



# FCC Test Report

**Equipment** : 300N Wireless LAN Broadband Router  
**Brand Name** : EDIMAX  
**Model No.** : BR-6428GNS, BR-6428nS, BR-6428nS V2  
GR-428GNS, CV-7428nS, CV-7428HCn,  
EW-7418APN, EW-7416APn V3  
**FCC ID** : NDD9564281204  
**Standard** : 47 CFR FCC Part 15.247  
**Operating Band** : 2400 MHz – 2483.5 MHz  
**FCC Classification** : DTS  
**Applicant** : EDIMAX TECHNOLOGY CO., LTD.  
**Manufacturer** : No. 3, Wu-Chuan 3rd Road, Wu-Ku Industrial Park,  
New Taipei City, Taiwan

The product sample received on May 24, 2013 and completely tested on May 27, 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:

  
\_\_\_\_\_  
Wayne Hsu / Assistant Manager





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**APPENDIX A. TEST PHOTOS****APPENDIX B. PHOTOGRAPHS OF EUT**



## Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.1	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 17.690MHz 37.69 (Margin 12.31dB) - AV 44.61 (Margin 15.39dB) - QP	FCC 15.207	Complied
3.2	15.247(c)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 2398.57MHz: 28.62dB Restricted Bands [dBuV/m at 3m]: 2483.48MHz 67.26 (Margin 6.74dB) - PK 53.00 (Margin 1.00dB) - AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied
3.3	15.247(c)	Transmitter Radiated Unwanted Emissions	[dBuV/m at 3m]: 4874.000MHz 61.18 (Margin 12.82dB) - PK 52.97 (Margin 1.03dB) - AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied



## Revision History



## 1 General Description

### 1.1 Information

#### 1.1.1 Antenna Information

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

Antenna General Information			
No.	Ant. Cat.	Ant. Type	Gain (dBi)
1	External	Dipole	7.00

#### 1.1.2 Type of EUT

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

#### 1.1.3 EUT Operational Condition

Supply Voltage	<input checked="" 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 Information				
AC Adaptor 1	Brand Name	DVE	Model Name	DSC-6PFA-05 FUS
	Power Rating	I/P: 100-240V ~ 50/60Hz 0.2A; O/P: +5Vdc 1A		

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

Support Equipment- AC Conduction				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook	DELL	VOSTRO 3350	DoC
2	(USB) Mouse	Microsoft	1113	DoC
3	Printer	EPSON	STYLUS C61	N/A
4	Dummy Load	--	--	--
5	Notebook (Remote)	DELL	PP32LB	DoC
6	Personal computer (Remote)	HP	d330uT	DoC
7	LCD Monitor (Remote)	DELL	2408WFpb	N/A
8	(PS2) Keyboard (Remote)	HP	KB-0133	DoC
9	(PS2) Mouse (Remote)	HP	M-S69	DoC

Support Equipment- Radiated Emission				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook	DELL	E5520	DoC
2	(USB) Mouse	Microsoft	1004	DoC
3	Printer	EPSON	STYLUS C61	N/A
4	Dummy Load	--	--	--
5	Notebook (Remote)	DELL	E5520	DoC



### 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
- FCC KDB 662911
- FCC KDB 412172

### 1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.	TEL : 886-3-327-3456	FAX : 886-3-318-0055
Test Condition		Test Site No.	Test Engineer	Test Environment
AC Conduction		CO04-HY	Zeus	23°C / 49.1%
Radiated Emission		03CH02-HY	Hsiao	23.8°C / 62% May 24, 2013 ~ May 25, 2013

### 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

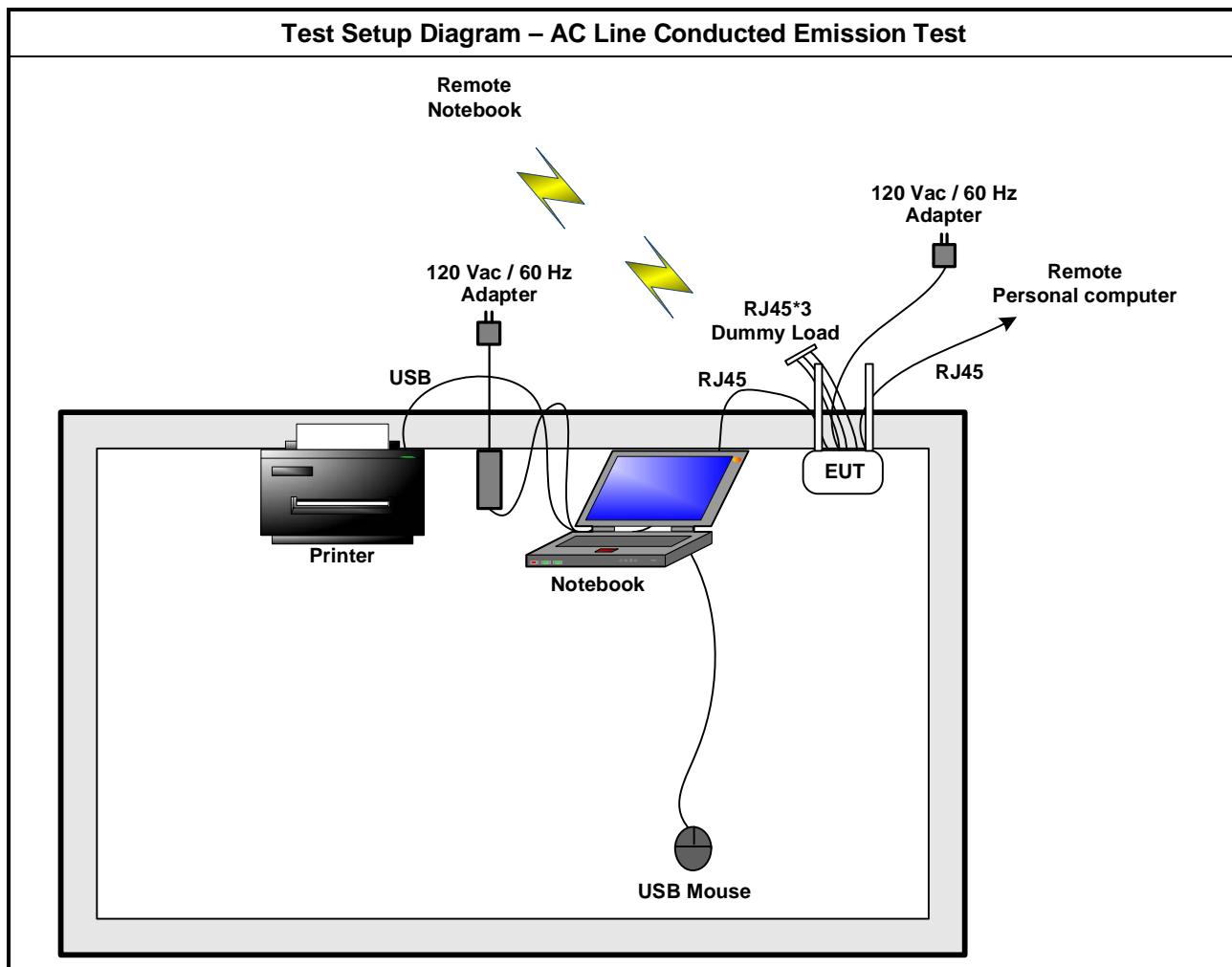
Worst Modulation Used for Conformance Testing			
Modulation Mode	Transmit Chains ( $N_{TX}$ )	Data Rate / MCS	Worst Data Rate / MCS
11b,1-11Mbps	1	1-11 Mbps	11 Mbps
11g,6-54Mbps	1	6-54 Mbps	6 Mbps
HT20,M8-15	2	M8-15	MCS 8
HT40,M8-15	2	M8-15	MCS 8

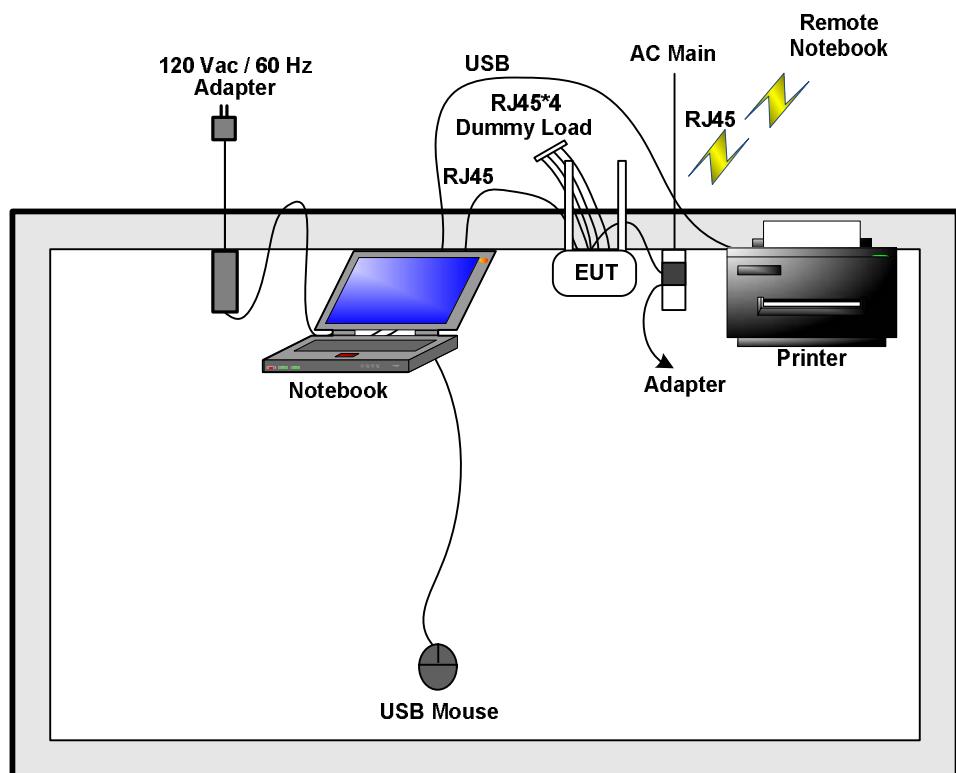
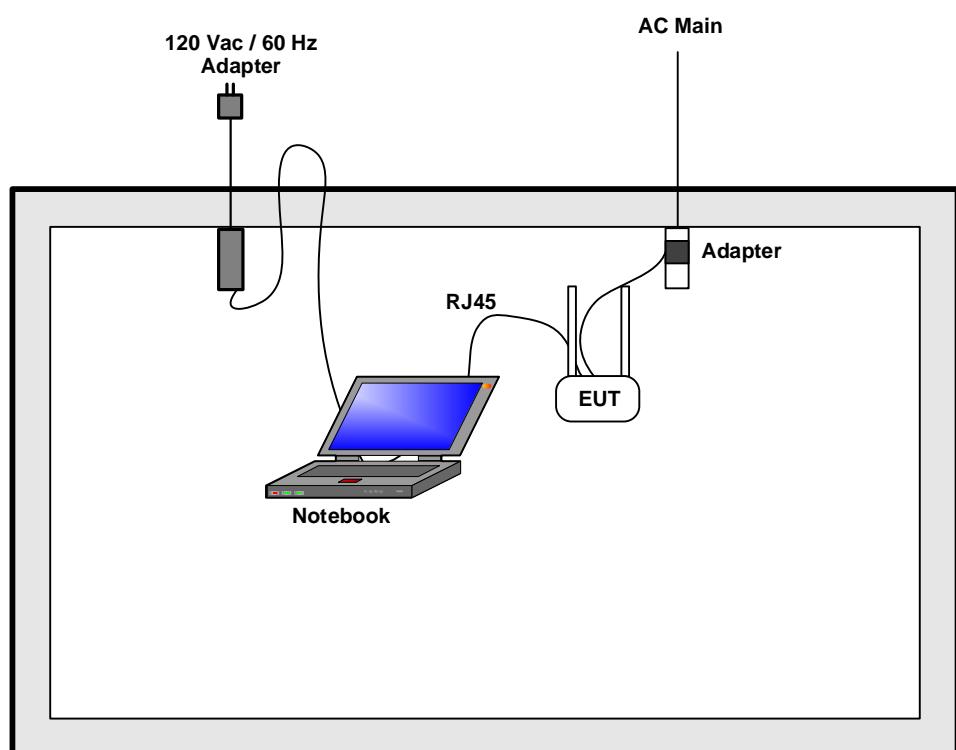
### 2.2 The Worst Case Measurement Configuration

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	PC ping to EUT by LAN and WAN for 100Mbps (Enable WLAN function)

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 checked="" 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. <input type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes.
Operating Mode < 1GHz	<input checked="" type="checkbox"/> 1. Normal link (Enable WLAN function)
Modulation Mode	11b, 11g, HT20, HT40

## 2.3 Test Setup Diagram



**Test Setup Diagram - Radiated Test (Below 1GHz)****Test Setup Diagram - Radiated Test (Above 1GHz)**

### 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.

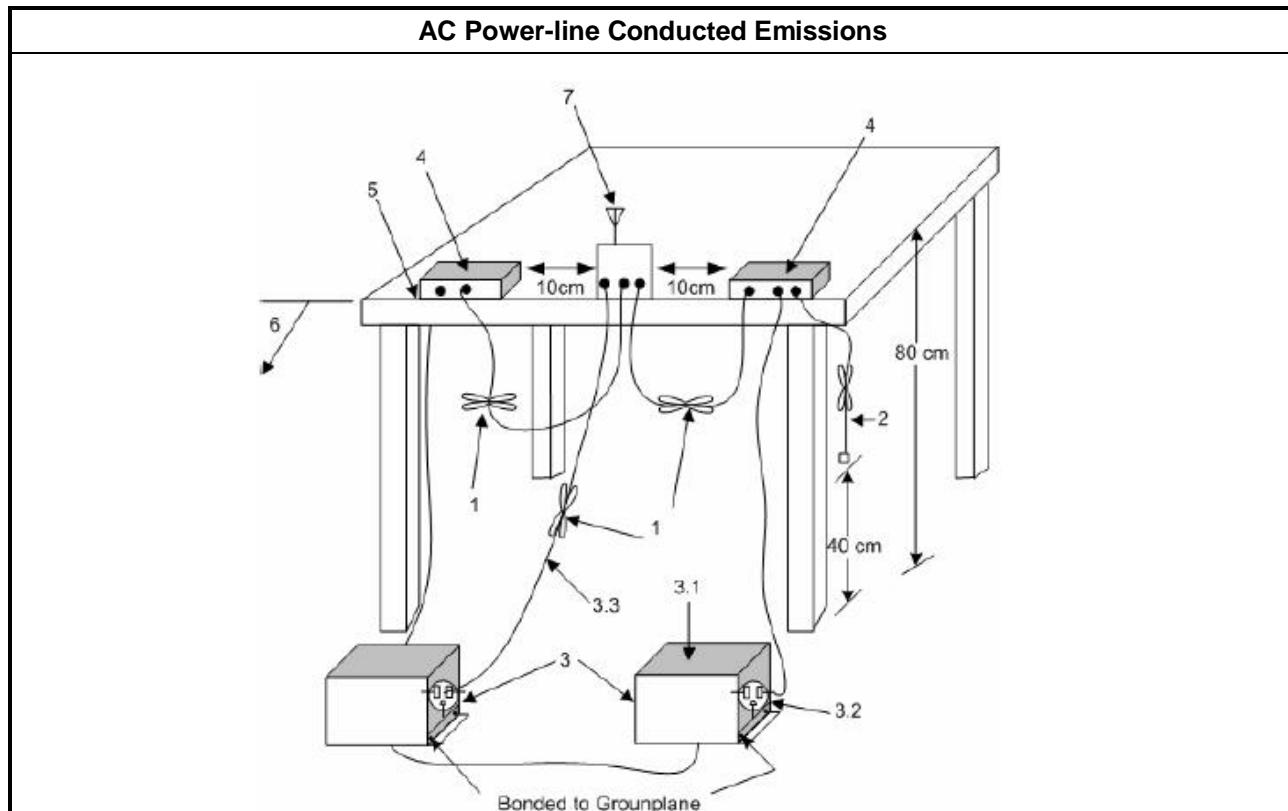
##### 3.1.2 Measuring Instruments

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



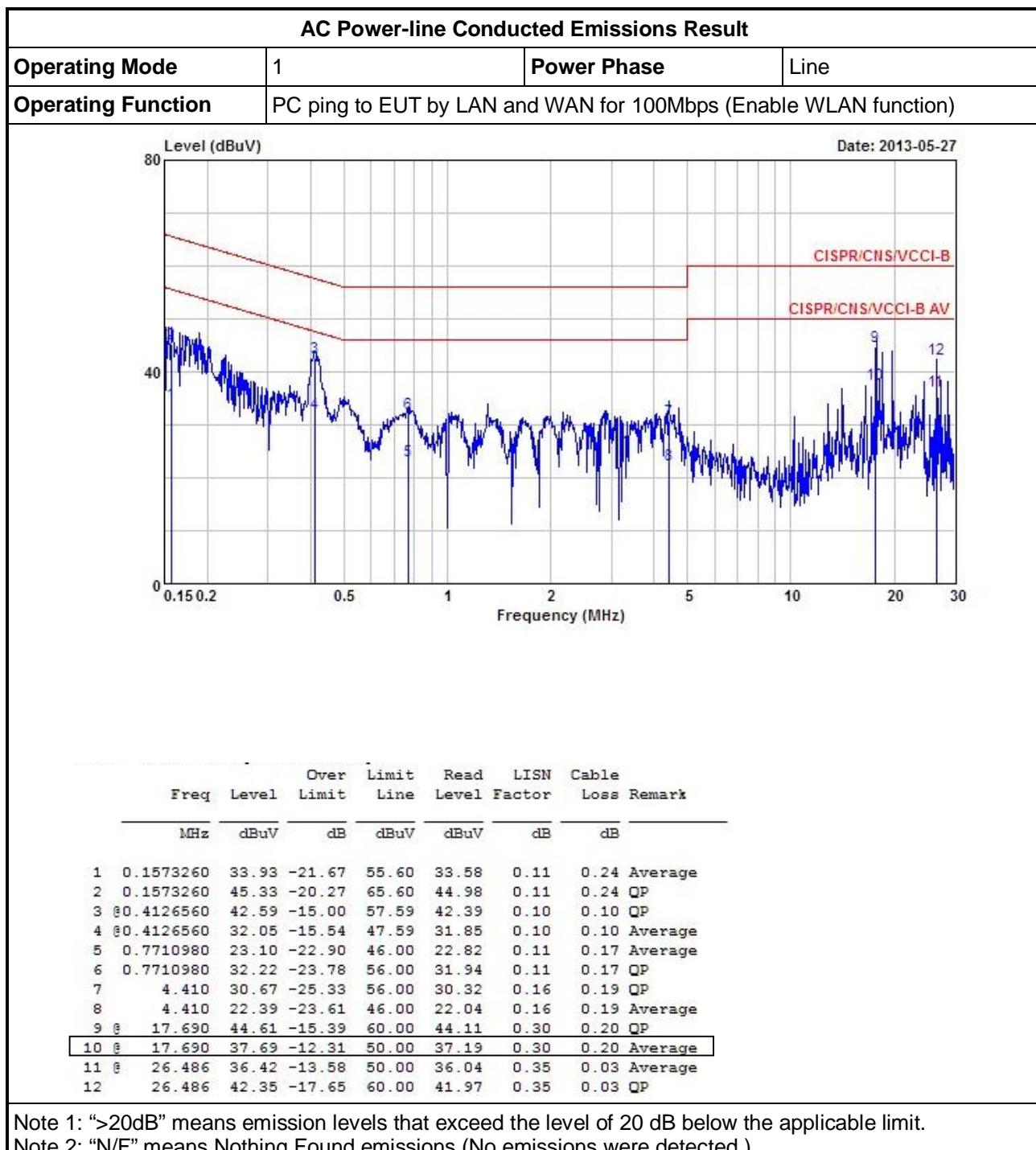


## 3.1.5 Test Result of AC Power-line Conducted Emissions

AC Power-line Conducted Emissions Result									
Operating Mode		1	Power Phase		Neutral				
Operating Function		PC ping to EUT by LAN and WAN for 100Mbps (Enable WLAN function)							
Level (dBuV)							Date: 2013-05-27		
0.15 0.2									
Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark		
MHz	dBuV	dB	dBuV	dBuV	dB	dB			
1	0.1685440	44.23	-20.80	65.03	43.79	0.24	0.20 QP		
2	0.1685440	26.84	-28.19	55.03	26.40	0.24	0.20 Average		
3	0.4104750	37.45	-20.19	57.64	37.13	0.22	0.10 QP		
4	0.4104750	25.69	-21.95	47.64	25.37	0.22	0.10 Average		
5	0.7751940	27.26	-28.74	56.00	26.86	0.23	0.17 QP		
6	0.7751940	16.60	-29.40	46.00	16.20	0.23	0.17 Average		
7	2.980	26.83	-29.17	56.00	26.32	0.27	0.24 QP		
8	2.980	12.38	-33.62	46.00	11.87	0.27	0.24 Average		
9	18.303	44.21	-15.79	60.00	43.47	0.54	0.20 QP		
10	18.303	34.33	-15.67	50.00	33.59	0.54	0.20 Average		
11	26.609	40.12	-19.88	60.00	39.42	0.67	0.03 QP		
12	26.609	31.81	-18.19	50.00	31.11	0.67	0.03 Average		

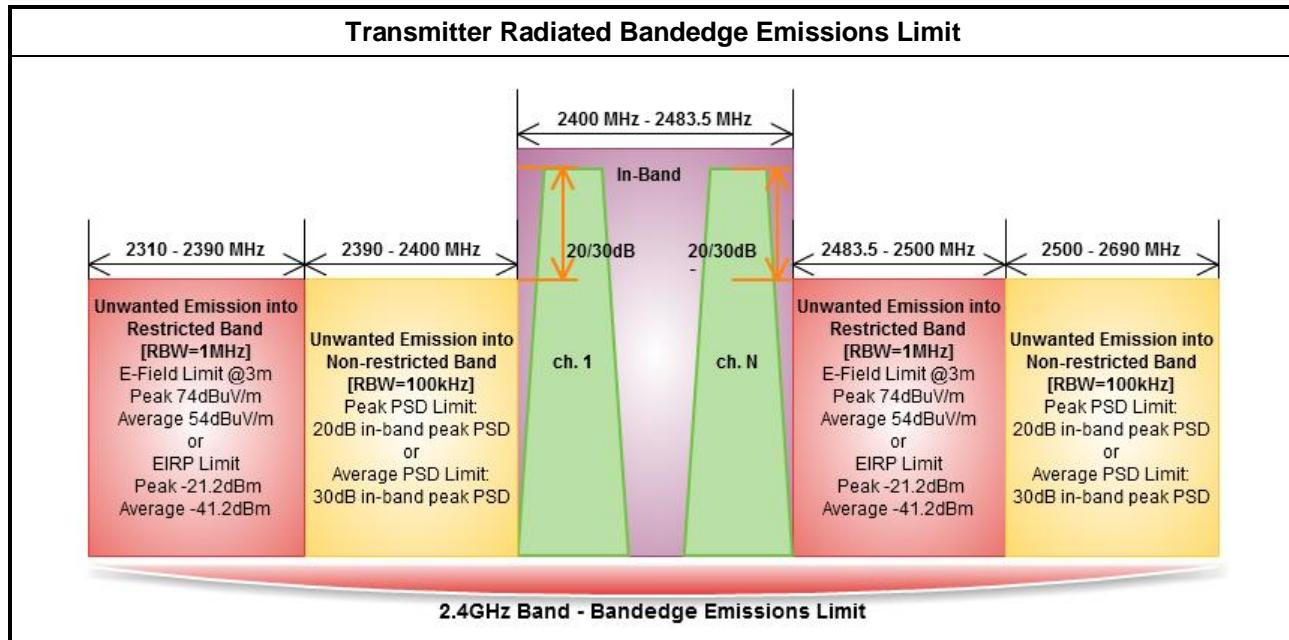
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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



## 3.2 Transmitter Bandedge Emissions

### 3.2.1 Transmitter Radiated Bandedge Emissions Limit



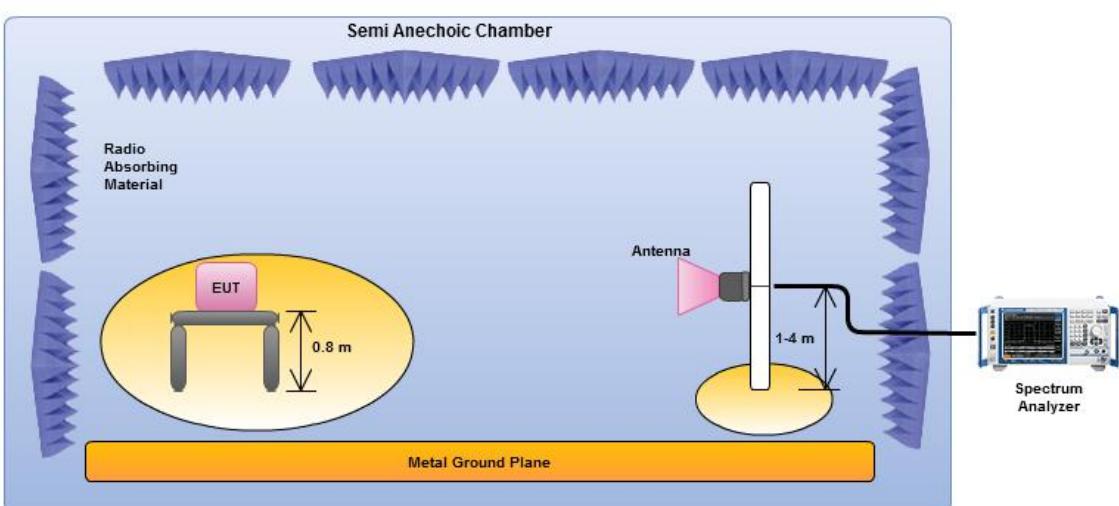
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> 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, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq 98\%$ )
<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq 1/T$ ).
<input checked="" 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, clause 11.3 and 12.2.4 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, 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.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
<input checked="" type="checkbox"/> For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.

### 3.2.4 Test Setup

Transmitter Radiated Bandedge Emissions
 <p>Electric field tests shall be performed in transmitter bandedge emissions using a calibrated horn antenna.</p>



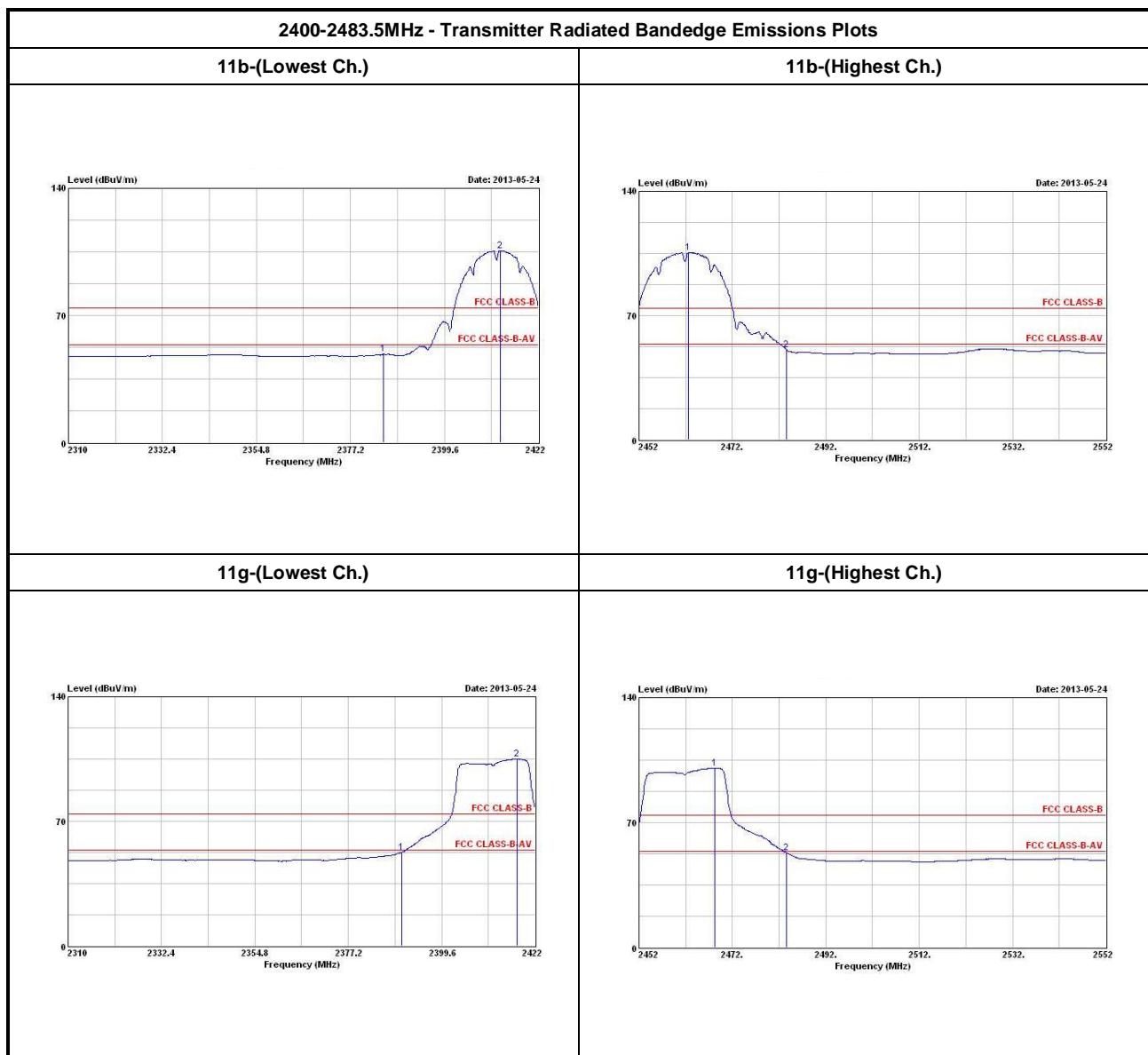
## 3.2.5 Transmitter Radiated Bandedge Emissions

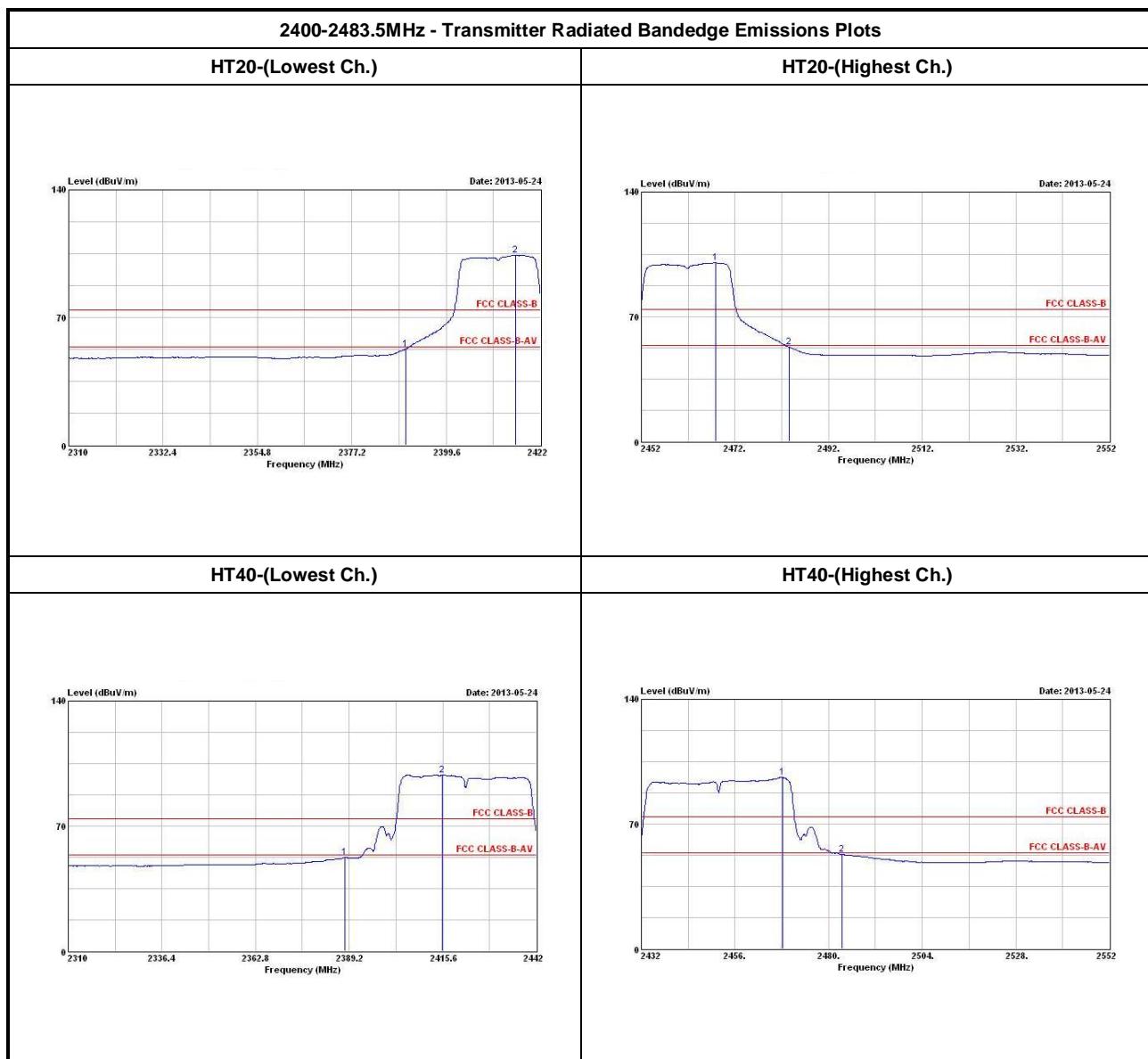
2400-2483.5MHz Transmitter Radiated Bandedge Emissions (Non-restricted Band)								
Modulation	N <sub>TX</sub>	Test Freq. (MHz)	In-band PSD [i] (dBuV/100 kHz)	Freq. (MHz)	Out-band PSD [o] (dBuV/100 kHz)	[i] – [o] (dB)	Limit (dB)	Pol.
11b	1	2412	105.51	2399.94	69.12	36.39	20	V
11b	1	2462	105.29	2530.70	64.01	41.28	20	V
11g	1	2412	105.44	2399.82	75.21	30.23	20	V
11g	1	2462	101.25	2540.70	63.93	37.32	20	V
HT20,M8-15	2	2412	105.43	2399.49	74.28	31.15	20	V
HT20,M8-15	2	2462	101.86	2501.80	64.40	37.46	20	V
HT40,M8-15	2	2422	100.81	2398.57	72.19	28.62	20	V
HT40,M8-15	2	2452	96.96	2510.48	64.67	32.29	20	V

Note 1: Measurement worst emissions of receive antenna polarization

2400-2483.5MHz Transmitter Radiated Bandedge Emissions (Restricted Band)										
Modulation Mode	N <sub>TX</sub>	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
11b	1	2412	3	2382.91	61.92	74	2385.04	48.67	54	V
11b	1	2462	3	2483.50	62.60	74	2483.50	50.85	54	V
11g	1	2412	3	2389.18	71.47	74	2390.00	52.49	54	V
11g	1	2462	3	2483.80	68.69	74	2483.50	52.98	54	V
HT20,M8-15	2	2412	3	2389.63	63.31	74	2390.00	52.54	54	V
HT20,M8-15	2	2462	3	2483.50	68.60	74	2483.50	52.94	54	V
HT40,M8-15	2	2422	3	2388.94	65.85	74	2388.01	52.54	54	V
HT40,M8-15	2	2452	3	2483.60	67.26	74	2483.48	53.00	54	V

Note 1: Measurement worst emissions of receive antenna polarization.







### 3.3 Transmitter Unwanted Emissions

#### 3.3.1 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.

#### 3.3.2 Measuring Instruments

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

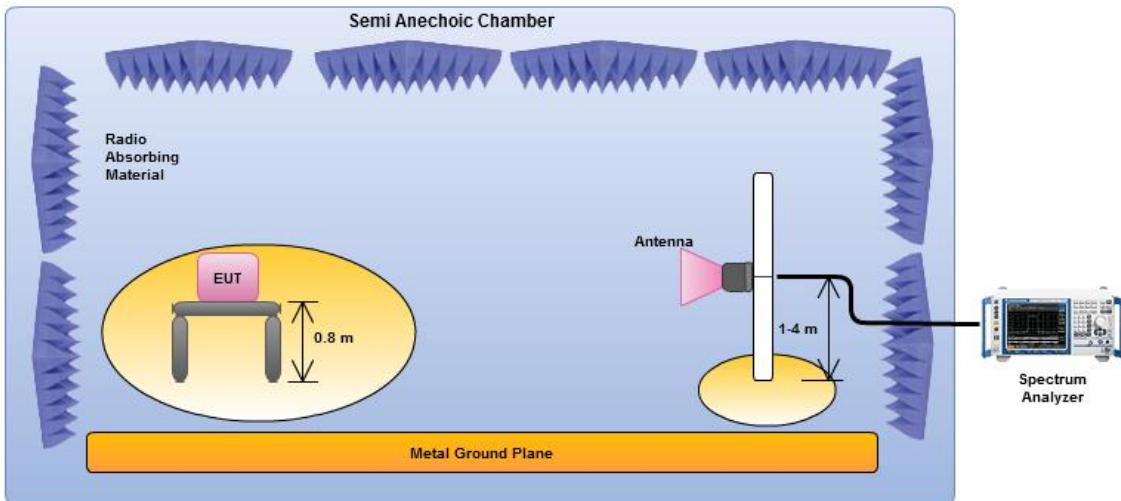


### 3.3.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> 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 checked="" 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 checked="" 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, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq$ 98%)
<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq$ 1/T).
<input checked="" 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, clause 11.3 and 12.2.4 measurement procedure peak limit.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.3 measurement procedure Quasi-Peak limit.
<input checked="" type="checkbox"/> For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.
<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.

### 3.3.4 Test Setup

#### Transmitter Radiated Unwanted Emissions



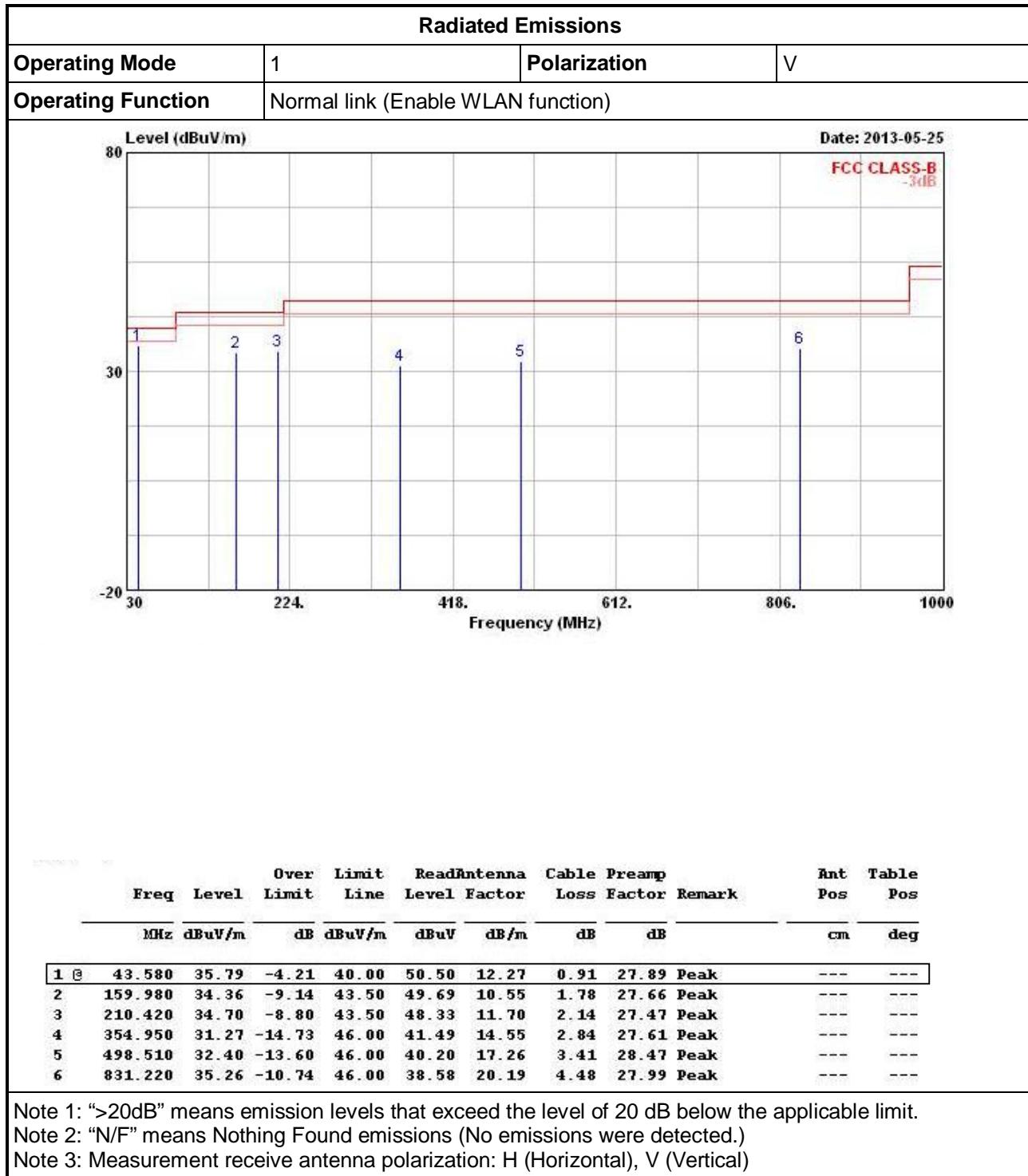
Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn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

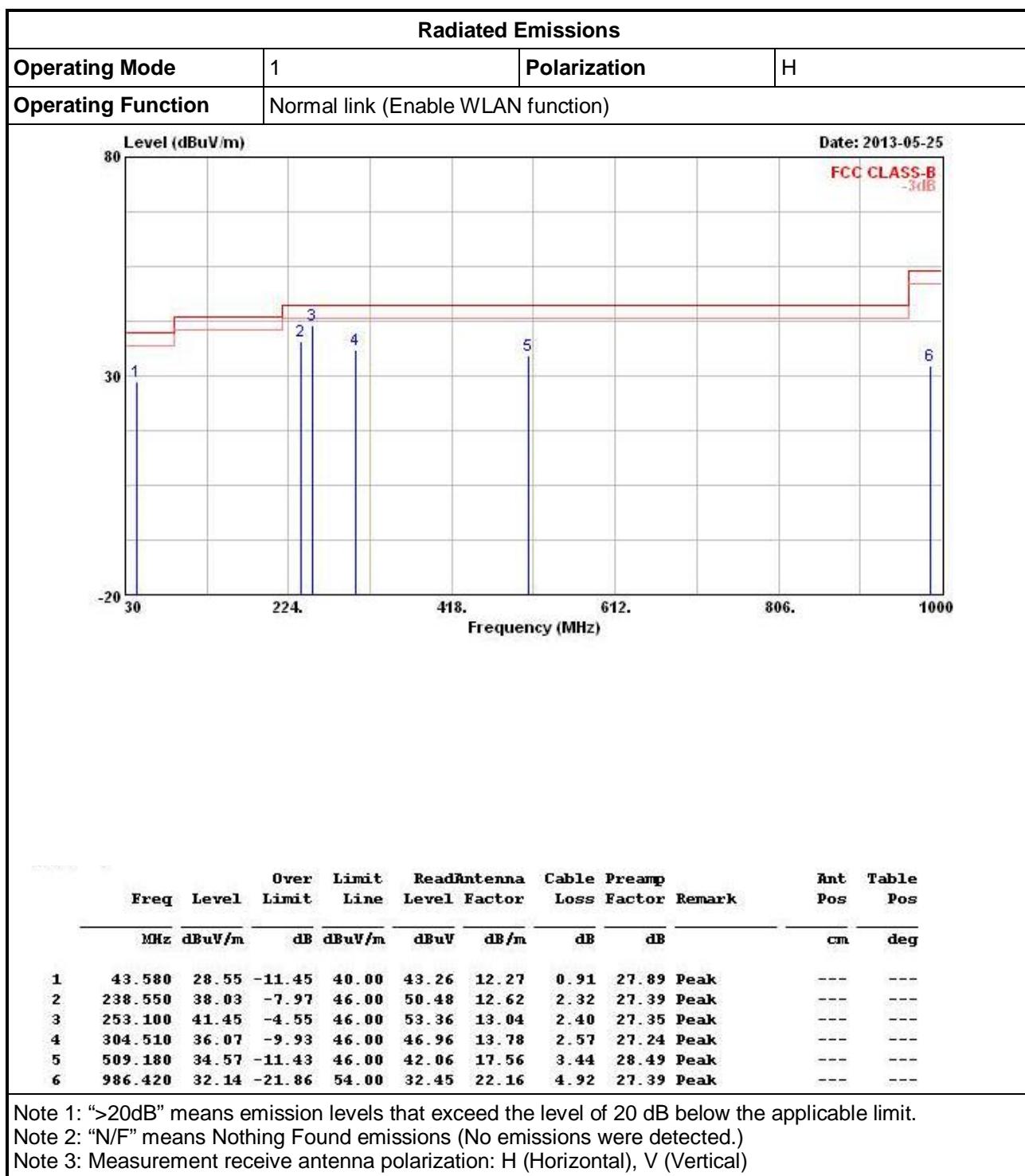
### 3.3.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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



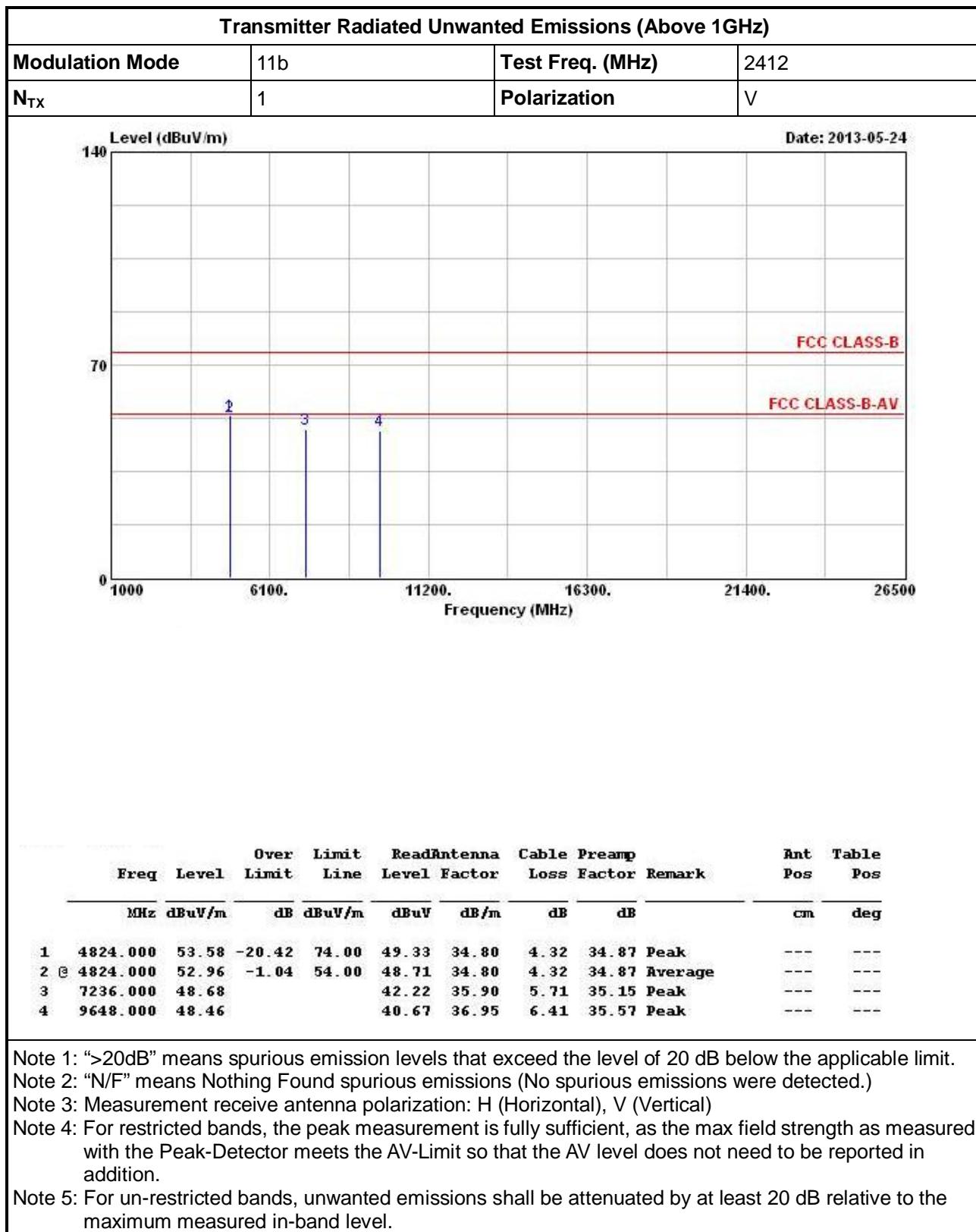
## 3.3.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)







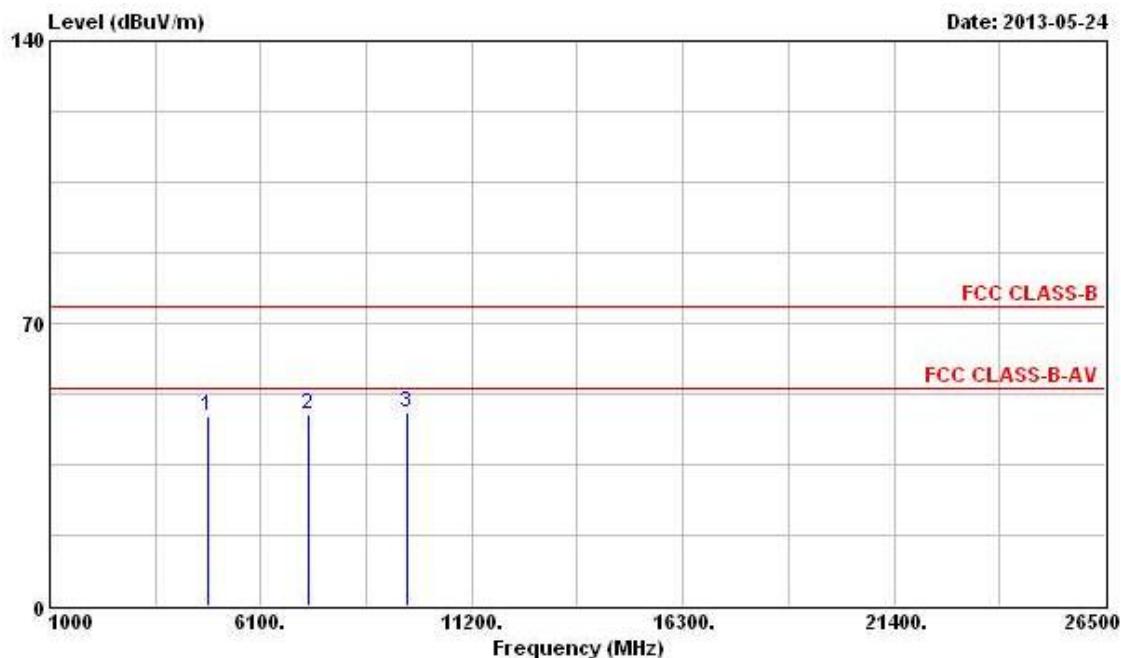
## 3.3.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 2400-2483.5MHz





## Transmitter Radiated Unwanted Emissions (Above 1GHz)

<b>Modulation Mode</b>	11b	<b>Test Freq. (MHz)</b>	2412
<b>N<sub>TX</sub></b>	1	<b>Polarization</b>	H



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Limit	Line	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 4824.000	46.87	-7.13	54.00	42.62	34.80	4.32	34.87	PK	---	---
2 7236.000	47.30			40.84	35.90	5.71	35.15	Peak	---	---
3 9648.000	47.91			40.12	36.95	6.41	35.57	Peak	---	---

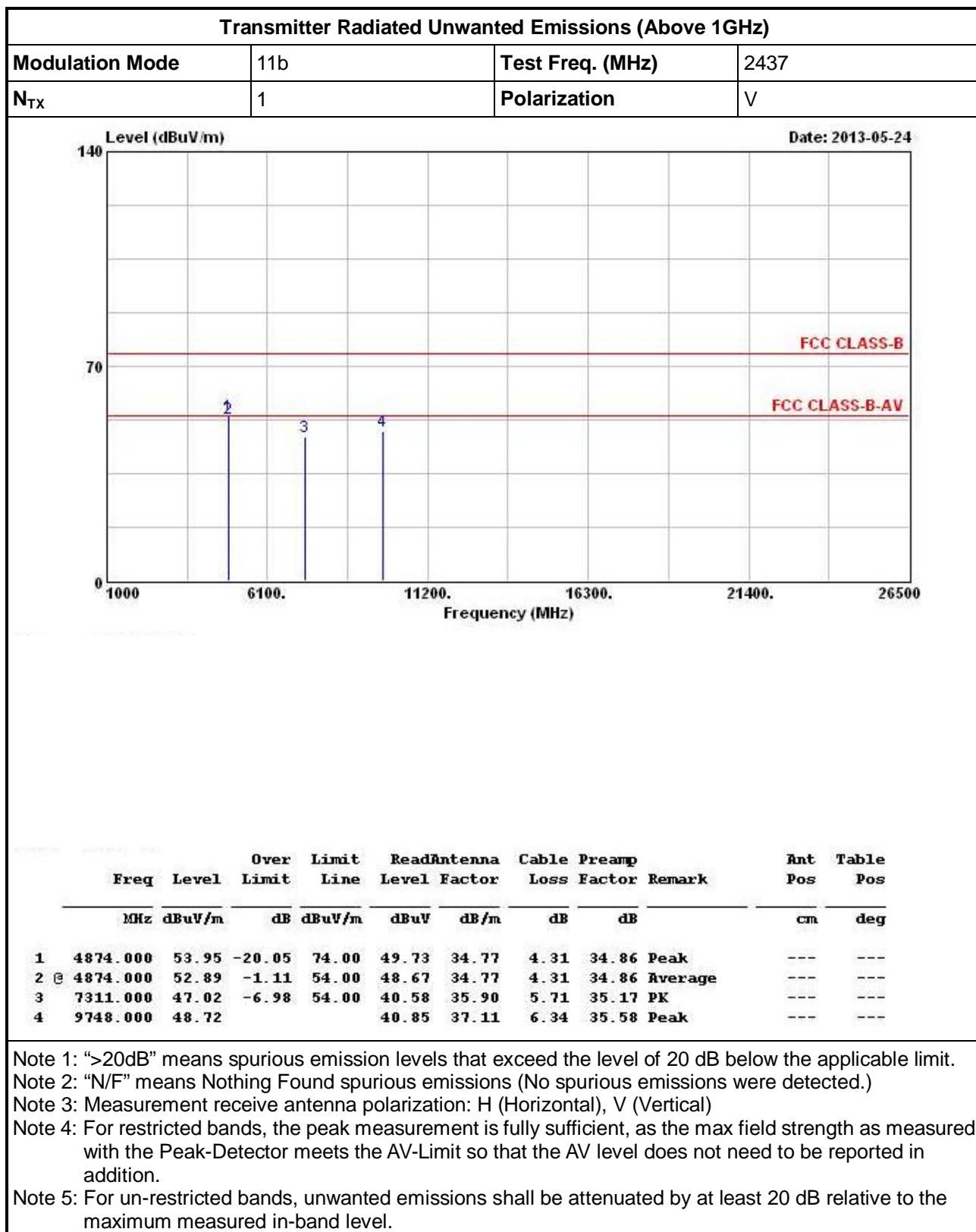
Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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

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

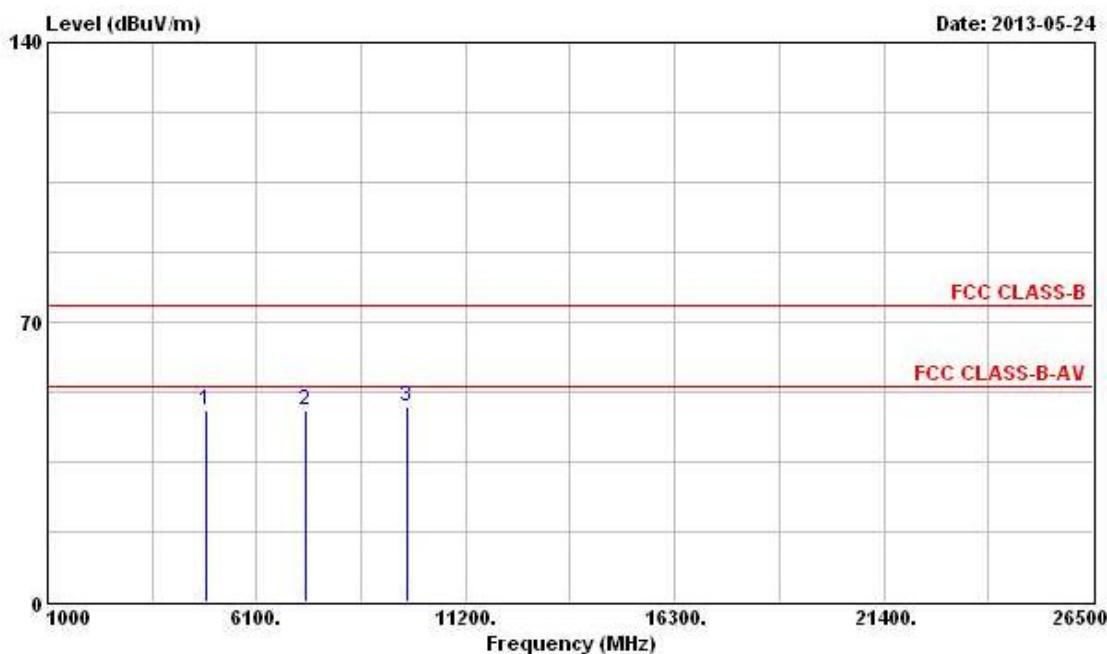
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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





Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	Test Freq. (MHz)	2437
N <sub>TX</sub>	1	Polarization	H



Freq	Level	Over Limit		ReadAntenna		Cable Preamp			Ant Pos	Table Pos
		Limit	Line	Level	Factor	Loss	Factor	Remark		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 4874.000	47.82	-6.18	54.00	43.60	34.77	4.31	34.86	PK	---	---
2 7311.000	47.97	-6.03	54.00	41.53	35.90	5.71	35.17	PK	---	---
3 9748.000	48.72			40.85	37.11	6.34	35.58	Peak	---	---

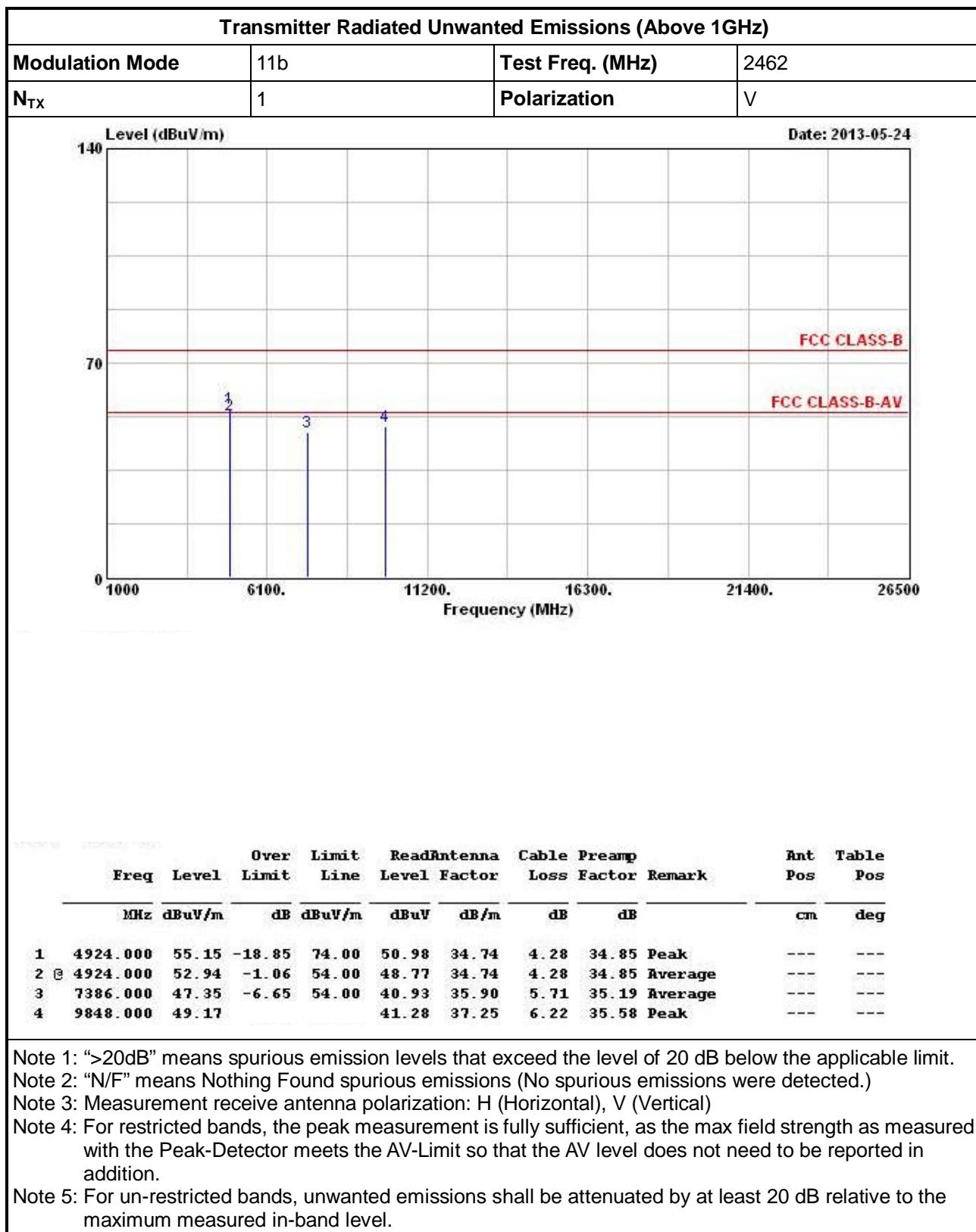
Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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

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

Note 4: 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.

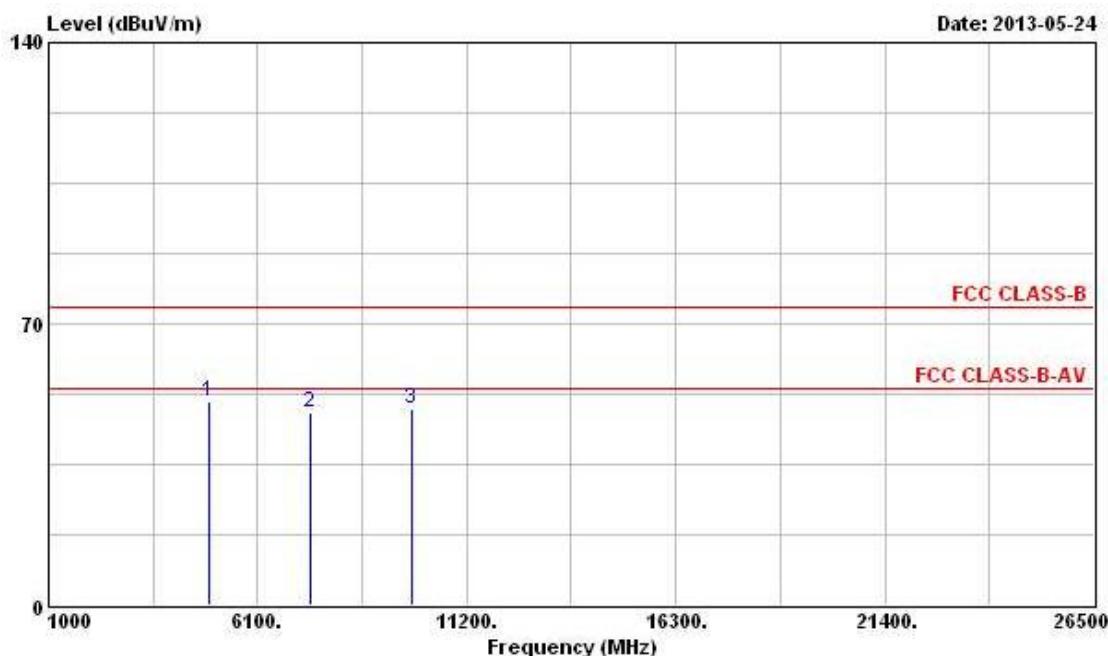
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.





## Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (MHz)	2462
N <sub>TX</sub>	1	Polarization	H



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table
		Line	Line	Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 0 4924.000	50.46	-3.54	54.00	46.29	34.74	4.28	34.85 PK	---	---
2 0 7386.000	47.79	-6.21	54.00	41.37	35.90	5.71	35.19 PK	---	---
3 0 9848.000	48.93			41.04	37.25	6.22	35.58 Peak	---	---

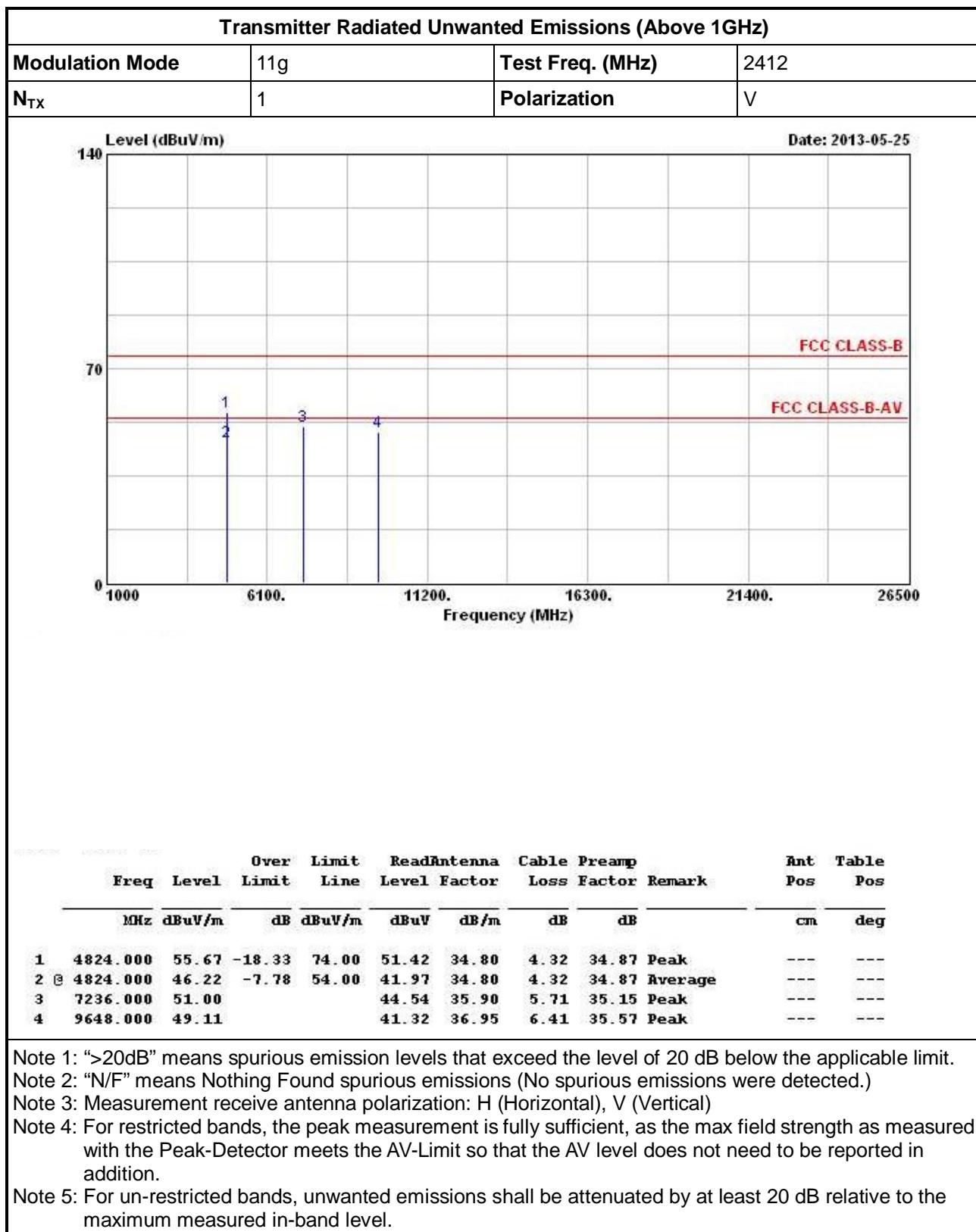
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

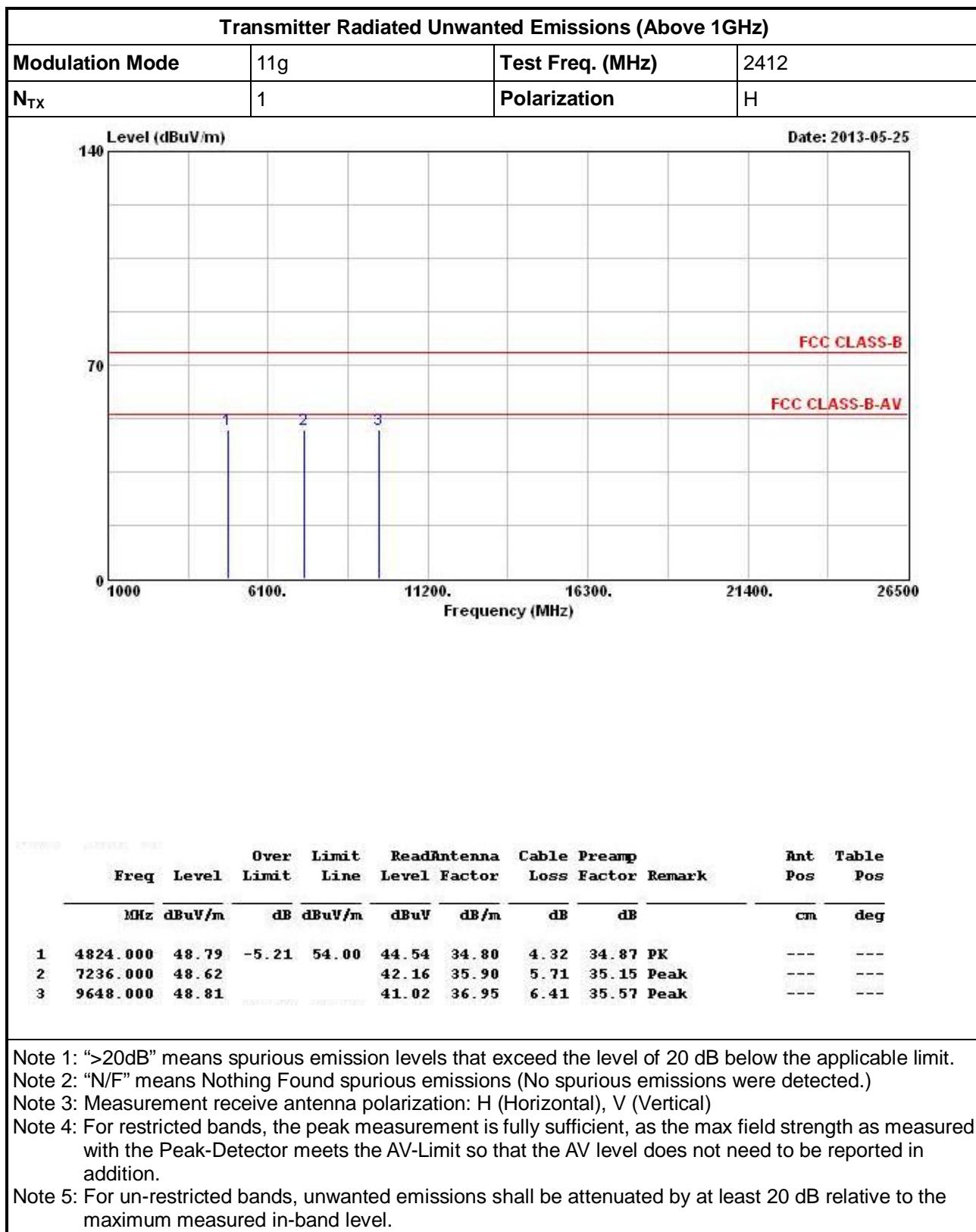
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: 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.

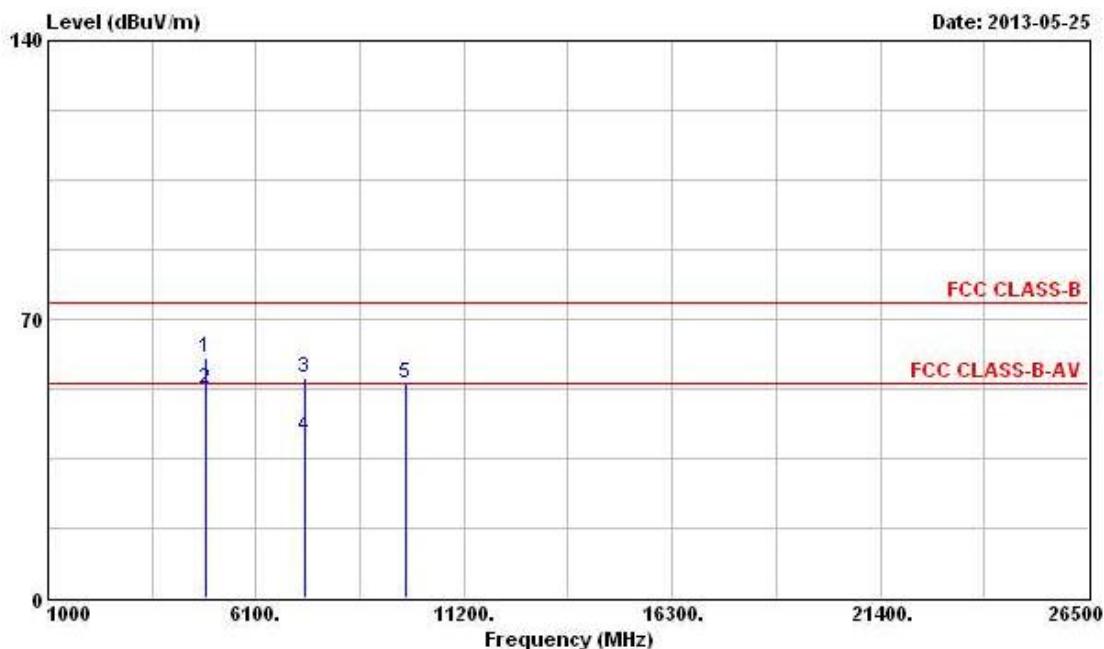






## Transmitter Radiated Unwanted Emissions (Above 1GHz)

<b>Modulation Mode</b>	11g	<b>Test Freq. (MHz)</b>	2437
<b>N<sub>TX</sub></b>	1	<b>Polarization</b>	V



Freq	Level	Over Limit		ReadAntenna		Cable Preamp		Ant Pos	Table Pos	
		Limit	Line	Level	Factor	Loss	Factor			
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4874.000	60.25	-13.75	74.00	56.03	34.77	4.31	34.86	Peak	---
2	4874.000	52.45	-1.55	54.00	48.23	34.77	4.31	34.86	Average	---
3	7311.000	55.12	-18.88	74.00	48.68	35.90	5.71	35.17	Peak	---
4	7311.000	40.55	-13.45	54.00	34.11	35.90	5.71	35.17	Average	---
5	9748.000	54.00			46.13	37.11	6.34	35.58	Peak	---

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

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

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

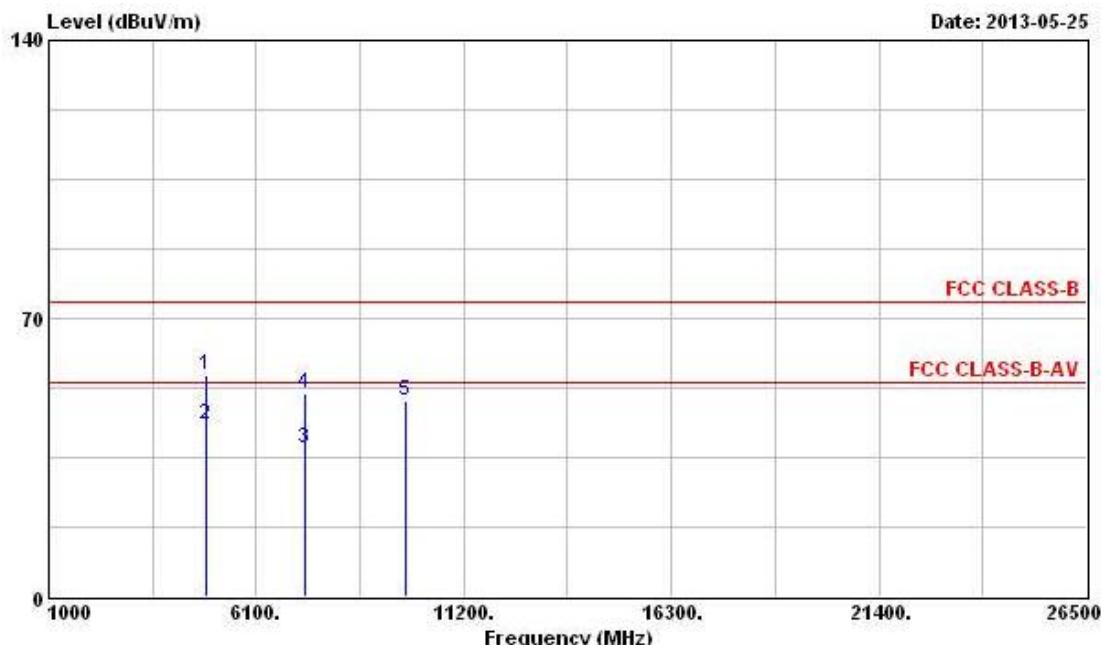
Note 3: Measurement receive antenna polarization: H (horizontal), V (vertical)  
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	11g	Test Freq. (MHz)	2437
N <sub>TX</sub>	1	Polarization	H



Freq	Level	Over Limit	Limit	Read		Antenna	Cable	Preamp	Ant	Table
				Line	Factor					
MHz	dBuV/m		dB	dBuV/m		dBuV	dB/m	dB	dB	cm
										deg
1	4874.000	55.59	-18.41	74.00	51.37	34.77	4.31	34.86	Peak	---
2	4874.000	43.15	-10.85	54.00	38.93	34.77	4.31	34.86	Average	---
3	7311.000	37.43	-16.57	54.00	30.99	35.90	5.71	35.17	Average	---
4	7311.000	51.03	-22.97	74.00	44.59	35.90	5.71	35.17	Peak	---
5	9748.000	49.43			41.56	37.11	6.34	35.58	Peak	---

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

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

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

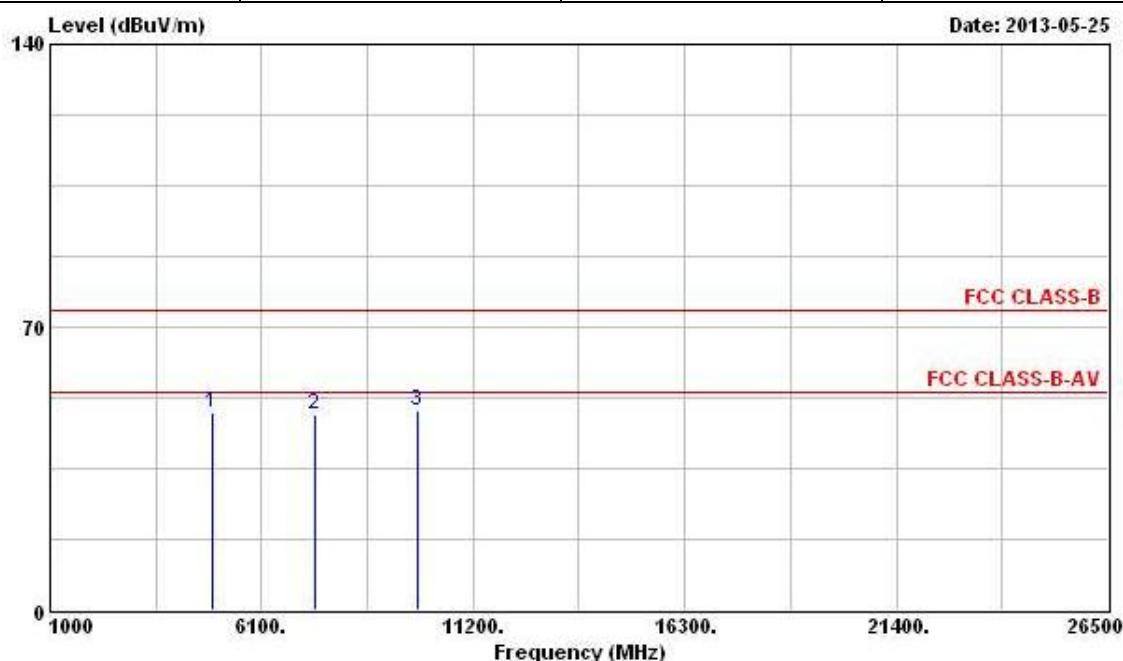
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	11g	Test Freq. (MHz)	2462
N <sub>TX</sub>	1	Polarization	V



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table
		Limit	Line	Level	Factor	Loss	Factor		
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	4924.000	48.95	-5.05	54.00	44.78	34.74	4.28	34.85	PK
2	7386.000	48.15	-5.85	54.00	41.73	35.90	5.71	35.19	PK
3	9848.000	49.36			41.47	37.25	6.22	35.58	Peak

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

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

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

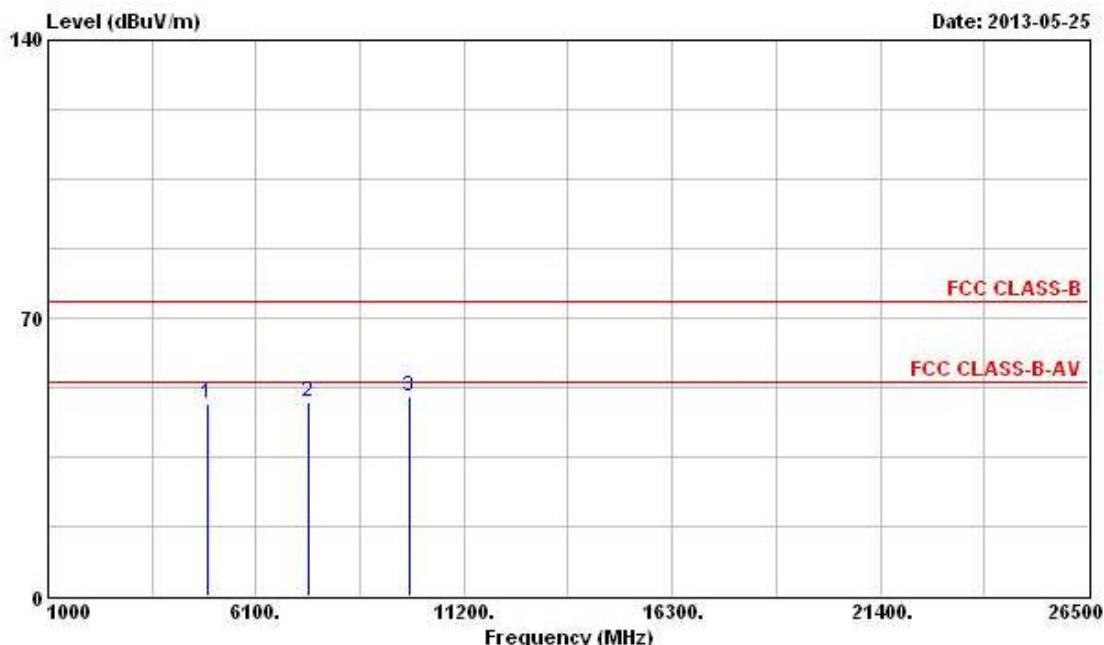
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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	11g	Test Freq. (MHz)	2462
N <sub>TX</sub>	1	Polarization	H



Freq	Level	Over Limit	Limit	Read		Antenna	Cable	Preamp	Ant	Table
				Line	Level					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m		dB	dB	cm	deg
1 4924.000	48.17	-5.83	54.00	44.00	34.74	4.28	34.85	PK	---	---
2 7386.000	48.80	-5.20	54.00	42.38	35.90	5.71	35.19	PK	---	---
3 9848.000	49.97			42.08	37.25	6.22	35.58	Peak	---	---

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

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

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

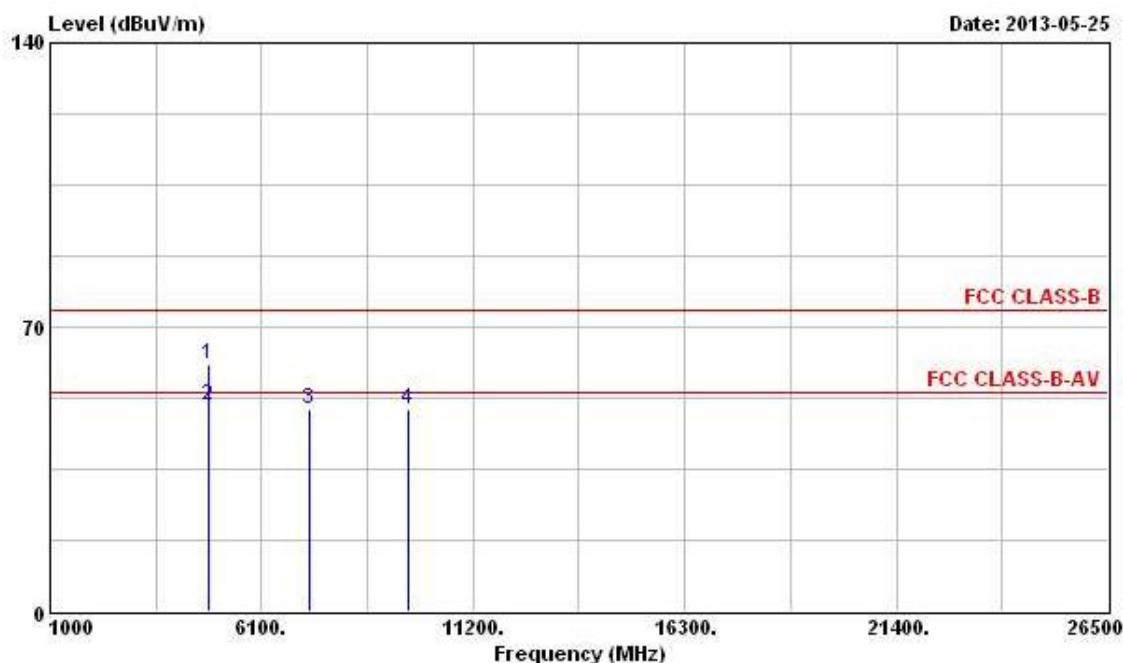
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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)	2412
N <sub>TX</sub>	2	Polarization	V



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Cable	Preamp			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4824.000	60.76	-13.24	74.00	56.51	34.80	4.32	34.87 Peak	---	---
2	4824.000	50.55	-3.45	54.00	46.30	34.80	4.32	34.87 Average	---	---
3	7236.000	49.63			43.17	35.90	5.71	35.15 Peak	---	---
4	9648.000	49.64			41.85	36.95	6.41	35.57 Peak	---	---

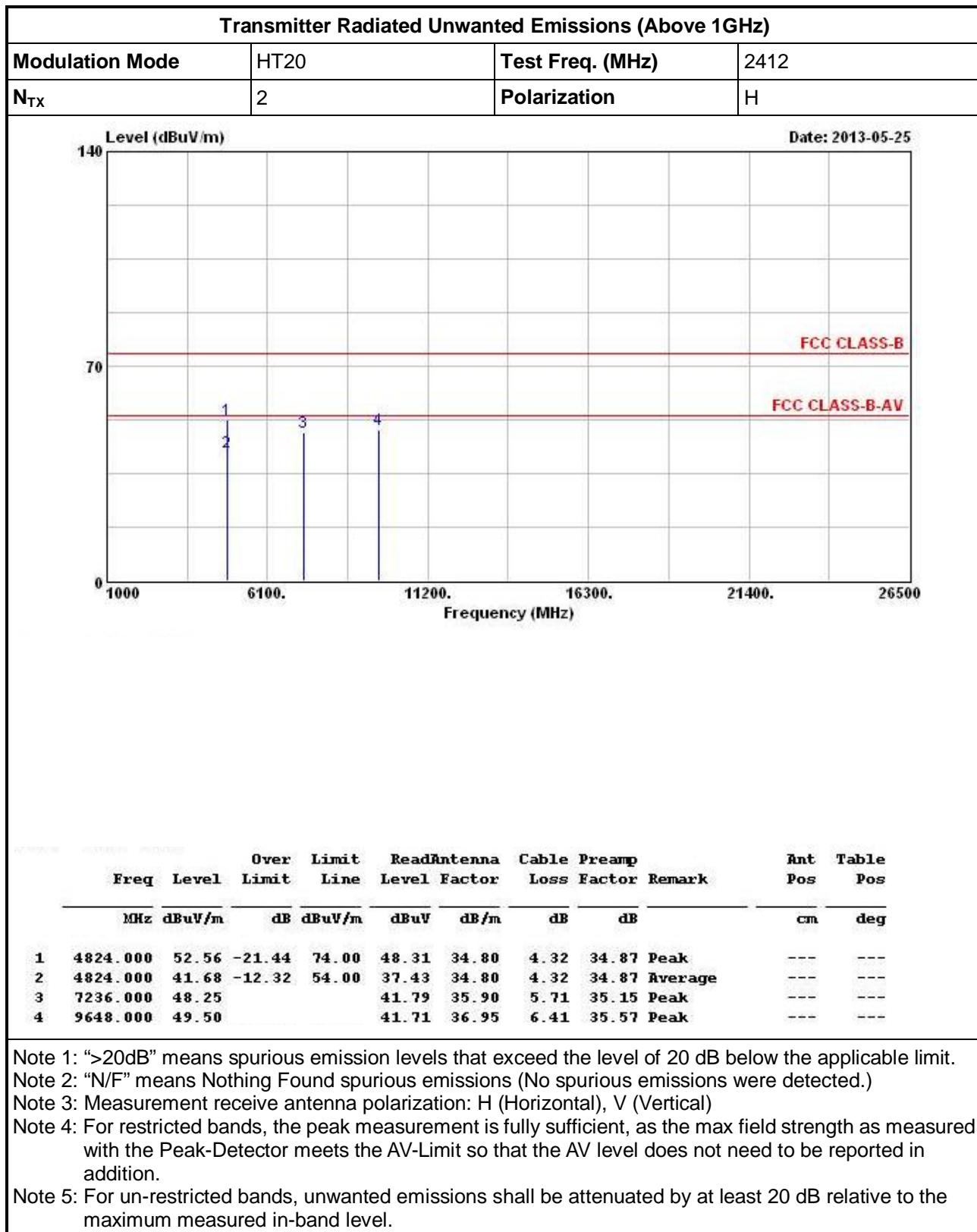
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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.

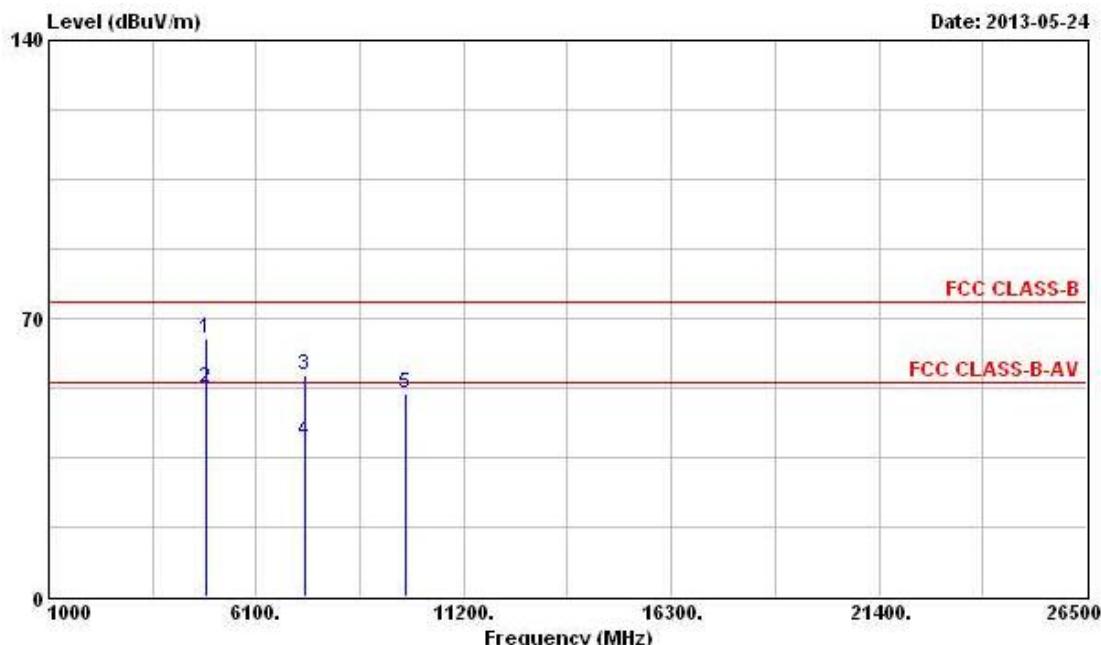
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.





## Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2437
N <sub>TX</sub>	2	Polarization	V



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table		
		Line	Limit	Level	Factor	Loss	Factor				
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4874.000	65.11	-8.89	74.00	60.89	34.77	4.31	34.86	Peak	---	---
2	4874.000	52.58	-1.42	54.00	48.36	34.77	4.31	34.86	Average	---	---
3	7311.000	55.84	-18.16	74.00	49.40	35.90	5.71	35.17	Peak	---	---
4	7311.000	39.30	-14.70	54.00	32.86	35.90	5.71	35.17	Average	---	---
5	9748.000	51.04			43.17	37.11	6.34	35.58	Peak	---	---

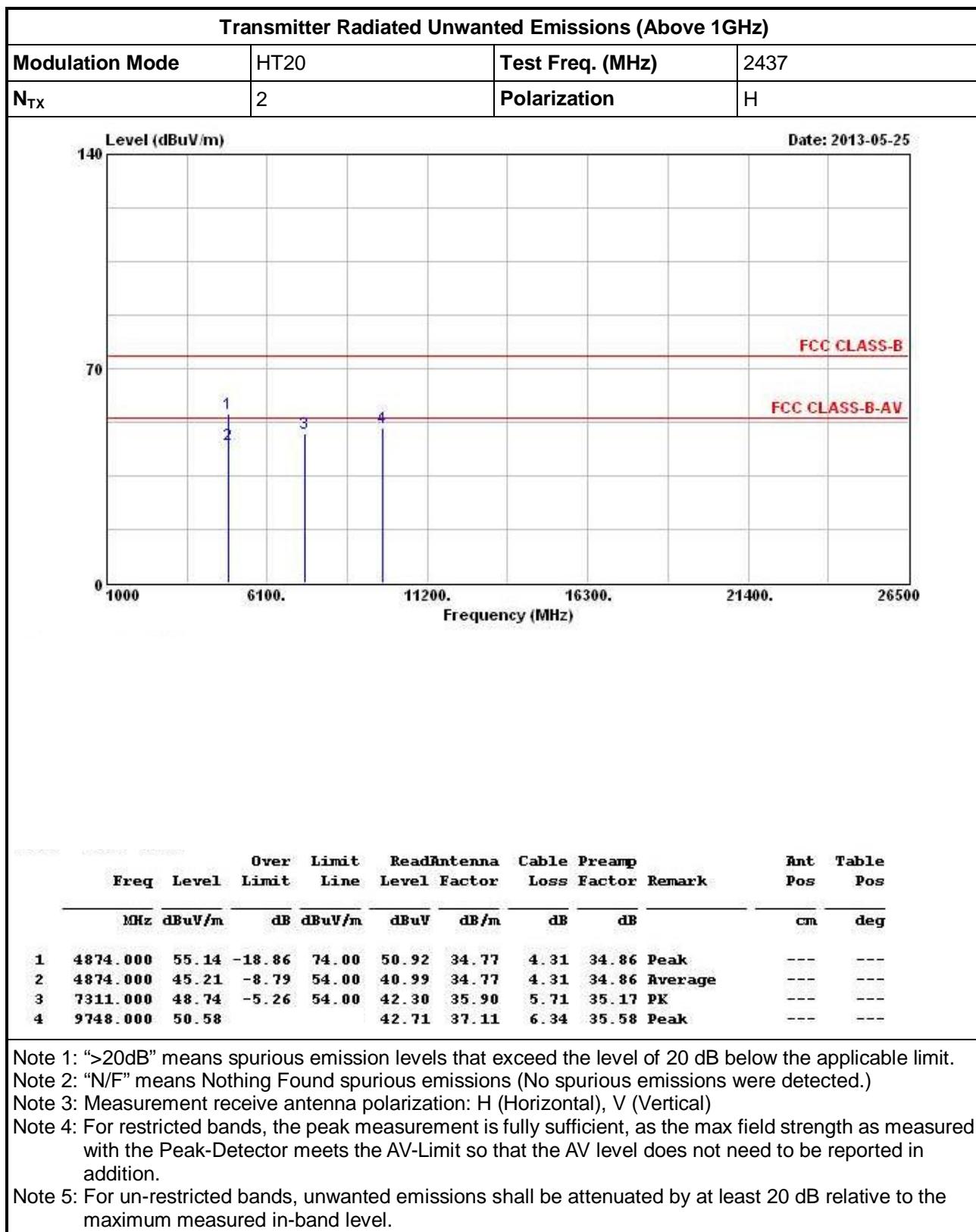
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

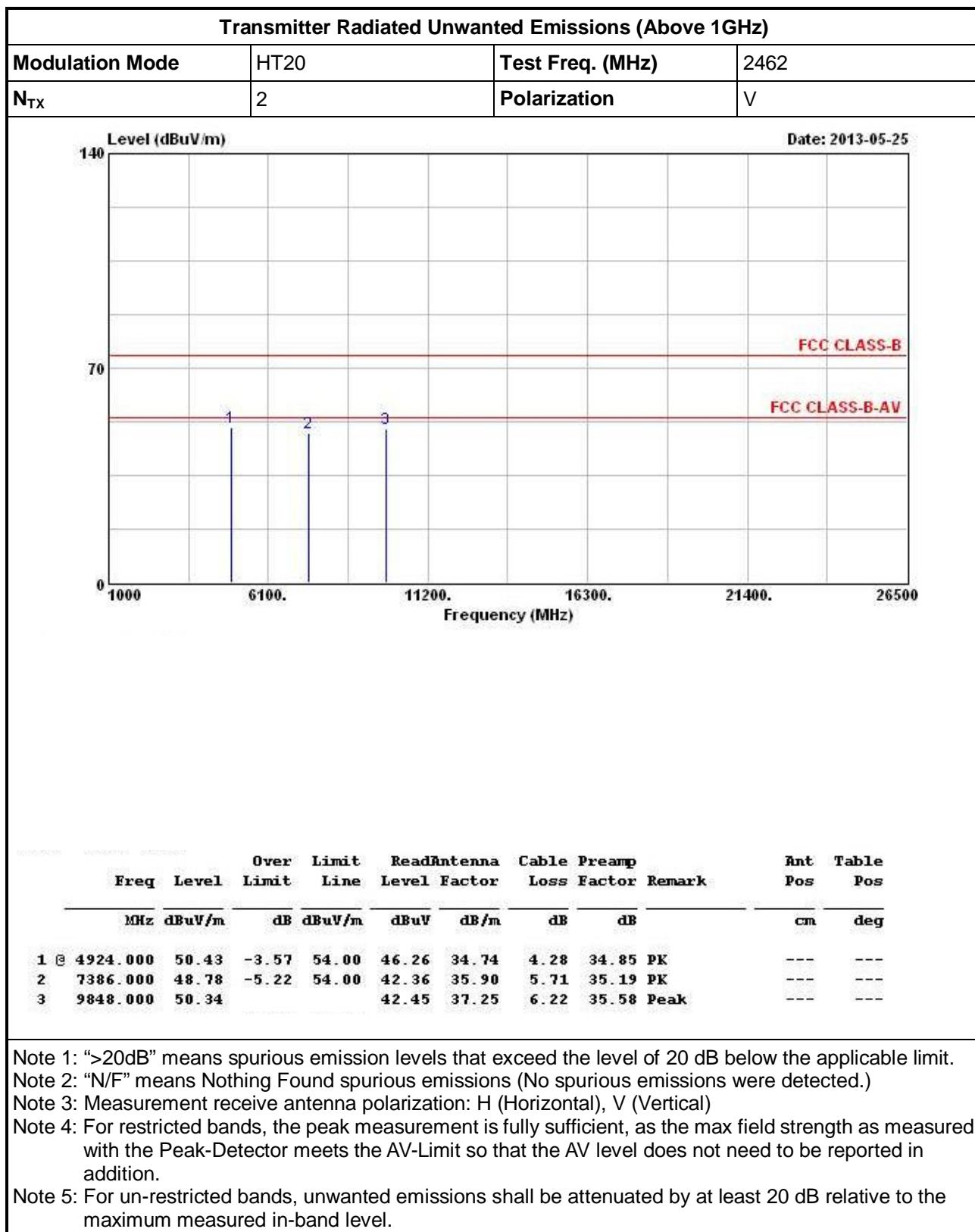
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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

Note 4: 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.

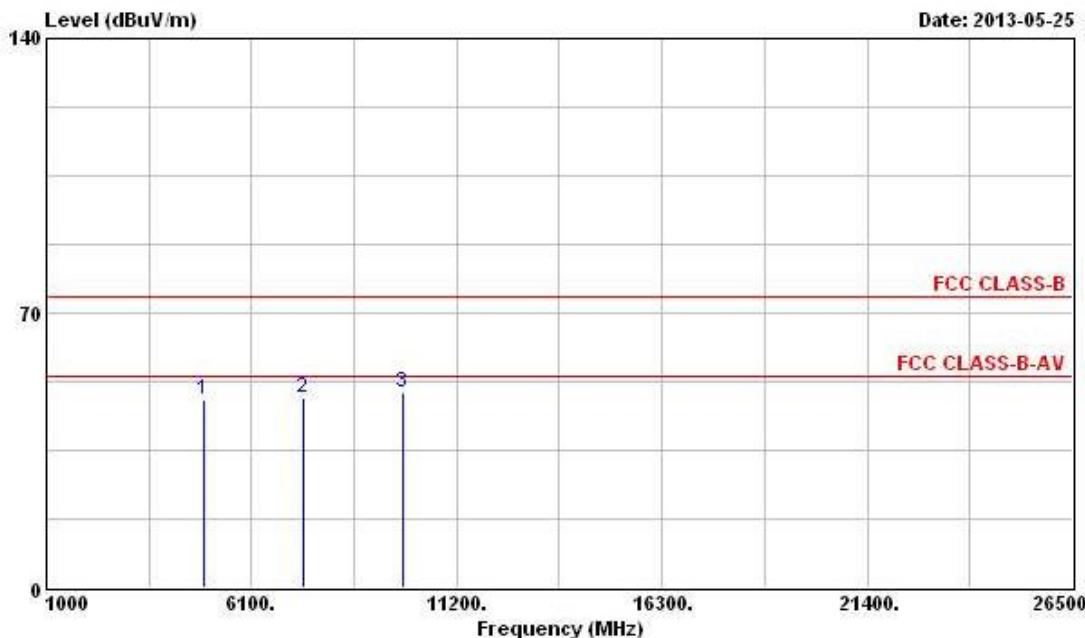






## Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2462
N <sub>TX</sub>	2	Polarization	H



Freq	Level	Over Limit	Limit	Read		Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
				Line	Level						
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4924.000	47.73	-6.27	54.00	43.56	34.74	4.28	34.85	PK	---	---
2	7386.000	48.23	-5.77	54.00	41.81	35.90	5.71	35.19	PK	---	---
3	9848.000	49.94			42.05	37.25	6.22	35.58	Peak	---	---

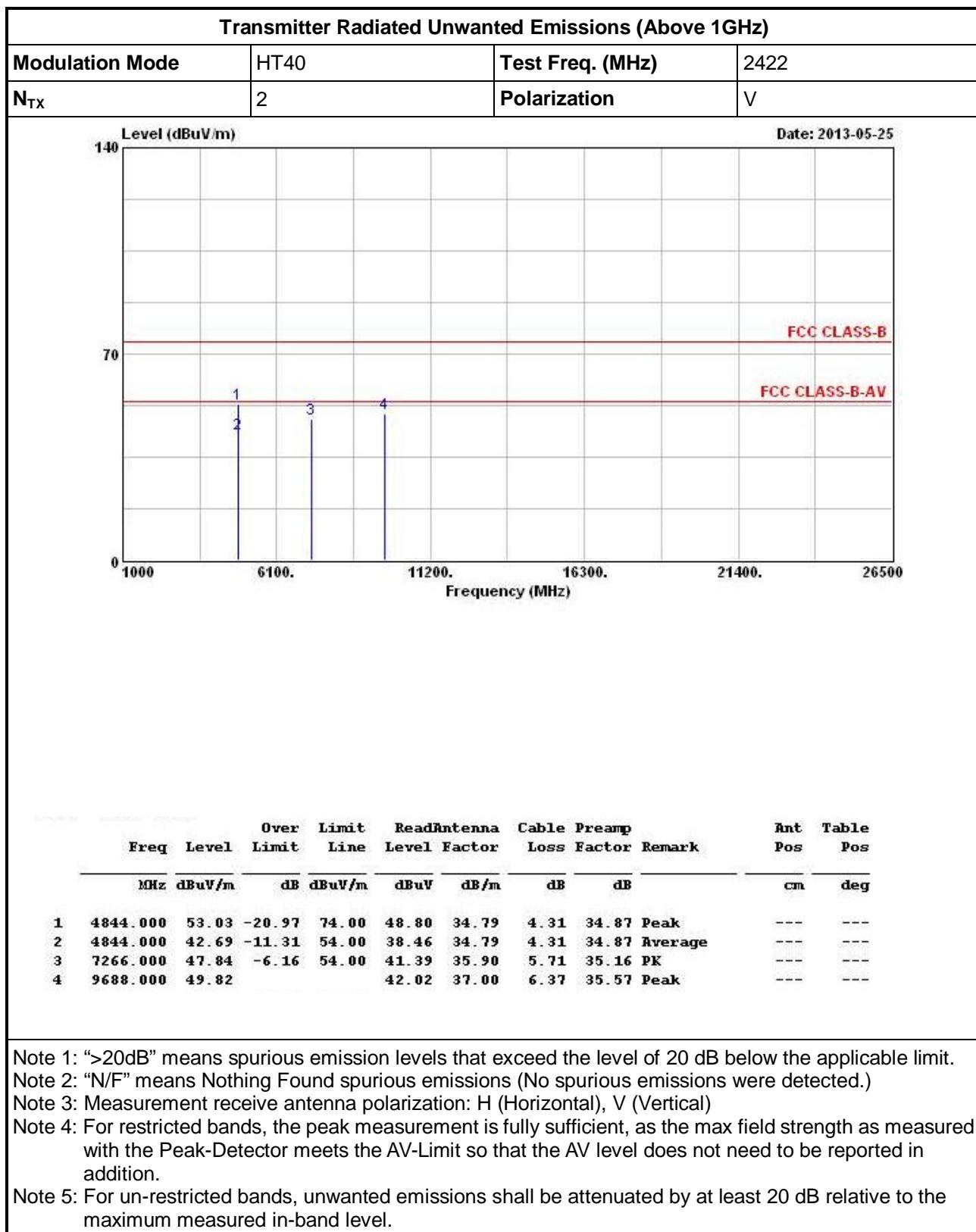
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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

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

Note 4: 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.

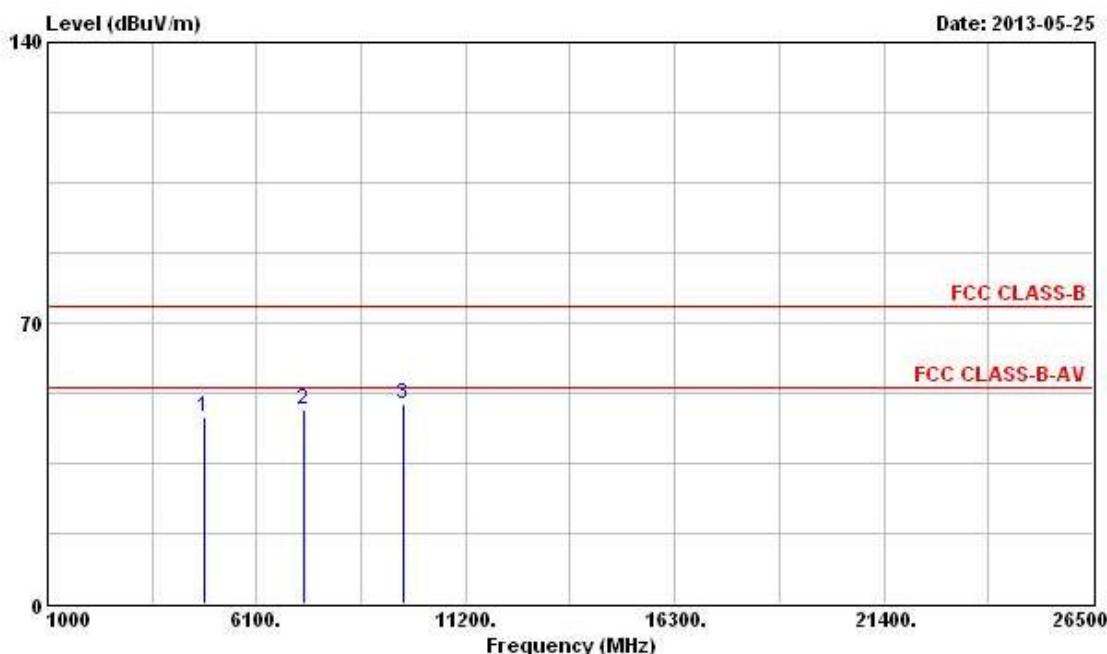
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.





## Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2422
N <sub>TX</sub>	2	Polarization	H



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table
		Line	Line	Level	Factor	Cable	Preamp		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 4844.000	46.57	-7.43	54.00	42.34	34.79	4.31	34.87 PK	---	---
2 7266.000	48.16	-5.84	54.00	41.71	35.90	5.71	35.16 PK	---	---
3 9688.000	49.82			42.02	37.00	6.37	35.57 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)

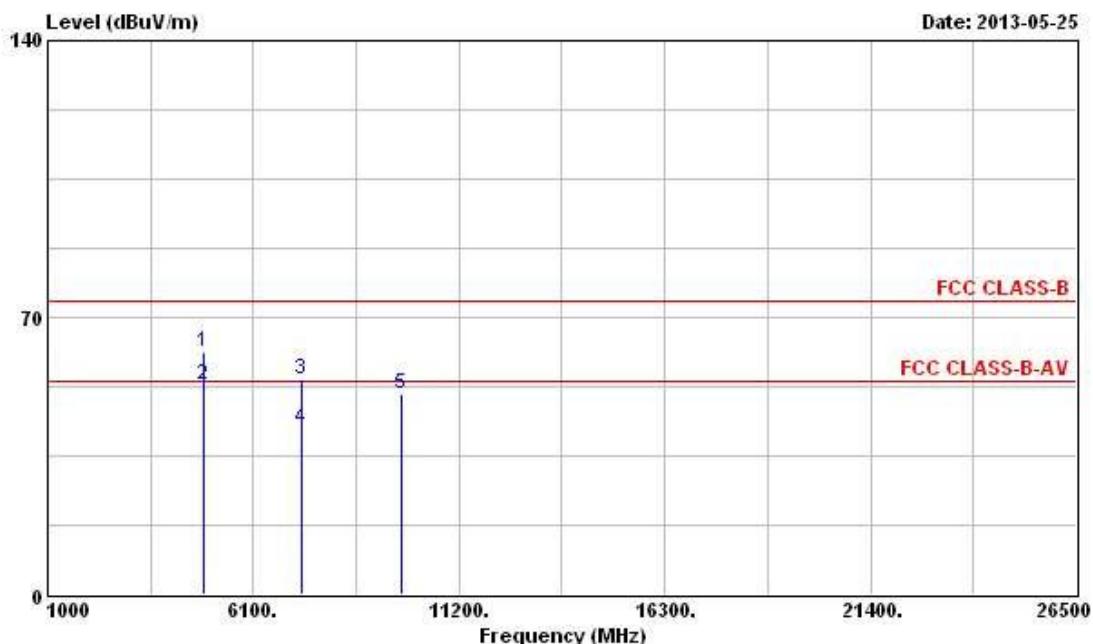
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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



## Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2437
N <sub>TX</sub>	2	Polarization	V



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 4874.000	61.18	-12.82	74.00	56.96	34.77	4.31	34.86 Peak	---	---
2 @ 4874.000	52.97	-1.03	54.00	48.75	34.77	4.31	34.86 Average	---	---
3 7311.000	54.30	-19.70	74.00	47.86	35.90	5.71	35.17 Peak	---	---
4 7311.000	41.89	-12.11	54.00	35.45	35.90	5.71	35.17 Average	---	---
5 9748.000	50.66			42.79	37.11	6.34	35.58 Peak	---	---

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

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

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

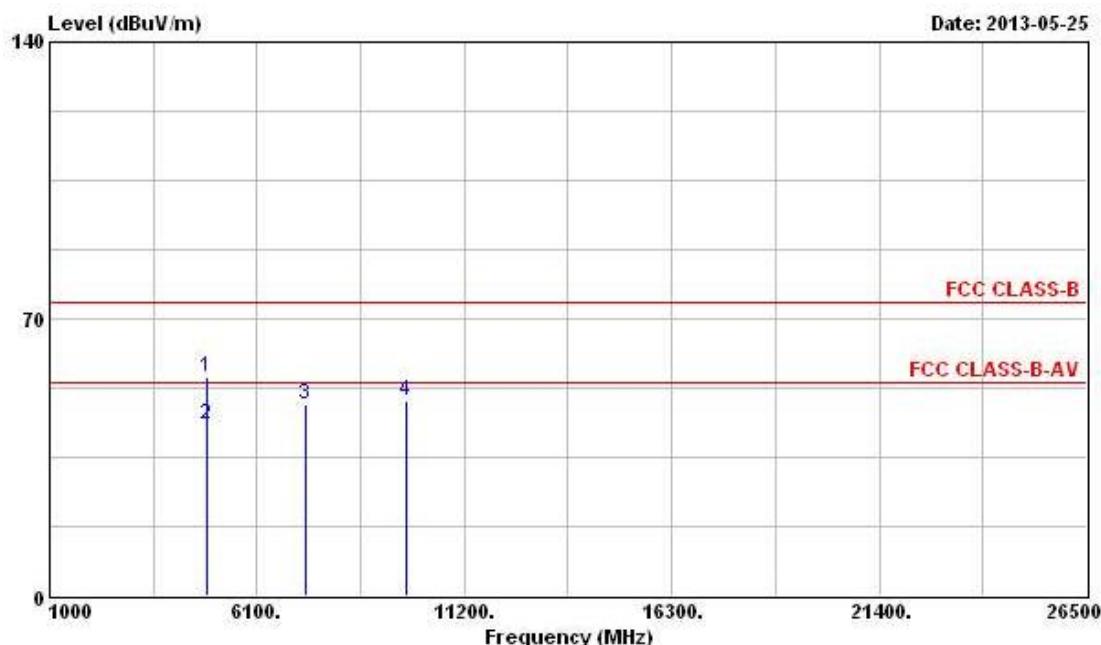
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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)	2437
N <sub>TX</sub>	2	Polarization	H



Freq	Level	Over Limit	Limit	Read		Ant	Table		
				Antenna	Line			Pos	Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 4874.000	55.22	-18.78	74.00	51.00	34.77	4.31	34.86	Peak	---
2 4874.000	43.37	-10.63	54.00	39.15	34.77	4.31	34.86	Average	---
3 7311.000	48.52	-5.48	54.00	42.08	35.90	5.71	35.17	PK	---
4 9748.000	49.50			41.63	37.11	6.34	35.58	Peak	---

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

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

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

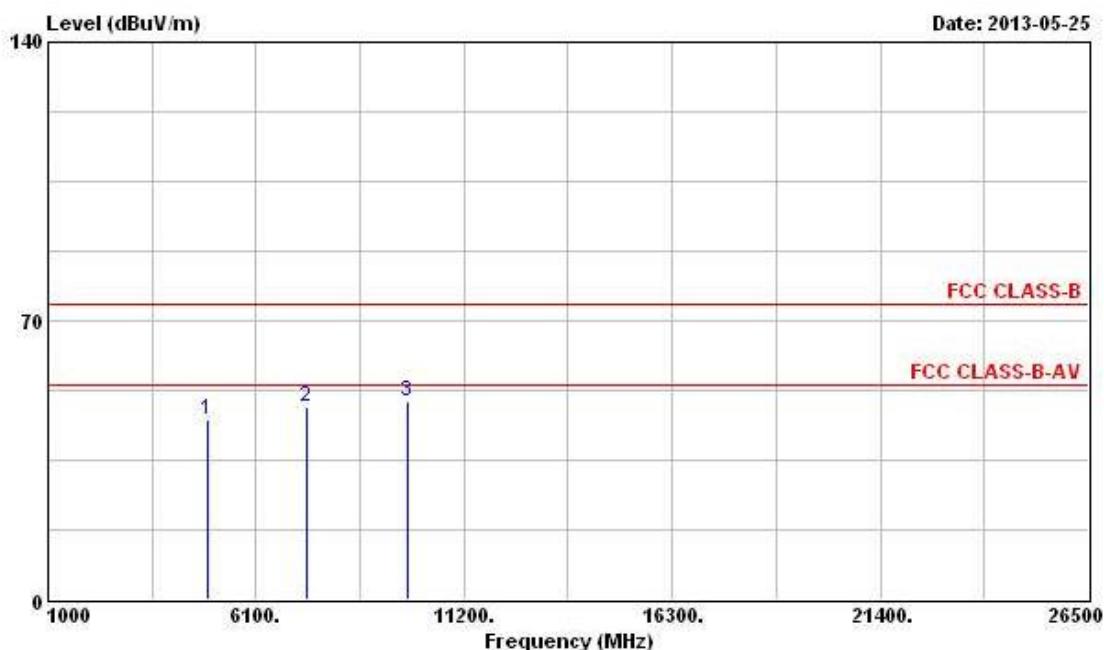
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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)	2452
N <sub>TX</sub>	2	Polarization	V



Freq	Level	Over Limit	Limit Line	Read		Antenna Factor	Cable Preamp		Ant Pos	Table Pos
				dB	dBuV/m		dBuV	dB/m		
1	4904.000	45.13	-8.87	54.00	40.94	34.75	4.29	34.85	PK	---
2	7356.000	48.41	-5.59	54.00	41.98	35.90	5.71	35.18	PK	---
3	9808.000	49.90			42.02	37.20	6.26	35.58	Peak	---

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

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

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

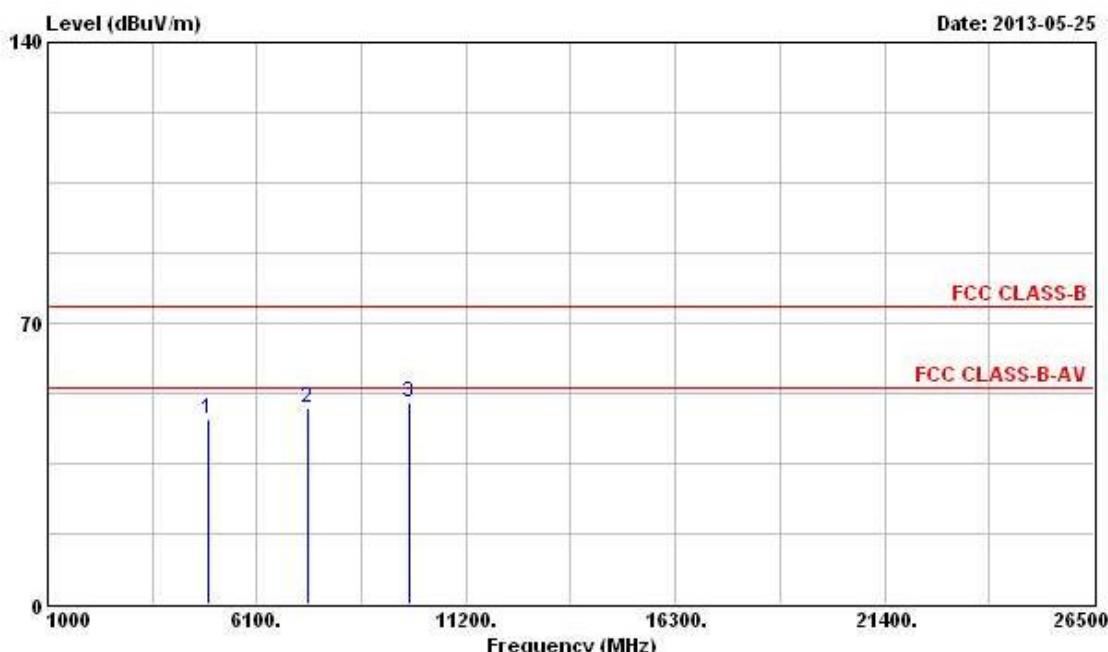
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

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)	2452
N <sub>TX</sub>	2	Polarization	H



Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table
		Line	Line	Level	Factor	Cable	Preamp		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 4904.000	46.20	-7.80	54.00	42.01	34.75	4.29	34.85 PK	---	---
2 7356.000	48.68	-5.32	54.00	42.25	35.90	5.71	35.18 PK	---	---
3 9808.000	50.03			42.15	37.20	6.26	35.58 Peak	---	---

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

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

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

Note 4: 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	9kHz ~ 2.75GHz	Mar. 26, 2013	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2013	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz ~ 30MHz	Apr. 18, 2013	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	7.61183201e+0 12	9kHz ~ 30MHz	Nov. 09, 2012	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	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	FSP40	100593	9kHz ~ 40GHz	Sep. 14, 2012	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 10, 2012	Radiation (03CH02-HY)
Amplifier	AGILENT	8447D	2944A11146	100kHz ~ 1.3GHz	Jul. 23, 2012	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz	May 11, 2013	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2012	Radiation (03CH02-HY)
Double Ridged Guide Horn Antenna	ETS · LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 19, 2012	Radiation (03CH02-HY)
Microwave Preamplifier	AGILENT	8449B	3008A02373	1GHz ~ 26.5GHz	Aug. 10, 2012	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 05, 2013	Radiation (03CH02-HY)
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	15GHz ~ 40GHz	Jan. 08, 2013	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Magnetic Loop Antenna	Teseq GmbH	HLA 6120	31244	0.01MHz ~ 30MHz	Dec. 02, 2012	Radiation (03CH02-HY)

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