



FCC Test Report

Equipment : 802.11 a/n/ac Module
Brand Name : Senao
Model No. : PCE4550AH
FCC ID : U2M-PCE4550AH
Standard : 47 CFR FCC Part 15.247
Operating Band : 5725 MHz – 5850 MHz
FCC Classification : DTS
Applicant : Senao Networks, Inc.
Manufacturer : 3F, No. 529, Chung Cheng Rd., Hsintien, Taipei, Taiwan

The product sample received on Apr. 18, 2013 and completely tested on Apr. 25, 2013. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 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: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager





Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Accessories and Support Equipment	7
1.3	Testing Applied Standards	7
1.4	Testing Location Information	8
1.5	Measurement Uncertainty	8
2	TEST CONFIGURATION OF EUT.....	9
2.1	The Worst Case Modulation Configuration	9
2.2	The Worst Case Power Setting Parameter	9
2.3	The Worst Case Measurement Configuration.....	11
2.4	Test Setup Diagram	13
3	TRANSMITTER TEST RESULT	14
3.1	AC Power-line Conducted Emissions	14
3.2	6dB Bandwidth	21
3.3	RF Output Power.....	24
3.4	Power Spectral Density	33
3.5	Transmitter Radiated Bandedge Emissions	37
3.6	Transmitter Radiated Unwanted Emissions	57
4	TEST EQUIPMENT AND CALIBRATION DATA	120
APPENDIX A. TEST PHOTOS		A1
APPENDIX B. PHOTOGRAPHS OF EUT		B1



Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]:0.4786490MHz 34.01 (Margin 12.35dB) – AV 37.14 (Margin 19.22dB) - QP	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth [MHz] 20M:17.57 / 40M:36.35 80M: 75.83	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]:29.92	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:1.39	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 5723.8MHz:22.74dB	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied
3.6	15.247(d)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]:11570.00MHz 69.09 (Margin 4.91dB) - PK 52.96 (Margin 1.04dB) - AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied



Revision History



1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information						
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	RF Output Power (dBm)	Co-location
5725-5850	a	5745-5825	149-165 [5]	3	29.92	N/A
5725-5850	n(HT20)	5745-5825	149-165 [5]	3	29.91	N/A
5725-5850	n(HT40)	5755-5795	151-159 [2]	3	29.84	N/A
5725-5850	ac(VHT20)	5745-5825	149-165 [5]	3	29.87	N/A
5725-5850	ac(VHT40)	5755-5795	151-159 [2]	3	29.80	N/A
5725-5850	ac(VHT80)	5775	155 [1]	3	29.89	N/A

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.
Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
Note 3: 802.11ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

1.1.2 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"/>	<input type="checkbox"/> Temporary RF connector provided
<input type="checkbox"/>	<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"/>	<input type="checkbox"/> Single power level with corresponding antenna(s).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Multiple power level and corresponding antenna(s).
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> RF connector provided
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type...)
<input checked="" type="checkbox"/>	<input type="checkbox"/> Standard antenna connector. (e.g., SMA, N, BNC, and TNC type...)



Antenna General Information				
No.	Ant. Cat.	Ant. Type	Connector	Gain (dBi)
1	External	Dipole	UFL	3
2	External	Dipole	UFL	5.5
3	Integral	PIFA	N/A	6

Note: The antennas are professionally installed.

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 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 checked="" 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 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
<input type="checkbox"/> Operated normally 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"/> 98.96% - IEEE 802.11a	0.09
<input checked="" type="checkbox"/> 98.32% - IEEE 802.11n (HT20)	0.08
<input checked="" type="checkbox"/> 98.83% - IEEE 802.11n (HT40)	0.24
<input checked="" type="checkbox"/> 99.37% - IEEE 802.11n (VHT20)	0.08
<input checked="" type="checkbox"/> 98.79% - IEEE 802.11n (VHT40)	0.21
<input checked="" type="checkbox"/> 98.21% - IEEE 802.11ac (VHT80)	0.44

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"/> Internal DC supply	<input checked="" type="checkbox"/> External DC adapter	<input type="checkbox"/> Battery

1.2 Accessories and Support Equipment

Accessories					
No.	Equipment	Brand Name	Model Name	P/N	Spec.
---	---	---	---	---	---

Support Equipment				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook	DELL	E5420	DoC
2	Extender card	Senao	adapter	NA
3	Carrier board	Senao	IAP6200AG-0 0.2 LFP	NA

1.3 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2009
- ◆ FCC KDB 558074 v03
- ◆ FCC KDB 662911 v01r02
- ◆ FCC KDB 412172 v01



1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.		
		TEL : 886-3-327-3456	FAX : 886-3-327-0973	
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Ian Du	22.3°C / 62%	Apr.19 ~ Apr. 25, 2013
AC Conduction	CO04-HY	Bill Hsiao	21°C / 52%	Apr. 25, 2013
Radiated Emission	03CH05-HY	Sam Chang	25°C / 65%	Apr. 18 ~ Apr. 23, 2013
Test site registered number [643075] with FCC Test site registered number [4086B-1] with IC				

1.5 Measurement Uncertainty

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

Measurement Uncertainty			
Test Item	Uncertainty	Limit	
AC power-line conducted emissions	±2.26 dB	N/A	
Emission bandwidth, 6dB bandwidth	±1.42 %	N/A	
RF output power, conducted	±0.63 dB	N/A	
Power density, conducted	±0.81 dB	N/A	
Unwanted emissions, conducted	30 – 1000 MHz	±0.51 dB	N/A
	1 – 18 GHz	±0.67 dB	N/A
	18 – 40 GHz	±0.83 dB	N/A
	40 – 200 GHz	N/A	N/A
All emissions, radiated	30 – 1000 MHz	±2.56 dB	N/A
	1 – 18 GHz	±3.59 dB	N/A
	18 – 40 GHz	±3.82 dB	N/A
	40 – 200 GHz	N/A	N/A
Temperature	±0.8 °C	N/A	
Humidity	±3 %	N/A	
DC and low frequency voltages	±3 %	N/A	
Time	±1.42 %	N/A	
Duty Cycle	±1.42 %	N/A	



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	M0-23	M0
HT40	3	M0-23	M0
VHT20	3	M0-9	M0
VHT40	3	M0-9	M0
VHT80	3	M0-9	M0

Note 1: Modulation modes consist of below configuration:
11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac
Note 2: IEEE Std. 802.11n/ac modulation consists of HT20, HT40, VHT20, VHT40, VHT80 and VHT160.
Then EUT support HT20, HT40, VHT20, VHT40 and VHT80.

2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (5725-5850MHz band)							
Operating Mode	1						
Test Software Version	AH-art2 V4_9_51_b						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz		NCB: 40MHz		NCB: 80MHz	
		5745	5785	5825	5755	5795	5775
11a,6-54Mbps	3	23	23	23	-	-	-
HT20,M0-23	3	23	23	23	-	-	-
HT40,M0-23	3	-	-	-	23	23	-
VHT20,M0-9	3	23	23	23	-	-	-
VHT40,M0-9	3	-	-	-	23	23	-
VHT80,M0-9	3	-	-	-	-	-	17.5



The Worst Case Power Setting Parameter (5725-5850MHz band)							
Operating Mode	3						
Test Software Version	AH-art2 V4_9_51_b						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz		NCB: 40MHz		NCB: 80MHz	
		5745	5785	5825	5755	5795	5775
11a,6-54Mbps	3	19.5	19.5	19.5	-	-	-
HT20,M0-23	3	19.5	19.5	19.5	-	-	-
HT40,M0-23	3	-	-	-	19.5	20.5	-
VHT20,M0-9	3	19.5	19.5	19.5	-	-	-
VHT40,M0-9	3	-	-	-	19.5	20.5	-
VHT80,M0-9	3	-	-	-	-	-	17.5



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	DC Power & Radio link (WLAN), Ant 1
2	DC Power & Radio link (WLAN), Ant 2
3	DC Power & Radio link (WLAN), Ant 3

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11a, HT20, HT40, VHT20, VHT40, VHT80
Operating Mode	Operating Mode Description
1	DC Power & Radio link (WLAN), Dipole antenna
3	DC Power & Radio link (WLAN), PIFA antenna

The Worst Case Mode for Following Conformance Tests	
Tests Item	Power Spectral Density, 6 dB Bandwidth
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11a, HT20, HT40, VHT80
Operating Mode	Operating Mode Description
1	DC Power & Radio link (WLAN), Ant 1
2	DC Power & Radio link (WLAN), Ant 2
3	DC Power & Radio link (WLAN), Ant 3

Note:

802.11n/ac modulation modes consist of HT20, HT40, VHT20, VHT40 and VHT80. After pretested, HT20, HT40, and VHT80 were the worst cases and were selected for final test.



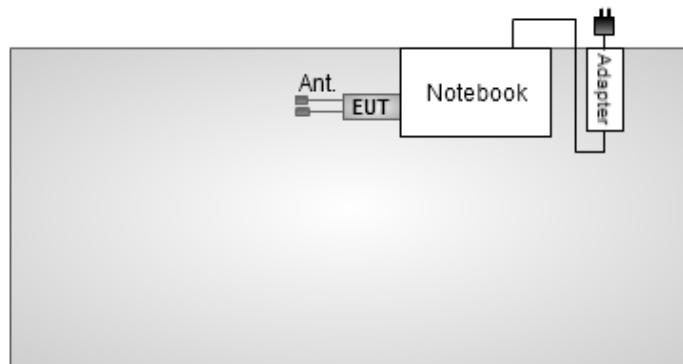
The Worst Case Mode for Following Conformance Tests							
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions						
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing 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 type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes. The worst planes is X. <input checked="" type="checkbox"/> EUT will be operating multiple positions. The dipole antenna of EUT was pre-tested on the positioned of each 3 axis. The worst plane is Y.						
Operating Mode< 1GHz	<input checked="" type="checkbox"/> 1. DC Power & Radio link (WLAN), Ant 1 <input checked="" type="checkbox"/> 2. DC Power & Radio link (WLAN), Ant 2 <input checked="" type="checkbox"/> 3. DC Power & Radio link (WLAN), Ant 3						
Modulation Mode	11a, HT20, HT40, VHT80						
Orthogonal Planes of EUT	<table><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					

Note:

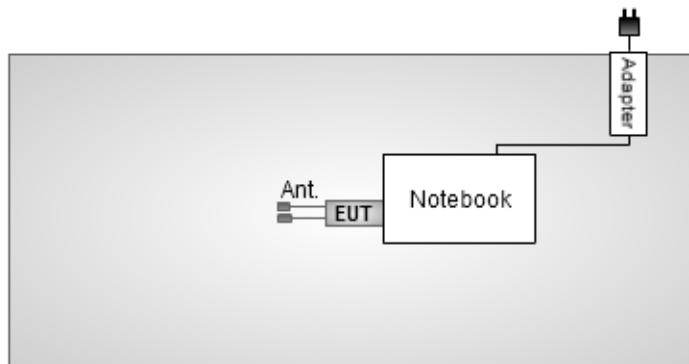
802.11n/ac modulation modes consist of HT20, HT40, VHT20, VHT40 and VHT80. After pretested, HT20, HT40, and VHT80 were the worst cases and were selected for final test.

2.4 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission & Radiated Below 1GHz Test



Test Setup Diagram - Radiated Above 1GHz 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.

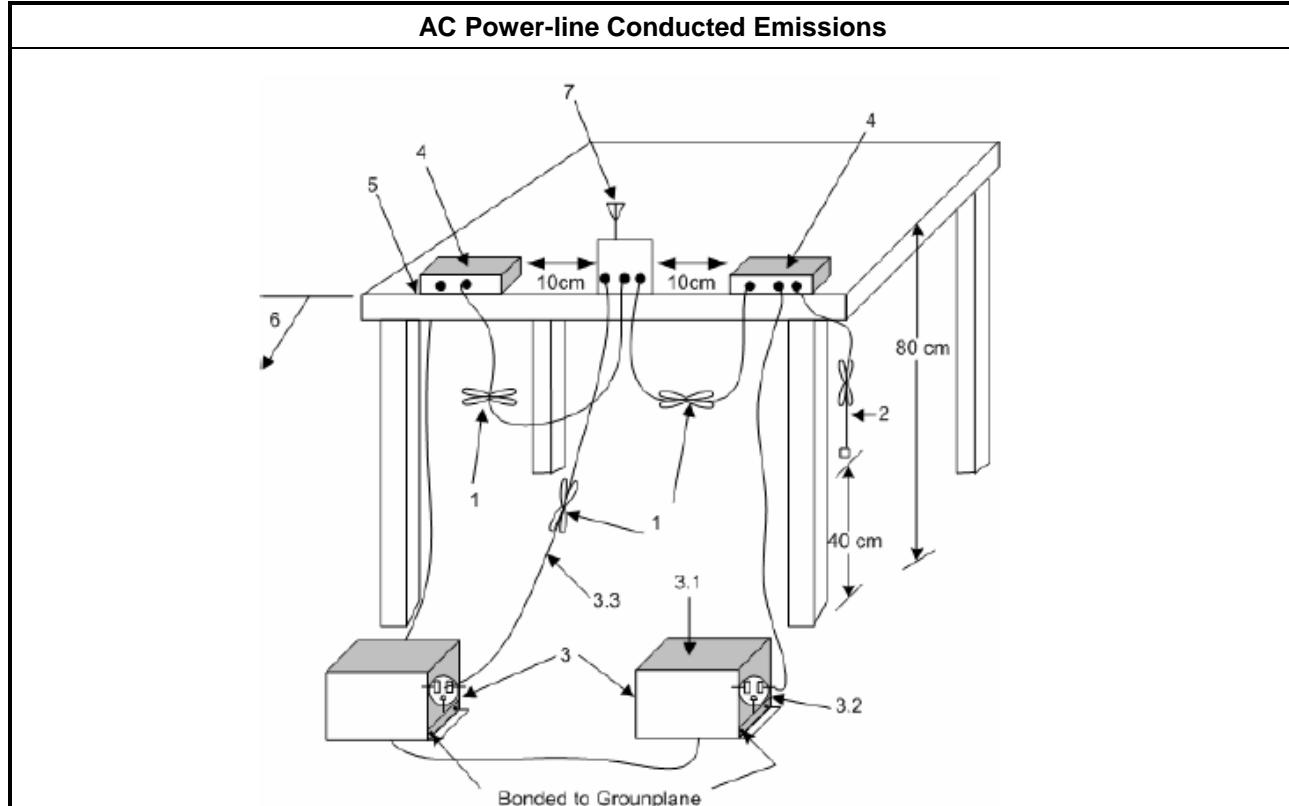
3.1.2 Measuring Instruments

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 C63.10-2009, clause 6.2 for AC power-line conducted emissions.

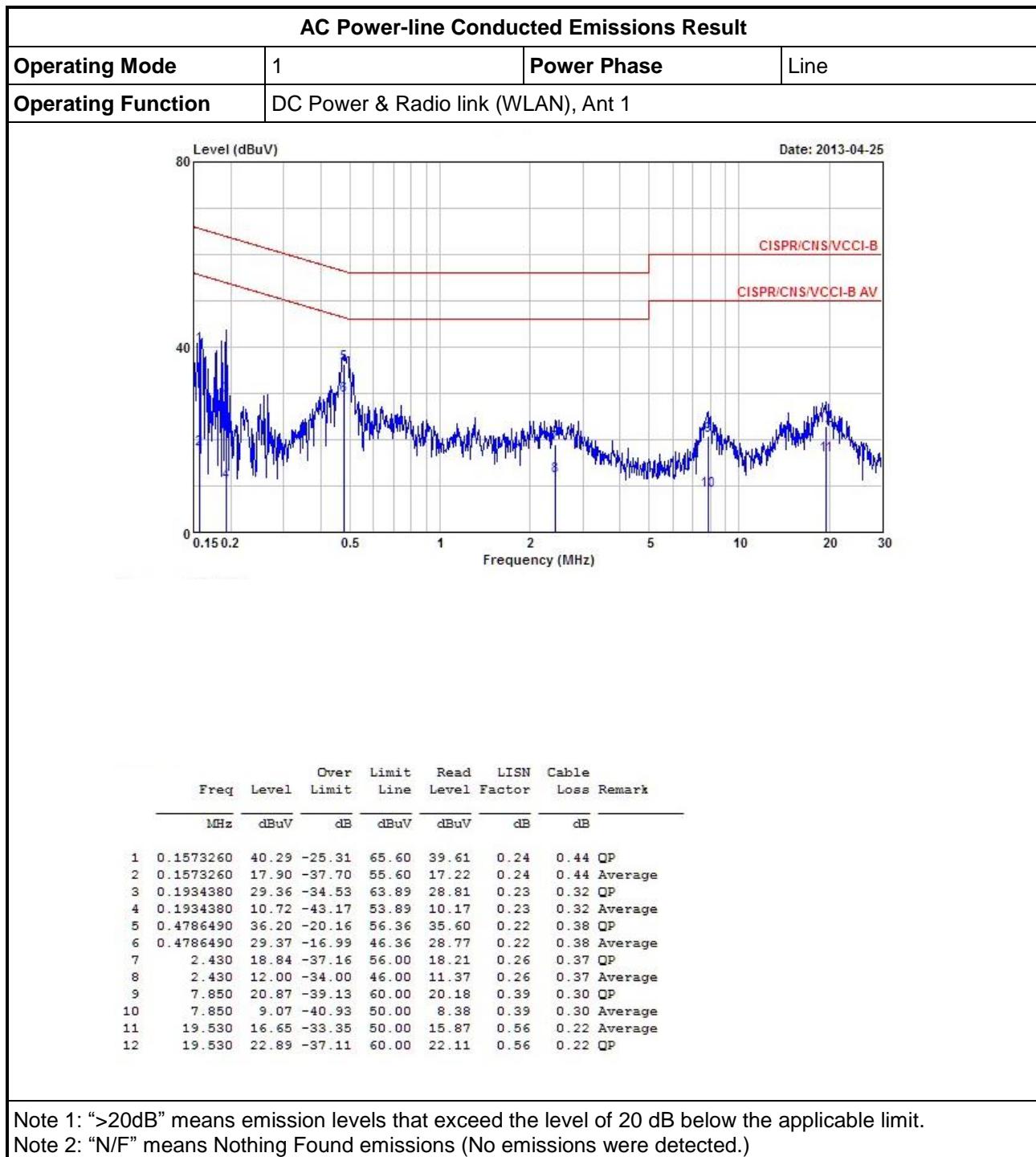
3.1.4 Test Setup

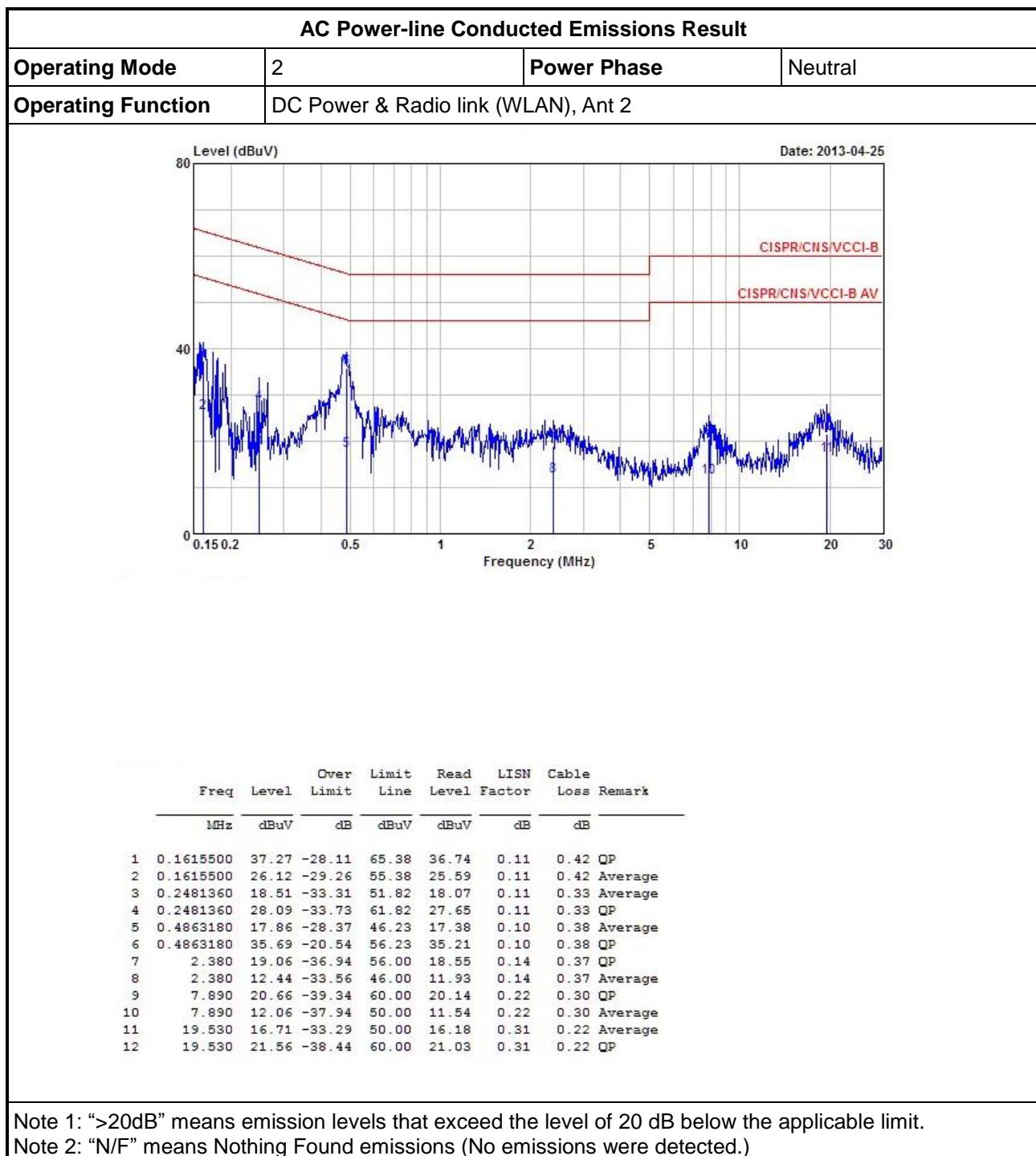


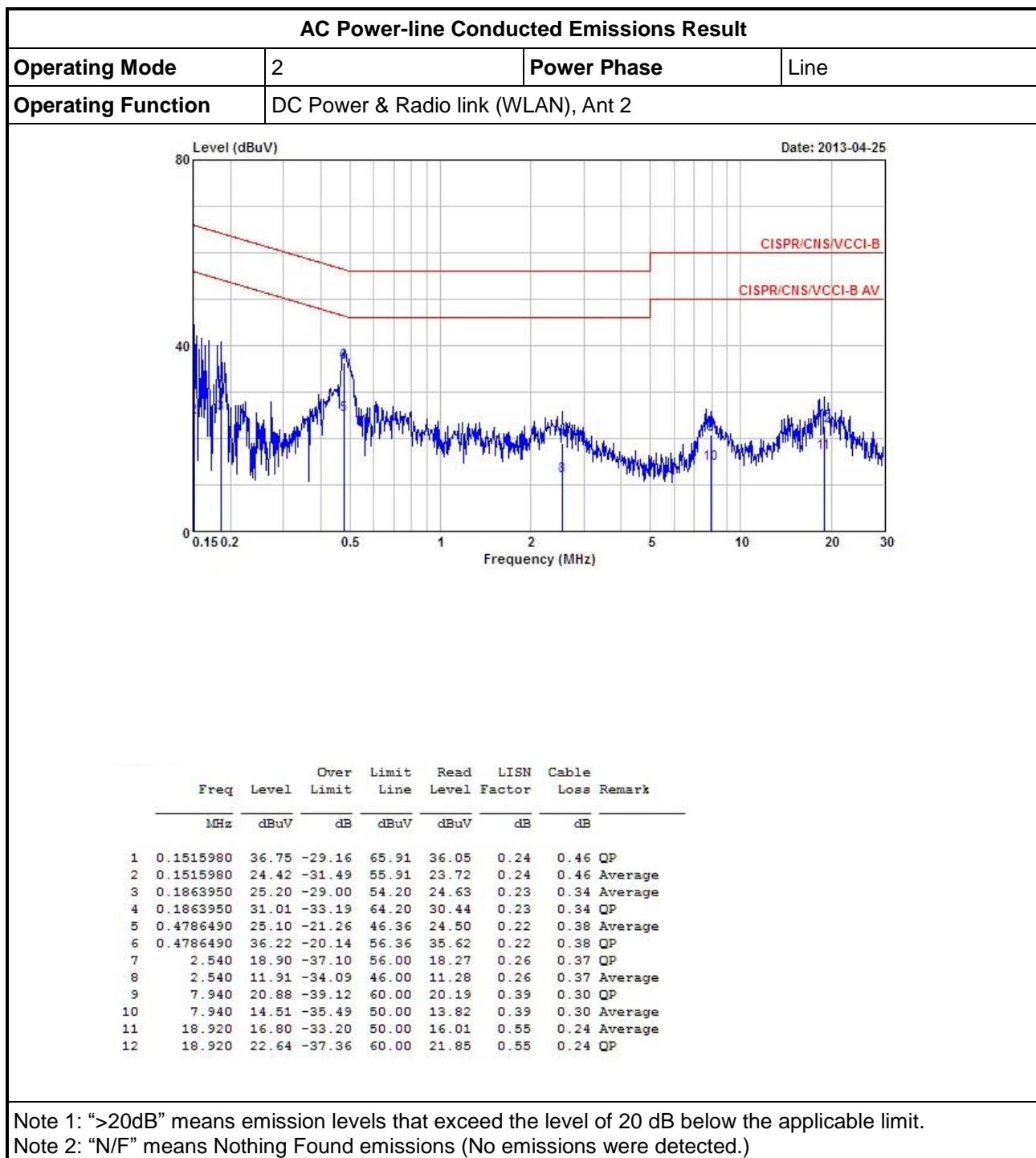


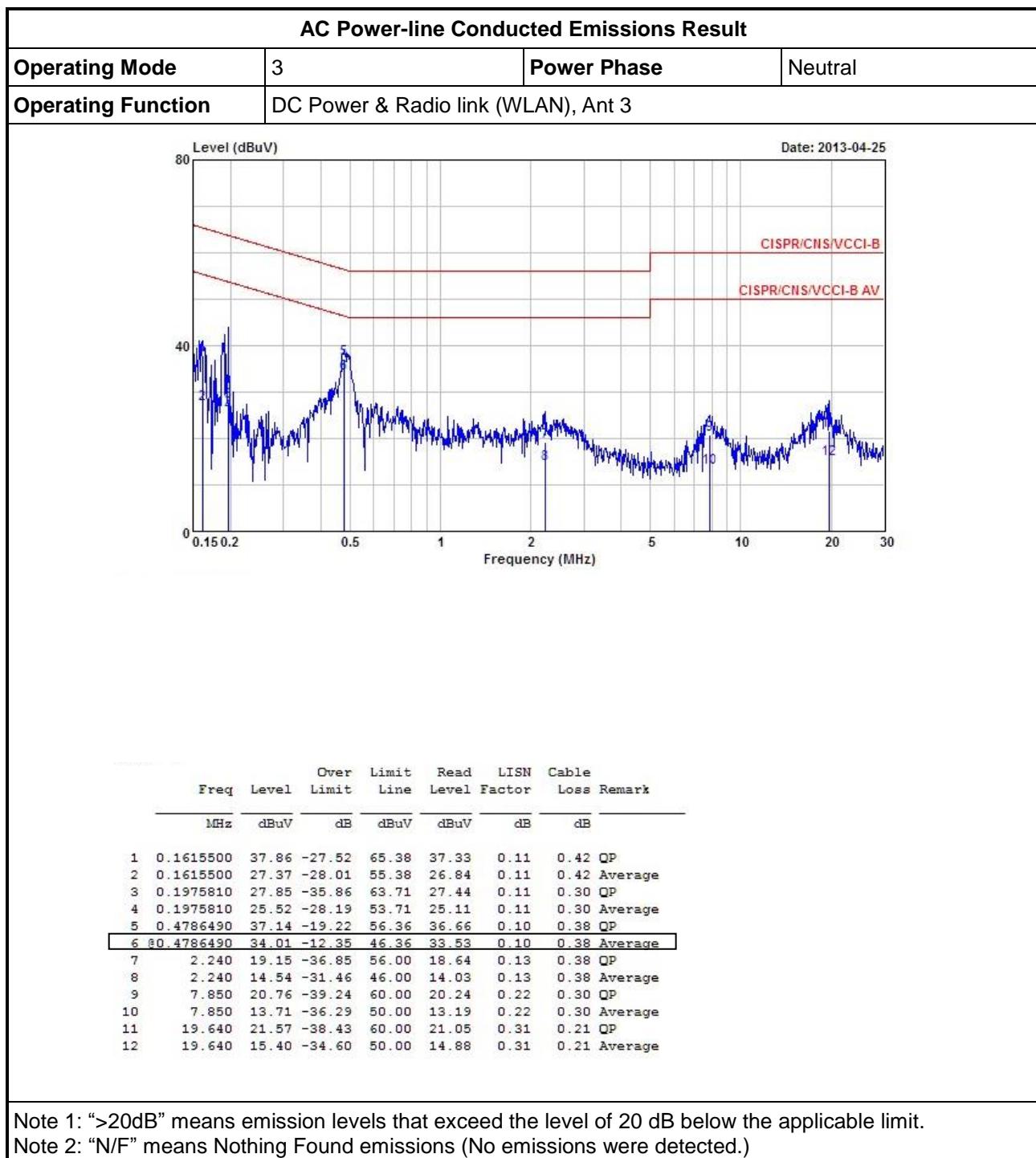
3.1.5 Test Result of AC Power-line Conducted Emissions

AC Power-line Conducted Emissions Result																																																																																																																							
Operating Mode	1	Power Phase	Neutral																																																																																																																				
Operating Function	DC Power & Radio link (WLAN), Ant 1																																																																																																																						
							Date: 2013-04-25																																																																																																																
<table><thead><tr><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>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>0.1615500</td><td>37.78</td><td>-27.60</td><td>65.38</td><td>37.25</td><td>0.11</td><td>0.42 QP</td></tr><tr><td>2</td><td>0.1615500</td><td>27.07</td><td>-28.31</td><td>55.38</td><td>26.54</td><td>0.11</td><td>0.42 Average</td></tr><tr><td>3</td><td>0.1873850</td><td>30.21</td><td>-33.94</td><td>64.15</td><td>29.76</td><td>0.11</td><td>0.34 QP</td></tr><tr><td>4</td><td>0.1873850</td><td>22.69</td><td>-31.46</td><td>54.15</td><td>22.24</td><td>0.11</td><td>0.34 Average</td></tr><tr><td>5</td><td>0.4863180</td><td>35.06</td><td>-21.17</td><td>56.23</td><td>34.58</td><td>0.10</td><td>0.38 QP</td></tr><tr><td>6</td><td>0.4863180</td><td>25.60</td><td>-20.63</td><td>46.23</td><td>25.12</td><td>0.10</td><td>0.38 Average</td></tr><tr><td>7</td><td>2.410</td><td>19.30</td><td>-36.70</td><td>56.00</td><td>18.79</td><td>0.14</td><td>0.37 QP</td></tr><tr><td>8</td><td>2.410</td><td>11.73</td><td>-34.27</td><td>46.00</td><td>11.22</td><td>0.14</td><td>0.37 Average</td></tr><tr><td>9</td><td>7.850</td><td>20.25</td><td>-39.75</td><td>60.00</td><td>19.73</td><td>0.22</td><td>0.30 QP</td></tr><tr><td>10</td><td>7.850</td><td>15.28</td><td>-34.72</td><td>50.00</td><td>14.76</td><td>0.22</td><td>0.30 Average</td></tr><tr><td>11</td><td>18.920</td><td>22.68</td><td>-37.32</td><td>60.00</td><td>22.14</td><td>0.30</td><td>0.24 QP</td></tr><tr><td>12</td><td>18.920</td><td>17.02</td><td>-32.98</td><td>50.00</td><td>16.48</td><td>0.30</td><td>0.24 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	0.1615500	37.78	-27.60	65.38	37.25	0.11	0.42 QP	2	0.1615500	27.07	-28.31	55.38	26.54	0.11	0.42 Average	3	0.1873850	30.21	-33.94	64.15	29.76	0.11	0.34 QP	4	0.1873850	22.69	-31.46	54.15	22.24	0.11	0.34 Average	5	0.4863180	35.06	-21.17	56.23	34.58	0.10	0.38 QP	6	0.4863180	25.60	-20.63	46.23	25.12	0.10	0.38 Average	7	2.410	19.30	-36.70	56.00	18.79	0.14	0.37 QP	8	2.410	11.73	-34.27	46.00	11.22	0.14	0.37 Average	9	7.850	20.25	-39.75	60.00	19.73	0.22	0.30 QP	10	7.850	15.28	-34.72	50.00	14.76	0.22	0.30 Average	11	18.920	22.68	-37.32	60.00	22.14	0.30	0.24 QP	12	18.920	17.02	-32.98	50.00	16.48	0.30	0.24 Average
Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark																																																																																																																
MHz	dBuV	dB	dBuV	dBuV	dB	dB																																																																																																																	
1	0.1615500	37.78	-27.60	65.38	37.25	0.11	0.42 QP																																																																																																																
2	0.1615500	27.07	-28.31	55.38	26.54	0.11	0.42 Average																																																																																																																
3	0.1873850	30.21	-33.94	64.15	29.76	0.11	0.34 QP																																																																																																																
4	0.1873850	22.69	-31.46	54.15	22.24	0.11	0.34 Average																																																																																																																
5	0.4863180	35.06	-21.17	56.23	34.58	0.10	0.38 QP																																																																																																																
6	0.4863180	25.60	-20.63	46.23	25.12	0.10	0.38 Average																																																																																																																
7	2.410	19.30	-36.70	56.00	18.79	0.14	0.37 QP																																																																																																																
8	2.410	11.73	-34.27	46.00	11.22	0.14	0.37 Average																																																																																																																
9	7.850	20.25	-39.75	60.00	19.73	0.22	0.30 QP																																																																																																																
10	7.850	15.28	-34.72	50.00	14.76	0.22	0.30 Average																																																																																																																
11	18.920	22.68	-37.32	60.00	22.14	0.30	0.24 QP																																																																																																																
12	18.920	17.02	-32.98	50.00	16.48	0.30	0.24 Average																																																																																																																
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)																																																																																																																							



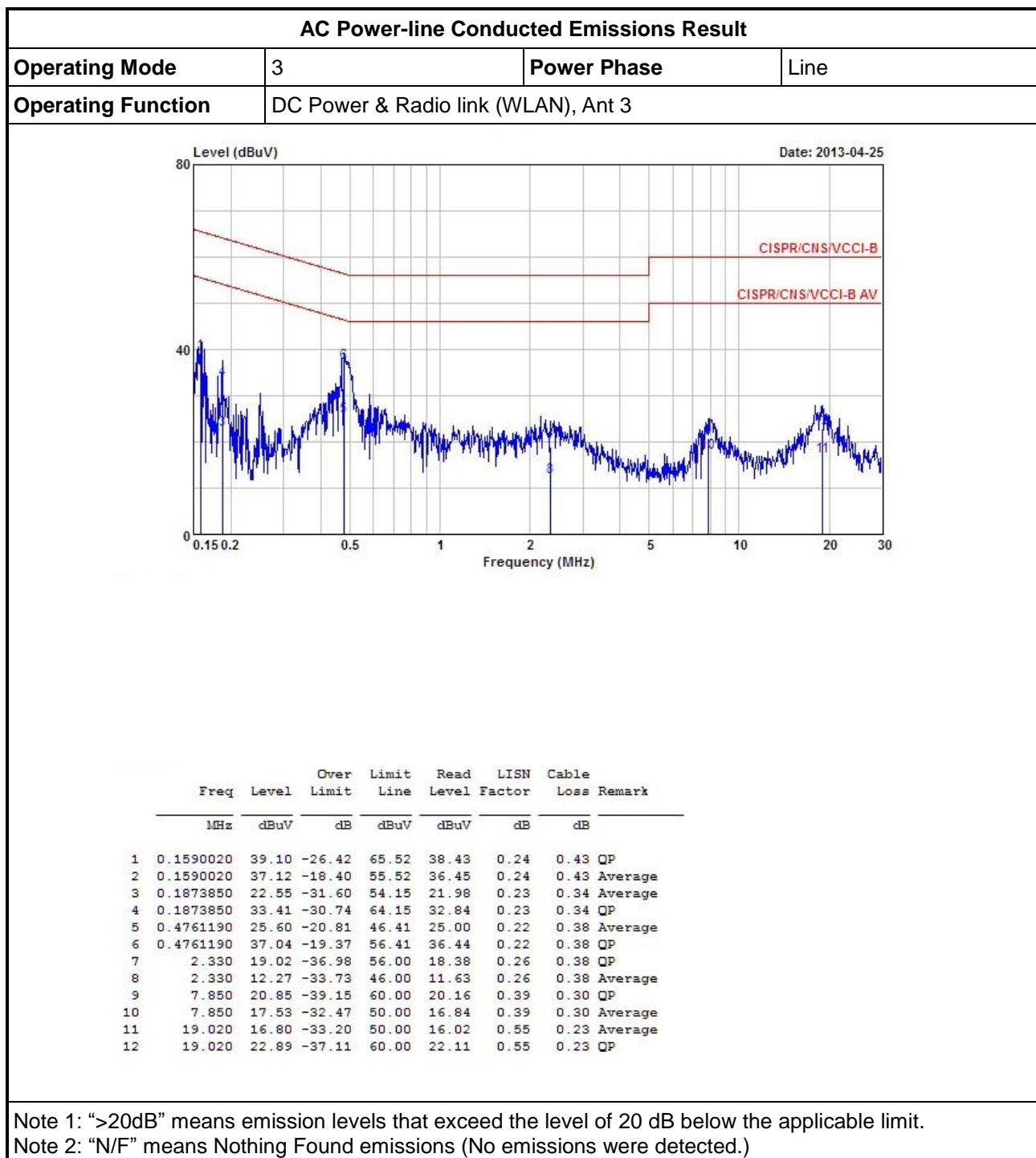






Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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



3.2 6dB Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
<input checked="" type="checkbox"/> 6 dB bandwidth \geq 500 kHz.

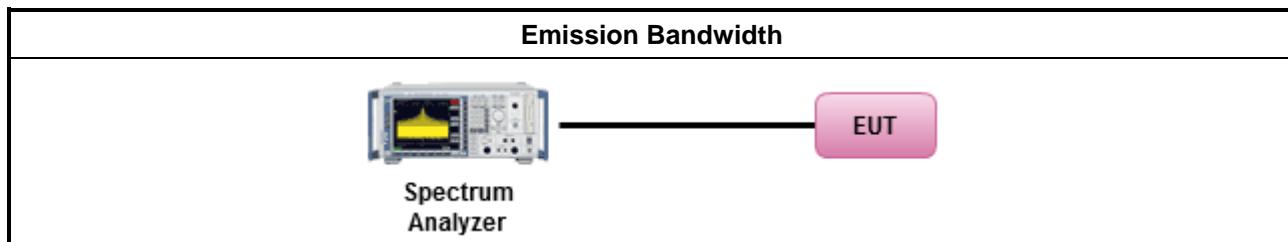
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input checked="" type="checkbox"/> For conducted measurement.
<input type="checkbox"/> The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/> The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input checked="" type="checkbox"/> The EUT supports multiple transmit chains using options given below:
<input type="checkbox"/> Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 1.
<input checked="" type="checkbox"/> Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains.

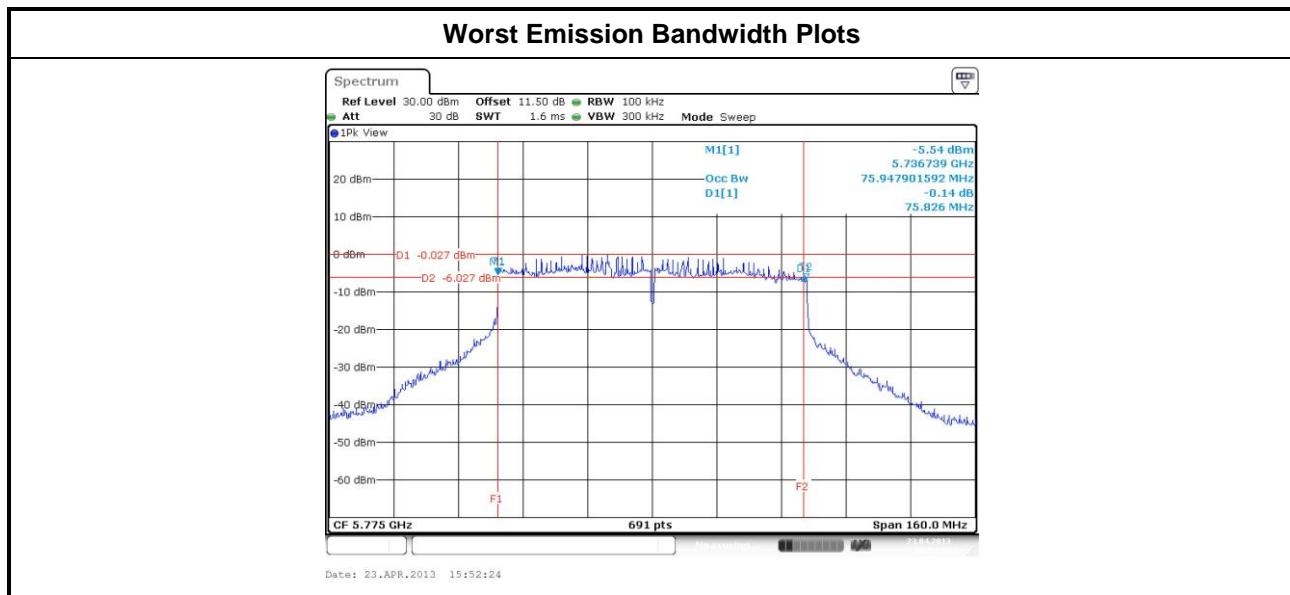
3.2.4 Test Setup





3.2.5 Test Result of Emission Bandwidth

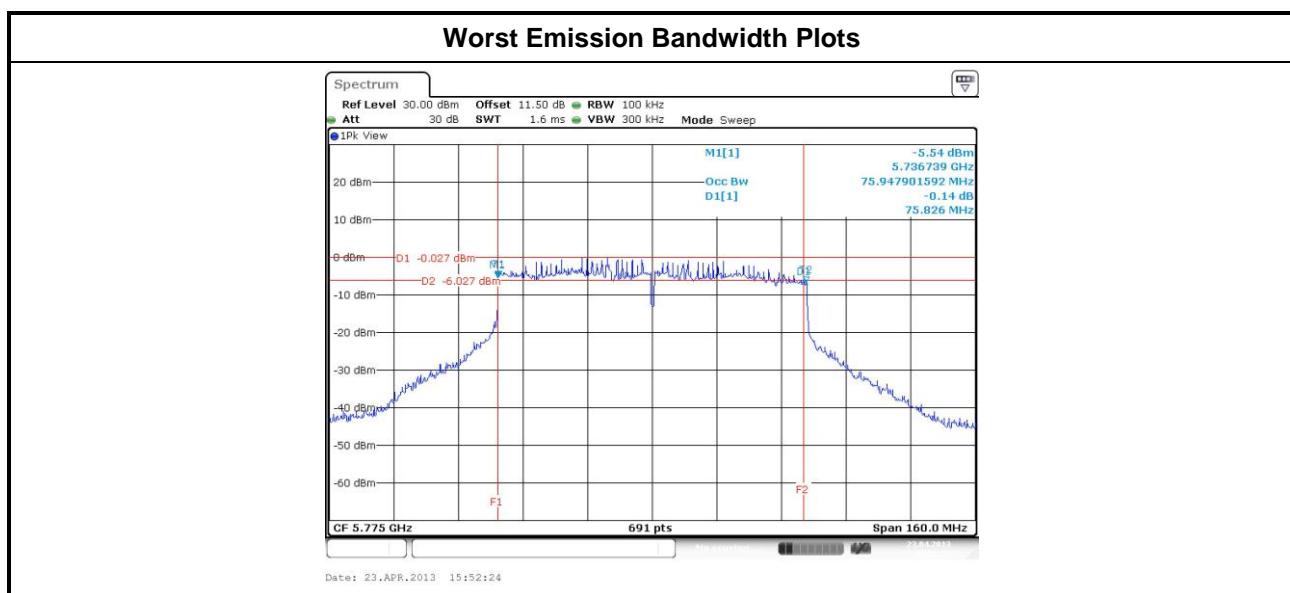
Operating Mode			1								
			Emission Bandwidth Result								
Condition			Emission Bandwidth (MHz)								
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth				6dB Bandwidth				
			Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4	
11a	3	5745	17.60	20.14	17.37	-	16.29	16.06	16.29	-	
11a	3	5785	17.37	19.10	17.37	-	16.29	16.35	16.06	-	
11a	3	5825	17.37	18.23	17.31	-	16.29	16.29	16.29	-	
HT20	3	5745	18.81	20.72	18.81	-	17.28	17.57	17.57	-	
HT20	3	5785	18.47	19.57	19.35	-	17.57	16.70	16.70	-	
HT20	3	5825	18.29	18.64	18.29	-	16.52	16.93	17.57	-	
HT40	3	5755	37.74	38.32	37.63	-	36.06	35.13	36.06	-	
HT40	3	5795	37.51	37.97	37.40	-	36.29	36.29	35.71	-	
VHT80	3	5775	78.03	78.26	77.80	-	73.04	75.83	75.83	-	
Limit			N/A				≥500 kHz				
Result			Complied								

Note 1: N_{TX} = Number of Transmit Chains



Operating Mode			3																
Emission Bandwidth Result																			
Condition			Emission Bandwidth (MHz)																
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth				6dB Bandwidth												
11a	3	5745	17.06	17.24	16.98	-	16.29	16.35	16.35	-									
11a	3	5785	17.06	17.15	16.93	-	16.35	16.35	16.29	-									
11a	3	5825	16.98	17.02	16.93	-	16.12	16.35	16.29	-									
HT20	3	5745	18.02	17.93	18.10	-	16.81	17.57	17.33	-									
HT20	3	5785	18.10	18.10	18.10	-	16.93	17.57	17.57	-									
HT20	3	5825	18.10	18.02	18.06	-	17.33	17.33	17.57	-									
HT40	3	5755	37.42	37.60	37.25	-	35.71	36.35	35.71	-									
HT40	3	5795	37.34	37.25	37.16	-	35.71	35.13	36.06	-									
VHT80	3	5775	78.03	78.26	77.80	-	73.04	75.83	75.83	-									
Limit			N/A				≥500 kHz												
Result			Complied																

Note 1: N_{TX} = Number of Transmit Chains





3.3 RF Output Power

3.3.1 RF Output Power Limit

RF Output Power Limit	
Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit (for ac(VHT80) only)	
<input checked="" type="checkbox"/> 5725-5850 MHz Band:	
	<input checked="" type="checkbox"/> If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<input checked="" type="checkbox"/> Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<input type="checkbox"/> Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30$ dBm
e.i.r.p. Power Limit:	
<input checked="" type="checkbox"/> 5725-5850 MHz Band	
	<input checked="" type="checkbox"/> Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<input type="checkbox"/> Point-to-point systems (P2P): N/A
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi. P_{eirp} = e.i.r.p. Power in dBm.	

3.3.2 Measuring Instruments

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

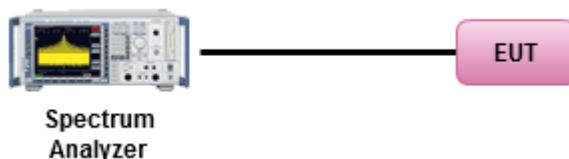


3.3.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/> Maximum Peak Conducted Output Power	<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.1.1 (RBW \geq DTS BW). <input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.1.2 (Integrated band power method). For 11ac VHT80 mode <input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.1.3 (Peak power meter) For all modes except 11ac VHT80
<input checked="" type="checkbox"/> Maximum Conducted Output Power	<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.2.1.2 Method AVGSA-1 (spectral trace averaging). <input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.2.1.3 Method AVGSA-1 Alt. (slow sweep speed) <input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.2.1.4 Method AVGSA-2 (spectral trace averaging). <input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.2.1.5 Method AVGSA-2 Alt. (slow sweep speed) For 11ac VHT 80 mode RF power meter and average over on/off periods with duty factor or gated trigger <input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 9.2.2 Method AVGPM-G (using a gated RF average power meter) For all modes except 11ac VHT80.
<input checked="" type="checkbox"/> For conducted measurement.	<input type="checkbox"/> The EUT supports single transmit chain and measurements performed on this transmit chain. <input type="checkbox"/> The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> If multiple transmit chains, EIRP calculation could be following as methods: $P_{\text{total}} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$

3.3.4 Test Setup

RF Output Power (Spectrum Analyzer) , for 11ac VHT 80



RF Output Power (Power Meter) , for all modes except 11ac VHT80.





3.3.5 Directional Gain for Power Measurement

Operating Mode		1			
Directional Gain (DG) Result					
Transmit Chains No.		1	2	3	-
Maximum G_{ANT} (dBi)		3	3	3	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS}	STBC	Array Gain (dB)
11a,6-54Mbps	3	3	1	-	-
HT20,M0-23	3	3	1	-	-
HT40,M0-23	3	3	1	-	-
VHT20,M0-9	3	3	1	-	-
VHT40,M0-9	3	3	1	-	-
VHT80,M0-9	3	3	1	-	-

Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain = $G_{ANT} + 10 \log(N_{TX})$
All transmit signals are completely uncorrelated, Directional Gain = G_{ANT}

Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain = $10 \log[(10^{G1/20} + \dots + 10^{GN/20})^2 / N_{TX}]$
All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G1/10} + \dots + 10^{GN/10}) / N_{TX}]$

Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$,
where N_{SS} = the number of independent spatial streams data.

Note 4: For CDD transmissions, directional gain is calculated as power measurements:
Directional Gain (DG) = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows:
Array Gain = 0 dB (i.e., no array gain) for $N_{TX} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX} ;



Operating Mode		3			
Directional Gain (DG) Result					
Transmit Chains No.		1	2	3	-
Maximum G _{ANT} (dBi)		6	6	6	-
Modulation Mode	DG (dBi)	N _{TX}	N _{SS}	STBC	Array Gain (dB)
11a,6-54Mbps	6	3	1	-	-
HT20,M0-23	6	3	1	-	-
HT40,M0-23	6	3	1	-	-
VHT20,M0-9	6	3	1	-	-
VHT40,M0-9	6	3	1	-	-
VHT80,M0-9	6	3	1	-	-

Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain = G_{ANT} + 10 log(N_{TX})
All transmit signals are completely uncorrelated, Directional Gain = G_{ANT}

Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain = 10 log[(10^{G1/20} + ... + 10^{GN/20})² / N_{TX}]
All transmit signals are completely uncorrelated, Directional Gain = 10 log[(10^{G1/10} + ... + 10^{GN/10}) / N_{TX}]

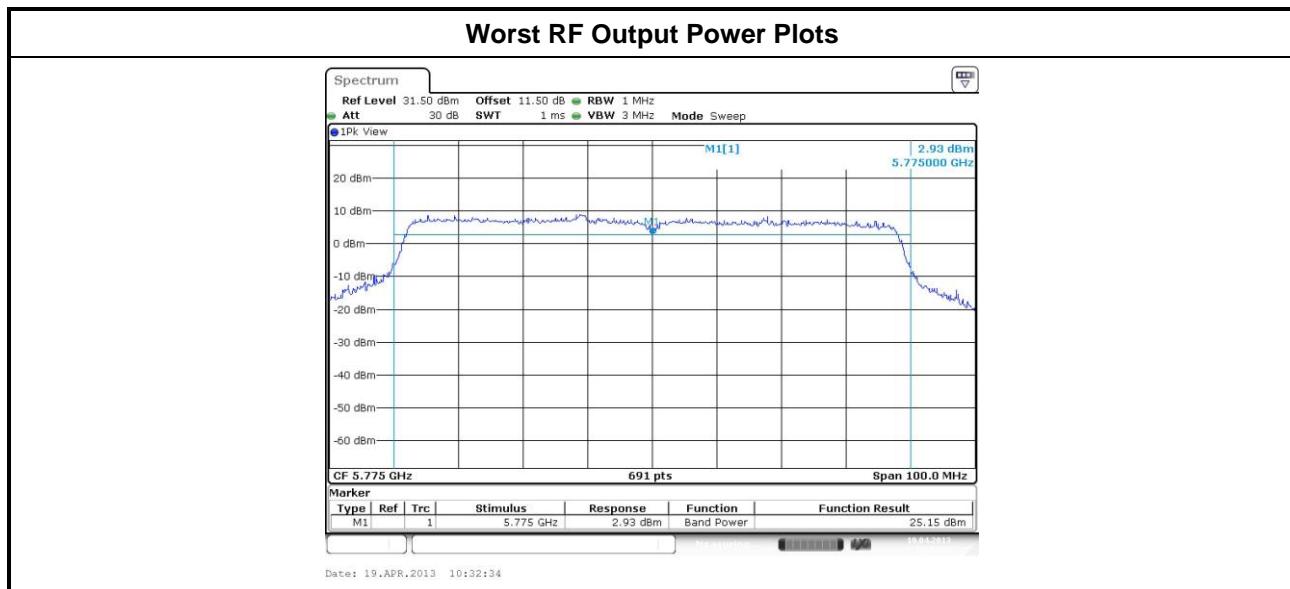
Note 3: For Spatial Multiplexing, Directional Gain (DG) = G_{ANT} + 10 log(N_{TX}/N_{SS}),
where N_{SS} = the number of independent spatial streams data.

Note 4: For CDD transmissions, directional gain is calculated as power measurements:
Directional Gain (DG) = G_{ANT} + Array Gain, where Array Gain is as follows:
Array Gain = 0 dB (i.e., no array gain) for N_{TX} ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX};



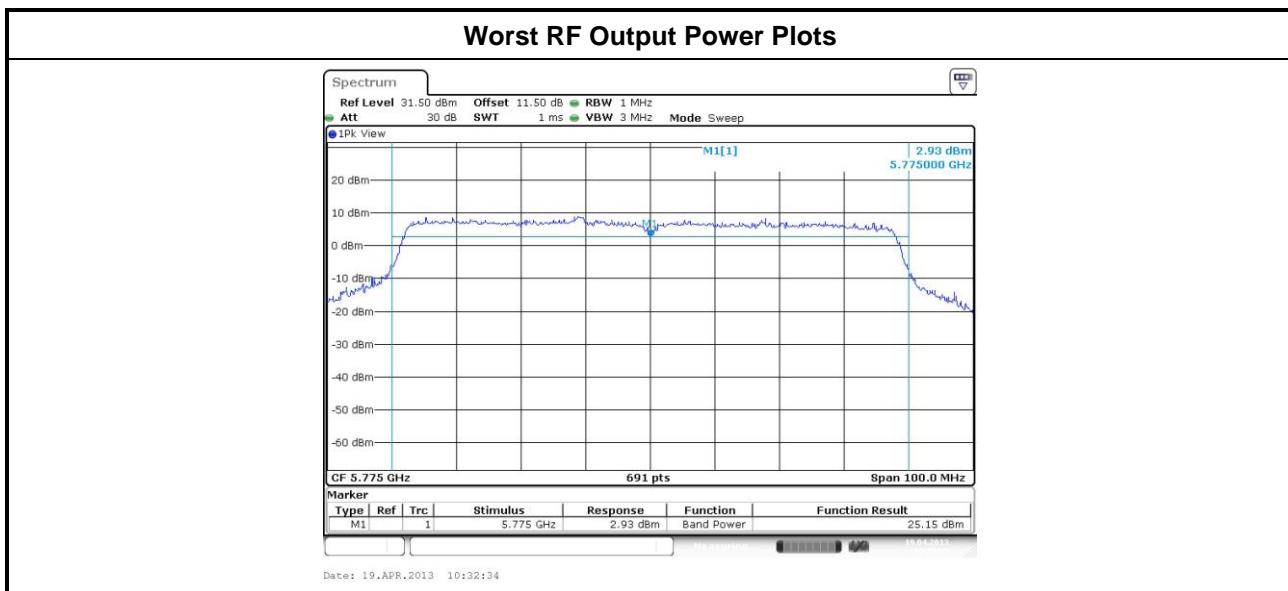
3.3.6 Test Result of Maximum Peak Conducted Output Power

Operating Mode			1							
Condition			RF Output Power (dBm)							
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT80	3	5775	25.09	25.11	25.15	29.89	30.00	3.00	32.89	36.00
Result			Complied							





Operating Mode			3							
Maximum Peak Conducted Output Power Result										
Condition			RF Output Power (dBm)							
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
VHT80	3	5775	25.09	25.11	25.15	29.89	30.00	6.00	35.89	36.00
Result			Complied							





3.3.7 Test Result of Maximum Conducted Output Power

Operating Mode			1									
			Maximum Conducted Output Power									
Condition			RF Output Power (dBm)									
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit	
11a	3	5745	25.53	24.55	25.31	-	29.92	30	3.00	32.92	36	
11a	3	5785	25.41	24.49	25.37	-	29.88	30	3.00	32.88	36	
11a	3	5825	25.39	24.45	25.54	-	29.92	30	3.00	32.92	36	
HT20	3	5745	25.54	24.49	25.24	-	29.88	30	3.00	32.88	36	
HT20	3	5785	25.43	24.47	25.39	-	29.89	30	3.00	32.89	36	
HT20	3	5825	25.36	24.48	25.51	-	29.91	30	3.00	32.91	36	
HT40	3	5755	25.47	24.46	25.21	-	29.84	30	3.00	32.84	36	
HT40	3	5795	25.32	24.43	25.31	-	29.81	30	3.00	32.81	36	
VHT20	3	5745	25.51	24.41	25.21	-	29.84	30	3.00	32.84	36	
VHT20	3	5785	25.41	24.43	25.33	-	29.85	30	3.00	32.85	36	
VHT20	3	5825	25.31	24.44	25.47	-	29.87	30	3.00	32.87	36	
VHT40	3	5755	25.42	24.41	25.18	-	29.80	30	3.00	32.80	36	
VHT40	3	5795	25.27	24.39	25.28	-	29.77	30	3.00	32.77	36	
Result			Complied									



Operating Mode			3									
Condition			Maximum Conducted Output Power									
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit	
11a	3	5745	23.99	23.48	23.96	-	28.59	30	6.00	34.59	36	
11a	3	5785	23.76	23.14	23.56	-	28.27	30	6.00	34.27	36	
11a	3	5825	23.40	22.98	23.59	-	28.10	30	6.00	34.10	36	
HT20	3	5745	23.96	23.90	23.48	-	28.56	30	6.00	34.56	36	
HT20	3	5785	23.52	23.31	23.76	-	28.31	30	6.00	34.31	36	
HT20	3	5825	23.32	23.26	23.81	-	28.24	30	6.00	34.24	36	
HT40	3	5755	23.65	23.52	23.45	-	28.31	30	6.00	34.31	36	
HT40	3	5795	24.24	24.08	24.26	-	28.97	30	6.00	34.97	36	
VHT20	3	5745	23.92	23.88	23.46	-	28.53	30	6.00	34.53	36	
VHT20	3	5785	23.53	23.26	23.74	-	28.29	30	6.00	34.29	36	
VHT20	3	5825	23.29	23.26	23.77	-	28.22	30	6.00	34.22	36	
VHT40	3	5755	23.61	23.43	23.42	-	28.26	30	6.00	34.26	36	
VHT40	3	5795	24.16	24.11	24.21	-	28.93	30	6.00	34.93	36	
Result			Complied									



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit	
<input checked="" type="checkbox"/> Power Spectral Density (PSD) $\leq 8 \text{ dBm/3kHz}$	

3.4.2 Measuring Instruments

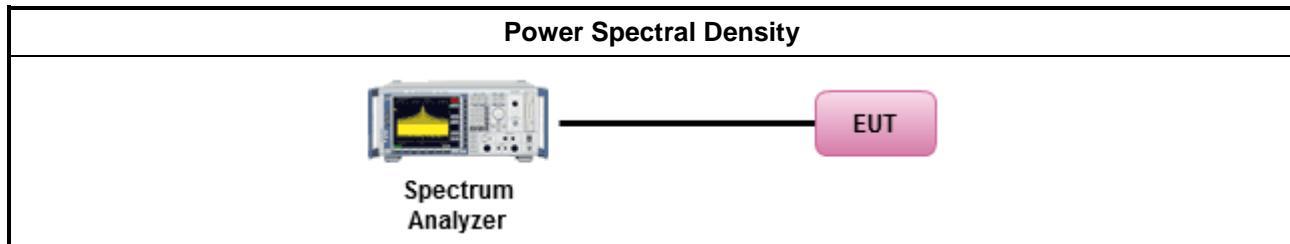
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/> Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).	
<input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 10.2 Method PKPSD (RBW=3kHz; detector=peak)..	
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 10.3 Method AVGPSD-1 (spectral trace averaging).	
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 10.4 Method AVGPSD-1 Alt. (slow sweep speed)	
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 10.5 Method AVGPSD-2 (spectral trace averaging).	
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)	
<input checked="" type="checkbox"/> For conducted measurement.	
<input type="checkbox"/> The EUT supports single transmit chain and measurements performed on this transmit chain.	
<input type="checkbox"/> The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.	
<input checked="" type="checkbox"/> 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 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.



3.4.4 Test Setup

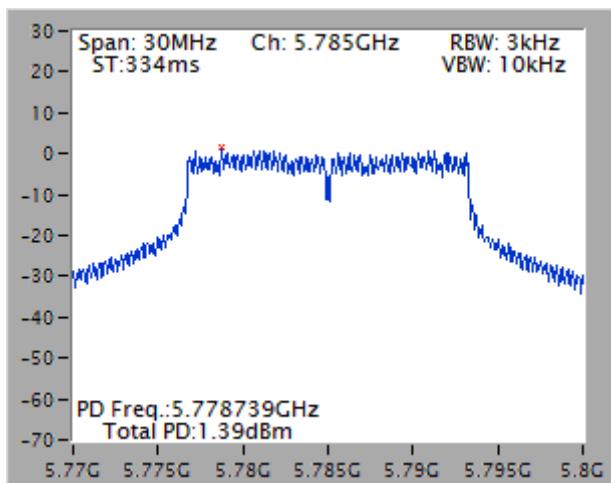


3.4.5 Test Result of Power Spectral Density

Operating Mode		1		
Power Spectral Density Result				
Condition		Power Spectral Density (dBm/3kHz)		
Modulation Mode	N _{TX}	Freq. (MHz)		
11a	3	5745	1.20	6.23
11a	3	5785	1.39	6.23
11a	3	5825	0.97	6.23
HT20	3	5745	0.49	6.23
HT20	3	5785	0.97	6.23
HT20	3	5825	0.56	6.23
HT40	3	5755	-2.88	6.23
HT40	3	5795	-2.67	6.23
VHT80	3	5775	-11.98	6.23
Result		Complied		

Note 1: PSD = sum each transmit chains by bin-to-bin PSD

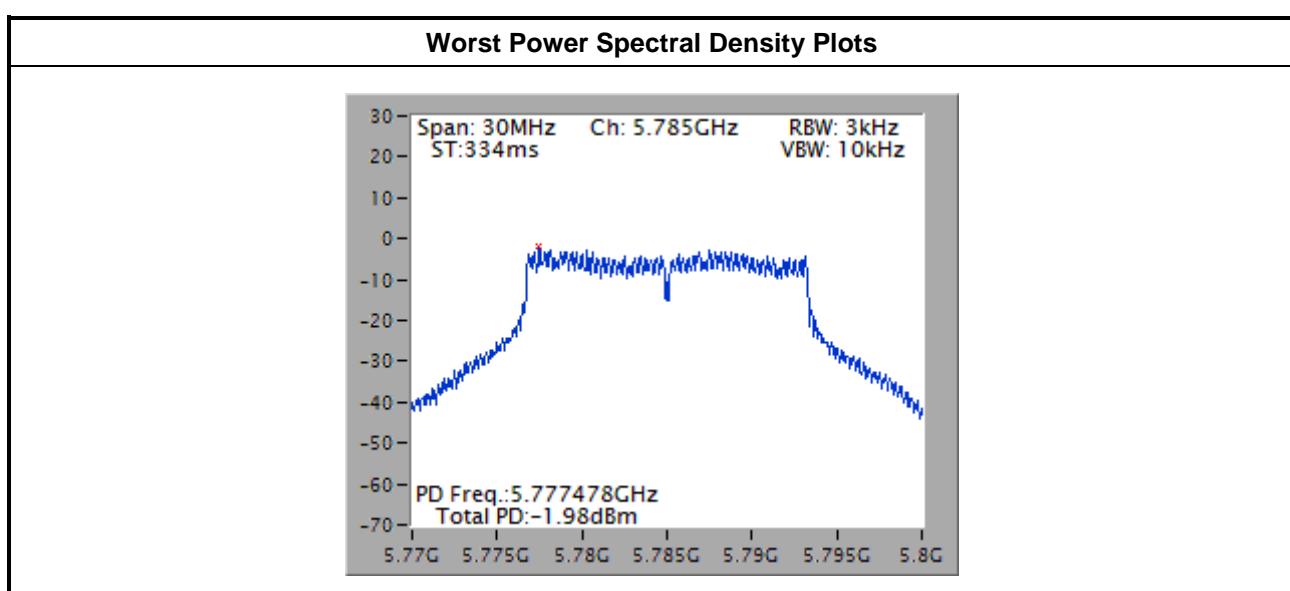
Worst Power Spectral Density Plots





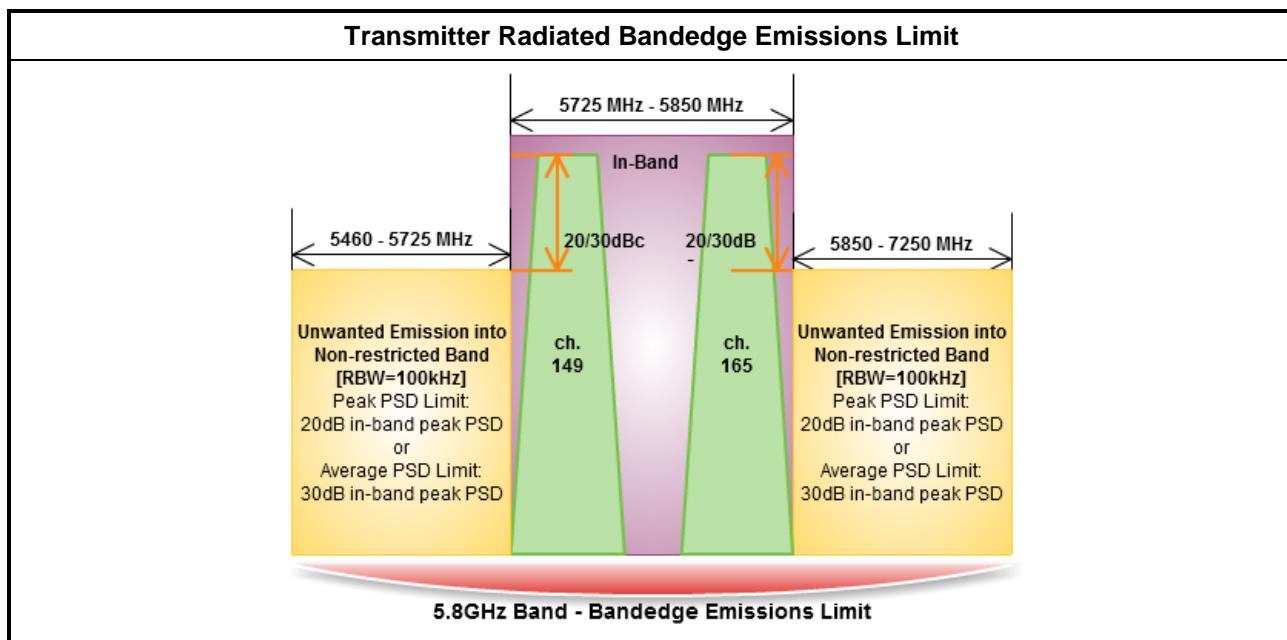
Operating Mode		3		
Power Spectral Density Result				
Condition		Power Spectral Density (dBm/3kHz)		
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain	Power Limit
11a	3	5745	-2.19	3.23
11a	3	5785	-1.98	3.23
11a	3	5825	-2.42	3.23
HT20	3	5745	-2.85	3.23
HT20	3	5785	-2.48	3.23
HT20	3	5825	-2.92	3.23
HT40	3	5755	-5.62	3.23
HT40	3	5795	-5.37	3.23
VHT80	3	5775	-11.98	3.23
Result		Complied		

Note 1: PSD = sum each transmit chains by bin-to-bin PSD



3.5 Transmitter Radiated 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 \geq 98 or duty factor].
<input checked="" type="checkbox"/> Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating 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 558074 v03, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 12 for unwanted emissions into restricted bands.
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 12.2.4.1 Option 1 (trace averaging for duty cycle $\geq 98\%$)
<input type="checkbox"/> Refer as FCC KDB 558074 v03, clause 12.2.4.2 Option 2 (trace averaging + duty factor).
<input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, clause 12.2.4.3 Option 3 (Reduced $VBW \geq 1/T$).
<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). $VBW \geq 1/T$, where T is pulse time.
<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/> Refer as FCC KDB 558074 v03, 12.2.3 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 558074 v03, clause 13.3 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 6.9.2 for band-edge testing.

Test Method

Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.

For radiated measurement, refer as FCC KDB 558074 v03, clause 12.2.6.

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 1.0m, because the instrumentation noise floor is typically close to the radiated emission limit.

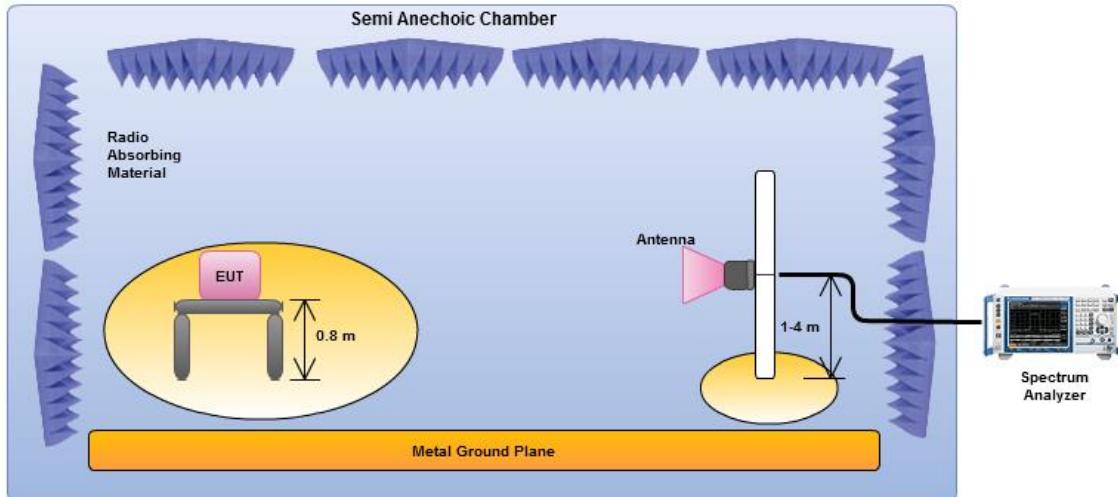
Test Method

For conducted and cabinet radiation measurement, refer as FCC KDB 558074 v03, clause 12.2

For conducted unwanted emissions into non-restricted bands (relative emission limits).
Devices with multiple transmit chains:
Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.

For conducted unwanted emissions into restricted bands (absolute emission limits).
Devices with multiple transmit chains using options given below:
(1) Measure and sum the spectra across the outputs or
(2) Measure and add 10 log(N) dB

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 Test Result of Transmitter Radiated Bandedge Emissions_Operating Mode 1

Transmitter Radiated Bandedge Emissions Result								
Modulation	11a			N _{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	112.75	5724.97	74.01	38.74	20	PK	V
5850-7250	5825	113.14	5850.00	73.47	39.67	20	PK	V
Low Bandedge				Up Bandedge				

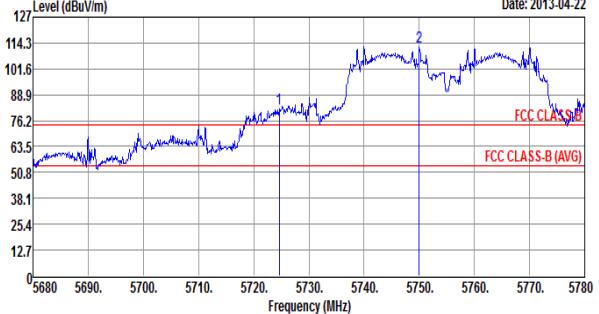
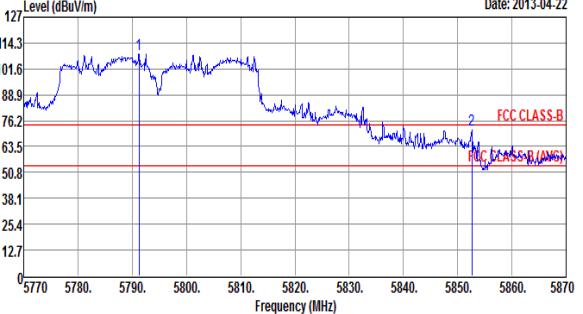
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT20			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	112.73	5724.76	76.37	36.36	20	PK	V
5850-7250	5825	111.32	5850.09	73.75	37.57	20	PK	V
Low Bandedge				Up Bandedge				

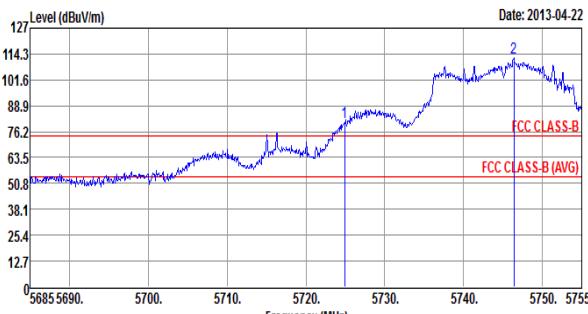
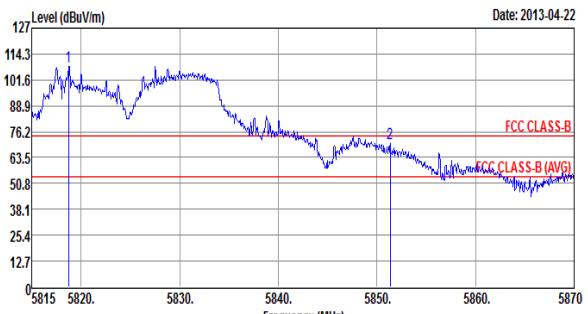
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT40			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5755	112.71	5724.6	82.05	30.66	20	PK	V
5850-7250	5795	108.82	5852.6	71.49	37.33	20	PK	V
Low Bandedge				Up Bandedge				
								

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT20			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	112.59	5724.9	80.8	31.79	20	PK	V
5850-7250	5825	108.44	5851.36	70.51	37.93	20	PK	V
Low Bandedge				Up Bandedge				
								

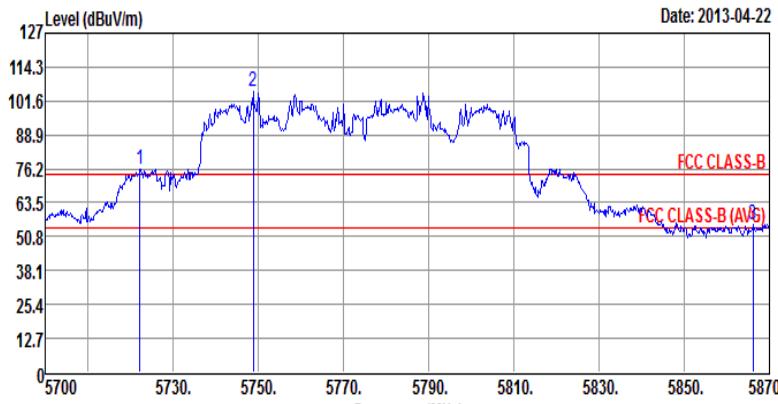
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT40			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5755	109.88	5723.8	87.14	22.74	20	PK	V
5850-7250	5795	108.56	5857.7	68.27	40.29	20	PK	V
Low Bandedge				Up Bandedge				

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT80			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5775	105.05	5722.27	75.94	29.11	20	PK	V
5850-7250	5775	105.05	5866.09	55.41	49.64	20	PK	V
Low Bandedge				Up Bandedge				
								

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



3.5.6 Test Result of Transmitter Radiated Bandedge Emissions_Operating Mode 2

Transmitter Radiated Bandedge Emissions Result								
Modulation	11a			N _{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	116.76	5724.97	81.17	35.59	20	PK	V
5850-7250	5825	115.49	5850.09	77.86	37.63	20	PK	V

Low Bandedge **Up Bandedge**

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT20			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	115.73	5724.69	80.87	34.86	20	PK	V
5850-7250	5825	115.67	5850.64	76.01	39.66	20	PK	V
Low Bandedge				Up Bandedge				

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT40			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5755	114.33	5724.9	81.26	33.07	20	PK	V
5850-7250	5795	111.21	5852.6	74.65	36.56	20	PK	V
Low Bandedge				Up Bandedge				

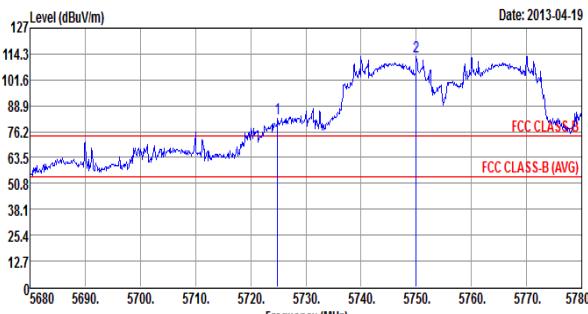
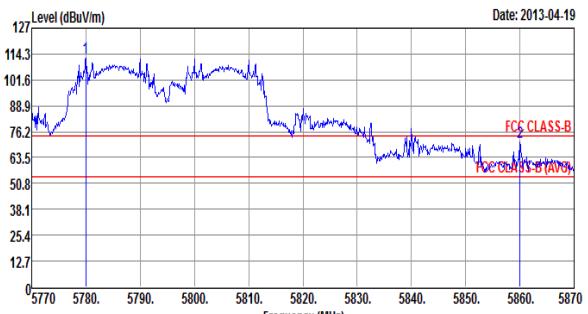
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT20			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	115.49	5724.34	79.3	36.19	20	PK	V
5850-7250	5825	114.67	5850.37	75.49	39.18	20	PK	V
Low Bandedge				Up Bandedge				

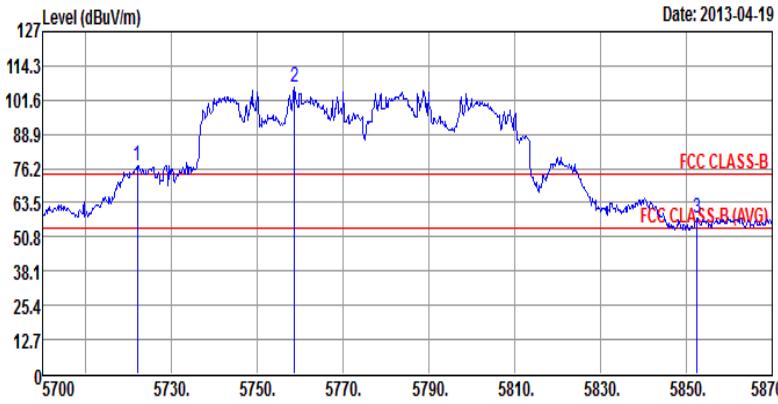
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT40			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5755	113.20	5724.9	82.35	30.85	20	PK	V
5850-7250	5795	112.27	5860.0	71.07	41.20	20	PK	V
Low Bandedge				Up Bandedge				
								

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result													
Modulation	VHT80			N_{TX}	3								
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1					
5460-5725	5775	106.34	5722.10	76.99	29.35	20	PK	V					
5850-7250	5775	106.40	5852.49	57.66	48.74	20	PK	V					
Low Bandedge				Up Bandedge									
													
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)													



3.5.7 Test Result of Transmitter Radiated Bandedge Emissions_Operating Mode 3

Transmitter Radiated Bandedge Emissions Result								
Modulation	11a			N _{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	113.12	5724.34	65.97	47.15	20	PK	V
5850-7250	5825	112.60	5851.19	62.70	49.90	20	PK	V

Low Bandedge **Up Bandedge**

Level (dBuV/m)

Date: 2013-04-19

Frequency (MHz)

FCC CLASS-B (AVG)

Level (dBuV/m)

Date: 2013-04-19

Frequency (MHz)

FCC CLASS-B (AVG)

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT20			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	112.42	5724.90	66.48	45.94	20	PK	V
5850-7250	5825	111.63	5850.70	62.33	49.30	20	PK	V
Low Bandedge				Up Bandedge				

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT40			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5755	108.35	5723.80	72.22	36.13	20	PK	V
5850-7250	5795	109.92	5858.70	57.52	52.40	20	PK	V
Low Bandedge				Up Bandedge				

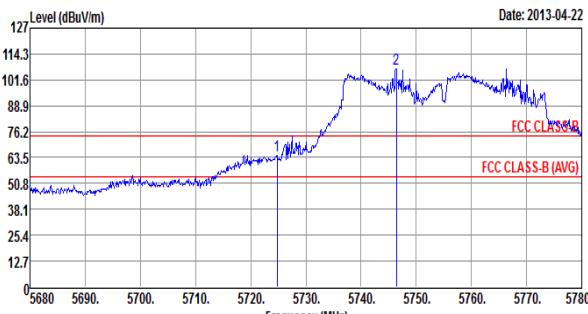
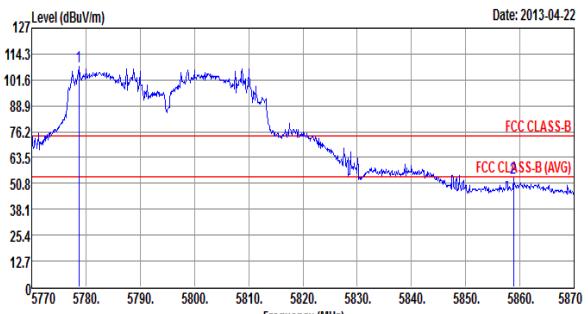
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT20			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5745	111.54	5724.34	64.42	47.12	20	PK	V
5850-7250	5825	111.16	5850.09	60.45	50.71	20	PK	V
Low Bandedge				Up Bandedge				

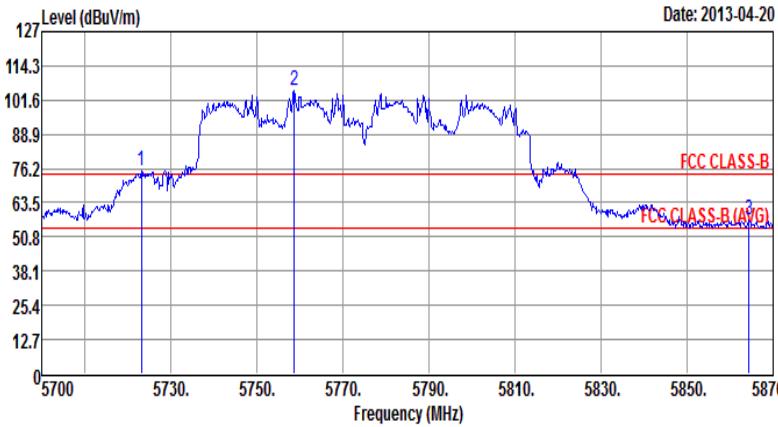
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result								
Modulation	VHT40			N_{TX}	3			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
5460-5725	5755	107.06	5724.80	64.66	42.40	20	PK	V
5850-7250	5795	107.90	5858.80	53.58	54.32	20	PK	V
Low Bandedge				Up Bandedge				
								

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)



Transmitter Radiated Bandedge Emissions Result													
Modulation	VHT80			N_{TX}	3								
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1					
5460-5725	5775	105.10	5723.12	75.15	29.95	20	PK	V					
5850-7250	5775	105.10	5864.39	57.41	47.69	20	PK	V					
Low Bandedge				Up Bandedge									
													
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)													



3.6 Transmitter Radiated Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

Restricted Band Emissions 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 Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.6.2 Measuring Instruments

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



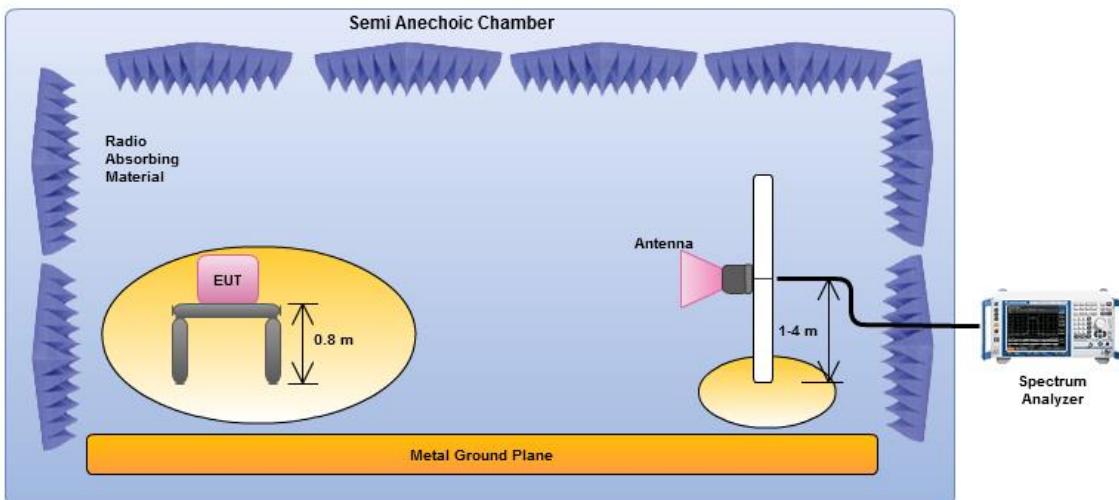
3.6.3 Test Procedures

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. 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 type="checkbox"/>	Measurements in the frequency range 10 GHz - 18GHz are typically made at a closer distance 1m, because the instrumentation noise floor is typically close to the radiated emission limit.
<input type="checkbox"/>	Measurements in the frequency range above 18 GHz - 25GHz are typically made at a closer distance 0.5m, because the instrumentation noise floor is typically close to the radiated emission limit.
<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 558074 v03, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074 v03, clause 12 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074 v03, clause 12.2.4.1 Option 1 (trace averaging for duty cycle $\geq 98\%$)
<input type="checkbox"/>	Refer as FCC KDB 558074 v03, clause 12.2.4.2 Option 2 (trace averaging + duty factor).
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074 v03, clause 12.2.4.3 Option 3 (Reduced VBW $\geq 1/T$).
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074 v03, 12.2.3 measurement procedure peak limit.
<input type="checkbox"/>	Refer as FCC KDB 558074 v03, clause 12.2.2 measurement procedure Quasi-Peak limit.
<input checked="" type="checkbox"/>	For radiated measurement, refer as FCC KDB 558074 v03, clause 12.2.6.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz.

Test Method	
<input type="checkbox"/>	For conducted and cabinet radiation measurement, refer as FCC KDB 558074 v03, clause 12.2
<input type="checkbox"/>	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
<input type="checkbox"/>	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB

3.6.4 Test Setup

Transmitter Radiated Unwanted Emissions



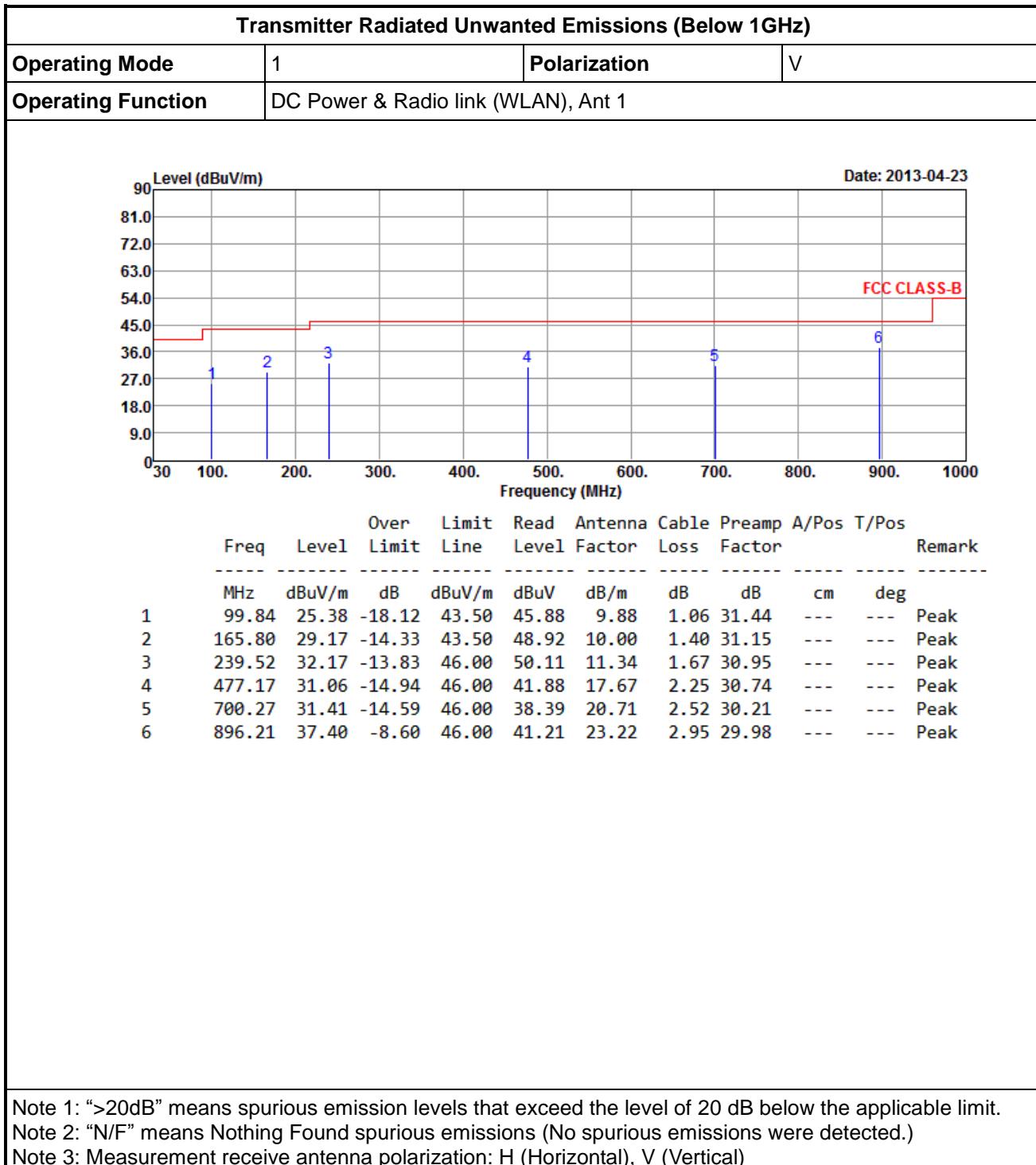
Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

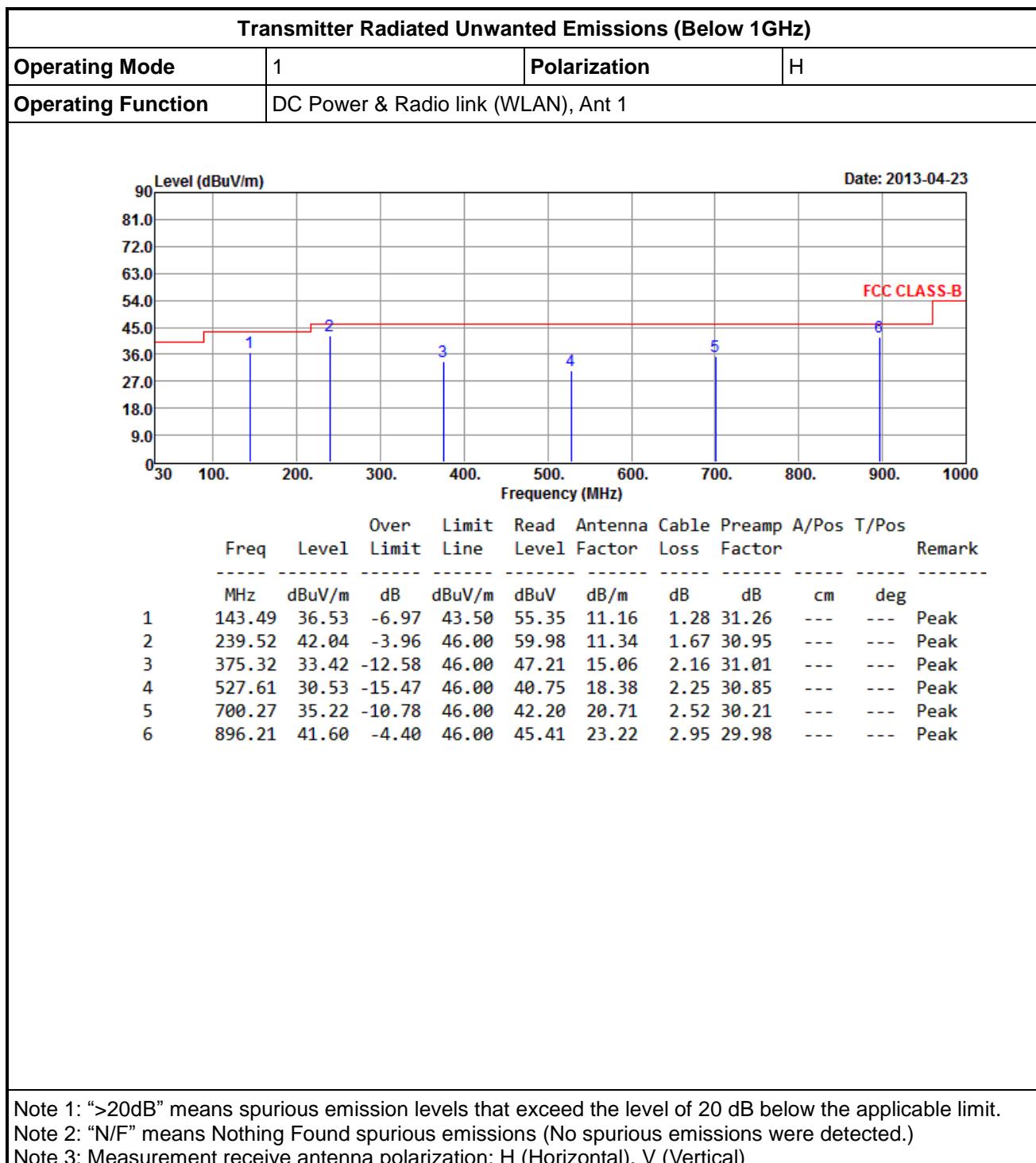
3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

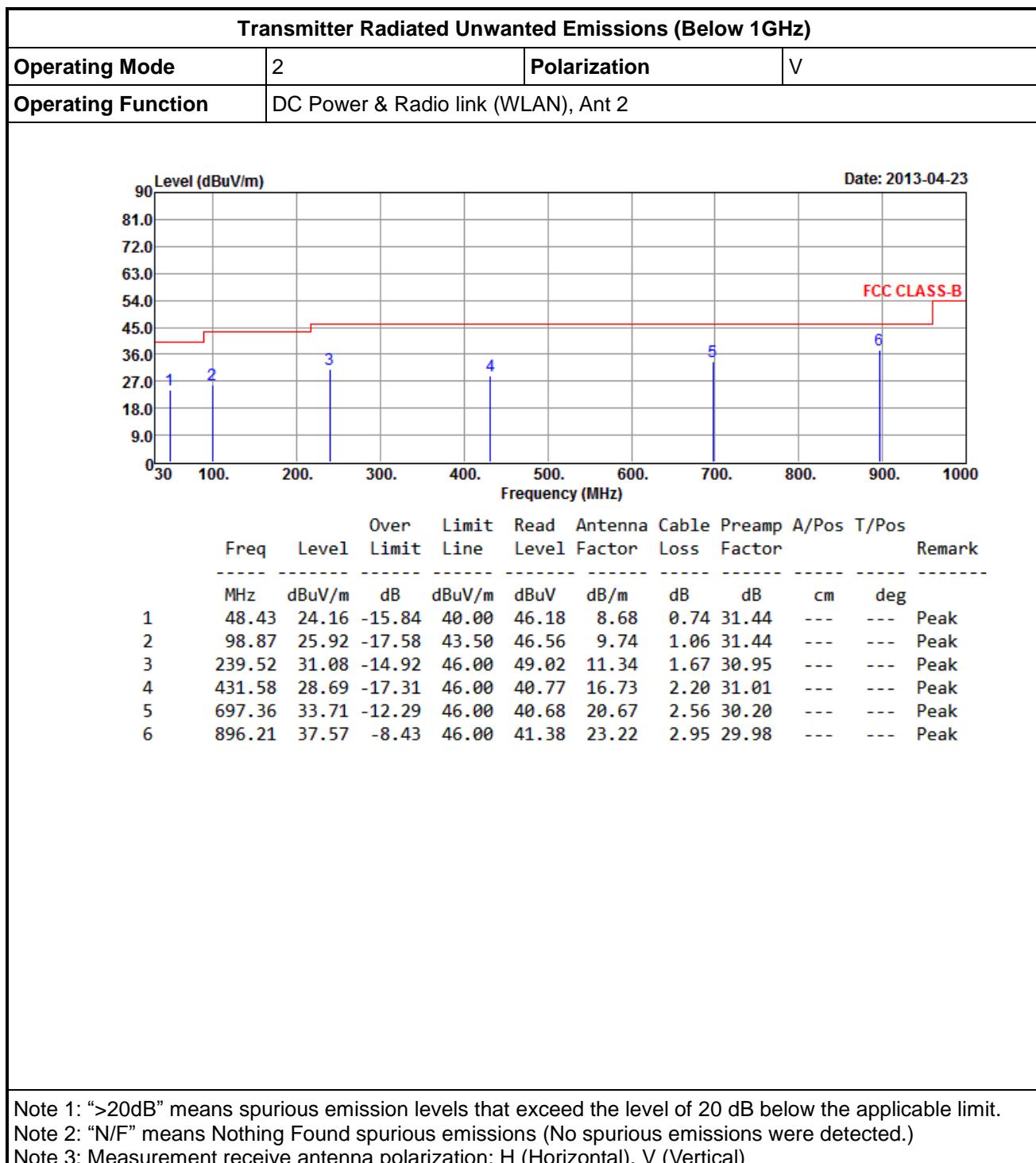
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

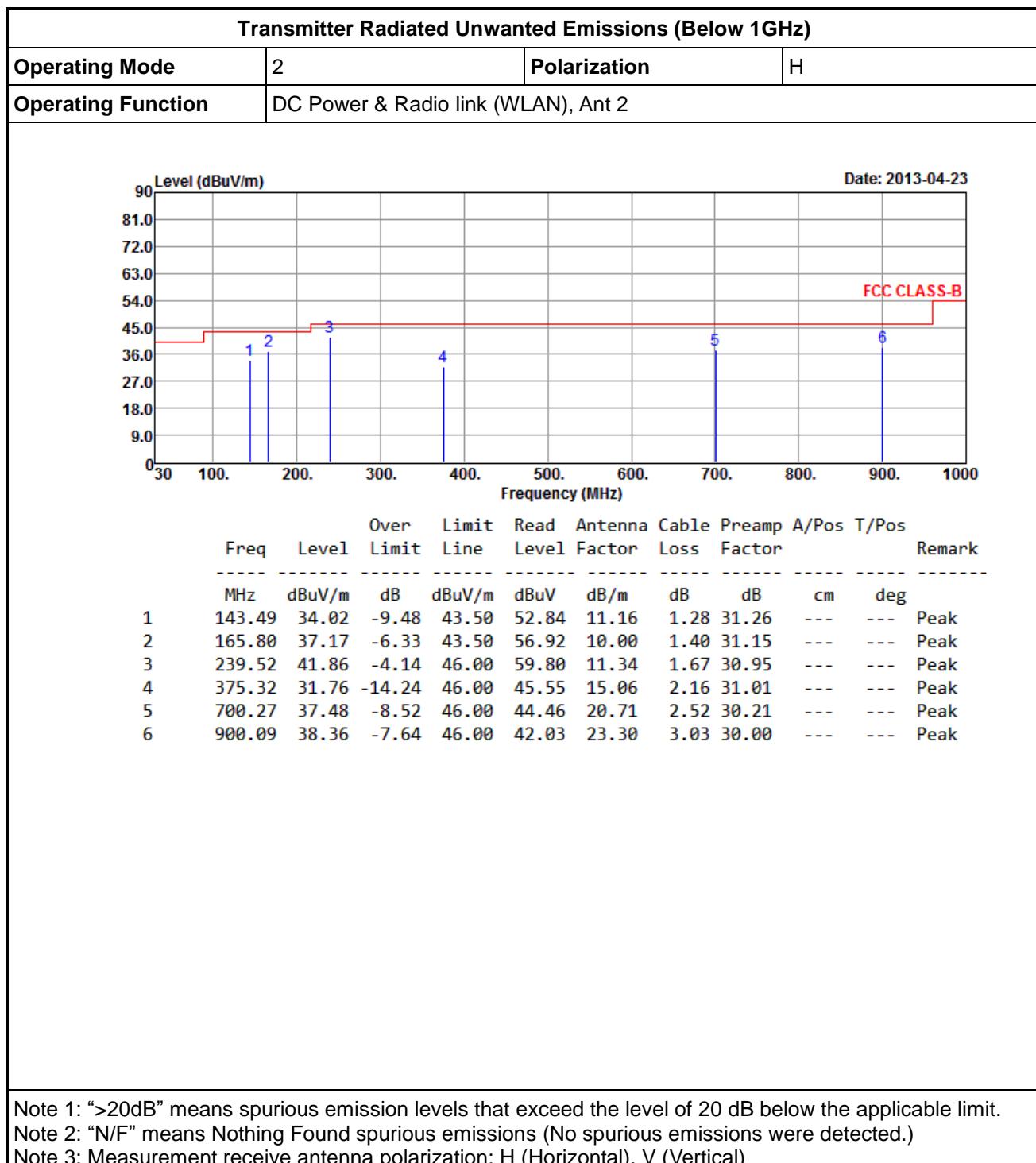


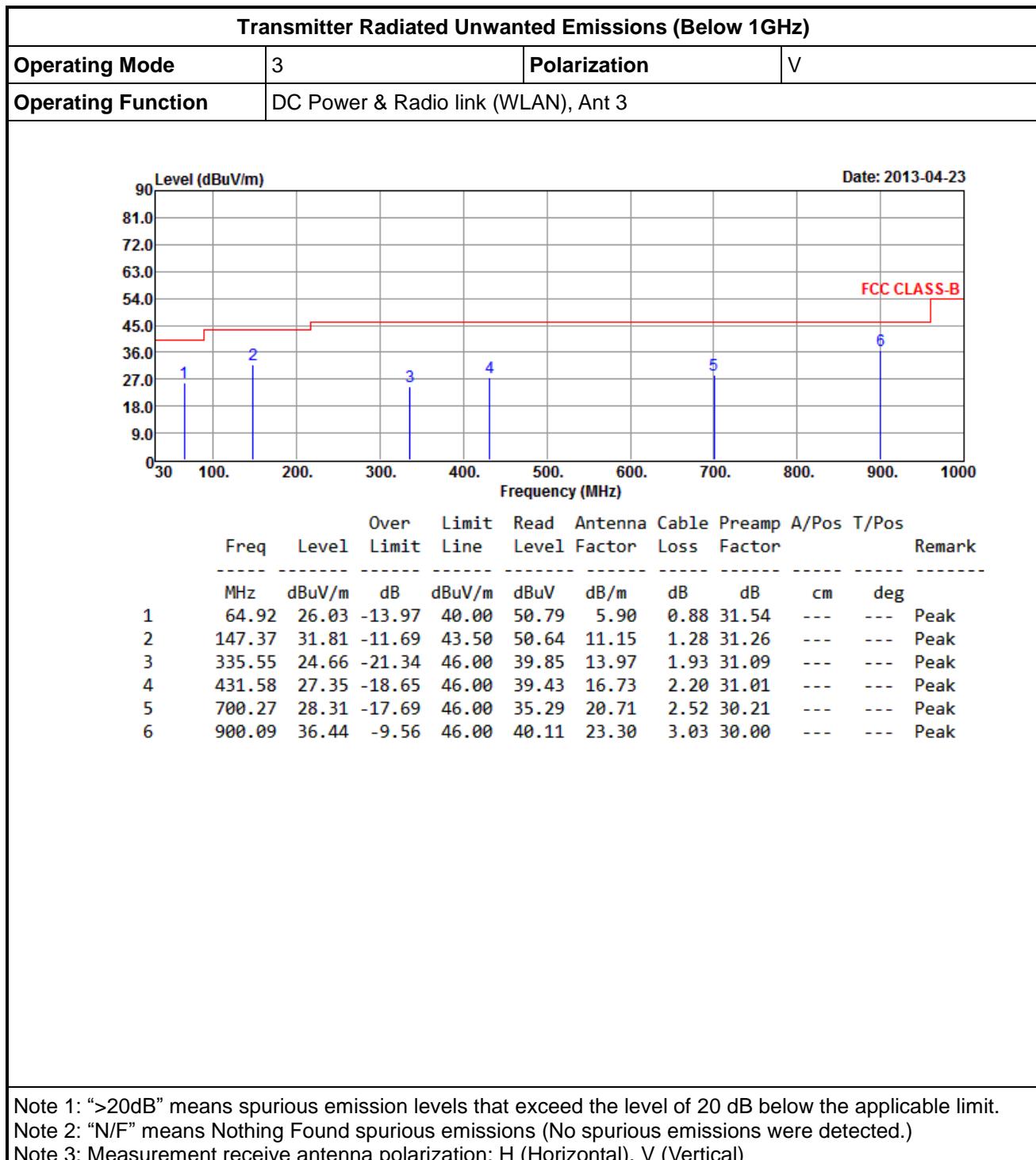
3.6.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

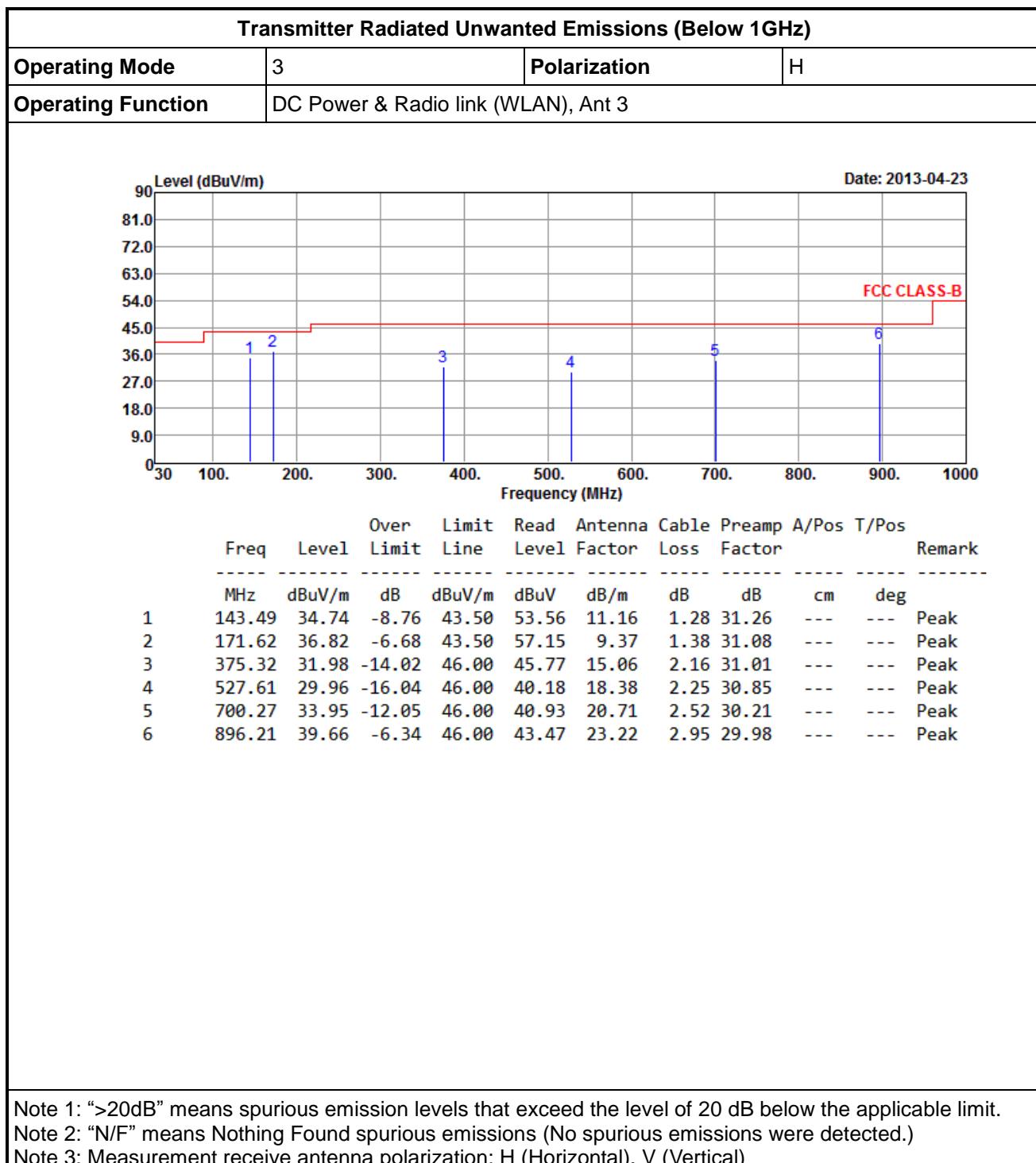










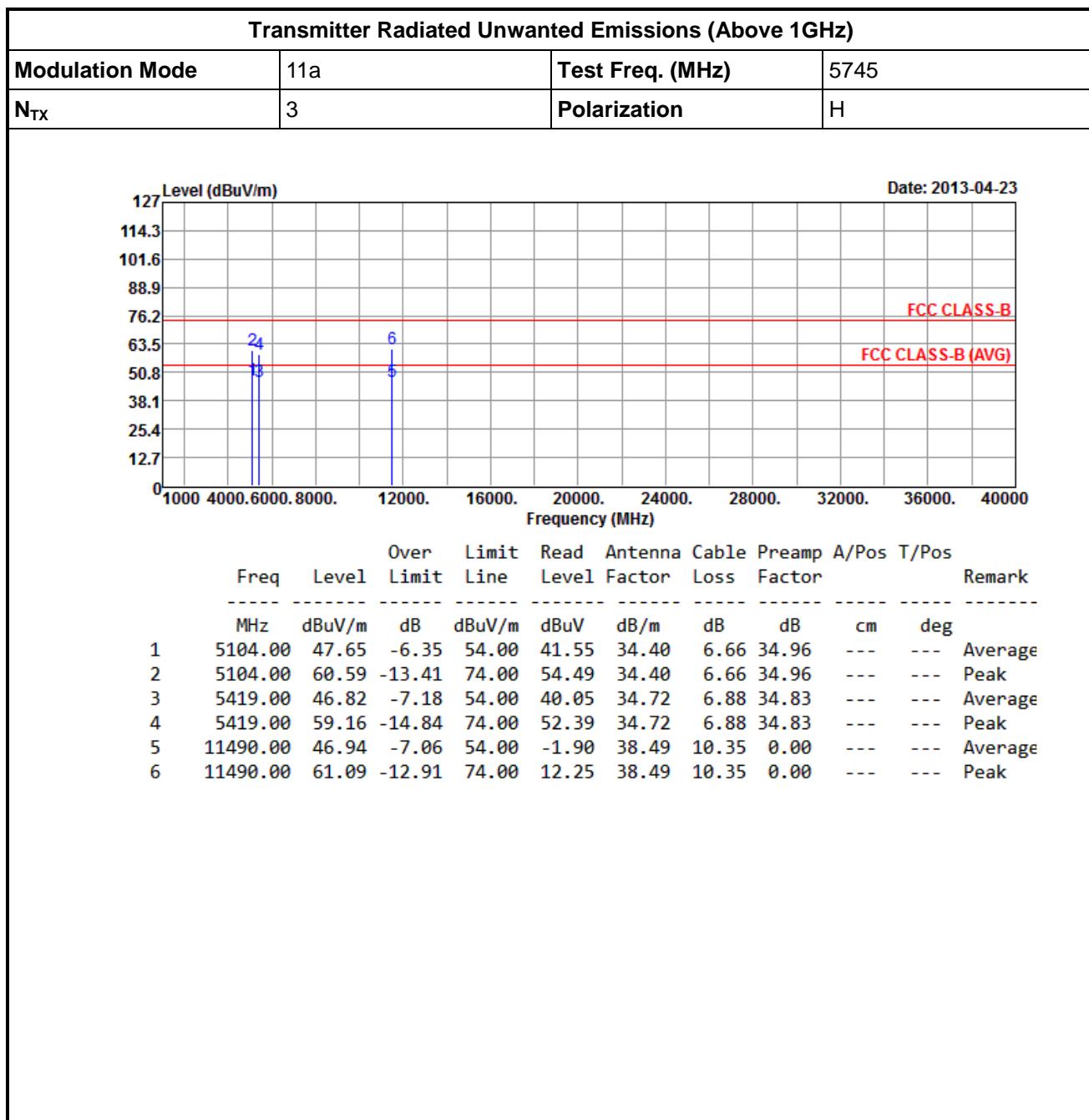




3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a

Operating Mode: 1

Transmitter Radiated Unwanted Emissions (Above 1GHz)										
Modulation Mode		11a		Test Freq. (MHz)		5745				
N _{TX}		3		Polarization		V				
Date: 2013-04-23										
1	5104.00	48.51	-5.49	54.00	42.41	34.40	6.66	34.96	---	---
2	5104.00	61.43	-12.57	74.00	55.33	34.40	6.66	34.96	---	---
3	5419.00	48.43	-5.57	54.00	41.66	34.72	6.88	34.83	---	---
4	5419.00	61.06	-12.94	74.00	54.29	34.72	6.88	34.83	---	---
5	11490.00	52.87	-1.13	54.00	4.03	38.49	10.35	0.00	---	---
6	11490.00	68.46	-5.54	74.00	19.62	38.49	10.35	0.00	---	---
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.										



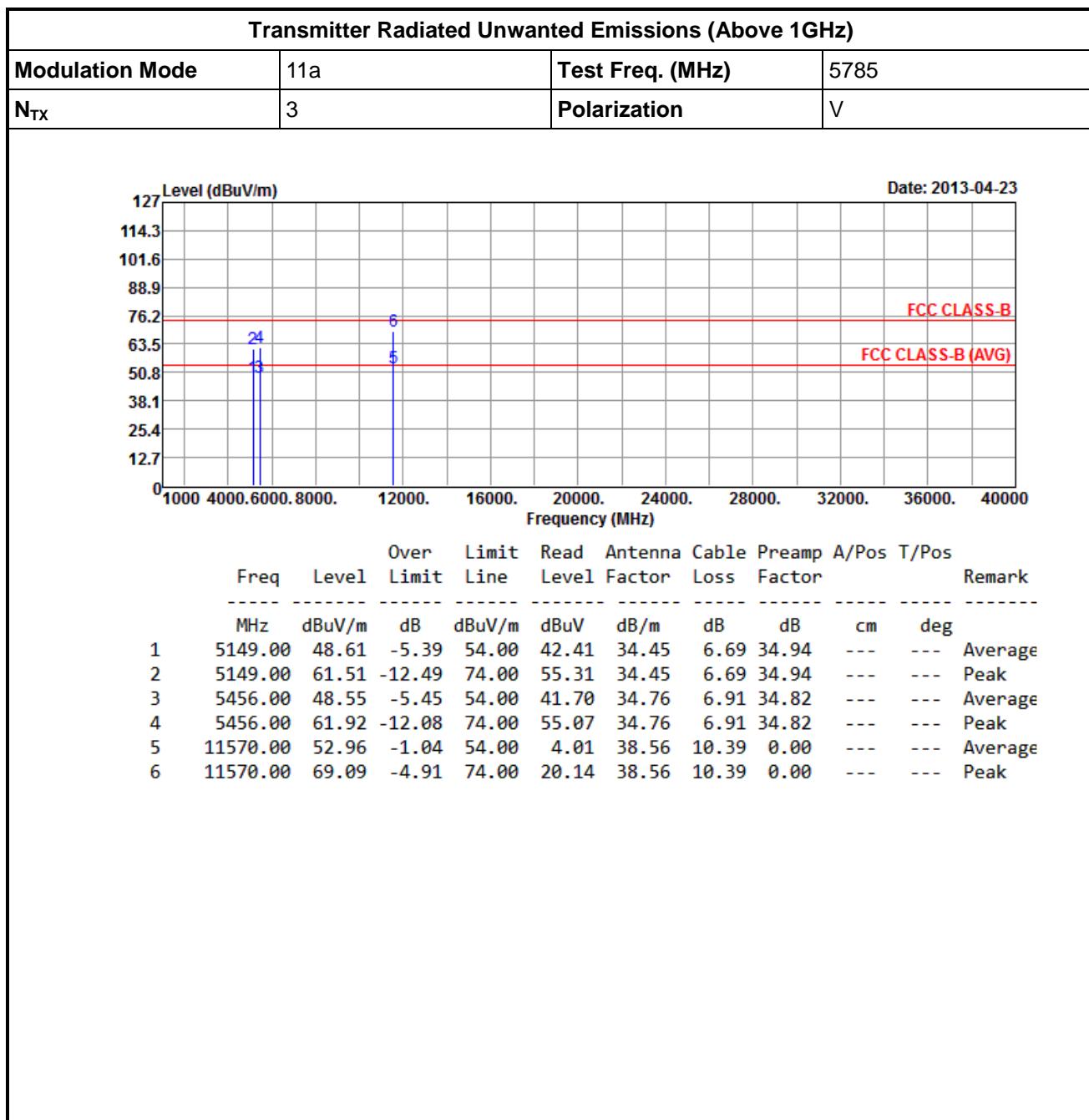
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



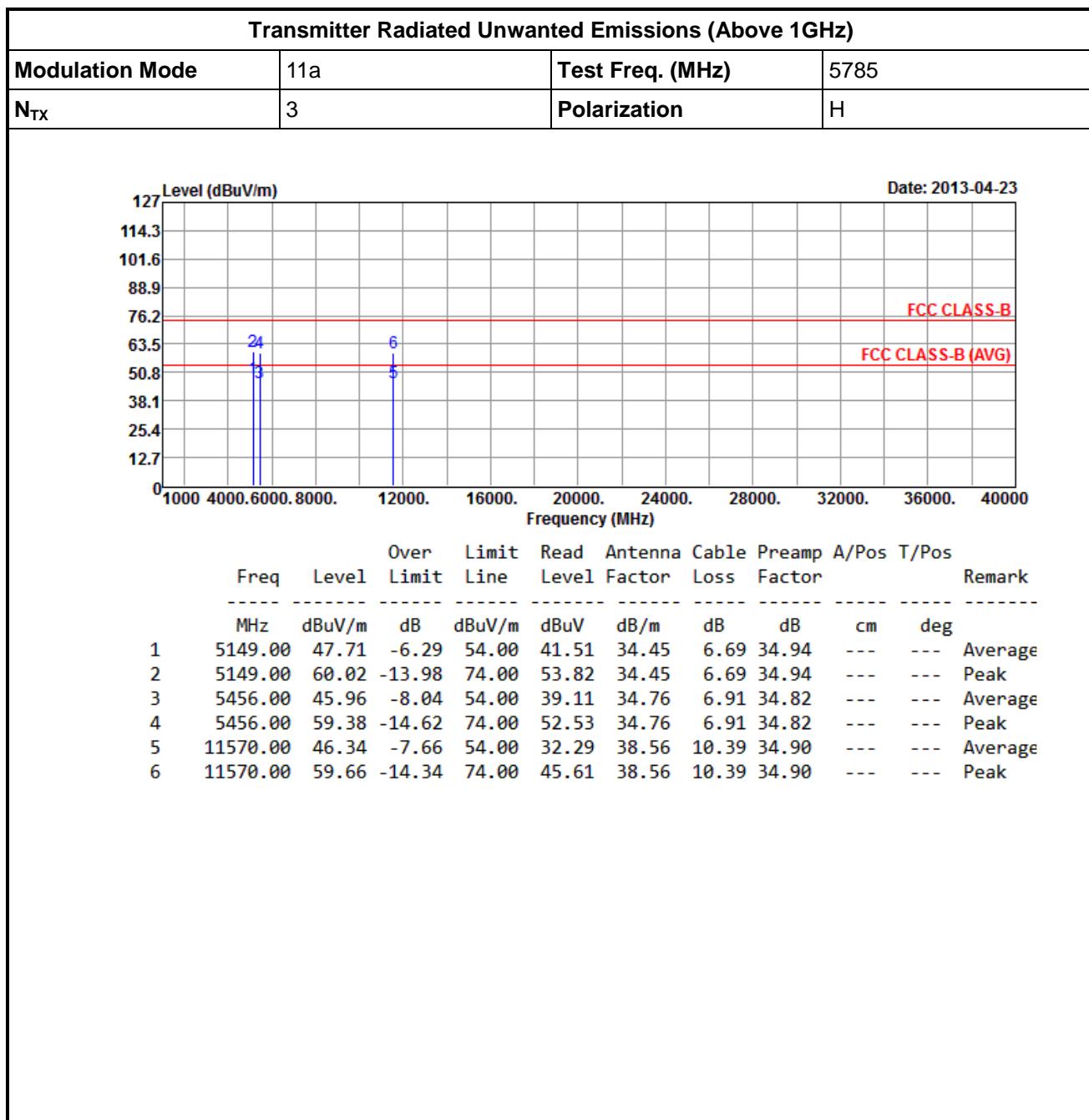
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



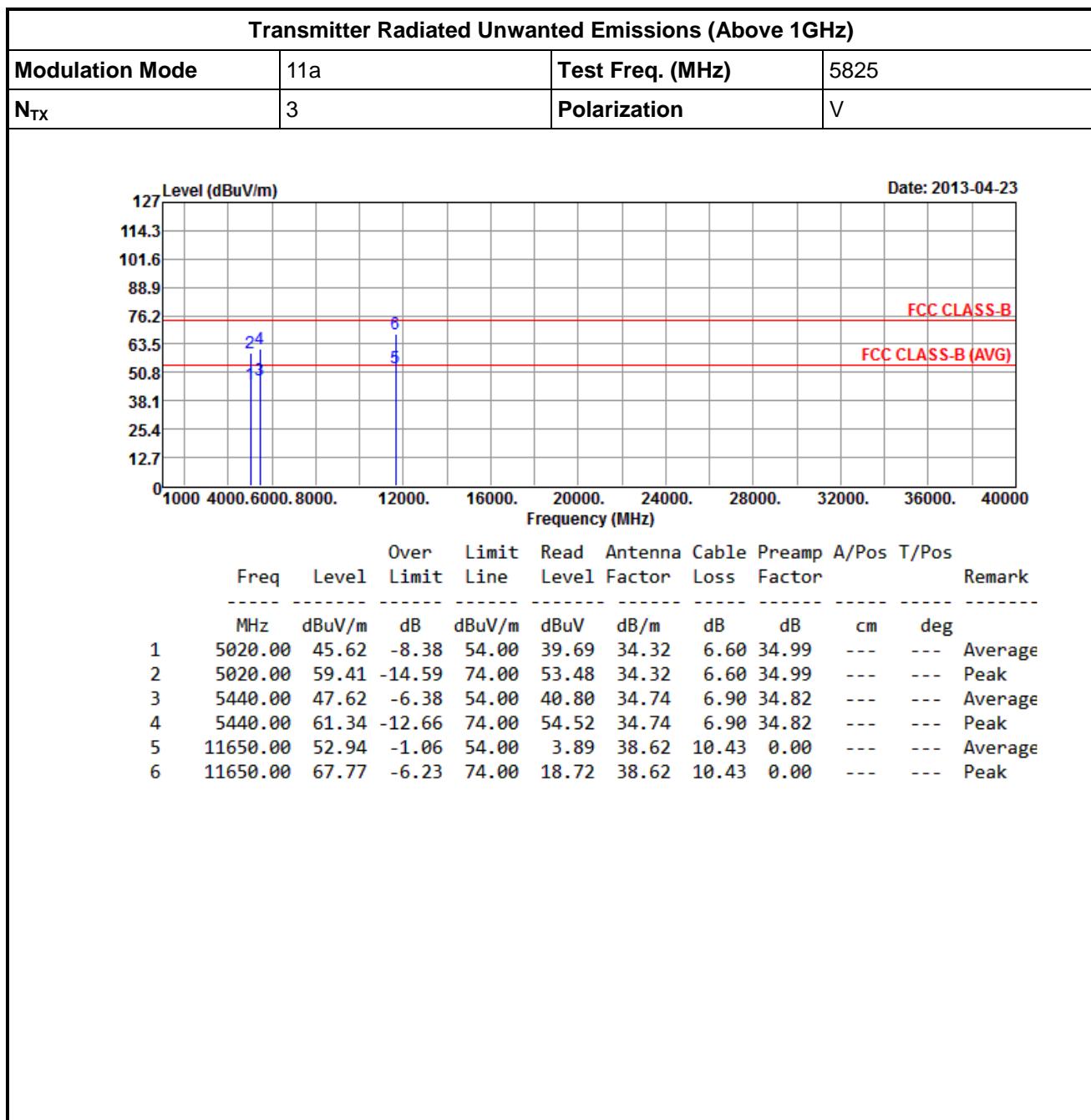
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



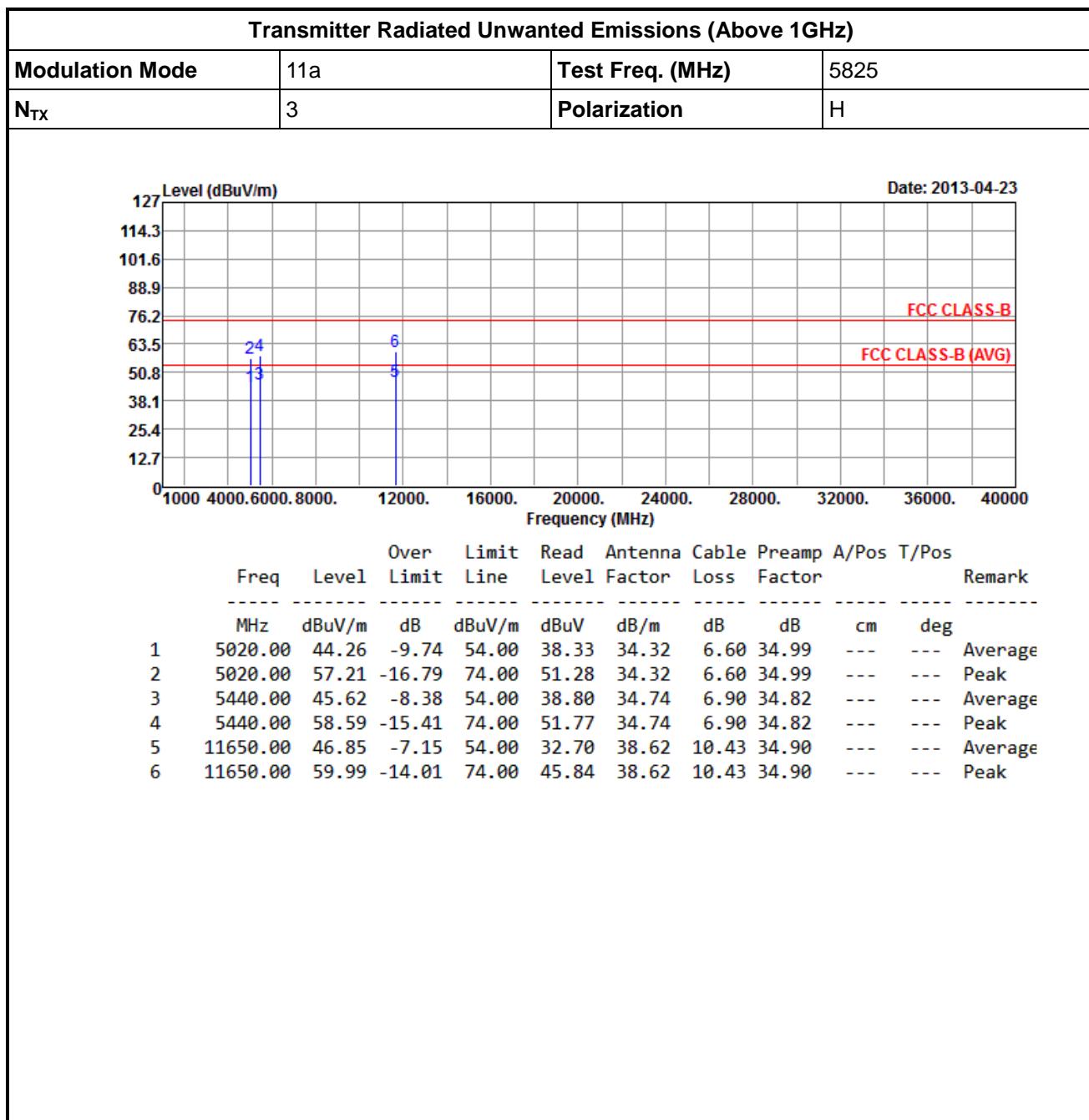
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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.)

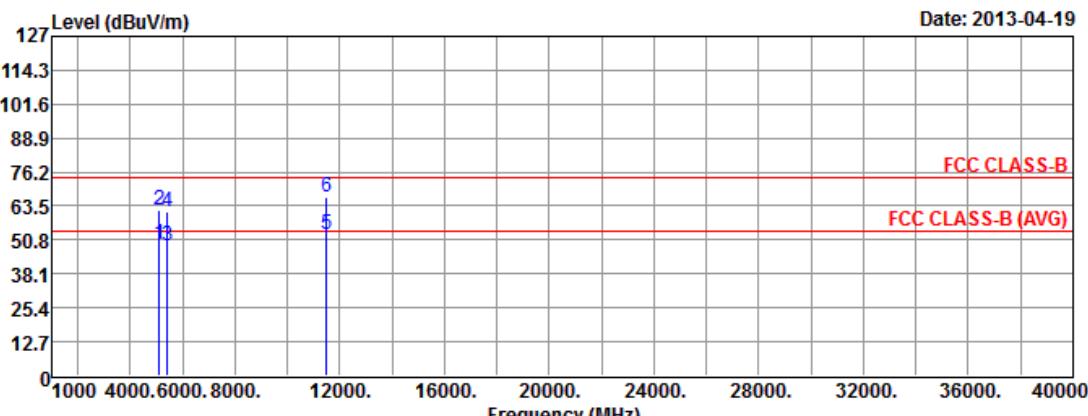
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

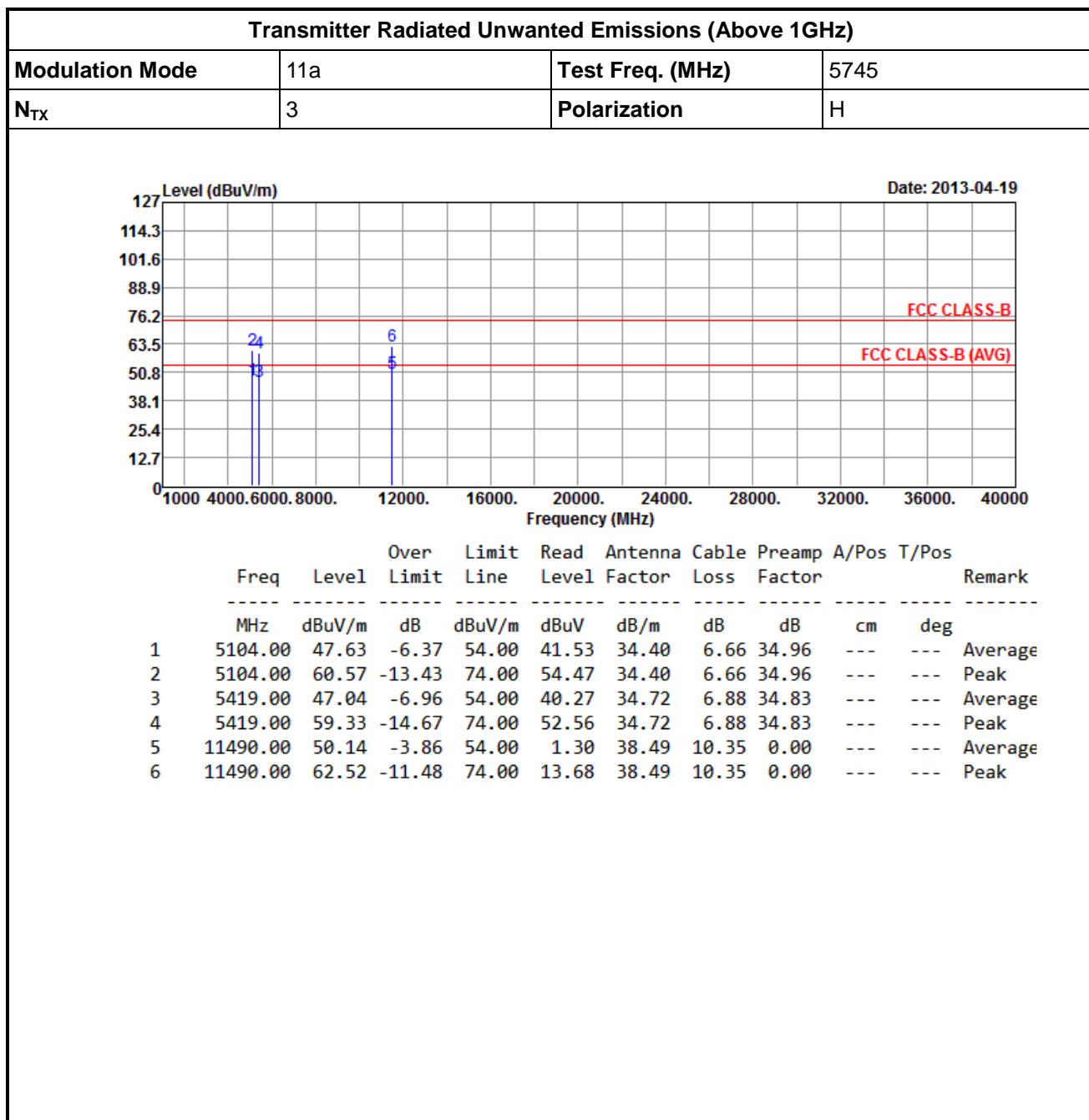
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 2

Transmitter Radiated Unwanted Emissions (Above 1GHz)														
Modulation Mode	11a		Test Freq. (MHz)		5745									
N _{TX}	3		Polarization		V									
Level (dB _u V/m)										Date: 2013-04-19				
														
Over Limit Read Antenna Cable Preamp A/Pos T/Pos														
	Freq	Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos				
	MHz	dB _u V/m	dB	dB _u V/m	dB _u V	dB/m	dB	dB	cm	deg				
1	5104.00	48.98	-5.02	54.00	42.88	34.40	6.66	34.96	---	---				
2	5104.00	61.68	-12.32	74.00	55.58	34.40	6.66	34.96	---	---				
3	5419.00	48.54	-5.46	54.00	41.77	34.72	6.88	34.83	---	---				
4	5419.00	61.09	-12.91	74.00	54.32	34.72	6.88	34.83	---	---				
5	11490.00	52.80	-1.20	54.00	3.96	38.49	10.35	0.00	---	---				
6	11490.00	66.90	-7.10	74.00	18.06	38.49	10.35	0.00	---	---				
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.														



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

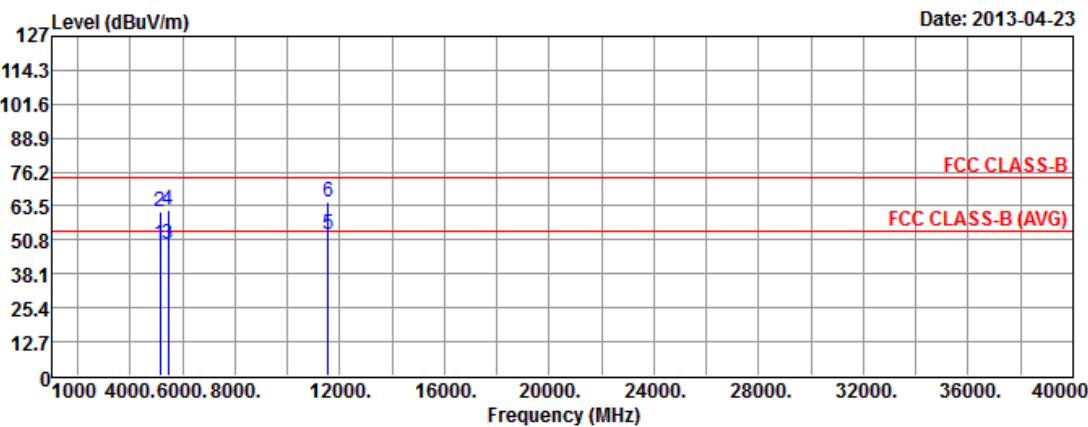
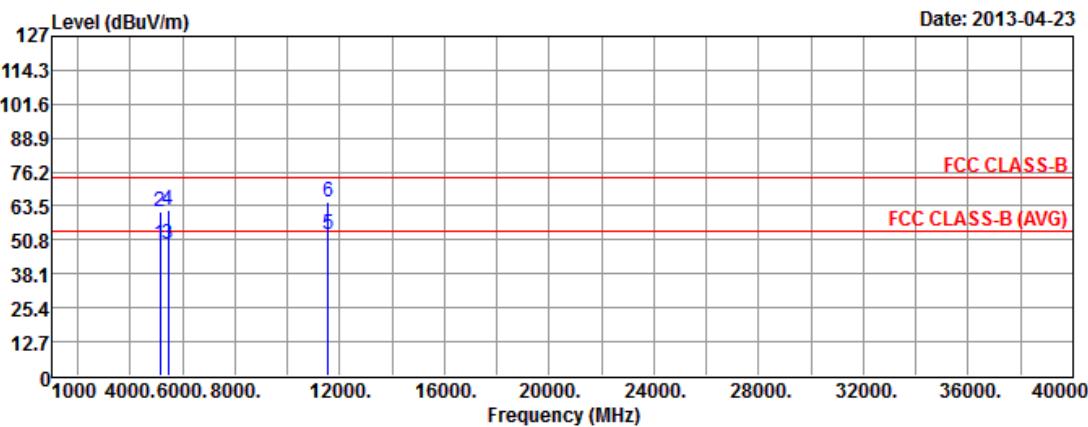
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

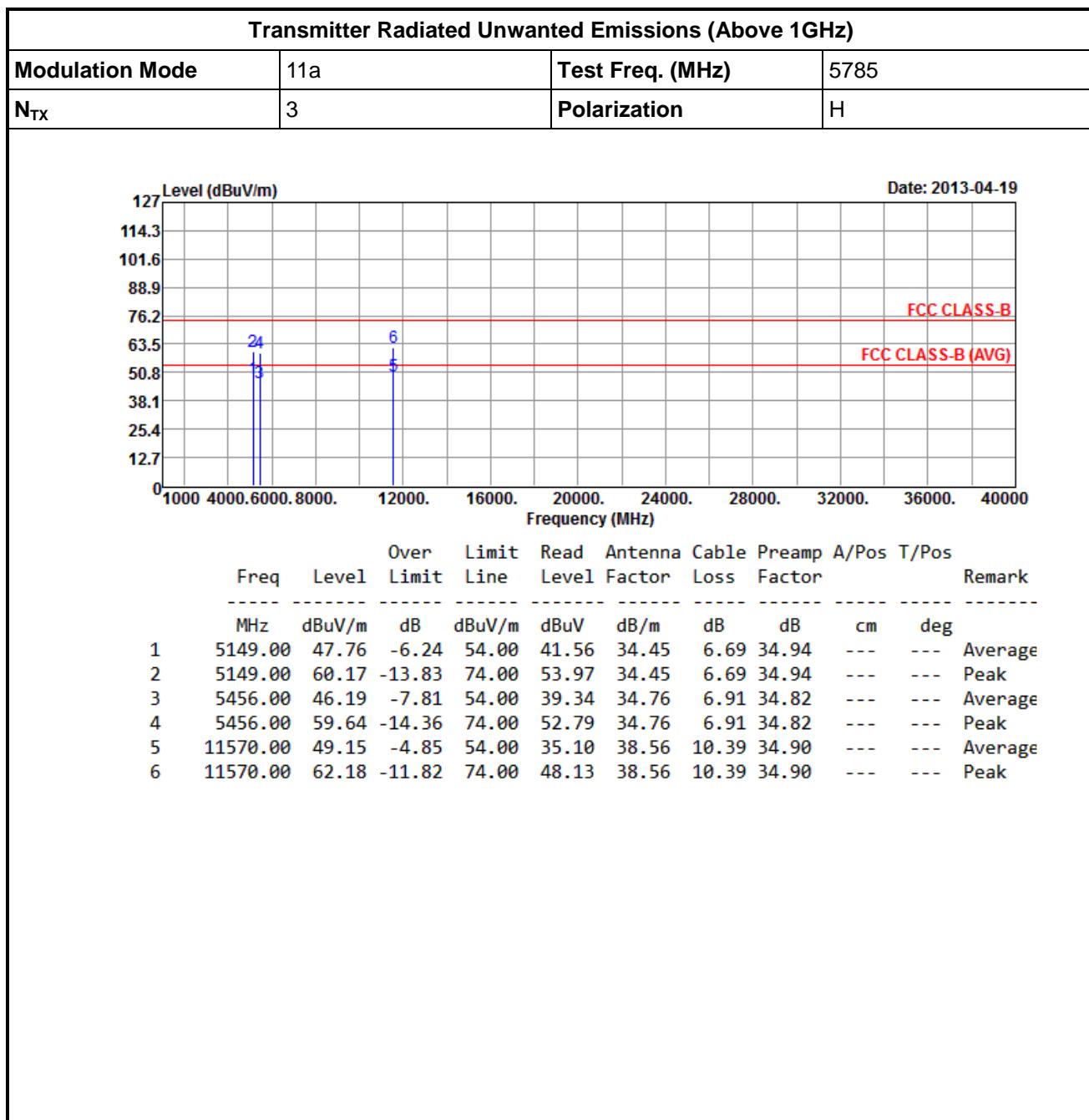
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)															
Modulation Mode		11a		Test Freq. (MHz)			5785								
N _{TX}		3		Polarization			V								
Level (dB _u V/m)										Date: 2013-04-23					
										FCC CLASS-B					
										FCC CLASS-B (AVG)					
Over Limit Read Antenna Cable Preamp A/Pos T/Pos															
Freq		Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos					
MHz		dB _u V/m	dB	dB _u V/m	dB _u V	dB/m	dB	dB	cm	deg					
1	5149.00	48.92	-5.08	54.00	42.72	34.45	6.69	34.94	---	---					
2	5149.00	61.24	-12.76	74.00	55.04	34.45	6.69	34.94	---	---					
3	5456.00	49.13	-4.87	54.00	42.28	34.76	6.91	34.82	---	---					
4	5456.00	62.28	-11.72	74.00	55.43	34.76	6.91	34.82	---	---					
5	11570.00	52.68	-1.32	54.00	3.73	38.56	10.39	0.00	---	---					
6	11570.00	65.12	-8.88	74.00	16.17	38.56	10.39	0.00	---	---					

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



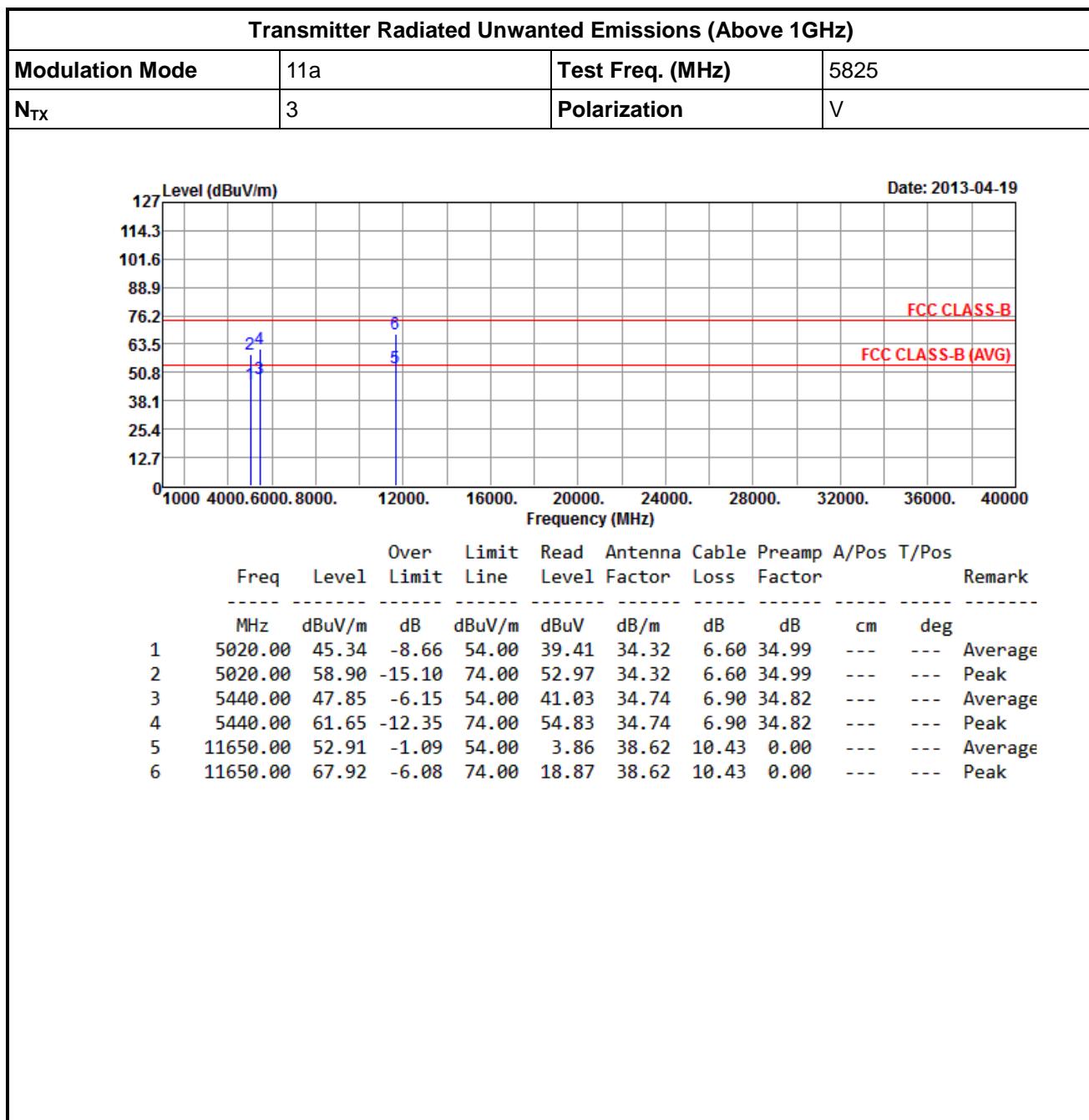
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



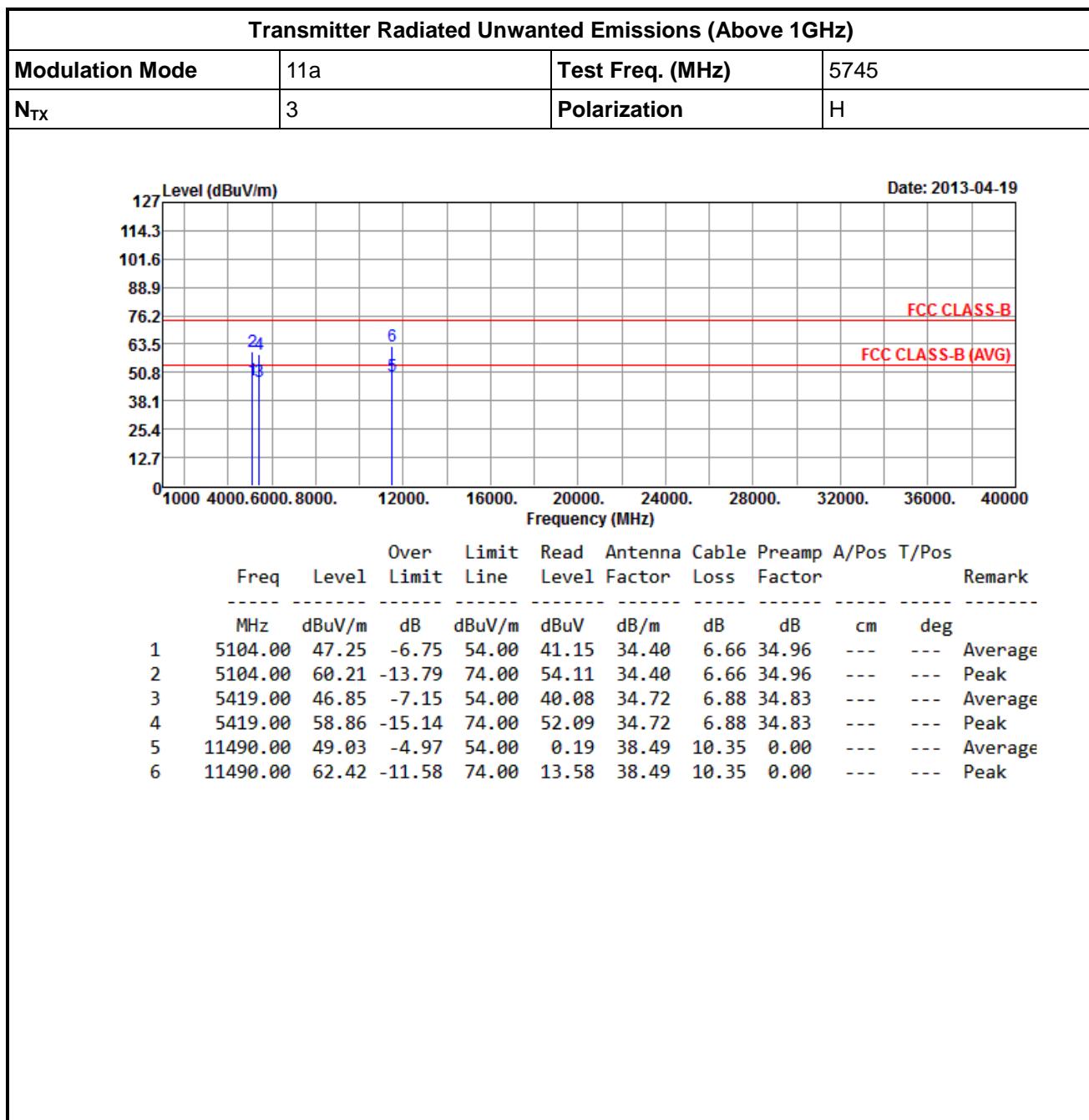
Transmitter Radiated Unwanted Emissions (Above 1GHz)																																																																																																								
Modulation Mode		11a		Test Freq. (MHz)		5825																																																																																																		
N _{TX}		3		Polarization		H																																																																																																		
Date: 2013-04-19																																																																																																								
<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;">Read Line</th> <th style="text-align: center;">Antenna Factor</th> <th style="text-align: center;">Cable Loss</th> <th style="text-align: center;">Preamp Factor</th> <th style="text-align: center;">A/Pos</th> <th style="text-align: center;">T/Pos</th> <th colspan="3" 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;">cm</th> <th style="text-align: center;">deg</th> <th></th></tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">5020.00</td> <td style="text-align: center;">44.19</td> <td style="text-align: center;">-9.81</td> <td style="text-align: center;">54.00</td> <td style="text-align: center;">38.26</td> <td style="text-align: center;">34.32</td> <td style="text-align: center;">6.60</td> <td style="text-align: center;">34.99</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">Average</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">5020.00</td> <td style="text-align: center;">57.00</td> <td style="text-align: center;">-17.00</td> <td style="text-align: center;">74.00</td> <td style="text-align: center;">51.07</td> <td style="text-align: center;">34.32</td> <td style="text-align: center;">6.60</td> <td style="text-align: center;">34.99</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">Peak</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">5440.00</td> <td style="text-align: center;">45.84</td> <td style="text-align: center;">-8.16</td> <td style="text-align: center;">54.00</td> <td style="text-align: center;">39.02</td> <td style="text-align: center;">34.74</td> <td style="text-align: center;">6.90</td> <td style="text-align: center;">34.82</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">Average</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">5440.00</td> <td style="text-align: center;">58.64</td> <td style="text-align: center;">-15.36</td> <td style="text-align: center;">74.00</td> <td style="text-align: center;">51.82</td> <td style="text-align: center;">34.74</td> <td style="text-align: center;">6.90</td> <td style="text-align: center;">34.82</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">Peak</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">11650.00</td> <td style="text-align: center;">48.67</td> <td style="text-align: center;">-5.33</td> <td style="text-align: center;">54.00</td> <td style="text-align: center;">34.52</td> <td style="text-align: center;">38.62</td> <td style="text-align: center;">10.43</td> <td style="text-align: center;">34.90</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">Average</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">11650.00</td> <td style="text-align: center;">61.64</td> <td style="text-align: center;">-12.36</td> <td style="text-align: center;">74.00</td> <td style="text-align: center;">47.49</td> <td style="text-align: center;">38.62</td> <td style="text-align: center;">10.43</td> <td style="text-align: center;">34.90</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">Peak</td> </tr> </tbody> </table>											Freq	Over Limit	Read Line	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark			MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		1	5020.00	44.19	-9.81	54.00	38.26	34.32	6.60	34.99	---	---	Average	2	5020.00	57.00	-17.00	74.00	51.07	34.32	6.60	34.99	---	---	Peak	3	5440.00	45.84	-8.16	54.00	39.02	34.74	6.90	34.82	---	---	Average	4	5440.00	58.64	-15.36	74.00	51.82	34.74	6.90	34.82	---	---	Peak	5	11650.00	48.67	-5.33	54.00	34.52	38.62	10.43	34.90	---	---	Average	6	11650.00	61.64	-12.36	74.00	47.49	38.62	10.43	34.90	---	---	Peak
Freq	Over Limit	Read Line	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark																																																																																																
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg																																																																																															
1	5020.00	44.19	-9.81	54.00	38.26	34.32	6.60	34.99	---	---	Average																																																																																													
2	5020.00	57.00	-17.00	74.00	51.07	34.32	6.60	34.99	---	---	Peak																																																																																													
3	5440.00	45.84	-8.16	54.00	39.02	34.74	6.90	34.82	---	---	Average																																																																																													
4	5440.00	58.64	-15.36	74.00	51.82	34.74	6.90	34.82	---	---	Peak																																																																																													
5	11650.00	48.67	-5.33	54.00	34.52	38.62	10.43	34.90	---	---	Average																																																																																													
6	11650.00	61.64	-12.36	74.00	47.49	38.62	10.43	34.90	---	---	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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.																																																																																																								



Operating Mode: 3

Transmitter Radiated Unwanted Emissions (Above 1GHz)																			
Modulation Mode		11a		Test Freq. (MHz)		5745													
N _{TX}		3		Polarization		V													
Level (dB _{uV/m})																			
Date: 2013-04-19																			
127	114.3	101.6	88.9	76.2	63.5	50.8	38.1	25.4	12.7	0									
1000	4000	6000	8000	12000	16000	20000	24000	28000	32000	36000									
Frequency (MHz)																			
24	14	6	5																
FCC CLASS-B																			
FCC CLASS-B (AVG)																			
Over Limit Read Antenna Cable Preamp A/Pos T/Pos																			
Freq		Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos									
MHz		dB _{uV/m}	dB	dB _{uV/m}	dB _{uV}	dB/m	dB	dB	cm	deg									
1	5104.00	48.65	-5.35	54.00	42.55	34.40	6.66	34.96	---	---									
2	5104.00	61.32	-12.68	74.00	55.22	34.40	6.66	34.96	---	---									
3	5419.00	48.25	-5.75	54.00	41.48	34.72	6.88	34.83	---	---									
4	5419.00	60.84	-13.16	74.00	54.07	34.72	6.88	34.83	---	---									
5	11490.00	52.79	-1.21	54.00	38.85	38.49	10.35	34.90	---	---									
6	11490.00	68.56	-5.44	74.00	19.72	38.49	10.35	0.00	---	---									

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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.)

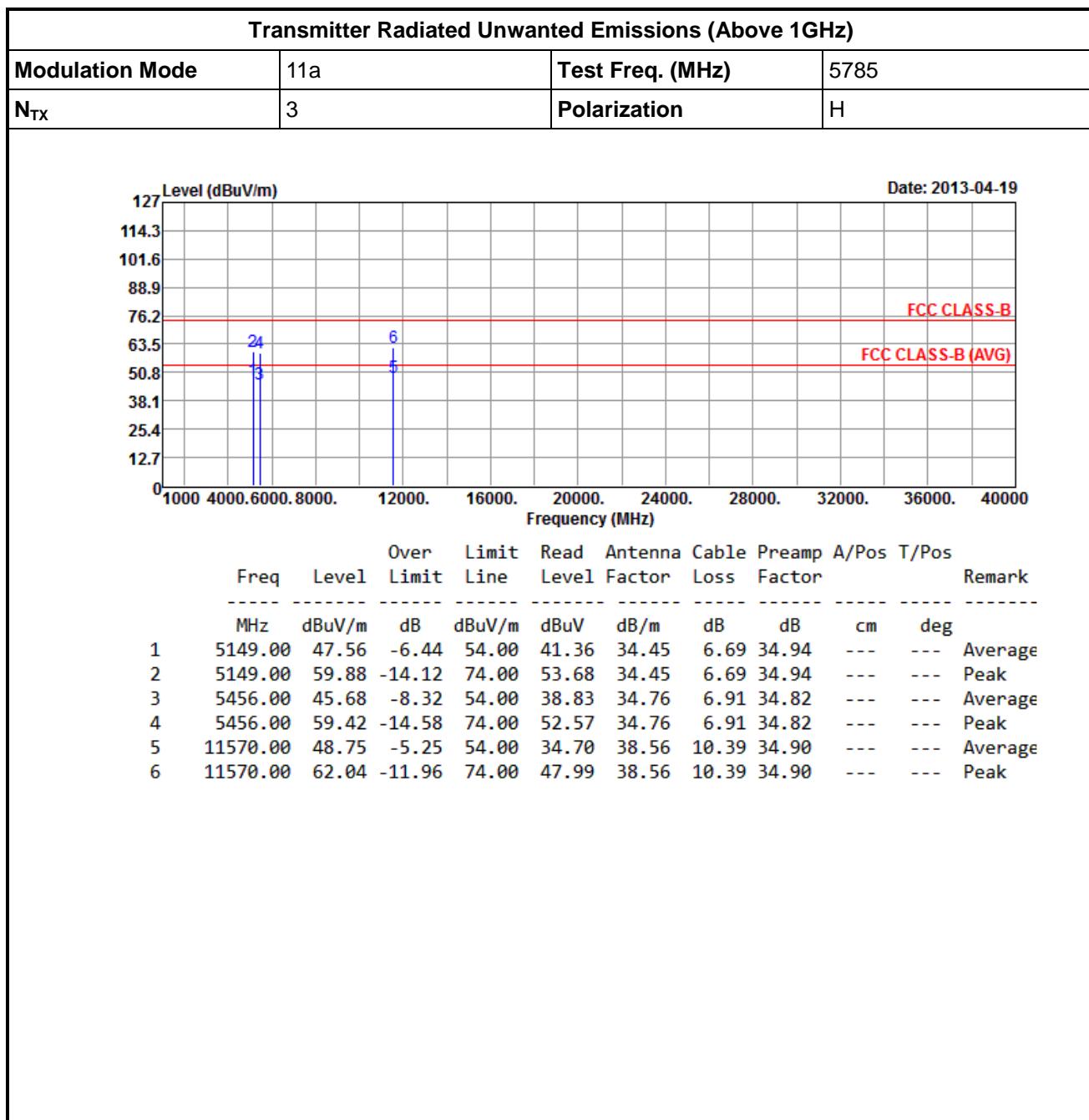
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)										
Modulation Mode		11a		Test Freq. (MHz)			5785			
N _{TX}		3		Polarization			V			
Date: 2013-04-19										
1	5149.00	48.61	-5.39	54.00	42.41	34.45	6.69	34.94	---	---
2	5149.00	60.86	-13.14	74.00	54.66	34.45	6.69	34.94	---	---
3	5456.00	48.85	-5.15	54.00	42.00	34.76	6.91	34.82	---	---
4	5456.00	61.92	-12.08	74.00	55.07	34.76	6.91	34.82	---	---
5	11570.00	52.70	-1.30	54.00	3.75	38.56	10.39	0.00	---	---
6	11570.00	67.87	-6.13	74.00	18.92	38.56	10.39	0.00	---	---
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.										



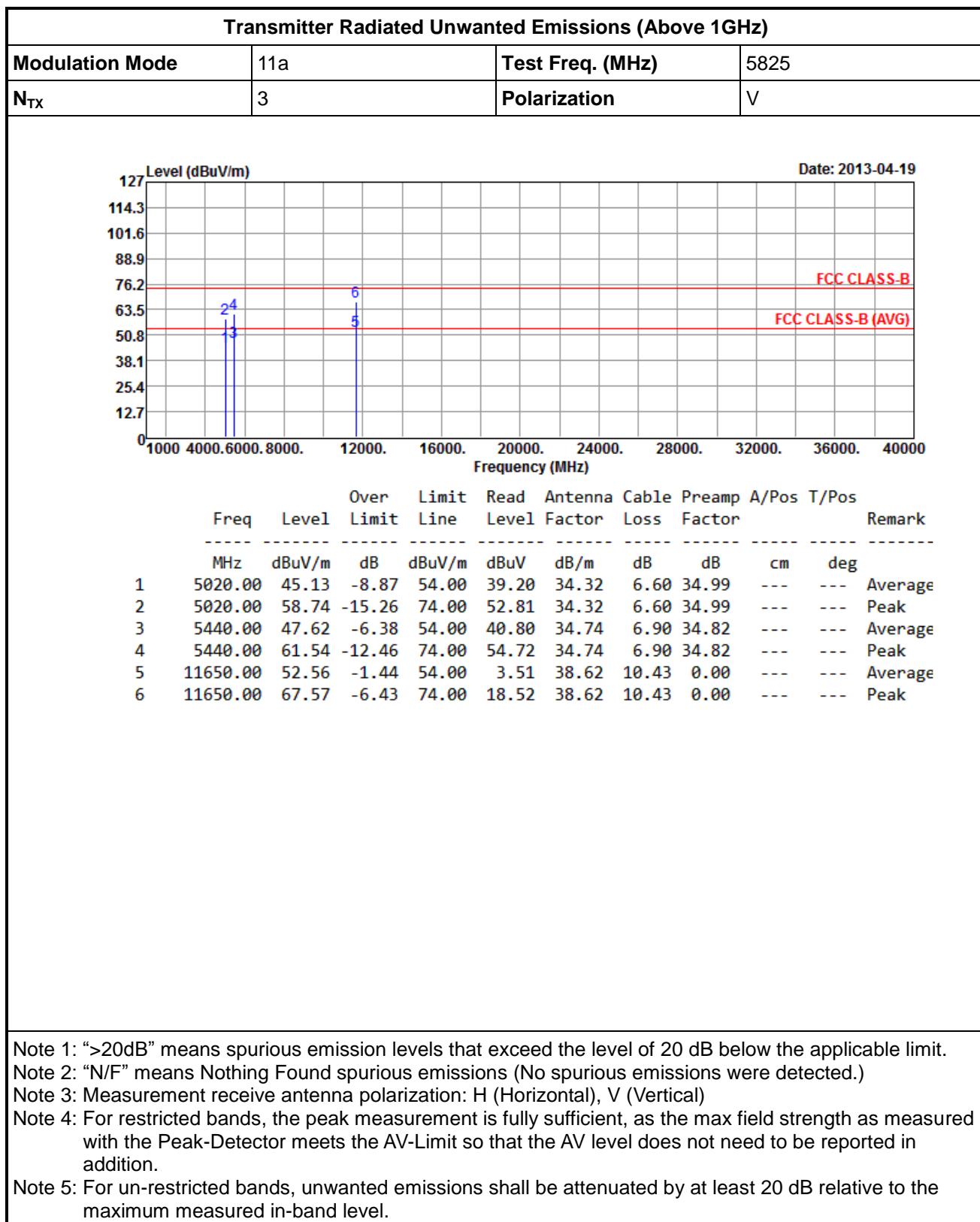
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

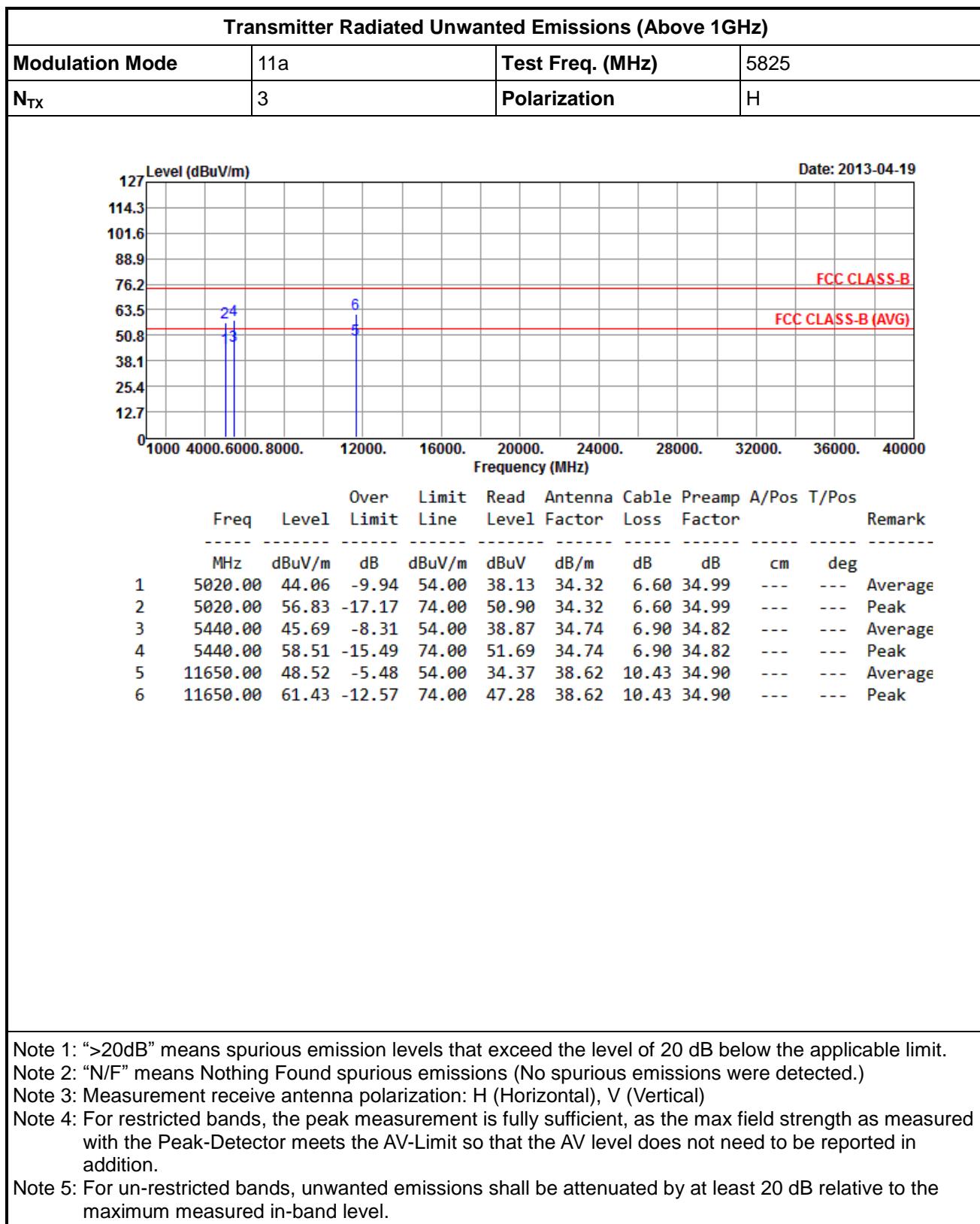
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



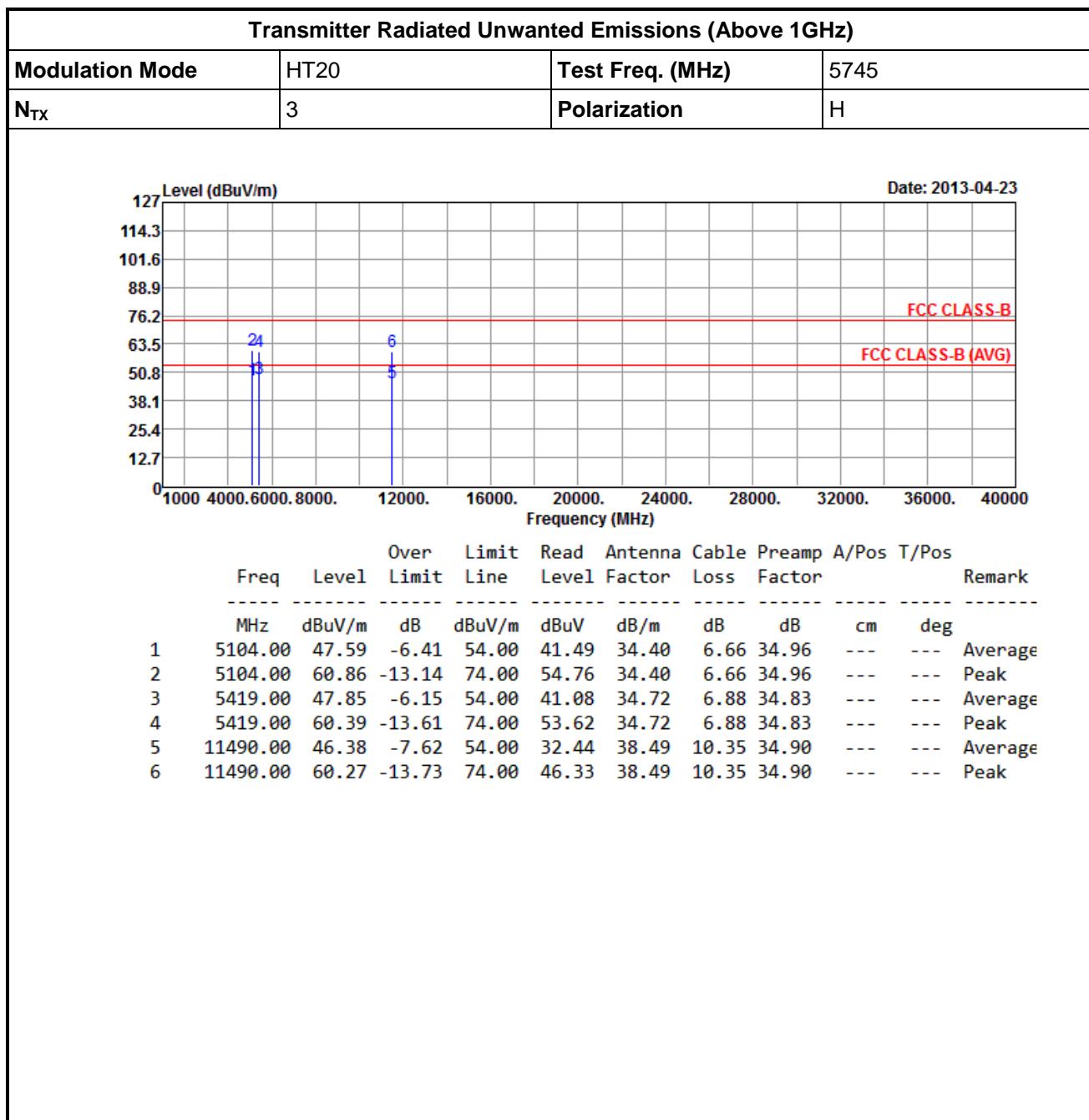




3.6.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20

Operating Mode: 1

Transmitter Radiated Unwanted Emissions (Above 1GHz)										
Modulation Mode		HT20		Test Freq. (MHz)		5745				
N _{TX}	3			Polarization		V				
Date: 2013-04-23										
1	5104.00	48.83	-5.17	54.00	42.73	34.40	6.66	34.96	---	---
2	5104.00	62.40	-11.60	74.00	56.30	34.40	6.66	34.96	---	---
3	5419.00	48.25	-5.75	54.00	41.48	34.72	6.88	34.83	---	---
4	5419.00	61.55	-12.45	74.00	54.78	34.72	6.88	34.83	---	---
5	11490.00	52.80	-1.20	54.00	3.96	38.49	10.35	0.00	---	---
6	11490.00	67.96	-6.04	74.00	19.12	38.49	10.35	0.00	---	---
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.										



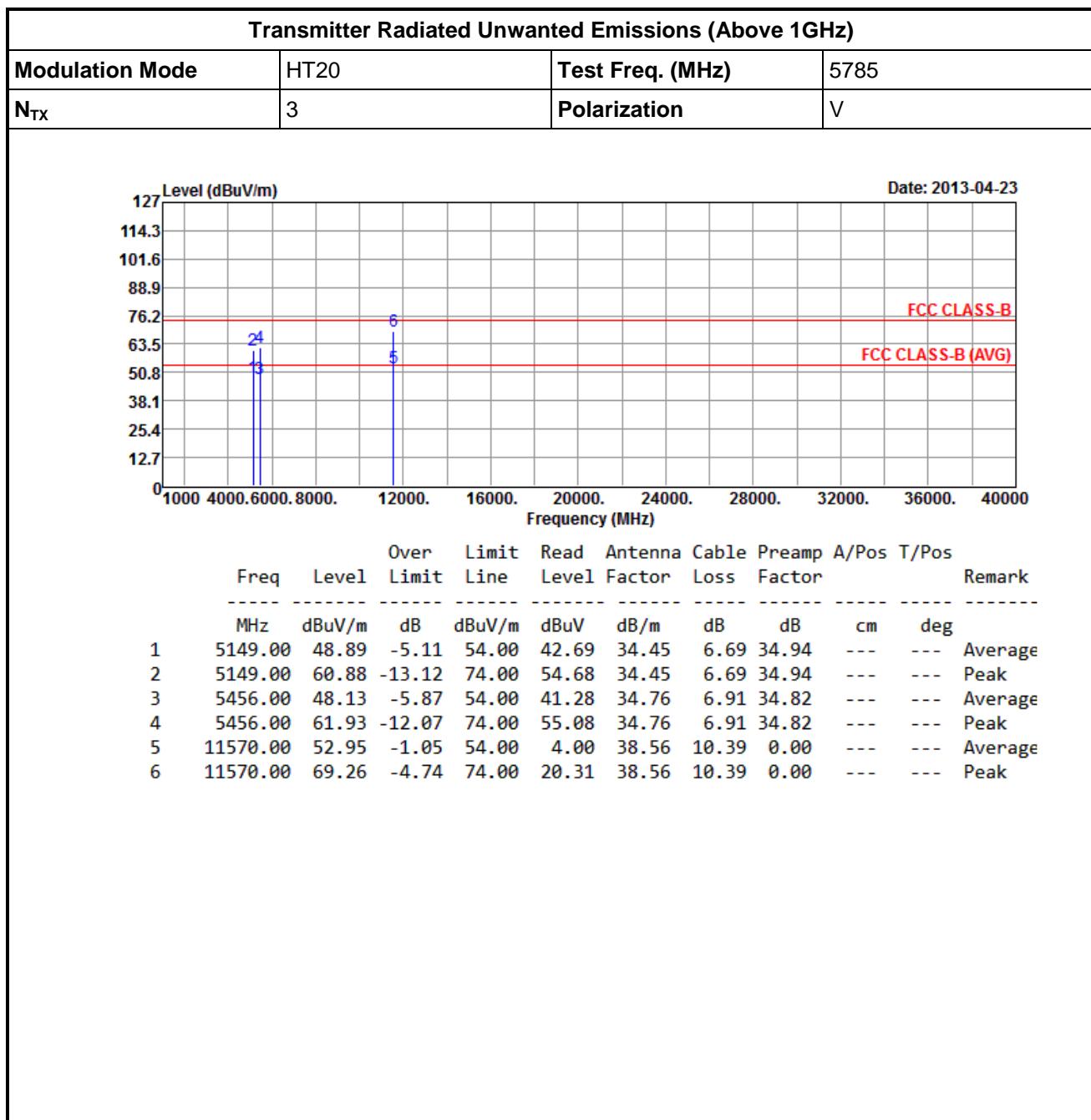
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



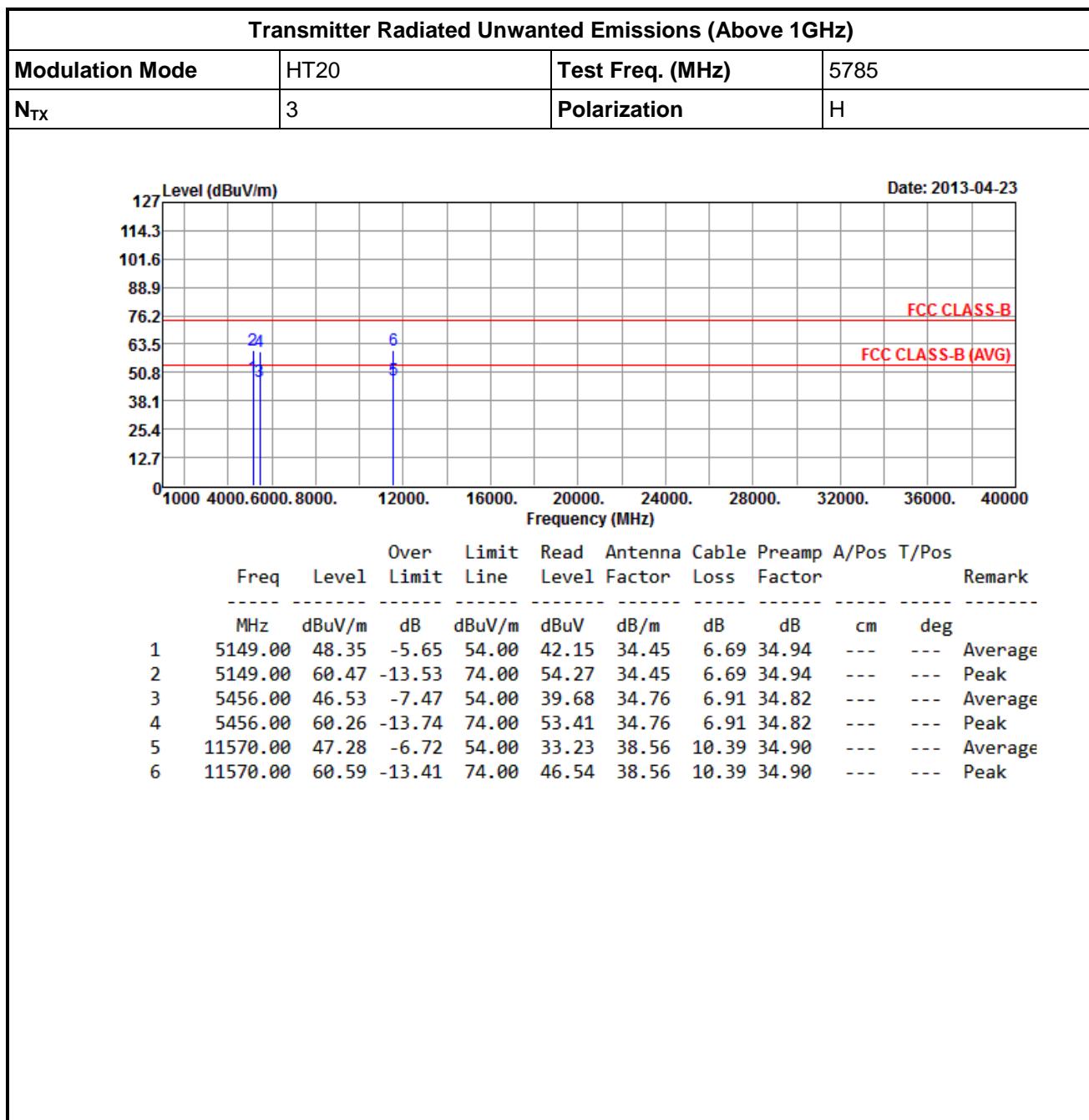
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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.)

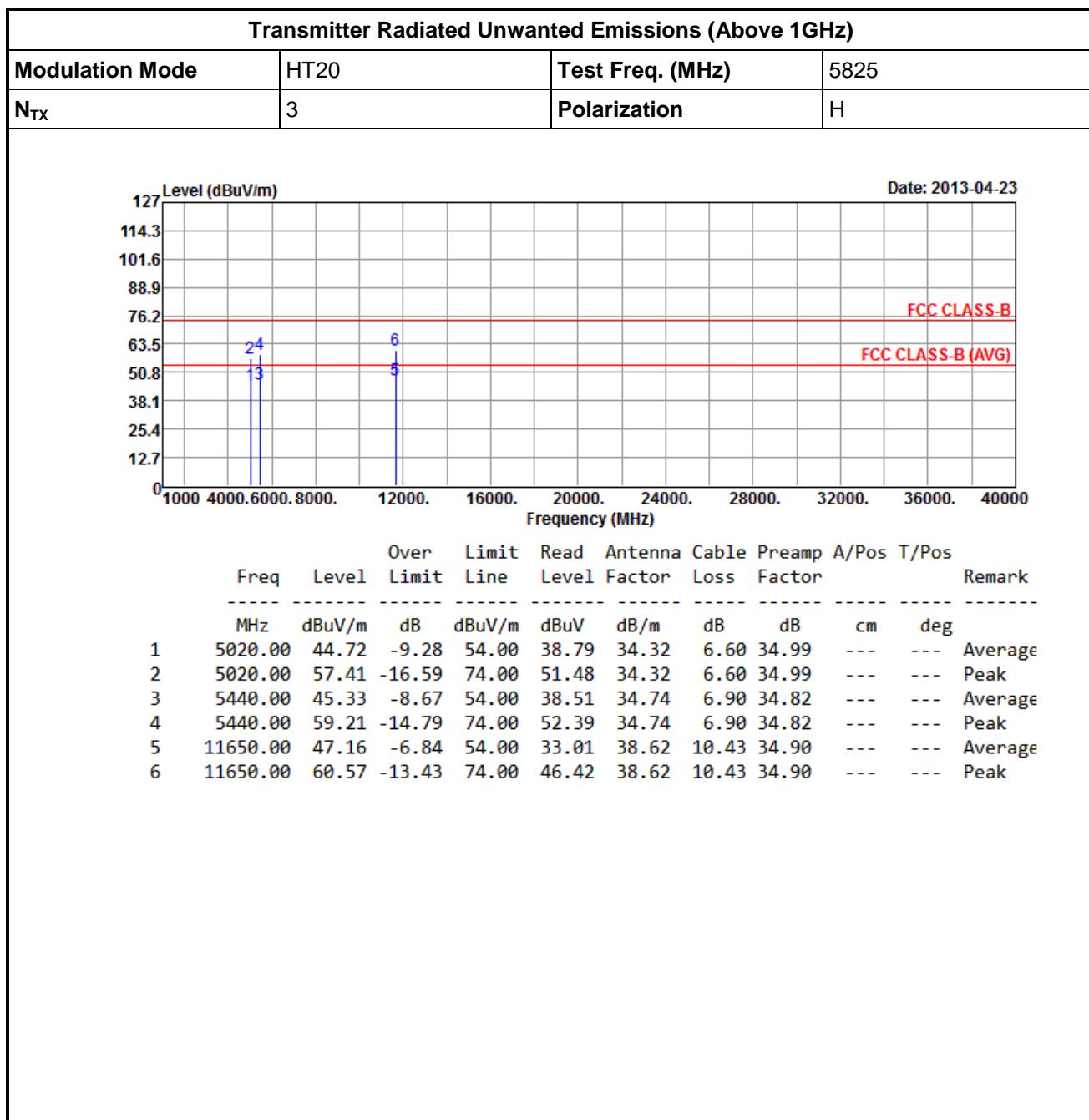
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)																			
Modulation Mode		HT20		Test Freq. (MHz)		5825													
N _{TX}		3		Polarization		V													
Level (dBuV/m)																			
Date: 2013-04-23																			
1	5020.00	45.51	-8.49	54.00	39.58	34.32	6.60	34.99	---	---									
2	5020.00	58.63	-15.37	74.00	52.70	34.32	6.60	34.99	---	---									
3	5440.00	47.62	-6.38	54.00	40.80	34.74	6.90	34.82	---	---									
4	5440.00	61.86	-12.14	74.00	55.04	34.74	6.90	34.82	---	---									
5	11650.00	52.57	-1.43	54.00	3.52	38.62	10.43	0.00	---	---									
6	11650.00	68.01	-5.99	74.00	18.96	38.62	10.43	0.00	---	---									
Fcc CLASS-B																			
Fcc CLASS-B (Avg)																			
Over Limit Read Antenna Cable Preamp A/Pos T/Pos																			
Freq		Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos									
MHz		dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg									
1	5020.00	45.51	-8.49	54.00	39.58	34.32	6.60	34.99	---	---									
2	5020.00	58.63	-15.37	74.00	52.70	34.32	6.60	34.99	---	---									
3	5440.00	47.62	-6.38	54.00	40.80	34.74	6.90	34.82	---	---									
4	5440.00	61.86	-12.14	74.00	55.04	34.74	6.90	34.82	---	---									
5	11650.00	52.57	-1.43	54.00	3.52	38.62	10.43	0.00	---	---									
6	11650.00	68.01	-5.99	74.00	18.96	38.62	10.43	0.00	---	---									
Remark																			
Average																			
Peak																			
Average																			
Peak																			
Average																			
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.																			



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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 2

Transmitter Radiated Unwanted Emissions (Above 1GHz)														
Modulation Mode	HT20		Test Freq. (MHz)		5745									
N _{TX}	3		Polarization		V									
Level (dB _u V/m)										Date: 2013-04-19				
Over Limit Read Antenna Cable Preamp A/Pos T/Pos														
	Freq	Level	Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos				
	MHz	dB _u V/m	dB	dB _u V/m	dB _u V	dB/m	dB	dB	cm	deg				
1	5104.00	49.21	-4.79	54.00	43.11	34.40	6.66	34.96	---	---				
2	5104.00	62.53	-11.47	74.00	56.43	34.40	6.66	34.96	---	Peak				
3	5419.00	48.67	-5.33	54.00	41.90	34.72	6.88	34.83	---	Average				
4	5419.00	61.83	-12.17	74.00	55.06	34.72	6.88	34.83	---	Peak				
5	11490.00	52.90	-1.10	54.00	4.06	38.49	10.35	0.00	---	Average				
6	11490.00	65.66	-8.34	74.00	16.82	38.49	10.35	0.00	---	Peak				

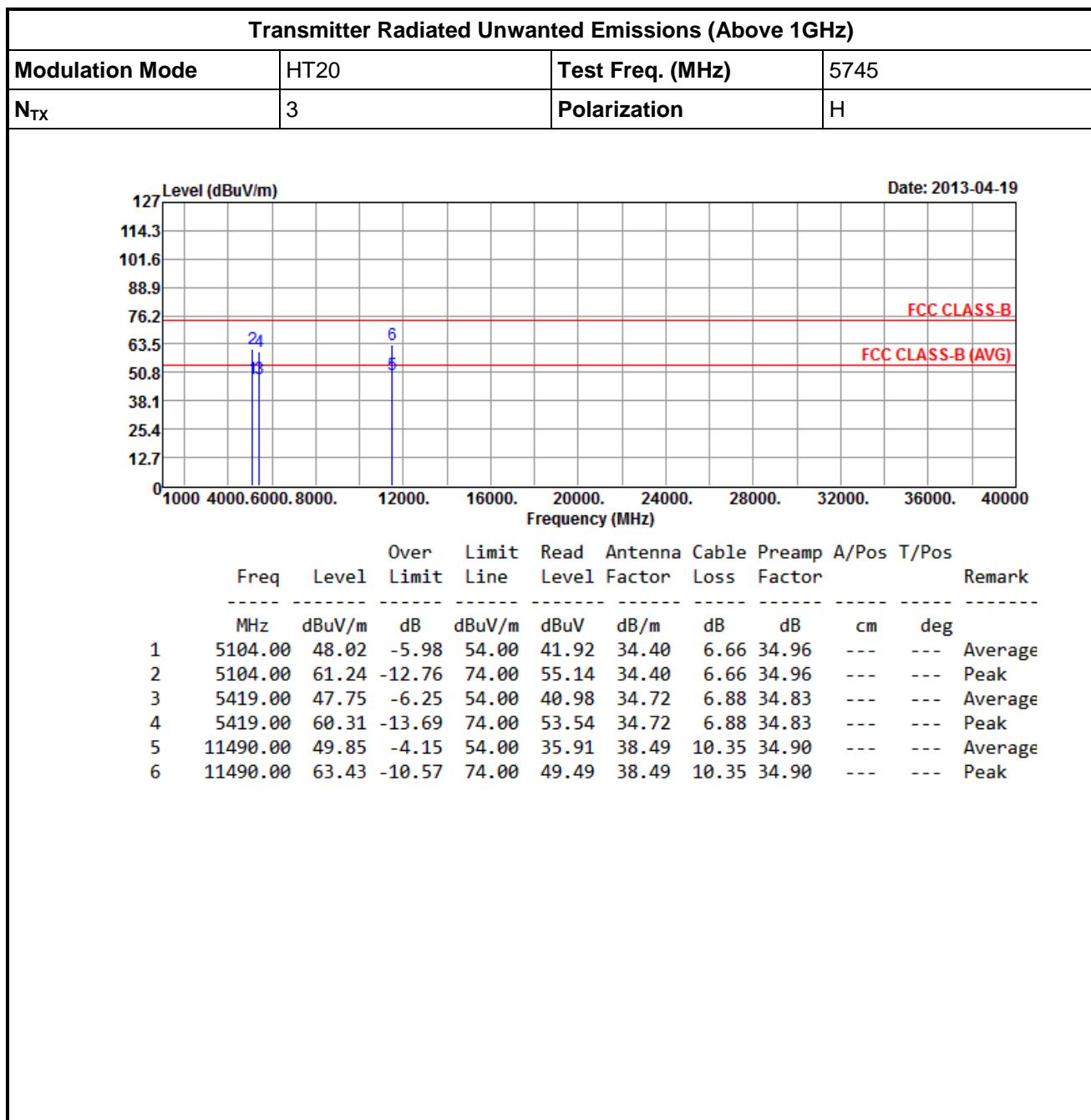
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)													
Modulation Mode		HT20		Test Freq. (MHz)			5785						
N _{TX}	3	Polarization			V								
Level (dB _u V/m)										Date: 2013-04-19			
Over Limit Read Antenna Cable Preamp A/Pos T/Pos													
Freq		Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos			
MHz		dB _u V/m	dB	dB _u V/m	dB _u V	dB/m	dB	dB	cm	deg			
1	5149.00	49.07	-4.93	54.00	42.87	34.45	6.69	34.94	---	---			
2	5149.00	61.49	-12.51	74.00	55.29	34.45	6.69	34.94	---	Peak			
3	5456.00	49.50	-4.50	54.00	42.65	34.76	6.91	34.82	---	Average			
4	5456.00	62.06	-11.94	74.00	55.21	34.76	6.91	34.82	---	Peak			
5	11570.00	52.68	-1.32	54.00	3.73	38.56	10.39	0.00	---	Average			
6	11570.00	66.09	-7.91	74.00	17.14	38.56	10.39	0.00	---	Peak			

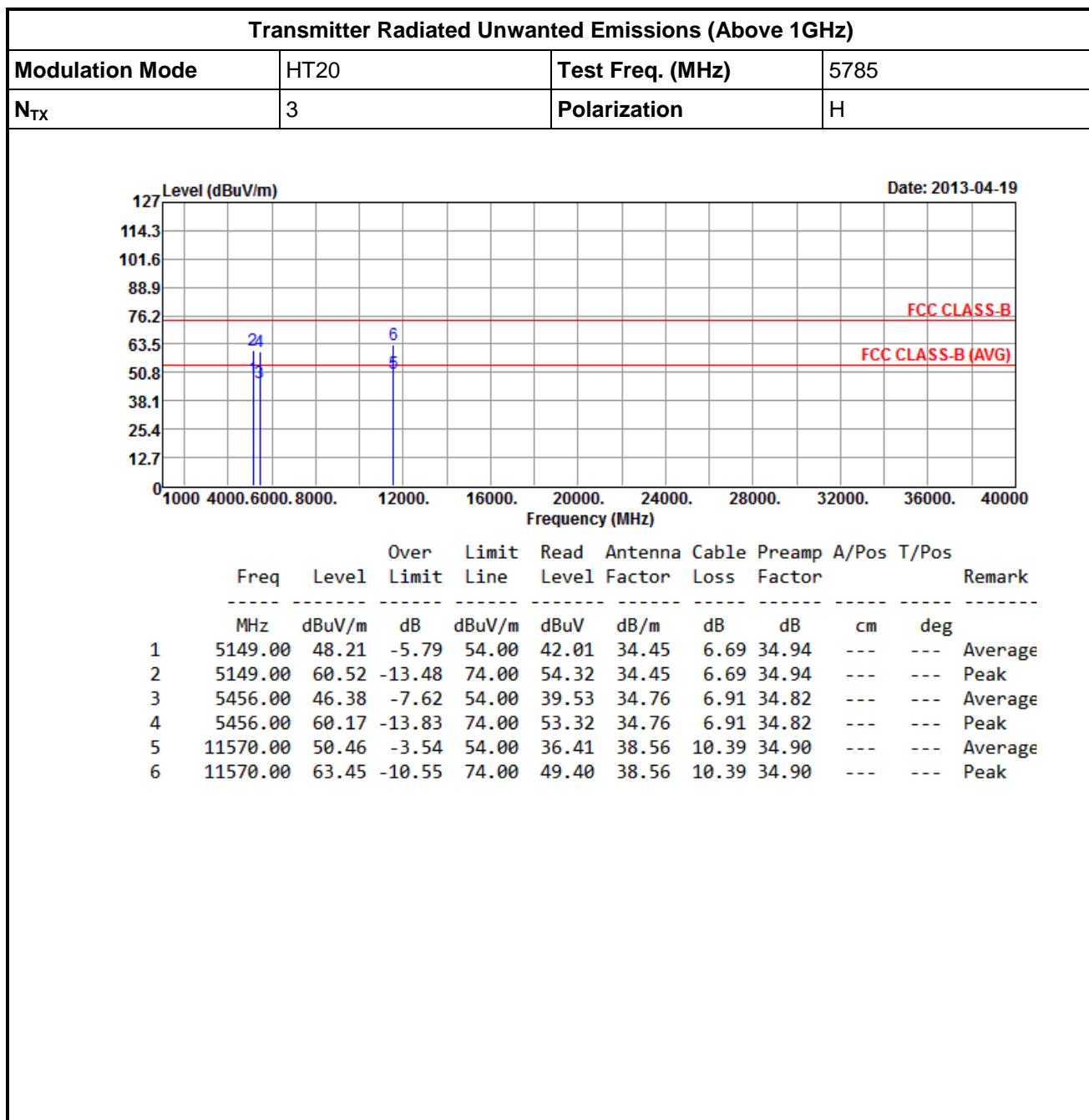
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



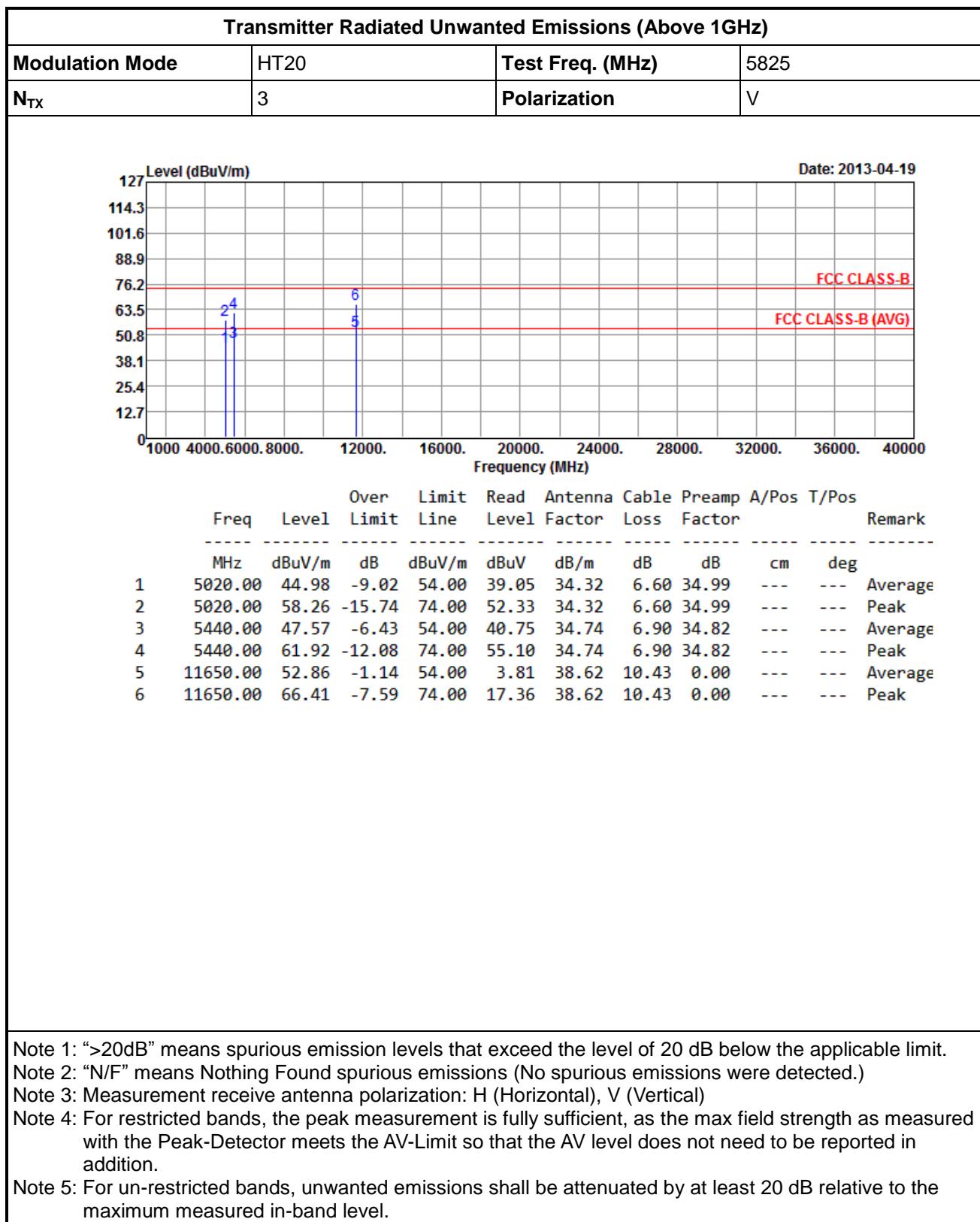
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

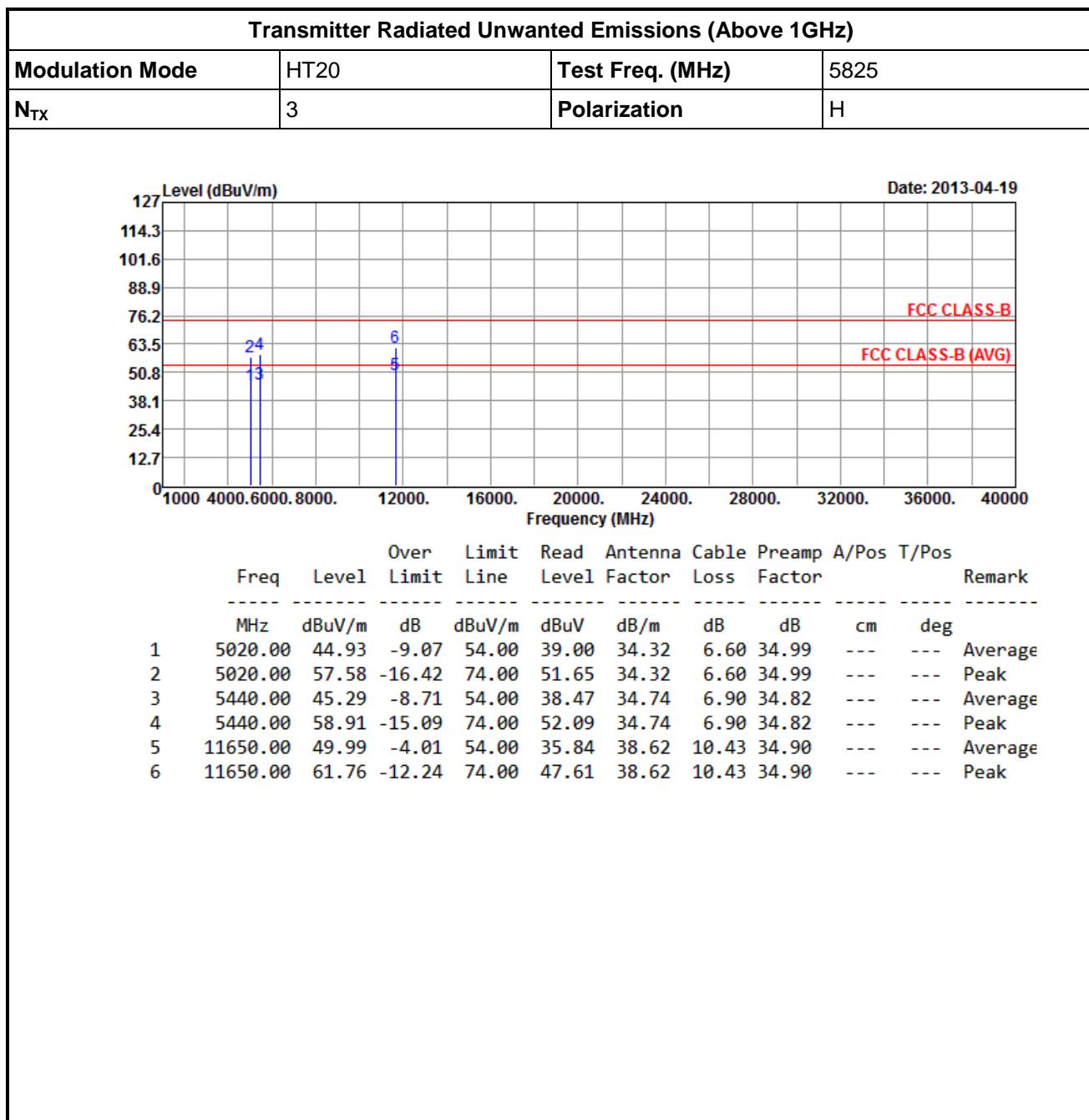
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.





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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 3

Transmitter Radiated Unwanted Emissions (Above 1GHz)														
Modulation Mode	HT20		Test Freq. (MHz)		5745									
N _{TX}	3		Polarization		V									
Level (dB _u V/m)										Date: 2013-04-19				
										FCC CLASS-B				
										FCC CLASS-B (AVG)				
Over Limit Read Antenna Cable Preamp A/Pos T/Pos														
Freq	Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark				
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg					
1	5104.00	49.15	-4.85	54.00	43.05	34.40	6.66	34.96	---	Average				
2	5104.00	62.41	-11.59	74.00	56.31	34.40	6.66	34.96	---	Peak				
3	5419.00	48.54	-5.46	54.00	41.77	34.72	6.88	34.83	---	Average				
4	5419.00	61.69	-12.31	74.00	54.92	34.72	6.88	34.83	---	Peak				
5	11490.00	52.79	-1.21	54.00	3.95	38.49	10.35	0.00	---	Average				
6	11490.00	65.53	-8.47	74.00	16.69	38.49	10.35	0.00	---	Peak				

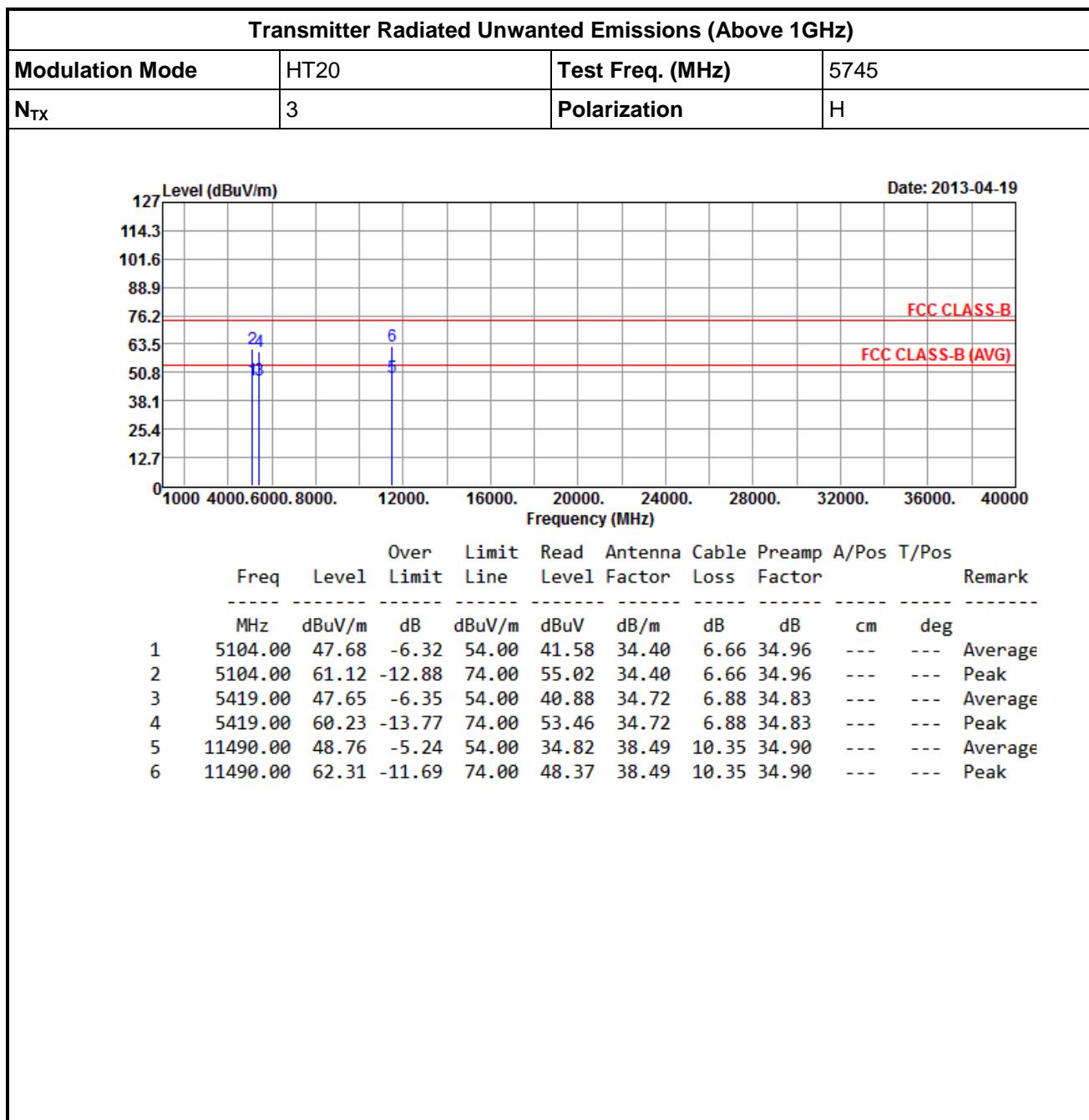
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



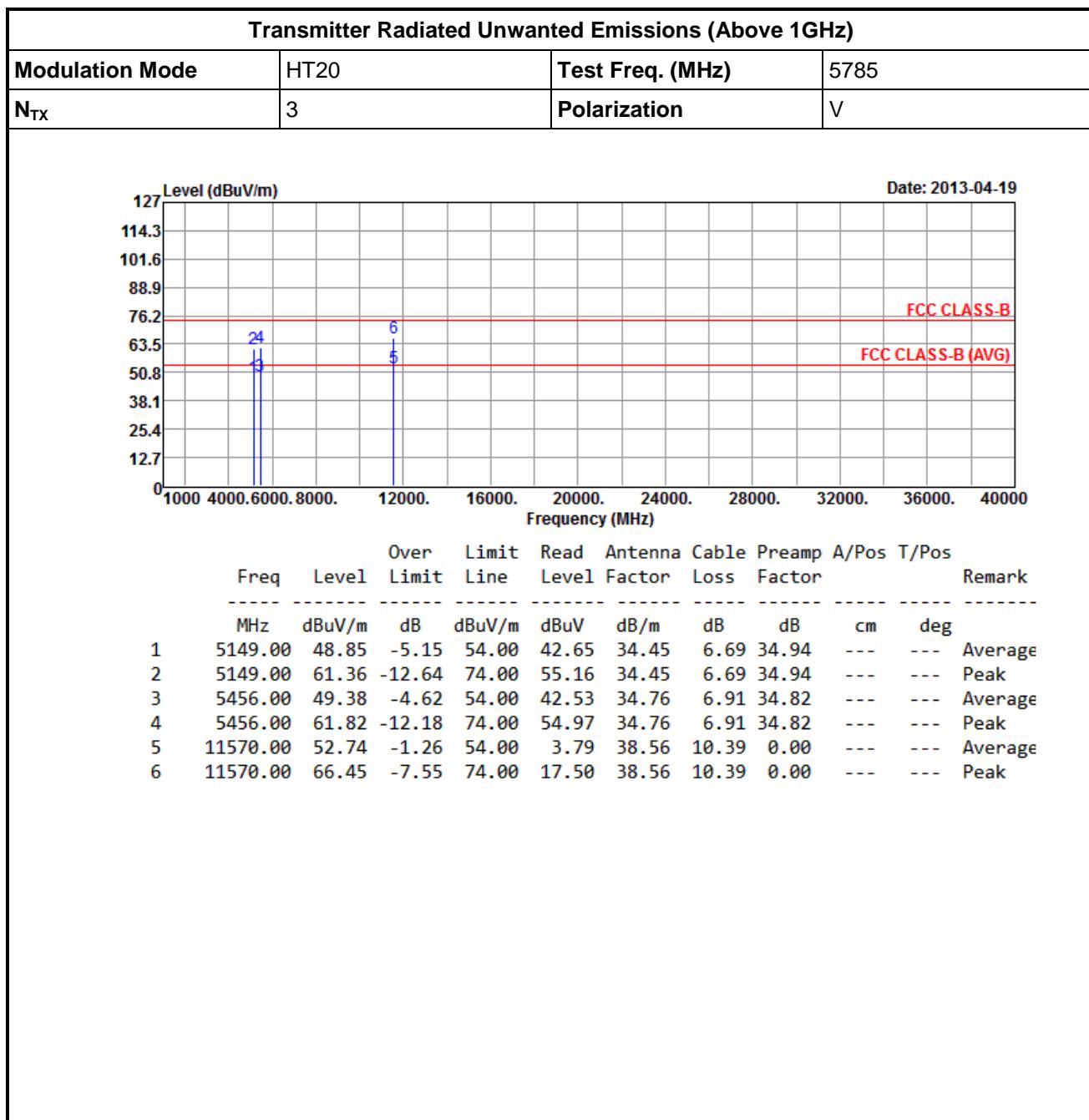
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



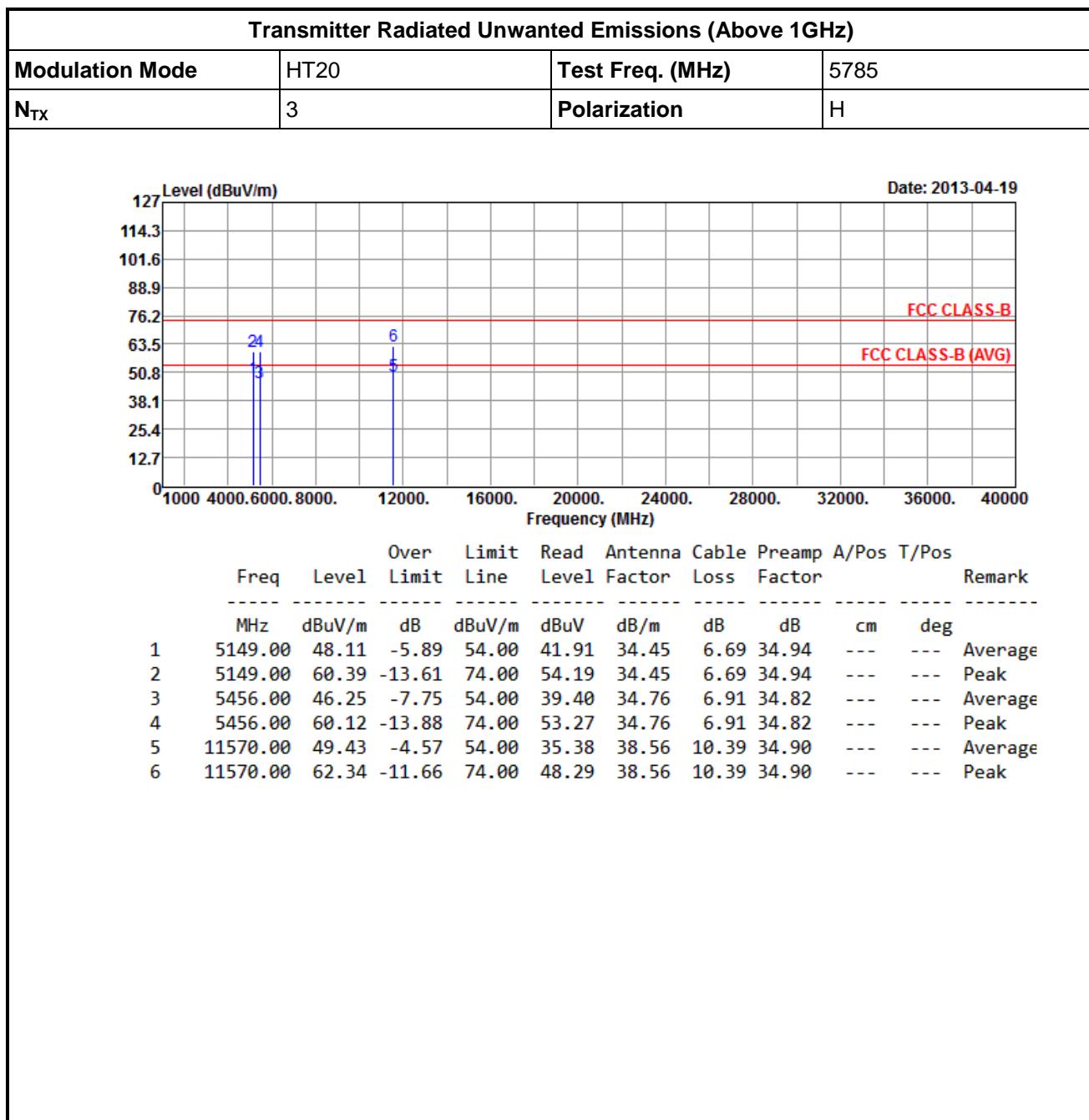
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



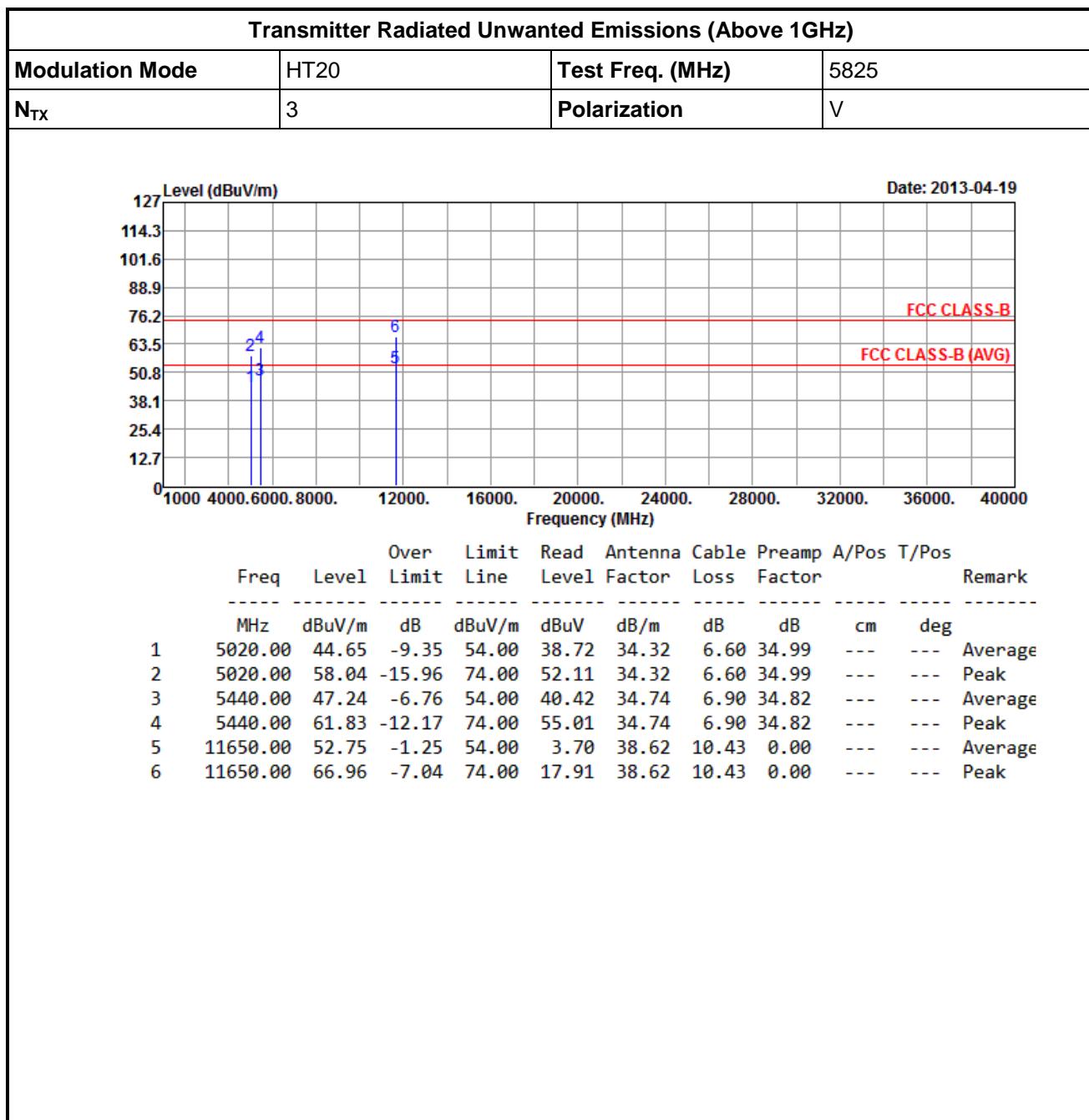
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



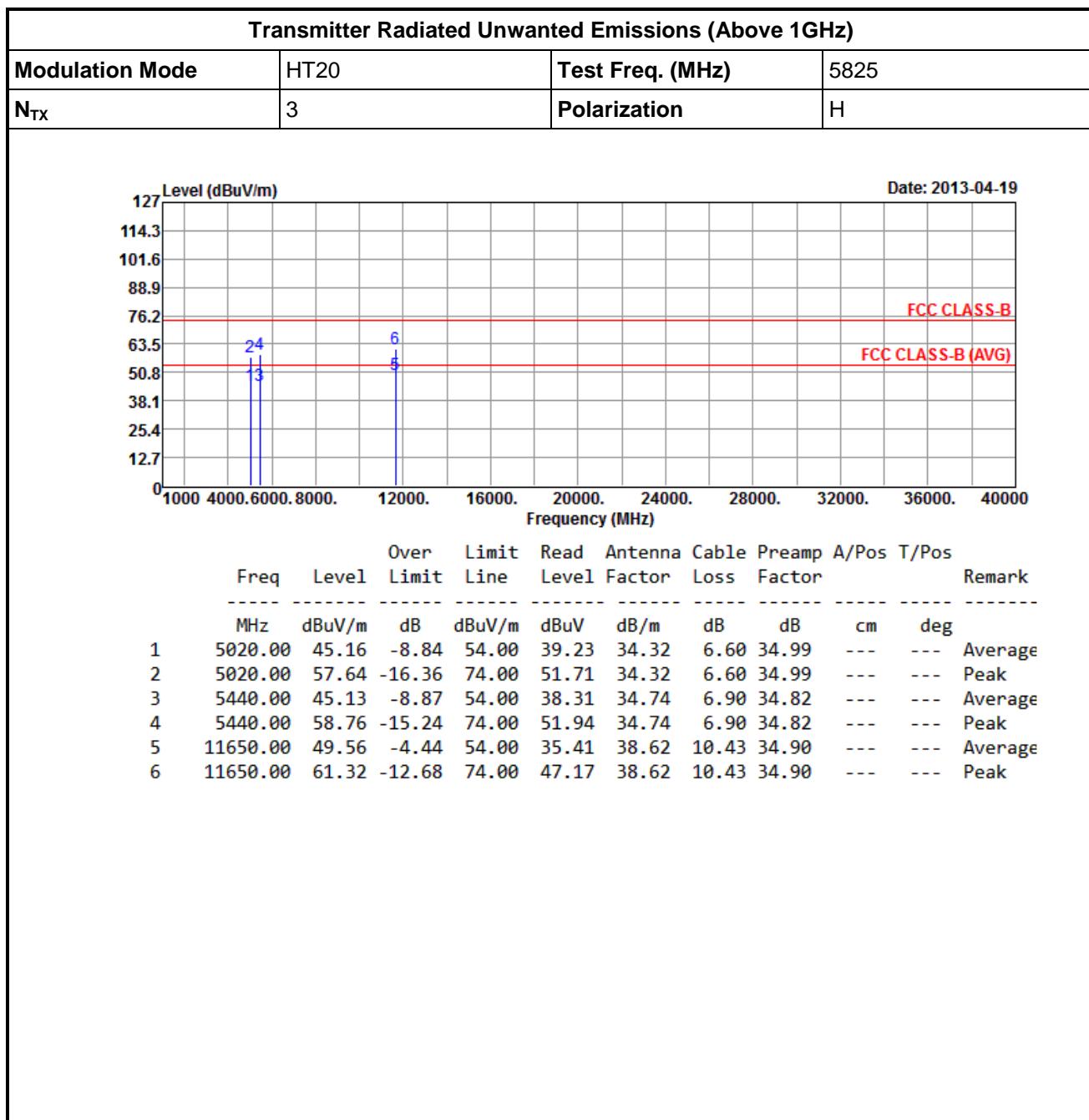
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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.

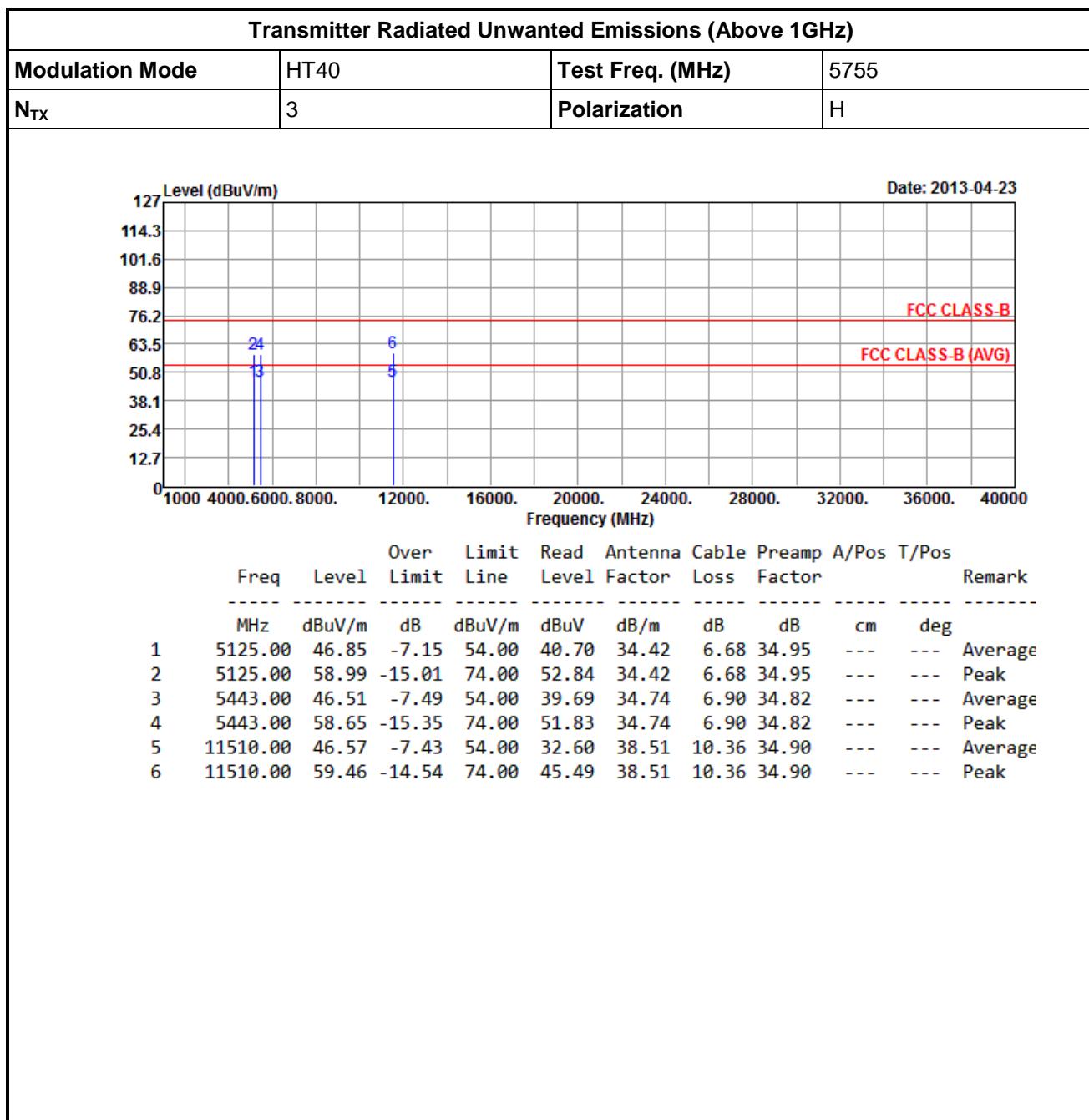
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



3.6.9 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

Operating Mode: 1

Transmitter Radiated Unwanted Emissions (Above 1GHz)																			
Modulation Mode		HT40		Test Freq. (MHz)		5755													
N _{TX}	3			Polarization		V													
Level (dB _u V/m)																			
Date: 2013-04-23																			
127	114.3	101.6	88.9	76.2	63.5	50.8	38.1	25.4	12.7	0									
1000	4000	6000	8000	12000	16000	20000	24000	28000	32000	36000	40000								
Frequency (MHz)																			
24	13	6	5																
FCC CLASS-B																			
FCC CLASS-B (AVG)																			
Over Limit Read Antenna Cable Preamp A/Pos T/Pos																			
Freq		Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos									
MHz		dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg									
1	5125.00	48.13	-5.87	54.00	41.98	34.42	6.68	34.95	---	---									
2	5125.00	60.22	-13.78	74.00	54.07	34.42	6.68	34.95	---	---									
3	5443.00	48.31	-5.69	54.00	41.49	34.74	6.90	34.82	---	---									
4	5443.00	60.23	-13.77	74.00	53.41	34.74	6.90	34.82	---	---									
5	11510.00	52.03	-1.97	54.00	3.16	38.51	10.36	0.00	---	---									
6	11510.00	67.74	-6.26	74.00	18.87	38.51	10.36	0.00	---	---									
Average																			
Peak																			
Average																			
Peak																			
Average																			
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.																			



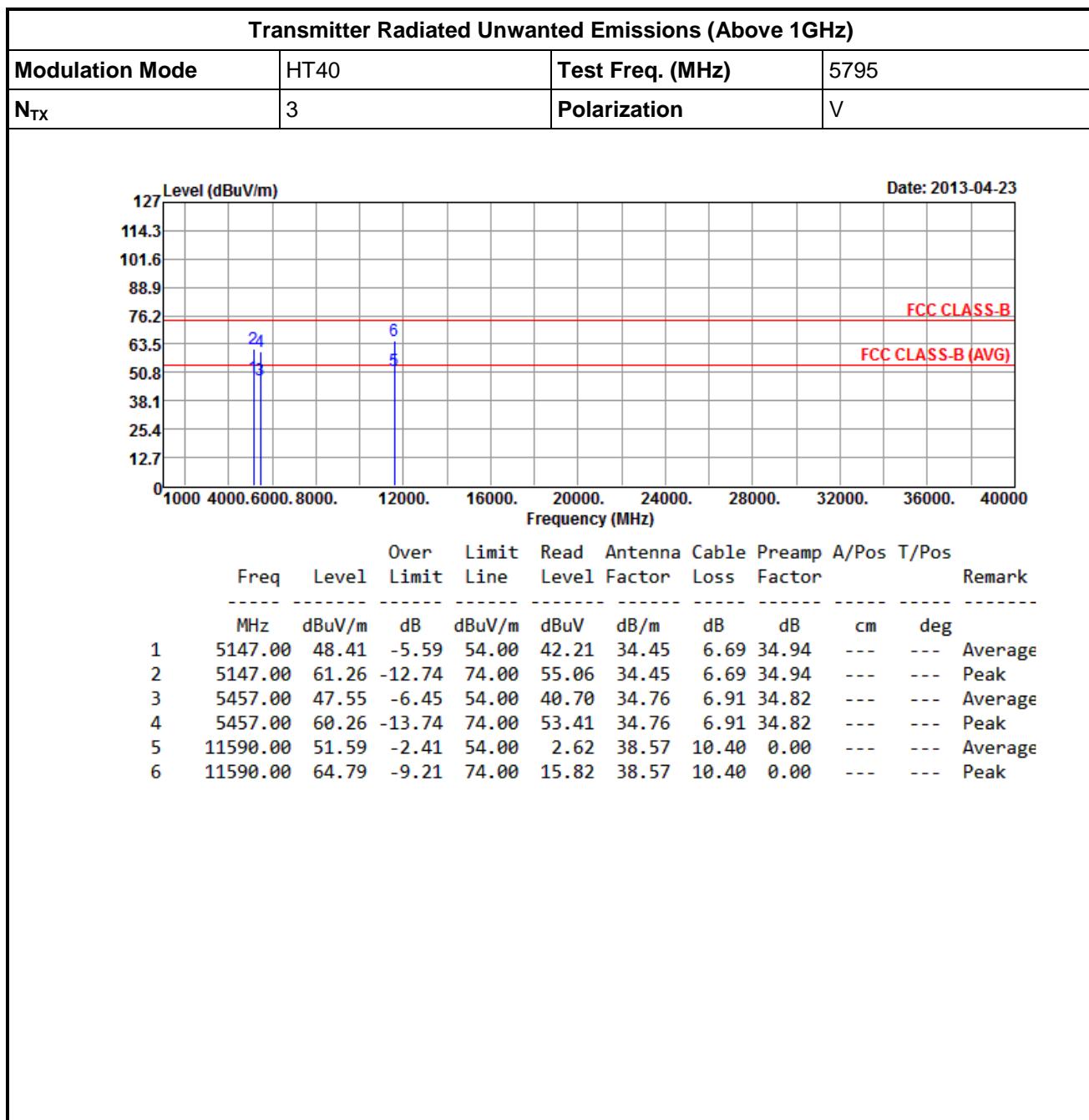
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



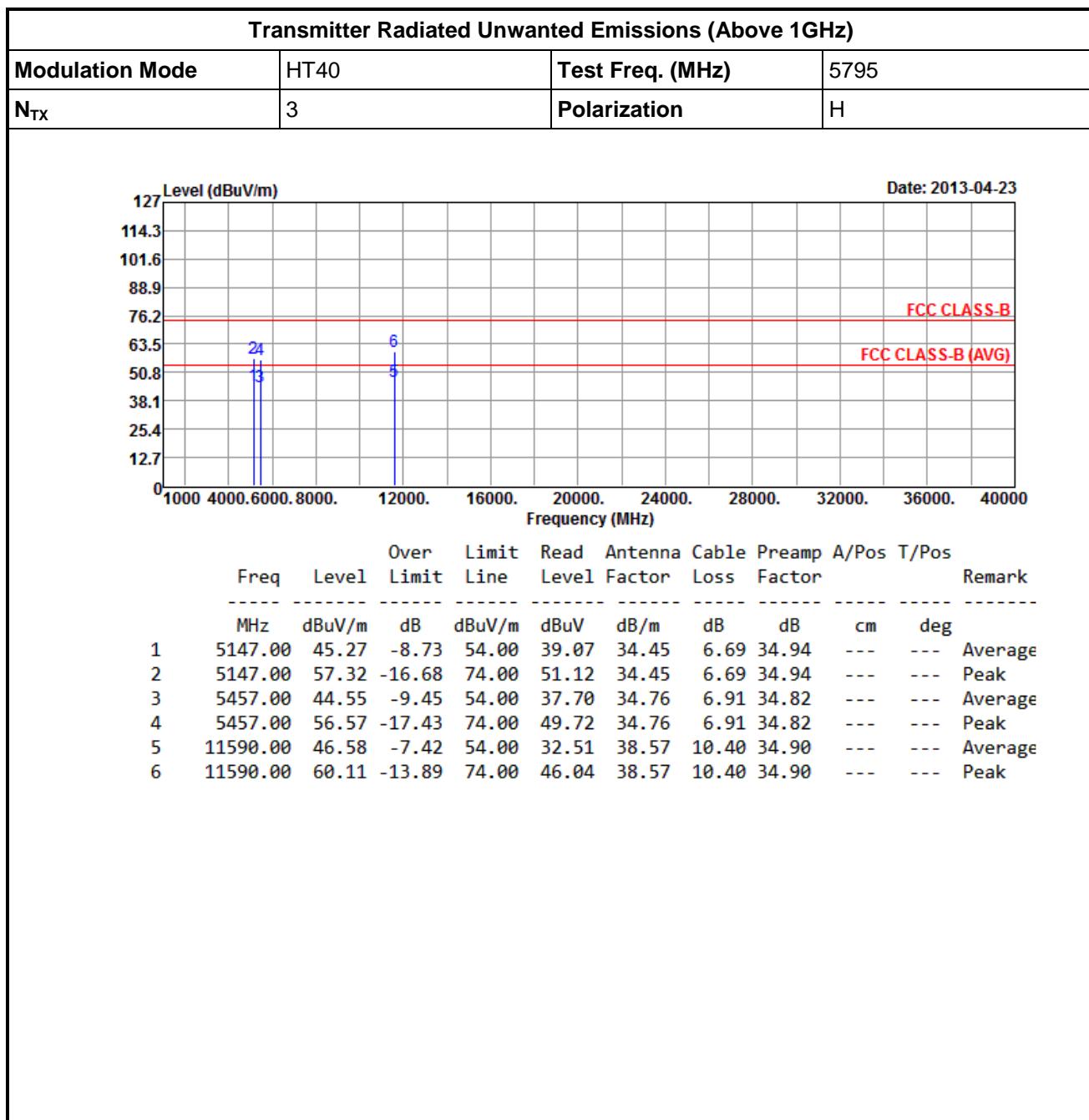
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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)

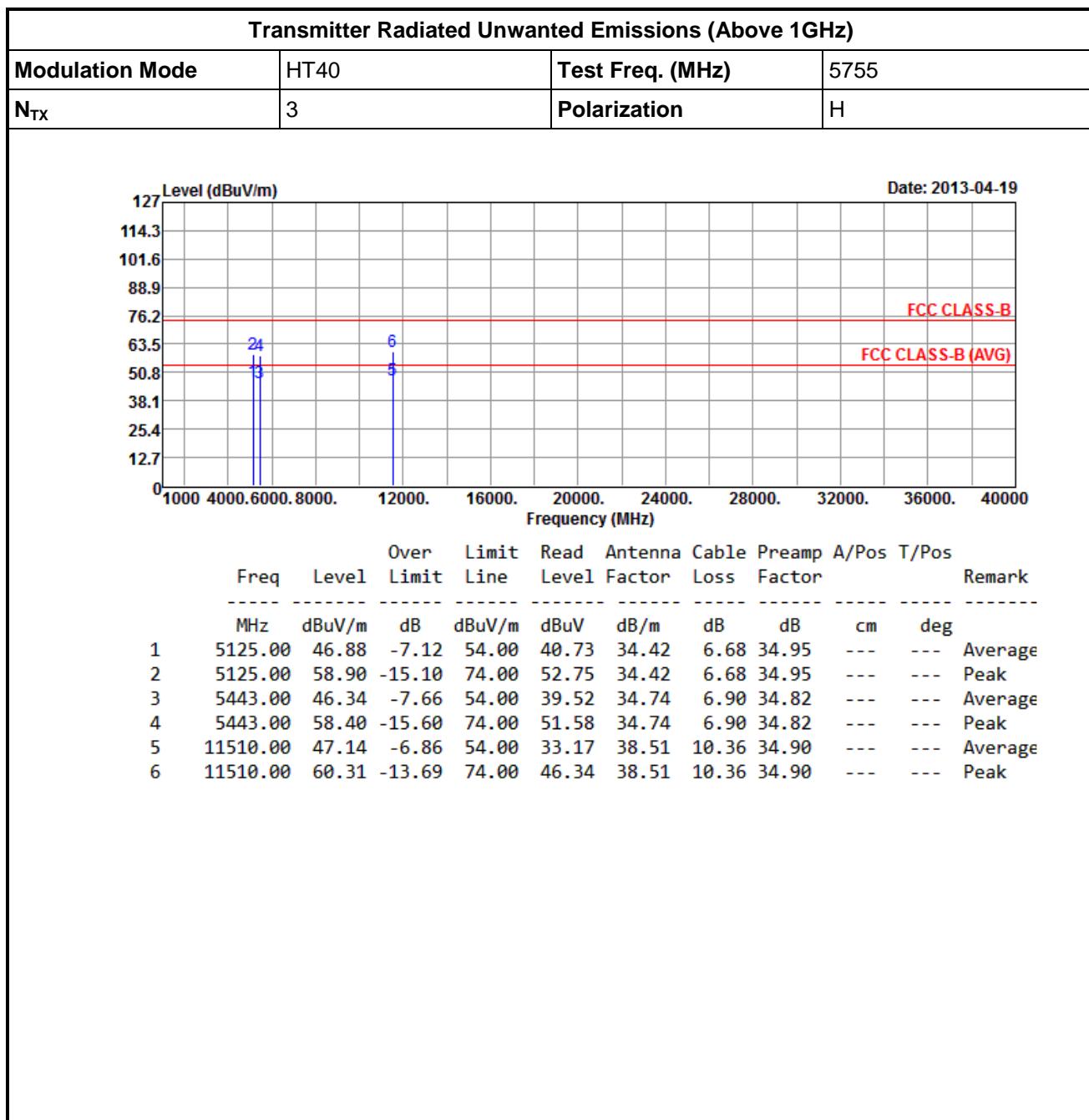
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 2

Transmitter Radiated Unwanted Emissions (Above 1GHz)										
Modulation Mode		HT40		Test Freq. (MHz)		5755				
N _{TX}		3		Polarization		V				
Date: 2013-04-19										
1	5125.00	48.43	-5.57	54.00	42.28	34.42	6.68	34.95	---	---
2	5125.00	60.62	-13.38	74.00	54.47	34.42	6.68	34.95	---	---
3	5443.00	48.69	-5.31	54.00	41.87	34.74	6.90	34.82	---	---
4	5443.00	60.35	-13.65	74.00	53.53	34.74	6.90	34.82	---	---
5	11510.00	51.31	-2.69	54.00	2.44	38.51	10.36	0.00	---	---
6	11510.00	61.46	-12.54	74.00	12.59	38.51	10.36	0.00	---	---
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.										



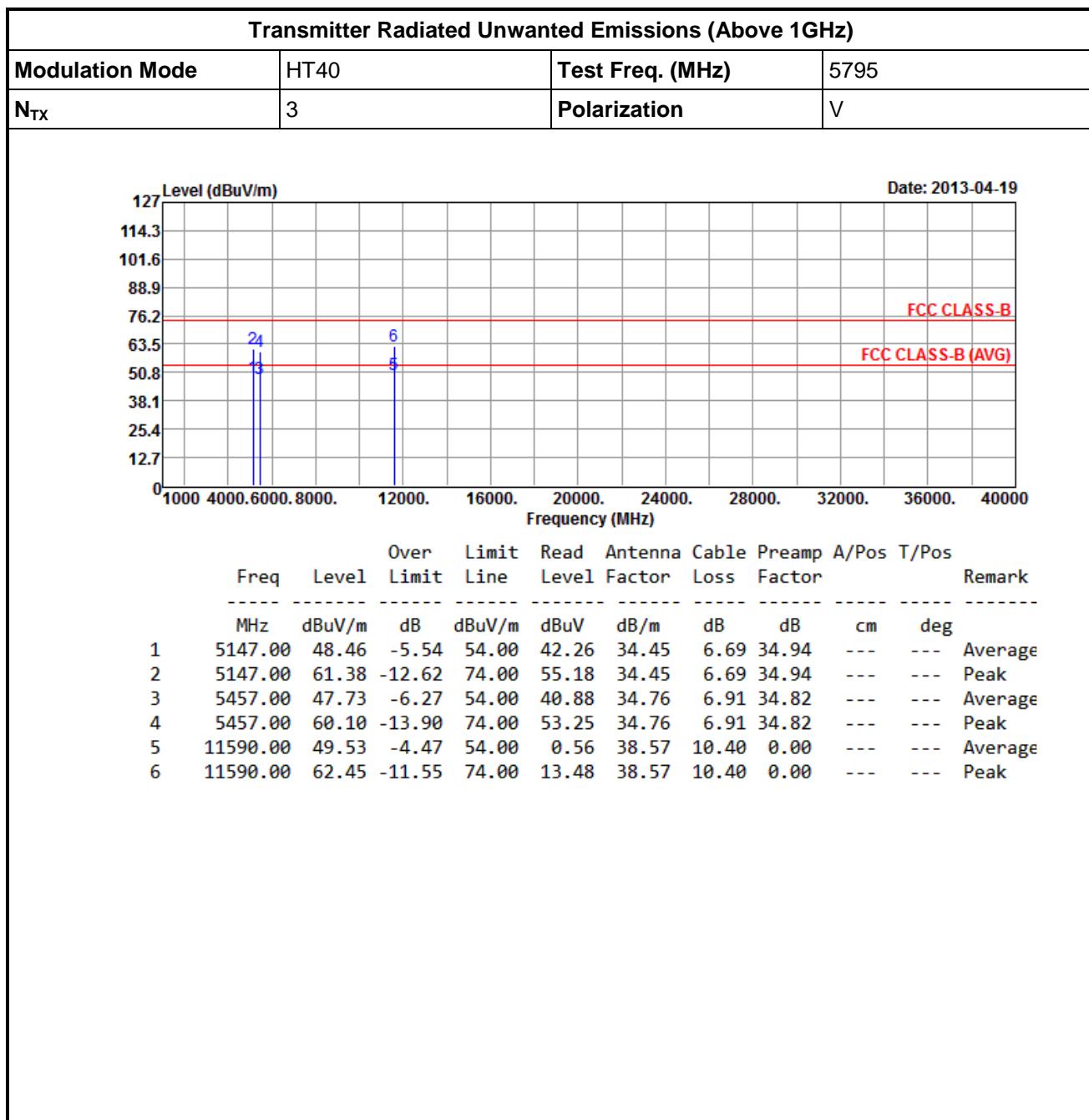
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



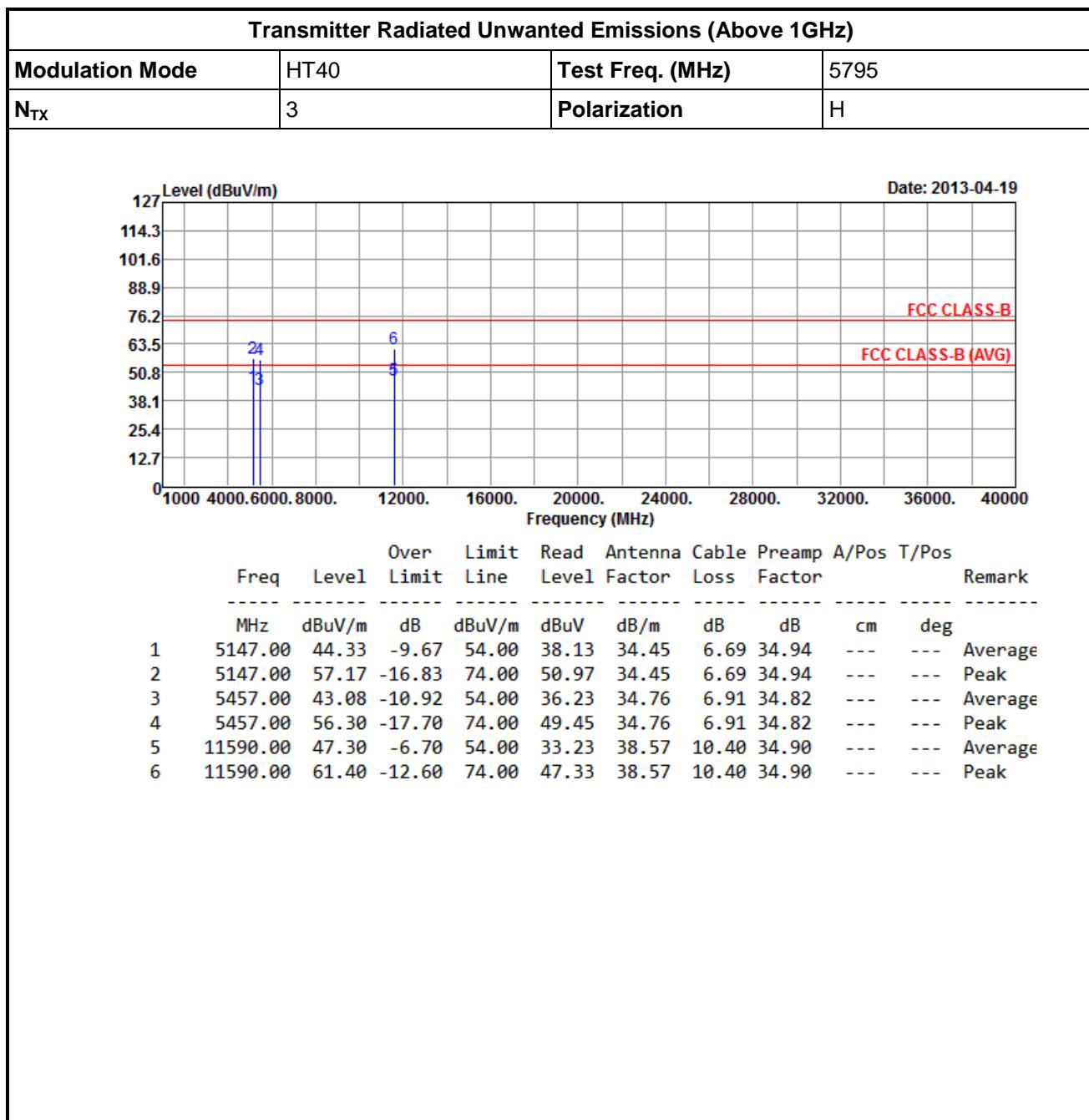
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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)

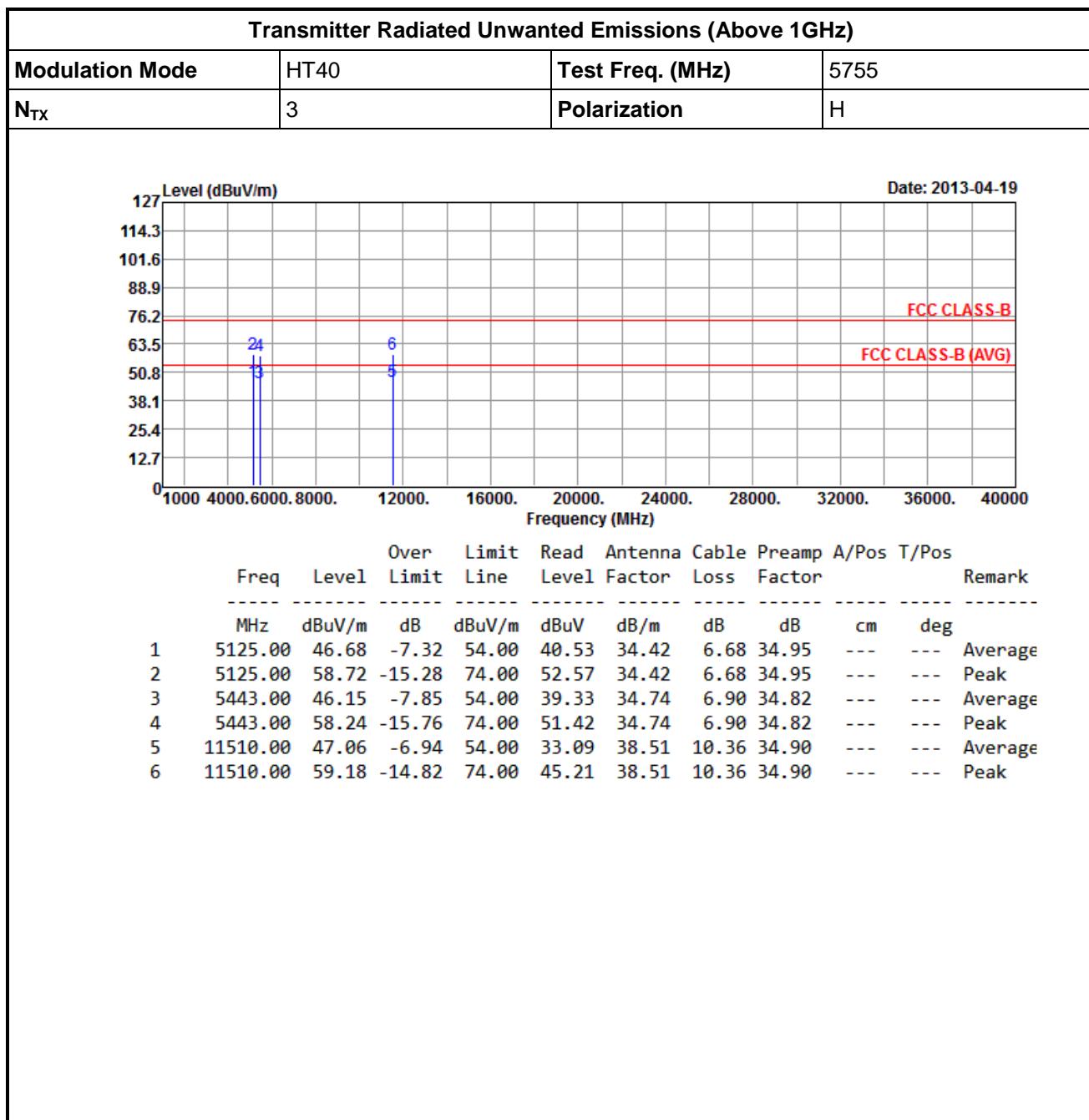
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 3

Transmitter Radiated Unwanted Emissions (Above 1GHz)																			
Modulation Mode		HT40		Test Freq. (MHz)		5755													
N _{TX}		3		Polarization		V													
Level (dB _u V/m)																			
Date: 2013-04-19																			
1	5125.00	48.25	-5.75	54.00	42.10	34.42	6.68	34.95	---	---									
2	5125.00	60.53	-13.47	74.00	54.38	34.42	6.68	34.95	---	---									
3	5443.00	48.52	-5.48	54.00	41.70	34.74	6.90	34.82	---	---									
4	5443.00	60.11	-13.89	74.00	53.29	34.74	6.90	34.82	---	---									
5	11510.00	52.50	-1.50	54.00	3.63	38.51	10.36	0.00	---	---									
6	11510.00	65.34	-8.66	74.00	16.47	38.51	10.36	0.00	---	---									
FCC CLASS-B																			
FCC CLASS-B (AVG)																			
Over Limit Read Antenna Cable Preamp A/Pos T/Pos																			
Freq		Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos									
MHz		dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg									
1	5125.00	48.25	-5.75	54.00	42.10	34.42	6.68	34.95	---	---									
2	5125.00	60.53	-13.47	74.00	54.38	34.42	6.68	34.95	---	---									
3	5443.00	48.52	-5.48	54.00	41.70	34.74	6.90	34.82	---	---									
4	5443.00	60.11	-13.89	74.00	53.29	34.74	6.90	34.82	---	---									
5	11510.00	52.50	-1.50	54.00	3.63	38.51	10.36	0.00	---	---									
6	11510.00	65.34	-8.66	74.00	16.47	38.51	10.36	0.00	---	---									
Remark																			
Average																			
Peak																			
Average																			
Peak																			
Average																			
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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.																			



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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)																			
Modulation Mode		HT40		Test Freq. (MHz)		5795													
N _{TX}		3		Polarization		V													
Level (dBuV/m)																			
Freq	Level	Over Limit	Limit	Read Line	Antenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Remark									
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg										
1	5147.00	48.35	-5.65	54.00	42.15	34.45	6.69	34.94	---	Average									
2	5147.00	61.18	-12.82	74.00	54.98	34.45	6.69	34.94	---	Peak									
3	5457.00	47.56	-6.44	54.00	40.71	34.76	6.91	34.82	---	Average									
4	5457.00	59.85	-14.15	74.00	53.00	34.76	6.91	34.82	---	Peak									
5	11590.00	52.25	-1.75	54.00	3.28	38.57	10.40	0.00	---	Average									
6	11590.00	65.13	-8.87	74.00	16.16	38.57	10.40	0.00	---	Peak									

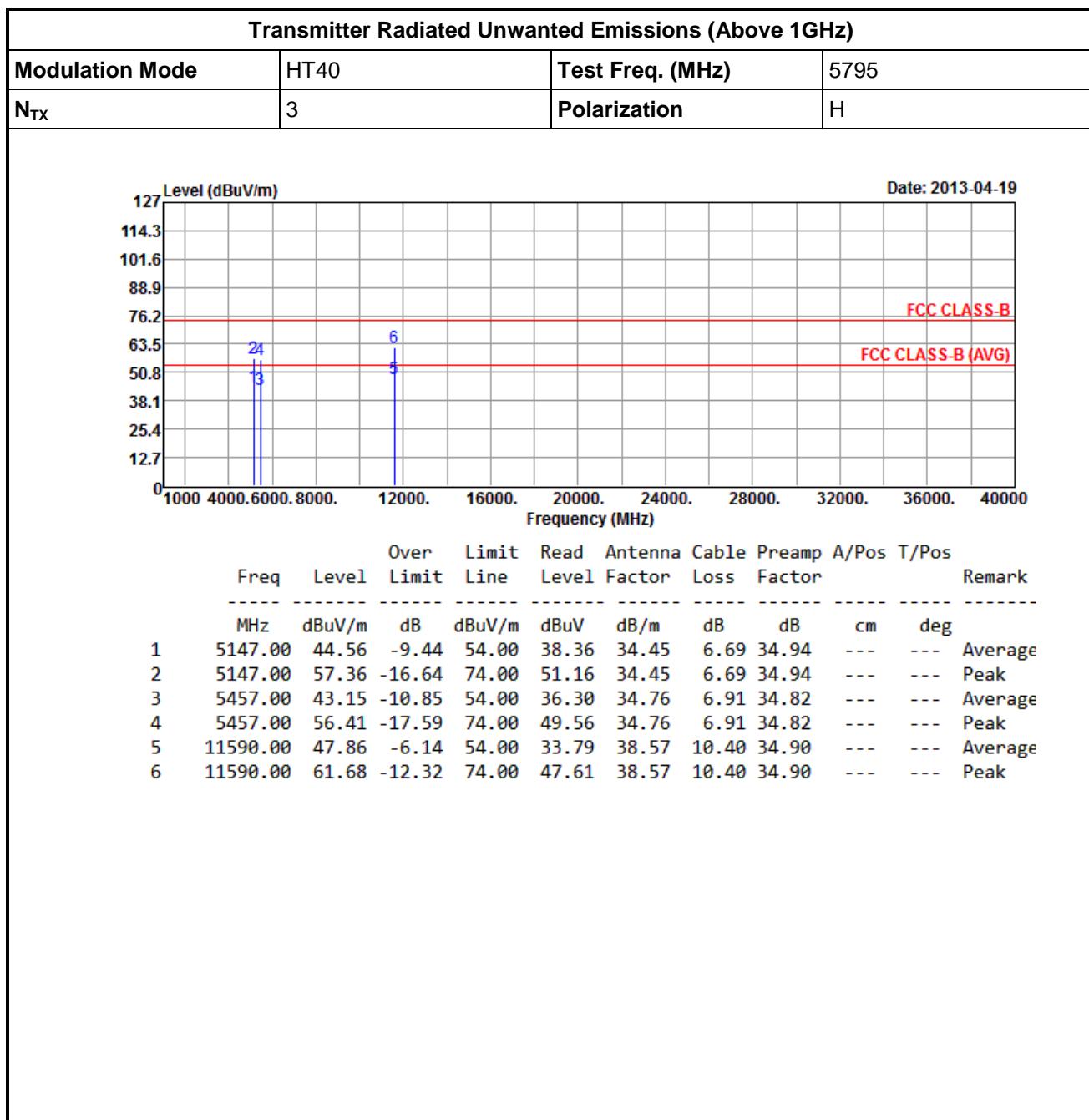
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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)

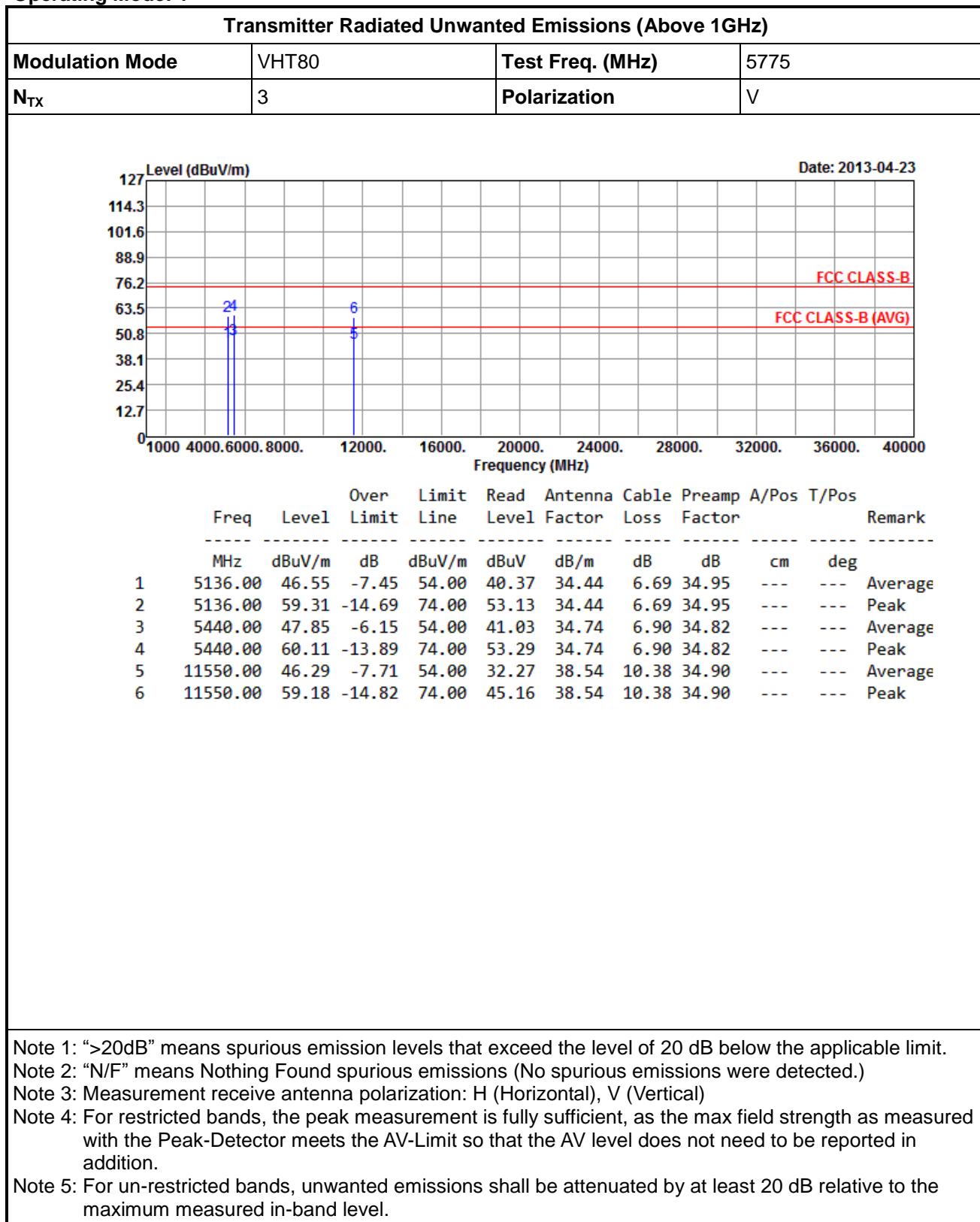
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

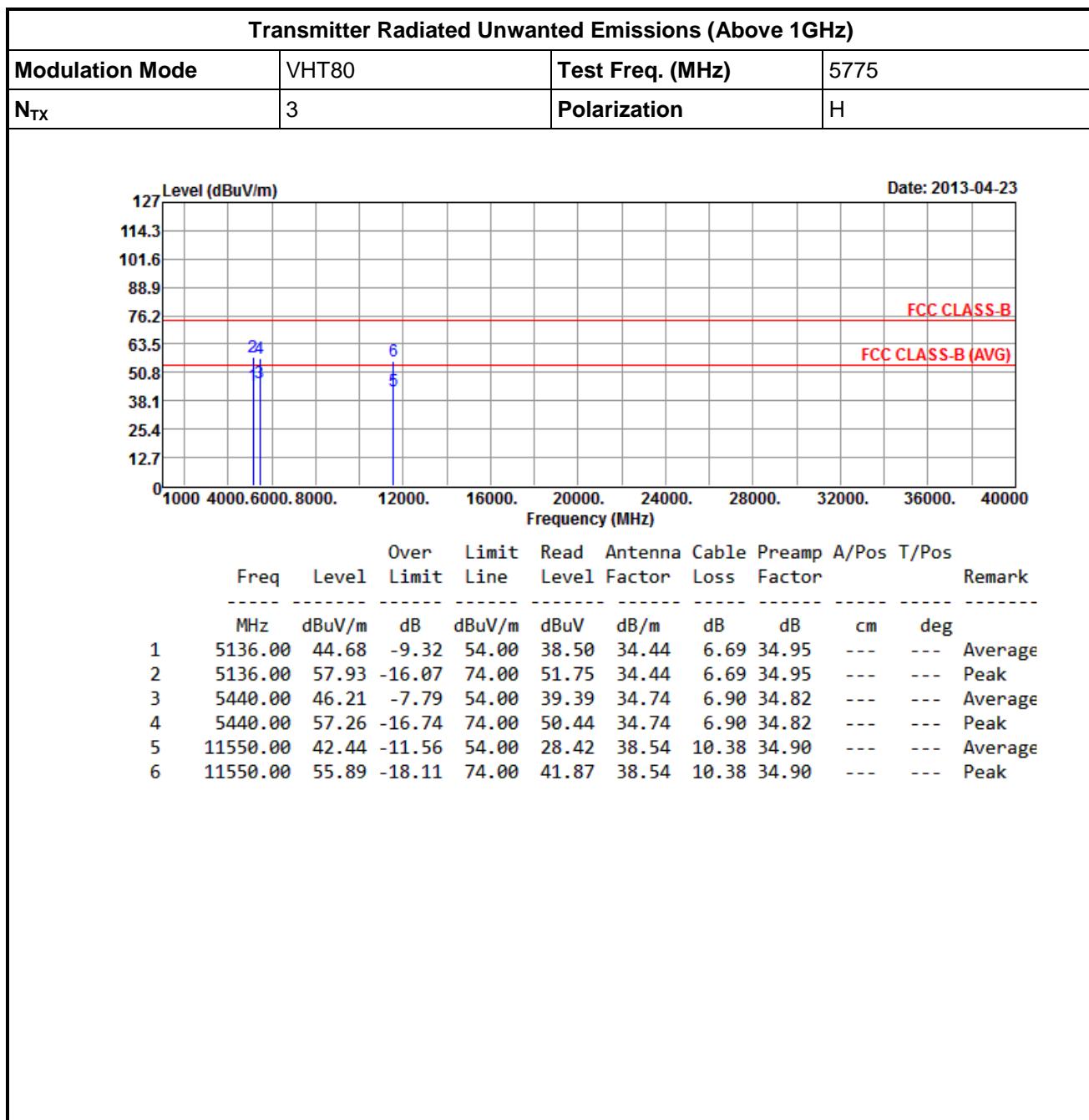
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



3.6.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80

Operating Mode: 1





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.)

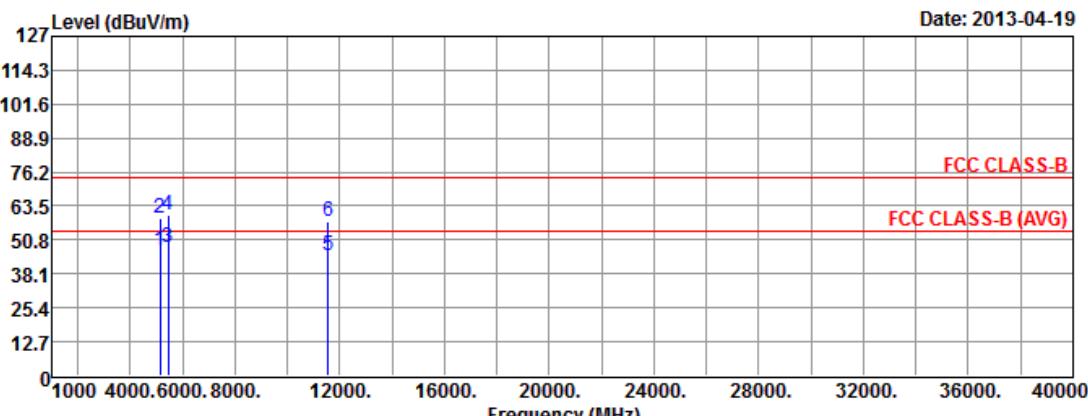
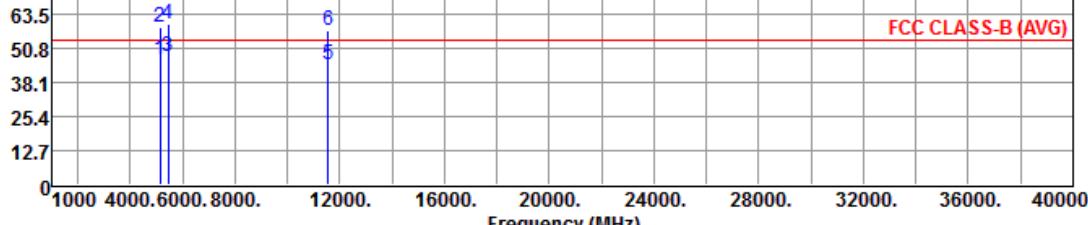
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 2

Transmitter Radiated Unwanted Emissions (Above 1GHz)														
Modulation Mode	VHT80		Test Freq. (MHz)		5775									
N _{TX}	3		Polarization		V									
Level (dBuV/m)										Date: 2013-04-19				
										FCC CLASS-B				
										FCC CLASS-B (AVG)				
Over Limit Read Antenna Cable Preamp A/Pos T/Pos														
Freq	Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark				
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg					
1	5136.00	46.61	-7.39	54.00	40.43	34.44	6.69	34.95	---	Average				
2	5136.00	59.21	-14.79	74.00	53.03	34.44	6.69	34.95	---	Peak				
3	5440.00	48.01	-5.99	54.00	41.19	34.74	6.90	34.82	---	Average				
4	5440.00	60.34	-13.66	74.00	53.52	34.74	6.90	34.82	---	Peak				
5	11550.00	45.27	-8.73	54.00	31.25	38.54	10.38	34.90	---	Average				
6	11550.00	57.68	-16.32	74.00	43.66	38.54	10.38	34.90	---	Peak				

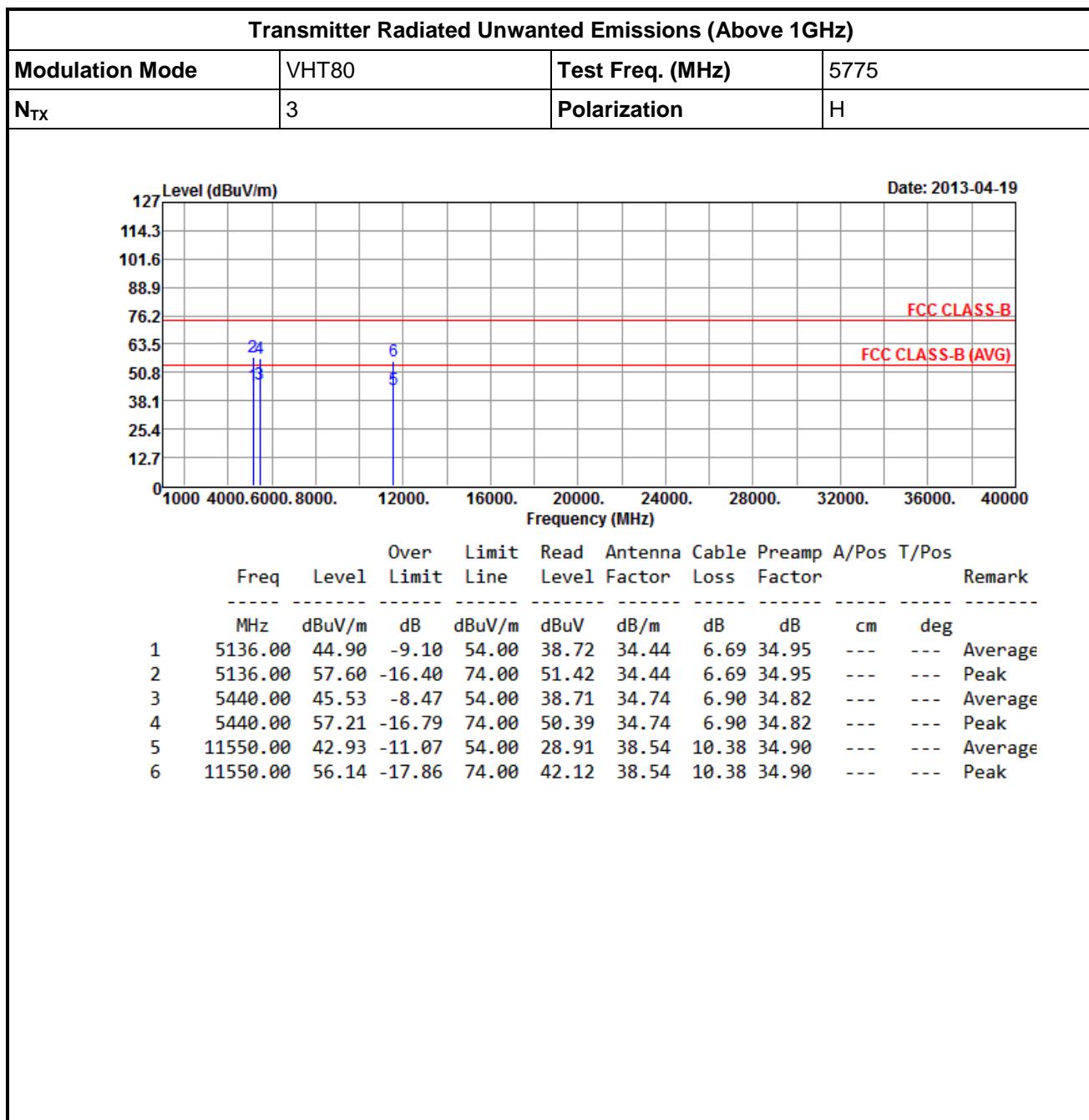
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Operating Mode: 3

Transmitter Radiated Unwanted Emissions (Above 1GHz)														
Modulation Mode	VHT80		Test Freq. (MHz)		5775									
N _{TX}	3		Polarization		V									
Level (dB _u V/m)										Date: 2013-04-19				
										FCC CLASS-B				
										FCC CLASS-B (AVG)				
Over Limit Read Antenna Cable Preamp A/Pos T/Pos														
Freq	Level	Over Limit	Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark				
MHz	dB _u V/m	dB	dB _u V/m	dB _u V	dB/m	dB	dB	cm	deg					
1	5136.00	46.53	-7.47	54.00	40.35	34.44	6.69	34.95	---	Average				
2	5136.00	59.12	-14.88	74.00	52.94	34.44	6.69	34.95	---	Peak				
3	5440.00	47.86	-6.14	54.00	41.04	34.74	6.90	34.82	---	Average				
4	5440.00	60.15	-13.85	74.00	53.33	34.74	6.90	34.82	---	Peak				
5	11550.00	45.69	-8.31	54.00	31.67	38.54	10.38	34.90	---	Average				
6	11550.00	57.88	-16.12	74.00	43.86	38.54	10.38	34.90	---	Peak				

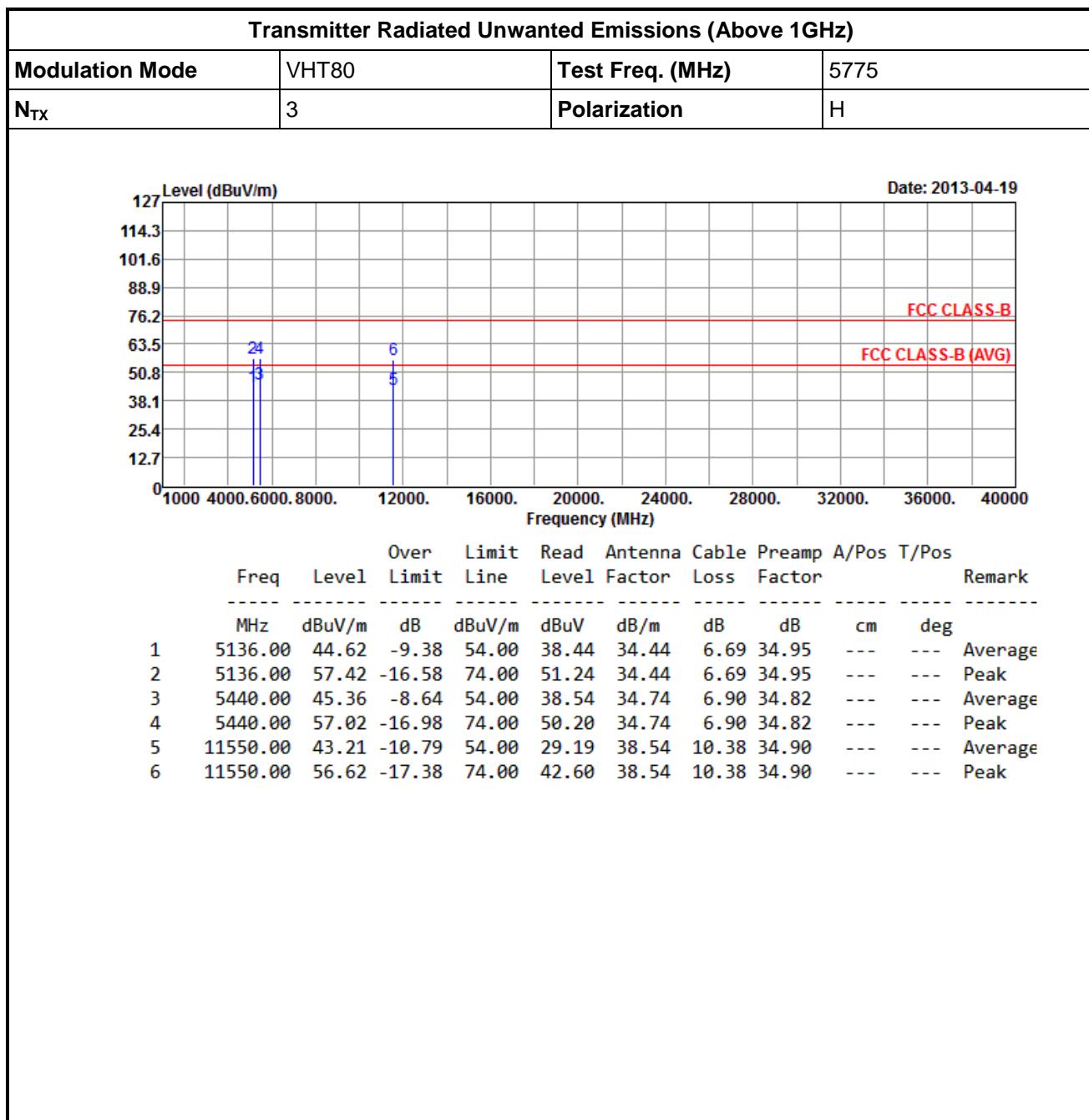
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



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, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 kHz ~ 2.75 GHz	Mar. 26, 2013	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRO NIK	NSLK 8127	8127-477	9kHz – 30MHz	Jan. 21, 2013	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9 kHz ~ 30 MHz	Apr. 18, 2013	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9 kHz ~ 30 MHz	Nov. 09, 2012	Conduction (CO04-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP	100055	9Kz – 40GHz	Jun. 06, 2012	Radiation (03CH05-HY)
Receiver	R&S	ESIB26	100337	20Hz – 26.5GHz	Jun.21, 2012	Radiation (03CH05-HY)
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH05-HY	30 MHz - 1 GHz 3m	N/A	Radiation (03CH05-HY)
Amplifier	COM-POWER	PA-103	161241	1 MHz ~ 1 GHz	Feb. 26, 2013	Radiation (03CH05-HY)
Amplifier	Agilent	8449B	3008A02665	1GHz – 26.5 GHz	Aug. 28, 2012	Radiation (03CH05-HY)
Horn Antenna	ETS-LINDGREN	3117	66584	1GHz~18GHz	Aug. 09, 2012	Radiation (03CH05-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jan. 08, 2013	Radiation (03CH05-HY)
RF Cable-R03m	Jye Bao	RG142	03CH05-HY	30 MHz - 1 GHz	Oct. 14, 2012	Radiation (03CH05-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX104	03CH05-HY	1GHz~40GHz	Oct. 14, 2012	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30 MHz - 1 GHz	Oct. 06, 2012	Radiation (03CH05-HY)
Turn Table	HD	HD100	420/611	0 - 360 degree	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	HD100	240/666	1 m - 4 m	N/A	Radiation (03CH05-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz ~ 40GHz	Apr. 19, 2013	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/0001	9 kHz - 30 MHz	Jul. 03, 2012	Radiation (03CH05-HY)

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



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101486	9KHz~40GHz	Nov. 14, 2012	Conducted (TH01-HY)
Spectrum Analyzer	R&S	FSP 40	100593	9KHz ~ 40GHz	Aug. 14, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 19, 2012	Conducted (TH01-HY)
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 02, 2012	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100°C	Nov. 21, 2012	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 26, 2012	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	Sep. 08, 2012	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	Sep. 08, 2012	Conducted (TH01-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	1GHz ~ 26.5GHz	NA	Conducted (TH01-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345669/4	1GHz ~ 26.5GHz	NA	Conducted (TH01-HY)

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