



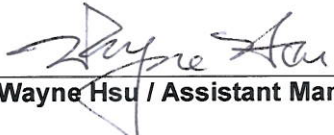
# FCC C2PC Test Report

Equipment : 802.11abgn 1x with BT  
Brand Name : Summit  
Model No. : SDC-SSD40NBT  
FCC ID : TWG-SDCSSD40NBT  
Standard : 47 CFR FCC Part 15.247  
Operating Band : 2400 MHz – 2483.5 MHz  
FCC Classification : DTS  
Applicant : Summit Data Communications, Inc.  
526 South Main Street Suite 805 Akron, OH 44311

The product sample received on Mar. 07, 2013 and completely tested on Mar. 18, 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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### Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.3	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.1749130MHz 39.47 (Margin 15.25dB) - AV 52.70 (Margin 12.02dB) - QP	FCC 15.207	Complied
3.2	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]: 15.99	Power [dBm]:30	Complied
3.3	15.247(c)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 2398.26MHz: 32.88dB Restricted Bands [dBuV/m at 3m]: 2489.74MHz 64.60 (Margin 9.40dB) - PK 46.17 (Margin 7.83dB) - AV	Non-Restricted Bands: > 30 dBc Restricted Bands: FCC 15.209	Complied
3.4	15.247(c)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 292.58MHz 44.87 (Margin 1.13dB) - QP	Non-Restricted Bands: > 30 dBc Restricted Bands: FCC 15.209	Complied

Remark: This is a C2PC Report only, and please see Section 1.1.1 for the detail description and information.





# 1 General Description

## 1.1 Information

### 1.1.1 Product Details

This report is prepared for FCC class II permissive change. The difference compared with original design is adding two sets of antenna. Please refer to item 1.1.3 for antenna information. In this report, conducted output power, conducted emission and radiated emission tests had been re-tested and only its data was recorded in the following sections.

### 1.1.2 RF General Information

RF General Information						
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N <sub>TX</sub> )	RF Output Power (dBm)	Co-location
2400-2483.5	b	2412-2462	1-11 [11]	1	15.99	N/A
2400-2483.5	g	2412-2462	1-11 [11]	1	14.89	N/A
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	14.38	N/A

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.  
 Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.  
 Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM 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.)

### 1.1.3 Antenna Information

Antenna Category	
<input type="checkbox"/>	Integral antenna (antenna permanently attached)
<input type="checkbox"/>	Temporary RF connector provided
<input type="checkbox"/>	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
<input checked="" type="checkbox"/>	External antenna (dedicated antennas)
<input checked="" type="checkbox"/>	Single power level with corresponding antenna(s).
<input type="checkbox"/>	Multiple power level and corresponding antenna(s).
<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.	Brand	Model	Ant. Type	Connector	Gain	Cable
1	External	Venture	M01-50908010-R	Omni-directional	MHF IPEX	2 dBi	Length 100mm
2	External	Venture	M01-50908011-R	Omni-directional	MHF IPEX	2 dBi	Length 180mm

Note: The antenna No.1 and No.2 had been pre-tested and found that the **antenna No. 2** was the worst case for final test.

### 1.1.4 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:

### 1.1.5 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"/> Host	<input type="checkbox"/> Battery

## 1.2 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	Serial No.
1	PDA	HP	HSTNH-L05C-WL	-
2	Cradle	HP	HSTNH-F02X	-

## 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 1 <sup>st</sup> 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
AC Conduction	CO04-HY	Bill Hsiao	22°C / 54%	Mar. 18, 2013
RF Conducted	TH01-HY	Ian Du	24°C / 65%	Mar. 07, 2013
Radiated Emission	03CH05-HY	Daniel Hsu	25°C / 65 %	Mar. 07 ~ Mar. 13, 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
RF output power, conducted		±0.63 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 <sub>TX</sub> )	Data Rate / MCS	Worst Data Rate / MCS	RF Output Power (dBm)
11b,1-11Mbps	1	1-11 Mbps	1 Mbps	15.99
11g,6-54Mbps	1	6-54 Mbps	6 Mbps	14.89
HT20,M0-7	1	MCS 0-7	MCS 0	14.38

Note 1: IEEE Std. 802.11n modulation consists of HT20 (HT: High Throughput). Then EUT support HT20 only.

Note 2: Modulation modes consist below configuration:  
 11b: IEEE 802.11b, 11g: IEEE 802.11g, HT20: IEEE 802.11n

Note 3: RF output power specifies that Maximum Peak Conducted Output Power.

### 2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration	
IEEE Std. 802.11	Test Channel Frequencies (MHz)
b, g, n (HT20)	2412-(F1), 2437-(F2), 2462-(F3)




### 2.3 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (2400-2483.5MHz band)				
Test Software Version	SRU V3.03.09.00			
Modulation Mode	N <sub>TX</sub>	Test Frequency (MHz)		
		2412	2437	2462
11b,1-11Mbps	1	default	default	default
11g,6-54Mbps	1	default	default	default
HT20,M0-7	1	default	default	default

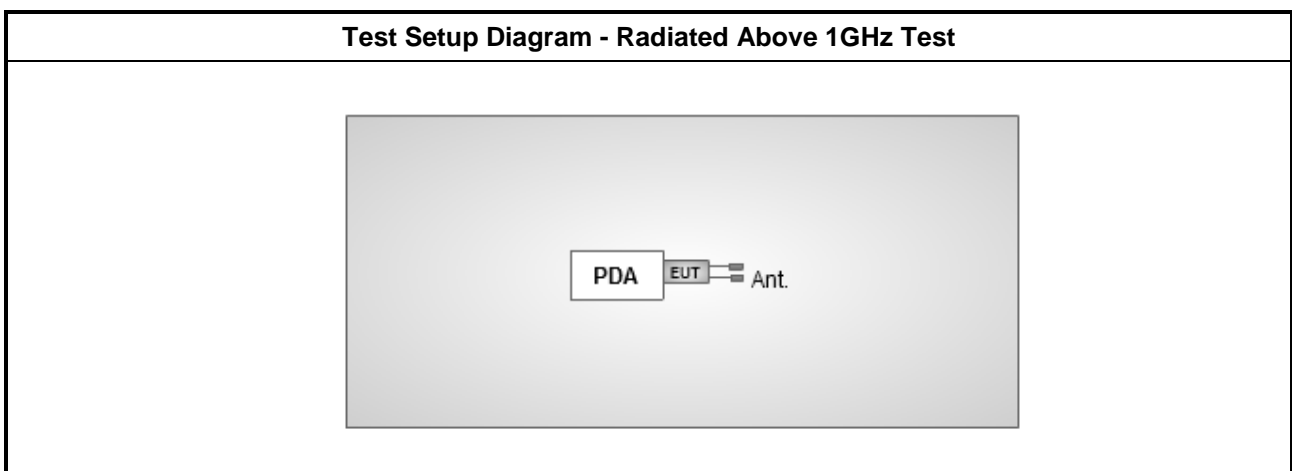
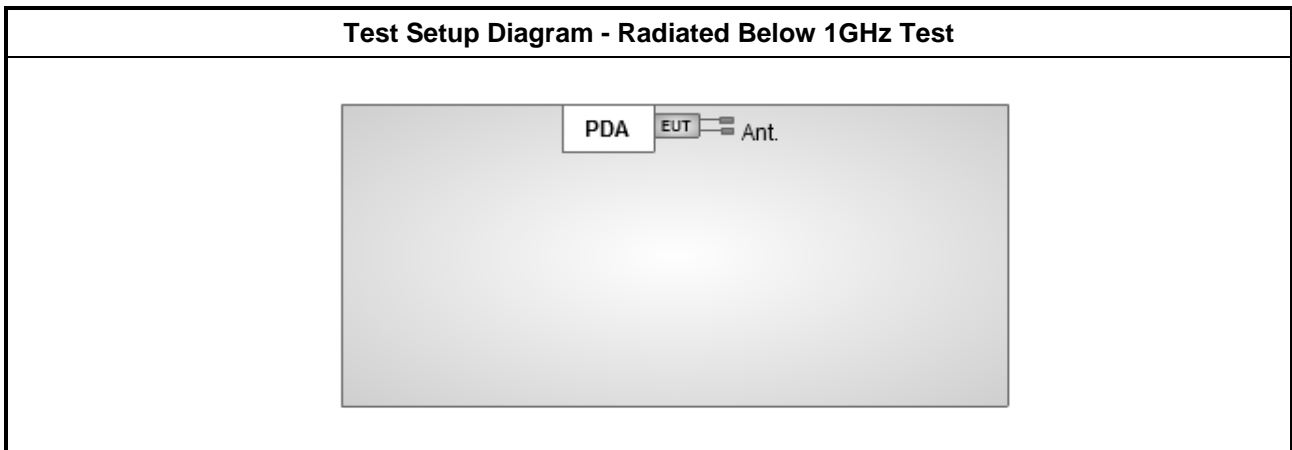
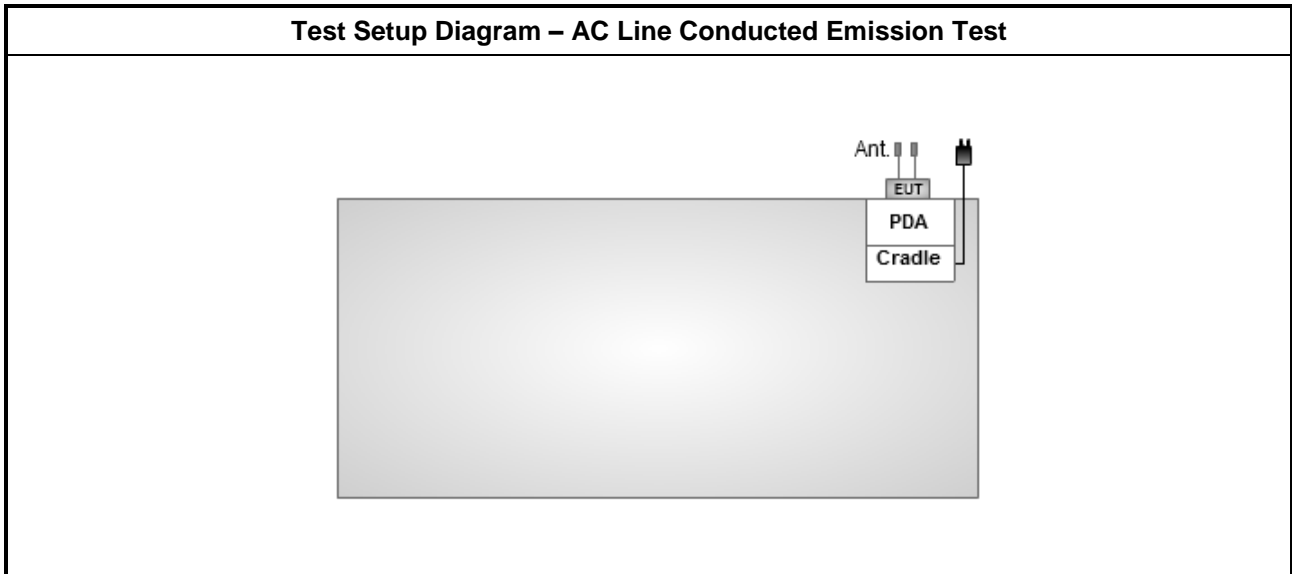
## 2.4 The Worst Case Measurement Configuration

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

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	RF Output Power
<b>Test Condition</b>	Conducted measurement at transmit chains
<b>Modulation Mode</b>	11b, 11g, HT20

The Worst Case Mode for Following Conformance Tests			
<b>Tests Item</b>	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions		
<b>Test Condition</b>	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
<b>User Position</b>	<input type="checkbox"/> EUT will be placed in fixed position.		
	<input 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 a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes. The worst planes is X.		
<b>Operating Mode &lt; 1GHz</b>	<input checked="" type="checkbox"/> 1. Radio link (WLAN)		
<b>Modulation Mode</b>	11b, 11g, HT20		
<b>Orthogonal Planes of EUT</b>	<b>X Plane</b>	<b>Y Plane</b>	<b>Z Plane</b>
			

## 2.5 Test Setup Diagram



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: \* Decreases with the logarithm of the frequency.

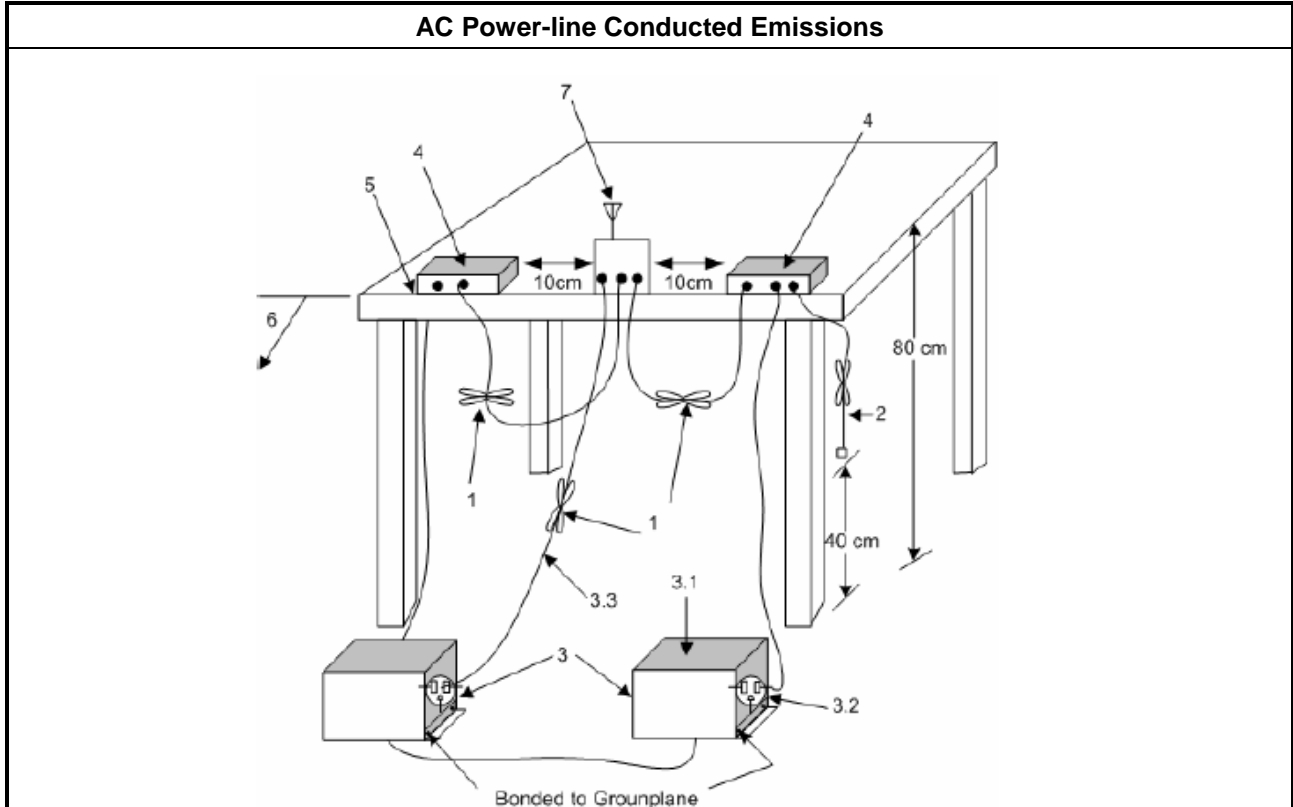
##### 3.1.2 Measuring Instruments

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

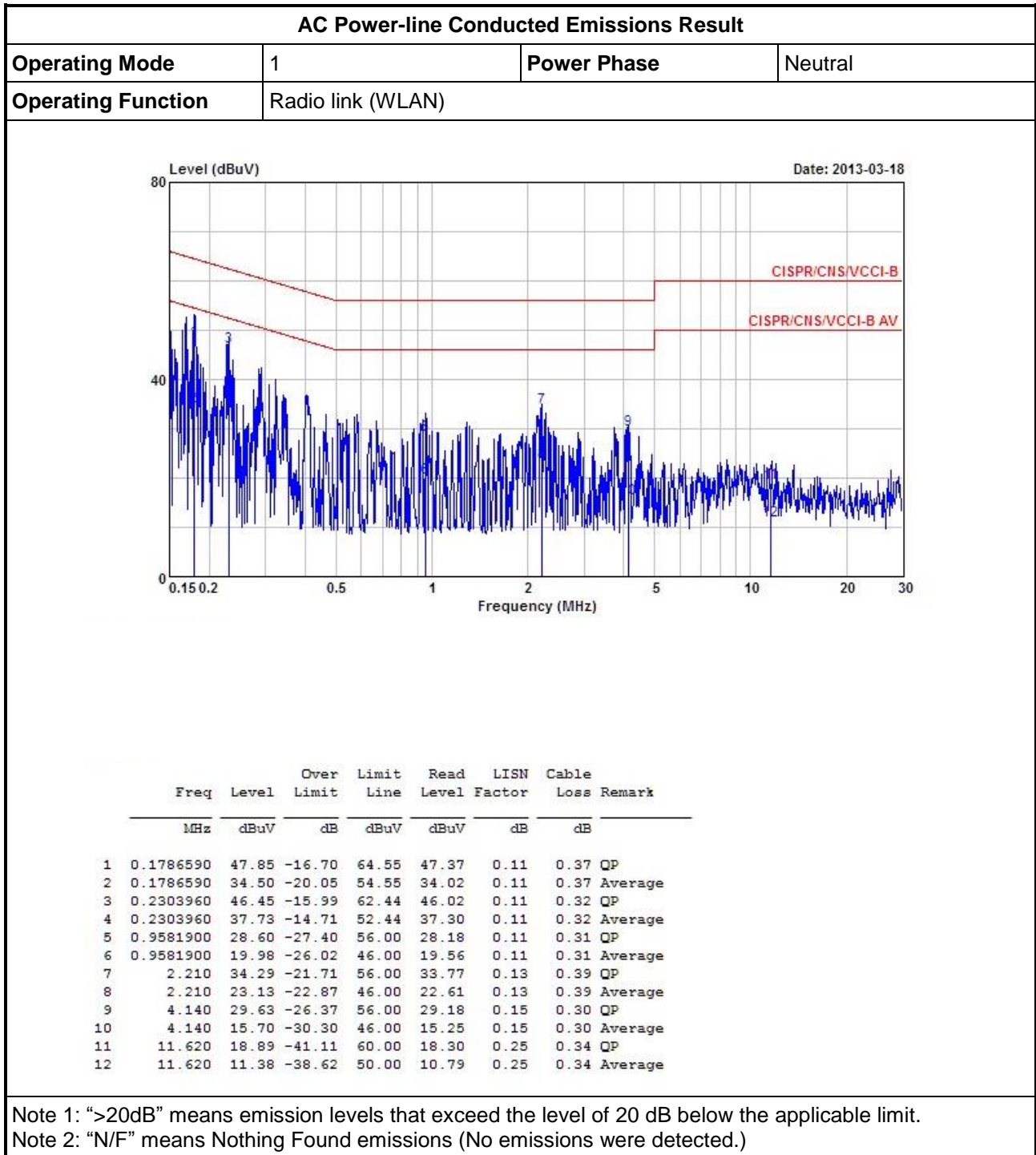
##### 3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

##### 3.1.4 Test Setup



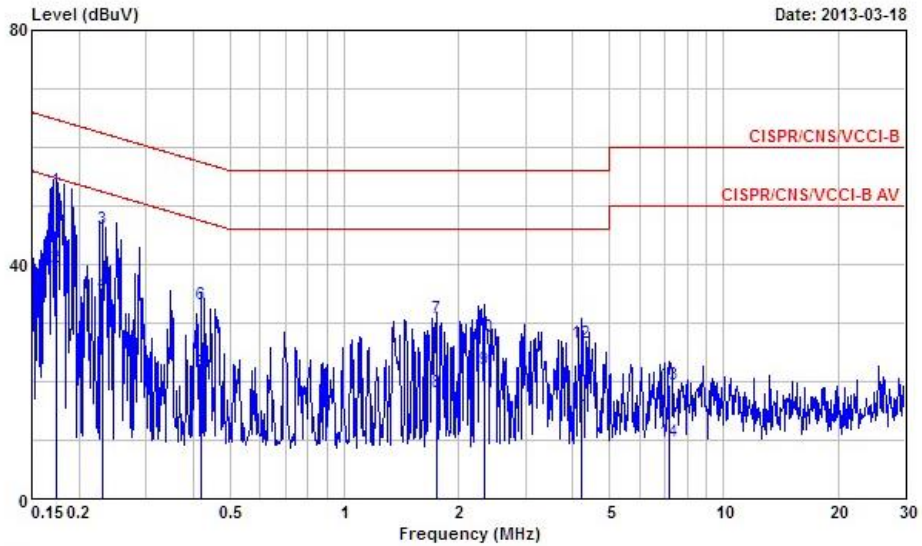
### 3.1.5 Test Result of AC Power-line Conducted Emissions





AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Radio link (WLAN)		



Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1749130	52.70	-12.02	64.72	52.09	0.23	0.38 QP
2	0.1749130	39.47	-15.25	54.72	38.86	0.23	0.38 Average
3	0.2316200	46.07	-16.32	62.39	45.52	0.23	0.32 QP
4	0.2316200	35.00	-17.39	52.39	34.45	0.23	0.32 Average
5	0.4192670	21.47	-25.99	47.46	20.86	0.22	0.39 Average
6	0.4192670	33.14	-24.32	57.46	32.53	0.22	0.39 QP
7	1.750	30.71	-25.29	56.00	30.08	0.25	0.38 QP
8	1.750	18.25	-27.75	46.00	17.62	0.25	0.38 Average
9	2.350	22.11	-23.89	46.00	21.47	0.26	0.38 Average
10	2.350	27.52	-28.48	56.00	26.88	0.26	0.38 QP
11	4.200	14.25	-31.75	46.00	13.65	0.30	0.30 Average
12	4.200	26.55	-29.45	56.00	25.95	0.30	0.30 QP
13	7.180	19.39	-40.61	60.00	18.72	0.37	0.30 QP
14	7.180	9.65	-40.35	50.00	8.98	0.37	0.30 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 RF Output Power

#### 3.2.1 RF Output Power Limit

RF Output Power Limit	
<b>Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit</b>	
<input checked="" type="checkbox"/> 2400-2483.5 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 $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
<input type="checkbox"/>	Smart antenna system (SAS):
<input type="checkbox"/>	Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
<input type="checkbox"/>	Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
<input type="checkbox"/>	Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
<b>e.i.r.p. Power Limit:</b>	
<input checked="" type="checkbox"/> 2400-2483.5 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): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
<input type="checkbox"/>	Smart antenna system (SAS)
<input type="checkbox"/>	Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
<input type="checkbox"/>	Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
<input type="checkbox"/>	Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
$P_{Out}$ = 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.	

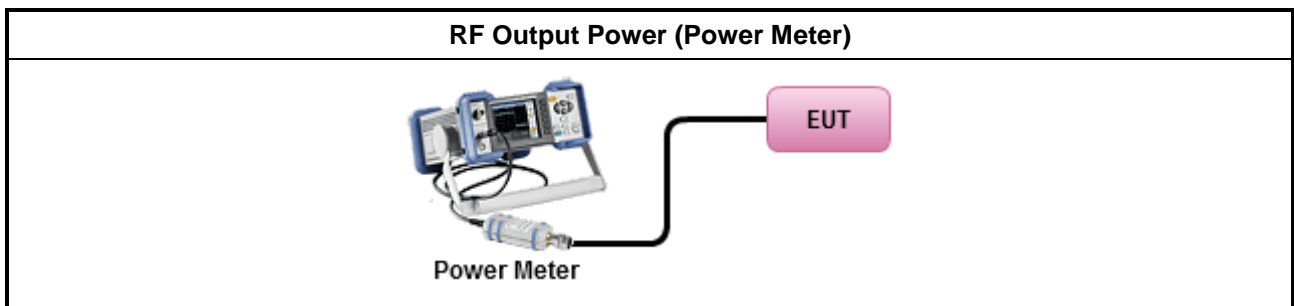
#### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

Test Method	
<input type="checkbox"/>	Maximum Peak Conducted Output Power
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.1.1 Option 1 (RBW ≥ EBW method).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.1.2 Option 2 (integrated band power method).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.1.3 Option 2 (peak power meter for VBW ≥ DTS BW)
<input checked="" type="checkbox"/>	Maximum Conducted (Average) Output Power
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.2.1 Option 1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.2.2 Option 2 (slow sweep speed).
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 8.2.3 Option 3 (average power meter).
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" 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 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 type="checkbox"/>	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

### 3.2.4 Test Setup





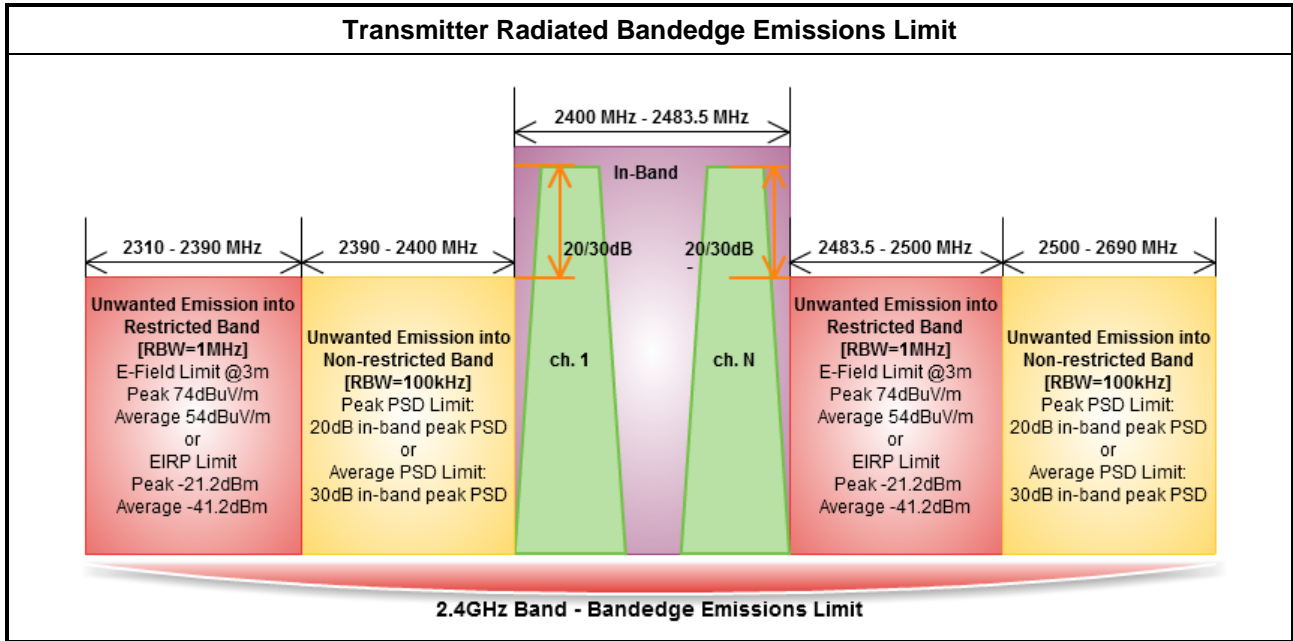


3.2.5 Test Result of Maximum Peak Conducted Output Power

Maximum Peak Conducted Output Power Result						
Condition		RF Output Power (dBm)				
Modulation Mode	Freq. (MHz)	RF Output Power	Power Limit	Antenna Gain (dBi)	EIRP Power	EIRP Limit
11b	2412	15.81	30	2	17.81	36
11b	2437	15.99	30	2	17.99	36
11b	2462	10.29	30	2	12.29	36
11g	2412	14.89	30	2	16.89	36
11g	2437	14.02	30	2	16.02	36
11g	2462	10.65	30	2	12.65	36
HT20	2412	14.38	30	2	16.38	36
HT20	2437	11.75	30	2	13.75	36
HT20	2462	10.11	30	2	12.11	36
<b>Result</b>		<b>Complied</b>				

### 3.3 Transmitter Radiated Bandedge Emissions

#### 3.3.1 Transmitter Radiated Bandedge Emissions Limit



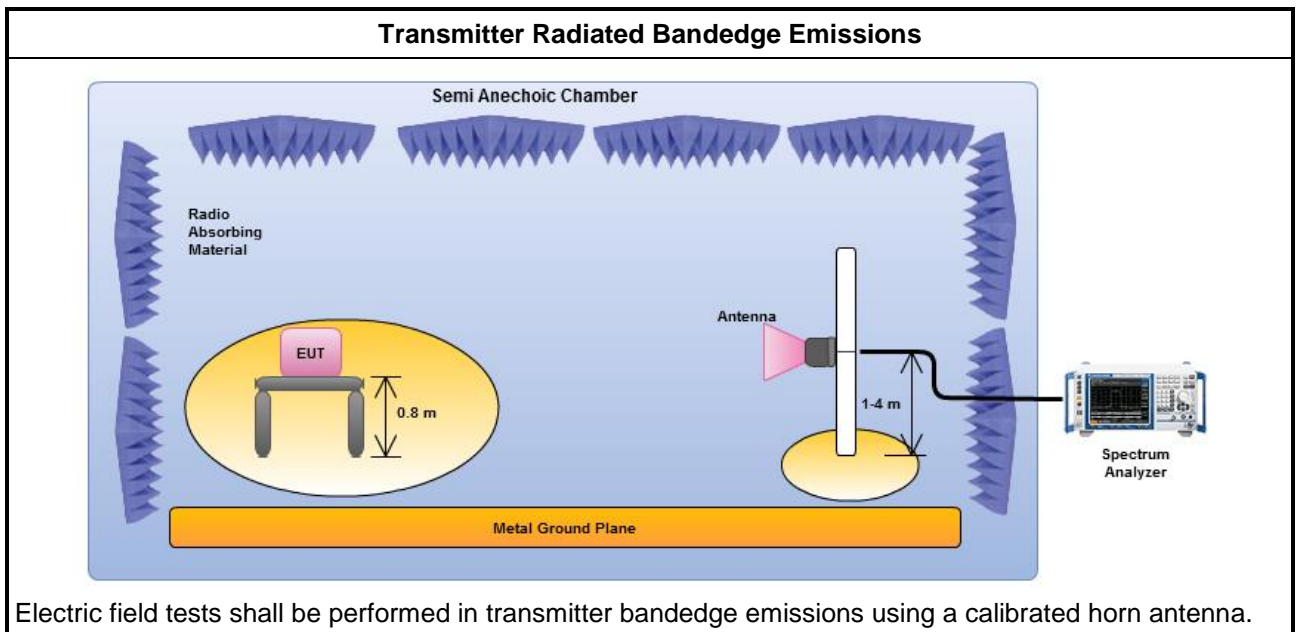
#### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	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 10.1 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 1 (spectral trace averaging)
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 2 (slow sweep speed).
<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 10.2.3.2 and 8.1.1 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 10.2.5.2 for narrower resolution bandwidth using the band power and summing the spectral levels (i.e., 100 kHz or 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 10.2.1.
<input checked="" type="checkbox"/>	For conducted measurement, refer as FCC KDB 558074, clause 10.2.2.

### 3.3.4 Test Setup





3.3.5 Test Result of Transmitter Radiated Bandedge Emissions

Transmitter Radiated Bandedge Emissions Result								
Modulation	11b			N <sub>TX</sub>	1			
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
2390-2400	2412	100.22	2397.47	54.08	46.14	30	PK	V
2500-2690	2462	96.45	2544.00	39.59	56.86	30	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	11b			N <sub>TX</sub>	1			
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	2412	102.33	2389.86	3	49.75	74	PK	V
2310-2390	2412	99.73	2389.97	3	39.12	54	AV	V
2483.5-2500	2462	98.30	2485.00	3	47.94	74	PK	V
2483.5-2500	2462	95.76	2496.50	3	35.40	54	AV	V
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								



Transmitter Radiated Bandedge Emissions Result								
Modulation	11g			N <sub>TX</sub>	1			
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
2390-2400	2412	97.36	2398.26	64.48	32.88	30	PK	V
2500-2690	2462	94.76	2543.70	40.90	53.86	30	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	11g			N <sub>TX</sub>	1			
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	2412	104.44	2389.74	3	63.97	74	PK	V
2310-2390	2412	93.60	2389.97	3	45.53	54	AV	V
2483.5-2500	2462	102.27	2484.30	3	57.36	74	PK	V
2483.5-2500	2462	91.43	2484.20	3	40.96	54	AV	V
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								



Transmitter Radiated Bandedge Emissions Result								
Modulation	HT20			N <sub>TX</sub>	1			
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
2390-2400	2412	97.38	2398.03	64.09	33.29	30	PK	V
2500-2690	2462	94.16	2543.30	40.08	54.08	30	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 <sub>TX</sub>	1			
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	2412	103.57	2389.74	3	64.60	74	PK	V
2310-2390	2412	93.13	2389.97	3	46.17	54	AV	V
2483.5-2500	2462	100.42	2484.50	3	58.46	74	PK	V
2483.5-2500	2462	90.30	2483.50	3	41.36	54	AV	V
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

### 3.4 Transmitter Radiated Unwanted Emissions

#### 3.4.1 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.

#### 3.4.2 Measuring Instruments

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

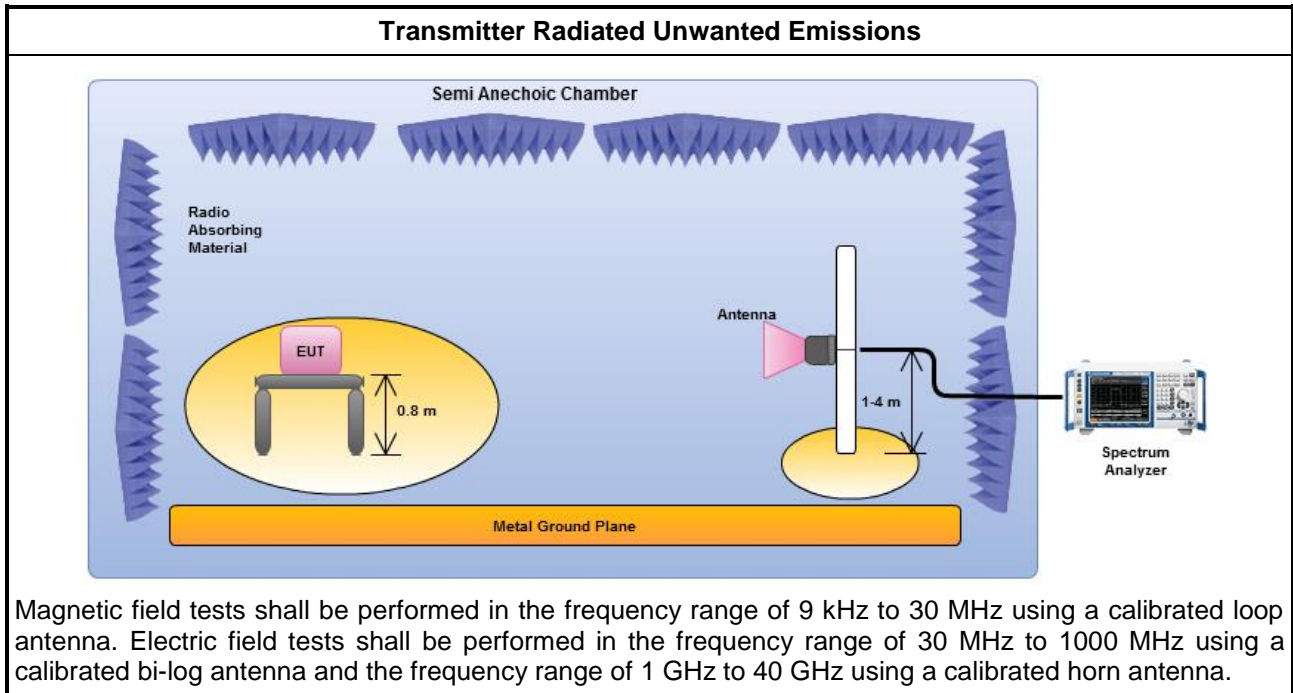


3.4.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	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, clause 10.1 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 1 (spectral trace averaging)
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 2 (slow sweep speed).
<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 10.2.3.2 and 8.1.1 measurement procedure peak limit.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 10.2.3.1 measurement procedure Quasi-Peak limit.
<input checked="" type="checkbox"/>	For radiated measurement, refer as FCC KDB 558074, clause 10.2.1.
<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.
<input type="checkbox"/>	For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 10.2.2.
<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



### 3.4.4 Test Setup



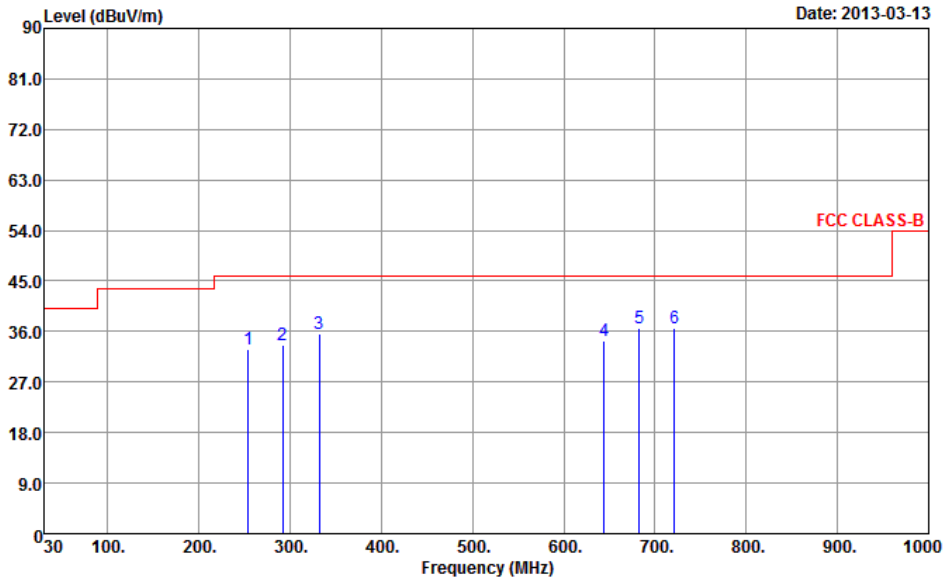
### 3.4.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.



3.4.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	1	Polarization	V
Operating Function	Radio link (WLAN)		



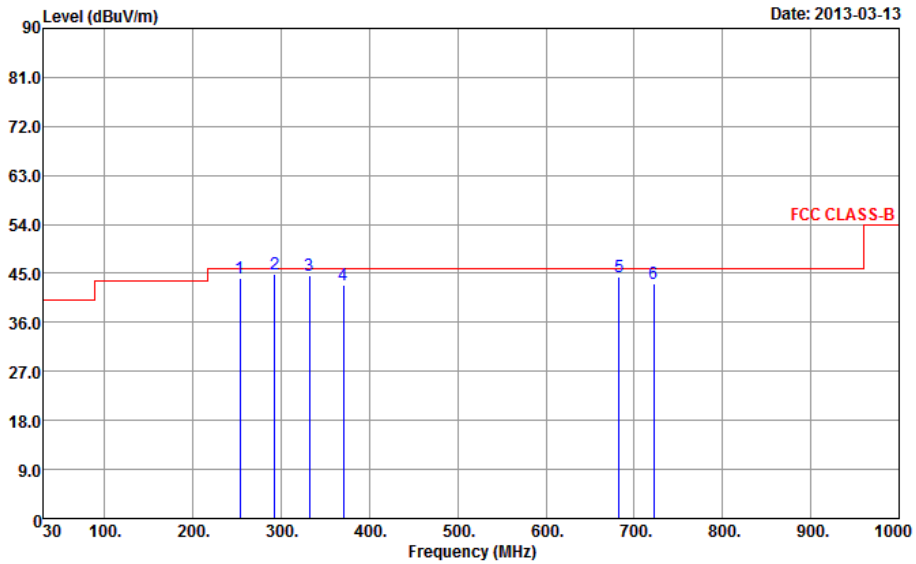
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	253.96	32.83	-13.17	46.00	48.93	13.11	1.73	30.94	---	---	Peak
2	291.68	33.58	-12.42	46.00	49.52	13.32	1.84	31.10	---	---	Peak
3	331.50	35.68	-10.32	46.00	50.94	13.85	1.93	31.04	---	---	Peak
4	644.27	34.35	-11.65	46.00	41.58	20.47	2.44	30.14	---	---	Peak
5	682.49	36.57	-9.43	46.00	43.74	20.45	2.56	30.18	---	---	Peak
6	721.38	36.55	-9.45	46.00	42.44	21.66	2.65	30.20	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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)



Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Polarization	H
Operating Function	Radio link (WLAN)		



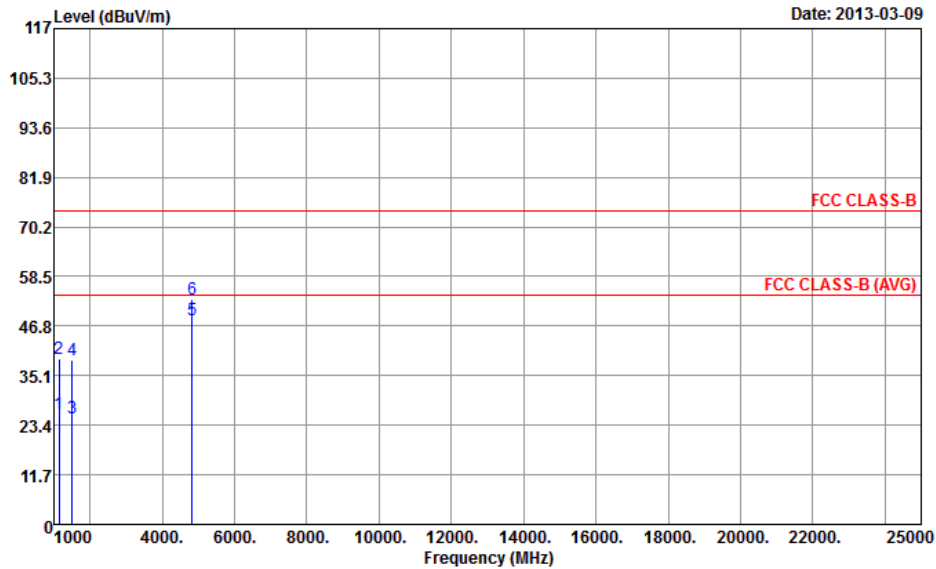
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	253.24	44.14	-1.86	46.00	60.34	13.02	1.71	30.93	---	QP
2	292.58	44.87	-1.13	46.00	60.77	13.33	1.85	31.08	---	QP
3	331.59	44.62	-1.38	46.00	59.88	13.85	1.93	31.04	---	QP
4	370.52	42.86	-3.14	46.00	56.92	14.92	2.05	31.03	---	Peak
5	682.83	44.29	-1.71	46.00	51.44	20.46	2.57	30.18	---	QP
6	721.68	43.18	-2.82	46.00	49.06	21.67	2.65	30.20	---	QP

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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)



3.4.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	Test Freq. (FX)	F1
N <sub>TX</sub>	1	Polarization	V



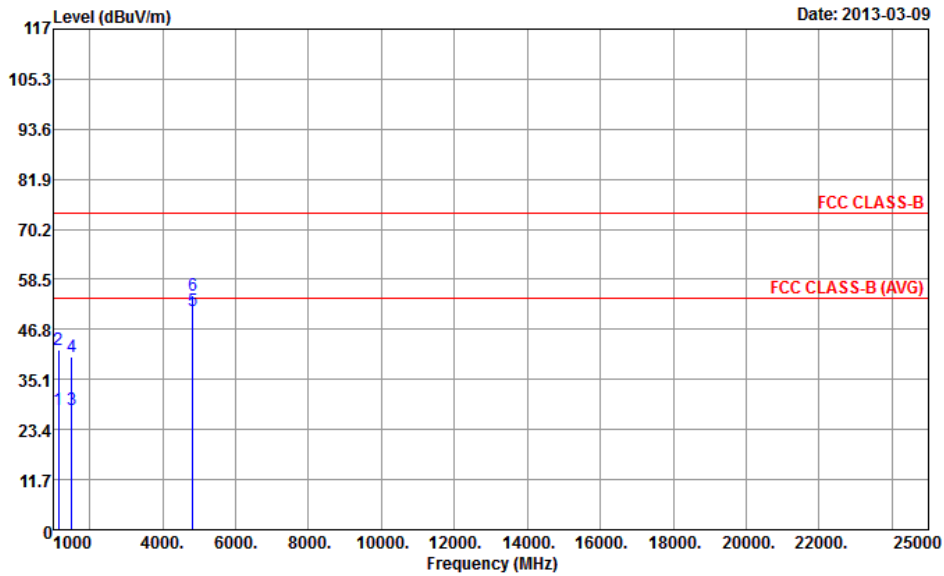
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	26.15	-27.85	54.00	32.92	27.93	3.08	37.78	---	---	Average
2	1150.00	39.26	-34.74	74.00	46.03	27.93	3.08	37.78	---	---	Peak
3	1500.00	25.14	-28.86	54.00	30.39	28.00	3.55	36.80	---	---	Average
4	1500.00	38.91	-35.09	74.00	44.16	28.00	3.55	36.80	---	---	Peak
5	4824.00	48.24	-5.76	54.00	42.43	34.26	6.51	34.96	---	---	Average
6	4824.00	53.05	-20.95	74.00	47.24	34.26	6.51	34.96	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F1
N <sub>TX</sub>	1	Polarization	H



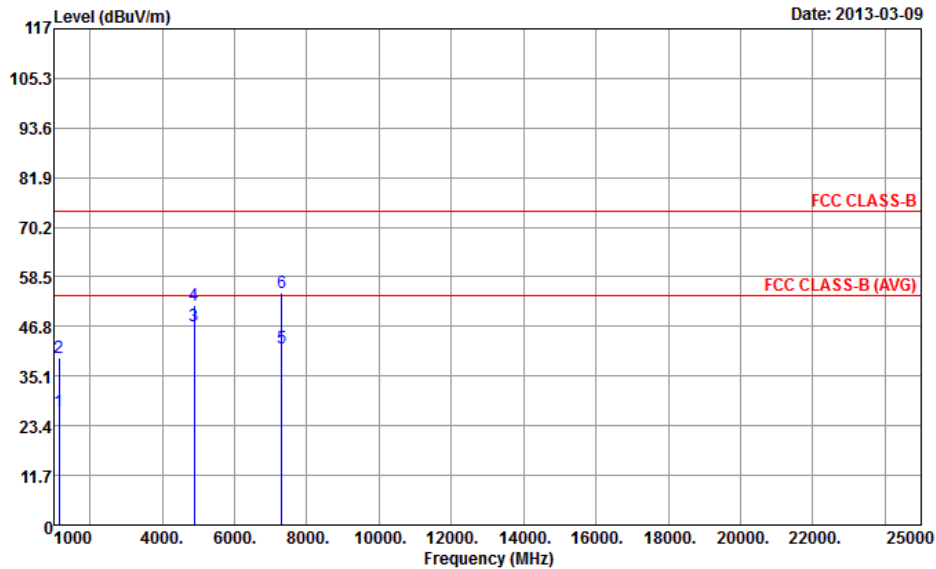
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	28.06	-25.94	54.00	34.83	27.93	3.08	37.78	---	---	Average
2	1150.00	42.09	-31.91	74.00	48.86	27.93	3.08	37.78	---	---	Peak
3	1500.00	27.93	-26.07	54.00	33.18	28.00	3.55	36.80	---	---	Average
4	1500.00	40.28	-33.72	74.00	45.53	28.00	3.55	36.80	---	---	Peak
5	4824.00	51.23	-2.77	54.00	45.42	34.26	6.51	34.96	---	---	Average
6	4824.00	54.81	-19.19	74.00	49.00	34.26	6.51	34.96	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F2
N <sub>TX</sub>	1	Polarization	V



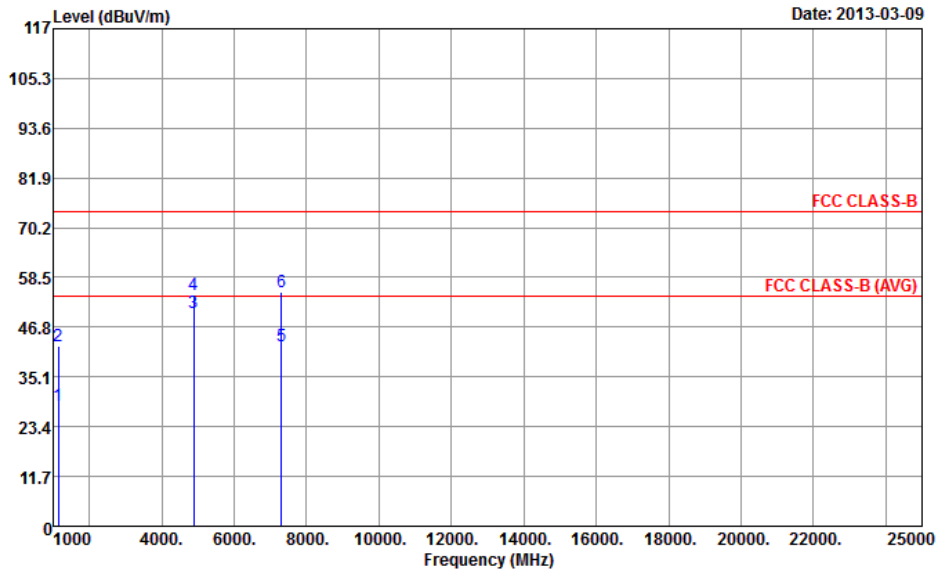
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	26.86	-27.14	54.00	33.63	27.93	3.08	37.78	---	---	Average
2	1150.00	39.48	-34.52	74.00	46.25	27.93	3.08	37.78	---	---	Peak
3	4874.00	46.80	-7.20	54.00	40.97	34.27	6.53	34.97	---	---	Average
4	4874.00	51.98	-22.02	74.00	46.15	34.27	6.53	34.97	---	---	Peak
5	7311.00	41.81	-12.19	54.00	32.39	36.04	8.40	35.02	---	---	Average
6	7311.00	54.76	-19.24	74.00	45.34	36.04	8.40	35.02	---	---	Peak

- Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F2
N <sub>TX</sub>	1	Polarization	H



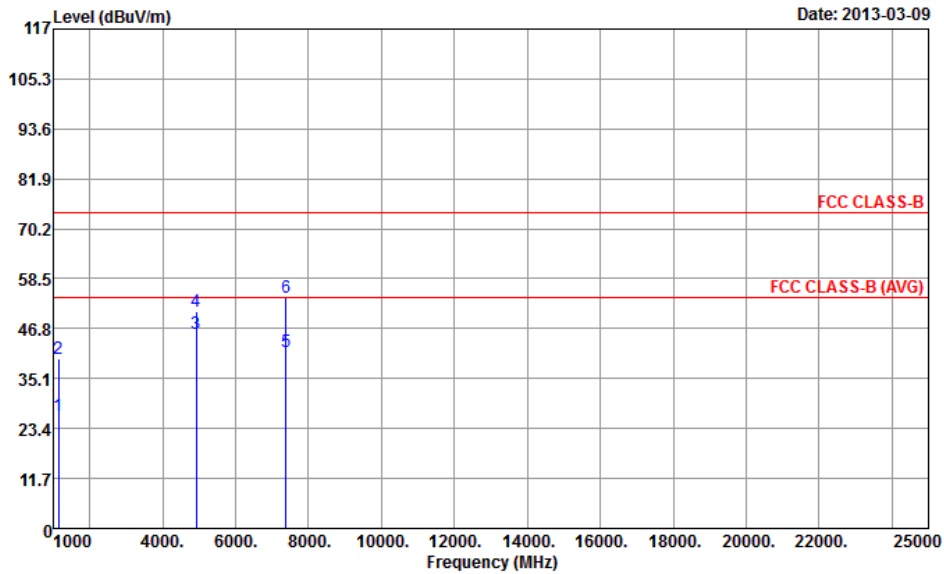
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	28.45	-25.55	54.00	35.22	27.93	3.08	37.78	---	---	Average
2	1150.00	42.36	-31.64	74.00	49.13	27.93	3.08	37.78	---	---	Peak
3	4874.00	50.28	-3.72	54.00	44.45	34.27	6.53	34.97	---	---	Average
4	4874.00	54.35	-19.65	74.00	48.52	34.27	6.53	34.97	---	---	Peak
5	7311.00	42.25	-11.75	54.00	32.83	36.04	8.40	35.02	---	---	Average
6	7311.00	55.17	-18.83	74.00	45.75	36.04	8.40	35.02	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F3
N <sub>TX</sub>	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	26.45	-27.55	54.00	33.22	27.93	3.08	37.78	---	---	Average
2	1150.00	39.62	-34.38	74.00	46.39	27.93	3.08	37.78	---	---	Peak
3	4924.00	45.61	-8.39	54.00	39.76	34.28	6.55	34.98	---	---	Average
4	4924.00	50.82	-23.18	74.00	44.97	34.28	6.55	34.98	---	---	Peak
5	7386.00	41.24	-12.76	54.00	31.71	36.02	8.56	35.05	---	---	Average
6	7386.00	54.03	-19.97	74.00	44.50	36.02	8.56	35.05	---	---	Peak

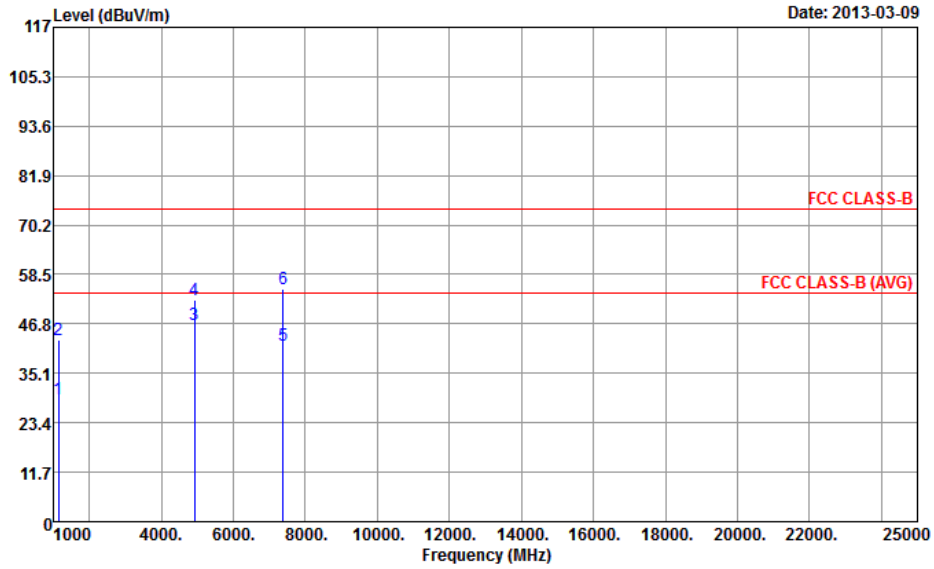
Note 1: ">30dB" means spurious emission levels that exceed the level of 30 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: For restricted 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 30 dB relative to the maximum measured in-band level.





Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F3
N <sub>TX</sub>	1	Polarization	H



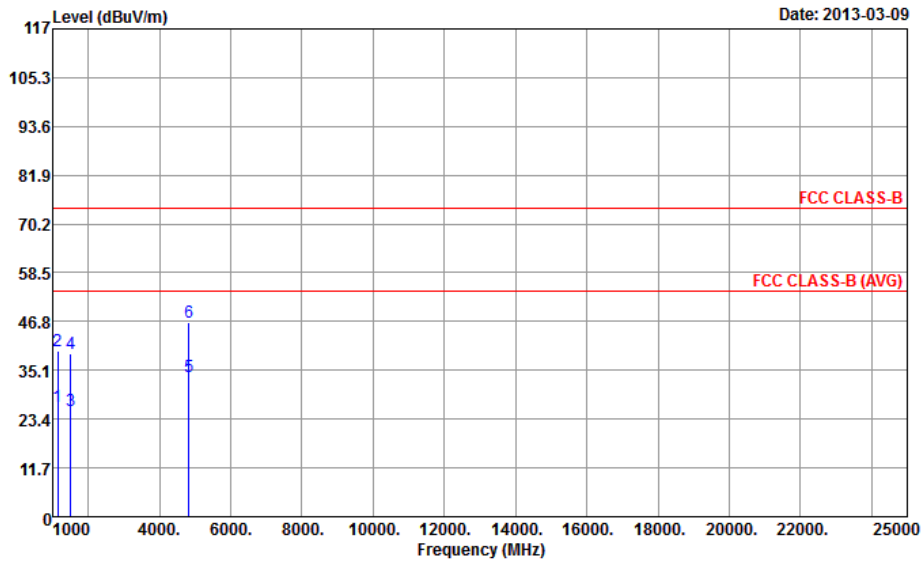
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	29.11	-24.89	54.00	35.88	27.93	3.08	37.78	---	---	Average
2	1150.00	43.14	-30.86	74.00	49.91	27.93	3.08	37.78	---	---	Peak
3	4924.00	46.53	-7.47	54.00	40.68	34.28	6.55	34.98	---	---	Average
4	4924.00	52.37	-21.63	74.00	46.52	34.28	6.55	34.98	---	---	Peak
5	7386.00	41.85	-12.15	54.00	32.32	36.02	8.56	35.05	---	---	Average
6	7386.00	54.92	-19.08	74.00	45.39	36.02	8.56	35.05	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



3.4.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	Test Freq. (FX)	F1
N <sub>TX</sub>	1	Polarization	V



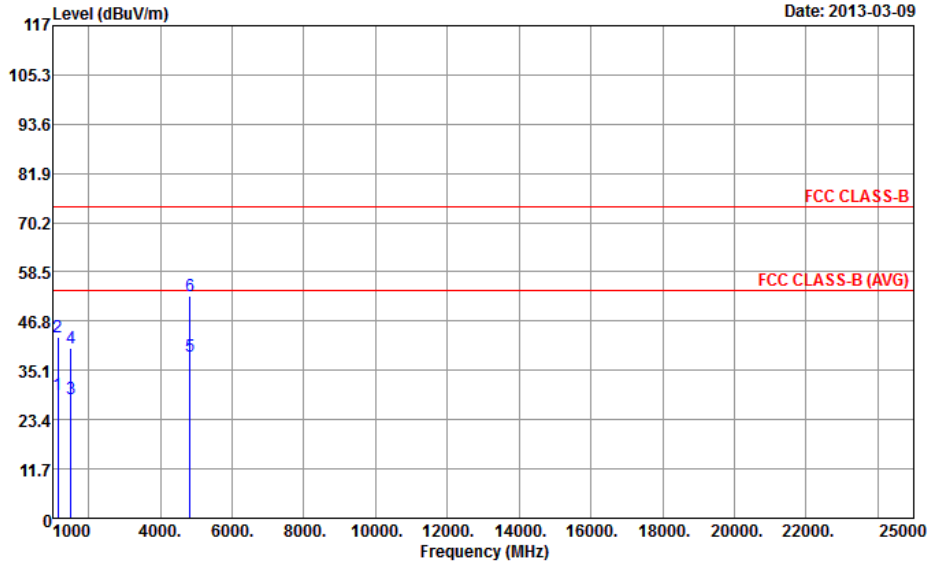
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	26.41	-27.59	54.00	33.18	27.93	3.08	37.78	---	---	Average
2	1150.00	39.65	-34.35	74.00	46.42	27.93	3.08	37.78	---	---	Peak
3	1500.00	25.36	-28.64	54.00	30.61	28.00	3.55	36.80	---	---	Average
4	1500.00	39.24	-34.76	74.00	44.49	28.00	3.55	36.80	---	---	Peak
5	4824.00	33.41	-20.59	54.00	27.60	34.26	6.51	34.96	---	---	Average
6	4824.00	46.62	-27.38	74.00	40.81	34.26	6.51	34.96	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F1
N <sub>TX</sub>	1	Polarization	H



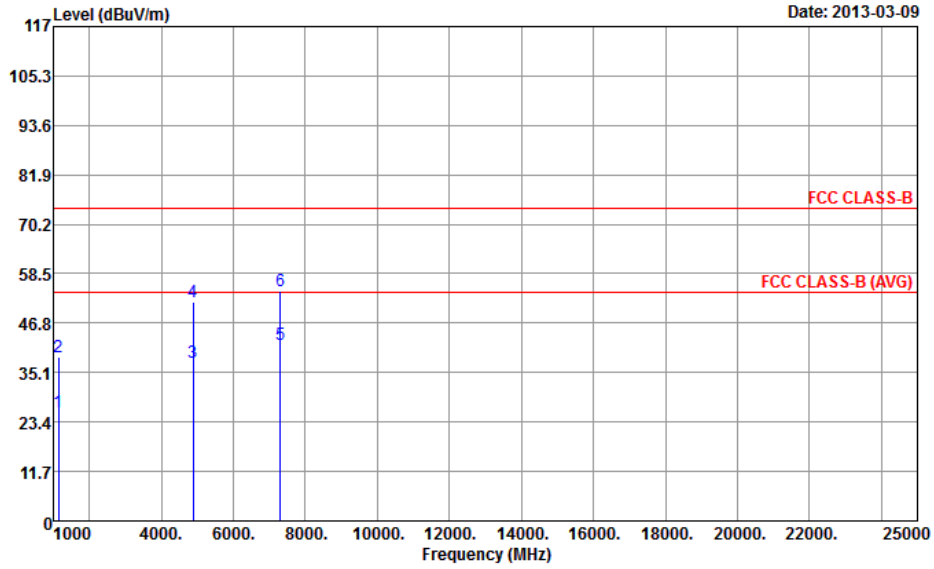
	Freq	Level	Over Limit	Limit Line	Read Antenna	Cable	Preamp	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg		
1	1150.00	29.24	-24.76	54.00	36.01	27.93	3.08	37.78	---	---	Average
2	1150.00	43.12	-30.88	74.00	49.89	27.93	3.08	37.78	---	---	Peak
3	1500.00	28.24	-25.76	54.00	33.49	28.00	3.55	36.80	---	---	Average
4	1500.00	40.53	-33.47	74.00	45.78	28.00	3.55	36.80	---	---	Peak
5	4824.00	38.50	-15.50	54.00	32.69	34.26	6.51	34.96	---	---	Average
6	4824.00	52.90	-21.10	74.00	47.09	34.26	6.51	34.96	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F2
N <sub>TX</sub>	1	Polarization	V



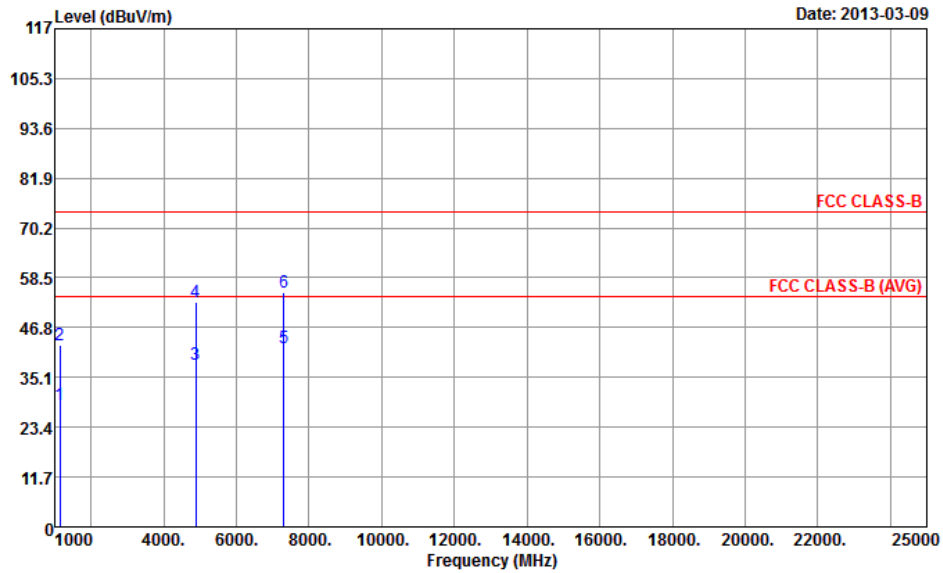
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	25.84	-28.16	54.00	32.61	27.93	3.08	37.78	---	---	Average
2	1150.00	38.91	-35.09	74.00	45.68	27.93	3.08	37.78	---	---	Peak
3	4874.00	37.44	-16.56	54.00	31.61	34.27	6.53	34.97	---	---	Average
4	4874.00	51.82	-22.18	74.00	45.99	34.27	6.53	34.97	---	---	Peak
5	7311.00	41.69	-12.31	54.00	32.27	36.04	8.40	35.02	---	---	Average
6	7311.00	54.52	-19.48	74.00	45.10	36.04	8.40	35.02	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F2
N <sub>TX</sub>	1	Polarization	H



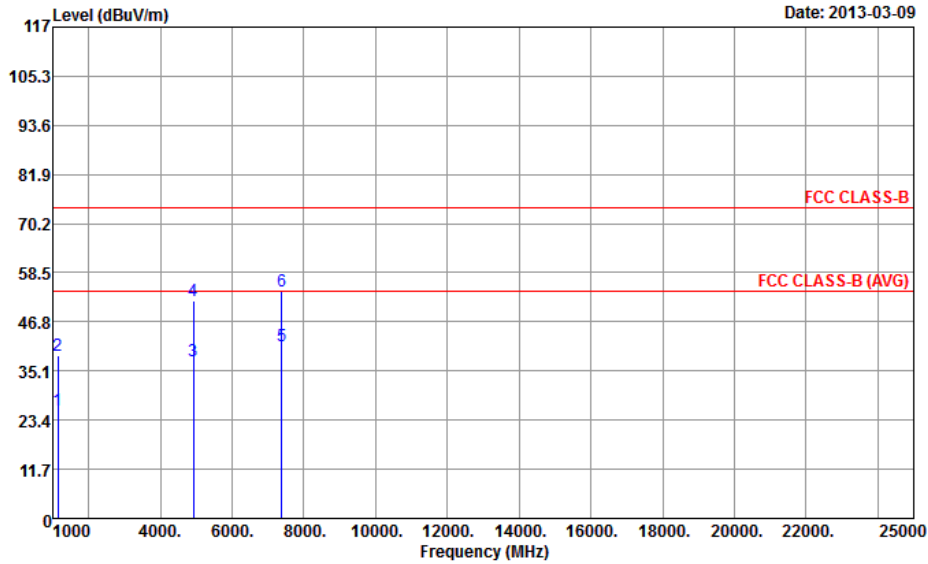
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	28.84	-25.16	54.00	35.61	27.93	3.08	37.78	---	---	Average
2	1150.00	42.69	-31.31	74.00	49.46	27.93	3.08	37.78	---	---	Peak
3	4874.00	38.24	-15.76	54.00	32.41	34.27	6.53	34.97	---	---	Average
4	4874.00	52.64	-21.36	74.00	46.81	34.27	6.53	34.97	---	---	Peak
5	7311.00	42.06	-11.94	54.00	32.64	36.04	8.40	35.02	---	---	Average
6	7311.00	55.04	-18.96	74.00	45.62	36.04	8.40	35.02	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F3
N <sub>TX</sub>	1	Polarization	V



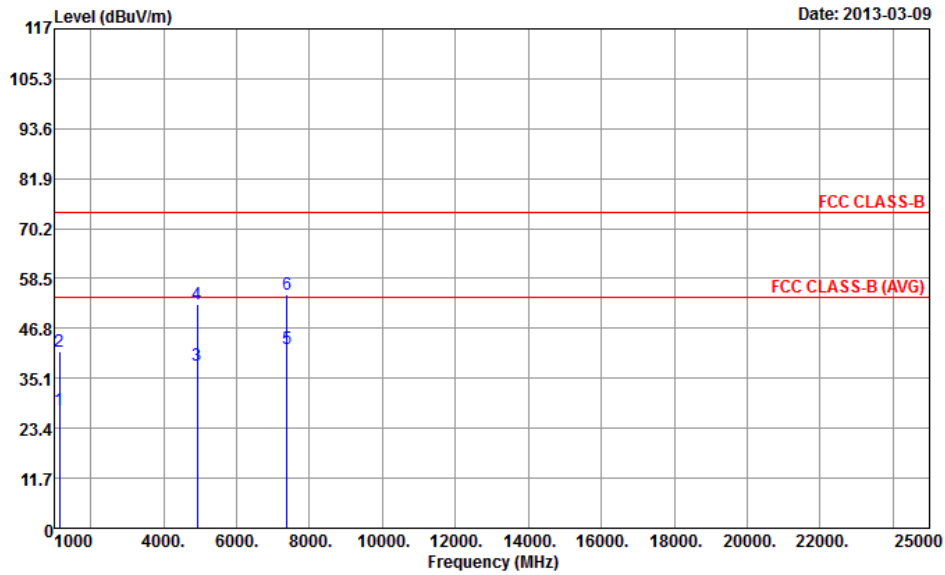
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	25.68	-28.32	54.00	32.45	27.93	3.08	37.78	---	---	Average
2	1150.00	38.85	-35.15	74.00	45.62	27.93	3.08	37.78	---	---	Peak
3	4924.00	37.42	-16.58	54.00	31.57	34.28	6.55	34.98	---	---	Average
4	4924.00	51.86	-22.14	74.00	46.01	34.28	6.55	34.98	---	---	Peak
5	7386.00	41.03	-12.97	54.00	31.50	36.02	8.56	35.05	---	---	Average
6	7386.00	53.96	-20.04	74.00	44.43	36.02	8.56	35.05	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F3
N <sub>TX</sub>	1	Polarization	H



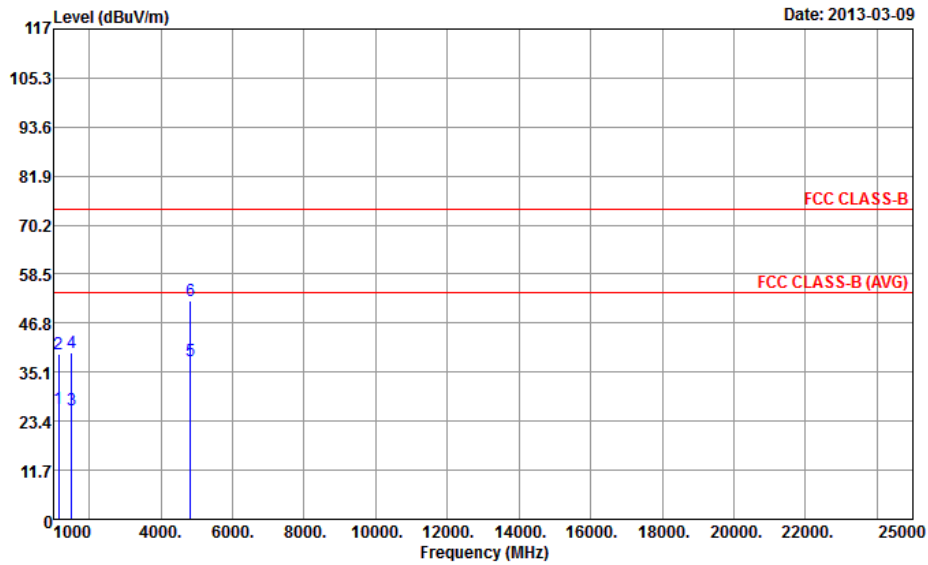
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBUV/m	dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	1150.00	27.65	-26.35	54.00	34.42	27.93	3.08	37.78	---	---	Average
2	1150.00	41.53	-32.47	74.00	48.30	27.93	3.08	37.78	---	---	Peak
3	4924.00	38.04	-15.96	54.00	32.19	34.28	6.55	34.98	---	---	Average
4	4924.00	52.61	-21.39	74.00	46.76	34.28	6.55	34.98	---	---	Peak
5	7386.00	41.88	-12.12	54.00	32.35	36.02	8.56	35.05	---	---	Average
6	7386.00	54.69	-19.31	74.00	45.16	36.02	8.56	35.05	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



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

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	Test Freq. (FX)	F1
N <sub>TX</sub>	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	1150.00	26.45	-27.55	54.00	33.22	27.93	3.08	37.78	---	---	Average
2	1150.00	39.56	-34.44	74.00	46.33	27.93	3.08	37.78	---	---	Peak
3	1500.00	26.23	-27.77	54.00	31.48	28.00	3.55	36.80	---	---	Average
4	1500.00	39.88	-34.12	74.00	45.13	28.00	3.55	36.80	---	---	Peak
5	4824.00	37.86	-16.14	54.00	32.05	34.26	6.51	34.96	---	---	Average
6	4824.00	52.14	-21.86	74.00	46.33	34.26	6.51	34.96	---	---	Peak

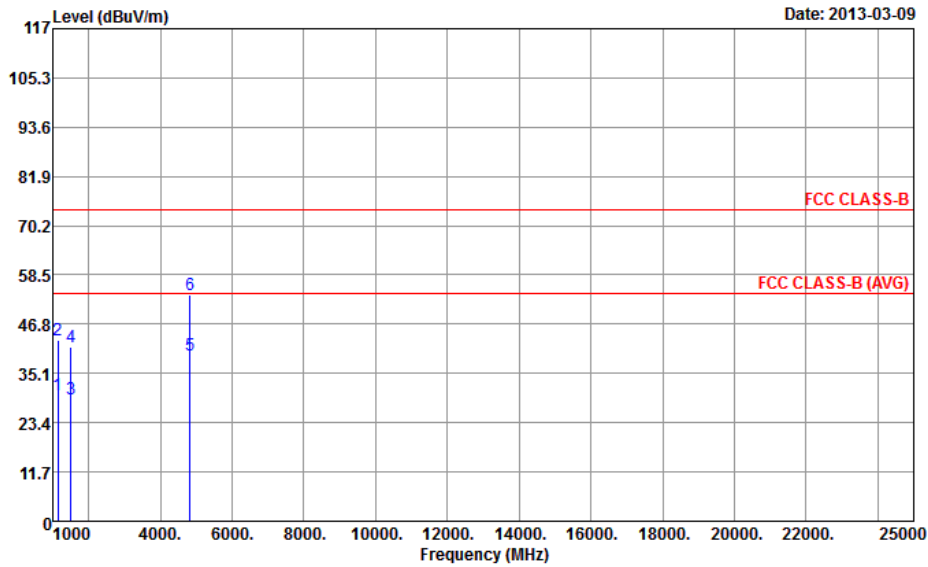
Note 1: ">30dB" means spurious emission levels that exceed the level of 30 dB below the applicable limit.  
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)  
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)  
 Note 4: For restricted 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 30 dB relative to the maximum measured in-band level.





Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (FX)	F1
N <sub>TX</sub>	1	Polarization	H



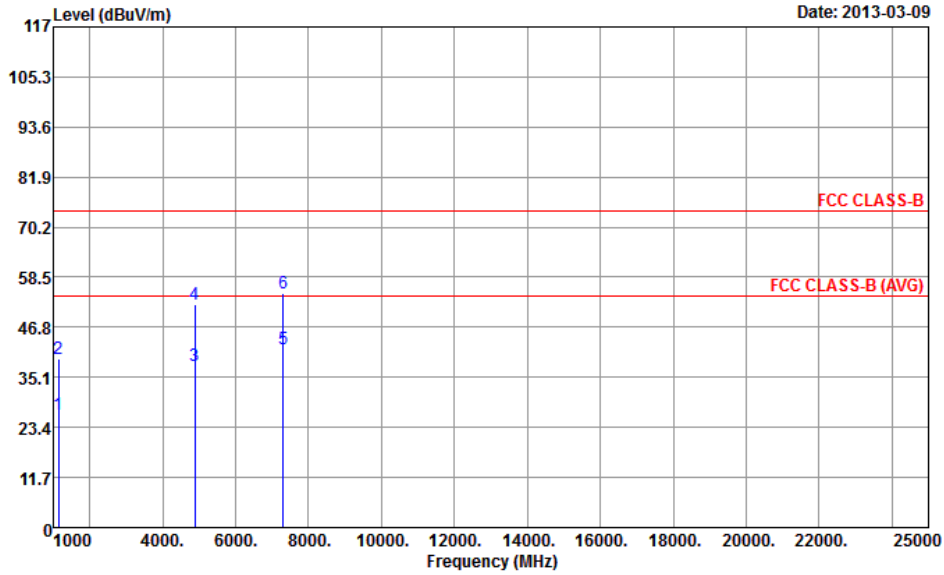
	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	29.96	-24.04	54.00	36.73	27.93	3.08	37.78	---	---	Average
2	1150.00	43.15	-30.85	74.00	49.92	27.93	3.08	37.78	---	---	Peak
3	1500.00	28.98	-25.02	54.00	34.23	28.00	3.55	36.80	---	---	Average
4	1500.00	41.36	-32.64	74.00	46.61	28.00	3.55	36.80	---	---	Peak
5	4824.00	39.46	-14.54	54.00	33.65	34.26	6.51	34.96	---	---	Average
6	4824.00	53.91	-20.09	74.00	48.10	34.26	6.51	34.96	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (FX)	F2
N <sub>TX</sub>	1	Polarization	V



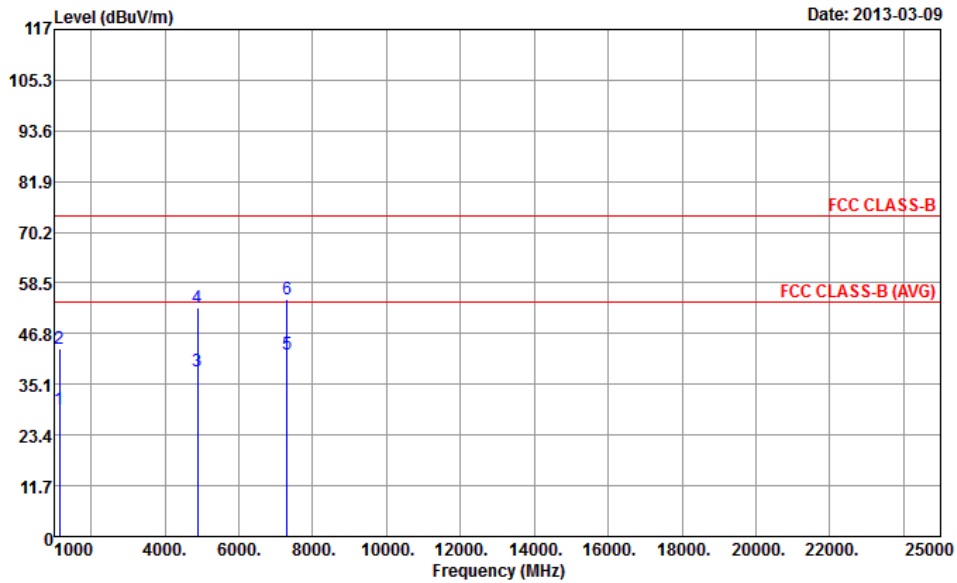
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	26.35	-27.65	54.00	33.12	27.93	3.08	37.78	---	---	Average
2	1150.00	39.43	-34.57	74.00	46.20	27.93	3.08	37.78	---	---	Peak
3	4874.00	37.66	-16.34	54.00	31.83	34.27	6.53	34.97	---	---	Average
4	4874.00	52.03	-21.97	74.00	46.20	34.27	6.53	34.97	---	---	Peak
5	7311.00	41.76	-12.24	54.00	32.34	36.04	8.40	35.02	---	---	Average
6	7311.00	54.63	-19.37	74.00	45.21	36.04	8.40	35.02	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (FX)	F2
N <sub>TX</sub>	1	Polarization	H



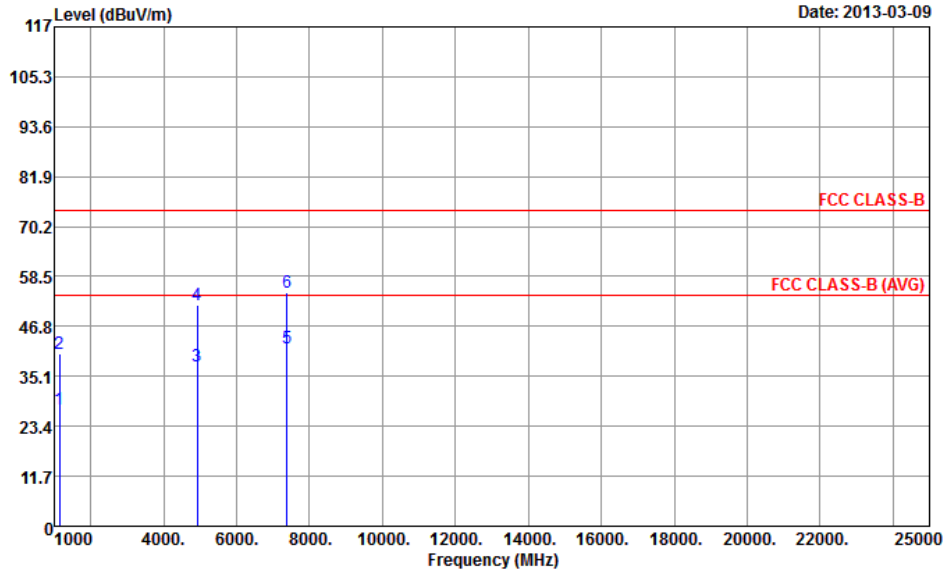
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	29.31	-24.69	54.00	36.08	27.93	3.08	37.78	---	---	Average
2	1150.00	43.24	-30.76	74.00	50.01	27.93	3.08	37.78	---	---	Peak
3	4874.00	38.24	-15.76	54.00	32.41	34.27	6.53	34.97	---	---	Average
4	4874.00	52.69	-21.31	74.00	46.86	34.27	6.53	34.97	---	---	Peak
5	7311.00	42.03	-11.97	54.00	32.61	36.04	8.40	35.02	---	---	Average
6	7311.00	54.88	-19.12	74.00	45.46	36.04	8.40	35.02	---	---	Peak

- Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (FX)	F3
N <sub>TX</sub>	1	Polarization	V



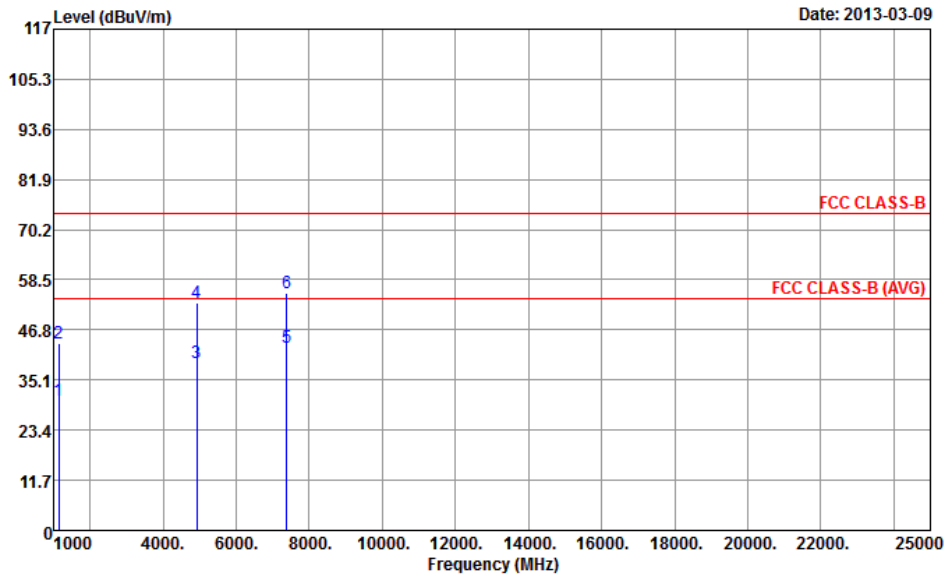
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBUV/m	dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	1150.00	27.45	-26.55	54.00	34.22	27.93	3.08	37.78	---	---	Average
2	1150.00	40.38	-33.62	74.00	47.15	27.93	3.08	37.78	---	---	Peak
3	4924.00	37.45	-16.55	54.00	31.60	34.28	6.55	34.98	---	---	Average
4	4924.00	51.86	-22.14	74.00	46.01	34.28	6.55	34.98	---	---	Peak
5	7386.00	41.66	-12.34	54.00	32.13	36.02	8.56	35.05	---	---	Average
6	7386.00	54.82	-19.18	74.00	45.29	36.02	8.56	35.05	---	---	Peak

Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (FX)	F3
N <sub>TX</sub>	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1150.00	30.24	-23.76	54.00	37.01	27.93	3.08	37.78	---	---	Average
2	1150.00	43.52	-30.48	74.00	50.29	27.93	3.08	37.78	---	---	Peak
3	4924.00	38.96	-15.04	54.00	33.11	34.28	6.55	34.98	---	---	Average
4	4924.00	53.24	-20.76	74.00	47.39	34.28	6.55	34.98	---	---	Peak
5	7386.00	42.55	-11.45	54.00	33.02	36.02	8.56	35.05	---	---	Average
6	7386.00	55.43	-18.57	74.00	45.90	36.02	8.56	35.05	---	---	Peak

- Note 1: ">30dB" means spurious emission levels that exceed the level of 30 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 30 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	Nov. 22, 2012	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. 20, 2012	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	7.61183201e+012	9kHz ~ 30MHz	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 30	100023/030	9KHz ~ 30GHz	Apr. 27, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 19, 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.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 02, 2012	Conducted (TH01-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	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	161050	1 MHz ~ 1 GHz	Mar. 20, 2012	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	BBHA 9170	BBHA 9170517	18G~40G	Jan. 14, 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.