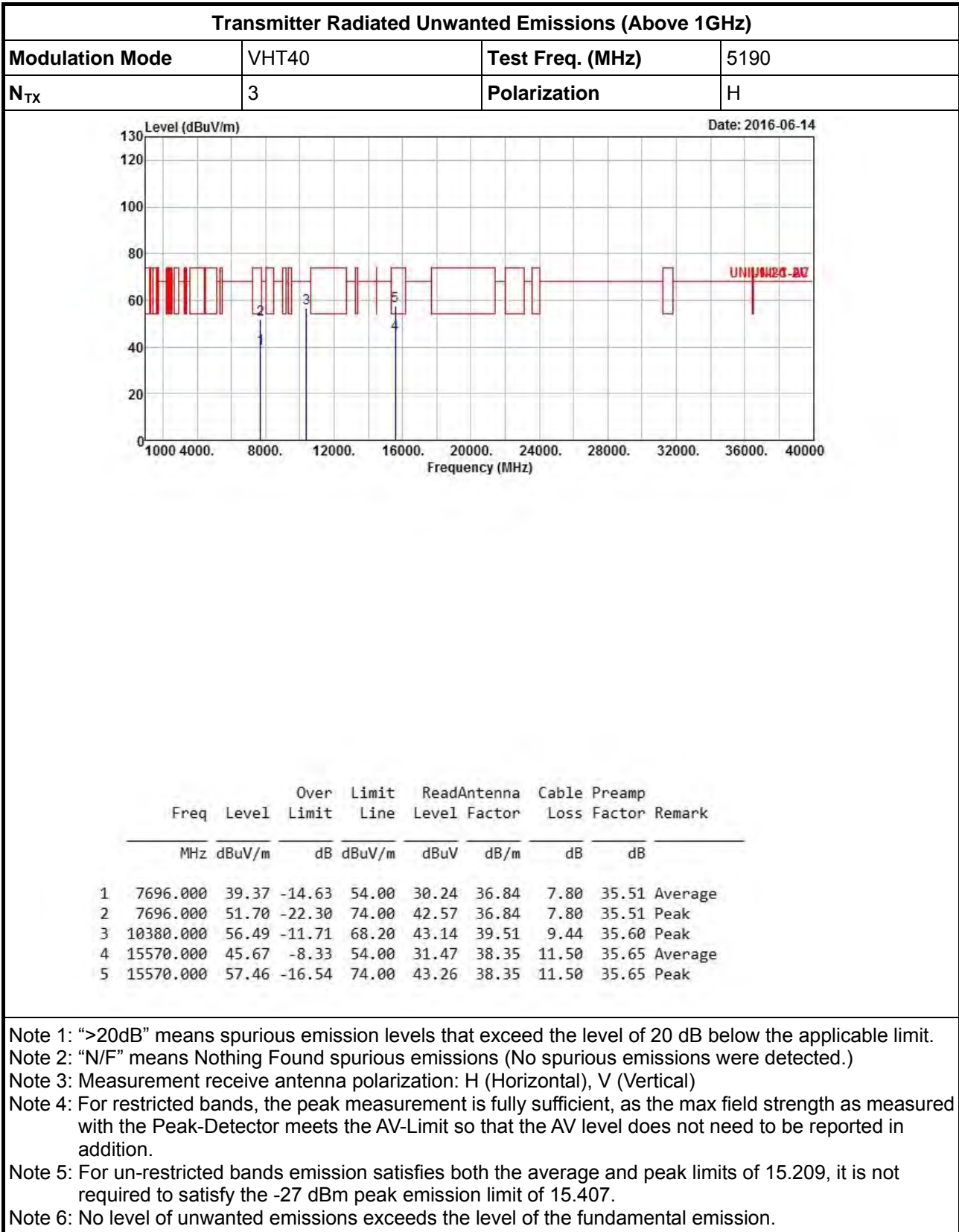
Transmitter Radiated Unwanted Emissions (Above 1GHz)

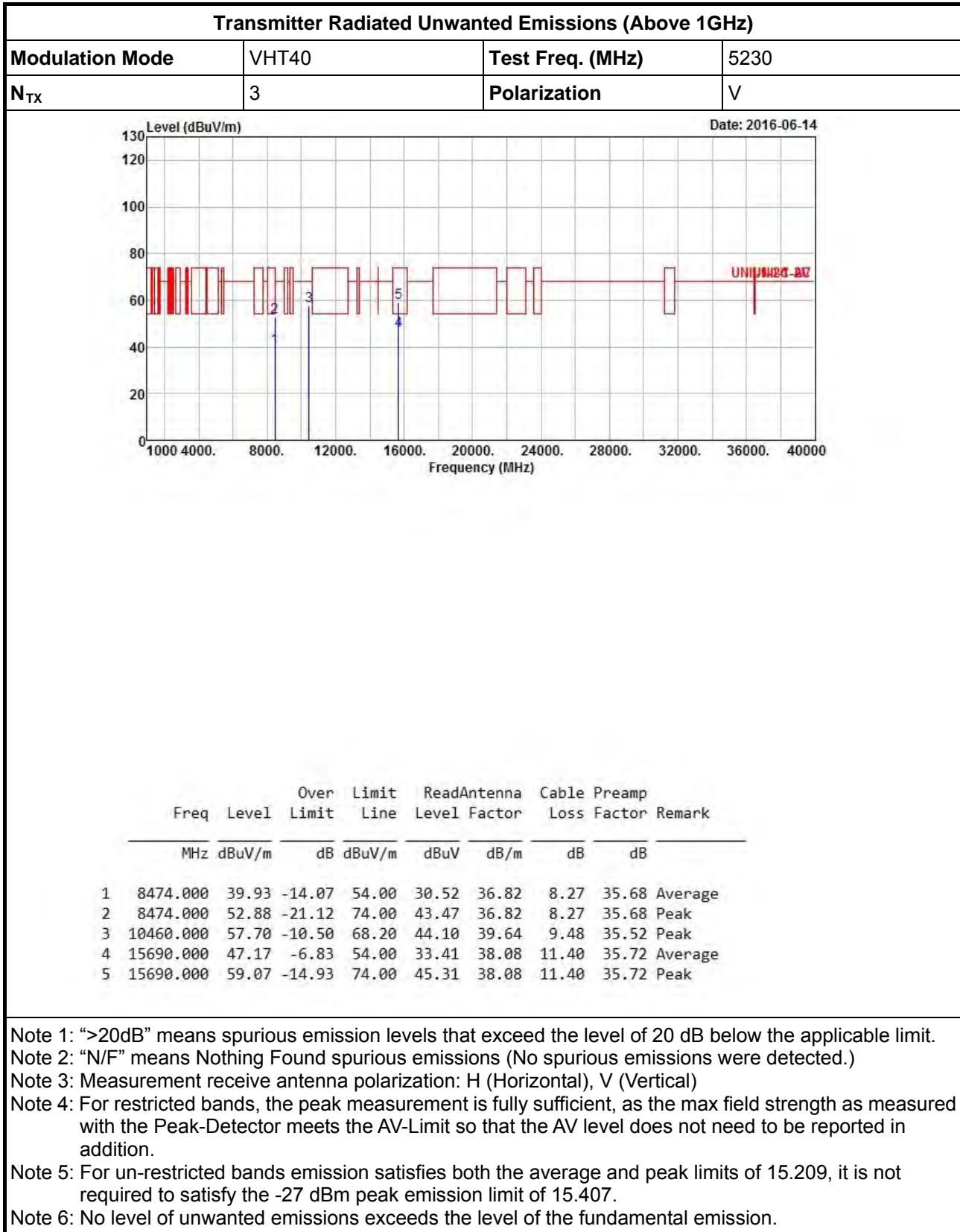
Modulation Mode	VHT40	Test Freq. (MHz)	5190
N _{TX}	3	Polarization	V

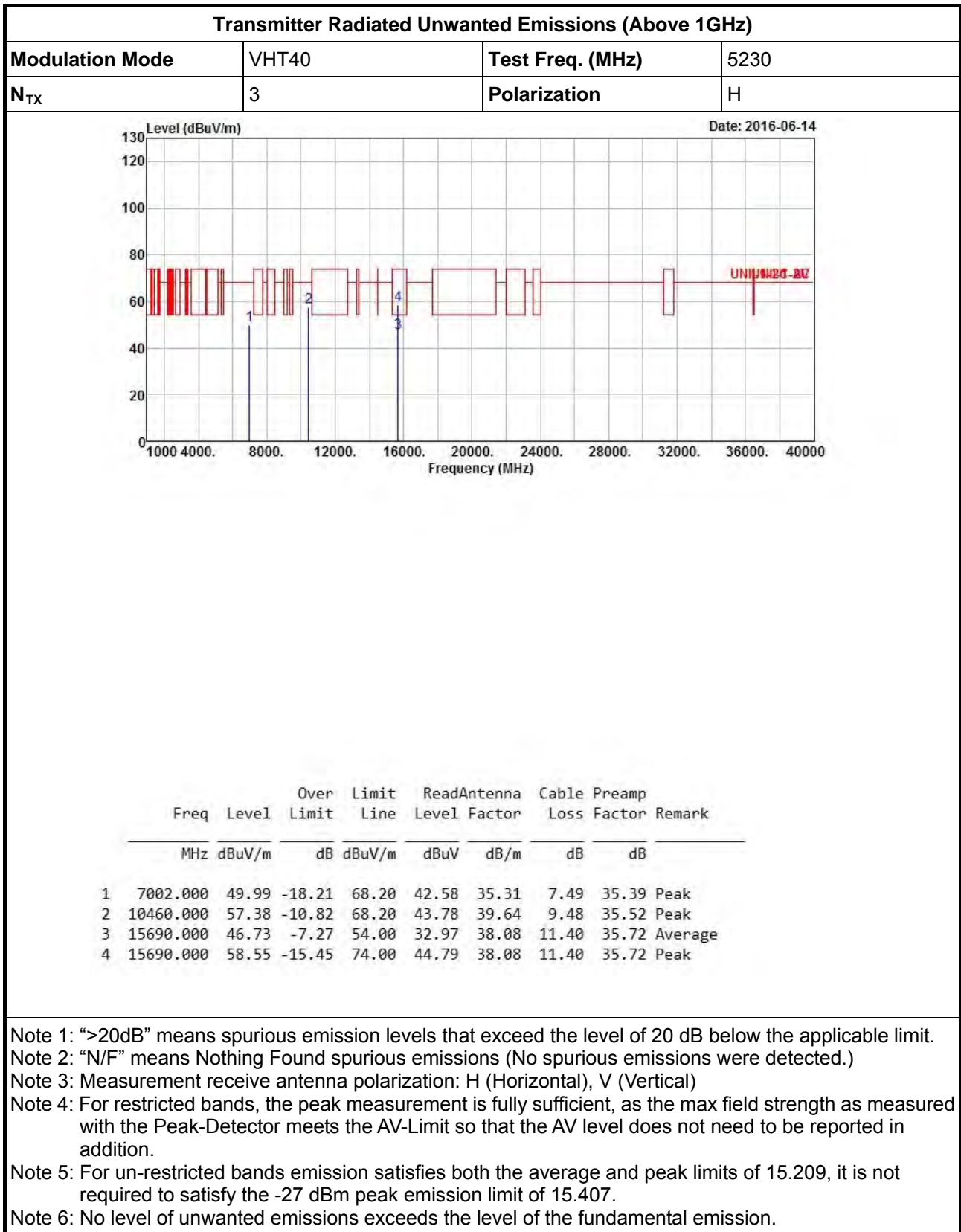


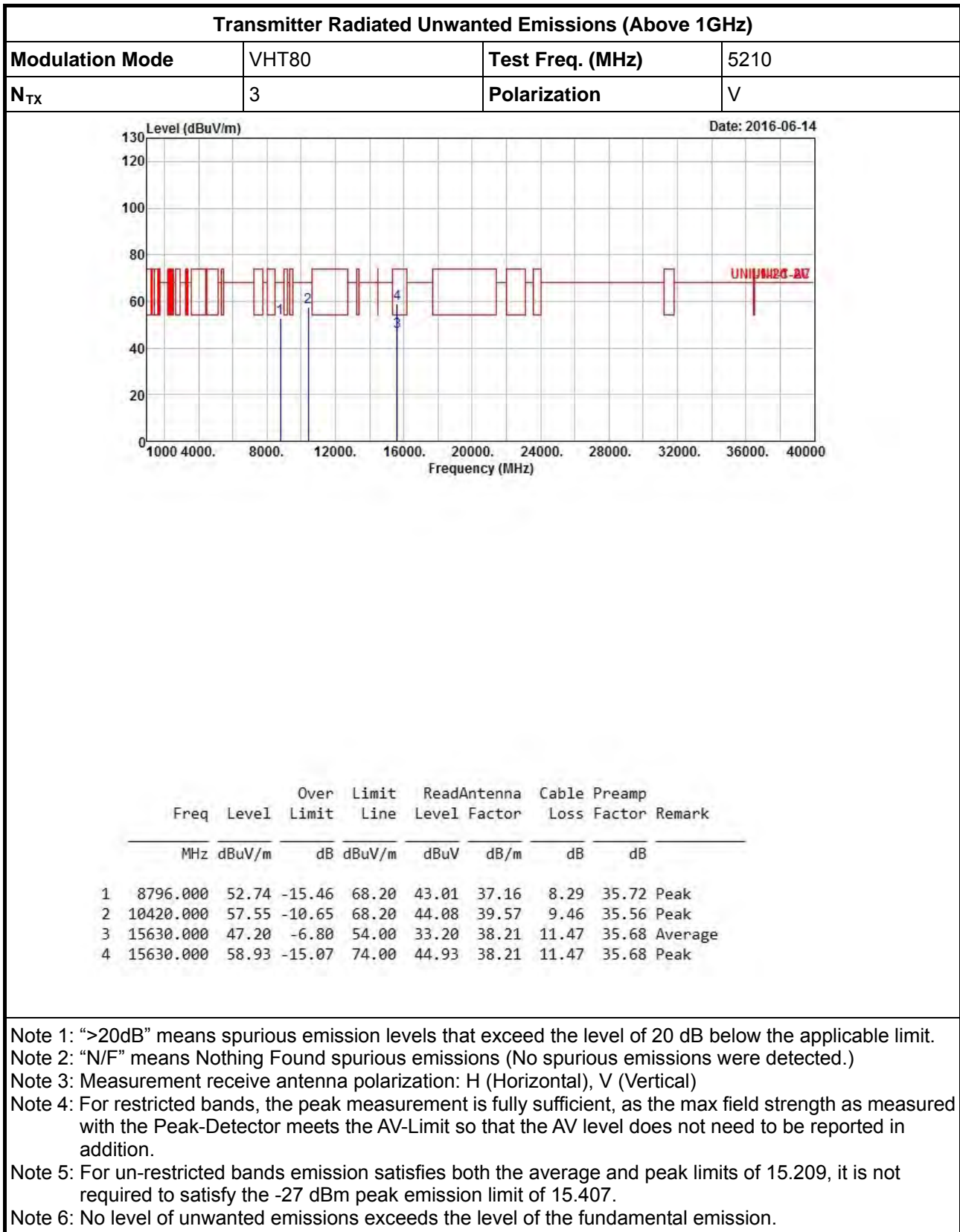
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7999.000	52.23	-15.97	68.20	42.68	37.20	7.98	35.63 Peak
2	10380.000	57.80	-10.40	68.20	44.45	39.51	9.44	35.60 Peak
3	15570.000	47.00	-7.00	54.00	32.80	38.35	11.50	35.65 Average
4	15570.000	58.98	-15.02	74.00	44.78	38.35	11.50	35.65 Peak

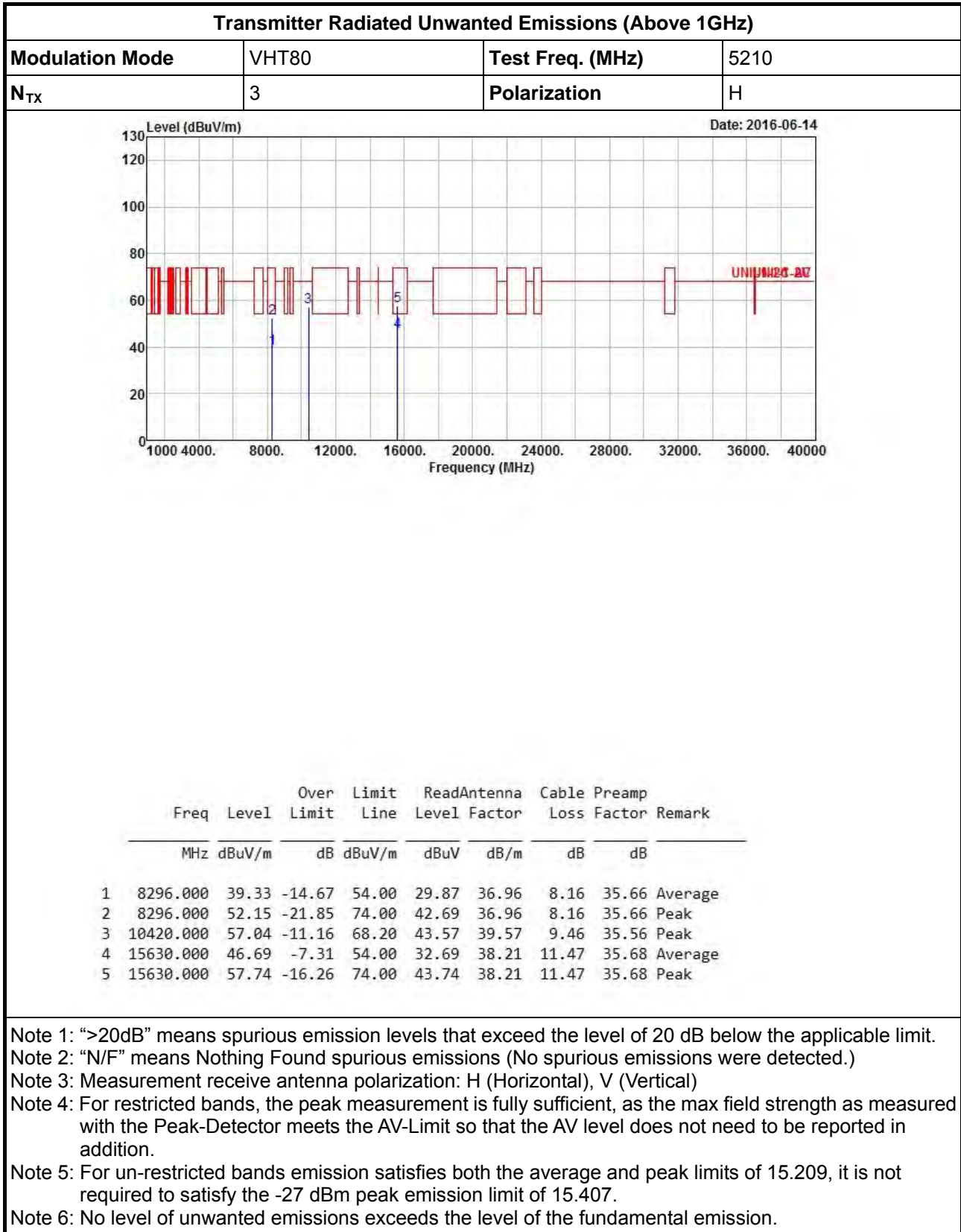
- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted 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.





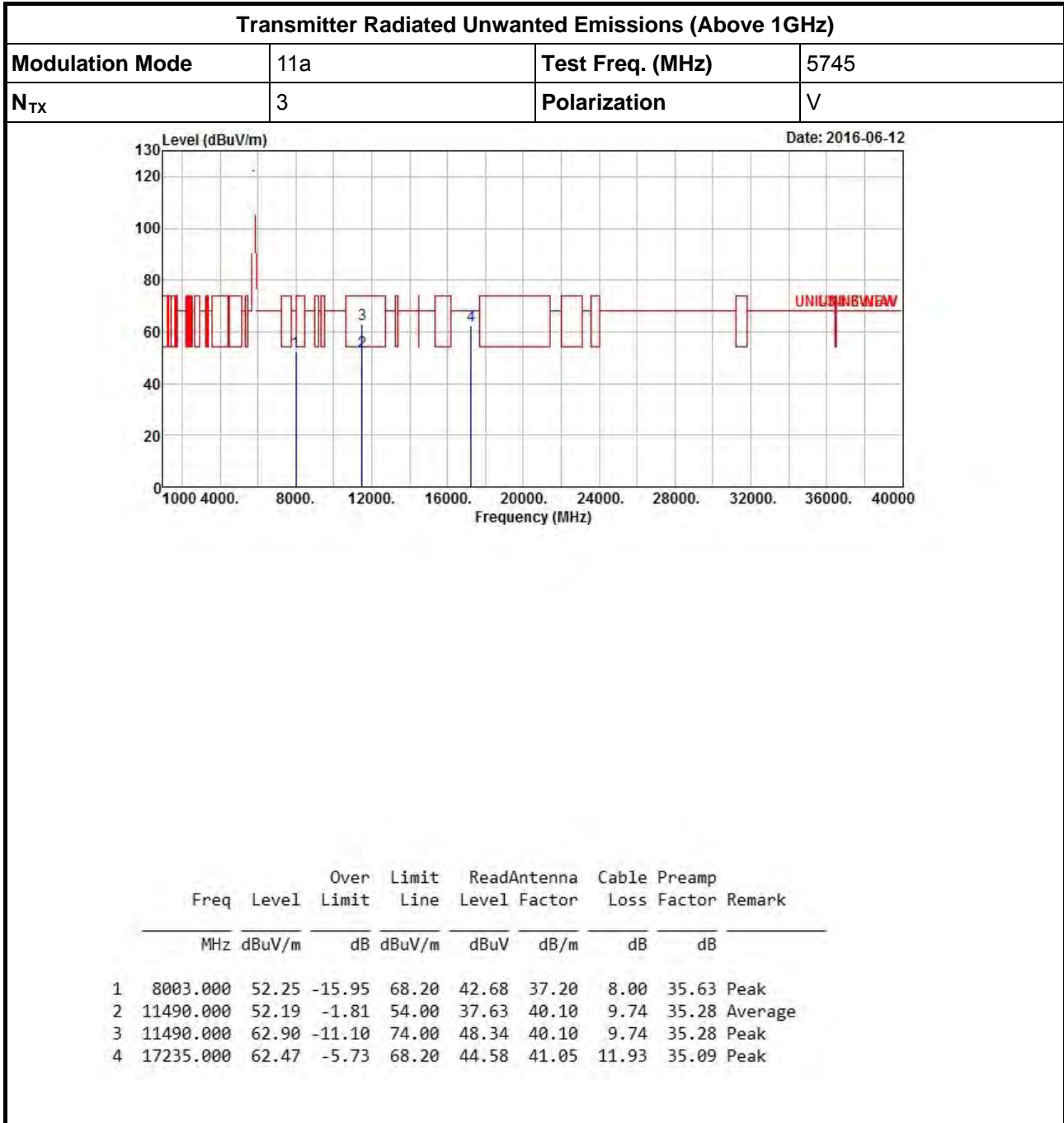








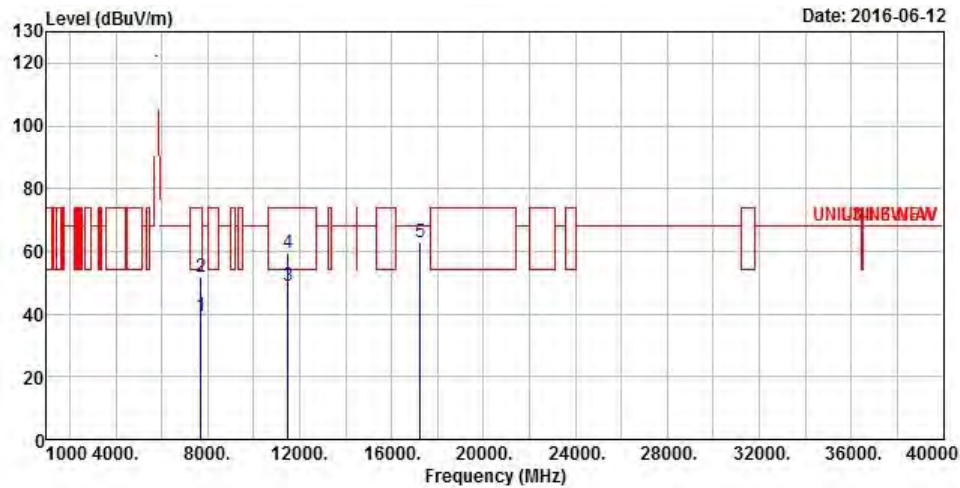
Transmitter Radiated Unwanted Emissions (Above 1GHz) for 5725-5850MHz



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.

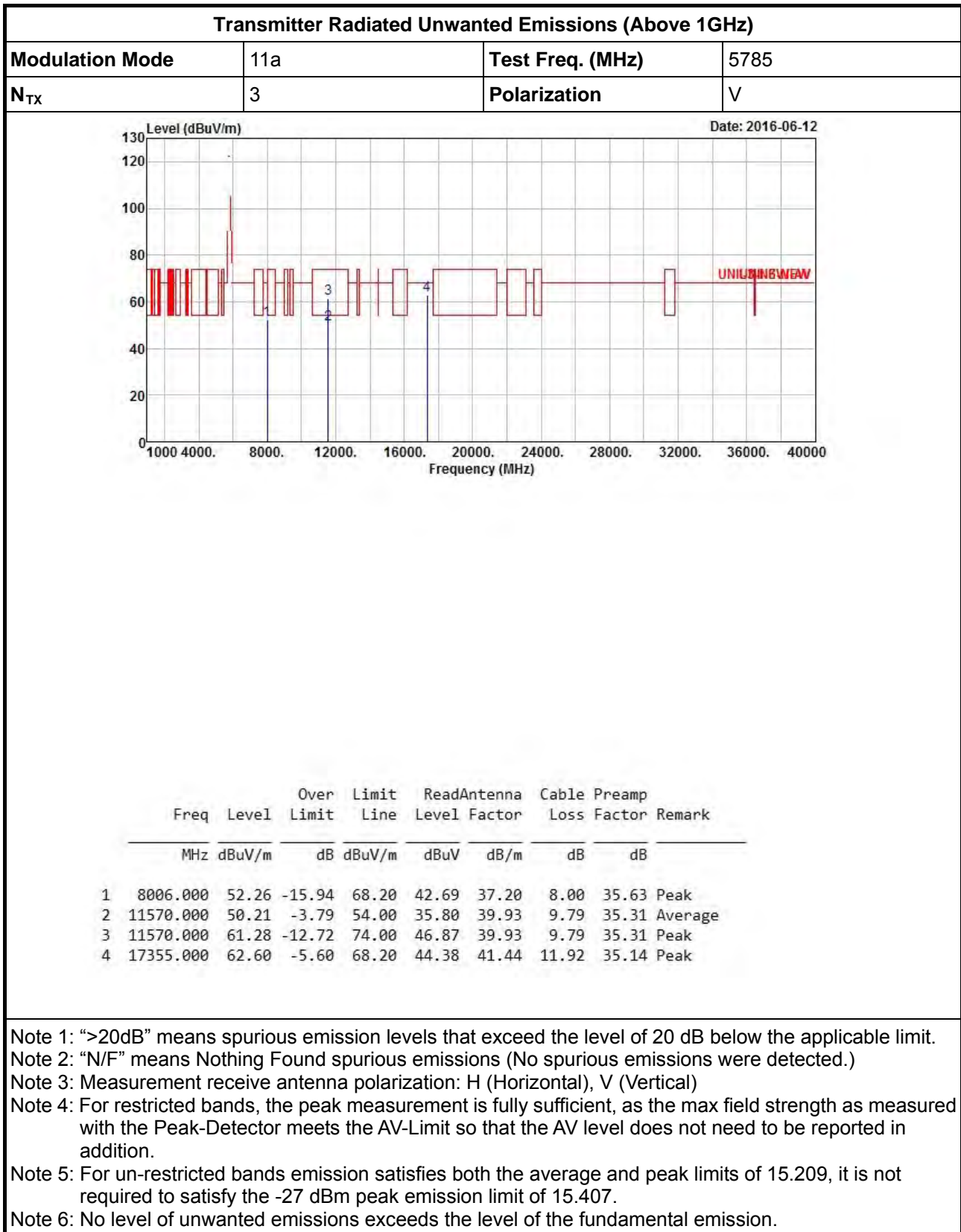


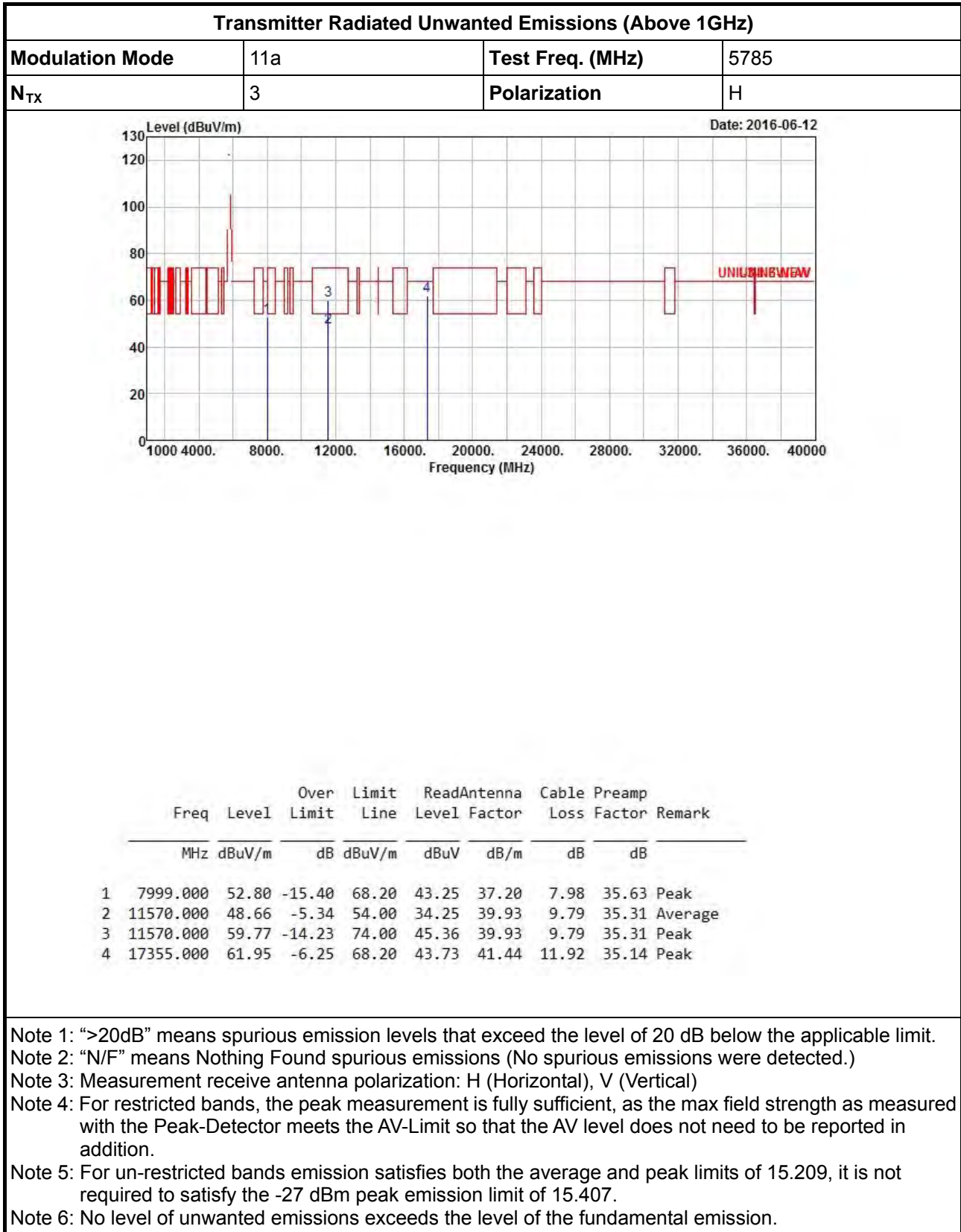
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11a	Test Freq. (MHz)	5745
N _{TX}	3	Polarization	H

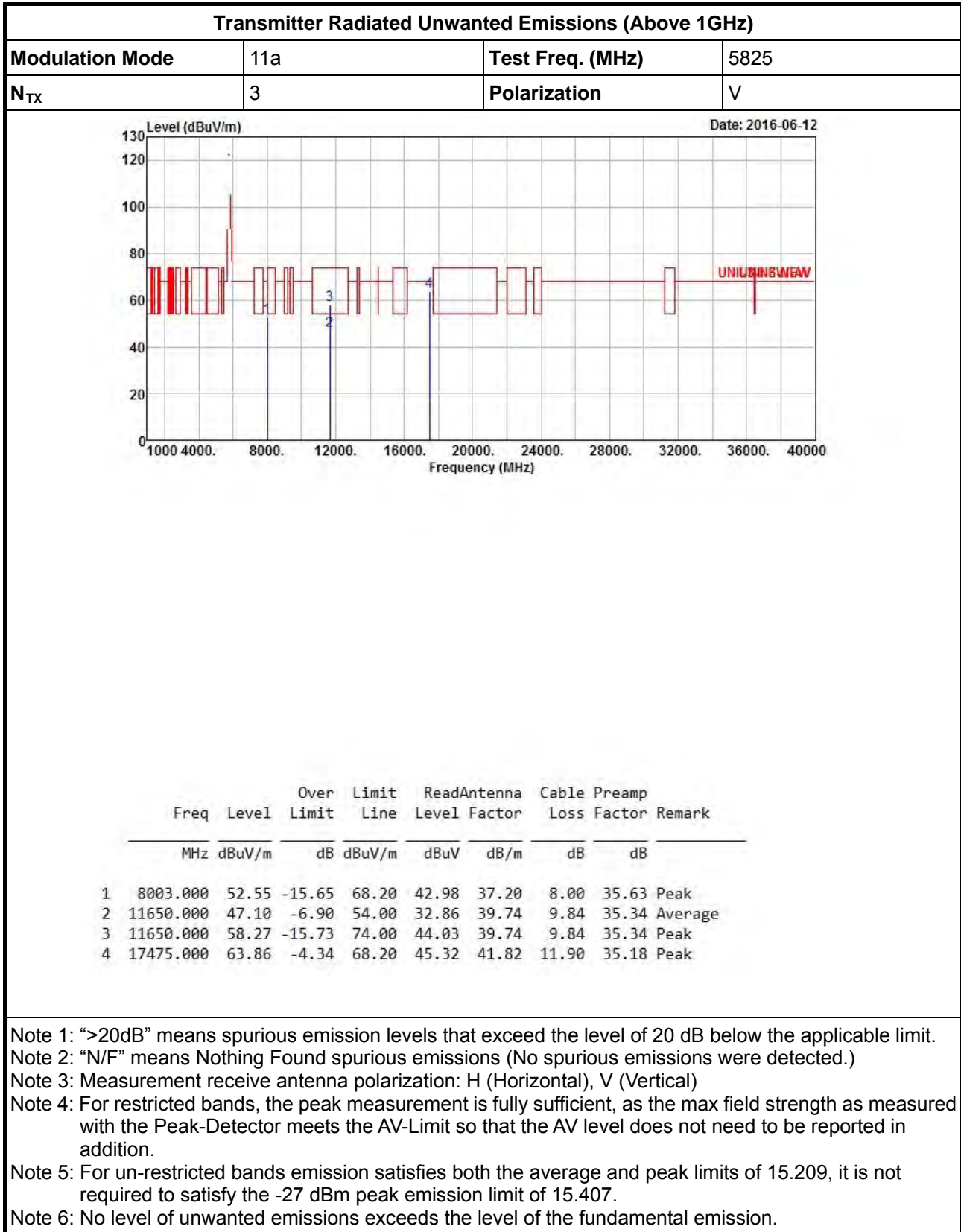


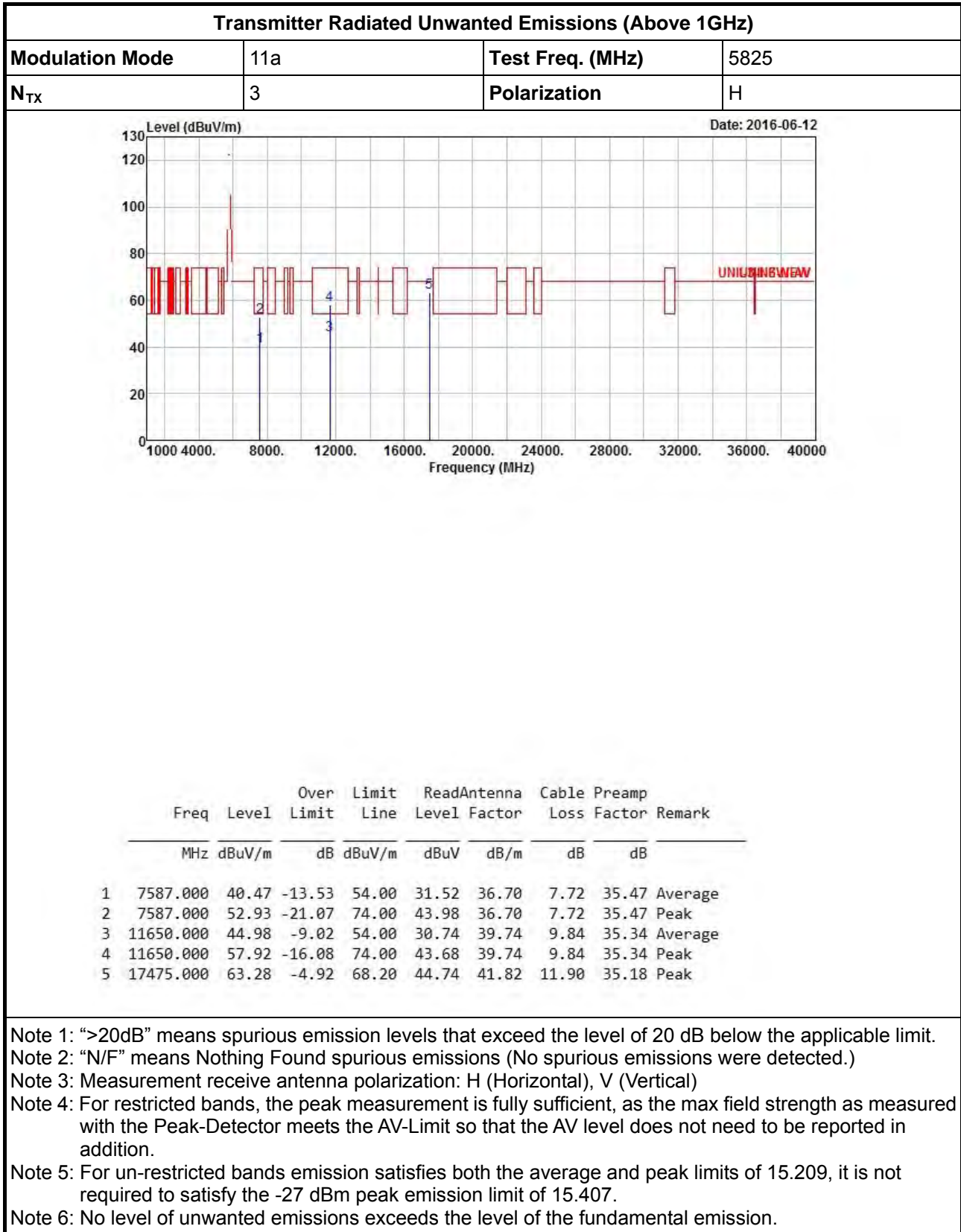
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7695.000	39.17	-14.83	54.00	30.05	36.83	7.80	35.51 Average
2	7695.000	51.90	-22.10	74.00	42.78	36.83	7.80	35.51 Peak
3	11490.000	48.70	-5.30	54.00	34.14	40.10	9.74	35.28 Average
4	11490.000	59.59	-14.41	74.00	45.03	40.10	9.74	35.28 Peak
5	17235.000	62.65	-5.55	68.20	44.76	41.05	11.93	35.09 Peak

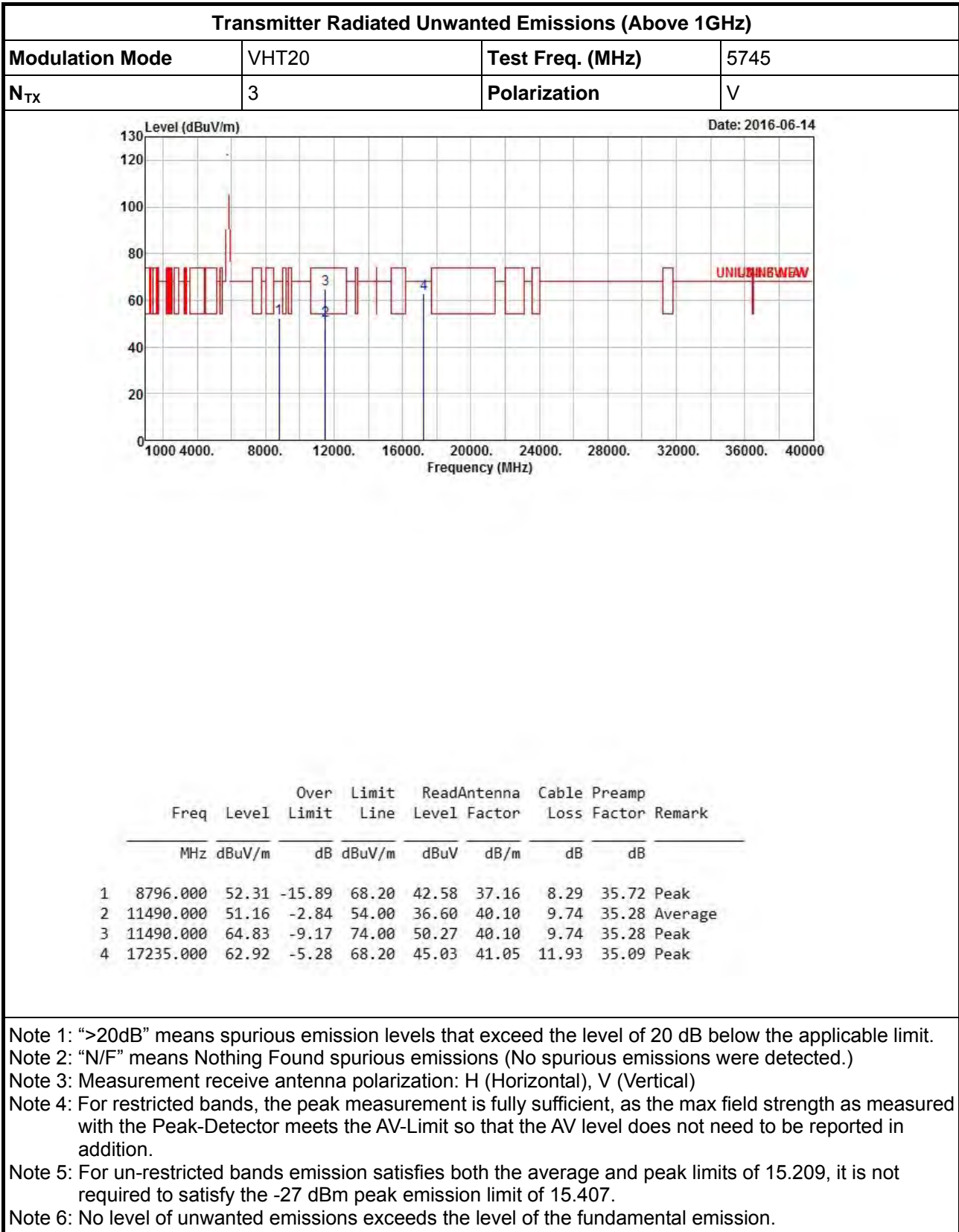
- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted 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.

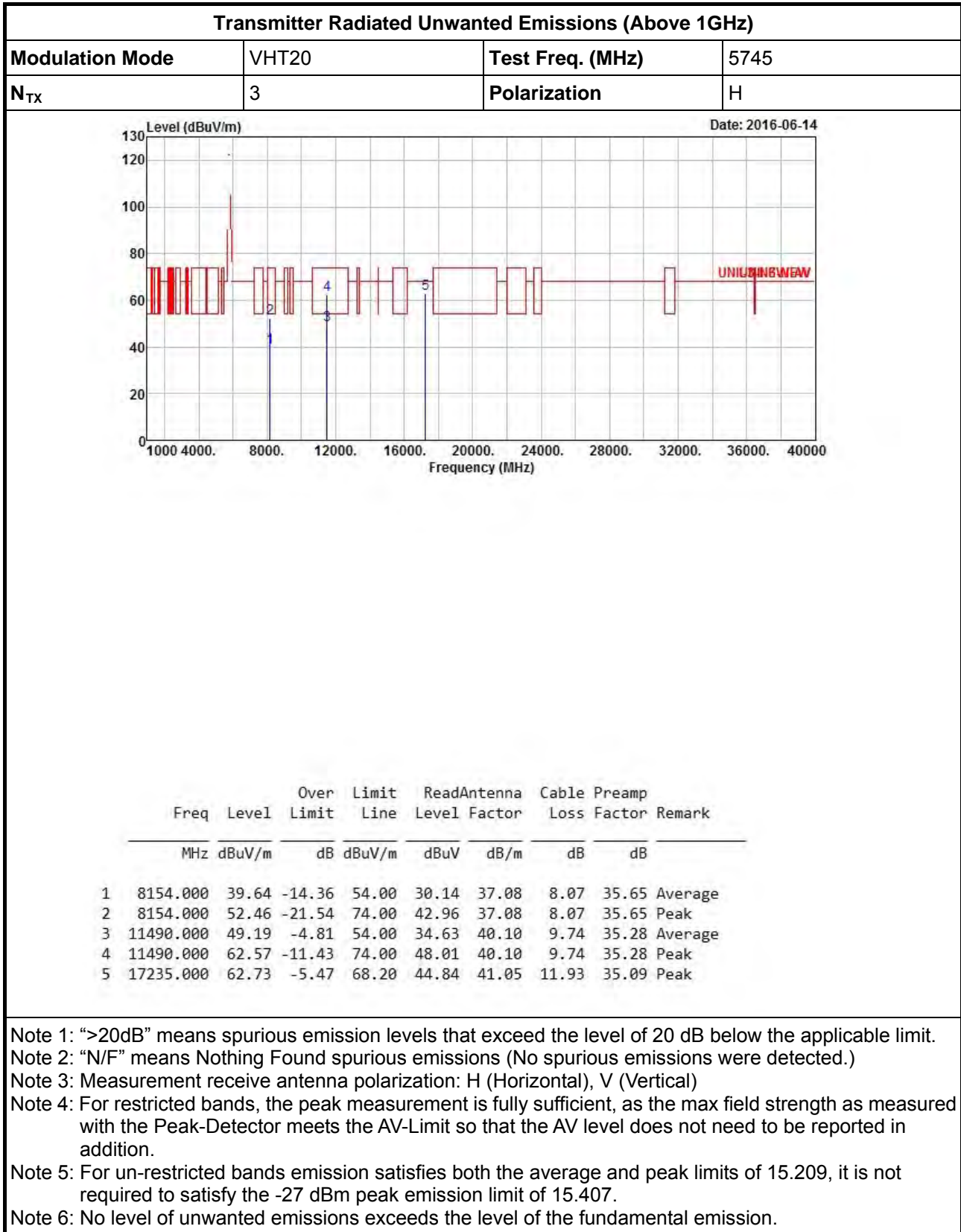








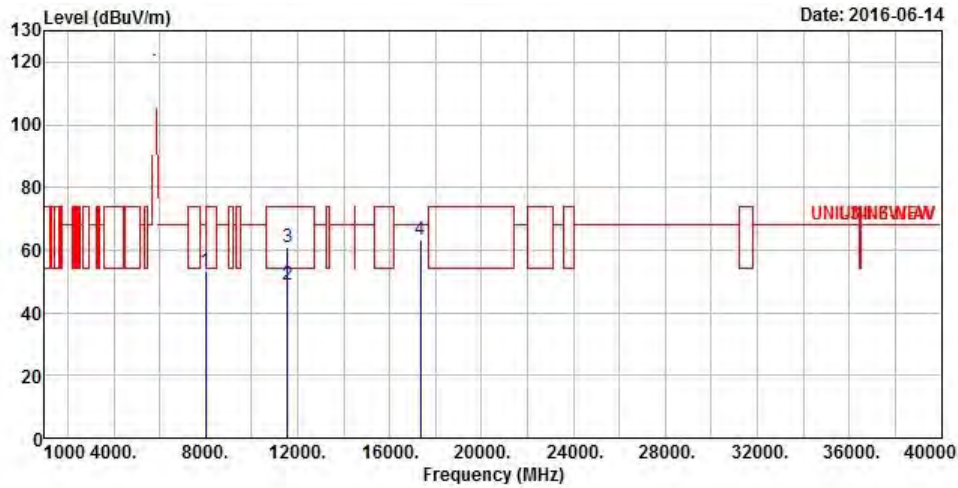






Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT20	Test Freq. (MHz)	5785
N _{TX}	3	Polarization	V



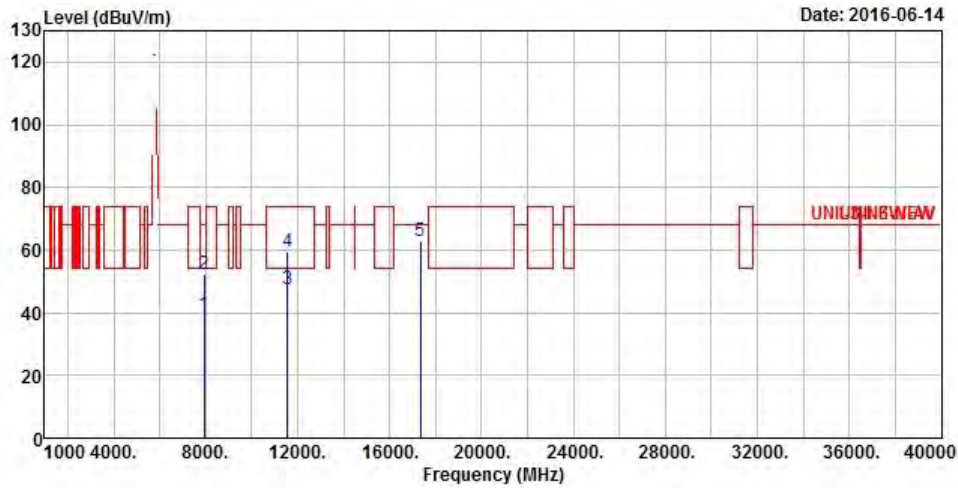
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	8002.000	53.25	-14.95	68.20	43.68	37.20	8.00	35.63 Peak
2	11570.000	48.71	-5.29	54.00	34.30	39.93	9.79	35.31 Average
3	11570.000	60.99	-13.01	74.00	46.58	39.93	9.79	35.31 Peak
4	17355.000	63.25	-4.95	68.20	45.03	41.44	11.92	35.14 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)

Modulation Mode	VHT20	Test Freq. (MHz)	5785
N _{TX}	3	Polarization	H



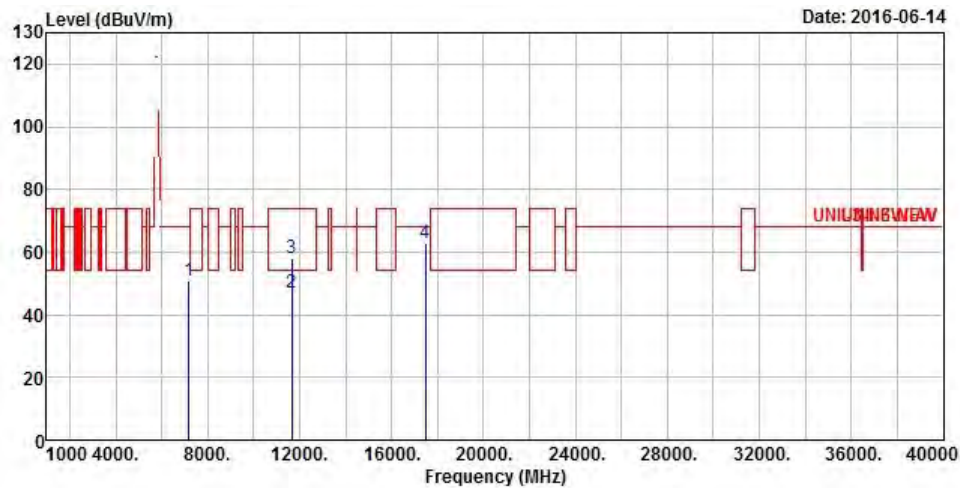
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	
1	7947.000	39.50	-28.70	68.20	30.02	37.14	7.95	35.61 Average
2	7947.000	52.46	-15.74	68.20	42.98	37.14	7.95	35.61 Peak
3	11570.000	47.37	-6.63	54.00	32.96	39.93	9.79	35.31 Average
4	11570.000	59.37	-14.63	74.00	44.96	39.93	9.79	35.31 Peak
5	17355.000	62.95	-5.25	68.20	44.73	41.44	11.92	35.14 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.



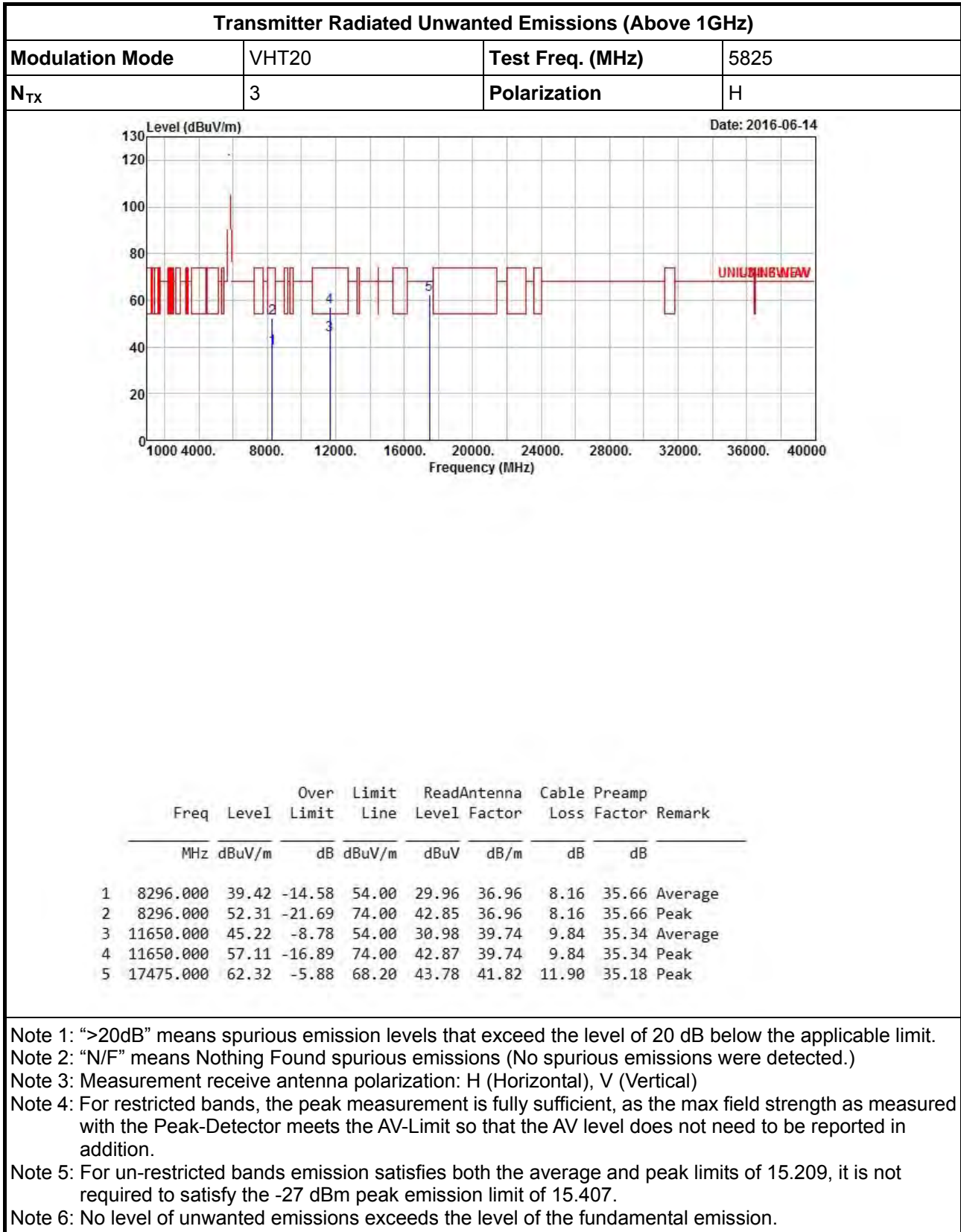
Transmitter Radiated Unwanted Emissions (Above 1GHz)

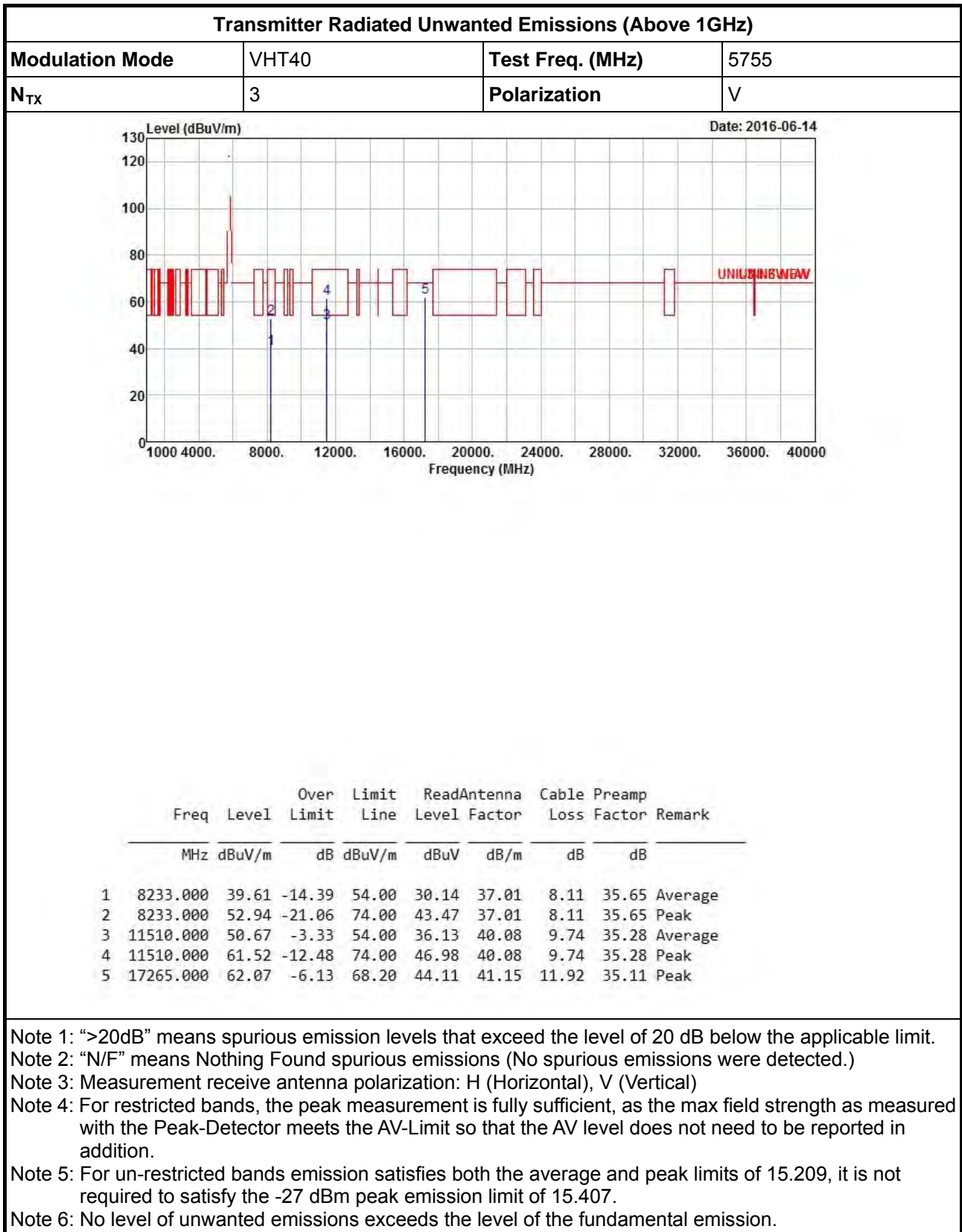
Modulation Mode	VHT20	Test Freq. (MHz)	5825
N _{TX}	3	Polarization	V

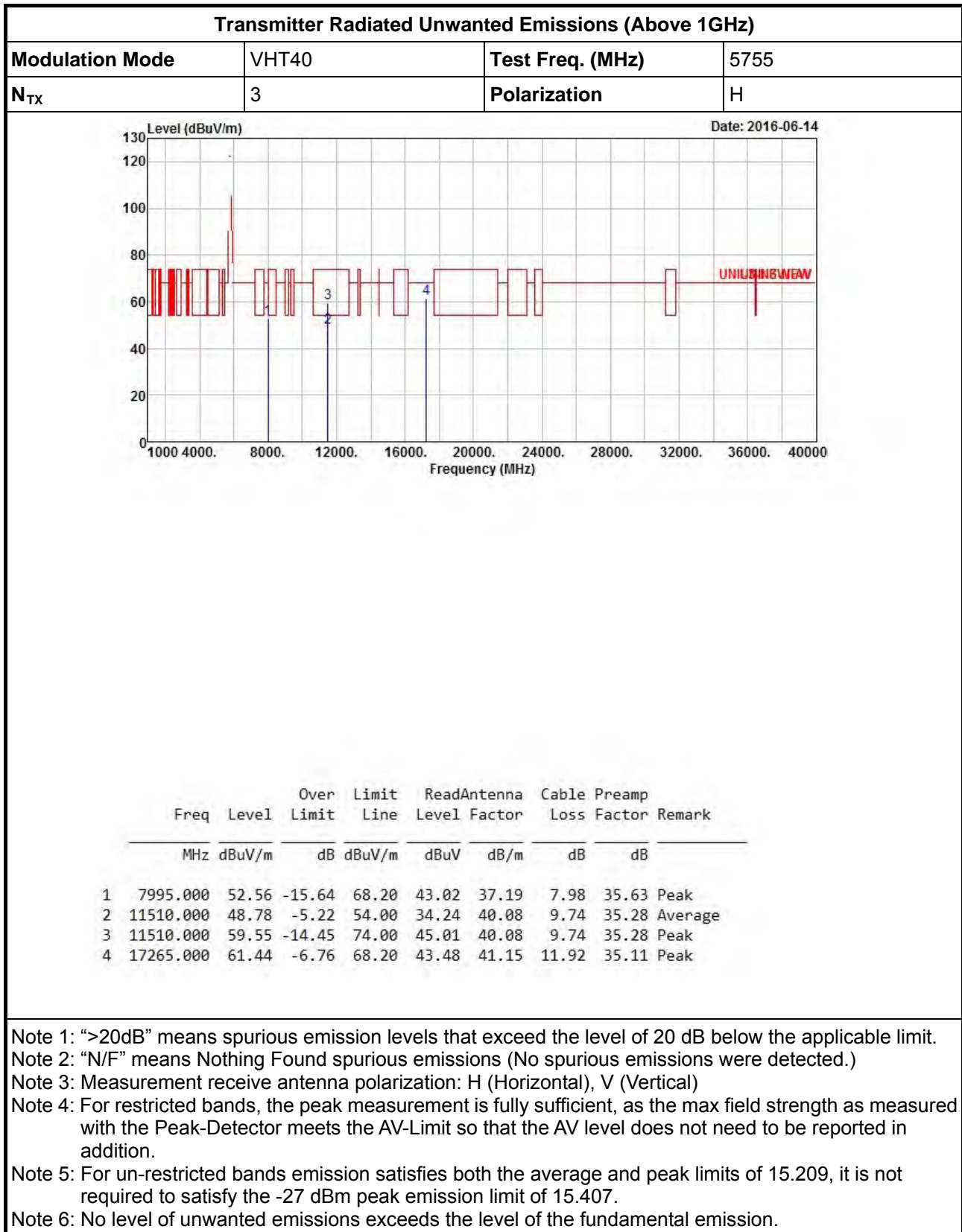


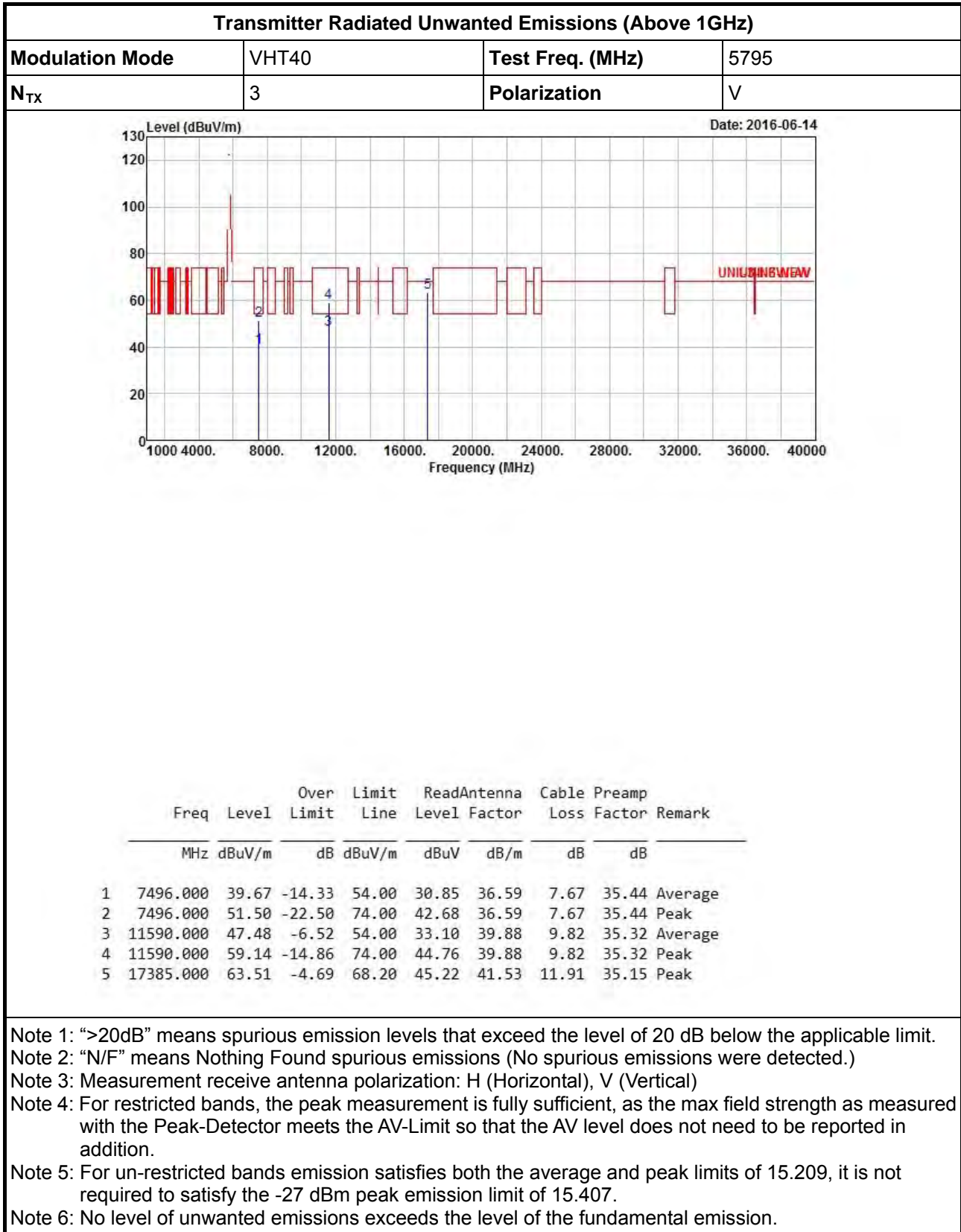
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7185.000	50.89	-17.31	68.20	42.96	35.78	7.56	35.41 Peak
2	11650.000	46.94	-7.06	54.00	32.70	39.74	9.84	35.34 Average
3	11650.000	58.00	-16.00	74.00	43.76	39.74	9.84	35.34 Peak
4	17475.000	62.64	-5.56	68.20	44.10	41.82	11.90	35.18 Peak

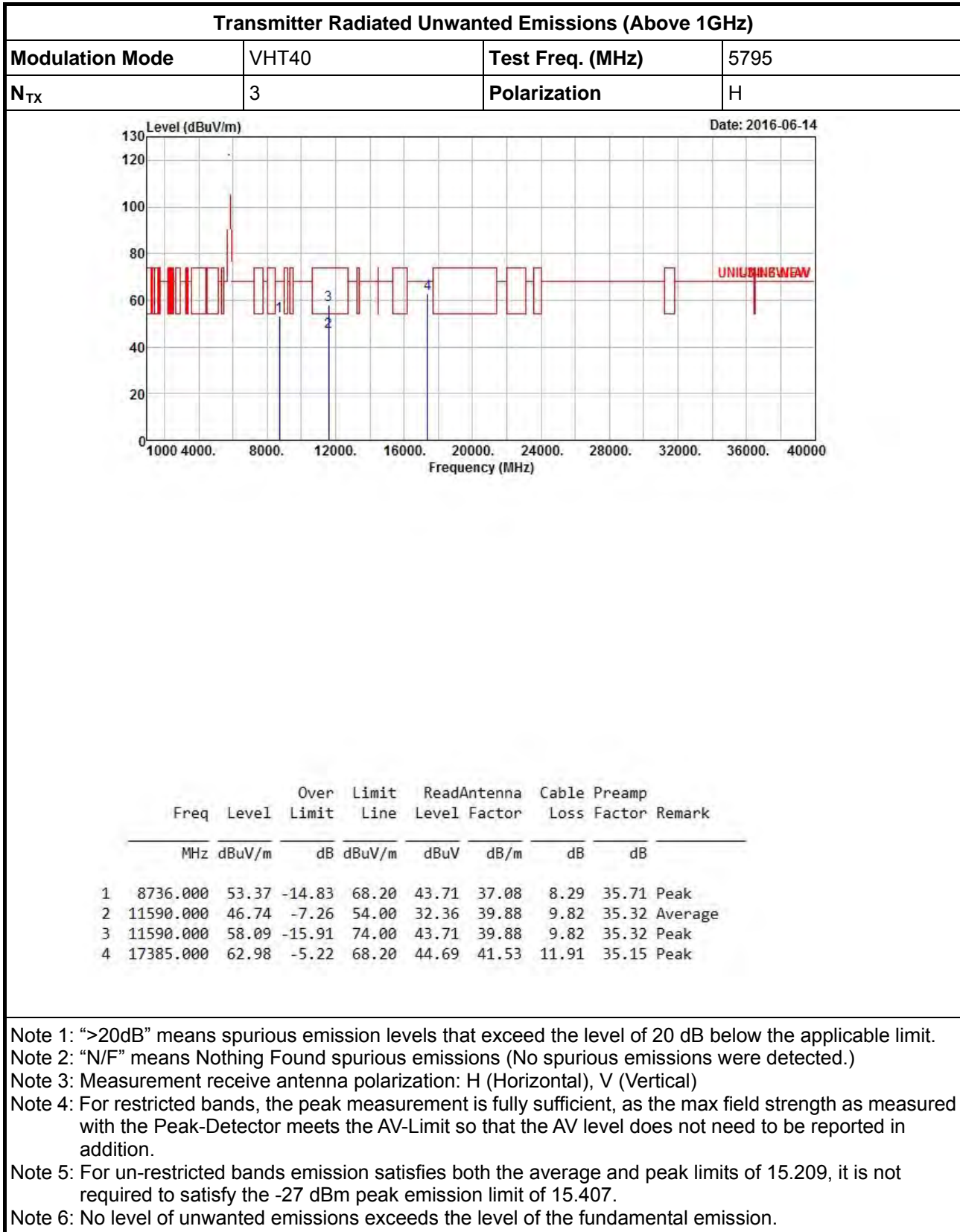
- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
- Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
- Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
- Note 4: For restricted 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.







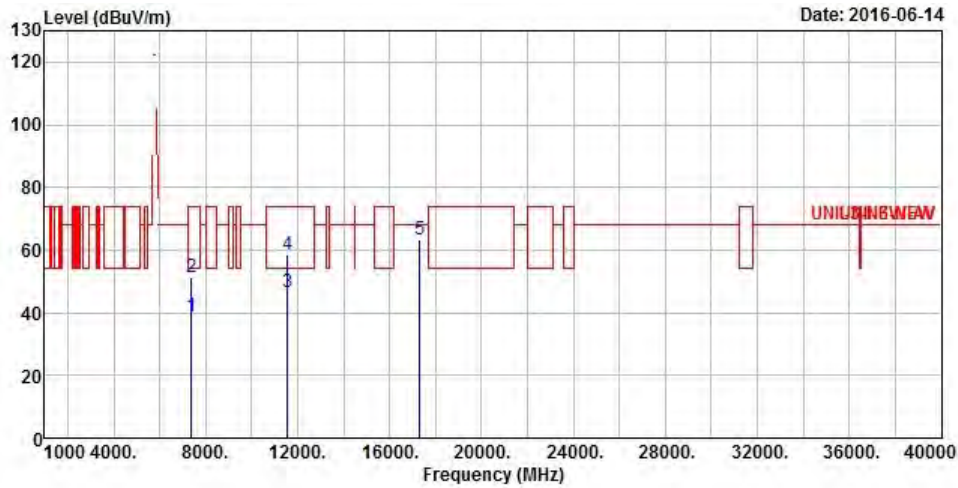






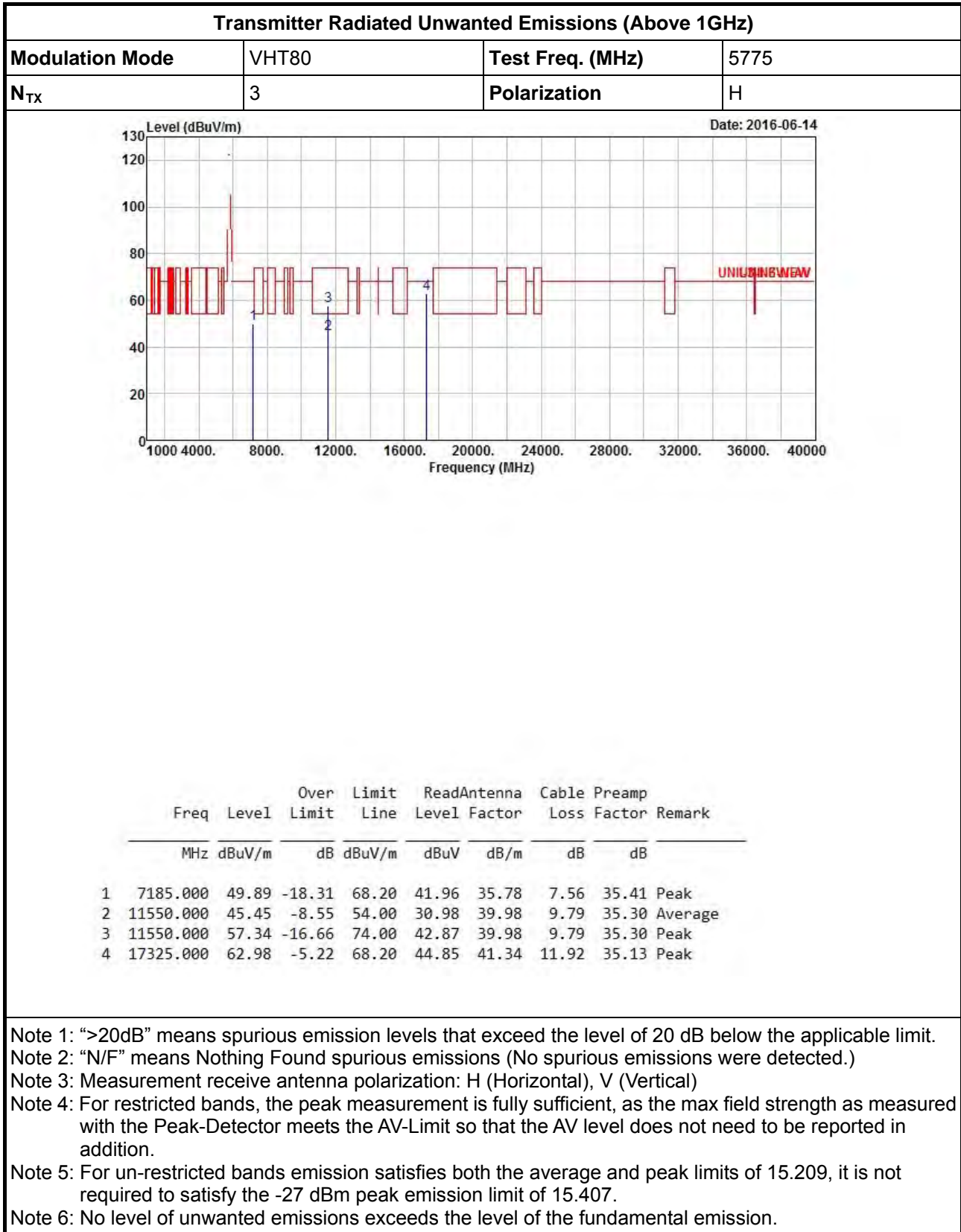
Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	VHT80	Test Freq. (MHz)	5775
N _{TX}	3	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7396.000	38.67	-15.33	54.00	30.14	36.33	7.63	35.43 Average
2	7396.000	51.55	-22.45	74.00	43.02	36.33	7.63	35.43 Peak
3	11550.000	46.57	-7.43	54.00	32.10	39.98	9.79	35.30 Average
4	11550.000	58.64	-15.36	74.00	44.17	39.98	9.79	35.30 Peak
5	17325.000	63.48	-4.72	68.20	45.35	41.34	11.92	35.13 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.





Frequency Stability

Condition			Frequency (MHz)			
Extreme	Modulation Mode	Test Freq	0 min	2 min	5 min	10 min
T _{20°C} Vmax	CW	5200	5199.97525	5199.97569	5199.97482	5199.97525
T _{20°C} Vmin	CW	5200	5199.97569	5199.97525	5199.97482	5199.97438
T _{70°C} Vnom	CW	5200	5200.07294	5200.07337	5200.07381	5200.07424
T _{60°C} Vnom	CW	5200	5200.02475	5200.02518	5200.02518	5200.02562
T _{50°C} Vnom	CW	5200	5199.99045	5199.99088	5199.99132	5199.99175
T _{40°C} Vnom	CW	5200	5199.97395	5199.97438	5199.97438	5199.97482
T _{30°C} Vnom	CW	5200	5199.96961	5199.97004	5199.97004	5199.96961
T _{20°C} Vnom	CW	5200	5199.97569	5199.97525	5199.97525	5199.97482
T _{10°C} Vnom	CW	5200	5199.98654	5199.98611	5199.98611	5199.98567
T _{0°C} Vnom	CW	5200	5200.00130	5200.00174	5200.00130	5200.00174
T _{-10°C} Vnom	CW	5200	5200.01129	5200.01172	5200.01216	5200.01259
T _{-20°C} Vnom	CW	5200	5200.02866	5200.02866	5200.02813	5200.02813
T _{-30°C} Vnom	CW	5200	5200.03213	5200.03213	5200.03169	5200.03126
T _{-40°C} Vnom	CW	5200	5200.03734	5200.03777	5200.03777	5200.03734
Limit (ppm)			-			
Result			Pass			

Condition			Frequency (MHz)			
Extreme	Modulation Mode	Test Freq	0 min	2 min	5 min	10 min
T _{20°C} Vmax	CW	5200	-4.7596	-4.6750	-4.8423	-4.7596
T _{20°C} Vmin	CW	5200	-4.6750	-4.7596	-4.8423	-4.9269
T _{70°C} Vnom	CW	5200	14.0269	14.1096	14.1942	14.2769
T _{60°C} Vnom	CW	5200	4.7596	4.8423	4.8423	4.9269
T _{50°C} Vnom	CW	5200	-1.8365	-1.7538	-1.6692	-1.5865
T _{40°C} Vnom	CW	5200	-5.0096	-4.9269	-4.9269	-4.8423
T _{30°C} Vnom	CW	5200	-5.8442	-5.7615	-5.7615	-5.8442
T _{20°C} Vnom	CW	5200	-4.6750	-4.7596	-4.7596	-4.8423
T _{10°C} Vnom	CW	5200	-2.5885	-2.6712	-2.6712	-2.7558
T _{0°C} Vnom	CW	5200	0.2500	0.3346	0.2500	0.3346
T _{-10°C} Vnom	CW	5200	2.1712	2.2538	2.3385	2.4212
T _{-20°C} Vnom	CW	5200	5.5115	5.5115	5.4096	5.4096
T _{-30°C} Vnom	CW	5200	6.1788	6.1788	6.0942	6.0115
T _{-40°C} Vnom	CW	5200	7.1808	7.2635	7.2635	7.1808
Limit (ppm)			20			
Result			Pass			