



FCC Test Report

Equipment : 802.11 b/g/n high power USB Module
Brand Name : SparkLAN
Model No. : WUBA-171GN
FCC ID : RYK-WUBA171GN
Standard : 47 CFR FCC Part 15.247
Operating Band : 2400 MHz – 2483.5 MHz
FCC Classification : DTS
Applicant : SparkLAN Communications, Inc
Manufacturer : 8F., No.257, Sec. 2, Tiding Blvd.,
Neihu District, Taipei City 11493, Taiwan.

The product sample received on Aug. 13, 2014 and completely tested on Aug. 14, 2014. 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
1.1.1	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]: 28.66	Power [dBm]:30	Complied
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.157326MHz 28.39 (Margin 27.21dB) - AV 51.56 (Margin 14.04dB) - QP	FCC 15.207	Complied
3.2	15.247(c)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 2400.05MHz: 26.45dB Restricted Bands [dBuV/m at 3m]: 2389.99MHz 68.80 (Margin 5.20dB) - PK 53.79 (Margin 0.21dB) - 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]: 68.80MHz 35.16 (Margin 4.84dB) - PK	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied

Remark: This report just adds one additional antenna whose RF power is comply with the original report FR351115. So we only verified AC Conducted Emission and Radiated Emission test outcome here.



SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-327-0973

1 General Description

This report is case of Class 2 Permissive Change (C2PC). Its original report is FR351115 in which 5 antennas were all evaluated and recorded there. In this report, we add one additional antenna and verified its AC Conducted Emission and Radiated Emission test outcome here.

1.1 Information

1.1.1 RF General Information

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	RF Output Power (dBm)
2400-2483.5	b	2412-2462	1-11 [11]	1	23.12
2400-2483.5	g	2412-2462	1-11 [11]	1	28.66
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	28.62
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	1	28.41
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.					

1.1.2 Antenna Information

Antenna Category	
☐	Integral antenna (antenna permanently attached)
☐	Temporary RF connector provided
☐	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.
☒	External antenna (dedicated antennas)
☒	Single power level with corresponding antenna(s).
☐	Multiple power level and corresponding antenna(s).

Antenna General Information					
No.	Ant. Cat.	Ant. Type	Brand	Model No.	Gain (dBi)
1	External	Omni	Superbat	WA2-0011-N01SP-050	5

1.1.3 Type of EUT

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

1.1.4 EUT Operational Condition

Supply Voltage	☐ AC mains	☒ DC	
Type of DC Source	☐ Internal DC supply	☒ From System	☐ Battery

1.2 Support Equipment

Support Equipment – AC Conduction & Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5520	R33002

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 D01v03r02
- ♦ FCC KDB 662911 D01v02r01

1.4 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.	
		TEL : 886-3-327-3456 FAX : 886-3-327-0973	
Test Condition		Test Site No.	Test Engineer
AC Conduction		CO04-HY	Zeus
Radiated Emission		03CH02-HY	Daniel
			Test Environment
			25°C / 45%
			24.6°C / 61%

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
AC power-line conducted emissions		±2.2 dB
Emission bandwidth, 6dB bandwidth		±1.4 %
RF output power, conducted		±0.6 dB
Power density, conducted		±0.8 dB
Unwanted emissions, conducted	9 – 150 kHz	±0.3 dB
	0.15 – 30 MHz	±0.4 dB
	30 – 1000 MHz	±0.5 dB
	1 – 18 GHz	±0.6 dB
	18 – 40 GHz	±0.8 dB
	40 – 200 GHz	N/A
All emissions, radiated	9 – 150 kHz	±2.4 dB
	0.15 – 30 MHz	±2.2 dB
	30 – 1000 MHz	±2.5 dB
	1 – 18 GHz	±3.5 dB
	18 – 40 GHz	±3.8 dB
	40 – 200 GHz	N/A
Temperature		±0.8 °C
Humidity		±3 %
DC and low frequency voltages		±3 %
Time		±1.4 %
Duty Cycle		±1.4 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

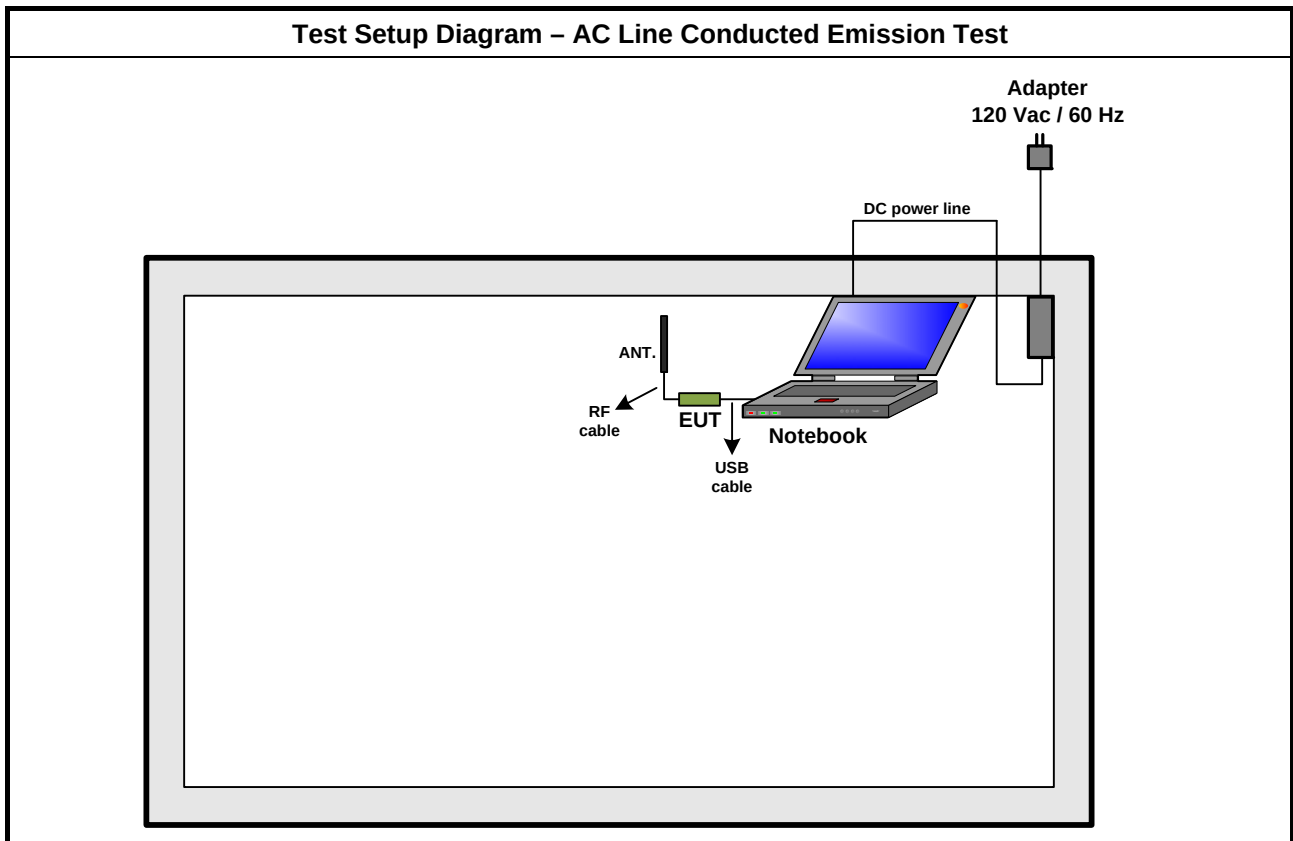
Worst Modulation Used for Conformance Testing			
Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS
11b,1-11Mbps	1	1-11 Mbps	1 Mbps
11g,6-54Mbps	1	6-54 Mbps	6 Mbps
HT20,M0-7	1	MCS 0-7	M 0
HT40,M0-7	1	MCS 0-7	M 0

2.2 The Worst Case Measurement Configuration

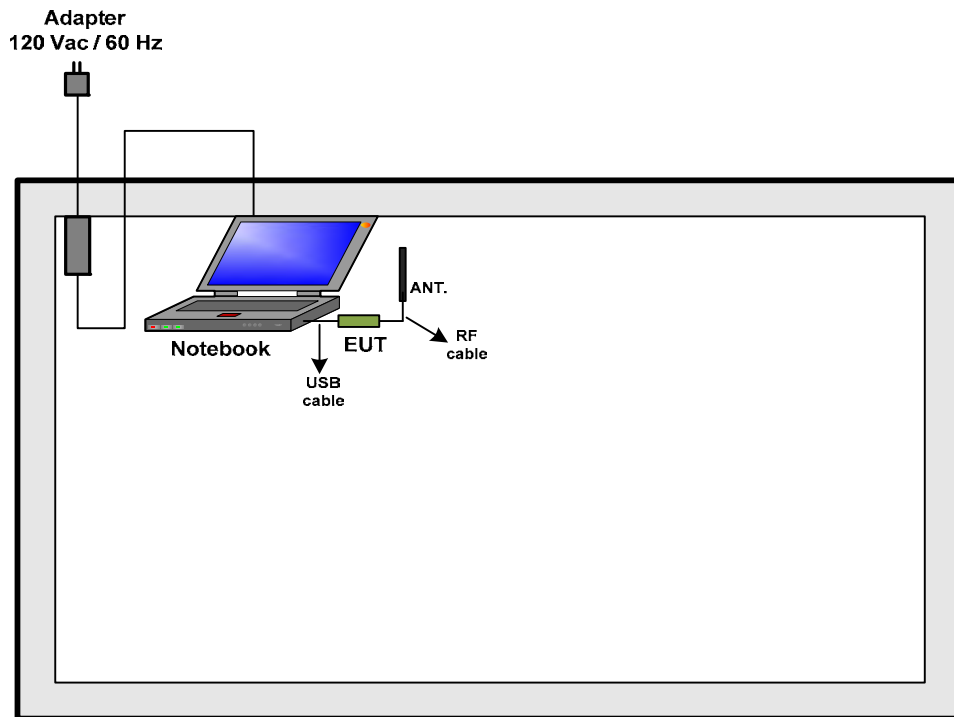
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	EUT with Notebook via USB Cable & transmit

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	☐ EUT will be placed in fixed position. ☒ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes. The worst plane is Z. ☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.		
Operating Mode	Operating Mode Description		
1	EUT with Notebook via USB Cable & transmit		
Modulation Mode	11b, 11g, HT20, HT40		
Orthogonal Planes of EUT	X Plane 	Y Plane 	Z Plane 

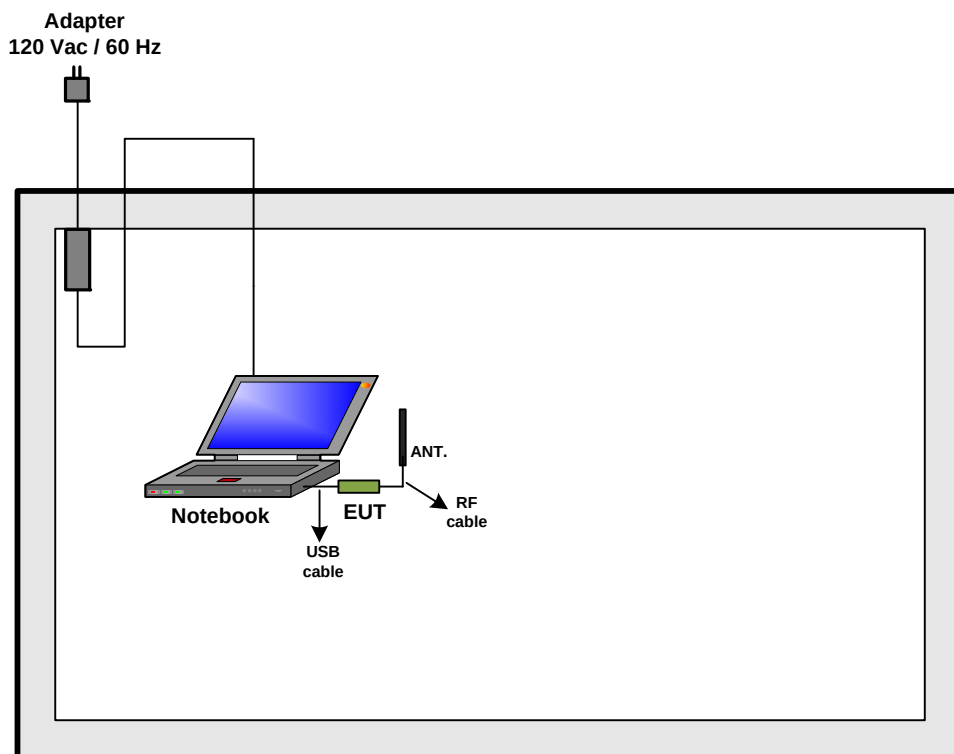
2.3 Test Setup Diagram



Test Setup Diagram - Radiated Emission (Below 1GHz)



Test Setup Diagram - Radiated Emission (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.

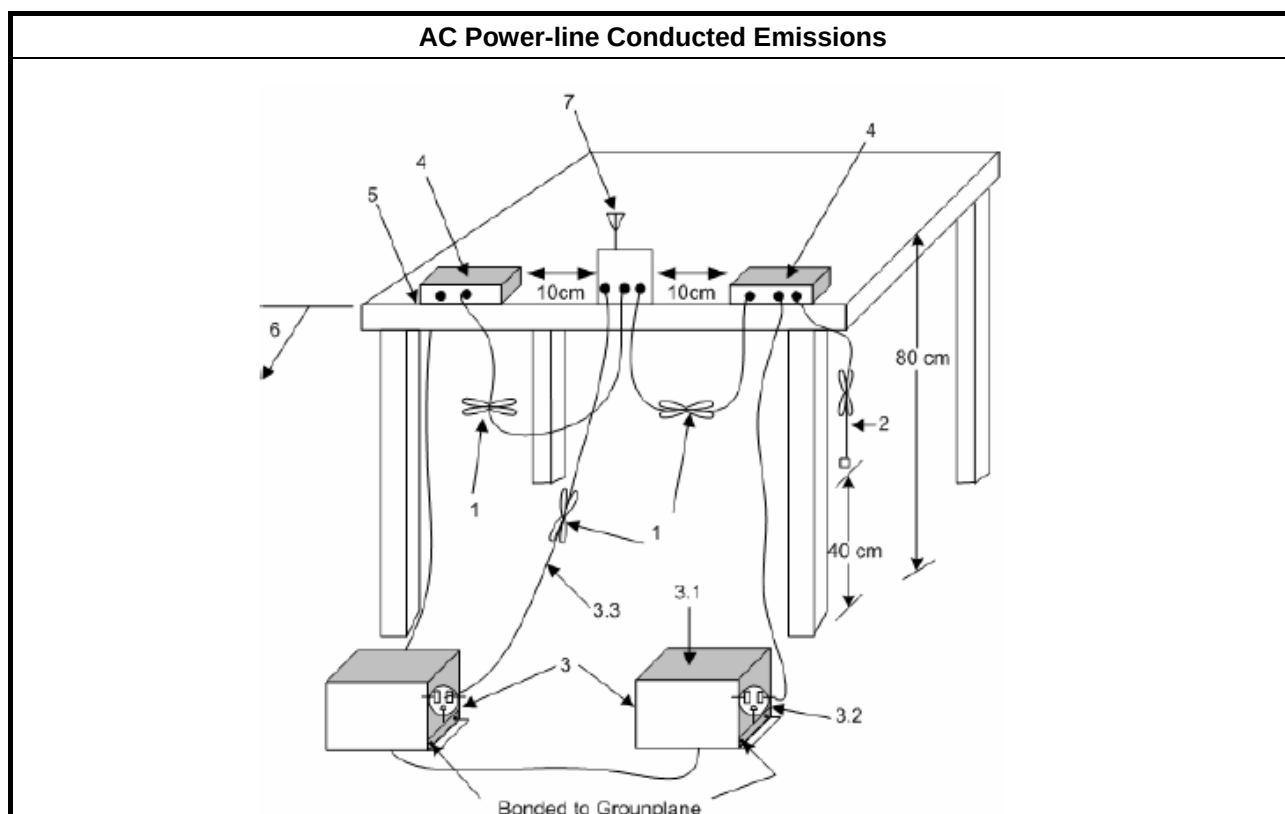
3.1.2 Measuring Instruments

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

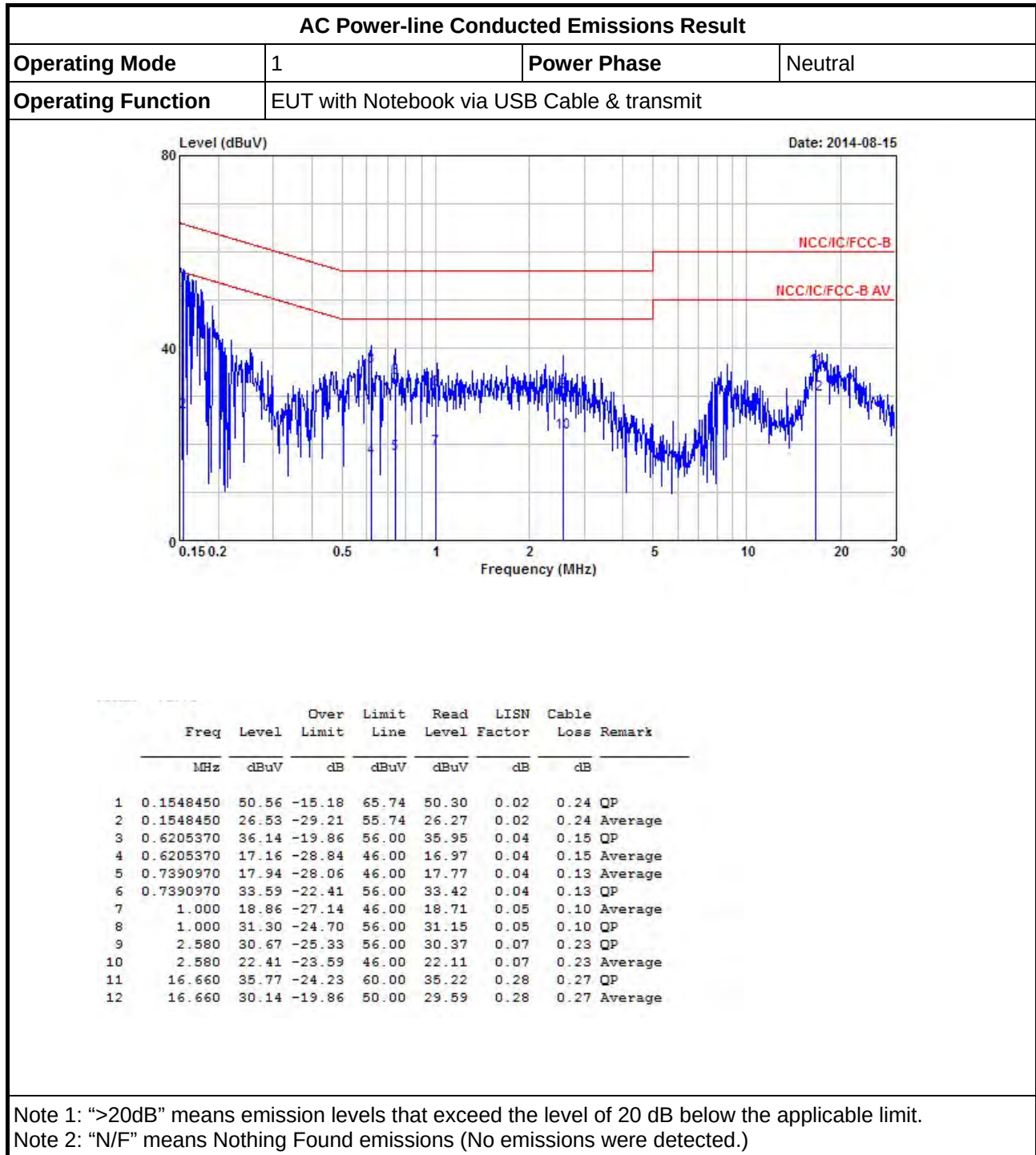
3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

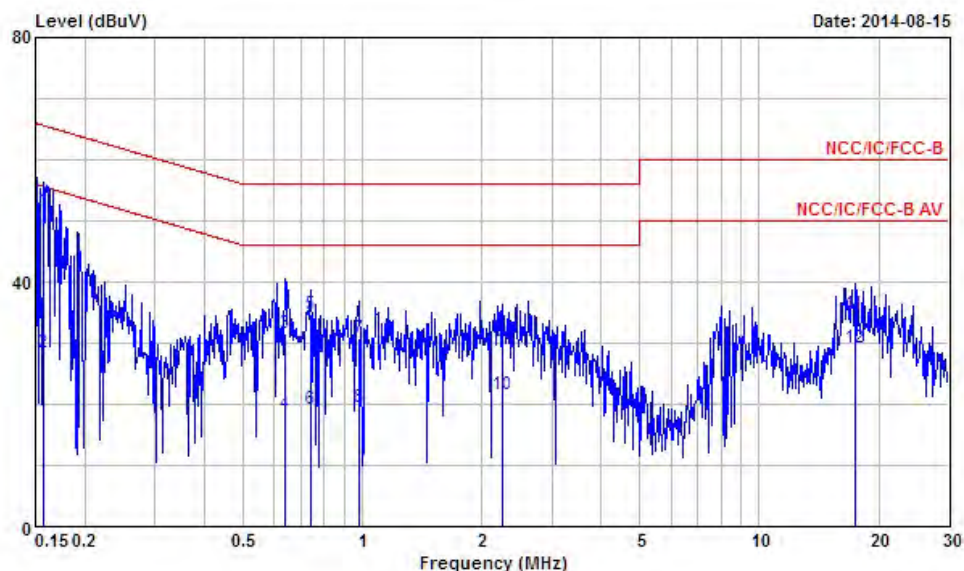


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	EUT with Notebook via USB Cable & transmit		

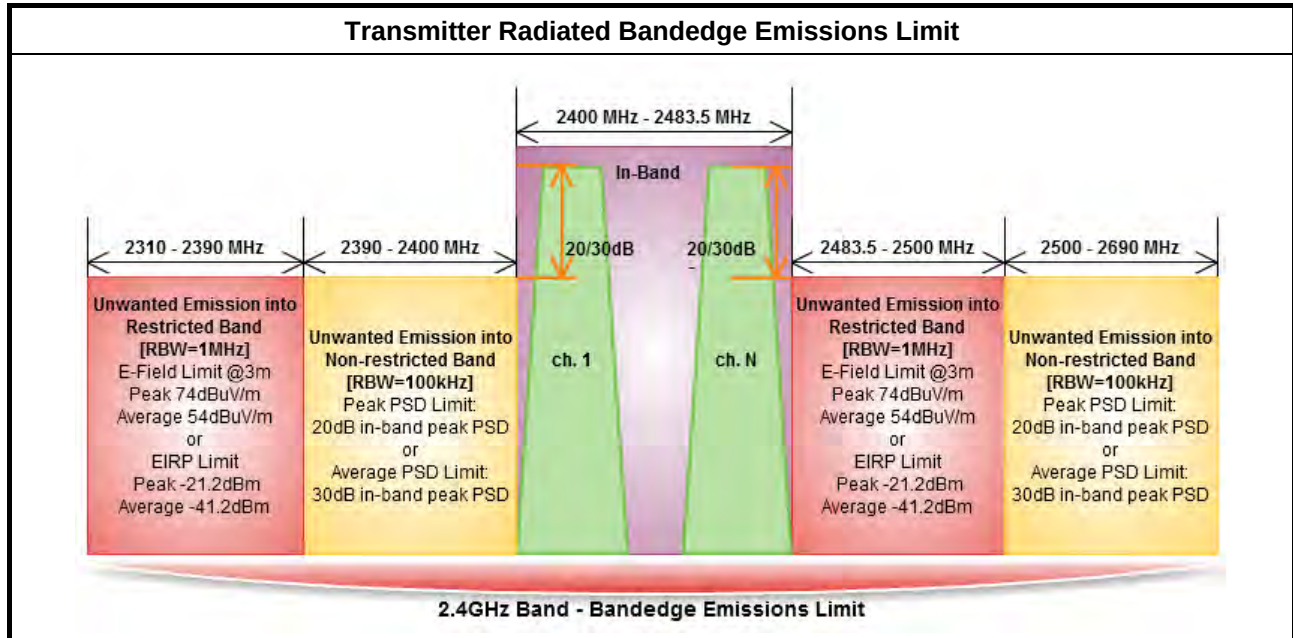


	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1573260	51.56	-14.04	65.60	51.30	0.03	0.23	QP
2	0.1573260	28.39	-27.21	55.60	28.13	0.03	0.23	Average
3	0.6405800	31.52	-24.48	56.00	31.32	0.05	0.15	QP
4	0.6405800	18.33	-27.67	46.00	18.13	0.05	0.15	Average
5	0.7430230	34.67	-21.33	56.00	34.49	0.05	0.13	QP
6	0.7430230	19.25	-26.75	46.00	19.07	0.05	0.13	Average
7	0.9787140	30.74	-25.26	56.00	30.58	0.06	0.10	QP
8	0.9787140	19.53	-26.47	46.00	19.37	0.06	0.10	Average
9	2.250	30.23	-25.77	56.00	29.88	0.08	0.27	QP
10	2.250	21.53	-24.47	46.00	21.18	0.08	0.27	Average
11	17.380	34.77	-25.23	60.00	34.23	0.29	0.25	QP
12	17.380	29.10	-20.90	50.00	28.56	0.29	0.25	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



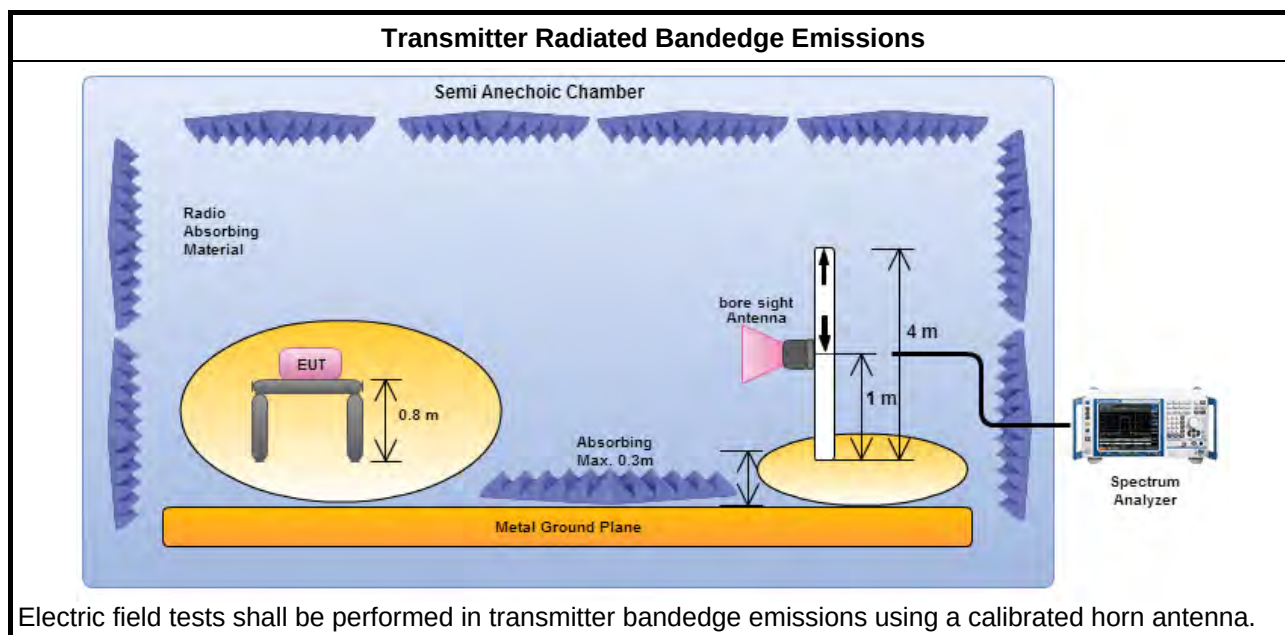
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
☒	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
☒	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.
☒	For the transmitter unwanted emissions shall be measured using following options below:
☒	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.
☒	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
☐	Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq 98\%$)
☐	Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
☐	Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq 1/T$).
☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time.
☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
☒	Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.
☒	For the transmitter bandedge emissions shall be measured using following options below:
☐	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).
☒	Refer as ANSI C63.10, clause 6.9.2 for band-edge testing and the test distance is 3m.
☐	Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
☒	For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.

3.2.4 Test Setup



3.2.5 Transmitter Radiated Bandedge Emissions

2400-2483.5MHz Transmitter Radiated Bandedge Emissions (Non-restricted Band)								
Modulation	N _{TX}	Test Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Pol.
11b	1	2412	99.80	2390.86	63.21	36.59	20	H
11b	1	2462	104.37	2511.40	63.85	40.52	20	H
11g	1	2412	99.31	2399.60	72.64	26.67	20	H
11g	1	2462	97.61	2533.00	64.10	33.51	20	H
HT20	1	2412	98.58	2400.05	72.13	26.45	20	H
HT20	1	2462	99.21	2505.60	64.83	34.38	20	H
HT40	1	2422	96.55	2400.02	68.90	27.65	20	H
HT40	1	2452	93.62	2526.32	64.17	29.45	20	H
Note 1: Measurement worst emissions of receive antenna polarization								

2400-2483.5MHz Transmitter Radiated Bandedge Emissions (Restricted Band)										
Modulation Mode	N _{TX}	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
11b	1	2412	3	2315.38	60.38	74	2318.29	47.75	54	H
11b	1	2462	3	2499.00	61.05	74	2487.80	48.75	54	H
11g	1	2412	3	2389.74	67.93	74	2389.86	51.28	54	H
11g	1	2462	3	2484.20	64.65	74	2483.60	48.92	54	H
HT20	1	2412	3	2389.52	68.78	74	2389.86	52.50	54	H
HT20	1	2462	3	2483.60	61.04	74	2483.60	48.32	54	H
HT40	1	2422	3	2389.46	68.80	74	2389.99	53.79	54	H
HT40	1	2452	3	2483.60	66.48	74	2483.84	52.04	54	H
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

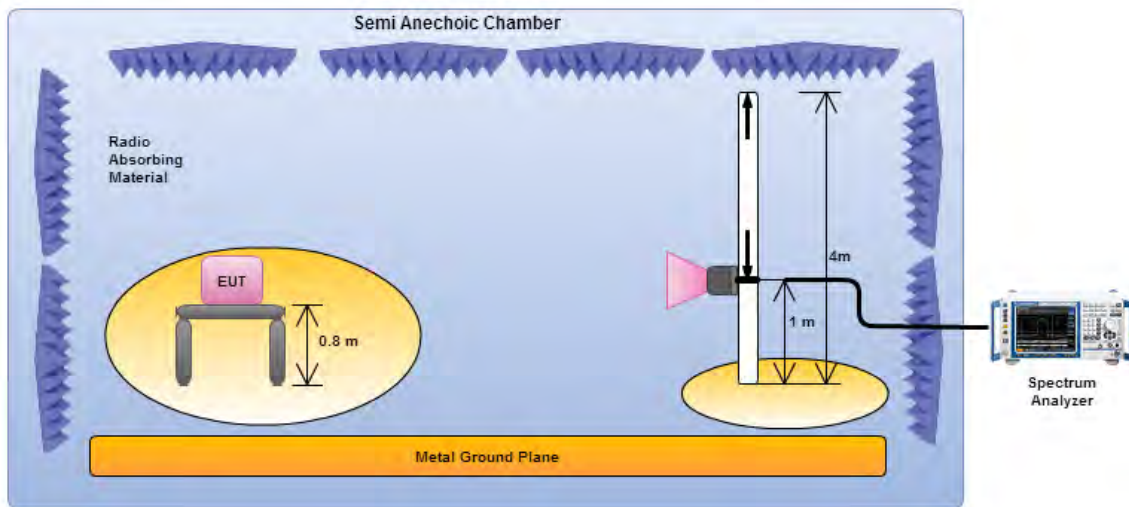
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
☐	Measurements in the 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.
☐	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.
☒	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
☒	For the transmitter unwanted emissions shall be measured using following options below:
☒	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.
☒	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
☐	Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq$ 98%)
☐	Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
☐	Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq$ 1/T).
☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
☒	Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.
☒	Refer as FCC KDB 558074, clause 12.2.3 measurement procedure Quasi-Peak limit.
☒	For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.

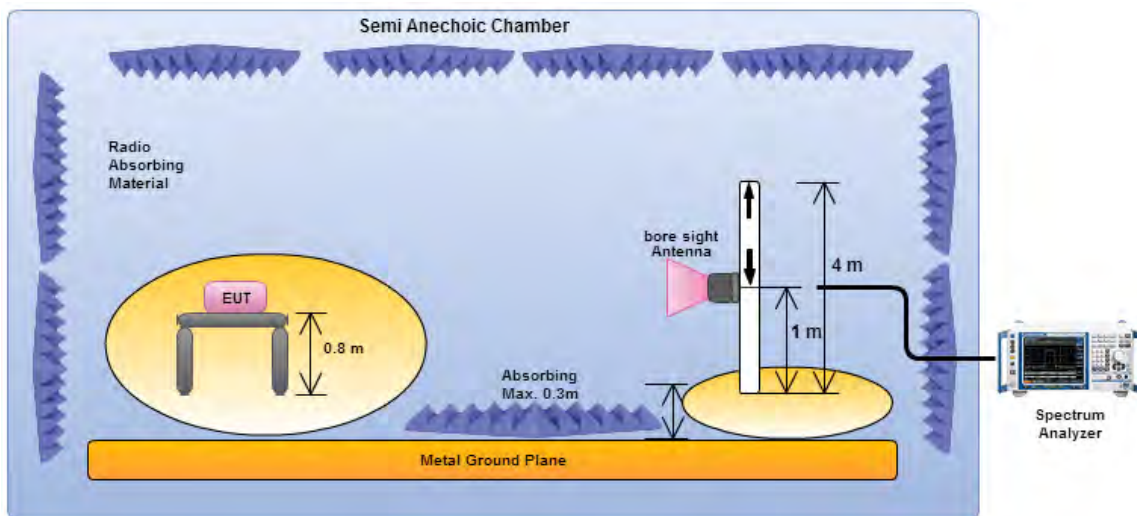
3.3.4 Test Setup

Transmitter Radiated Unwanted Emissions Below 1GHz



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.

Transmitter Radiated Unwanted Emissions Above 1GHz

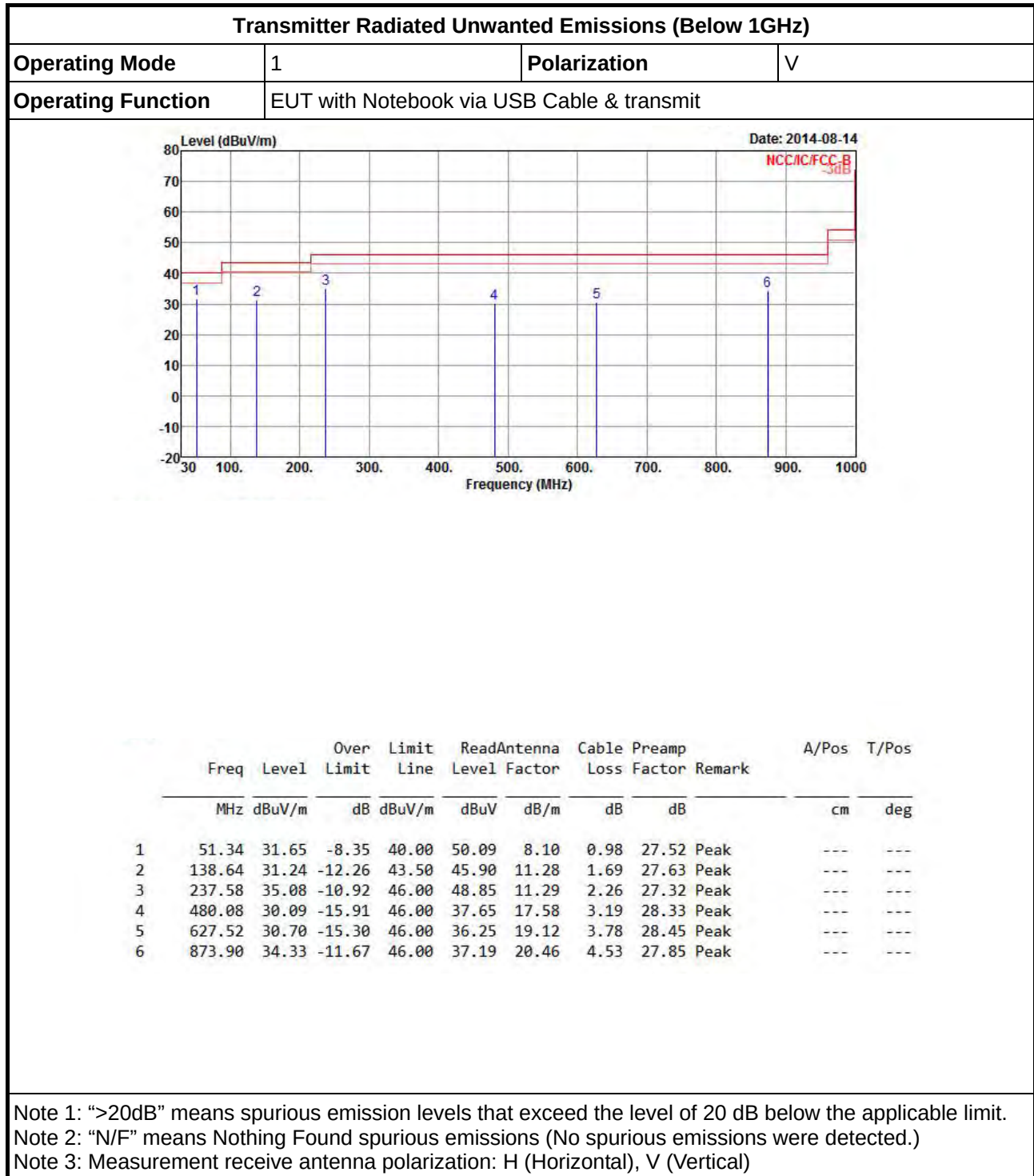


Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

3.3.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

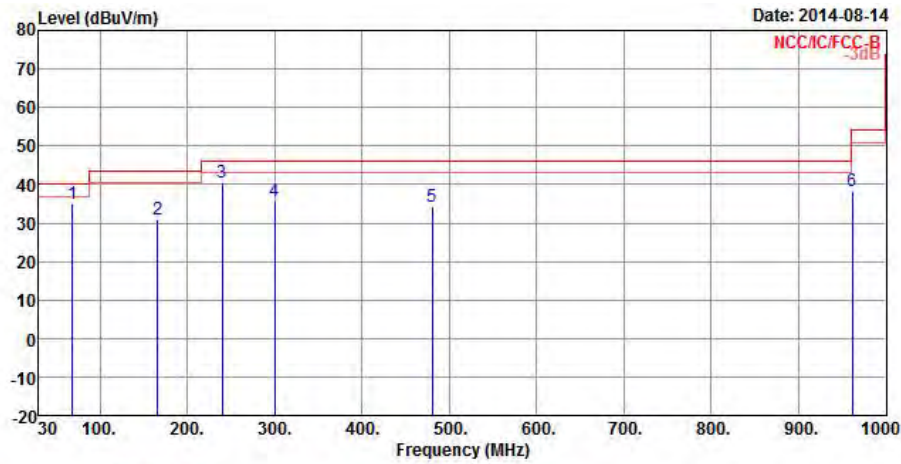
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.3.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Polarization	H
Operating Function	EUT with Notebook via USB Cable & transmit		



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	68.80	35.16	-4.84	40.00	55.24	6.39	1.13	27.60	Peak	---	---
2	165.80	30.85	-12.65	43.50	46.61	9.92	1.86	27.54	Peak	---	---
3	239.52	40.59	-5.41	46.00	54.08	11.56	2.27	27.32	Peak	---	---
4	299.66	35.72	-10.28	46.00	47.11	13.25	2.51	27.15	Peak	---	---
5	480.08	34.34	-11.66	46.00	41.90	17.58	3.19	28.33	Peak	---	---
6	961.20	38.15	-15.85	54.00	40.10	20.98	4.76	27.69	Peak	---	---

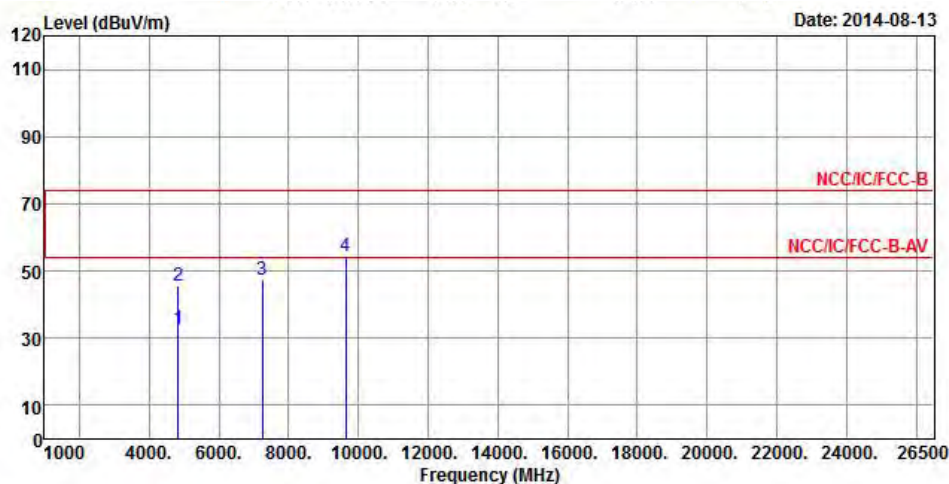
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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

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

3.3.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	Test Freq. (MHz)	2412
N _{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4824.00	32.63	-21.37	54.00	28.28	34.33	4.70	34.68	Average	---	---
2	4824.00	45.74	-28.26	74.00	41.39	34.33	4.70	34.68	Peak	---	---
3	7236.00	47.54			41.21	35.90	5.37	34.94	Peak	---	---
4	9648.00	54.51			46.92	36.59	6.35	35.35	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)

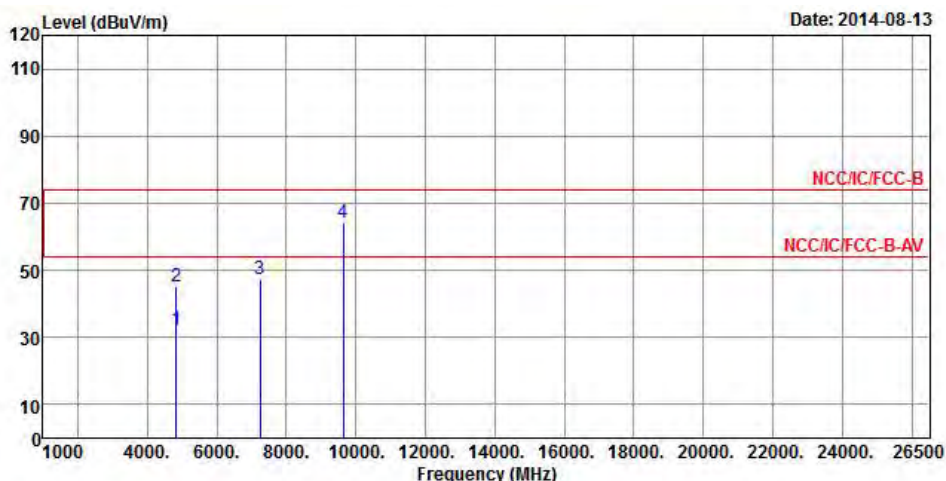
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (102.11 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (MHz)	2412
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4824.00	32.49	-21.51	54.00	28.14	34.33	4.70	34.68 Average	---	---
2	4824.00	45.14	-28.86	74.00	40.79	34.33	4.70	34.68 Peak	---	---
3	7236.00	47.29			40.96	35.90	5.37	34.94 Peak	---	---
4	9648.00	64.28			56.69	36.59	6.35	35.35 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)

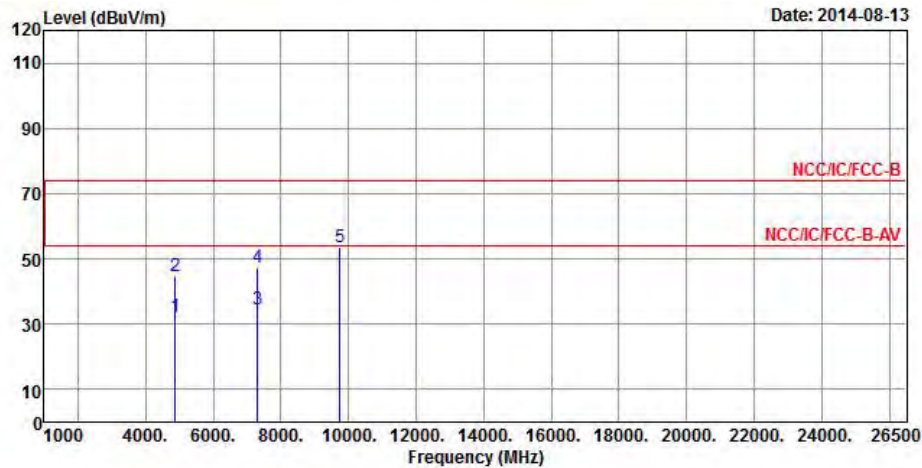
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (102.11 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4874.00	32.47	-21.53	54.00	28.09	34.32	4.73	34.67 Average	---	---
2	4874.00	44.94	-29.06	74.00	40.56	34.32	4.73	34.67 Peak	---	---
3	7311.00	34.53	-19.47	54.00	28.13	35.88	5.47	34.95 Average	---	---
4	7311.00	47.38	-26.62	74.00	40.98	35.88	5.47	34.95 Peak	---	---
5	9748.00	53.75			45.99	36.71	6.41	35.36 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)

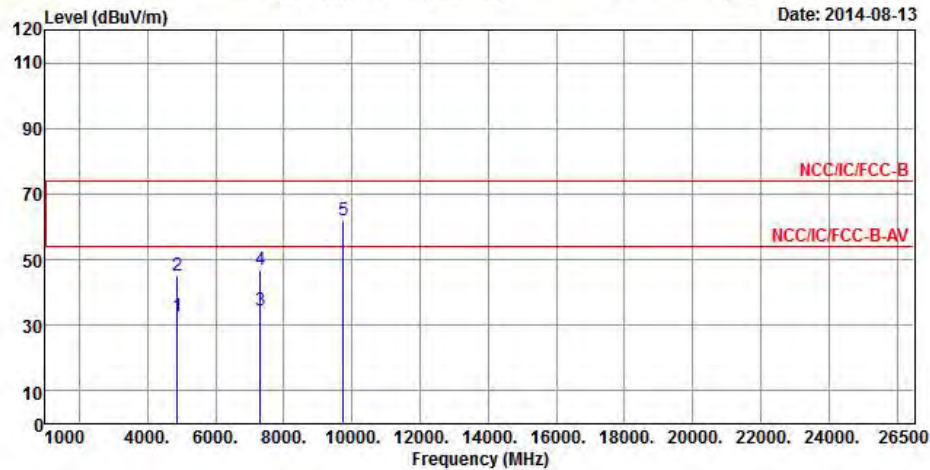
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (105.79 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4874.00	32.80	-21.20	54.00	28.42	34.32	4.73	34.67	Average	---	---
2	4874.00	44.99	-29.01	74.00	40.61	34.32	4.73	34.67	Peak	---	---
3	7311.00	34.51	-19.49	54.00	28.11	35.88	5.47	34.95	Average	---	---
4	7311.00	47.04	-26.96	74.00	40.64	35.88	5.47	34.95	Peak	---	---
5	9748.00	62.00			54.24	36.71	6.41	35.36	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)

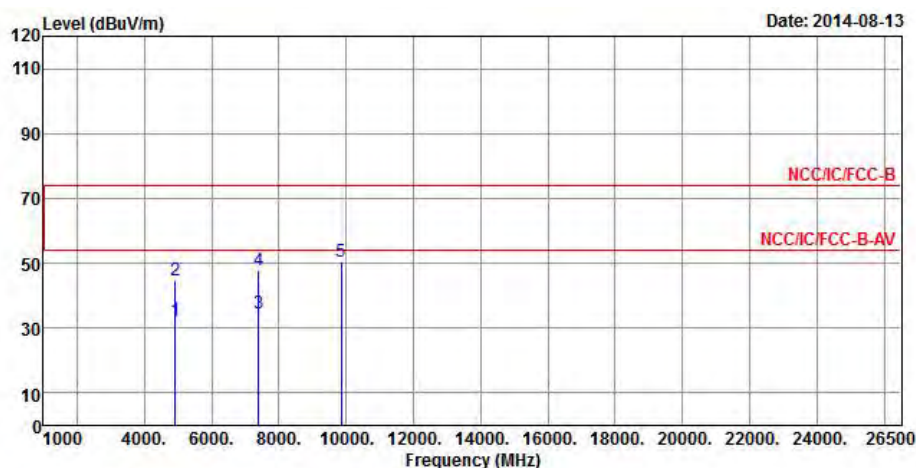
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (105.79 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (MHz)	2462
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4924.00	32.52	-21.48	54.00	28.08	34.31	4.79	34.66	Average	---	---
2	4924.00	44.68	-29.32	74.00	40.24	34.31	4.79	34.66	Peak	---	---
3	7386.00	34.32	-19.68	54.00	27.88	35.84	5.57	34.97	Average	---	---
4	7386.00	47.81	-26.19	74.00	41.37	35.84	5.57	34.97	Peak	---	---
5	9848.00	50.45			42.51	36.81	6.50	35.37	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)

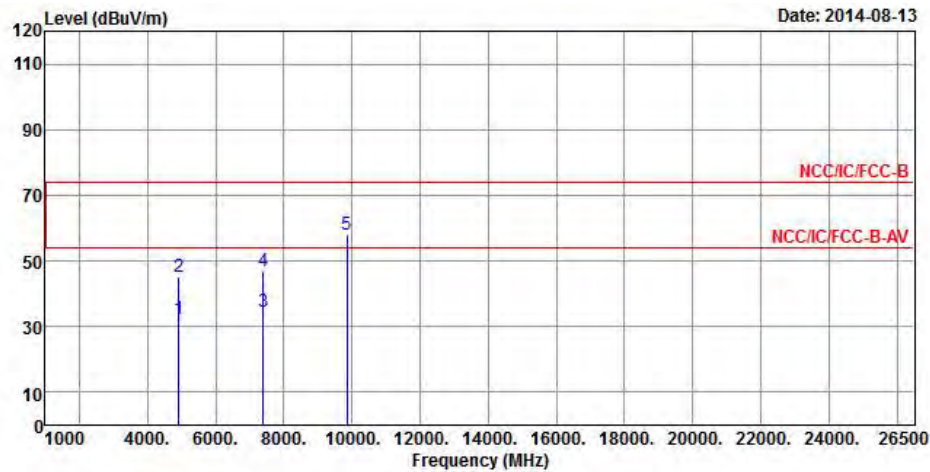
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.36 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (MHz)	2462
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4924.00	32.49	-21.51	54.00	28.05	34.31	4.79	34.66 Average	---	---
2	4924.00	45.21	-28.79	74.00	40.77	34.31	4.79	34.66 Peak	---	---
3	7386.00	34.34	-19.66	54.00	27.90	35.84	5.57	34.97 Average	---	---
4	7386.00	46.84	-27.16	74.00	40.40	35.84	5.57	34.97 Peak	---	---
5	9848.00	58.10			50.16	36.81	6.50	35.37 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)

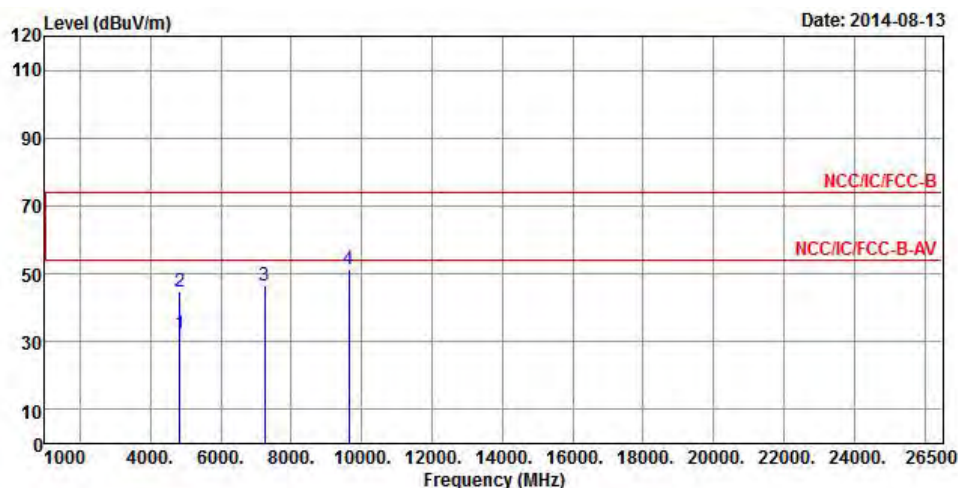
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.36 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (MHz)	2412
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp Loss	Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4824.00	32.39	-21.61	54.00	28.04	34.33	4.70	34.68	Average	--
2	4824.00	44.58	-29.42	74.00	40.23	34.33	4.70	34.68	Peak	--
3	7236.00	46.46			40.13	35.90	5.37	34.94	Peak	--
4	9648.00	51.39			43.80	36.59	6.35	35.35	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)

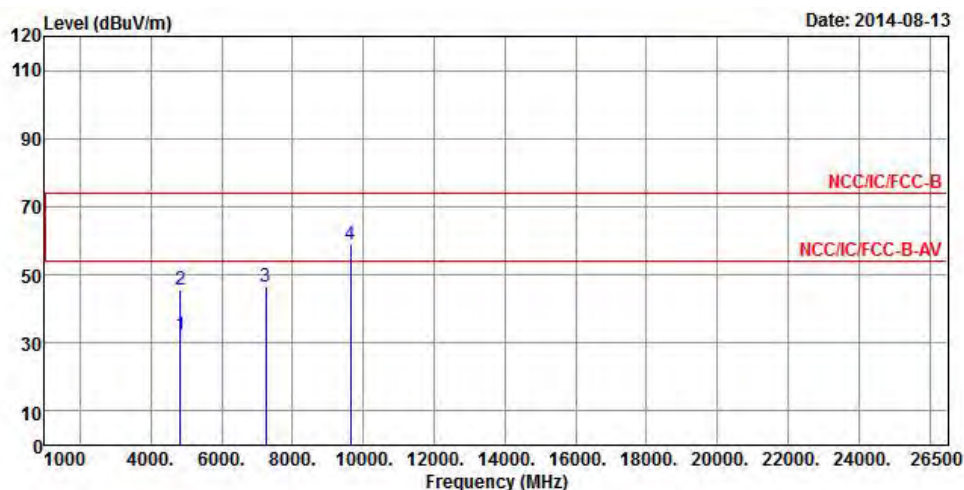
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (107.05 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (MHz)	2412
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp Loss	Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4824.00	32.23	-21.77	54.00	27.88	34.33	4.70	34.68 Average	---	---
2	4824.00	45.77	-28.23	74.00	41.42	34.33	4.70	34.68 Peak	---	---
3	7236.00	46.53			40.20	35.90	5.37	34.94 Peak	---	---
4	9648.00	58.82			51.23	36.59	6.35	35.35 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)

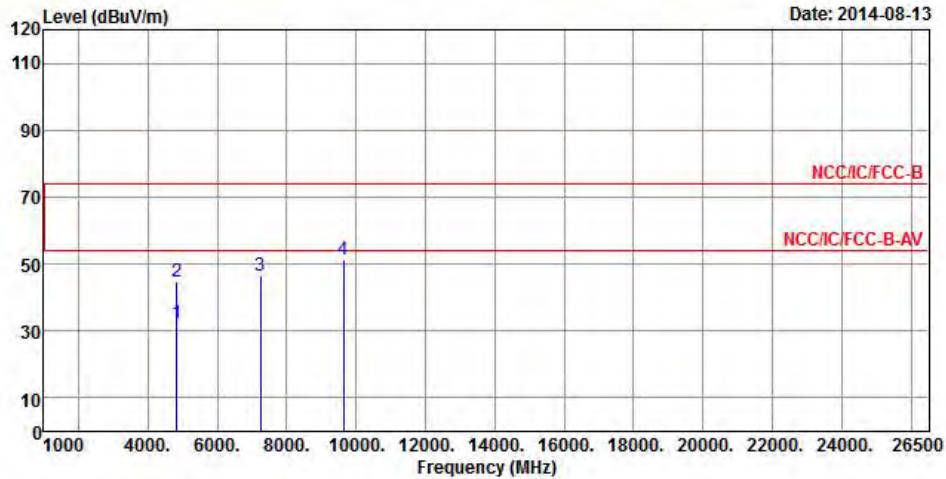
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (107.05 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Gain	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4824.00	32.39	-21.61	54.00	28.04	34.33	4.70	34.68	Average	---	---
2	4824.00	44.58	-29.42	74.00	40.23	34.33	4.70	34.68	Peak	---	---
3	7236.00	46.46			40.13	35.90	5.37	34.94	Peak	---	---
4	9648.00	51.39			43.80	36.59	6.35	35.35	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)

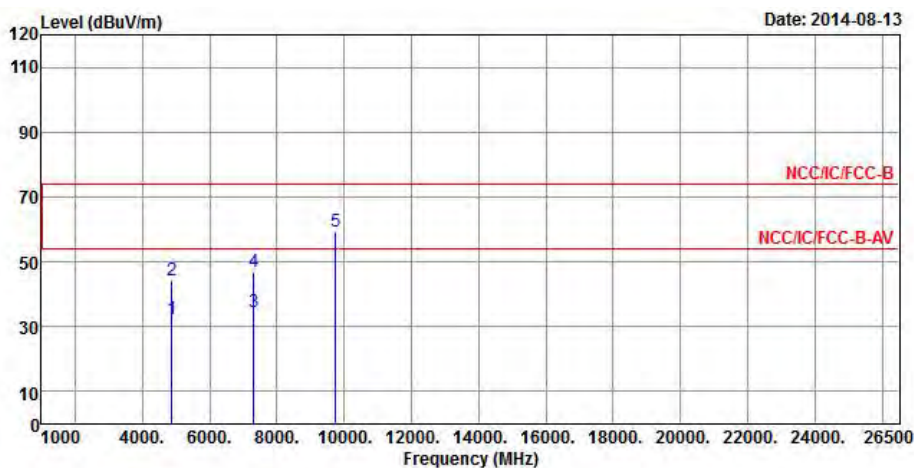
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.64 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4874.00	32.29	-21.71	54.00	27.91	34.32	4.73	34.67	Average	---	---
2	4874.00	44.43	-29.57	74.00	40.05	34.32	4.73	34.67	Peak	---	---
3	7311.00	34.51	-19.49	54.00	28.11	35.88	5.47	34.95	Average	---	---
4	7311.00	46.83	-27.17	74.00	40.43	35.88	5.47	34.95	Peak	---	---
5	9748.00	59.48			51.72	36.71	6.41	35.36	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)

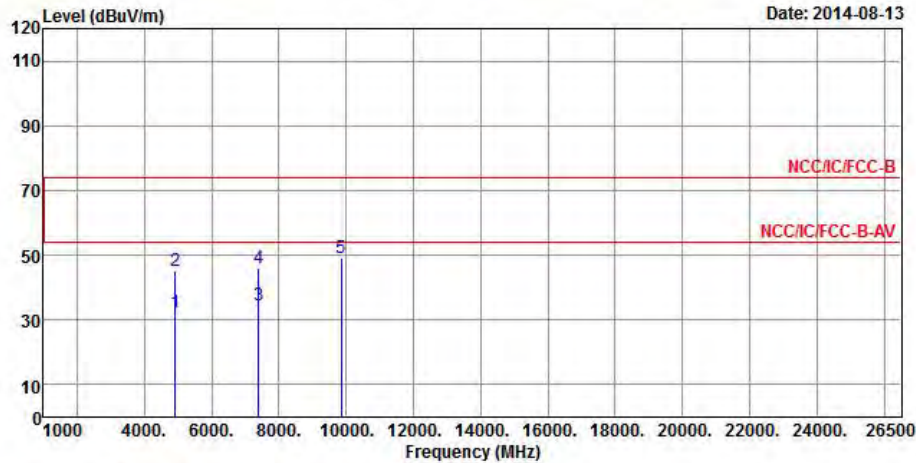
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.64 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (MHz)	2462
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4924.00	32.52	-21.48	54.00	28.08	34.31	4.79	34.66	Average	---	---
2	4924.00	45.33	-28.67	74.00	40.89	34.31	4.79	34.66	Peak	---	---
3	7386.00	34.36	-19.64	54.00	27.92	35.84	5.57	34.97	Average	---	---
4	7386.00	46.18	-27.82	74.00	39.74	35.84	5.57	34.97	Peak	---	---
5	9848.00	49.10			41.16	36.81	6.50	35.37	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)

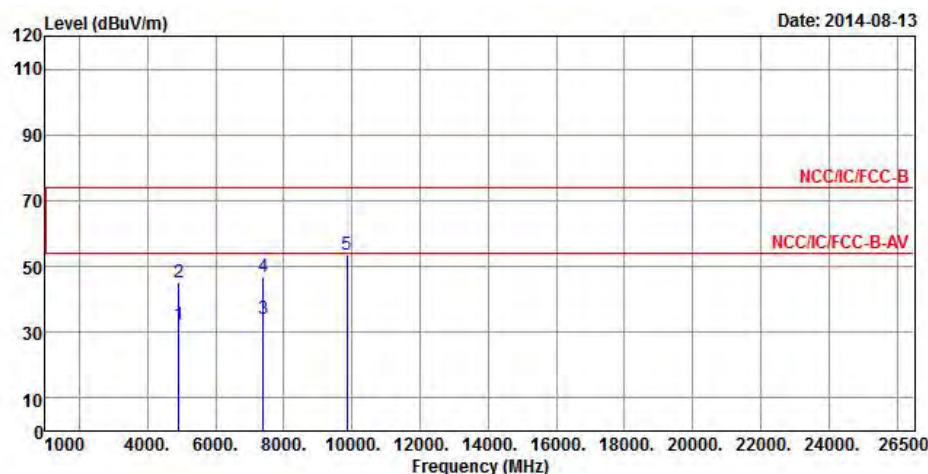
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (105.54 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (MHz)	2462
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4924.00	32.40	-21.60	54.00	27.96	34.31	4.79	34.66 Average	---	---
2	4924.00	45.29	-28.71	74.00	40.85	34.31	4.79	34.66 Peak	---	---
3	7386.00	34.25	-19.75	54.00	27.81	35.84	5.57	34.97 Average	---	---
4	7386.00	47.12	-26.88	74.00	40.68	35.84	5.57	34.97 Peak	---	---
5	9848.00	53.48			45.54	36.81	6.50	35.37 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)

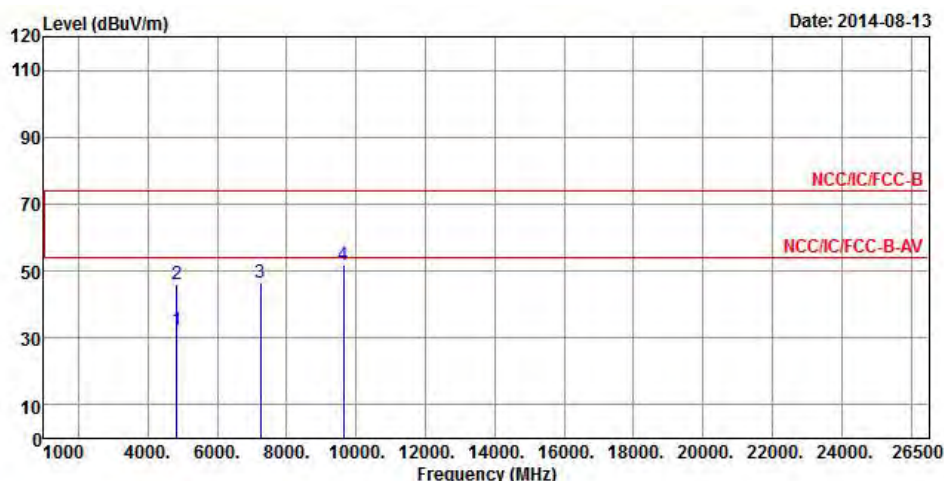
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (105.54 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2412
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4824.00	32.28	-21.72	54.00	27.93	34.33	4.70	34.68	Average	---	---
2	4824.00	45.98	-28.02	74.00	41.63	34.33	4.70	34.68	Peak	---	---
3	7236.00	46.69			40.36	35.90	5.37	34.94	Peak	---	---
4	9648.00	51.86			44.27	36.59	6.35	35.35	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)

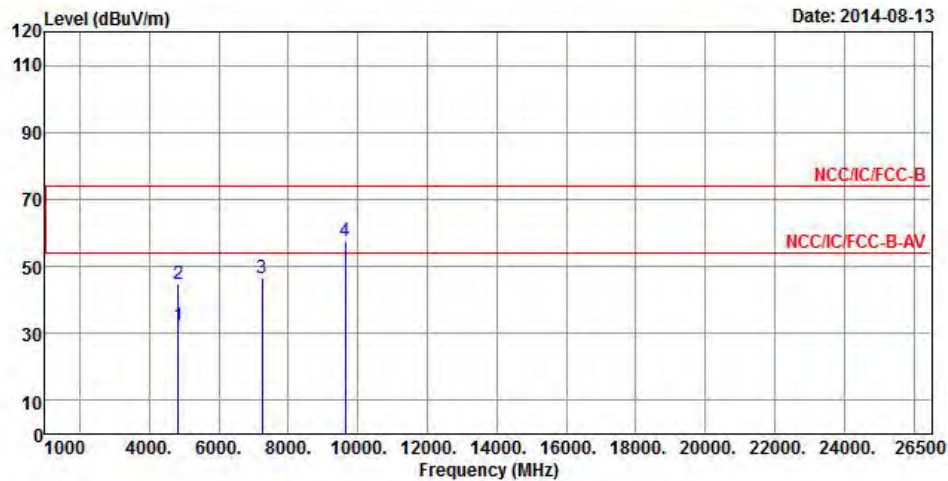
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (105.73 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2412
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4824.00	32.13	-21.87	54.00	27.78	34.33	4.70	34.68	Average	---	---
2	4824.00	44.78	-29.22	74.00	40.43	34.33	4.70	34.68	Peak	---	---
3	7236.00	46.67			40.34	35.90	5.37	34.94	Peak	---	---
4	9648.00	57.74			50.15	36.59	6.35	35.35	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)

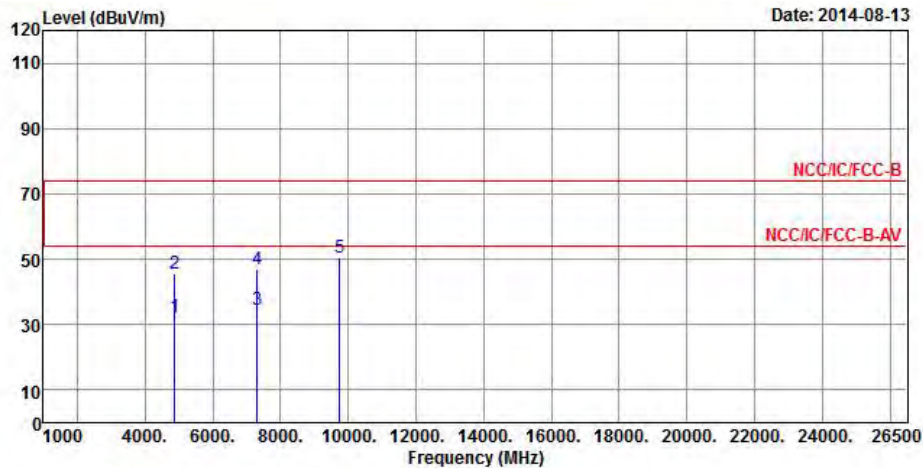
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (105.73 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4874.00	32.32	-21.68	54.00	27.94	34.32	4.73	34.67 Average	---	---
2	4874.00	45.60	-28.40	74.00	41.22	34.32	4.73	34.67 Peak	---	---
3	7311.00	34.44	-19.56	54.00	28.04	35.88	5.47	34.95 Average	---	---
4	7311.00	46.74	-27.26	74.00	40.34	35.88	5.47	34.95 Peak	---	---
5	9748.00	50.52			42.76	36.71	6.41		---	---

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)

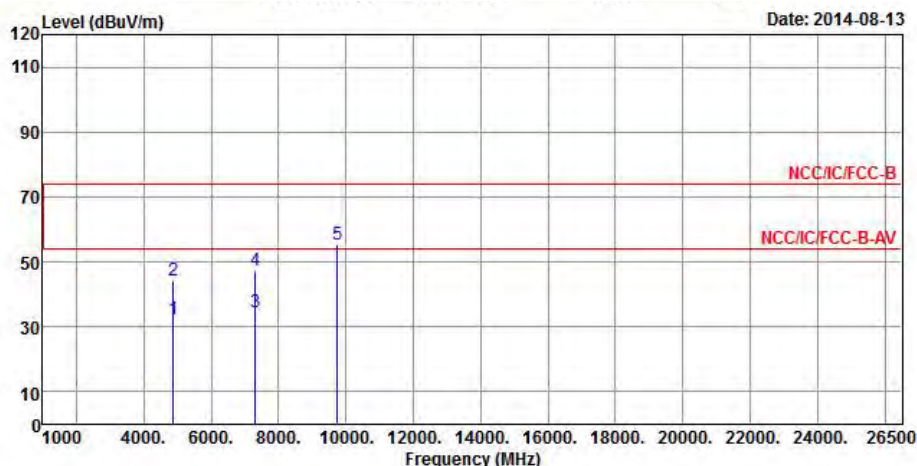
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.98 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4874.00	32.33	-21.67	54.00	27.95	34.32	4.73	34.67 Average	---	---
2	4874.00	44.34	-29.66	74.00	39.96	34.32	4.73	34.67 Peak	---	---
3	7311.00	34.50	-19.50	54.00	28.10	35.88	5.47	34.95 Average	---	---
4	7311.00	47.20	-26.80	74.00	40.80	35.88	5.47	34.95 Peak	---	---
5	9748.00	55.41			47.65	36.71	6.41	35.36 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)

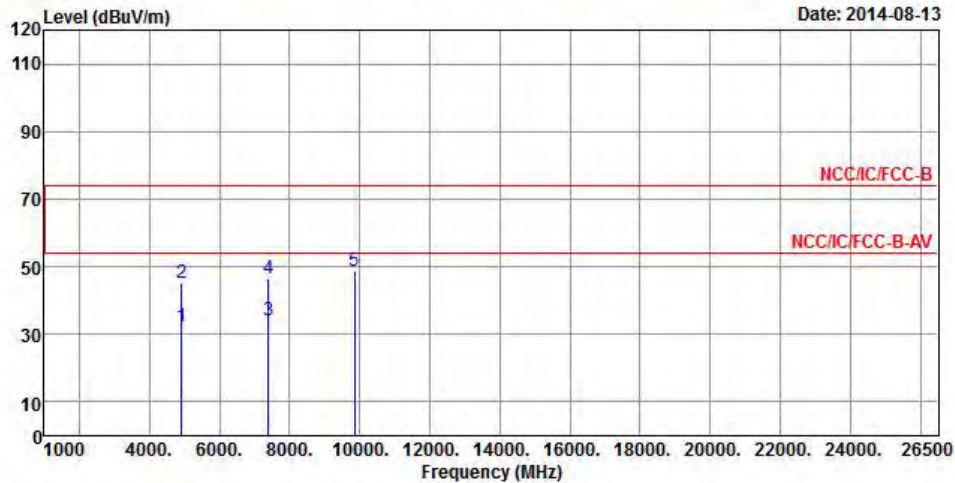
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level 106.98 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2462
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4924.00	32.40	-21.60	54.00	27.96	34.31	4.79	34.66	Average	---
2	4924.00	45.13	-28.87	74.00	40.69	34.31	4.79	34.66	Peak	---
3	7386.00	34.27	-19.73	54.00	27.83	35.84	5.57	34.97	Average	---
4	7386.00	46.64	-27.36	74.00	40.20	35.84	5.57	34.97	Peak	---
5	9848.00	48.89			40.95	36.81	6.50	35.37	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)

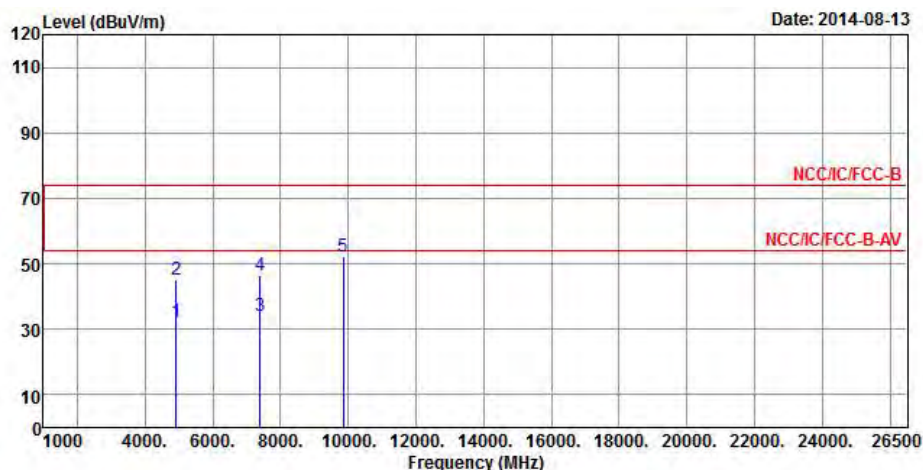
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.59 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	2462
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4924.00	32.43	-21.57	54.00	27.99	34.31	4.79	34.66 Average	---	---
2	4924.00	45.04	-28.96	74.00	40.60	34.31	4.79	34.66 Peak	---	---
3	7386.00	34.24	-19.76	54.00	27.80	35.84	5.57	34.97 Average	---	---
4	7386.00	46.54	-27.46	74.00	40.10	35.84	5.57	34.97 Peak	---	---
5	9848.00	52.34			44.40	36.81	6.50	35.37 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)

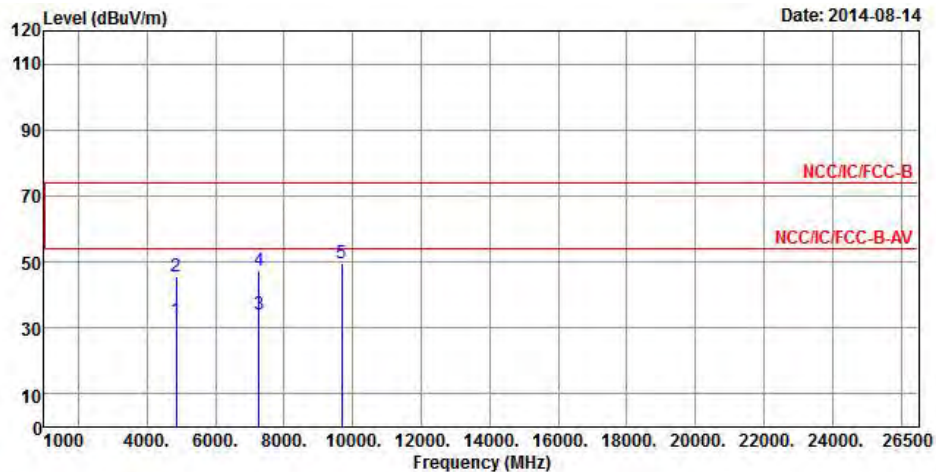
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (106.59 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2422
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4844.00	32.30	-21.70	54.00	27.92	34.33	4.73	34.68 Average	---	---
2	4844.00	45.57	-28.43	74.00	41.19	34.33	4.73	34.68 Peak	---	---
3	7266.00	34.28	-19.72	54.00	27.91	35.89	5.42	34.94 Average	---	---
4	7266.00	47.17	-26.83	74.00	40.80	35.89	5.42	34.94 Peak	---	---
5	9688.00	49.71			42.06	36.63	6.38	35.36 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)

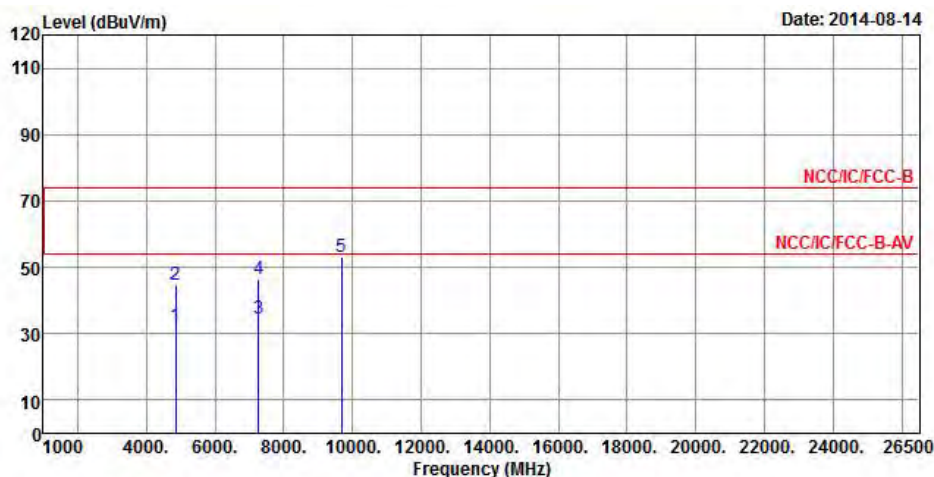
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (102.25 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2422
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4844.00	32.33	-21.67	54.00	27.95	34.33	4.73	34.68 Average	---	---
2	4844.00	44.79	-29.21	74.00	40.41	34.33	4.73	34.68 Peak	---	---
3	7266.00	34.40	-19.60	54.00	28.03	35.89	5.42	34.94 Average	---	---
4	7266.00	46.45	-27.55	74.00	40.08	35.89	5.42	34.94 Peak	---	---
5	9688.00	53.30			45.65	36.63	6.38	35.36 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)

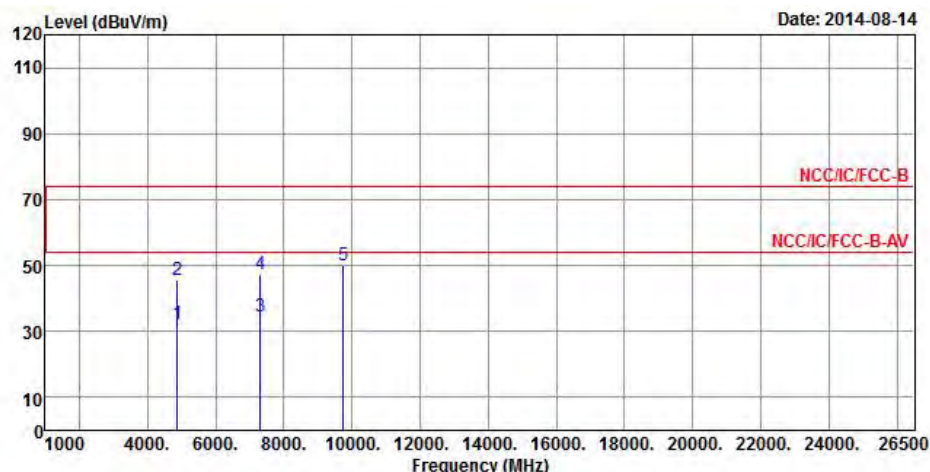
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (102.25 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4874.00	32.36	-21.64	54.00	27.98	34.32	4.73	34.67	Average	---	---
2	4874.00	45.60	-28.40	74.00	41.22	34.32	4.73	34.67	Peak	---	---
3	7311.00	34.48	-19.52	54.00	28.08	35.88	5.47	34.95	Average	---	---
4	7311.00	47.30	-26.70	74.00	40.90	35.88	5.47	34.95	Peak	---	---
5	9748.00	49.94			42.18	36.71	6.41	35.36	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)

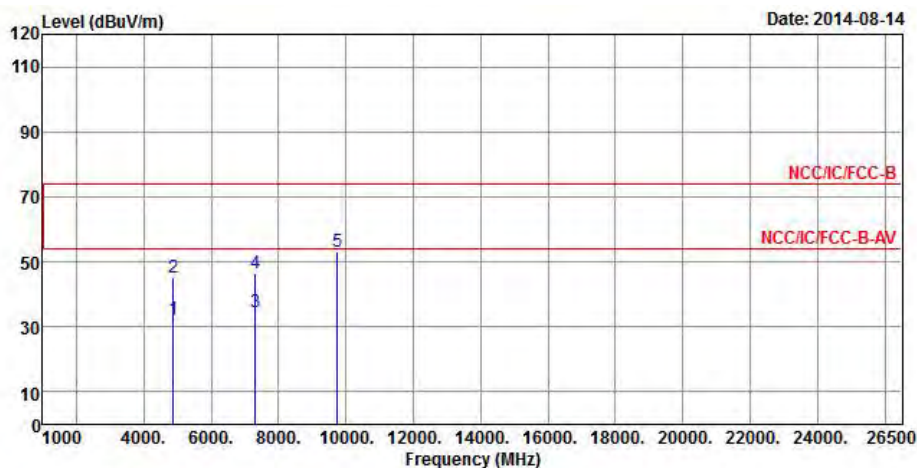
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (104.24 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2437
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	4874.00	32.40	-21.60	54.00	28.02	34.32	4.73	34.67	Average	---	---
2	4874.00	45.32	-28.68	74.00	40.94	34.32	4.73	34.67	Peak	---	---
3	7311.00	34.44	-19.56	54.00	28.04	35.88	5.47	34.95	Average	---	---
4	7311.00	46.35	-27.65	74.00	39.95	35.88	5.47	34.95	Peak	---	---
5	9748.00	53.34			45.58	36.71	6.41	35.36	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)

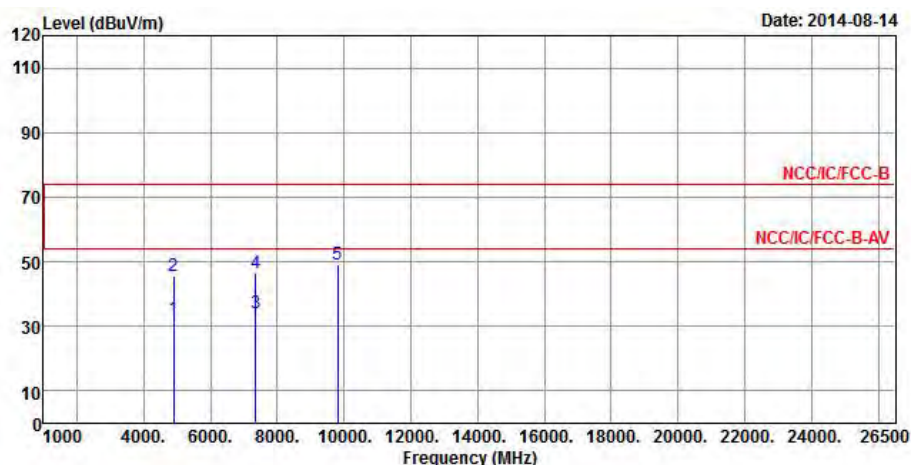
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (104.24 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2452
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamplifier Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4904.00	32.38	-21.62	54.00	27.96	34.32	4.76	34.66 Average		
2	4904.00	45.41	-28.59	74.00	40.99	34.32	4.76	34.66 Peak		
3	7356.00	34.12	-19.88	54.00	27.70	35.86	5.52	34.96 Average	---	---
4	7356.00	46.61	-27.39	74.00	40.19	35.86	5.52	34.96 Peak	---	---
5	9808.00	49.00			41.12	36.77	6.47	35.36 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)

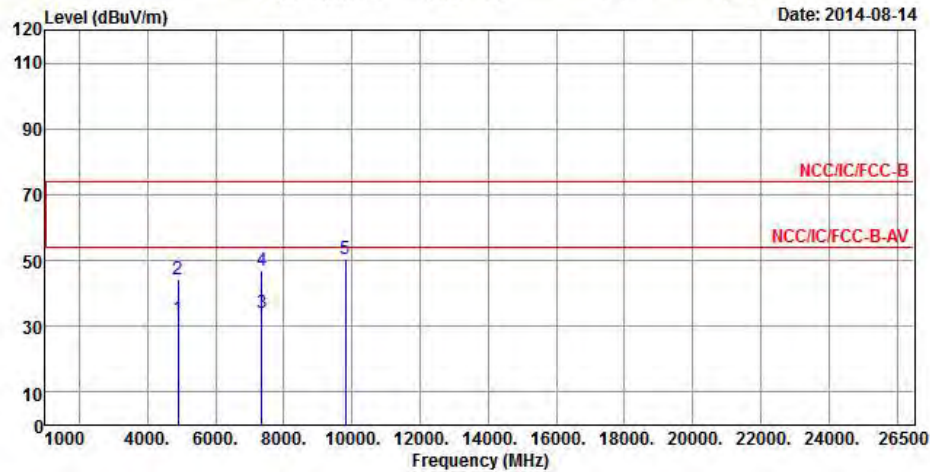
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (100.98 dBuV/m).

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2452
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4904.00	32.34	-21.66	54.00	27.92	34.32	4.76	34.66 Average	---	---
2	4904.00	44.25	-29.75	74.00	39.83	34.32	4.76	34.66 Peak	---	---
3	7356.00	34.26	-19.74	54.00	27.84	35.86	5.52	34.96 Average	---	---
4	7356.00	46.93	-27.07	74.00	40.51	35.86	5.52	34.96 Peak	---	---
5	9808.00	50.48			42.60	36.77	6.47	35.36 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 (100.98 dBuV/m).

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

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, 2014	AC Conduction
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2014	AC Conduction
RF Cable-CON	HUBER+SUHNER	RG213/U	7.61183201e+012	9kHz ~ 30MHz	Oct. 30, 2013	AC Conduction
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	AC Conduction

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	Oct. 03, 2013	Radiated Emission
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2014	Radiated Emission
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	Jul. 22, 2014	Radiated Emission
Amplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	Aug. 28, 2013	Radiated Emission
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 25, 2013	Radiated Emission
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jan. 10, 2014	Radiated Emission
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 09, 2013	Radiated Emission
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 05, 2014	Radiated Emission
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 10, 2013	Radiated Emission
Turn Table	Chaintek Instruments	3000	MF7802058	0~ 360 degree	N/A	Radiated Emission
Antenna Mast	MF	MF7802	MF780208205	1 ~ 4 m	N/A	Radiated Emission

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	Dec. 02, 2012	Radiated Emission

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